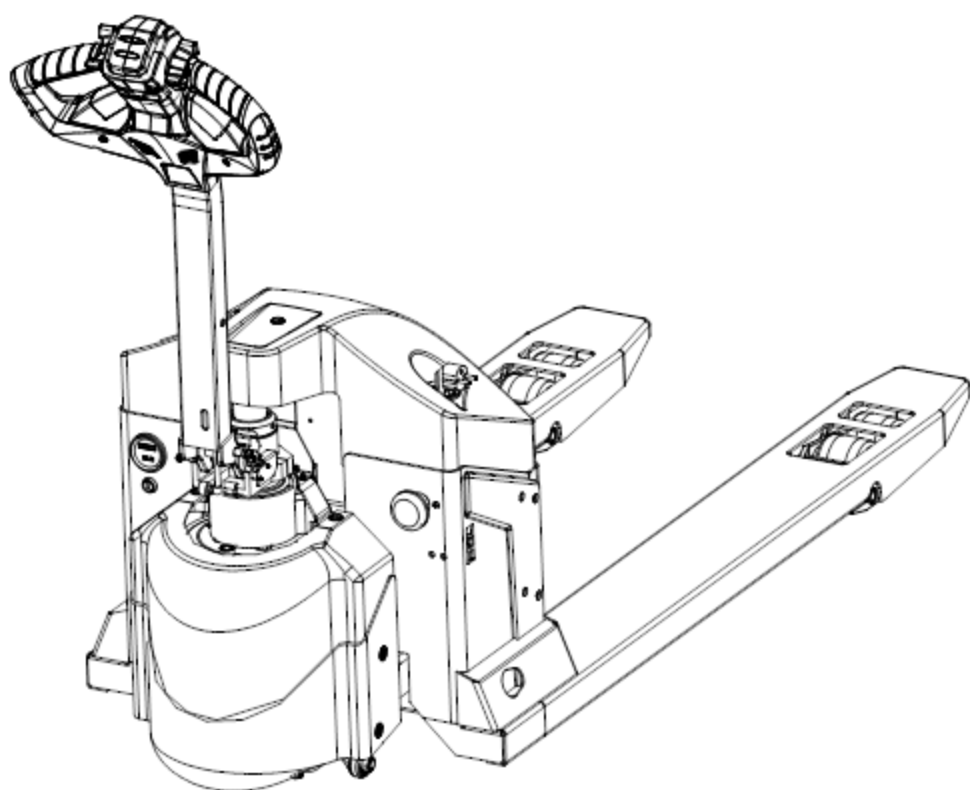


CBD20W-E

Electric Pallet Truck

- Operation Manual
- Parts Catalogue



2020.8

Hope our electric pallet truck will provide great convenience for your work !

- Please read the manual carefully before operation
- This is a universal manual. We reserve the right to modify technology of the electric pallet truck. If there is anything in the manual that is not consistent with the actual truck, the actual one should be considered correct and the manual is only for reference.

Warning

- Operator of the truck must strictly follow ISO 3691 "Safety Specification for Industrial Vehicles" and it is prohibited for untrained people to operate the truck.

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1. Safety regulations



Always wear safety shoes when operating the truck.



Safety glasses are recommended to avoid personal accidents while assembling or disassembling the pallet truck.



CAUTION !

When the truck is damaged or has safety problems, stop using it immediately.



CAUTION !

The pallet truck is designed for hard and flat floor only.

It's forbidden to use the truck when :

- air contains dust or flammable and explosive gases that can cause fire or explosion.
- in freezer or some low temperature, salty or other corrosive environment.
- rainy outdoor.
- operating on gravel or grassland.
- the gradient of the ground is greater than the gradient of product design.



CAUTION !

- Carefully judgment and responsible attitude should be taken in the operation of pallet trucks.
- The pallet truck is not able to be operated with oily hands or shoes
- Operators shall not wear loose clothes or jewelry



CAUTION !

- When operating the truck, it should be ensured that the ground possess sufficient load bearing capacity and the load here refers to the sum of the weight of the truck and the weight of the goods.
- When there is a protruding object on the truck or around it, which may cause human injury or forklift damage, one must be very careful.
- It is strictly prohibited for people to appear around the truck operation area, which may cause human injury, for example, when goods fall down.



**CAUTION !**

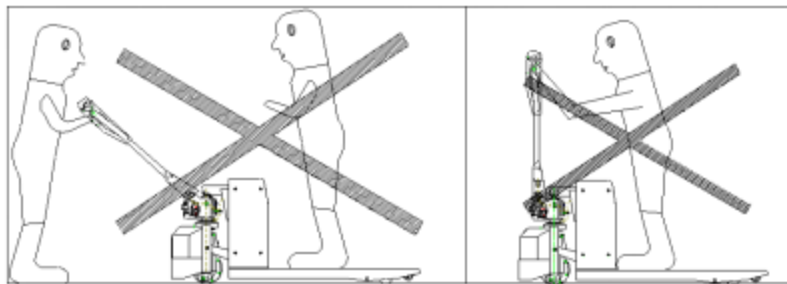
- Operators must be very careful when handling the pallet truck on a slope. See the drawing, the operator should stand ahead of the truck. Operators must be very careful when handling the pallet truck on a slope.

