EKKO®
MATERIAL HANDLING EQUIPMENT
MOVING AHEAD

OPERATOR'S MANUAL

Counterbalanced Type Forklift Truck with Engine

EK25LP/EK25-212LP/EK30LP/EK35LP



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INTRODUCTION

This manual should be kept by the operator and read it repeatedly.

·This operator's manual provides the proper operation, easy maintenance, and routine inspection.

·Prior to operation, read this carefully to secure safe and efficient materials handling by proper driving and maintenance.

·This manual content might not correspond with the actual condition because of the improvement of our products.

·When lending transferring for the forklift truck, this manual should be attached to the forklift truck.

·If you have any questions, please consult with the sale apartment of our company.

A and [redacted] marked instruction is very important to you and others for safety. You shall keep to the instruction.

A DANGER	Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. You must observe this instruction.
A WARNING	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. You must observe this instruction.
A CAUTION	Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. You must observe this instruction.
[redacted] NOTE	Indicates a statement directly or indirectly related to the safety of personnel and maintenance of the truck.

Ⅰ. About Safety

Safety is your business and your responsibility. The "ABOUT SAFETY" covers basic safety procedures and warnings of general application to the typical forklift truck. However, safety precautions given on the following pages are also applicable to lift trucks that have special specifications or attachments.

I. Main Use of Forklift Trucks

(1) Main use of forklift trucks

The main use of forklift trucks is to handle and stack the load on the pallets. When they are assembled with proper attachments, they also can handle and stack the loads that not on the pallets.

(2) Prohibitive use

The following prohibitive uses are not allowed.

·Stand on the forks or pallets and rise

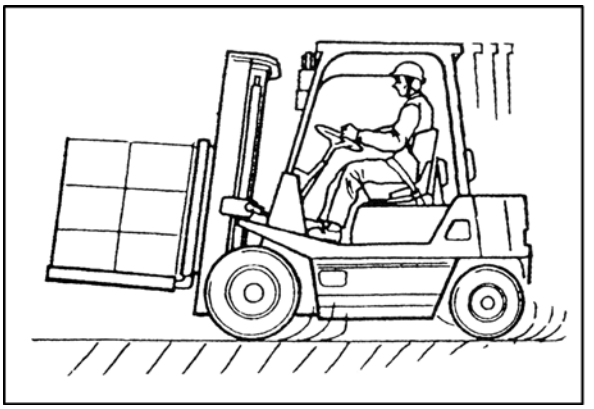
·Stand on the pallets to press the loads.

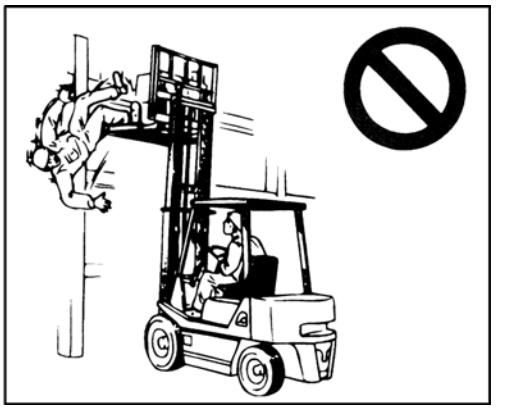
·Hoist the loads with the steel wire rope and hang on the forks directly.

·Tow other trucks.

·Push the loads or other trucks with forks.

·Open or close the doors of other trucks with forks.





2. Working Environment and Areas of Forklift Trucks

(1) Ground condition

Keep good condition of flat road surface and ventilation.

Lift truck performance depends on the ground or floor conditions and travel speed should be adjusted properly. Use extreme care when operating on a ramp or rough ground or floor.

,A.WARNING

·When crossing the railroad, be sure to once stop and make sure to be safe.

·Go around rocks and stumps. If unavoided, reduce speed and go slowly and carefully. Use caution not to damage the bottom of the truck.

When traveling on grounds covered with snow or ice, use tire chains. On such ground conditions, avoid sudden accelerations, stops, or turns. It is good practice to control the travel speed by accelerator pedal effort.

,A.WARNING

·When equipped with tire chains, the truck get a larger driving power. However, sideway anti-slip performance is almost reduced so extreme care should be used.

(2) Weather condition

The following requirements apply in these climatic conditions:

-Average ambient temperature for continuous duty:+25°C;

-Maximum ambient temperature, short term (up to 1 h):+40°C;

-Lowest ambient temperature for trucks intended for use in normal indoor conditions: +5°C;

-Lowest ambient temperature for trucks intended for use in normal outdoor conditions: -20°C;

-Altitude:up to 2000m.

,A.CAUTION

·Do not rise the mast too high in the air when it's windy, this will lead to a dangerous condition unexpectedly.

(3) Measures against cold and hot

weathers a)Oil

Use the oil suitable for ambient temperature.

Always fill the tank up to the top in cold weather. This minimizes the air within the tank and thus reduces possible freezing from moisture condensation, rust in the fuel system and hard starting.

b) Battery

·In cold weather

Under normal charged conditions, the freezing point of electrolyte is about -35.

Always keep the battery in a well-charged condition since there is danger of damaging the battery jar if the electrolyte freezes. To prevent the freezing, charge at least 75% of the whole capacity.

Also, it is effective to keep the specified gravity up to 1.260, but not higher than this value.

·In hot weather

As the water of electrolytes is especially likely to evaporate in hot weather, replenish distilled water from time to time. Check the battery once a week, and supply distilled water.

In a region where the ambient temperature is intensely hot, it is practicable to lower the specified gravity of a completely charged battery down to 1.220±0.01.

Since the battery is better inefficient under hot temperatures, no other care is needed.

.A,DANGER

·Gases produced by the battery can be explosive. Do not smoke, use an open flame, or create an arc or sparks in the vicinity of the battery. Ventilate well when in an enclosed space and when charging. The battery contains SUI PHURIC ACID which causes severe burns. Do not get in eyes, on skin, or clothing. In **case of contact, flush immediately and thoroughly with clean water. Obtain medical attention when eyes are affected.**

c) Cooling system

Your lift truck is generally shipped with the cooling system filled with Long Life Coolant (LLC)of 50% volumetric mixture. The freezing point of the coolant of such a mixing ratio is -35?.

In hot weather, to maintain a good cooling effect, special care should be paid the radiator and cooling system. Parking in the shade is recommended.

Clogged radiator fins can cause overheating. Clean them out regularly with a blast of compressed air. Also, check for water leakage at the same time.

Check the fan belt tension and adjust it to the specified tension.

Even if the engine overheats and the coolant boils over, let the engine idle awhile until the temperature falls, before shutting it off. Long Life Coolant is mixed in with the coolant, so do not run tap water into it right away. Raise the engine hood and allow it to cool down by itself.

(4) Work environment

In special work environments, it may not be possible to use this forklift under its standard specifications. Consult with us if this forklift will be used in any of the following environments:

·In harbors or waterfronts where there is the risk of salt corrosion.

·In chemical plants where the forklift may be affected by acids or other chemicals.

·In environments where there is a risk of explosions due to suspended particulate matter or explosive gases, etc.

·In cold regions, hot regions, or at high altitudes.

·In environments with exhaust emission standards.

For engine-powered forklifts

·Do not use the forklift in bad weather conditions such as thunderstorms or high winds. Similarly, when dense fog arises, wait until visibility is good before using the forklift.

·When working indoors, exhaust gas(carbon monoxide) can be hazardous. Where work must be done indoors, ensure that windows or doors are open to allow adequate ventilation.

3. Safety Problem Before Use

(1) Get permission from a supervisor

A.CAUTION

·Only trained and authorized operators shall be permitted to operate the truck.

·The characteristics of brake, accelerator and hydraulic control levers are different every truck which has same specifications. After getting accustomed to operating, operate the forklift truck.

(2) Clothing of forklift truck working

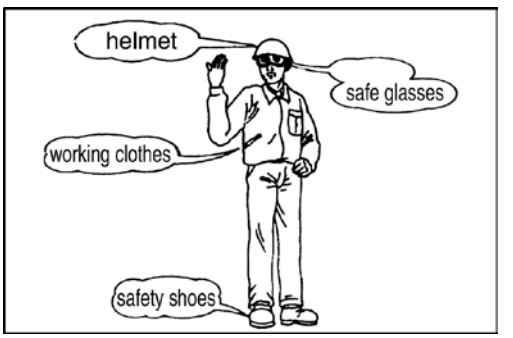
A.CAUTION

·Wear a helmet, safety shoes and working clothes.

·For security, do not wear loose clothes, which have a fear to be hooked or caught in. If hooking on the clothes, this will lead to a dangerous condition unexpectedly.

(3) Do not operate after drinking

A.CAUTION





·Do not operate the forklift truck when you are tired, have mix emotional problems, or consumed any drugs or alcohol.

(4) Safety for your place of work

_A.CAUTION

·Ensure that any water, oil, sand, ice or snow is removed from the road surface before work begins as these may cause the operator to lose control of the forklift.

·Never operate on rough or potholed roads, or roads with sharp objects on them, as any one of them could damage the forklift or cause it to tip over. Always ensure that the forklift will travel on a smooth surface free of hazards.

·Excessive peripheral noise can distract the operator and cause fatigue. There is also the risk that warnings to pedestrians and will go unnoticed. Operators must take particular care when using the forklift in noisy environments.

·Lighting for the operating area is needed for safety working operation.

·Operating on a platform and dock boards is in danger of turnover, provide wheel stops or other positive protection to prevent a turnover.

(5) Keep clean condition of operator's compartment.

_A.CAUTION

·Operator's compartment shall be kept in a clean condition at all times.

·When having slippery oily hands or muddy hands, this condition will lead a dangerous operation.

·Tools and other metallic objects shall be kept away from the operator's compartment. These obstruct the movements of the lever or pedal.

(6) Truck complete

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

·Arrange for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety.

·Maintain a permanent record of the design, test(s) and implementation of the modification or alteration.

·Approve and make appropriate changes to the capacity plated(s), decals, tags and instruction handbook.

·Affix a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered together with the date of the modification or

alteration, and the name and address of the organization that accomplished the tasks.

CAUTION:

·Truck should be equipped with an overhead guard and a load backrest.

The overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, etc., representative of job application, but not to withstand the impact of falling capacity load. Precaution shall be taken to falling objects.

WARNING:

·It is not allowed to modify or add any working device on the truck without written authorization from our company or such behavior will badly affect rated capacity or safety operation.

·Do not install any parts that may badly affect the operator's view.

· Forks with pairing marks shall be installed in a paired way. It is strictly forbidden to install in a mixed way.

·All parts of the fork are not allowed to be welded. If welding is required, it must be carried out according to the specified welding process.

(7) Periodic servicing

CAUTION:

·Carry out daily servicing and periodic servicing.

WARNING:

·When find a damage or a fault at the truck, stop operating the truck and inform an employee about the truck condition immediately. Do not operate the truck until the truck has been repaired completely.





(8) Avoid fire hazards.

CAUTION:

·Setting a fire extinguisher to avoid fire hazards, accident. Use the fire extinguisher according to it's operating rules.

(9) Prohibition of overload

CAUTION:

·It is prohibited to overload and observe the allowable load and the capacity chart on the truck. Make sure the weight of load and the center of gravity are the load position.

capacity means what the maximum load can be put on the forks in accordance with a load center.



(1O)Using a proper pallet

CAUTION

·Use a pallet which is suitable size and strength for a load.

·Make sure palletized load is in proper shape and securely palletized.

·Prohibition of handling materials without pallets.



4. Safety Problem During Operation

(1)Cautionary proceeding for start

CAUTION

·The parking brake lever is applied securely.

·The directional switch lever is in "N".

·Depress the clutch pedal or the brake pedal.

·Adjust the seat so you can get easy access to all hand and foot controls.

·Make sure no one is under, on and close to the truck.

(2) Safety around the truck

,A CAUTION

·When carrying the large load and visibility is poor, make a drive backward or someone should induce the truck.

·When driving to backward, make sure no person is around the truck. Make sure to use the rearview mirror provided.

·Someone should induces the truck at narrow aisle.

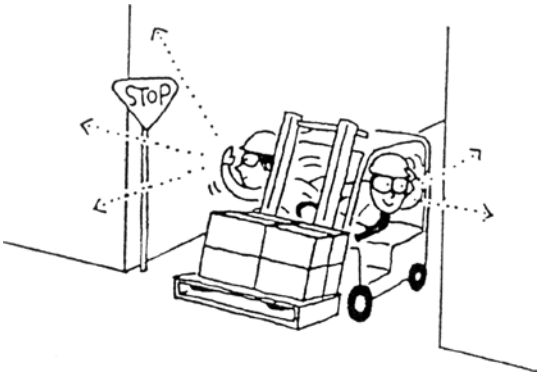
·The driver shall be required to stop at cross aisles and other location where vision is obstructed and make sure security at right and left of the truck.

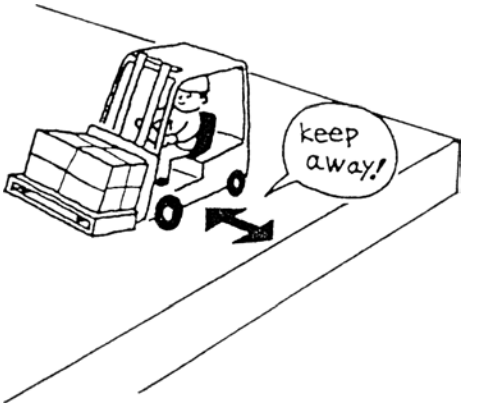
·Make sure the safety distance from sideways or platform's edges. Working on the sideways or platform may cause the truck dropping, put stopper and so on.

·A forklift truck is a rear wheel steering which is different from a car, slow down the traveling speed and approach to a turning corner then operate steering wheel with taking care of a turn at the truck back.









(3) Prohibition of rough driving

CAUTION



·Do not turn on the key switch with depressing the accelerator pedal.

·Do not make a sudden start, braking or turn. A sudden start and braking can cause a falling of load. A sharp turn on traveling can cause a overturn of truck and may relate to a serious accident.

·Operate hydraulic control levers slowly when loading and unloading. There is a danger of falling load or overturning the truck when operating the levers suddenly at high height position of forks.

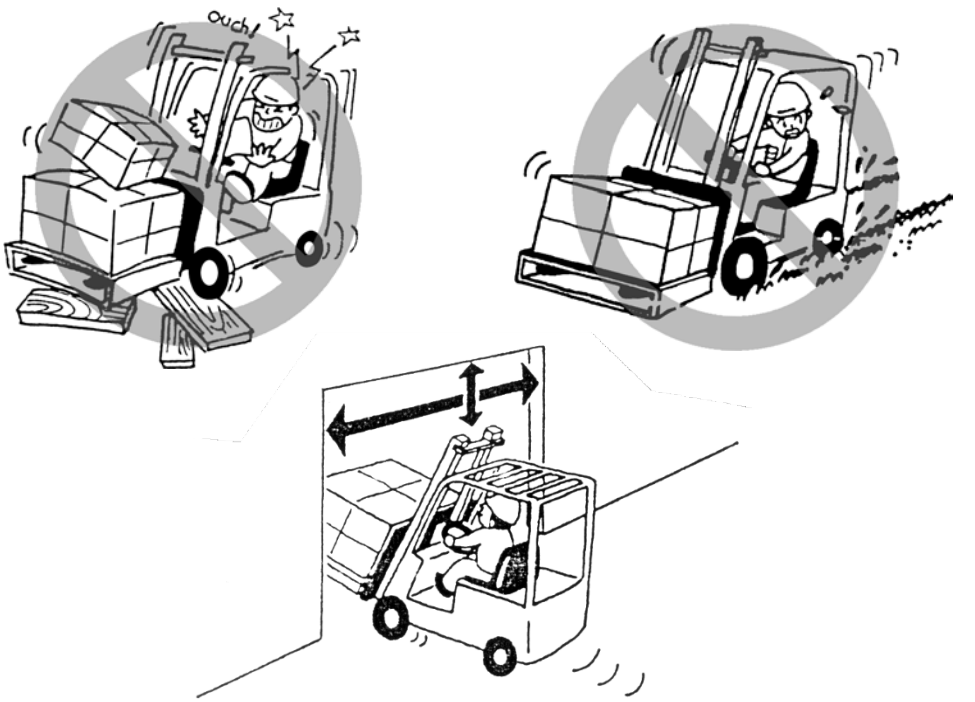
·Do not run over bumps and obstacles scattered on the road.

·When passing by the other truck, slow down tie traveling speed and sound the horn.

·Do not drive into a weak floor or ground.

·Slow down the traveling speed on a wet, slippery, uneven and inclined place, etc.

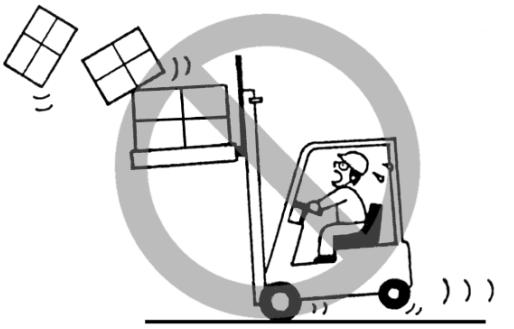
·Make sure that there is sufficient clearance between mast and ceiling or entrance of a structure.



(4) Prohibition of driving with forks lifted up in the air

,A CAUTION

·Do not drive with forks lifted up. When traveling with lifted forks, this could cause an unstable condition and a turn over of the truck.



(5) Prohibition of fork tip working

,A CAUTION

·Do not push a load or lift up by the tip of forks. When catch a load by the tip of forks, it can cause jumping up the truck or a load and permanent deformation of forks.

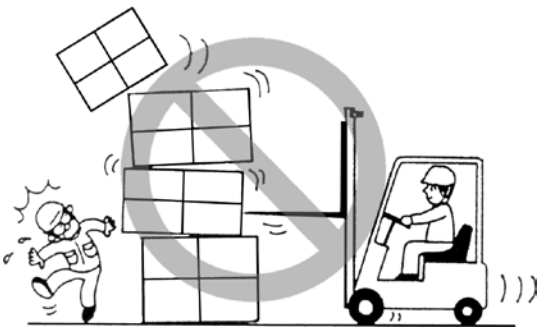




(6) Prohibition of pushing and pulling working

,A CAUTION

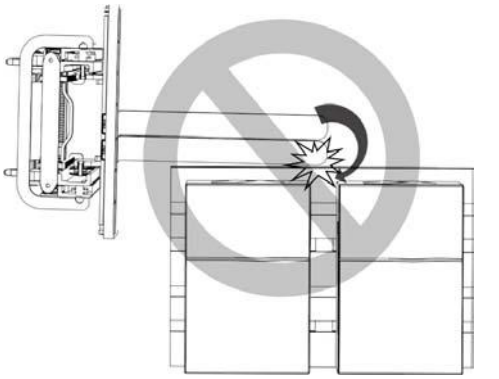
·Do not push or pull a load. The load would be damaged or dropped and damage of trucks' parts will be caused.



(7) Prohibition of prod goods horizontally with forks

,A.NOTE

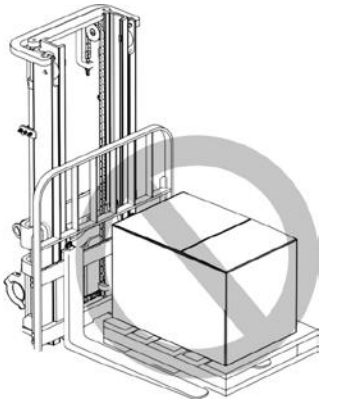
·Do not lift goods horizontally with forks or parts, damage may be caused.



(8) Prohibitions of carry goods with a single fork

,A.NOTE

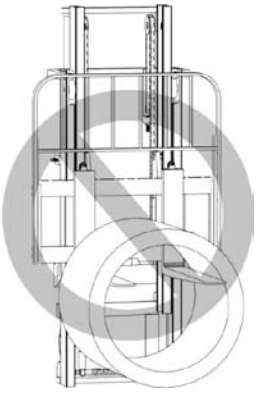
·When loading, two forks shall be loaded at the same time. When using a single fork to pick up goods, the goods will fall off and the parts of will be damaged.

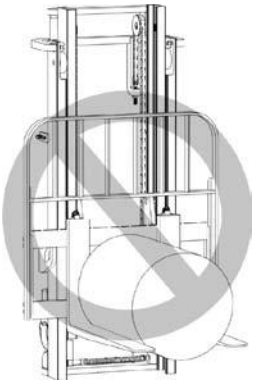


(9) Prohibition of carrying goods with arc-shaped bottom

,A.NOTE

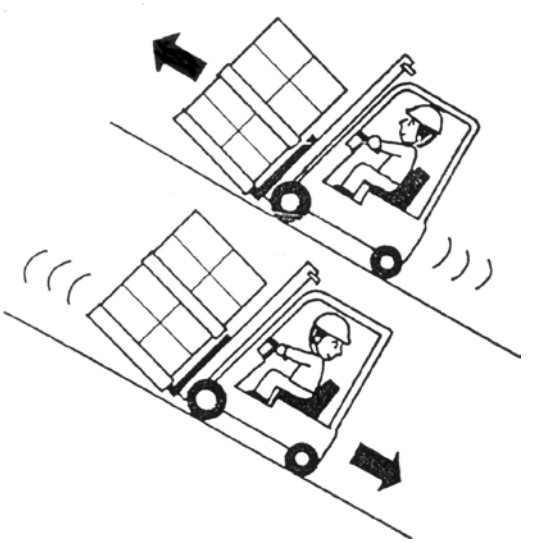
When the forklift truck is loaded, the load shall be evenly distributed on the upper surface of the horizontal section of the two forks, and the direction of force should be vertical downward, so that no force of other direction can be generated; it is forbidden to carry the goods with arc-shaped bottom.





(10) Driving on a slope

CAUTION



·Drive the truck on a slop as following.

LOADED: Drive the truck forward to ascend and backward to descend.

UNLOADED: Drive the truck backward to ascend and forward to descend.

·When the truck goes down on a slope, drive slowly with the brakes on. Make sure that the forks should not touch the ground.

·Driving, turning, and loading shall not be taken on a slope. It could cause turning sideways of the truck, it is very dangerous.

(11) Prohibition of off-center loads

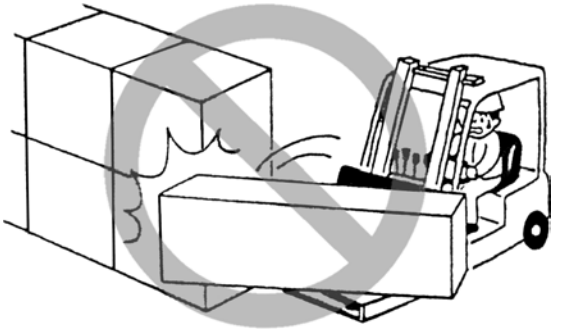
CAUTION

·Make sure if loads are arranged stable and safely, insert the forks to the pallet correctly and care must be taken not to handle off-center loads.

·To handle off-center loads could lead to overturn the truck and falling loads.







(12) Prohibition of permitting passengers to ride



WARNING:

·Do not permit passenger to ride on the forks or a pallet.

·Do not ride people on the truck except driver.

·Do not ride people on the truck as a counterbalance.

·Do not stand on the load or pass under forks.





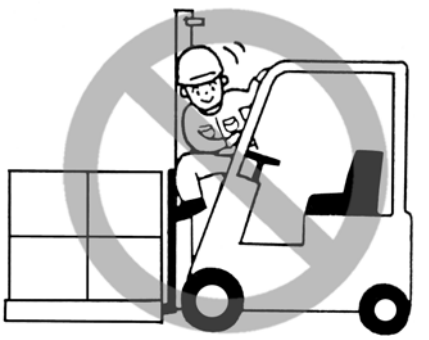
(13) Prohibition of putting into mast structure

A WARNING

·Never put any part of the body into the mast structure or between the mast and truck.

A CAUTION

·Keep hands and feet inside the operator's compartment. Do not put any part of the body outside the operator compartment of the truck.





(14) Prohibition of lifting when tilting loads forward

A.CAUTION

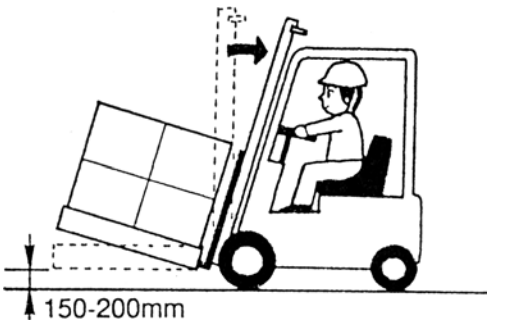
·Do not lift up a load and drive a truck when tilting the mast forward. When lifting loads or diving the truck, tilt the mast backward enough and stabilize the load. When traveling with or without load, raise the forks for 150-200mm from the floor.

·Do not tilt the mast forward with the load.

·When lifting or lowering the load, be sure to stop the truck.

·Do not load and unload the load at the condition in which the truck is leaning.





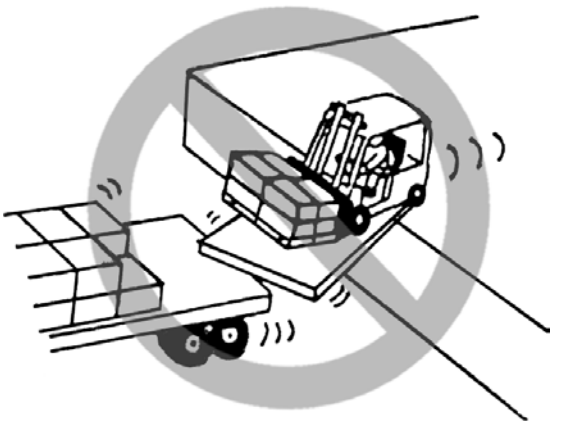
(15) Driving into trailer

A.CAUTION

·Operate the truck at the place where has holding means of a trailer at the docks.

·Before starting the operation of truck, fix a dock board and inspect it's strength.

·When getting into or off the trailer, drive carefully and slowly across the dock board or bridge plate.



(16) Getting on and off truck

CAUTION:

·Do not jump on and off the truck.

·When getting on and off the truck, grasp a grip, put on your foot at step and supporting your body.

·When getting on the truck, do not grasp a steering wheel or hydraulic control levers.



· Prohibition of loading high stacked loads

CAUTION:

·Loaded load should be contacting with a load backrest. Do not handle the load which a exceeded height of a backrest. When loads go over a load backrest, there is a danger of loads 's falling against operator.

