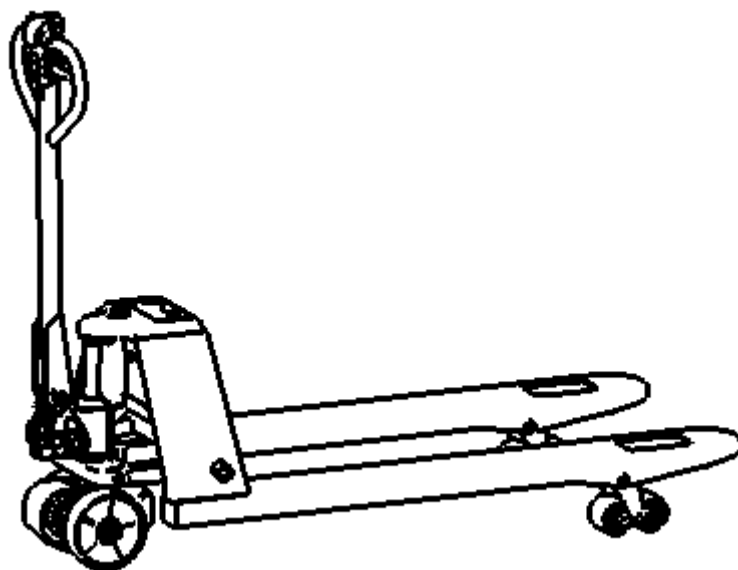




Operation and Maintenance Manual

Semi Electric Pallet Truck

CBB15A1/CBB15A2



Niuli Machinery Manufacture Co., Ltd

Certificate of Conformity

We Hereby certify that:

The manufacturing and assembly quality of this product are in accordance with the design drawing and GB / T27542 battery pallet truck regulations, the technical data are complete, it is approved to leave the factory after passing the inspection.

Niuli Machinery Manufacture Co., Ltd

Product Warranty

Niuli Machinery Manufacturing Co., Ltd. will provide the following guarantees for the materials and quality of its products:

1. Product quality commitment:

1.1 During the normal use of the product by the end user and within the warranty period, parts damaged due to unqualified materials or manufacturing will be repaired or replaced free of charge.

1.2 The company only provides quality assurance for the product itself, and other indirect losses during the user's use, such as shutdown loss, extra cost, reputation loss, etc., are not within the scope of the guarantee.

1.3 The user must use niuli products in strict accordance with the operation and maintenance instructions. If the user fails to use niuli products in accordance with the requirements of this manual, any loss caused shall not be covered by the warranty.

2. Warranty period and scope:

2.1 The starting time of the quality assurance period of niuli product is the date of the production.

2.2 The warranty period is 1 year or 1000 working hours (whichever expires first):

Drive assembly (except for carbon brush and seal), electric control assembly (except for contactor), traveling motor; lifting cylinder (except for seal), frame, accelerator, operating handle, lithium battery;

2.3 The warranty period of all parts except 2.2 and Clause 4 below is 6 months or 600 working hours (whichever comes first).

3. Quality assurance conditions:

In case of any failure of the user's pallet truck, he must contact the nearest maintenance site pointed by the company at the first time.

4. Not within the scope of quality assurance:

4.1 Not within the warranty period and not meeting the warranty conditions.

4.2 Damage caused by failure to follow the instructions for operation and

maintenance, insufficient maintenance and overload use.

4.3 Quality problems caused by force majeure such as mis-operation caused by the user's lack of operating experience, improper use, accidents or natural disasters.

4.4 Damage caused by structural modification or repair conducted by users without the consent of the manufacture or sales outlets.

4.5 Damage due to the use of non Niuli parts.

4.6 Damage caused by maintenance personnel not approved by the company.

4.7 Damage to parts due to external causes, such as external impact and corrosion of atmosphere or other chemicals.

4.8 Parts that can be repaired and restored with simple adjustments.

4.9 wearing parts not within the scope of quality assurance.

4.9.1 All kinds of oil, filter, such as working oil, lubricating oil, electrolyte and other consumable parts that need to be maintained and replaced within the warranty period.

4.9.2 Other consumables: sealing ring, gasket, rubber tube, self-lubricating bearing, nut, bolt, washer, gasket, cotter pin and other standard parts.

Preface

Thank you for purchasing our products !

This operation manual will tell you how to use our CBB15A1/CBB15A2 pallet truck correctly, this manual will guide you in safe operation and maintenance. Please read this manual carefully before using the product. Only in this way can make the best use of the pallet truck and protect your safety.

With the continuous update and improvement of the company's products, maybe the products in your hands will be different from some introductions in this manual; due to the special requirements of some customers, the manual will also be different.

If you have any questions, please contact our sales department or agent.

Warning! !

In order to ensure the personal and property safety of you and others, please strictly observe the following instructions:

If the proper maintenance is ignored, there will be a certain safety hazard in the carrier. Therefore, it is necessary to have enough maintenance, professional maintenance person and maintenance plan.

The use, maintenance and inspection of the pallet truck shall be carried out in accordance with the following terms:

1. The maintenance, lubrication and inspection plan must be strictly implemented.

2. Do the following before leaving the pallet truck:

- No parking on slopes.
- Lower the fork completely.
- Press the emergency stop switch.

3. Before operation:

- The operator must be in the operating position.
- Place the handle in the nature position.
- Before operation, check whether the lifting, steering, speed control, operation, alarm and braking functions are normal.

