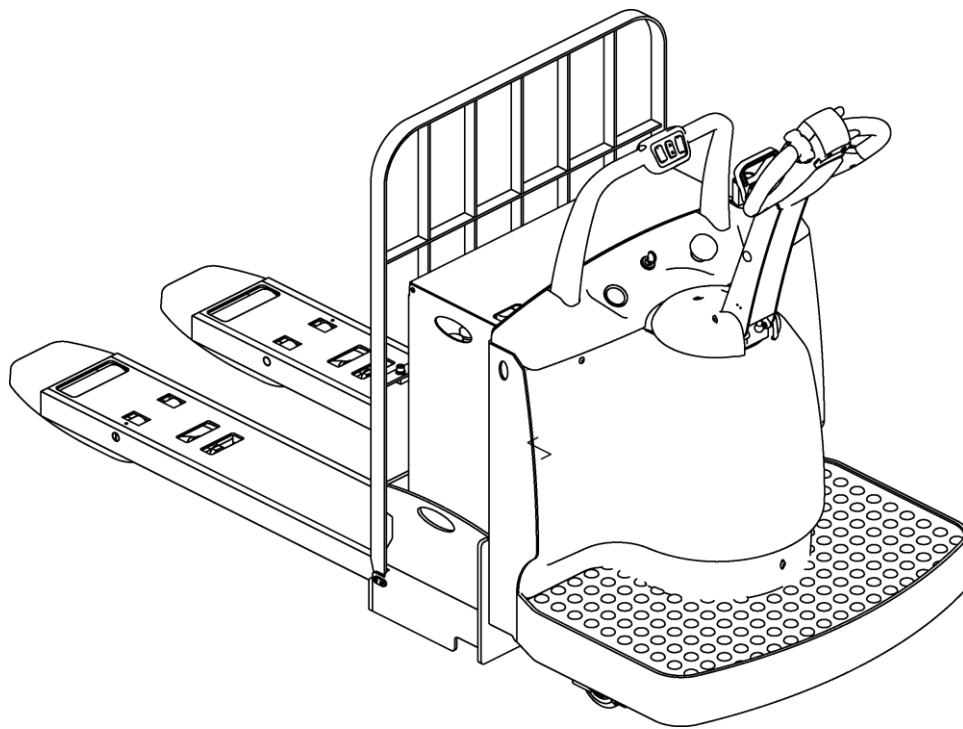




SPECIFICATION

Electric Walkie Rider Pallet truck

EP30A



Introduction

In order to meet the needs of the national environmental protection request, To reduce industrial pollution and improve productivity, we develop and produce new series of EP30A series full Electric Pallet truck on the basis of absorption of the advantages of domestic & overseas Electric pallet truck, they are especially suitable for cargo loading and unloading, handling, stacking, etc for food, bank, light textile, station, port, logistics and other enterprises.

This manual describes the technical parameters of the Electric Pallet truck, working principle and operation, maintenance, and other aspects. It can help operators use the truck more reasonable, make its maximum effect.

It is hoped that Operator strictly abide the regulations and the precautions in this manual when using the truck. Carefully use them so that your truck can be in the best working condition for long period of time to maximize it's effectiveness. And create better economic benefits.

The Statement

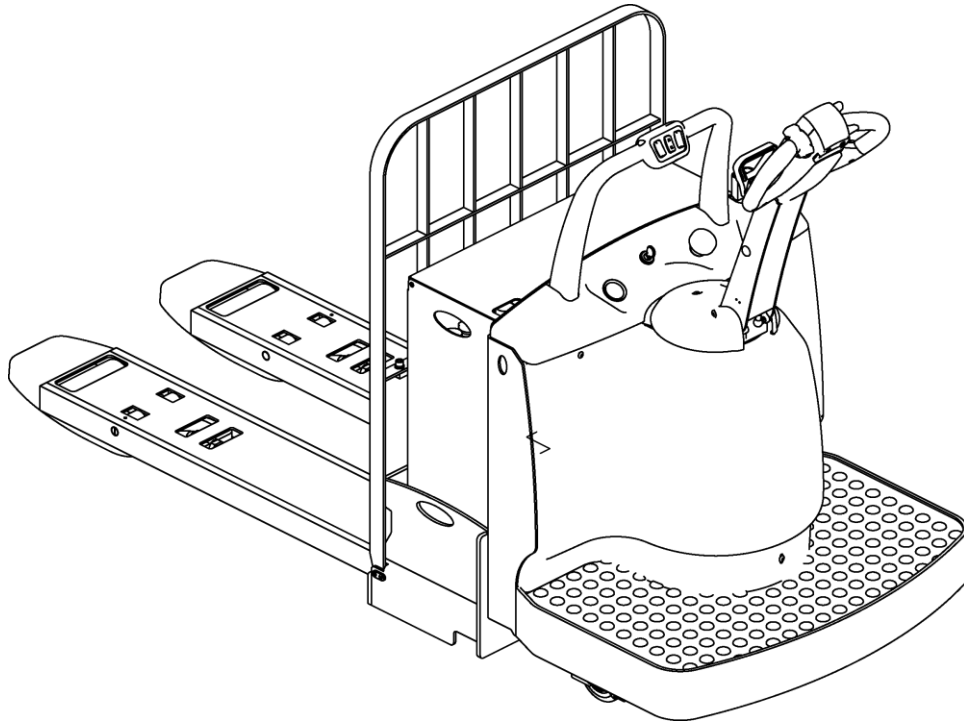
Our company production model EP30A type 6600lbs full Electric Pallet truck is a special motor vehicle used in factories, warehousing, logistics, distribution and any place which is specified by “special equipment safety supervision regulations” .

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1.The General Introduction



This truck adopts advanced structures such as vertical lifting system, Electronic power steering system, new AC controller and so on. It is also equipped with high-quality motor, traction battery and pump station motor .So it has the characteristics of superior performance, convenient operation, flexible steering, reliable braking, good power performance, low noise, no pollution, and beautiful appearance.

This series truck is suitable for cargo stacking and handling on hard, flat floors.

The service environment:

- a. The altitude does not exceed 1200 meters.
- b. temperature not over +40°C, not under+5°C.
- c. when environment temperature at +40°C,the relative humidity can't over 50%, At low temperature, allow big relative humidity.
- d. ground need hard and flat.
- e. It is forbidden to use this car in corrosive environment such as flammable and explosive or acid base.

