

# Operation Manual

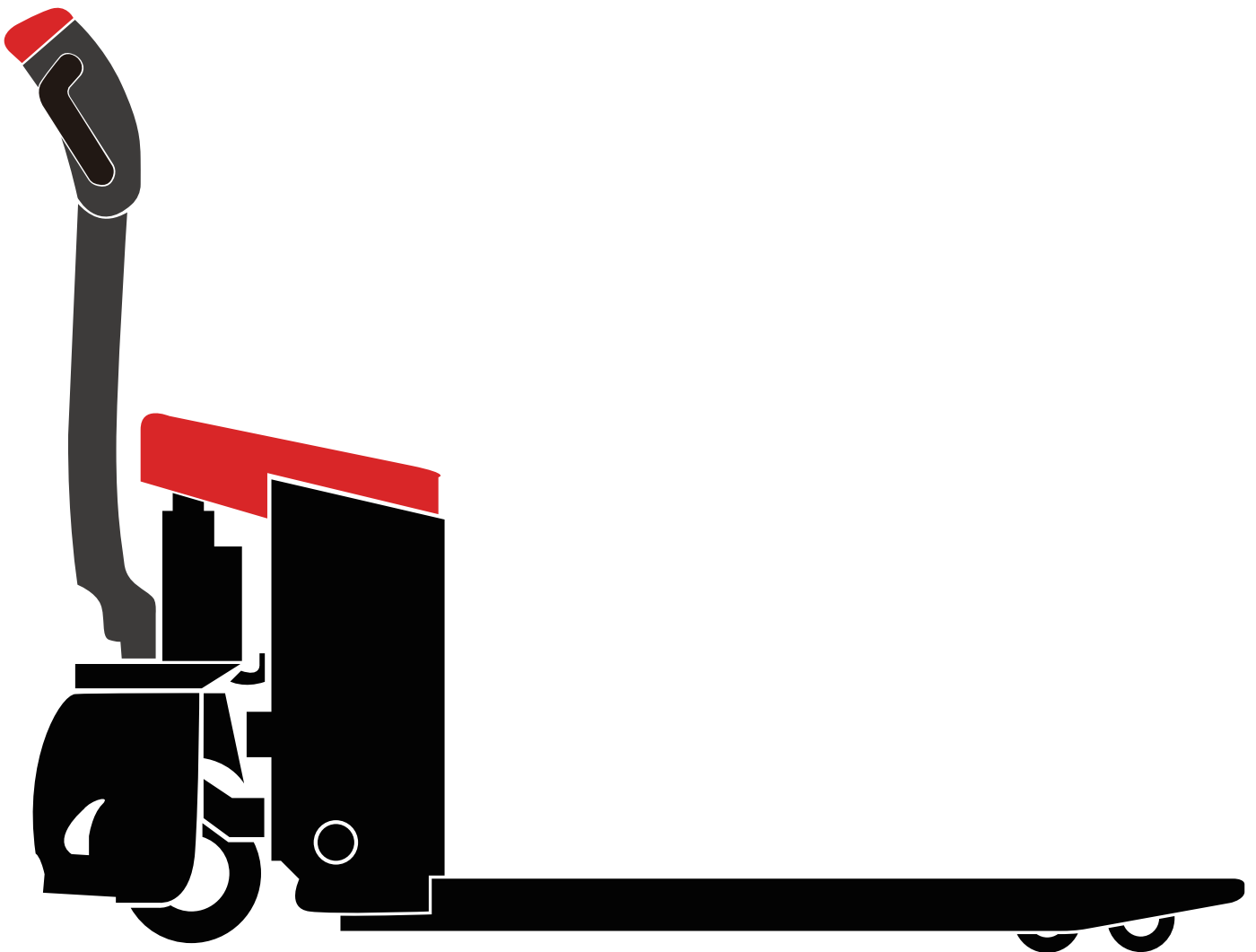
**EPL151**

**HPL152**

**EPL154**

**EPL185**

**WPL201**





EP EQUIPMENT CO.,LTD. is one of the world's leading companies manufacture, design material handling equipment and provide related service. With over 100,000 square metres plant it produces over 100,000 trucks per year, and provides professional, effective and optimized material handling solutions worldwide, until now it has developed three major kinds of business:

- Material handling equipment: Focus on electric forklift and warehouse equipment
- OEM parts: Global parts supply
- Imow industry,online: One-stop industrial products supply

Guided by our customer-oriented concept, EP has developed service centers in more than 30 countries around the world, from which customers are able to receive timely local service. Moreover, 95% of warranty parts can be shipped out within 24 hours after been ordered. Through our online after-sales service system, customers can process their warranty claims, order spare parts and consult the operation manuals, maintenance materials and spare parts catalogs.

With business all over the world, EP has thousands of employees and hundreds of agents worldwide to provide our global customers with prompt local service.

Based on the concept of sharing economy , EP also offer rental service for various logistics equipment. Adhering to the idea "Making the leasing of logistic equipment more simple", EP is devoted to providing customized one-stop leasing solutions for our customers with our high quality, reasonable price and prompt rental service.

EP's mission&vision is " Let more people apply the electrical material handling equipment to relieve the intensity of labour" and "Let's grow together".

EP EQUIPMENT CO., LTD  
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# Preface ►

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Thank you for buying our products.

The manual will show you the way of correctly using the truck as well as relevant preventive maintenance and safety operation. The truck should be operated only by well-trained professionals and by no means by non-working personnel. Operators are supposed to read through the manual before actually operating the truck.

## ● Explanations on the manual

With the continuous upgradation and improvement of our company's products, you may find a slight difference existing between your carrier and some introductions in the manual.

All the information, specifications and illustrations in the manual are effective in times of printing and our company maintains the right to modify the specification (s) or design (s) of our products at any time without any beforehand notification.

## ● Safety signs and corresponding explanations



### **DANGER**

Means that failure to comply can cause risk to life and/or major damage to property.



### **WARNING**

Please strictly adhere to these safety instructions to avoid personal injury or major damage to equipment.



### **CAUTION**

Please pay attention to the important safety instructions.



### **NOTE**

Pay attention to Instruction.

## Internet address and QR code of Parts manual

By entering the address <http://www.ep-care.com> in a web browser or by scanning the QR code, Login after registration, Select "Parts purchase" function and input part number or model name to find the truck.



**Note:** After registration, please send email to [info@ep-care.com](mailto:info@ep-care.com) to activate your account

## Intended use ►

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**The lift truck is designed for transporting and stacking the loads stated in the nameplate.**

**In particular we refer to:**

- the safety rules of your trade association.
- In accordance with the special provisions for driving on public roads specified by national specifications.
- Other local regulations.

The rules for the intended and approved use of industrial trucks must be followed under all circumstances by the responsible persons, especially by the operator and service personnel.

The user, and not EP, is responsible for any danger arising from applications not authorised by the manufacturer.

If you want to use the truck for applications not mentioned in this manual, please first contact your authorised dealer.

No changes, particularly no modifications and additions, may be made to the truck without the approval of the manufacturer.

### ● Technical description

- These trucks consists of robust steel chassis and is driving on a traction wheel and 2 load wheels. Caster wheels provide for good stability even with high loads.
- The truck will be stopped by a regenerative service brake and hold by an automatic electromagnetic parking brake in it's parking position.
- The load is lifted by a hydraulic cylinder that activates a lifting shaft that transmits the lifting movement by a push-rod to the load wheels.
- The control handle is used for smooth steering and control of drive speed, lifting and lowering, braking and the horn without changing the position of the hand. The long tiller shaft allows effortless steering and a safe distance to the truck. A gas spring returns the control handle always into a vertical position that activates the brake automatically.
- An emergency reverse switch on the control head protects the operator from being squeezed by the truck in confined spaces.
- An electronic controller operates all electric functions and guaranties safety.
- A key switch secures the truck from unauthorized use.
- The ergonomic design of the truck guaranties safe and easy operation.

### **i** NOTE

- *This manual is used for operation and maintenance , the detail parameters, size and specifications in context is only for reference , the real parameters will depend on sale files.*
- *Manual pictures for reference only, the real car shall prevail, and shall not affect the manual use.*
- *Manual pictures only sign for one of the models in this series models.*



## ● Obligations and responsibilities of equipment user

In the manual, “equipment user” refers to any natural person or legal person directly using or appointing or authorizing others to use the carrier. In such special situations as renting or sales, the “equipment user” represents the interested parties supposed to bear operation obligations as specified by the contractual terms concluded between equipment owner and corresponding users. Equipment users must ensure the use of the carrier only for purposes specified and timely eliminate all the dangers that may threaten the life and health of the users themselves or any other third party, in addition to which they must also strictly abide by accident prevention provisions, other safety technology provisions and equipment operation, maintenance and repair guidelines, and ensure that all the operators seriously read and completely understand the contents of the operation instruction.

Should any violation of the operation instruction occur, the quality guarantee of our company will be invalid automatically, and our company will assume none of the responsibilities for losses resulting from any nonstandard operation of the equipment implemented by any client, equipment user or any third party without the authorization of the client service department of our company.

## ● Modification

Unauthorized modification to the truck can result in injury or death.

Can not remove, disable or modify any safeguards or other safety devices.

Exception: Only in the event that the truck manufacturer is no longer in business and there is no successor in the interest to the business, may the user arrange for a modification or alteration to a powered industrial truck, provided, however, that the user

- a) arranges for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety.
- b) maintains a permanent record of the design, test(s) and implementation of the modification or alteration.
- c) approves and makes appropriate changes to the capacity plate(s), decals, tags and operation manual.
- d) affixes a permanent and readily visible label to the truck stating the manner in which the truck has been modified or altered, together with the date of the modification or alteration and the name and address of the organization that accomplished those tasks.

## ● Wind loads

Wind forces can affect the stability of a truck when lifting, lowering and transporting loads with large surface areas .

Light loads must be especially secured when they are subjected to wind forces. This will prevent the load from sliding or falling.

Stop the truck in both cases.

## Legal requirements for marketing

### Declaration

EP EQUIPMENT CO., LTD.

Address: No.1 Xiaquan Village, Lingfeng Street, Anji, Huzhou, Zhejiang

We declare that the machine

Industrial truck: according to this operation manual

Type: according to this operation manual

complies with the most recent version of Machinery Directive 2006/42/EC.

Personnel authorised to compile the technical documents:

See EC/EU Declaration of Conformity

EP EQUIPMENT CO., LTD.

### EC/EU Declaration of Conformity

The manufacturer declares that this industrial truck complies with the EC Machinery Directive and the provisions of other applicable EC/EU directives effective at the time of sale. This can be verified by means of the EC/EU Declaration of Conformity and the relevant certification label on the nameplate.

The industrial truck is supplied with the EC/EU Declaration of Conformity document. This declaration proves that this truck complies with the requirements of the EC Machinery Directive. Unauthorised modification or additional installation of equipment to the structure of the industrial truck may affect its safety, and will therefore invalidate the EC/EU Declaration of Conformity.

The EC/EU Declaration of Conformity must be carefully stored and made available to be presented to the relevant authorities when necessary. If this industrial truck is sold, this declaration document must be handed over to the new owner.

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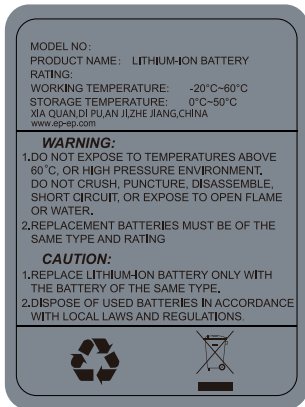


# A

## Introduction

### 1.1 Nameplates and alarming labels

- Have the nameplates of a truck fixed its main body and alarming labels pasted on its outer cover.
- Should any nameplate or alarming label lose or be damaged, please conduct replacement immediately or contact with the sales department or corresponding agent of our company when necessary.
- Such truck-related information as product model, serial number, manufacturing date, rated load lifting capacity, lifting height, load centre distance and dead weight are all shown in the nameplates.



Battery nameplate



Instructions label



Anti-pinch label

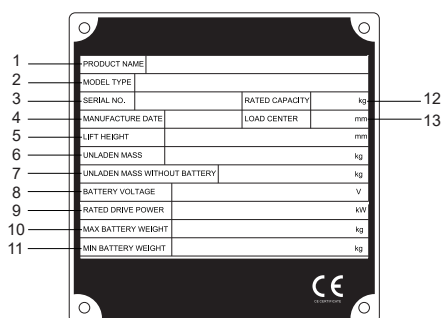
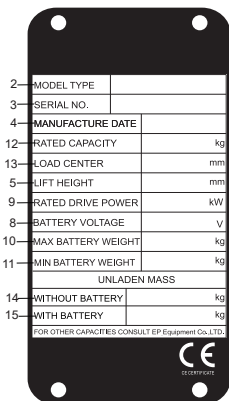


Do not rest on the pallet label



Lithium sign label

## ➤ Nameplate



Item	Description
1	PRODUCT NAME
2	MODEL TYPE
3	SERIAL NO.
4	MANUFACTURE DATE
5	LIFT HEIGHT
6	UNLADEN MASS
7	UNLADEN MASS WITHOUT BATTERY
8	BATTERY VOLTAGE
9	RATED DRIVE POWER
10	MAX BATTERY WEIGHT
11	MIN BATTERY WEIGHT
12	RATED CAPACITY
13	LOAD CENTER
14	UNLADEN MASS WITHOUT BATTERY
15	UNLADEN MASS WITH BATTERY

## Hoisting

Park the truck securely as described chapter B Section 1.2.6

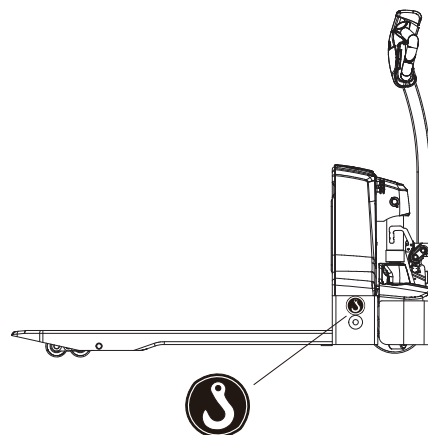
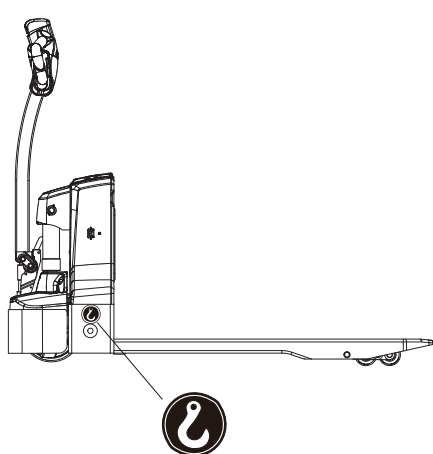
Secure the lifting slings to the strap point, and prevent them from slipping. Crane slings should be fastened in such a way that they do not come into contact with any attachments when lifting.

Load the truck and park it securely at its destination.

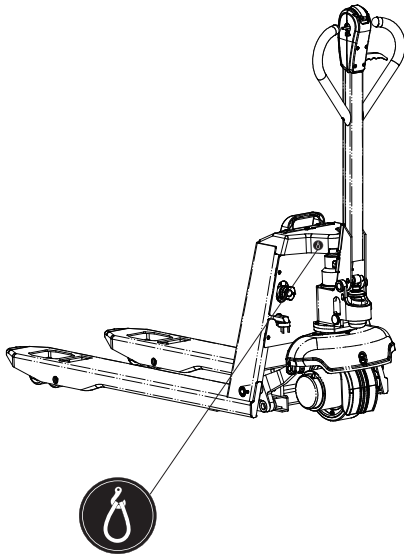


### DANGER

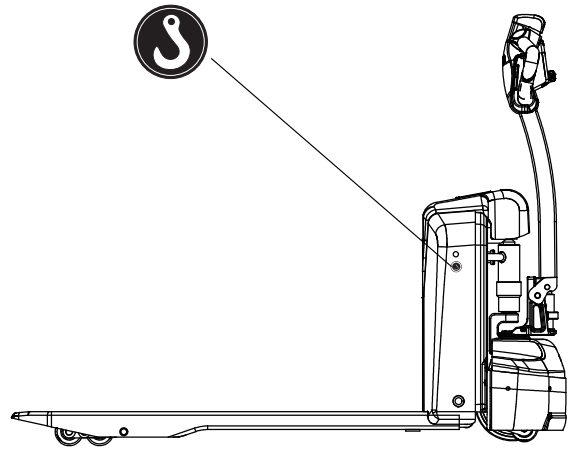
*Personnel must not stand below or near the truck when the pallet truck is being lifted. Only use lifting gear with sufficient capacity (for truck weight see truck nameplate). When hoisting or laying down, it should be stable and slow to avoid collision or accident.*



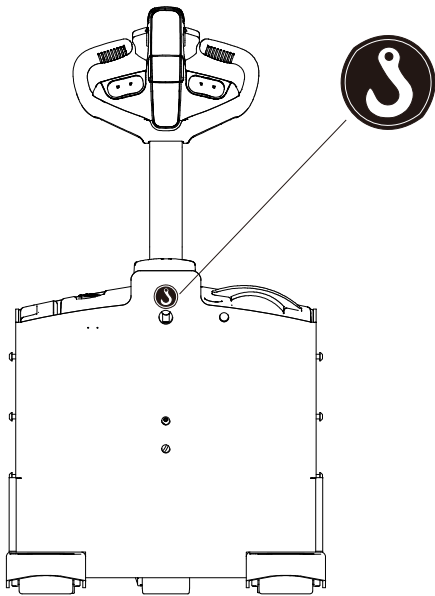
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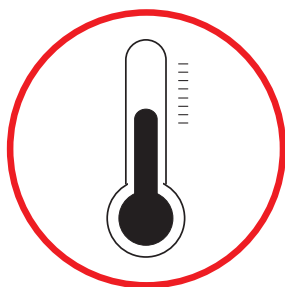


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## 1.2 Utilization safety specification



- Average ambient temperature for continuous duty: + 25°C ;
- Maximum ambient temperature, short term (up to 1h): + 40°C ;
- Lowest ambient temperature for trucks intended for use in normal indoor conditions: + 5°C ; Lowest ambient temperature for trucks intended for use in normal outdoor conditions: - 20°C ;
- Best operating temperature range: 15°C ~ 35°C ;
- Charging temperature range: 5°C ~40°C ,No charging below 0°C .