4. The workplace must be equipped with fire-fighting equipment. It is forbidden to check the liquid level and leakage of electrolyte or other oil and liquid with open fire.

5. The braking, operation, control, alarm and safety devices shall be inspected and maintained regularly to keep them in good condition.

6. All nameplates and safety signs on the pallet truck shall be cleaned regularly to ensure the contents are clear.

7. All devices of the lifting system shall be inspected and maintained regularly to ensure the operation safety.

8. The hydraulic system shall be checked regularly according to the use. The oil

cylinder, hydraulic valve and other hydraulic components shall be confirmed to be free of leakage before use.

9. The parking environment of the pallet truck must be clean to minimize the possibility of fire.

10. Without the consent of the manufacturer, the customer shall not refit the pallet truck without authorization; the nameplate and safety sign on the pallet truck shall be changed accordingly after being allowed to be changed.

Specified Purpose

The pallet truck described in this operating instruction is a ground transportation equipment, which is suitable for lifting and transporting goods. The pallet truck must be used, operated and maintained in strict accordance with the provisions of this operating instruction. The use of the equipment for any other purpose is a non-conforming operation, which may cause personal injury and damage to the pallet truck or other property. The most important thing is to prevent overload caused by overload or deflection to one side. The maximum load limit specified on the equipment nameplate or load diagram must be observed. It shall not be used in areas with fire and explosion risks, or in areas prone to corrosion, rust or large dust.

Obligations and responsibilities of equipment users: In this operating instruction, "Equipment user" refers to any natural or legal person who directly uses or appoints another person to use the pallet truck. Under special circumstances such as rent, sale and rent, the "equipment user" represents the party who undertakes the specified operation obligation according to the contract terms concluded between the owner and user of the equipment.

The user of the equipment must ensure that the pallet truck is only used for the specified purpose, and timely eliminate all risks that may endanger the life and health of the user or the third party. In addition, the equipment user must strictly abide by the accident prevention regulations, other safety technical regulations, as well as the operation, maintenance and repair rules of the equipment. The equipment user must ensure that all operators carefully read and fully understand the contents of this operation instruction.

If this operating instruction is not followed, our quality assurance will automatically fail. If the customer, the user of the equipment or the third party perform the non-standard operation of the equipment without authorization, the company shall not be liable for the losses arising therefrom.

Installation accessories: additional devices that need to be installed or added, if

they affect or supplement the function of the pallet truck, the written consent of the manufacture must be obtained in advance. According to the actual situation, it may be approved by the local competent department.

The audit results of the competent department do not represent the opinions of the manufacture.

1. Model Introduction

1.1 Scope of use description

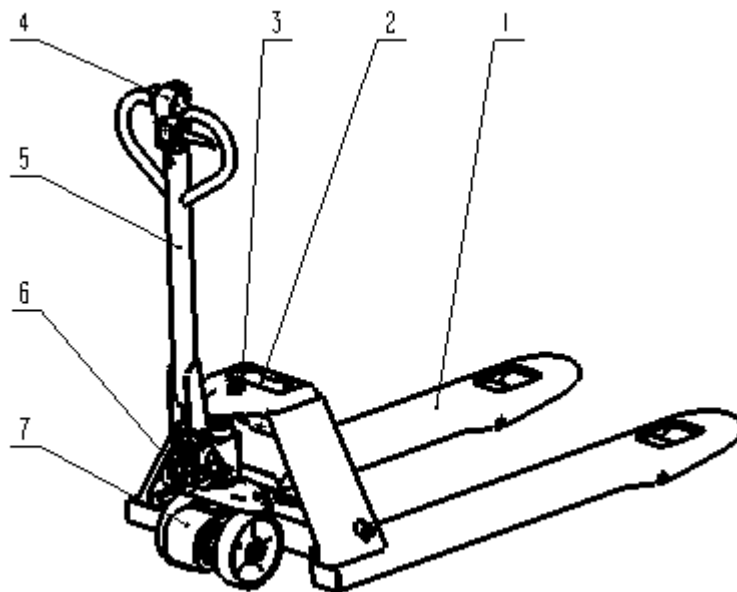
This series of pallet trucks are suitable for handling goods on flat cement or asphalt ground. The pallet used can be open type or with horizontal slats.

Applicable ambient temperature:

Suitable for 5 °C - 40 °C environment.

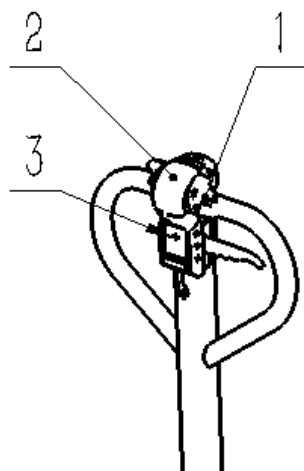
If the pallet truck is used for a long time in an environment lower than 5 °C, in a cold storage or under extreme temperature and humidity changes, special equipment must be installed additionally and the permission of the company must be obtained.

1.2 Truck components



NO.	Name	No.	Name
1	Frame	5	Handle bar
2	Battery	6	Pump
3	Emergency power off switch	7	Drive assembly
4	Handle (accelerator)		

1. 2. 1 Operating handle



No.	Name	Function
1	Accelerator knob	Vehicle forward and backward
2	Emergency reverse switch	Move forward when there is no space behind the vehicle
3	Battery indicator	Display battery level

1. 2. 2 Battery Indicator

The battery indicator shows the battery status and the remaining battery capacity. As shown in the figure; "3" refers to the LED lamp, which shows the battery power.