2. Proper usage

Please using the Electric pallet truck according to this specification.

The truck described in this manual is a self-propelled Full Electric Pallet truck . lifting and lowering is controlled by the handle button

Improper use can cause personal injury or machine damage. The operator / operating company needs to ensure that it is used correctly and that this truck is only operated by trained and authorized personnel.

The Truck needs to be used on a firm , flat ,intact surface and suitable surface ,The truck is designed for indoor use at room temperature from+5°C to +40°C

Use under light load without using permanent barriers or pits , It is forbidden to operate on the slops .During Operation ,The goods must be placed approximately at the center of the truck's load center

Lifting or Carrying people is strictly prohibited ,If carried goods .The goods must fall on the lifting point .

It is prohibited to use this truck on lifting or loading ramps.

The rated capacity is marked on the capacity label or nameplate. And the operator must pay attention to the warning signs and safety instructions.

Operating lighting must be at least 50LUX

Modification

Any modification that may affect the truck rated capacity, stability, or safety operations must be approved in advance by the Truck's original manufacturer or Its authorized Manufacturer or its successor. This includes the effects of changes such as Braking ,steering ,Visibility, and the addition of removable accessories.

After the manufacturer or its successor approves the modification or change , The capacity name plate ,Label, identification marks, operation and maintenance manual must be changed accordingly

Truck damage caused by not following Instruction will lose its warranty.

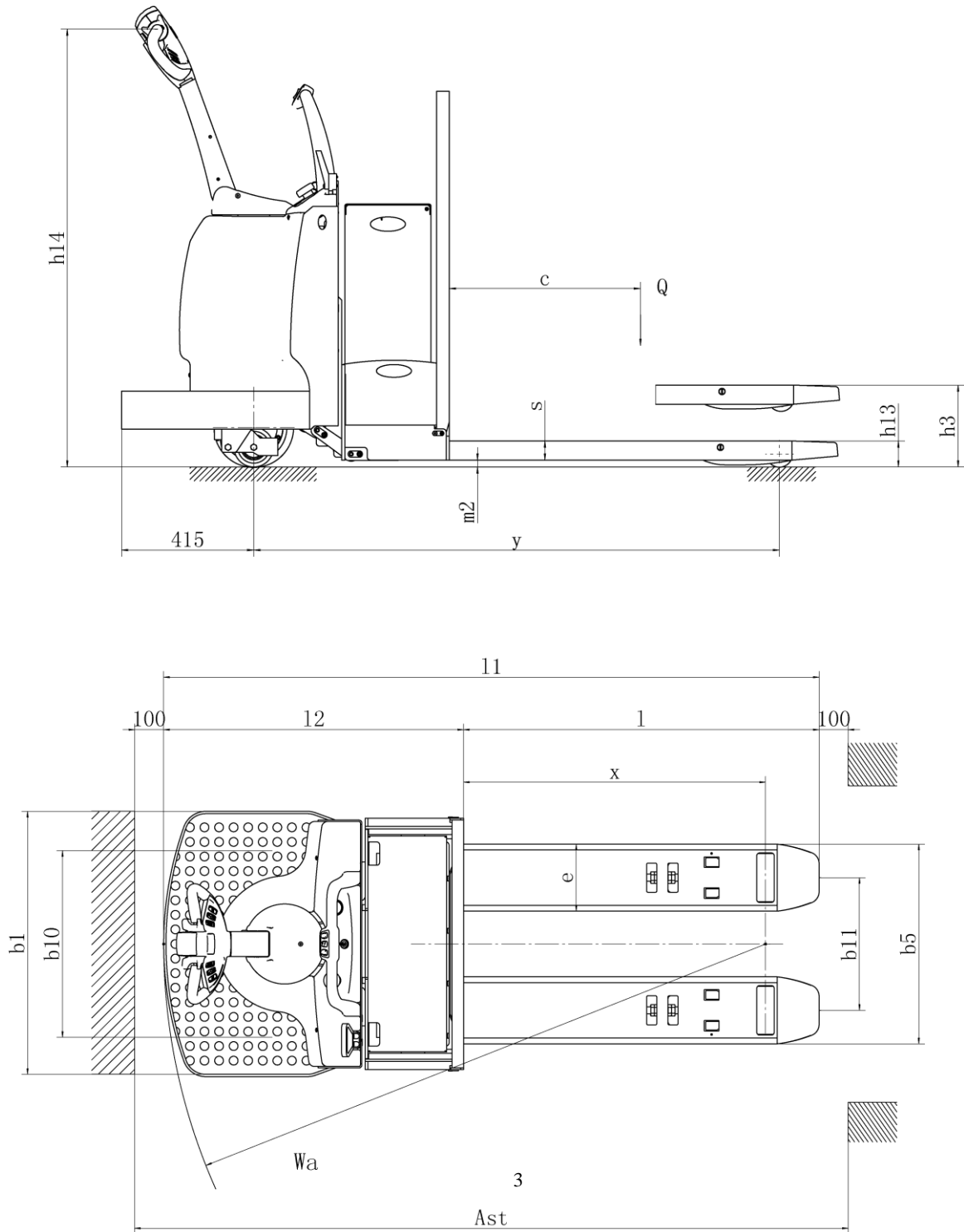
3.Introduction of the product

3.1 Model Overview

This specification is for EP30A series 6600lbs Full electric pallet truck (follow as truck) .