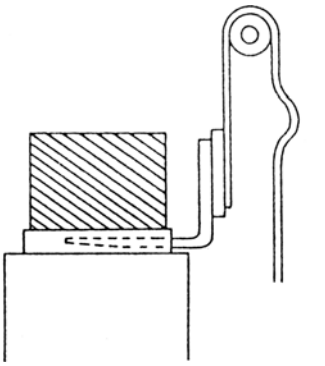


·When making a double stack loading, fasten the loads with rope to protect falling of loads.

(18) Loosen chains

CAUTION:

·Do not draw out the forks from a pallet when chains are loosen. When chains are loosen, there is a danger of catching loads and rack by forks or falling of loads and overturning of the truck.



·When chains are loosen, pull the lift lever a little and lift the forks, the loosen chains could be corrected. After correcting the loosen chains, draw out the forks from a pallet.

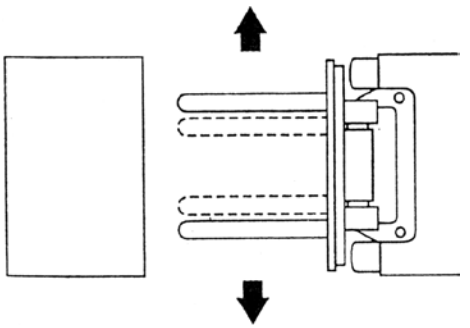
(19) Adjustment of forks

CAUTION:

·Adjust the spreading of forks in accordance with a pallet size. Care must be taken not to pinch fingers when adjusting a spreading of forks.

·When adjusting the width of forks, make sure that the setting pin of the forks are fixed. If the forks are not fixed, the forks could move and there is a danger of the load's crumbling and falling.

·For the forks with hydraulic fork positioning function, the adjustment of fork width shall be carried out without load. It is prohibited to adjust with load.





(20) Handling of wide loads

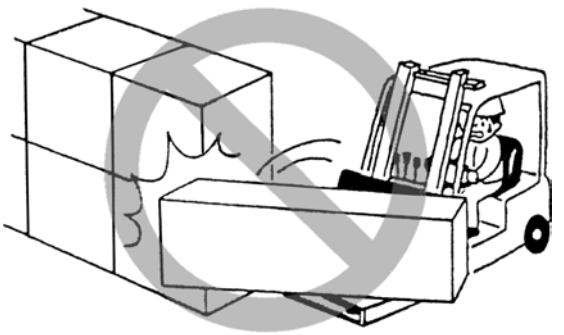
CAUTION

·Careful driving should be taken when handling long or wide loads.

·Be careful of around security when turning, and turn slowly in order not to move loads.

·Be careful of balancing of loads, and handle the loads at low height position.

·Lifting and lowering loads should be slowly, and be earful of around security.



(21) Prohibition of holding down loads by hands

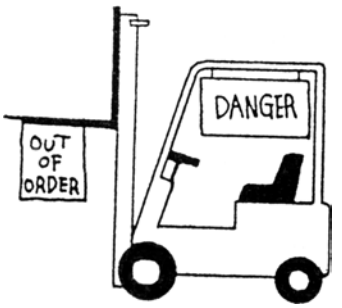
CAUTION:

·Do not hold down the loads by hands. There is a danger of load's falling.

(22) Parking of disabled forklift truck

·When parking the forklift on the road, warning or "out of order" signs shall be placed on the truck and remove the key.

·When the forks could not be lowered by fault, place a large mark in order not to be hit by other truck or walkers.



(23) Information of after finished working

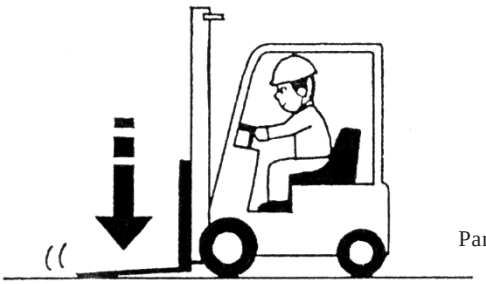
Before leaving the truck:

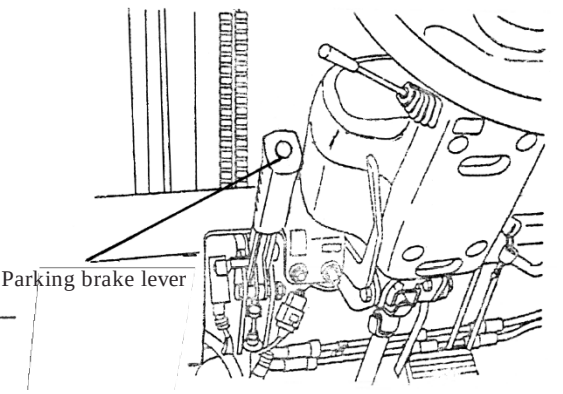
·Tilt the mast forward and fully lower the forks. If do not lower the forks to the floor, there is a danger of stumbling or hitting body.

·Place directional switch lever in neutral.

·Apply the parking brake securely.

·Turn off the key switch and remove the key.





(24) Parking

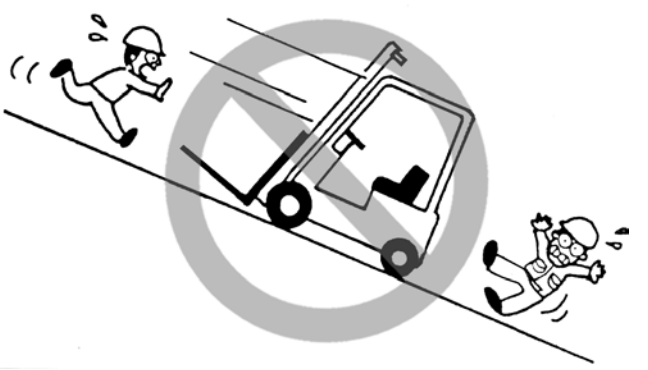
CAUTION

·Park at reserved place.

·**Parking place should be hard sufficiently and does not disturb a traffic.**

·**Do not park on or near an inflammable object.**

·**Do not park trucks on a slope. When park trucks on a slope, the trucks could move inconceivable. When park trucks on a slop by necessity, put wheel drags securely.**



(25) Noise

According to the measurement method specified in ISO 12053, max.noise at the outboard of the truck should be not more than lOldB(for l-3t)and 103dB(for 5-lOt). It is measured in sound pressure level at the operator's position and in sound power level around. If the A- weighted emission sound pressure level at workstations exceeds 80 dB(A), additional ear safeguard shall be added.

EK18LP	EK18LP	EK20-25LP	EK20-25LP	EK30-35LP	EK30-35LP	EK70LP	EK100LP
84dB	82dB	82dB	82dB	90dB	84dB	90dB	88dB

,A.CAUTION

·**Driving on the rough road will make the noise of the truck be increased as well as the distortion of the tires.**

(26) Travel at full speed

500kg - 3500kg forklift truck assembled with a mast no less than *Sm* or attachment heavier than 250kg should not travel with full speed no matter whether it is loaded.

5. Safety Problem During Service

(1) Service place

.A.CAUTION

·**Servicing facility should be provided adequate equipment and safety guards, and this place should be appointed.**

·**Servicing place should be a flat footing.**

·**Servicing place should be provided for adequate ventilation.**

·Fire extinguishers shall be provided at the servicing facility.

(2) Precautions of service

,A.CAUTION

·Smoking shall be prohibited.

·Wear safeguards (helmet, shoes, glasses, gloves and boots) and suitable clothes.

·Wipe off split oil at once.

·On lubricating, lubricate after removing grease and dust off nipples and fittings with a brush or a cloth.

·Turn off key switch and pull out the battery plug except being in case of need.

·When servicing a forklift truck, lower forks to the floor.

·Clean the electrical components with compressed air.

(3) Cautions of service

.A.CAUTION

·Care must be taken not to put your feet under forks and not to stumble over forks.

·When forks are lifted up, put blocks under an inner mast not to fall down forks and mast.

·Care must be taken to snip your hands when opening and shutting of a floor plate and a battery cover.

·When having a group work, proceed working by making a sign each other.

·Use suitable tools and do not use temporary tools.

·As maintenance of hydraulic circuit is always high-pressure condition, do not work before lowering inside pressure.

·When being struck by a high voltage shock, consult a physician immediately.

·Do not use a mast assembly instead of a ladder.

·Prohibit putting into your hands, feet and body between the frame and mast assembly positively.

·Bear in mind that the transmission or the hydraulic system can be hot while operating. Let the truck cool before servicing to avoid burning.

(4) Inspection and exchange of tire

.A.CAUTION

·Leave a dismounting and mounting tires to a qualified service facility by our company.

·Handling a high-pressure air shall be made by authorized personnel.

·When use a compressed air, wear goggle.

·When dismounting the tire, do not loosen bolts and nuts of joint rim. As inside tire is high pressure, there is a danger of breaking bolts, nuts and rim.

(5) Jack up working (exchanging tires)

WARNING

·Do not enter under the truck while jacking up the truck.

CAUTION

·Before jacking up, make sure that nobody in the truck and no load on the truck.

·When wheels rise up from ground, stop jacking up and put blocks under the truck to prevent the truck falling down.

·Before jacking up, put wheel drags.

(6) Notes and recommendations when maintaining oil cylinders

As the executive element of the hydraulic system, the oil cylinder is mainly responsible for lifting, tilting, steering, side shifting and other actions on the forklift. It is characterized by precise structure, frequent actions and sensitive to the cleanliness of oil products. The surface finish of the piston rod directly affects the wear resistance of the sealing ring and dust ring, and then affects the oil leakage of the oil cylinder.

In order to ensure the service life of the oil cylinder and reduce the user's use cost, the following oil cylinder use and maintenance requirements are recommended.

·For trucks with low frequency of use, especially that are not used for a long time, it is recommended to lift the mast to the top for storage, or lift the mast to the top and up and down for more than 5 times every 20 days, so as to fill the upper cavity of the oil cylinder with oil, which plays the role of lubrication and rust prevention. The cycle should be appropriately shortened in high temperature, high humidity, high salt and chemical environment. (applicable to piston lifting cylinder)

·Clean the dust and foreign matters on the piston rod regularly with a clean dry cloth to ensure that the surface of the piston rod is clean and prevent the piston rod from being damaged. Wipe and clean it every day in a high dust working environment; (applicable to all cylinders on the whole truck)

·It is strictly prohibited to carry out electric welding on the whole truck. If necessary, it is recommended to extend all the oil cylinder piston rods before welding. After welding, check whether there are traces of arc damage on the surface of the piston rod. (applicable to all cylinders)

·It is forbidden to damage the piston rod during truck maintenance and commissioning, such as placing hard objects on the piston rod of tilt cylinder or standing on it;

·It is strictly forbidden for the user to adjust the thread distance of the ear ring of the tilt cylinder and then adjust the tilt angle;

·Regularly check the cylinder head with the hook wrench in the toolbox to prevent loosening.

(7) Drain the waster(electrolyte, oil, etc.)

CAUTION

·The waste of the forklift truck must be reclaimed obeying the government's rules. Do not drain the water randomly.

6. Safety Problem of Battery Using

(1) Smoking shall be prohibited

_A CAUTION

·A battery produces hydrogen gas. When making a short circuit, sparking and a fire of a cigar approaching to the battery, it causes an explosion and a fire.



(2) Prevention of an electric shock

CAUTION

·The battery has a high voltage. Do not touch the electric conductor of the battery when installing and servicing. It causes a serious burn.

(3) Connecting correctly

,A.CAUTION

·Do not charge the battery which the EB terminal is changed places with the0 terminal. It cause heating, ignition, smoking and an ignite explosion.

(4) Prohibition of putting a kind of metallic goods on the battery surface

,A.CAUTION

·Do not make a short circuit between both terminals by bolt or tool. It causes injuries and an ignite explosion.

(5) Prohibition of over discharging

,A.CAUTION

·Do not operate the truck until it does not move. The battery life will be shortened. When the battery capacity warner flushes, charge the battery.

(6) Keep clean

.A.CAUTION

·Keep the upper surface of the battery clean.

·Do not use a dry cloth, a chemical fiber cloth for cleaning the battery surface. And do not cover the battery by a vinyl sheet.

·It causes a ignite explosion by a static electricity.

·Use a wet cloth for cleaning the top of uncovered battery.

(7) Wearing safeguard

,A.CAUTION

·When servicing the battery, wear goggle, rubber gloves and boots.



(8) Electrolyte of battery is hazardous

.A.CAUTION

·The electrolyte of battery is made of the dilute sulphonic acid. Handling should

be taken care.

·When the electrolyte adheres to eye, skin and clothes, it causes to lose eyesight and a scald.

(9) Emergency first aid

When an accident is occurred, take the emergency first aid as following and consult a physician immediately.

·Spilled on the skin: It should be washed off with water for 10-15 minutes.

·Splashed in eye: It should be washed off with water for 10-15 minutes.

·Flow out on a large scale: Neutralize the electrolyte of battery by the baking soda (sodium bicarbonate) or it should washed off with water.

·Swallowed: Drink milk or water on a large quantity.

·Splashed on clothes: Take off clothes immediately.

(1O)Close the vent caps securely

CAUTION

·Close the vent caps of the battery securely in order not to leak the electrolyte of battery.

·Care must be taken not to refill electrolyte excessively. An overflowed battery could cause a electric leakage.

(ll)Washing

CAUTION:

·Do not wash the truck with the battery attached. If washing the battery, it causes damage to the truck.

·Tighten the vent caps in order to protect water.

(12) Sea water

CAUTION:

·The battery should not be got wet with rain or seawater. It causes a damage of battery or fire.

(13) Abnormal battery

A CAUTION

When the battery shows the following condition, contact sale apartment of our company.

·The battery stinks.

·The electrolyte becomes muddy.

·The temperature of electrolyte is high.

·The decreasing speed of electrolyte is fast.

(14) Prohibition of disassembling

.A.CAUTION

·Do not drain the electrolyte from the battery.

·Do not disassemble the battery.

·Do not repair the battery.

(15) Storage

.A.CAUTION

·When do not use the battery for a long time, store it in a place where is well ventilated and there is no sign of fire.

(l6)Abandonment of battery

.A.CAUTION

·Regarding used batteries, please contact relative professional companies or handle according to local regulations. It **is prohibited to abandon at will which will result environment pollution.**

(17) No welding

If it electric controlled engine, it is prohibited to carry out welding work on the truck. if it has to, weld after dismounting the ECU.

(18) Notes when flushing

·If **it is electric controlled engine, it is prohibited to wash engine with flush water, or fault may occur because of water splashing onto electric units (such as ECU, sensor or connector).**

·Combined instrument, engine and generator can not be washed with flushing water.

7. Safety problems during attachments installation, adjustment and using

(1) Attachments installation

In order to prevent the safety problem caused by the attachments shifting right and left along the fork bracket during using, make sure the installation is reasonable, reliable and safe.

When the attachment is installed, insert the upper hook stopper into the gap of the upper beam and make the offset between the center line of attachment and the center line of fork bracket to be no more than 50mm or fork transversal stability may be badly affect; for rotating type attachment (paper roll clamp, bale clamp, multipurpose clamp, drum

clamp), weld a stopper on both sides of connecting part of fork bracket upper beam and attachment to avoid side shifting during using; for the attachments with lower hook limit, adjust the clearance between lower hook and fork bracket lower cross beam.

Hook type is adopted by small and medium attachment. Keep strictly to the IS02328 Fork-lift trucks - Hook-on type fork arms and fork arm carriages - Mounting dimensions to choose attachment and matching forklift truck.

(2) Attachment using

a) The person who operates the attachment shall have practical experience on forklift truck driving and operation. At the same time, the person shall be familiar with notes on attachments plate, read the relative instructions (especially attachment instruction), be familiar with attachment performance and operation, especially rated capacity, lifting height, fork size, attachment capacity and so on.

b) when operating the attachment with more than one function (for example, not only has side shifting function, but also rotating or clamp), two functions can not be operated at the same time. carry out the other function after one is finished.

c) It is prohibited to use the attachment with overloaded goods. When lifted high, it is suggested not to carry out unbalanced loading. If necessary, such work can only be done in a short time. The offset amount to right side or left side shall be lower than 100mm separately.

d) It is prohibited to travel with an attachment lifted high.

e) It is prohibited to stand right below the attachment and no more than 1.5m away from the shaded area right under of the goods.

f) It is prohibited to brake suddenly during traveling. Travel slowly when it is loaded.

NOTE:

For the "attachment capacity" listed m the attachment manual only refers to the attachment itself capacity not its capacity related to the whole forklift truck. Actual capacity shall be determined by the smallest value among forklift rated capacity, attachment capacity and completed truck comprehensive capacity. The actual rated capacity is listed on plate and as long as the handling goods do not exceed the allowable value, the attachment can meet every working condition requirements. Generally speaking, completed truck comprehensive capacity is the smallest among the three.

8. Safety problem during LPG truck

(1) Notes when adding gas

a) There are two ways to adding gas: one is to change the cylinder and the other is

charging gas to the cylinder directly.

·charge gas or change cylinder in well-ventilated, safe and local fire protection criteria applied outdoors

·Stop the truck and shut down the engine, then operator shall go away from his seat.

·Be away from the fire, heat source and concave ground.

·Be careful with the cylinder. When is removed from the truck, do not hit, throw or roll it.

·Oil charging can only be carried out by experienced person.

·During charging, the operator shall monitor the process all the time.

b) The operator shall inspect the cylinder when changing the cylinder or charging.

·Check if there is scratch ,pit or rust on cylinder;

·Check if there is leakage; check if the accessories are good to go.

·Check if the safety relief valve is blocked.

·Check if the cylinder is within the annual verification effective period, if not, apply for annual verification. For cylinder more than 15 years, it shall be discard as uselessness unless approved by relative apartment.

NOTE:

If any of the case occurs, the cylinder shall not be used. Try to change a new one or repair.

(2) LPG quality and composition

·The purity of LPG has a direct effect on forklift truck operation. If there are foreign matters, impurities, moisture or too much tar, the pipes or accessories may be blocked and thus fault may occur. The engine may not work and its power is not insufficient, what is worse, engine may flam out and it is not easy to start.

·The truck shall use LPG with high purity, few foreign matters, few moisture, low tar and less than 5% propylene;

·If the local gas source quality of the operator is poor, make sure to change filter screen and carry out maintenance regularly to remove accumulated foreign matters and tar in the LPG system and to ensure engine smooth running. The poorer the gas quality is, the shorter the maintenance period is.

·Because the evaporation rate of LPG in the cold environment gets slower, it is recommended to add more propane to facilitate volatilization.

(3) Treatment in case of emergency or accident

a) Generally there is odorization agent in the LPG so that it is easy to detect the leakage. If there is foul smell:

·Drive the truck to outdoors with good ventilation. Stop the engine and make sure there is no fire nearby;

·Turn off the switch on the cylinder manually.

·Check the pipelines, connectors and LPG conversion device carefully and find out the leakage part. Ask qualified technician or technician with experience for repair.

b) If there is an accident:

·Stop the truck and shut down the engine.

·Turn off the switch on the cylinder manually;

·Make sure there is no fire near the truck and disperse the leaked gas with fun if necessary;

·Ask a qualified technician or technician with experience for troubleshooting and repair.

c) If there is fire:

·If possible, turn off the switch on the cylinder manually.

·If there is water source nearby, watering the cylinder to keep it cool.

·Call the fire fighter department to put out the fire.

·If the cylinder catches fire, evacuate the personnel nearby.

(4) Notes during operation:

·Do not operate the truck near the fire source.

·Make the wire connectors are connected firmly to avoid short circuit or other faults;

·For single-fuel LPG trucks, please refer the liquid level indicator;

·For single-fuel LPG trucks, please do not add flammable liquid into fuel tank. It is ok to add non-flammable anti-freezing material after the fuel tank is cleaned and then cover the fuel tank;

·Use high-quality LPG fuel with high purity and good ingredient as possible;

·Maintain the gasoline engine including the ignition system, cooling system, intaking and exhausting system, engine itself and other equipment according to engine manufacturer suggestion regularly. Change engine oil, spark plug and air cleaner filter screen and so on regularly;

·**Maintain the LPG system regularly;**

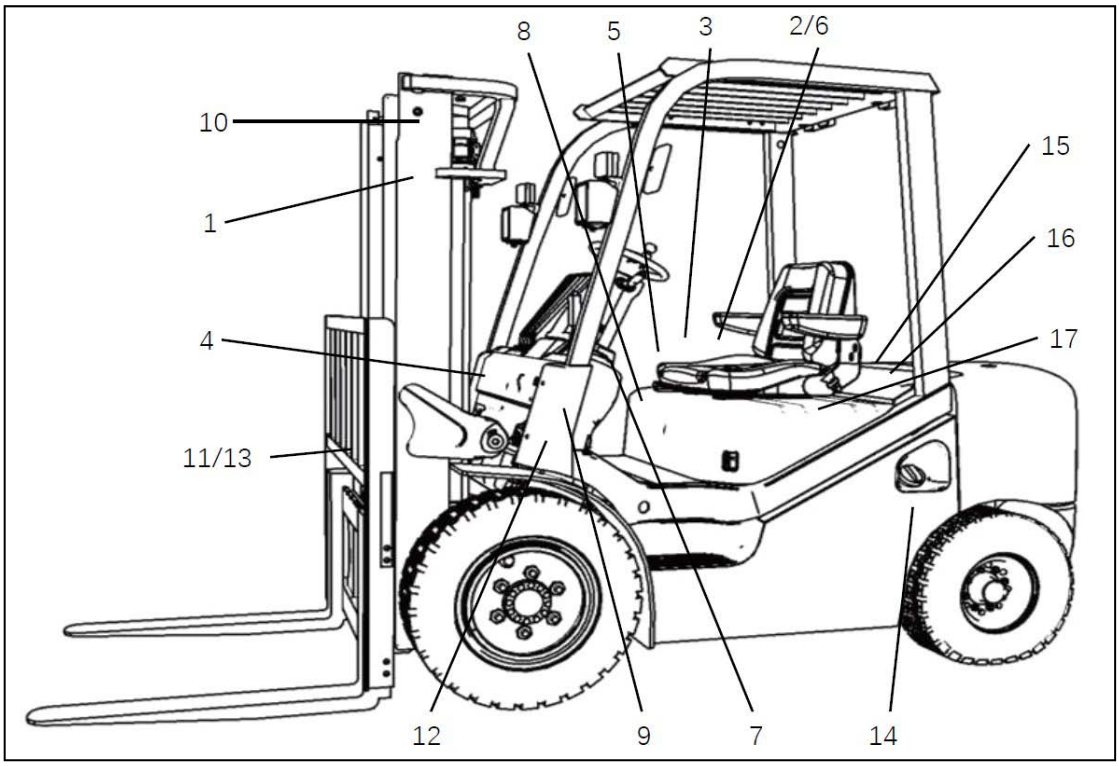
·If **LPG system has fault, contact with changing manufacturer for repair as soon as possible and repair by its specified repair factory.**

·The gas is heavier than the air, so the explosive gas and air mixture will be formed in the basement due to insufficient ventilation, which may lead to an explosion hazard.

Do not use LPG truck in the basement!

9.Decal

The decals sticking on the trucks are used to explain to the driver how to operate the truck and what to pay attention to. When any of them fall off the truck, please re-stick it at once.



	Safety decal	Position
1	decal (Do not stand under/on forks)	Two sides of the outer mast
2	Notes before operation	Upper side of the hood
3	Name plate	Upper side of the hood or upper side of the dashboard
4	lubrication chart	Front side of the dashboard
5	Capacity chart	Upper side of the hood
6	Caution before start	Upper side of the hood
7	Hand brake adjustment	Besides the hand brake
8	Adding hydraulic oil	Front side of the hood
9	Tire safety (Pneumatic tire)	On the dash board or the outerside of the front leg of overhead guard
10	Sling	Two sides of outer mast
11	Safety decal (no entry into the space behind the mast)	Middle cross beam of out mast
12	Tire's air pressure (Pneumatic tire)	On the dash board or the outerside of the front leg of overhead guard
13	Safety decal (Mind your hand)	Middle cross beam of out mast
14	Add fuel oil	Frame
15	Add antifreeze liquid	Upper side of the radiator cover
16	Fan safety	Fan surface of the radiator
17	Tie safety belt	Upper side of the hood

(1) Safety decal (Do not stand under/on forks)

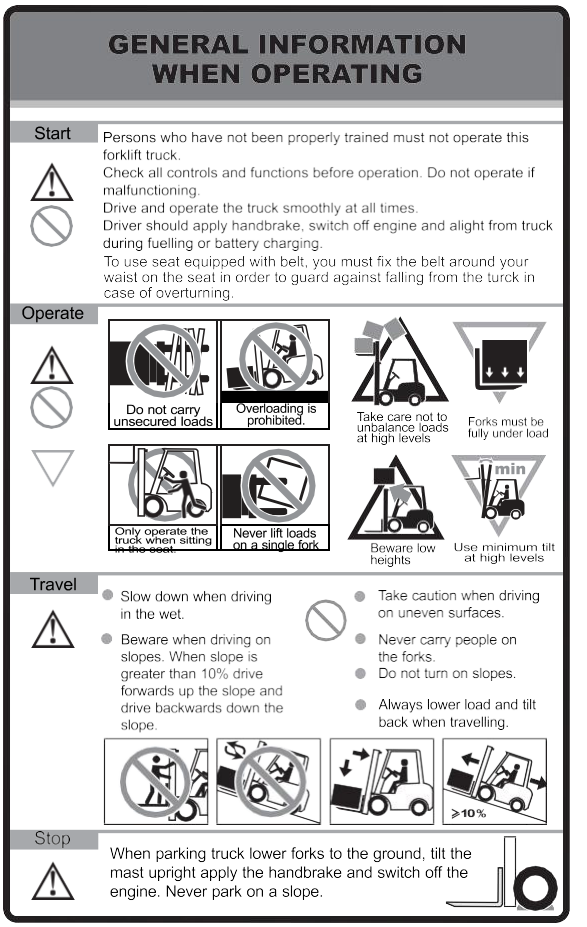
WARNING

It is prohibited to stand under or on the forks.

