1t～3.5t XF series Internal Combustion Counterbalanced Forklift Truck

OPERATION AND MAINTENANCE MANUAL

HANGCHA GROUP CO., LTD.
July 2012 4th EDITION

FOREWORD

1t-3.5t new generation XF series internal combustion forklifts are the latest trucks in our company, they have following strengths: Energy-saving and Environmental Protection, Fashionable Structure, superior performance. This manual expresses the structure, usage, maintain about truck. Drivers, serviceman , and facility managers must read up and understand this manual very well.

This manual also applied to container forklift.

As the improvements of products of our company, maybe there are some differs between this operation manual with your forklift truck.

This manual iconography and photograph may be not according with your forklift particular structure.

If you have any questions please keep touches with HANGCHA GROUP CO., LTD. sales department or let the agents know.

CONTENT

1. General Rules

To make the truck and you safety, operator should obey these rules below:

1. Only trained and authorized operator shall be permitted to operate the truck.
2. Before start truck you should check all control and alarm device, if there are any damaged or objection, you could not operate it until repaired it.
3. When carry the load, the weight should not much overload. The fork shall insert in the load entirely and well proportioned. It is not permitted use only one fork to load.
4. You should operate the truck smoothly when start, turning, travel, brake and parking. On a slick or wet road, you should decrease speed when turning.
5. Load travel should lower the goods down and tilt the mast backwards.
6. Be carefully when traveled on a grade. If the slope angle is bigger than 10%, travel forward up slope and backward down slope. Never turn sideways and stack load on an incline.
7. Notice the foot passenger, barrier, pothole and the clearance upside.
8. It is prohibit picking up a man or standing on the fork.
9. No permitted to stand or walk under the fork.
10. No permitted to operate the truck or attachment on other position except the operator's seats.
11. Do not carry the load unpackaged. Be carefully to carry these goods with large size.
12. Notice the load not drop from the load bracket for those trucks that overall maximum lift height is higher than 3 meters. If necessary, make some protective measure.
13. Travel with load as low as possible and tilt back the mast.
14. Before driving over a dock-board or bridge-plate, be sure that it is properly secured and strong enough to sustain the weight.
15. Make sure that there is no naked flame near the area, never smoke. The driver should not remain seated when adding fuel.
16. The truck with attachments should be treated as a loaded truck.
17. When leave the truck, you should let the fork down, make the shift lever neutral shut down the engine and cut the power. Parking on a grade, make sure to tighten the brake lever. If necessary, use a block when parking on a grade for a long time.
18. If the truck suddenly get out of order, or for leakage of electrolyte，hydraulic oil or brake oil, when lifting goods or grade climbing, it needs to rush to repair and let the truck be in safe state, then connect with maintainer or sales representative.

19. In the process of install and assemble, it will be noise and libration. Please choose the right tool and assembly method. Depress the noise and libration as soon as possible to reduce the noise pollute to circumstance.

20. The work road surface for forklift should be stability and unknit, cement, blacktop or beton. If there are snow, ice, water or other eyewinker, bar. Eliminate all, then work. Otherwise the truck will be out of control and lead the safety accident.

21. Move the truck to the place which respects traffic when it anchors. If the reason is brake or turn system, move it by a suitable truck (Reference the part of truck move); Other reasons, use a suitable truck to traipse, tie the cord outside of truck. Please abide by the traffice regulations when traipse the truck on calzada.

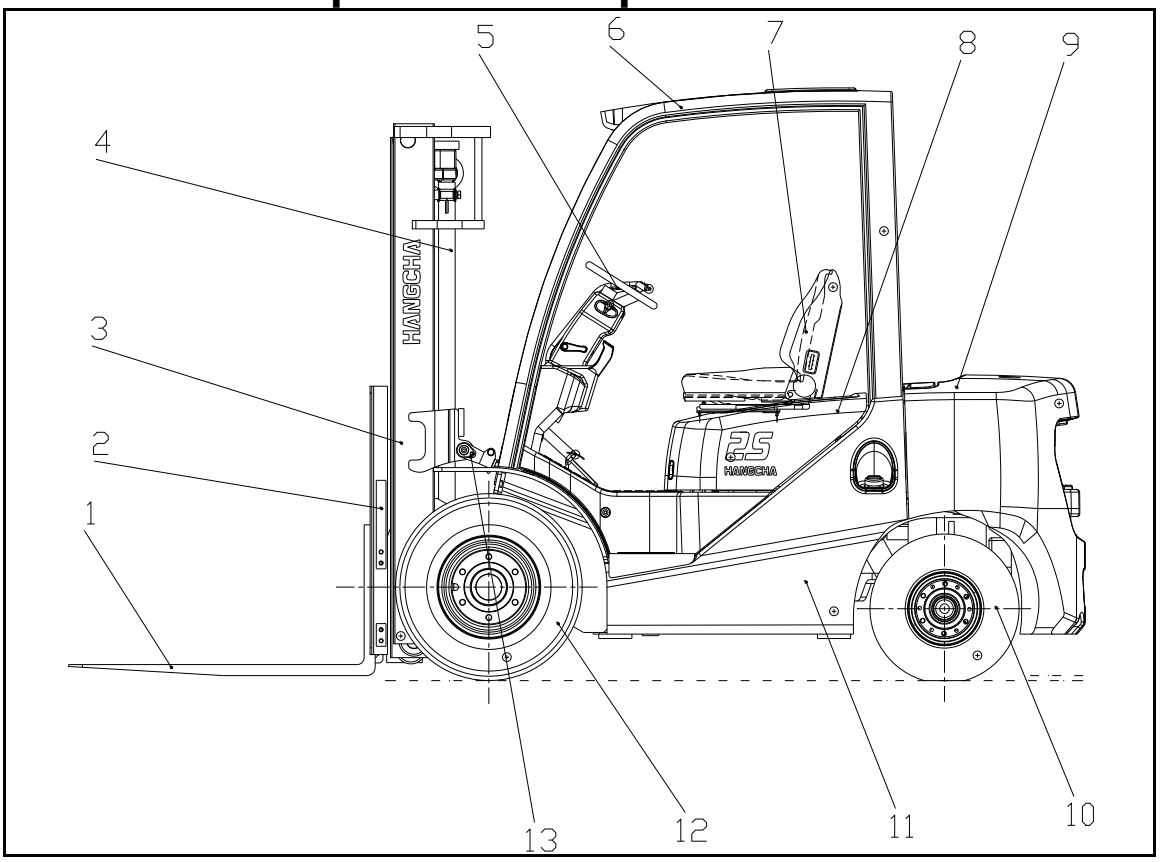
22. After take-down the hood, water tank cover board, overhead, backrest of mast, unallowed to operate the truck or load cargo.

23. There are enough light at truck work ground. At night, open the head lamp to collocate enough lamp-house.

24. 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:

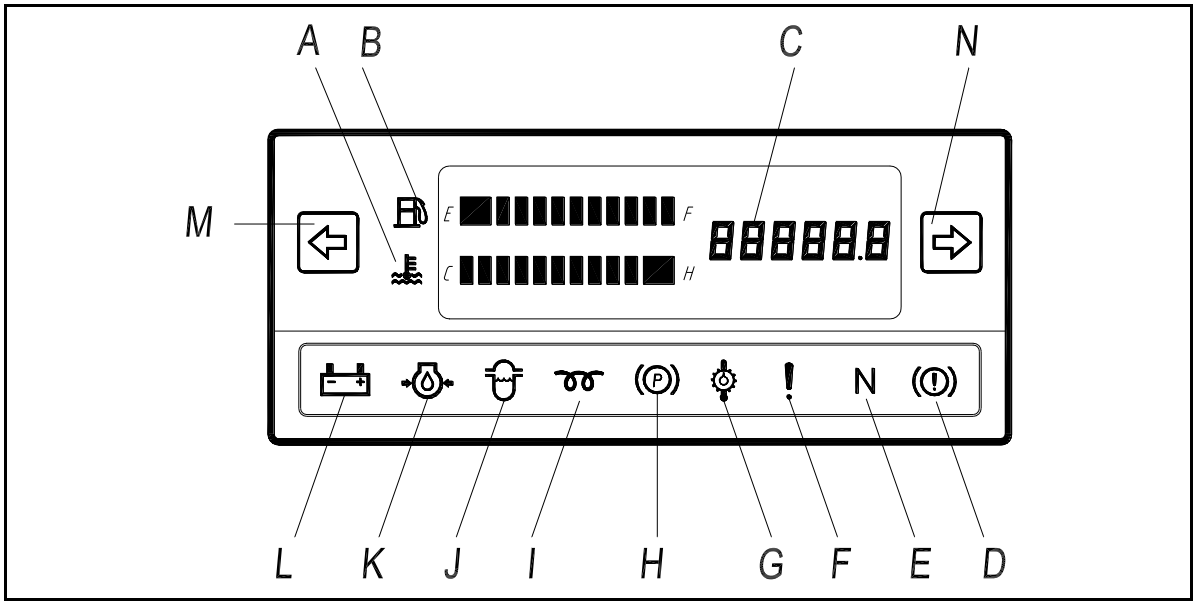
a) Arrange for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety;
b) Maintain a permanent record of the design, test(s) and implementation of the modification or alteration;
c) Approve and make appropriate changes to the capacity plate(s), decals, tags and instruction handbook;
d) 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 theorganisation that accomplished the tasks.

2. Name of main parts or component

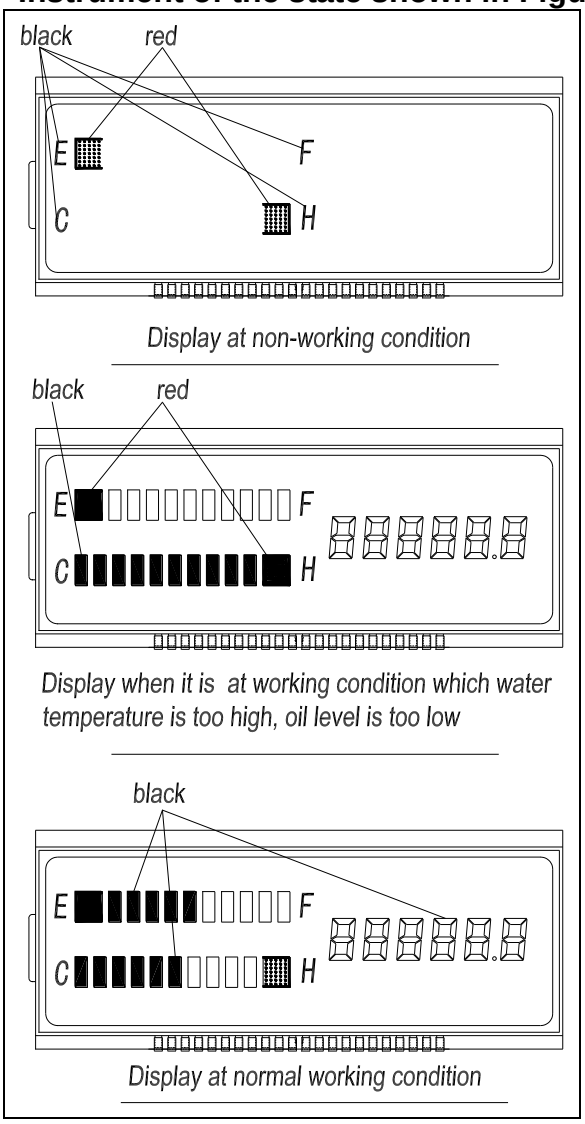


1. Fork	2. Backrest	3. Mast	4.Lifting cylinder	5. Steering wheel
6.Overhead guard	7. Seat	8. Cover hood	9. Counterbalance weight	
10. Rear wheel	11. Chassis	12.Front wheel	13.Tilting cylinder	

Instruments



Instrument of the state shown in Figure



Water temperature gauge [A]

This gauge indicates the oil temperature in the torque converter transmission box when the key is at ❙ (ON) position. In normal status, LED Displayed in the range of 50 ℃ -110 ℃

Caution

If LCD display in the red zone , please stop the truck at once. Decrease the engine speed to make the engine cool. Check the cooling fluid if enough and the fan belt's elasticity if fit.

T(°C) \ R_{25} / B / Rt	10KΩ / 3950	LCD display effect
50	3.588	C H
60	2.476	C H
70	1.743	C H
80	1.250	C H
85	1.065	C H
90	0.911	C H
95	0.7824	C H
100	0.6744	C H
105	0.5836	C H
110	0.5066	C H
120	0.40708	C H

Fuel gauge [B]

The gauge indicates the fuel level in the tank when the key is at ❙ (ON) position.

Suggest filling up the fuel tank after work every day.

Fuel tank capacity	LCD display effect	Resistance (Ω)
Lowest O	E F	11K
Warnin Level O	E F	11K
1/10	E F	10K
2/10	E F	9K
3/10	E F	8K
4/10	E F	7K
1/2	E F	6K
6/10	E F	5K
7/10	E F	4K
8/10	E F	3K
9/10	E F	2K
Highest 1	E F	1K

Hour meter [C]

This meter measures working time of engine when the key is at ｜(ON) position. The meter increase one number every working hour.

Use meter to schedule lubrication and maintenance periods.

Accumulator warning indicator [D]

This indicator light does not work on the forklift.

Neutral position start-up indicator [E]（LPG truck）

N

Put the steering handle in the neutral position when truck on the temporarily stop, the light will indicated on

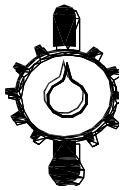
The truck can be started up only in the neutral position.

It's prohibited for truck in the neutral position sliping when it's on the slope.

Failure indicator [F] (For computer engines trucks)

When the truck gets out of order, the lamp will be on. Please stop it and eliminate the failure according to the failure indicator lamp.

Transmission oil temperature warning light [G]（Hydraulic Forklift）



In normal state, once the starter is set to ➲ "ON" position, this lamp lights up. After the engine is started up, it goes out.

During work time if the oil temperature exceed the normal rang(60~120° C) the indicator light on.

Caution

If the pointer enters the red range, stop the operation instantly and slow down engine speed to cool the coolant and wait until the pointer goes into the green range, and have a check then.

Parking indicator [H]

Parking indicator shows on means brake is affected, Please loosen the parking handle (hand brake handle), the parking indicator will shows off.

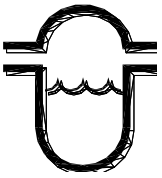
Warning:

It will damage the engine and transmission, etc. when indicated

Glow indicator (I) [Diesel truck]

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

Sedimentor indicator (J) [diesel truck]



In normal state, once the starter is set to ➲ "ON" position, this lamp lights up. After the engine is started up, it goes out.

This lamp lights up when water in sedimentor reaches to a certain level, while the engine is running.

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

Caution

If continue working when the lamp is light. The fuel injection pump may be damaged.

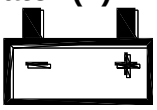
Oil pressure alert (K)

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

Caution

If this light continues to stay lit or lights up during operation, the pressure is lower than 0.05Mpa and should be checked immediately.

Charging indicator (L)

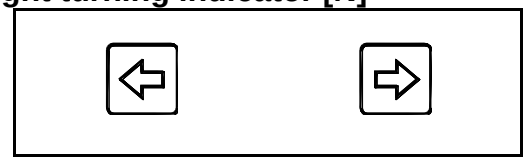


This lamp indicates the battery condition of charge. The lamp comes on when the ignition switch is set at ❙ “ON”, but it goes out as the engine starts and accelerator pedal is pressed.

Caution

If the light continues to stay lit or lights up during operation, the charging rate is low and should be checked immediately.

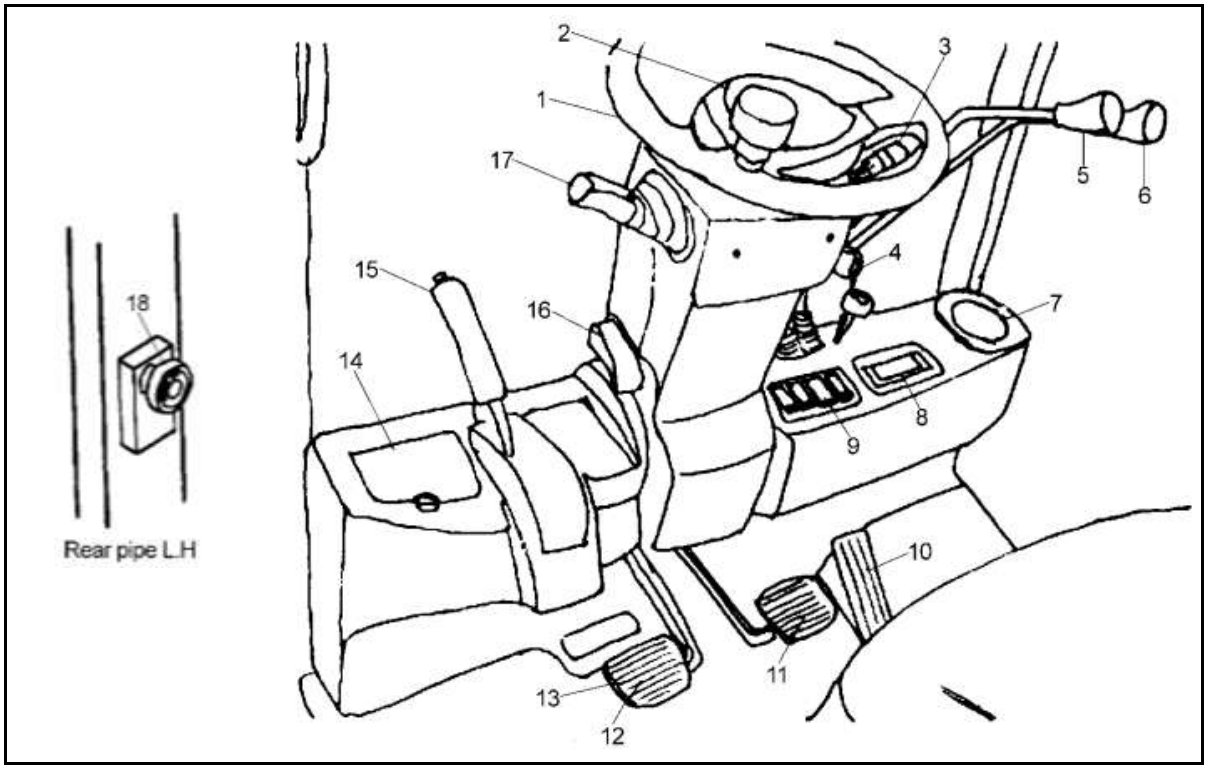
Left turning indicator [M]
Right turning indicator [N]



When the truck turns left, the indicator is set forward, the lamp lights up.

When the truck turns right, the indicator is set backward, the lamp lights up.

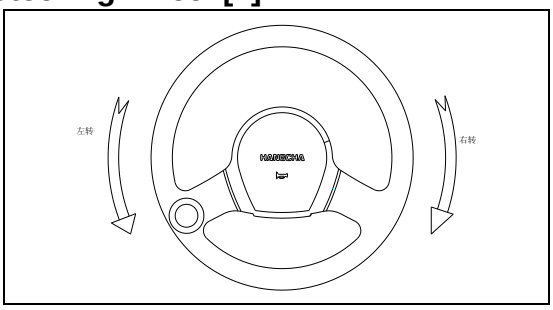
Controls and Switches



1、Steering wheel	2、Horn	3、Combined switches	4、Key
5、Lift lever	6、Tilt lever	7、Cup holder	8、Instrument
9、Rocker switch	10、Accelerator pedal	11、Brake pedal	12、Inching pedal (torque converter type)
13、Clutch pedal (frictional clutch type)	14、Brake fluid tank cap	15、Parking brake lever	16、Steering wheel adjustable switches

17、Forward reverse lever 18、Emergency stop switch (option)

Steering wheel [1]



It controls the movement direction of truck. It rotates counterclockwise, the truck turn left. It rotates clockwise, the truck turns right.

⚠ Warning:

The truck adopts all hydraulic steering. So when the engine is flameout, it's difficult to change direction. The engine should be started again to resume steering.

Horn button [2]

Press the rubber cover at the center of steering wheel to sound horn.

Combined switches [3] (Turn signal lever, Light switch and Side lamp switch)

Turn signal lever

It includes turn signal switch and light

Use this lever which is at the right side of turning rod to indicate the turning direction of the truck.

R-turn right, **N**-neutral, **L**-turn lift.

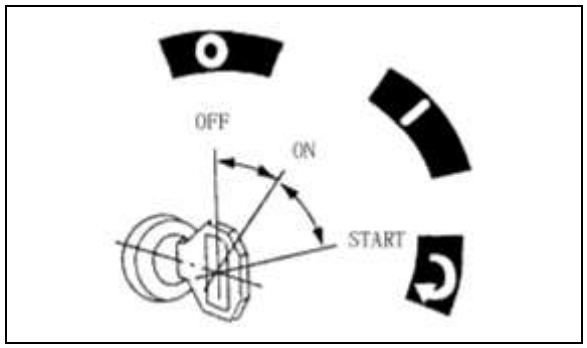
The turn signal level does not automatically return to the neutral position unlike general passenger cars. Reset it by hand.

Light switch

This light switch can be pulled out at two steps.

Light Stage	Power	Near light	Far light	Clearance
0	×			
1st	×	×		×
2nd	×		×	×

(×) means connected



Key [4]

OFF (0)

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

Gasoline engine and diesel engine stop at this position (The engine is flameout).

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 is placed in the "START" position, the starter motor is engaged. When removing hand off key, it is automatically returned to the "ON" position by spring force.

Diesel engine

Turn the key to "ON" position and the indicator lights **(I)** up for a moment. After the indicator goes out, turn the key to "Start" position.

Caution

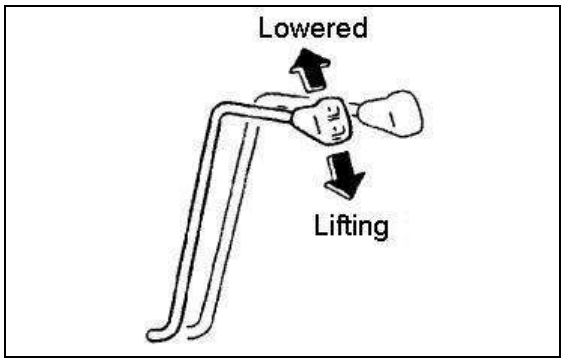
1. Do not keep the starter switch in the " | "(ON) position while engine is shut down. This result in a discharge battery.
2. With the engine running, do not turn the starter switch into the (START) ➲ position, since there is a danger of the starter motor being damaged.
3. Do not keep the starter engaged for more than 5 seconds at a time. Wait about 120 seconds before trying again.

Lift lever [5]

Control the forks' up or down.

Pulling: up , Pushing-down.

Lifting speed can be controlled by tilt backwards angle of lever and accelerator pedal, the lowering speed can be controlled by tilt forwards angle of the lever.



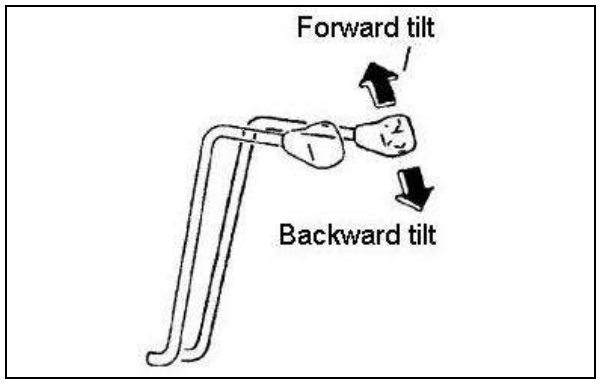
Tilt lever [6]

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.

Caution

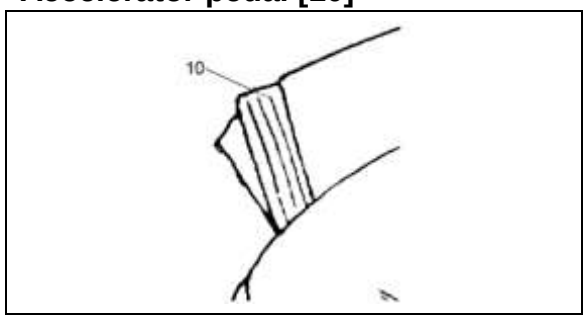
The tilt lock mechanism built in the hydraulic control valve does not allow the mast to tilt forwards while the engine is being shut down even if the tilt level is pushed forwards.



Cup holder [7]

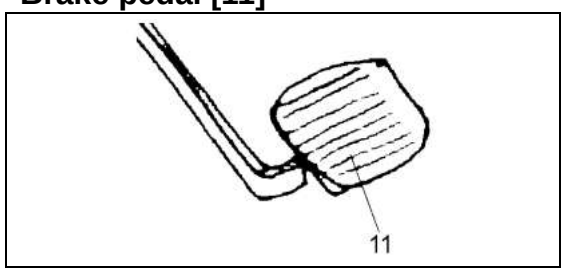
It is in the right side of the instrument. It's designed for the operator to put the cup.

Accelerator pedal [10]

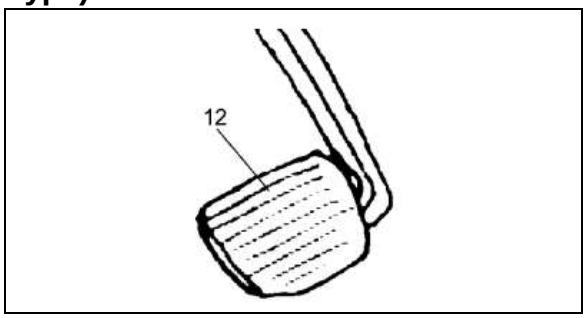


Press down the accelerator pedal, engine rotating speed increase, traveling speed of truck increased. On the contrary, when loosen the pedal, engine rotating speed and truck traveling speed will decrease.

Brake pedal [11]



Clutch pedal [12] (frictional clutch type)



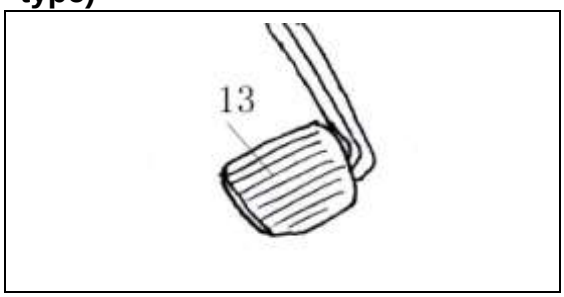
Press the clutch pedal fully; the operator can uncouple the engine and transmission.

When the clutch pedal released, it allows power to flow through the clutch from the engine to transmission.

Caution:

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

Inching pedal [13] (Torque converter type)



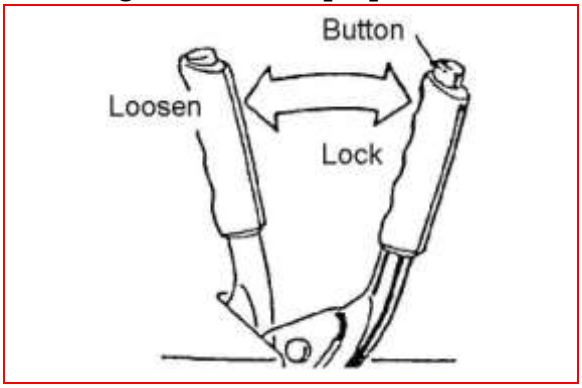
As the inching pedal is pressed, the oil pressure in the hydraulic clutch drops accordingly (the needle of the oil pressure gauge swings to the left) allowing the operator to perform inching operation. Use this pedal to inch the truck while operating the hoist system at a high speed.

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

Caution:

Do not use the inching pedal too much. Long time use or use as rest would cause high temperature of transmission oil, or result in slipping of clutch.