Pull the emergency stop switch to start the truck. When the battery is fully charged, the battery power indicator LED will be on.

When the battery power decreases, the light color changes also.

When the light color is green, the battery power is 100% - 70%.

When the light color is blue, the battery power is 70% - 30%.

When the light color is red, the battery power is 30% - 10%.

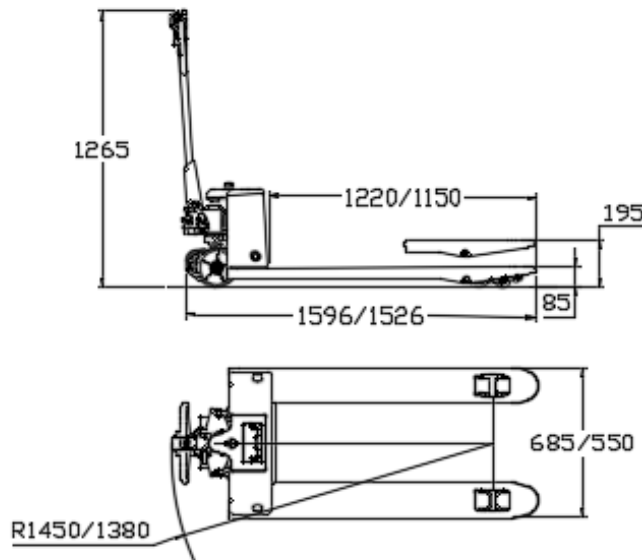
When the light flashes repeatedly, the battery power is 10% - 0%.

1.2.3 Emergency power off switch

When the switch is pressed, the circuit of vehicle electrical system is interrupted and all electric functions stop.

1.4 Model parameters

The technical data given below all conform to GB / t27542-2011 standard, and the company reserves the right to change and supplement the technology.



Technical Parameters

	Model		Unit	CBB15A1(CBB15A2)
Parameters	Drive unit			Electric
	Load Capacity		Kg	1500
	Load center		mm	600
	Brake way			Reverse current braking
Wheels and tyres	Tyre type			Polyurethane
	Front tyre dimensions		mm	φ80×70
	Traction wheel		mm	Φ180×50x2
	Wheels front/rear(x=traction) quantity			2x-4/1
Dimensions	Travel position tiller height		mm	700-1000
	Max lift height		mm	115
	Min fork height		mm	≤85
	Fork dimensions		L×W×H (mm)	1220(1150)×160×53
	Total length		mm	1612
	Total width		mm	685(550)
	Minimum turning radius		mm	1400(1350)
Performanc e	Traction speed(lade/unlade)		Km/h	4.2/4.6
	Maximum grade ability (lade/unlade)		%	3/6
Weig ht	Truck weight (with battery)		Kg	115
Motor & Battery	electrical engineering control system			DC
	Traction motor		KW	0.35x2
	Battery volts/ampere		V/Ah	48V/15Ah
	Batter y Charg er	Input	AC V/Hz	220V/50(60)HZ
		Output	DC V/A	48V/5A

2. Transportation and initial use

2.1 Transportation

Load and Unload

1. Use handling equipment with sufficient load capacity.
2. The load weight shall be greater than the net weight of the pallet truck (including battery weight), and the load weight shall not only include the net weight of the pallet truck but also the loading pallet.
3. The pallet (wooden box) shall be large and strong enough to bear the weight of the pallet truck.
 - Park the pallet truck as required
 - Make sure that the fork is aligned with the pallet, move forward slowly, and try to insert the fork into the pallet and parking.

Attention! !

- Pay attention to forks when carrying the pallet truck onto the pallet, to avoid damage of forks caused by dragging them to the ground.
- Handling on open and level ground, avoid scratches on forks.
- Pay attention to the ground conditions when lifting and lowering the pallet to avoid the pallet truck tipping over.

2.2 Initial use

Only use the battery power to drive the pallet truck!

After transporting or carrying the pallet truck, the following inspection must be carried out before putting the pallet truck into use:

- Check whether the equipment is complete and in normal condition.
- Check whether the hydraulic system is normal.
- If the battery has not been installed on the pallet truck, the battery shall be installed, and the battery cable shall not be damaged.
- Charge the battery.

If the pallet truck is parked for a long time, the ground surface of the wheels may

be slightly flattened. After a short drive, the flattened part will automatically recover.

2.3 Precautions during running in period

In the initial stage of putting into use, the pallet truck shall operate under low load, especially within 100h, and shall meet the following requirements:

- ① Excessive discharge of new batteries during initial use must be prevented.
Generally, it should be charged in time at 30%.
- ② The specified preventive maintenance shall be thorough.
- ③ Avoid sudden braking, driving or turning.
- ④ Change oil or lubricate in time as required.
- ⑤ Limit the load weight to 70-80% of the rated load.

3. Operation and use

3.1 Use safety regulations

Operation permission

The pallet truck shall only be operated and driven by specially trained personnel. The operator must pass the test of the equipment user, master the skills of equipment operation and load handling, and be formally appointed by the equipment user or its client.

Operator's rights, obligations and code of conduct

Operators must understand their rights and obligations, have received guidance and training in the operation and use of the pallet truck, and be familiar with the contents of this operating instruction. The user must give the operator the right that he should have.