The type is"EP30A— load capacity is 6600lbs meet the requirement of JB/T8452-1996 《Battery forklift model establishment method》 .R is model number

3.2Model parameters

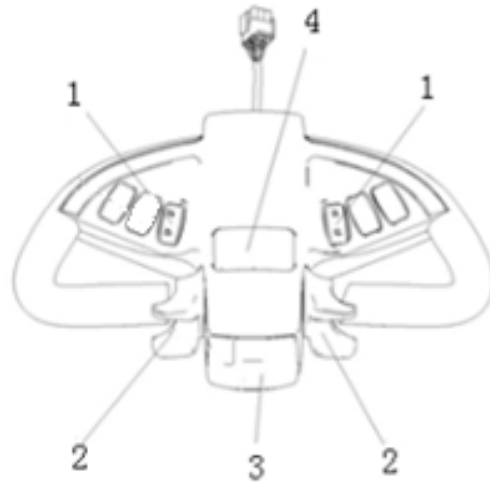


Model		EP30A
Power unit		Electric
Operation		Walkie
Rated Traction weight	Q (lbs)	6600
Load centre	c (Inch)	23.6
Axle centre to fork face	x (Inch)	40.79
Wheelbase	y (Inch)	67.72
Service weight with battery	lbs	1720
Wheels type		PU
Driving wheel size	$\Phi \times w$ (Inch)	$\Phi 9.84 \times 2.95$
Bearing wheel size	$\Phi \times w$ (Inch)	$\Phi 3.23 \times 6.5$
Additional wheels (dimensions)	$\Phi \times w$ (Inch)	$\Phi 4.88 \times 2.36$
Wheels, number front/rear (x = driven)		1x+2/2
Track width	b_{11} (Inch)	25.2/17.91
Lift	h_3 (Inch)	9.17
The height of handle in the operation position	h_{14} (Inch)	36.6/52.76
Lowered fork height	h_{13} (Inch)	3.26
Overall Length	l_1 (Inch)	88.58
Length to fork face	l_2 (Inch)	40.55
Overall Width	b_1/ b_2 (Inch)	35.83
Fork dimensions	$s/e/l$ (Inch)	2.36/9.06/48.03
Outside Width of forks	b_5 (Inch)	26.97
Min. Ground clearance	m_2 (Inch)	0.905
Aisle width with pallet 1000 x 1200 across forks	Ast (Inch)	96.46
Aisle width with pallet 800 x 1200 along forks	Ast (Inch)	100.39
Min. Turning radius	W_a (Inch)	81.34
Travel speed, laden/unladen	(km/h)	7.5/8
Lifting speed, with/without load	(mm/s)	42/65
Lowering speed, with/without load	(mm/s)	36/30
Maximum climbing ability, with/without load	(%)	5/15
Service brake		Electromagnetic
Drive motor	(kW)	3
Lift motor	(kW)	2.2
Battery according to DIN 43531/35/36 A,B,C,no		no
Battery voltage/rated capacity	(V/Ah)	24/280
Battery weight ($\pm 5\%$)	(lbs)	550
Type of drive control		AC
Noise level at operator's ear	(dB(A))	≤ 70
Steering type		EPS

4. Operating mechanism diagram

With battery as power producer and controlled by electrical and hydraulic, trucks can do some actions like walking, forklift up and lower down etc.

Operating mechanism diagram:

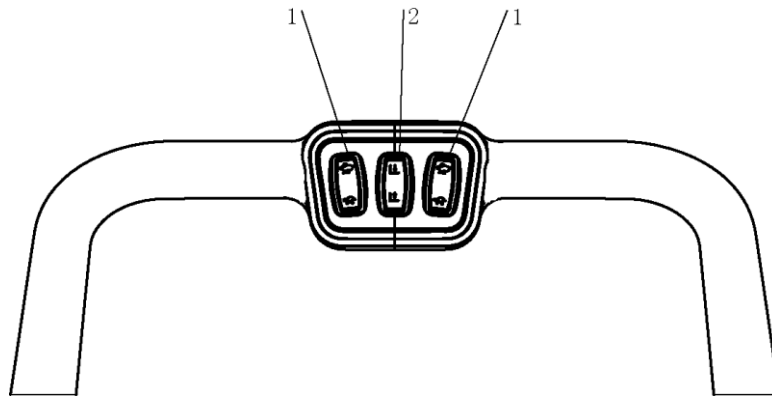


1..UP/DOWN button
switch

2.Accelerator Knob

3..Emergency Reverse

4.Horn



1.Speed switch

2.UP/DOWN button

5. Operating principle

5.1 Running system

The truck is powered by a battery, and the DC power is converted into AC power by a frequency conversion system, which is realized by controlling the AC motor on the driving wheels. The AC motor converts high-speed and low-torque into low-speed and high-torque through a gear reduction box, and finally the drive wheels perform the action. The speed of walking is achieved through frequency conversion control of the motor speed, which is controlled by the accelerator.

Gear box in the factory has been posited enough gear lubricating oil. And please change the gear lubricating oil every 1000 hours under normal circumstances.

If you hear abnormal sound from gear box when using, please stop and check immediately. If there are bearing failure or some problem in gear, please replace and repair them.

5.2 Steering system

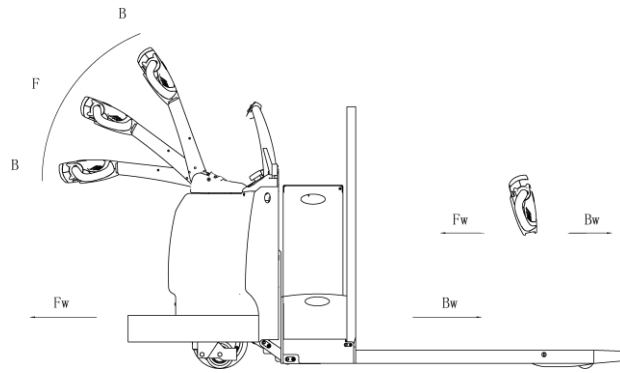
The steering of the moving car is driven by the handle lever through the handle lever to drive t motor to achieve the steering.

5.3 Brake structure and brake schematic diagram.

Braking performance depends on road conditions and vehicle load conditions.

5.3.1 The brake function can be activated by the following ways:

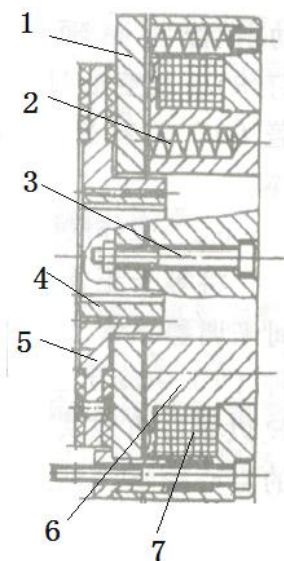
- Turn the accelerator switch (2) to "0" position or release the switch to make truck brake until it stops.
- With the accelerator switch (2) moving directly from one driving direction to the opposite direction, the vehicle regenerates the brake until it begins to move in the opposite direction.
- The handle moves up and down to the braking area (' B ') and the truck brakes. If the handle is released, the handle automatically moves to the upper braking area (' B ') and the truck start braking until it stops.
- Emergency Reverse button (3) can prevent the operator will be squeezed, when the truck is facing an obstacle in (' Fw) direction .The body touch Emergency reverse button and the truck decelerates or starts to move to (BW) for a distance and then stops .If the handle is in the operating area and the truck is not moving, please consider that this button is still working.



5.3.2 Braking operation principle:

As follow picture: The brake constitute by magnetic yoke 6 ,magnet exciting coil,7 , the spring 2, the brake disc 5,the armature 1, the gear sleeve 4, the mounting screw 3,And so on .The brake is mounted on the end cap of the motor and the mounting screw is adjusted to the specified air gap value.

When magnet exciting coil 7 for brake on power, The coil generates a magnetic field to to attract the armature 1 to the yoke assembly 6, and the armature 1 is disengaged (released) from the brake disc 5.At this time, the motor drive shaft is normally started and operated with the brake disc 5.When the magnet exciting coil 7 is de-energized, the magnetic flux disappears, the armature 1 is released, and the spring 2 is pressed against the armature 1, and the friction plate on the brake disc is pressed to generate frictional force for braking purposes.



5.4 Operating System Brake schematic

The main working body of a moving truck is the fork, which relies on a fork to carry the pallet or cargo for transport and short distance transportation. The expansion of the cylinder is realized by the control of the operating handle, and the pressure oil is provided by the pumping station.

A descending valve is installed in the circuit of the lifting cylinder to slow down the speed when fork lowering , and the safety drop effect is achieved.

5.5 Electric System

The electrical system includes walking and operation control. The truck use American Curtis 1232E electric control assembly.

The meter has a battery indicator. When the battery power is too low, the electric meter will cut off the starting control line of the oil pump motor. The truck can only walk and can't lift the fork,, and the prompt should be charged immediately.

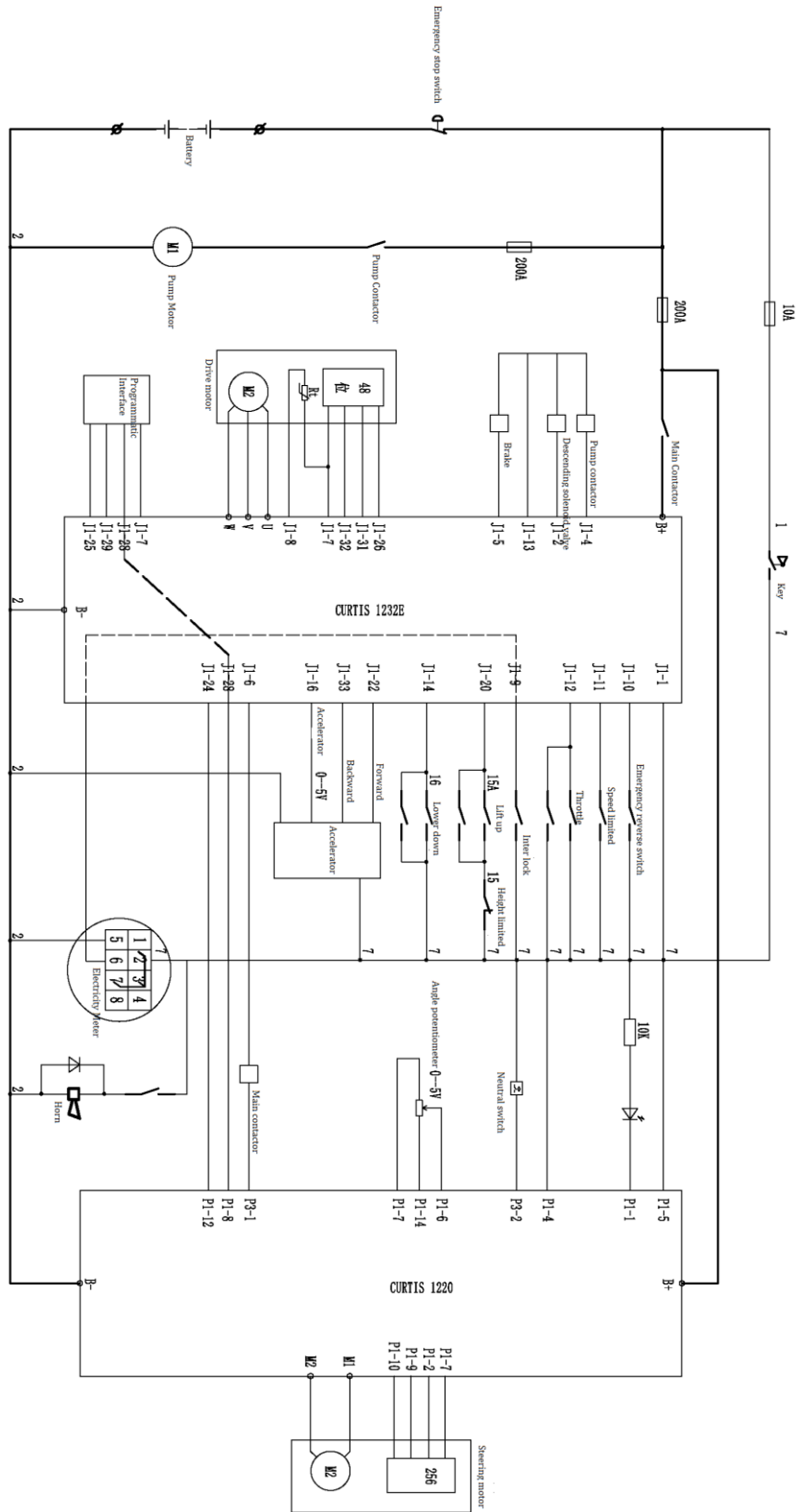
The motor of oil pump is the DC motor for 5 minutes, so the pump motor is not suitable for long running. That is, the lifting movement should have time interval, can not continuously carry on, otherwise would make the motor heating, even burn.

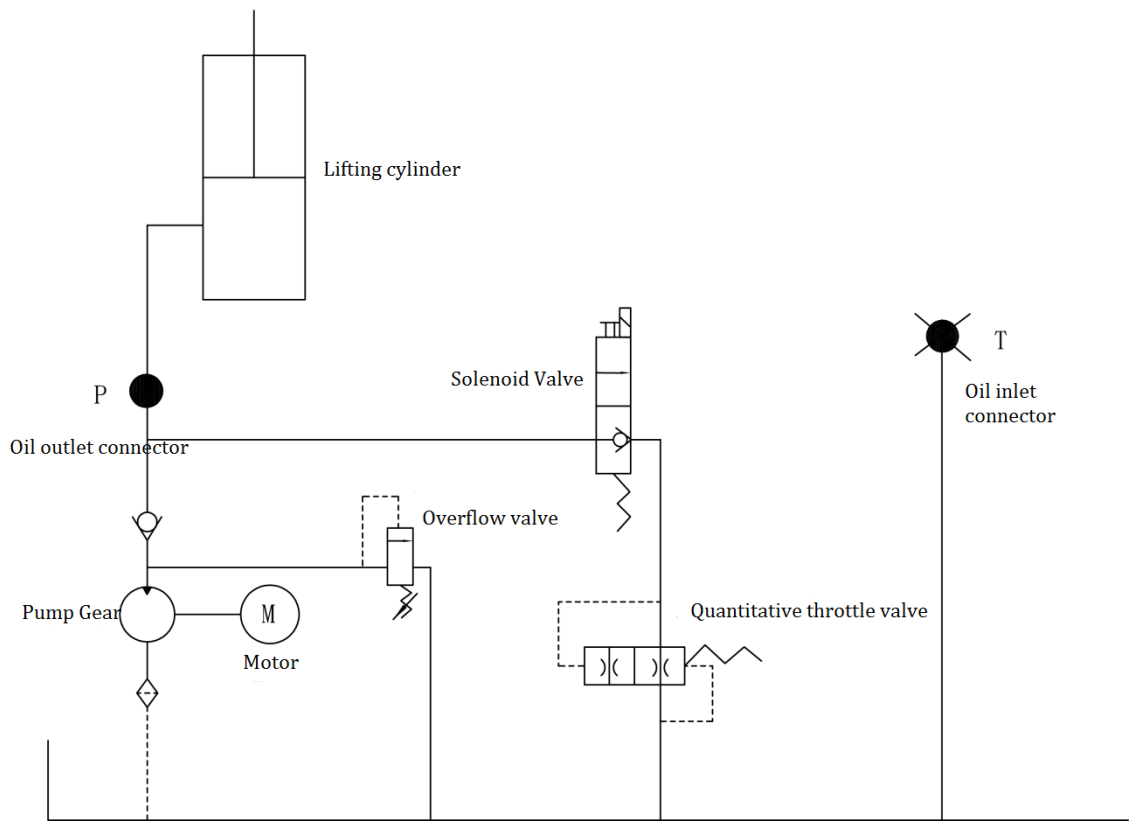
Special note: when the truck is used for a long time, the starter of the oil pump motor may fail, and it can't be broken after being sucked or closed. The latter is not throw control handle, the oil pump motor is kept in the rotation, should immediately stop at this moment, to cut off the power supply (unplug battery plug-in), make the oil pump motor stop running, and promptly replace the starter.

5.6 Hydraulic principle

The oil pump motor drives the gear pump to provide hydraulic power, lifting oil cylinder is responsible of fork's lifting and lowering, The control of the lift oil road is controlled by the buttons on the operating handle, The lifting & lowering action is controlled by a single action oil circuit on the valve block. This model of the hydraulic system pressure can only be adjusted on the valve block, has been debugging good, before they leaving our factory, If not the our company after-sales personnel or professional maintenance personnel are strictly forbidden to adjust themselves, so as to avoid safety accident.

6. Electrical schematic diagram





7. Hydraulic Scheme

8. Operating Instruction

Before operation, please familiarize yourself with the functions of the switches and buttons on the dashboard.

8.1 Start, run and parking:

- 1).Insert the key into the key switch, turn to the right, pull the emergency stop switch up, open the control circuit.
- 2).Forks rise above ground about 4 inch
- 3).Slowly rotate the accelerator to start the truck, till the requested speed
- 4).Any fault of the truck happening during operation, need to cut off the power immediately, and press the red emergency stop switch down.
- 5).When the truck is turning, the speed should be reduced. If possible, try not to make a sharp turn.
- 6).The full load gradient of the truck is 5%, Using truck Full load climbing a slope, need to know the condition of the slope, and press the Accelerator switch as much as possible to get a maximum grade ability.
- 7).When stop driving, put the fork in the bottom, press the emergency stop switch down, and pull out the key.

8.2The usage of emergency stop switch

If the truck is out of control during driving, or if it is smoked or burnt during use, please press the emergency stop switch on the instrument panel of the truck and the main power will be cut off. Find out the cause and clear the fault and then you can open it . Method to open it: gently pull the red button up.

Emergency stop switch is made of plastic , too much pressure may damage it.

8.3 The use of the horn and the reversing horn

In order to drive safely, the truck is equipped with a driving horn. To remind others when driving, press the horn button in the middle of the handle, and the horn will ring to warn pedestrians.

8.4 Battery capacity display

The battery capacity of the truck on the instrument panel has a capacity display function, and it can also be used for electricity time statistics (cumulative hour calculation).

8.5 Operation

(1) How to carry goods

slowly drive the truck to the items to be transported, insert the pallet fork and move forward slowly, when the forks completely inserted into the goods then parking, control handle upgrade button, the heavy lifting to a certain height, back slowly, don't touch the adjacent goods, when the weight zone is put out the goods, and then walk handling.

(2) How to place the goods

When moving the goods close to the area of the goods, slow down the truck. When the moving truck is in a straight line with the goods, then the moving truck will slowly move forward to the loading area to stop. Slowly press the down button, and once the load is held, the fork will be lowered to the hollow position. When the fork is pulled out of the weight, the back position will be confirmed without any obstacle. Wait for the fork to leave the weight completely before carrying on a round of handling.

9、 Maintenance and care instructions

The spare parts of the truck are not allowed to change without permission. All parts supplied by the original manufacturer are subject to strict quality inspection. To ensure the safety and reliability of the vehicle, please use the original parts. Replacement parts, including all oils, must be collected and processed in accordance with local environmental and health laws and regulations.