Parking brake lever [15]

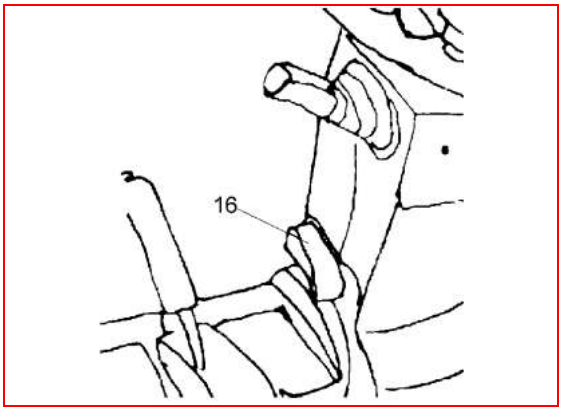


Use this parking brake lever to park the lift truck. And the parking brakes are applied on the front two wheels by pulling up on this lever. To release the parking brakes, move the lever forwards.

Note:

In case of brake system doesn't work or there is an emergency, you can tighten this lever to stop the truck in urgency.

Steering column tilting angle adjustment [16]



The tilting angle of the steering wheel is adjustable to suit individual operators. The steering column is unlocked by pushing down the lever at the left side of turning rod, then adjust the angle suit to the driver, and pull up the lever to lock.

Caution:

a. After stop the truck and pull on the parking brake lever then to adjust the tilting angle of steering column.

b. After adjust the angle and pull the steering wheel to make sure tighten the lock rod.

Forward reverse lever [17]

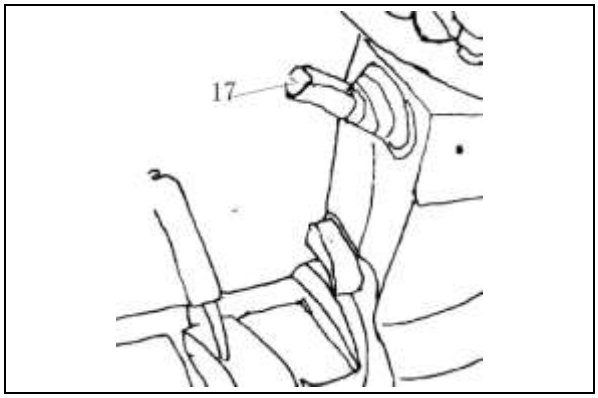
It's installed on the left of the steering column.

F-forward **N**-neutral **R**-backward

This series is standard with electronic reversing.

Caution

Do not fail to place the forward-reverse lever in the neutral position before starting the engine.



Emergency stop switch [18] (Only for Europe special or option)

It locates at the inside of the left support.

Pressing the switch will cut off the power of electric element from battery.

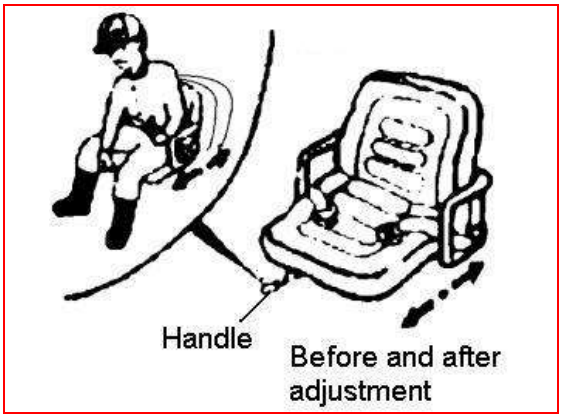
if you want to restart the truck, you have to pull up the switch.

others

Load bracket

Load bracket can ensure stabilization when loading the goods. It's forbidden to use the forklift truck without the load bracket.

Seat



Seat bear adjust (Only for Europe special or option)

Use the spanner pull weight adjust bolt of seat back, or adjust the weight adjust knob of seat left, it could base on the avoirdupois of drive to adjust seat's append bearing.

It is better that adjust at the seat.

Seat adjusting lever

Seat adjusting lever installs the right of seat.

Adjust 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.

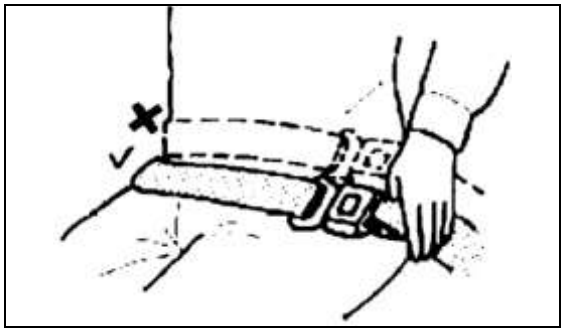
⚠ Warning

a. Before adjusting the lever, you'd better turn of the key switch.
b. Stop the truck to adjust the seat.

In the case of full load and no load, the transfer rate of the seat is 1.11 and 1.26 respectively, which means the seat magnify the vibration slightly.

Seat belt

Fasten belt



Belt was huddled up in the box. There is a secondary action to draw out the belt. So you may meet some trouble due to not be familiar with it.

One kind of seat: this is needed to press the white circular button (with the words: press to release) by one hand, then the belt can be pulled out by other hand and inserted into the socket.

You may also meet another seat: the belt box is adjustable. Rotate the belt box forward, the belt can not be drawn out. Rotate the belt box backward, the belt is drawn out.

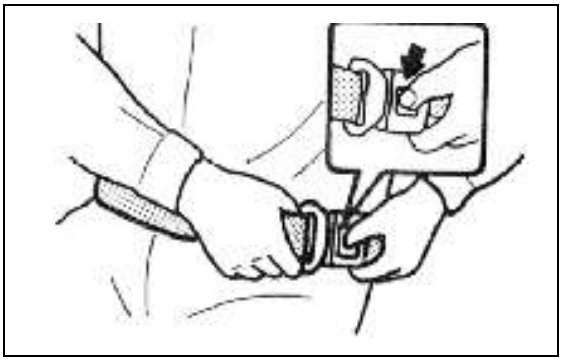
Please fasten the belt when get on the truck. Meanwhile, let the back and waist close to the seat. Don't tie the seat in the abdomen.

Please don't have the seat backrest tilted excessively. Otherwise, the belt can not be extended correctly.

Prohibit use the belt knotted or twisted.

To tie the belt in the daily operation will protect you when the truck turn over and reduce the harm.

Unfasten belt



Use left pollex to press the red button (with the word PRESS) in the socket, it's untied.

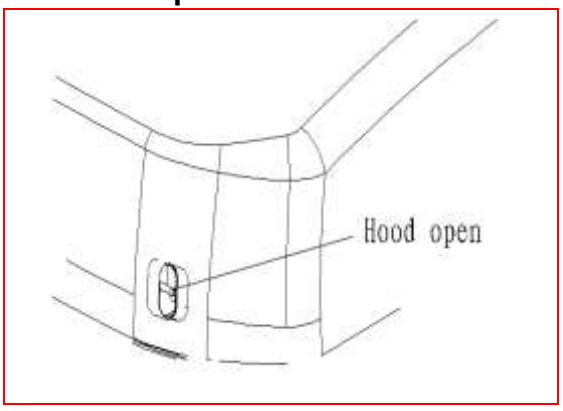
Check the belt

Check the bolt of the fixed belt if it becomes loosened regularly. Don't put the belt in the hard or frangible objects and prevent of from grinding with the sharp blade to avoid any damage. It is prohibited to remove any parts of the belt. The belt, used frequently, often needs to be checked. If find it abnormal, please change the new belt immediately. The service lift of the belt is three years, so reject it in advance if it's abnormal.

Overhead guard

The overhead guard used is strong enough to meet safety standard, and protects the operator from falling materials. It's permitted to use forklift without overhead guard.

Lock Components



To avoid opening the hood at discretion, a snap close is set here. Open the snap close first then the hood can be open.

Hood

The hood can be swung up fully to provide easy maintenance service. You can lift up the hood with little effort with an aid of hood damper. To lock the hood, press the red button on the air spring pipe. The lock button is unstuck this time, then push down the button on the front of hood until you hear a rattling sound. It means the hood is locked.

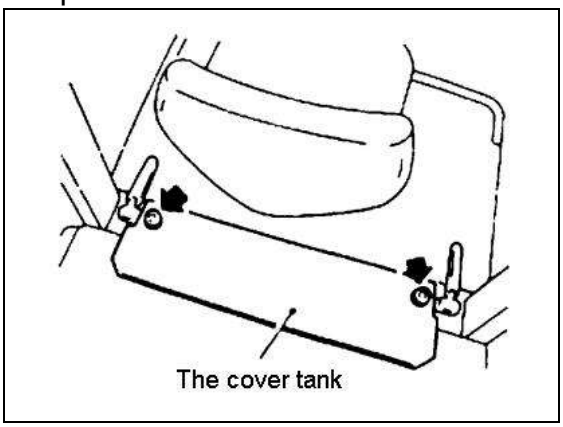
Caution

Before open the hood, the handle of the snap close should be pulled out first.
Use caution not to catch your fingers in the hood when closing it.

Before opening hood, please move steering wheel forward, tilt seat back forward to avoid cylinder, steering wheel and hood block each other .After closing hood, reset steering wheel and seat back to their initial position.

Radiator cover hood

You can open the radiator cover hood even close the engine hood, so to inspect the coolant fluid.



Caution:
Afresh install the radiator cover hood, tighten the bolt by hand.

Fix up this part by inner hexagon bolts for Europe. Use socket spanner loose, then movement, install anew, tighten the bolt by socket spanner.

Radiator cap and coolant reservoir

The reservoir is located inside the hood.

The radiator is located under the cover plate at the rear of the hood.

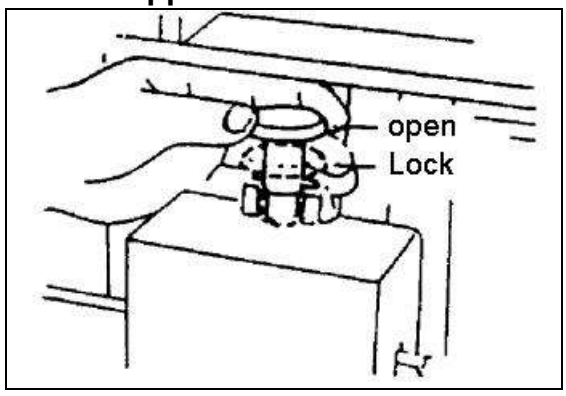
Warning

Do not remove the radiator cap abruptly while water’s temperature is higher 70℃. Turn the cap a little to the left to relieve the pressure in the pressure in the radiator, and then remove the cap.

Do not wear glove when removing radiator cap.

The antifreeze fluid is dangerous for your health, if touched to skin, please wash clean by water.

Fork stopper



It’s used to adjust fork spacing and to lock the forks in position. pull up fork stoppers, turn 90° , according to loads to handle the forks spacing.

Warning

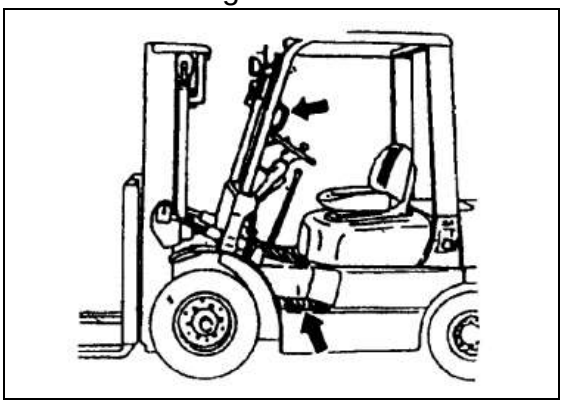
The forks should be set symmetrically to machine centerline and fork stoppers should always be set.

The lower beams of fork have a hatch to load or unload forks.

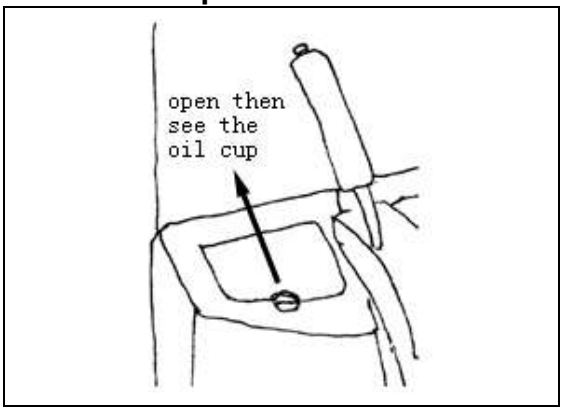
The fork is forbidden to fix on the location where the hatch locates. Check the bolt at the middle of the fork bracket which is used to prevent load fork at the hatch.

Safety step and safety grip

The safety steps are provided on both side of the truck body. The safety grip is provided on the front left, right pillar of the overhead guard. Use the armrest when get on or off the truck.



Brake oil cup

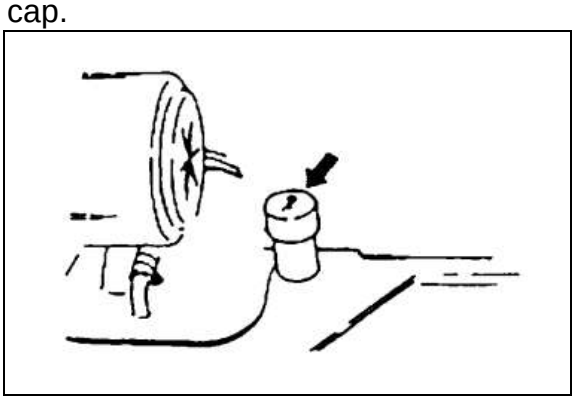


The brake oil cup is provided at the left inside of the cabinet.

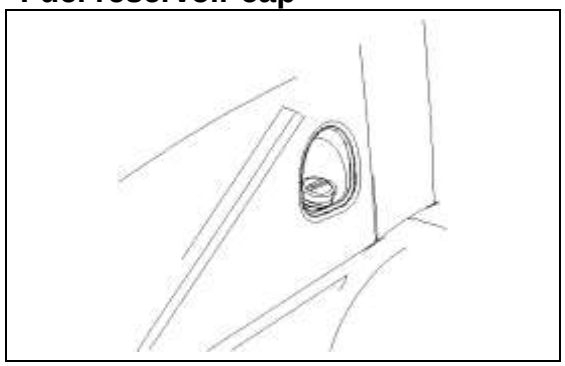
Open the cover, the white brake oil cup can be seen.

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. After fill in clean hydraulic fluid, lock the cap.



Fuel reservoir cap



The fuel reservoir cap is located at the rear left side of the truck body. The fuel reservoir cap has the breather inside it to allow air to enter the reservoir. Check to see that the breather is in good condition every time addition of fuel is made.

Warning!

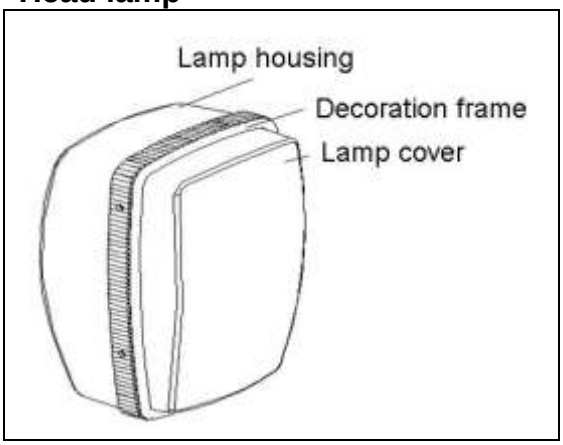
--- Fuel handling---

1. 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.
2. After addition of fuel is finished, securely close the reservoir cap. A loose cap could cause fuel leak or fire hazard in the worst case.
3. Before attempting to start the engine, make certain that the fuel reservoir cap is securely tightened and that no fuel is split on or around the truck.
4. For the purpose of fuel level inspection, never use naked flame such as a match or lighter.

Rearview mirror

There are two rearview mirrors on the safeguard for operator to see rear accident.

Head lamp



Head lamp	Specification
Head lighting lamp Turn signal lamp Side lamp （Model: LED ）	12V-35W 12V-21W (3.2V-20mA)×2

Disassembly and assembly of the head lamp

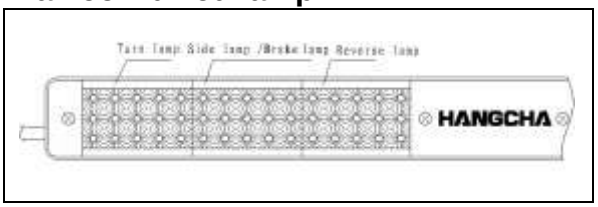
1、 Dismantle the decorative frame ；
2、 Screw the four bolts at the back of the lamp shell and open the lamp shell;
3、 Cut the lead wire, loosen the lock button, remove the lamp, change a new lamp and install back;
4、 Loosen the two fixed bolts of the LED style side lamp, take out the lamp, check if the lamp is damaged.

If it is, then, cut the lead-out wire close to the welding spot, change the new plate, weld again in the original place and fit it back;

5、Rotate the turn signal lamp according to the arrowhead in the back of the sear. Take out the lamp, change the new one and put it back.

6、Close the lamp shell, screw the bolt and fasten up the decorative frame.

Tail combined lamp



Take apart the tail lamp from the overhead guard, pay attention to the safety：

1、Take the full tail combined tail to the service place, take off the lamp shell, Screw the four bolts at the back of the lamp shell;

2、Take off LED plate, loosen two bolts fixed the connector, cut the connector, change a new LED plate.

3、The installation procedure is contrary to the disassembly

Fuse and relay

If the fuse or relay is spoiled, use a new one to replace, refer to the following chart.

①If the fuse is spoiled, please make sure the reason before install a new one;

② Don't use the fuse above the designed number.

Fuse position

Fuse schedule

Position		Capacity	Application parts
R1	Light	20A	Head light、side lamp
R2	Button	10A	Button
R3	Brake button	10A	Brake button
R4	Reversing lamp、Flasher	10A	Turn signal lamp 、Reversing lamp
R5	Instrument	10A	Instrument、Indicator lamp
R6	fuel cut off	10A	Fuel cut off switch、preheating controller

Lumped circuit fuse: two piece of 50A fuses

Lumped circuit fuse box is under the lead wire of the battery positive voltage. There are two pieces of 50A fuses within the box. It protects the lumped circuit of the electrical system. There are some differences with the lead pipe of different kind of trucks.

3. Safety instructions

1. Only trained and authorized operator shall be permitted to operate the truck.

2. Inspect the truck at periodic intervals for oil or water leak, deformation, lousiness, etc. If neglected, short life of components will be caused and in the worst case a fatal accident would occur.

Make sure to replace the “key safe parts” at periodical inspection.

Wipe off oil, grease or water from the floor board and foot and hand controls, if any.

Shut down the engine before inspecting the engine and its allied components. Especially use caution to the engine fan.

When inspecting the radiator or muffler, exercise caution not to get burnt.

3. Any time you find that the trucks are not functioning properly, operation of the truck should be halted and the condition reported to the supervisor.

When doing maintenance in the high place (such as mast, front and rear lights) should be care of slide and clamped.

If any warning lamp comes on, move to a safe place and check or repair the trouble.

When doing maintenance, take care of edges and corners to lacerate hands, head and other parts of body.

The sign of defect should be put on the defecting forklift truck.

4. Don’t use an open flame to check level, or for leakage, of fuel, electrolyte or cooling water.

Never smoke while inspecting the battery, handling fuel or working on the fuel system. There is a danger of explosion.

At working place fire extinguisher should be prepared.

Never fill the fuel tank with the engine running.

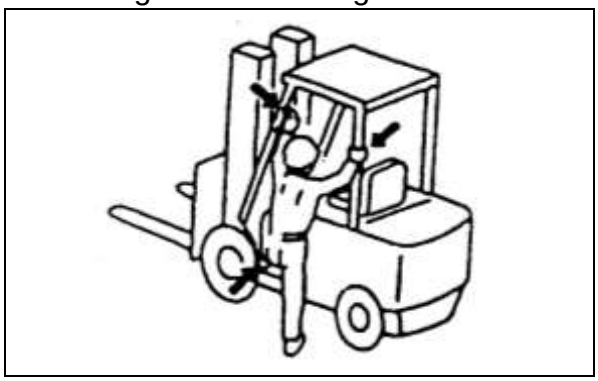
5. Warm up the temperature of water to 50℃ before operation; and cool down the temperature water to lower 50℃ after work.

If the temperature of the water tank higher than 70 degree, never open the tank cap.

6. When using your truck in an enclosed space, make sure there is enough ventilation. If needed, use a ventilation fan. Don’t work in a closed working space because of the tail gas of truck is dangerous to health.

It’s forbidden to use truck under a circumstance of flammability and easy to blast.

7. Never mount or dismount the moving truck. Use the safety step(s) and safety grip facing the truck when mounting or dismounting the truck.



8. Never attempt to work the controls unless properly seated.

Before staring, adjust the seat so you can get easy access to all hand and foot control.

9. Before staring, make sure no one is under, on and close to the truck.

The forward-reverse lever is in neutral.

10. Park the truck on a level surface and apply the parking brake securely. If parking on a grade is unavoidable, be sure to block the wheel.

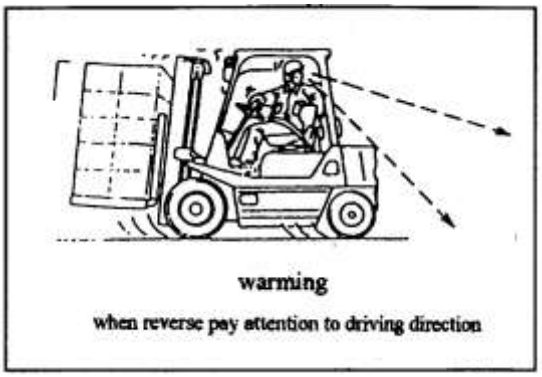
Put the forks on the ground or floor and tilt forward a little. Shut down the engine and remove the key.

11. Operate the controls smoothly, don't jerk the steering wheel. Avoid sudden stops, starts or turns.

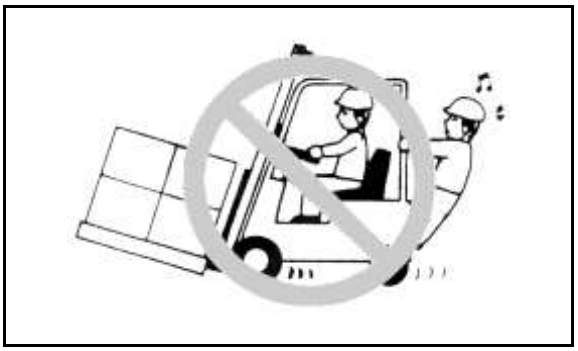
12. Observe speed and traffic control signs.

When traveling on public roads or streets, obey all local traffic regulations

13. Pay attention to the route of the truck, be sure to make a wide sight.



14. NO sitting on the forks, pallets or on the truck.



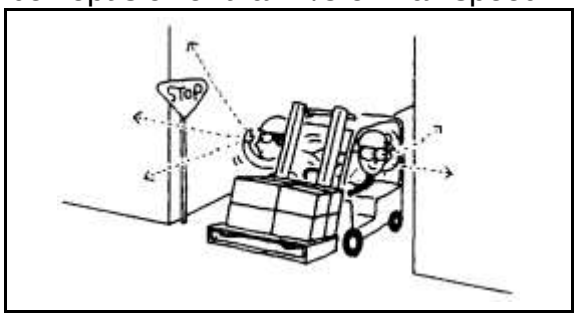
15. Before driving over a dock-board or bridge-plate, be sure that it is properly secured and strong enough to sustain the weigh. Check the ground or floor condition of working area in advance.

16. Keep your mind on your work.

17. Keep your head, hands, arms, feet and legs within the confines of the operator's compartment. Never reach into upright for any reason.

18. When handling bulky loads, which restrict your vision, operate the machine in reverse or have a guide.

19. Slow down and sound horn at cross aisles and other locations where vision is restricted. The speed should be kept slower than 1/3 of max speed.



20. Keep fluid cans, row cotton, paper or chemicals away from the truck during operation since there is a danger of their firing or exploding due to exhaust gas from the muffler.

21. Use head lights and required work light and clearance lights at night. And travel at a low speed.

22. The work surface should be solidity and flatness such as cement road surface, bituminous macadam and beton road surface.

The climatic conditions that the trucks designed for are: temperature is –20℃—50℃; wind speed is lower than 5m/s; air relative humidity is less than 90%(20℃).

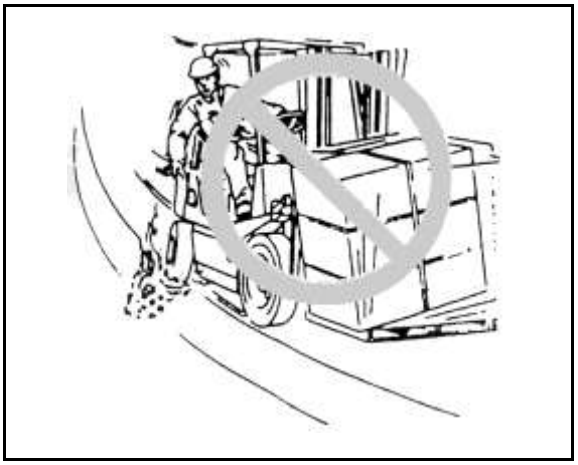
Inspect the surface over which you will run. Look for holes, drop-offs, obstacles, and look for rough spots. Look for anything that might cause you to lose control, bog down or upset.

Clear away trash and debris. Pick up anything that might puncture a tire or let the load lose balance.

Slow down for wet and slippery roads. Stay away from the edge of the road. If unavoidable, use extreme caution.

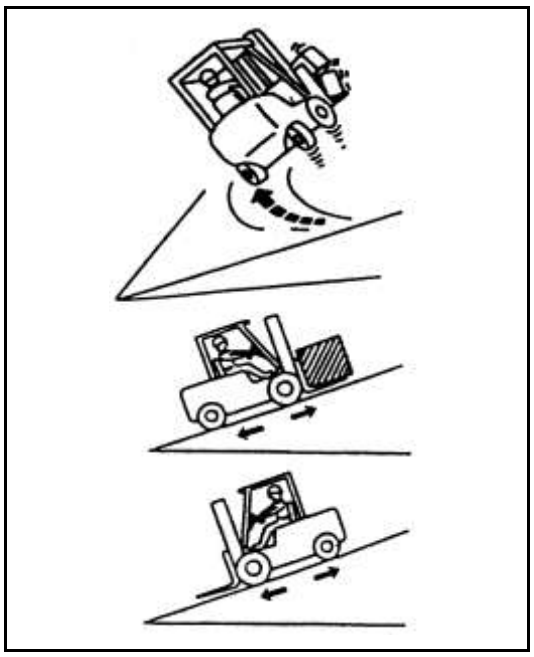
Rugged surface would cause vibration of truck and noise. The high air pressure of tyres will cause vibration and noise, too.

Do not operate the truck when the weather is execrable, such as windy, thunder storm, snow and etc.



23. When operating loaded truck, have the rear end of your machine pointed downhill. When operating unloaded truck, have the rear end of your machine pointed upgrade.

Never turn sideways on an incline. There is danger of the truck turning over.



24. When running down on a grade, use engine idle speed. At the same time use the brake pedal intermittently.

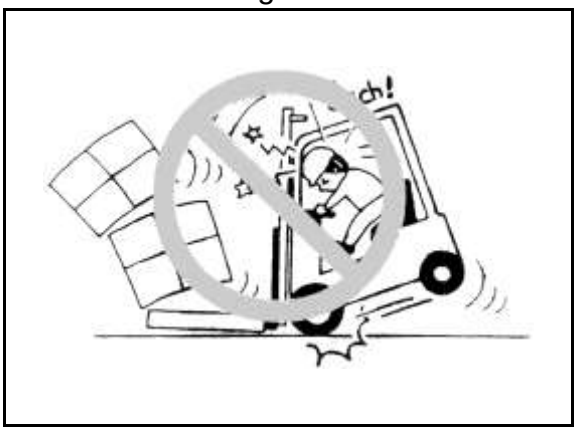
25. It is dangerous to travel with forks higher than appropriate position regardless of whether loaded or not. Keep the good traveling posture. (When traveling, the forks should be 15 to 30 cm above the ground or floor.)