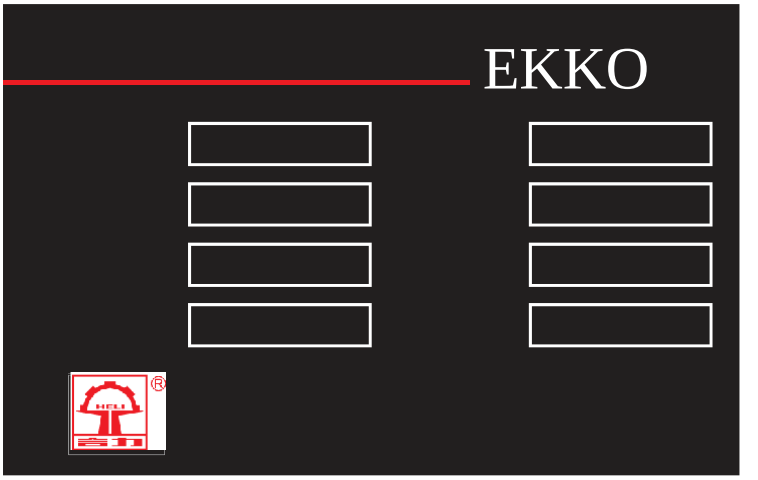


(2) Decal of notice

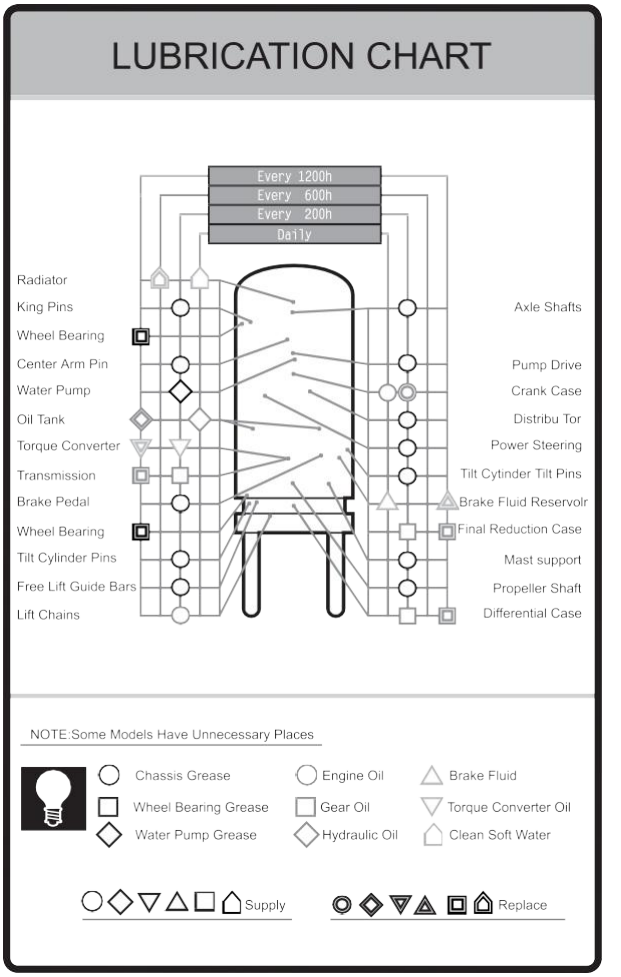
CAUTON:



(3) Name plate(for example)



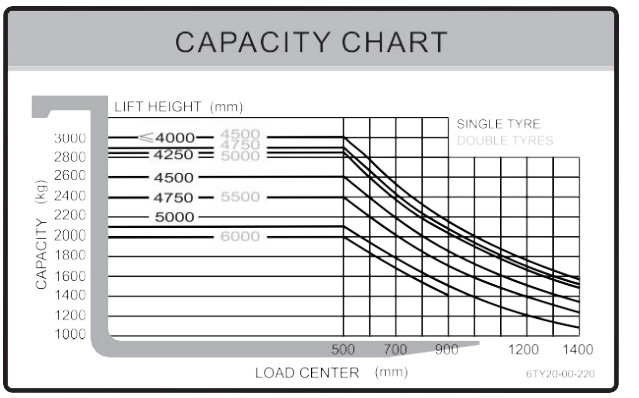
(4) Decal of lubrication chart



(5) Decal of capacity chart(For example)

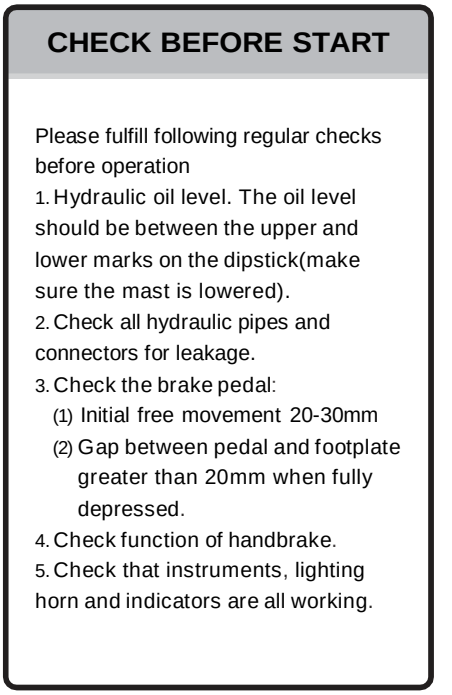
A CAUTION

The capacity chart represents the relationship between truck load center and allowable load.



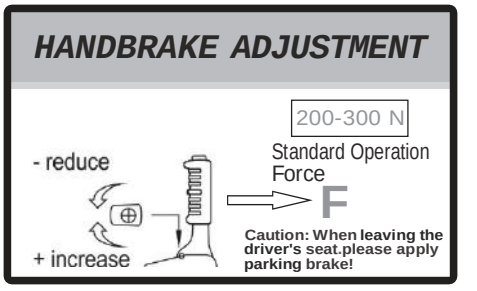
(6) Decal of caution before start

_A CAUTION



(7) Decal of hand brake adjustment

A CAUTION



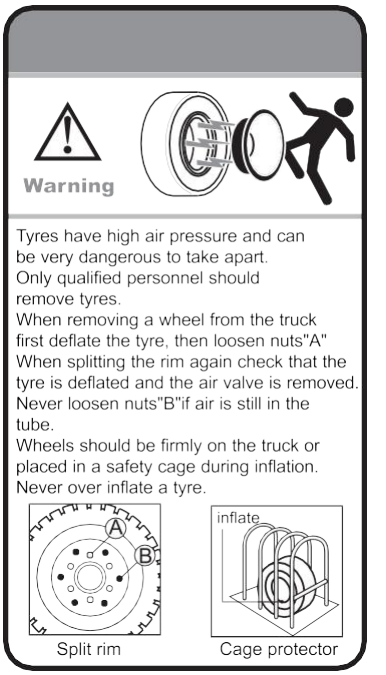
(8) Decal of adding hydraulic oil

NOTE



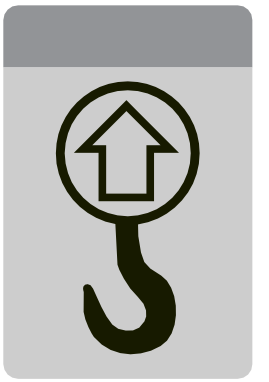
(9) Decal of tire safety(pneumatic tires)

WARNING



(1O)Decal of sling

CAUTION

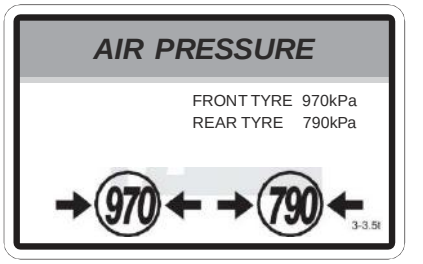


(11) Safety decal (no entry into the space behind the mast)

WARNING



(12) Decal of tire's air pressure(For example)



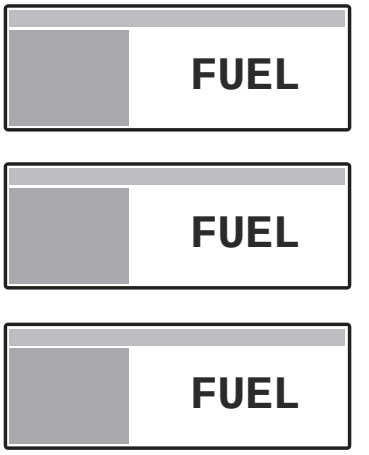
(13) Safety decal (Mind your hand)

WARNING



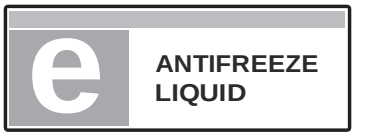
(14) Decal of add fuel oil

NOTE



(1 S)Decal of add antifreeze liquid

NOTE



(16) Decal of mind your hands

A.WARNING



(17) Decal of tie safety belt

A WARNING

Before driving, please tie the safety belt.



(18) Decal of noise (For example)



(19) Plate of protection on corrosion

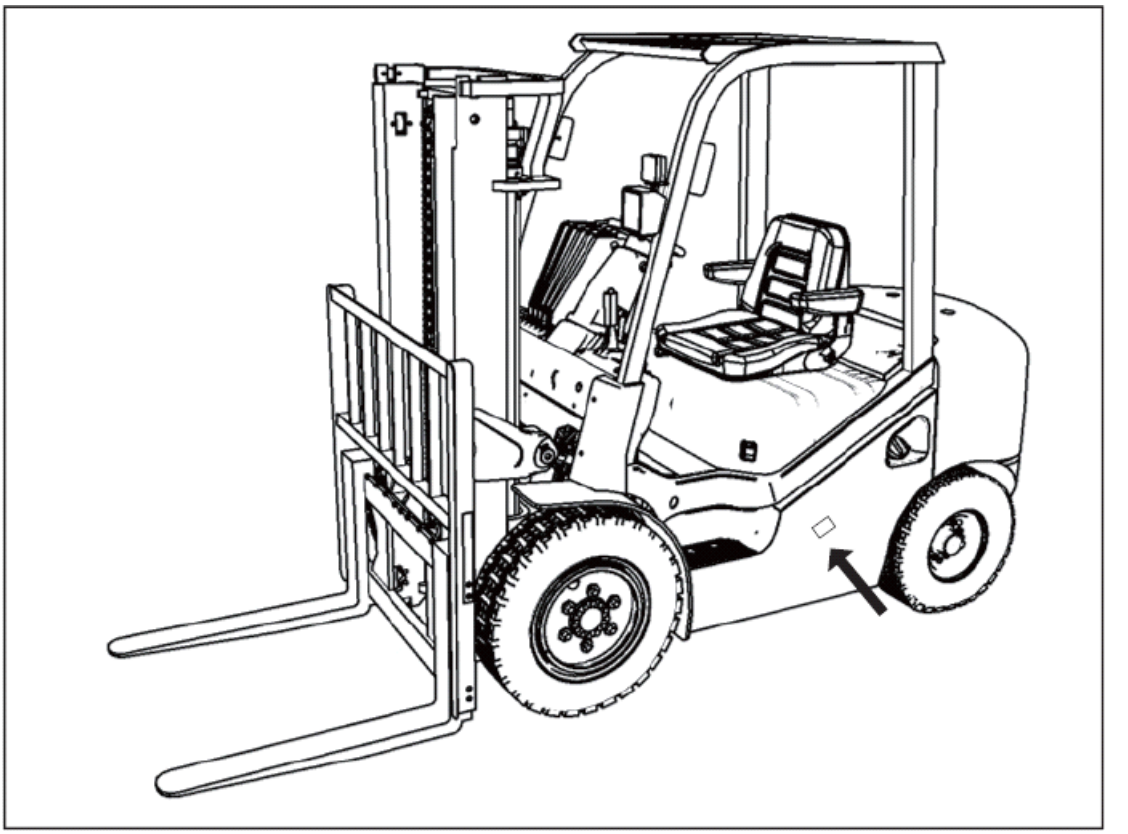
If the users have the requirements on corrosion prevention, the following protection level can be chosen according to particular case. The instructions on the plates of protection on corrosion are following:

Protection level and instruction	Plates
Protection level (protected during transportation): The whole truck has been processed with protective wax (pay attention to the cleaning of wax layer).	
Protection level II (Protected on pistons of tilting cylinders): The pistons of tilting cylinders are processed with double layered alloy coating and dust proof treatment.	
Protection level III (Protected on pistons of tilting cylinders and main structural parts): 1) The main structural parts such as frame, mast, backrest and overhead guards are processed with corrosive prevention layers. 2) The pistons of tilting cylinders are processed with double layered alloy coating and dust proof treatment.	

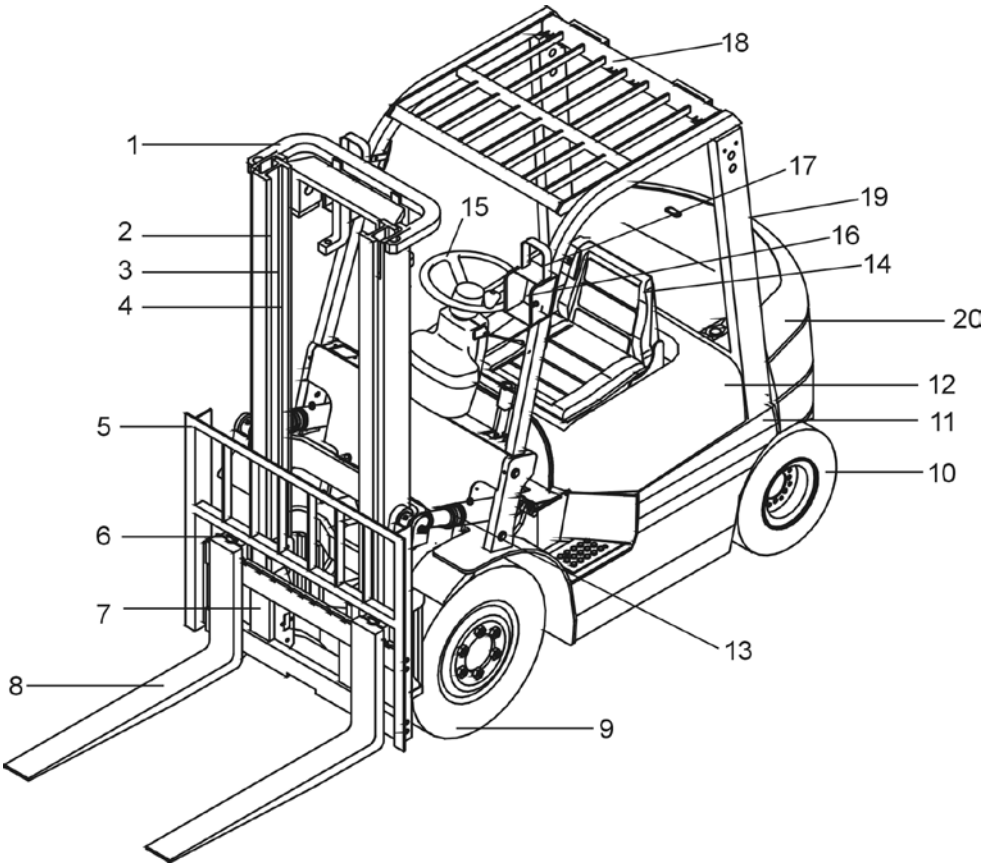
Protection level IV (Protected on the whole truck): 1) The main structural parts such as frame, mast, backrest, overhead guard and axle and covering parts such as hood and dashboard are processed with corrosive prevention layers; 2) Exposed galvanized parts such as joints and bolts and main steel pipelines are coated with paint; 3) The pistons of tilting cylinders are processed with double layered alloy coating and dust proof cover and oil coating after assembly. 4) The whole truck has been processed with protective wax.	

10. Position of frame number

Each truck has a unique frame number (also known as series number) when it leaves the factory. In addition to printing on the nameplate, the frame number of the truck is also stamped on the outer plate of the frame.

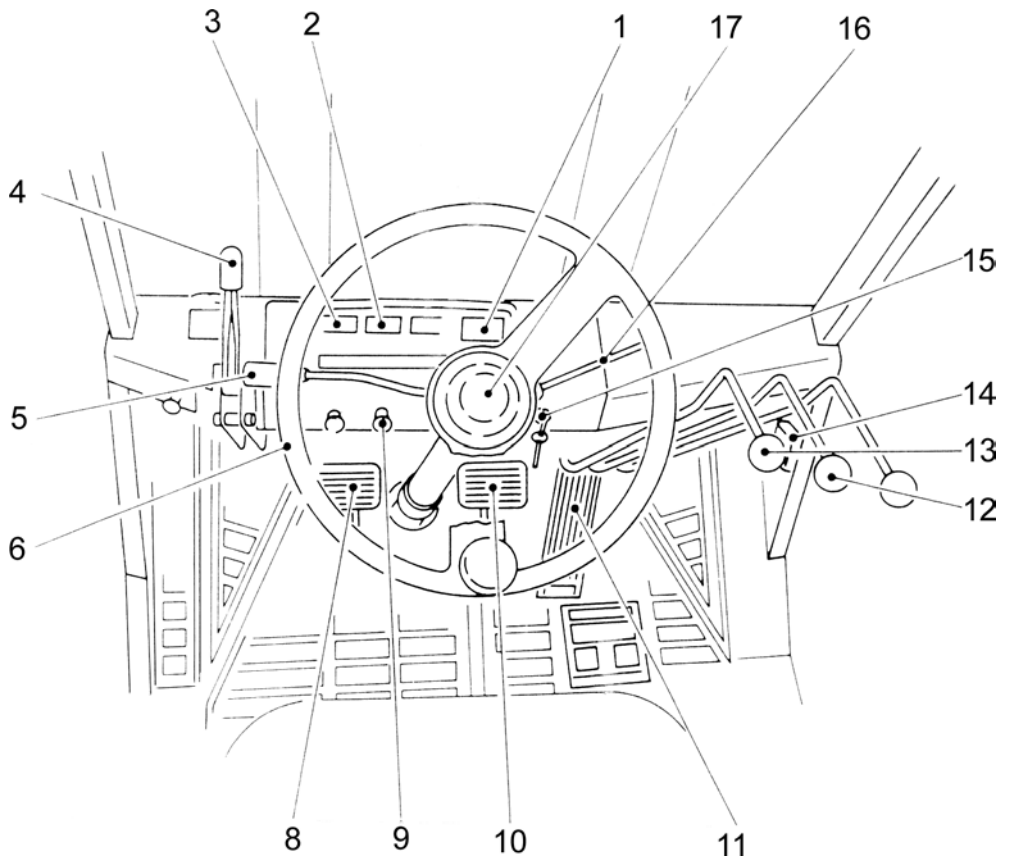


Ⅱ .Operation Device & Use Method



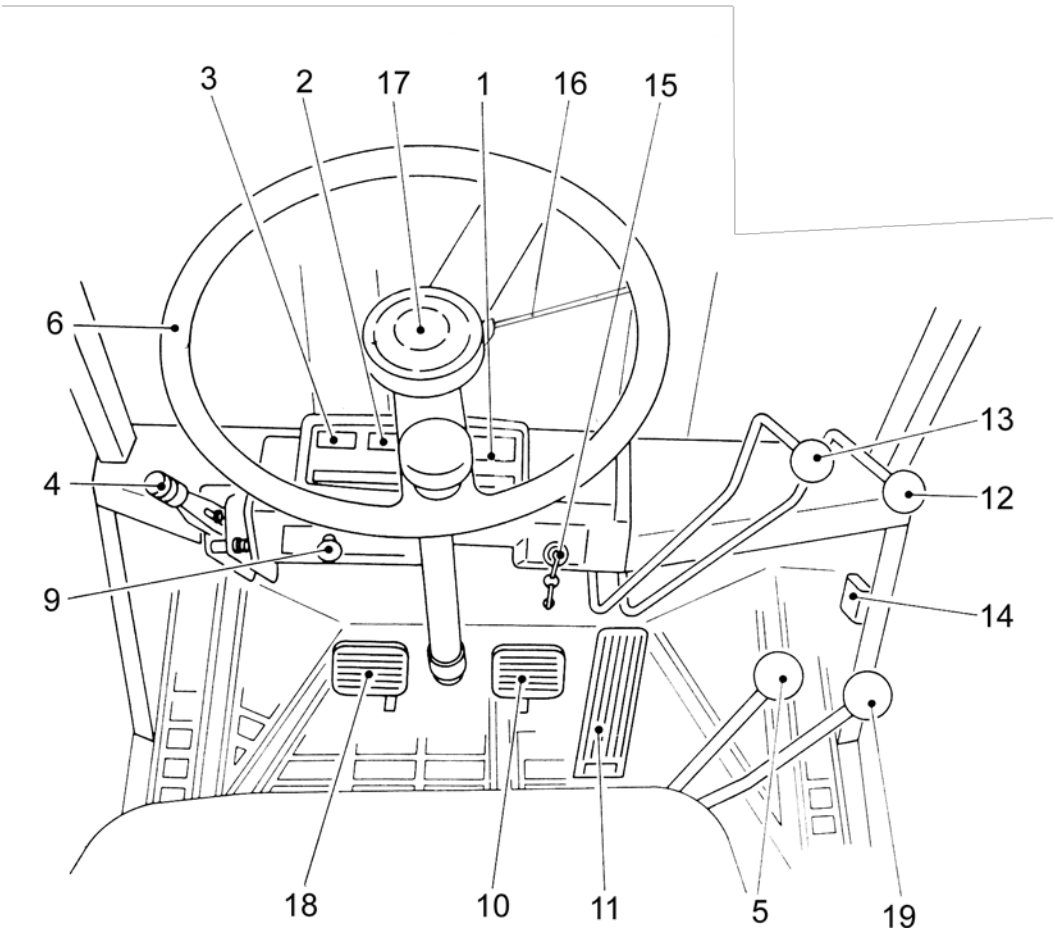
I.Outer mast	2.Inner mast	3.Lift chain
4.Lift cylinder	5.Load backrest	6.Fork stopper
7.Carriage	8.Fork	9.Drive wheel
IO.Steer wheel	11.Fuel reservoir cap	12.Hood
13.Tilt cylinder	14.Seat	15.Steering handwheel
16.Head light	17.Front combination lamp	18.Overhead guard
19.Rear combination lamp	20.Balanceweight	

TORQUE CONVERTER TYPE



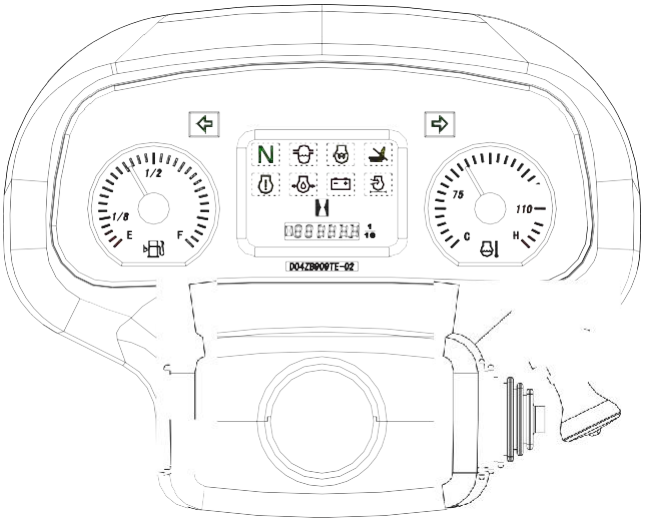
I. Hour meter
2. Coolant temp. gauge
3. Fuel gauge
4. Parking brake lever
5. Forward backward lever
6. Steering handwheel
8. Inching pedal
9. Light switch
IO. Brake pedal
11. Accelerator pedal
12. Tilt lever
13. Lift lever
14. Fuse box
15. Ignition switch
16. Turn signal lever
17. Horn button

FRICTIONAL CLUTCH TYPE

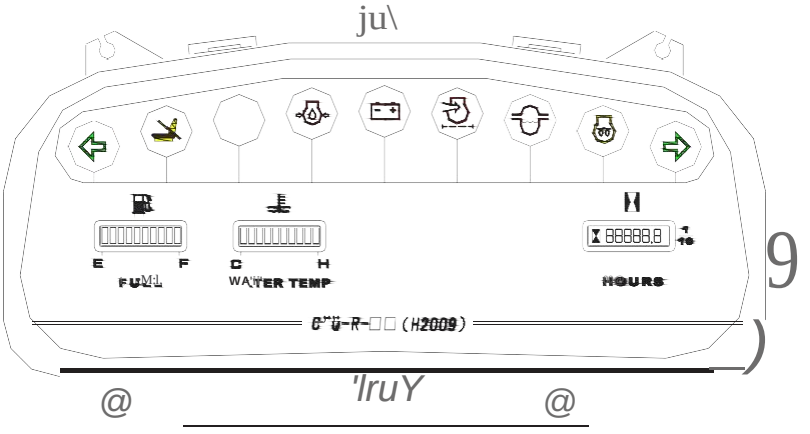


I.Hour meter
2. Coolant temp. gauge
3. Fuel gauge
4. Parking brake lever
5. Forward-backward lever
6. Steering handwheel
9. Light switch
IO. Brake pedal
11. Accelerator pedal
12. Tilt lever
13. Lift lever
14. Fuse box
15. Ignition switch
16. Turn signal lever
17. Horn button
18. Clutch pedal
19. Speed select lever

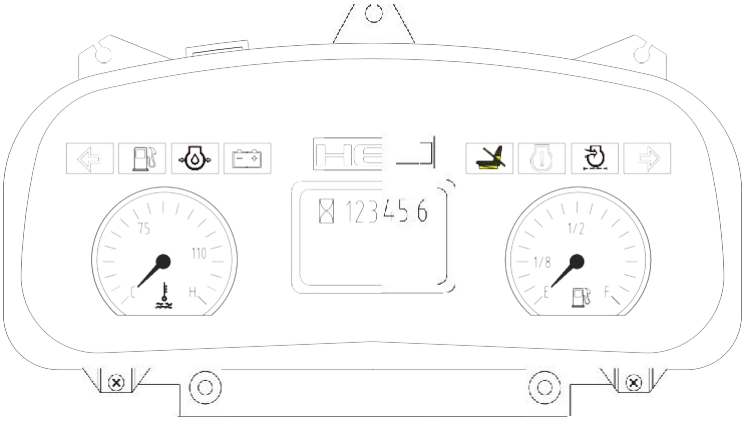
I.Liquid Crystal Instrument



For diesel forklift truck



For gasoline forklift truck



Optional parts

(1) Hour meter 

This meter measures working time of engine. Use meter to schedule lubrication and maintenance periods.

(2) Charge indicator 

This lamp indicates the battery condition of charge. The lamp comes on when the ignition switch is set at "ON" ,but it goes out as the engine starts and accelerator pedal is pressed.

CAUTION

· **If the light continues to stay lit or lights up during operation, the charging circuit has a fault and should be checked immediately.**

(3) Oil pressure indicator 

This lamp indicates the pressure condition of engine lube oil. Although it lights up when the ignition switch is set at "ON", once the engine starts up and the accelerator pedal is depressed, this lamp goes out.