**Warning!**

- When turning, high-speed operation should be avoided to prevent the truck from turning upside down.
- The goods should not be piled too high to avoid blocking the vision line.
- Braking should be conducted slightly and very careful to prevent the goods from sliding off the tray, which may damage the goods.
- It is not allowed for the truck to turn on a slope.
- Before pushing the truck into an elevator, the operator must ensure that the elevator is able to bear the total weight of the truck and the goods, the total weight of the operator and other people in the elevator. When entering the elevator, make sure that the goods enter first and then the operator. When the truck and goods enter or leave the elevator, other people must not stay in the elevator.

**CAUTION !**

- The load weight should not exceed the truck's rated load.
- The maximum lifting capacity of the truck is 1500Kg and the weight of the load must not exceed the lifting capacity.
- When piling goods, the goods must not be piled too high to avoid goods fall down or truck turn over when handling.
- It is strictly prohibited to use this truck to transport human being.
- No other people should stay around the truck operation area to avoid injuries and deaths when the truck suddenly fails in operation.
- It is prohibited to operate the truck when sitting or standing on the truck.

**CAUTION !**

- When parking the truck, the forks should be lowered to the minimum height.
- It is not allowed to park the truck on a slope.
- It is not allowed to park the truck in emergency passageway.

- It is not allowed to park the truck in a place blocking traffic or affecting operation.
- It is not allowed to operate the truck in a raining environment.
- When nobody takes truck of the truck, please turn off the general power supply.

2. Truck description

Operation principle of CBD20W-E truck:

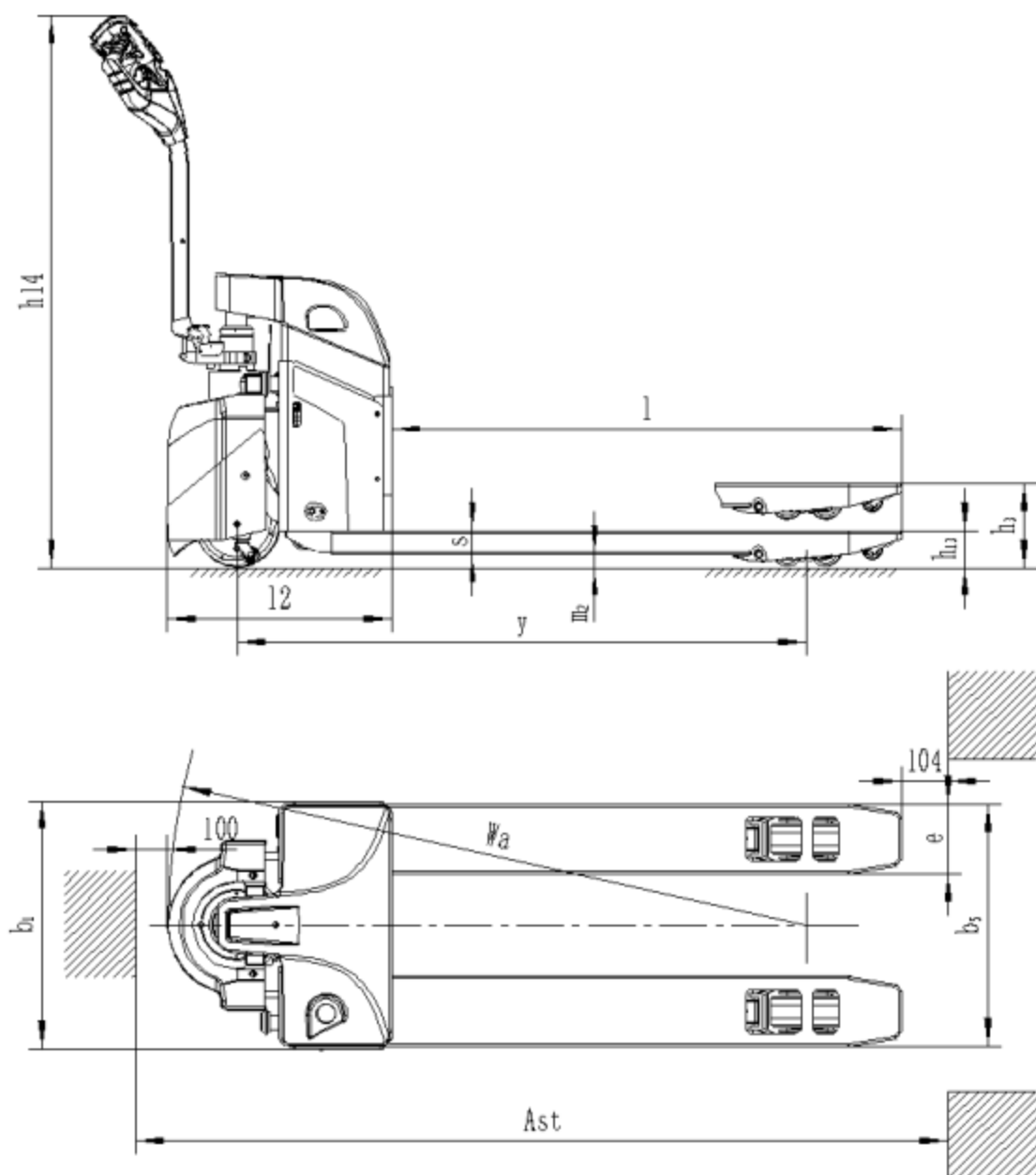
Traveling system adopts storage battery as power source and motor as the power, drive the truck by the gear transmission.

