

The Specification

EG30 Series Electric Tow Tractor



Introduction

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

This Tractor adopts the advanced structure of the electronic power steering system and new AC controller, and also has high quality motor, traction accumulator . It has advantages of superior performance, easy operation, flexible steering, braking reliable, dynamic enough, low noise, no pollution, beautiful appearance and so on.

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

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

Our company production model EG30 Electric Tow Tractor is a special motor vehicle used in factory ,tourist attractions ,amusement places which is specified by “special equipment safety supervision regulations”

Due to the need of continuous improvement for the products, the manufacturer reserves the right to change the design and specifications of our products, without further notice. If you want to know the latest product parameters, please contact us. Note: all parameters here are subject to the date of publication.

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一、The Introduction of product

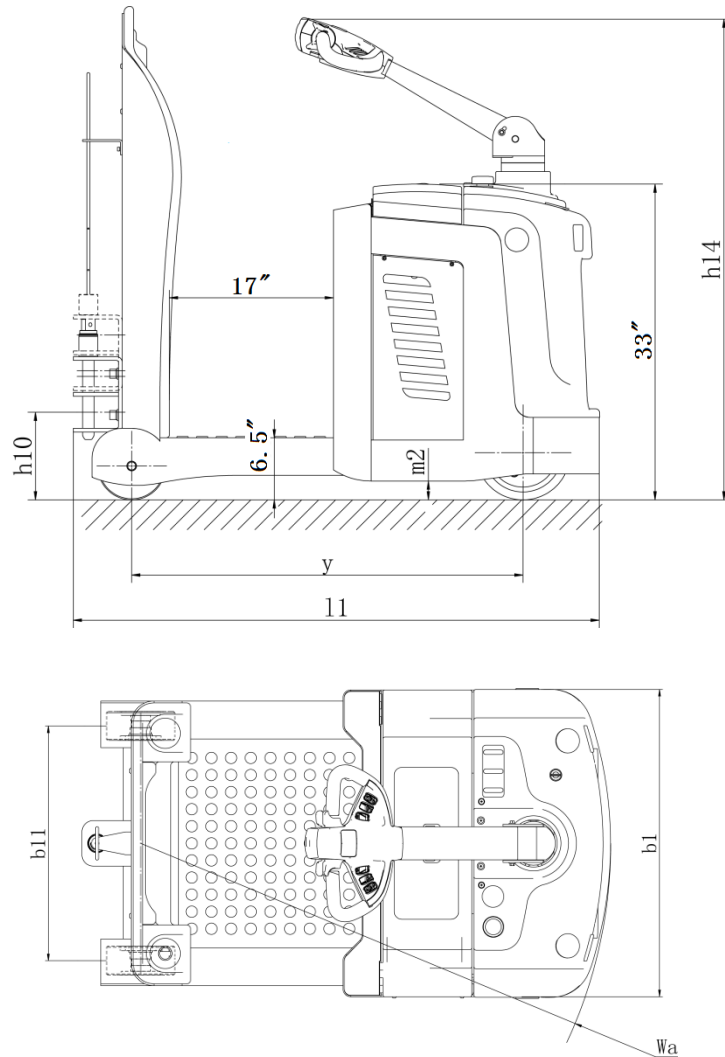
1.1 Model Overview

This manual collects EG30 series, 10000LBS of all electric tow tractor (Hereinafter referred to as "tractor") .

The truck models "EG30 rated load 10000LBS" meet the requirement of JB/T8452-1996