CAUTION

· **If this light continues to stay lit or lights up during operation, The pressure is insufficient and should be checked immediately.**

(4) Sedimentor indicator 

DIESEL TRUCK

This lamp lights up when water in sediment or reaches to a certain level while the engine is running .In normal state, once the starter is set to "ON" position, this lamp lights up . After the engine is started up, it goes out.

If this lamp continues to stay lit or lights up during the engine running, stop the engine and discharge water immediately.

CAUTION

· If **the truck is operated when the lamp continues to stay lit, the fuel injection pump may be damaged.**

(5) Glow indicator

DIESEL TRUCK

This model truck has an integral "QUICK-ON-START" system as a cold starting aid and has no "PREHEAT" position at the starter switch.

Turn the key to "ON" position and the indicator lights up for a moment. After the indicator goes out, turn the key to "START" position.

(6) Engine coolant temperature 

This gauge indicates the temperature of the engine coolant. Under normal conditions, the pointer should be in the natural range(75-110). If the pointer stays in the alarm range(ll0-145), idle the engine until it enters the natural range.

CAUTION

·If **the pointer enters the alarm range, stop the operation instantly and slow down engine speed to cool the coolant and wait until the pointer goes into the natural range.**

(7) Fuel gauge 

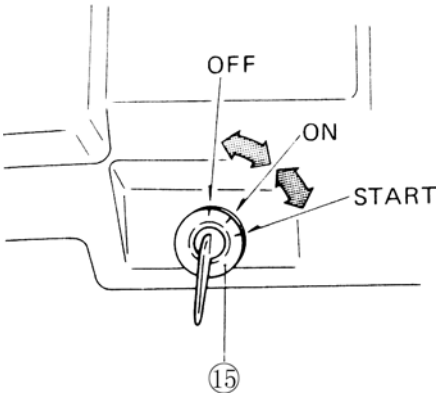
When the ignition switch is set to the position "ON" ,the gauge informs the operator how much fuel remains in the fuel tank. "E" mark stands for "Empty", "F" "Filled". The pointer enters alarm range when the fuel level drops to a 1/8 capacity.

CAUTION

· **Fill the fuel tank at the end of each workday(or each shift). This practice will reduce the condensation of moisture within the tank.**

2. Switches

(1) Ignition switch



OFF

This is position at which the key is inserted or drawn out.

Gasoline engine and diesel engine stop at this position.

ON

The electric circuit is closed with the starter switch at "ON". After the engine is started ,the key is at this position.

START

As the key 1s placed m the "START" position, the starter motor 1s engaged. When

Removing hand off key, it is automatically returned to the "ON" position by spring force.

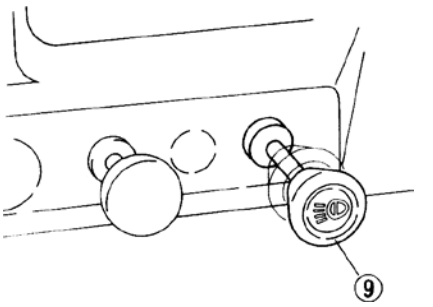
,A.CAUTION

·Do not keep the starter switch in the "ON "position while the engine is shut down. This results in a discharged battery.

· With the engine running, do not turn the starter switch into the "START" position, since there is a danger of the starter motor being damaged.

·Do not keep the starter engaged for more than 15 seconds at a time. Wait about 20 seconds before trying again.

(2) Light switch ®



This light switch can be pulled out at two steps.

Stage / Light	0 (OFF)	1st	2nd
Clearance & Parking Light	OFF	ON	ON
Tail Light	OFF	ON	ON
Number Plate Light	OFF	ON	ON
Head Light	OFF	OFF	ON

,A.CAUTION

· The above lights are turned on or off by the light switch regardless of starter switch position.

3.Controls

(})Steering handwheel ®



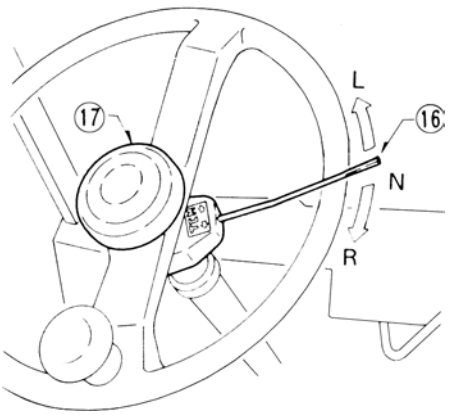
The steering handwheel is operated in the conventional manner, that is, when the wheel is turned right, the truck will turn to the right; when the wheel is turned left, the truck will turn to the left. The steer wheels are located at the rear of the truck. These cause the rear of the truck to swing out when a turn is made. With a little practice, this type steering will be easily mastered.

A.WARNING

·This truck is provided with the power steering ,so heavy handwheel operation is caused when the engine comes to a stall. To put the power steering in operation again, restart the engine without delay.

(2) Horn button @

Press the rubber cover at the center of the steering wheel to sound horn. The horn sounds even when the key switch is OFF.



(3) Turn signal lever

Use this lever to indicate the turning direction of the truck. When this lever is placed in a turn position, the turn signal light blinks.

R	Right Turn
N	Neutral
L	Left Turn

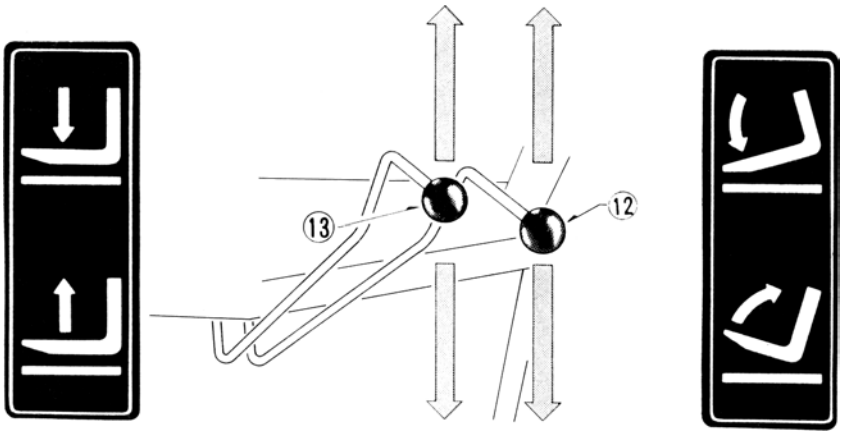
A.CAUTION

·The turn signal lever does not automatically return to the Neutral position unlike general passenger cars. Reset it by hand.

(4) Lift lever

The forks can be raised or lowered by pulling backwards or pushing forwards on the

this lever. The lift speed is controlled by tilt angle of the lever and accelerator pedal effort. The lowering speed can be controlled by tilt angle of the lever. The bigger the angle, the faster the speed. The engine speed, or accelerator pedal does not have to do with the lowering speed of the forks.



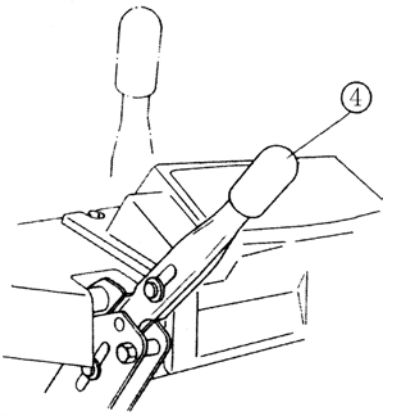
(5) Tilt lever

The mast can be tilted by operation of this tilt lever. Pulling on this lever backwards will tilt the mast backwards, and pushing it forwards will tilt the mast forwards. The tilt speed can be controlled by tilt angle of the lever and accelerator pedal effort. The bigger the angle, the faster the speed.

,A.CAUTION

·The tilt lock mechanism built in the hydraulic circuit does not allow the mast to tilt forwards while the engine is being shut down even if the tilt lever is pushed forwards.

(6) Parking brake lever @



Use this parking brake lever to park the lift truck. The parking brakes are applied on the front two wheels by pulling up on this lever. To release the parking brakes, move the lever forwards.

.A.WARNING

·If **parking on a grade is unavoidable, be sure to block the wheels.**

·**When leaving the driver's seat, please apply parking brake.**

(7) Shift lever

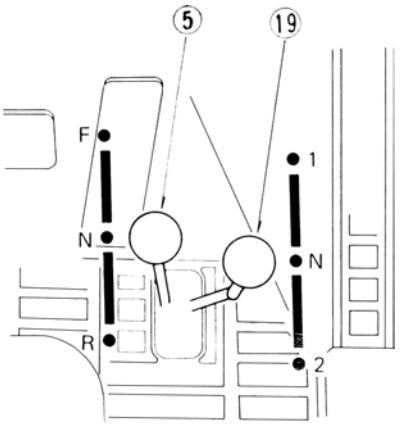
CLUTCH TYPE TRUCKS

Forward-reverse lever@

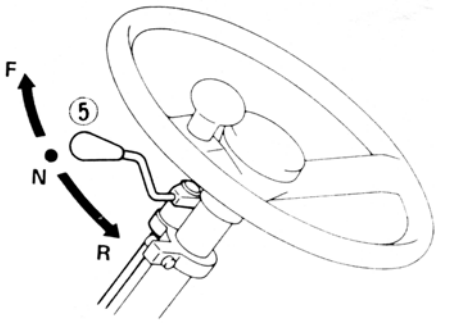
F	FORWARD
N	NEUTRAL
R	REVERSE

Speed select lever @)

1	LOW
N	NEUTRAL
2	HIGH



The transmission control is a floorboard-mounted type and has two speeds at forward and reverse. .Before gearshifting, be sure to press the clutch pedal to full potential..Always brake to a full stop before reversing the direction of travel. Shifting the lever in reverse turns on the back-up lights.



TORQUE CONVERTER TYPE TRUCKS

Forward-reverse lever®

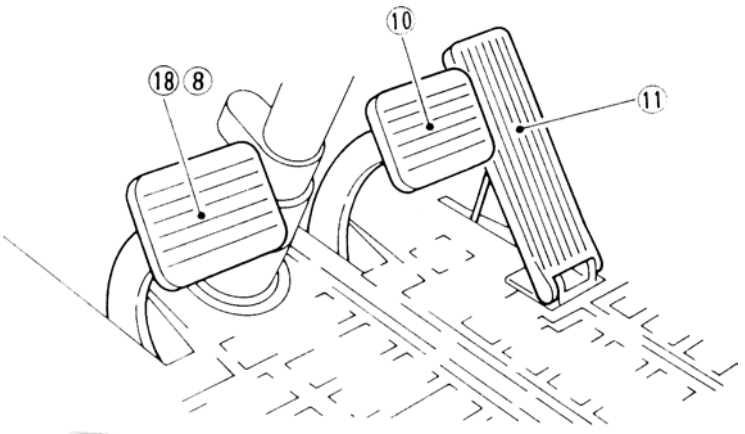
F	FORWARD
N	NEUTRAL
R	REVERSE

The transmission control is a steering column-mounted type and has one speed at forward and reverse respectively. Always brake to a full stop before reversing the direction of travel. Shifting the lever in reverse turns on the back-up lights.

CAUTION

· **The neutral switch is equipped. Do not fail to place the forward-reverse lever in the neutral position before starting the engine.**

(8) Foot controls



See the above photo: Clutch pedal or inching pedal(left),brake pedal (center),and accelerator pedal (right).

CLUTCH TYPE TRUCKS

Clutch pedal@)

The purpose of the clutch is to permit the operator to couple or uncouple the engine and transmission. When the clutch pedal is pressed, the engine and transmission are uncoupled, and when released, it allows power to flow through the clutch from the engine the o transmission.

CAUTION:

·**Do not run the lift truck with the clutch in a half-clutch condition as much as possible.**

TORQUE CONVERTER TYPE TRUCKS

Inching pedal@

As the inching pedal is pressed, the oil pressure in the hydraulic clutch drops accordingly (the needle of the oil pressure gauge swings to the left)allowing the operator to perform inching operation. Use this pedal to inch the truck while operating the hoist system at a high speed.

When pressed to the full, this inching pedal serves as a brake pedal.

,A.DANGER

·Don't use the inching pedal when descending. Please use the brake pedal.

Accelerator pedal @

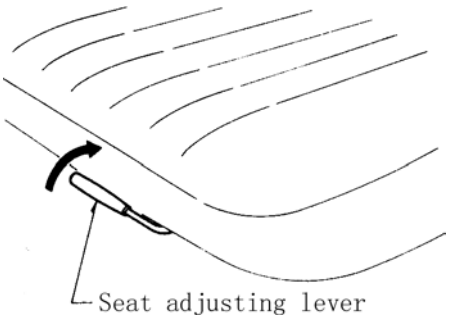
The accelerator pedal increases the engine speed. With this pedal released, the engine runs at idle rpm.

Brake pedal@

Press this brake pedal to slow or stop the truck. At the same time, the brake lights come on.

4. Body & Others

(1) Seat



An operator-oriented operator's seat is equipped.

WARNING:

l)The Use of Seat Belt:

·The seat belt is not allowed to be put under the arm and should be hung on the chest with the belt buckle reliably inserted into the buckle slot.

·The working structure of the seat belt is forbidden to be altered.

·The seat belt must be changed after serious crashing and rolling-over events.

·The seat belt must be changed when it is damaged, rips or becomes soft an

deformed due to chemical reaction and sun light.

·The seat belt must be changed when its metal connecting part is bent, deformed or rusted.

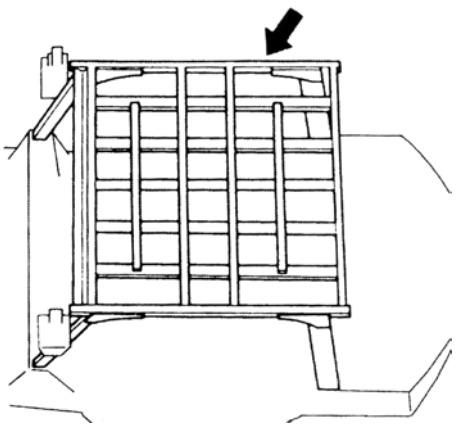
·The seat belt must be changed when its service performance is not so good.

2)If the truck is going to turn over, do not attempt to get out of the truck, because the speed of overturn is much faster than you. You should hold the steering wheel handle, and this practice will let you in the seats. Please tie the safety belt.

(2) Seat adjusting lever

Adjust the operator's seat to position which is comfortable for you and provides easy access to all hand and foot controls. The seat is unlocked by moving the adjusting lever to the right. Before proceeding with work, adjust operator's seat and make sure that it is securely locked.

(3) Overhead guard



.A.WARNING

·The overhead guard used is strong enough to meet safety standard, and protects the operator from falling materials. It's very dangerous to dismantle or rebuild the overhead guard, because these conditions could lead to an accident.

(4) Load backrest

.A.WARNING

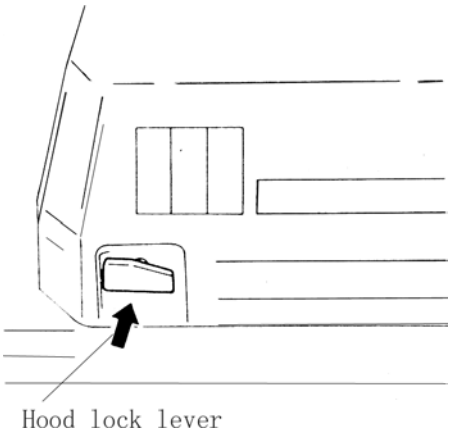
·The load backrest is used to prevent the loads loading on the forks slide to the operator. It's very dangerous to dismantle or rebuild the load backrest, because these conditions could lead to an accident.

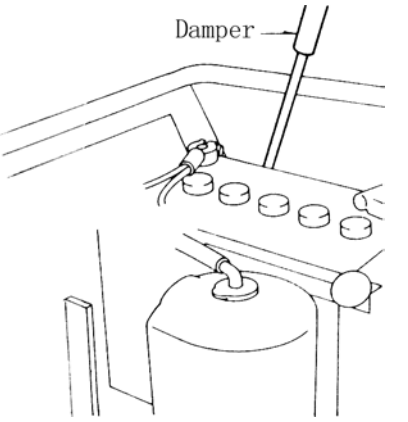
(5) Hood

The hood can be swung up fully to provide easy maintenance service.

To swing up the hood ,lift upward on the arrowed hood lock lever and the hood can be lifted up with little effort with an aid of hood damper.

To lock the hood, push down on the front of hood until it locks.

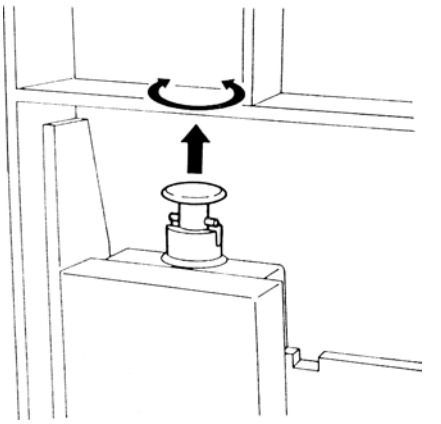




_A WARNING

·Use caution not to catch your fingers in the hood when closing it.

(6) Fork stopper



Fork stoppers are to lock the forks in position .To adjust fork spacing, pull up fork stoppers, turn, and shift the forks to the desired positions. The fork spacing should be adjusted according to loads to be handled.

.A WARNING

·The forks should be set symmetrically to machine centerline and fork stoppers should always be set.

·when you adjust the fork spacing, depend your body on the load backrest, then push the forks with your feet. Do not push the forks with your hands.

(7) Draw-bar pin

The draw-bar pin only used for following situation:

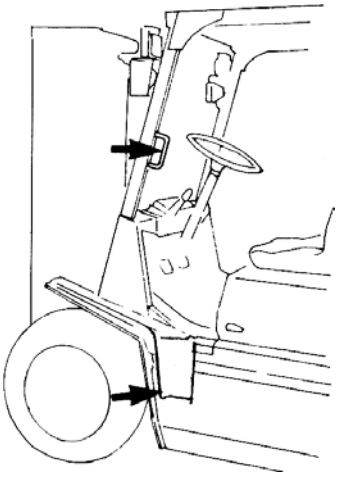
·While the truck can't moving.

·While transporting the truck.

.A.CAUTION

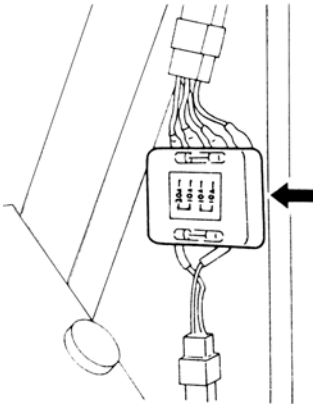
·**Do not operate the forklift truck as a tow tractor by using a draw-bar pin. Do not tow the forklift truck by other truck.**

(8) Safety step & safety grip



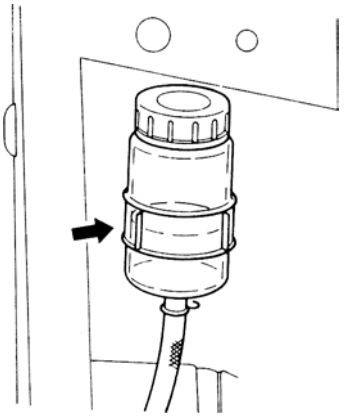
The safety steps are provided on both sides of the truck body. The safety grip is provided on the front left pillar of the overhead guard. Use the safety step and safety grip facing the truck when mounting and dismounting the truck.

(9) Fuse box



The fuse box is located at the right side of the cabinet's inner surface.

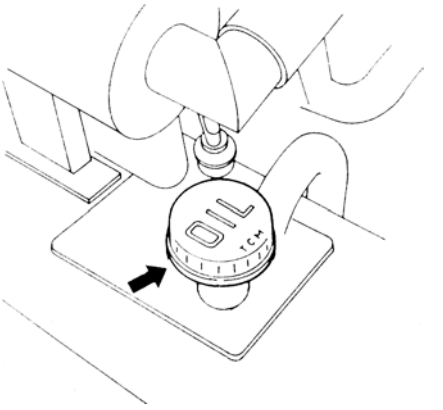
(1O)Brake fluid reservoir



The brake fluid reservoir is provided at the left inside of the cabinet.

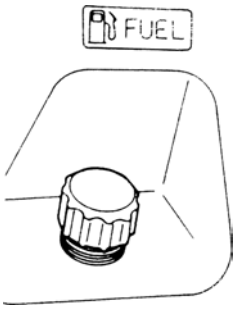
This translucent reservoir allows to inspect the fluid level from the outside.

(11)Hydraulic fluid reservoir cap



The hydraulic fluid reservoir cap is located at the right side in the hood. Fill hydraulic fluid through this filler port. The cap is provided with the dipstick.

(12) Fuel reservoir cap



The fuel reservoir cap is located at the rear left side of the truck body. To open it,,turn it counterclockwise.

A CAUTION

·The fuel reservoir cap has a breather inside it to allow air to enter into the reservoir. If the breather is damaged or clogged, the fuel system will get troubled. Check to see that the breather is **in** good condition every time addition of fuel is made.

.A WARNING

-FUEL HANDLING-

·Stop the truck, shut down the engine and apply the parking brake securely. Make sure that there is no naked flame near the area. Never smoke. The driver should not remain seated when adding fuel.

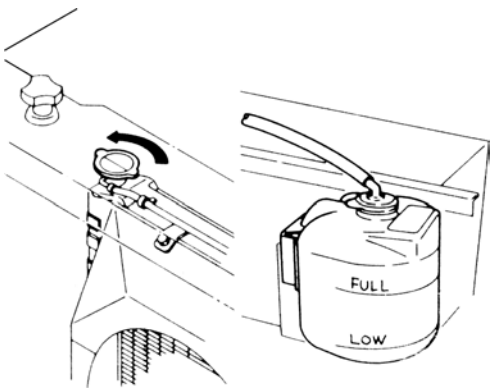
·When the fuel is finished, securely close the reservoir cap. A loose cap could cause fuel leak or fire hazard in the worst case.

·Before attempting to start the engine, make certain that the fuel reservoir cap is securely tightened and that no fuel is spilt on or around the truck.

·For the purpose of fuel level inspection, never use naked flame such as a match or lighter.

(13) Radiator cap

The radiator cap is located under the cover plate at the rear of the hood. At daily maintenance, you need not remove the radiator cap.



(14) Coolant reservoir

The reservoir is located near the battery.

_A WARNING

·Do not remove the radiator cap abruptly while the engine is hot.Turn the cap a little to the left to relieve the pressure in the radiator, then remove the cap.

·**Do not wear glove when removing radiator cap.**

(15) Lamps

Two head lamps and combination lamps (turn signal, parking and clearance) are installed at the front side of the truck.

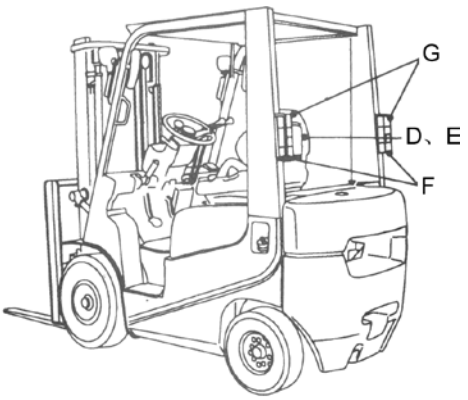
The combination lamps at the rear side serve as turn signal, tail lamp, brake lamp, parking lamp, back-up lamp and rear reflector.

,A.CAUTION

·**Take care of the lamps, and wipe dirt, if any, and replace any damaged lamp immediately.**

·If **you want to install the rear lamp, please contact the sale apartment of our company.**





(16) Rear view mirror

The rear view mirrors are located at the right and left front foot of the overhead guard.

,A.CAUTION

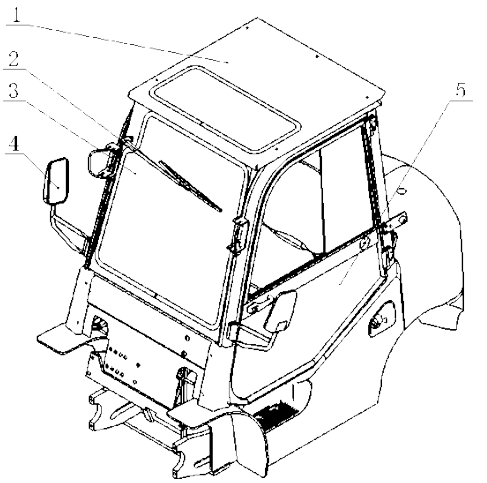
·**keep the surface of the mirrors clean.**

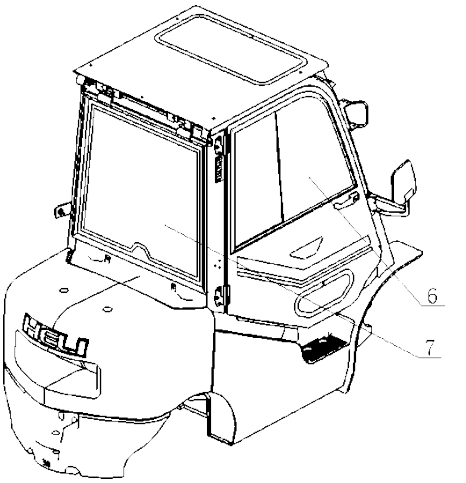
·**Adjust the mirrors in order to see the rear area clearly.**

(l7)Fire extinguisher (optional)

Fire extinguisher bracket is installed on overhead guard or driver's cab through two assembling points. Fire extinguisher bracket shall fix the fire extinguisher firmly and check if it is loose often.

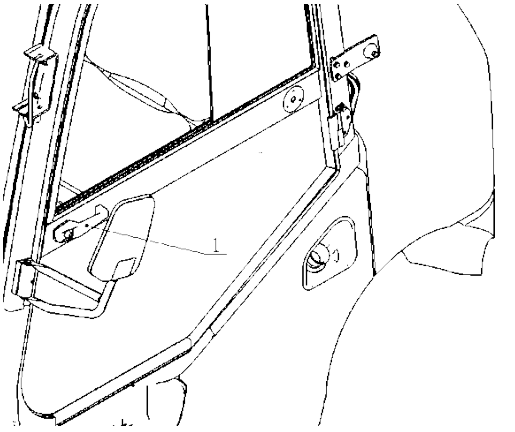
5. Cab (optional)





1 Top assembly 2 Front wiper 3 Front glass 4 Rearview 5 Left door
6 Right door 7 Rear window

(1) Doors



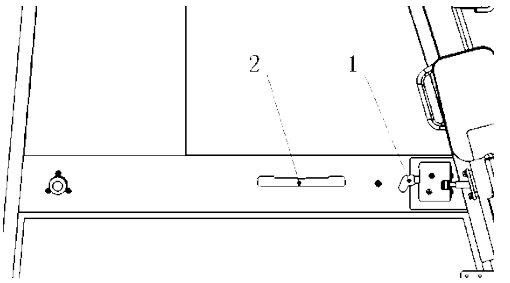
Outside the truck

1. Push the door handle to release the lock and open the door.
2. When closing the door, press until the door lock catches.