Lifting system uses battery as power source and motor as the power, drive the oil cylinder lift the fork by the hydraulic transmission.

This truck is suitable to operate on indoor hard and smooth ground. It is not allowed to operate the truck for unsuitable applications, for example,

- When the air contains dust or gas, which may cause fire or explosion.
- In refrigerating warehouse or some environments with low temperature, containing salt or other corrosive substances.
- Operation in rainy open air
- Operation on granules or grassland
- Passengers operation

Some relevant technical parameters are given in the table below, which should help in routine operation and maintenance of the truck.



Model		CBD20W-E(Lead-acid battery)	CBD20W-E(Li-ion battery)
Drive model		Electric	Electric
Operation type		Walkie	Walkie
Rated load	Q(kg)	2000	2000
Load centre distance	C (mm)	600	600
Fork height, lowered	h_{13} (mm)	85/75	85/75
Tread	Y(mm)	1283/1353	1283/1353
Tyre		PU	PU
Tyre size, front	mm	Φ195X70	Φ195X70
Tyre size, rear	mm	Φ80/Φ74	Φ80/Φ74
Wheel number, front/rear (x = driving wheel)		1X-2/2 (4)	1X-2/2 (4)
Lifting height	h_3 (mm)	200/190	200/190
Min./Max. height of operation handle in the driving position	h_{14} (mm)	700/1250	700/1250
Overall length	l_1 (mm)	1654/1724	1654/1724
Length to fork face	l_2 (mm)	504	504
Overall width of truck body	b_1 (mm)	685/562	685/562
Fork dimension	s/e/l(mm)	53/160/1150(1220)	53/160/1150(1220)
Fork width	b_5 (mm)	520/550/685	520/550/685
Wheelbase ground distance	h_1 (mm)	32/22	32/22
Aisle width, with pallet 1000x1200 crosswise	A_{st} (mm)	2244/2310	2244/2310
Aisle width, with pallet 800x1200 lengthwise	A_{st} (mm)	2120/2155	2120/2155
Turning radius	W_a (mm)	1440/1510	1440/1510
Traveling speed, laden/unladen	Km/h	4.3/4.8	4.3/4.8
Lifting speed, laden/unladen	mm/s	25/30	25/30
Lowering speed, laden/ unladen	mm/s	35/25	35/25
Max. gradeability, laden/unladen	%	5/20	5/20
Driving motor power	KW	0.65	0.65
Lifting motor power	KW	0.8	0.8
Battery voltage/rated capacity(3 hour rate)	V/Ah	24/105	24/50
Battery dimension (LXWXH)	mm	260/169/215	244/180/231
Battery weight	Kg	49	10
Service weight	Kg	220	185
Traveling brake		electric	electric
Noise level at operator's ear, according to DIN12053	dB(A)	70	70

3. Truck operation

Fork lifting

- Turn on the electric key and emergency stop switch.
- Figure1, press the lifting button, fork lifts.

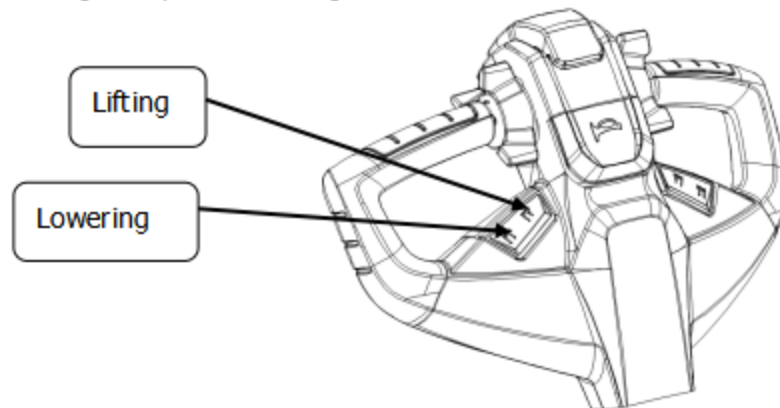


Fig. 1

Fork lowering

Figure 1; press the lowering button, fork lowers.

Pallet truck travelling

- Turn on the electric key and emergency stop switch.
- As shown in Figure 2, press down the handle to keep the handle in Section B.

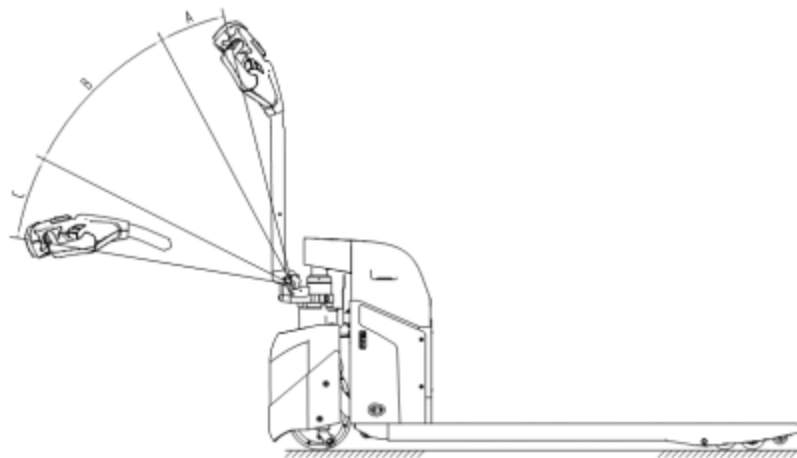


Fig.2

- Rotate the accelerate knob ,make the direction same as the truck movement, figure 3
- The speed of the truck is in accordance with the rotation angle of knob.
- The knob will back to natural automatically when releasing it .the speed of truck will reduce until it stops.