《Battery forklift model establishment method》, "T" is the product code,

1.2 Model Parameter

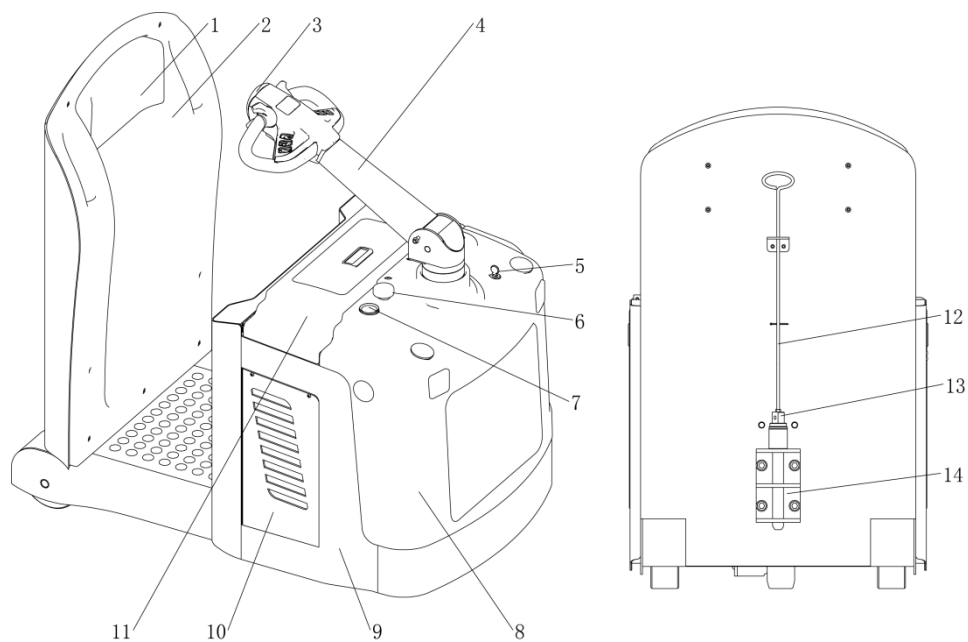


Model		EG30
Power type		Battery
Operation type		Stand-on
Rated Capacity	Q (lbs)	10000
Wheel base	y (Inc)	41
Weight (With battery)	lbs	1694
Wheel type		PU
Driving wheel size	(Inc)	Φ9.8x2.9
Bearing wheel size	(Inc)	Φ7×3
Wheel number ,Front/Rear (X=Driven)		2/1x
Track width Loading size	b11 (Inc)	24.3
Coupler height range	h10 (Inc)	9.2/13/13.6/17.2
Overall Length	l1 (Inc)	55
Overall Width	b1/ b2 (Inc)	31.8
Ground clearance ,Center of Wheelbase	m2 (Inc)	2.6
Turning Radius	Wa (Inc)	49
Travel speed Laden/unladen	M/ H	3.8/5
Rated Traction	N	600
Max Traction	N	2600
Gradeability Laden/Unladen	%	3/15
Service Brake Type		Electromagnetic
Driving motor rating	KW	3
Battery ,According to DIN 43531/35/36	(Inc)	no
Battery Voltage/ Capacity	V/ Ah	24/210
Battery weight	lbs	462
Type of Drive unit		AC
Type of Steering		Electronic
Noise level at the driver's ear	dB (A)	70
Traction Coupling , According to DIN15170		Pin type

二、 Basic structure and principle

2.1 Basic structure

With battery as power producer and controlled by electrical , tractor can do some actions like walking, turning, pallet fork lift, ect.



- | | | | |
|---------------|-------------------------|-----------------------------|--------------------------|
| 1. Lazyback | 2.Rear Cowl | 3Emergency reversing button | 4.Operating handlebar |
| 5.Key Switch | 6.Emergency stop switch | 7.Coulombmeter | |
| 8.Cover | 9.Main frame | 10.Side sliding door | 11.The cover for Battery |
| 12.Hand lever | 13.Traction pin | 14.Traction base | |

2.2 Operating principle

2.2.1 Running system

It is battery provides energy storage and the frequency conversion system converts direct current to alternating current that make the truck walk. Ac motor transforms high speed low torque into low speed high torque through the gear reducer, and finally by the driving wheel to perform actions. Walking speed is achieved by variable frequency control of motor speed and controlled by the accelerator.

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

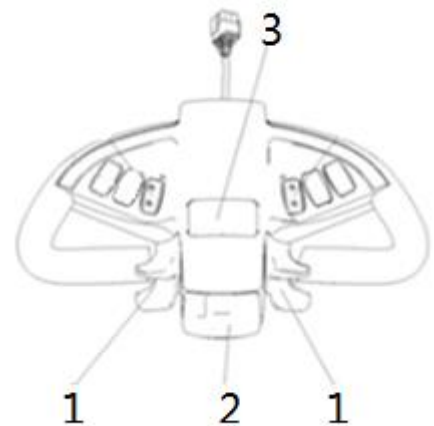
If you hear abnormal sound from gear box when using, please stop and check immediately. If there are bearing failure or some problem in gear, please replace and repair them.