Both doors can be locked by the key.

1 Door handle

When opening the engine hood for cabin models, open the right and left doors of the cabin first.



Inside the truck
1. Shift the inside door lever to release the lock and open the door.
Open the door using the door pull handle.

1 Inside door lever 2 Door pull handle

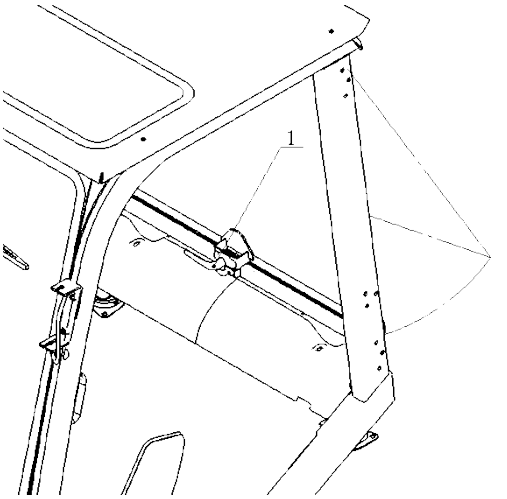
CAUTION:

When opening doors, be aware of pedestrians or other trucks.

Always close the door by pulling the door pull handle. Before operating the truck, confirm that the doors are securely closed.

Truck is prohibited to open the door to work or travel.

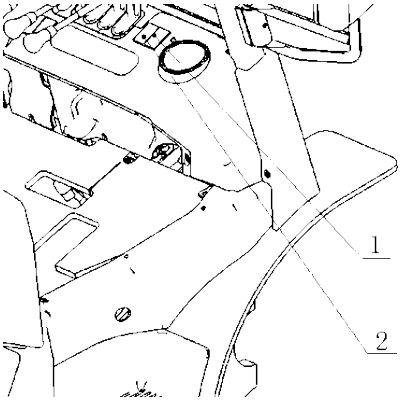
(2) Rear window



When ventilation or maintenance, open the rear window.
1. Rotary lock lever to release the lock and push open rear window.
2. Pull lock lever rear window closed and rotation lock lever locking rear window

1 Lock lever

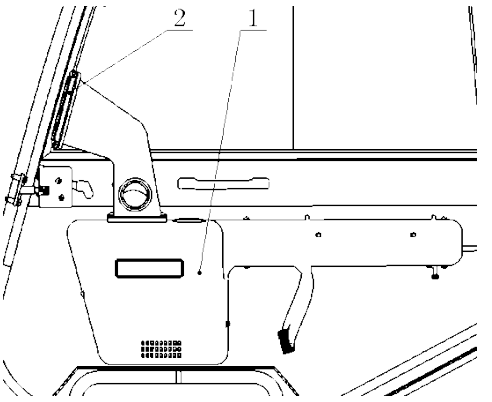
(3) Switch



Press the wiper switch to operate the wiper.
Press the heater switch to operate the heater.

1 Wiper switch 2 Heater switch

(4) Heater and Defroster



The heater is attached to the right side of the instrument panel or attached on the right door, heater switch is attached on the instrument panel .
The defroster is attached on the instrument panel or attached on the top the heater.
Close the air outlet of the heater, it will allow you to quickly defog the front glass.

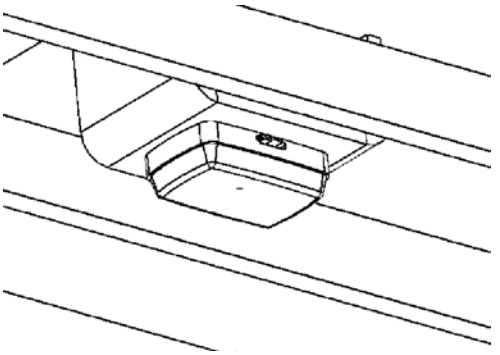
1 Heater 2 Defroster

Use the heater after sufficiently warming up the engine.

Running the heater fan for extended periods of time while the engine is stopped or while idling the motor may cause the battery to run out.

Using the heater for extended periods of time will cause the air inside the cabin to become stale and the glass to fog, so take care to open windows and ventilate inside the cabin.

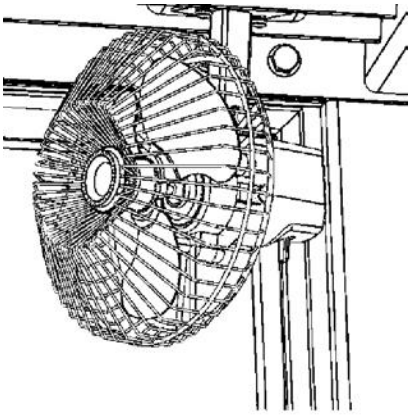
(5) Compartment light



The compartment light is equipped on the roof of the cabin. Turn on and off the light with the switch.

1 Switch

(6) Fan



The fan is equipped on the roof of the cabin.
Turn on and off the fan with the switch.

witch

1 Switch

6. Safety devices

In order to improve the safety of operation, the truck is equipped with multiple safety devices, including:

(1) There is a driver controlled horn in the middle of the steering wheel and a reversing buzzer that automatically triggers when reversing.

(2) The truck is equipped with reversing mirrors, which are located on the top or both sides of the overhead guard. Please adjust the angle of the reversing mirror before use.

(3) The truck is equipped with wind shield and cab are equipped with wipers.

(4) The seats are equipped with safety belts. Please fasten the safety belts before the operation.

(5) The lifting system has the functions of mast forward tilt self-locking, mast lowering speed limit, explosion-proof pipe, lifting anti overtravel and prevention of accidental lateral sliding or falling off of forks. It is prohibited to dismantle without permission.

(6) The electro-hydraulic reversing truck is equipped with a driver sitting (standing) state sensing system (also known as OPS system). The power travel movement of the truck cannot be possible when the driver is not in the normal operating position. Even if the load handling control device is operated, the tilt of the mast and the movement of the fork cannot occur; When the driver returns to the normal operation position, but no additional operation is carried out, power operation, mast tilt and fork carrier movement will not occur automatically.

(7) The truck is equipped with the operation permission information collection device; the swipe card is used as the medium with the personal identity information to verify the operation permission. When the collection device fails, or been removed, or the operation information is incorrect, the truck cannot be started or used.

(8) An optional video monitoring device can be configured to monitor the surrounding environment in the blind area behind the truck when the driver is in the normal operating position.

Driving and Operation:

To operate the truck safely and get the most out of it, we describe the correct operating procedures on the following pages.

I.Notes on New Truck Usage

Though the truck has experienced thoroughly adjust and test before delivery, the truck need moderate operation in the first month (200 hours) until all parts of the truck have full running-in time.

If the new truck works at bad environment, the service life of the truck will be shortened and the performance will experience bad impact.

,A.CAUTION

Pay attention to the following when the truck is run-in:

·Keep the engine running at idle speed for 5 minutes after the engine is started;

·Do not operate the truck when the truck is heavily loaded or traveling with high speed;

· The operation shall be smooth, avoiding emergency gear shifting, emergency braking, sharp turning and sudden acceleration;

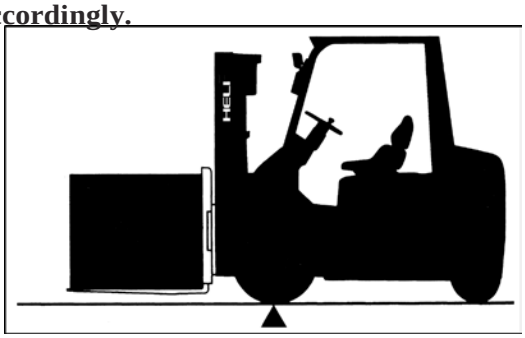
·During the running in period or after replacing the new brake friction plate, the friction plate shall be fully run in to achieve the best braking effect.

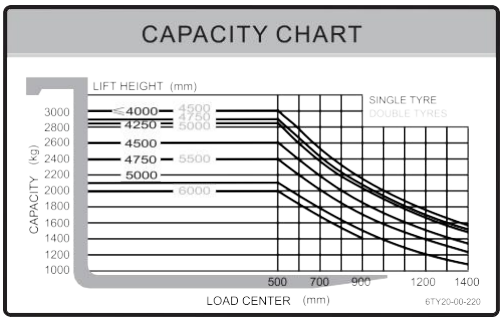
2.Relationship Between Load and Stability of Truck

The lift truck keeps the balance of weight between the truck body and the load on the forks with the center of the front wheels as a fulcrum when the rated capacity load is placed in position. Due care should be paid to the weight and the center of gravity of loads to maintain the stability of the truck. Please refer to the specific capacity chart on the truck or annex for detail.

.A.WARNING

·If **the rated capacity is exceeded, there is a danger of the rear wheels being raised and in the worst case, the truck will turn over, resulting a fatal accident. As seen from the above sketches, the load placed near the fork tips practically has the same effect that the weight of the load is increased.** In **this case, the load weight is reduced accordingly.**





3.Load Center and Rated Load

The load center is the distance from the front face of the forks to the center of gravity

of the load. The chart given above shows the relation between the load center and the weight of loads to be allowable for the 2 ton lift truck (Allowable Load). The load Chart will be attached onto the truck. Replace the damaged or missing load chart with new one.

,A.WARNING

If **a truck is equipped with a load-handling attachment such as a side shifter, load grab or rotating clamp, its allowable load is reduced as compared with that of a standard truck(without any attachment) due to the following reasons.**

l)The load equal to the weight of attachment is reduced.

2)Since the width of attachment causes the load center to move forward the allowable load is reduced on the same principle as a seesaw.

The installation of attachment causes the load center to move forward, which is called "lost load center".

Never exceed the allowable load indicated on the load chart attached onto the truck or attachment.

4. Stability of Forklift Truck

The stability standard of lift trucks is specified by the ISO or other standards. However, the stability stated in these standards is not applicable in all operating conditions. The stability of your lift truck varies according to the operating conditions. In the following operating conditions, the maximum stability is secured:

I)Ground or floor is level and hard.

2)Traveling under standard unloaded or loaded conditions.

Standard unloaded conditions: This means that the forks or other load engaging means are raised 30cm above the ground and the mast is tilted fully backward without loads.

Standard loaded conditions: This means that the forks or other load engaging means are raised 30cm above the ground and given capacity loads at the basic load center on it and the mast is tilted fully backward.

A.WARNING

Use minimum forward and reverse tilt when stacking and unstacking loads. Never tilt forward unless load is over stable stack or rigid rack or at low lift height.

5. Transporting and Loading the Truck

(1) Transporting the truck

,A.CAUTION

·When transporting the truck, riggers are used to fix the truck as well as blocks are to be inserted under the wheels to prevent the vehicle from moving in carriage.

·Fixing point: when there is mast, the fixing point can be arranged at the two sides of the traction pin and mast cross beam; when there is no mast, the fixing point

can be arranged at the traction pin and overhead guard.

·The truck's length, width, height should be cared when loading it, **unloading it or transporting it on the road. And all rules must be complied with.**

(2) Loading and unloading the truck

CAUTION:

·**Please use the dockboard with enough length, enough width and enough strength to load and unload the truck.**

·**Apply the parking brake effectively and prevent the wheels from moving.**

·**Fix the dockboard on the center of trailer, and there must be no grease on the dockboard.**

(3) Hanging up the truck

A. AUTION

·**Hang up the truck by trained person.**

·**Hook the wire at the appointed position.**

·Use wire rope which has a sufficient strength.

·The battery, mast and balance weight of the truck also have there appointed hang up position.

6. Before Starting Engine & **after Engine Has Started**

(1) Before starting engine

·Before operating the truck, check all controls and warning devices for proper operation. If any damage or fault is found, don't operate truck until corrected.

·The indicators on the meter turn on after the key switch is turned on. After 3 seconds, the indicators turn on or off according to actual condition.

·Check the safety around the machine.

·If water, grease or soil is sticking to the floor, pedals, levers or operator's hands, clean it off.

·Make sure that the shift lever(s)and loading levers are in NEUTRAL and HOLD positions and that the parking brake lever is fully engaged.

a) Starting gasoline engine

·Cold engine

Depress the accelerator pedal to the floor two or three times and release it. With your foot OFF the pedal, crank the engine by turning the ignition key to "START".Release key when engine starts.

·Warm engine

Press down the accelerator pedal halfway and hold. Crank the engine by turning the ignition key to "START".Release key when engine starts.

CAUTION:

·**Do not press down the accelerator pedal fully when starting the warm engine. This operation may harden the engine. Pressing down the accelerator pedal several times will cause harder starting.**

b) Starting diesel engine

Turn the ignition switch to ON position until the GLOW indicator goes on ,then turn the ignition switch to START position.

If the engine is hard to start, check for low fuel level, air mixed in the fuel system or broken wire of the glow plug.

(2) After engine has started:

·Warm up the engine(for about 5 minutes).

·Check the rotation(sound or gear)of the engine.

·Check the combustion (or misfiring)sound.

·Check the condition(density)of exhaust.

·Make sure that all the warning lamps are off.

·After thoroughly warming up the engine, operate the loading levers 2 to 3 times in their full stroke and check their working conditions.

(3) Electric-controlled engine notes

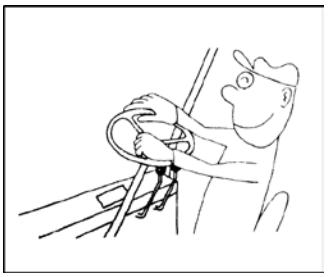
When the engine fault indicator turns on or fault code displays after the electric controlled engine is started, stop to check or contact EKKO's local dealer. It is suggested not to start the engine until the fault code is removed.

If it is electric controlled engine, the interval between two consecutive stay on ON(I) position shall be more than 6s during switching key switch between OFF (0) position and ON (I) position.

7. Traveling

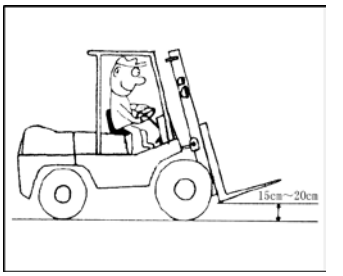
(!)Operator's posture

Hold the knob on the steering wheel with your left hand and get the right hand ready for loading work, lightly putting it on the wheel.

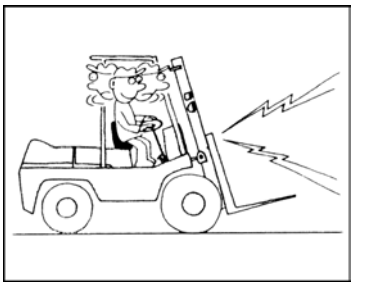


(2) Basic state for traveling

Set the bottom of the fork 15 to 20cm above the ground and fully tilt back the upright.

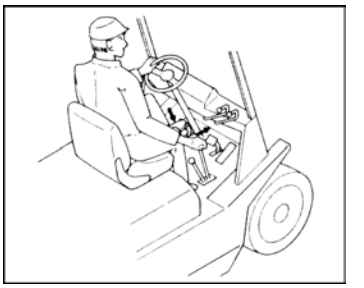


Check the safety around the truck and give a signal when starting the truck.

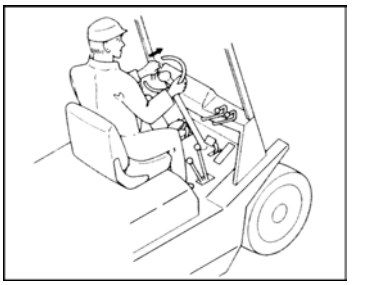


CLUTCH TYPE TRUCKS

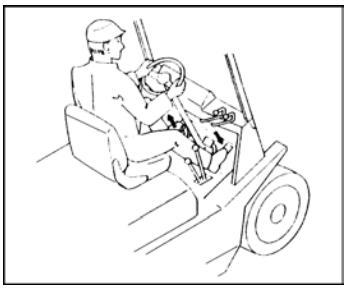
Depress the clutch pedal and engage the shift levers.



Release the parking brake lever.



Gradually release the clutch pedal while depressing the accelerator pedal to start the truck.

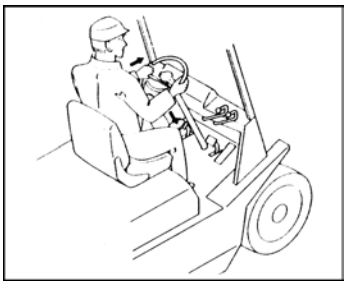


.A.CAUTION

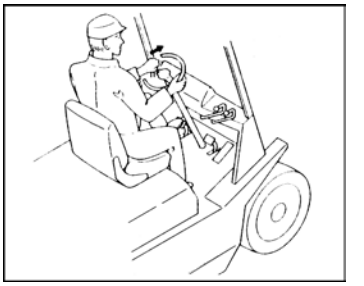
·Do not rest your foot on the clutch pedal while you are driving.

TORQUE CONVERTER TYPE TRUCKS

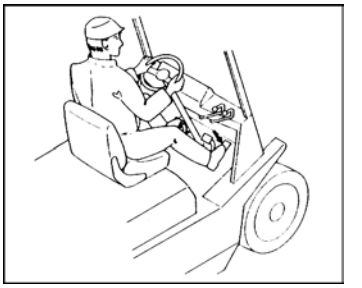
Depress brake pedal and engage the forward-backward lever.



Release the parking brake lever.



Release brake pedal and depress the accelerator pedal to start the truck.



(3) Gear shifting

Without loads, the truck can start even with gears in high speed. However, if the truck is underloaded, place the gear in low speed to start the truck.

CLUTCH TYPE TRUCKS

a) Always stop the truck before reversing the direction of travel.

b) When gear shifting from high to low speed or vice versa, once increase the engine speed and release accelerator pedal. At the same time, press the clutch pedal while shifting the shift lever into the desired position. Then press the accelerator pedal while releasing the clutch pedal.

TORQUE CONVERTER TYPE TRUCKS

a) Always stop the truck before reversing the direction of travel.

(4)Slow-down

CLUTCH TYPE TRUCKS

Since this machine uses the synchromesh transmission, it is not necessary to perform the double-clutch operation. Remove your foot from the accelerator pedal, press the clutch pedal to the full, place the speed shift lever into the "first speed"position,and press the accelerator pedal while releasing the clutch pedal.

TORQUE CONVERTER TYPE TRUCKS

Release accelerator pedal depression a little, and press the brake pedal if needed.

WARNING:

You must slow down:

·At aisle intersections

·In crowded areas

·On rough ground or floor surfaces

·When approaching loads or obstacles

(5) Steering

Unlike general passenger-cars, the steer wheels are located at the rear of the truck. These cause the rear of the truck to swing out when a turn is made. Slow down the truck and move toward the side to which you are turning. The steer handwheel should be turned a bit earlier than as with the front-wheel steering car.

(6) Stopping or parking the truck

Slow down and press the brake pedal to stop the truck(in the case of a clutch type machine, the clutch pedal is used). Place the shift lever in NEUTRAL.

CAUTION

·Never stop the truck in ascending on a grade by pressing the accelerator pedal with the clutch in "half-clutch" and torque converter in operation. This will cause undue wear of clutch plates and abnormal rise of torque converter oil temperature, resulting in short life of clutch or torque converter.

To park the truck. Park the truck in an out-of-traffic area and...

a) Apply the parking brake by pulling up on the parking brake lever.

b)Down the forks on the ground.

c)Place the key switch in "OFF" to shut down the engine. In the case of the diesel truck, pull out the engine stop button.

d)Remove the key and keep it.

WARNING:

Safe parking

a) Park your truck on a level ground-preferably in a wide area. If Parking on a slope is unavoidable, position the truck so that it cross the slope and block the wheels to prevent accidental roll.

b) Park your truck in a designated area or out-of-traffic. If necessary, put a signpost or signal lights around the truck.

c) Park your truck on a hard ground. Avoid soft ground, deep mud or slippery surfaces.

d) If you can not lower the forks on the ground due to break-down of the loading system, put a caution cloth to the fork end and park in an out-of-traffic area.

8. Pick Up

(1) The forks should be adjusted sidewise to maintain proper balance of load.

(2) Place the truck right in front of the load to be handled.

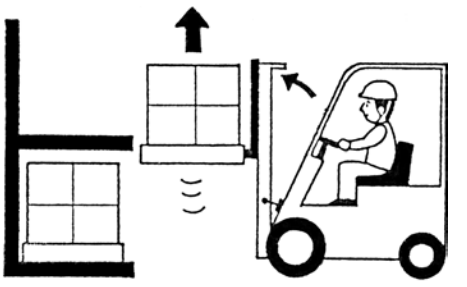
(3) The pallet should be evenly positioned across both forks.

(4) Insert forks into the pallet as far as possible.

(5) To raise loads from the ground:

a) Once lift the forks 5 to 10cm off the ground or floor and make sure loads rest stably.

b) Then, tilt the mast backwards fully and lift forks up to 15 to 20cm off ground then start running.



(6) When handling bulky loads which

restrict your vision, operate the truck i n reverse except when climbing grads.

9. Stacking Operation

CAUTION

Check the following items before starting operation of truck.

·Make sure that there is not load's falling and damage of load at loading area.

·Make sure that there is no objects and stacking is carried out safely.

When stacking a load, observe the following procedures.

(l)Slow down the travel speed when approaching a stacking area.

(2) Stop the truck in front of stacking area.

(3) Check for safety around the stacking area.

(4) Adjust the truck position which a load (pallet) locates in front of the stacking area.

(5) Tilt the mast to a vertical position and lift up the forks above the stacking position.

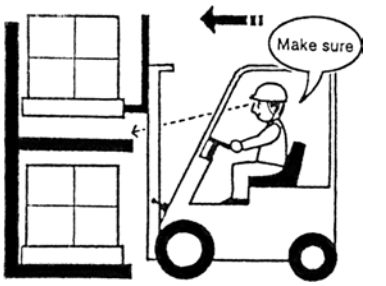
(6) Check the stacking position and move forward and stop slowly at the proper position.

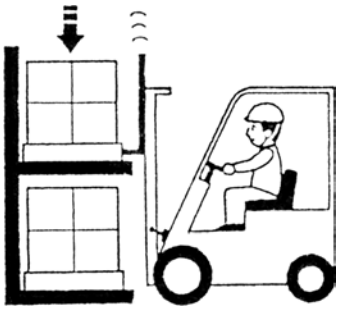
(7) Make sure the load is just above the stacking position and lower the forks slowly. Make sure the load is stacked correctly.

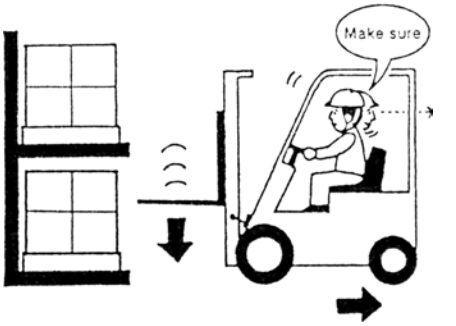
·When the load is not aligned at front/rear ends of the load or pallet:

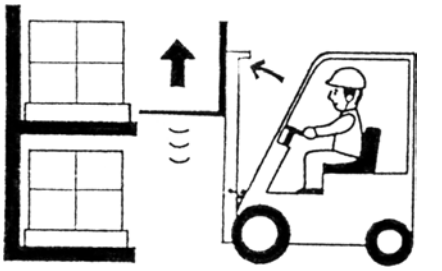
a) Lower the forks until the load weight on the forks becomes free.

b) Move the truck backward about 1/4









length of the forks.

c) Lift(50-100mm)the forks again and move to forward then lower the load slowly at a proper stacking position.

(8) Check clearance backward and move backward avoiding hitching forks to pallets or load.

(9) Make sure the tips of forks are off the load or pallet, and lower the forks to the position for running(150-200mm above the floor).

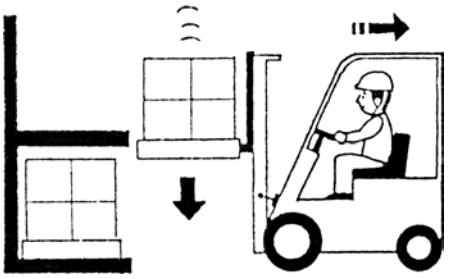


IO. Picking Operation

When picking up the loads, observe following procedures.

(l)Slow down the traveling speed when approaching a load to be picked up.

(2) Stop the truck in front of the load (about 30cm between the load and the fork tips).

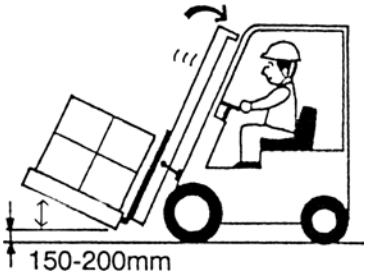


(3) Adjust the truck position which a forks locates in front of the load.

(4) Make sure safety of the load which is not collapsed.

(5) Tilt the mast to vertical position.

(6) Check the inserting position and move the truck forward slowly until the forks are fully inserted into the pallet.



·**When it is difficult to insert the forks fully into the pallet:**

a) Insert the forks by its 3/4 length and lift up the pallet a little(50-100mm),and draw out the pallet about 100-200mm and lower the pallet again.

b) Insert the forks fully into the pallet.

(7) After inserting the forks, lift up the pallet(50-100mm).

(8) Check the clearance and move the truck backward until the load is lowered.

(9) Lower the load up to 150-200mm above the floor.

(10) Tilt the mast backward for stabilizing the load.

(11) Carry the load to its destination.

11. Notes when the truck is equipped with solid tire

When the truck is equipped with solid tires, please pay attention to the following notes:

1) The truck with a solid tire is suitable for intermittent working condition and the working radius shall not exceed 2km.

2) The speed of the truck with solid tire should not exceed 25km/h and avoid to work with overload.

3) When working under harsh condition, and the truck is beyond the requirements above, it is suggested to reduce travelling speed and using frequency and pay attention to the tire's temperature increase. Avoid fast increase of temperature.

4) For a large capacity truck with solid tire, besides the notes above, the daily mean travelling speed shall not exceed Skm/h (intermittent working under 20? ambient temperature) when the traveling speed exceed 25km/h.

