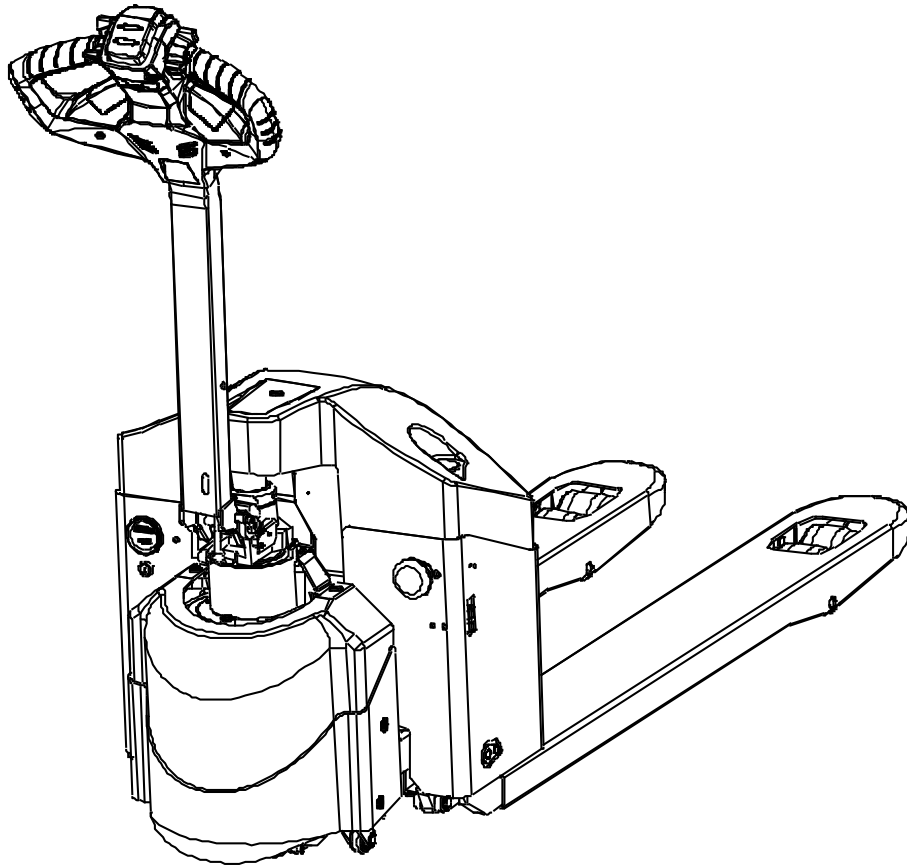


15EPM

HYUNDAI Electric Pallet Truck

● Operation Manual



HYUNDAI CONSTRUCTION EQUIPMENT

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

- Please read the manual carefully before operation
- This manual is universal manual. We reserve the right to modify technology of the electric stacker. If there is anything in the manual that is not consistent with the actual stacker, the actual stacker 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



When operating the truck, one should always wear safe shoes.



When assembling or disassembling the truck, in order to avoid injury, one should always wear safety goggles.



Attention !

When the truck is damaged or failure-affecting safety occurs, do not go on operating the truck.



Attention !

The designed truck can only be used on hard and smooth ground.

In the following environmental situations, it is not allowed to operate the truck:

- The air contains dust or gas, which may be able to cause fire or explosion.
- In refrigerating warehouse or some low temperature, salt containing or other corrosive environments.
- Raining outdoor environment
- Operation on granule or grassland



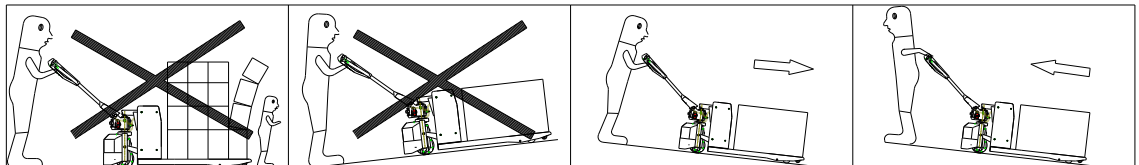
Attention !

- When operating the truck, careful judgment should be conducted and one should operate in a responsible manner.
- One should not operate the truck with hand or shoes with oil.
- The operator must not wear loose clothes or jewelry. .



Attention !

- 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.



Be careful!

When handling goods on a slope, the operator must be very careful in operation. The operator should operator in the upper part of the slope as shown in the figure above.