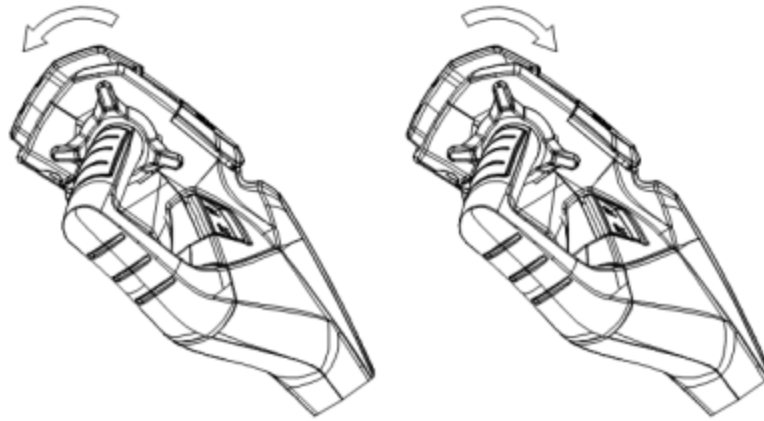


Fig.3

Low-speed travelling

- The truck has the function of low-speed travelling. As shown in Figure 4 ,there is a turtle button at the back of the handle. When the truck is energized, keep the handle in section B, then keep pressing the turtle button, meanwhile, rotate the accelerator knob, the truck will drive in a low speed. The truck returns back to the fast-speed state when releasing the low-speed button.

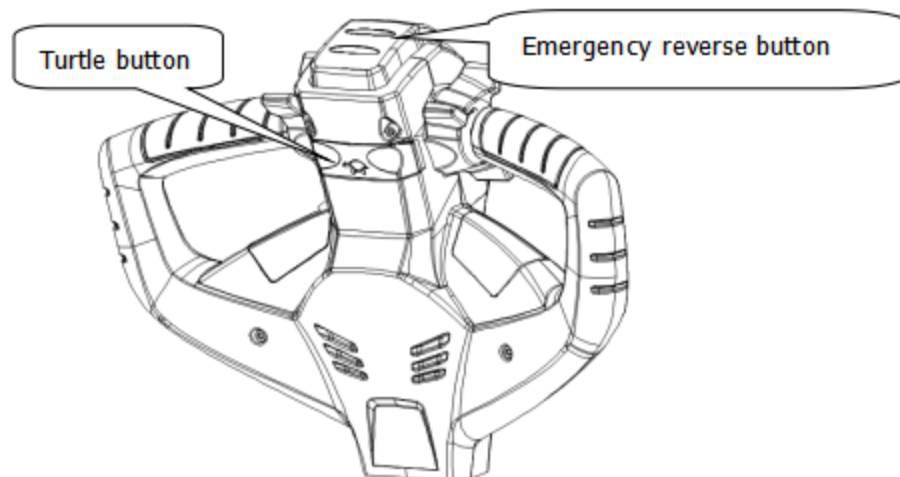


Fig.4

Pallet truck braking

- When the truck is traveling fast, Pull the handle upright or press down it to brake the truck immediately.
- Release the accelerating button to brake slowly.

Emergency reverse

- Fig 4 The red button at the end of the handle is the emergency reverse button, the truck will stop immediately and move backwards for a distance when the body touch the emergency reversing button. It is a safety button which avoids the extrusion of the truck to protect the operator from injured when it meets the obstacles.

Pallet truck parking

- Release Speed button to stop running. the truck will slow down until the brake suction together in the truck .
- Lower the fork to the lowered position.

- Turn off the electric lock and emergency stop switch.

4. Maintenance and charging of the battery

4.1 Maintenance and charging of the lead-acid storage battery

- When the electricity indicator of the forklift indicates that the electricity of the battery is insufficient, charging should be conducted at once. Otherwise the battery will be damaged.
- Turn off the electric lock and emergency stop switch, connect the charge cable and charging socket and then connect the plug and power socket to start charging.