12. Storing

(1) Before storing

Before storing your lift truck, clean it thoroughly and perform inspection using the following procedures.

a) Wipe away grease, oil, etc .adhering to the body of the truck with waste cloth, and use water, if needed.

b) While washing the truck body, check the general condition of the truck. Especially check the truck body for recess or damage and tires for wear or nails or stones in the tread.

c) Check for leakage of hydraulic oil, engine oil, fuel, or coolant.

d) Apply grease, where needed.

e) Check for looseness of hub nuts, cylinder piston rod joints.

f) Check mast rollers to see that they rotate smoothly.

g) Prime oil into the lift cylinders by actuating the lift cylinders at the full stroke.

WARNING

·**If at any time your lift truck is found to be in need of repair, defective, or in any way unsafe, the condition should be reported to the supervisor, and the truck should be taken out of service until it has been restored to safe operating condition.**

(2) Daily storage

a) Park the lift truck at a specified place and block the wheels.

b) Place the shift lever(s) in the neutral position and apply the parking brake securely.

c) Remove the key and keep it sure.

(3) Long time storage

Perform the following service and checks m addition to the "DAILY STORING" services.

a) Taking the rainy season into consideration, park the machine at a higher and hard ground.

b) Dismount the battery from the machine.

Even though the machine is parked indoors, if the place is hot or humid, the battery, should be kept in a dry, cool place. Charge the battery once a month.

c) Apply antirust to the exposed parts such as cylinder rods and shafts which tends to rust.

d) Cover components such as the breather and air cleaner which may be caught with humidity.

e) The machine should be operated at least once a week. Fill with EKKO exclusive coolant (refer to OPERATION & SERVICE MANUAL for operation notes) if the engine coolant is discharged. and mount the battery. Remove grease from the cylinder rods and shafts. Start the engine and warm up thoroughly. Move the machine a little forwards and backwards. Operate the hydraulic controls several times.

f) Avoid parking on soft grounds such as asphalt ground in summer.

(4) To operate the forklift truck after a long time of storage

a) Remove antirust from the exposed parts.

b) Discharge foreign matter and water from the hydraulic oil reservoir.

c) Charge the battery and mount it on the machine. Connect the cables.

d) Perform pre-operational checks carefully.

N. Periodic Inspection & Servicing

Complete inspections of the forklift truck prevent faults previously and extend an usable period of the truck. The hours shown below are based on 8-hour operations per day and 200-hour operation per month.

Do the detailed record well after checking and keep the record for 3 years at least.

.A, CAUTION

·Only trained and authorized servicemen shall be permitted to service the truck.

·Daily servicing, weekly servicing and monthly servicing are all could be done by the operator.

I. General Rules on Inspection

(l)Use authentic parts only.

(2) Use authentic or recommended oil only.

(3) Clean oil fillers and grease fittings with a brush or waste cloth before adding oil or grease.

(4) 0il level check and addition of oil should be made with the truck parked on a level surface.

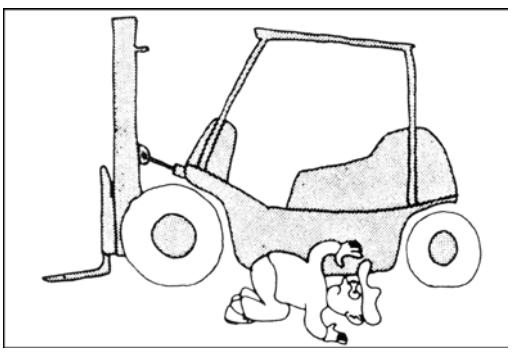
(5) Preventive maintenance services should be done in an orderly manner and due care taken not to injure yourself.

(6) If unavoidable to work under the raised forks or attachment, use a stable support to prevent the forks and inner mast from falling down.

(7) If any damage or fault is found, the matter should be reported to your supervisor and the truck should not be operated until corrected.

2.Inspection Contents

(1) Check leaks of oil, fuel or water



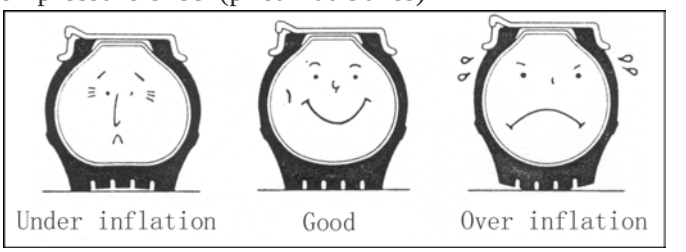
Check joints of the hydraulic piping, engine, radiator and driving system for oil and water leaks. Check leakage with your finger as well as visually.

Check if there is any impurity in the fuel.

,A.WARNING

·Don't attempt to operate the truck if leaked fuel is found through pre-operational check .Correct the leak before starting engine.

(2) Tire inflation pressure check(pneumatic tires)



Check condition of tires . Low air pressure reduces tire service life andincreasese fuel consumption. Unevenness of air pressure between right and left tires or unevenly worn or badly damaged tires will cause uneven steering forces.

The standard tire pressures are indicated on the decal at the front left side of the hood.

Tonnage / Tire pressure	l-1.8t	2-2.St	3-3.St	5-7t	8-l0t
Front tire	790kPa	860kPa	970kPa	830kPa	760kPa
Rear tire	l000kPa	860kPa	790kPa	830kPa	760kPa

Turn the tire valve cap counterclockwise and remove it. Using a tire pressure gauge, measure the inflation pressure, and adjust it to the specified pressure, if needed. After making sure there is no air leakage from the tire valve, reinstall the cap. Check that each tire does not get damaged at the tread surface or side face or bending at the rim.

Since the forklift truck needs tires that have a high inflation pressure to carry heavy loads, even a small bending of rims or damage at the tread surface could cause an accident.

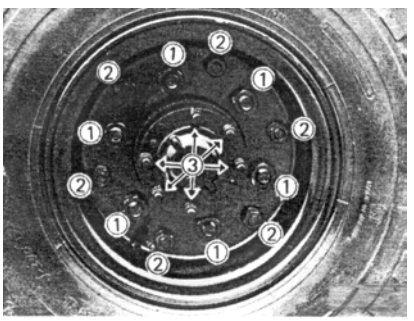
WARNING

·All nuts and bolts should be properly installed and torqued before inflating the tire and rim assembly. An inflated tire contains potentially explosive energy.

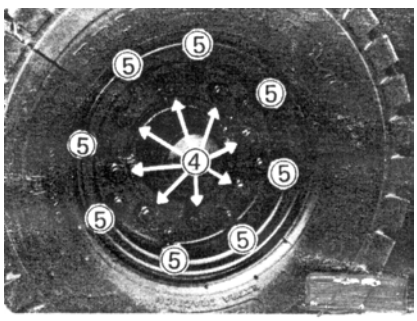
·Don't overinflate.

·When using an air compressor, first adjust the air pressure of the compressor. Failure to do so will cause a serious accident, since the compressor delivers the maximum pressure.

(3) Hub nut torque check



Front



Rear

G)Hub nut
@Divided rim bolt
@Drive shaft bolt
@Hub nut
@Divided rim bolt

Check hub nuts for correct torque.

All hub nuts should be tightened to the specified torque securely.

l-1.8t:150-175Nm

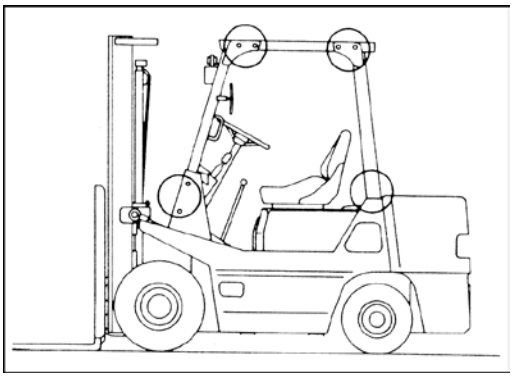
2-10t:480-560Nmely.

CAUTION

·Do not dismantle rim bolt and when detaching hub nut.

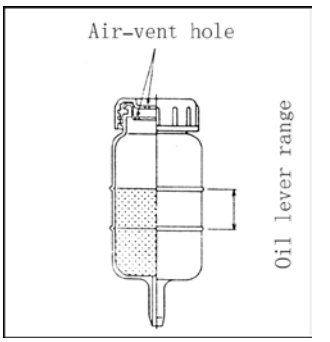
·It is very dangerous that the hub nut becomes flexible. In case the hub nut became flexible, the wheel may come off and the vehicle would turn.

(4) Overhead guard check



The overhead guard is for your protection. Make certain that it is securely mounted and all structural members are secure.

(5) Brake fluid level check

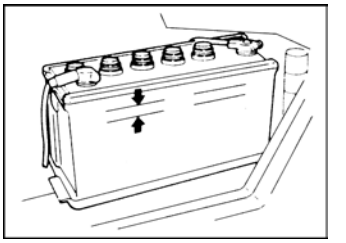


Check the fluid level in the brake fluid reservoir. The level should be between the two seams of the reservoir. When adding fluid, due care should be taken to prevent dirt or water from entering the reservoir.

OPEN THE HOOD

Open the hood from the left side of the truck.

(6) Battery electrolyte check



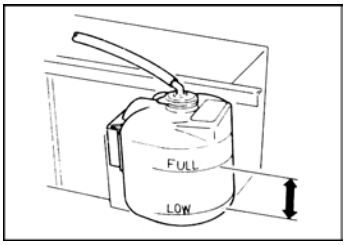
Check the electrolyte level in the battery.

The battery case is given upper and lower level marks to allow the operator to see the electrolyte level. The level should be between the two marks.

DANGER

·Never allow flame or sparks near the battery filler holes because explosive hydrogen gas may be present.

(7) Coolant level check



Check the radiator coolant reservoir fluid level. It should be between high and low level mark. Add coolant if necessary.

WARNING

·Use extreme care when removing the radiator pressure cap. In the pressure system, the sudden release of pressure can cause a steam flash which would cause a serious personal injury. Loosen cap slowly to allow steam to escape. After that, tighten cap securely. It is good practice to use thick waste cloth or the like when removing the cap. Avoid putting on gloves, since you may get burnt at your hand if hot water splashes on it.

(8) Engine oil level check

The dipstick is located on the left side of the engine .Remove the dipstick, clean the rod and reinstall. Pull it out again and check the oil level. The level should be within the mark on the dipstick.

(9) Fan belt tension check

Check the fan belts for correct tension and damage. Push the midway between the water pump pulley and the generator pulley by the thumb.

WARNING

Fan belt deflection check should be made with engine shut down.

(1O)Rear combination lamp check

Check rear combination lamps(tail, brake, back-up)for damage or contamination.

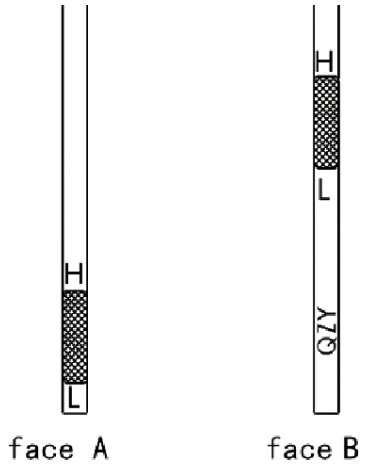
(11)Hydraulic oil level

Check hydraulic oil level by means of the oil level dipstick: Remove the oil level dipstick and clean it. Reinsert it and remove it again to see if the oil level is between two slots: High and Low.

CAUTION

·The oil level check should be done with the engine shut down, forks on the ground or floor, and the truck itself on a level surface.

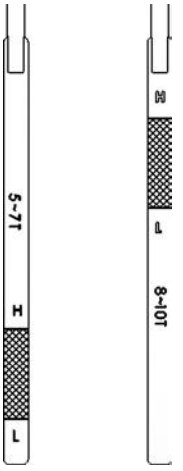
·1-5t truck hydraulic oil level gauge instruction



l-5t truck oil level gauge diagram

For different lifting system, please refer to the corresponding scale mark. Please refer to face A when the lifting system is normal mast, its lifting height is lower than 4700mm and there is no attachment. Or else please refer to face B. Hand 1 are marked on face A and B to show the highest level and lowest level. The oil shall stay between the two levels.

·5-lOt truck hydraulic oil level gauge instruction



5-l0t truck oil level gauge diagram

For different lifting system, please refer to the corresponding scale mark.

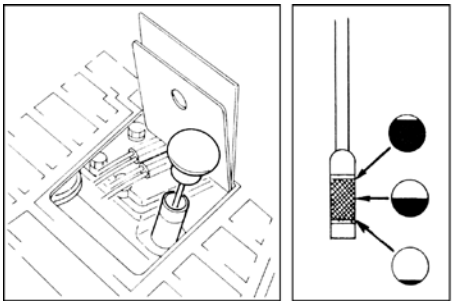
For 5-7t trucks with basic type mast and lifting height lower than 4750 and without attachment, please refer to the oil level gauge face marked with 5-7t, for other 5-7t trucks, refer to the oil level gauge face marked with 8-**10t. H** and L are marked on two faces to show the highest level and lowest level. Carry out once full lifting, tilting and steering after adding oil. The oil shall stay between the two levels after making the mast to be vertical, fork to reach the ground and steering cylinder to stay in a neutral position.

For 8-**10**t trucks, please refer to the oil level gauge face marked with 8-**10**t. H and **L** are marked on two faces to show the highest level and lowest level. Carry out once full lifting, tilting and steering after adding oil. The oil shall stay between the two levels after making the mast to be vertical, fork to reach the ground and steering cylinder to stay in neutral position.

(12) Piping & cylinders

Visually check hydraulic oil piping and lift and tilt cylinders for oil leaks.

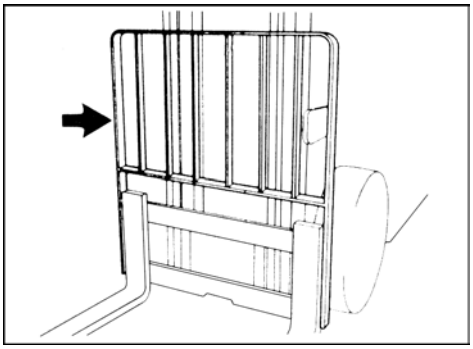
(13)Powershift transmission fluid level



TORQUE CONVERTER TYPE TRUCKS

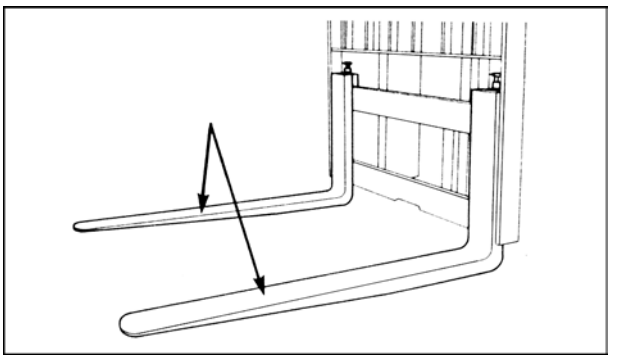
Open the inspection cover and remove the filler cap. Inspect the level gauge to make sure that the fluid level is on the upper mark of the gauge. Add specified fluid, if necessary.

(**14**)Load backrest check



Check for loose mounting bolts for the load backrest. Retighten where needed.

(15)Fork & fork stoppers



Check fork stoppers for correct installation and forks for bending or cracks.

(16) Headlamps & front combination lamps

Check for dirty or damaged lens.

Close the hood, sit on the seat and:

Take care not to catch your finger in the hood.

(17)Drivers seat adjustment

Make sure the driver's seat is properly located. If not properly, shift the adjusting lever to the right and move the driver's seat to a position which provides easy access to all foot and hand controls. After adjustment, shake the driver's seat a little to be sure that it is securely locked.

(17)Shift lever(s) check

Check the shift lever(s) for looseness and operation.

(19)Loading levers check

Check the loading levers(for lift, tilt & optional attachment)for looseness and smooth operation.

(20) Parking brake operation check

Make sure that the parking brake is securely applied by operating the parking brake lever.

Start the engine...

Before starting the engine, make certain the shift lever(s) is in neutral and the parking brake is securely applied.

(21) Meters & gauges

The hour meter, coolant temperature gauge and fuel level gauge are provided to inform the operator of the operating condition of the truck during operation.

(22) Fuel level check:

The fuel level gauge 1s provided on the indicator panel. Check that fuel level 1s sufficient for the day's work.

(23) Lights & lamps

Actuate each light or lamp switch to be certain that the respective light or lamp comes on properly.

(24) Turn signal check

Make sure that the turn signal operates properly by moving the turn signal lever.

(25) Horn button operation check

Press the horn button to make certain the horn sounds.

(26) Clutch pedal check

CLUTCH TYPE TRUCKS

Check that the clutch pedal travels smoothly. The free travel is about 40mm.On the truck with the optional power clutch device, start the engine, then proceed with this clutch pedal check.

(27) Brake pedal free travel

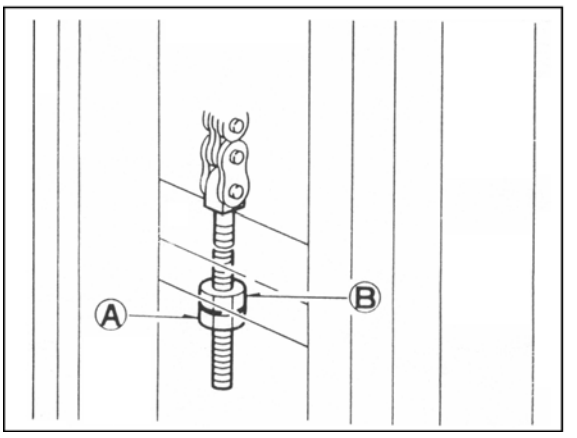
Press the brake pedal and inching pedal (on torque converter type only)to make certain that each pedal can be pressed smoothly and that is also can restore without interference.

(28) Mast operation

Sound horn and actuate the lift and tilt levers to be certain that the carriage moves up and down properly and the mast can be tilted smoothly. Make certain that the relief valve operates accompanying its relieving sound when each cylinder piston reaches the stroke end.

Pay attention to system operating sound.

(29) Lift chain tension check

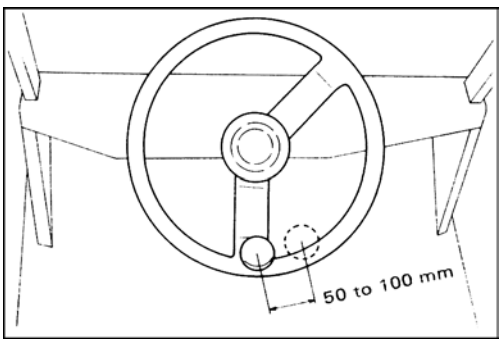


Check the tension and abnormality of the lift chains. To check the tension, raise the fork about 5cm above the ground and push the middle of the chain with the thumb. Make certain the tension for the right and left chains is even. If uneven tension is found, loosen the lock nut(A) of anchor pin and adjust the chain, turning the adjusting nut(B)of the chain anchor pm.

,A.CAUTION

·Don't use "Grease" but "Machine Oil (ex. Hydraulic Oil)" only for lift chain lubrication.

(30) Steer handwheel free play



Check the steering handwheel for play and vertical looseness. The normal play is 50 to 100mm and vertical looseness is not permitted.

(31) Exhaust gas check

Check the condition of the exhaust gas after the engine warm-up is

finished. Colorless or bluish Normal:Complete combustion

Black..... Abnormal:Incomplete combustion

White ..... Abnormal:Oil burns

Check also the engine and driving system for clicking or any abnormal noise or vibration.

,A.DANGER

·Exhaust fumes are very dangerous. When starting the lift truck in an enclosed space, make sure there is enough ventilation. The exhaust gas check should be done outdoors. Especially use caution to avoid fire hazards. Pay special attention to signs of oil or fuel leaks and never leave waste cloth or paper inside the engine room. Make sure you know where the fire extinguishers are kept and how to use them.

Run at a low speed.....(at a safe place)

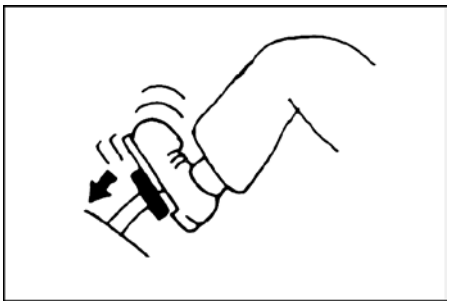
(32) Clutch operation check (CLUTCH TYPE TRUCKS ONLY)

Press the clutch pedal to be certain that the clutch is properly disengaged and does not drag.

Inching pedal check (TORQUE CONVERTER TYPE TRUCKS ONLY)

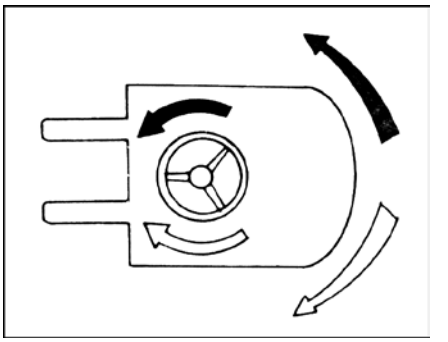
Press the inching pedal a little (3mm or less) and check that the truck speed decreases.

(33) Brake test



Run the truck slowly and press the brake pedal to check the braking effect. When the brake pedal is pressed, the stop lamp comes on.

(34) Steering check



Turn the steering wheel traveling slowly to see that the steering forces are equal in right and left or that any abnormality does not exist.

(35) Parking brake test

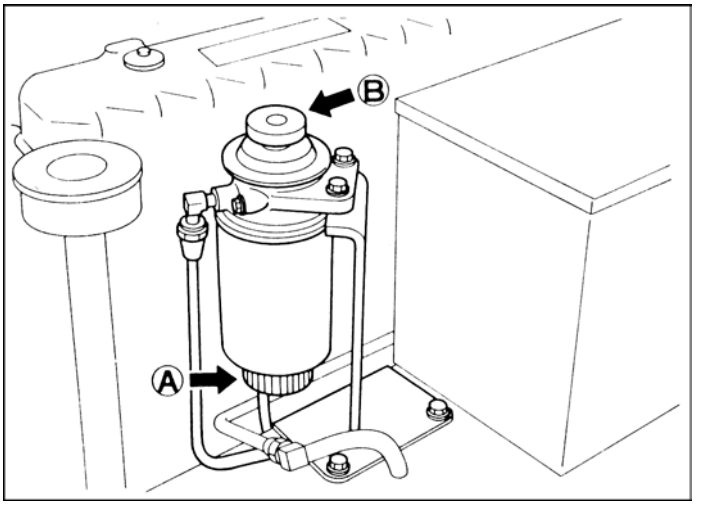
Make certain that the slowly running truck can be stopped by pulling on the parking brake lever.

(36) Back-up lamp operation

The back-up lamp comes on when the shift lever or directional control lever is placed in reverse position.

3.Maintenance

(1) Water discharge from sedimentor



DIESEL

When the sedimentor indicator lights up ...

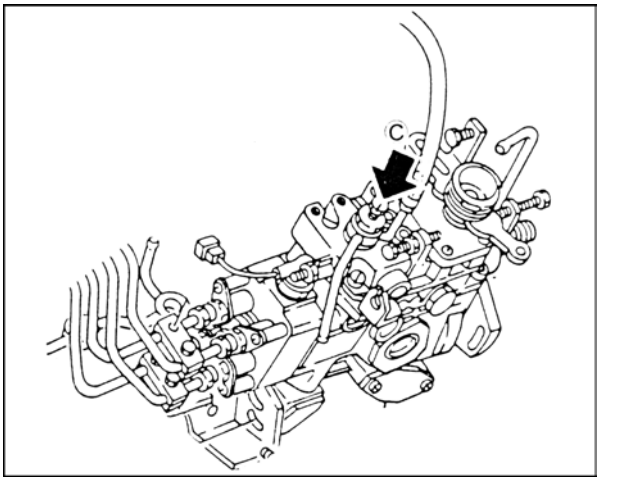
a) Stop the engine, loosen the drain plug by turning 4 to 5 turns(A) and press the priming pump(B) .Continue pressing the priming pump (B)until water is entirely discharged through the sediment.

b) Fasten the drain plug and press the priming pump several times to see that there is no fuel leakage from the plug.

c) Start the engine to confirm that the indicator does not light up.

(2) When air-bleeding fuel system

DIESEL



a) Stop the engine and loosen the bleed plug(C) on the injection pump.

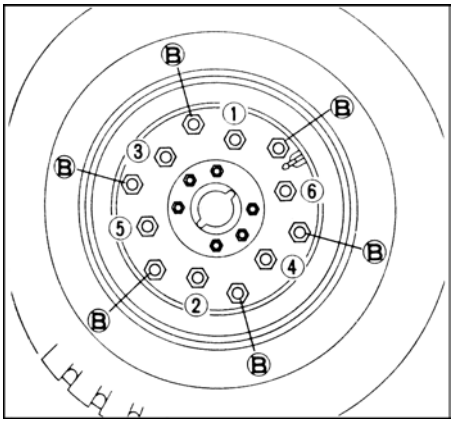
Press the priming pump until fuel coming through the bleed plug contains no bubble.

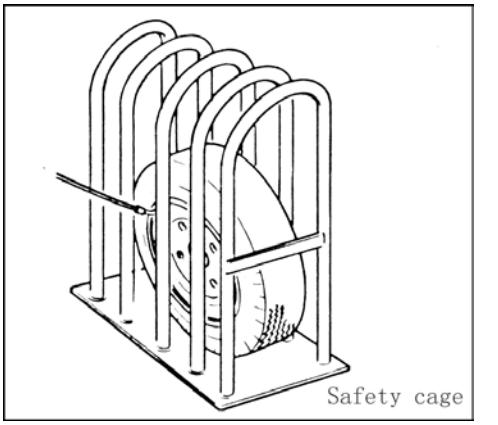
b) Fasten the bleed plug to confirm that there is no fuel leakage from the plug screw.

(3)Replacing the fuse

The fuse protects the electric system against overcurrent. Use the specific ampere rating of fuse. Check to see that the components in each circuit are operating properly. If every component in a circuit is not functioning, it is an indication that the corresponding fuse is blown out. Replace the blown fuse with a spare fuse of the same capacity. If a part of the components in the circuit does not function properly, It is suspected that a bulb has burnt out. The burnt bulb should be replaced with a new one of the same capacity.

(4)Replacing or repairing a tire





Prepare tools and jack necessary for replacing or repairing tires.

a) Front wheel

·Stop the truck on a level, hard surface and shut down the engine. All loads should be unloaded from the truck.