2.2.2 Steering system

The operating handle drives the rotation direction sensor which can send out the turn signals that makes the tractor turn around.

2.2.3 Operating system

- 1.Travel Switch
- 2.Emergency reversing button
- 3.Horn button



2.2.4 Braking system

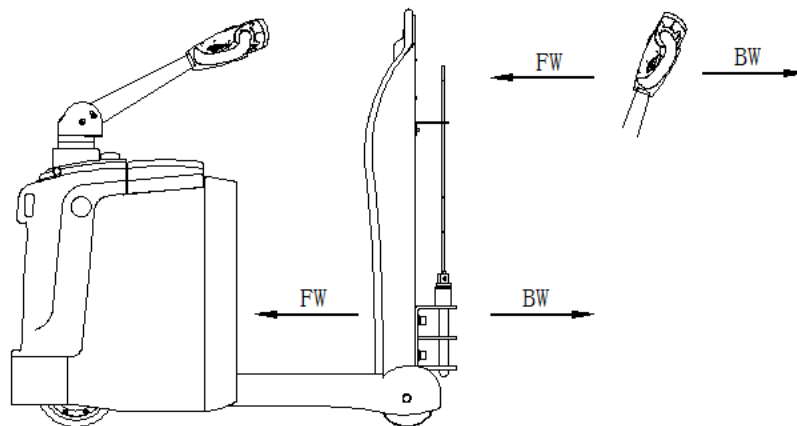
Braking performance depends on road conditions and vehicle load conditions.

The brake function can be activated by the following ways:

- Turn the travel switch (2) to "0" position or release the switch to make truck brake until it

stops.

- Move driving switch (2) directly from a driving directions to the opposite direction, truck regenerative braking until it began in the opposite direction.
- Move the handle up and down to the braking area (‘B’) , truck braking. If the handle is released, it will automatically move to the braking area (" B ") ,and the truck brakes until it stops.
- Belly switch (3) is set for preventing the operator squeezed. When the truck is driven towards (‘ Fw’) and encounters an obstacle, and driver's body touches belly switch ,the truck will CBDow down or drive to (‘Bw’) for a distance and then stop. If the handle is in operation area but the truck is not driving, please consider if it still work.