Do not operate the side shift mechanism, if equipped, when the forks are raised and loaded, since this will cause the truck to be unbalanced.

A truck with attachments should be considered as with loads.

26. Travel with load as low as possible and tilted back.

27. Avoid braking too sharply or descending on a grade at a high speed. There is danger of loads falling down or the truck turning over.



28. Always brake to full stop before reversing direction of travel.

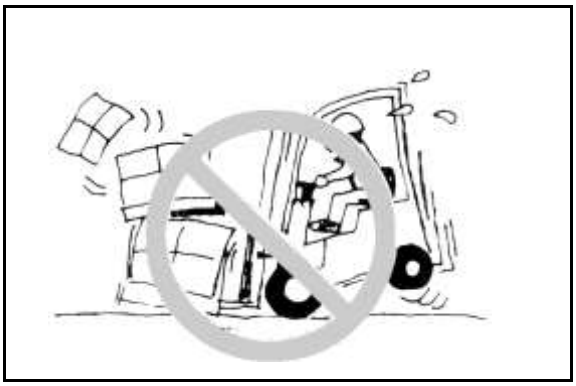
29. Taking account of the shape and material of loads to be handled, use a proper attachment and tools.

Avoid hoisting the load, with wire rope hung on the forks or attachment, since the wire rope may slide off. If needed, a qualified personnel for slinging operation should perform, making use of a hook or crane arm attachment.

Caution

Take care not to protrude the forks out of the load. The protruded fork tips may damage or turn over the adjacent load.

30. Know the rated capacity of your lift truck and its attachment, if any, and never exceed it.

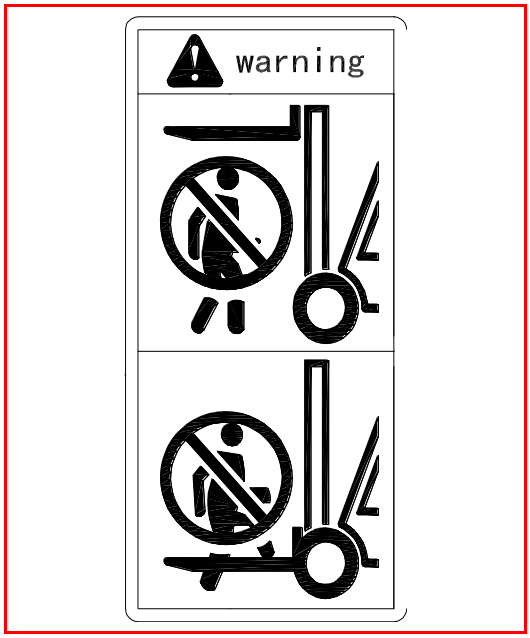


Do not use a man as an additional counterweight. It's quite dangerous.

31.HANGCHA offers a variety of attachments, such as forks, bucket, rotating roll clamp, load grab or hinged forks. Don't use such attachments and special equipment for applications other than specified.

32. Safeguard is used to prevent us from hitting of the higher goods. Load bracket is used to ensure loading stable. The forklift truck without two items is forbidden to be used.

33. Never permit anyone to stand or walk under upraised forks or other

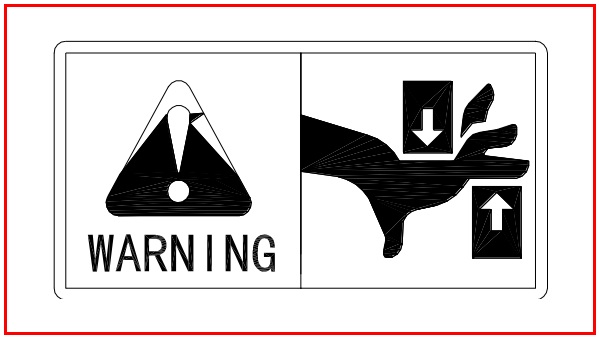


attachments if machine is so equipped.

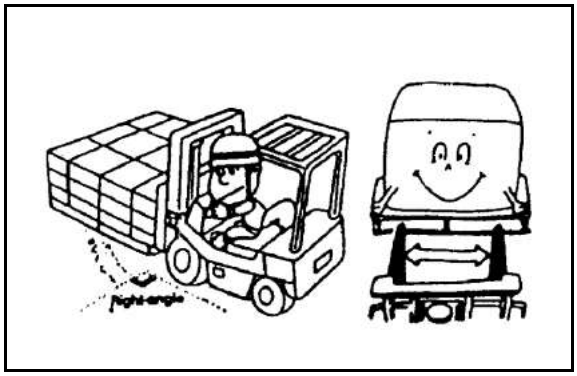
Never permit anyone to stand on the forks.

34. Don't put your head or body into the interspace of mast and safeguard, what may cause life risk

Don't put your hand into the interspace of inner mast and outer mast



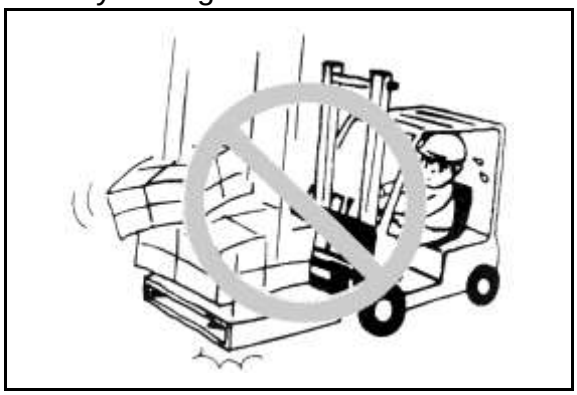
35. When load is to be retrieved from a pile, enter the area squarely. Engage forks into the pallet carefully.



36.the goods is liable to drop turning or passing rough road when it departures the center. And the forklift may turn over more probably.

37. Don't enter into loads at a high speed. Always make certain that your load is stable before lifting the forks.

Be sure to once stop in front of the load to be lifted, and make certain that there is no obstacle, then engage the load by driving forwards.



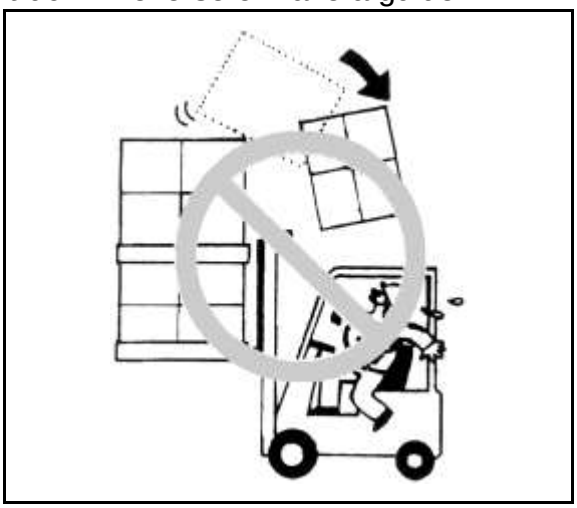
38. Make certain that your load is well stacked and evenly positioned

across both forks. Don’t attempt to lift a load with only one fork.

On the truck with an attachment such as a load grab, make certain that the load is securely and correctly grabbed, and pull the loading control level to the full (increase to relief pressure).

39. Never lift loads with the truck inclined. Avoid loading work on a grade.

40. Don’t stack loads on forks in such a way that the top of loads exceeds the load backrest height. If unavoidable, make the load stable securely. When handling bulky loads that restrict your vision, operate the truck in reverse or have a guide..



41. Use minimum forward and reverse tilt when stacking and unloading loads. Never tilt forward unless load is over stack or at low lift height.

When stacking loads on a high place, once make the mast vertical at a height of 15 to 20 cm above the ground and then lift the load farther. Never attempt to tilt the mast beyond vertical when the load is raised high.

To unloading loads from a high place, insert forks into the pallet and drive backwards, then lower the load. Tilt the mast back after lowering. Never attempt to tilt the mast with the load raised high.

42. Don’t tow the truck that its steering system doesn’t work correctly or its braking system has been disabled.

Obey the traffic rules on the road when towing the truck.

43. Dress the overalls or other protective uniforms, suck as safety helmet, safety shoes etc. Don’t dress necktie or other accouterments.

44. Markings on the machine describe warning and methods to operate the lift truck. When operating the machine, observe and follow all markings on the machine in addition to this operator’s manual.

Replace damaged or missing decals and name plate.

4. Maintain

More detail of maintain, please refer to "Preventive maintenance schedule and Lubrication system drawing"

Maintain daily (8 hours)

It is also suitable for check before starting work.

1) Leakage Check

Electrolyte, hydraulic oil, brake fluid, cooling fluid, hydraulic power gear-box

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

Check if the engine, connector of hydraulic pipe, radiator and driving system are leakage or not. Do not touch by hand or eyeballing to check and unallowed to use an open flame.

2) Appearance check

Check the light, instrument if work.
Check the tyre, air pressure, bolt if become flexible.
Check the tyre if broken, tyre pressure in gear.

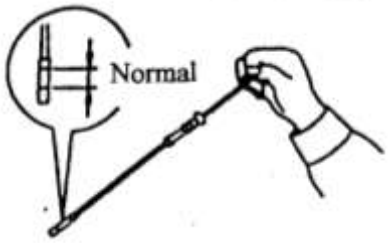
3). Fuel lever check

The fuel level gauge is provided on the indicator panel. Check that fuel level is sufficient for the day's work. The fuel filler port is provided at the rear left pillar of the overhead guard.

4) Engine oil level check

> **Caution**
>
> When check the engine oil, make sure that the forklift truck parks on the level ground.
>
> Check the engine oil exactly when the engine is cool.

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.



5) Check engine cooling fluid

Inspect the small reservoir tank to see the coolant level is between Min and Max position when the engine is cool. If there is no coolant any more in the reservoir tank, please add some coolant to radiator. Otherwise it may damage to engine. The freezing point is -35℃, add the cooling fluid to water tank to MAX position.

> ⚠ **Warning**
>
> When the water temperature of the engine higher than 70 degree, please do not open the pressure cap of the radiator. 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.

Caution

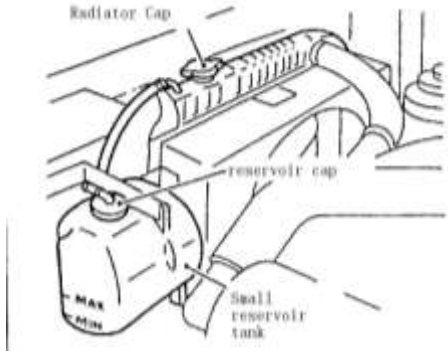
Adding clean water to radiator. If you use antifreeze, use the same brand of antifreeze.

Pls note the water tank and cooling system at torridity season.

Warning

• The antifreeze is including injurant for body, if englut, disgorge and go to hospital.

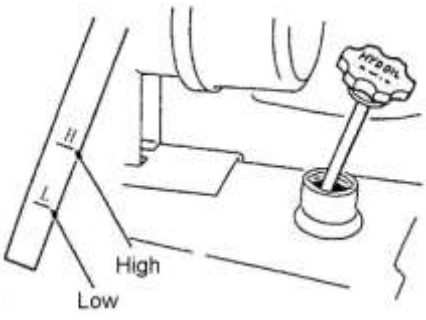
• Don't let the child be close to antifreeze.

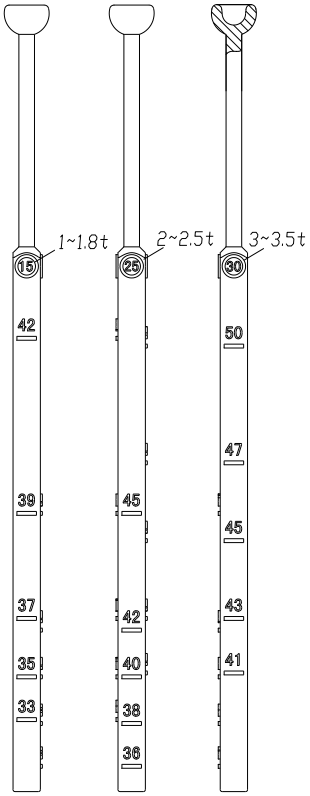


6) Hydraulic oil level

Check the oil level in the hydraulic oil tank.

The oil level should be in the place between two slots.





The square oil dipstick has three surfaces with marks, and the figure inside the round at the top of dipstick means the truck model applied for(see figure)

symbol⑮ means its value of mark can be applied for 1t～1.8t truck.

symbol㉕ means its value of mark can be applied for 2t～2.5t truck.

symbol㉚ means its value of mark can be applied for 3t～3.5t truck.

Oil filling mark

For 1t～1.8t: the truck with standard mast demands filling the hydraulic oil above the mark of "39"; the truck with three sections mast demands filling the hydraulic oil above the mark of "42".

For 2t～2.5t: the truck with standard mast demands filling the hydraulic oil above the mark of "42"; the truck with three sections mast demands filling the hydraulic oil above the mark of "45".

For 3t～3.5t: the truck with standard mast

demands filling the hydraulic oil above the mark of “47”; the truck with three sections mast demands filling the hydraulic oil above the mark of “50”.

Beside the requirement above, the oil filling level should not be 30mm higher than mark.

The oil filling standard of all free lifting mast and side shift mast is same, as well as the mast equipped with attachment.

7). 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 prevent air entering the brake tube.

Caution

When adding fluid, due should be taken to prevent dirt or water from entering the reservoir.

Brake fluid is dangerous to health; you should avoid touching it by skin.

8) Head lamp check

Make sure that the head lamp is lighting when the key is at “ON” position.

9) Turn signal check

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

10) Parking brake test

① Operate the truck running slowly.

②Can be stopped by pulling on the parking brake lever. Bias should not be occurred.

11) Back-up lamp and buzzer check

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

12) Turning

① Operate the truck running slowly.

②Turn the steering wheel to left and right 3 round respectively.

Check that the steering forces are equal in right and left.

13) Horn

Press the horn button to make certain the horn sounds.

14) Drivers seat adjustment and safely belt check

Make sure the driver’s seat is properly located. If not properly, shift the adjusting lever to back and move the driver’s seat to a position which provides easy access to all foot and hand controls. Please check the belt if normally.

15) Shift lever(s) check

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

16) Lifting lever, tilting lever and attachment lever check

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

Increase the rotate speed of engine, make sure that the lifting lever, tilting lever and attachment lever in good work condition.

17) Instruments and sensors

Make sure that hour meter, water temperature indicator, oil temperature indicator, transmission fluid sensor and fuel sensor etc., properly.

18) Brake and jiggle pedal test

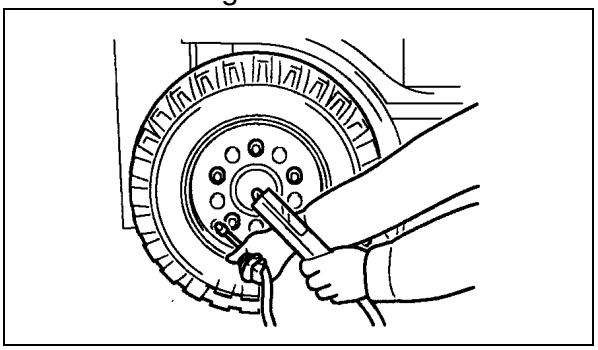
Run the truck slowly and press the brake pedal to check the braking effect.

When the brake pedal is pressed, the brake lamp turns on.

Run the truck slowly and press the jiggle pedal to check whether it works normally.

19) Tyre pressure check

Check that each tire does not get damaged at the tread surface or side face or bending at the rim.



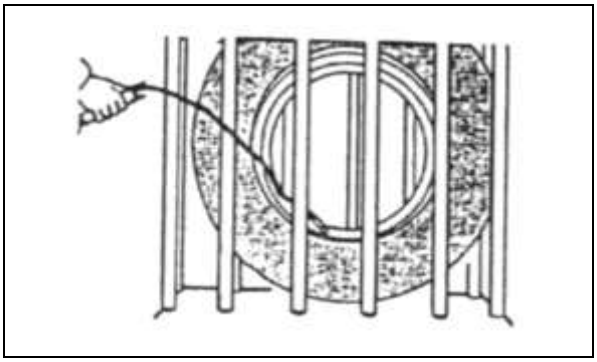
Turn the tire valve cap counter anticlockwise and move it. Using a tire pressure gauge, measure the inflation pressure, and adjusting it to the specified pressure, if needed.

Warning

The tyre of forklift need bear the weight of high pressure. It will be make accident if rim become small or tyre earth face disrepair.

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

To make sure safe, put the tyre in a defend casing when charge.



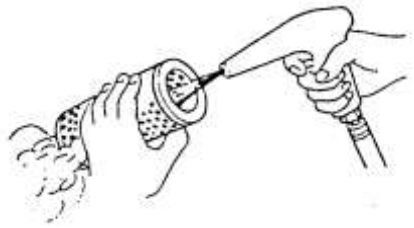
Tire pressure standard GB/T2982-2001

Model	Driving wheel (front-wheel drive)	Driving wheel (rear-wheel drive)
1t-1.8t	790kPa	1000kPa
2t-2.5t	860kPa	860kPa
3t-3.5t	830kPa	790kPa

Maintain per week (40 hours)

Increase the below content base on maintain daily.

1) Air cleaner



General reason:

Please maintain the air cleaner when truck works 50-250 hours.

After six times, please change air cleaner.

Note：If the work condition is bad, the cycle of maintain and change air cleaner more frequency.

The badly work condition with stive, the cycle of maintain and change air cleaner will be short. Advise maintain one time between 8-50 hours, change it between 100-300 hours.

Maintain method:

1. Take apart the cover of air cleaner.
2. Take out air cleaner.
3. Clean the inside or outside of stive by compress air.

Caution：

1、Please wear defend glass to avoid the stive.

2、It will be attaint the engine if not maintain and change air cleaner on time.

2) Fan belt tension check

Stop the engine.

Use finger to press the belts at the midway between the water pump pulley and the generator pulley by 10kg press, and check the drop distance if is up to standard.

Engine	Drop distance（mm）
K21,K25	11-13
4TNE92 4TNE98	New 8-12，old 10-14
A498BT1(-48)	10-15
NC485BPG	10-12

Warning

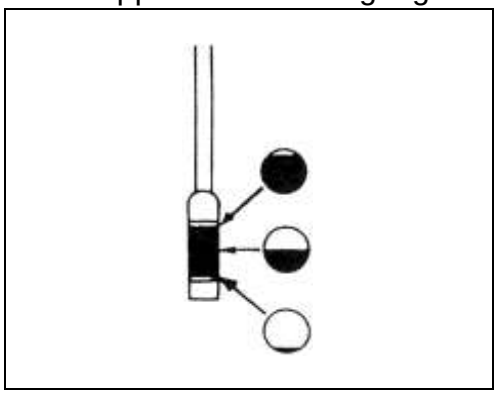
If the belt has already been pulled long, cut out or has no surplus, it should be changed.

If the engine is still running, it’s permitted to carry on this check avoiding fingers or sleeves being caught up in.

3) Power shift transmission fluid level

Open the inspections cover and remove the filler cap. Inspect the lever

gauge to make sure that the fluid level is on the upper mark of the gauge.



4) Mast and forks

Check the mast and forks to make sure:

①There is no crack and bend on the forks, and the forks are installed on the fork bracket.

②Check if there have leakage of oil cylinder and tubing.

③Check the rollers' rotation.

④Check the mast if there have crack and bend.

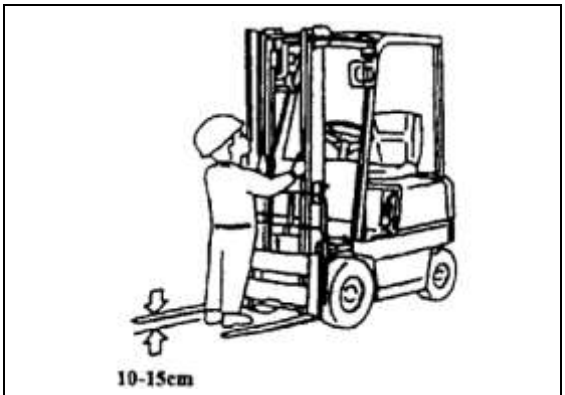
⑤Operate the lever of lifting ,tilting and attachment, check the mast if it's in good condition, and pay attention to system operating sound.

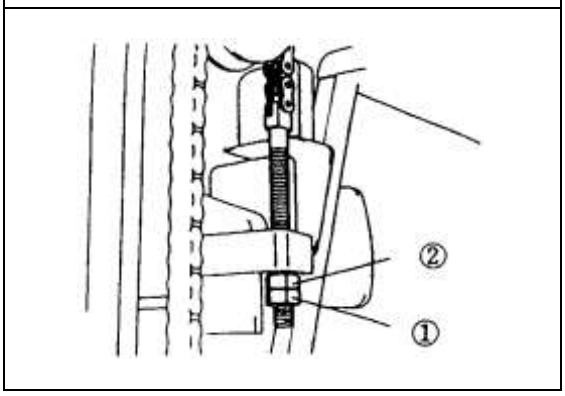
5) Lift chain tension check

①Raise the fork about 10-15 cm above the ground and make it vertical.

②Push the middle of the chain with the thumb. Make certain the tension for the right and left chains are even.

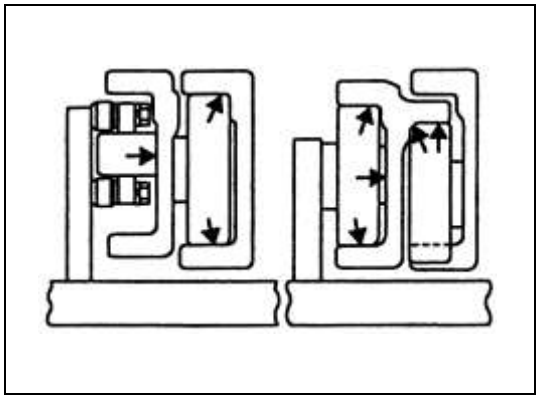
③Adjust the tension: Loosen the lock nut 1, screw the nut 2 and adjust the chain to make the equal tension, turning the adjusting nut 1 of the chain anchor pin.





6) Lubrication of mast

Lubrication here on schedule, refers to figure as below:

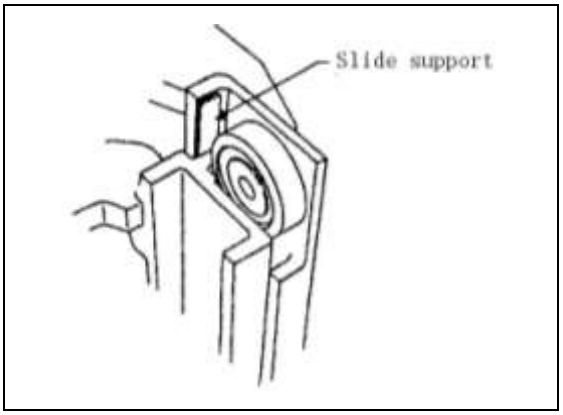


Mast

Paint lubrication grease on the slide support.

Note:

a). The periods of paint lubrication grease depend on the truck's work condition. If works heavy, please paint much more grease on mast.



b). To assort with the truck's operation, paint some lubrication grease on the surface where the idler pulley and inside and outside masts touchs.

Warning

Paint some lubrication grease, stop truck at complanate road surface, engine flameout and tight hand brake. Prevent hand, body is nipped and fall of at high position. Keep safe.

7) Chain Lubrication

Take one brush with engine oil paint two sides on chain.

8) Lubrication grease to below part,the detail pls see <<Lubrication system drawing >>

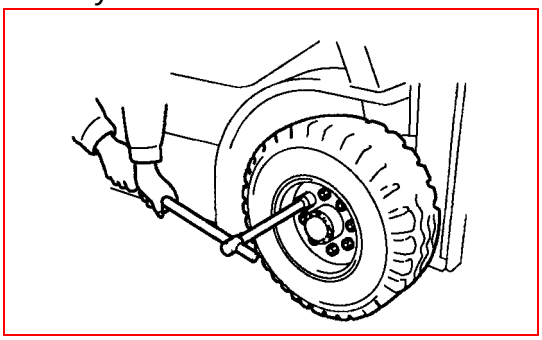
(1) mast bear lubricate
(2) Brake pedal(clutch type) lubricate
(3) Inching pedal(tor-con type) lubricate
(4) Steering axle shaft lubricate
(5) Steering knuckle main bearing lubricate
(6) Steering rod bar pin lubricate
(7) Steering cylinder pin lubricate

9) Bolt,nut tighten

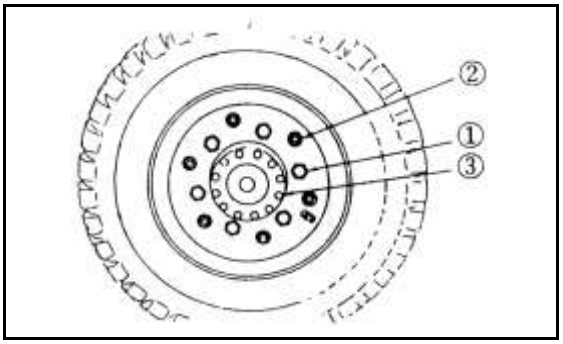
Referrence the <<Maintain cycle chart>>

10) Hub nut torque check

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



Driving wheel （front wheel）

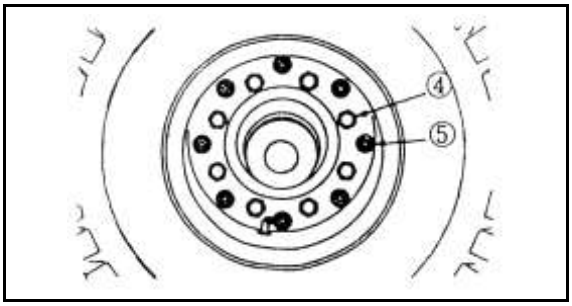


①Hub nut
②Divided rim bolt (only for 1-1.8 ton)
③Drive shaft bolt

Specified torque N.m

	1t-1.8t	2t-3.5t
Hub nut	157-176	441-588

Turning wheel（rear wheel）



④Rear hub nut

Specified torque N.m

	1t-3.5t
Hub nut	157-176

⑤Divided rim bolt

Maintain monthly(166 hours)

Increase the below content base on maintain per week.

1. Change engine oil and oil filter

1) Start the engine, warm-up enough, then flameout.

2) Take out the oil cover and bottom shell to plug, release the oil.

> ⚠ **Warning**
>
> Be careful of the hot oil.
>
> ·Milkiness oil shows there are some cooling fluid in it, find out the reason and revise.

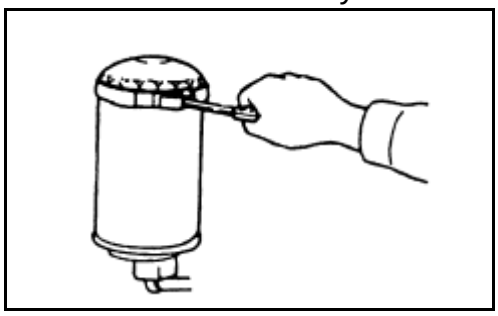
Oil sparse shows that there is gas.

3) Wipe up and fit tuck and gasket.

Screw down moment of oil tuck:

29～39 N • m

4) Dismantle the oil filter by tool.