Don't use the truck in rainwater.

Don't use the truck in non-position.

### **i** NOTE

*Special equipment and authorisation are required if the truck is to be constantly used in conditions of extreme temperature or air humidity fluctuations. We recommend with special measures for the truck or buy the truck for cold store. If in doubt, contact the manufacturer's customer service department.*

### **i** NOTE

*Lithium battery charging temperature range: 5~40°C , 0°C below the low-temperature environment under the conditions of large-scale charging will cause damage to the battery; Discharge temperature range: -20°C ~55°C , low temperature (-20°C ~0°C ) discharge capacity than at room temperature may be reduced compared to normal, it is normal; battery can be 40°C ~55°C Ambient temperature, but the battery ambient temperature is too high, especially in the long-term high temperature battery environment, will accelerate the aging of the battery material, shorten the battery life, it is not recommended for long-term use at this temperature. Ambient temperature exceeding the above range of charge and discharge temperature may adversely affect the battery performance or damage, may greatly shorten the battery life, it should be avoided at the above temperature.*



➤ **Improper use**



Avoid the use of the truck by non-working personnel.  
Don't ride on the truck.  
Don't carry or lift people by the truck.



Don't use the truck on slippery road surfaces.  
(such as road surfaces with oil stain or residual snow or those frozen ones )



Don't carry goods on steep slope to prevent goods from sliding off.

**i** **NOTE**

*Conditions of operation road surface: the truck should run on solid, flat, level and paved road surfaces (including both running and lifting)*



**CAUTION**

*When working environment is not enough light, please add extra lighting of the working area.*



Don't leave the truck before it is parked as regulated.



Don't use the truck when any non-working personnel is in the dangerous area.  
Don't be distracted when using the truck.  
Don't be distracted when using the truck.



Don't place any part of your body in any moving part of the truck to avoid being clamped.

## ➤ Safety Instructions

- Only trained and authorized operator shall be permitted to operate the truck.
- Operator must wear helmet, working shoes and uniform
- Do wash the inner of the truck, do not place the truck outdoors and exposed to the rain.
- Fire extinguisher shall be equipped at the work site. Users can choose truck equipped with fire extinguisher. Driver and manger should be familiar with the fire extinguisher position and application method.
- Whenever you find the forklift abnormal, stop the truck, put on the DANGEROUS or FAULT sign to the truck, remove the key, and report to the managing person. Only after eliminating the fault can you use the truck.
- The controller equips with energy accumulator, do not touch between B+ and B- to avoid electric injury. If you need check or clean the controller, connect load(like contactor coil or horn or bulb or resistance) between controller B+ and B- to discharge the controller capacity.

Only trained and authorized operator shall be permitted to operate the truck.

- Do not use truck under the weather of sand, snow, thunder, storm, typhoon, etc.
- Avoid using the truck when the wind speed is larger than 5m/s.
- Cause the wheels of pallet truck is small, it is not allowed to run on the street, and only for driving in specified stacking place.
  - When handling bulky loads, which restrict your vision, please operate the machine in reverse or have a guide.
  - Do not drive the truck when the forks in high position.
  - Goods are not allowed to deviate the fork center, when goods is deviating the fork center, turn or pass uneven road, you are easily to fall. Meanwhile, possibility of turnover will increase.
  - Wipe off the oil, grease or water on the soleplate, foot pedal and control lever.

## ➤ Stability

**Stability is guaranteed if your truck is used properly in accordance with its intended purpose. Common reasons for a loss of truck stability include:**

- Emergency stops or sharp turns
- Driving with a raised load or a load handling device
- Turning the vehicle around on or driving across a slope
- Driving up or down a slope with the load pointing downhill
- Driving with a wide load
- Carrying a swinging load
- Driving near the edge of a ramp or up steps
- Tilting the mast forward while carrying a raised load
- Driving on uneven surfaces
- Overloading the truck
- Carrying bulky loads in strong winds
- When carrying liquid, its centre of mass inside the container may shift due to inertial force (such as when pulling away, braking or turning)

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## 1.3 Related Safety Instruction and Standard(For CE)

### 1.3.1 EN standards



**Continuous sound level:** < 74 dB(A)  
according to EN 12053 as stipulated in ISO 4871

The continuous sound level is a value averaged according to standard regulations, taking the sound pressure level into account when driving, lifting and idling. The sound pressure level is measured at the ear.

### Electromagnetic compatibility (EMC)

The manufacturer confirms compliance with the limit values for electromagnetic emission and interference immunity as well as testing of static electricity discharge according to EN 12895 and the references to other standards contained therein.

Electrical or electronic components and their arrangement may only be modified after written approval by the manufacturer has been obtained.

### 1.3.2 Conditions for application



#### Working condition requirements:

- Use in specified rated load.
  - Used in specified area as factory, tourist attraction and recreation place.
  - Used on the flat ground, that is fixed and owns enough carrying capacity.
  - It is prohibited to pass the bulge or cavity as the small wheel diameter may cause truck tipping over.
  - Used on the road with good vision and equipment use license.
  - The truck's maximum operation altitude is up to 2000m.
  - Trucks can only be operated in adequately illuminated working areas to avoid injuries. In case of insufficient light, an additional lighting equipment is needed to ensure that the driver can see properly.
- If you must travel on an incline, the gradients should be below A% at full load, or below B% without a load.(For the value of A and B, refer to the Gradability in technical data)

### 1.3.3 Vibrations



#### Vibrations to which the hands and arms are exposed

The following value is valid for all truck models:

<b>Specified characteristics for upper limb vibrations</b>	<b>specified characteristics for upper limb vibrations</b>
--	--

vibration characteristics	< 2.5 m/s <sup>2</sup>
---------------------------	------------------------

**i** **NOTE**

*It is mandatory to specify the hand-arm vibrations, even where the values do not indicate any danger, as in this case.*



**CAUTION**

*The value expressed above can be used to compare forklift trucks of the same category. It cannot be used to determine the operator's daily exposure to vibrations during real operation of the truck; these vibrations depend on the conditions of use (floor conditions, method of use etc.) and therefore daily exposure must be calculated using data from the place of use.*



## 1.4 Transport and commissioning

### 1.4.1 Truck transport

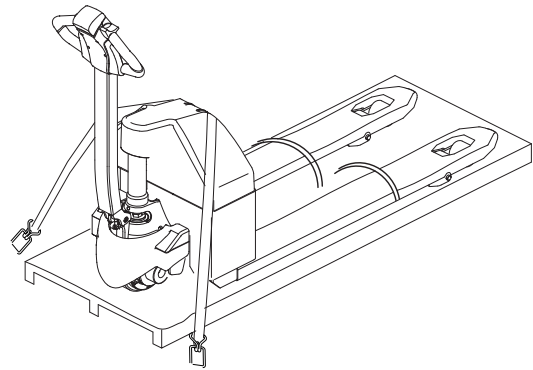


- Place the truck on a wooden pallet.
- Fix the truck to the pallet to prevent loosening.

#### **i** NOTE

*Only use haulage equipment with sufficient load capacity.*

- *The load weight includes the net weight of the truck (including battery weight) and the wooden pallet.*
- *The pallet or wooden box should be large and strong enough to withstand the weight of the truck.*
- *Pay attention to the fork blades when lifting the truck onto the pallet, to prevent injuries caused by the forks.*



*Follow the prescribed steps and park the vehicle correctly.*

- *Make sure the forks are aligned with the pallet, move slowly and stop after inserting the forks as far into the pallet as possible.*

#### **!** CAUTION

*Operate on open, level ground and pay attention to ground conditions when lifting and lowering the pallet to prevent the truck from tipping.*

*When transporting the truck, make sure it is fully secured and take precautionary measures against bad weather.*



## 1.4.2 Commissioning

The truck must only be operated on battery current!

To prepare the truck for operation after delivery or transportation, the following operations must be performed:

Check the equipment for completeness.

If necessary, install the battery. Make sure that the battery cable is not damaged.

Fully charge the battery.

Check for Fluid Leakage.

Check the brake function.

Check the lifting and lowering function.

Check the driving function.

Check the steering function.

The truck can now be started, see 1.2.3 Truck starting chapter B



### WARNING

*The truck must only be operated with a lithium-ion battery.*



### NOTE

*If the truck is delivered in multiple parts, setup and commissioning must only be performed by trained, authorised personnel.*

### Wheel flattening

If the truck has been parked for a long period, the wheel surfaces may tend to flatten. This flattening has a negative effect on the safety and stability of the truck. Once the truck has covered a certain distance, the flattening will disappear.

# B

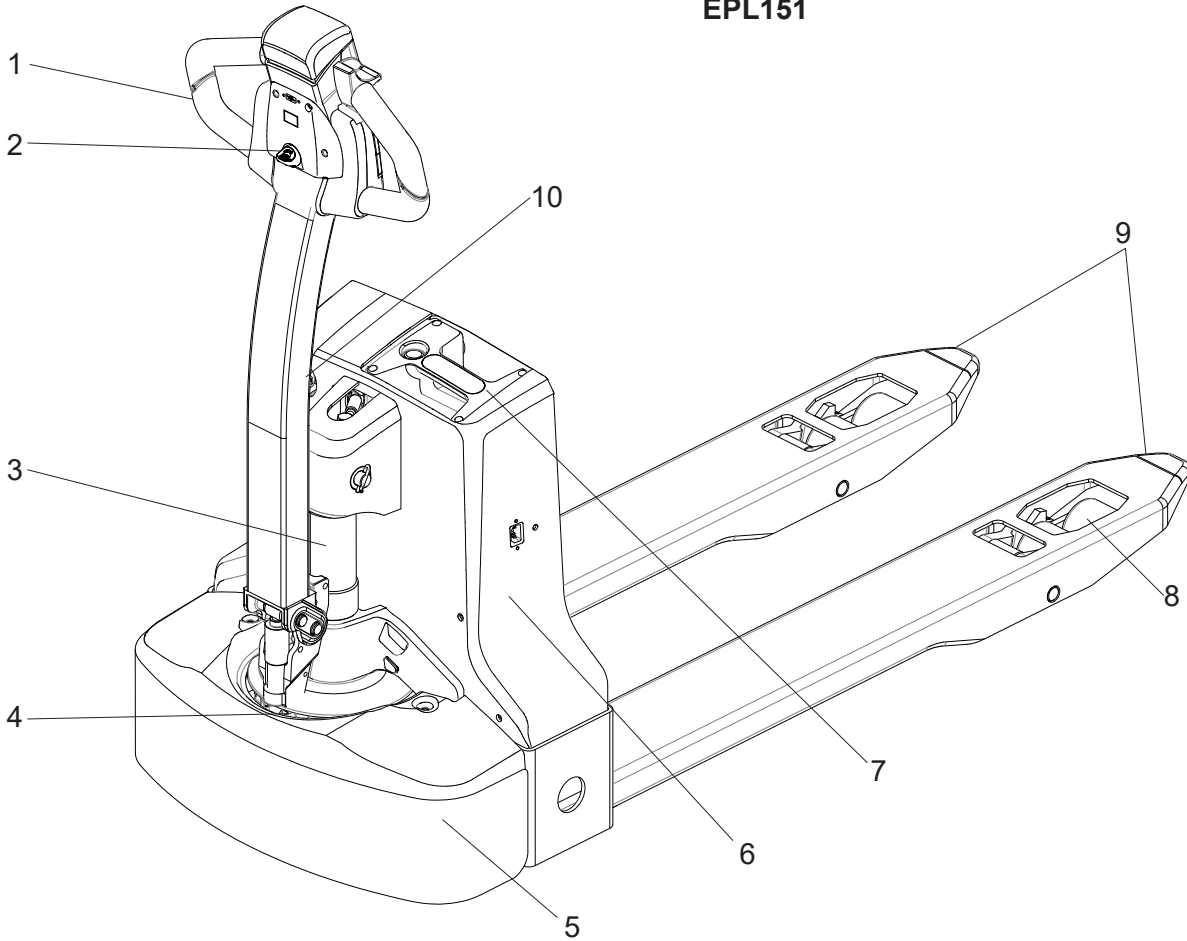
## Operation

### 1.1 Overview, Display, Manipulation

#### 1.1.1 Truck overview

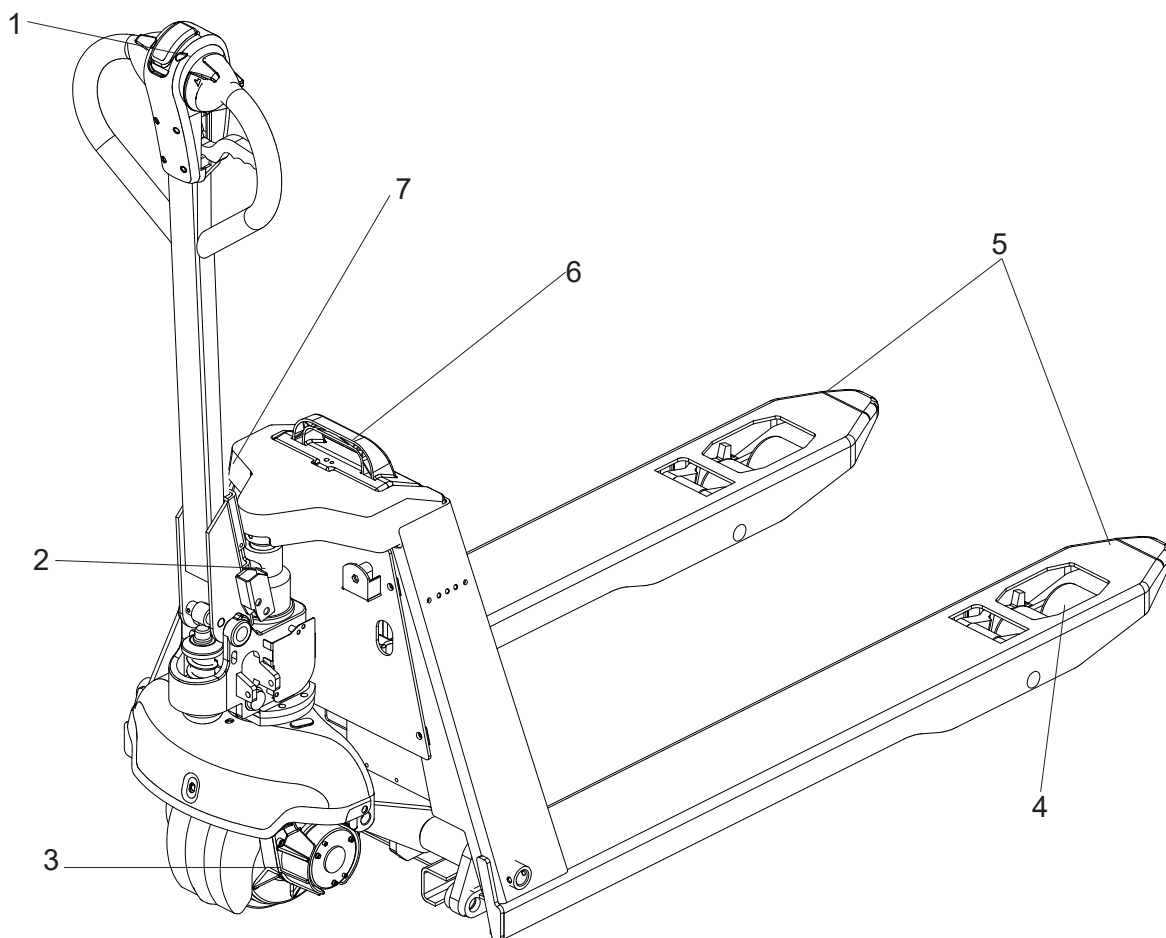


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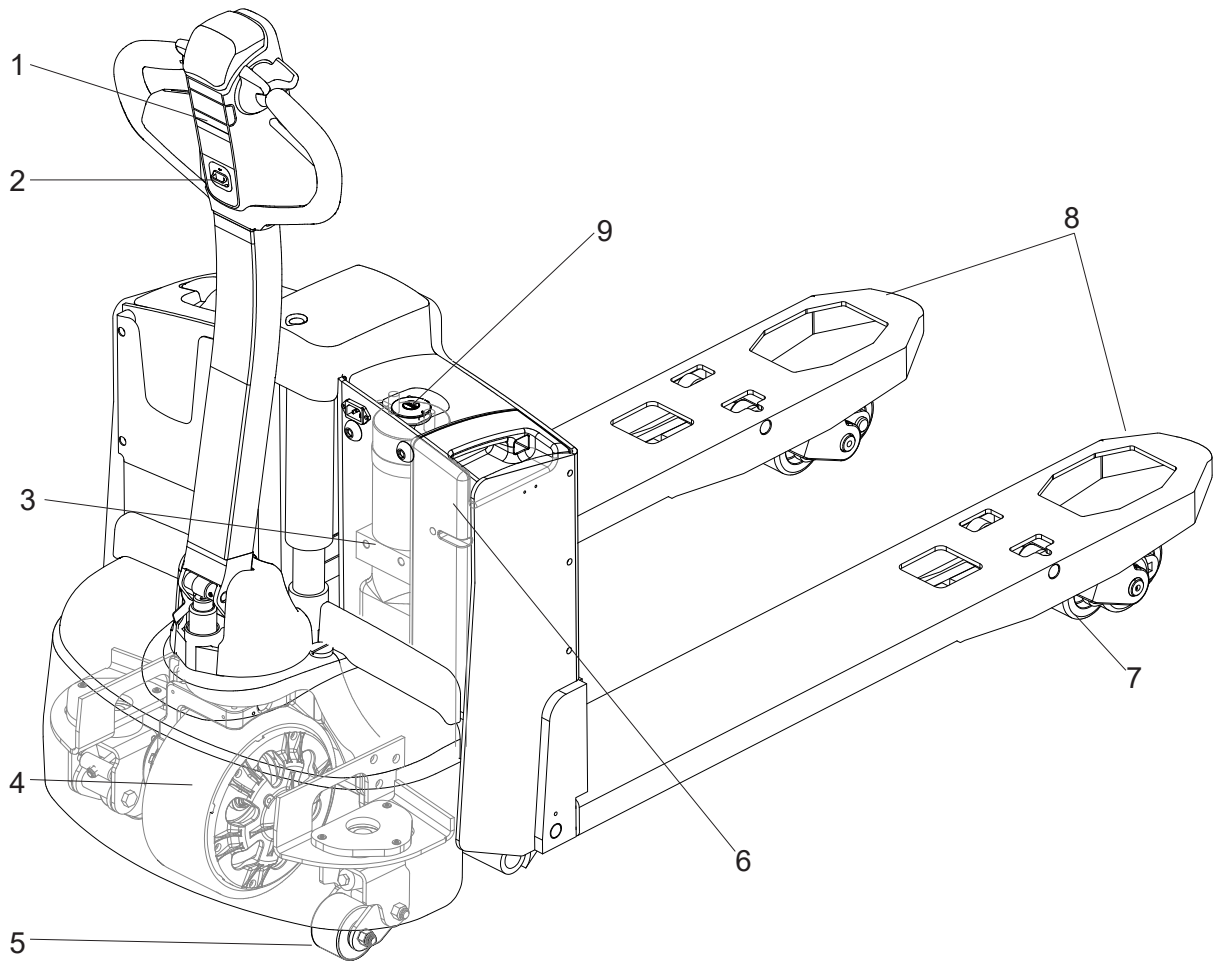
1	Control Handle
2	Key switch
3	hydraulic unit
4	Drive wheel
5	Caster
6	Charger(optional)
7	Battery
8	Load wheels
9	Forks
10	Emergency stop switch

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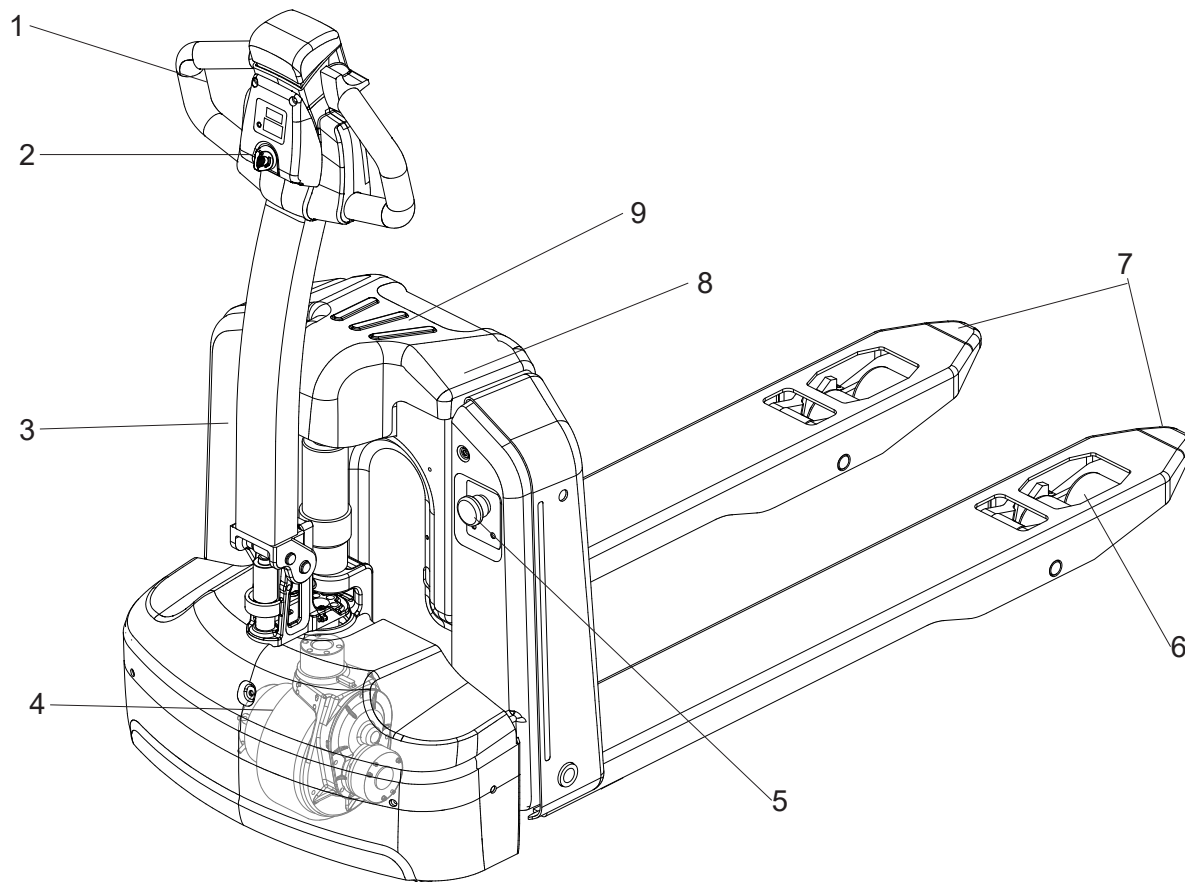
1	Control Handle
2	hydraulic unit
3	Drive wheel
4	Load wheels
5	Forks
6	Batttery
7	Emergency stop switch

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1	Control Handle
2	Key switch
3	hydraulic unit
4	Drive wheel
5	Caster
6	Battery
7	Load wheels
8	Forks
9	Emergency stop switch

EPL154/EPL185



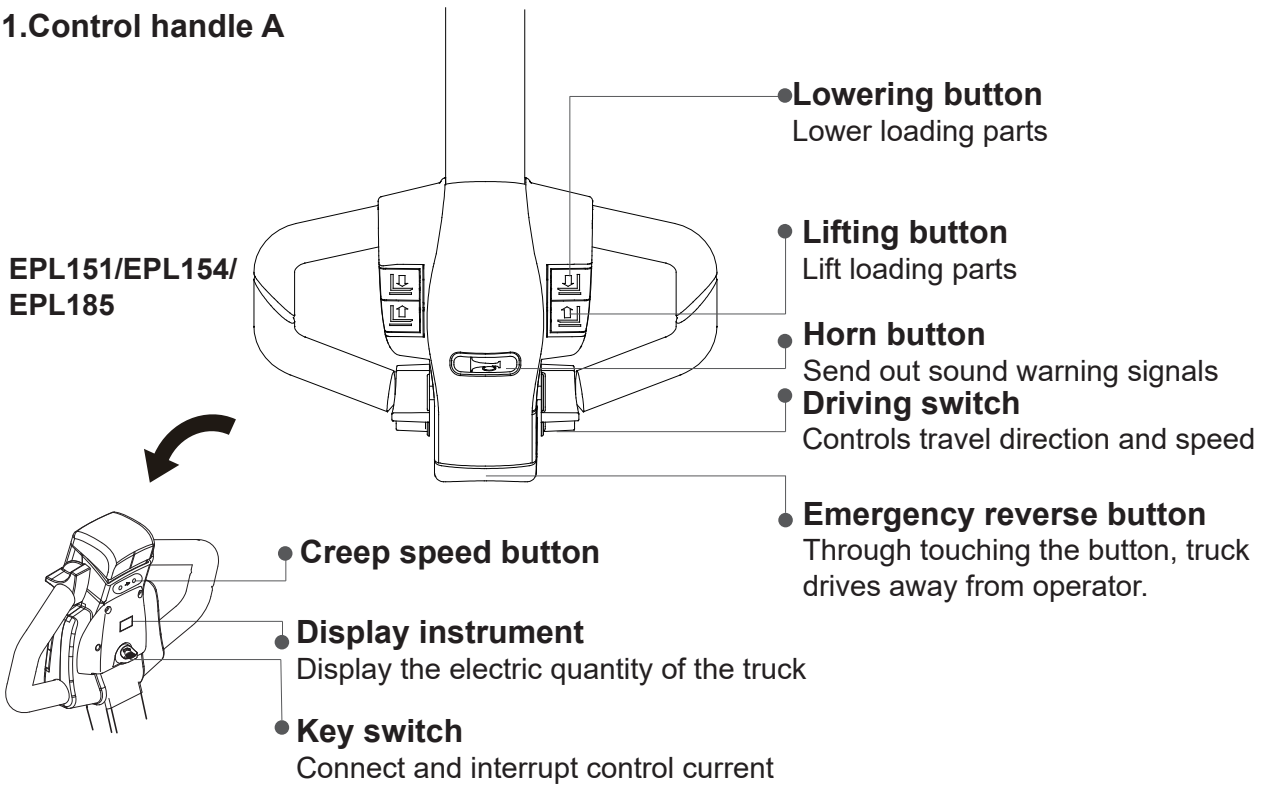
1	Control Handle
2	Key switch
3	hydraulic unit
4	Drive wheel
5	Emergency stop switch
6	Load wheels
7	Forks
8	Battery
9	Battery cover



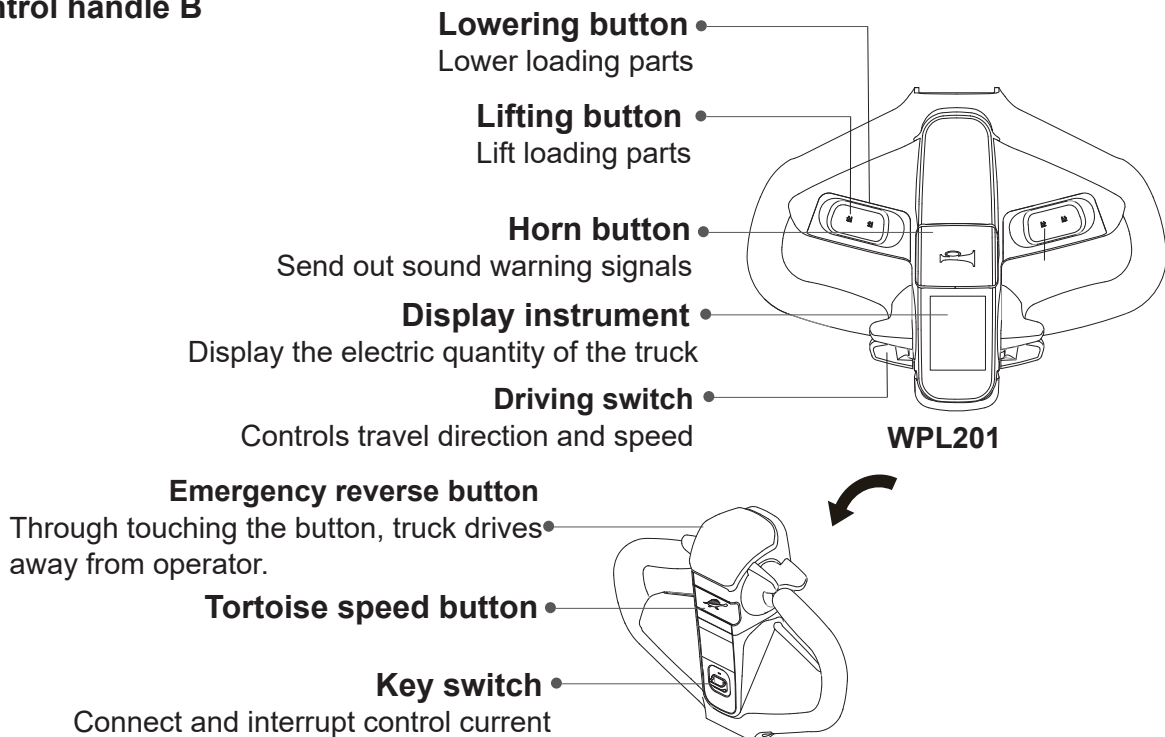
## 1.1.2 Control handle



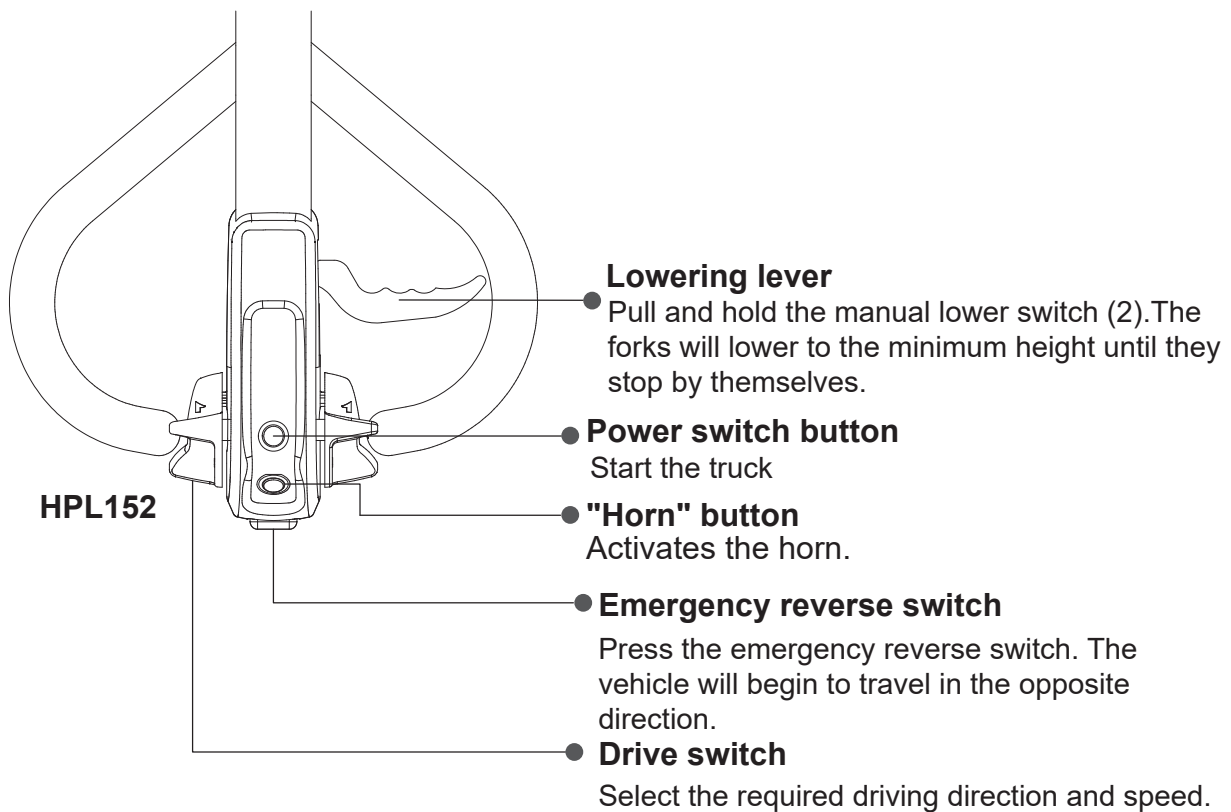
### 1. Control handle A



### 2. Control handle B



### 3. Control handle C



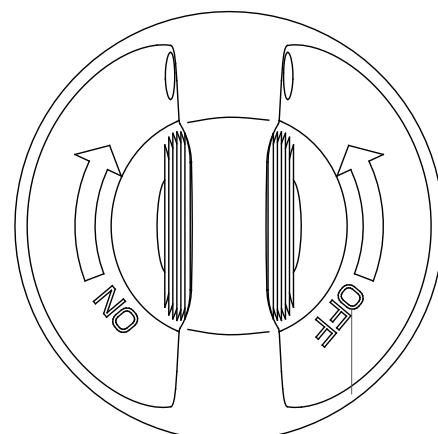
### 1.1.3 Key switch



#### 1. Key switch A

##### Connect and interrupt control current.

- When the key rotates to gear "OFF", the control current of the truck will be interrupted;
- When the key rotates to gear "ON", the control current of the truck will be connected.