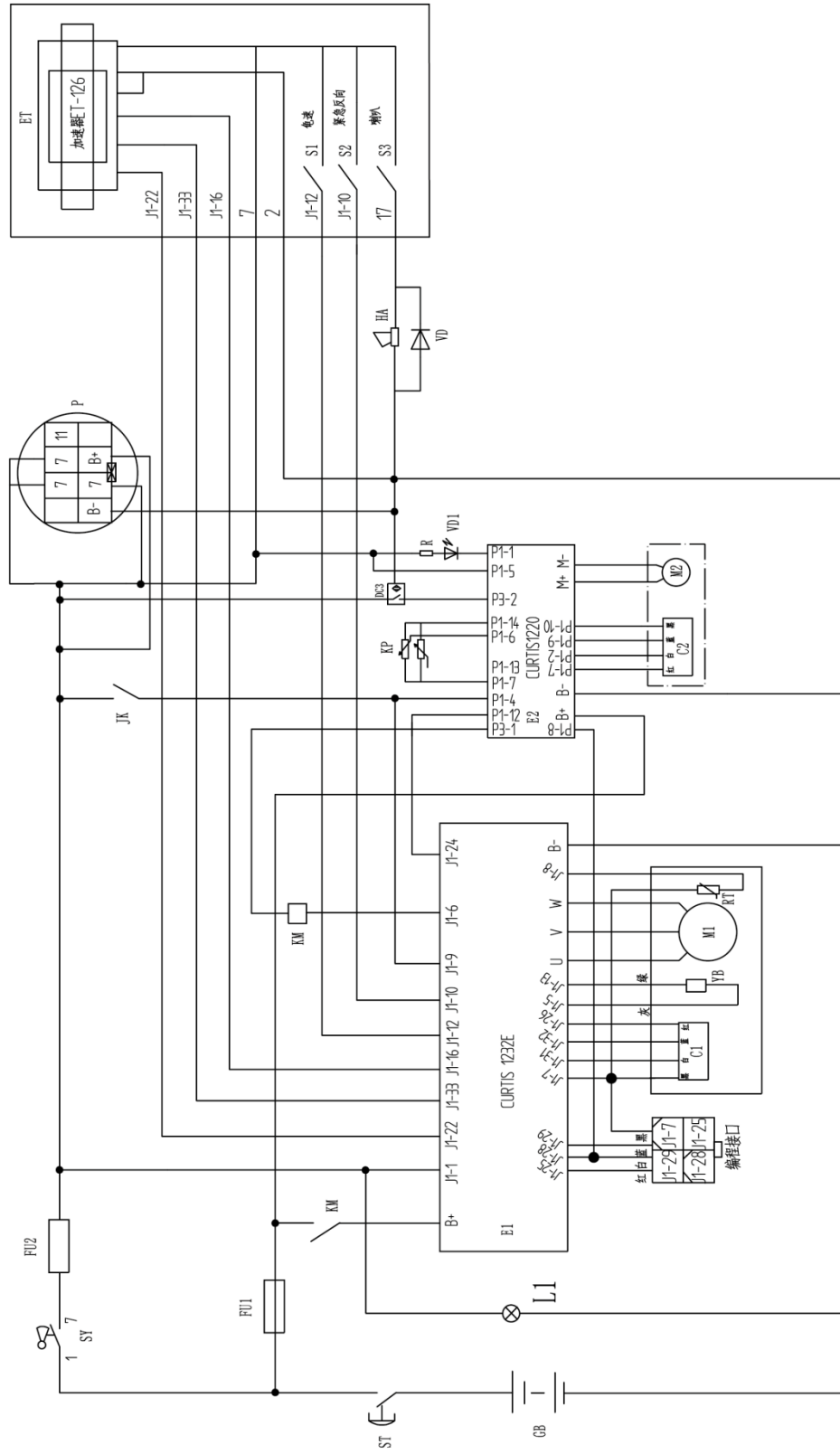
2.3 Electrical principle

2.3.1 Electric System

Tractor electrical system includes walking and job control, etc. Truck uses American CURTIS1232E electronic assembly.

Instruments can display electric power, working time and have low voltage protection function.

Electrical schematic diagram



≡ Safety operation and matters needing attention

3.1 General rule

3.1.1 The operator must have a forklift operation qualification which proved by the relevant departments of the training before driving Tractor.

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

3.1.3 Tractor must not carry passengers.

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

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

3.2 Storage and transportation

3.2.1 Use container or car should pay attention to at the time of shipment:

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

② Using the lasso, not placed in the weak structure of the tractor;

③ During Transportation, Remove the Trailer and fix the tractor with a dedicated strap for lifting according to the figure below:

3.2.2 When Tractor doesn't work, should be parked in a dry ventilated cleaning warehouse, prevent weathered. And:

① Close electric lock, make the safety switch power, 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, battery should be added once every 15 day electricity.

3.3 Check before using

3.3.1 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.

3.3.2 New cars in the factory run parts has been filling lubricating oil,

3.3.3 Tractor 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.

3.4 Operation specification

Before operating the forklift, please be familiar with the dashboard function of each switch/button.

3.4.1 Start, run and parking:

① Insert the key into the key switch, turn to the right, the emergency power safety switch clockwise reset, gently open the control circuit.

② Begin to loosen parking system.

③ According to the requirements in the direction of the forward or backward direction of switches.

④ When forklift driving turn, should reduce speed, where possible, try not to turn suddenly.

⑤ Forklift truck carrying gradeability is 6%, so the uphill CB Dope need to understand the situation, when climbing the forklift must accelerator pedal pressed down as far as possible, the maximum climbing force can be achieved.。

3.4.2 The using of emergency power safety switch

When vehicles out of control on the moving or having smoking and anxious burnt flavor in the using, please pressed emergency switch on the dashboard shut off. Find out the reason and clear fault than to open. The method of the opening: turn the red button as clockwise, pop-up button up, open end. Emergency power switch button for plastic parts, press down or clockwise not too hard, so as not to damage the switch.