When operating the pallet truck, the operator must wear protective boots.

No use of equipment by non staff

The operator is fully responsible for the equipment during the use of the pallet truck. It is forbidden for non staff to operate the pallet truck. It is not allowed to transport or lift personnel with a pallet truck.

Equipment damage and defect: if any damage or other defect is found on the pallet truck and its accessories, the situation must be reported to the competent personnel immediately. For example: tire damage or brake failure, etc., shall not be

used without proper maintenance.

Equipment maintenance

Without special training and permission, the operator shall not repair or change the pallet truck without permission. Operators must not stop or adjust safety devices and switches without authorization.

Danger Area

Dangerous area refers to the area where people are in danger of injury. These dangers mainly come from the carrier itself, its load-bearing parts, as well as the movement and lifting of goods. The dangerous area also includes the scope that may cause danger due to the falling of the load object or the falling and falling of the working device.

- Non staff must stay away from dangerous areas.
- Warning signs must be hung in the area with personal danger.
- If non staff refuse to leave the danger area, the truck must be stopped immediately.

Safety devices and warning signs

All safety devices, warning signs and warning instructions in this manual must be strictly observed.

3.2 Pallet Truck operation

3.2.1 Preparation

Before putting the equipment into use or lifting heavy objects, the driver must ensure that no other personnel stay in the dangerous area.

Inspection and preparation operations that must be performed before putting the pallet truck into daily use.

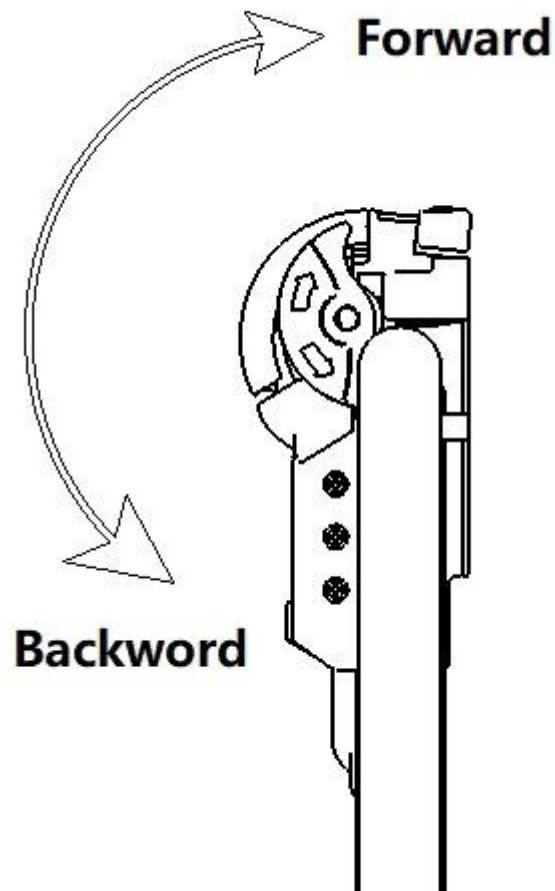
- Visually inspect the carrier (especially the wheels and forks) for obvious damage.

3.2.2 Driving

Driving

Place the handle in the travel area (Center) and turn the accelerator to the desired direction of travel (forward or backward). When the rotation angle is large, the

corresponding speed is also large.



Regenerative braking

Release the travel switch, the travel switch will automatically return to the initial position, and the pallet truck will start to enter the regenerative braking state to slow down.

Reverse brake

During driving, the driving switch can be switched to the opposite direction, and the pallet truck can be braked by reverse current until it starts to drive in the opposite direction.

3 . 2 . 3 Picking and storage of goods

- Failure to place and fix the goods according to the regulations may cause accidents.
- Remind personnel to leave the dangerous area of the pallet truck. If someone

stays in the dangerous area, stop the work of the truck immediately.

- Only transport goods placed and fixed according to regulations. If the goods are in danger of overturning or falling during handling, appropriate protective measures must be taken.

- Do not use damaged handling tools (such as pallet truck, pallet, etc.) to handle goods.

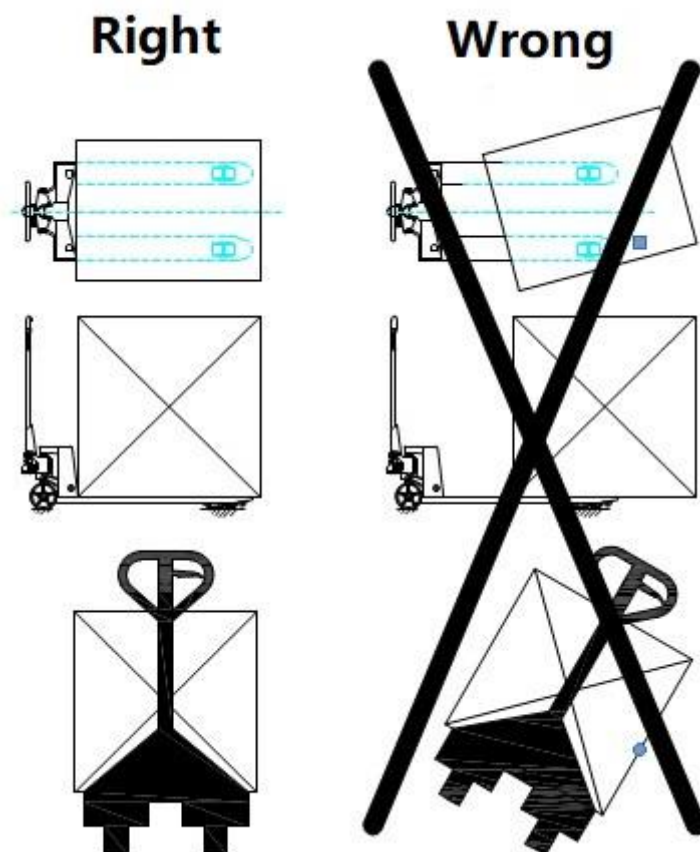
- Never enter or stay under raised load parts.