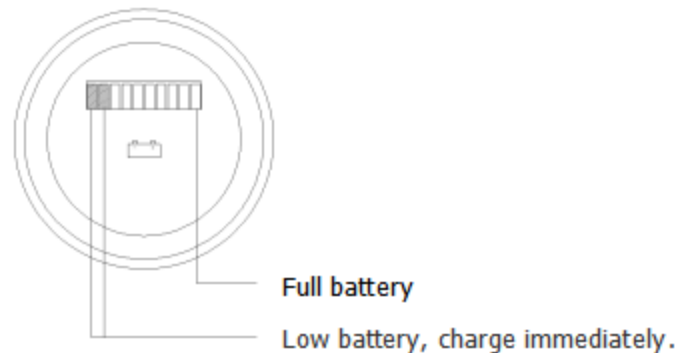


Fig. 5

- When the green pilot light of the charger turns on, it indicates that the battery is fully charged and in that case, the connecting cable can be pulled out and insert the socket into the truck. Then the forklift is in ready state.
- If the battery is completely discharged, full charging must be conducted (about 12h).
- After discharging, the storage battery cannot be placed for a long time and charging should be conducted as soon as the battery is discharged.
- When the forklift is not in operation, the general power supply must be turned off, the electric lock must be pulled out and one supplementary charging must be conducted every 3 months during the period when the forklift is in storage.
- It is strictly prohibited to open the storage battery air vent valve; otherwise, poor sealing will be caused and the capacity and service life of the battery will be affected.

4.2 Maintenance and charging of the Li-ion battery

- Li-ion battery, whose voltage is 24V, is adopted for the truck; It's environmentally friendly, without chemical mercury, cadmium and other components.
- The ambient temperature of the battery is - 10 ~ 45°C;
- Charging ambient temperature 0-45°C
- Please use the Li-ion charger specially equipped by our company. The working voltage of the charger is 24V, the maximum charging cut-off voltage is 29.2V, and the charging current is 20A
- During the long-term storage period, the battery shall be charged and discharged every 3 months;
- Before using a new battery or for the first time after long-term storage, please fully charge the battery before using;
- Do not short circuit the battery, which may permanently damage the battery;

- Do not burn or destroy the battery, which may cause the release or explosion of toxic gas;
- Do not weld the battery directly;
- Do not put the battery in an unfavorable environment, such as extreme temperature, deep cycle, or frequent overcharge / over discharge;
- If the battery is hot, do not touch it until it cools down;
- After use, if the battery is hot, please cool it in a ventilated environment before recharging;
- Do not put the battery into water or sea water;
- Don't try to separate, squeeze or impact the battery. The battery will heat or catch fire. The alkali in the battery is harmful to the skin and eyes, and it will damage the clothes;
- Keep batteries away from children;
- Do not reverse charge the battery

5. Maintenance

If the forklift is able to operate satisfactorily depends on careful maintenance. When maintenance is neglected, human safety may be endangered and property may be damaged. When the truck is in operation, routine inspection should be conducted frequently and abnormal should be removed in time. Do not operate forklift with trouble to ensure safety and prolong the service life of the forklift.

Maintenance: The maintenance of the forklift is usually divided into three levels, routine maintenance, level 1 maintenance and level 2 maintenance.

Routine maintenance: Once every day and the main content is to keep the surface clean and examine if the power supply cable is damaged.

Level 1 maintenance: Once every week. The maintenance contents, besides the contents of routine maintenance, should focus on if the operation of the components is normal, if the fastening items are loose, if there is any oil leakage, if there is any abnormal wearing in mechanical components, if there are abnormal temperature rise or sparks in electric equipment, etc. Adjustment and trouble shooting should be conducted if any abnormal situation is discovered.

- **Level 2 maintenance:** It should be conducted periodically and overall inspection should be conducted according to following requirements:
- **a. Mechanical maintenance should be conducted every half a year.** The main contents are to replace lubricating oil for the transmission gear and bearing of the drive wheel, apply lubricant to various rotating joints, while examining if the fastening items are loose, if the wheels are rotating flexibly, if the fork rises and declines normally. The operation noise of the forklift after maintenance should be no greater than 70db.
- **b. Maintenance of hydraulic system:** Once every 12 months. Examine if the oil cylinders are in normal state, if there is any internal or external leakage and if the hydraulic oil is clean. The hydraulic oil is usually replaced every 12 months. ISO oil standard is applied to hydraulic oil. When the ambient temperature is -5 ~ 40℃, HL-N32 is adopted and when the ambient temperature is -35 ~ -5℃, HV-N20 low temperature hydraulic oil is used. The waste oil from the replacement should be treated according to the relevant local regulation and law. Examine if the operation of the load limit valve is normal.
- **c. Electric equipment maintenance:** It should be conducted every 3 months to

examine if the connectors of electric equipments are reliable, if the switches are normal and if the insulation of the electric equipment is in normal condition (The insulation resistance of electric equipment and the forklift body should be greater than $0.5M\Omega$).

6. Replacement of battery

6.1 Replacement of the lead-acid battery

- turn off the electric lock \ emergency stop switch ;
- (Fig 6) loose screw1, remove cover2 ;
- (Fig 7) loose screw3, remove rear cover4;
- (Fig 8) loose screw5, ensure that the battery is compressed by the integration seat ;
- (Fig 9) loose the screw on the battery terminal. Loose the positive wire first, avoid the battery short circuit ;
- (Fig 10) remove old battery7, assemble the new battery according to the opposite steps ;

