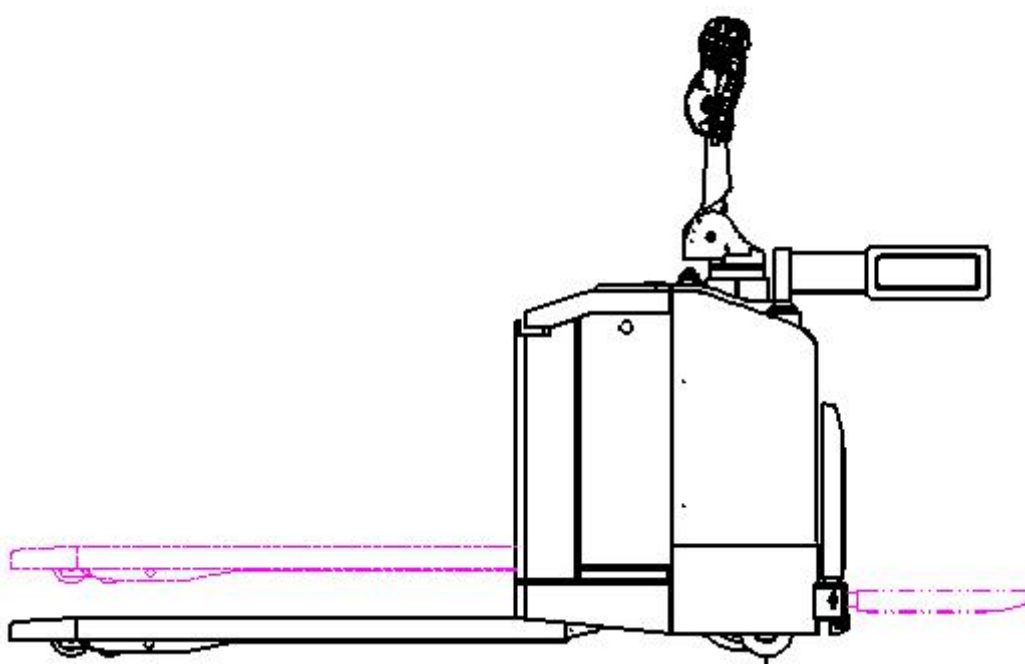


# **KX-QDC Electric Tow Truck Instructions Manual**





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# Warning

Please read this instructions manual carefully before using the KX-QDC electric tow truck.

This manual works for all KX-QDC series electric tow truck, and we reserve our rights for technical reform. Pictures and object maybe slightly different, please in kind prevail.

## KX-QDC15.20.25 Electric Tow Truck Series

### 1. BRIEF INTRODUCTION

Standing full electric tow truck has movable pedal and safeguard.

The handle adopts ergonomic structure, which will be more stable, and all operations can be achieved by this handle.

The large capacity traction battery is durable, convenient and quick charge.

High-power drive and lifting DC motor have high performance of speed regulation, and well function of starting and braking torque.

The stacker has reasonable design, compact structure, and beautiful appearance, especially folded pedal and safeguard. Using electric tow truck can reduce the working intensity and improve working efficiency.

### 2. TEST RUN AND TRANSFER INSTRUCTIONS

#### 2.1 Test Run

The tow truck uses batter as power source.

Please check the tow truck before using:

1. Check the integrity and state of the truck
2. Check the hydraulic system
3. Check the battery capacity
4. When the truck is parked for a long time, the contact region between wheel and ground will be a little flattened. It will recover when running.

#### 2.2 Run-in Period Instructions

During the run-in period, the truck should be used in low load, especially in 100h.

1. Do not over discharge. Please charge when battery capacity is around 20%.
2. Please do the service by following instructions.

3. Do not brake suddenly, drive too fast, and steering sharply.
4. Change oil and lubricate immediately
5. Limit the load, and do not over 80% of the rated load.