- Personnel are not allowed to enter the load parts.

- It is not allowed to lift and transfer personnel with a pallet truck.

- Try to drive the forks under the goods.

Note: pay attention to the center of gravity of the weight to avoid eccentric load or inclination (see the below picture).



UP

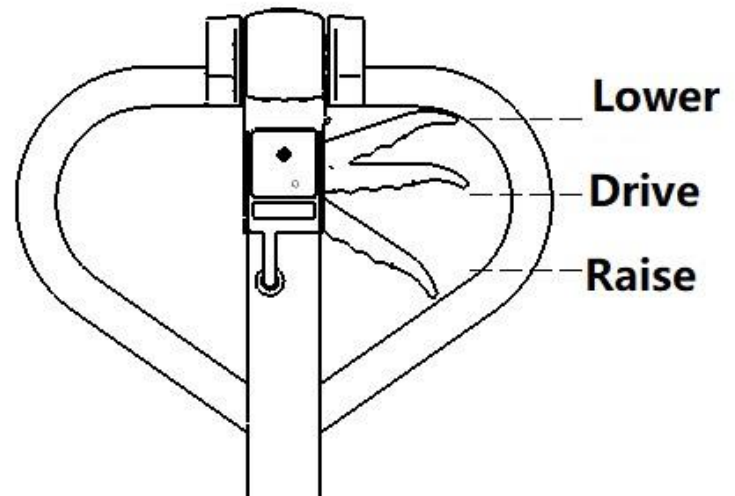
Press the small handle to the lowest gear (as shown in the figure), Tilt the handle to a certain angle, and then shake the handle up and down until it reaches the required lifting height.

Down

Turn the small handle to the highest gear (as shown in the figure), until the load-bearing parts are down to the bottom.

Drive

Place the small handle in the middle.



3.2.4 Park the pallet truck safely as required

If the driver needs to leave the pallet truck, even if the time is short, he must park the pallet truck in advance according to the regulations. Lower the load parts, lower the forks completely, and press the emergency stop switch.

Attention: 1. Do not park the pallet truck on the slope.

2. Load parts must be fully lowered.

4. Use and maintenance of battery

Check whether the lithium battery is fully charged.为 In order to meet the transportation requirements, the battery of the truck is not fully charged, and it should be charged before use.

4.1 Replace the lithium battery

Only replace the lithium battery that matches the original lithium battery model.

Warning!

The battery has high-voltage electricity and energy, do not cause short circuit, do not let the tools close to the battery poles, so as to avoid sparks or short circuit. Cut off the power supply when maintaining the pallet truck.

4.2 Charge

4.2.1 Do not smoke or use open fire when charging.

Use the charger provided by the manufacturer to charge the battery, Do not overcharge or under charge to avoid damage to the lithium battery.

Lithium battery must not be short circuited with positive and negative electrodes, which may cause explosion ! ! !

4.2.2 Charging preparation

The battery must be charged as soon as possible after the use, and the interval shall not exceed 24 hours.

After parking, press the emergency stop switch, pull out the charging plug, and insert the appropriate power supply matching the charger.

Turn on the AC power switch to start charging.

Warning !

When charging, especially in the closed area, keep a good ventilation environment. In the process of charging, it may cause explosion in case of open fire, electric spark, etc!

Disconnect the charging power before unplugging the power socket!

4.2.3 During charging

In the normal charging process, the following methods can be used to determine whether the power is sufficient:

The charge indicator turns green.

5 Storage

5.1.1 Storage

The equipment shall be placed in a dry environment; when the equipment is not used for a long time, the battery socket shall be unplugged.

5.1.2 Put into use again after storage

- Check whether all parts of the pallet truck are normal, and install and fix the battery.
- Give the battery sufficient power.