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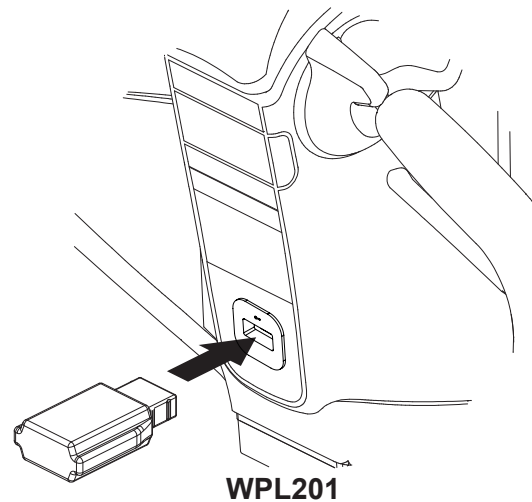
## 2.Key switch B

### Connect and interrupt the control current.

- When pulling out the induction key, the control current of the truck will be interrupted;
- When inserting the induction key, the control current of the truck will be connected.

#### **i** NOTE

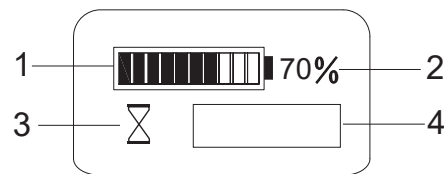
*Pulling out the key switch of a forklift before leaving can prevent the forklift from starting accidentally.*



### 1.1.4 Display instrument

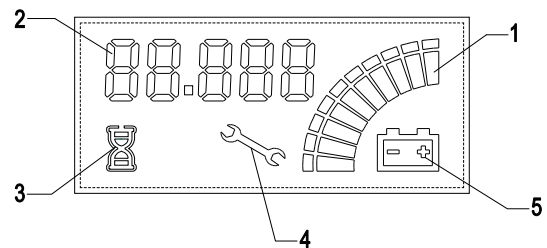


- LED (1) displays the remaining charge;
- LED (2) displays remaining charge percentage;
- LED (3) displays Interlock switch status indication;
- LED (4) displays the total running time normally. If fault, display the fault code.



**EPL151/EPL185**

- LED (1) displays the remaining charge;
- LED (2) only display full working hours normally. If fault, display the fault code for display instrument and lithium-ion battery;
- LED (3) flashing, and the vehicle starts timing;
- LED (4) is on, indicate vehicle failure;
- LED (5) is on under normal, it will flashing when the power is less than 20% ;



**EPL154**

- LED (1) displays the remaining charge;
- LED (9) indicate the the acceleration status of the accelerator.
- LED (2) indicate fault warning;
- LED(3) indicate charging status, when it show a battery sign, you should charge;
- LED (4) indicate emergency reverse switch status;
- LED (5) indicate truck stop or walk, if the truck stop display "P", if the truck travel display "N";
- LED (6) indicate turtle speed status;
- LED (7) indicate rise and fall indication.
- LED (8) indicate the operating hours.



### WARNING

when the LED (1) sign show red. please charge the battery in time.



### NOTE

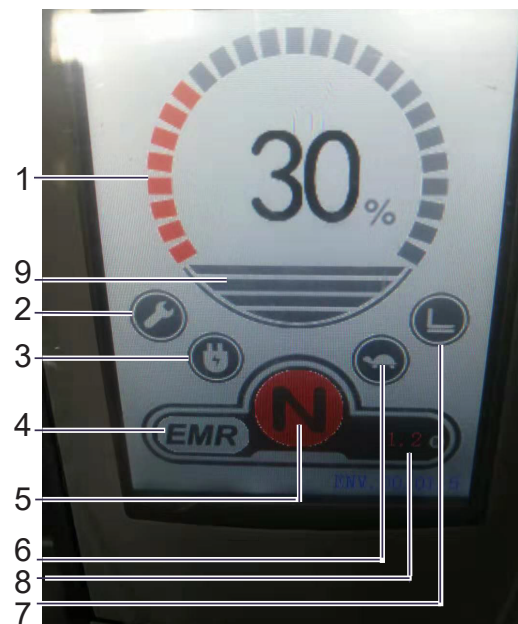
#### Low Voltage Protection for EPL151/ EPL154/EPL185/WPL201

The car has low voltage protection function. When the battery power of forklift truck is 7%-15%. the display screen shows L1 (only for WPL201). At this time, the forklift truck can not lift goods, but it can run normally. When the battery power is less than 7%. the display screen shows L2 (only for WPL201). At this time, the forklift can not be lifted and the driving speed becomes slower.

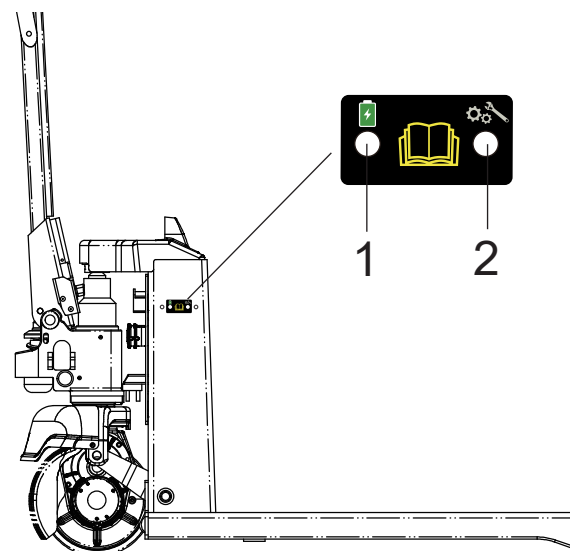
LCD (1) displays the state of charge;

DISPLAY	DESCRIPTION
Continuous red	Charge is charging
Continuous green	Battery charging is complete

The LCD (2) remain green light lit under normal, flashing show the failure state of truck.



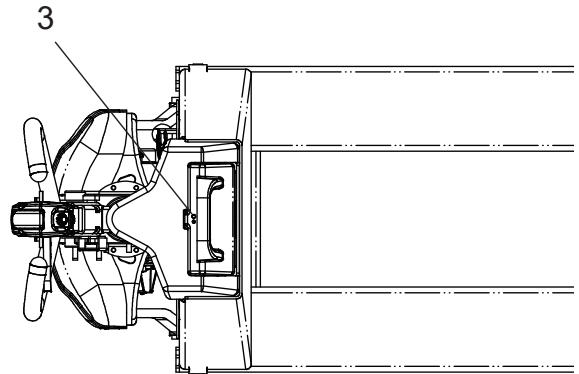
WPL201



HPL152

The LCD display (3) show battery residual capacity.  
The color of the LCD (3) represent the following conditions:

Component	LCD color	Residual capacity
Standard battery residual capacity	Green	30-100%
	Continuous Yellow	15-30%
	Slow flashing red light(Flashing period 2s)	7-15%
	Quick flashing red light (Flashing period 1s)	0-7%



### WARNING

After the yellow light is lit, The residual capacity of the truck is less than 30%. The residual capacity is less than 17%, The truck only travel at the low speed. It must charge the battery immediately to avoid truck power off or shorten the life of battery.



### NOTE

After the red light starts flashing, the battery will enter the low-voltage protection state. According to the battery state, The truck will appear accidental power-off protection.

If the controller detects a battery failure, flashes of LCD (3) represent battery failure information until the failure is remedied. Details of failure information are shown as below:

- Under-voltage of single cell battery: The green light repeats in a cycle of flashing once in 1 second, pausing for 2 seconds and then flashing twice, pausing for 3 seconds.
- Over-voltage of single cell battery: The green light repeats in a cycle of flashing once in 1 second, pausing for 2 seconds and then flashing three times, pausing for 3 seconds.
- Short circuit protection: The green light repeats in a cycle of flashing once in 1 second, pausing for 2 seconds and then flashing four times, pausing for 3 seconds.
- Over-current protection: The green light repeats in a cycle of flashing once in 1 second, pausing for 2 seconds and then flashing five times, pausing for 3 seconds.
- Battery temperature is too high: The green light repeats in a cycle of flashing twice in 1 second, pausing for 2 seconds and then flashing three times, pausing for 3 seconds.

- Battery temperature is too low: The green light repeats in a cycle of flashing twice in 1 second, pausing for 2 seconds and then flashing four times, pausing for 3 seconds.
- Contactor-related failures: The green light repeats in a cycle of flashing three times in 1 second, pausing for 2 seconds and then flashing four times, pausing for 3 seconds.
- The yellow light flashes rapidly in 1 second when other failures happen.

**CAUTION**

*When powered off, if the green light of power indicator is always on, it means that the battery is in a balanced state, which is a normal phenomenon.*

## 1.2 Truck use and operation

### 1.2.1 Preparation for use



The following are inspection and preparation operations that must be implemented before the truck is put into daily use.

**Table 1. Table of daily inspections by operators**

### Operator's Daily Checklist

Date _____		
Truck No. _____	Operator _____	
Department _____	No. _____	
Runtime Meter Reading _____		
Daily Check Items	O.K.(√)	Remark
Check for Fluid Leakage		
Check for scratches, deformation or cracks.		
Check Decal Condition		
Check the battery bottom connector pins		
Check the smooth movement of the wheels.		
Check the function of the emergency brake by activating the emergency disconnect switch.		
Check the control hand Mechanical operating braking function.		
Check the lifting and lowering functions by operating the buttons.		
Check display equipment, alarm system and safety devices.		
Check the vertical creep of the truck.(if equipped)		
Check the chassis frame and apply grease as required. Check the position reset function of the operating handle.		
Visually inspect the battery and recharge the battery(if equipped)		
Visually inspect the bolts and nuts		
Visually inspect if there are any broken hoses or broken electric wires.		
Perform a visual inspection for integrity, deformation,damage with connector pins at the bottom of the battery.		

**Table 1:** Table of Daily Inspections by Operators is only a sample table for the daily inspections of operators, and it can be adjusted according to specific requirements.

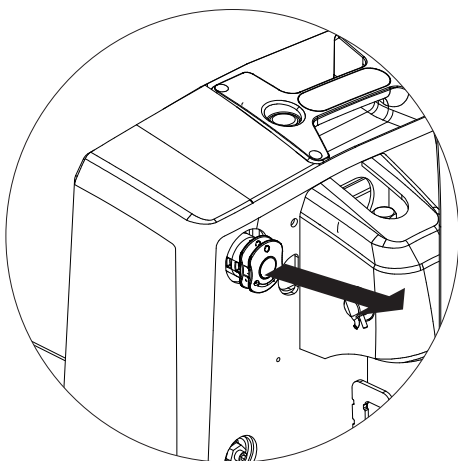
 **WARNING**

*The truck should be regularly maintained by qualified maintenance engineers or technicians that have passed the training of and also been authorized by the manufacturer.*

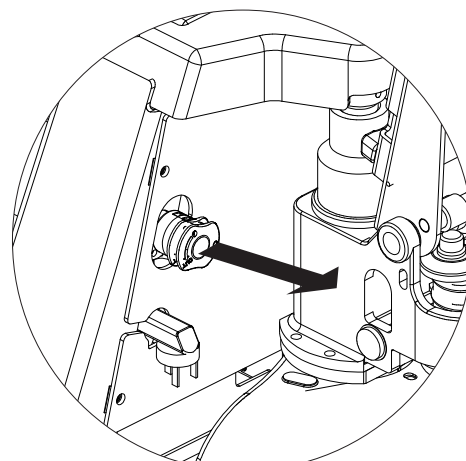
### 1.2.3 Truck starting



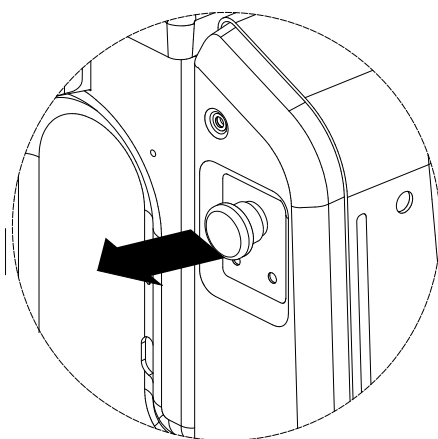
#### 1. Release the emergency stop switch



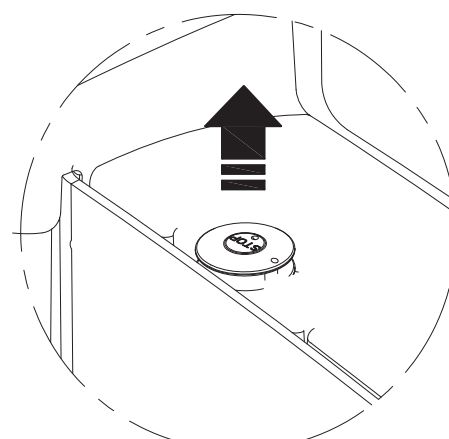
**EPL151**



**HPL152**



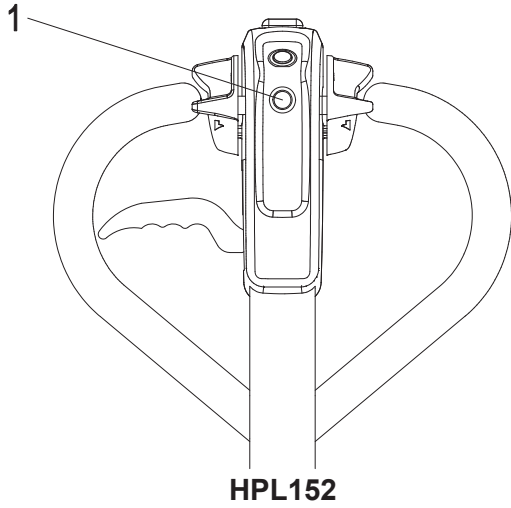
**EPL154/EPL185**



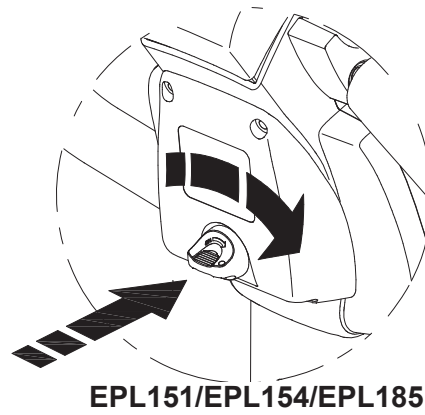
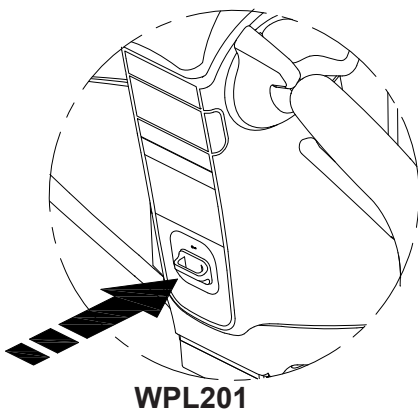
**WPL201**



2. Press the button(1) to start the truck.



2. Open or connect the key switch to start the truck



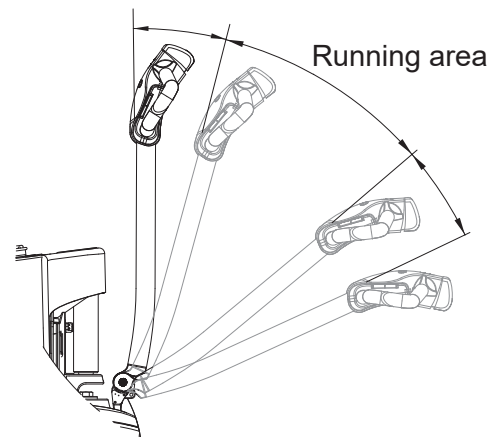
## 1.2.4 Running, swerving and braking



### 1. Running

#### Running area

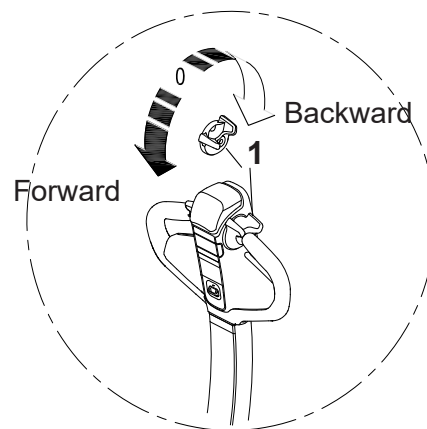
#### Example



### Rotary button

Control the running direction and speed of the truck using the drive switch (1). (the larger the rotary angle, the faster corresponding speed)

#### Example

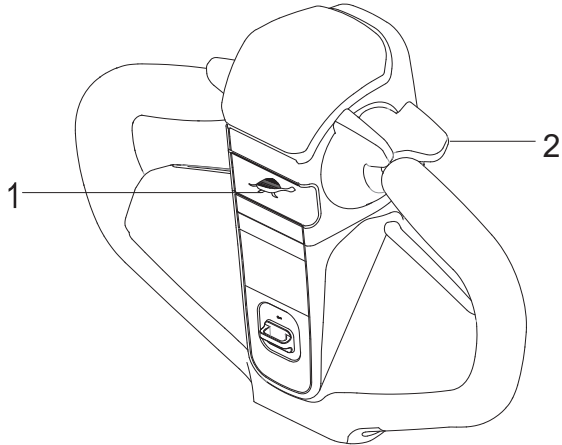


### **i** NOTE

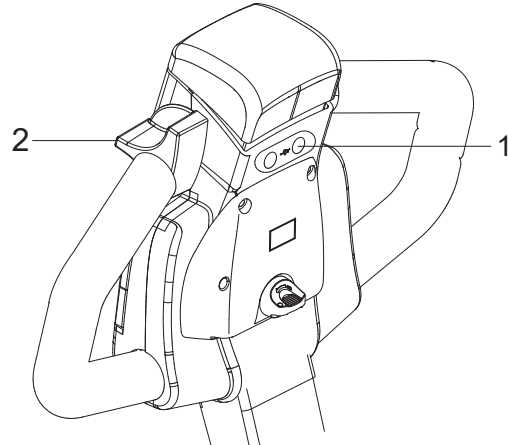
*When using the truck on a ramp or a uneven road, please lift the leg of the forklift to prevent its bottom from colliding with the road surface.*

➤ **Creep speed**

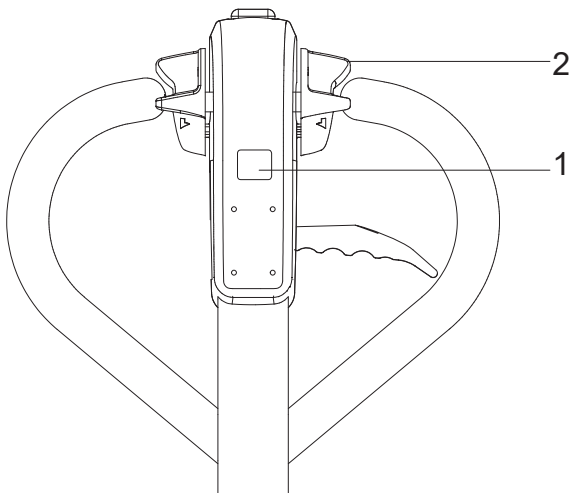
Keep the control handle in the vertical state, and press creep speed button (1) and drive switch (2) at the same time, then the vehicle will move at a low speed.