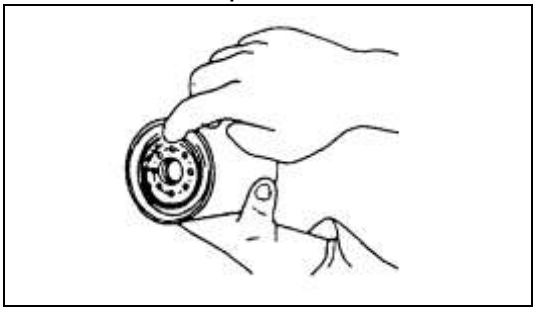


5) Use cloth clean the surface of oil filter.

6) Lay on little oil on the rubber ring of new oil filter.

7) Install new oil filter by hand,not spanner.

8)Referrence <<Table for the oil used in the truck>>,oil preferred.



9)Start the engine,check leak oil around oil tuck and filter.

If leak obviously,this part is wrong install.

10)Warm-up engine enough,then flameout,check oil level later.fill if need.

Check the oil fluid surface,put the truck at ground flatly.

2.Plus lubricate to front and rear of pin roll of Tilt cylinder

Clean the plus place,pile out the past oil.

3.Check the gear oil of drive Axle housing

If there are more stive at work place, after 200 hours use, it needs consider that change the gear oil of drive axle housing.

4. Change transmission oil filter

Check the tor-con transmission oil fluid, if more stive, change the hydraulic oil of transmission. It is first time.

Let the truck at level ground, play-down the fork to floor, tilt back the mast, strain brake handle. Transmission at neutral, engine flameout.

> ⚠ **Warning**
>
> Hot hydraulic oil and part will hurt Body. Do not touch the hydraulic oil and part.

1)Dismantle rubber mat and front soleplate.

2)Dismantle filter, deal with located statute.

3)Clean pedestal of filter, confirm that clean the old gasket of pedestal.

4)Plus less hydraulic oil on the new filter gasket.

5)Install filter by hand. When the filter get to pedestal, screw down 1/2-3/4 laps.

5.Change tor-con transmission oil(first time, then semiannually)

Let the truck at level ground, play-down the fork to floor, tilt back the mast, strain brake handle. Transmission at neutral, engine flameout.

> ⚠ **Warning**
>
> Hot hydraulic oil and part will hurt Body. Do not touch the hydraulic oil and part.

1) Put one case(cubage is over 20 litre) under the transmission.
2) Dismantle oil tuck,put in oil.
3) Clean oil tuck then install.
4) Take out the dipstick.Add hydraulic oil.See <<Table for the oil used in the truck>>.
5) Startup engine.
6) Step on the brake pedal,operate the engine,let the transmission at state of go forward and backpedal so that the oil is in clutch.
7) Let the transmission at neutral,strain hand brake.
8) Take out the dipstick,inspect fluid position.
9) If oil is not enough,add oil to keep it between max and mix graduation.
10) Check the filter and oil tuck if leakage.
11) Flameout engine,install front soleplate.

6. Air-bleeding fuel system **Diesel**

During add fuel or discharge water from sedimentor, it's also need to bleed air in the fuel system.

①Loosen the bleed plug

②press the priming pump until fuel coming through the bleed plug contains no bubble.

③Fasten the bleed plug.

7. Battery electrolyte check

Reference<<14. Operational method of lead acid battery>>

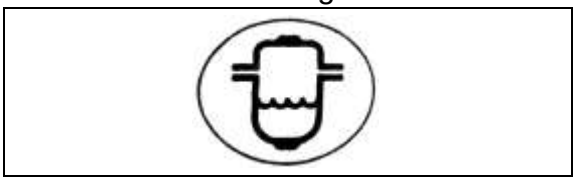
8. Water discharge from sedimentor (Diesel truck.)

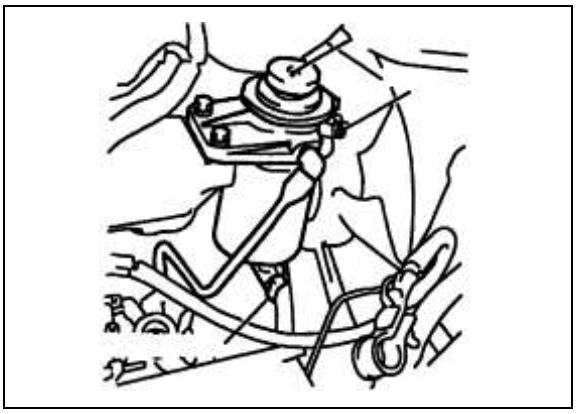
When the sedimentor indicator lamp lights up, it means need water discharge.

① Put a container under the fuel filter。

② Loosen away the drain bolt, then loosen the drain plug by turning 4 to 5 turns to dewater.

③ Fasten the drain bolt and plug after the water was discharged.





9. Exhaust gas check

Colorless or bluish	Normal: complete combustion
Black	Abnormal: incomplete combustion
White	Abnormal: water come in the burnt house
Blue	Abnormal: oil burns

> ⚠ **Warning**
>
> Don't start the lift truck in bad ventilation space. There is carbon monoxide in the exhaust gas, it is very dangerous.

Maintain semiannually(1000 hours)

Increase the below content base on maintain monthly.

1. Brake oil fluid change

1). Let the truck at level ground, play-down the fork to floor, tilt back the mast, strain brake handle. Transmission at neutral, engine flameout.

2). Pick off the rubber dustproof cap of oil orifice, install the both side of preliminary clarity tube to oil orifice and waste oil collect bottle, then use spanner loosen oil orifice bolt counterclockwise. The other people step on the brake pedal repeat on the truck at same time. Here the brake oil will burst forth from oil orifice, note the fluid lever of brake oil tank. Append new brake fluid when the lever falls. Screw down the bolt of oil orifice when oil clear.

3). The people step on brake pedal repeat at culmination, not loose, the other people loose oil orifice bolt, screw down it after brake oil gush completely. Then inform the first people loose. Repeat upwards operation till brake oil without air bladder. Note the fluid lever of brake oil tank. Append new brake fluid when the lever falls.

Note:

Transmission system forklift from Korea: add brake fluid (Brake oil pot) is mobile Delvac Hydraulic SAE10W.

Other model: Caltex DOT3 or Choice HZY3 brake liquid (note add after factory)

Caution

Prevent dust, water into oil when add brake fluid.

The brake fluid is venomousness, causticity, touch in case, please wash clean.

2. Steering wheel locked device lubricate

Daub the lubricating grease on the steering wheel locked device.

3. Hydraulic oil change

Let the truck at level ground, play-down the fork to floor, tilt back the mast, strain brake handle. Transmission at neutral, engine flameout.

Warning

Hot hydraulic oil and part will hurt Body. Do not touch the hydraulic oil and part.

1) Put one case(cubage is over 60 litre) under the hydrualic oil box.Dismantle the oil tuck,let the hydrualic to case.

2) Dismantle hydrualic dipstick and fuel box cover discreteness.

3) Take out the magnet from oil box to clean and rinse the oil orifice of box bottom by hydrualic oil.

4) Clean and install the oil plug.

5) Fill hydrulic oil box.Referrence <<Table for the oil used in the truck>>.

6) Startup the engine and operate multiple valve joy stick and turn system,fill hydrualic oil in all system.

7) Check each hydrualic component and pipeline if leakage oil.

8) Close the engine,retract all cylinder pole,check the oil level of hydrualic oil box.Add oil at graduation position.

（See “Maintain daily (8 hours)，6) Hydraulic oil level ）

4. Check, clean and change hydraulic return oil filter, respirator and strainer

Let the truck at level ground, play-down the fork to floor, tilt back the mast, strain brake handle. Transmission at neutral, engine flameout.

1) Loose the bolt of hydraulic oil box cover board discreteness.
2) Take out return oil filter from top cover broad.
3) Install new filter by hand.
4) Take out the strainer from oil box.
5) Install new filter by hand.
6) Install oil box top cover board and screw down bolt.
7) Take out respirator.
8) Clean by lotion and desiccation.
9) Install respirator.
10) Startup the engine and operate hydraulic system, let hydraulic oil in all system. Check leakage.
11) Close the engine,retract all cylinder pole,check the oil level of hydrualic oil box.Add oil at graduation position.

5.Change tor-con transmission oil

Reference Change tor-con transmission oil from **Maintain monthly.**

6. Check, clean, change fuel filter

Note:
In the dust and dirty work condition, clean fuel filter once and change per six months.

1. Take out the fuel filter discreteness.
2. Take out transducer form top.
3. Before install new one, install transducer discreteness existing, put a little fuel on the filter airproof.

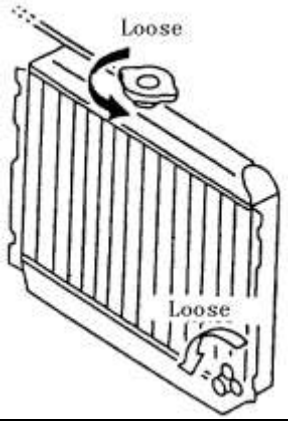
Note
Before install, prohibit add fuel to filter, otherwise accelerate the Abrasion of fuel system parts.

4. Install new filter discreteness.
5. Turn the new filter till the airproof mat adhibit to surface.
6. Screw down 2/3 loops.

Maintain annually(2000 hours)

Increase the below content base on maintain semiannually.

1. Replace the engine cooling fluid



①.Open the radiator cover and loosen the drain cover, let the oil flow out, then wash the cooling system.
②. Screw the drain cover down.
③.Add cooling fluid to radiator up to way out.
④. Let the engine run fully.
⑤.Stop the engine, after cool down fully, still add cooling fluid to radiator up to way out, and add cooling fluid to coolant reservoir “MAX” position.
⑥.Check the drain cover if leakage.

Warning

When the water temperature of the engine higher than 70 degree, please do not open the pressure cap of the radiator avoiding scald.

The engine cooling fluid is prevent rust and frostbite.See <<Table for the oil used in the truck>>.

2.Front-wheel bear change lubricate grease

Referrence<<Maintain manual>>drive wheel hub,dismantle wheel hub.

3. Front-wheel bear change lubricate grease

Referrence<<Maintain manual>>steering axle content.

4. Change steering axle gear oil

Let the truck at level ground. At neutral, engine flameout.

1. Take out the oil plug, put oil to a case. Clean oil plug.
2. Install oil plug.
3. Take out breathe freely plug and oil fluid position plug. Put the oil from orifice bend to steering axle shell until oil overflow from level plug. See add mete anew.
4. Press level and bend plug.
5. Start-up forklift. Make the engine work with idle speed, and let the steering wheel control handle at neutral.
6. Take out level plug. Keep oil level until overflow.

Other

1. Fuse and relay

The fuse box is at left side of truckbody.

Before replace a new one fuse, please find out the cause of problem at first.

Please replace the same capacity fuse.

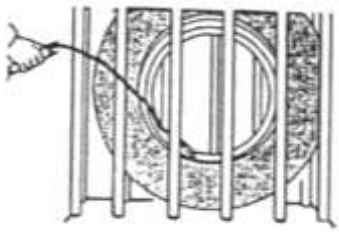
See “**fuse and relay**” on page 15.

2. The change of tyre

Warning

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

To make sure safe, put the tyre in a defend casing when charge.



Front wheel

1) Place truck on level concrete.

2) Start engine and raise carriage about 100mm height.

3) Place chocks behind rear wheels to prevent movement of forklift.

4) Loosen wheel nuts 1-2 turns each by turning them counter-clockwise.

5) Tilt mast fully backward, and place a wooden block under each side of outer mast.

6) Tilt mast forward until front tires are raised from surface.

Caution:

Do not allow loose nuts before the front wheels leave away from the ground.

7) Support forklift truck by putting additional wooden blocks under each side of the front-end frame as shown below. Stop the engine.

8) Take out the wheel nut and replace the front wheel tire.

Warning

a. When removing tire from wheel rim, do not remove rim set bots and nuts before releasing air.
b. Make sure that wooden blocks used to support lift truck are solid, one-piece units.
c. Never get under forklift while it is supported only by wooden blocks.

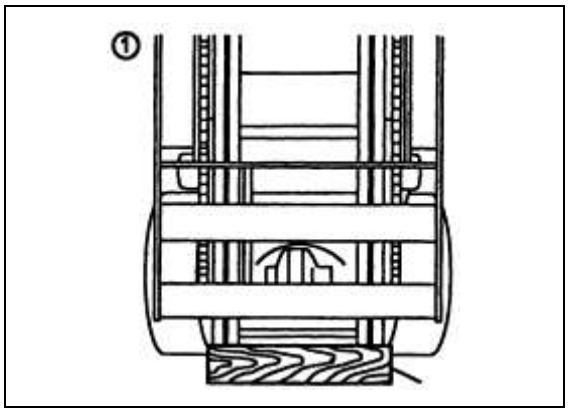
9) Retighten the wheel nut temporarily.

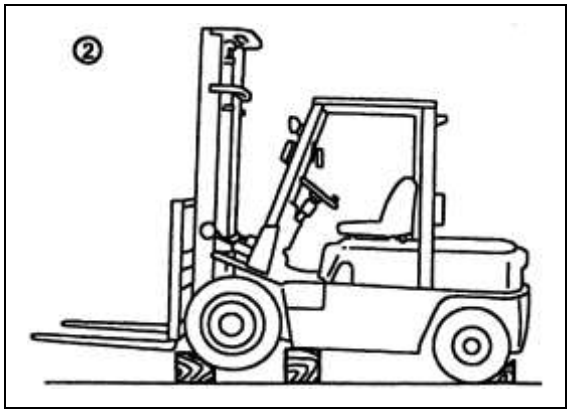
10) Start the engine, and take out the wooden block.

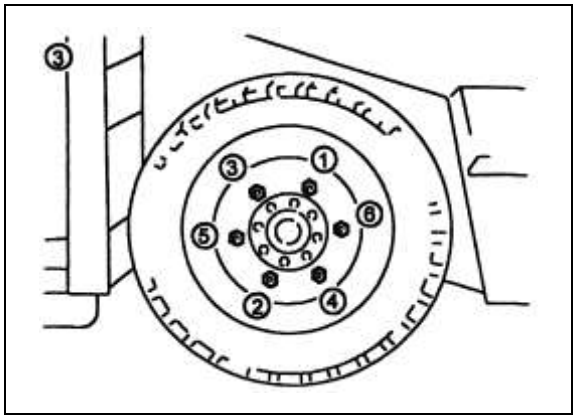
11) Tilting backward the mast and lower down the mast slowly, then take out the wooden block under the outer mast and rear wheel.

12) Retighten the wheel nut with right tighten torque.

13) Inflation tyre again to right air pressure.







Rear wheel

1) Place lift truck on level concrete.

2) Pull the parking brake lever and place chocks before front wheels to prevent movement of forklift.

3) Put the lifting jack under the counterweight.

Caution:

Make sure the jack capacity is bigger than 2/3 of service weight of forklift.

4) Loosen wheel nuts 1-2 turns each by turning them counter-clockwise.

Warning

Do not move wheel nuts until rear tires are raised from ground.

5) Raised the forklift by swing the rod of jack until it out of ground. Support forklift truck by putting additional wooden blocks under each side of the front-end frame as shown below.

6) Take out the wheel nut of rear wheel. Then replace the wheel.

Warning

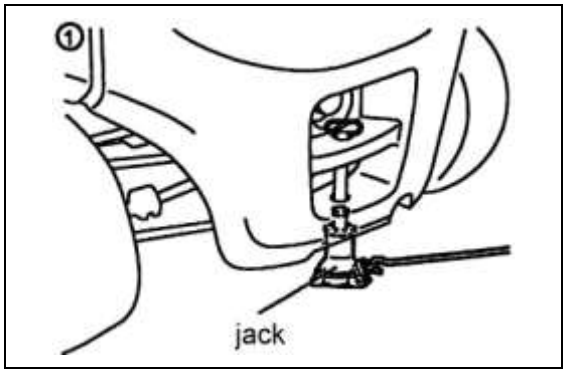
a. When removing tire from wheel rim, do not remove rim set bots and nuts before releasing air.
b. Make sure that wooden blocks used to support lift truck are solid, one-piece units.
c. Never get under forklift while it is supported only by wooden blocks.

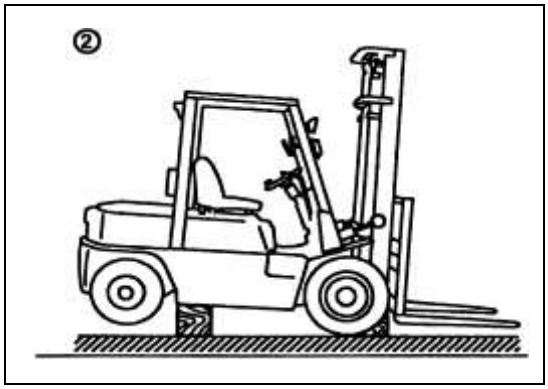
7) Retighten the nut on consequence as figure show below:

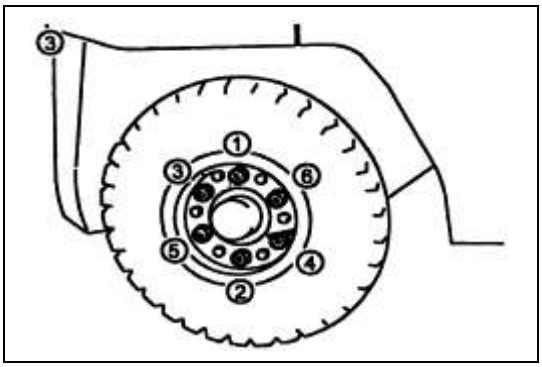
8) Remove the wooden block under chassis body. Let down the forklift slowly. Then take away the chocks before the front wheel.

9) Retighten the wheel nut with right tighten torque.

10) Inflation tyre again to right air pressure.







3. Measures against cold and hot weathers

Base on the temperature, choose the suitable viscosity oil.

Battery

·In cold weather

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 electrolyte is especially likely to evaporate in hot weather, replenish distilled water from time to time. 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

engine cooling fluid

See “Maintain daily (8 hours)， 5) Check engine cooling fluid”

4. Clean the radiator and radiation fin

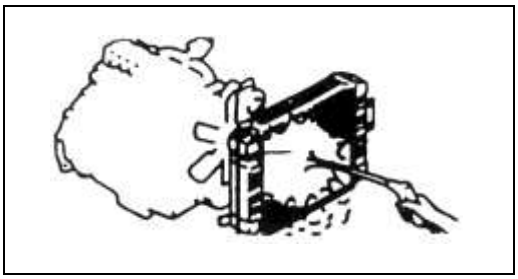
Caution

·The dust may fly to your eyes, so you’d better wear your glasses to protect your eyes.

If the radiation fin is build up, it will lead over hot, so use compress air, vapour or water.

Caution

·Clean the radiation fin by compress air or vapour, put the muzzle to radiator a right angle.



5. **The operation of engine too hot**

If the engine is too hot, do not stop it, do it as follow:

① Movement engine low speed；

② Open the engine cover to airiness

③Stop when water temperature fall；

④Check the cooling fluid, add water, if need.

5. Structure and stability of truck

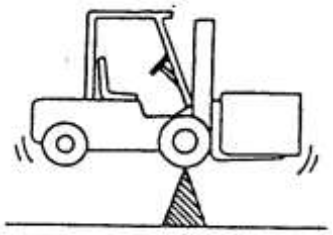
It is very important for operator to know the truck's structure and relationship between load and stability.

Caution **The structure of the truck**

The basic structure of the truck is mast (include mast and forks) and body (include tire).

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.



Caution **Load center**

There is difference because of the loads' shape, gravity, such as box, board and large roller. It is very important to distinguish the difference and the gravity center of loads.

Warning!

If the truck will 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.

Tighten safety belt.

Caution **Gravity and stability**

The combined center that is composed of the barycenter and the load center determine the stability of lift trucks.

When unloaded, the barycenter does not change;

When loaded, the barycenter is determined by the tru and the load's center.

The barycenter is also determined by the tilting and lifting of the mast.

The combined center is determined by these factors

Load's size, weight and shape.

The lifting height.

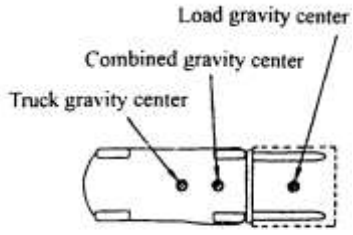
The tilting angle.

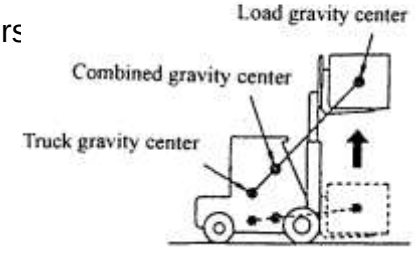
The pressure of the tire.

The radius of turning.

The road and grade's angle.

The attachments.

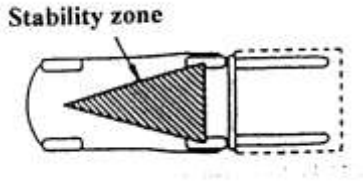




Caution | **the stability zone of the barycenter**

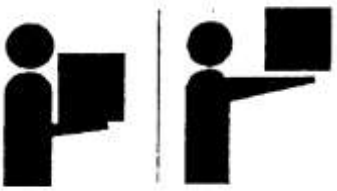
In order to make the truck stable, the combined center must be in the triangle which is made up of two points that the two front wheels attach ground and the midpoint of the back driving axle.

If the combined center is in the front driving axle, the two front wheels become two fulcrums, the truck will overturn. If the combined center departures the triangle, the trucks shall overturn in the corresponding direction.



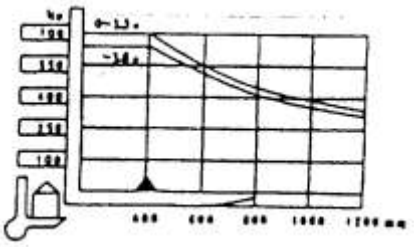
Caution | **the max load**

The distance between the load center and the front surface forklift or load bracket (select the min) on the forklift is called LOAD CENTER DISTANCE. The max gravity that the truck can load is called MAX LOAD on condition that the load is on the lo center distance. The relationship of MAX LOAD and LOAD CENTE DISTANCE is specified on the load capability chart. If the load ce is moved near the front of forklift, the load should be cut down.



Caution | **the load capability chart**

This chart shows the relationship of MAX LOAD and the location of LOAD CENTER DISTANCE. Check whether the load and load center distance is in the range referred by the chart. Put the most important parts near the load bracket if the shape of goods is complex. With sideshifte, attachment, the load capacity will be reduce.



Caution | **speed and acceleration**

It is very dangerous to press the brake suddenly. It may result in capsizal or sliding down of the load because of huge force to the front.

Centrifugal force will be formed during turning and its direction is from the turning center to the outer. The force may result in the capsizal of truck. Right-and-left stable zone is very small, so the truck's speed must be reduced when turning to prevent capsizal. If the truck conveys the load which is on the high location, feasibility of capsizal is very big.

6. Operation

⚠ Warning

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

Star-up

Starting diesel engine

①Make sure that the shift lever(s) and loading levers are in neutral and hold position.

② Turn the ignition switch to ON position after turning the ignition switch to START position.

Caution

If you can not start the engine in 5 seconds, should switch to OFF, after 2 minutes then start it again.

If you can not start the engine 3 times continuously should check the truck to the core.

Caution

If the temperature is lower than –5 degree, crank the engine by turning the ignition key to "START". Release key when engine starts.

Starting gasoline engine

①Make sure that the shift lever(s) and loading levers are in neutral and hold position.

②Cold engine.

Pull out the choke button fully. 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.

③Warm engine

Do not pull out the choke button. Press down the accelerator pedal halfway and cold. 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 warm engine. This operation may harden the engine starting. Pressing down the accelerator pedal several times will cause harder starting.

Caution

The starting time should less than 5 seconds one time, the interval between two starting should be more than 15 seconds.

After engine has started

①Warm up the engine (for about 5 minutes)

②Check the rotation (sound or gear) of the engine.

Caution

Diesel model

After starring up the engine, accelerate its speed to the arrange of 1800-2000r/min, and warm it without work.

Gas model

After cranking the engine, push in the choke button step by step observing the warm-up condition and stability of speed of the engine. Push in the choke button fully after making sure the engine is completely warmed up.

• Check the combustion (or misfiring) sound.

• Check the condition (density) of exhaust.

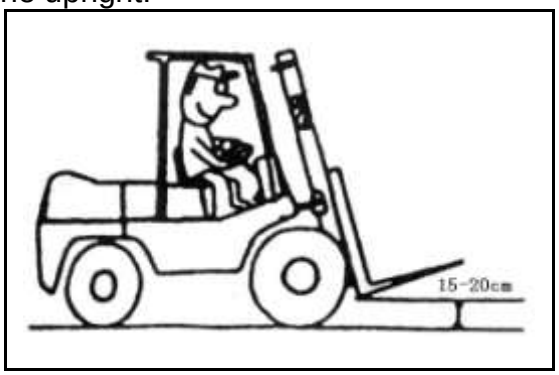
• Make sure that all the warming lamps are off.

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

Traveling

①Hold the knob on the steering wheel with your left hand and get the right hand ready for loading working, lightly putting it on the wheel.

②Set the bottom of the fork 15 to 20 cm above the ground and fully tilt back the upright.



③ Check the safety around the machine and give a signal when starting the engine.

Clutch type

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 machine.

Caution

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

Torque converter type

Depress brake pedal and engage the forward-reverse lever.

Release the parking brake lever.

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

Gear shifting

Clutch type machines

•Always stop the truck before reversing the direction of travel.

Press the clutch pedal, move shift valve and press the accelerator pedal while releasing the clutch pedal.

Torque converter type machines

•Always stop the truck before reversing the direction of travel.

• Shift the shifting lever.

Slow down

Clutch type machines

Since the 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 machines

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

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.

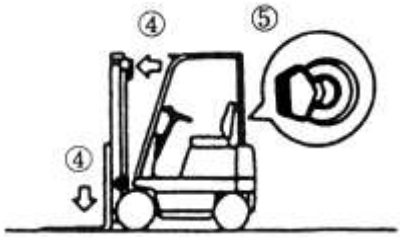
Slow down the truck and move toward the side to which you are turning. The steer hand wheel should be turned a bit earlier than as with the front wheel steering car.

Stopping or parking the truck

① Slow down and press the brake pedal to stop the truck (in the case of clutch type machine, the clutch pedal is used).

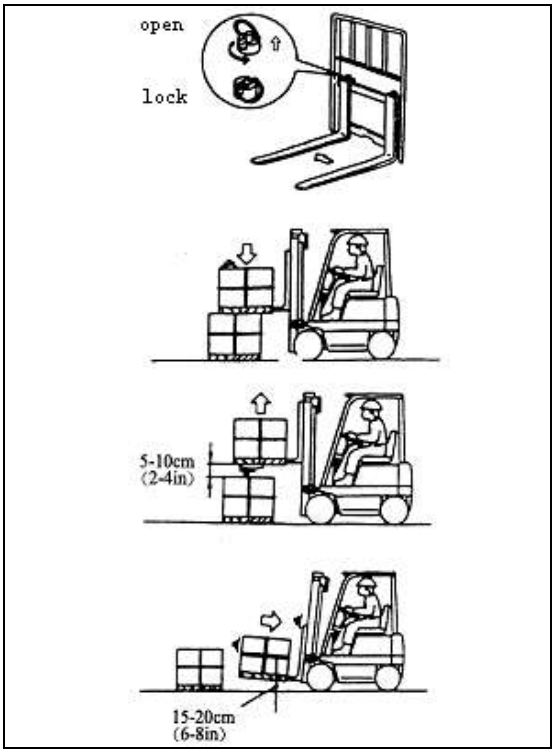
② Place the shift lever in neutral.
③ Apply the parking brake by pulling up on the parking brake lever.
④ Down the forks on the ground, and tilt the mast forward maximum.
⑤ Place the key switch in “OFF” to shut down the engine. In the case of the diesel truck, pull out the engine stop button. Remove the key and keep it.

