25/30/35B-7A

OPERATOR'S MANUAL

Table of Contents

Table of Contents	1
Brief Introduction	2
I Safety	3
1. Applications of Forklift Truck	3
2. Operating Sites and Working Environments of Forklift Truck	3
3. Safety Issues before Use	5
4. Safety Issues before Use and during Operation	8
5. Safety Issues during Service and Maintenance	
6. Safety Issues for Use of Battery	
7. Safety Issues for Installation, Adjustment, and Use of Attachments	
8. Label Plates	20
II Operating Devices and Operating Methods	25
1. LCD (Liquid Crystal Display) instruments	27
2. Switches Part	
3. Control Part	
4. Truck Body Part	
III Driving and Operation	34
1. Use of New Truck	34
2. Relationship between Load and Forklift Truck Stability	34
3. Load Center and Load Curve	34
4. Stability of Forklift Truck	
5. Conveyance and Loading-Unloading of Forklift Truck	
6. Starting Forklift Truck	
7. Running	
8. Loading	
9. Stacking	
10. Unpiling	
11. Storage	
IV Regular Examination and Maintenance	41
1. Examination Requirements	41
2. Examination Items	41
3. Maintenance	46
4. Regular Maintenance Timetable	
V Miscellaneous	59
1. Drawing of Lubricating System	59
2. Oils Used for Forklift Truck	60

• APPENDIX : LITHIUM-ION BATTERY INSTRUCTION-----61

Brief Introduction

This Manual shall be kept and repeatedly read by operators.

· The items of this Operating Manual include Correct Selection, Simple Maintenance, and Routine Examinations.

• Please read this Manual carefully, prior to operation, for proper driving and maintenance to ensure safety and effective material conveyance.

· Discrepancy may exist between the items of this Manual and the actual situation, for product improvement.

· Please lease or transfer this Manual together with the truck if the forklift truck is leased or transferred.

· Please contact the Sales Department of our Company if you are confronted with any issue.

Instructions for symbols with Δ are very important to your and other's safety and please follow this instructions.

	Indicating forthcoming dangerous situation and it will result in death or severe injury					
ZA Danger	if it is not avoided, while you must follow this instruction.					
	Indicating potential dangerous situation and it will result in death or severe injury if it					
	is not avoided, while you must follow this instruction.					
Autorian	Indicating potential dangerous situation and it may possibly result in slight or moderate					
ZA Attention	injury if it is not avoided, while you must follow this instruction.					
NI-1-	Sentences related directly or indirectly to personal safety and forklift truck					
Note	maintenance					

I Safety

Safety is your undertaking and liability. This chapter has mainly introduced the basic safety rules and warnings during normal use of the typical forklift truck. However these are applicable to the vehicles of special specifications with masts and attachments

1. Applications of Forklift Truck

(1) Main Applications of Forklift Truck

The main application of forklift truck is to convey the cargo on pallet, and is able to stack it on a certain height. In addition, after proper attachments are fitted with the forklift truck, it is also able to convey and stack cargos not placed on pallets.

(2) Prohibited for Use beyond the Applications

Application beyond applications means running after someone is carried, lifting someone to a very high altitude, or traction of other vehicles, etc. The application methods forbidden in this manual shall be absolutely prohibited nor allowed for use.

Demonstrations for Use beyond Applications:

- \cdot Someone standing on fork and pallet.
- \cdot Someone standing on pallet to press against cargo.
- \cdot Hanging steel wire directly on fork and going up to lift cargo.
- \cdot Traction of other vehicles.
- · Pushing cargo or other vehicles using fork.
- \cdot Opening/closing doors of other trucks using fork.



2. Operating Sites and Working Environments of Forklift Truck

(1) Ground Status

The operating sites of forklift truck should be flat and firm pavement or ground, and the ventilation condition is good.

The performance of forklift truck depends on the ground status, the running speed shall be properly adjusted, and special care shall be taken during running on inclined roads or rough pavements.

▲ Warning

 \cdot It shall be ensured for the trucks running on muddy roads are able to stop in time.

 \cdot Keep away from stones and stumps, and run slowly at a decelerated speed when they are unavoidable. Pay attention not to damage the chassis of truck.

Anti-skid chain shall be used during running on icy and snowy pavements, rush acceleration, rush parking, and rush turning shall be avoided, and the running speed shall be controlled through accelerator Pedal force.

▲ Warning

 \cdot The driving force of forklift truck may be increased, after anti-skid chain is fitted, but the side skidding performance is reduced, for which special attention shall be aroused.

(2) Climatic Conditions

▲ Warning

 \cdot Under the situation when wind power is very strong, try as much as possible to avoid high lifting actions of mast,

to avoid drop of cargo, which may cause accident injury to driver.

(3) Measures for Coping with Coldness and Torridity

a) Oils

Use oils adaptive to ambient temperature.

Hydraulic Oils: L-HM32 (\geq -19°C) is now used, and L-HV32 (\geq -33°C) is optional in highly cold regions.

Heavy Duty Truck Gear Oils: GL-5 85W/90(-15~49℃) is now used, and GL-5 80W/90 is optional in highly cold regions.

b) Battery

 \cdot The Freezing point of battery electrolyte will drop along with the reduction of density



It is observed from the above figure that when density of electrolyte drops to 1.13g/mm³, electrolyte will freeze at - 12°C. On this account, In cold season or under cold environment, close attention shall be paid to the density of electrolyte, especially the battery cannot be placed in a cold environment under the circumstances of power deficiency, freezing of electrolyte shall be prevented as it may give rise to battery damage.

 \cdot The capacity of battery will drop along with the decrease in temperature, while it will rise along with the increase in temperature.



In torrid season or under torrid environment, please supply distilled water or deionized water readily, as the moisture is liable top evaporate in torrid season, while it is not allowed to add other liquids, including purified water. It shall be examined once a week that the supply of distilled water enables the height for liquid level of electrolyte to be in the specified range. Due to the relatively higher activity of battery at high temperature, the capacity will turn larger, but it will shorten the service life of battery. Therefore, it is not allowed for the temperature of electrolyte to be higher than 50°C, during the process of electric charge or application, and it shall be tried to cool down and for cargo to be stopped for work if it exceeds 50°C.

For battery groups without liquid discharge holes with battery container, liquid suction pipe shall be timely preset to extract the liquid accumulated inside the container, to prevent corrosion of battery container.

 Δ Attention: For trucks only equipped with one group of batteries, it shall be tried as much as possible to recharge after the electricity has been completely discharged, to be fully charged before being launched in use, and otherwise it may affect the performance and service life of battery.

▲ Danger:

• Gas generated by battery may possible explode when confronted with fire. Don't smoke or use open fire nearby, especially during charge, and don't generate electric arc and sparks nearby battery. It shall be well ventilated when battery is stored in a closed space or is being charged. The sulfuric acid contained in battery may cause burning. Don't splash sulfuric acid to eyes, skin, and clothes. If sulfuric acid is contacted, flush immediately using clear water, and shall go to hospital when sulfuric acid is splashed into eye.

(4) Working Environment

When temperature is at -15°C \sim 40°C, humidity is 50 \sim 70%, and the height above sea level is \leq 1800m, this forklift truck is able for normal work.

Under special working environments, this forklift truck may possibly be unable to be used at standard specification. Make sure to consult with and inquire from our Company, if the forklift truck may possibly be used under following environments.

· Harbor or seashore areas with danger of salt corrosion.

· Chemical factories where forklift truck may possibly affected by acid liquids of other chemical medicines.

· Environments where danger for initiation of explosion may possibly exist for dust or explosive gases.

 \cdot Cold or torrid regions or high-altitude regions.

· Environment where certain amount of harmful substance is discharged.

· Do not operate and use forklift truck unwillingly under atrocious climatic conditions such as simultaneous occurrence of lightning storm or strong wind, etc, and the forklift truck can only be operated and used after visibility has turned good waiting for fog to clear away as in another instance during the happening of dense fog.

3. Safety Issues before Use

(1) Acquirement of Operating Qualification

▲ Attention

 \cdot Only those operators who have been trained and approved can be allowed to operate forklift truck.

 \cdot The properties of brake, accelerator, and hydraulic control handle for each forklift truck with same technical parameters may not be the same completely. Carefully read this Manual and the label plates on the truck, and get familiar with respective operating items, before driving the forklift truck.

(2) Dress during Driving Forklift Truck



▲ Attention

· Please put on work clothes, labor protective shoes, and wear safety helmet when truck is driven.

• Please don't wear loose clothes, for the sake of safety, to avoid being caught up on leading to unexpected danger.

(3) Driving Forklift Truck after Alcoholic Drinks Strictly Prohibited \triangle Attention

Please don't drive the forklift truck when you feel tired, and not concentrated, or after taking anesthetic or drunk alcoholic.
(4) Safety of Working Site

▲ Attention

 \cdot Before operation and use of forklift truck is begun, water, oil, sand, ice, or snow, and other conditions leading to slippery must



be removed first, as such pavements may very possibly result in driver's loss of control over forklift truck. • Don't allow forklift truck to run on rugged pavements or pavements with tracks as well as pits and ditches, or on the pavements with sharp protrusions, as all such pavements may possibly injure the forklift truck or give rise to danger for turnover of forklift truck. Forklift truck must run on smooth pavements, to avoid danger occurrence.

• If the noise of working environment is too high, it will disturb the driver and for driver to get tired very easily. Danger may also happen for pedestrians as they have no way to notice the cautious sounds of forklift truck. On this account, driver must pay doubled attention to the surrounding safety when forklift truck is used under noisy environment.

 \cdot Sufficient light source must be available on working sites, for the need of safety.

 \cdot During operation on platform or gangway board at dock, tipping danger exists with forklift truck. Please use cushion blocks or take other protective measures to prevent turnover.

(5) Keeping the Driver's Cab Clean

▲ Attention

 \cdot The driving cab shall always be kept clean.

• Please don't operate forklift truck, when hand is wet and skidding or is oil stained.

 \cdot Don't put tools or other metal objects in driving cab, which may hinder the actions of control rod or pedal.

(6) Integrity of Forklift Truck

▲ Attention

 \cdot Overhead guard and backrest shall be equipped when forklift truck is delivered from factory.

Notes:

 \cdot Overhead guard is used for protection against drop of objects. What's worth attention is the overhead guard is used for protection against impaction of dropped small objects and cabinets, but cannot hold up the dropping impaction of rated loads.

Protective measures for falling objects shall be taken beforehand.

▲ Warning



• Without the approval in writing of our Company, it is not allowed to refit or add any operating devices to forklift truck, and otherwise it may possibly affect the rated load or safe operation.