**WPL201**



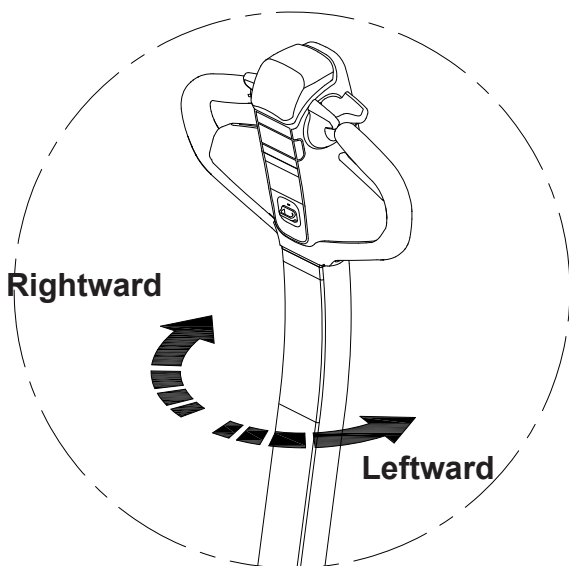
**EPL151/EPL154/EPL185**



**HPL152**

## 2. Steering

Rotate the operation hand shank leftward or rightward as required.



Example

## 3. Braking

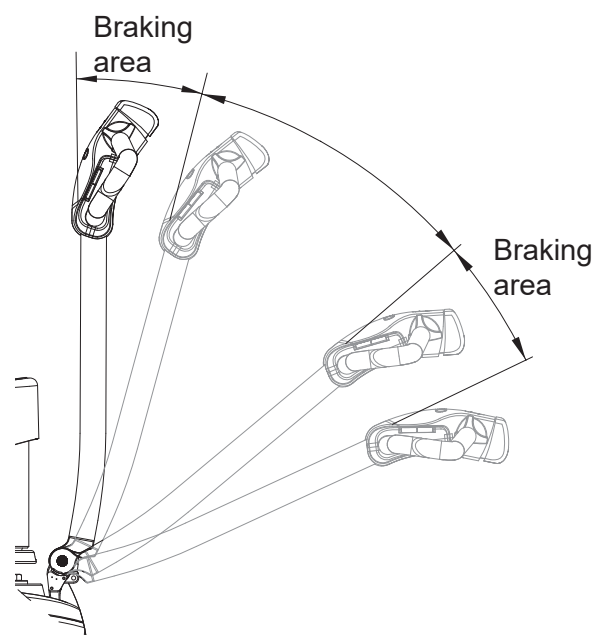
### ➤ Mechanical operating brake

The truck is braked when the operating handle is released.

The mechanical brake engages when the tiller is positioned in Braking area.

### CAUTION

*If the control handle moves slowly into the brake position, identify the cause and rectify the fault. If necessary, replace the gas spring!*

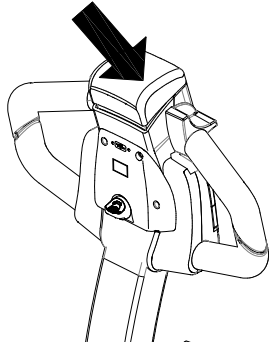


Example

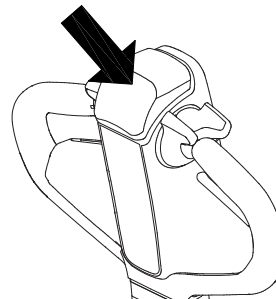
### ➤ Emergency reverse switch

To protect the driver from any risk of being trapped between an obstacle and the machine, the end of the tiller is fitted with an emergency reverse switch.

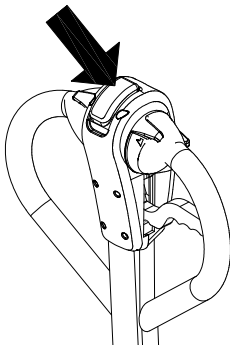
Once the safety reverser is triggered, the equipment will stop immediately, then slowly move back in the direction of the fork.



**EPL151/EPL154/EPL185**



**WPL201**



**HPL152**

### ➤ Reverse braking

Braking can be accomplished by changing the direction of travel.

Press the drive switch in the opposite direction until the truck comes to a stop, then release the drive switch.

### CAUTION

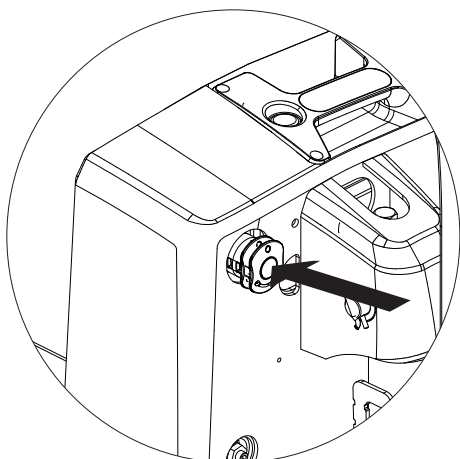
*Open the drive switch; if the drive switch cannot quickly return to the initial position or resets very slowly, identify the cause and rectify the fault.*

### ➤ Regenerative braking

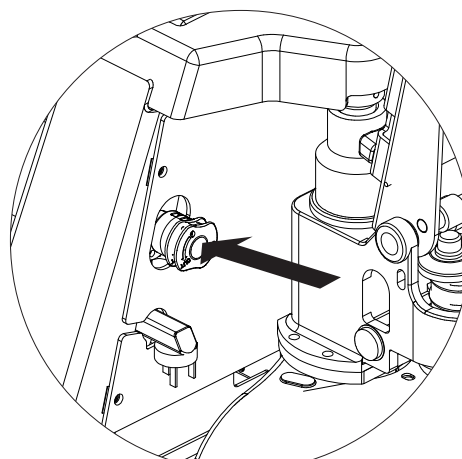
Release the drive switch. The drive switch will automatically return to the initial position and the vehicle will begin to enter the regenerative braking state. When it decelerates to <1 km/h, the electromagnetic brake will bring the motor to a stop.

➤ **Emergency stop switch**

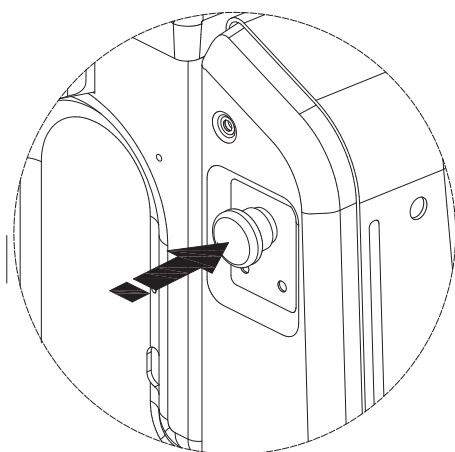
Press the emergency stop switch, and then all the electrically propelled functions will be interrupted.



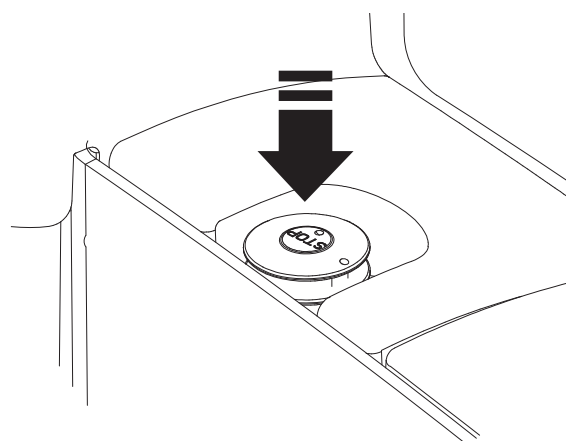
**EPL151**



**HPL152**



**EPL154/EPL185**



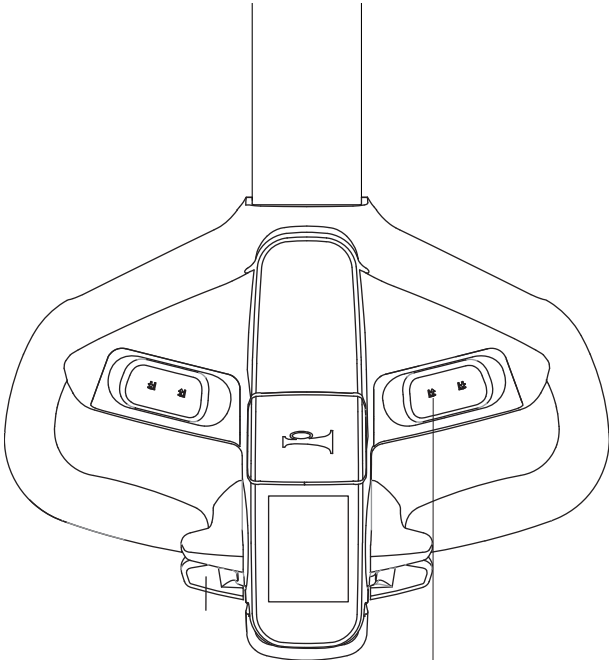
**WPL201**

## 1.2.5 Goods picking

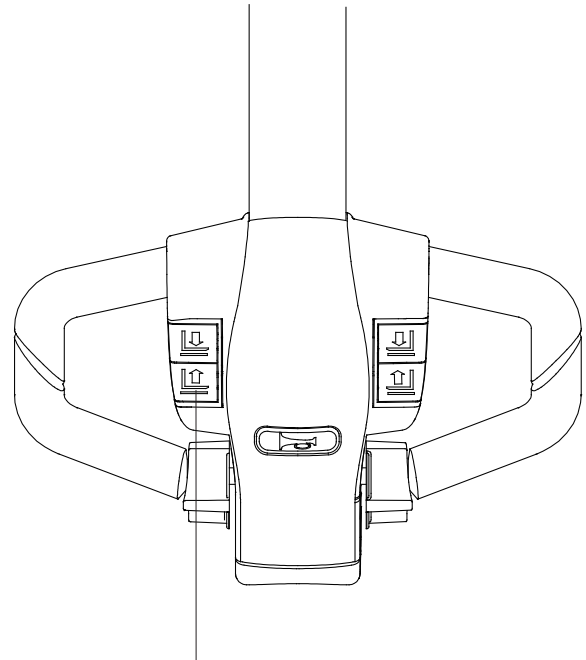


### 1. Lifting

WPL201

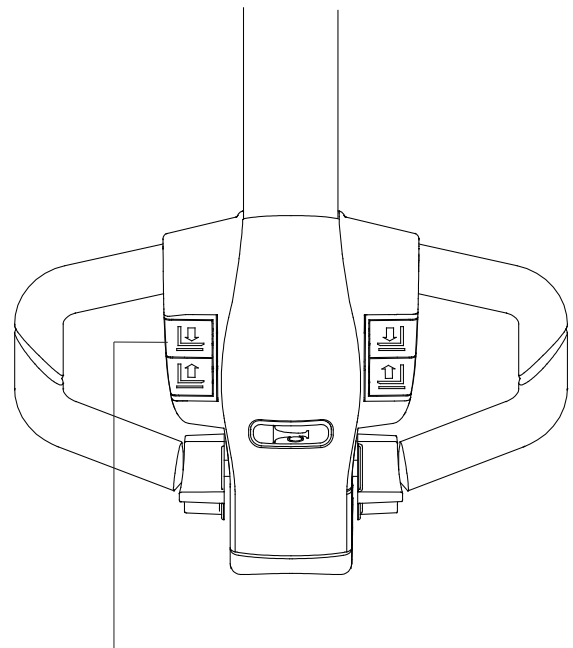
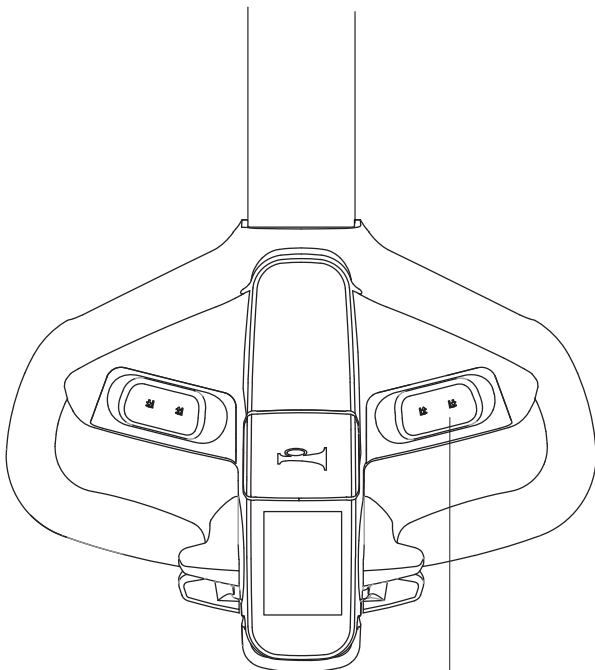


EPL154/EPL185/EPL151



Keep pressing the lifting button until reaching the required lifting height

### 2. Lowering



Lower the pallet forks to the bottom through pressing the lowering button.

### Lifting

Press lowering lever(2) to the bottom. Lift the forks by moving the control shaft (1) up and down until the desired lifting height is achieved. Reset the lowering lever(2).

### Lowering

Set forks to the lowest position by pulling lowering lever(2) upward.



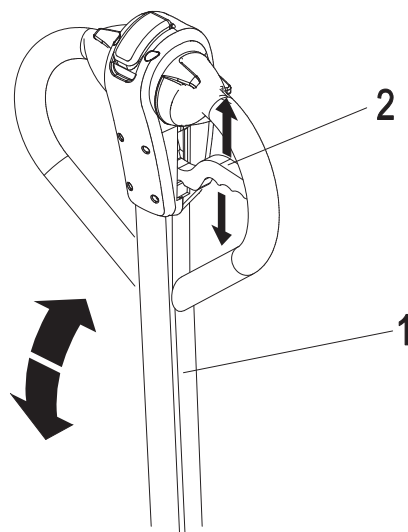
#### WARNING

Goods failing to be arranged and fixed may result in accidents.



#### NOTE

To avoid shortening the service life of the oil cylinder, try not to lift the pallet forks to the highest state for every lifting operation.

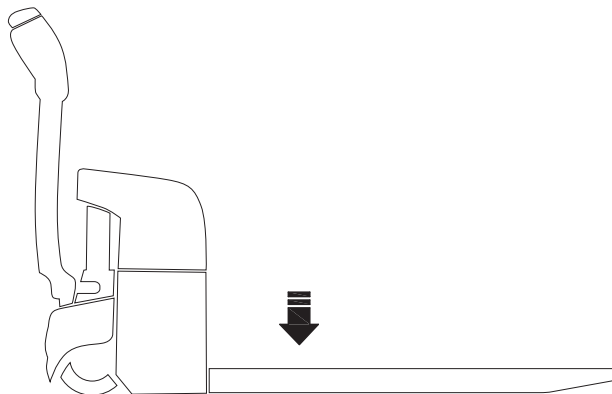


HPL152

### 1.2.6 Parking the truck securely

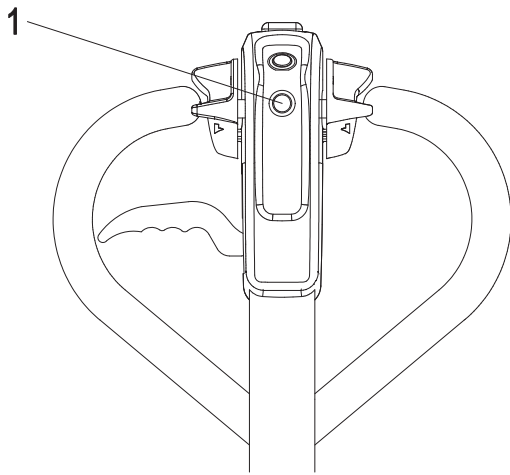


- Lower the forks to the bottom;



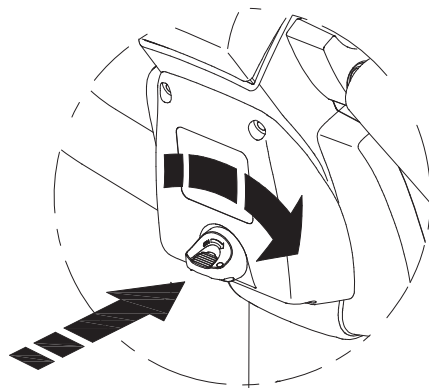
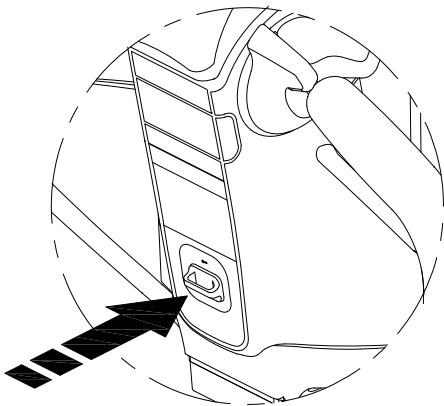


➤ Press the button (1) to turn off the truck.