Caution
• Don’t dismount from the moving machine.
• Never jump off the machine



Pick up

- The forks should be adjusted sidewise to maintain proper balance of load.
- Place the machine right in front of the load to be handled.
- The pallet should be evenly positioned across both forks.
- Insert forks into the pallet as far as possible.
- To raise loads from the ground.



①First lift the forks 5 cm to 10 cm off the ground or floor and make sure loads rest stable.
②Then, tilt the mast backwards fully and lift forks up to 15 cm to 20 cm off ground then start running.
• When handling bulky loads which restrict your vision, operate the truck in reverse except when climbing grades.

Stacking load

- When approaching the deposit area slow down your truck.
- Once stop the truck right in front of the area where your load is to be deposited.
- Check the condition of the deposit position.
- Tilt the mast forward until forks become horizontal. Raise forks until they are a little higher than the deposit position.
- Move forward to place the load directly over the desired area and stop the truck.
- Make sure your load is just over the desired area. Slowly lower the load

into position. Make sure the load is securely stacked.
- Disengaged forks from the load by using necessary lift-tilt operation and then back away.
- After making sure the fork tips leave the load, lower the forks to the basic position (15 cm to 20 cm off the ground).
- Tilt the mast backwards.

Warning!

Never tilt the mast with loads upraised 2m or more.

Don't leave or dismount from the truck when the load is raising high.

Remove load

- When approaching the area where the load is to be retrieved, slow down your truck.
- Stop the truck in front of the load so that the distance between the load and fork tips is about 30 cm.
- Check the condition of the load.
- Tilt the mast forward until forks become horizontal. Elevate forks up to the position of the pallet or skid.
- Make sure forks are positioned properly for the pallet. Move forward slowly to insert forks into the pallet as far as possible and then stop the truck.

Caution

If the forks are hard to be fully inserted, use the following procedure: move forward and insert 3/4 of the forks. Raise the forks 5 cm to 10 cm and move backward 10 cm to 20 cm with the pallet or skid on the forks. Then lower the pallet or skid on the stack. Move forward again to insert the forks fully.

- Raise the forks 5 cm to 10 cm off the stack.
- Check all around the truck to insure that the path of travel is unobstructed and back away slowly.
- Lower forks to a height of 15 cm to 20 cm above the ground. Tilt the mast backward fully and move to the desired area.

7. Deposit

Deposit daily

① 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.

②Make sure the shift level on neutral position.

③Pull the hand brake.

④Shut down the engine and control the lift and tilt level several times so that the inner pressure in the hydraulic tube will decreased.

⑤Take down the key and deposit it in a safe position.

⚠ Warning

You should tell the manager if you find any failure about the truck, then repair it immediately.

Do the following things:

①Clean the oil and grease with cloth and water on the truck body.

② Check the whole situation of truck, especially the tyres.

③Fill the oil tank with destined fuel.

④Check whether the hydraulic oil, the engine oil, fuel and the cooling liquid are leakage.

⑤Fill lubricate grease.

⑥ Check whether the junction plane between the nuts of wheel boss and the piston of hydro cylinder is loose, and whether the surface of piston has been pulled.

⑦Check whether the wheels of mast roll stably.

⑧Lift the lifting cylinder to the top and fill it with oil.

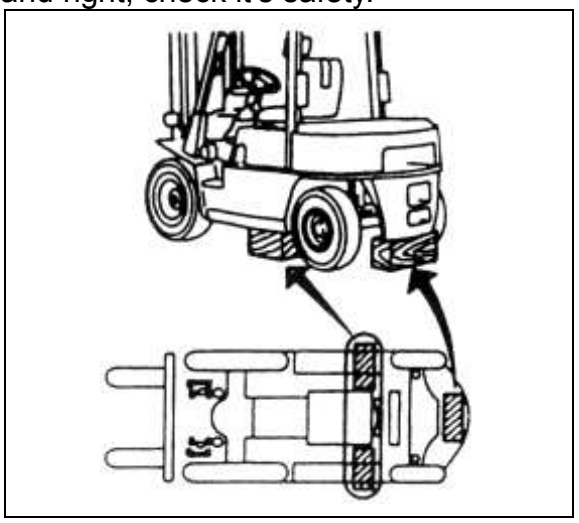
⑨In cold weather, it needn't to discharge the antifreeze, but the cold water should be removed completely.

Deposit the truck for a long time

Deposit the truck for a long time, fill up the truck body and counter weight with block to reduce the load of the two rear wheels.

⚠ Warning

a. The block must be single and hard enough to support the truck.
b. Don't use a block with high than 300mm（11.81 inch）.
c. Lift the truck to height of placing on the bearing block.
d. Place two same size blocks under the left and right sides of the truck.
e. After supporting the truck with block, swing the truck forward, backward, left and right, check it's safety.



On the basic of the "deposit" you should do these checks and maintain additional:

① Take down the battery and recharge it once a week, place it in the shade.

② Brush antirust oil on those parts which is exposed such as piston rod

and axle.

③ Put a cloth on vent-plug and air-cleaner.

④ Start the engine once a week. If the water has already been let out, add water in the radiator. Then start the fork lightly.

⑤ In summer, it is not recommendatory to park the fork on asphaltum road.

Running after deposit for a long time

① Get down the antirust oil on the exposed parts.

②Vent the gear oil of the crankcase, driving axle, transmission box (clutch type), hydraulic transmission box (torque converter type) clear it and add with new gear oil.

③Clean out dirty things and water in the hydraulic oil reservoir and fuel reservoir add with new hydraulic oil.

④Check the clearance of the valve, gas valve cap and other parts on the engine.

⑤Adding antifreeze or water.

⑥Recharge the battery, then install on the truck.

⑦Check others carefully such as start, running, turning, lifting etc.

⑧Warm-up your truck

8. Maintenance

Preventive maintenance schedule

○ — Check, revise, adjust

× — Replace

Note: (1) If the working place has much duty or other pollutions, the times of maintenance should be increased.

(2) If the parts are abnormal such as engine power descends, emit black smoke or noise increase before the replacing time is coming, it should be check. Sometime it needs to adjust diesel injector pressure and fuel atomization.

Note:

①The fork lift truck needs termly inspection and maintenance, make it in good working condition.

②Inspection and maintenance are usually ignored, you must find the problems and solve it in time.

③Use the orthodoxy spare part of HANGZHOU fork lift truck general plant.

④ Don't use different oil when changing or adding oil.

⑤Don't throw away the waste oil or electrolyte liquid as you wish. Should deal with it depend on the local environmental protection.

⑥ Maintenance on schedule

⑦ After you make a maintenance, you'd better make a record.

⑧Forbid to repair the fork lift truck if you haven't been trained.

Counterbalance weight (unit: kg)

Model of truck	1t	1.5 t	1.8 t	2 t	2.5 t	3.0 t	3.5 t
Counterbalance weight	500	640	755	1005	1360	1695	2025

Checking Item	Service required	Tools	Monthly (166hrs)	Trimonthly (500 hrs)	Semiannually (1000 hrs)	Annually (2000hrs)
Engine	1. Check the valve clearance is correct	clearance gauge	○	○	○	○
	2. Fan belt tension check		○	○	○	○
	3. Retighten cylinder head bolt		○	○	○	○
	4.Clean the outface of radiator（1）		○	○	○	○
	5. Replace engine oil（1）		×	×	×	×
	6.Replace the oil cleaner (diesel engine)（1）		×	×	×	×
	7. Replace engine cooling fluid					×
	8. Replace the air cleaner element (diesel engine)				×	×
	Clean the air cleaner element (gasoline engine)		○	○	○	○
	9. Drain the water of oily water separator（diesel engine）		○	○	○	○
	10. Clean or replace the filter element of air cleaner		○	○	×	×
	11. Idling of engine	tachometer	○	○	○	○
	12.Ignition timing（gasoline engine ）		○	○	○	○
	13.Spark plug（gasoline engine）		○	○	○	○
	14. Check distributor point、cover and rotor（ gasoline engine ）		○	○	○	○
	15. Lining of distributor（IC ignition system）(1)					○
	16. Check fuel injector ， adjust pressure （ diesel engine）(2)			○	○	
	17 .P. C. valve and pipe blocking or damage				○	○
	18.battery and electrolyte check		○	○	○	○

Maintenance of chassis and body

CHECKING ITEM	Service required	Tools	Monthly (166hrs)	Trimonthly (500 hrs)	Semiannually (1000 hrs)	Annually (2000hrs)
CLUTCH	Check clutch pedal for free travel and clearance between pedal surface and floor when clutch is unlocked		○	○	○	○
	Release bearing lubricate			○	○	○
Mechanical Transmission	Check oil level, and replace it if needs		○	○	○	○
TORQUE CONVERTER TRANSMISSION	Replace oil filter element		First time ×		×	×
	REPLACE OIL (1)		First time ×		×	×
Driving axle (FRONT AXLE)	Check differential oil, and replace it if needs		○	○	○	×
	Front-wheel drive hub bear					○
	CHECK CONNECTION AND RETIGHTEN MOMENT		○	○	○	○
Brake and inching system	Check and adjust brake pedal for free travel and clearance		○	○	○	○
	Replace brake fluid				×	×
	Check for proper brake operation		○	○	○	○
	Check and inching brake pedal for free travel and clearance		○	○	○	○
Hydraulic system	Check for oil level, Change oil（1）				×	×
	Clean oil return suction strainer（1）				×	×
	Proper work of the hydraulic oil pump		○	○	○	○
	Proper work of control valve		○	○	○	○
	Check for oil leaks, looseness, collapse, deformation and damage		○	○	○	○
	Clean the hydraulic oil reservoir				○	○
Lifting system	Check chain for tension		○	○	○	○
	Lubrication of chains		○	○	○	○
	Check chain and bearing for damage or deformation		○	○	○	○
	Check lifting cylinders for proper operation and connection		○	○	○	○
	Check tilting cylinders for proper operation and connection		○	○	○	○
	Check for forks and stopper pins for damage or wear		○	○	○	○
	Check fork base and hook welding for defective cracks or wear		○	○	○	○
	Check roller of mast and lifting bracket parts for cracks or damage			○	○	○

Table for bolt's tight moment

unit：N•m

Bolt's diameter	Grade			
	4.6	5.6	6.6	8.8
6	4∽5	5∽7	6∽8	9∽12
8	10∽12	12∽15	14∽18	22∽29
10	20∽25	25∽31	29∽39	44∽58
12	35∽44	44∽54	49∽64	76∽107
14	54∽69	69∽88	83∽98	121∽162
16	88∽108	108∽137	127∽157	189∽252
18	118∽147	147∽186	176∽216	260∽347
20	167∽206	206∽265	245∽314	369∽492
22	225∽284	284∽343	343∽431	502∽669
24	294∽370	370∽441	441∽539	638∽850
27	441∽519	539∽686	637∽784	933∽1244

Note: • Use entirely 8.8 grade bolt in the important joint position.

• Bolt's grade can be found in the head of the table, if it can't be found, the grade is 8.8.

Periodic replacement of key safe parts

- Some parts can't be found damnification or multilaton though schedule maintenance. In order to make sure the safety of truck, please replace these parts termly listed in following table. If there is any off-normal happened on these parts before replacement time, please replace it deservedly.

Name of key safe parts	service life (years)
Brake hose or hard tube	I～2
Hydraulic rubber hose for lifting system	I～2
Lifting chain	2～4
High pressure rubber hose or tube for hydraulic system	2
Grease cup for brake fluid	2～4
Tube for fuel	2
Sealing member, rubber articles inside of hydraulic system	2

Table for the oil used in the truck

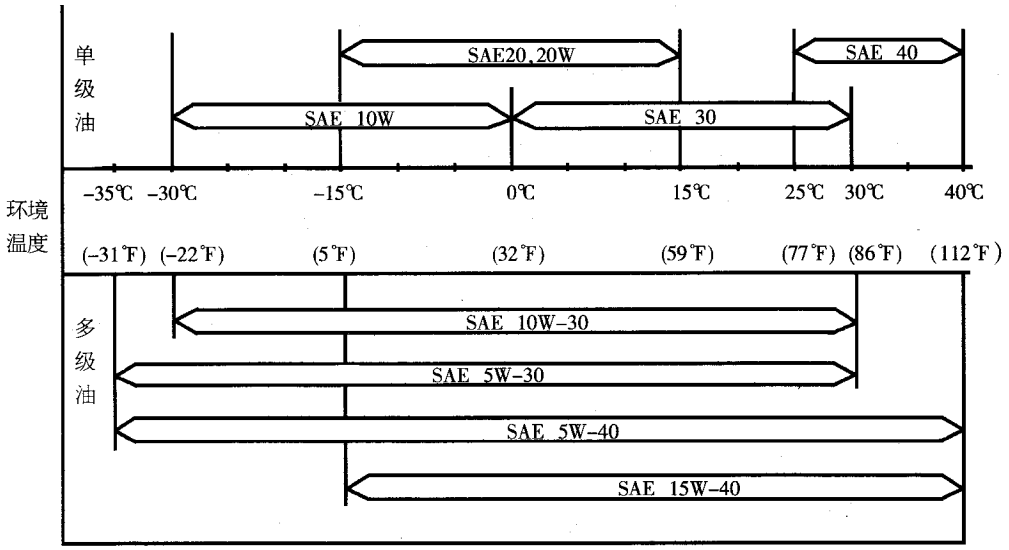
Description	Shop sign，Code name	Capacity	Remark
Gasoline	90	45	1t~1.8t
		60	2t~3.5t
Diesel	0#(summer) -10#~-35#(winter)	45	1t~1.8t
		60	2t~3.5t
Diesel engine oil	More than CD grade 10 W/30 or according to service manual of engine (very cold environment: 5W/30 CD, or according to service manual of engine)	7.5	
Gasoline engine oil	More than DE grade 15W/40 or according to service manual of engine (very cold environment: Caltex API SAE 5W-30)	3.8	K21,K25
Hydraulic oil	L-HM32 (very cold environment: L—HV32)	35∽40	1t~1.8t
		45∽50	2t~3.5t
Hydrodynamic power transmission oil	6#hydrodynamic power transmission oil (winter)	11	F model (homemade transmission)for domestic
		4	B model (okamura transmission) for domestic
	DEXRON-Ⅲ (Caltex)	10	M model(korea transmission MS)
		11	F model (homemade double change)for export
		4	B model (transmission)for export
Gear oil	GL-5 85W/90	5-5.8	1t~1.8t:F,B model
		6.5	2t~3.5t:F,B model
	API GL-5 80 W/90 (Caltex 424)	4.5	1t~1.8t:M model
		5.6	2t~3.5t:M model
Brake liquid (Brake oil box)	Caltex DOT3 or Choice HZY3 brake liquid(note add after factory)	1.5	F,B model
	mobil Delvac Hydraulic SAE10W	1	Only for korea transmission(M model)
Antirust antifreeze liquid	-35# motor vehicle antifreeze fluid (note add after factory) or FD-2 antifreeze	10∽11	-35# motor vehicle antifreeze fluid
Industrial Vaseline	2#		Electrode of Storage battery
Lubrication grease	Currency lithium group lubricate grease		

Note：• 1t~3.5t Fork Lift Truck have been injected with the antirust antifreeze liquid, you may not let it out even in the severe winter. If it needs, add it full according demands. Usually it is replaced about 2∽4 year.

• If Fork Lift Truck has not been injected with the antirust antifreeze liquid, user can inject it according to demands. If the truck has not been injected with it, you must let the cooling water out in the winter.

• Model F: the last word is F; Model B: the last word is B; Model M: the last word is M.

Recommendatory diesel engine oil viscosity under different temperature

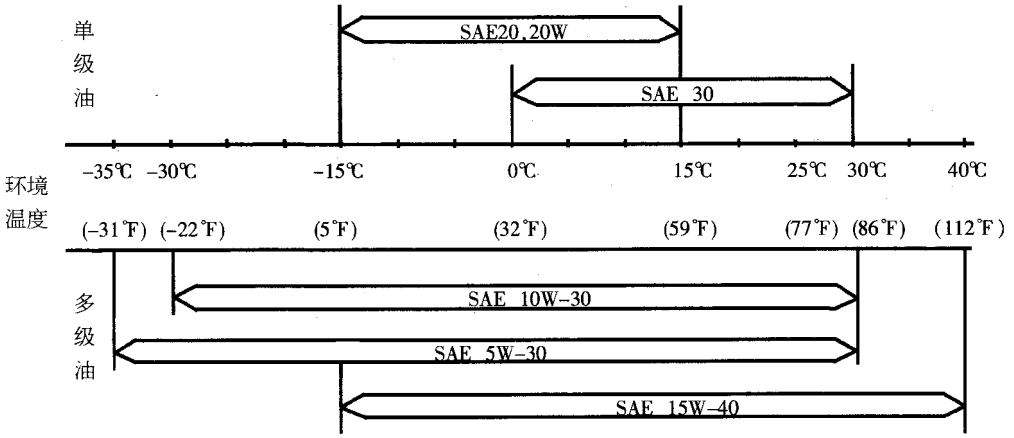


Note：

1、The capability and quality of diesel engine oil should be accord with API class or SAE J183 CD and CD-grade level and above, GB11122-1997 CD and CD-grade level and above.

2、Diesel engine oil：CD class SAE 15W／40

Recommendatory gasoline engine oil viscosity under different temperature

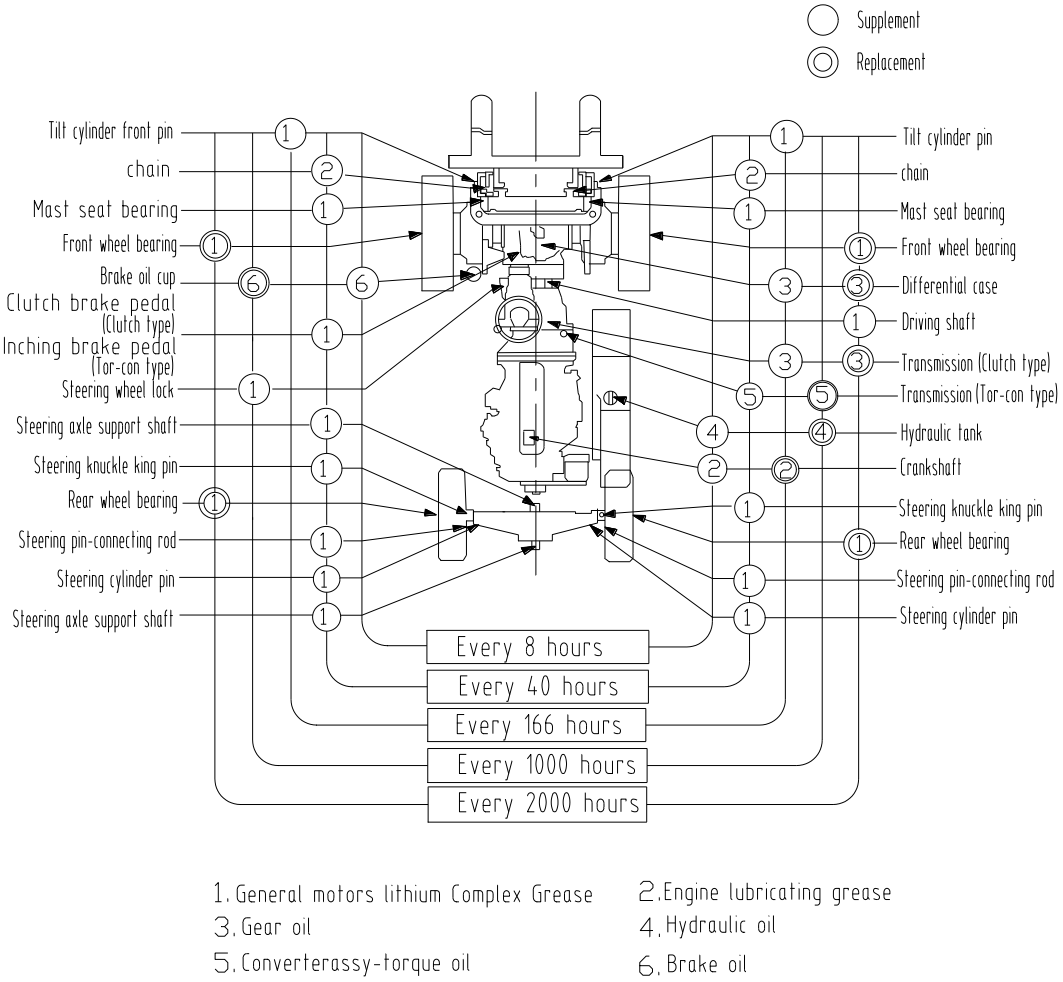


Note：

1、The capability and quality of gasoline engine oil should be accord with API class or SAE J183 SE and SE-grade level and above, GB11121-1995 SE and SE-grade level and above.

2、Gasoline engine oil：SF class SAE 15W／40.

Lubrication system drawing



1. General motors lithium Complex Grease
2. Engine lubricating grease
3. Gear oil
4. Hydraulic oil
5. Converterassy-torque oil
6. Brake oil

Notice:

1. The detail of lubricating oil for different truck can refer to “Table for the oil used in the truck”.

2. Lubrication for mast guide and chain, please see the “maintain every week (every 50 hours).

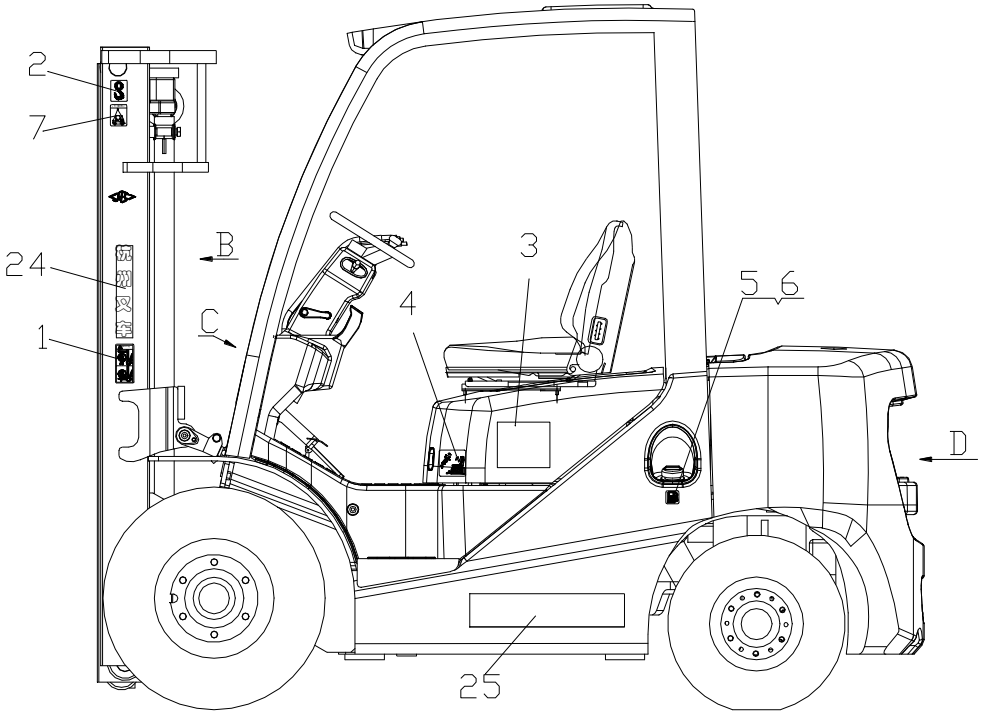
Circumstance protection

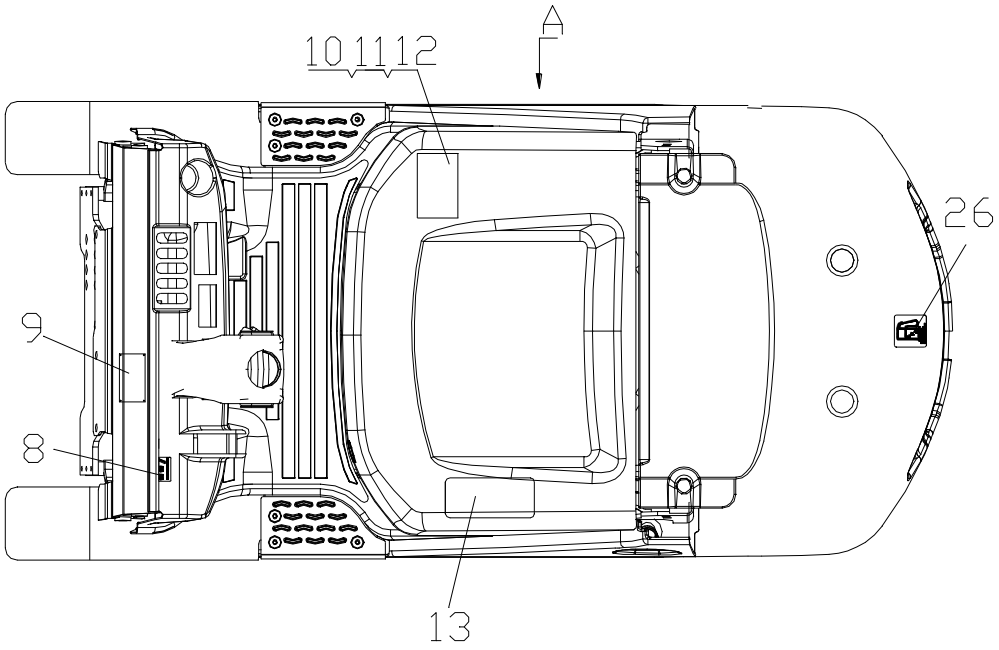
1. Clean, maintain, repair truck at the appoint place.
2. Before disassembly pipe, tie-in or relate part, should be use the special case to load the used oil(include cooling fluid, engine oil, hydraulic oil, transmission oil, Hydrodynamic power transmission oil, brake liquid, Lubrication grease)and disused battery.
3. Replaced the aforementioned oil, shall be according with the Circumstance protect law to callback, it couldn't be dumped and discarded to prevent the pollution of the environment.