· Avoid installing any parts that may block off the driver's sight line.

(7) Regular Maintenance

\triangle Attention

 \cdot Performing daily examination and repair as well as regular examination and repair

⚠ Warning

 \cdot When forklift truck is found to be damaged or present with failure, stop operation and timely notify the maintainers about the status of forklift truck. The forklift truck cannot be operated before it has been thoroughly examined and repaired.

(8) Avoiding Fire Hazard

▲ Attention

In order to prevent the occurrence of fire hazard, accident, or other unpredictable state of affairs, set the fire extinguishers properly, and operate the fire extinguishers according to their application requirements.
(9) Overloading Prohibited

\triangle Attention

 \cdot Avoid overloading, observe the allowable load and load curve of forklift truck, and allow the center of gravity for the cargo to be located in the place of load center.

Note

 \cdot Allowable load means the maximum load of cargo placed in the area of fork load center.



(10) Using Proper Pallet

 \triangle Attention

- \cdot Use pallet with both proper size and strength to bear the weight of cargo.
- \cdot Ensure that the cargo is fixed on pallet, and has proper shape.
- \cdot It is prohibited to convey cargo without pallet.



4. Safety Issues before Use and during Operation

(1) Notices during Initial Startup

▲ Attention

 \cdot Pull up hand brake.

 \cdot Adjust seat, to facilitate hand/foot control.

 \cdot Ensure that there is no person on, under, in front of, or behind the forklift truck.

(2) Safety Status around Forklift Truck

▲ Attention

• When bulky cargo is carried, and when sight line is not satisfactory, please reverse running or be guided by others.

• During reverse Running, it is required to face the rear area, and run after direct confirmation of the rear area. Rearview mirror and reversing buzzer are the auxiliary devices.

 \cdot Person shall be available for guide when forklift truck is driven in a narrow passage.

• Driver shall park the truck at the crossroad or other places where line of sight is blocked off, and the truck is to be re-driven when it has been confirmed that there is no person on left or right.

• Ensure that there is enough safety distance between forklift truck and roadside or the edge of platform, to prevent fall-off of forklift truck.

• Forklift truck is different from automobile, as it is steering with rear wheels. Decelerate running speed, when turning place is approached, and then turn steering wheel for the rear part of forklift truck to turn.

(3) Aggressive Driving Prohibited

 \triangle Attention

 \cdot Avoid turning on key switch, under the situation of pushing down accelerator pedal.

 Avoid sudden start, brake, or turning. Sudden start or brake may give rise to fall-off of cargo, while sudden turning may lead to turnover of forklift truck and result in severe accident.

 \cdot Operate the control handle in both cases, no matter it is under full load or empty load status. When fork is at high position, it may cause danger for fall-off of cargo or turnover of forklift truck.

((keep awa

Notes

 \cdot Avoid running over the baffle or obstacle dropped to pieces on ground

- \cdot Decelerate running speed and hoot, when passing other forklift trucks.
- \cdot Avoid running into soft ground.
- · Please decelerate running speed, when running on damp, slippery, unsmooth, or inclined pavements.
- \cdot Ensure that there is certain clearance between mast and roof as well as access door.



(4) Driving during Rise of Fork Prohibited

\triangle Attention

 \cdot Avoid driving forklift truck when fork is rising, and otherwise it may cause unstable status and possibly result in turnover of forklift truck.



(5) Work with Fork Prohibited

▲ Attention

· Avoid squeezing and pushing cargo or lifting cargo using fork tip, and it may cause jitter of forklift truck or cargo, when fork tip is used for lifting cargo.



(6) Push/Pull Operation Prohibited

\triangle Attention

 \cdot It is not allowed to push/pull cargo using forklift truck, and otherwise cargo may possibly be damaged or fall off.



(7) Driving on Ramp

▲ Attention

· Following rules shall be observed when forklift truck is driven on a ramp.

With Load: Forward running during upgrade, while backward running during downgrade

No Load: Backward running during upgrade, while forward running during downgrade

 \cdot Run the forklift truck with brake during downgrade, and ensure that the fork and the ground do not bump into each other.

 \cdot Avoid steering or loading-unloading operation on a ramp, and otherwise there is danger for forklift truck to turn over.

(8) Offset Load Stacking Prohibited

 \triangle Attention

• It must be ensured that cargos are arranged and placed safe and steady during stacking using forklift truck, while fork shall be accurately inserted into pallet, and at the same time the center of gravity for the cargo and the center of forklift truck shall be maintained consistent.

 \cdot When offset loaded cargo is conveyed, it is liable for cargo to fall off, and forklift truck to turn over.





- (9) Anyone on/under Forklift Truck Prohibited
- ∆ Warning
- \cdot It is strictly prohibited to carry anyone on fork or pallet.
- \cdot It is not allowed for anyone to take the forklift truck except driver.
- \cdot Avoid using anyone to replace counter weight.
- \cdot It is prohibited for anyone to stand on cargo and pass under the fork.





(10) Entry into Mast Mechanism Prohibited

\triangle Warning

 \cdot It is prohibited for any part of human body to enter into between the mast mechanism and the truck body.

\triangle Attention

• Please place your body under the overhead guard, and it is not allowed to stretch any part of your body outside the truck body.



(11) Rise of Fork Prohibited, during Forward Tilt of Mast

\triangle Attention

• During forward tilt of mast, it is not allowed to lift cargo or start forklift truck, and the mast shall be back tilted to place when cargo is lifted or forklift truck is started, to stabilize cargo. During running (with load or without load), the distance between the fork and the ground shall be maintained at 150-200mm.

- \cdot It is not allowed for mast to tilt forward, under the status when cargo is being forked.
- \cdot The forklift truck shall be stopped first when cargo is to be lifted.
- \cdot Avoid loading-unloading cargo, when forklift truck is under the tilted status.



(12) Into-Carriage Operation

▲ Attention

 \cdot Loading-unloading operation can only be performed on cargo deck with trailer properly fixed for forklift truck.

• Fix bridge piece properly and examine its strength, prior to start of operation.

 \cdot Decelerate the truck during access into the carriage, and pay attention to the safety of bridge piece.

(13) Getting on/off Forklift Truck

▲ Attention

 \cdot It is prohibited to jump on/off the forklift truck.

 \cdot Hold the handle with hand, and step the foot on pedal, when getting on/off the forklift truck.

 \cdot It is not allowed to hold steering wheel or operating rod, when getting on/off the forklift truck.

(14) Cargo Super elevation Prohibited

▲ Attention

• Cargo shall be placed against the backrest. The height of cargo cannot exceed the backrest, and otherwise it is liable to cause cargo slide towards the direction of operator, while driver may possibly be bruised by cargo.

 \cdot The superposed stacked cargo shall be properly fixed using rope before conveyance, to prevent collapse.

(15) Anti-loosening of Chain

 \triangle Attention

 \cdot When chain is loose, avoid extracting the fork from inside the pallet, and otherwise it may cause fall-off of cargo or turnover of forklift truck.



Notes

 \cdot When chain is loose, pull a little bit the lifting handle upward, for fork to rise, so as to correct the loose status of chain.

• When value of change in chain pitch exceeds the standard value by 2%, the chain must be replaced, to ensure the load-bearing safety.

(16) Fork Adjustment

 \triangle Attention

• Adjust the spacing of fork to the most proper position, according to the size of pallet for loading cargo. Pay attention not to push down to hand, during adjustment.

• After for spacing adjustment is completed, fix the fork using fork fixed pin. If it is not fixed, it is liable to move during running process cargo may possibly fall off, and may also possibly squeeze the cargo into pieces.

(17) Conveyance of Super width Cargo

▲ Attention

• Pay special attention to driving, when super length and super width cargo is conveyed.

 \cdot Slow down during both steering and lifting cargo, to avoid cargo movement, and at the same time pay attention to surrounding safety.

• When super width cargo is .conveyed, it is required for forklift truck to be equipped with proper widened fork carriage and lengthened fork. Its load-bearing capacity shall be within the specified center of load, and its load-bearing capacity is the same as that of the standard fork carriage, but the center of cargo shall be superposed as much as possible with the center of forklift truck, with offset to be controlled within 100mm from the center of 1-4t forklift truck, and within 150mm with offset from the center of 5-10t forklift truck. Its load-bearing capacity is the same as that of the standard fork, and once the center of load moves forward, make sure for load reduction.

(18) Bare-handed Unloading Prohibited

▲ Attention

 \cdot Don't unload cargo using hand, as falling danger exists with cargo.

(19) Parking of Failure Truck

Notes







· If forklift truck is parked at roadside, caution or "Failure" shall be marked on the truck, and the key shall be pulled off.

· If fork cannot be dropped for failure, a rather obvious mark shall be made in this place, to prevent bumping into other vehicles and pedestrians.

(20) Notices after Work Completion and Departure from Forklift Truck

Notes

• Mast shall tilt forward slightly, while fork shall be dropped naturally, and otherwise, danger for stumbling and injuring other's human body may exist.

- \cdot Place the direction hand on neutral position.
- \cdot Pull up the parking brake handle.
- \cdot Turn off the key switch and take off the key.



(21) Parking

\triangle Attention

- \cdot Please park the forklift truck in the designated place.
- \cdot Enough strength must be available in the parking place and it will not hinder traffic safety.
- \cdot It is prohibited to park in or nearby the place of inflammables.

· It is prohibited to park on a slope, as unpredictable movement may occur with forklift truck. If it has to be parked on a ramp, stopping blocks shall be added in the places of tires to prevent movement of forklift truck.



(22) Noise

The maximum noise value outside the forklift truck shall not be larger than 89dB (A), and the measurement method is to be executed according to JB/T3300 Standard. Measure the noise with sound pressure level in the place of driver, and measure the noise with sound power level around.

\triangle Attention

 \cdot Noise value may increase, in both cases when working pavement is rough or rugged, and distortion of tire is large.

5. Safety Issues during Service and Maintenance

(1) Sites for Maintenance and Service

 \triangle Attention

• They shall be the designated sites and able to provide the service office with enough equipment and safety protective facilities.

 \cdot This site shall be a level ground.

- \cdot This site shall be well ventilated.
- · This site shall be provided with fire extinguishing devices.
- (2) Notices before Maintenance and Service

▲ Attention

· No smoking

 \cdot Wearing various protective appliances (safety helmet, shoes, goggles, gloves, and boots) and suitable clothes

 \cdot Wiping off the effluent oil timely

· It is required to firstly clean up the original dirty oil and dust on the joints using brush or cloth, and then to add lubricating oil, when lube is added.