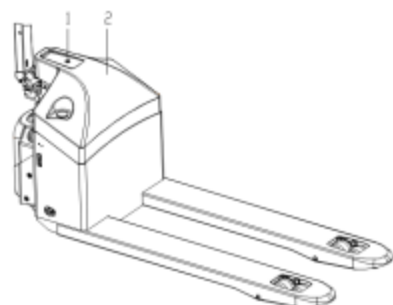


Fig. 6

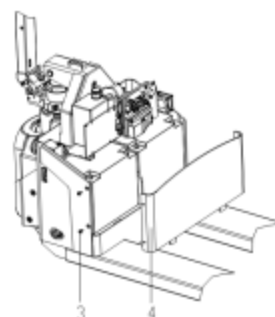


Fig. 7

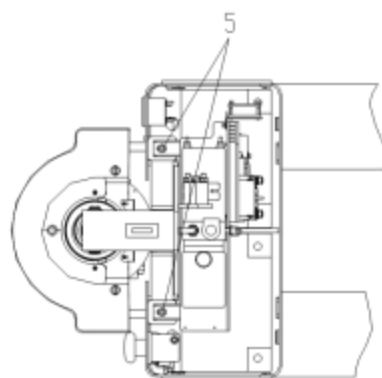


Fig.8

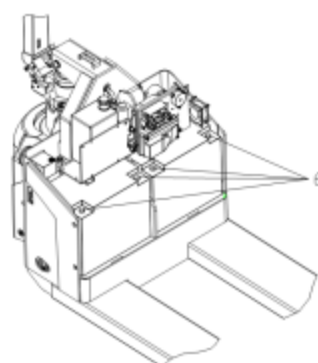


Fig.9

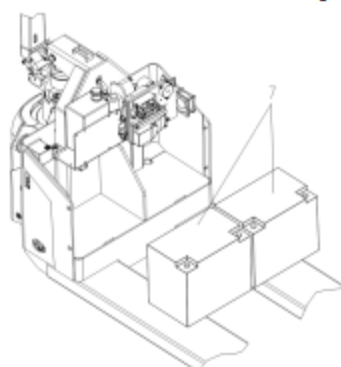


Fig.10

6.2 Replacement of the Li-ion battery

- Close the electric lock and emergency stop switch;
- (Fig.11) Screw out the screw 1 and remove the cover 2;
- (Fig.12) Screw out the screw 3 and remove the rear case cover 4;
- (Fig.13) Loosen screw 5 so that the lithium battery is not compressed by the integrated base;
- (Fig.14) Remove the lithium battery connecting line 6. Pay attention to the positive and negative poles to avoid battery short circuit;
- (Fig.15) Remove old battery 7, then put the new one following above steps.

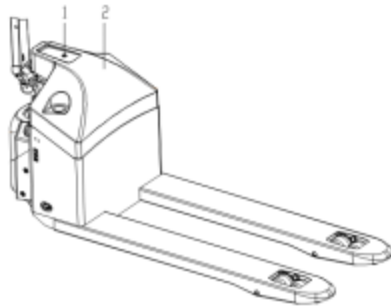


Fig. 11

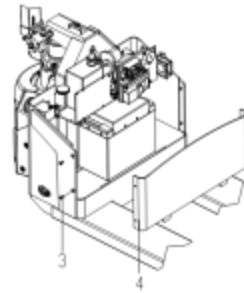


Fig. 12

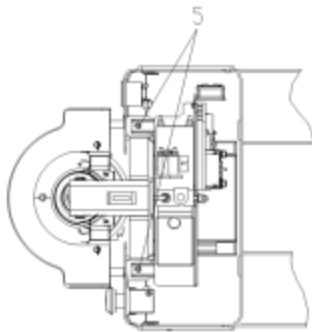


Fig. 13

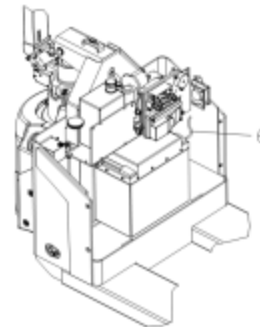


Fig. 14

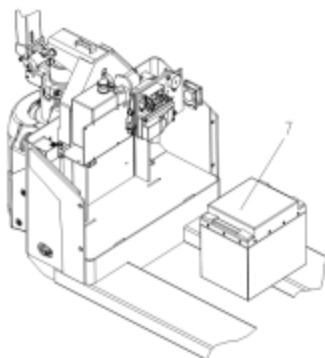


Fig. 15

7. Installation of the handle

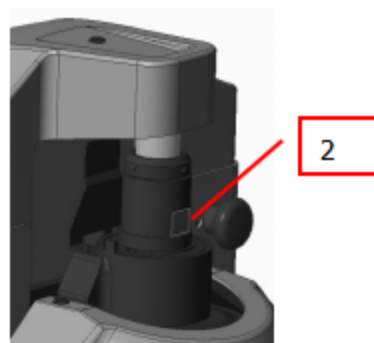
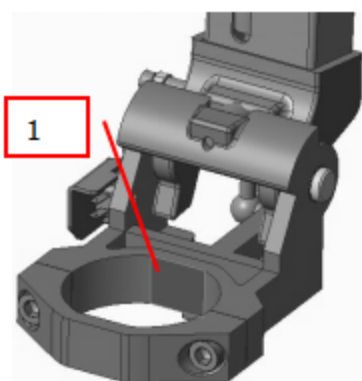


Fig.16

Note : Confirm that plane 1 of the handle aligns to plane 2 of the oil cylinder when installing the handle.