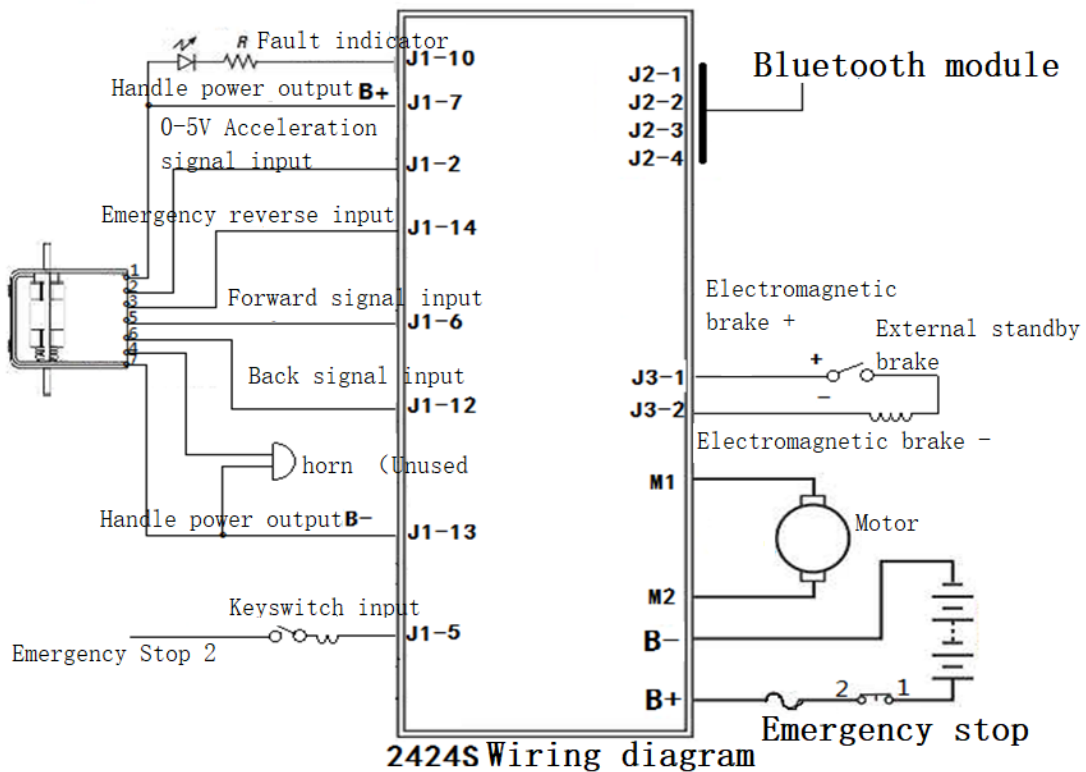
6 Analysis and solution of common mechanical faults

No.	Fault	Reason	Solution
1	Forks can not	1.Not enough hydraulic oil.	1.Add oil.

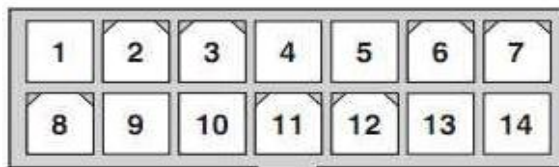
	reach to max height		
2	Forks can not be raised	1. No hydraulic oil. 2. Not pure oil. 3.Position of nut (104) and (105) are too high and make relief valve open. 4.Air in hydraulic oil.	1.Add oil. 2.Change oil. 3.Adjust (104) .(105), reffer to No. 3 & 4. 4.Exhaust Air
3	Forks can not be lowered	1. The piston rod (325) or the pump body (318) is damaged and deformed due to the goods being placed to one side or overloaded. 2. The carrier is in the raised position for a long time, so that the piston rod is exposed and rusted. 3.Nut (104) and(105) not in the right position.	1.Replace Piston (325) or pump (318) 2. Please lower the carrier to lowest position when it's not under operation, frequently lubricate piston. 3.Adjust (104) 、 (105)
4	Oil leakage	1. The seal is aged or damaged. 2. Some parts are broken.	1.Change seals 2.Change parts.
5	Self lowering	1. Impure oil caused looseness of relief valve. 2. Some parts in hydraulic system broken or damaged. 3. Air in hydraulic oil. 4. The seal is aged or damaged. 5. Nut (104) and(105) not in the right position.	1.Change oil. 2. Check and replace damaged parts. 3.Exhaust Air 4. Change seals 5. Adjust (104) 、 (105)

7. Troubleshooting and detection of drive assembly

7.1 Controller wiring diagram



7.2 Controller wiring



- J1-2: Acceleration signal input 0-5V
- J1-5: Keyswitch input 48V+ (A single one)
- J1-6: Forward signal input 48V+
- J1-7: Handle power output 48V+
- J1-12: Backward signal input 48V+
- J1-13: Handle power output 48V-
- J1-14: Emergency reverse input 48V+
- J1-9: Horn (Unused)
- J1-10: Fault indicator (reserved)

7.3 Handle wiring



No.	Description
1	Positive pole of power supply B+
2	Accelerator signal output 0-5V
3	Emergency reverse switch output 48V+
4	Horn switch output 48V+
5	Forward signal output 48V+
6	Backward signal output 48V+
7	Negative pole of power supply B-

7.4 Description of handle indicator

Color	Power description
Green	Battery power 70% - 100%
Blue	Battery power 30%-70%
Red	Battery power 10%-30%
Flashing red	Battery power lower than 10%, Please charge in time

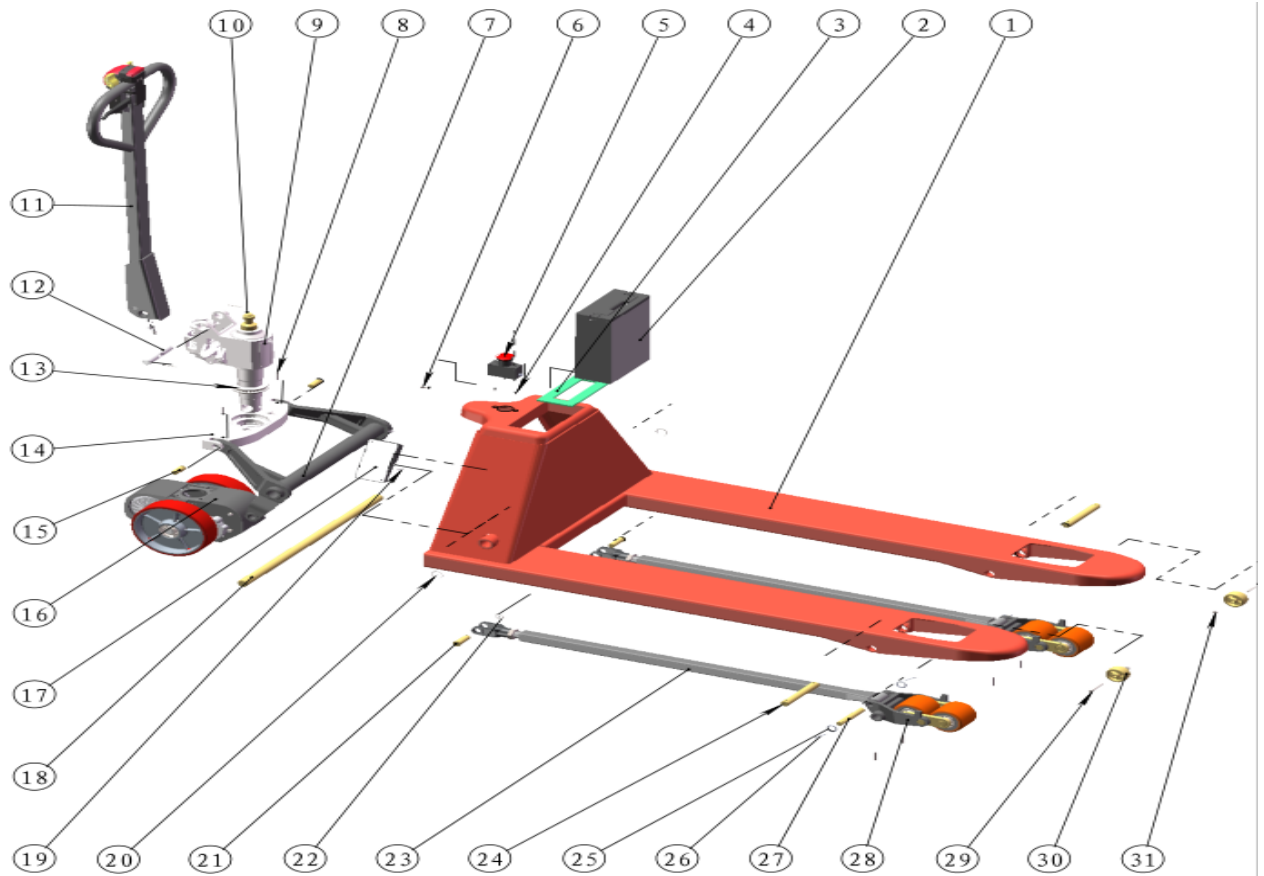
7.5 Common troubleshooting and check

No.	Fault	Check	Reason
1	Handle indicator is not on (No work)	1. Check whether the battery voltage is normal 2. Check whether the controller B +, B-is inserted reversely and connected well. 3. Check whether there is 48V voltage at the controller J1-5. 4. Check whether there is 48V voltage at controller J1-7.J1-13. 5. Check whether there is 48V voltage in wire 1 and wire 7 of handle harness.	1. Whether the battery has power. 2. Check whether the controller B +, B-is connected properly. 3. Whether there is a problem with the key switch. 4. Check whether the voltage from the controller output to the handle is normal. 5. Check whether the harness is normal.
2	Handle indicator light on (only one direction)	1. Check whether there is voltage output when handle line 2.5.6 moves forward and backward. 2. Check whether there is voltage in J1-2,J1-6,J1-12, when the controller is moving forward and backward. 3. Unplug the M1.M2 terminal of the controller and use a multimeter to measure whether there is voltage when M1.M2 moves forward and backward.	1. Whether the handle output is normal. 2. Check whether the harness is normal. 3. Check whether the controller is normal. When M1.M2 moves forward and backward, the voltage around 9V is normal.
3	Handle indicator light on (emergency reverse does not work)	1. Check whether there is voltage on line 3 of handle when pressing emergency reverse. 2. Check whether there is voltage on the controller J1-14 when pressing emergency reverse.	1. Whether the handle output is normal. 2. Check whether the harness is normal.
4	Handle indicator light on (no work)	1. Unplug the m1.m2 terminal of the controller and use a multimeter to measure	1. If there is any problem with the motor, power on is

		whether the power on-off is normal. 2. Check whether the voltage of handle line 2.5.6 is normal when it moves forward and backward. 3. Check whether there is voltage in J1-6,J1-12, J1-2, when the controller is moving forward and backward. 4. Unplug the M1.M2 terminal of the controller and use a multimeter to measure whether there is voltage when M1.M2 moves forward and backward.	normal. 2. Whether the handle output is normal. 3. Check whether the harness is normal. 4. Check whether the controller is normal. When M1.M2 moves forward and backward, the voltage around 9V is normal.
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8. Structure and parts catalogue

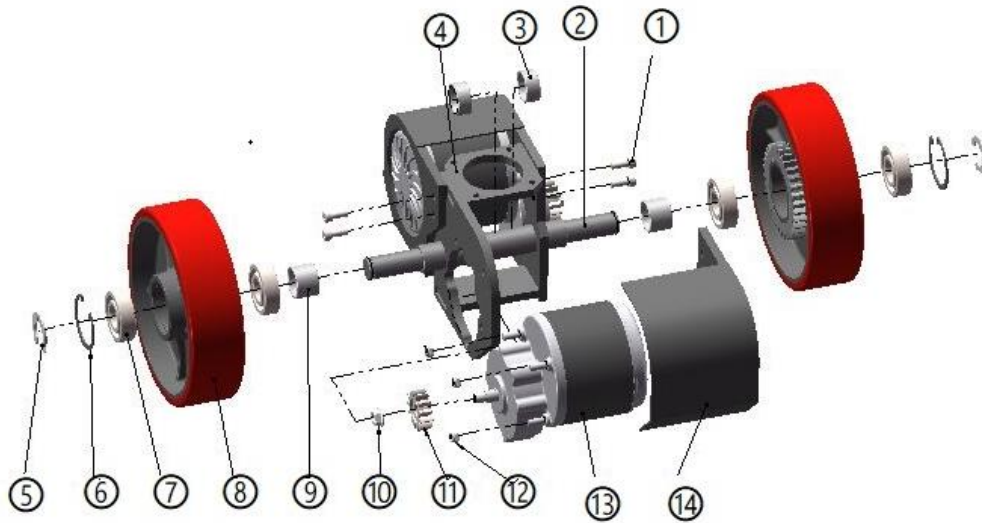
8.1 Assembly



No.	Code	Parts name	Qty
1	CBB15A2.01	Truck Body	1
2		Battery 48V15AH	1
3	CBB10A2-001	Rubber pad	1
4	GB/T 819.1-2000	Screw M5X12	2
5		Emergency switch	1
6	GB/T70.1-2000	Hexagon socket head cap screw M6X12	1
7	AC30-3000_685-JQ	Lever frame	1
8	GB/T 879.1-2000	Cylindrical pin 5X30	8
9	CBB15A2.02	Pump Assembly	1
10	GB/T308-1989	Steel ball Sφ19	1
11	CBB15A2.03	Handle assembly	1

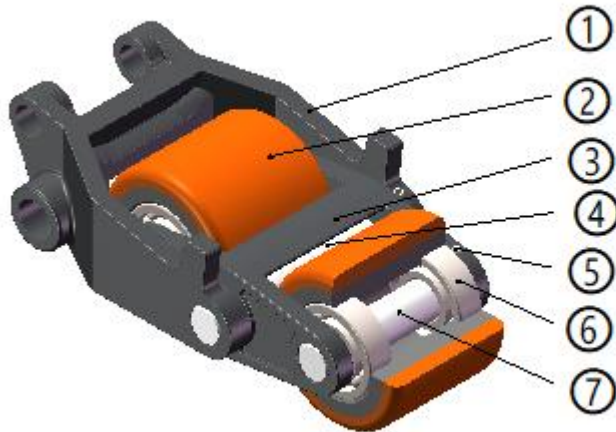
12	NA30-0011	Positioning shaft	1
13	GB/T 301-1995	Thrust ball bearing 51111	1
14	AC30-0003	Support plate	1
15	AC30-0004	Connecting shaft	2
16	CBB15A2.04	drive assembly	1
17		Controller 1212P-2501	1
18	AC30-0002_685	Lever shaft	1
19	GB/T818-2000	Screw M4x25	2
20	GB/T893.1-1986	Circlip for hole 25	2
21	AC30-0005	Fork ear connector	2
22	GB/T 894.1-1986	External Circlips 16	2
23	CBB15A2.05	Push rod	2
24	AC30-0001	Positioning shaft	2
25	GB/T848-2000	Small washer $\phi 16 \times \phi 25 \times 2$	4
26	GB/T91-2000	cotter pin $\phi 3_2 \times 25$	4
27	AC30-2001	Connecting shaft of push rod	2
28	CBB15A2.06	Front wheel frame assembly	2
29	GB/T5782-2000	Hexagon bolt M6X50	2
30	AC30-0010	Climbing wheel	2
31	GB/T889.1-2000	Lock nut M6	2
32		Wire harness	1

8.2 Drive assembly



No.	Code	Parts name	Qty
1	GB/T70.1-2000	Hexagon socket head cap screw M6X16	4
2	CBB15A2.04-001	Rear axle	1
3	CBB15A2.04-002	Rear wheel spacer 1	2
4	CBB15A2.04.01	Drive wheel frame	1
5	ac30-0008	Circlip ac30-0008	2
6	GB/T893.1-1986	Circlip for hole 47	2
7	GB 276-94	Bearing 6204	4
8	CBB15A2.04.02	Rear wheel	1
9	CBB15A2.04-003	Rear wheel spacer 2	2
10	GB/T6177.1-2000	Nut M8	2
11	CBB15A2.04-004	Small gear 2.5M 13T	2
12	GB/T889.1-2000	Nut M6	6
13		Drive motor ZD109AZ5	2
14	CBB15A2.04.03	Drive guard housing	2

8.3 Front wheel frame assembly



No.	Code	Parts name	Qty
1	na30-2101	Front wheel frame na30-2101	1
2	AC30-2103	Front wheel	
3	na30-2102	Double wheel frame - na30-2102	1
4	AC30-2104_d	Front wheel shaft (Single)	1
5	GB/T879.1-2000	Elastic cylindrical pin 5X35	3
6	GB/T276-94	Bearing 6204	2
7	AC30-2104	Front wheel shaft ac30-2104	2