 \cdot It is required to turn off the key switch and pull off the battery plug, except for the needs in some cases.

 \cdot It is required to drop the fork to ground, when the forklift truck is maintained and serviced.

 \cdot Use compressed air to clean electrical components, and it is not allowed to use bottled gas or steam.

(3) Notices for Maintenance and Service

▲ Attention

 \cdot It is required to take care not to place the foot under the fork, and not to be stumbled by the fork.

 \cdot It is required to fill up cushion blocks and other objects under the inside mast, when fork is raised, to avoid sudden drop of the fork and the mast.

 \cdot It is required to carefully open and close the front bottom plate and the battery container cover plate, to avoid finger extrusion.

· It is required to make a mark to facilitate later continued work, when it cannot be completed for a single time.

· Avoid maintenance work before the internal pressure of oil circuit is dropped, as very high pressure exists in hydraulic circuit.

 \cdot It is required to see doctor for diagnosis and treatment immediately, when anyone is injured by HP electricity.

 \cdot Don't use the mast assembly as a ladder.

 \cdot It is strictly prohibited to put your hand, foot, and body in between the truck frame and the mast.

• When maintenance and service are performed during heat engine, please pay attention that the temperature of transmission device or hydraulic system is possibly rather high. On this account, the truck shall be cooled down prior to maintenance and service, to prevent accidental scald.

(4) Examination and Replacement of Tire

▲ Attention

 \cdot Tire shall be disassembled and assembled by the service office designated by our Company.

 \cdot It is required for professionals to convey the HP air.

 \cdot It is required to wear safety goggles, when compressed air is used.

 \cdot Don't loosen the bolts and nuts in the connecting place of wheel rim, when tire is disassembled, as HP gas is available inside the tire, and loosening of bolt, nut, and rim may give rise to very dangerous situation.

(5) Use of Jack (during Tire Replacement)

 \triangle Warning

 \cdot It is not allowed for human body to get into under the forklift truck, when jack is used to jack up the truck.

▲ Attention

· It shall be ensured that there is no body and no load either on the forklift truck, when jack is used to jack up the truck.

· It is required to stop using jack, when wheels of forklift truck are off ground, and fill up the cushion blocks under the truck, to avoid drop of the forklift truck.

 \cdot Actions shall be taken not to allow forklift truck to slide, before jack is used to jack up the truck.

(6) Requirements for Discharge of Wastes (Electrolyte Waste Liquid, and Oil, etc)

▲ Attention

• The waste liquids on the forklift truck shall be recovered according to the stipulations of local government, and it is not allowed to discharge them at discretion.

6. Safety Issues for Use of Battery

(1) No Smoking

 \triangle Attention

• The battery will separate out hydrogen during the process of charge and application, and it may possible cause explosion and fire hazard, when electric sparks and lighted cigarette get close to the battery.



(2) Prevention of Electric Shock

▲ Attention

· Battery has high pressure and energy. Don't touch the conductor of battery, during installation and maintenance, and otherwise electric shock or severe bruise may possibly happen.

(3) Correct Connection

 ${\rm I}{\rm Attention}$

• The positive and negative poles shall not be reversely connected, when battery is charged, and otherwise it may possibly cause high temperature, burning, smoke, or explosion.

(4) It is prohibited to put metal objects on the battery.

 \triangle Attention

 \cdot Don't allow the contact of positive and negative poles because of bolt or tool which may cause short circuit, and will possibly give rise to injury and explosion.

(5) Over discharge Prohibited

▲ Attention

 \cdot Avoid using the forklift truck up to the time when it is unable to move anymore before it is stopped, and otherwise the battery service life will be shortened. It is required for battery to be charged, just when alarm indicator light for capacity of battery flashes continuously.

(6) Keeping Clean

 \triangle Attention

 \cdot Keeping Clean the Surface of Battery

 \cdot Don't use dry cloth, and chemical fiber fabric to clean the surface of battery, and don't use polyethylene film to cover the battery, as such operation may possibly generate static electricity which may initiate accident.

 \cdot Clean the uncovered top part of battery using wet cloth.

- (7) Wearing Protective Suit
- ▲ Attention

 \cdot It is required to wear safety goggles, rubber gloves and rubber boots, when battery is maintained.



(8) Battery Electrolyte Harmful to Human Body

▲ Attention

· Battery electrolyte is made of diluted sulfuric acid, and care shall be taken during conveyance.

 \cdot When electrolyte is adhered to eye, skin, and clothes, it may possibly cause visual injury and bruise.

(9) Emergency Treatment Method

Notes:

When accident happens, emergently and immediately contact the doctor according to the following methods.

 \cdot When splashed on skin: It is required to wash for 10-15 minutes using water.

 \cdot When splashed into eye: It is required to wash for 10-15 minutes using water.

· When it is contaminated in a large area: Neutralize battery electrolyte using baking soda (sodium bicarbonate)

or wash the contamination using water.

 \cdot When it is swallowed: Drink large quantities of water and milk.

When splashed on clothes: Take off the clothes immediately.

(10) Fastening down the upper cover of battery

▲ Attention

 \cdot Fasten down the upper cover of battery to prevent leakage of battery electrolyte.

• Pay attention not to add too excessive electrolyte, and overspill of electrolyte may cause electric leakage.

(11) Cleaning

▲ Attention

· Avoid cleaning the forklift truck when battery is on the truck, and otherwise it may cause battery damage.

 \cdot Battery cannot be flushed with water, and shall be wiped using clean wet towel.

 \cdot Screw down the battery upper cover to prevent water inlet.

(12) Abnormal Effects of Battery

▲ Attention

Please contact the Sales Department of our Company, when following situations occur with battery:

· Battery smells.

- \cdot Electrolyte turns to be turbid.
- · Temperature of electrolyte turns to be high.
- · Reducing speed of electrolyte is too fast.
- (13) Disassembly Prohibited
- ▲ Attention

 \cdot Don't extract electrolyte from batter up to the degree when pole plate is exposed in the air.

 \cdot Don't split the battery.

 \cdot Don't repair the battery.

(14) Storage

 \triangle Attention

• The battery shall be fully charged and stored in a well ventilated and not liable for occurrence of fire hazard, when it is not used for a long time. Supplementary charge is to be made once a month, and equalizing charge is to be performed once for every three months.

(15) Disposal of Scrapped Battery

▲ Attention

· It is required to contact the Sales Department of our Company, when scrapped battery is disposed.

- 7. Safety Issues for Installation, Adjustment, and Use of Attachments
- (1) Installation of Attachments

In order that the attachments will not slide leftwards and right wards along the fork carriage of forklift truck during operating process, resulting in safety issue, make sure for the installation to be rational, reliable, and safe. After being put up and installed, the attachments with upper hooked stop blocks shall be embedded into the gaps of the meshed crossbeam, for the offset of centerline for attachment and the center of fork carriage to be within a ranger less than 50mm, and otherwise it may affect the traverse stability of forklift truck. After being put up and installed, the attachments (paper roll clamp, bale clamp, multi-purpose clamp, and barrel clamp) shall be welded with stop blocks on both sides in the places connected between crossbeam on the fork carriage and the attachments, to prevent the occurrence of leftward and rightward slide of attachments during operating process. When attachments with lower hooked locations are installed, the same time shall be properly adjusted.

The form of Hook installation for attachments of various medium and small tonnages in the world are all adopted, and the requirements of international standard ISO 2328 (Installation Dimensions of Hook Fork and Fork Carriage for Forklift Trucks" must be strictly followed to select the attachments to match the forklift truck. (2) Use of Attachments

a) Operation of attachments with forklift trucks shall be provided with practical experience in driving and operation of forklift trucks, and at the same time it is required to firstly get familiar with related instructions on the label plates for the attachments of forklift truck, read relevant operating manuals (especially the user guides, installation instructions, and other data of professional companies for attachments), and fully understand the basic performances and operating methods of attachments for the forklift truck, especially it is required to have

a fairly detailed understanding about the allowable loads and lifting heights of the attachments as well as the dimensions of cargo and the applicable scopes of attachments.

b) When attachments of forklift truck with multiple functions are operated, it shall not allow the two actions to be performed at the same time, and the other action must proceed only after one action has been completed. c) It is strictly prohibited for attachments of forklift truck to be used overloaded, and unbalanced loading at high cargo position is not advocated. It can only be operated in a short time for the unbalanced loading operation at high cargo position (especially when it is the flat clamp of side-moving type with combination valve used for control, namely the flat clamp shared by side-moving cylinder and adjustable distance cylinder), while the offset shall be strictly controlled within a range of 100mm both leftward and rightward, respectively.

d) It is strictly prohibited for attachments of forklift truck to run under the status of high cargo position.

e) It is strictly prohibited for anyone to stand within a 1.5m range under the attachments of forklift truck and under the shadow of cargo (except for the driver's position protected with overhead guard), to avoid accident.f) It is strictly prohibited for attachments of forklift truck to perform emergency brake to the CBU during the running process, and it is required to run at a slow speed when the truck is loaded.

g) Any modifications in the aspects of attachments for forklift truck related to safety and performance are strictly prohibited, without the technical approval of our Company.

▲ Attention

"Bearing Capacity of Attachments" indicated in the samples of manufacturers for various attachments is only a kind of evaluation of estimate for the attachments themselves under stress, while it is not the bearing capacity of attachments adaptable to this large system of the whole forklift truck. The rated bearing capacity of forklift truck shall be taken as the bearing capacity, and the bearing capacity of attachment themselves is the smallest among the three integrated bearing capacities of CBU. As the actual rated bearing capacity on the final data plate after forklift truck is matched with attachments, so long as the mass of cargo conveyed does not exceed this allowable value, it may satisfy applications of various working conditions. Generally speaking, the integrated bearing capacity of CBU is the smallest numerical value among the three after calculation.

8. Label Plates

Label plates pasted on truck are used to indicate operating methods and notices of truck. This is not only the consideration for you, but also the consideration for the truck. Please re-paste the label plate immediately, after any of them is dropped out.

- (1) Safety label plate
- ∆ Warning



(2) Label Plate of Notices for Use

 ${\rm I}{\rm Attention}$

Notices for Use of Battery
1. Slowly add proper distilled water and dibuted sulfuric acid solution to the designated level position of float.
Open all the battery covers and ensure a good ventilation
whenbattery is charged.
3. It is required to close the battery cover during operation of
forklift truck to avoid leakage of electrolyte.
4. Vertically hoist the battery away from the forklift truck first and place it on a level ground when electrolyte is replaced to avoid leakage of electrolyte.
S. Frequently clean the support on chassis to avoid corrosion
by electrolyte.