Warning !

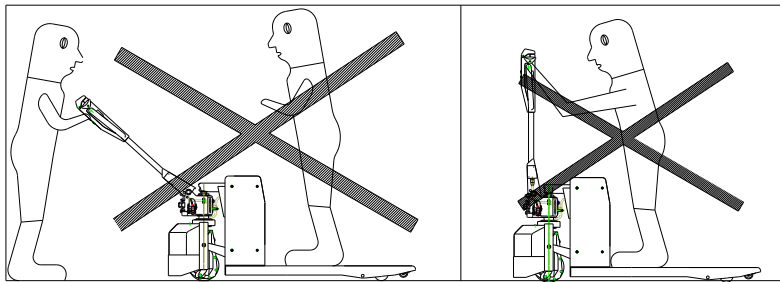
- When turning, high-speed operation should be avoided to prevent the truck from turning upside down.
- The goods should not be piled too high to avoid blocking the vision line.
- Braking should be conducted slightly and very carefully to prevent the goods from sliding off the tray, which may damage 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.



Be careful !

- 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.
- When operating the lever or pushing the truck, one must make sure the hand is put above the lever.



Attention!

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 care of the truck, please turn off the general power supply.

2. Truck description

Operation mode of model 15EPM truck:

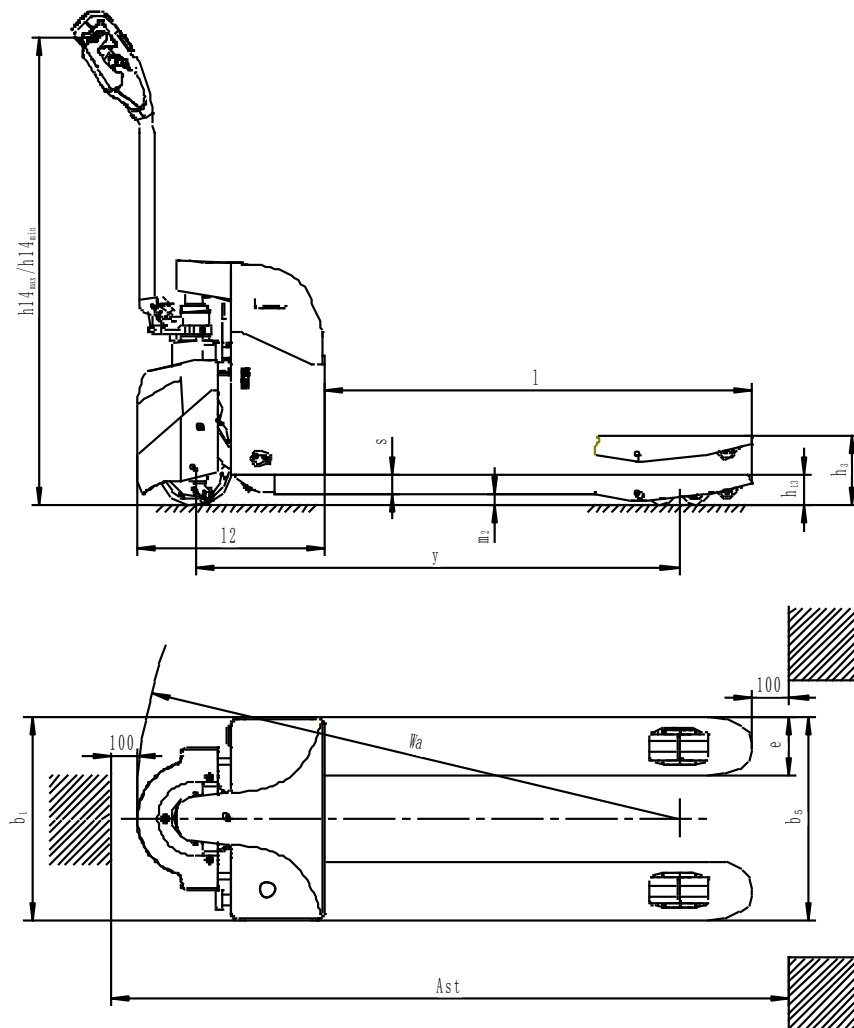
Running system adopts storage battery as power source and with motor as the power, through the gear to drive truck.

Lifting system uses battery as power source, with motor as the power, through the hydraulic drive to promote the lifting fork of oil cylinder.

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.
- Outdoor raining
- Operation on granules or grassland
- Transporting passengers

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



Model	15EPM	
Drive type	Electric	
Operation type	Pedestrian	
Load capacity	Q(kg)	1500
Load centre	C(mm)	600
Fork height, lowered	h ₁₃ (mm)	75
Wheelbase	Y(mm)	1288
Tire	-	PU
Tire size, front	mm	Φ195X70
Tire size, rear	mm	Φ74
Wheel number, front/rear (x = driving wheel)	-	1X-2/2
Max. Lift height	h ₃ (mm)	190
Min./Max. height of operation handle in the driving position	h ₁₄ (mm)	701/1271
Overall length	l ₁ (mm)	1655
Length to face of forks	l ₂ (mm)	504
Overall width	b ₁ (mm)	686
Fork dimension	s/e/l(mm)	1143
Width overall forks	b ₅ (mm)	686
Ground clearance, center of wheelbase	M ₁ (mm)	22
Aisle width, with pallet 1000x1200 crosswise	Ast(mm)	1855
Aisle width, with pallet 800x1200 lengthwise	Ast(mm)	1906
Turning radius	Wa(mm)	1455
Traveling speed, laden/unladen	km/h	4.3/4.8
Max. grade ability, laden/unladen	%	5/10
Driving motor rating at S2 60 Min	KW	0.65
Lifting motor rating at S3 15%	KW	0.8
Battery voltage/nominal capacity	V/Ah	24/65
Battery dimension (L x W x H)	inch	260/168/214
Battery weight	kg	50
Service weight	kg	200
Traveling brake	-	electric
Noise level at operator's ear, according to DIN12053	dB(A)	70

3. Truck operation

Fork lifting

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

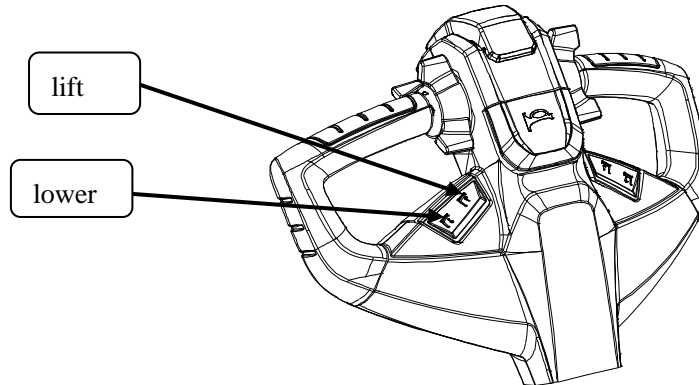


Fig 1

Fork lowering

Figure 1, press on the lowering button, fork lowers.

Pallet truck driving

- Turn on the electric lock and emergency stop switch.
- Figure 2 bend the handle to keeping the handle in the Section B area.

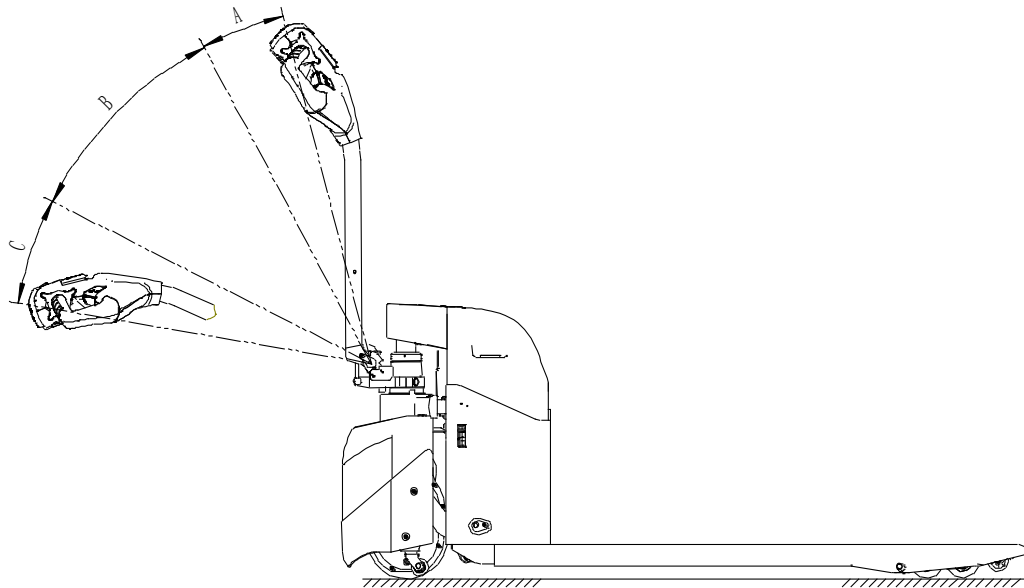


Fig 2

- Rotate the accelerate knob ,make the direction same as the truck movement, figure 3
- The speed of the truck movement according to the rotation angle of knob.
- The knob will back to the median automatic when release it .the speed of truck will reduce until it stop.

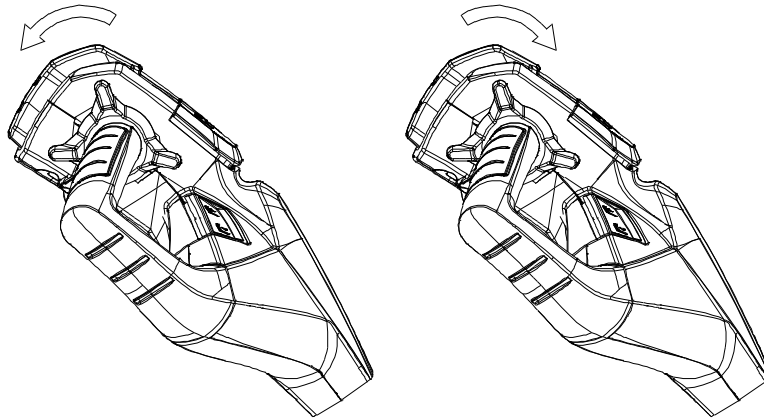


Fig 3

Low-speed travelling

- The truck has the function of low-speed travelling, Figure 4 there is a tortoise button at the back of the handle, when the truck is energized, keep the handle in section B area, When you press the button and keep doing it, meanwhile, Rotating speed knob, the truck will be in a low speed state. The truck returns back to the fast-speed state when releasing the low-speed button.

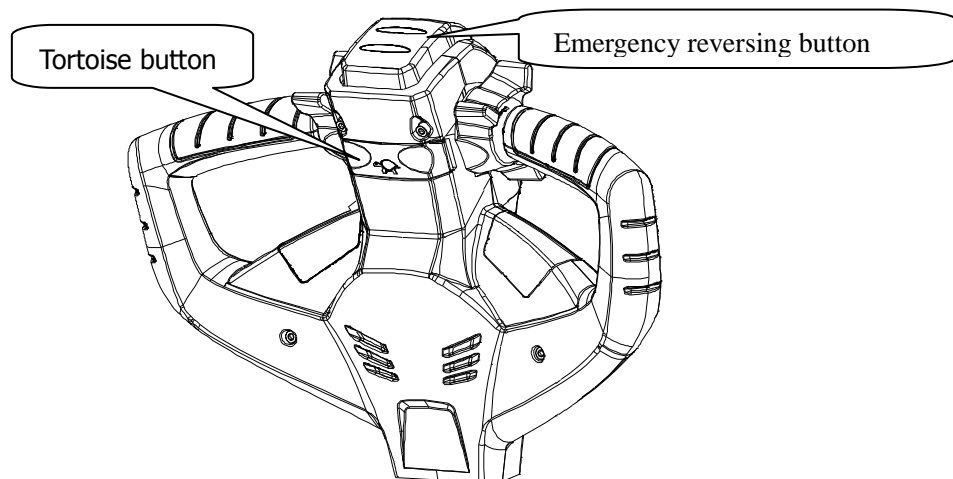


Fig 4

Pallet truck braking

- In fast-speed state, straight up or press on the handle to realize emergency braking.
- Release the accelerating button to brake slowly.

Emergency reversing

- The red button at the end of the handle is the emergency reversing 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 he 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.
- Close the electric lock and emergency stop switch.

3. Maintenance and charging of 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.
- Close the electric lock and emergency stop switch, connected with charge cable and charging socket and then connected with the plug and power socket to start charging.

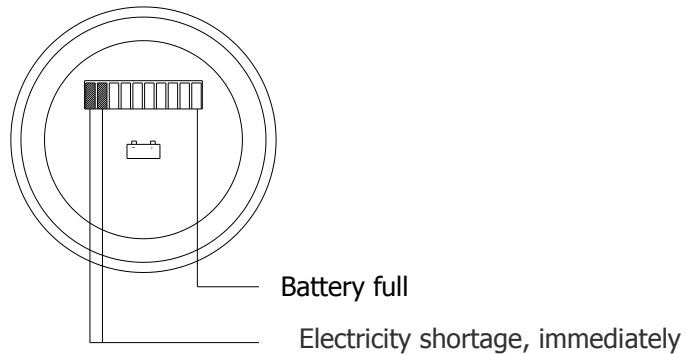


Fig 5

- 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 five 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.

5. Maintenance

- **5.1** 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.
- **5.2** Maintenance: The maintenance of the forklift is usually divided into three levels, routine maintenance, level 1 maintenance and level 2 maintenance.
- Routine maintenance: Once everyday and the main content are 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 $-5 \sim 40^{\circ}\text{C}$, HL-N32 is adopted and when the ambient temperature is $-35 \sim -5^{\circ}\text{C}$, 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 three 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 $0.5\text{M}\Omega$)

6. Replacement of battery

- Turn off the electric lock、emergency stop switch;
- (Fig 6) loose screw1, remove cover2;
- (Fig 7) remove battery wire3;
- (Fig 8) loose screw4、5, then remove oil tube connector 6;
- (Fig 9) pull out the connector before removing the integration component7;
- (Fig 9) remove old battery8, assemble the new battery according to the opposite steps;

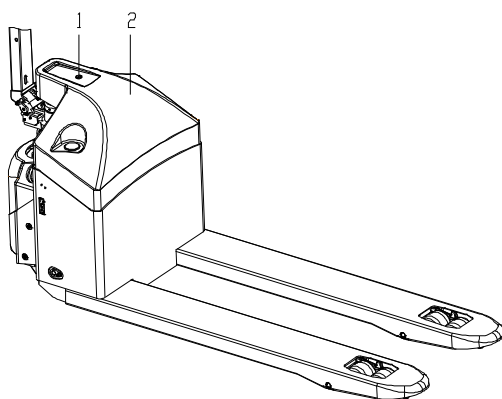


Fig 6

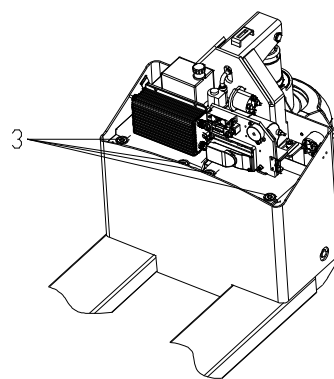


Fig 7

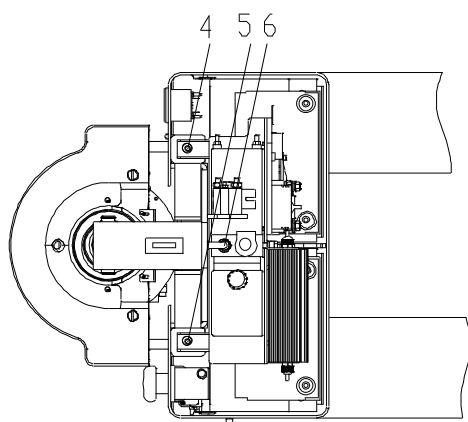


Fig 8

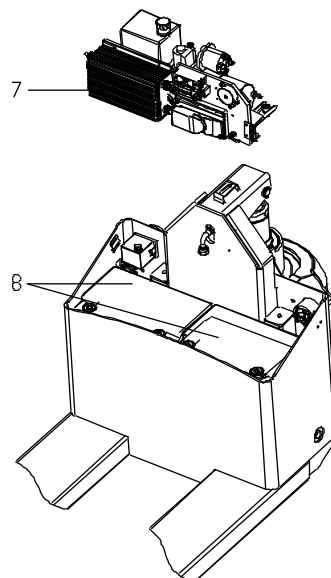


Fig 9

7. Common failures and trouble shooting

The table below provides some common failures of the forklift in operation and the trouble shooting:

No .	Faults	Analysis of Cause	Shooting
1	Hydraulic oil leakage	<ol style="list-style-type: none"> 1. Failed oil seal 2. Piston rod damaged 3. Top cap is loose 	<ol style="list-style-type: none"> 1. Replace the oil seal 2. Replace the piston rod 3. Tighten top cap.
2	Hydraulic power unit does not work	<ol style="list-style-type: none"> 1. Blown fuse 2. Worn motor brush 3. Circuit fault 	<ol style="list-style-type: none"> 1. Replace fuse 2. Replace motor 3. Inspect the circuit
3	Cannot lift the rated weight	<ol style="list-style-type: none"> 1. hydraulic power unit is lack of oil 2. Blown gear pump 	<ol style="list-style-type: none"> 1. Add the hydraulic oil 2. Replace gear pump
4	The truck does not travel	<ol style="list-style-type: none"> 1. The power does not turn on. 2. Low battery 3. Controller faults 4. Contactor damaged 5. Blown fuse 6. Accelerate or damaged 7. Handle travel switch damaged 	<ol style="list-style-type: none"> 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

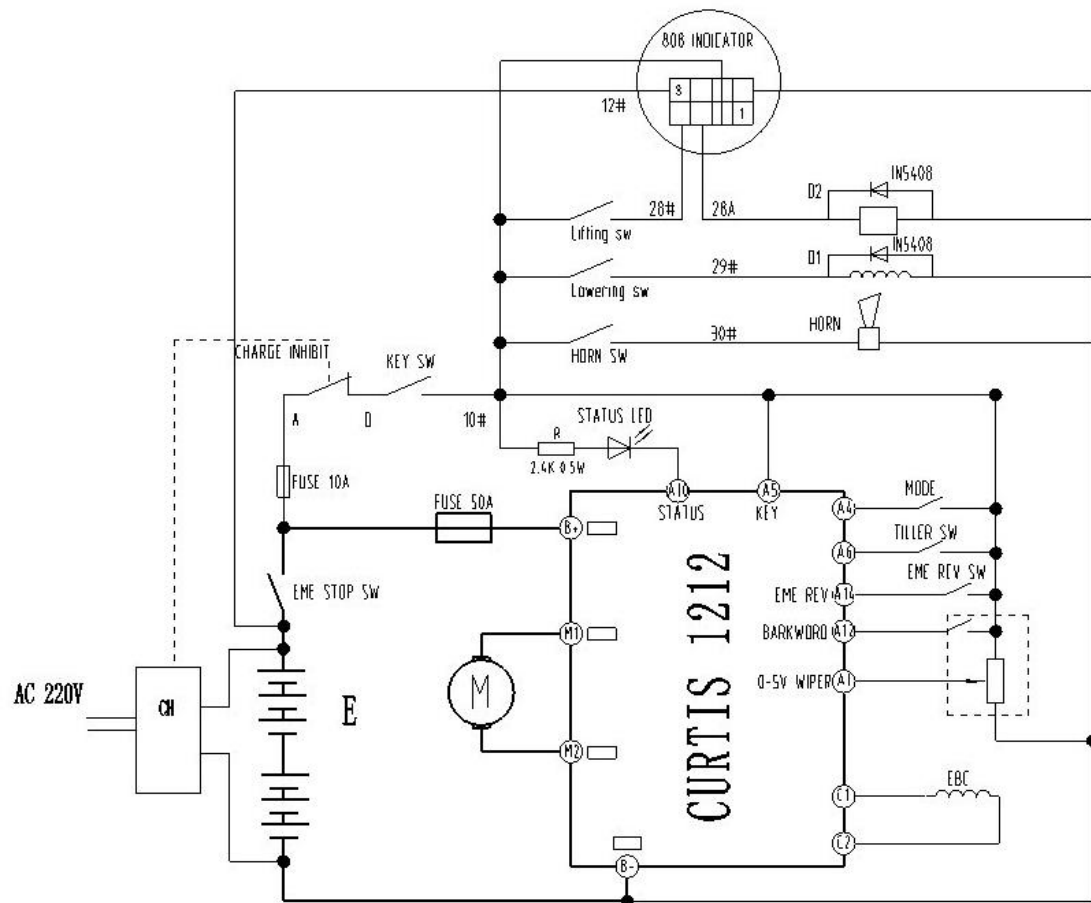
8. Treatment of abandoned materials

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

9. Accessories, spare parts

No.	Name	Application	Model and specification	Quantity	Remark
1	Key to the electric lock	Unlock the electric lock		2	
2	Fuse	Electric system	10A	1	
3	Fuse	Electric system	50A	1	

10. Electrical schematic diagram



11. Packing list

Packing List of 15EPM Electric Pallet truck

Consignee:

Ex-work No.:

Contract No.:

Ex-work Date:

No.	Name	Quantity	Net weight (kg)	Dimension (L×W×H)	Remarks
1	electric Pallet truck	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 and spare 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	50A	1	