·Apply the parking brake and block the wheels. Put the jack under the truck frame.

·Jack up the truck to the extent that the tire still remains on the ground .Loosen the hub nuts. Do not remove them.

·Again jack up the truck until the tire leaves off the ground. Remove the hub nuts and detach the wheel.

·The wheel should be reinstalled in the reverse order. The hub nuts should be tightened in the diagonal order evenly.

After reinstallation, check the tire for proper inflation pressure.

Tire inflation pressure ... 700kPa.

b)Rear wheel

Use the same manner as with the front wheel tire repair or replacement except for the position of the jack which goes under the counterweight.

Tire inflation pressure ... 700kPa.

4. Preventive Maintenance Service Schedule

This service schedule is worked out on the assumption that the lift truck will be used under typical working conditions. If the lift truck is used under severe working conditions, earlier preventive maintenance services are required. (The black dots in the table mean "Replacement".)

G: Gasoline truck D:Diesel truck

ENGINE

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Engine	Visually inspect condition of engine rotation.		0				
	Check for working noise from engine.		0				
	Check that exhaust gas has proper-color.		0				
	Check air cleaner element for dirt and clean.			0	●		
	Check crankcase air breather for dirt and clean				0		
	Check that valve clearance is correct.	Thickness gauge				0	
	Retighten cylinder head bolt.	Torque wrench		0 All gas engines, for 1st time only			0 diesel engine only
	Check cylinders for proper compression.	Compression gauge					0
PCV Device	Check metering valve and pipe for clogging or damage (G).					0	
Governor or Injection Pump	Check no-load maximum rpm.	Tachometer					0
Lubrication System	Check for engine oil leak.		0				
	Check engine oil for level and dirt.		0				
	Replace engine oil.			(SOhrs for fc: first time, every200hrs in the future)			
	Replace engine oil filter cartridge.			(SOhrs forfe first time, every200hrs in the future)	●		
	Replace engine oil (GCT gasoline engine)				● (replace every 500h or3 months whichever comes first)		
	Replace engine oil filter cartridge (GCT gasoline engine)				(replace every 500h or3 months whichever comes first)		
	Replace engine oil (PSI gasoline engine)				● (replace every 250h or3 months whichever comes first)		
	Replace engine oil filter cartridge (PSI gasoline engine)				(replace every 250h or3 months whichever comes first)		

ENGINE

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Fuel System	Visually check for fuel leak from pipe, pump or tank.		0				
	Check fuel filter for clogging.				0		
	Clean fuel filter(G).				0		●
	Replace fuel filter cartridge(D).				●		
	Check that injection nozzle has correct inject press and pattem(D).	Nozzle tester				0	
	Check carbureter link mechanism for looseness or dirt(G).				0		
	Check for ignition timing(G).	Timing light			0		
	Check for injection timing(D).						0
	Drain off water from fuel tank.				0		
	Clean fuel tank.					0	
	Check for fuel level.		0				
Cooling System	Check for coolant level.		0				
	Check for coolant leak.		0				
	Check hoses for deterioration.				0		
	Check radiator cap for condition and installation.		0				
	Clean and change coolant.				●		
	Check fan belt for tension and damage.		0				

POWER TRAIN

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Frictional Clutch	Check clutch pedal for free travel and clearance between pedal surface and floor when clutch is unlocked.	Scale	0				
	Check for noise and operation.		0				
	Check for slipping and engagement.		0				
Transm-lSSlOn	Check change lever for operation and looseness.			0			
	Check for oil leaks.		0				
	Change oil.			0		●	
Torque Converter Transm-1ss1on	Check for oil leaks.		0				
	Check for oil level,or change oil.			0		●	
	Check change lever for operation and looseness.			0			
	Check control valve and clutch for proper operation.		0				
	Check inching valve for proper operation.		0				
	Check inching pedal for free travel and pedal travel.		0				
	Replace line filter element.					●	
Front Axle	Check for oil leak.		0				
	Change oil.					●	
	Check mounting bolts for looseness.	Test hammer		0			

WHEELS

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Tires	Check for inflation pressure.	Tire gauge	0				
	Check for cracks or damage.		0				
	Check for tread wear.	Depth gauge		0			
	Check for undue wear.		0				
	Check for spikes, stones, or foreign matter.			0			
Tire Fasteners	Check for looseness.	Test hammer	0				
	Check for damage.		0				
Rim,SideRing	Check rim,side ring and disk wheel for damage.		0				
Wheel Bearing	Check for looseness and noise.			0			
	Clean and repack grease.					●	
Axle	Check axle for deformation,cracks or damage.			0			

STEERING SYSTEM

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Steer Handwheel	Check for peripheral play.		0				
	Check for vertical looseness.		0				
	Check for sideways looseness.		0				
	Check for proper operation.		0				
Steering Gear Box	Check mountmg bolts for looseness.			0			

STEERING SYSTEM

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Rear Knuckle	Check king pins for looseness or damage.			0			
	Check for deflection, deformation, cracks or damage.			0			
	Check for mounting condition.	Test hammer		0			
Steering Cylinder	Check for operation.		0				
	Check for oil leaks.		0				
	Check for mounting parts and joints for looseness.			0			

BRAKE SYSTEM

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Brake pedal	Check for free travel.		0				
	Check for pedal travel.	Scale	0				
	Check for proper operation.		0				
	Check for air mixed in brake piping.		0				
Parking Brake Lever	Check that lever is securely locked and has sufficient lever stroke.		0				
	Check for proper operation.		0				
Rod, Cable,etc.	Check for operation.			0			
	Check connections for looseness.			0			
Hoses and Pipes	Check for damage, leakage or collapse.			0			
	Check for loose connections or clamping parts.			0			

BRAKE SYSTEM

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Brake Master Cylinder, Wheel Cylinder	Check for fluid leaks.		0				
	Check for fluid level.Change brake fluid.		0			●	
	Check master cylinder and wheel cylinders for proper operation.						0
	Check master cylinder and wheel cylinders for fluid leaks or damage.						0
	Check master cylinder piston cup,and check valve for wear or damage.Change.						●
Brake Drum& Brake Shoe	Check drum mounting part for looseness.	Test hammer		0			
	Check lining for wear.	Slide calipers					0
	Check brake shoes for proper operation.						0
	Check anchor pin for rust.						0
	Check return spring for deterioration.	Scale					0
	Check automatic clearance adjuster for operation.						0
	Check drum for wear or damage.						0
Back Plate	Check back plate for deformation.						0
	Check for cracks.	Penetrant test					0
	Check mounting parts for looseness.	Test hammer					0

LOADING SYSTEM

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Fork	Check forks for damage,deformation or wear.		0				
	Check for stopper pins for damage or wear.				0		
	Check fork base and hook weldings for defective cracks or wear.			0			
Mast& Lift Bracket	Check cross members on outer and inner masts for defective weld,cracks or damage.			0			
	Check tilt cylinder bracket and mast for defective weld,cracks or damage.			0			
	Check outer and inner masts for defective weld,cracks or damage.			0			
	Check for defective weld, cracks or damage of lift bracket.			0			
	Check roller bearings for looseness.			0			
	Check mast support bushings for wear or damage.						0
	Check mast support cap bolts for looseness.	Test hammer		0 (for Ist time only)		0	
	Check lift cylinder tail bolts,piston rod head bolts,U-bolts,and piston head guide bolts for looseness.	Test hammer		0 (for I st time only)		0	
	Check rollers,roller pins and welded parts for cracks or damage.			0			

LOADING SYSTEM

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Chains& Sheave	Check chains for tension,deformation,damage or rust.		0				(2-4 years)
	Lubrication of chains.			0			
	Check connection of chain anchor pin and chain for looseness.			0			
	CHeck sheaves for deformation or damage.			0			
	Check sheave bearings for looseness.			0			
Optional Attachment	Perform general mspection.			0			
Cylinders	Check piston rod,rod screw and rod end for looseness, deformation or damage.	Test hammer	0				
	Check cylinders for proper operation.		0				
	Check for oil leaks.		0				
	Check pins and cylinder bushings for wear or damage.			0			
Hydraulic Pump	Check hydraulic pump for oil leaks or noise.		0				
	Check pump drive gear for wear.			0			

HYDRAULIC SYSTEM

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Hydraulic Reservoir	Check for oil level.Change oil.		0				(1500hrsfo hefirst time, every2400hrs in the future)
	C1ean suction stramer.					0	
	Drain foreign matter.					0	
Return Filter	Replace return filter.				(300hrsfor\efirst time, every600hrs in the future)		
Control Lever	Check levers for looseness at link.		0				
	Check for proper operation.		0				
Control Valve	Check for oil leaks.		0				
	Check relief valve and tilt lock valve for proper operation.			0			
	Measure relief pressure.	Oil pres.gauge				0	
Hose, Piping Hose Reel & Swivel Joint	Check for oil leaks,looseness,collapse,deformation and damage.		0				
	Change hoses.						(1 or 2 years)

ELECTRICALS

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Ignition Device (for gasoline truck)	Check distributor cap for crack.				0		
	Check spark plug for bum.						0
	Adjust spark plug clearance.	Plug gap gauge			0		
	Clean spark plug.				0		
	Check distributor cap high-voltage cord for installation.						0
	Check distributor segment for bum.						0
	Check distributor center piece for wear or damage.						0
	Apply grease on shaft,cam heel and breaker fulcrum.				0		
	Check high-voltage cord for breakage.	Tester					0
Starter	Check pinion gear for correct engagement.				0		
Battery	Check battery electrolyte level. Clean battery.			0			
	Check specific gravity of electrolyte.	Hydro-meter			0		
Wiring	Check wire harness for damage and clamps for looseness.			0			
	Check connections for looseness.			0			

SAFETY APPARATUS & ACCESSORIES

Checking Item	Service Required	Tools	Check and maintenance interval				
			Daily (8 hrs)	Monthly (200 hrs)	Quarterly (600 hrs)	Semiannually (1200 hrs)	Annually (2400 hrs)
Overhead Guard& B coi st	Check for tight installation.	Test hammer	0				
	Check for deformation,cracks or damage.		0				
Tum Signal	Check for proper operation and tight installation.		0				
Hom	Check for proper operation and tight installation.		0				
Lights & Lamps	Check for proper operation and tight installation.		0				
B;i:; f	Check for proper operation and tight installation.		0				
Rear View Mirror	Check for dirt or damage.		0				
	Check for good field of vision.		0				
Meters	Check meters for proper operation.		0				
	Check for damage or loose bolts.Check seat belt function and if it is damaged.			0			
Body	Check frame and cross members for damage or cracks.				0		
	Check for loose rivets or bolts.	Test hammer			0		
	Check items repaired in preceding inspection,if any.		0				
	Inspection general condition of body.				0		
Grease-up & Oil Change	After cleaning,check for greased condition of chassis.	Grease pump		0			
	Check oil condition of oil and fluid in reservoir.						0

CAUTION:

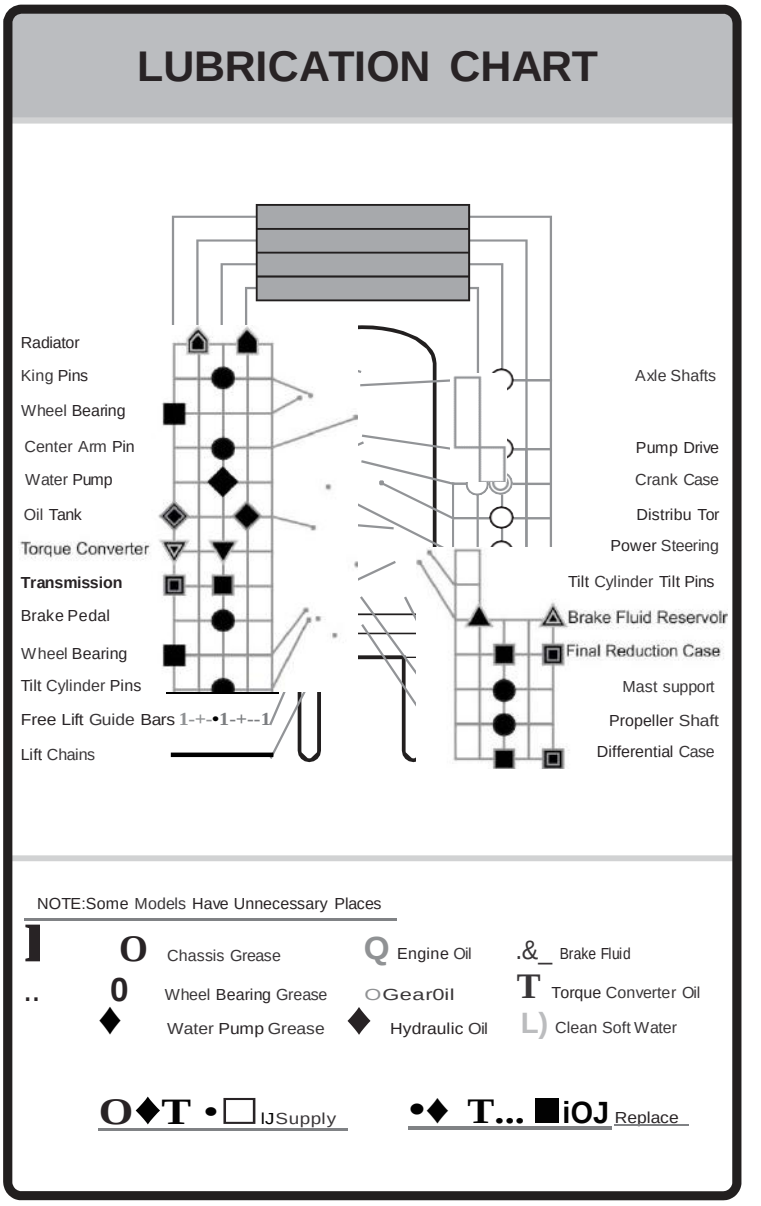
· Locally refined oils and cooling water, coolant, or anti-freeze do not allow the same operation period designated in this manual. They must be changed more frequently as half or a quarter of the designated period in this manual.

·Multi-viscosity oils allow a wider temperature range for operation but must be changed more frequently as the addition that provides the multi-viscosity gradually deteriorates lowering the viscosity. Degradation of viscosity at the higher temperatures can be very detrimental to the hydraulic system.

·The service period of engine oil and engine oil cartridge can also be decided according to Engine Manual.

V .Others

1. Lubrication chart



2. **Fuel and Lubricants Used for Forklift Truck**

Diesel	Diesel number	0#	-10#	-20#	-35#
	Applying temperature (°C)		2:-5	2:-5~-14	2:-14~-29
Engine oil	Viscosity degree	5W/30	l0W/30	15W/40	20W/50
	Applying temperature (°C)	-30,_+30	-25,_+30	-20~+40	-l 5,_+50
Hydraulic oil	HLW-40(dedicated for EKKO)				
	NORMAL TEMPERATURE Mobil DTE 25 Shell Tellus. S2 M46		LOW TEMPERATURE Mobil DTE 10 Excel 46 Shell Tellus.S2 V46		
Hydraulic-power d transmission oil	HLT-9(dedicated for EKKO)				
	NORMAL TEMPERATURE Shell Donax TC30 FUCHS RENOLIN ATF-Y 8		LOW TEMPERATURE Mobile Fluid 424 Shell Donax TD 5W-30		
Brake liquid	DOT3compound brake liquid GB12981HZY4				
Lubricating grease	3#general lithium grease (-20°C~+120°C)				
Heavy duty truck gear oil	Viscosity degree		85W/90GL-5	80W/90GL-5	
	Applying temperature (°C)		-15,_+49	-25~+49	
Anti-freezing liquid	Code	FD-1	FD-2	FD-2A	FD-3
	Applying temperature (°C)	2:-25	2:-35	2:-45	2:50

NOTE:

·The diesel, gasoline and engine oil shall meet relative quality requirements and please refer to relevant engine operation manuals or consult the dealer/ agent of EKKO; Liquefied petroleum gas for vehicles (GB 19159) shall be used for LPG trucks.

·Special note: low sulfur fuel with sulfur content ＜ 15ppm must be used for trucks meeting China IV, Beijing IV, European stage Ⅲ B, tier 41 and European stage Ⅴ.

·Oil products of different brands cannot be mixed.

·Engine failure caused by oil quality is not within the scope of warranty.

·Do not mix-use oil of different oil brand.

Correction measures:

The light diesel oil of different brands should be used for diesel engine according to various atmospheric temperatures and refer to the following table for details:

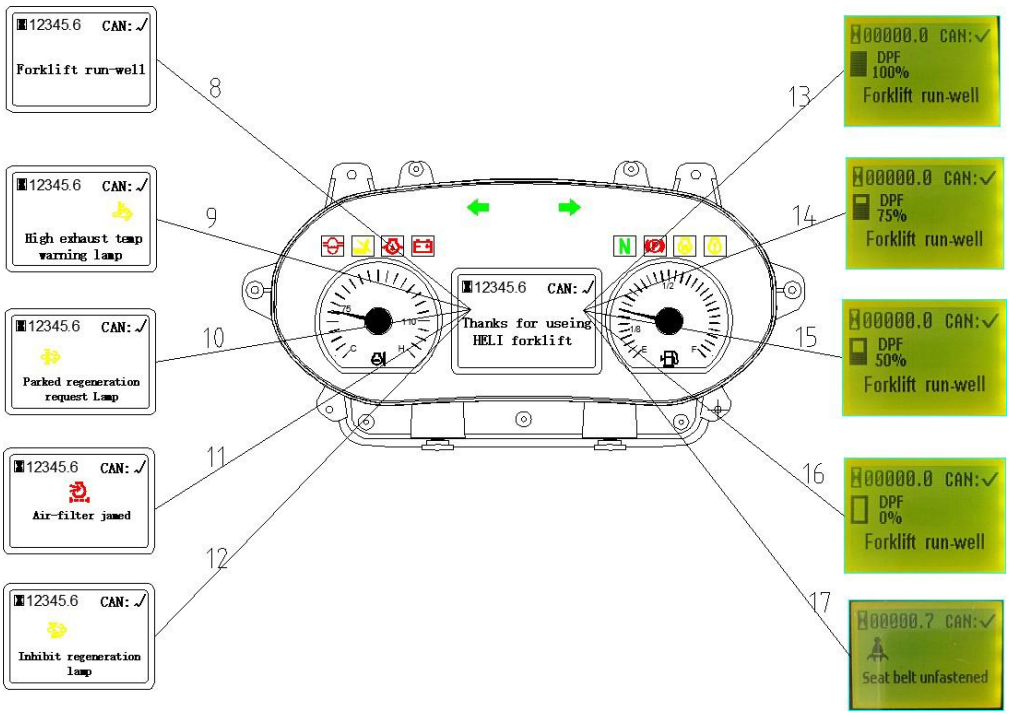
Atmospheric temperature	Above 0℃	0- -10	-10 - 20℃	-20 - 30℃
Brand of diesel oil	No.O	No.-10	No.-20	No.35

The fuel oil must maintain a high degree of cleanliness; the fuel oil should be clarified for more than three days and nights before filling in the fuel tank of a diesel engine so that the dust and moisture inside the fuel oil are deposited at the bottom, then take the clean fuel oil at the top.

The gasoline brand recommended in the operating instructions of the engine or forklift should be chosen for gasoline engine. If there is no clear recommendation, the brand can be chosen according to the compression ratio of the gasoline engine. The gasoline engine with high compression ratio should use the gasoline with higher octane value and the gasoline engine with low compression ratio should use the gasoline with lower octane value. The automobile gasoline of No.90 should be chosen for the engine with the compression ratio lower than 7.0, the automobile gasoline of No.90 and No.93 for the engine with the compression ratio between 7.0-8.0 and that of No.93 and No.95 or higher for the engine with the compression ratio larger than 8.0.

VI. Instructions for trucks meeting China IV and EURO V or higher emission limits stage

1. Introduction on the instrument



(8) Forklift run-well

The display suggests that the truck is normal when the truck gets electricity.

(9) Warning of high exhausting temperature

When the truck is under regeneration, the instrument will give a warning of high exhausting temperature when the exhausting temperature reaches to a certain value.

(10) Parked regeneration request

When the figure is displayed, it means that the truck needs to be parked for regeneration.

(11) Air filter jammed (optional)

When the air-filter is jammed, the figure will display to remind the cleaning or change of the air filter.

(12) Inhibit regeneration

When the inhibit regeneration switch is pressed, the figure will display to suggest that the truck is under inhibit regeneration mode.

·**When the inhibit regeneration button is pressed, the active regeneration mode**

will not be effective. After a period of time, it is easy to cause blockage of post-treatment system. The maintenance cycle shall be shortened.

(13) -(16)DPF jammed volume

I00% means the jammed volume to I00% and it needs cleaning; 75% means the jammed volume is 75% and 50% means the jammed volume is 50%.

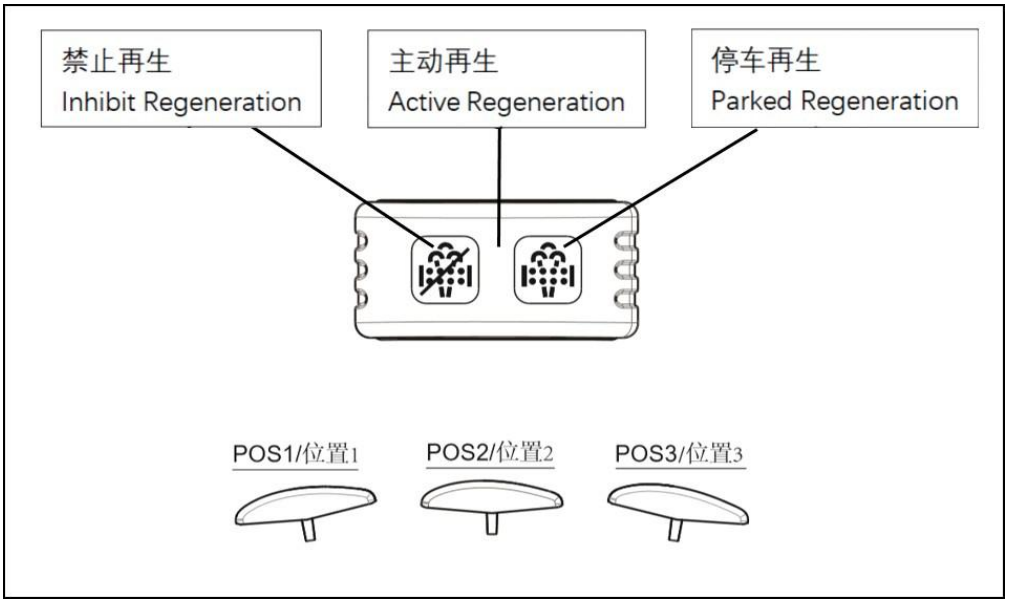
·The jammed volume is different from the regeneration treatment. The jammed volume cannot be treated by regeneration, and can only be treated by manual cleaning or replacement.

(17) Safety belt reminder

After the vehicle is started after 20s, if it is detected that the safety belt is not fastened, and the instrument will give a buzzer alarm.

2. Introduction on regenerating

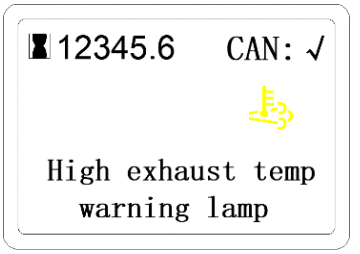
Regeneration is the process of burning PM in the exhaust gas in DPF. For trucks with a post-treatment regeneration model, regeneration operation is required during use. The regeneration mode selection button is generally in the form of rocker switch, which has three gears: active regeneration, inhibit regeneration and parked regeneration. The parked regeneration is of reset rocker switch.



(1) Active regeneration

When the rocker switch is in the active regeneration position, the whole truck is under the active regeneration mode. When the truck is under operation and if the conditions of active regeneration are met, the whole truck will regenerate automatically, and the "active

regeneration" figure will be displayed on the instrument at this time. In this process, the whole truck can continue to operate. During the active regeneration process, if the instrument displays the high exhaust temperature warning (as follows), please pay attention to keep the surrounding personnel and inflammable and explosive materials away from the exhaust pipe.

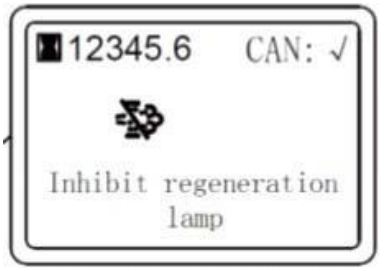


.A, WARNING

·When the truck is regenerated actively, the exhaust gas with high temperature will be produced. Therefore, please be careful especially in environment with poor air ventilation and with inflammable and explosive materials around.

(2) Inhibit regeneration (for certain truck model)

When the rocker switch is at the inhibit regeneration position, the truck is under the inhibit regeneration mode, and the "inhibit regeneration" icon is displayed on the instrument. Then the truck will not regenerate actively during operation.



·If **the truck is in the inhibit regeneration mode for a long time, it is easy to make the post-processing accumulation too large, so that the truck enters the parked regeneration stage in advance.**

(3) Parked regeneration

When the instrument of the truck displays the information of " parked regeneration" (see "DPF regeneration operation instructions" for details), the truck needs to stop for regeneration. At this time, it is necessary to stop the truck stably in an open and ventilated position away from inflammables and explosives for parked regeneration.

·When the truck requests parked regeneration, and if the parked regeneration is not carried out, the truck will limit the truck torque in a short time. When the parked regeneration cann ot be realized, it is necessary to contact the local dealer to clean or change the **DPF.**

·When the truck is carrying out parked regeneration, the truck cannot be operated, otherwise the parked regeneration will be terminated.

·When the truck is under regeneration, high temperature exhaust gas will be generated, so it is necessary to park the truck stably in the open ventilation position, and the safe area away from inflammable and explosive substances.

3. Instruction on DPF regeneration

(l) Instruction on DPF regeneration (Kubota engine V2403,KU17 /KU18/ KU19/KU20)

1) When will it regenerate?

·The lamp  flashes and active regeneration is required.

·The lamp  flashes + fault code 3701-15, stop and regenerate immediately. Sometimes the engine shutdown lamp  will turn on.

·The lamp  flashing+ fault code 3701-16, stop and regenerate immediately, and use the service tool (connect the computer) for regeneration, which is usually completed by Kubota service station. Sometimes the engine shutdown lamp  will turn on.

·The lamp  flashes + fault code 3701-0, regeneration can not be realized. After shutdown, contact the nearest service station for cleaning and replacement of DPF. Sometimes the engine shutdown lamp  will turn on.