- (3) Data Plate for Fork Loading-Unloading Truck
- ${\rm I}{\rm Attention}$

COUNTER	RBALANCED B	BATTERY FORKLIF	T TRUCK	(
Model. Type					•
Series No.		Equi	ment NO.]
Service Weight	F	g Weight Without Batt	ery	K	g
Nominal Voltage/ Capacity	₹/	h Max. Allowable Batt	ery Weight	K	g
Tilt Angles (F/R)	°/ °	Min. Allowable Batt	ery Weight	K	g
Nominal Load Center		m Rated Capacity		K	g
Manufacture Date		Ex-factory. date			
	Load Center	Maximum Fork Height	Capacity	AT Max. L. H	
without attachment	m	nm		Kg	
with attachment	mm	m		Kg	

(4) Label Plate for Lubricating System Drawing



- (5) Label Plate for Load Curve Diagram(Demonstration)
- ▲ Attention



- (6) Label Plate for Operating Notices
- ▲ Attention



- (7) Label Plate for Maintenance Notices
- ▲ Attention

	Attention for Maintenance of Battery
1. Ve	oltage mustn't be lower than 85% of rated voltage when using battery.
2. Ee	ualize charging must be carried out in 24 hours after using. Please
cha: proi	ge adequately for the battery while excessive charging should be ibited.
3. P	ease add distilled water and dilute sulfuric acid regularly in order to
keep	o normal specific gravity and lever of the electrolyte.
4. P	ease charge adequately for long term storage and carry out equalize
chai	ging per month.
5. TI	e temperature of battery should not be exceeded 55°C. Please keep the
bati	ery far away from the fire.

(8) Label Plate for Adding Hydraulic Oil

Note:



- (9) Label Plate for Tire Safety (Pneumatic Tire)
- ${\rm I}$ Warning



(10) Label Plate for Lifting \triangle Attention



- (11) Label Plate for Prohibition from Entering Rear Space of Mast
 - ∆ Warning



(12) Data Plate for Tire Air Pressure (Pneumatic tire) (Demonstration)



(13) Label Plate for Attention to Hand Injury

⚠ Warning



II Operating Devices and Operating Methods



- 1. Outside Mast
- 2. Inside Mast
- 3. Lifting Cylinder
- 4. Lifting Chain
- 5. Backrest
- 6. Fork Carriage

7. Fork

- 8. Front Wheel
- 9. Tilting Cylinder
- 10. Rear Wheel
- 11. Side Plate
- 12. Battery Container Cover
- 13. Overhead Guard
- 14. Counterbalance Weight
- 15. Seat
- 16. Front Combination Light
- 17. Steering Wheel



- 1. Brake Liquid Lid
- 2. Left Instrument Panel
- 3. Hand Brake
- 4. Direction Switch
- 5. Horn Pushbutton
- 6. Steering Wheel

- 7. Emergency Parking Switch
- 8. Instruments
- 9. Right Instrument Cover
- 10. Attachment Handle
- 11. Side shifter Handle
- 12. Tilting Handle

- 13. Lifting Handle
- 14. Accelerator
- 15. Key Switch
- 16. Brake Pedal
- 17. Lower Guard Cover
- 18. Rubber Bottom Plate

1. LCD (Liquid Crystal Display) Instruments



Instruments

(a): Operating Modes: Pressing (g) is able to change operating mode, "N" as the standard mode, "F" as the fast mode, and "S" as the slow mode.

- (b): Forward Indication
- ©: Backward Indication

(d): Traction Failure Indication Area – It displays "OK" when traction is normal, and corresponding fault code is displayed at the time of failure.

(e): Instrument Funcitonal Keys

(f): Electric Quantity Indication – The battery shall be charged, when the two cases on the left side flash.

(9): Instrument Operating Keys

(b): Pump Control Failure Indication Area – It displays "OK" when pump control is normal, and corresponding fault code will be displayed at the time of failure.

- (i): Maintenance Symbol When failure exists with system, this symbole will be displayed.
- (): Warning Light When anomaly or failure exists with system, this light will be displayed.
- (k): Running Speed Indication



Instrument

The SMARTDISPLAY display is a kind of smart instrument panel connected on the truck system through CAN bus. This SMART instrument provides diagnosis and setup for the CBU system. Diagnosis and setup include the SMARTDISPLAY itself, traction controller, lifting controller, and valve controller. The SMART display menu enters into the SMART instrument menu through six operating pushbuttons fixed on touch keyboard. The SAMRT display is availed with six built-in red LEDs, able to provide operators with some simple information about truck status. LCD is also able to provide fault codes as in the following figures that it is indicated that the error code occurring on Node "5" of the system is the failure of "60" and the error code occurring on Node "2) of the system is the failure of "66". It will normally shut down when "ALARM" failure occurs, and the grade of 'WARNING" failures may be somewhat lower, it may shut down sometimes, and the output power may reduce sometimes.

Alarm 60 On Node 5 WARNING 66

ON NODE 2

One LCD is available at the proper position in the center of heading to display electricity volume and driving speed.



Three symbols telling operator to act as follows:



Sandglass Symbol (A) – It indicates that hour meter is working when this symbol flashes.



Battery Symbol (B) - It indicates that the electric quantity of battery at the time of display is insufficient when the light on this symbol turns on.



Adjustable Wrench Symbol (C) – It indicates maintenance request or stipulation warning set by program when this symbol flashes, and relevant code will be displayed under such circumstances.

∆ Warning

Please stop operation immediately, when fault code appears, until failure is removed. Please stop operation and charge the battery when the display of electric quantity is less than "20".

2. Switches Part

(1) Light Switch

Light switch is a rotational 2-gear switch.

	Power Supply	Width Indicator	Far Beam
0	Х		
1st Gear	Х	Х	
2nd Gear	Х	Х	Х

X indicates switched-on.

 $\boldsymbol{\vartriangle}$ Attention

On/Off of this light is irrelevant with the position of key switch, and so pay attention not to forget turning off the light.

(2) Key Switch

On/Off two positions are available with key switch. Firstly turn the reversing control rod to the neutral position, loosen the accelerator pedal, and then turn the key clockwise to the "On" position.

 \triangle Attention

1. The forklift truck will not be enabled for operation even if the accelerator pedal has been pushed down and the key switch has been turned to "On" position if the reversing control rod is not at the neutral position.

2. At this point fault code may possibly appear, and please don't worry.

3. The forklift truck can only be started for operation, when the reversing control rod is restored to neutral position and the foot is moved away from the accelerator pedal.

4. At this point the fault code may disappear as well.

(3) Turn Signal Light Switch

It demonstrates the turning direction of forklift truck, and the turn signal light flashes, when it is indicated at the turning position.

Turning Forward	Left Turn Signal Light Flashing				
Middle	Neutral Position				
Turning Backward	Right Turn Signal Light Flashing				

\triangle Attention

Steering indication arm is unable to return to neutral position automatically, and manual reset is required.

(4) Horn Pushbutton

Press the horn pushbutton in the center of steering wheel, the horn will hoot, and the horn is able to hoot even if the key switch is at "Off" position.

3. Control Part

(1) Steering Wheel

The forklift truck will turn right, when steering wheel is turned rightward, while the truck turns left, when steering wheel is turned leftward. The rear part of forklift truck is able to swing outwards.

∆ Warning

As full hydraulic steering is applied to the forklift truck, the steering will be very difficult, when steering motor has stopped running. The steering motor must be started immediately, for steering for a second time. (2) Lifting Control Rod



Pushing/pulling this handle forward or backward for the fork to be able to fall and rise. The rising speed is controlled by the back tip angle of the handle, while the falling speed is controlled by the front tip angle of the handle.

(3) Tilting Control Rod



Tilt of mast can be achieved through pushing/pulling the tilting handle forward or backward. Push forward this handle for mast to tip forward, and pull backward this handle for mast to tip backward. Tipping speed depends on the tip angle of the handle.

$\boldsymbol{\vartriangle}$ Attention

The multi-way valve carries front tipping auto locking valve, and the mast is unable to tip forward even if the tipping handle is pushed forward, when electric circuit is disconnected.

(4) Hand Brake Control Handle



During parking brake, this handle acts on the front wheel through back tip, for brake to generate braking force. Push forward the handle to loosen the brake.

Micro switch is available on the left side of hand brake, and pulling tight the handle may invalidate the operation.

Make sure to fill up the wheels firmly using firm wedge blocks, if the forklift truck has to be parked on a ramp. (5) Reversing Control Rod

Reversing control rod used to switch the forward and reversing directions of forklift truck. The truck runs forward, when reversing control rod pushed forward and the accelerator pedal is pushed down, while the truck retreats backward, when reversing control rod is pulled backward. Steering power is availed with delayed disconnecting function.

After steering power stops work, it can be enable to rework, only when reversing control rod is at forward or backward position and the accelerator pedal is pushed down.

 $\boldsymbol{\vartriangle}$ Attention

When reversing control rod is turned to reverse direction when forklift truck is running, electrical brake will then take effect, for forklift truck to slow down. The forklift truck will slowly run in the other direction after being stopped.

 ${\ensuremath{\vartriangle}}$ Warning

The forklift truck will not be enabled for operation, if reversing control rod is not at neutral position or accelerator pedal has been pushed down, and key switch has been turned to "On" position. In such case, the reversing control rod shall be restored to neutral position and the foot shall be moved away from the accelerator pedal, the forklift truck can be started for operation only in this way.

(6) Pedals

① Accelerator Pedal

Slowly push down the accelerator pedal, the operating motor will come into operation, and the forklift truck will begin to be started. According to the push force on the pedal, stepless adjustment may be achieved for running speed.

 ${\ensuremath{\vartriangle}}$ Warning

Don't push down the accelerator pedal before key switch is turned on, and otherwise the instrument display will display failure. At this point the accelerator pedal must be loosened.

When truck comes into operation, loosen the accelerator pedal. Soft brake is achievable.

② Brake Pedal

Push down the brake pedal, the forklift truck will be decelerated or stopped, and at the same time the brake light turns on.



∆ Attention

Never push down the accelerator pedal and the brake pedal simultaneously, and otherwise the running motor will be damaged.

4. Truck Body Part

(1) Seat and Seat Adjusting Lever

Move the seat adjusting lever rightwards, to adjust seat to a position comfortable for sitting and easy for operation. Prior to operation, operator shall adjust the seat properly and ensure that the seat has been reliably locked up.

(2) Overhead Guard

The overhead guard is used to protect operator from being injured by falling objects from above. It must have enough anti-impaction strength. It supper gap is used for hoisting battery. It is strictly prohibited to use forklift truck without overhead guard.