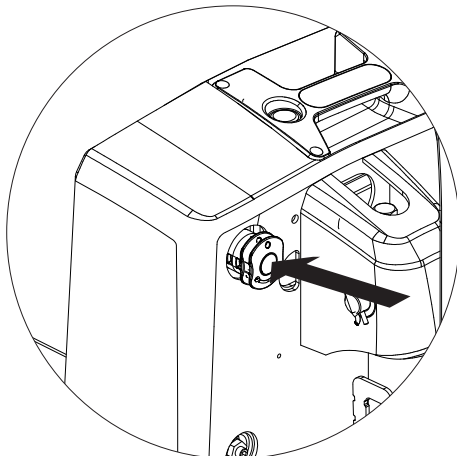


**HPL152**

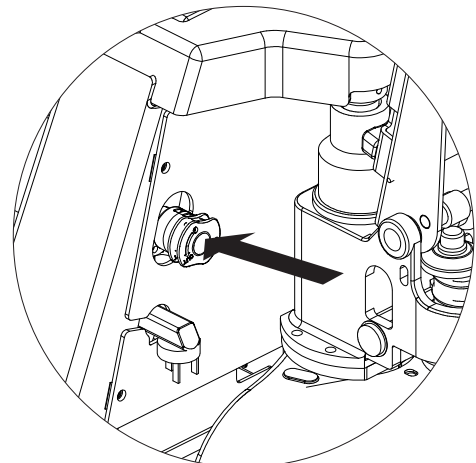
➤ Turn off the key switch or pull out the key;



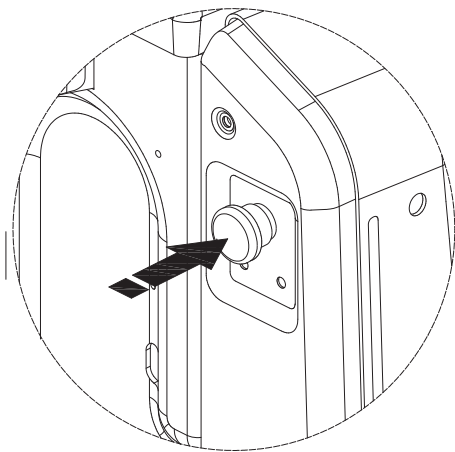
➤ Press the emergency stop switch to cut off storage battery connection;



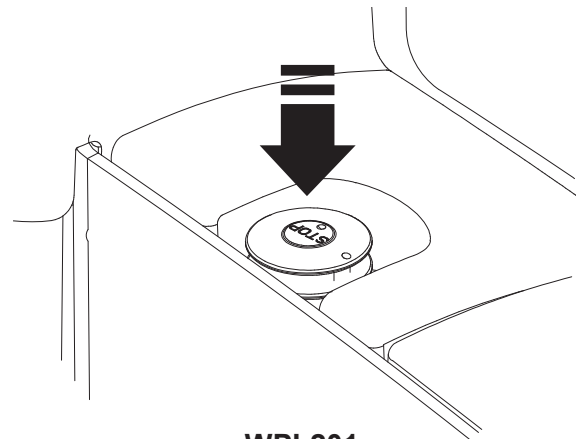
**EPL151**



**HPL152**



EPL154/EPL185



WPL201



### WARNING

- Should it be necessary for operators to leave the truck, even for just a moment, the truck should also be well parked as specified.
- Never park the truck on a slope;
- The forks must be lowered to the bottom.

## 1.2.7 Drive directions



The drive directions of the truck are forward (1) and reverse (2).



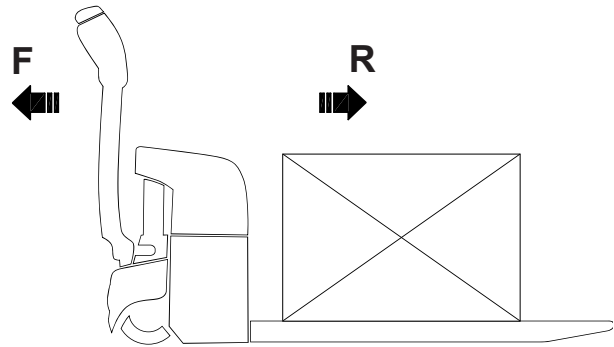


## 1.2.8 Loading

- Approach the load carefully.
- Adjust the height of the forks until they can be easily inserted into the pallet.
- Insert the forks under the load.
- If the load is shorter than the forks, position the forks so that the front of the load overhangs them by a few centimeters, to avoid interference with the load immediately ahead.
- Raise the load a few centimeters above its support.
- Drive the truck away from the stack or any neighbouring loads, gently and in a straight line.

### ➤ Transporting loads

Always carry loads in the forward direction of travel (R) in order to have the best visibility.



### **WARNING**

When carrying a load on a slope, always ascend or descend with the load uphill. Never drive sideways across a slope or perform a U-turn.

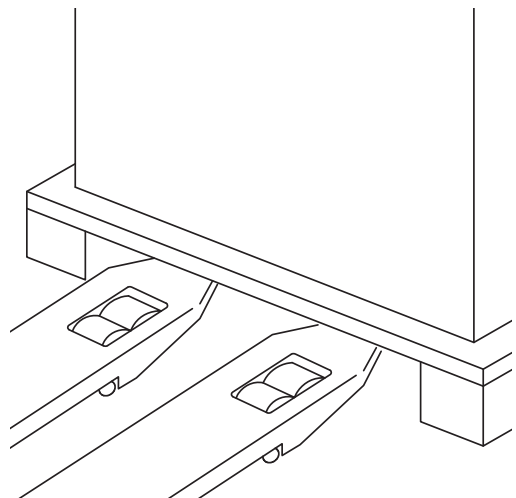


### **NOTE**

Since visibility is reduced when travelling in this direction, drive only at very slow speed.

### ➤ Unloading

Carefully drive the truck to the desired location.  
Carefully drive the truck to the unloading area.  
Lower the load until the fork arms are free from the pallet.  
Drive the truck away in a straight line.  
Raise the forks to proper height.



### **CAUTION**

*If the field of vision is poor, ask a guide for assistance.*

## 1.2.9 Using the truck on a slope



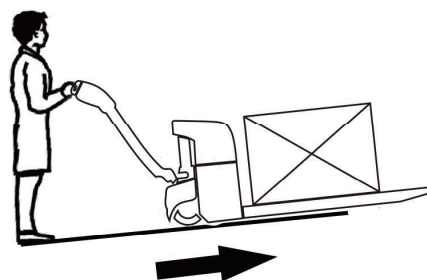
### **i** NOTE

*Incorrect use of the truck on slopes places stress on the traction motor, brakes and battery.*

Be particularly careful near slopes:  
Never attempt a slope with a gradient greater than that specified in the truck's data sheet. Make sure that the ground is dry with a non-slip surface and that the route is clear.

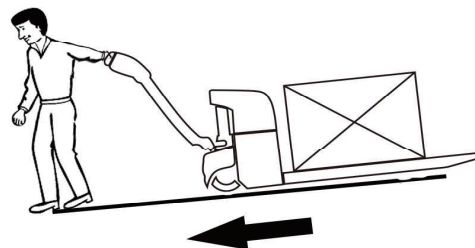
#### ➤ Ascending slopes

Always ascend slopes travelling in the reverse direction, with the load facing uphill. Without a load, it is recommended to ascend slopes forwards.



#### ➤ Descending slopes

Travel down slopes must always be forwards, with the load uphill. Without a load, it is recommended to descend slopes forwards. In all cases, travel at a very low speed and brake very gradually.



### **DANGER**

*Risk to life and/or risk of major equipment damage.*

*Never park the truck on a slope.*

*Never make a U-turn or take shortcuts on a slope. On a slope, the operator must drive very slowly.*

#### ➤ Starting on a slope

If you have to stop and then start on slope, proceed as follows:

- Stop on the slope by pressing the accelerator in the opposite direction until the machine comes to a standstill.
- Return the accelerator to the neutral position, then release the accelerator control button to apply the parking brake.
- To restart, press the accelerator button for the desired direction.
- The truck will move.

**i** NOTE

*Incorrect use of the truck on slopes places stress on the traction motor, brakes and battery.*

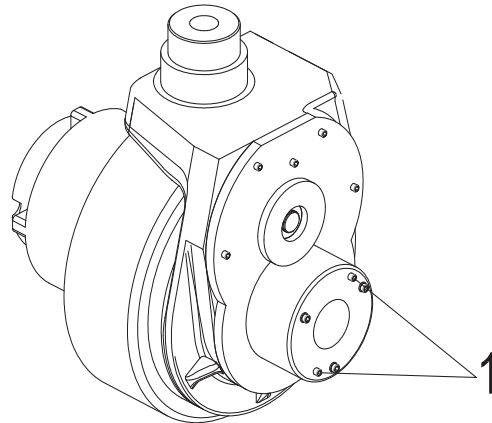
### 1.3 Operating the truck without its own drive system

If the truck has to be moved after a failure has rendered it immobile, proceed as follows:

- Set the emergency stop switch "OFF".
- Set the key switch "OFF" and remove the key.  
Prevent the truck from rolling away.
- Remove the cover.
- Screw in two screws(1), M4\*35mm)until the truck can be moved (no braking action).

After setting down the truck at the destination, unscrew two screws(1).

Braking action is restored.



**WARNING**

*This operating mode is not permitted when negotiating inclines and gradients.*



**WARNING**

*After power off, brake works and the truck can not be towed(dragged).*



## Battery use and maintenance

### 1.1 Battery charging

#### 1.1.1 Precautions



- The truck must be parked within a shady and ventilated room;
- Avoid the existence of any metal object in the surface of the storage battery;
- All the cable and plug connection parts should be inspected in terms of obvious damages before charging;
- The charger to be connected or disconnected must be under the state of not connecting to the circuit;
- The safety provisions related to the storage battery and the manufacturer of charging station must be strictly abode by.
- Charging in non-charging area is prohibited;
- No modification of vehicles;
- Do not use irregular charging sockets;
- The net height of the charging area shall be higher than 5m, and the safe distance from other areas shall be greater than 5m.

#### Charging environment:

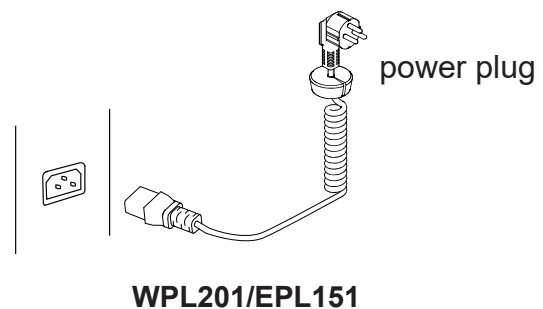
Lithium battery must be charged above 0°C, as excessively low charging temperature is likely to result in the short circuit of battery cell.

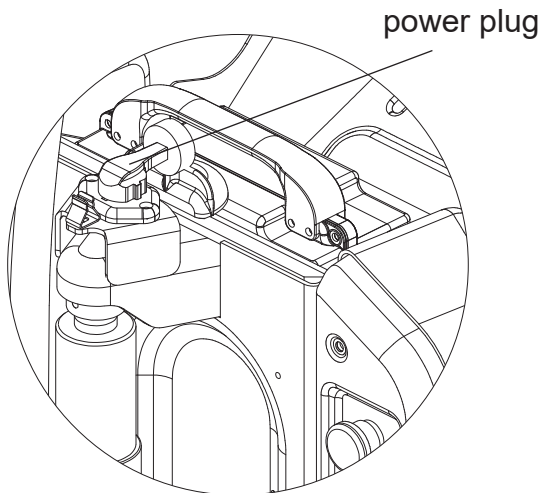
#### 1.1.2 Charging the battery with internal charger



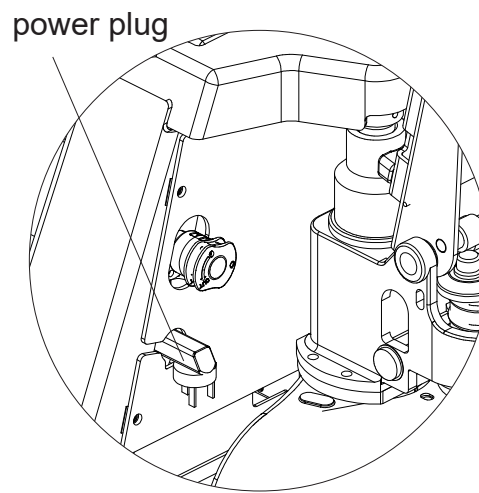
Charge lithium battery through a built-in charger

- Inspect whether relevant charging requirements are satisfied according to “1.1.1 precautions”;
- Park the truck securely as described chapter B Section 1.2.6;
- Open the upper cover if necessary;
- Connect the power plug (1) and have it inserted into a proper power supply.





**EPL154/EPL185**



**HPL152**



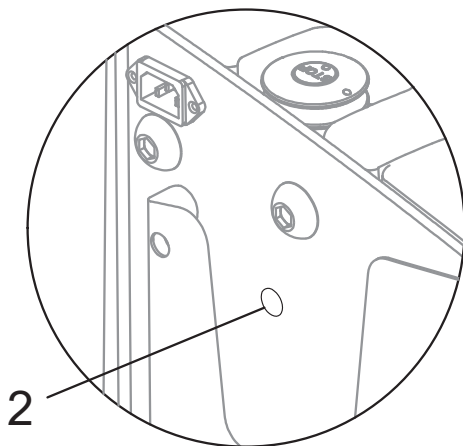
**WARNING**

Charger maximum input power: 1KW for WPL201, 666W for EPL151, 667W for EPL185, 333W for EPL154 and HPL152.

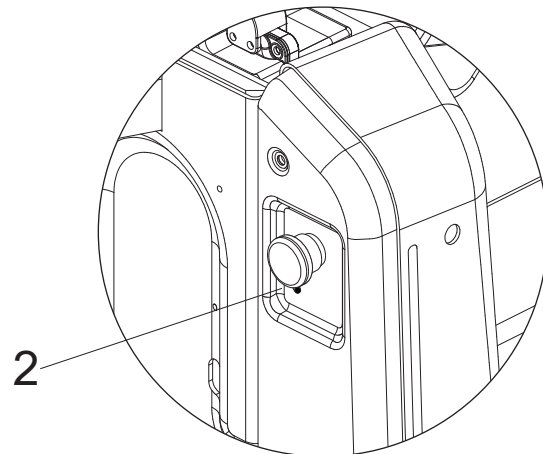
Please strictly implement the above data to prevent equipment damage and accidental risks such as fire.

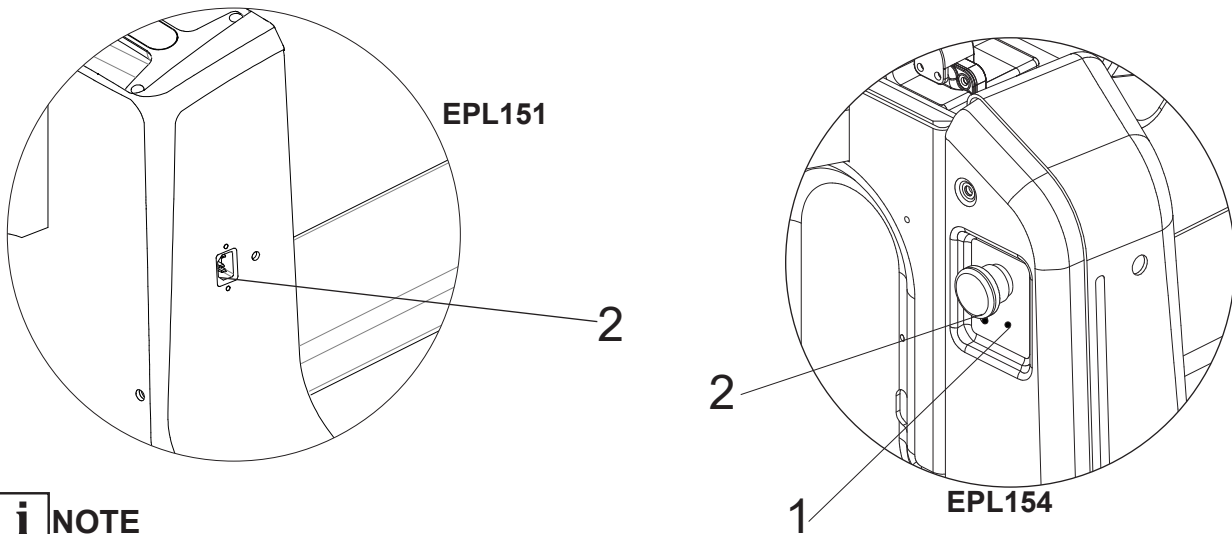
➤ **Battery Charging Light indicator**

**WPL201**



**EPL185**





**i** NOTE

Charging indicator for HPL152 see chapter B section 2.2.3.

The LED (1) remain red light lit under normal, flashing show the failure state of truck.

**LED Fault Indicator Diagnostics for EPL154**

When the truck is in normal use, LED fault indicator is always going on; When any fault occurs to the vehicle, LED will twinkle and indicate the fault code; LED won't restore to the extinguishing state until the fault is eliminated.

LED indicates two digit codes: for example, digit code "1, 4" — UNDER VOLTAGE FAULT, the display mode is as follows:

⌘ □ ⌘⌘⌘⌘ □□□ ⌘ □ ⌘⌘⌘⌘ □□□ ⌘ □ ⌘⌘⌘⌘  
(1,4) (1,4) (1,4)

⌘ LED Blinks      □ 1 Second Stop



LED BLINKS digit 1	LED BLINKS digit 2	Error Message	Explanation	Possible cause
		Error text		
1	1	THERMAL FAULT	over-/under-temperature cutback	<ol style="list-style-type: none"> <li>1. Temperature &gt;80°C or &lt; -10°C.</li> <li>2. Excessive load on vehicle.</li> <li>3. Operation in extreme environments.</li> <li>4. Electromagnetic brake not releasing.</li> </ol>
1	2	THROTTLE FAULT	Pot Low and/or Pot Wiper out of range	<ol style="list-style-type: none"> <li>1. Throttle input wire open or shorted.</li> <li>2. Throttle pot defective.</li> <li>3. Wrong throttle type selected.</li> </ol>
1	3	SPEED POT FAULT	speed limit pot wiper out of range	<ol style="list-style-type: none"> <li>1. Speed limit pot wire(s) broken or shorted.</li> <li>2. Broken speed limit pot.</li> </ol>
1	4	UNDER VOLTAGE FAULT	battery voltage too low	<ol style="list-style-type: none"> <li>1. Battery voltage &lt;17 volts.</li> <li>2. Bad connection at battery or controller.</li> </ol>
1	5	OVER VOLTAGE FAULT	battery voltage too high	<ol style="list-style-type: none"> <li>1. Battery voltage &gt;31 volts.</li> <li>2. Vehicle operating with charger attached.</li> <li>3. Intermittent battery connection.</li> </ol>
2	1	MAIN OFF FAULT	main contactor driver Off fault	<ol style="list-style-type: none"> <li>1. Main contactor driver failed open.</li> </ol>
2	3	MAIN FAULT	main contactor fault	<ol style="list-style-type: none"> <li>1. Main contactor welded or stuck open.</li> <li>2. Main contactor driver fault.</li> </ol>
2	4	MAIN ON FAULT	main contactor driver On fault	<ol style="list-style-type: none"> <li>1. Main contactor driver failed closed.</li> </ol>
3	1	WIRING FAULT	HPD fault present >10 sec.	<ol style="list-style-type: none"> <li>1. Misadjusted throttle.</li> <li>2. Broken throttle pot or throttle mechanism.</li> </ol>

LED BLINKS digit 1	LED BLINKS digit 2	Error Message	EXPLANATION	Possible cause
		Error text		
3	1	WIRING FAULT	HPD fault present >10 sec.	1.Misadjusted throttle. 2.Broken throttle pot or throttle mechanism.
3	2	BRAKE ON FAULT	brake On fault	1.Electromagnetic brake driver shorted. 2.Electromagnetic brake coil open.
3	3	PRECHARGE FAULT	precharge fault	1. Brake driver shorted. 2. Precharge circuit damaged. 3. MOSFET failure.
3	4	BRAKE OFF FAULT	brake Off fault	1.Electromagnetic brake driver open. 2.Electromagnetic brake coil shorted.
3	5	HPD FAULT	HPD (High Pedal Disable)	1. Improper sequence of throttle and KSI,push, or inhibit inputs. 2. Misadjusted throttle pot.
4	1	CURRENT SENSE FAULT	current sense out of range	1.Short in motor or in motor wiring. 2. Controller failure. ★
4	2	HARDWARE FAILSAFE	motor voltage out of range	1.Motor voltage does not correspond to throttle request. 2.Short in motor or in motor wiring. 3. Controller failure. ★
4	3	EE CHECKSUM FAULT	EEPROM fault	1. EEPROM failure or fault.
4	5	BATTERY DISCONNECT FAULT	battery disconnected	1. Battery not connected. 2.Poor connection to battery terminals.

**Charging indicator(2)**

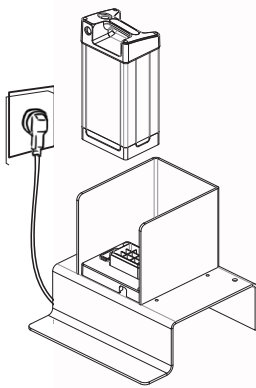
NO.	LED status	Phenomenon	Cause	Remedy	Description
1	Red light is on		Trouble free	/	Charging
2	Green light is on		Trouble free	/	End of charging
3		Current/voltage changes	Indicator failure	Return to factory maintenance	Charger failure
4	No indicator light	No change in current/voltage	The power input line is in good contact with the socket and the charger	Charger failure, return to factory maintenance	Charger failure
5	Red light flashes		The power input cable is not in good contact with the socket	Check if the input power line is in good contact	
6	Yellow light is on		Storage battery fails. (battery reverse connection)	Eliminate battery failure	
7			Storage battery fails. (battery is not connected)	Eliminate battery failure	
8			Ambient temperature is too high	Ambient temperature drops to normal	
9	Yellow light flashes		Storage battery voltage exceeds 32.5V (65V for WPL201/ EPL185)	Eliminate battery failure	
10			Charger failure	return to factory maintenance	



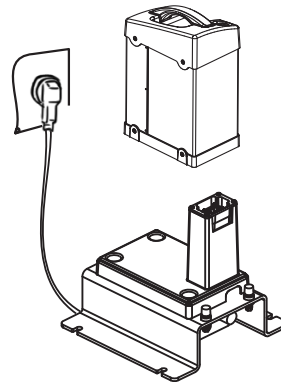
### 1.1.3 Charging the battery with external charger

- Inspect whether relevant charging requirements are satisfied according to “3.2.1 precautions”;
- Park the truck securely as described chapter B Section 1.2.6;
- Remove the battery; (see section 1.2)
- Plug into charging stand and charge;
- The LED light on the charging stand comes on.

A fully charging time see described in paragraph 1.2.4.



**EPL151**



**WPL201**



#### **NOTE**

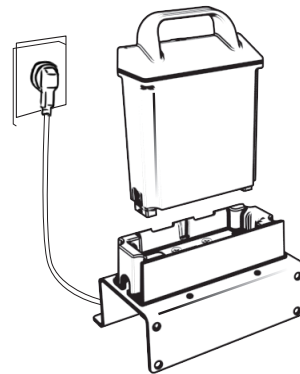
*Correctly plug the battery into the charging stand.*



#### **NOTE**

*LED light mode on the charging stand*

- *Charging:red LED light*
- *Fully charged:green LED light*
- *Charging fault:flashing yellow LED light*
- *Battery fault:steady yellow LED light*



**HPL152**

## 1.1.4 Battery type & dimensions&Charging time



Battery types & dimensions are as follows:

Tuck type	Battery type	Voltage/ Rated capacity	Dimensions	Charger		Charging time
				Internal	External	
WPL201	Li-ion	48V/30Ah	245×160×380	15A	15A	2h
EPL154	Li-ion	24V/30Ah	270×110×400	/	10A	2h
EPL151	Li-ion	24V/55Ah	175×124×407	10A	20A	5.5h/2.5h
HPL152	Li-ion	24/20AH	193x81x300	10A	10A	2h
EPL185	Li-ion	48V/20Ah	270×110×400	/	10A	2h

## 1.2 Battery connector pins maintenance

- Check the battery bottom connector pins prior to initial start-up (See chapter B section 1.2.1)

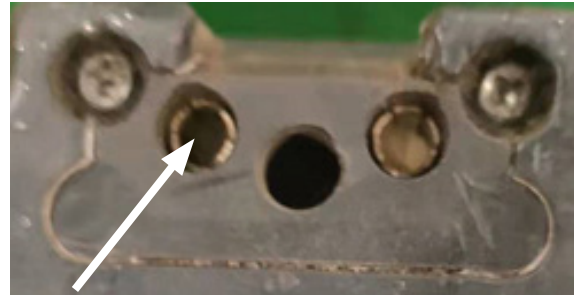
Perform a visual inspection of connector pins at the bottom of the battery for integrity, deformation, ablation.

**i** **NOTE**

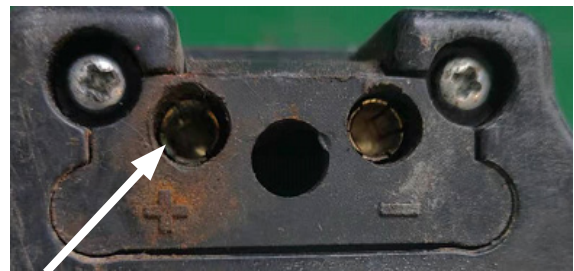
*If any ablation or deformation occurs in daily inspection, the battery connector pins should be replaced in time.*

**⚡** **WARNING**

*If oxidation occurs during inspection, grinding is prohibited.*

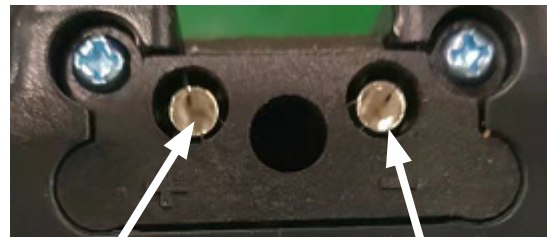


deformation



ablation

- **Normal connector pins:** complete appearance, no deformation, no damage marks. The surface is clean and free.



Normal connector pins

- **Battery connector pins removal and Installation**

### Tools and Material Required

Electric screwdriver

2 Allen wrench

PILLIPS Screwdrivers



PILLIPS Screwdrivers



2 Allen wrench



Electric screwdriver



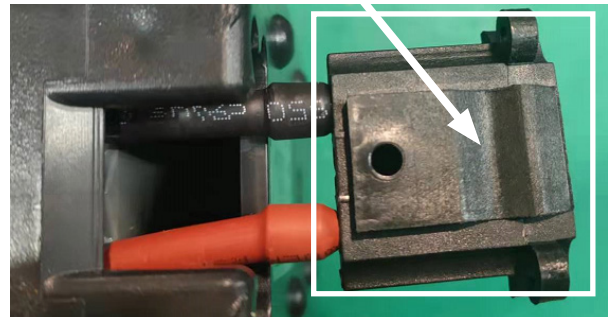
➤ **Connector pins removal and installation steps:**

- Unscrew the two screws from the battery bottom module using electric screwdriver and PILLIPS Screwdrivers;

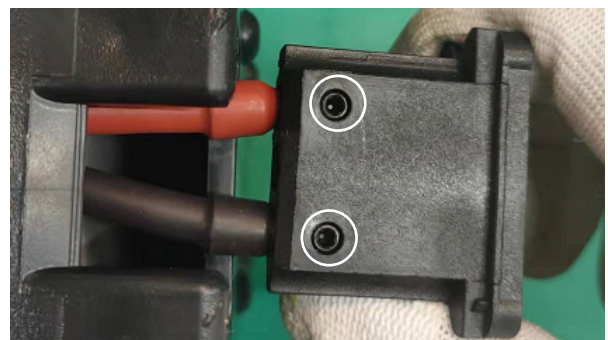


- Pull out of the charging and discharging module;

charging and discharging module

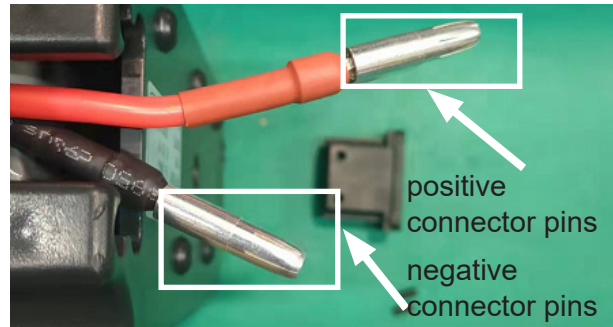


- Unscrew the two screws from the charging and discharging module using 2 Allen wrench;

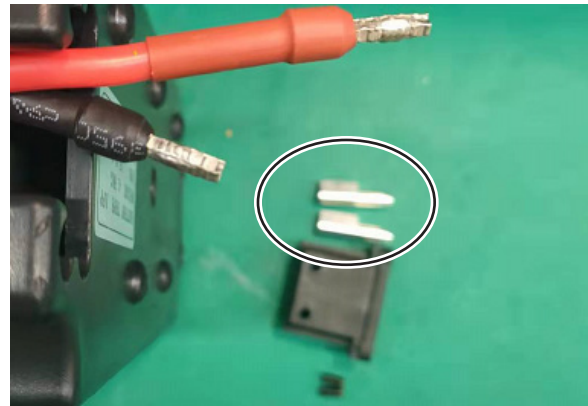




- Pull out of the positive and negative connector pins from the battery cable;



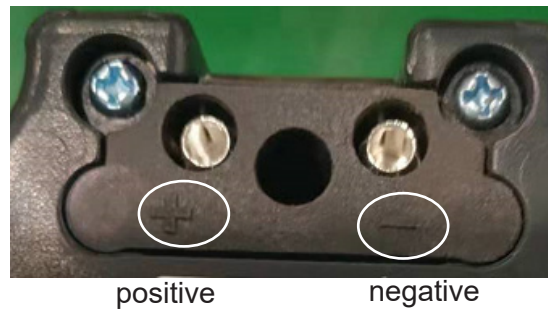
- Remove the damage connector pins and install the normal connector pins according to the sign of the positive and negative on the charging and discharging module.



Install according to the reverse order of removal.

**i** NOTE

- Only qualified and authorised personnel are allowed to perform maintenance work.
- Tightening torque: max. 4 Nm



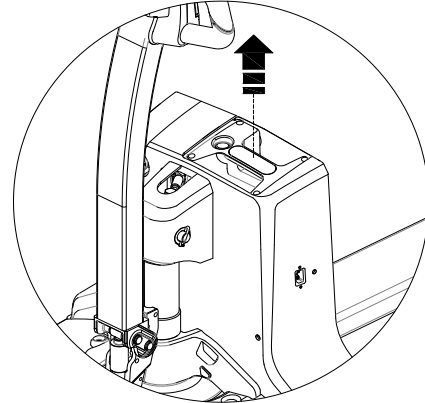


## 1.3 Battery removal and installation

Park the truck securely as described chapter B Section 1.2.6 and turn off the power before removal and installation of the battery.

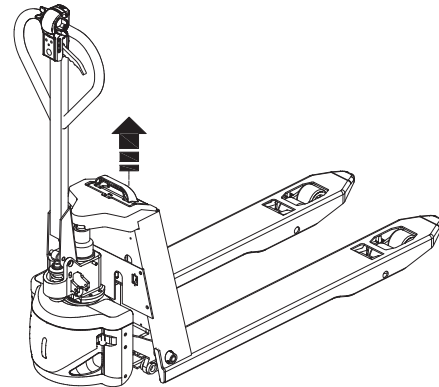
### Battery removal and installation steps:

- Just hold the handle and pull the battery out.
- Install in reverse order.



WPL201, EPL151

- Just hold the handle and pull the battery out.
- Install in reverse order.



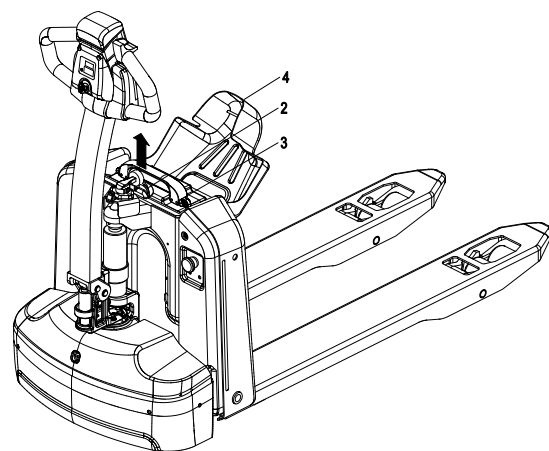
HPL152

- Open the upper cover(4), unscrew battery baffle(2) for EPL154/EPL185;
- Just hold the handle and pull the battery(3) out;
- Install in reverse order.



### WARNING

*Before removing the battery, make sure the vehicle is completely powered off.*



EPL154/EPL185

# D

## Maintenance

### 1.1 Truck maintenance

Only through regularly implementing truck maintenance work can the sustainable and reliable use of the forklift be ensured.

Only those receiving professional training and approved as qualified can be competent in various equipment care maintenance operations. If you intend to independently implement maintenance, you are recommended to have your maintenance personnel receive on-site training from the service representative of the equipment supplier.

#### **Safety announcement:**

- Tyre replacement: please implement tire replacement using the tires designated by the manufacturer, as unqualified tires may influence the properties and stability of the products.
- It is improper to clean the truck using inflammable liquid.
- Ensure that the power supply has been completely disconnected before actual maintenance operation.