2) How to carry out active regeneration?

Switch the rocker switch to the active regeneration state. When the truck reaches the conditions of active regeneration during operation, the truck will regenerate automatically. And indicator lights  are on, and the whole truck can continue to be operated in this process.

3) How to carry out parking regeneration?

a) Operate the truck to an open and ventilated position and keep away from inflammable and explosives;

b) Apply the hand brake and make the gear in neutral;

c) Start the truck at idle speed;

d) Press the parking regeneration switch for 3-1Os and release the switch after hearing the engine speed rise. No operation of the truck is allowed;

e) During parking regeneration, the  and  indicator lights are on. Please keep a safe distance between the driver and the truck;

f) When the parking regeneration is completed, the  and  indicator light goes out, and the engine speed returns to idle state.

(2) Instruction on DPF regeneration (Xinchang 3E22YG51, XC26)

I) When will it regenerate?

·The lamp  flashes and active regeneration is required.

·The lamp  flashes + fault code 5270-15, stop and regenerate immediately. Parking regeneration cann ot be carried out in 2 hours.

·The lamp  flashes + fault code 520261-0, regeneration cann ot be realized.

After shutdown, contact the nearest service station for cleaning and replacement of DPF.

2) How to carry out active regeneration?

Switch the rocker switch to the active regeneration state. When the truck reaches the conditions of active regeneration during operation, the truck will regenerate automatically. And indicator lights  are on, and the whole truck can continue to be operated in this process.

3) How to carry out parking regeneration?

a) Operate the truck to an open and ventilated position and keep away from inflammables and explosives;

b) Apply the hand brake and make the gear in neutral

c) Start the truck at idle speed

d) Press the parking regeneration switch for 3-1Os and release the switch after hearing the engine speed rise. No operation of the truck is allowed;

e) During parking regeneration, the  and  indicator lights are on. Please keep a safe distance between the driver and the truck;

f) When the parking regeneration is completed, the  and  indicator light goes out, and the engine speed returns to idle state.

(3) Instruction on DPF regeneration (Cummins QSF3.8(EU Stage V/EPA T4F), Deutz TCD3.6 L4(EU Stage V),CU1Z/CU1/DE2)

1) When will it regenerate?

 "High exhaust temperature indicator" (REST) - the high temperature indicator on the instrument is on and active regeneration is in progress. At this time, the exhaust temperature is higher than the normal temperature, which is only to provide safety warning information and does not require the driver to take measures.

 "Regeneration reminder/ regeneration status" indicator is on, and "3251-15" is displayed on the instrument. It is necessary to stop for regeneration.

 "Regeneration reminder / regeneration status" indicator light flashes, the yellow light  is on, and "3251-16" is displayed on the instrument LCD. Carry out parked regeneration as soon as possible.

 "Regeneration reminder / regeneration status" indicator light flashes, the red light  is on, and "3251-0" is displayed on the instrument LCD. After shutdown, contact the nearest service station to clean and replace the DPF.

2) How to carry out active regeneration?

Switch the rocker switch to the active regeneration state. When the truck reaches the conditions of active regeneration during operation, the truck will regenerate automatically. And indicator lights  are on, and the whole truck can continue to be operated in this process.

3) How to carry out parking regeneration?

a) Operate the truck to an open and ventilated position and keep away from inflammables and explosives;

b) Apply the hand brake and make the gear in neutral;

c) Start the truck at idle speed;

d) Press the parking regeneration switch for 3-1Os and release the switch after hearing the engine speed rise. No operation of the truck is allowed;

e) During parking regeneration, the  and  indicator lights are on. Please keep a safe distance between the driver and the truck;

f) When the parking regeneration is completed, the  and  indicator light goes out, and the engine speed returns to idle state.

Note

·**Any fault occurs before regeneration shall be eliminated.**

·**Inhibit regeneration: The whole truck will not carry out active regeneration mode, which is easy to cause blockage of post-treatment and shorten maintenance cycle.**

·**Active regeneration: The whole truck can regenerate automatically during operation, which will produce high exhaust temperature. Pay attention to whether the surrounding environment allows active regeneration.**

·**Parked regeneration: At this time, the engine speed is high for about 25 minutes. Do not operate the whole truck during this process, otherwise the regeneration will be interrupted. After being interrupted, it is necessary to regenerate again until the fault code is eliminated.**

·**During the regeneration of the whole truck, high exhaust temperature is generated, which should be paid attention to.**

·**Engine oil shall use CJ-4 or CK-4 lubricating oil classified by API.**

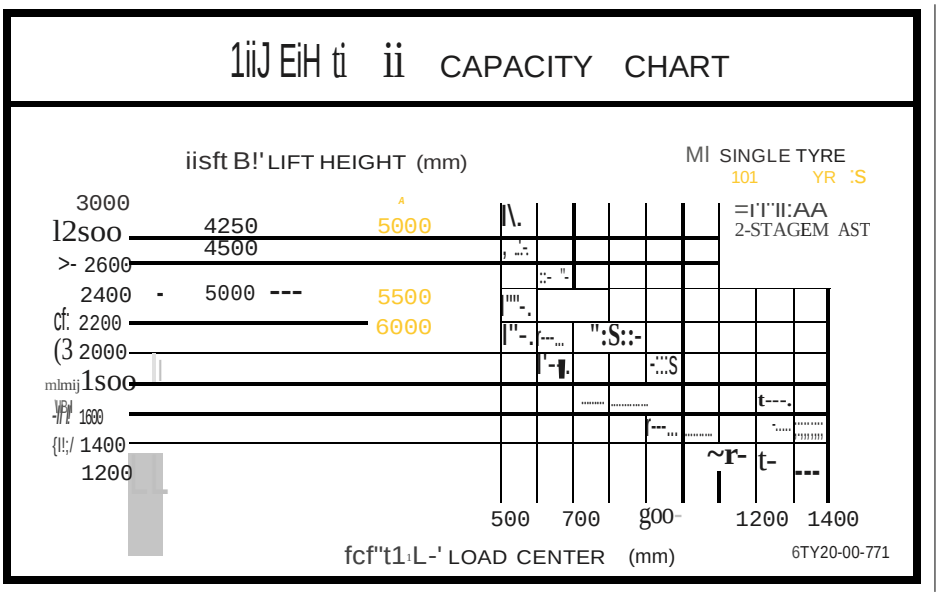
·**Ultra low sulfur diesel (ULSD) 15ppm is required for engine fuel.**

please read the above contents carefully and carry out parked regeneration according to the requirements of this notice. Any damage to emission related parts caused by any inconformity to the requirement are out of the quality guarantee. The contents of this notice and the maintenance requirements of the products involved are subject to change without notice.

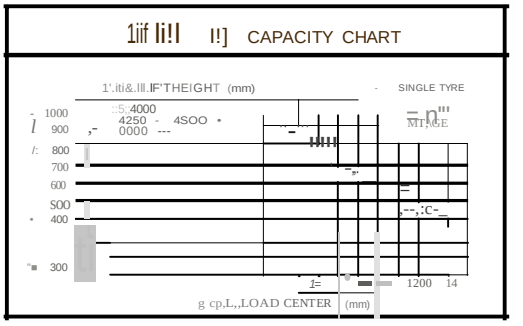
Annex: Capacity chart

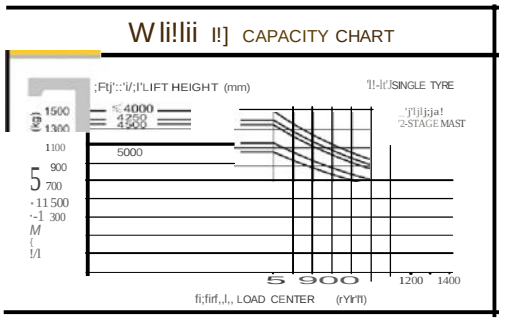
The capacity chart is the load (kg) of the truck when the mast is vertical without attachment. The load center distance (mm), lifting height (mm), and the corresponding maximum load (kg) of the truck are shown in the form of a curve, and they are pasted on the whole truck.

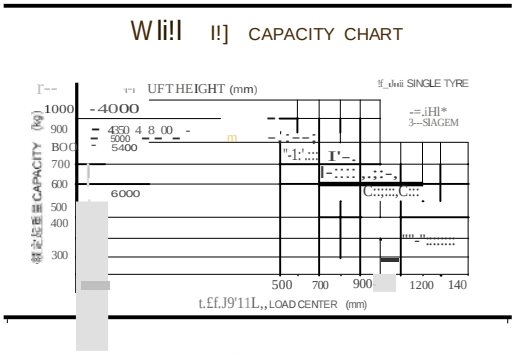
The following example: when the height is :::; 4000mm and the load center distance is 1100mm, the maximum load of the truck is 1800kg



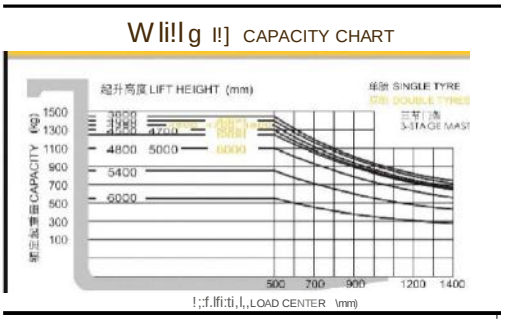
The following labels are for reference only, and the specific capacity chart is subject to the one on the truck.



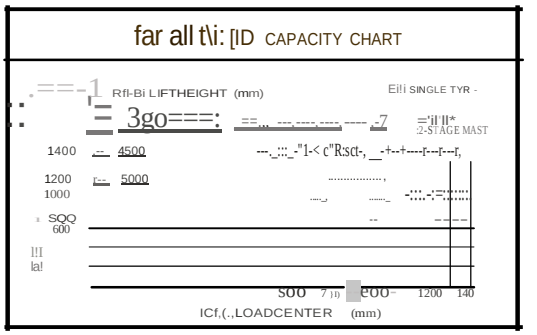


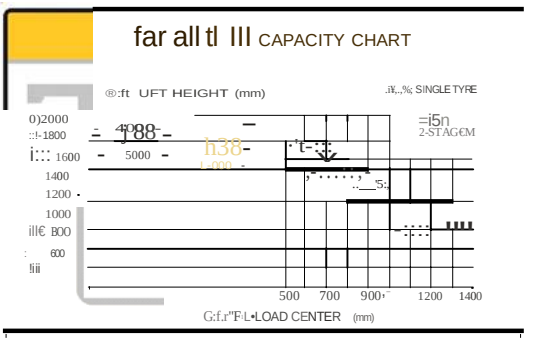


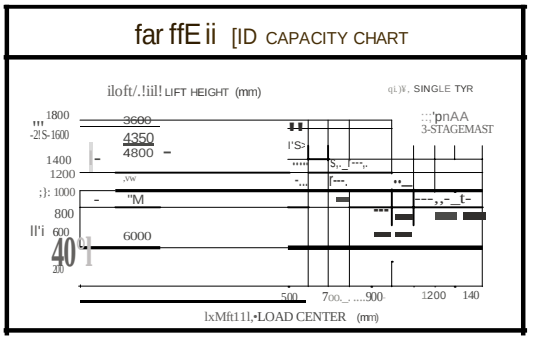
EK10LP

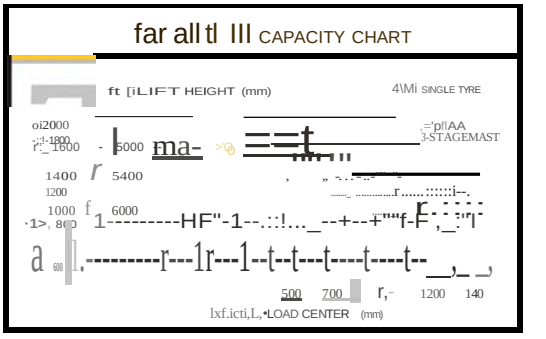


EK15LP

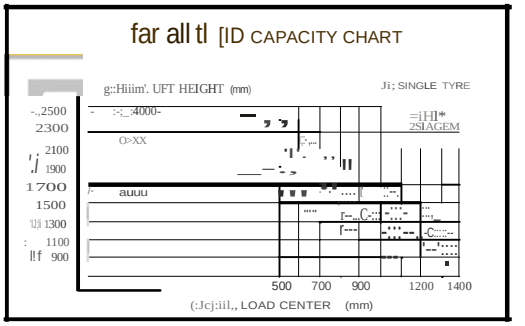


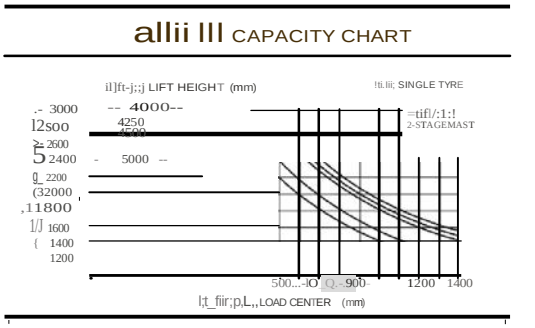


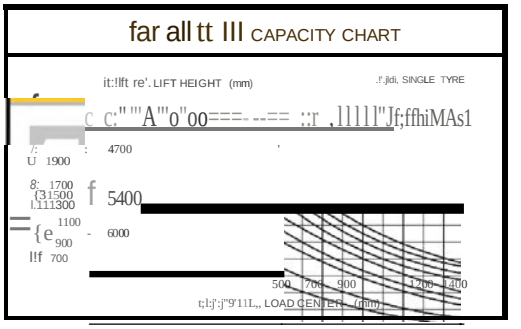


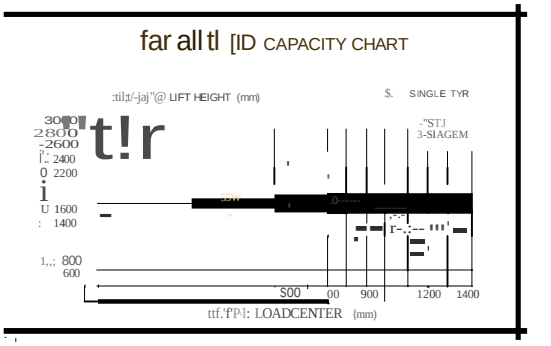


EK18LP **EK20LP**

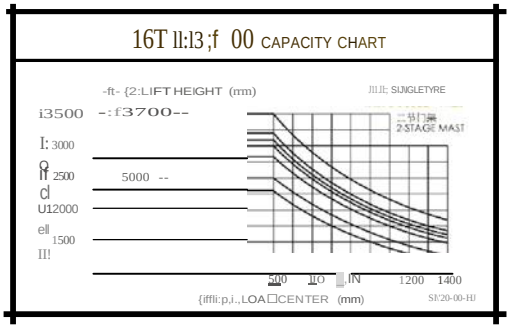


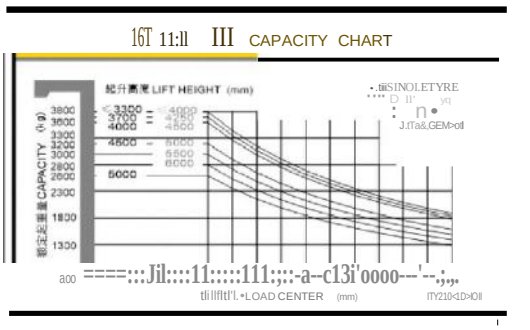


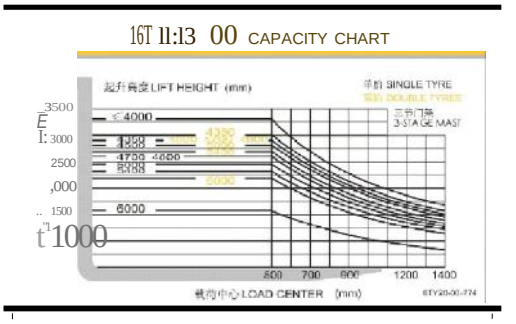




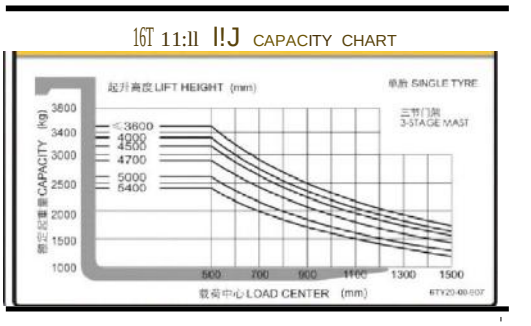
EK25LP **EK30LP**



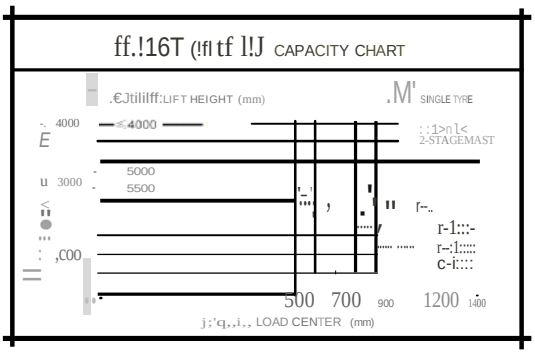


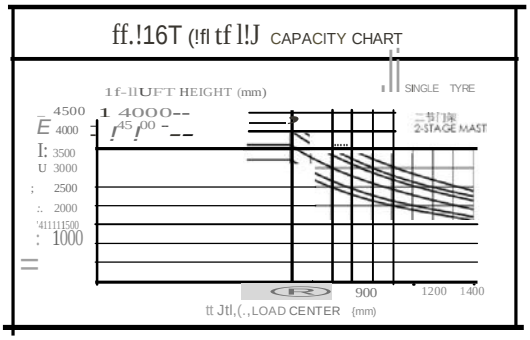


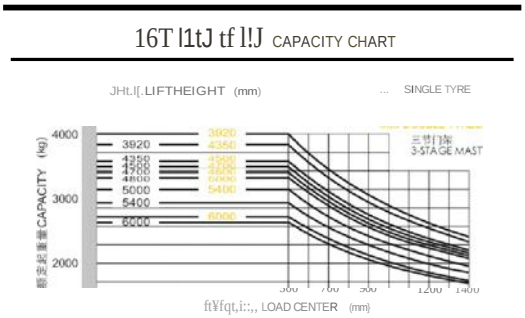
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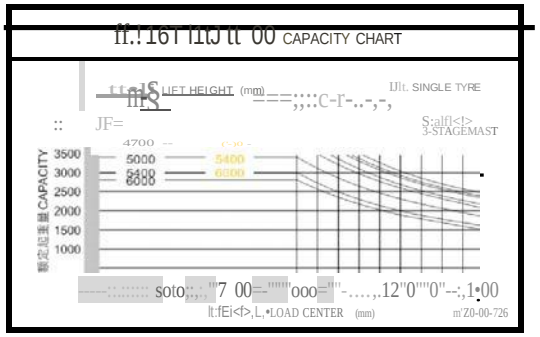
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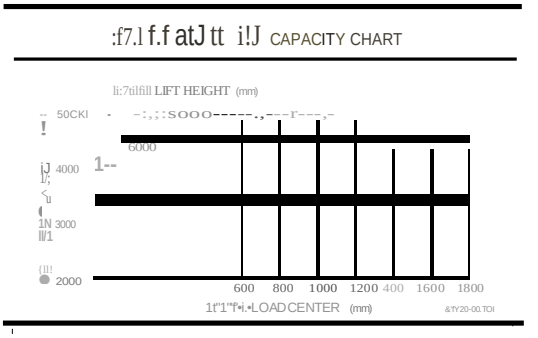


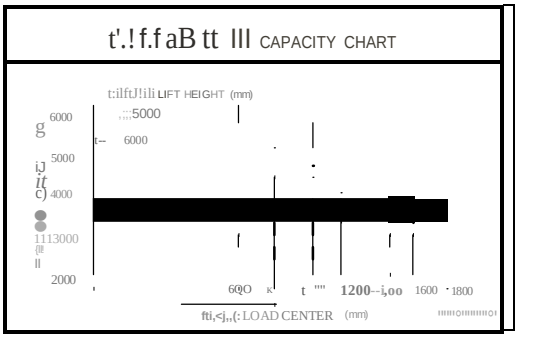


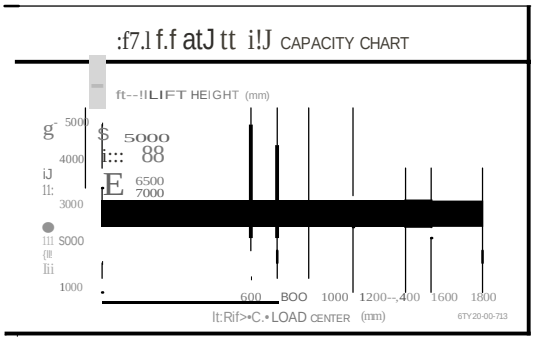
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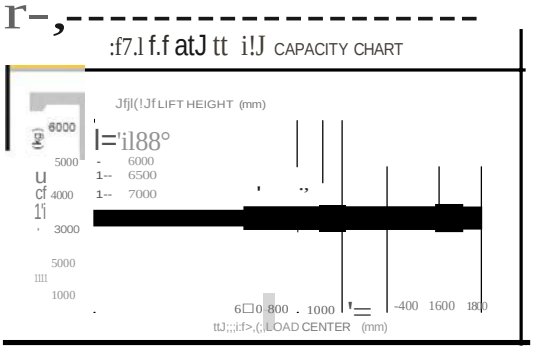
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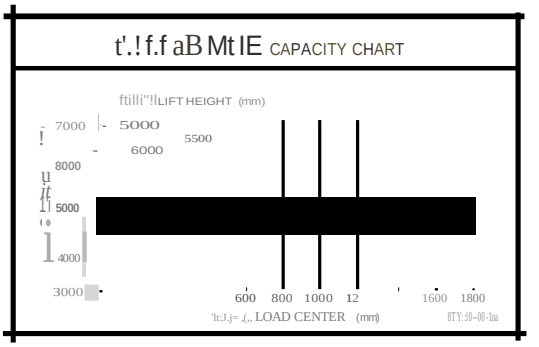


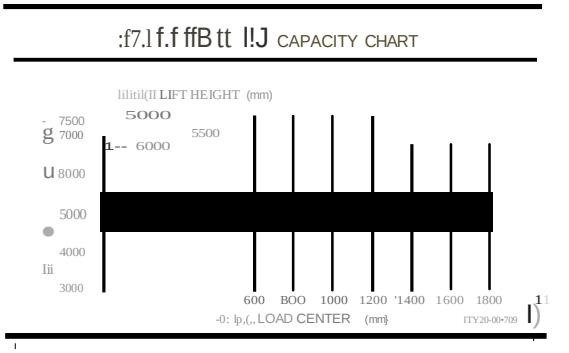


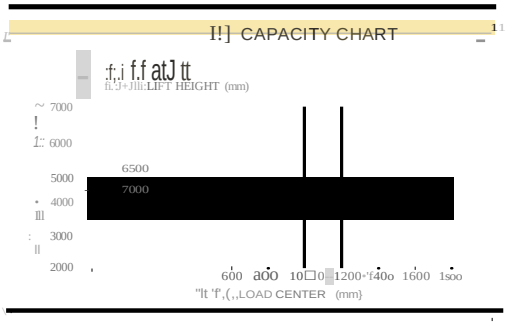
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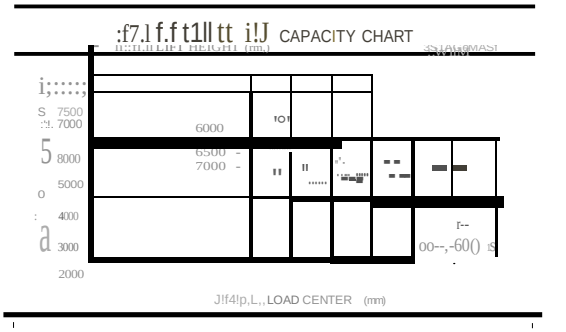
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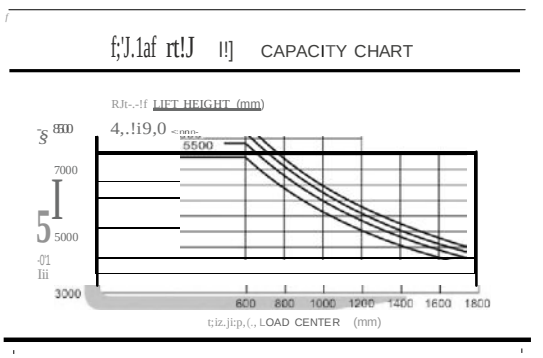


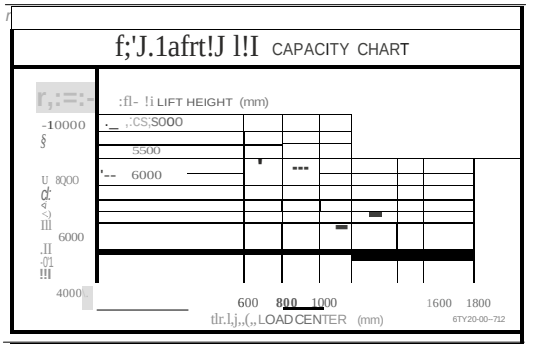


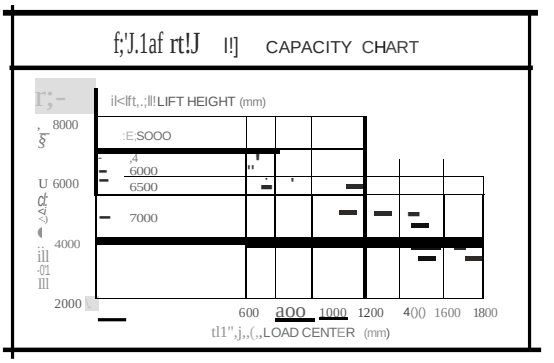
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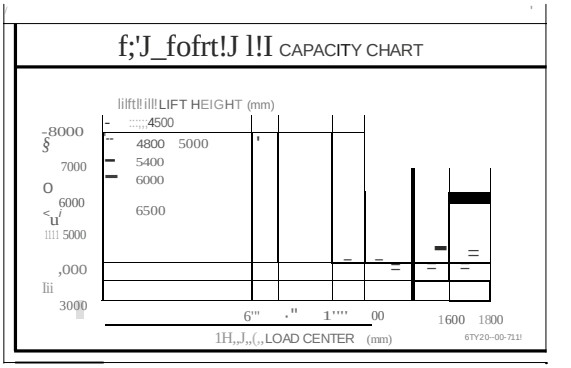


EK75LP









EK85LP **EK100LP**