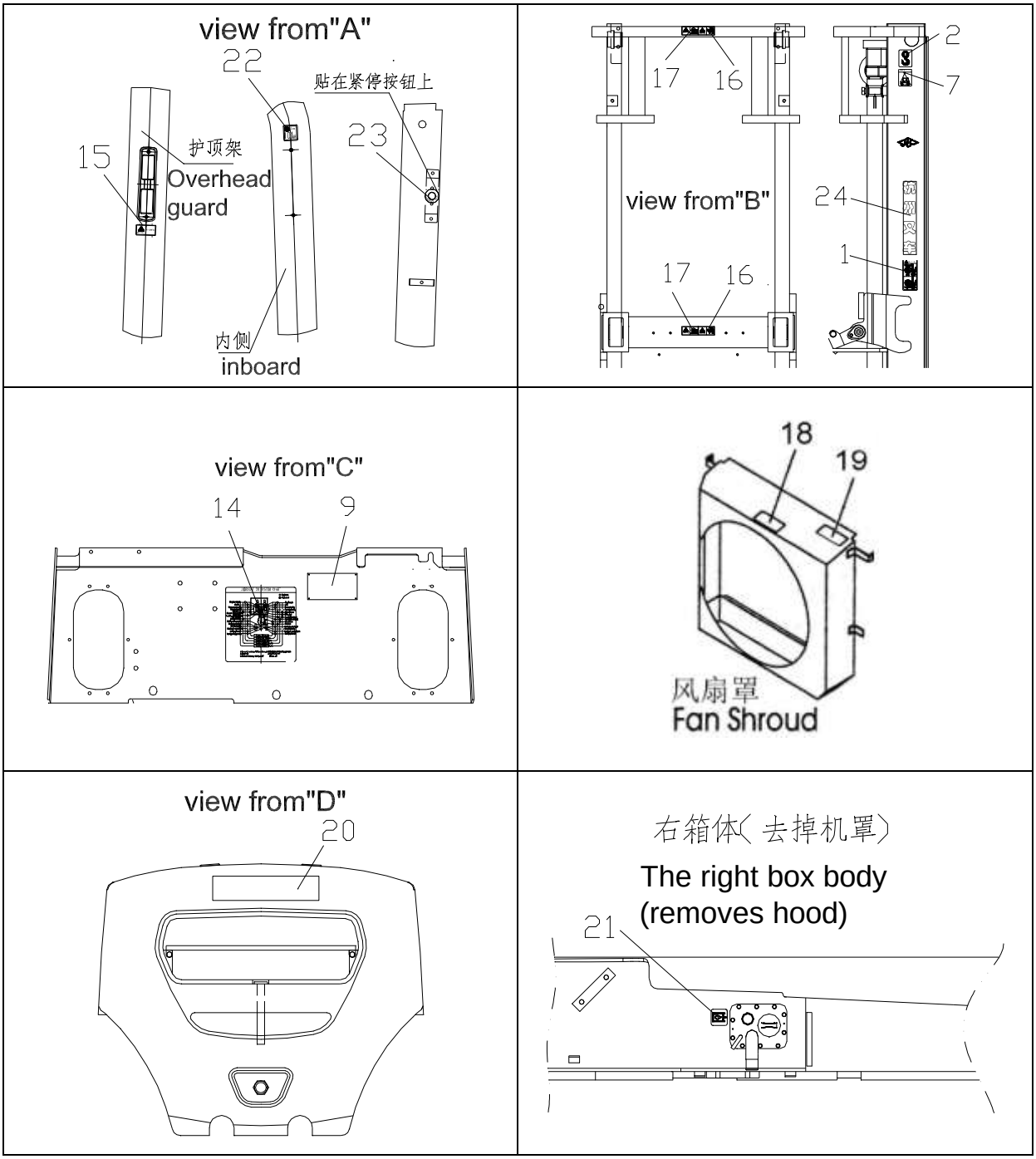
Safety consciousness: the cooling fluid, engine oil, hydraulic oil, transmission oil, Hydrodynamic power transmission oil is circulating in high temperature for a long time. Please change it after down 70 degree. Don't touch with skin, or else scald or canker skin.

Scutcheones

There are many different scutcheones in different position of truck.



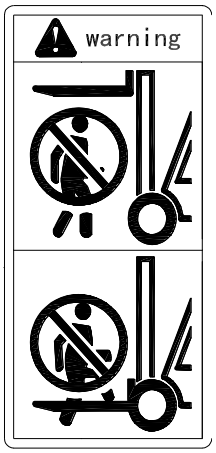




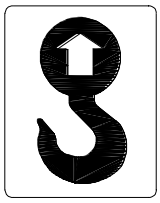
1. danger label 2. lifting label 3. tonnage label 4.hood open label
5.diesel label 6. gasoline label 7. lifting label 8. operate label1
9. product nameplate 10.11.12.load curve label 13. warning label
14. lubricate system label 15. prohibit rinse label
16. danger label 17. danger label 18. fan cut hand & strap nip hand label label
19. antifreeze label 20. 24.25. sample label 21. hydraulic pressure oil label
22.noise instruction 23.emergency stop label 26.LPG label

1、Danger label: on the outside of mast

Don't stand on or under fork，otherwise the life in danger.



2、lift label: it shows the lift position and method when truck lift. Avoid the cord touch then attaint the light when lifting.



3、Tonnage label

For example:“30”means the capacity is 3.0 ton, if lift highly or with attachment, the capacity is less.

4、Hood open label

Before opening hood, please move steering wheel forward, tilt seat back forward to avoid cylinder, steering wheel and hood block each other .After closing hood, reset steering wheel and seat back to their initial positon.

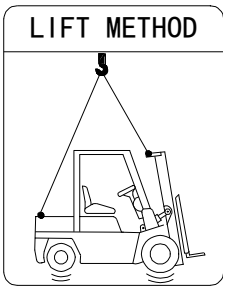
5、Diesel label: it shows that plus oil position which on the left back leg of over head guard.

(Gasoline, LPG without)

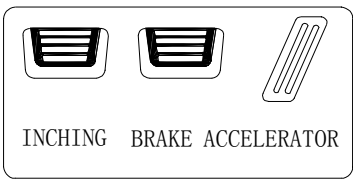
6、Gasoline label: it shows that plus oil position which on the left back leg of over head guard.

(Diesel, LPG fuel single without)

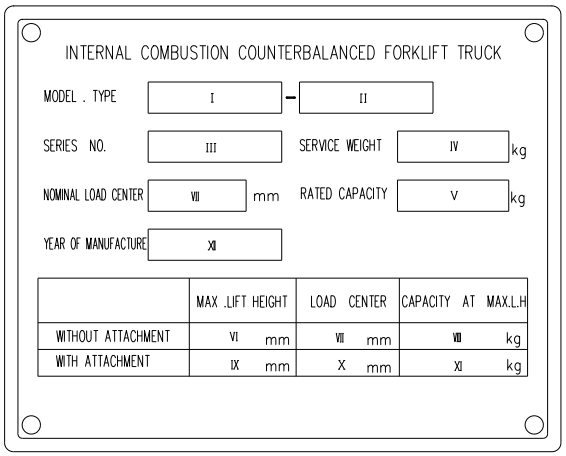
7、lift label: it shows the lift position and method when truck lift. Avoid the cord touch then attaint the light when lifting.



8、Operate label



9、Product nameplate

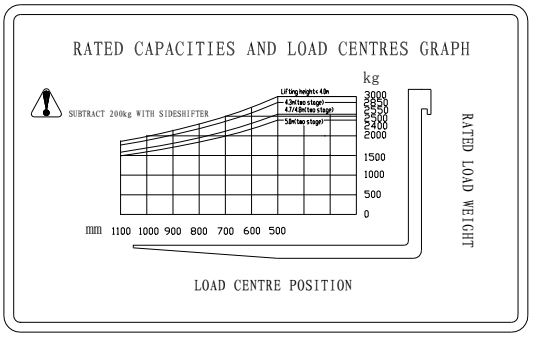


10、11、12 Load curve label

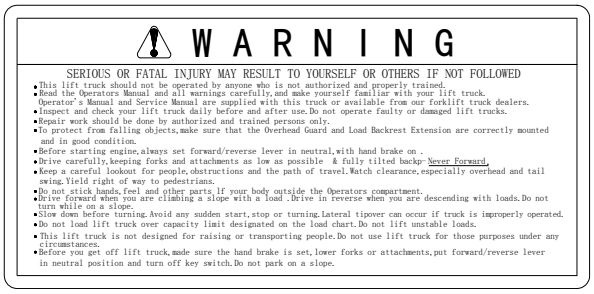
It shows the connection between load center position and max load, max lifting height.

With sideshifter and attachment, the capacity is reduce. The same as lifting height is increase.

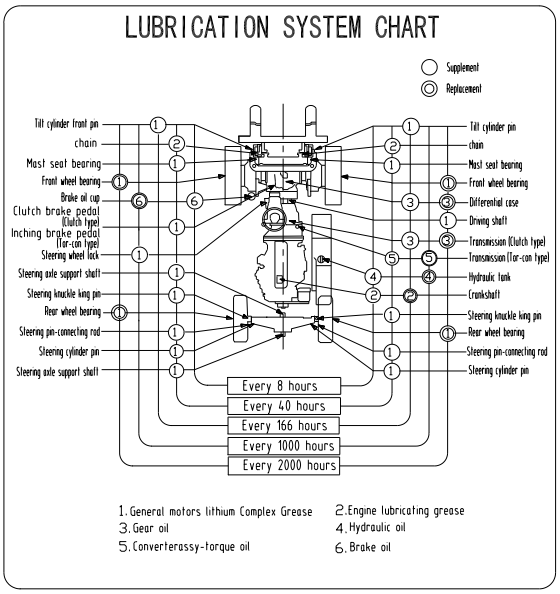
Before loading, please check the load and load centre is in the range of load capacity chart. If the figure of load is complex, please make sure the heaviest part of load is in the centre of fork and close to backrest.



13、Warning label

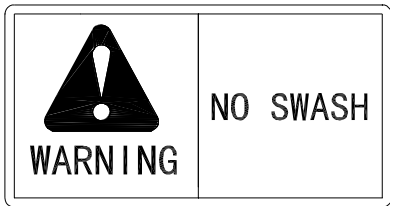


14、Lubricate system label

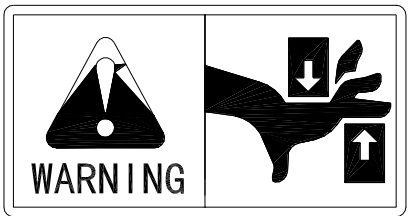


15、No swash label

It is on the right back leg of overhead guard. It is air intake pipe of engine, no swash at transom window, prevent water intake when clean.



16、 Danger label

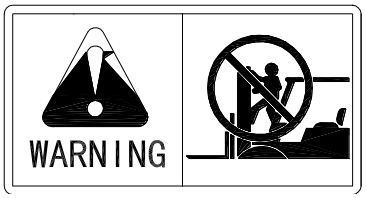


Inside and outside mast, fork frame are parts of lift and down. Unallowed that put hand in the mast.

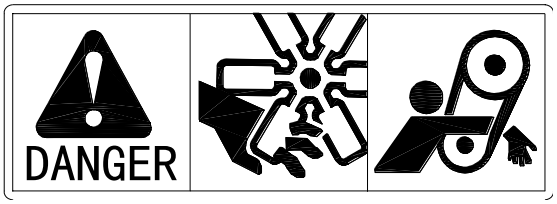
Please check or repair this part after engine flameout. There is nobody on the truck or others to prevent operate the mast handle by accident.

17、Danger label

（Prohibit into mast label） Warning：It is dangerous when body is nip between mast, meter frame and overhead guard. Please check or repair this part after engine flameout. There is nobody on the truck or others to prevent operate the mast handle by accident.



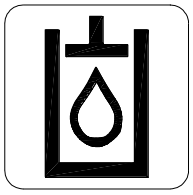
18、Fan cut hand & strap nip hand label



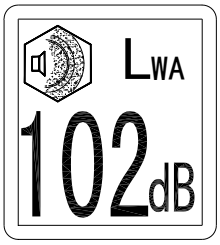
19、antifreeze label

20、24、25 sample label

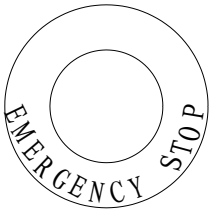
21、Hydraulic pressure oil label



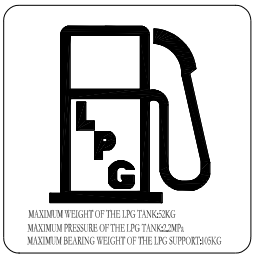
22、Noise label



23. Emergency stop label



26、LPG label(Only for LPG or double fuel truck)(Only for Europe or option)

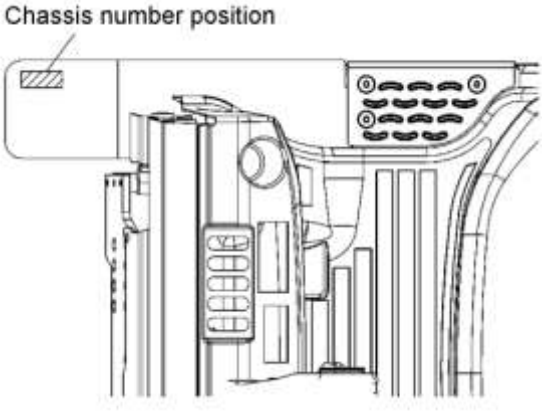


The label on the tank:

LPG tank most weight 52kg
LPG tank most pressure 2.2MPa
Bracket support most weight 105kg

Series number on the chassis

One series number on one truck, the position is right of chassis.



9. Truck's convey, lifting, towing

Hoist the truck

• Use the steel wire ropes to tie the holes in the two side of the outside mast's beam and the hook of the counter balance, then use the lifting device to hoist the truck.

Warning

- When hoist the truck, don't coil the overhead guard with the steel wire.
- The steel wire ropes and the lifting device must be very firm to support the truck because the truck is very heavy.
- Don't lift the truck by hoist the overhead guard.
- When lifting the truck, don't take yourself below the truck.

Convey

• The forklift truck is designed for material handling and short-distance transportation only.

It is inappropriate for long-distance transportation. The Fork Lift Truck must be transported by ship, train or lorry, of 5T loading. Tighten the brake lever, take woods to block the front ad tear wheels and bind the truck body with enough strong rope, to avoid slippage during transportation.

Towing

• The towing rod on the bottom of the counter balance is used to pull and drag the truck, For installing the rod, first remove the towing rod and then install the ropes. After that, loose the rod.

Note: Loosen the brake lever. Forward reverse lever on the neutral .And pay attention to traffic safety, standard Quilt traction logo.

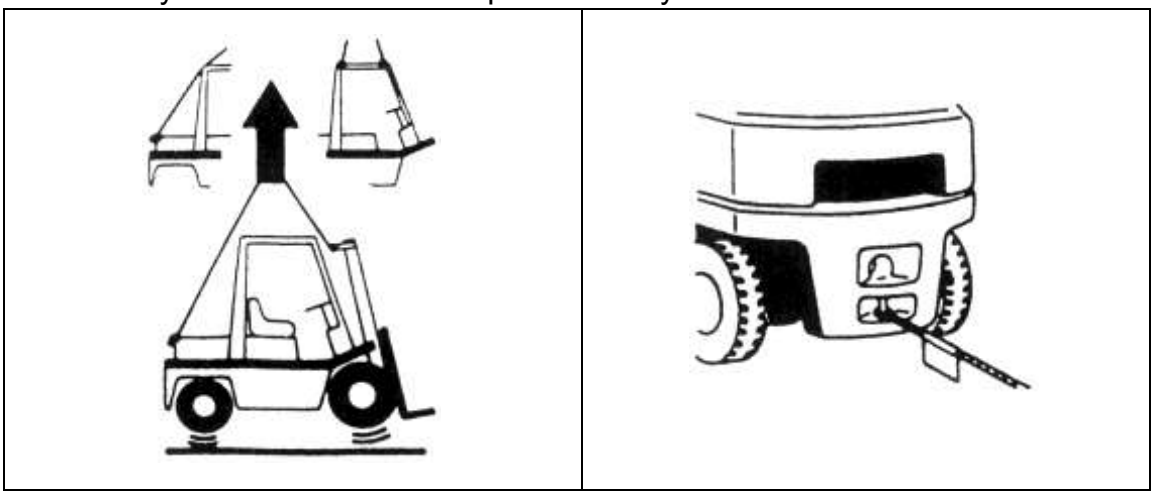
Don't tow the truck that its steering system doesn't work correctly or its braking system has been disabled.

Obey the traffic rules on the road when towing the truck.

Warning

a. Don't tie the steel wire ropes on the unfixed position

b. Don't carry a load to steel wire ropes suddenly.



10. Type signification

1t-1.8t

Model	Engine	Hydraulic transmission	Rated capacity(t)/ Load center(mm)
CPCD10/15/18-XW10F	C240PKJ-30 Diesel engine	XF150-120000-G00	1/500、1.5/500、1.75/500
CPCD10/15/18-XW12F	NC485BPG Diesel engine	XF150-120000-G00	1/500、1.5/500、1.75/500
CPQD10/15/18-XW21F	K21 Gasoline engine （NISSAN）	XF150-120000-G00	1/500、1.5/500 1.75/500 Gasoline
CPQD10/15/18-XW21B		Y43160X / Y48130X	
CPQD10/15/18-XW21M		XM150-130000-G00	
CPYD15/18-XW21F	K21 Gasoline engine （NISSAN）	XF150-120000-G00	1.5/500、1.75/500, IMPCO LPG single fuel system
CPYD15/18-XW21B		Y43160X / Y48130X	
CPYD15/18-XW21M		XM150-130000-G00	
CPQYD15/18-XW21F	K21 Gasoline/LPG engine （NISSAN）	XF150-120000-G00	1.5/500、1.75/500, IMPCO LPG dual fuel system
CPQYD15/18-XW21B		Y43160X / Y48130X	
CPQYD15/18-XW21M		XM150-130000-G00	
CPYD15/18-XW51F	K21 LPG （NISSAN）	XF150-120000-G00	1.5/500、1.75/500, IMPCO LPG single fuel system
CPYD15/18-XW51B		Y43160X / Y48130X	
CPYD15/18-XW51M		XM150-130000-G00	
CPCD10/15/18-XW32F	4TNE92-HRJ Diesel engine	XF150-120000-G00	1/500、1.5/500、1.75/500
CPCD10/15/18-XW32B		Y43160X / Y48130X	
CPCD10/15/18-XW32M		XM150-130000-G00	

2t-2.5t

Model	Engine	Hydraulic transmission	Rated capacity(t)/ Load center(mm)
CPCD20/25-XW6F	4TNV94L-NHZ Diesel engine	XF250-130000-G00	2/500、2.5/500
CPCD20/25-XW10F	C240PKJ-30 Diesel engine	XF250-130000-G00	2/500、2.5/500
CPCD25-XW10B		Y43160X / Y48140X	2.5/500
CPQD20/25-XW21F	K21 gasoline engine （NISSAN）	XF250-130000-G00	2/500、2.5/500 Gasoline
CPYD20/25-XW21F			2/500、2.5/500, IMPCO LPG single fuel system
CPQYD20/25-XW21F			2/500、2.5/500, IMPCO LPG dual fuel system
CPQD20/25-XW22F	K25 gasoline engine （NISSAN）	XF250-130000-G00	2/500、2.5/500 Gasoline
CPQD20/25-XW22B		Y43160X / Y48140X	
CPQD20/25-XW22M		RM322-130000-G00	
CPYD20/25-XW22F	K25 gasoline engine （NISSAN）	XF250-130000-G00	2/500、2.5/500, IMPCO LPG single fuel system
CPYD20/25-XW22B		Y43160X / Y48140X	
CPYD20/25-XW22M		RM322-130000-G00	
CPQYD20/25-XW22F	K25 gasoline engine （NISSAN）	XF250-130000-G00	2/500、2.5/500, IMPCO LPG dual fuel system
CPQYD20/25-XW22B		Y43160X / Y48140X	
CPQYD20/25-XW22M		RM322-130000-G00	
CPYD20/25-XW51F	K21 LPG （NISSAN）	XF250-130000-G00	2/500、2.5/500, IMPCO LPG single fuel system
CPYD20/25-XW52F	K25 LPG （NISSAN）	XF250-130000-G00	
CPYD20/25-XW52B		Y43160X / Y48140X	
CPYD20/25-XW52M		RM322-130000-G00	
CPCD20/25-XW27F	A498BT1-20 Diesel engine	XF250-130000-G00	2/500、2.5/500
CPCD20/25-XW32F	4TNE92-HRJ Diesel engine	XF250-130000-G00	2/500、2.5/500
CPCD25-XW32B		Y43160X / Y48140X	2.5/500
CPCD25-XW32M		RM322-130000-G00	2.5/500
CPCD20/25-XW33F	4TNE98-BQFLC Diesel engine	XF250-130000-G00	2/500、2.5/500
CPCD20/25-XW33B		Y43160X / Y48140X	
CPCD20/25-XW33M		RM322-130000-G00	

3t-3.5t

Model	Engine	Hydraulic transmission	Rated capacity(t)/ Load center(mm)
CPCD30/35-XW6F	4TNV94L-NHZ Diesel engine	XF300-120000-G00	3/500、3.5/500
CPCD30/35-XW10F	C240PKJ-30 Diesel engine	XF300-120000-G00	3/500、3.5/500
CPQD30/35-XW22F	K25 gasoline engine （NISSAN）	XF300-120000-G00	3/500、3.5/500 Gasoline
CPQD30/35-XW22B		Y43160X / Y48150X	
CPQD30/35-XW22M		RM622-130000-G00	
CPYD30/35-XW22F	K25 gasoline engine （NISSAN）	XF300-120000-G00	3/500、3.5/500 IMPCO single fuel system
CPYD30/35-XW22B		Y43160X / Y48150X	
CPYD30/35-XW22M		RM622-130000-G00	
CPQYD30/35-XW22F	K25 gasoline engine （NISSAN）	XF300-120000-G00	3/500、3.5/500 IMPCO dual fuel system
CPQYD30/35-XW22B		Y43160X / Y48150X	
CPQYD30/35-XW22M		RM622-130000-G00	
CPYD30/35-XW52F	K25 LPG （NISSAN）	XF300-120000-G00	3/500、3.5/500 IMPCO single fuel system
CPYD30/35-XW52B		Y43160X / Y48150X	
CPYD30/35-XW52M		RM622-130000-G00	
CPCD30/35-XW27F	A498BT1-20 Diesel engine	XF300-120000-G00	3/500、3.5/500
CPCD30/35-XW33F	4TNE98-BQFLC Diesel engine	XF300-120000-G00	3/500、3.5/500
CPCD30/35-XW33B		Y43160X / Y48150X	3/500、3.5/500
CPCD30/35-XW33M		RM622-130000-G00	3/500、3.5/500

11. XF series internal combustion forklift specification

1t—1.8t

Model		CPCD10-XW10F	CPCD15-XW10F	CPCD18-XW10F
Rated capacity	kg	1000	1500	1750
Load centre distance	mm	500	500	500
Overall maximum lift height	mm	3000	3000	3000
Free lift height	mm	155	155	155
Maximum lift speed (with load)	mm/s	610	610	610
Tilt of the mast	F/B	6°/12°	6°/12°	6°/12°
Max travel speed (without load)	km/h	21	21	21
Ground clearance	mm	115	115	115
Min outside turning radius	mm	1965	1990	2015
Max negotiable gradient (laden)	%	20	20	20
Wheel-base	mm	1475	1475	1475
Track (F/R)	mm	900/920	900/920	900/920
Service mass kg	mechanism	/	/	/
	hydraulic	2510	2650	2765
Overall dimension (L×W×H)(include forks)		3175×1080×2105	3205×1080×2105	3230×1080×2105
Tyre (F/R)		6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2
Battery V/ capacity Ah		12/60/20h	12/60/20h	12/60/20h
Diesel engine	Model	ISUZU C240PKJ-30		
	Rated capacity/rpm	34.5kW/2500 r/min		
	Max torque/rpm	137.7N • m/1800 r/min		
	Displacement cc	2400		

Model			CPCD10-XW12F	CPCD15-XW12F	CPCD18-XW12F
Rated capacity		kg	1000	1500	1750
Load centre distance		mm	500	500	500
Overall maximum lift height		mm	3000	3000	3000
Free lift height		mm	155	155	155
Maximum lift speed (with load)		mm/s	580	580	580
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	20	20	20
Ground clearance		mm	115	115	115
Min outside turning radius		mm	1965	1990	2015
Max negotiable gradient (laden)		%	20	20	20
Wheel-base		mm	1475	1475	1475
Track (F/R)		mm	900/920	900/920	900/920
Service mass kg	mechanism		/	/	/
	hydraulic		2510	2650	2765
Overall dimension (L×W×H)(include forks)			3175×1080×2105	3205×1080×2105	3230×1080×2105
Tyre (F/R)			6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h	12/60/20h
Diesel engine	Model		NC485BPG		
	Rated capacity/rpm		30 kW/2600 r/min		
	Max torque/rpm		131N・m/1820 r/min		
	Displacement cc		2270		

Model			CPQD10-XW21F	CPQD15-XW21F	CPQD18-XW21F
Rated capacity		kg	1000	1500	1750
Load centre distance		mm	500	500	500
Overall maximum lift height		mm	3000	3000	3000
Free lift height		mm	155	155	155
Maximum lift speed (with load)		mm/s	580	510	510
Tilt of the mast		F/B	6° /12°	6° /12°	6° /12°
Max travel speed (without load)		km/h	19	18	18
Ground clearance		mm	115	115	115
Min outside turning radius		mm	1965	1990	2015
Max negotiable gradient (laden)		%	20	20	20
Wheel-base		mm	1475	1475	1475
Track (F/R)		mm	900/920	900/920	900/920
Service mass kg	mechanism		/	/	/
	hydraulic		2510	2650	2765
Overall dimension (L×W×H)(include forks)			3175×1080×2105	3205×1080×2105	3230×1080×2105
Tyre (F/R)			6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K21		
	Rated capacity/rpm		31.5kW/2300 r/min		
	Max torque/rpm		144N • m/1600 r/min		
	Displacement cc		2065		
	Power		Gasoline		

Model			CPYD15-XW21F CPYD15-XW21B CPYD15-XW21M	CPYD18-XW21F CPYD18-XW21B CPYD18-XW21M
Rated capacity		kg	1500	1750
Load centre distance		mm	500	500
Overall maximum lift height		mm	3000	3000
Free lift height		mm	155	155
Maximum lift speed (with load)		mm/s	510	510
Tilt of the mast		F/B	6° /12°	6° /12°
Max travel speed (without load)		km/h	18	18
Ground clearance		mm	115	115
Min outside turning radius		mm	1990	2015
Max negotiable gradient (laden)		%	20	20
Wheel-base		mm	1475	1475
Track (F/R)		mm	900/920	900/920
Service mass kg	mechanism		/	/
	hydraulic		2650	2765
Overall dimension (L×W×H)(include forks)			3205×1080×2105	3230×1080×2105
Tyre (F/R)			6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K21	
	Rated capacity/rpm		31.5kW/2300 r/min	
	Max torque/rpm		144N • m/1600 r/min	
	Displacement cc		2065	
	Power		LPG	

Model			CPQYD15-XW21F CPQYD15-XW21B CPQYD15-XW21M	CPQYD18-XW21F CPQYD18-XW21B CPQYD18-XW21M
Rated capacity		kg	1500	1750
Load centre distance		mm	500	500
Overall maximum lift height		mm	3000	3000
Free lift height		mm	155	155
Maximum lift speed (with load)		mm/s	510	510
Tilt of the mast		F/B	6° /12°	6° /12°
Max travel speed (without load)		km/h	18	18
Ground clearance		mm	115	115
Min outside turning radius		mm	1990	2015
Max negotiable gradient (laden)		%	20	20
Wheel-base		mm	1475	1475
Track (F/R)		mm	900/920	900/920
Service mass kg	mechanism		/	/
	hydraulic		2650	2765
Overall dimension (L×W×H)(include forks)			3205×1080×2105	3230×1080×2105
Tyre (F/R)			6.50-10-10PR/2 5.00-8-10PR/2	6.50-10-10PR/2 5.00-8-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K21	
	Rated capacity/rpm		31.5kW/2300 r/min	
	Max torque/rpm		144N • m/1600 r/min	
	Displacement cc		2065	
	Power		Gasoline/LPG	

Model		CPYD15-XW51F CPYD15-XW51B CPYD15-XW51M	CPYD18-XW51F CPYD18-XW51B CPYD18-XW51M
Rated capacity	kg	1500	1750
Load centre distance	mm	500	500
Overall maximum lift height	mm	3000	3000
Free lift height	mm	155	155
Maximum lift speed (with load)	mm/s	510	510
Tilt of the mast	F/B	6°/12°	6°/12°
Max travel speed (without load)	km/h	18	18
Ground clearance	mm	115	115
Min outside turning radius	mm	1990	2015
Max negotiable gradient (laden)	%	20	20
Wheel-base	mm	1475	1475
Track (F/R)	mm	900/920	900/920
Service mass	kg	2650	2765
Overall dimension (L×W×H)(include forks)		3205×1080×2105	3230×1080×2105
Tyre (F/R)		6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2
Battery V/ capacity Ah		12/60/20h	12/60/20h
LPG engine	Model	NISSAN K21 LPG	
	Rated apacity/rpm	29kW/2250 r/min	
	Max torque/rpm	140N·m/1600 r/min	
	Displacement cc	2065	