- (Fig.17) Remove the platen 4 from the handle 5;
- (Fig.18) Install the removed handle to oil cylinder 6 , align to it and tighten the screw 3;
- (Fig.19) Insert the wiring harness connector 7 of the handle after aligning;
- (Fig.20) tighten the nut 8 of the wiring harness connector.



Fig.17

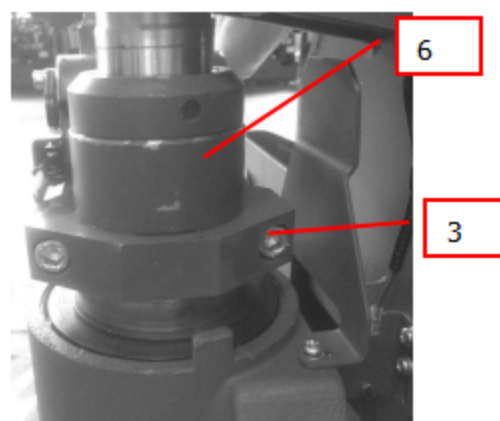


Fig.18

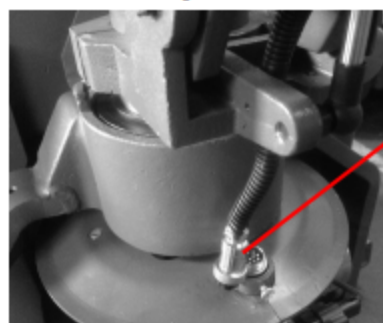


Fig.19

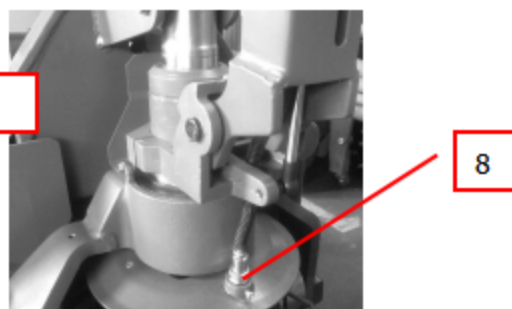


Fig.20

8. Replacement of gear oil of the driving wheel

- (Fig.21) Screw off screw 1 and 2, total 6 pieces, then remove the housing
- (Fig.22) 3 is the oil filling hole, 4 is the Spilling oil hole, 5 is the drain hole. Screw off screw 5 to drain oil when replacing gear oil. Tighten screw 5 after the oil is drained. Remove screw 3 to fill new gear oil into the gear box with a funnel. Required oil amount is 320ml. To check if there is enough oil refilled, set the gear box quietly for 10mins to see if there is oil spills from the spilling hole by removing screw 4. If there is no oil coming out from the oil, fill more oil until seeing some spilled oil.

Note : Gear oil model GL-5 85W/90

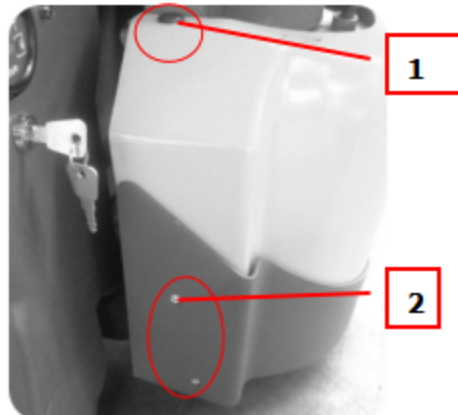


Figure 21

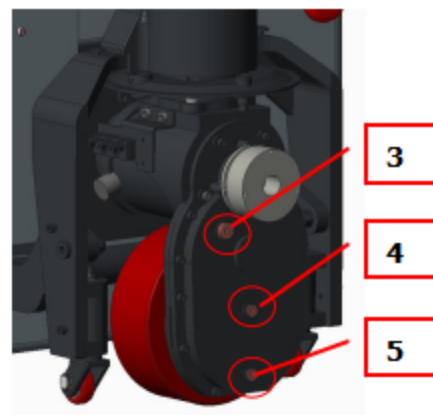


Figure 22

9. Common failures and trouble shooting

Table below provides common failures of the truck in operation and the trouble shooting :

No.	Faults	Analysis of Cause	Shooting
1	Hydraulic oil leakage	1. Failed oil seal 2. Piston rod damaged 3. Top cap is loose	1. Replace the oil seal 2. Replace the piston rod 3. Tighten top cap.
2	Hydraulic power unit does not work	1. Blown fuse 2. Worn motor brush 3. Circuit fault	1. Replace fuse 2. Replace motor 3. Inspect the circuit
3	Cannot lift the rated weight	1. Hydraulic power unit is lack of oil 2. Blown gear pump	1. Add the hydraulic oil 2. Replace gear pump
4	The truck does not travel	1. The power does not turn on. 2. Low battery 3. Controller faults 4. Contactor damaged 5. Blown fuse 6. Accelerator damaged 7. Handle travel switch damaged	1. Turn on the power 2. Charge the truck 3. Replace controller 4. Replace contactor 5. Replace fuse 6. Replace accelerator 7. Replace travel switch