9.1 Repair and Maintenance

Maintenance technician: The maintenance and service should only be performed by special personnel trained by the manufacturer. After the technician sent by after-sales department of the manufacturer completed maintenance and servicing work, they should sign on the service log.

Lifting of the Truck: When a truck needs to be lifted for maintenance, the lifting device must be safe and secure and strictly attached to the lifting point. When the truck is lifted, appropriate measures must be taken to prevent the truck from slipping or tipping over (wedges, blocks can be used).

Cleaning Operation: Flammable liquid can not be used for cleaning the truck. Before cleaning, take safety precautions to prevent electric sparks (e.g. sparks caused by short circuit). When operating the accumulator, connectors on it must be disconnected. Use soft air suction or compressed air, non-conductive and anti-static brushes to clean electric and electronic components.

Operation of Electric System: Operation on the electric system should only be performed by specially trained personnel. Before performing any operation on the electric system, precautions must be made to prevent electric shock. When operating the accumulator, connectors on it must be disconnected.

Welding operations: To prevent damage to electrical or electronic components, these electrical components must be removed from the vehicle before any welding operations are taken.

Installation: When repairing or replacing hydraulic components, electric and electronic components, make sure to install them back to their original positions.

Wheels: Quality of the wheels has significant effect on stability and driving performance of the truck. Modification on wheels can be performed only with the approval from the manufacturer. When replacing wheels, ensure that the truck is levelled as delivery state (wheels must be replaced in pairs, i.e. replace right wheel together with left one).

Lifting chain and rollers: Chain and rollers will be worn quickly without good lubrication. Perform periodic lubrication according to following maintenance table. Shorten the lubrication period under adverse operation conditions (such as in dusty and hot environment).

Hydraulic oil pipe: The oil pipe must be changed every 6 years. When change the hydraulic assembled parts, the oil pipe should be also changed.

9.2 Routine Maintenance

9.2.1 check the condition of each pole, cable and protective cover of the accumulator.

9.2.2 check whether the battery box is secure.

9.2.3 check whether the vehicle is oiled.

9.2.4 check the situation of fork, oil pipe and horn.

9.2.5 check the braking condition.

9.2.6 check the wear condition of driving wheel, load wheel and so on.

9.3 Professional Maintenance Manual

It is very important for safe operation of the truck to perform overall professional maintenance. Failure in performing maintenance according to specified interval may cause malfunction of the truck, and potential risk to human and equipment.

Maintenance periods listed in this manual apply to single shift a day under normal operation conditions. If using in dusty environment, the ambient temperature varies remarkably or in multi-shift situation, the maintenance period has to be shortened.

Maintain the truck according to following maintenance list. Maintenance periods are as follows:

W = Every 50 work hours, but at least once a week.

A = Every 250 work hours, but at least once every three months

B= Every 500 work hours, but at least once every six months

C = Every 2000 work hours, but at least once every 12 months

Additional operations should be performed in trial run period:

(In initial 50 – 100 working hours or after two months)

— Check the nuts on the wheels and tighten them if necessary.— Check the hydraulic components for leakage, and tighten them if necessary.

—Replace the hydraulic filter.

Maintain list

Time interval(Month) ●

			W	A	B	C
Brake	1.1	Check the air gap of the electromagnetic brake			●	
Electrical system	2.1	Check the operation switch to show the function of the device	●			
	2.2	Check alarm system and safety device		●		
	2.3	Check the cable for damage and the terminal is secure			●	
	2.4	Check the function of the micro switch setting	●			
	2.5	Check controller and EPS controller			●	
	2.6	Cable and motor fixing			●	
Power supply	3.1	By observing the battery		●		
	3.2	Visual inspection of battery charging plug			●	
	3.3	Check if the connection of the battery cable is tight, and if necessary, apply the electrode with grease.			●	
Driving system	4.1	Check the gearbox for abnormal noise			●	
	4.2	Check the running mechanism and grease, check the reset		●		
	4.3	Check the drive wheel and bearing wheels for wear and damage			●	
	4.4	Check wheel bearings and fixing conditions			●	
Whole frame	5.1	Check if the frame is damaged			●	
	5.2	Check if the sign is complete			●	
	5.3	Check the fixing of the mast			●	
Hydraulic movement	6.1	Check the function of the hydraulic system		●		
	6.2	Check hoses, pipes and connections for tightness, sealing and		●		
	6.3	Check the cylinder and piston for damage, sealing and fixing			●	
	6.4	Check the load chain settings and re-tension if necessary			●	
	6.5	Visually inspect the mast rollers and check the wear on the			●	
	6.6	Check the forks and load handlers for wear and loss			●	
	6.7	Check the tank for oil level			●	
	6.8	Update hydraulic oil				●

9.4 Battery maintenance, charging and maintenance.

Any operation of the battery must be guaranteed to stop the truck and put it in a safe position.

9.4.1 Maintenance personnel.

Battery charging, maintenance and replacement must be operated by qualified professionals. You must carefully read the manual, supply preparation and charging requirements before preparing for the operation.

9.4.2 Fire protection measures.

Smoking and open fire are strictly prohibited when operating the battery. Storage battery and charge must be kept away from combustible materials, at least 2 meters above the distance, the place of storage battery must be well ventilated and equipped with fire-fighting facilities.

9.4.3 Battery maintenance

- 1) Keep the nuts on every battery cell dry and clean. Tighten every terminal and cable end and brush them with grease to prevent corrosion. Naked cable ends and terminal posts should be covered with a skid-proof insulating cover.
- 2) Every two cells should be well-connected. Check the nuts on each pole, if loose, tighten the nuts.
- 3) Keep the surfaces of accumulator clean and dry. After the completion of recharging, clean spilled acid with cotton yarns or brush. And clean with wet towel if necessary.
- 4) Over recharging and over discharging should be avoided, and fast charging and insufficient recharging are also not allowed. Otherwise life span of the accumulator may be affected.
- 5) Do not put conductive objects including metal tools on the accumulator, or short circuit or even explosion may be caused.
- 6) Never spill any hazardous liquid or solid material on surfaces of the accumulator. When using a densimeter or a thermometer, make sure the surface is clean and clear.
- 7) Recharge the discharged accumulator in time. Delayed recharging may damage the accumulator. Do not delay recharging more than 24 hours. Recharging of the accumulator may not work outdoors in cold weather. In this case, move it indoors to perform recharging.
- 8) If the accumulator will not be in use for a long time, it should be recharged and discharged once every month and it should be fully recharged every time.

- 9) During recharging or using, the liquid level of electrolyte lowers because of water evaporation, so pure water should be added.
- 10) If individual cell fails, identify the cause and repair the cell immediately. Replace the cell when it cannot be repaired.
- 11) The site for recharging should be well ventilated. It is prohibited to smoke or use open fire, avoiding the risk of hydrogen explosion.
- 12) The electrolyte in accumulator is toxic and corrosive. For this reason, always wear working suit and protection glasses to protect your body from contacting the electrolyte in accumulator.
- 13) If your clothes, skin or eyes are spilled with acid liquid in accumulator, flush with large amount of clean water. For skin and eyes, flush with large amount of clean water and also seek doctor's treatment immediately. Acid spillage must be neutralized and treated immediately.
- 14) The weight and dimensions of the accumulator have remarkable effect on stability of the truck. Therefore, do not modify the type of accumulator without approval from the manufacturer.
- 15) Never discharge in large current, for example, performs travelling and lifting simultaneously.

9.4.4 Disposal of used batteries.

Scrap battery must be carried out in accordance with the relevant laws and regulations in region recycling, storage provisions stipulated by the environmental protection area or waste treatment area, and the work must be conducted by qualified professional company.

9.4.5 Specification of the accumulator

Battery		Charger	
Rated Voltage : 24V	Rated Capacity : 280Ah	Input: 195/265VAC 50/60Hz	Output: DC24V40A

Uninsulated terminal poles on the accumulator should be protected with an insulated cover. When connecting the accumulator and socket, make sure to stop the device and put the

switch at position “0”.When replace or install the accumulator, make sure the accumulator is fixed securely in battery box.

9.4.6 Storage, transportation and installation of the accumulator

The device must be parked on the level ground steadily. To prevent short circuit, naked cable ends and the terminal posts should be covered with insulated covers. When pulling out the accumulator, properly arrange removed accumulator's connectors and cables without blocking access of the accumulator.

9.4.7 Battery power indicator

Battery power display table: ten articles showing represent 100% of the battery. With the consumption of battery capacity, the glowing article shows will be from top to down.

The color of LED show the different states :

Name	LED Color	Parameter value
The standard battery remaining power	Green	70-100%
	Orange	30-60%
	Red blinking	0-20%

Battery discharge on 70%,red lamp will be blinking “Energy storage”.

Battery discharge on 80%,two lamps will blinking “run out of battery”, Need to charge the accumulator.



9.4.8 Charging

Read the instruction manual carefully before recharging.

The batteries should be recharged in well-ventilated areas. Make sure no metal objects placed on the accumulator. Check all cables connection and connectors for obvious defects. Observe strictly all safety instructions, e.g. replenishment of the accumulator and preparation for recharging.

Hydrogen will be precipitated in the charging process. So the accumulator room should be well-ventilated, and the hydrogen content shall be strictly controlled to ensure safety.

For safety working, the truck should be added protective cover before using.

Personnel should be as far away as possible from the battery to avoid danger.

Normally used batteries should be balance charged once a month.

10. Safety Caution

10.1 General rule

10.1.1 The operator must have a forklift operation qualification which proved by the relevant departments of the training before driving truck.◦

10.1.2 The operator must read the instructions before use all of the content, after fully understand operation method can drive Truck.

10.1.3 truck must not carry passengers.◦

10.1.4 Operators should pay special attention to when homework operating environment, including other people nearby and fixed object.

10.1.5 Without the manufacturer's approval, shall not modify, add or remove tractor parts, lest affect performance of tractor.

10.2 Storage and transportation

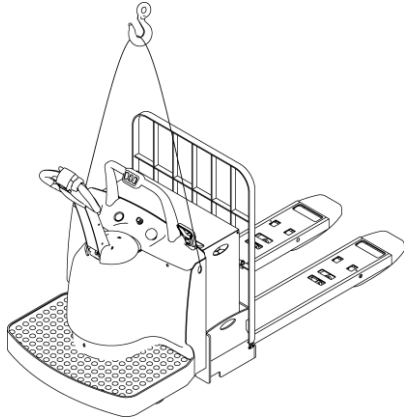
10.2.1 Use container or car to transport the truck should pay attention to at the time of shipment:

① Front and rear wheels with wedge, begin to pull up the parking system, prevent sliding in the process of transportation.

② Using the lasso, not placed in the weak structure of the truck.

③ When moving the truck. Pay attention to keep the center of the moving truck in the middle of two fork

④ During Transportation, Remove the Trailer and fix the tractor with a dedicated strap for lifting according to the figure below.



10.2.2 When Truck doesn't work, should be parked in a dry ventilated cleaning warehouse, prevent weathered.

And please note:

① Turn off the Electrical lock and make the safety switch off, unplug the power plug

② Begin to pull up the parking system, front and rear wheels with block mat;

③ Such as discontinued for a long time, the battery should be charged once every 15 day

10.3 Check before using

10.3.1 New car if there is any damage in transportation, please don't be put into use, and promptly get in touch with the supplier, do proper processing.

10.3.2 New cars in the factory run parts has been filling lubricating oil.

10.3.3 Truck equipped with battery. The battery is charged before leaving factory. If leaving the factory for a long time, may the battery is low. Before use should pay attention to electricity meter shows that when the electricity meter display to the last two warning, must charge at once. Every day before using, or before charging, should open the battery blocks, check the liquid level height, such as liquid level is too low to add distilled water in charge. Detail as (Battery charging and maintenance)

10.4 Safety operation regulation

10.4.1 Requirement for operator: The Truck must be operated by a trained operator, He can perform and operation demonstration on the user to move and manipulate the cargo and can clearly guide the user how to operate the forklift.

10.4.2 Operator's rights, obligations and responsibilities: Has been trained by the operation of the vehicle, the driver must be clear of his rights and obligations; and he is familiar with the contents of the relevant operating instructions. If the vehicle is pedestrian type, the driver must also wear safety boots.

10.4.3 Prohibit unauthorized person to operate: The operator is responsible for the vehicle, he need to prohibit unauthorized person to operate. Transport or lift person is also forbidden.

10.4.4 Malfunctions and defects: If the vehicle has any malfunctions or defects, need to inform administrator, If the vehicle cannot be safely operated (e.g.: wheel wear or brake failure), then it must stop using until it is fully repaired.

10.4.5 Safe operation and environmental protection: inspection and maintenance must be performed in accordance with the time intervals on the maintenance list.

Parts of the vehicle cannot be changed without any permission, especially safety devices. The operating speed of the truck is not allowed to change.

All original spare parts have been verified by quality assurance department. To ensure the safety and reliability of the operation of the truck must use only the manufacturer's spare parts. The old parts, such as oils and fuels must be handled in accordance with the relevant environmental protection rules.

10.4.6 Hazardous area: Hazardous area usually refers to the following range: vehicle or its load lifting devices (e.g. fork or accessories) is dangerous for personnel when running or lifting movements, or the ongoing regional transport loads. Typically, this range extends to the load or truck accessories landing area.

Unauthorized personnel must be asked to leave the dangerous zone. As long as the situation might cause some kind of damage, the driver must give a warning, if the driver asked the

person to leave but did not leave the hazardous zone, the driver must immediately stop the vehicle.

10.4.7 High-risk environment: Working in high-risk environment, operator must have a special design to be protected.

The vehicle was not specially designed for the high-risk environment.

10.4.8 Safety devices and warning signs: Safety devices, warning signs and warning notes described in the previous operating instructions must be taken seriously enough.

10.4.9 Driving in public places: the vehicle is forbidden to drive in public places except in specified special areas.

10.4.10 Distance between truck: keep an appropriate distance, avoid the front vehicle suddenly stop.

10.4.11 headroom: When the headroom is below the cargo or mast, it is forbidden to use the vehicle.

10.4.12 Using in the elevator and loading platform maneuvering: if there is sufficient loading capacity, won't affect the operation of the vehicle, and being agreed by the operator of the vehicle, then the elevator and loading platform can be used for vehicle transport. Before entering the elevator or loading station, operator must personally identify. The goods must be placed in front and occupy an appropriate place, to avoid touching the wall of the elevator when the vehicle enters the elevator. When personnel and vehicles take the elevator together, person can enter only after the vehicle has safely entered, and person must leave before the vehicle.

10.4.13 Driving aisle and working area: The vehicle must be operated on the specified aisle, all non-related person must leave the work area, and cargo should be stacked in designated places.

10.4.14 Operation Management: Driving speed must be adapted to local conditions. When through the corners, narrow passage, swing doors and closed place, speed must be slowed

down. Drivers must be able to visually an adequate braking distance between vehicle and the front vehicle, and he must remain in control of his vehicle. Sudden stop (unless urgent needs), rapid U-turn, chased each other in the Aisle is not allowed. Do not pry out of the body to operate the vehicle.

10.4.15 Visibility: The driver must look attentively at the direction of driving, to ensure the front situation is clearly visible. When the vehicle is backing off, if the carriage of goods blocks the line of sight, a second person walk in front of the vehicle to give appropriate guidance and warnings is necessary.

10.4.16 Pass through the ramp: Only a known ramp which should be clean, non-slip, and with the vehicle technical availability was allowed to go through. The goods on the forks must face uphill. It is forbidden to turn back, move diagonally or park on the ramp. The operator must slow down when going through the ramp and prepare to brake at any time.

10.4.17 Load capability on ground: when the vehicle is in operation, make sure the load pressure of the body weight or wheels on the ground does not exceed the load capacity of the ground .

10.4.18 Vehicle Change: Any possible changes or modifications for rated load, stability or safe operation of the vehicle, must obtain prior written approval from origin manufacturers or its successor. After vehicle manufacturer check and approve the changes, nameplates, labels and markings of Operation and Maintenance Manual must be modified as well.

11. Service Manual

11.1 Troubleshooting

Fault	Cause	Treatment
The truck can't move	The battery connector is not connected	Check the battery connector, connected if necessary
	Electric lock switch on "OFF" position	Electric lock switch turn to "0" position
	Emergency Stop Switch not open	Open the Emergency stop switch
	Battery power runs out	Check the battery charge, If it is necessary to recharge
	The vehicle being charge	Interrupt charging process
	The fuse is damaged	Check the fuse
Goods can't be lifted up	The vehicle is not operating	Handle according to the treatment method listed in Vehicles cannot move"
	Low hydraulic oil level	Check hydraulic oil
	The fuse is damaged	Check the fuse
	Overloading	Pay attention to the rated capacity
	The Up switch is in bad contact or damaged	Check up switch and replace if necessary
Goods can't be lowered down	Dirty oil blocks control valve	Check hydraulic oil and clean control valve, replace the oil if necessary
	The solenoid valve for lowering is not opened or is damaged	Check or replace the valve for lowering
Can't stop when lifting	Lifting micro switch is damaged	Cu off the power and replace lifting micro switch
Moving in one direction	The sensitive switch and the connecting cable are not well-contacted.	Check the sensitive switch in control lever and the connecting cable.
The vehicle travels very slow	The related cable are not well-connected	Check the battery indicator light and related cable

The car suddenly started	Controller is damaged.	Change the controller
	The handle which control the forward or back is no reset.	Repair or change

If above steps still can not solve problems, please contact after-sales service department of the manufacturer and have the problems solved by specially trained technicians.

11.2 Preparation before repair

To prevent possible accidents during maintenance and repair work, following preparations must be done:

- Park the device safely.
- Press the emergency stop switch and disconnect the connectors on accumulator.

11.3 Check the amount of hydraulic oil

- A vehicle ready for repair or maintenance。
- Open the electrical box cover。
- Check the amount of hydraulic oil in the tank。

When checking the hydraulic oil level, the fork and mast must be lowered to the lowest position.

11.4 Complete repair, the preparation before using

Use the device only after following operations have been completed.

- Clean the vehicle
- Check the brake.
- Check the emergency stop switch.。
- Check the horn.

Several electromagnetic brake tests need perform immediately after the test

12.After Sales Service

If there is a fault that cannot be eliminated by professional service personnel, please contact our after-sales service personnel in timer ,Sales line: 8772326517

Note: the manufacturer reserves the right of interpretation.

If have change not notice additionally!