## 2.3 Transfer

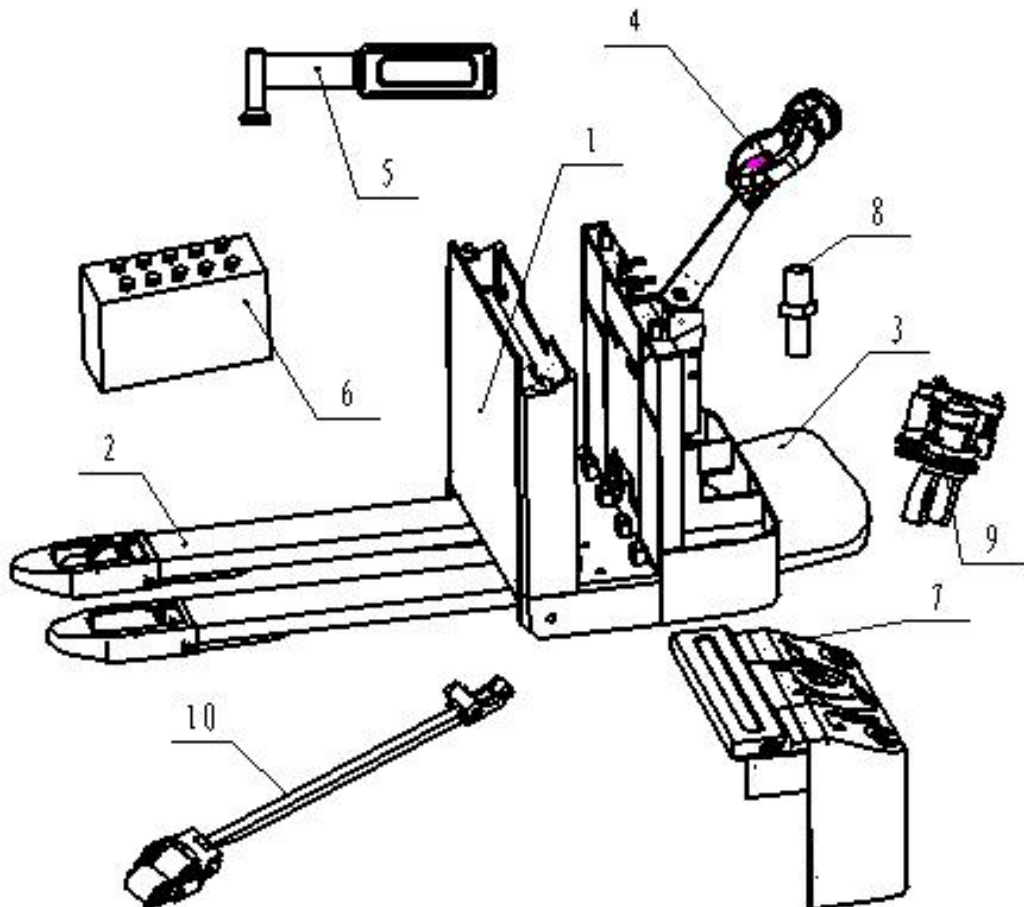
The forks only allowed to be operated when load and unload cargo, and it should keep safety distance from people around. During transfer, cargo should be kept stable on the forks, and the center of gravity should be on the center of the forks. When transfer oversize or overweight cargo, please use load-backrest; be careful when pass slope or make a turn.

# 3.OVERVIEW OF TOW TRUCK

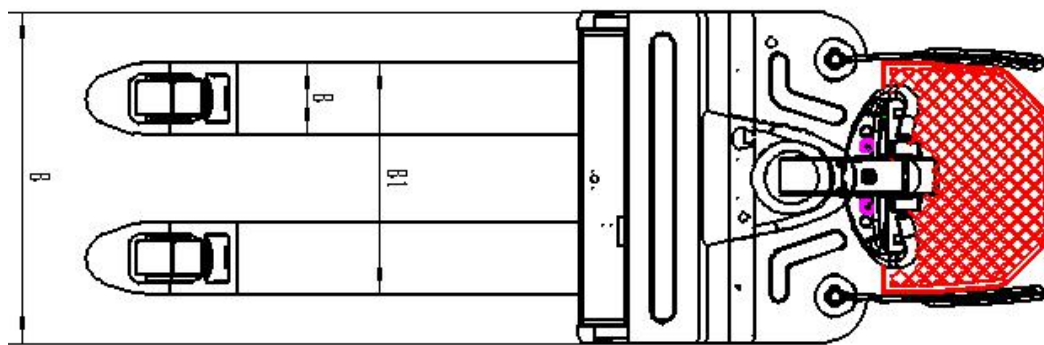
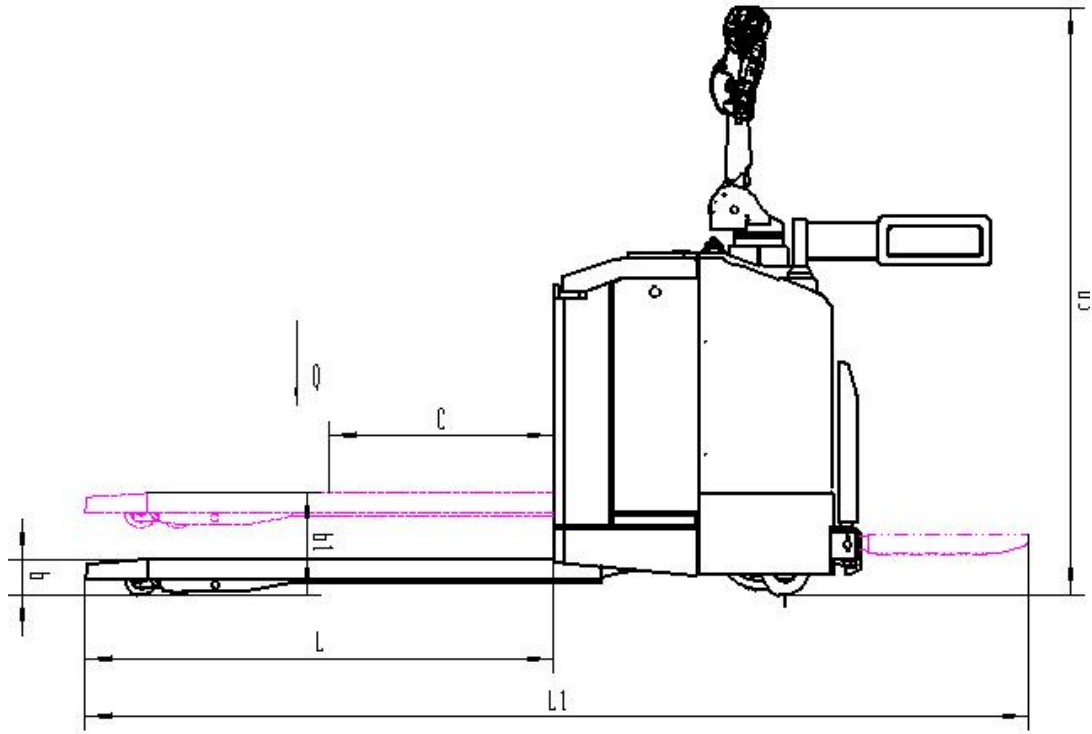
## 3.1 Main Usage

KX-QDC15/20/30 series electric tow truck is designed for transfer on flat ground. It is suitable to use on factory, workshop, port, and etc., also, this electric tow truck can be used to load or unload cargo.

The electric tow truck is combined by those 10 parts: 1. Frame, 2. Forks, 3. Folded pedal, 4. Handle, 5. Safeguard, 6. Battery, 7. Cover, 8. Hydraulic oil station component, 9. Driver component, 10. Front wheel component.



# 4. TRUCK DESCRIPTION



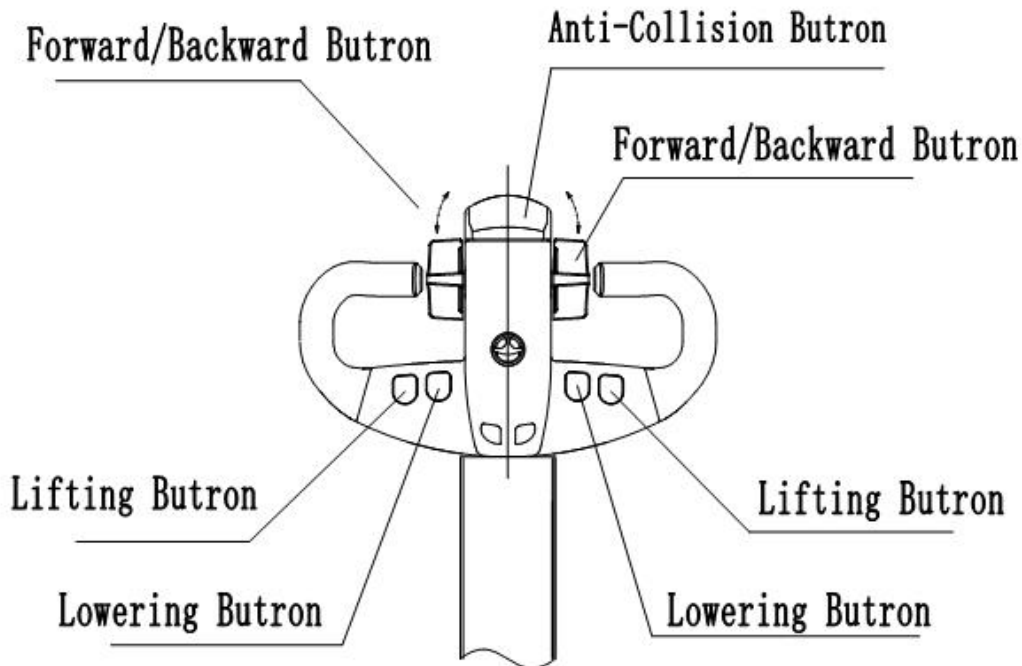
## 5. TECHNICAL DATA

Articles/model	unit	KX-QDC15	KX-QDC20	KX-QDC25
Operation style	XZ	Driving/steering		
Rated load capacity Q	lb	3300	4400	5500
Load center distance C	in	19.6		
Fork lowered height h	in	3.3		
Fork lifting height h1	in	7.8		
Fork lifting size h2	in	4.5		
Fork main size h*B*L	in	2.1/6.2/45.2		
Fork width B1	in	21.6		
Overall width B	in	31.1		
Overall length(include the pedal) L1	in	90.9		
Overall height(exclude/include) h3	in	33.8/57		
Turning radius(pedal extend/retract) Wa	in	62.9		
Wheel material	PU	Polyurethane		
Carrying wheel	in	3.3*3.1		
Steering wheel	in	Φ4.7*2.1		
Driving wheel	in	Φ9.8*2.9		
Driving speed no-load/full-load	fpm	339/284		
Lifting speed no-load/full-load	fpm	11.4/9.4		
Lowering speed no-load/full-load	fpm	9.4/11.4		
Climbing gradient no-load/full-load	°	7/5		
Brake mode	DZ	Electromagnetic brake		
Driving motor	kw	2.2		
Lifting motor	kw	1.2		
Voltage/Capacity	V/Ah	24/210		
Net weight	lb	1662	1728	1783



## 6.SAFETY OPERATION INSTRUCTION

- 6.1 Please check whether all safety button and device are well before using. Check whether all labels are intact, and whether battery is steady. Do not use tow truck if it has malfunction. Only professional staff is allowed to fix the electric tow truck.

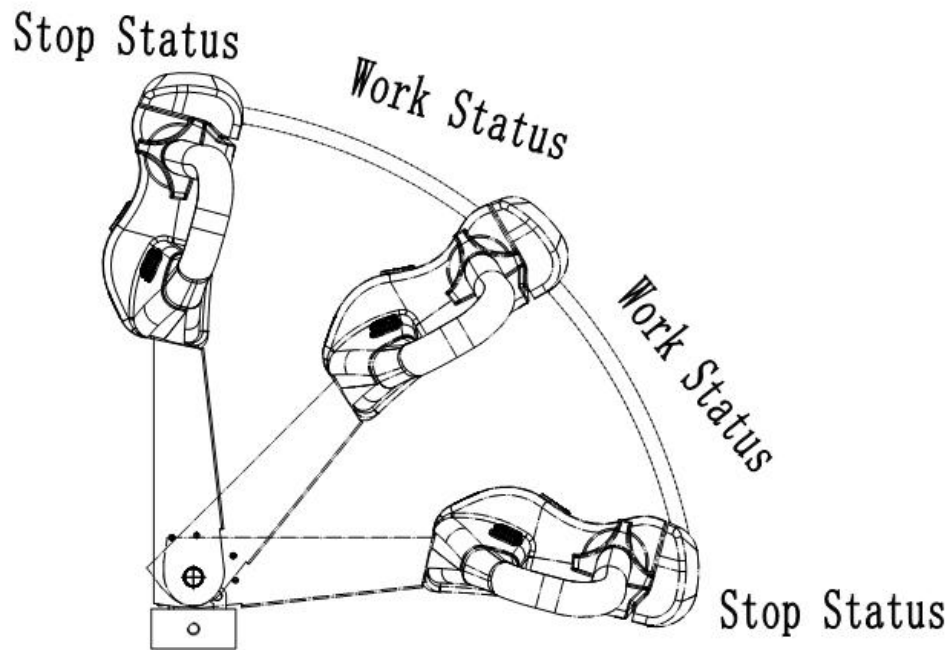


### 6.2 Instruction of driving

1. The electric tow truck should be used on the flat ground. Staff should know the stacker's function, structure, and maintenance clearly before using.
2. Please make sure that the stacker is normal before using, and do not use truck if it has any malfunction.
3. When high speed driving, do not brake or steer suddenly. When passing slope, please slow down, keeping goods at the lowest position, and running straight.
4. When cargos are too high, and obstructs view, please back up the car, or following someone's guide. In order to keep safe, please keep safety distance with other trucks or people.
5. Do not carry people or overload.
6. When drive truck into elevator, please check the rated capacity of the elevator.

### 6.3 Brake

1. The power of truck will cut off when moving handle to the highest position.
2. Turn forward/backward button to the opposite direction with heading, which can help to control speed and motor braking force.



#### 6.4 Steering

1. Steering is controlled by handle, which can rotate 90 degrees to left or right side.
2. Do not rammed through obstruction, but use handle to avoid it..

#### 6.5 Travelling speed

Travelling speed of truck has already set. If it is too fast, please let us know. We can change the program to slow down the travelling speed.

#### 6.6 Stop

1. Release handle, and let it places in a stop status.
2. Fall forks down to the lowest position to make the hydraulic system free of pressure.
3. Release motion arm, and it will return to stop status automatically.
4. Press down the emergency stop button, and rotate key to off.

#### 6.7 Parking instruction

1. Please fall forks down to the lowest position, when parking.
2. Do not park truck at slope, or uneven ground.
3. Please park truck at specific area.
4. Do not park truck at emergency exit.
5. Do not park truck at any area that will inhibit work.
6. Please pull out the key when leave the truck.

#### 6.8 Do not use truck at following area or situation

1. The place may cause fire or explode, for example, oil Dorm.
2. Do not use tow truck as tractors.
3. Do not use tow truck to carry people.
4. Do not drive tow truck at grassland or sand.

# 7.MAITENANCE AND SERVICE

## 7.1 Maintenance

### 7.1.1 Machinery maintenance

Check at least once every three months. Add some lubricating oil to wheel bearing and portal bearing. Check whether moving parts are flexible, fasteners are tightened, and forks goes up and down are well.

### 7.1.2 Hydraulic maintenance

Check at least once every six months. Check whether oil cylinder are lifting normally; whether oil cylinder has internal or out leakage; whether hydraulic connector and hydraulic hose have leakage; whether hydraulic oil is clean; whether joints and welding parts are leaking. In order to keep stacker working well, please use HL-N46 hydraulic oil when temperature is from -5 °C to 40 °C, or use HV-N46 hydraulic oil when temperature is from -35°C to -50 °C.

### 7.1.3 Electric maintenance

Check at least once every three months. Check whether the proportion of electrolyte is proper; clean dust on the battery connecting terminal; check whether cable terminals are tightened; check whether insulation of electric is normal (the resistance between insulation and car body should be higher than 0.5MΩ).

## 7.2 Service

7.2.1 Daily check: whether fasteners are tightened; whether seal rings are damaged; whether the capacity of battery is full; lifting forks to the highest to check whether hydraulic oil is enough, if not, please add some hydraulic oil.

7.2.2 Weekly check: Clean tow truck once every week, especially, check whether there is anything stuck in wheels and axle.

## 7.3 Service life

Standard maintenance is one of the most important things to ensure the stable performance and increase the service life of the tow truck. Not maintenance on time may cause some malfunction of tow truck and dangerous to operators. The wear of maintenance parts is depend on the real usage. Please reduce maintenance period if the tow truck works under high-intensity or bad condition, for example, lots of dust, wide temperature variations, and etc.

## 8. SERVICE, CHARGE, AND MAINTENANCE OF BATTERY

### 8.1 Usage of battery

Please check at least once per week.

Open all battery's cover of liquid adding hole, and check the level of acid inside batteries. If the level of acid over the standard level, please add some distilled water. Liquid level should be 10-15mm higher than plates. Then, close cover, and clean dust. Please check the temperature of the electrolyte after charging, and the temperature should not be higher than 50 °C

Please charge immediately (Do not over 24 hours), when battery is fully discharged or charging signal is on, otherwise, it may shorten the service life of battery. If not use tow truck for a long time, please charge once per month. Do not over charge or over discharge, in order to avoid battery damage (charging time: 8 hours).

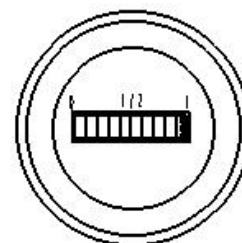
The maximum charging current of charger shows below:

Battery		Charger	
Rated voltage: 24V	Rated capacitance: 210/270/280Ah	Input: 195/265VAC 50/60Hz	Output: 24V 10A

The cover of battery should keep clean. Binding post and cable lug should be tightened, kept clean, and smeared a bit of special oil. If the electrode of the battery is not insulated, it must be covered with a non-slip insulating mat.

Note:

You can only do operation to battery when it is off. Do not use dry cloth and fiber to clean the surface of battery, in order to avoid static electricity, which may cause explosion.



Full charging

### 8.2 Disposal of used batteries

Used batteries must be recycled and stored at specific area according to the local policy. Because of the virulence and causticity of electrolyte, please wearing work clothes and protective glass to avoid touching. If electrolyte splashed to the skin or eyes, please use water to wash, then go to the hospital immediately.



9.SAFETY MAINTENANCE		Maintenance period					
		1 week	1 month	3 month	6 month	12 month	36 month
1	Vehicle system						
1.1	Check whether the cover plate is loose		●				
1.2	Check fixed part of battery box		●				
1.3	Check whether safeguard is flexible	●					
1.4	Check tow truck body	●					
2	Motor						
2.1	Check whether carbon brush is abrasion					●	
2.2	Check whether joint is loose				●		
2.3	Clean motor and check connector lug				●		
2.4	Check whether erection bolt is fastness				●		
2.5	Check whether there is abnormal noise and heat of bearing				●		
3	Drive system (gear case)						
3.1	Check whether there is noise			●			
3.2	Check whether driving is normal		●				
3.3	Check whether there is idle			●			
3.4	Change gear oil						●
3.5	Check whether there is oil leak	●					
4	Driving system						
4.1	Check whether there is leak-off				●		
4.2	Check the level of oil			●			
4.3	Check whether there is noise				●		
4.4	Change hydraulic oil					●	
5	Wheel part						
5.1	Clean the sundries on wheels	●					
5.2	Check the abrasion and bolt of wheels		●				
5.3	Check whether balance wheels and axle are flexible		●				
5.4	Check the connection between bearing wheels and axle			●			
6	Brake parts						
6.1	Clean brake parts			●			
6.2	Check the abrasion of friction plate			●			
6.3	Check brake when release valve			●			
7	Electric control bar						
7.1	Cleaning and installation inspection				●		

		Maintenance period					
		1 week	1 month	3 month	6 month	12 month	36 month
7.2	Tighten cable connection			●			
7.3	Check whether the power control circuit is loose			●			
7.3	Check the contact and action of contactor				●		
8	Battery pack						
8.1	Check electrolyte level (it should be 10-15mm higher than plate)	●					
8.2	Check connector and insulation sheath of each battery	●					
8.3	Check the proportion and temperature of electrolyte			●			
9	Hydraulic system						
9.1	Check whether pipe joint is loose and leak			●			
9.2	Check the abrasion of pipe			●			
9.3	Check oil level				●		
9.4	Check whether oil and oil cylinder is leak					●	
10	Control arm						
10.1	Check whether it is tightened			●			
10.2	Check brake button and circuit	●					
10.3	Check whether fastening screw is loose	●					
10.4	Check whether safety switch works well	●					
10.5	Check whether all micro-switch works well	●					
10.6	Check whether damping spring works well			●			

## 10. MALFUNCTION ANALYSIS AND SOLUTION

No.	Malfunction	Cause	Solution
1	Voltmeter has no display after opening electric door lock	The fuse of electric system is burn out or the electric door lock is damaged	Change fuse or electric door lock
2	Hydraulic station and motor pump have noise when working	The magnetic valve of hydraulic station is dirty	Clean magnetic valve
3	Cannot lift cargo	Lifting oil cylinder has internal leakage	Change seal ring
		The hydraulic oil is not enough	Add some hydraulic oil
		Low battery	charge
		Did not turn on power valve	Turn on power valve
		Electric door lock is locked or damaged	Unlock or maintenance the lock
		Oil pump motor is damaged	Maintenance or change
		Oil pump is damaged	Maintenance or change
		Lifting button is broken	Maintenance
4	Cannot lower forks	The control valve is blocking	Clean
		The drop magnetic valve is damaged or locked	Check drop magnetic valve or change
5	Low battery after charging	battery is broken	Maintenance or change
		Low electrolyte level	Add some electrolyte
		Electrolyte is dirty	Change electrolyte
6	Cannot stop when lifting	Lifting micro-switch is broken	Cut off power, and change lifting micro-switch and controller
7	Tow truck can only drive to one direction	Micro-switch and cable are not well connected	Check the connection
8	Tow truck runs slowly	Low battery	Check voltammeter
		Electromagnetic brake is tightened or cable is not well connect	Check electromagnetic and cables
9	Tow truck start automatically	Controller is broken	Change controller