3.4.3 The use of speakers and reversing speakers

For the safety of driving, vehicle equipped with speakers and reversing speakers. To remind others when driving, the steering wheel in the middle of the horn button, when walking vehicle reversing, reversing the horn alarm sound will start automatically alert pedestrians.

3.4.4 Battery capacity indicator

The dashboard for tractor battery capacity has capacity display function, can also use electricity time statistics (cumulative hour).

3.4.5 Traction Operation

(一) How to traction goods

First slowly move the tractor to the cargo which needs to be towed ,Pull puller pin with Pull rod ,Put the connecting frame under the traction pin ,Then put down the traction pin ,And make sure that the traction pin has fixed the connecting frame on the traction seat before driving .

(二) How to leave the goods

When The hauling operation finished .Just pull the pull bar on the car and the pull pin will detach from the cargo automatically

3.5 Safety operation regulation

3.5.1.Requirement for operator: The Tractor 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.

3.5.2 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.

3.5.3 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.

3.5.4 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.

3.5.5 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 vehicle 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 vehicle 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.

3.5.6 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 vehicle 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.

3.5.7 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.

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

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

3.5.10 Distance between vehicles: keep an appropriate distance, avoid the front vehicle suddenly stop.

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

3.5.12 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.

3.5.13. 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.

3.5.14 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.

3.5.15 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 block the line of sight, a second person walk in front of the vehicle to give appropriate guidance and warnings is necessary.

3.5.16 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.

3.5.17 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 .

3.5.18 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.

4.Maintenance

4.1 Maintenance procedures

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 vehicle: when a Vehicle needs to be raised and maintained, The lifting device must be safe and securely attached to the lifting point. when the Vehicle is lifted. Appropriate measures must be taken to prevent the vehicle from Slipping or tipping over (Wedges blocks can be used)

Cleaning Operation: Flammable liquid cannot be used for cleaning the stacker. 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. If spray water or high-pressure cleaners are used to clean the vehicle. All electrical and electronic components must be carefully Covered beforehand, because moisture can cause malfunctions .Do not use steam nozzles for cleaning

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 operation :In order to prevent damage to electrical or electronic components. This electrical component must be removed from the vehicle before any welding operation is performed

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 stacker. Modification on wheels can be performed only with the approval from the manufacturer. When replacing wheels, ensure that the stacker is levelled as delivery state(wheels must be replaced in pairs, i.e. replace right wheel together with left one).

4.2 Daily Maintenance

4.2.1 Check the electrolyte level of the battery .

The liquid level will be higher when it is charging.

4.2.2 Check every pole, every cable and their covers.

4.2.3 Check if the accumulator box is secured.

4.2.4 Check the horn.

4.2.5 Check the brake.

4.2.6 Check the wear and tear of drive wheels and loading wheels.

4.3 Maintenance Manual

It is very important for safe operation of the device to perform overall professional maintenance. Failure in performing maintenance according to specified interval may cause malfunction of the device, 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 device 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 nuts on traction seat, and tighten them if necessary.

List of maintenance

			W	A	B	C
Braking	1.1	Check the air gap of electromagnetic brake			●	
Electric System	2.1	Check switch operation, display the function of the equipment and components	●			
	2.2	Check the alarm system and safety device		●		
	2.3	Check whether there is any damage on the cable and terminal is rigid			●	
	2.4	Check the function of the micro switch Settings	●			
	2.5	Check the controller			●	

	2.6	Fixed cable and motor			•	
Energy Supply	3.1	By observing the battery		•		
	3.2	Visual inspection battery charging plugs			•	
	3.3	Check whether the battery cable connection fastening, if necessary, with oil daub electrode			•	
Traveling System	4.1	Check if have gearbox abnormal sound			•	
	4.2	Check the travel agency, and the oil, check the reset function of operating handles		•		
	4.3	Check the drive wheels and bearing wheel for wear and damage			•	
	4.4	Check the wheel bearing and fixed			•	
Massive Structure	5.1	Check whether the framework has damaged			•	
	5.2	Check whether the sign is complete			•	

Maintenance, Recharging and Replacement of the Accumulator(Battery)

The device must be parked in a safe location before any operation on the accumulator.