5	The charger is unable to charge	Damaged charger	Replace the charger
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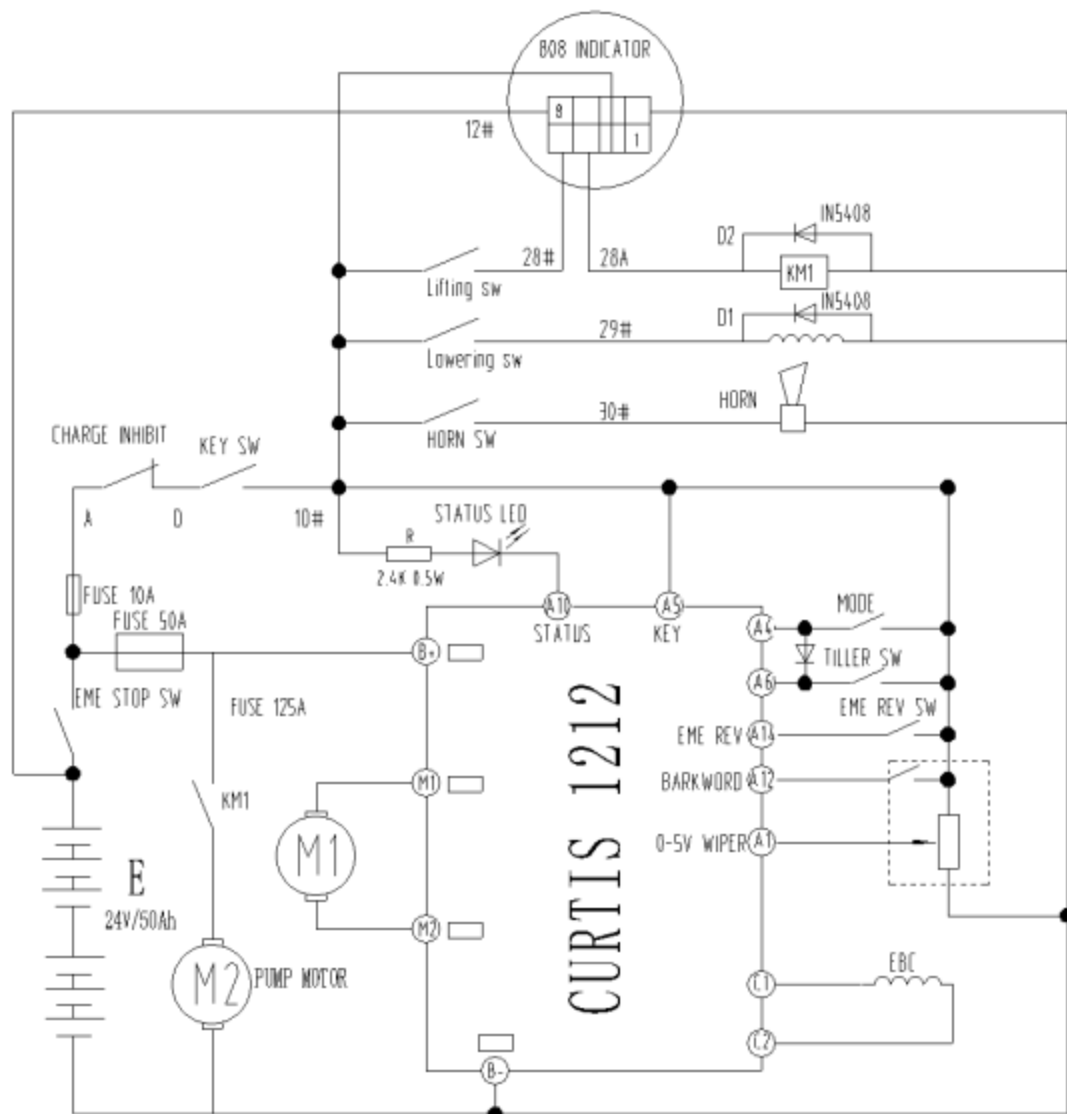
10. Treatment of waste disposal

The abandoned batteries and hydraulic oil should not be placed trucklessly and must be treated according to the relevant local regulations and laws. Attention must be paid to environmental protection.

11. Accessories, spare parts and wearing parts

No.	Name	Apply position	Specifications	Quantity	Remark
1	Key	Unlock the electric lock		2	
2	Fuse	Electric system	10A	1	
3	Fuse	Electric system	125A	1	
4	Charger	Charging		1	External charger

12. Electrical schematic diagram



**External charger for
lead –acid battery external charger**

13. Packing list

Packing List of CBD20W-E electric pallet truck

Consignee:

Ex-work No.:

Contract No.:

Ex-work Date:

No.	Name	Quantity	Net weight (kg)	Dimension (L×W×H)	Remarks
1	CBD20W-E	1			A complete set
2	Accessory box	1			Technical documents, accessories and spare parts.

Note: 1. The following documents are in the file bag:

- | | |
|---|----------|
| ① Operation manual of electric Pallet truck | 1 volume |
| ② list of parts | 1 volume |
| ③ Qualification certificate | 1 copy |
| ④ Packing list | 1 copy |

2. Accessories, spare parts and wearing parts

No.	Name	Use position	Type & specification	Quantity	Remarks
1	Key to electric lock	Unlock the electric lock		2	
2	Fuse	Electrical System	10A	1	
3	Fuse	Electrical System	125A	1	
4	Charger	Charging		1	External charger

Consignor: