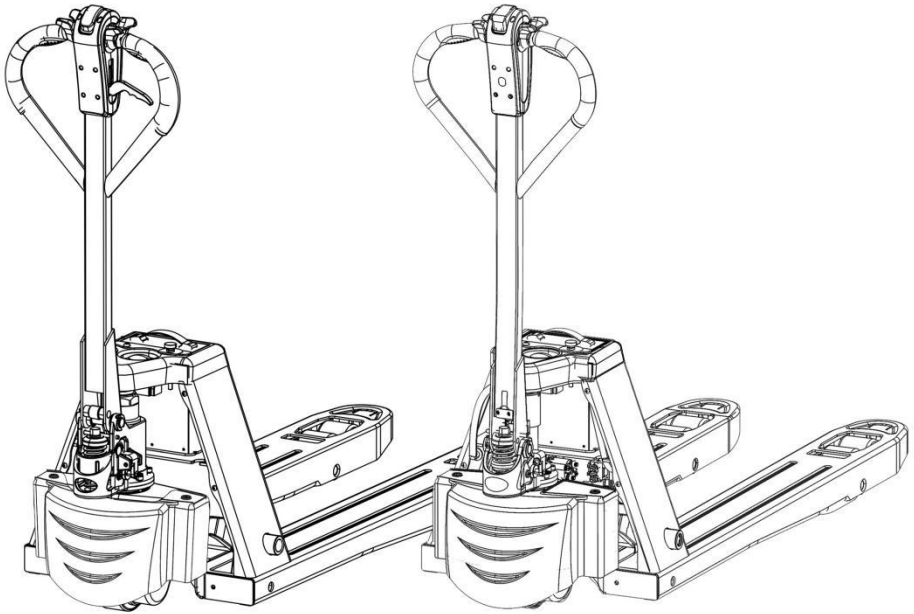
OPERATING MANUAL

Pedestrian Electric Pallet Truck



DO NOT REMOVE THIS MANUAL FROM THIS UNIT

Version No.: STX/EPT-H/2412

Foreword

The OPERATION & MAINTENANCE MANUAL are designed to provide sufficient instruction for the safe operation of the industrial pallet truck. The information is provided clearly and concisely.

Please read and follow all warnings before operation. Please confirm that the safety parts are always intact.

Safety instructions and important explanations are indicated by the following graphics:

Remind attention to some matters to avoid neglect or omission.

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.This signal word is to be limited to the most extreme situations.

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Indicates a potentially hazardous situation which, if not avoided, may result in minor injury and/or damage to the equipment.

Our trucks are subject to ongoing development. The manufacturer reserves the right to alter the design, equipment and technical features of the truck. No guarantee of particular features of the truck should therefore be inferred from the present operating instructions.

Contents

A Correct use and application

Risks as a result of incorrect use

The truck described in this manual is constructed in accordance with the EU standards; and the vehicle in this series are electric pallet trucks operated by a user walking alongside the pallet truck.

This lift truck is designed and intended for handling materials, it is not designed to lift people. It can only be driven by trained and authorized personnel, the operator should drive the truck by handle control box or remotely (by radio).

In order to operate in safe conditions, the following instructions must be followed and dangerous situations must be handled with caution.

- Prohibit the use of this device within the explosion-proof zone.
- Prohibit carrying people.
- Prohibit overloading.
- Prohibit pushing and pulling goods.
- Prohibit multiple pallet trucks from collaborating on the same goods.
- It is prohibited to use this equipment on uneven, rugged and loose road surfaces.
- It is prohibited to use this equipment in places with water on the road surface and humid environments exceeding 75%.

B Introduction

1 Use according to regulations

This manual only applies to full-electric& Semi-electric pallet truck, it is designed for use on level floors to lift and transport palletized goods. Open bottom pallets or roll cages can be lifted.

The capacity can be obtained from the data plate.

– Pick up and place goods with open bottom pallets.
– Transport goods with pallets.
– Can only be used on roads with good visibility and permission from the device user; When there is insufficient lighting in the workplace, please increase lighting;
– Used within the specified rated load;
– When carrying goods uphill, keep the goods in front; When carrying goods downhill, keep people in front. When driving uphill, it is prohibited to drive horizontally or diagonally.

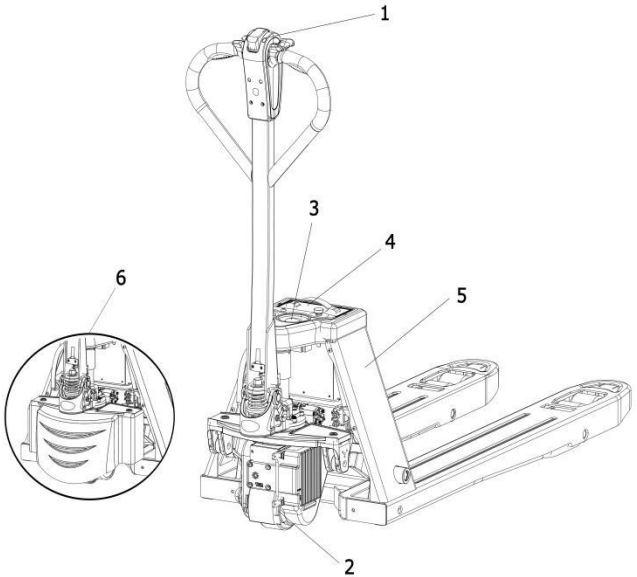
For truck operation, the following normal climatic conditions apply:

– Average ambient temperature for continuous duty: +25℃
– Max.ambient temperature, short term(up to 1h): +45℃
– Lowest ambient temperature for trucks intended for use in normal indoor conditions: +5℃
– Lowest ambient temperature for trucks intended for use in normal outdoor conditions: 0℃
– Altitude: ≤2000m
– Operating lighting: ≧50 Lux

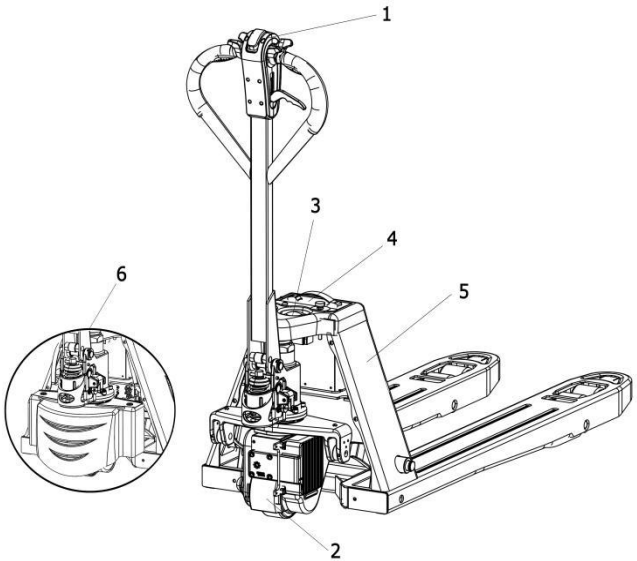
2 COMPONENTS AND POSITIONING

The figures below indicate the terminology used to describe the main components of this truck and their location.

1. HANDLE ASSEMBLY
2. DRIVE MOTOR ASSEMBLY
3. POWER SWITCH (EMERGENCY POWER OFF)
4. LITHIUM-ION BATTERY
5. CHASSIS
6. COVER



(FULL ELECTRIC)



(SEMI-ELECTRIC)

3 Warning label and data plates

3.1 Warning labels

CAUTION

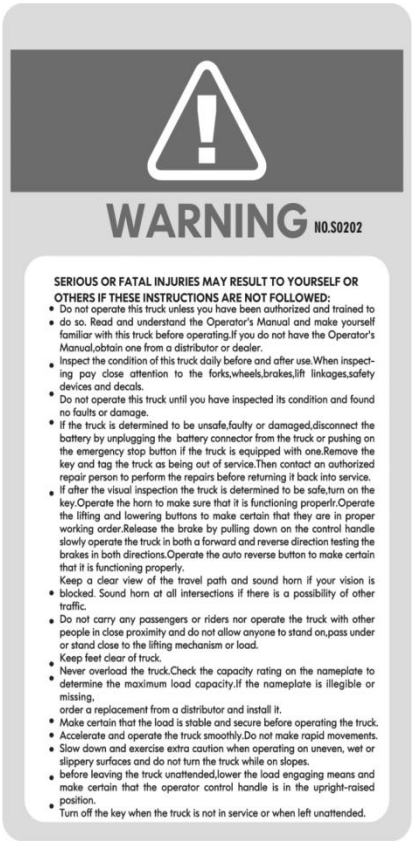
The Warning labels and data plates must never be removed, painted over or made undecipherable. Should a decal be undecipherable it must be replaced.

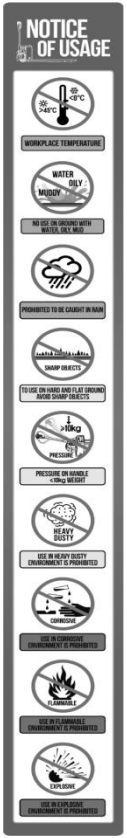
CAUTION

Do not soak the battery in water. Do not recharge battery at less than 0°C (32°F).

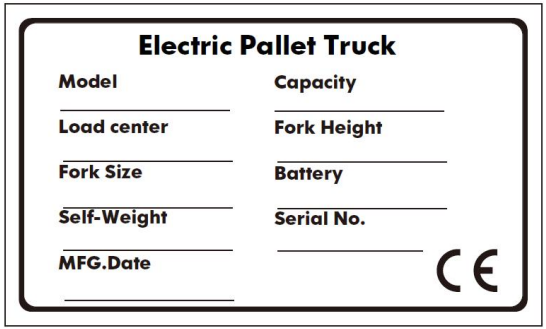
WARNING

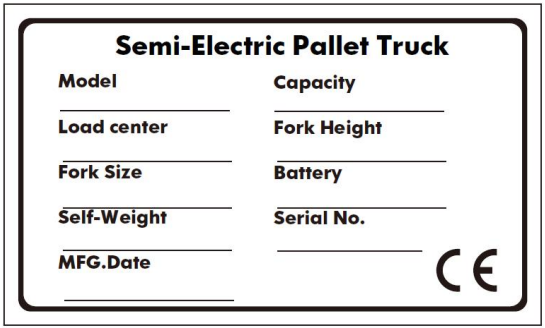
Stay away from all moving parts. Moving parts may cuter crush hands, feet, arms or legs.





3.2 Truck data plate





For queries regarding the truck or ordering spare parts, please quote the truck serial number.

3.3 EN norms

-- Noise emission: <75 dB(A)
in accordance with EN 12053 as harmonised with ISO4871.

-- The noise emission level is calculated in accordance with standard procedures and takes into account the noise level when travelling, lifting and when idle.

-- The noise level is measured at the driver's ear.

No changes to the components or their arrangement may be made without the written agreement of the manufacturer.

3.4 TECHNICAL DATA

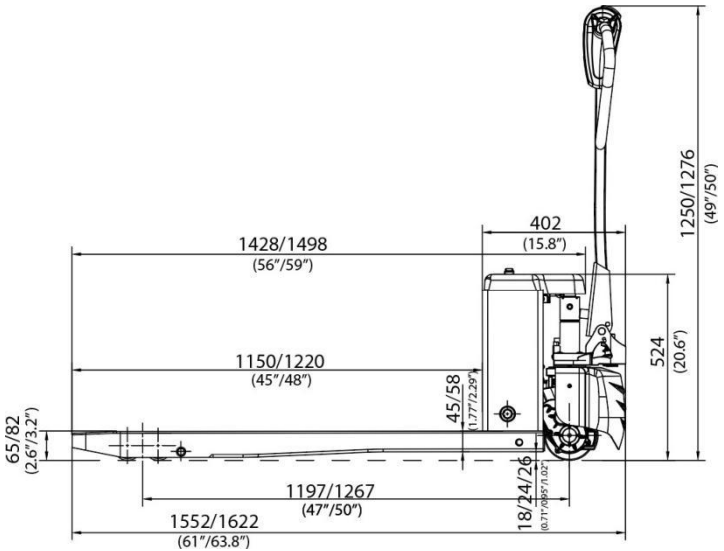
The dimensions diagram and the specification sheet contain the truck data.

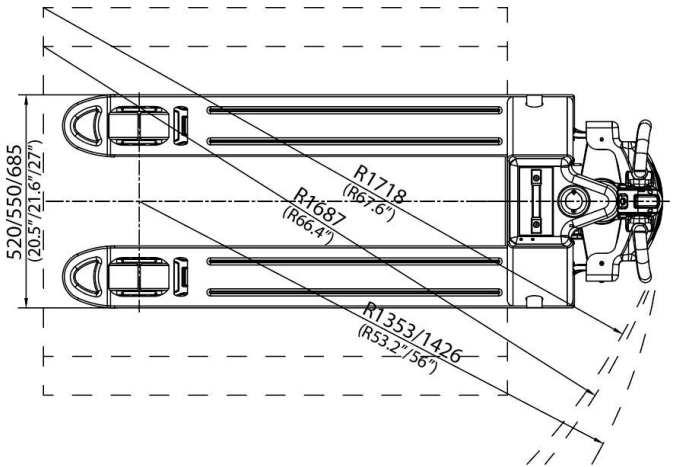
Knowledge of weight, dimensions, movement areas, are essential for enabling the operator to avoid the general risks for misuse.

NOTE:

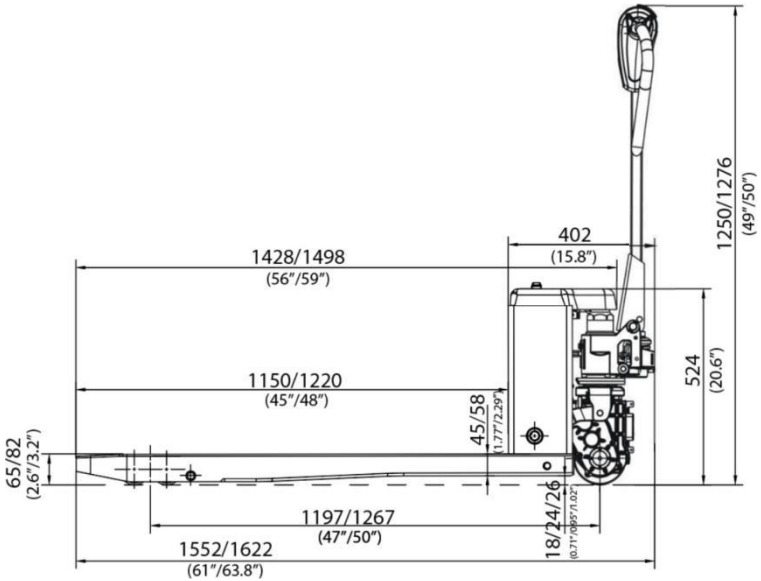
- All values are nominal and subject to tolerances.
- For more information, please contact your supplier.
- Products are subject to change without notice.
- The trucks illustrated may feature optional equipment.
- The values may very depending on the different configurations.

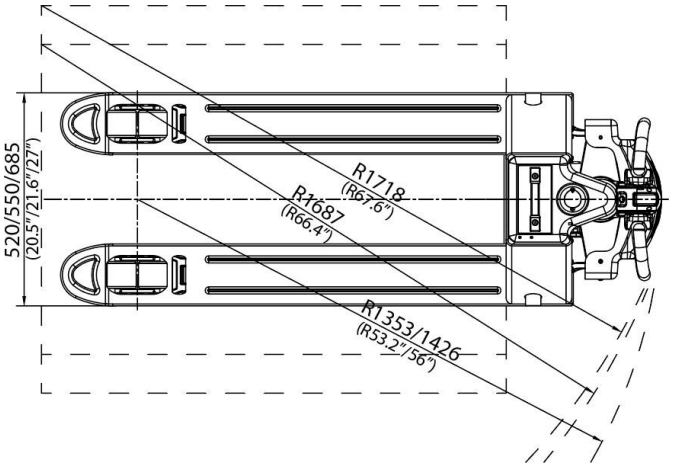
3.4.1 OVERALL DISPLACEMENT DIAGRAMS (FULL ELECTRIC PALLET TRUCK)





3.4.2 OVERALL DISPLACEMENT DIAGRAMS (SEMI-ELECTRIC PALLET TRUCK)





3.4.3 SPECIFICATION SHEET

The following data is according to standard GB/T27542-2011.
The manufacturer reserves the right to update this data.

Model	Item		PPT20H (EPT44H)	EPT15H (EPT33H)	EPT20H (EPT44H)	EPT20H-CF (EPT44H-CF)	EPT15H-65L (EPT33H-2.5L)	EPT20H-65L (EPT44H-2.5L)
Characteristics	Drive		Semi-Electric	Full Electric			Full Electric	
	Operator type		Pedestrian	Pedestrian			Pedestrian	
	Load capacity/rated load	Kg/lb	2000/4400	1500/3300	2000/4400	2000/4400	1500/3300	2000/4400
	Load centre	mm	600				600	
	Height, fork lowered	mm	82 ± 2				65 ± 2	
	Wheelbase	mm	1197/1267				1197/1267	
	Wheel		PU				PU	
	Wheel size, front	mm	140*55				140*55	
	Wheel size, rear	mm	80*93 (Single Wheel)				60*93 (Single Wheel)	
		mm	80*70 (Tandem)				60*70 (Tandem)	
	Wheels, number front/rear (x = drive wheels)		1x+2/4				1x+2/4	
	Lift	mm	115				100	
	Height of tiller in drive position, min./max.	mm	740/1220	735/1170			735/1170	
	Overall length	mm	1552/1622				1566/1636	
	Fork Length	mm	1150/1220/1500/1800				1150/1220	
	Overall width	mm	550/685				550/685	
	Fork dimensions	mm	58/160/1150(1220)				45/160/1150(1220)	
	Distance between fork-arms	mm	550/685				550/685	
	Ground clearance, centre of wheelbase	mm	22/137(24/139)				16.5/116.5(17.2/117.2)	
	Aisle width for pallets 1000x1200 crossways	mm	2155/2226				2155/2226	
	Aisle width for pallets 800x1200 lengthways	mm	2024/2064				2024/2064	
	Turning radius	mm	1353/1426				1353/1426	

SPECIFICATION SHEET

Model	Item		PPT20H	EPT15H	EPT20H	EPT20H-CF	EPT15H-65L	EPT20H-65L
Performance	Travel speed, laden/unladen	km/h	4.0/4.5	4.0/4.5			4.0/4.5	
	Lifting speed, laden/unladen	mm/s	/	18/23			18/23	
	Lowering speed, laden/unladen	mm/s	/	56/46			56/46	
	Max. gradeability, laden/unladen	%	6%/20%				6%/20%	
	Drive motor	Kw	DC 1.0 Brushless	DC 0.75 Brushless	DC 1.0 Brushless		DC 0.75 Brushless	DC 1.0 Brushless
	Lift motor	Kw	Hydraulic	DC 0.8			DC 0.8	
BATTERY	Battery voltage/nominal capacity	V/Ah	48V/10Ah(48V/15Ah)			48V/15Ah	48V/10Ah(48V/15Ah)	
	Traveling brake		Regenerate				Regenerate	
	Brake		Electromagnetic				Electromagnetic	
	Sound level at the driver's ear according to EN 12053	A	＜70dB				70dB	
	Service weight including battery	Kg	117/123.5	116.5/123	119/125.5		116.5/123	119/125.5

C Transport and Commissioning

1 Transport the lift truck

In order to operate in safe conditions, the following instructions must be followed and dangerous situations must be handled with caution:

- The truck may only be driven by trained and authorised personnel.
- The operator must be fully acquainted with the truck he is using, carefully study the operating instructions and work only with loads that do not exceed the load capacity indicated on the nameplate.
- The operator must be fully aware of the nature and the stacking condition of the load that is being transported.The operator has the right to refuse to transport loads he considers to be hazardous to the transit environment or loads that are incorrectly stacked.

Note: Avoid scratching the forks or covers of the pallet truck when loading, especially when inserting the forks into the shipping pallet. Do not drop the truck when loading.

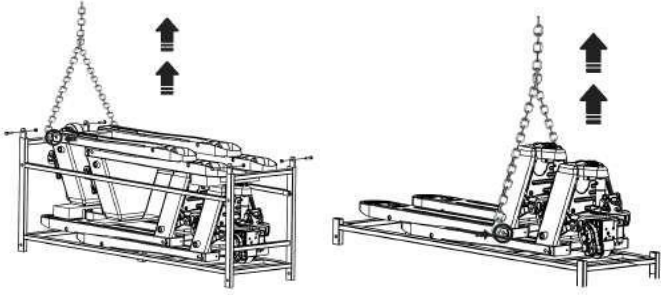
Ensure that any packaging including the shipping pallet or crate are of sufficient strength to bear the weight of the pallet truck and large enough to accommodate the pallet truck.

Ensure that the forks of the pallet truck are fully inserted into the shipping pallet.

Once the truck is inserted into the shipping pallet, park the truck as described in the Parking section of this manual.

Ensure the capacity of the transporting equipment is of sufficient capacity to hold the combined weight of the pallet truck and any packaging.

If the pallet truck is not to be shipped on a pallet, only lift the truck using the lifting points marked on the truck on the left and right sides of the chassis.

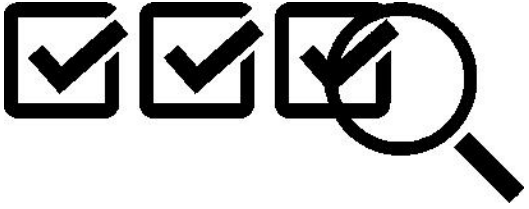


2 Making the truck ready after transport

Following transportation, the truck must be prepared for use in order to ensure its correct operation.

Use the storage battery to drive the truck.

If the truck has been dismantled for transport requirements, request technical assistance from distributor to reassemble it.



Now proceed to make the checks listed below:

- Inspect the truck to make certain there is no damage and there are no parts missing.
- Install the battery, making sure not to damage any electrical wires.
- Charge the battery.
- Check the battery charge level (indicator).
- Test the lift and lower system.
- Make a general inspection of controls and instrumentation.

NOTE: It is normal for wheels to show some deflection or distortion in shape after the truck is parked for an extended period. The wheels will restore to their original shape after the truck is driven for a time.

WARNING!

Any damage or incorrect operation of the truck must be reported immediately to the distributor service centre. Never start the truck if it is damaged or defective. Trucks may only operate when they are in good condition.

NOTE: If the truck needs to be repaired, place a clearly visible sign saying **"OUT OF ORDER - DO NOT USE'** on the truck and remove the key from the control panel.

3 Instruction for using the controls & instruments

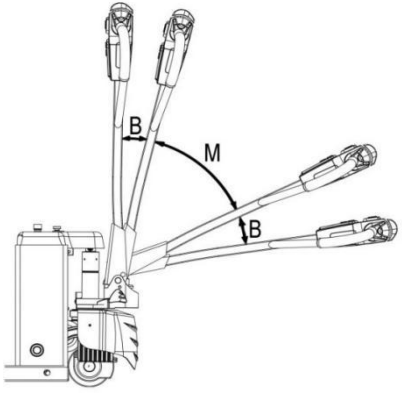
The following diagrams and instructions show the type of control or instrument, their position and the way to use them.

STEERING TILLER

The steering tiller in position “M" enables the truck to be driven. If travel, lift, or lower is commanded with the steering tiller in position "B", the truck will not respond and the display will read SRO ERR.

Push the throttle in the direction of desired travel to move the truck. The more the throttle is pressed, the faster the truck will move.

Operate the driving tiller to steer.



4 Regenerative braking

Release the throttle.

It causes a deceleration due to braking of the electric braking of the drive motor.

WARNING

When the throttle is released, it should return to neutral position immediately. If it does not, have the truck repaired immediately to reduce the risk of personal injury or property damage.

HARD BRAKING

To brake the truck more quickly, do one of these things.

- Release the steering tiller.
- Move the steering tiller to position “B".
- Pull the steering tiller down to the lowest position.

It causes a deceleration due to braking of the electric braking of the drive motor.

WARNING

When the steering tiller is in the "B" position, the truck should stop moving until the throttle is pressed again.If the truck moves with the handle in the "B" position,have the truck repaired immediately to reduce the risk of personal injury or property damage.

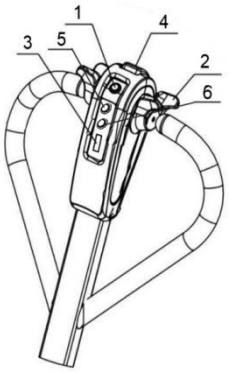
PLUG BRAKING

To brake quickly with more control, use controlled braking or "plugging"

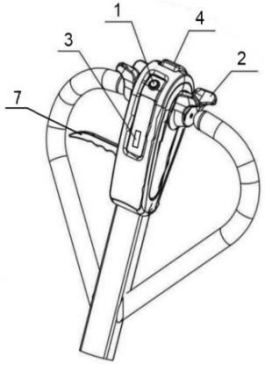
- Release the throttle.
- Move the throttle in the direction opposite the current direction of travel.
- When the truck just begins to move in the opposite direction, release the throttle.

NOTE: Use hard braking or plugging when an unexpected situation arises and it is necessary to stop quickly.

5 COMPONENTS OF HANDLE



(Full electric pallet truck)

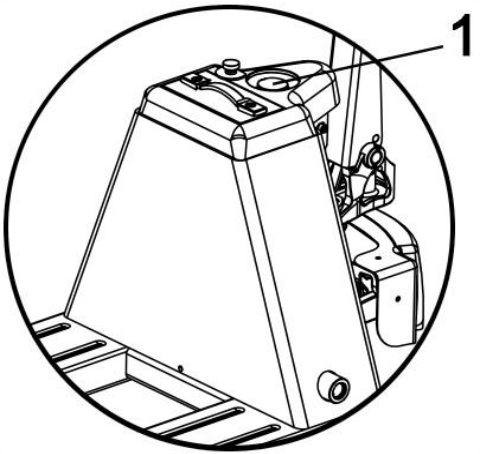


(Semi-electric pallet truck)

1. HORN BUTTON
2. DIRECTION SWITCH(ACCELERATOR)
3. LCD SCREEN(DISPLAY SCREEN)
4. BELLY SWITCH(EMERGENCY REVERSE BUTTON)
5. LIFTING BUTTON
6. LOWERING BUTTON
7. RELIEF HANDGRIP for Semi-electric pallet truck

6 POWER SWITCH (EMERGENCY STOP BUTTON)

By pressing it(*Item 1 in below picture*), the battery supply is disconnected and all the electric controls are disabled (Button down: electrical system disconnected).



7 Using for the first time

7.1 Warning

Operate the pallet truck only with battery current. Rectified AC current will damage the electronic components.

To prepare the pallet truck after delivery or after transport, proceed as follows:

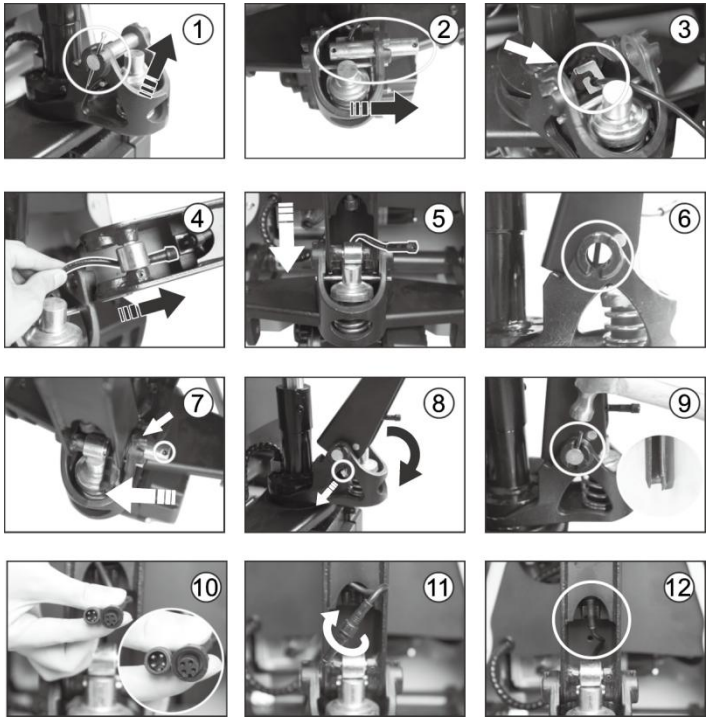
– Make sure the truck's equipment is complete and in a satisfactory condition.
– Install battery (where required). Do not damage battery cables.
– Charge the battery.
– Commission the truck in accordance with instructions.

When the truck is parked, the surface of the wheels will flatten. The flattening will disappear after a short period of operation.

7.2 Install the tiller handle (Full-electric pallet truck)

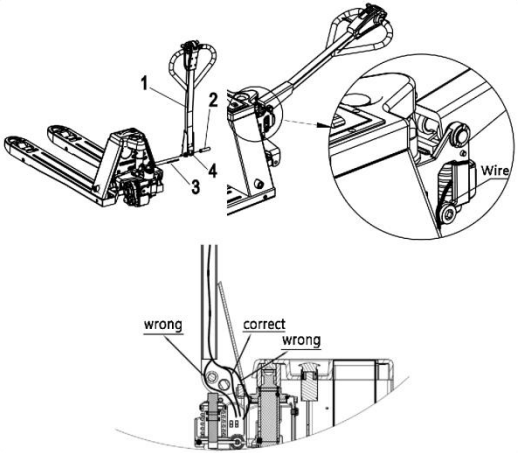
1. Handle numbers correspond to chassis numbers.
2. Disconnect the battery.
3. Remove handle shaft (item 2) from Handle socket.
4. Put the chassis connector through wire support plate (item 5) and lock hole.
5. Install handle assembly (item 1) to handle socket. Be careful to avoid damaging the wire harness.
6. Install handle shaft through the handle assembly ad handle socket. Install spring pin (item 3) to left side of handle shaft.
7. Press down on the handle assembly and remove spring holder (item 4).
8. Connect and lock the wire harness from handle assembly to chassis connector.

9. Fix wire harness to wire holder (item 6).
10. Reconnect the battery.



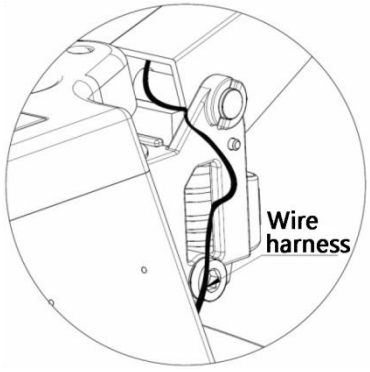
7.3 Install the tiller handle (Semi-electric pallet truck)

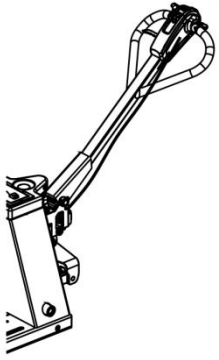
1. **Handle** (Picture No.1): match the holes of handle socket & cylinder.
2. **Handle pins** (Picture No.2): the spring pin should be well rested in the holes situated on each side of the pump housing.
3. **Chain** (Picture No.4): chain should be passed through the middle side hole of the handle pin and connected with the pump housing.
4. After above steps, pull the handle down to lowest position, remove the fixed spring pin (Picture No.3) carefully to complete the handle installing.
5. **Handle assy. wire harness installing:** wire harness pass through hand tube, the wire harness twine method should be same as the above pictures.



WRONG WIRE HARNESS TWINE METHOD

1.Wire harness passes outside hydraulic unit.
2.Wire harness passes outside handle.





8 Running-in of new pallet truck

– The pallet truck should operate at low load during the initial stage of use, especially within 100 hours, and should meet the following requirements:

– It is necessary to prevent over discharge of new batteries during initial use.

– The prescribed preventive maintenance should be thorough.

– Avoid sudden braking, driving, or turning.

– Limit the weight of the load to 70% to 80% of the rated load.

– During the running-in period, the fasteners of each connecting part should be checked and tightened frequently.

– At the end of the break-in period, the hydraulic oil should be replaced.

9 Warning for the pallet truck in stock

● Users have to check and do maintenance on regular basis if the pallet truck should be in stock, For example, the battery must be charged once every 1-2 months.

● Rules of parking: 1, No parking on the ramp; 2, The forks must be lowered completely; 3, Press down the emergency stop button.

● Before using the pallet truck

- Users have to stand on the operational position.

- Put handle in the driving position

- Test lifting, steering, speed, operation, alarm and brake, to ensure all functions are normal.

● Ensure the availability of firefighting facility in the workplace. Do not use flare to check battery and hydraulic system.

● Check braking, driving, alarm and safety system on regular basis, maintain them in good working condition.

● Keep the nameplate and warning stickers clean and readable.

● Check and maintain lifting system regularly.

● Check and maintain·hydraulic·system*regularly. Ensure no oil leak of cylinder,·hydraulic valve and other hydraulic system parts.

● Park the electric pallet truck in clean areas, to·ensure the lowest possibility·of.fire.

● Unauthorized modification is forbidden. Modification with manufacturer's consent should come with updated nameplate and warning stickers basis, maintain them in good working condition.

● Keep the nameplate and warning stickers clean and readable.

● Check and maintain lifting system regularly.

D OPERATING INSTRUCTIONS

When using the truck there are some operations that, in spite of all the safety precautions, may cause it to overturn unless performed with care.

The main causes of tipping over are:

● Turning too fast.
● Driving and turning on a slope.
● Driving with raised loads.
● Driving with a side-positioned load.
● Driving on a slope with a load facing downwards
● Loads out of size.
● Driving with swinging loads.When transporting liquids, the centre of gravity inside one of the containers loaded may change; this can cause the truck to tip up as a result of the force of inertia, for example when switching on, braking or on bends.
● Ramps or steps.
● Loading operations on a lorry, for example if the lorry engine is switched on while the forks are still raised above the loading area, if the ramp is not in the right position or if a truck wheel is beyond the edge/limit.
● Driving over rough ground.

If the truck should tip over try and keep body parts as far as possible from the point of impact with the ground.

1 BASIC PRINCIPLE

Because of the specific skills required, it is advisable that each individual operator follow a special training course,even if he has already obtained a license entitling him to drive lift trucks in general.

The following pages contain a list of some of the basic regulations and manoeuvre that should be employed when using the truck.

USE IS RESTRICTED TO AUTHORISED AND TRAINED PERSONNEL

This means that only operators who have followed a specific training course, aimed at providing total comprehension of the truck functions, should be allowed to operate the truck.

The instructor should therefore be an expert truck user and should work alongside beginners for a period of time, until they are judged to be sufficiently proficient.A thorough basic training in driving techniques and load handling is absolutely essential to enable the operator to handle dangerous and unexpected situations effectively.

2 WORK ENVIRONMENT

The truck may only be used in suitable areas and normal environmental conditions. Do not operate the industrial truck outdoor in the event of adverse weather conditions or in hazardous areas.

Acceptable environmental conditions:

1. Ambient temperature-0-45°C, prohibit cold storage use;
2. Hard ground, flat, no·sharp surface objects;
3. Prohibit to use in heavy dust environment;
4. Prohibit to cross water, oil and.muddy ground;
5. Prohibit to caught in the rain, 10 minutes use in light rain;
6. Prohibit to use in flammable, explosive, acid-base or other corrosive environments;

The pallet truck is a flat ground transport equipment as mentioned in this instruction. Lt is used for lifting and transporting goods.Users have to operate and·maintain according to instruction rules.

Using·the product for applications not included in the instruction might cause damage to users, equipment or other property. Overload or unbalanced loading must be avoided. Loading, capacity should strictly follow instructions·on the nameplate or capacity diagram.

WARNING

DO NOT ALLOW THE TRUCK TO ENTER AREAS WHERE FLAMMABLE GASES, VAPORS OR POWDERS ARE GENERATED.

THE TRUCK IS NOT EQUIPPED WITH ANTI-EXPLOSION PROTECTION.

Take the utmost care when transporting dangerous materials: flammable liquids, acids, etc.must be transported in appropriate closed containers.

Where possible, avoid routes with holes, bumps and obstacles; if this proves to be impossible, calculate whether each individual obstacle can be negotiated and always drive the truck with extreme caution. Take steps to ensure that all holes, bumps and obstacles are removed wherever possible.

WARNING

INCORRECT USE ON UNSUITABLE FLOORING MAY CAUSE DANGEROUS SITUATIONS AND REDUCE THE WORKING LIFE OF THE TRUCK.

Contact the service network for advice concerning the flooring, or the most suitable type of truck for a particular type of flooring.

IMPROPER LIFTING

This truck has been designed and constructed for the handling of materials.The truck is*not*suited to lifting" or carrying persons on the forks.

LIFTS

Never enter lifts without first having obtained permission from the person in charge.

NOTE: Check the load bearing capacity of the lift (it must be able to sustain the weight of the truck + opera-tor + load if present).

►Approach the lift slowly.

►Only activate the lift after the truck is correctly centred and perfectly level, so that the lift is well balanced.

►Make sure that the forks or other parts of the truck do not protrude beyond the lift perimeter.

3 LOADING INSTRUCTIONS AND PRECAUTIONS

Avoid loading materials that may fall. You should bear in mind that the truck, even when it is equipped with a load backrest, offers a reasonable degree of protection for the operator against objects falling, but it cannot protect against all possible risks.

Only move stable loads with weights that can be supported by the truck (see the summary identification data plate on the truck). Pick up the load so that its weight is well distributed and balanced on the forks.

Even if a load no greater than that indicated on the load capacity data plate affixed on the truck weighs entirely on the tip of a fork, this could constitute a tipping hazard. The load must not excessively overreach the tip of the forks.

3.1 PICKING UP THE LOAD FROM THE GROUND

- Position the truck in line with the load to be lifted.
- Move slowly when moving the forks into position under the load and make sure that the load is correctly centred on the forks.
- After fitting the forks in the pallet, slightly lift the load just enough to move it.

3.2 PUTTING DOWN THE LOAD ON THE GROUND

- Put the load on the ground!
- Lower the forks.
- Move slowly to remove the forks from the pallet.

NOTE: During all the operations of picking up/putting down the load, use the machine at the lowest speed allowed by the operation. Always make sure that the space in the aisle is sufficient, during operations of picking up/putting down goods, to prevent the operator from coming into contact with other persons working in the same aisle.

WARNING

The lift unit is lowered by gravity.
If the lowering command does not actually lower the lift unit (laden or unladen), take immediate action, placing adequate guarding to ensure that no one stands below or near the raised load, transferring the load if possible using other vehicles and calling the service centre for assistance.

3.3 LOAD STABILITY

WARNING

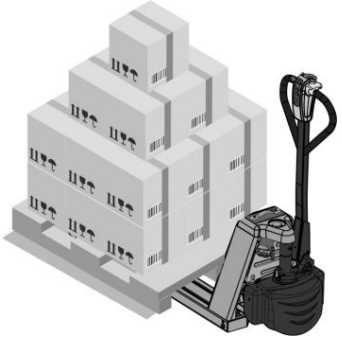
- **Only work with stable loads.**
- **Never load unstable elements.**
- **Do not handle a load,composed of a number of separate parts, when any one of them is precariously balanced and in danger of falling.**
- **It is not permitted to carry swinging loads.**

3.4 POSITIONING THE LOAD

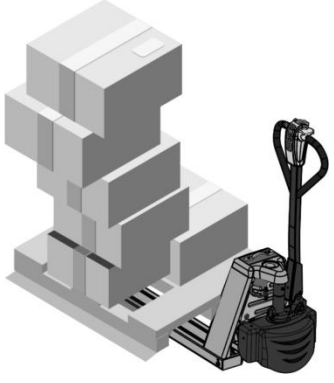
Make sure that the weight of the load is equally distributed and balanced on the forks, so that the load will not overturn when negotiating a bend.

WARNING

A load that is placed in an unbalanced position on the forks will increase the risk of overturning.



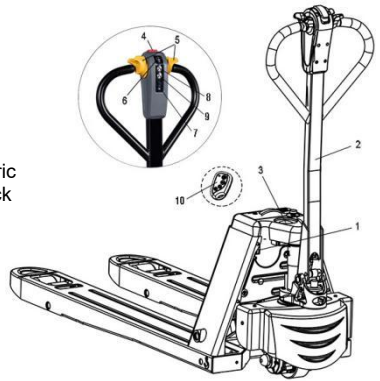
CENTRED LOAD



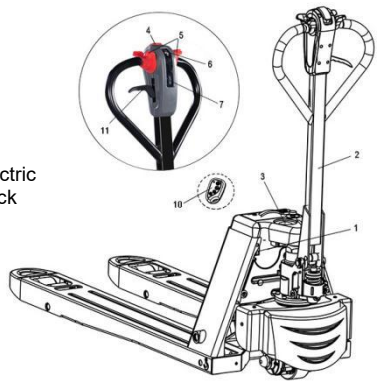
NON-CENTRED LOAD

4 Display and control

Full electric pallet truck



Semi-electric pallet truck



No	Parts name	Type	Function
1	Charging plug	●	Charge the battery.
2	Handle tube	●	Control steering and braking of the pallet truck.
3	Emergency stop switch	●	Interrupt circuit, stop all electrical function. The pallet truck is forced to brake.
4	Emergency reverse button	●	When the safety protection function is triggered by pressing this button, the stacker immediately travels in the direction of the fork for about 3 seconds, and the parking brake is activated. The stacker can only be started again when the driving switch is restored to its initial position.
5	Horn button	●	When horn button is pressed, the horn will ring, as a warning.
6	Travel switch	●	Control the direction and speed of stacker travel.
7	Display screen	●	1, Display the battery level status; 2, Display the error code; 3, Display the truck operating status.
8	Lifting button	●	Lifting load items.
9	Lowering button	●	Lowering load items.
10	Relief hand grip	●	Press down on the handgrip to lift the pallet truck; Lift up the handgrip and the forks will lower down; The handgrip is in the middle and the pallet truck is in the driving position
11	Remote Control Key	○	With Remote control device for lifting and lowering, maximum driving speed setting, and horn function.

●= Standard | ○= Optional

4.1 Multi-function Handle

We patented multifunctional intelligent tiller handle is unique design for quick fault diagnosis, enabling an easier service, shorter service time and lowered labor costs.

4.2 SMART FUNCTION

Turtle Speed setting

– Turtle speed allows the truck to move at a reduced speed. Normal top speed for the pallet truck is 5km/h (3.1 mph). When turtle speed is active, the top speed is 2km/h (1.5mph).

– To activate or deactivate turtle speed, hold the horn button, then press (but do not hold) the throttle toward the forks two times.

Up-Right Drive setting

– Up-right drive allows the truck to be driven with the tiller in the fully vertical position. Use up-right drive to maneuver the truck in tight quarters.

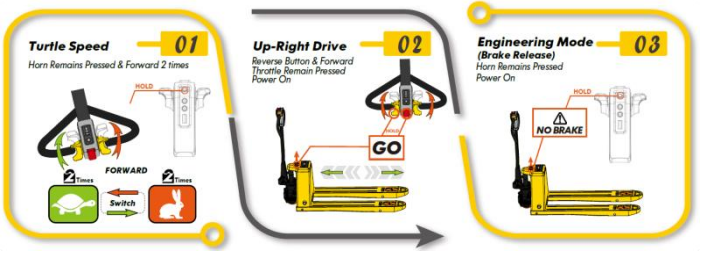
– To activate up-right drive on trucks, turn the truck off, put the tiller into the fully vertical position, then press and hold the belly switch -reversing button and push the throttle toward the forks and hold. When the truck is powered on, it will start in up-right drive mode.

– When up-right drive mode is active, the top speed is 2km/h (1.5 mph).

Engineering Mode (*Brake Release/Service Mode*)

– The brake release mode is for service use only. To reduce the risk of personal injury, do not use brake release mode in normal operation.

– This pallet truck is fitted with an electromagnetic brake. When the truck has no power, the brake is closed and the truck will not move. If the truck has no power but must be moved to a service location, enter brake release mode so that the truck can be pulled manually.



WARNING

– In up-right drive mode, vehicle will move when handle is operated at any position. Please avoid misoperation.

– Brake release mode is only for emergencies, not allowed for vehicle with normal conditions.

5 Operation of Cold storage truck

Cold storage truck is a special handling machinery, standardized use and regular maintenance can ensure the effective utilization of the truck, extend the service life.

Recommended working hours of our cold storage truck are as follows:

- Work in and out of the freezer or fresh-keeping warehouse above minus 18 degrees, and the ground is free of ice and water;
- Continuous work in the cold storag above -18℃ shall not exceed 2 hours;
- Do not use in cold storage below -18℃.

- Use cold storage special oil, regular maintenance and replacement.
- The battery cannot be left for a long time after discharge. Charge the battery in time.
- In case of sudden power failure of the pallet truck, please move out of the cold storage in time to charge or replace a fully charged battery.

- When the pallet truck fails in the cold storage, it must be removed from the cold storage as soon as possible and repaired in the buffer zone or maintenance area.

- All cold storage pallet truck must perform hydraulic and walking actions before entering the cold storage until the temperature of each component rises and enters the cold storage.

- If there is condensate on the surface of the pallet truck after it is out from the warehouse, it must be dried or wait for the condensate to dry out before entering the cold storage again.

- Clean impurities and apply lubricating oil to bearings, wheel frames, steering joints and other parts at least once a month to ensure the normal operation of the pallet truck.

Caution

- It is forbidden to charge in the cold storage, charging in the sub-zero environment will cause battery damage.

- It is forbidden to shut down the cold storage pallet truck and park it in the cold storage, otherwise it may cause damage to the hydraulic system and electrical system.

Stainless steel bearings

IP67 waterproof brakes

Waterproof controller

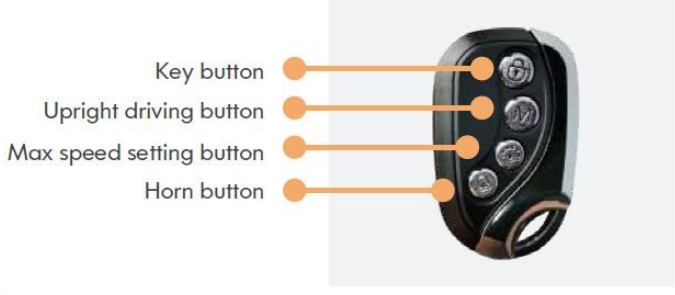
6 Optional Configuration

6.1 Intelligent Control Key

– The optional intelligent control allows operation of some features of the truck using the handheld remote control. The remote control uses radio-frequency(RF) technology and is powered by an L828(12V/27A) non-rechargeable alkaline battery. Each remote control is tied to the specific truck.

– To use the intelligent control, it must be within 2 m(6.5 ft). Press the function buttons on the control to use the features in this table.

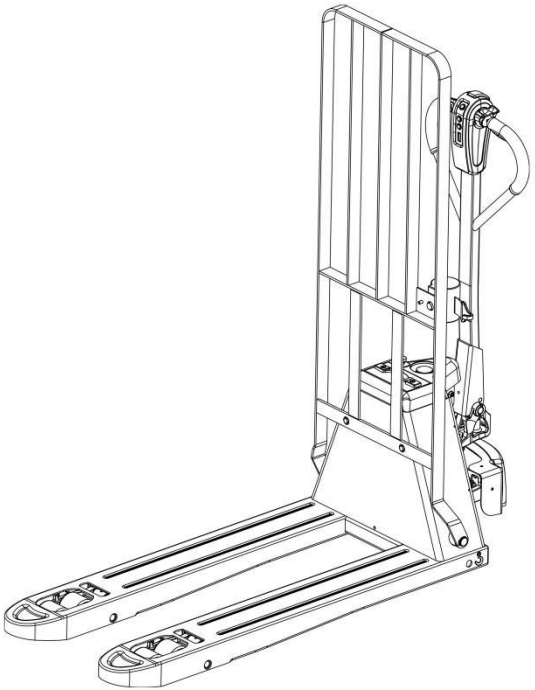
– If the LED on the remote control is dim or off, or if the buttons do not work, replace the battery in the remote control. If the buttons still do not work, the remote control may be damaged and should be replaced



ICON	Function	DESCRIPTION
	Lock or Unlock	To lock the truck, press the Lock button once. The truck will beep once to indicate it is locked. To unlock the truck, turn truck power ON and press the Lock button twice. The truck will beep twice and the display will show the Unlock icon to indicate the truck is ready for operation.
	Up-right Drive	- Press the Up-right Drive button to activate Up-right Drive mode. The truck will beep continuously and travel at a reduced speed with the handle in the upright position. - Press the Up-right Drive button again to deactivate Up-right Drive mode. The truck will beep once and will now travel at normal speeds with the handle in the travel position.
	Travel Speed	- Press the Travel Speed button to cycle through speed presets. ● One press -Level 1 -0.5 km/h (0.3 mph) ● Two presses -Level 2-1.5 km/h (0.9 mph) ● Three presses -Level 3 -2.5 km/h (1.5 mph) ● Four presses-Level 4-3.5 km/h(2.2 mph) ● Five presses -Level 5 -Full speed - The display indicates the selected speed. - Travel Speed is limited until this setting is changed.
	Horn	Press and hold the Horn button to make the truck beep continuously. Release the Horn button to stop the truck from beeping.

6.2 Load backrest

When goods are stacked high, the load backrest can prevent it from falling, ensuring user safety.



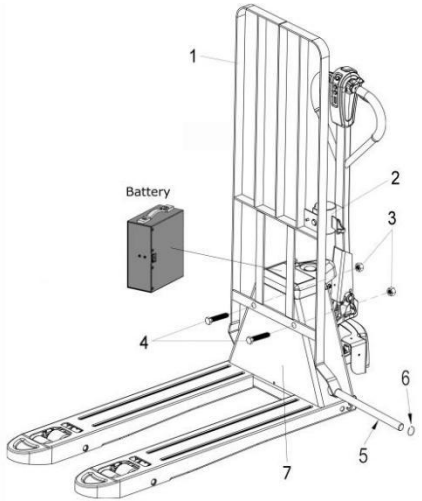
Steps of installing the load backrest

1. Place the load backrest (item 1) in front of the pallet truck;

2. Pull out the long shaft (item 5), pass it through the circular holes under the support legs on both sides of the load backrest, install the load backrest on both sides of the pallet truck, and fix it with 2 snap springs (item 6);

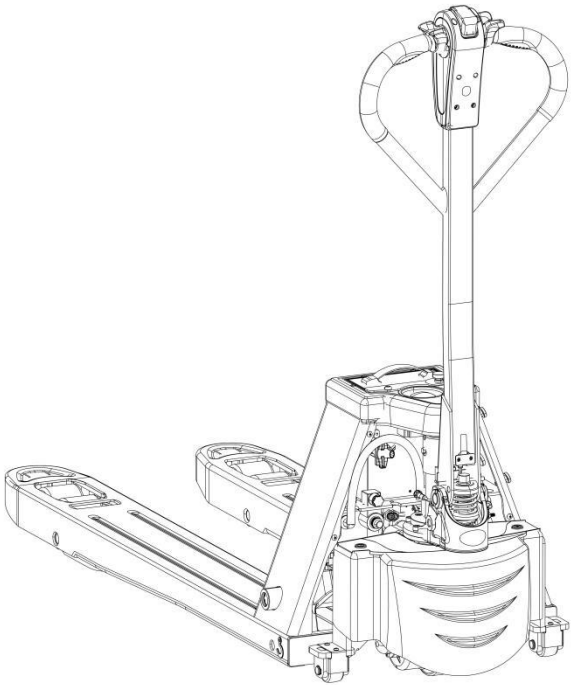
3. Remove the battery and fix the load backrest to the pallet truck using 2 screws (item 4) and 2 nuts (item 3);

4. Put back the battery and install the tensioner (item 2).



6.3 Balance wheel

Installing balance wheels can make the car's driving more stable.



Steps of installing the balance wheel

1. Prepare the balance wheel parts, fixing screws and the tool;

2. Align the circular holes on the balance wheel parts with the fixed shaft on the chassis frame;

3. Use two fixed screws to fix the balance wheel parts to the frame.





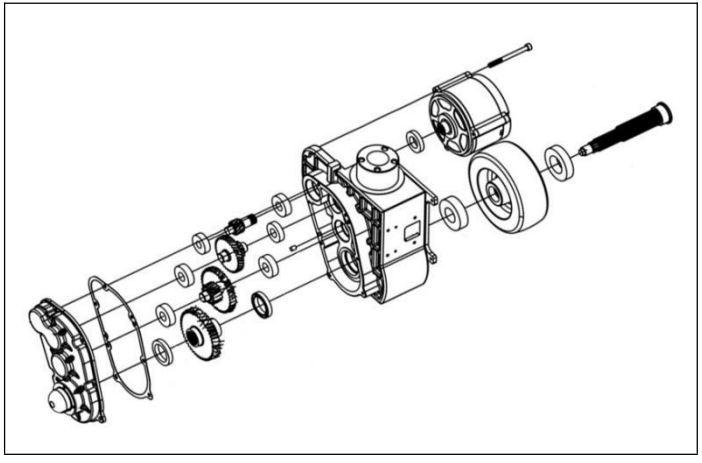

E Structure and Maintenance

1 Driving system

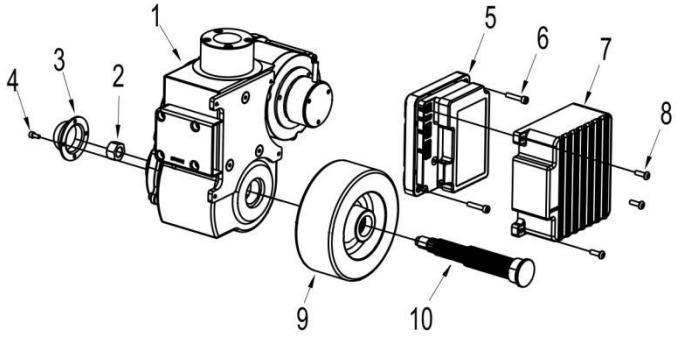
1.1 Drive unit structure

This pallet truck adopts a hub type drive unit. The drive unit has the advantage of high efficiency, compact structure, small volume and easy maintenance.

- Unique brushless motor technology, Leading in the industry.
- Powerful and maintenance free.

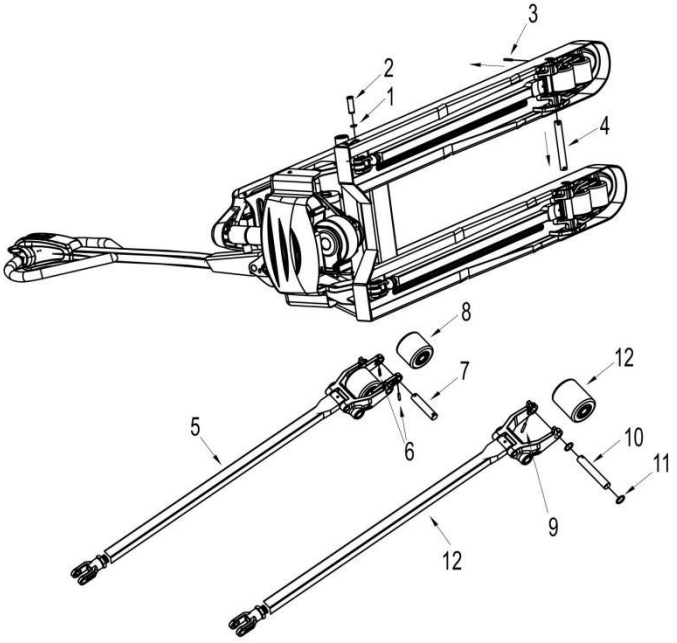


1.2 Replace the drive wheel & drive controller



1. Disconnect the battery.
2. Support the truck on blocks so that the drive wheel (item 9) is off the ground.
3. Remove 3 bolts (item 8) from controller cover (item 7), then remove controller cover; Remove 2 bolts (item 6) then controller(Item 5) off.
4. Remove 4 bolts (item 4), then remove the nut cover (item 3).
5. Remove the nut (item 2).
6. Gently tap the wheel shaft (item 10) and pull it out of the drive wheel.
7. Remove the drive wheel easily.
8. To install the drive wheel, perform these steps in reverse order.
9. Reconnect the battery.

1.3 Replace the load wheels

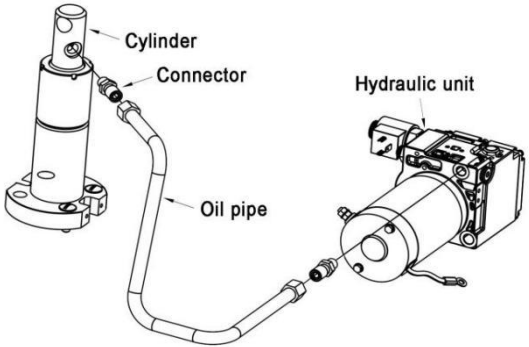


Steps to change the loading wheel:

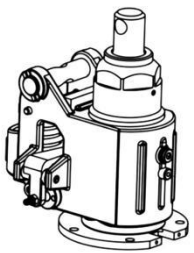
1. Turn off the truck, remove the battery, and turn over the truck. Be careful to avoid damaging the tiller handle.
2. Remove snap ring (item 1) with snap ring pliers, the remove the shaft (item 2).
3. Tap out the spring pin (item 3), then tap out the wheel fork shaft (item 4).
4. Remove the load wheel assembly (item 5 for tandem wheel, item 13 for single wheel).
5. Tap out the spring pin (item 6 or 9), then remove the wheel shaft (item 7 or 10) and remove the load wheel.
6. Replace the load wheel (item 8 for tandem wheel, item12 for single wheel).For single wheels, install nylon gasket (item 11).
7. Reinstall wheel shaft and spring pin.
8. Reinstall the load wheel assembly into the frame. then repeat steps 1 through 3 in reverse order to complete installation.

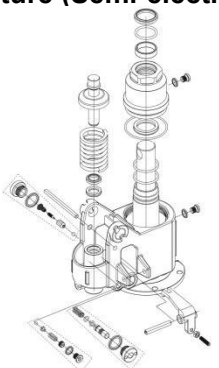
2 Hydraulic system

2.1 Hydraulic system structure (Full-electric)

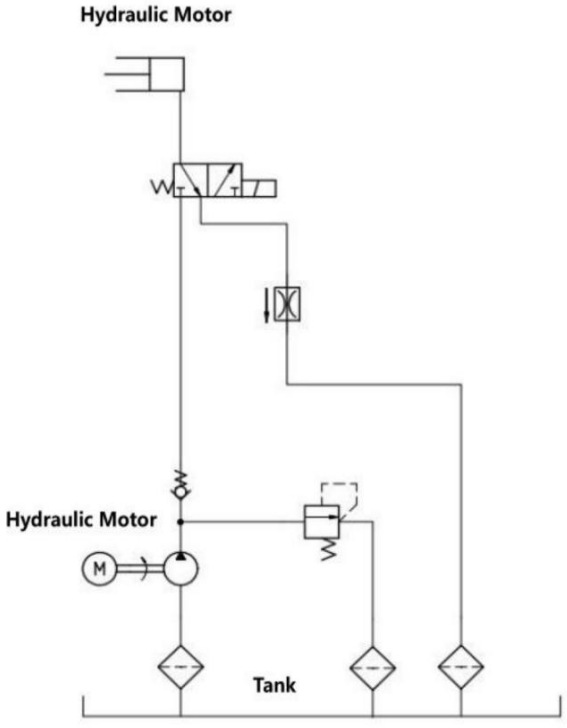


2.2 Hydraulic system structure (Semi-electric)

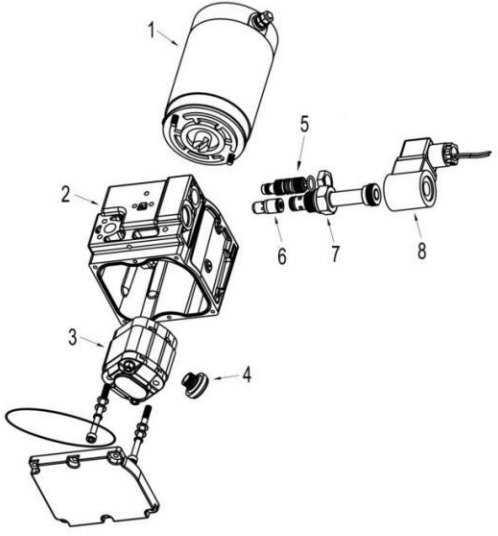




2.3 Hydraulic diagram (Full-electric)

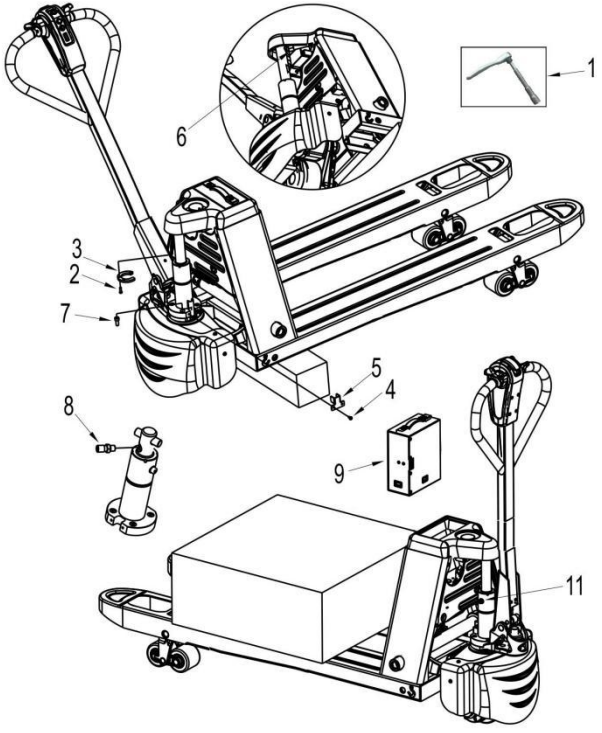


2.4 Hydraulic unit components (Full-electric)

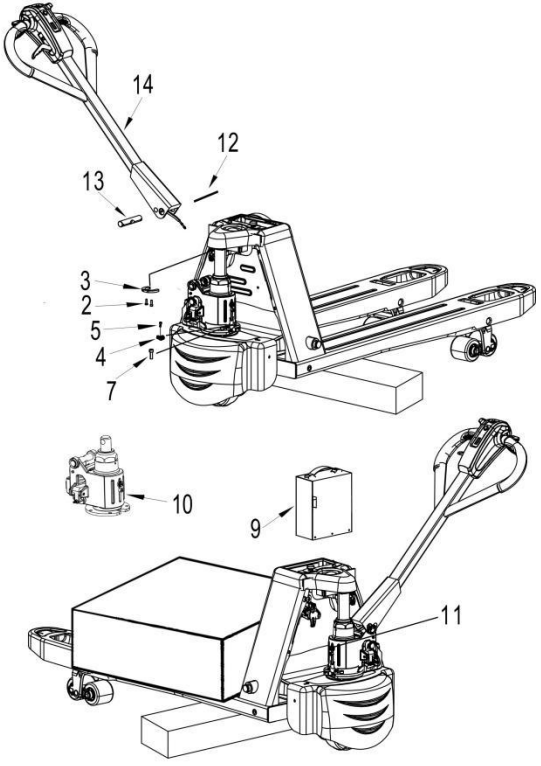


No.	Description	No.	Description
1	Tank	5	Relief value
2	DC lifting motor	6	Build-in Balancing valve
3	Gear pump	7	Solenoid valve
4	Oil filter	8	Electromagnetic coil

2.5 Replace the hydraulic cylinder



(Full-electric)



(Semi-electric)

Steps to replace the cylinder:

1. Disconnect the battery(Item 9), power off the truck.
2. Lower the forks completely, raise up the truck, and put a 200 mm (8 in) block underneath the ends of the fork closest to the main frame.
3. Remove screw (item 4) and remove wire clamp (item5), then remove 4 screws (item 7) with a hex wrench.
4. Remove the oil pipe (item 6), remove the piston rod shaft end (item 1) and shaft gland (item 3).
5. Next steps:

- For Full-electric pallet truck:

● Press down the piston rod, allow the cylinder to separate from the frame, and remove the cylinder assembly from the truck.

● Remove the oil pipe join (item 8) and install on the new Cylinder assembly.

- For Semi-electric pallet truck:

► Press down on the handle(item 14), insert the compression spring shaft (item 11), remove the handle shaft (item 13), and take off the handle;

► Remove the oil cylinder and change a new one.

CAUTION

To avoid damage to the seal ring and oil leaks, always bleed the air from the cylinder after replacement.

6. Loosen screw (item 11), then use a truck to lift a pallet with a load of at least 500 kg (1102 lb). Lift and lower the pallet 2 or 3 times to bleed air from the cylinder,then tighten the screw.
7. Reconnect the battery.

Hydraulic oil

Code	Designation	Mark, code	Remark
A	Hydraulic oil	Normally: L- HM32	Hydraulic system
		High and cold environment: L- HV32	
C	Grease	Automobile general 3 # lithium base lubricant	Nozzle and lubrication

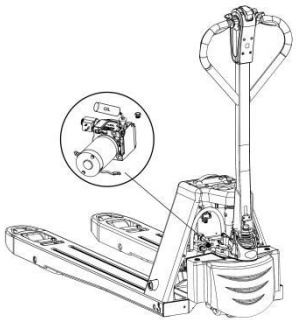
2.6 Replace the hydraulic cylinder

Replace hydraulic oil

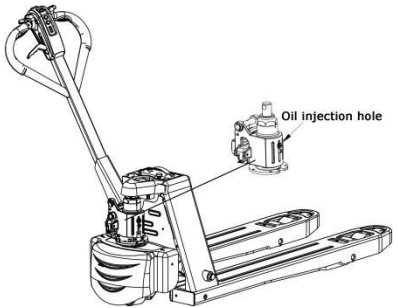
– Handling consumables: Consumables must always be handled correctly.

STOP – Improper handling is hazardous to health, life and the environment. Consumables must only be stored in appropriate containers. They may be flammable and must therefore not come into contact with hot components or naked flames.

– Avoid spillage. Spilled liquids must be removed immediately with suitable bonding agents and the bonding agent / consumable mixture must be disposed of in accordance with regulations



(Full-electric)

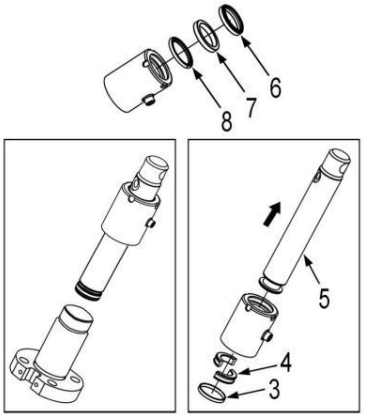


(Semi-electric)

2.7 Replace seal kits(Full-electric)

Disconnect the battery.

1. Use a hook head wrench to unscrew the upper part of the cylinder (item 1), and remove the upper part from the rest of the cylinder (item 2).



2. Remove guide ring (item 3) and guide sleeve (item 4).

3. Pull out piston (item 5).

4. Remove dust ring (item 6), seal ring (item 7), and step seal (item 8).Replace all with new parts.

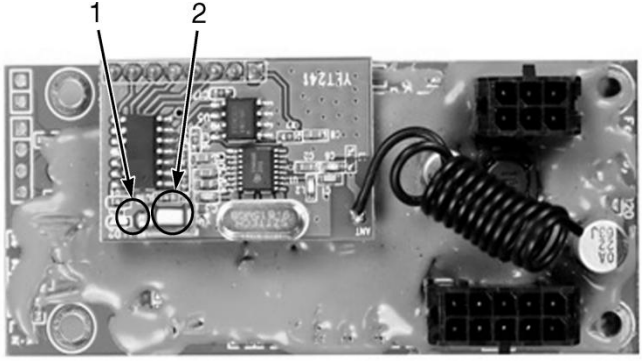
5. Reinstall piston into the top of the upper cylinder.Install in the direction of the arrow in the image, and be careful not to damage the seals.

6. Reinstall guide sleeve and guide ring. Reinstall upper cylinder into the rest of the cylinder.

7. Reconnect the battery.

2.8 REPLACE THE HANDHELD INTELLIGENT CONTROL

If the handheld intelligent control must be replaced for any reason, the current handheld intelligent control must be unpaired from the truck, and the new handheld intelligent control must paired.



Dismantle the handheld intelligent control:

1. Turn on the truck.

2. Remove the cover to allow access to the display circuit board.

3. Press and hold the white button (item 2) on the circuit board until the red LED (item 1) turns of The current handheld intelligent control is now unpaired from the truck and will not operate the truck anymore.

Install a new handheld intelligent control

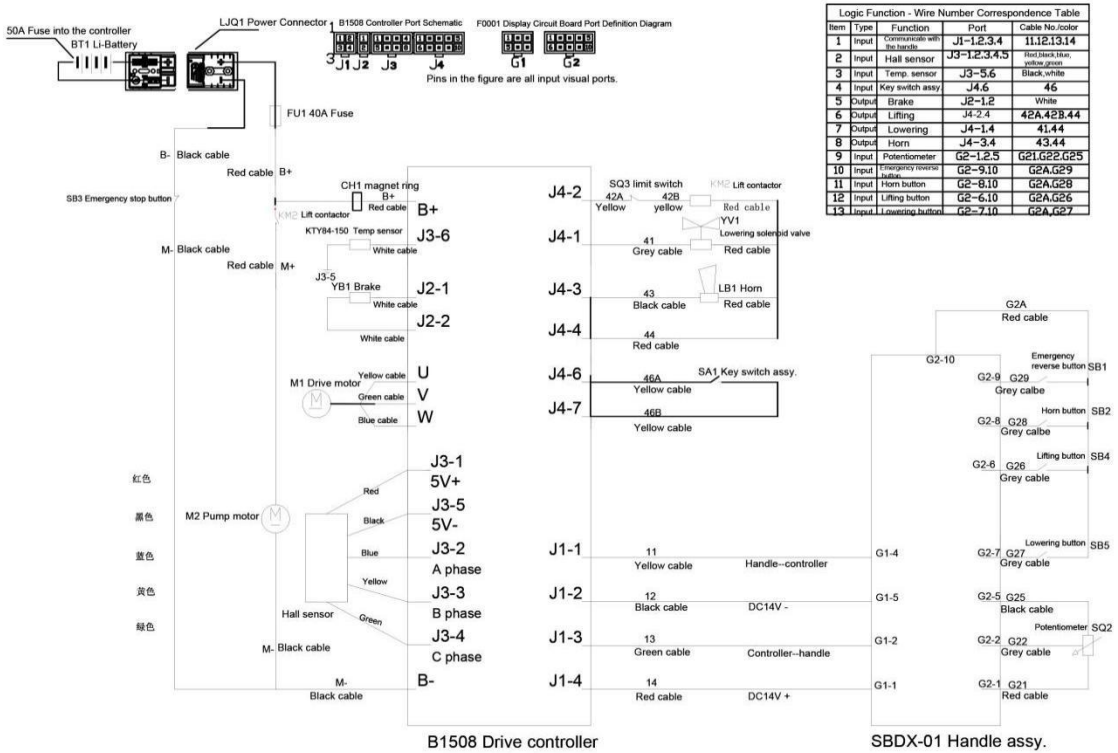
1.Ensure that the original handheld intelligent control is unpaired from the truck.

2.Press the white button on the display circuit board(item 2) one time. The LED (item 1) will blink red once.

3.Quickly press any key on the handheld intelligent control. The LED (item 1) will flash red 4 times to indicate that the new handheld intelligent control is paired to the truck.

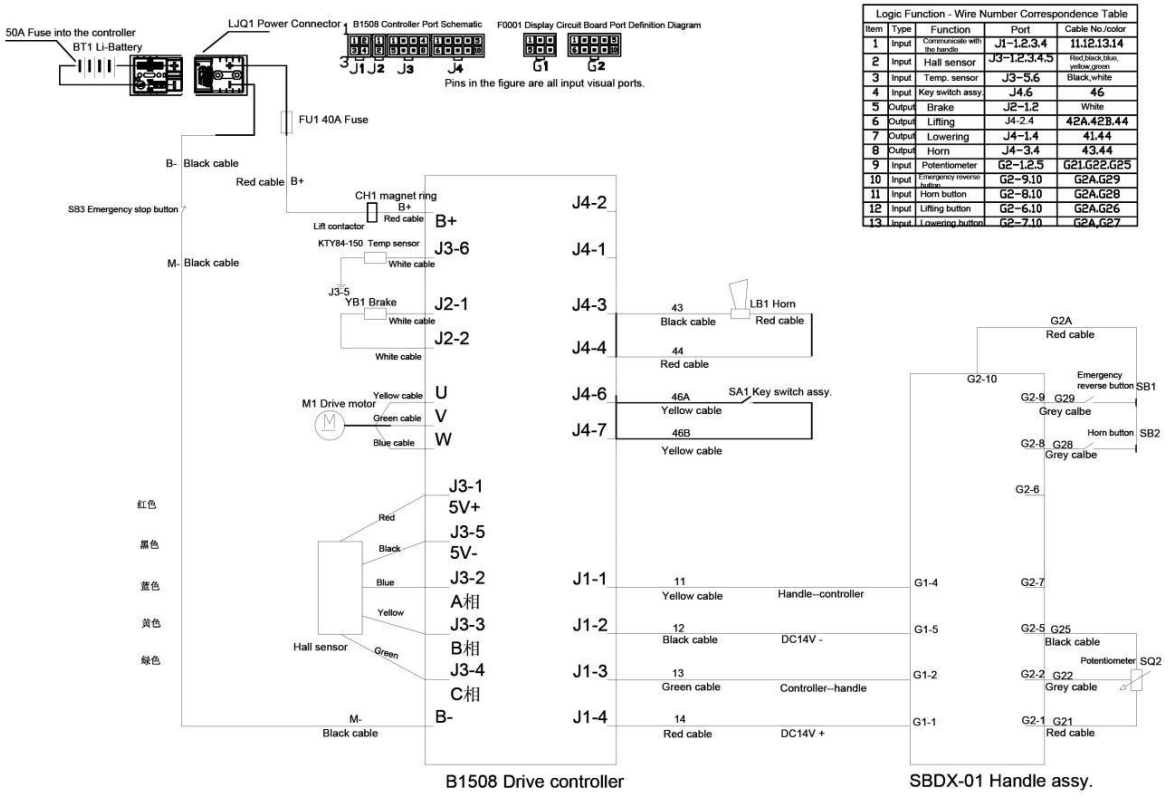
3 Electrical system

3.1 WIRING DIAGRAM (Full-electric)



Logic Function - Wire Number Correspondence Table				
Item	Type	Function	Port	Cable No./color
1	Input	Communicate with the handle	J1-1.2.3.4	11.12.13.14
2	Input	Hall sensor	J3-1.2.3.4.5	Red,black,blue, yellow,green
3	Input	Temp. sensor	J3-5.6	Black,white
4	Input	Key switch assy	J4.6	46
5	Output	Brake	J2-1.2	White
6	Output	Lifting	J4-2.4	42A.42B.44
7	Output	Lowering	J4-1.4	41.44
8	Output	Horn	J4-3.4	43.44
9	Input	Potentiometer	G2-1.2.5	G21.G22.G25
10	Input	Emergency reverse button	G2-9.10	G2A.G29
11	Input	Horn button	G2-8.10	G2A.G28
12	Input	Lifting button	G2-6.10	G2A.G26
13	Input	Lowering button	G2-7.10	G2A.G27

3.2 WIRING DIAGRAM (Semi-electric)



Logic Function - Wire Number Correspondence Table

Item	Type	Function	Port	Cable No./color
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3	Input	Temp. sensor	J3-5.6	Black,white
4	Input	Key switch assy.	J4.6	46
5	Output	Brake	J2-1.2	White
6	Output	Lifting	J4-2.4	42A,42B,44
7	Output	Lowering	J4-1.4	41,44
8	Output	Horn	J4-3.4	43,44
9	Input	Potentiometer	G2-1.2.5	G21,G22,G25
10	Input	Emergency reverse button	G2-9.10	G2A,G29
11	Input	Horn button	G2-8.10	G2A,G28
12	Input	Lifting button	G2-6.10	G2A,G26
13	Input	Lowering button	G2-7.10	G2A,G27

3.3 Error Code Display

Enter the diagnostic page: In the power on state, keep pressing the emergency reverse switch (belly switch) for 15 seconds.

When the controller detects a failure, a fault code is displayed on the display in the format ERR+nn, where nn is the fault code number from this table.

(Full-electric) **(Semi-electric)**

This fault code table provides the following information:

– Fault codes(Please check the reference photo on the right)

– Fault name displayed on the programmer

– Performance caused by malfunction

– Possible causes of the malfunction

When a malfunction occurs, if it is confirmed that it is not a wiring error or a mechanical fault in the vehicle, it can be attempted to restart through the emergency stop switch. If the fault persists, please turn off the switch, check if the connector is properly connected or dirty, repair and clean it,reconnect it, and then try again.

3.4 TROUBLESHOOTING

3.4.1 OBSERVED SYMPTOM TROUBLESHOOTING

Observed failure	Possible cause	Solution
No power	Loose terminal or bad switch connection causes interrupted current	Check battery and wire harness terminals, tighten screw connections, and keep switch contacts clear
Lift speed not uniform	Air in the hydraulic cylinder	Bleed air from cylinder as described in cylinder replacement procedure
No lift	Hydraulic oil is low	Fill with hydraulic oil L-HV32
	Low battery	Recharge battery
	Oil leaking	Inspect and repair hydraulic system, replace seal kit, or tighten oil pile connection screws
	Overload	Reduce the load weight
	Lift limit switch failure	Repair the limit switch
Abnormal noise during lifting	Hydraulic assembly is loose	Tighten the retaining screw
	Hydraulic motor or gear pump failure	Inspect hydraulic motor and gear pump

3.4.2 FAULT CODE TROUBLESHOOTING

When the controller detects a failure, a fault code is displayed on the display in the format ***ERR+nn***, where ***nn*** is the fault code number from this table.

Fault code	Description	Possible cause	Solution
SRO	Operation sequence wrong	Lift, lower, or travel command- ed before handle is in the operation position	Turn truck power off and then on, and be sure to pull the handle into operating position before commanding lift, lower, or travel
11	Parameters incorrectly set	Parameters setting is incorrect	Adjust the parameters or replace the controller
12	Overcurrent	Motor short or controller fault or Hall signal interference	Replace motor or controller
14	M+ current zero bit detection error	Controller failure	Replace controller
15	— current zero bit detection error	Controller failure	Replace controller
16	Emergency reverse button has signal when turning on power	Emergency reverse button stuck or LCD monitor fault	Check or replace the belly switch
18	Motor Hall fault	Motor Hall fault, connector fault or controller fault	Check the motor wiring, replace motor, or replace controller
19	Temperature sensor fault	Temperature sensor failure or open in sensor wiring	Check the motor wiring or replace the motor
21	Potentiometer fault	Potentiometer failure or fault in potentiometer wiring	Check the potentiometer wiring or replace the potentiometer

Fault code	Description	Possible cause	Solution
22	Overheat current limit	Controller overheated and within the current limit working state(derate)	Wait 15-25 minutes for the controller to cool before operating
23	Overheat protection	Controller overheated and shut down	Wait 15-25 minutes for the controller to cool before operating
25	Motor overheat limit	Motor temperature too high, output limited (derate)	Wait 15-25 minutes for the controller to cool before operating
26	Motor stalling	Motor stall protection active	Replace the motor
27	Brake fault	Brake failure, or open on brake wiring	Check and repair the brake wiring or replace the brake
29	Motor open	Open on motor cable or motor fault	Check and repair the motor cabling or replace the brake
31	Battery voltage low current limit	Low battery voltage and within the current limit working state (derate)	Charge or replace the battery
32	Low battery voltage protection	Low battery voltage and shut down	Charge or replace the battery
33	Over high battery voltage	Battery voltage too high	Wait 15-35 minutes for voltage to level before operating
35	Contactor error	Controller fault	Replace controller
38	Communication error	Display wiring fault or display fault	Check and repair display wiring, replace tiller handle harness, replace the display, or replace the controller
39	Version error	Controller version is incorrect	Replace controller

F BATTERY USE GUIDE

1 Installation and removal of the Lion-battery

1. Take out screw (#1), block (#2) and washer (#3) in the manual bag and combine these three items as shown.

2. Align the mounting hole and tighten the screw.

3. Put in the battery, rotate the anti-jumping stopper against battery and tighten the screw.

4. Loosen the screw and rotate the anti-jumping stopper in the opposite direction, and pull out the battery vertically.

2 Lion-battery use guide

⚠ WARNING

– Please read carefully and follow these terms and conditions for installing and using the battery. Improper installation or use may cause excessive heat and other hazardous conditions. Failure to follow these instructions may pose risks to life and property.

– Please read the battery warning labels. Do not subject the battery to fire or heat.

– Do not use metal to connect the battery anode and cathode directly to short-circuit the battery.

– Do not disassemble the battery or change the battery structure.

– Do not immerse the battery in water. Keep it in a cool and dry environment when not in use.

– Do not put turn the battery upside down.

– Do not transport or store batteries with metal objects such as hairpins, coins, or tools.

– Do not strike, drop, throw, crush, or step on the battery. Direct welding on batteries is prohibited.

– Do not pierce the battery with nails or other sharp objects.

3 Special situation handling

– If the battery leaks and electrolyte comes into contact with skin or clothing, rinse immediately with clean water.

– If the battery emits a peculiar smell or heat, becomes discolored or deformed, or shows any other abnormality during use, storage, or charging, immediately remove the battery from the device or charger to a safe place and stop using.

– Keep batteries out of reach of children. Cover waste batteries with insulating paper to reduce risk of fire or explosion.

⚠ WARNING

The battery has been inspected prior to shipment. If you find deformation, heating,or peculiar smells upon receiving the battery, please contact the manufacturer.

4 Battery storage

– The battery should be stored at room temperature and charged to about 30-50% of capacity. When storing for a long time, it is recommended to charge the battery every 3 months to prevent over-discharge.

– Do not use unqualified equipment when charging and discharging, and follow the instructions.

– Do not mix batteries of different manufacturers or different types and models. Do not mix old and new batteries.

Model	Li-battery
Capacity	10Ah/15Ah
Voltage	48V
Battery life	800~1000 cycles

Specifications sheet

<table>
<tr><th colspan="3">Work environment</th><th><0°C
(<32°F)</th><th><0°C
(<32°F)</th><th><45°C
(<113°F)</th><th><55°C
(<131°F)</th><th><75°C
(<167°F)</th><th>High</th></tr>
<tr><td rowspan="6">Work environment temperature</td><td rowspan="3">Room temperature</td><td>Use condition</td><td rowspan="3">Prohibited</td><td colspan="2">Use allowed</td><td colspan="3" rowspan="3">Prohibited</td></tr>
<tr><td>Discharge capacity</td><td colspan="2">Normal discharge</td></tr>
<tr><td>Battery life impact</td><td colspan="2">No impact</td></tr>
<tr><td rowspan="3">Cold storage</td><td>Use condition</td><td colspan="6" rowspan="3">Cold storage use is prohibited</td></tr>
<tr><td>Discharge capacity</td></tr>
<tr><td>Battery life impact</td></tr>
<tr><td rowspan="3">Battery temperature</td><td rowspan="3">N/A</td><td>Use condition</td><td rowspan="3">Prohibited</td><td colspan="3">Use allowed</td><td colspan="2" rowspan="3">Prohibited</td></tr>
<tr><td>Discharge capacity</td><td colspan="3">Normal discharge</td></tr>
<tr><td>Battery life impact</td><td colspan="2">No impact</td><td>Capacity loss</td></tr>
<tr><td rowspan="2">Charging environment temperature</td><td rowspan="2">N/A</td><td>Use condition</td><td rowspan="2">Prohibited</td><td colspan="3">Charging allowed</td><td colspan="3">Charging prohibited</td></tr>
<tr><td>Battery life impact</td></tr>
<tr><td rowspan="3">Battery parameter setting</td><td rowspan="3">Approximately 20°C (Approximately 68°F)</td><td>Voltage</td><td>39.2V</td><td colspan="3">43.5V</td><td colspan="2">44.5V</td><td>54.6V</td></tr>
<tr><td>Power display</td><td>Black screen</td><td colspan="3">0</td><td colspan="2">4%</td><td>100%</td></tr>
<tr><td>Vehicle condition</td><td>No output</td><td colspan="3">Vehicle stops</td><td colspan="2">Traction speed derate, charge symbol blinking</td><td>Normal</td></tr>
</table>

G RECHARGING INSTRUCTIONS

1 BATTERY CHARGE STATUS

→ The battery provided by the manufacturer is already correctly charged and filled with electrolyte to the right level. The level of charge of the battery is shown by the battery charge indicator located on the truck display.

2 RECHARGING ENVIRONMENT

⚠ WARNING

The battery should be recharged in a special well ventilated room separated from the working environment because the batteries generate flammable gases that may cause explosions if they come into contact with flames or sparks.

In the case of forced ventilation, flues also used for the extraction of combustion products may not be used.

⚠ CAUTION

To avoid the damage to the battery, never charge the battery in an environment with a temperature of 0°C (32°F) or less.

The charging area should be a dry location.

3 BATTERY CHARGE

The battery charger should be chosen according to the technical characteristics of the battery:

Number of elements in the battery Nominal capacity.
Type: lithium-ion
Available power supply: voltage, frequency Time available to perform charging

NOTE: Call a technician from the manufacturer if you have any doubts regarding compatibility with the battery.

RECHARGING METHODS:

NOTE: Follow the instructions on the instruction manual of the battery and recharging methods.

– The battery is prohibited to charge in less than 0 degrees Celsius otherwise it will cause serious battery recession, or even a security incident.

– The battery is prohibited to charge at low temperatures, but can use in not less than -20 degrees Celsius environment.

– But the capacity will be inadequate, this is a normal phenomenon.

Usage environment	Capacity
55℃	≥95%
25℃	≥100%
-10℃	≥50%

Note: Although the battery can be discharged at very low temperatures, but the process of taking battery out is easy to produce condensate water droplets, which will break the battery internal electronic devices and cause unpredictable dangers. If taken from the cold environment, battery needs to wait at least 4 hours to be charged.

The battery protection class is IP20, when installed in the machine, it is IP50. Please do not wash the battery directly with water.

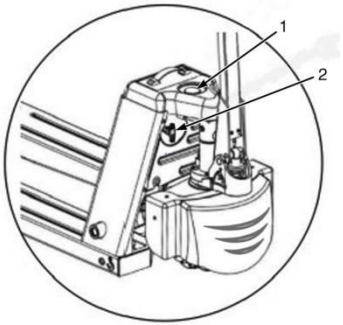
It is strictly prohibited to use non-original chargers to charge the truck battery.

It is strictly forbidden to use the pallet truck charger to charge other batteries.

4 RECHARGING PROCEDURE

⚠ WARNING

Follow the instructions on the instruction manual of the battery and battery charger for the recharging procedure. It is good practice to allow a battery to cool down after taking it out of service and before starting to recharge.



– Take the truck to a recharge area.

– Turn off the truck, then press down the emergency power off (item 1).

– Disconnect the battery connector (item 2).

– Connect the charger to the battery connector and begin the charging cycle according to the battery and charger manufacturers' instructions.

5 CHARGING TIME

– With a 48V/10Ah battery and a 2A external charger, it takes about 5 hours to achieve full charge.

– With a 48V/15Ah battery and a 5A external charger, it takes about 3 hours to achieve full charge.

– When the truck or a battery is in storage for an extended period, charge the battery to 30-50% state of charge every three months.