(3) Hood

It is a large-openness hood, to facilitate examination and maintenance of battery.

Under the help of the inside air spring force of hood, a very small force may be applied, to fully open the hood upwards. Just press the head of hood, when it is to be closed.

 \triangle Attention

When hood is closed, prevent clip and clamp of your finger by the falling hood.

(4) Left/Right Battery Cover Plates

Cover plates are set on left and right sides of battery, and the front side of cover plate and the fastening handle in the rear upper part must be loosened first before cover plates are taken off.



(5) Fork Positioning Pin

It is used when spacing of fork is adjusted. Pull up the tork positioning pin, turn it by 90°, and adjust the fork to the required position according to the cargo to be loaded or unloaded.

The spacing adjustment of fork shall be based on the centerline of forklift truck, symmetrical for both left and right, and make sure to lock up the positioning pin after fork is adjusted.

There is an opening on the lower crossbeam of fork carriage, used for loading/unloading fork.

It is prohibited for fork to be fixed at the opening position of fork carriage, to prevent dropout of fork from the opening position.

(6) On/Off-Truck Pedal and Handrail

On/Off-truck pedals are mounted on the both sides of truck body, and handrail is mounted on the left-side

support of overhead guard. Please use them for the sake of safety during getting on/off the forklift truck. (7) Brake Oil Cup Brake oil cup is located on the left side of front wall inner shield.

 \triangle Attention

Prevent dust and mixed cargo from entry into the oil cup, when brake fluid is filled. Brake fluid is corrosive and toxic.

(8) Front Headlight and Front Combination Light

Two front headlights and front combination light (turn signal light and width light) are installed on the front support of overhead guard. Pay attention to protect light fittings, and they shall be wiped up if present with dust and be replaced if damaged.

(9) Rear Combination Light

The rear combination light includes turn signal light, width light, brake light, and reversing light. Pay attention to protect light fittings, to be wiped up immediately if present with dust, and to be replaced immediately if damaged. (10) Steering Wheel Tip Angle Adjusting Lever

In order to adapt to operator's needs, the tip angle of steering pipe column for forklift truck is adjustable. Turn the handle upward, the steering pipe column will be loosened, and it will be locked up when the handle is turned downward.

(11) Hydraulic Oil Filler Lid

The hydraulic oil filler is located on the right side of truck frame on the front bottom plate, and the front bottom plate shall be opened when oil is to be filled. Fill the clean hydraulic oil through oil filler, and screw down the lid after oil is filled.

(12) Left Side Plate

The subassemblies for oil pump of lifting motor are installed inside the left side plate. The left-side door may be opened, during maintenance and repair of motor or oil pump, and the left side plate shall be properly fastened after examination

(13) Electrolyte Collecting Box

Electrolyte collecting box is installed in the lower part of battery, to prevent direct flow of electrolyte to ground. Please don't dump the electrolyte in the collecting box at discretion.

(14) Seat Disconnecting Switch (Special or Optional for Export Trucks)

This switch is used to ensure an immediate disconnection of power supply, when driver leaves the seat.

(15) Safety Belt (Special or Optional for Export Trucks)

Seat is fitted with safety belt. Please fasten it properly before startup.

(16) Rear Headlight

Rear headlight is installed above the overhead guard in the rear part, and it shall be replaced immediately if damaged.

III Driving and Operation

Some notices for correct driving operation are introduced here, in order for your truck to maintain good performance, safe use, and frequent operation.

1. Use of New Truck

The service life of your truck depends on use at the time when the truck is new. In the early stage of 200-h operation, please pay high attention to the following items:

- \triangle Attention
- \cdot Do what you can think of for service and maintenance.
- \cdot Avoid harsh operation, and avoid unreasonable use.
- \cdot Add lubricating oil and lubricating grease timely, and replace oil timely.
- · Strictly execute the Battery Service Manual.
- 2. Relationship between Load and Forklift Truck Stability

Within the load curve, the forklift truck takes the center of front wheel as pivot point, to maintain the mutual balance for the load on truck body and fork. Pay attention to the load amount and the load center, to maintain the truck stability.

▲ Warning

• If it goes beyond the load curve, danger exists for the rear wheel to be raised and under an atrocious situation, as the forklift truck may possibly turn over, leading to severe accident. As indicated in the figure, the same result exists with cargo closed to fork tip and increase in cargo weight, while under such circumstances, the loading capacity shall be reduced along with.



3. Load Center and Load Curve

Load center is the distance from the front end face of fork to the cargo center of gravity. The abovementioned load curve diagram has indicated the relationship between the truck load center and the allowable load quantity (load allowable for use). The data plate is pasted on the truck, and it shall be replaced with a new one, if damaged or lost.

▲ Warning

· If the truck is equipped with attachments for disposal of cargos, such as side moving device, bucket, or rotating fork, its load allowable for use lower than the corresponding standard trucks (without any attachment) is attributed to the following reasons:

a) Load for weight of equivalent attachments is reduced.

b) The load allowable for use is reduced in the same principle, as the length of attachments has aroused the load center to move forward.

· The installation of attachments has aroused the load center to move forward, called "Loss of Load Center".

 \cdot Avoid exceeding the load allowable for use of load curve pasted on truck or attachments.

4. Stability of Forklift Truck

The standard for stability of forklift truck is specified in ISO or other standards. However the stabilities described in these standards are not applicable to all the operating status, while the stabilities of forklift truck vary for different operating status.

Under following operating status, the maximum stability is ensured:

a) The ground is level and firm.

b) The truck is operated under standard no-load status or loaded status.

Standard No-Load Status: Fork or other load-bearing accessories 30cm off ground, and mast free from load and properly back tipped

Standard Loaded Status: For or other load-bearing accessories 30cm off ground, with the load quantity allowable for use at the standard load center, and the mast properly back tipped

∆ Warning

• During cargo loading-unloading, try as much as possible to tip forward or backward at a minimum degree. Unless the load is firmly fixed or rigid cargo rack is used, or the lifting height is low, and otherwise avoid tipping forward.

5. Conveyance and Loading-Unloading of Forklift Truck

(1) Conveyance of Forklift Truck

▲ Attention

 \cdot When cargo truck is used for conveyance, in order not for the forklift truck to move about inside the carriage, the wheels shall be stopped, and the forklift truck shall be properly fixed using rope, etc.

• Attention shall be paid to the whole length, whole width, and whole height, when forklift truck is loaded, unloaded as well as conveyed on highways, and relevant legal regulations shall be observed.

(1) Loading-Unloading of Forklift Truck

▲ Attention

· Please use lap plate typical of enough length, width, and strength.

· Pull up the parking brake of the cargo truck practically effective and the wheels shall be stopped.

· The lap plate shall be practically fixed at the center of carriage, and grease shall not be attached on the lap plate.

 \cdot The left and right heights of lap plate shall be the same, to facilitate a stable operation of vehicle when forklift truck is loaded-unloaded.

· In order to prevent danger, please don't change direction or perform any traverse movement on the lap plate.

• When forklift truck is loaded onto cargo truck, reversing operation shall be performed slowly, in order for the left and right tires to come aboard at the same time.

(2) Lifting of Forklift Truck

 \triangle Attention

· Forklift truck shall be lifted by personnel who have been specially trained.

 \cdot Rope shall be used to hook up the designated lifting position on forklift truck.

· The rope used shall have enough bearing capacity.

· Designated lifting positions are also available for the detachable parts and components on forklift truck.

6. Starting Forklift Truck

(1) Before Starting Forklift Truck

• Prior to truck operation, it shall be examined as to whether or not all the control devices and warning devices are under normal operation, and it is prohibited to start forklift truck, if there is any damage or failure which has not yet been corrected.

 \cdot Examine the safety status around the truck.

- 7. Running
- (1) Operator's Posture

Hold the handgrip of steering wheel using left hand, and the right hand is gently put up on the steering wheel and get ready for loading-unloading operation.



(2) Basic Running Status

The bottom surface of fork is off ground by 15~20cm, and the mast tips back in place.



Look around the forklift truck, examine the safety. Send out signal prior to start of truck.



Loosen the handle for parking brake, and turn on the commutator switch.



Slowly push down the accelerator pedal for truck to start running. Sudden commutation is prohibited during forward/backward operation.



⚠ Warning

The truck must be decelerated

- · At crossroads
- \cdot In crowded places
- \cdot On rough grounds and other rugged surfaces
- \cdot approaching cargo or obstacle

(3) Steering

Different from normal vehicles, the steering wheel of forklift truck is mounted in the rear part, which allows the rear part to rotate outwards during steering. Slow down the truck, and steer the direction towards the side to be turned, and the steering wheel will rotate somewhat beforehand compared with the truck of front-wheel turning.

(4) Stopping or Parking

Decelerate, push down the brake pedal for truck to stop, and place the reversing handle on the neutral gear.

 \triangle Attention

Parking: Park the truck in the place where traffic is not hindered, and

- a) Pull up the handle for parking brake.
- b) Drop the fork to ground.
- c) Turn the key switch to "OFF" position, and press the emergency power disconnecting switch.
- d) Take off the key and keep it properly.
- ▲ Warning

· Safety Parking

a)Truck to be parked on a level ground – It is the best to park the truck in a spacious place, and if it has to be parked on a slope, park the truck horizontally on the slope, and stop the wheels using wedge blocks, to prevent accidental downslide.

b) Truck shall be parked in a designated area or a place where traffic is not hindered, and labels or signal lights may be set around the truck, if required.

c) Truck shall be parked on a firm and hard ground, and it is to be avoided to park the truck on a loose and soft muddy land or a rather slippery pavement.

d) In the case when lifting system is damaged, and the fork fails to drop on ground, hang a warning flag on the end of the fork, and park the truck in a place where traffic is not hindered.

(5) Recovery Service of Failure Forklift Truck

 \triangle Attention

· If failure occurs with forklift truck during operation, the truck shall be dragged away timely for repair, to avoid

hindering the operation of other vehicle and personnel.

8. Loading

- (1) The spacing of fork shall be as large as possible, for a good traverse stability.
- (2) The forklift truck and the cargo shall be aligned, when for inserts into pallet or directly into cargo.
- (3) The fork must be inserted in parallel, relative to the pallet.
- (4) The fork shall be fully inserted, up to the rootage of the fork.
- (5) Cargo Lifting
- a) Lift cargo firstly off ground by 5-10cm, and confirm whether or not cargo is steady.
- b) Then, tip the mast backward. Lift the cargo off ground by 15-20cm, and then begin running.

(6) There is a hindrance when bulky cargo is conveyed, and the truck shall reversely run, except for climbing a slope.