Model			CPCD10-XW32F CPCD10-XW32B CPCD10-XW32M	CPCD15-XW32F CPCD15-XW32B CPCD15-XW32M	CPCD18-XW32F CPCD18-XW32B CPCD18-XW32M
Rated capacity		kg	1000	1500	1750
Load centre distance		mm	500	500	500
Overall maximum lift height		mm	3000	3000	3000
Free lift height		mm	155	155	155
Maximum lift speed (with load)		mm/s	580	580	580
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19/19.3/19	19/19.3/19	19/19.3/19
Ground clearance		mm	115	115	115
Min outside turning radius		mm	1965	1990	2015
Max negotiable gradient (laden)		%	20	20	20
Wheel-base		mm	1475	1475	1475
Track (F/R)		mm	900/920	900/920	900/920
Service mass kg	mechanism		/	/	/
	hydraulic		2510	2650	2765
Overall dimension (L×W×H)(include forks)			3175×1080×2105	3205×1080×2105	3230×1080×2105
Tyre (F/R)			6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2	6.5-10-10PR/2 5.00-8-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h	12/60/20h
Diesel engine	Model		YANMAR 4TNE92-HRJ		
	Rated capacity/rpm		32.8kW/2450 r/min		
	Max torque/rpm		142N • m/1600 r/min		
	Displacement cc		2659		

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Model			CPCD20-XW6F	CPCD25-XW6F	CPCD30-XW6F	CPCD35-XW6F
Rated capacity		kg	2000	2500	3000	3500
Load centre distance		mm	500	500	500	500
Overall maximum lift height		mm	3000	3000	3000	3000
Free lift height		mm	140	140	145	145
Maximum lift speed (with load)		mm/s	650	650	520	350
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19.8	19.8	18.7	18.7
Ground clearance		mm	115	115	130	130
Min outside turning radius		mm	2180	2250	2340	2415
Max negotiable gradient (laden)		%	20	20	20	20
Wheel-base		mm	1650	1650	1700	1700
Track (F/R)		mm	965/973	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/	/
	hydraulic		3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/90/20h	12/90/20h	12/90/20h	12/90/20h
Diesel engine	Model		YANMAR 4TNE94L-NHZ			
	Rated capacity/rpm		43kW/2500 r/min			
	Max torque/rpm		214N • m/1000 r/min			
	Displacement cc					

Model			CPCD20-XW10F	CPCD25-XW10F CPCD25-XW10B	CPCD30-XW10F	CPCD35-XW10F
Rated capacity		kg	2000	2500	3000	3500
Load centre distance		mm	500	500	500	500
Overall maximum lift height		mm	3000	3000	3000	3000
Free lift height		mm	140	140	145	145
Maximum lift speed (with load)		mm/s	650	650/620	520	455
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19.7	19.7/18.6	18.6	18.6
Ground clearance		mm	115	115	130	130
Min outside turning radius		mm	2180	2250	2355	2415
Max negotiable gradient (laden)		%	20	20	15	15
Wheel-base		mm	1650	1650	1700	1700
Track (F/R)		mm	965/973	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/	/
	hydraulic		3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/90/20h	12/90/20h	12/90/20h	12/90/20h
Diesel engine	Model		ISUZU C240PKJ-30			
	Rated capacity/rpm		34.5kW/2500 r/min			
	Max torque/rpm		137.7N • m/1800 r/min			
	Displacement cc		2400			

Model			CPQD20-XW21F	CPQD25-XW21F
Rated capacity		kg	2000	2500
Load centre distance		mm	500	500
Overall maximum lift height		mm	3000	3000
Free lift height		mm	140	140
Maximum lift speed (with load)		mm/s	490	490
Tilt of the mast		F/B	6°/12°	6°/12°
Max travel speed (without load)		km/h	18.2	18.2
Ground clearance		mm	115	115
Min outside turning radius		mm	2180	2250
Max negotiable gradient (laden)		%	20	20
Wheel-base		mm	1650	1650
Track (F/R)		mm	965/973	965/973
Service mass kg	mechanism		/	/
	hydraulic		3405	3765
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR
Battery V/ capacity Ah			12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K21	
	Rated capacity/rpm		31.5kW/2300 r/min	
	Max torque/rpm		144N • m/1600 r/min	
	Displacement cc		2065	
	Power		Gasoline	

Model			CPYD20-XW21F	CPYD25-XW21F
Rated capacity		kg	2000	2500
Load centre distance		mm	500	500
Overall maximum lift height		mm	3000	3000
Free lift height		mm	140	140
Maximum lift speed (with load)		mm/s	490	490
Tilt of the mast		F/B	6°/12°	6°/12°
Max travel speed (without load)		km/h	18.2	18.2
Ground clearance		mm	115	115
Min outside turning radius		mm	2180	2250
Max negotiable gradient (laden)		%	20	20
Wheel-base		mm	1650	1650
Track (F/R)		mm	965/973	965/973
Service mass kg	mechanism		/	/
	hydraulic		3405	3765
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR
Battery V/ capacity Ah			12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K21	
	Rated capacity/rpm		31.5kW/2300 r/min	
	Max torque/rpm		144N • m/1600 r/min	
	Displacement cc		2065	
	Power		LPG	

Model			CPQYD20-XW21F	CPQYD25-XW21F
Rated capacity		kg	2000	2500
Load centre distance		mm	500	500
Overall maximum lift height		mm	3000	3000
Free lift height		mm	140	140
Maximum lift speed (with load)		mm/s	490	490
Tilt of the mast		F/B	6° /12°	6° /12°
Max travel speed (without load)		km/h	18.2	18.2
Ground clearance		mm	115	115
Min outside turning radius		mm	2180	2250
Max negotiable gradient (laden)		%	20	20
Wheel-base		mm	1650	1650
Track (F/R)		mm	965/973	965/973
Service mass kg	mechanism		/	/
	hydraulic		3405	3765
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR
Battery V/ capacity Ah			12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K21	
	Rated capacity/rpm		31.5kW/2300 r/min	
	Max torque/rpm		144N • m/1600 r/min	
	Displacement cc		2065	
	Power		Gasoline/LPG	

Model			CPQD20-XW22F CPQD20-XW22M	CPQD25-XW22F CPQD25-XW22B CPQD25-XW22M	CPQD30-XW22F CPQD30-XW22M	CPQD35-XW22F CPQD35-XW22M
Rated capacity		kg	2000	2500	3000	3500
Load centre distance		mm	500	500	500	500
Overall maximum lift height		mm	3000	3000	3000	3000
Free lift height		mm	140	140	145	145
Maximum lift speed (with load)		mm/s	560	560	450	385
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19/19.4/18.7	19/19.4/18.7	17.9/18.3	17.9/18.3
Ground clearance		mm	115	115	130	130
Min outside turning radius		mm	2180	2250	2340	2415
Max negotiable gradient (laden)		%	20	20	20	20
Wheel-base		mm	1650	1650	1700	1700
Track (F/R)		mm	965/973	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/	/
	hydraulic		3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h	12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K25			
	Rated capacity/rpm		38kW/2400 r/min			
	Max torque/rpm		185N • m/1600 r/min			
	Displacement cc		2488			
	Power		Gasoline			

Model			CPYD20-XW22F CPYD20-XW22B CPYD20-XW22M	CPYD25-XW22F CPYD25-XW22B CPYD25-XW22M	CPYD30-XW22F CPYD30-XW22B CPYD30-XW22M	CPYD35-XW22F CPYD35-XW22B CPYD35-XW22M
Rated capacity		kg	2000	2500	3000	3500
Load centre distance		mm	500	500	500	500
Overall maximum lift height		mm	3000	3000	3000	3000
Free lift height		mm	140	140	145	145
Maximum lift speed (with load)		mm/s	560	560	450	385
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19/19.4/18.7	19/19.4/18.7	17.9/18.4/18.3	17.9/18.4/18.3
Ground clearance		mm	115	115	130	130
Min outside turning radius		mm	2180	2250	2340	2415
Max negotiable gradient (laden)		%	20	20	20	20
Wheel-base		mm	1650	1650	1700	1700
Track (F/R)		mm	965/973	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/	/
	hydraulic		3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h	12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K25			
	Rated capacity/rpm		38kW/2400 r/min			
	Max torque/rpm		185N • m/1600 r/min			
	Displacement cc		2488			
	Power		LPG			

Model			CPQYD20-XW22F CPQYD20-XW22B CPQYD20-XW22M	CPQYD25-XW22F CPQYD25-XW22B CPQYD25-XW22M	CPQYD30-XW22F CPQYD30-XW22B CPQYD30-XW22M	CPQYD35-XW22F CPQYD35-XW22B CPQYD35-XW22M
Rated capacity		kg	2000	2500	3000	3500
Load centre distance		mm	500	500	500	500
Overall maximum lift height		mm	3000	3000	3000	3000
Free lift height		mm	140	140	145	145
Maximum lift speed (with load)		mm/s	560	560	450	385
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19/19.4/18.7	19/19.4/18.7	17.9/18.4/18.3	17.9/18.4/18.3
Ground clearance		mm	115	115	130	130
Min outside turning radius		mm	2180	2250	2340	2415
Max negotiable gradient (laden)		%	20	20	20	20
Wheel-base		mm	1650	1650	1700	1700
Track (F/R)		mm	965/973	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/	/
	hydraulic		3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/60/20h	12/60/20h	12/60/20h	12/60/20h
Gasoline engine	Model		NISSAN K25			
	Rated capacity/rpm		38kW/2400 r/min			
	Max torque/rpm		185N • m/1600 r/min			
	Displacement cc		2488			
	Power		Gasoline/LPG			

Model		CPYD20-XW51F	CPYD25-XW51F
Rated capacity	kg	2000	2500
Load centre distance	mm	500	500
Overall maximum lift height	mm	3000	3000
Free lift height	mm	140	140
Maximum lift speed (with load)	mm/s	490	490
Tilt of the mast	F/B	6°/12°	6°/12°
Max travel speed (without load)	km/h	18.2	18.2
Ground clearance	mm	115	115
Min outside turning radius	mm	2180	2250
Max negotiable gradient (laden)	%	20	20
Wheel-base	mm	1650	1650
Track (F/R)	mm	965/973	965/973
Service mass	kg	3405	3765
Overall dimension (L×W×H)(include forks)		3600×1155×2115	3675×1155×2115
Tyre (F/R)		7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR
Battery V/ capacity Ah		12/60/20h	12/60/20h
LPG engine	Model	NISSAN K21 LPG	
	Rated capacity/rpm	29kW/2250 r/min	
	Max torque/rpm	140N・m/1600 r/min	
	Displacement cc	2065	

Model		CPYD20-XW52F CPYD20-XW52B CPYD20-XW52M	CPYD25-XW52F CPYD25-XW52B CPYD25-XW52M	CPYD30-XW52F CPYD30-XW52B CPYD30-XW52M	CPYD35-XW52F CPYD35-XW52B CPYD35-XW52M
Rated capacity	kg	2000	2500	3000	3500
Load centre distance	mm	500	500	500	500
Overall maximum lift height	mm	3000	3000	3000	3000
Free lift height	mm	140	140	145	145
Maximum lift speed (with load)	mm/s	560	560	450	385
Tilt of the mast	F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)	km/h	19/19.4/18.7	19/19.4/18.7	17.9/18.4/18.3	17.9/18.4/18.3
Ground clearance	mm	115	115	130	130
Min outside turning radius	mm	2180	2250	2340	2415
Max negotiable gradient (laden)	%	20	20	20	20
Wheel-base	mm	1650	1650	1700	1700
Track (F/R)	mm	965/973	965/973	1005/975	1005/975
Service mass	kg	3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)		3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)		7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah		12/60/20h	12/60/20h	12/60/20h	12/60/20h
LPG engine	Model	NISSAN K25 LPG			
	Rated capacity/rpm	35kW/2400 r/min			
	Max torque/rpm	170N·m/1600 r/min			
	Displacement cc	2488			

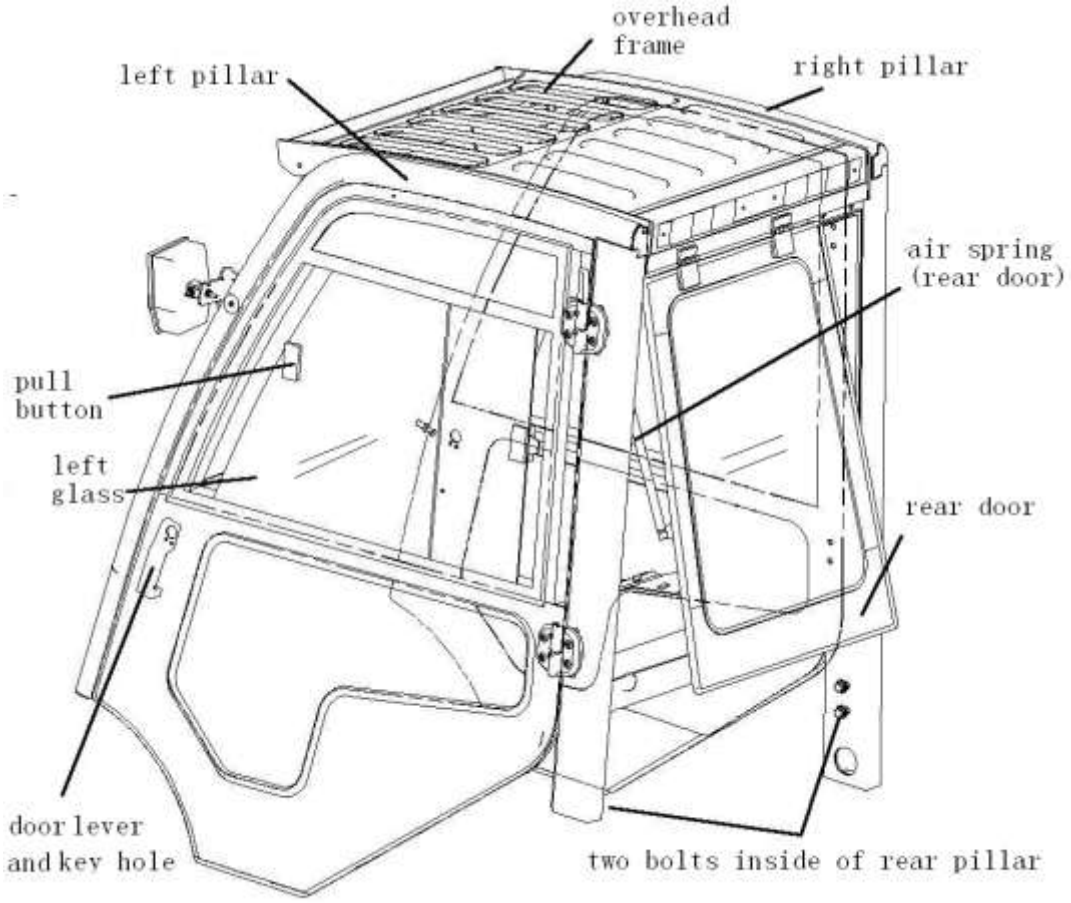
Model			CPCD20-XW27F	CPCD25-XW27F	CPCD30-XW27F	CPCD35-XW27F
Rated capacity		kg	2000	2500	3000	3500
Load centre distance		mm	500	500	500	500
Overall maximum lift height		mm	3000	3000	3000	3000
Free lift height		mm	140	140	145	145
Maximum lift speed (with load)		mm/s	560	560	450	385
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19	19	18	18
Ground clearance		mm	115	115	130	130
Min outside turning radius		mm	2180	2250	2340	2415
Max negotiable gradient (laden)		%	20	20	20	20
Wheel-base		mm	1650	1650	1700	1700
Track (F/R)		mm	965/973	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/	/
	hydraulic		3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/90/20h	12/90/20h	12/90/20h	12/90/20h
Diesel engine	Model		新昌A498BT1-20			
	Rated capacity/rpm		36.8kW/2400 r/min			
	Max torque/rpm		186N • m/1700 r/min			
	Displacement cc		3168			

Model			CPCD20-XW32F	CPCD25-XW32F CPCD25-XW32B CPCD25-XW32M
Rated capacity		kg	2000	2500
Load centre distance		mm	500	500
Overall maximum lift height		mm	3000	3000
Free lift height		mm	140	140
Maximum lift speed (with load)		mm/s	600	600 /620/620
Tilt of the mast		F/B	6°/12°	6°/12°
Max travel speed (without load)		km/h	19.4	19.4/18.6/17.9
Ground clearance		mm	115	115
Min outside turning radius		mm	2180	2250
Max negotiable gradient (laden)		%	20	20
Wheel-base		mm	1650	1650
Track (F/R)		mm	965/973	965/973
Service mass kg	mechanism		/	/
	hydraulic		3405	3765
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR
Battery V/ capacity Ah			12/90/20h	12/90/20h
Diesel engine	Model		YANMAR 4TNE92-HRJ	
	Rated capacity/rpm		32.8kW/2450 r/min	
	Max torque/rpm		142N • m/1600 r/min	
	Displacement cc		2659	

Model			CPCD20-XW33F CPCD20-XW33B CPCD20-XW33M	CPCD25-XW33F CPCD25-XW33B CPCD25-XW33M	CPCD30-XW33F CPCD30-XW33B CPCD30-XW33M	CPCD35-XW33F CPCD35-XW33B CPCD35-XW33M
Rated capacity		kg	2000	2500	3000	3500
Load centre distance		mm	500	500	500	500
Overall maximum lift height		mm	3000	3000	3000	3000
Free lift height		mm	140	140	145	145
Maximum lift speed (with load)		mm/s	620	620	490	430
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	18.2/18.6/17.9	18.2/18.6/17.9	17.2/17.6/17.6	17.2/17.6/17.6
Ground clearance		mm	115	115	130	130
Min outside turning radius		mm	2180	2250	2340	2415
Max negotiable gradient (laden)		%	20	20	20	20
Wheel-base		mm	1650	1650	1700	1700
Track (F/R)		mm	965/973	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/	/
	hydraulic		3405	3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3675×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/90/20h	12/90/20h	12/90/20h	12/90/20h
Diesel engine	Model		YANMAR 4TNE98			
	Rated capacity/rpm		44.3kW/2300 r/min			
	Max torque/rpm		196N • m/1700 r/min			
	Displacement cc		3319			

Model			CPCD25-XW47F	CPCD30-XW47F	CPCD35-XW47F
Rated capacity		kg	2500	3000	3500
Load centre distance		mm	500	500	500
Overall maximum lift height		mm	3000	3000	3000
Free lift height		mm	140	145	145
Maximum lift speed (with load)		mm/s	560	450	450
Tilt of the mast		F/B	6°/12°	6°/12°	6°/12°
Max travel speed (without load)		km/h	19	18	18
Ground clearance		mm	115	130	130
Min outside turning radius		mm	2250	2340	2415
Max negotiable gradient (laden)		%	20	20	20
Wheel-base		mm	1650	1700	1700
Track (F/R)		mm	965/973	1005/975	1005/975
Service mass kg	mechanism		/	/	/
	hydraulic		3765	4350	4705
Overall dimension (L×W×H)(include forks)			3600×1155×2115	3800×1225×2130	3870×1225×2165
Tyre (F/R)			7.00-12-12PR 6.00-9-10PR	28×9-15-12PR/2 6.50-10-10PR/2	28×9-15-12PR/2 6.50-10-10PR/2
Battery V/ capacity Ah			12/90/20h	12/90/20h	12/90/20h
Diesel engine	Model		新昌 A498BT1-18		
	Rated capacity/rpm		36.8kW/2300 r/min		
	Max torque/rpm		186N • m/1700 r/min		
	Displacement cc		3170		

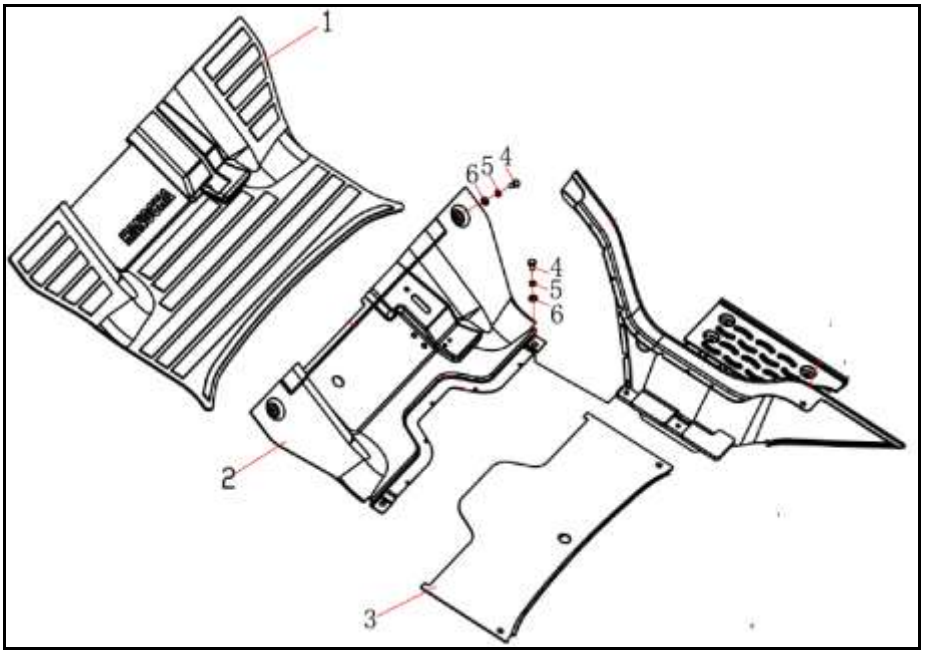
12. Cabin use, disassembly and installation



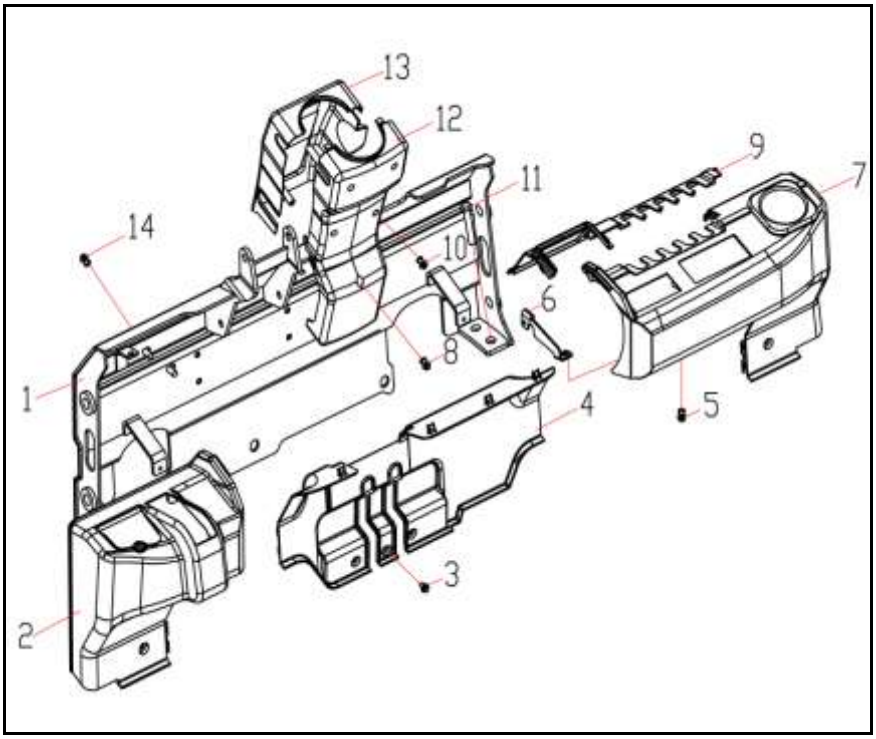
The structure of cabin:
New type design, it is consist of left support leg, rear support leg, front glass, left door, right door, rear door.

The operation of cab:
1. Open left door with key, enter into cab.
2. Close door, make sure left and right door close before working.
3. The glass of left and right door can be moved by draw button on the glass.
4. The rear door can be opened by loosing lock buckle.

Disassemble cab:
1. Stop the truck on solid and smooth level ground; close switch, pull down hand brake, engine flameout, ensure the door could open.
2. Open the left and right door to the max.
3. Dismantle the pedal mat, rear soleplate, front soleplate.



4. Dismantle the left, middle and right protect cover which conjoint with instrument frame.

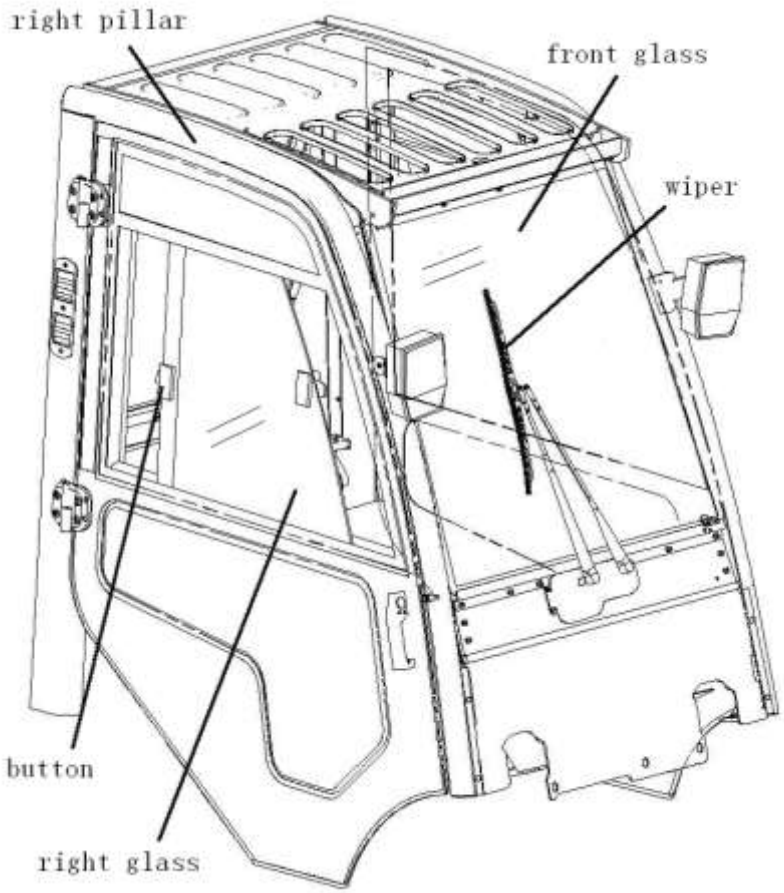


1.Instrument frame discreteness	2.left protect cover	3.bolt discreteness （5pcs）	4.rear protect cover
5.bolt discreteness	6.bracket	7.right protect cover	8、bolt discreteness M5×16（3pcs）
9.front protect cover	10.bolt discreteness M4×16（2pcs）	11.bolt discreteness	12.switch rear cover
13.switch rear cover		14.bolt discreteness M6×16（5pcs）	

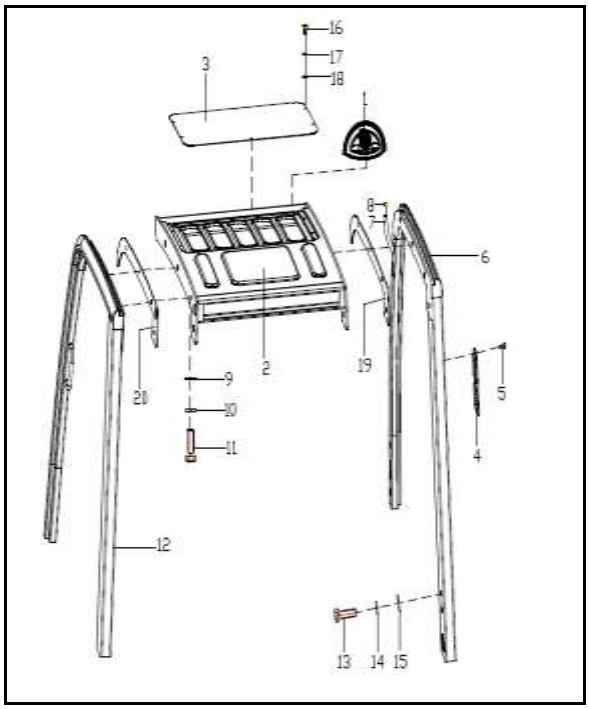
5. Remove switch connection of fan, rain wiper, alarm light etc
6. Remove 4 bolts from left front and right front legs.
7. Open the hood.
8. Remove 2 bolts inside left rear legs.(hand spanner)
9. Remove the assistant water tank of right leg and 2 pcs tighten bolt.
10. Remove the glass on cabin (caution), dismantle backboard and beam.
11. Sling the cabin, remove the wire at 4 legs.
12. Put down gently.