4.4.1 Maintenance Technician

Only qualified technician can perform operations on the accumulator such as recharging,

maintenance and replacing. Before operation carefully read instruction manuals including operation manual, replenishment preparation and recharging requirements.

4.4.2 Fire Prevention Measures

Never smoke or use open fire when perform operations on the accumulator. The accumulator should be away from flammable material at least two meters when storage or recharging. The location for accumulator storage should be well ventilated and equipped with firefighting devices.

4.4.3 Maintenance of the Accumulator

- 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 device . 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.

4.4.4 Dispose worn-out accumulators

Worn-out accumulators should be recycled according to local regulations, and stored in specified zone or cast-off treatment zone. These works should be done by qualified specialized companies.

4.4.5 Specification of the accumulator

Battery		Charger	
Rated power: 24V	Rated capacity: 210/210Ah	Input: 195/265VAC 50/60Hz	Output: 24V30A

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.

4.4.6 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.

When using the lifting equipment to load or unload the battery. Make sure that the lifting equipment has sufficient load capacity(the weight of the battery is marked on the nameplate of the battery and the vehicle. The lifting device must be pulled in the vertical direction to avoid damage battery

box .The hook of the lifting device must be safe and reliable. And the hook must never fall on a single battery within the battery pack.

— Press the emergency stop witch and the power key witch to the OFF position so that it is in the cutoff position

— Disconnect the battery cable connector.

— Connect the lifting device to the lifting hole

— Remove the battery from the top and remove it with the handling equipment .

The installation process is in the reverse procedure.it is importance that the battery must place in correct place and the wiring is reliable .After re-installing the battery. All cable connections and connectors must be inspected for obvious damage.

4.4.7 Battery power indicator

Battery power display table: ten article 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 blinking “Energy storage” .

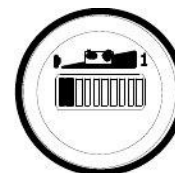
Battery discharge on 80%,two lamp will blinking “run out of battery” ,Need to charge the accumulator.



full



Need to recharge



Low battery

4.4.8 Charging

The Electric device is supplied with a special charger for recharging.

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 the safety of the cooperation, the stacker should be added protective cover before using.

The voltage and the Electrolyte concentration of battery will be different after using for a period, and it can be eliminated by equalizing charging .so that can keep each battery consistent.

If under below situation ,the battery need Equalizing charging .:Single battery voltage less than 1.7V,

Large current during discharge ,such as Driving and lifting .

The way of Equalizing charging :

1) In the early stage of charging ,the battery current is constant. The battery limit of AC power supply system should be 0.1C10A, While the battery voltage keeps rising.

In the initial stage of charging .the voltage of battery is low. When current limited the charging voltage should also be low. During charging .The battery capacity increased gradually .In order to keep the charging current in 0.1C10A,the charging voltage rise gradually until the charging current is limited to the current working model of charging voltage constant voltage. And at this time the battery voltage reaches the Max. value(2.35V)

2) In the middle of charging .When Voltage of battery reaches a stable value. The charging Current declines exponentially.

3) In later period of charging ,the battery fully charge and the charging current is small. Normally

when under constant voltage charging ,the charging current keep the same for more than 3 hours or less than one certain value .and it can be considered that the battery capacity is full .and Equalizing charging is finished

The battery should be recharged once a month.

5.Repair Manual

5.1 Malfunction analysis

Malfunction	Cause	Treatment
The vehicle 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 stacker being charge	Interrupt charging process
	The fuse is damaged	Check the fuse
A direction moving	Micro switch and cable jumper contact is not good	Check the micro switch and connect jumper witch on the control handle
The device move slowing	Battery power shortage or homologous cable jumper contact is not good	Check the battery power led and homologous cable jumper contact.
	Controller is damaged.	Change the controller
The car suddenly started	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.

5.2 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.

5.4 Complete repair, the preparation before using

Use the device only after following operations have been completed.

- Clean the device
- Check the brake.
- Check the emergency stop switch.
- Check the horn.

Several electromagnetic brake tests were performed immediately after the test

This manual final interpretation retained by manufacturers.