- ▲ Attention
- \cdot The loading direction used for fork shall not be reverse to the design loading direction.
- \cdot It is not allowed for fork to carry cargo alone.
- \cdot It is not allowed for fork to be used to drag cargo.
- \cdot It is not allowed for all the parts of fork to be welded.

9. Stacking

▲ Attention

- · The following items shall be examined, before operation of forklift truck starts:
- a) Ensure that there are no cargo to fall or damaged cargo in the loading area.

b) Ensure that there is no object and cargo stack that may hinder safety.

Stacking shall be performed according to the Following procedure:

- (1) Run at a decelerated speed when the stacking area is approached.
- (2) Park the truck in front of the stacking area.
- (3) Examine whether or not it is safe around the stacking area.
- (4) Adjust the position of forklift truck, for forklift truck to be located in front of the position where the cargo is place in the stacking area.
- (5) The mast is vertical to the ground and the nosing fork exceeds to height of stacked cargo.
- (6) Examine the stacking position and run forward, to park the
 - truck at a proper position.
- (7) Ensure that cargo is above the cargo stacking position. Slowly drop the fork, and ensure that cargo has bee properly placed. Notes

When cargo is not completely placed on rack or bearer:

- a) Lower the cargo until the fork no longer bears the weight.
- b) Run the forklift truck backwards by 1/4 length of the fork.

c) Then lift the fork by 50-100mm, move the truck forward and then place the cargo on a proper stacking position.



(8) Observe the space behind the forklift truck, and run the truck backward to avoid bump of fork and pallet into each other.

(9) Make sure that the front part of fork has left the Cargo or pallet, and lower the fork to facilitate running.

10. Unpiling

Unpiling shall be performed in the following procedure:

(1) It is required to run at a decelerated speed when the truck approaches the cargo to be conveyed.

(2) Park the truck in front of the cargo (30cm distance between cargo and fork tip).

- (3) Adjust the position of forklift truck in front of the cargo.
- (4) Ensure that no overloading will happen for the cargo.
- (5) The mast is vertical to the ground.
- (6) Observe the fork position and move the forklift truck forward, until the fork is completely inserted into pallet. Notes
- \cdot When it is difficult for fork to be completely inserted into pallet:
- a) Insert a length 3/4 of the fork and raise one point of the pallet (50-100mm).
- b) Insert the fork completely into the pallet.
- (7) After fork is inserted into pallet, raise the pallet (50-100mm).
- (8) Observe the space around and move the forklift truck until the cargo is lowered.
- (9) Drop the cargo to off ground by 150-200mm.
- (10) Tip the mast backwards to ensure the stability of cargo.
- (11) Convey the cargo to the destination.









11. Storage

(1) Before Storage

The forklift truck shall be thoroughly cleaned, and examined according to the following procedure, before it is stored:

a) Clean and remove the oil and grease attached on the truck body using cloth and clear water, as per requirement.

b) When truck body is cleaned, examine the overall situation of the vehicle, and it is especially required to examine whether or not the vehicle body is sunken or damaged, whether or not tire is worn through, and whether or not iron nail or stone is embedded inside the tire tread pattern.

c) Examine whether or not oil leakage exists.

d) Add lubricating grease as per requirement.

e) Examine whether or not the nuts for wheel hub and the jointing surface of cylinder piston rod are loosened, and whether or not bruise and draw mark exist on the surface of piston rod.

f) Examine whether or not the rotation for roller of mast is smooth.

g) Uplift the lifting cylinder to the top, and allow the cylinder to be filled up with oil.

▲ Warning

 \cdot So long as it is found that the forklift truck needs to be repaired, it ceases to be effective, or it is confronted with unsafe factors, the situation shall be reported to managerial personnel, and the forklift truck shall be stopped for use until it recovers to safe status.

(2) Routine Storage

a) Park the forklift truck in the designated place, and fill up the wheels using wedge blocks.

b) Turn the gear-shift handle to the neutral position, and pull up the parking brake handle.

c) Turn the key switch to "OFF" position, operate the control rod for multi-way valve for a number of times, and release the remaining pressure in the cylinder and the pipeline.

d) Take off the key and have it placed and kept in a safe place.

(3) Long-range Storage

Following service and examination items shall be performed based on the service for "Routine Storage":

a) Park the truck in a relatively high and hard ground, in consideration about rainy season.

b) Remove the battery from on the forklift truck. Even if the forklift truck is parked outdoors or indoors, the battery shall be placed in a dry, shady, and cool place, if the place is wet and hot, to be charged once every month.

c) Coat the antirust oil to the exposed parts such as cylinder piston rod and the shafts that may possibly be rusted.

d) Cover the parts and components liable to be affected with damp.

e) The truck shall be operated at least once a week. The oil and grease on piston rod and shafts shall be removed, the power supply shall be turned on, to allow the truck to operate forward and backward at a slow speed, and the hydraulic control shall be operated for a number of times.

f) It is avoided to park the forklift truck on such loose and soft pavements of bitumen in summer.

(4) Operation of Forklift Truck after Long-range Storage

a) Remove the antirust oil for the exposed parts.

b) Remove the extraneous substance and water in hydraulic oil tank.

c) Charge the battery, mount it on the forklift truck, and connect with the lead wire of battery.

d) Carefully examine everything prior to start.

IV Regular Examination and Maintenance

A comprehensive examination of the forklift truck in advance may avoid truck failure generation and inability to reach its due service life. The number of hours listed in the Regular Maintenance Timetable is determined, based on 8-hour work a day and 200-hour work a month for the forklift truck.

Detailed records shall be kept after examination, and the records shall be retained for 3 years.

\triangle Attention

 \cdot Only personnel who have been trained or who have passed the qualification assessment can maintain and repair forklift truck.

- \cdot Daily and monthly examination and maintenance may be accomplished by operators themselves.
- 1. Examination Requirements
- (1) Only authentic parts and components are used.
- (2) Only authentic or designated oils and greases are used.
- (3) Clean up the oil filler port and grease nipple using brush or cleaning cloth prior to oil or grease addition.
- (4) The truck shall be parked on a level ground for examination of oil level and oil addition.
- (5) Prevention, service, and maintenance shall be regularly performed, and attention shall be paid not to injure yourself.

(6) In the case when you have to work on the listed fork and under the attachments, stay pole shall be used to support the fork or the attachment, to prevent downslide of fork and inner mast.

(7) It shall be reported to the managerial personnel, if any place of damage or failure is found, and it is prohibited to use this forklift truck before it is repaired.

- 2. Examination Items
- (1) Examination for Leakage of Hydraulic Oil and Transmission Case Oil



Examine whether or not oil leakage exists with joint of hydraulic pipe or driving system, and examination may be performed through touch using hand or visually.

(2) Examination of Tire Air Pressure (Pneumatic Tire)



Examine the status of tires. Too low air pressure may reduce the service life of tire, and increase electricity consumption. Different air pressures for left and right tires or damage of tire may cause different steering forces. The data plate pasted on the side of the hood of electric forklift truck has indicated the tire standard air pressures.

Truck Tonnage		
Tire	2.5t-3t	3.5t
Air Pressure		
Front Wheel	1030kpa	
Rear Wheel	900kpa	Solid tire

Screw off the value cap counterclockwise, and use barometer to measure air pressure of tire. Adjust the pressure to specified value if required, and screw on the lid cap after it is confirmed that there is no air leakage.

Examine whether or not damage exists with the surface of tire connected with ground or its side face, and whether or not wheel rim is distorted.

As a very high air pressure is required by tire of forklift truck to bear a heavy load, any extremely tiny distortion of wheel rim or damage of tire surface connected with ground may both cause accident.

▲ Warning

• After tire and rim have been assembled, all the bolts and nuts shall be tightened to the specified torques, before it is allowed for tire to be charged, and the charge tire shall be provided with expansion energy. Tire air pressure shall not exceed the specified value.

 \cdot When air compressor is used for air charge, first of all the pressure shall be properly adjusted. As the maximum output of pressure for air compressor is very high, and it may cause severe accident if it is improperly adjusted.

2-3.5t:480-560 N.M

(3) Examination of Wheel Hub Nut Torque

Examine whether or not the hub nut torque is correct.

All the wheel hub nuts shall be tightened to the specified torques.



Driving Wheel



Steering Wheel

①Wheel Hub Nuts ②Separate Front Wheel Hub Bolts ③Driving Axle Half Shaft Bolts ④Rear Wheel Hub Nut ⑤Separate Rea Wheel Hub Bolt

▲ Attention

 \cdot When wheel hub nut is detached, never demount the separate wheel hub bolt by mistake.

 \cdot It is very dangerous for wheel hub nut to be loosened. In case it is loosened, the wheel may drop out, leading to turnover of the truck.

(4) Examination of Overhead Guard



The overhead guard plays a protective function, and it shall be ensured that it is firmly mounted and all the structural components are firm.

(5) Examination of Brake Fluid Level



Examine the level of brake fluid reservoir, and the fluid level shall be between the two cases. It shall be avoided for dust or water to enter into fluid reservoir, during addition.

(6) Examination of Battery Electrolyte



Examination for Quantity of Battery Electrolyte

There are scale lines for upper and lower liquid levels on the battery container and the operator may observe the liquid level which shall be located between the 2 lines.

∆ Danger

 \cdot It is not allowed for open fire to approach around the fluid filling hole of battery, as it may generate hydrogen and cause explosion in this place.

∆ Warning

(7) Examination of Rear Combination Light

Examine whether or not damage or soilage exists with the rear combination light (tail light, parking light, and reversing light).

(8) Level of Hydraulic Oil



Examine the hydraulic oil level using oil leveler, pull out the oil leveler and wipe it up. Re-insert it and then pull it out, to see whether or not the oil level is located between the high and low two scale lines.

 \triangle Attention

• Power supply shall be turned off, the fork shall be dropped to the ground, and the forklift truck shall be parked on a level surface, when oil level is examined.

(9) Pipeline of Cylinder

Visually examine whether or not oil leak exists with hydraulic pipeline, as well as lifting and tilting cylinders.

(10) Examination of Backrest



Examine whether or not the mounted bolts for backrest are loosened, and they shall be tightened up when required.

(11) Fork and Fork Positioning Pin



Examine the mounting status of for positioning pin, and whether or not the fork is distorted or cracked.

(12) Front Headlight and Front Combination Light

Examine whether or not the lamp screens are clean or damaged.

Take care not for your finger to be injured for compression by hood.

(13) Seat Adjustment

Ensure that the seat is at a proper position, and pull the adjusting handle rightward, if improper, to adjust the seat to a position where it is easy for foot and hand operations. Slightly move the seat forward or backward, after adjustment, and ensure that it is reliably locked up.

(14) Examination of Reversing Handle

Examine whether or not reversing handle is loosened and the operating hand feeling.

(15) Examination of Multi-way Valve Operating Handle

Examine whether or not operating handles (Lifting, Tilting, and Attachments) are loosened, and whether or not operation is easy.

(16) Examination for Operation of Parking Brake

It shall be confirmed that the parking brake is safe and reliable, after the parking brake operating handle is pulled up.

Preparation prior to start,

Before turning on the power supply, ensure that the gear-shift handle is located at neutral gear, and parking brake is reliable.

(17) Instruments

Hour meter, trouble meter and running speedometer enable operators to understand the situation of truck during operation.

(18) Examination of Electric Quantity

Coulomb meter is integrated on the instrument panel, and examine whether or not the electric quantity is able to cater to the work for one day.

(19) Lamplights

Turn on the light switch, and confirm that corresponding lights are all under normal conditions.

(20) Examination of Turn Signal

Operate the turn signal handle to confirm the normal work of turn signal light.

(21) Examination for Operation of Horn Pushbutton

Press the horn pushbutton to confirm whether or not the horn is able to hoot.

(22) Operation of Mast

Operate the lifting and tilting handles, to confirm the normal conditions for rise and drop of fork carriage, and tipping stability of mast. Confirm that the cylinder piston is able to run to the stroke terminal, and whether or not the work of overflow valve and the sound accompanying overflow are normal. Pay attention to the sound of system operation.

(23) Examination of Tensioning Degree for Lifting Chain



Examine the tensioning degree of lifting chain and whether or not anomaly exists with it.

When tensioning degree is examined, the cargo fork shall be lifted by about 5cm, and the middle part of the chain is to be pushed and pressed using thumb. Confirm whether or not the tensioning degrees of left and right chains are consistent, while the locking nut (A) for the fixed pin shall be loosened, and the adjusting nut (B) shall be screwed and adjusted to adjust the chains.

▲ Attention

· Please use mechanical oil (such as hydraulic oil) for lubrication of lifting chains, and avoid using lubricating grease.

(24) Steering Wheel Free Stroke



Examine the rotation as well as the axial loosening status of steering wheel. The normal free stroke is 50-100mm,

and axial loosening is not allowed.

(25) Examination of Brake



Drive the truck at a slow speed and push down the brake pedal to examine the braking effect. The brake light turns on, after the brake pedal is pushed down.

(26) Examination of Steering



Turn the steering wheel, when truck is running at a slow speed, and observe whether or not the left and right steering forces are consistent, and whether or not other abnormal effects exist.

(27) Examination of Parking Brake

Confirm that the truck running at a slow speed can be braked and parked, after the parking brake handle is pulled up.

(28) Examination of Reversing Light and Reversing Buzzer

The reversing light turns on and the reversing buzzer hoots, when direction control handle is placed at the backward gear.

3. Maintenance

(1) Replacement of Fuse Wire

Fuse wire is able to protect electrical system, and to prevent over-high current. If it occurs that some part fails to work, possibly the corresponding fuse wire is already burned out, and it must be replaced with a fuse wire of the same capacity.

(2)Replacement or Repair of Tire

Get ready the tools and jack prior to replacement of repair.

a) Front Wheel

 \cdot Park the truck on a firm and hard pavement and turn off the engine, and demount all the loads.

 \cdot Pull up the parking brake hand le and fill up the wheel using wedge block, and place the jack under the truck body.

 \cdot Jack up the truck and maintain the tire on ground, loosen the nuts for wheel hub, but don't remove the tire.

 \cdot Continue jacking up the truck until the tire is off ground, take off the nuts and remove the tire.

• The installation of tire is contrary to the disassembly sequence, and the wheel hub nuts shall be tightened up in a diagonal order.

Examine the tire air pressure, after it has been assembled.

b) Rear Wheel

The procedure is the same as the repair and replacement methods for the front wheel, except that the jack shall be placed under the counter weight.

4. Regular Maintenance Timetable

This timetable is set based on the standard working time and operating conditions, and please perform the maintenance beforehand, if the forklift truck is working under atrocious conditions ("●" indicating replacement). Power Transmission Wheel

ltem	Examination Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours)	Semiannually	Annually
	Charged Pressure	Barometer	0	0	0	0	0
	Crack or Damage		0	0	0	0	0
	Ground Touchdown Wearing Status			0	0	0	0
Tire	Abnormal Wearing Status	Depth Gauge	0	0	0	0	0
	Whether or not Nail, Stone, or other Extraneous Substance Present on Tire			0	0	0	0
Tire	Whether or not Nuts are Loosened to be Examined	Detection Hammer	0	0	0	0	0
Installation	Damage Status to be Examined		0	0	0	0	0
Wheel Rim Wheel Spoke	Damage Status of Wheel Rim, Rim Spoke, and Disc Wheel		0	0	0	0	0
Axle Bearing	Loosening and Noise to be Examined			0	0	0	0
	To be Wiped up and Re-filled with Lubricating Oil					•	•
Axle	Distortion, Crake, and Damage Status of Axle Body to be Examined			0	0	0	0

Steering System

ltem	Examination Items	Tool	Daily	Monthly	Quarterly	Semiannually	Annually
	Examination terns	1001	(8 Hours)	(200 Hours)	(600 Hours)	(1200 Hours)	(2400 Hours)
	Clearance to be Examined		0	0	0	0	0
Steering	Axial Loosening to be Examined		0	0	0	0	0
Wheel	Radial Loosening to be Examined		0	0	0	0	0
	Operating Status to be Examined		0	0	0	0	0
Steering Gear	Whether or not Mounting Bolts are Loosened to be Examined			0	0	0	0
Steering	Whether or not the King Pin is Loosened or Damaged to be Examined			0	0	0	0
Knuckle of Rear Axle	Bend, Distortion, Crake, or Damage Status to be Examined			0	0	0	0
	Installation Status to be Examined	Detection Hammer		0	0	0	0
	Operating Status to be Examined		0	0	0	0	0
Steering	Whether or not Leakage Exists to be Examined		0	0	0	0	0
Cylinder	Whether or not Loosening Exists during Installation and Articulation to be Examined			0	0	0	0

Brake System

Item	Examination Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours)	Semiannually (1200 Hours)	Annually (2400 Hours)
	Idle Stroke		0	0	0	0	0
	Pedal Stroke	Diving Ruler	0	0	0	0	0
Brake	Operating Status		0	0	0	0	0
Pedal	Whether or not Air Present in Brake Pipe		0	0	0	0	0
Parking Brake Control	Whether or not Brake is Safe and Reliable and Brake Stroke is Enough		0	0	0	0	0
	Control Performance		0	0	0	0	0
Rod, and	Control Performance		0	0	0	0	0
Guy Cable, etc	Whether or not Connection is Loosened		0	0	0	0	0

Brake System

	- · · · ·		Daily	Monthly	Quarterly	Semiannually	Annually7
Item	Examination Item	IOOI	(8 Hours)	(200 Hours)	(600 Hours)	(1200 Hours)	(2400 Hours)
	Damage, Leakage,			0	0	0	0
	and Crack)	Ŭ	Ŭ	Ŭ
Pipeline	Connecting and						
	Clamping Parts, or			0	0	0	0
	Loosening Status						
	Leakage Status			0	0	0	0
	Oil Level to be						
	Examined for Oil		0	0	0	•	•
Brake	Replacement						
Master	Master Cylinder and						
Cylinder	Wheel Cylinder						0
and Wheel	Acting Status						
Cylinder	Wear or Damage						
	Status of Master						0
	Cylinder and Wheel						
	Cylinder						

	Master Cylinder and					
	Wheel Cylinder					•
	Leakage and					
	Damage Status					
	Whether or not					
	Mounting Parts of	Detection	0	0	0	0
	Brake Drum are	Hammer				
	Loosened					
	Wearing Status of	Vernier				0
	Friction Plate	Calipers				
	Status of Brake					0
	Shoe Action					
	Whether or not					0
Brake	Fixed Pin is Rusted					0
Drum and	Damage Status of					\circ
Brake	Return Spring	Diving Ruler				0
Shoe	Whether or not					
	Operating Time					
	Interval of					
	Automatic					0
	Regulating Device is					
	Proper to be					
	Examined					
	Wear and Injury					
	Status of Brake					0
	Drum					
	Whether or not					
	Bottom Plate is					0
	Distorted					
Brake	Whether or not					
Bottom	Cracked					0
Plate	Whether or not					
	Loosening Exists					0
	during Installation					

Lifting System

ltom Evo	Eventing them them	Tool	Daily	Monthly	Quarterly	Semiannually	Annually
Item	Examination Item	1001	(8 Hours)	(200 Hours)	(600 Hours)	(1200 Hours)	(2400 Hours)
	Damage, Distortion, and Wear Status of Fork		0	0	0	0	0
Fault	Damage and Wear Status				0	0	0
FORK	OF POSITIONING PIN						
	Wolded Darts for Hook at			0	0	0	0
	Pootage of Fork			Ũ	Ŭ	0	Ũ
	Whether or not Welded						
	Place on Inside						
	Mast/Outside Mast and			0	0	0	0
	Cross Beam is Cracked or			, i i i i i i i i i i i i i i i i i i i	, i i i i i i i i i i i i i i i i i i i	Ū	, i i i i i i i i i i i i i i i i i i i
	Damaged						
	Whether or not Welded						
	Place of Tilting Cylinder						
	Bracket and Mast is						
	under Poor Connecting			0	0	0	0
	Condition. Cracked. or						
	Damaged						
	Whether or not Welding						
	of Inside/Outside Masts is						
	under Poor Connecting			0	0	0	0
	Condition, Cracked or						
	Damaged						
Mast Fork	Whether or not Welding						
Carriage	of Fork is under Poor			0	0	0	0
	Connecting Condition,			0	0	0	0
	Cracked or Damaged						
	Whether or not Roller is			0	0	0	0
	Loosened						
	Wear and Damage Status						0
	of Bearing Bush for Mast						
	Whether or not Bolts for						
	Support Cover of Mast is			0		0	0
	Loosened						
	Whether or not Bolts for						
	Bottom of Lifting						
	Cylinder, Bolts for Head						
	of Piston Rod, U-bolts,			0		0	0
	and Bolts for Guide Rail						
	of Walking Beam are						
	Loosened						

	Crack and Damage Status of Roller and Roller Shaft		0	0	0	0
	Tensioning Status, Whether or not Distorted, Damaged, or Rusted of Chain to be Examined	0	0	0	0	0
Chain and	Oil to be Added for Chain		0	0	0	0
Sprocket	Riveted Pin and Loosening Status		0	0	0	0
	Sprocket Distortion and Damage Status		0	0	0	0
	Whether or not Chain Sprocket Bearing is Loosened		0	0	0	0

Lifting System

ltom	Evamination Itom	Tool	Daily	Monthly	Quarterly	Semiannually	Annually
item	Examination item	1001	(8 Hours)	(200 Hours)	(600 Hours)	(1200 Hours)	(2400 Hours)
Attachments	Whether or not Status is Normal to be Examined			0	0	0	0
Lifting	Whether or not Piston Rod, Piston Rod Thread, and Connection are Loosened, as well as Distortion and Damage Status	Detection Hammer	0	0	0	0	0
Cylinder	Operating Status		0	0	0	0	0
	Leakage Status		0	0	0	0	0
	Wear and Damage Status of Pin and Cylinder Steel-backed Bearing			0	0	0	0
Hydraulic	Whether or not Oil Leak or Noise Exists with Hydraulic Pump		0	0	0	0	0
Pump	Wearing Status of driving Gear for Hydraulic Pump			0	0	0	0

Hydraulic System

ltem	Examination Item	Tool	Daily (8 Hours)	Monthly (200 Hours)	Quarterly (600 Hours)	Semiannually (1200 Hours)	Annually (2400 Hours)
	Oil Quantity to be Examined, or Oil to be Replaced		0	0	0	0	0
Hydraulic Oil Tank	Suction Oil Filter Core to be Cleaned up					0	0
	Extraneous Substance to be Removed					0	0
Return Oil Filter	Return Oil Filter to be Replaced					•	•
Control Valve Rod	Whether or not Connection is Loosened		0	0	0	0	0
	Operating Status		0	0	0	0	0
	Oil Leakage		0	0	0	0	0
Multi-way Valve	Operating Status of Safety Valve and Tilting Autolocking Valve			0	0	0	0
	Safety Valve Pressure to be Measured	Oil Pressure Gauge				0	0
Piping Joint	Leakage, Loosening, Crack, Distortion, or Damage Status		0	0	0	0	0
	Pipe to be Replaced						● 1-2 Years

Electrical

ltom	Evamination Item	Tool	Daily	Monthly	Quarterly	Semiannually	Annually
item	Examination item	1001	(8 Hours)	(200 Hours)	(600 Hours)	(1200 Hours)	(2400 Hours)
Light as well as Message and Sound Devices	Whether or not Lighting and Hooting are Normal		0	0	0	0	0
Battery (Refer to Maintenance Manual)	Respective Individual Electrolyte Density and Voltage	Densimeter, Multi-meter, and Thermometer		0	0	0	0
DC Motor	Length and Pressure of Electric Brush and Smoothness of Commutator			0	0	0	0
Electric Controller	Cleanliness of Electric Controller Box, Electric Controller Fastening, and Dust Removal of Radiator and Fan				0	0	Ο
Connecting Jug Line	Whether or not Connection for Battery, Electric Controller, and Motor Connecting Jug Lines is Firm and Whether or not it is Damaged or Burned out					Ο	Ο
CBU Insulation	Insulation Resistance of Motor, Electric Controller, and Battery to Body not to be Lower than 0.3 M ω	500∨ Megohmmeter					0

Safety Devices and Accessories

			Daily	Monthly	Quarterly	Semiannually	Annually
Item	Examination Item	IOOI	(8 Hours)	(200 Hours)	(600 Hours)	(1200 Hours)	(2400 Hours)
Seat	Whether or not Bolts are Damaged or Loosened to be Examined					0	0
	Whether or not Truck Frame and Crossbeam are Damaged or Cracked						0
Truck Body	Whether or not Rivets or Bolts are Loosened	Detection Hammer					0
	Repaired Places to be Examined, if Required		0	0	0	0	0
	Comprehensive Examination						0
Lubricating Grease to be Added or Oil	Lubricating Status of Underpan to be Examined after Cleaning	Grease Gun	0	0	0	0	0
to be Replaced	Oil in Oil Tank to be Examined						0

\triangle Attention

 \cdot When oil different from that specified for this truck, its replacement cycle cannot be the same as that specified in this Manual. On this account, the time for replacement shall be shortened by 1/2 or 1/4 compared with the time specified in this Manual.

• Though high-viscosity oil has wide operating temperature range, frequent replacement is still required. This is because that additive will slowly deteriorate, for viscosity to be lowered, and it will damage hydraulic system severely at the time of high temperature.

V Miscellaneous

1. Drawing of Lubricating System



2. Oils Used for Forklift Truck

Name	Capacity(L)	Specification
Gear Oil	ear Oil 5.4 GL-5 85W/90	
Hydraulic Oil	30(2.5T)/40(3, 3.5T)	L-HM32
Brake Oil	0.2	HZY3 (DOT 3)
Lubricating	As Nood	2# Lithium Grazza
Grease	As need	

${\rm \AA}$ Attention

 \cdot Oil products of different brands cannot be blended in use.

3. Recommended Lubricants

Service		Ambient temperature °C (°F)							
point	-50 - (-58) (·	-30 - -22) (-20 -	10 14) (3	0 32) (10 2 50) (6	0 30 88) (8	0 40 6) (104)	
Gear oil (Axle)			Mobil fl	uid 424(API GL4	/SAE 80	W)		
Hydraulic oil Tank			*ISO	VG 15	SO VG 4	46			
Tarik						ISO VG 6	68		
Brake	★Hyd. (⊃il ISO V	′G10(AZ	OLLA Z	S10)				
System			Hyd	. Oil ISO	VG32(A)	zolla z	(S32)		
Fitting (Grease			*NLC	GI No.1			-		
nipple)						NLGI No	.2		

★ : Cold region Russia, CIS, Mongolia

LITHIUM-ION BATTERY INSTRUCTION

Contents

1. Structure and Wiring Diagram 1.1 Product Specification 1.2 Product Sketch	3 3 .3
2. Safety Instruction	-4
2.1 Inspection	-4
2.2 Switching Machine	-4
2.3 Battery Discharging	.5
2.4 Battery Charging	-5
3. Maintenance	-6
4. Malfunction and Deal	7
5. Storage and Transportation	8
6. Warning and Tips	8

1. Structure and Wiring Diagram

Product Model	Product Specification	Application
Counterbalance Forklift (2.5-3.5 ton)	Lifepo4 Battery Pack	Counterbalance Forklift supply

1.2 Product Sketch



Products Drawing

- 2. SAFE OPERATION GUIDANCE
- 2.1 Inspection
 - Before assemble, please check the battery volt and SOC (30%-90%) are in the normal value;
 - Please check the positive and negative pole of the connector and storage system are matched.
 - Handle with care, collision avoidance.
- 2.2 Turn on & off
 - 2.2.1 Turn on: turn on the emergency stop switch
 - 2.2.2 Turn off: turn off the emergency stop switch
 - 2.2.3 To reduce power loss, the battery will shut down automatically if the equipment doesn't work for more than 2hours. When starting the equipment after 2hours, the emergency stop switch must be reset before starting.



Emergency Stop Switch

2.3 Discharging

When the storage system work, then the battery discharge. when the electric quantity lower than 10%, or the min volt of cell lower than 3.0V, the buzzer will alarm, then you need to charge the battery timely. overcharge or over-discharge will damage the battery.

2.4 Charging

- 2.4.1 Before using the battery or forklift stop working, please charge the battery timely.
- 2.4.2 Based on the character of cell, proper environment for charge of Lifepo4 battery pack need to be created to protect the battery.
- 2.4.3 When charging, the output interface of the charger is inserted into the charging port of the battery, and then 220V (or 380V) AC power supply is connected according to the choice of the charger.
- 2.4.4 To stop battery charging, it is necessary to turn off the main power supply of the charger first, and then disconnect the battery from the connector of the charger. It is forbidden to disconnect the connector without disconnecting the power supply of the charger.
- 2.4.5 Lithium battery needs periodic deep charging for voltage balancing. It is recommended to do it once a week to ensure that the charging time is up to 8 hours.
- 2.4.6 When charging, the temperature of the battery will rise moderately (the temperature rise is normal within 15 degree centigrade, as long as the battery does not report failure and the charger works properly, please be assured to use it).
- 3. Maintenance
- When the battery is in normal use, it should be filled with electricity and put in a dry and cool place after use. It should be well insulated to prevent heavy pressure and contact with children.
- If it is not used for a long time (it is expected that it will not be used for more than a week), the start-up power should be turned off and the power supply should be replenished every three months to keep 50%-70% SOC charged.
- Before charging, it is necessary to carefully check the insulation and aging of all wires. Conductors must not be damaged and aged.

4. Fault and Handling

- Battery pack cannot be charged
- * Step 1: Verify that the charger is powered on properly, and check that the input terminal is firmly connected without missing phase.
- * Step 2: Check whether the cable surface is obviously damaged and there is no foreign matter such as water stain and oil stain at the connector contacts.
- * Step 3: Check whether the outlet plug of the charger is firmly docked, unplug the plug and re-plug.
- * Step 4: If the above three operation failures still exist, please contact our company for after-sales consultation.
- Battery pack cannot be discharged.
- * Step 1: Check whether the cable surface is obviously damaged and there is no foreign matter such as water stain

and oil stain at the contact of the connector.

- * Step 2: Check whether the battery discharge outlet plug is firmly connected to the car body plug, you can try several times over.
- * Step 3: If the above two operation failures still exist, please contact our company for after-sales consultation.

5. Storage and Transportation

-Battery should storage under dry and cool circumstance, batter 10°C~45°C degree centigrade.

-Battery should be placed in open-circuit state to prevent damage caused by long-term discharge, battery should be recharged before loading, especially before using. The charging method is the same as the above.

-Based on the character of cell, proper environment for transportation and storage of LiFePO4 battery pack need to be created to protect the battery, during loading of battery, attention must be paid against dropping, turning over and serious stacking

6. Warnings and Notices

Warnings!

* Never throw the battery into water or too wet circumstance.

- * Never upside down the positive and negative.
- * Never connect the positive and negative of battery with metal.
- * Never knock, throw or trample the battery.

* Never use the battery under strong static and strong magnetic field, otherwise will destroy the protection device.

* If battery leaked, the electrolyte into eyes, please do not knead, please wash eyes by water and send to hospital, otherwise will hurt eyes.

* If battery emit peculiar smell, heating, distortion, or appear any unconventional during using, storage or charging process, please take it out from device or charge and stop use it.

* Never cut the battery in socked directly, please use the stated charger when charging.