Install cab:

The installing procedure is opposite to removing procedure. Fastening torque of 8 bolts connected support legs and truck body : T=137N·m ~167N·m.



Disassemble overhead:



1.rearview mirror	2.cabane	3.clearstory board	4.cover board	5.bolt M5×12
6.right support assembly	7.glue pipe	8.pipe hoop	9.gasket 14 (8 pcs)	10.gasket 14 (8 pcs)
11.bolt M14×1.5×45(8 pcs)	12.left support assembly	13.bolt M16×1.5×45（8 pcs)	14.gasket 16 （8pcs)	15.gasket （8pcs)
16.bolt M6×12 （6 pcs)	17.gasket 6 (6 pcs)	18.gasket 6 (6 pcs)	19.right rubber mat	20.left rubber mat

1. Stop the truck on solid and smooth level ground; close switch, pull down hand brake, engine flameout, ensure the door could open.

2. Dismantle the left, middle and right protect cover which conjoint with instrument frame.

3. Dismantle the pedal mat, rear soleplate, front soleplate. (see the overhead part).

4. Remove switch connection of fan, rain wiper, alarm light etc

5. Remove 4 bolts inside left front and right front legs.

6. Open the hood.

7. Remove 2 bolts inside left rear legs. (hand spanner)

8. Remove the assistant water tank of right leg and 2 pcs tighten bolt.

9. Sling the cabin, remove the wire at 4 legs.

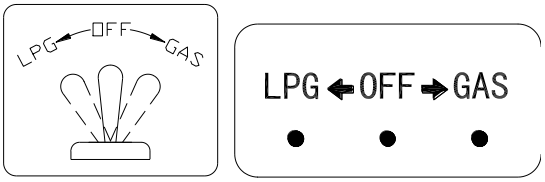
10. Put down gently.

The installing procedure is opposite to removing procedure. Fastening torque of 8 bolts connected support legs and truck body : T=137N·m ~167N·m.

13. Use and notice for LPG forklift

LPG fuel system makes up of tank, filter, complete gas regulator, mixer, ect. LPG is from tank to combination valve and high pressure pipeline, then pass filter and last into reducto. After boiloff into mixer, commix with air boiloff in fixed proportion, burnt in engine cylinder, drive forklift to work.

On the surface of instrument frame, it is double fuel conversion switch. Note: Single fuel doesn't have this.



The operation of double fuel conversion switch

1. Switch to LPG (dial left, LPG means gas), the fuel of engine burning is LPG.
2. Switch to GAS, the fuel of engine burning is Gasoline.
3. Middle place, it is not both.

Start-up of double fuel engine

1. Gasoline

Close LPG，close the gasoline switch a few seconds, when the gasoline into the carburetor bobber room, then open the ignition key, start-up the engine by gasoline.

2. LPG

a. Carburetor without gasoline：If you know the carburetor without any gasoline before start, use LPG directness. Close the gasoline switch, open LPG switch a few seconds, then open key to start motor, the engine move.

b. Carburetor without gasoline：start engine is not easy by LPG, close the LPG and Gasoline switch(choose to middle position),start by gasoline. When the gasoline will be run down in carburetor, rotate speed of engine is lower, open LPG switch, turn to LPG. Or the gasoline will be burn fully in carburetor, engine stop, open LPG switch, use the key to start motor, engine work.

Fuel conversion in process of engine movement

1.Use LPG then turn to GAS：

Switch LPG to GAS, engine movement from LPG to GAS.

2. Use GAS then turn to LPG：

Close GAS switch, When the gasoline will be run down in carburetor, rotate speed of engine is lower，open LPG switch.

Complete gas regulator

There are two functions of complete gas regulator. One is decompress, it drop one Atmospheric pressure of LPG from electromagnetism valve. Second is transpiration, liquid LPG absorbs the heat of engine circular to let itself boiloff.

Mixer

Mixer bases on the engine operation circs, put the gaseity LPG and air together into engine to ensure the require of engine under different work condition.

LPG cylinder

1. Function

It composed of safety valve, LPG inlet, quick fitting and other relevant accessories. It supports and stores fuel, and it is fixed at the back of truck. The functions:

a. shut off valve

It controls inlet and outlet line of the LPG.

b. Charging limit valve

Open the charging limit valve to charge LPG till the charging device is automatically closed when 70%- 80% volume of the container is full.

c. Level indication

The digital shows percentage of the remainder volume.

d. Outpouring limit valve

When outpouring exceeds the stated value, or the pipe is broken, the outpouring device on the valve will be closed automatically.

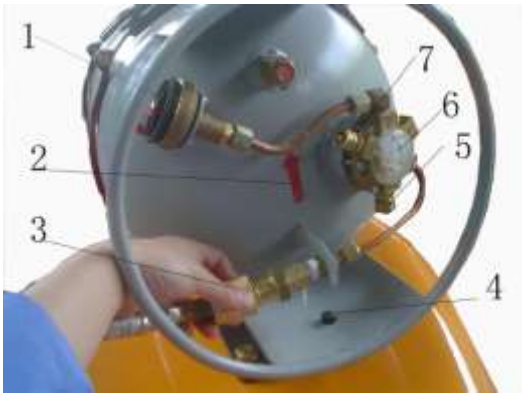
e. Safety valve

Safety valve will open automatically when pressure in cylinder is over the standard pressure.

2. Main parameters

Work temperature:-40℃~+60℃； Work pressure ： 2.2MPa； opening pressure of safety valve：2.5MPa±0.2MPa；Max. capacity ：80% of cylinder volume。

3. Cylinder structure

<table>
<tr><td rowspan="4"> 
</td><td>1. Charge valve
（inlet port and dustproof cover）</td><td>2. Installing mark</td></tr>
<tr><td>3.Outlet valve
（outlet connector）</td><td>4. Fixed pin</td></tr>
<tr><td>5. Outlet shut off valve</td><td>6.Level indication</td></tr>
<tr><td>7. Inlet shut off valve</td><td></td></tr>
</table>

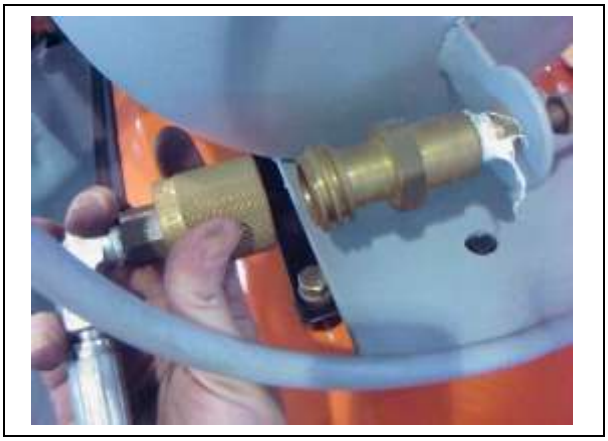
4．Cylinder replacement

Paste safety operation procedures on cylinder

（1）make the truck stay on flat and stability ground, stop engine, pull hand brake;

（2）remove cylinder：

a. Close outlet shut off valve, and remove outlet connector.

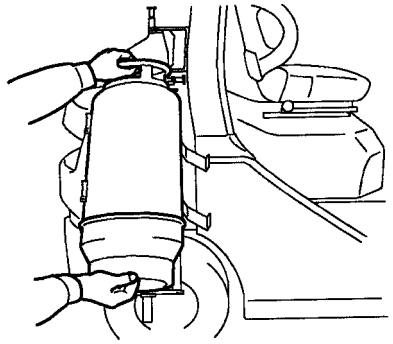


b. Loosen cylinder fixed parts, see followed Fig:

buckle belt bracket

 Buckle belt and tighten device	 1. Right hand hold tighten device, use forefinger, middle finger, and ring finger to pull lock buckle out.
 2. Keep 1 procedure，and push up tighten device till touch cylinder.	 3．Keep the lock buckle out and pull downward the whole tighten device.
 4. Then buckle belt is loosened from tighten device	5. Remove the left tighten device from buckle belt by the same way.

Remove cylinder and charge

	Notice : 1. Please avoiding cylinder hit counterpoise when taking it down form truck. 2. Make sure the outlet shut off valve closed. 3. When charging the place must have charging license which is awarded by Quality and Technical Supervision Bureau. It is forbidden to charge by self and the component must accord with table.

Notice ： a) 1# may use more than -20℃；

b) 2 # may use more than -10℃；

c) 3 # may use more than 0℃.

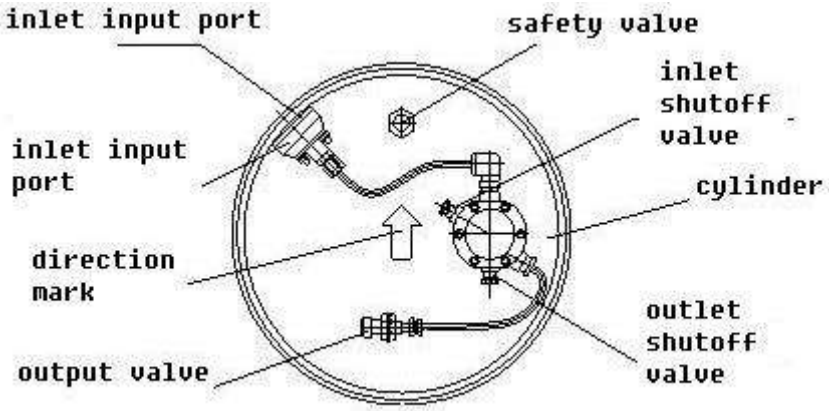


Table 1 technique parameter of LPG special for vehicle

Item component com position		Quality parameter			Trial
		1#	2#	3#	
37.8^{0}C vapour (indication) kPa		≤1430	890～1430	660～1340	GB/T 6602[a]
Component %	propane	＞85	＞65～85	40～65	SH/T 0614[b]
	Butane and advanced	≤2.5	—	—	
	Pentane and advanced	—	≤2.0	≤2.0	
	alkene	≤10	≤10	≤10	
	Butadiene （1,3butadiene ）	≤0.5	≤0.5	≤0.5	
remainder	100ml remainder after evaporation ml	≤0.05	≤0.05	≤0.05	SY/T 7509
	Observe soiled-oil	pass	pass	pass	
density（20^{0}C ） kg/m^3		actually measure	actually measure	actually measure	SH/T 0221[c]
Sheet copper corrosion		≤1	≤1	≤1	SH/T 0232
Total sulfur content /(mg/m^3)		＜270	＜270	＜270	SH/T 0222[d]
sulphuretted hydrogen		zero	zero	zero	SH/T 0125
free water		zero	zero	zero	Eyeballing
1: gaseity content , total sulfur content is at 0℃、101.35kPa. 2: can measure sample whether it exists free water by eyeballing when measuring density.					
1: evaporation pressure can be evaluated by GB/T 12576， measured by GB/T 6602 when arbitration. 2: component can be measured by SH/T 0230，but measure dby SH/T 0614 when arbitration. 3: density can be measured by GB/T 12576,but measured by SH/T 0221 when arbitration. 4: Total sulfur content can be measured by SY/T 7508，but measured by SH/T 0222 when arbitration.					

From : PRC STANDARD 《LPG IN VEHICLE》（GB 19159-2003）

Replace step of LPG cylinder:

（1）Take canvas glove to avoid the leaking gas to frostbite finger when gas changing.

（2）Make sure the place is clear and the air is ventilating when charging LPG, it is forbidden to smoke ,keep away from other naked flame

（3）Fill LPG as following: Lay the LPG cylinder flat, and set the charging limit valve upward, then screw off the dust cap on the charging valve, plug the filling connector, open the inlet shutoff valve to charge LPG till 80% rated volume of the container is full (the charging device is automatically closed when 80% rated volume of the container is full), take out the filling connector, screw down the dust cap and the charging limit valve.

Check all parts and make sure they are all at intact condition.

（4）Lift the cylinder up to truck, and fix it, let the arrow （①）be upward, then insert the fixed pin to cylinder.

Cylinder fixed method:

Buckle belt bracket

<table>
<tr>
<td> 
a. Hold strain device with right hand, take buckle belt with left hand, direct to the notch on ratchet wheel</td>
<td> 
b. Pass buckle belt through the notch on ratchet wheel.</td>
</tr>
<tr>
<td> 
c. Pull buckle belt downward with left hand, pull out the lock buckle with forefinger, middle finger and third finger in right hand, and push up to touch cylinder at the same time.</td>
<td> 
d. Keep the buckle belt tensioning and keep the lock buckle out, revolve strain device downward with right hand till touch cylinder.</td>
</tr>
</table>

e. Keep it tensioning with left hand, hold the strain device, loose lock buckle, and rotate strain device several times till it can not be pushed.

f. Turn downward till touch cylinder.

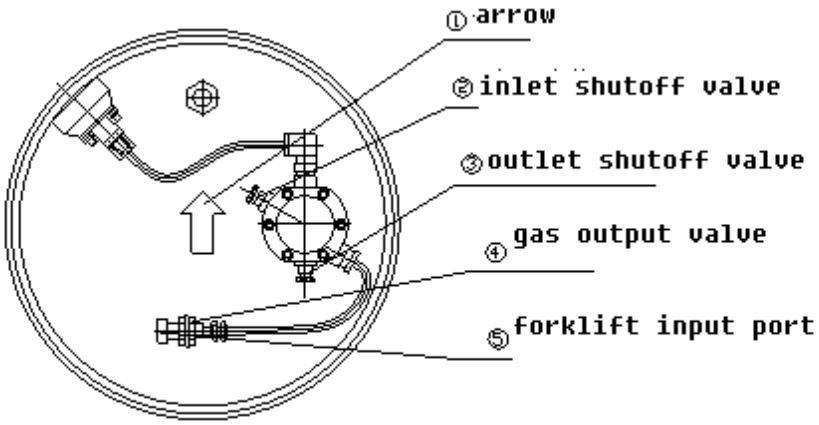
（5）Make sure the inlet and outlet shutoff valve （②③）are on closed state.

（6）Connect the inlet connector（⑤）with outlet valve（④）,and tighten.

（7）Open outlet shutoff valve slowly（③）.

（8） Make sure there is no leaking before using, if there is some leaking, close outlet shutoff valve（③） in time, turn on the forklift input connector,（⑤）。

Notice ： after installing cylinder, then connect the connecting pipe with quick connector, open outlet shutoff valve ③,smear every joint with soap bubble to check whether the joint is leaking, if there is leaking at joint, eliminate the problem, then fire forklift. Please close outlet shutoff valve③ when the forklift is finishing working.



Notice of usage

(1)When charging LPG assemble, at first open inlet shutoff valve, close outlet shutoff valve, when charge is done, close inlet shutoff valve.

(2)When take assembly to the truck, it should be fixed and make the arrow direction upward, and inlet shutoff valve closed. Connect inlet connector with assembly outlet port, and then revolve to tighten, open outlet shutoff valve, make sure it no leak, and convenient to use.

(3)It must check the cylinder assembly whether leak or not per charging and fixing it on truck.

(4)Please prevent dust to enter into the inlet, and revolve dustproof cover after filling LPG out to protect the airproof of check valve.

(5)It is forbidden to change the pressure of safety valve.

(6)Call the qualified unit to check and maintain, it is forbidden to repair by self. And keep apart the abnormal cylinder.

(7) This assembly has 2 ways to fill LPG, one is volume and the other is weight. Weight: make sure the cylinder stand vertically when filling LPG. Volume: make sure the cylinder lay horizontally when filling LPG, and let the direction mark up.

(8) Please obey the 《gas cylinder safe supervise rule》awarded by the State Bureau of Quality and Technical Supervision when charging ,transporting, depositing ,using and inspecting.

(9) When fixing and disassembling cylinder please do it lightly, it is forbidden to hit other object. Keep cylinder assembly intact and do not disassemble, adjust and replace components.

(10) The LPG conform to GB11174 can be recharged, the maximum volume is no more than 80% of cylinder.

(11) The LPG must be charging at the place awarded by qualified Quality and Technical Supervision Bureau, it is forbidden to charging by self

(12) Charging unit must vacuumize or displace with nitrogen when the new or recheck cylinder is using at the first time.

(13) Before reinstalling cylinder, lay the cylinder horizontal perpendicular to installing sign, close outlet shutoff valve, open inlet shutoff valve, see whether the finger of fluid indicator is lifting with the charging fluid when charging. Stop charging when the limit charging valve is working in time, and check whether the finger of fluid indicator is at the correct position. Close inlet shutoff valve after charging out.

(14)Check the forklift truck fully ahead to ensure no leak of LPG, then open the LPG outpouring valve on the LPG cylinder, check more to ensure no leak of LPG fuel system before starting-up.

（15）If there is LPG leak during operation, shut off the LPG switch and the outpouring valve at once, check every part and all connection to see if there is leak or loose, and get rid of it in time. Fuel by petrol before malfunction is removed.

（16）If there is 10 minutes halt, you should shut off the LPG switch and the outpouring valve.

(17) Cylinder must be avoiding under the blazing sun for quite a long time, and keep it far away from heat source, and forbidden to heat cylinder with heat source which the temperature is more than 40℃

(18) It should have no less than 0.5% the cylinder volume to remain.

(19) It is forbidden to modify cylinder mark and colour sign.

(20) Cylinder must be taken to the special unit per 5 years to inspect, the unit have qualification awarded by pressure vessel safety supervisor bureau.

（21）Observe the level indication frequently during operation, if it is found that LPG consumption is not in proportion to working time, you should stop to check where is leakage, and shut off power, the LPG valve and all valves concerned at once to take good measure in time.

（22）Park the truck at the shady and ventilated site; close the valves on the LPG cylinder. Never insolate the truck in the sun long.

（23）Shut off power and all valves after the truck is garaged. Keep good

ventilation and extinguishing measure in the garage.

（24）Never repair the LPG cylinder, valves or pipes at garages or parking lots, any smoke on the truck.

Service & maintenance

1. This truck has been taken pressure trial and performance test before leaving factory. If there is performance failure, strictly forbid repairing without permission.

2. Close the valves on the LPG cylinder before disassembly and maintenance of the LPG device.

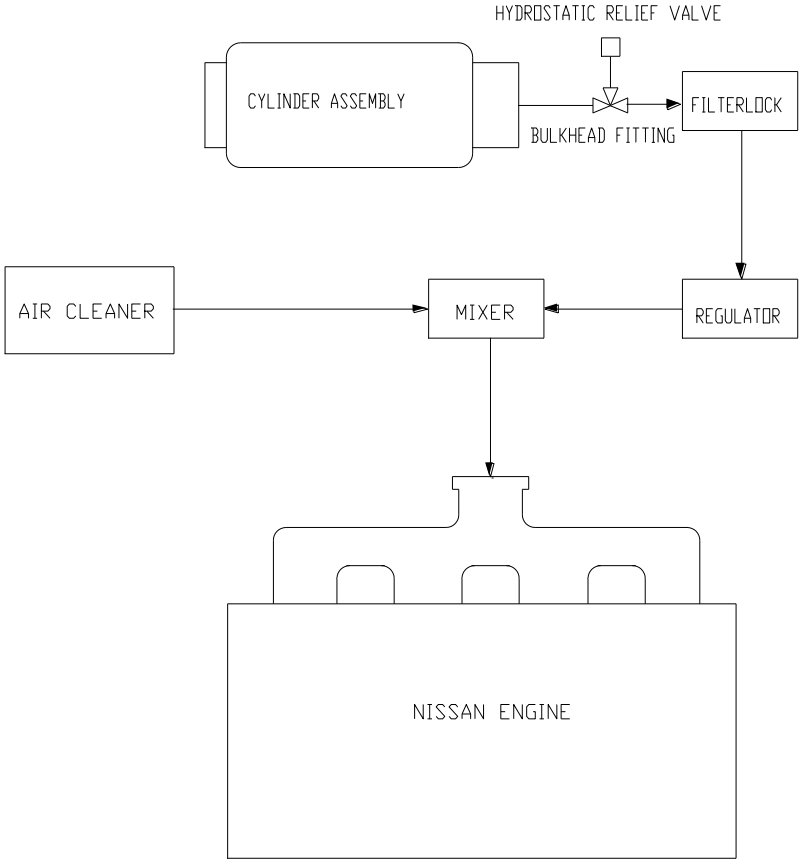
3. Suitably adjust the measure valve, for LPG consumption is changing with season.

4. Check and clean often the air cleaner and the LPG filter, replace it with a new one in time if there is any damaged.

5. After finishing the LPG forklift debugging and one day well run (or a full container of LPG is used up), you should adjust the LPG vaporizer again to ensure proper ratio of fuel to air.

6.Check the electric system after every three months have elapsed if any switch connection-peg is oxidized or rusted, and get rid of it in time.

7. Take a routine care for the whole LPG fuel system after every one year working, that is, clean the vaporizer, check airproof capacity of each tie-in in the high pressurized pipes and the low pressurized pipes.



IMPCO single fuel system

14. Operational method of lead acid battery

1. Lead acid battery and its application

Lead acid battery is used for power start engine, and it can be for voltage regulation and overload generator substitute power, it has following strengths: low internal resistance, stable end voltage, large support current, low water cost, huge capacity, nice starting performance at low temperature, light pole corrosion, light mass, low fault rate, convenient maintenance. The Maintenance-free batteries are all sealed besides 2 vent holes (for overflowing a little air from battery) at the side of Maintenance-free battery. Low-maintenance lead-acid batteries left plus liquid mouth in the battery cover.

2. Storage and maintenance

1. Storage

The place for storing battery should be clean, dry, airy, and the battery should be charging every 3 months.

2. Maintenance

2. If truck will be stored over 30 days, the following should be done:

Maintenance-free battery

1) Insure the green point visual in inner capacity display;

2) Disconnecting negative earth wire to avoid discharging by additional current release;

3) Keep the battery charge completely if the battery can not be removed down from truck;

4) Make a general schedule, charge every 30-45 days;

5) Check battery when the green point of liquid densimeter at battery are invisible, then charge or replace battery;

When that did not see a battery hydrometer on the green point, the battery check, charge or replace batteries.

Low-Maintenance battery

1) Ensure that the battery electrolyte fluid level in the UPPER LEVEL.

2) Disconnecting negative earth wire to avoid discharging by additional current release;

3) Keep the battery charge completely if the battery can not be removed down from truck;

4) Make a general schedule, charge every 30-45 days;

5) When the liquid level below the LOWER LEVEL, please add pure water to the UPPER LEVEL, do not add more, otherwise vehicle and other components will be caused corrosion.

3. Notice for usage

Battery can produce explosive gas, electrolyte has corrosive, and the current can burn skin from battery producing, please flush immediately when electrolyte touch skin or eyes, then go to hospital if serious.

l) Human body, especially the head should be far away from battery, and the protected glass must be wearing.

- Forbid battery emerging in naked fire or spark.
- Connect active and negative pole with electrical equipment correctly to avoid burning battery or electrical equipment.
- To avoid short circuit of battery, the electric things are forbidden to cover at battery.

4. Check the battery

Check the Maintenance-free battery

There is a little ball in battery capacity display, this ball can change its color as density of electrolyte changing, it is called electric eye. The ball will be green when the capacity is normal, density of electrolyte reaches the standard; it will be white when capacity is not enough, density of electrolyte does not reach the standard; it will be red when the electrolyte is acute shortage, the shell should be carefully examined whether there is rupture, leakage or battery failure.

Check the Low-Maintenance battery

As the forklift is used in a high temperature ambient ,and the battery easily consumes water, you should do pay attention to the liquid level when using the forklift. There is an aperture for adding liquid in the cover of the battery. Please add enough water up to the UPPER LEVEL when the liquid level is below the LOWER LEVEL and be sure the water is not so much that can spill out to erode your forklift.

When lacking of the electrolyte, please check whether the surface is damaged or leaky, or the battery is conking out.

15. Attachment use, assembly and safety rule

HANGCHA will choose attachment that according with International standard ISO2328《Forklift pothook fork and install size of carriage》,such as clamp, rotator, paper roll clamp, carrying ram, side-shifter ect.

1、Attachment use.

（1） Know well the content of nameplate on attachment, read the instruction manual before

Usage.(Especially the manual from attachment company)Before operate the attachment, the people should be trained and obtain the qualification.

(2) It should be understand the basic capability and operate methods of attachment. Especially the admit load, lift height, size of cargo and adapt range of attachment.

（3）Operate the multi-functional attachment, such as with side-shifter, clamp or rotator, it is not allowed that two action at one time. Operate one functional then do another one.

（4）Prohibit the cargo at a high position when truck move with attachment. If the size of cargo is too big, prohibit the truck move on. Transport the cargeo, make sure that the distance of bottom of cargo and ground is less than 300mm and mast incline back.

（5）The weight of cargo couldn’t exceed the limited value of combination carrying capacity of forklift and attachment. It is not allowed that partial load at high position. It is a short time work for attachment with side-shifter. Partial load is around 100mm (Above 5 ton (including 5 ton), the side-shifter movable within 300mm.

（6）In the range of the projection forth 2m of the lower of attachment and cargo, prohibit stand to avoid the suddenness except the driver position under overhead.

（7）It is not allowed that an emergency brake in moving. Run slowly with load.

（8）Prohibit outside force when attachment working.

（9）It couldn’t be use at malfeasance situation and overstep normal work range

（10）When the attachment failure, prohibit use without check.

Check and maintenance:

（1）Check the clearance of carriage beam and below catch of attachment if accord the attachment manual.

（2）Check the rise catch is right on the flute of fork carriage.

（3）Use the auto currency lithic-grease per 500 hours to bearing surface.

（4）If the tighten firmware become flexible.

（5）Check the tie-in of hydraulic pressure loop, if tube attaint. Prohibit use after repair.

（6）Check the drive of attachment timing or turn the component if fray or block, change betimes.

（7）Check each element if in normal under load attachment is work in gear. If not, check the hydraulic pressure loop, find out the broken part, change air poof or whole loop part.

2、Attachment assembly

⚠ Caution

1、Untempered technology licence of our company, any refit at safety and capability to attachment is strict prohibit.

2、Fact rating load capacity should be the least of rating load capacity, the load capacity of attachment, colligate load capacity of truck. Generally speaking, the colligate load capacity of truck is the least. Attachment load capacity just a count value of attachment pressure.

3、Assembly go to in reason, credibility, safety to avoid the attachment glide around carriage in using.

4、After hang attachment, embed the rise catch block to the gap of top beam, let the offset of centre line of attachment and carriage is less than 50mm.Otherwise,it will be affect the landscape orientation stability of forklift.

5、To these attachment with rotating function, such as paper roll clamp, bale clamp, muti-purpose clamp, drum clamp, it needs to weld chock block in the joint of carriage beam and attachment to prevent move from side to side in the operation.

6、Assembly the attachment of below catch orientation, it need to adjust the clearance between below catch and beam of carriage.

16. Maintenance Record

Date	Maintenance Content	Maintainer

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