#### **Long-term parking:**

- If required to be parked for over one month, the truck must be placed in a dry and frost-free environment.
- Clean the truck carefully.
- Coat any unpainted metal parts with a thin layer of oil or grease.
- In case that the truck is out of use for a long time, the storage battery should better be taken out.
- Recharge the lithium-ion battery every 2 months. Please observe the above instructions.
- Raise and chock the truck: the wheels must not touch the ground in order to prevent irreversible deformation of the tyres.

#### **Discharge can damage the battery**

If the battery is not used for a long period of time, it can become damaged through discharge.

- Before a long period of inactivity, the battery must be fully charged.
- To ensure a long battery life, we recommend charging the battery every 14 days when it is not being used.

#### **Restoring the truck to operation**

- Thoroughly clean the truck.
- Clean the battery. Grease the pole screws using pole grease and reconnect the battery.
- Recharge the battery.
- Check if the hydraulic oil contains condensed water and change if necessary.
- Follow the daily checklist.

## Safety tests to be performed at intervals and after unusual incidents

The truck must be inspected at least annually (refer to national regulations) or after any unusual event by a qualified inspector. The manufacturer offers a safety inspection service which is performed by personnel specifically trained for this purpose.

A complete test must be carried out on the technical condition of the truck with regard to safety.

The truck must also be examined thoroughly for damage.

The operating company is responsible for ensuring that faults are rectified immediately.

## Spare parts:

Only original spare parts have been certified by our quality assurance department. To ensure safe and reliable operation of the Pallet truck, use only the manufacturer's spare parts. Used parts, oils and fuels must be disposed of in accordance with the relevant environmental protection regulations. For oil changes, contact the manufacturer's specialist department.

## Troubleshooting

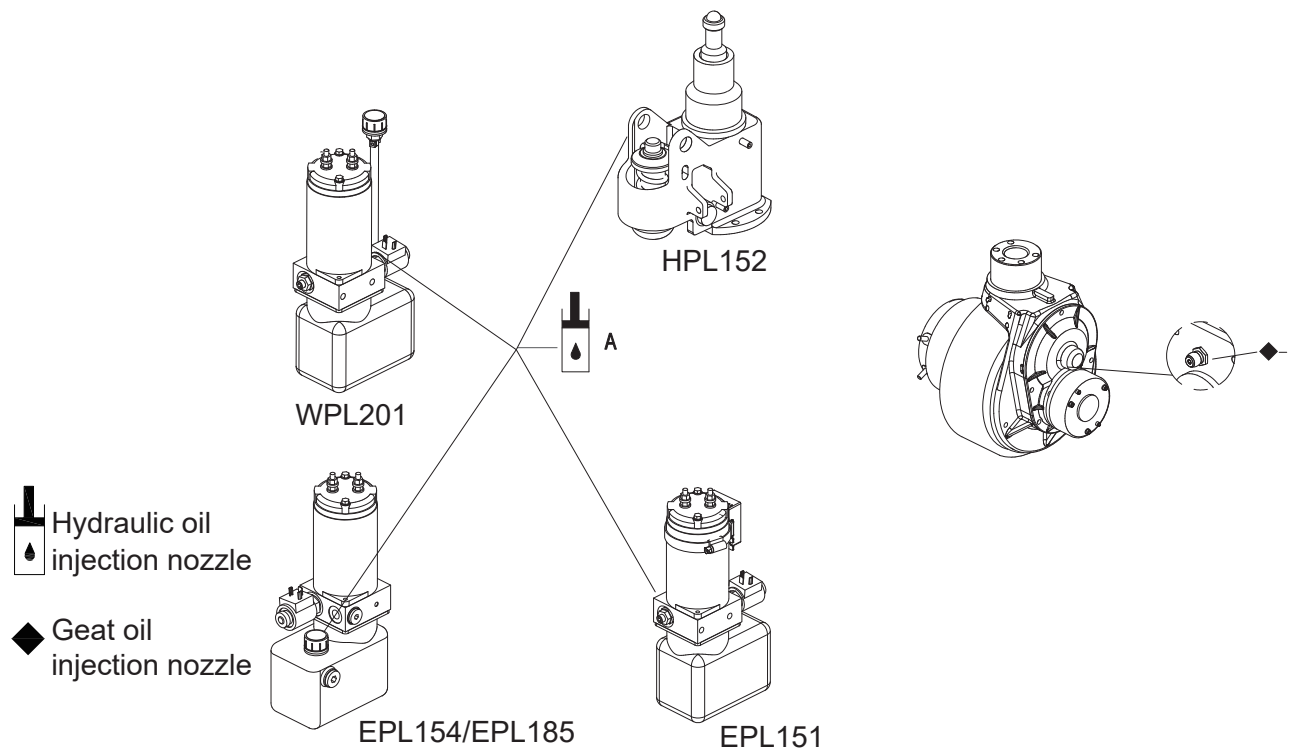
If the fault cannot be rectified after carrying out the remedial procedure, notify the Manufacturer's service department, as any further troubleshooting can only be performed by specially trained and qualified service personnel.

Fault	Probable Cause	Action
Truck does not start.	<ul style="list-style-type: none"> <li>-Battery connector not plugged in</li> <li>-Key switch in "0" position</li> <li>-Incorrect CanCode code</li> <li>-Battery charge too low</li> <li>-Faulty fuse</li> <li>-Truck in charge mode</li> </ul>	<ul style="list-style-type: none"> <li>-Check the battery connector and connect if necessary.</li> <li>-Set key switch to "1"</li> <li>-Check code</li> <li>-Check battery charge, charge battery if necessary</li> <li>-Check fuses.</li> <li>-Interrupt charging</li> </ul>
Load cannot be lifted	<ul style="list-style-type: none"> <li>-Charging capacity below 15%</li> <li>-Truck not operational</li> <li>-Hydraulic oil level too low</li> <li>-Faulty fuse</li> </ul>	<ul style="list-style-type: none"> <li>-Charging the battery</li> <li>-Carry out all measures listed under "Truck does not start"</li> <li>-Check the hydraulic oil level</li> <li>-Check fuses.</li> </ul>

## 1.2 Maintenance table

<b>50-hour/7-Day maintenance</b>	
1	Check the functions of the operation switches and display.
2	Check display equipment, alarm system and safety devices.
3	Check the emergency reverse switch, reverse braking, emergency disconnect switch and regenerative braking.
4	Check tiller steering functions.
5	Check the drive wheel and load wheel for worn or damage.
6	Check for brake condition when the control handle on horizontal position and vertical position.
<b>250-hour/2-month maintenance</b>	
After operating for 250 hours in total, the truck should also be maintained according to the following procedures in addition to the 50-hour maintenance mentioned above	
7	Inspect where there is any damage in the cables and whether the terminals are reliable.
8	Inspect whether there is any screw losing or slipping out.
9	Inspect whether there is any abrasion or damage in the oil pipes.
10	Inspect where is any leakage in the hydraulic oil.
11	Clean and lubricate the contact surface with grease.
<b>500-hour/3-month maintenance</b>	
After operating for 500 hours in total, the truck should also be maintained according to the following procedures in addition to the 250-hour maintenance and 50-hour maintenance mentioned above	
12L	Check that the battery cable connections are tight and grease the battery poles if necessary.
13	Check if the signs are legible and complete
14	Inspect and fasten the controller and other electrical apparatus elements
15	Check for oil leakage.
16	Check for oil level, change oil
17	Check if the clearance is proper and adjust, if necessary
<b>1000-hour/6-month maintenance</b>	
After operating for 1000 hours in total, the truck should also be maintained according to the following procedures in addition to the 50-hour maintenance, 250-hour maintenance and 500-hour maintenance mentioned above	
18	Inspect whether there is any abnormal sound or disclosure of the gear box.
19	Inspect the abrasion situations of the driving wheel/bearing wheel and please timely replace seriously abraded ones.
20	Inspect whether all the oil pipes, pipelines and joints are reliably connected and whether all the sealing elements are reliable.
21	Clean foreign matter
22	Check the frame for damage.
23	Inspect where there is any damage in the oil cylinders and whether corresponding installations are reliable
24	Inspect and check the hydraulic filter, replaced if necessary.
25	Check cylinder block and piston for damage and ensure that they are properly sealed and secured.

<b>2000-hour/12-month maintenance</b>	
After operating for 2000 hours in total, the truck should also be maintained according to the following procedures in addition to the 50-hour maintenance, 250-hour maintenance, 500-hour maintenance and 1000-hour maintenance mentioned above	
25L	Clean the oil tank and replace the hydraulic oil
26	Inspect and replace the battery connector pins if necessary(see chapter C section 1.2).



Code	Type	Specification	Amount	Position
A	Anti-wear hydraulic oil	L-HM32	0.48 L((WPL201/EPL151/ HPL152) 0.18-0.2L(EPL154,EPL185)	Hydraulic System
B	Grease 3#(MoS <sub>2</sub> )	-	110 grams	Gearbox

**CAUTION**

*Into the fuel tank of hydraulic oil must be filtered, and the injection volume of the hydraulic oil tank does not exceed the maximum scale.*

### 1.2.1 Check the electrical fuses



- Prepare the truck for maintenance and repairs.
- Check condition and rating of the fuses in accordance with your parts manual or service manual.

### 1.2.2 Recommissioning



The truck may only be recommissioned after cleaning or repair work, once the following operations have been performed.

- Test horn.
- Test emergency brake switch.
- Test brake.
- Lubricate the truck in accordance with the maintenance point.
- Do follow the daily checklist.

### 1.2.3 Final decommissioning, disposal



Final, proper decommissioning or disposal of the truck must be performed in accordance with the regulations of the country of application. In particular, regulations governing the disposal of batteries, fuels, Hydraulic oil, plastic and electronic and electrical systems must be observed.

### 1.2.4 Tire replacement



The quality of tyres affects the stability and performance of the truck. When replacing tyres fitted at the factory, only use the manufacturer's original spare parts. Otherwise the data sheet specifications of the truck cannot be guaranteed. When changing wheels and tyres, ensure that the truck does not slew (e.g. when replacing wheels always left and right simultaneously).



#### **WARNING**

*Only original tires have been certified by our quality assurance service. To ensure safe and reliable operation of the fork truck, only tires of the manufacturer must be used.*



## Technical data

### Standard Version Specifications

Technical specification details in accordance with VDI 2198. Technical modifications and additions reserved.

### Performance data for standard trucks

Distinguishing mark					
1.1	Manufacturer			EP	EP
1.2	Model designation			EPL154	EPL185
1.3	Drive unit			Battery	Battery
1.4	Operator type			Pedestrian	Pedestrian
1.5	rated capacity	Q	kg	1500	1800
1.6	Load center distance	c	mm	600	600
1.8	Load distance	x	mm	940(875)	940(875)
1.9	Wheelbase	y	mm	1200(1135)	1200(1135)
Weight					
2.1	Service weight (include battery)		kg	150/(160)	160(170)
2.2	Axle loading, laden driving side/loading side		kg	510/1140	560/1400
2.3	Axle loading, unladen driving side/loading side		kg	120/30	130/30
Types, Chassis					
3.1	"Tyre type driving wheels/loading wheels"			PU/PU	PU/PU

3.2	Tyre size, driving wheels(diameter×width)		mm	Φ210x70	Φ210x70
3.3	Tyre size, loading wheels(diameter×width)		mm	Φ80x60(Φ74x88)	Φ80x60(Φ74x88)
3.4	Tyre size, caster wheels(diameter×width)		mm	Φ74x30	Φ74x30
3.5	Wheels, number driving, caster/ loading (x=drive wheels)		mm	1x,2/4(1x,2/2)	1x,2/4(1x,2/2)
3.6	Track width, front,driving side	b10	mm	450	450
3.7	Track width,rear,loading side	b11	mm	390/(535)	390/(535)

### Dimensions

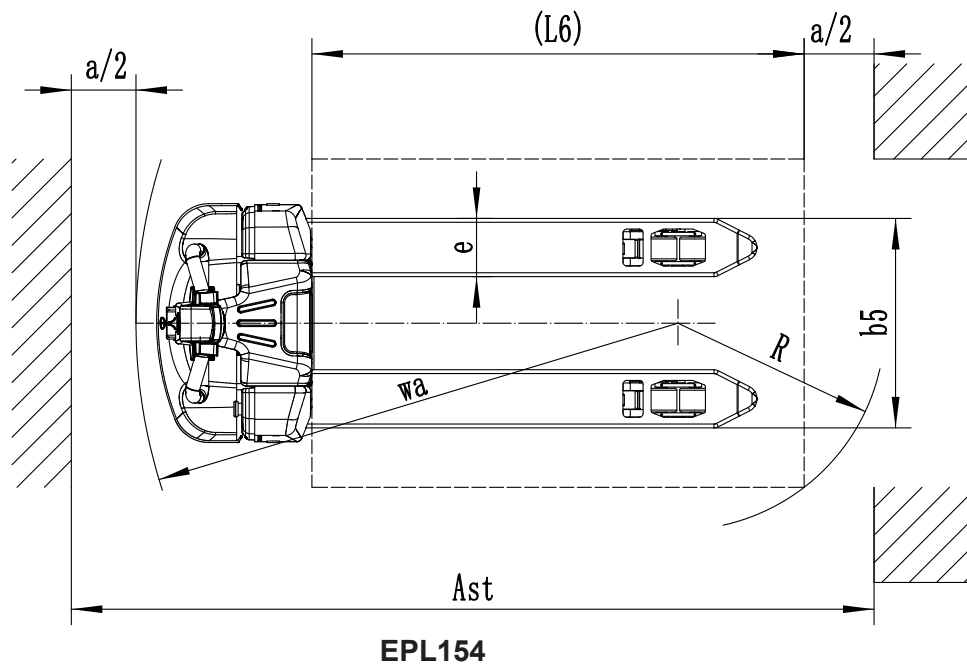
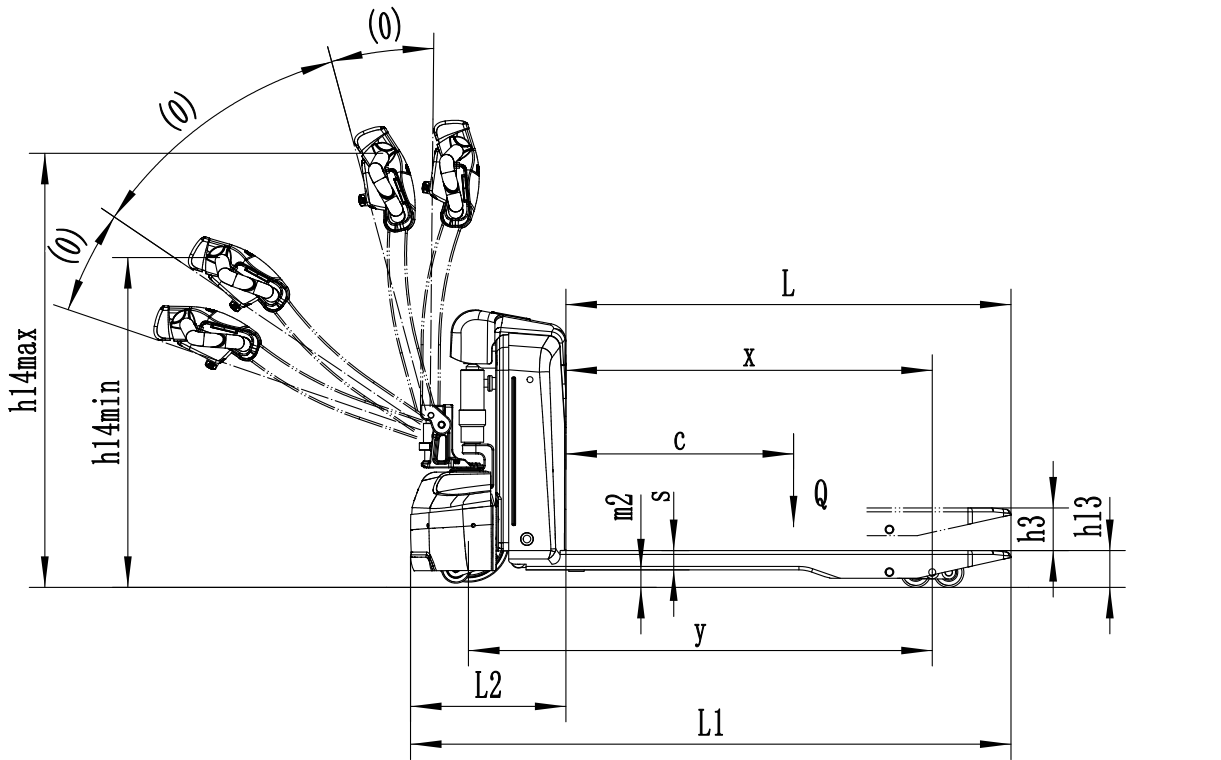
4.4	Lift height	h3	mm	115	115
4.9	Height drawbar in driving position min./max.	h14	mm	700/1260	700/1260
4.15	Lowered height	h13	mm	80	80
4.19	Overall length	l1	mm	1550	1550
4.20	Length to face of forks	l2	mm	400	400
4.21	Overall width	b1/ b2	mm	610(695)	610(695)
4.22	Fork dimensions	s/ e/ l	mm	50x150x1150	50x150x1150
4.25	Distance between fork-arms	b5	mm	540(685)	540(685)
4.32	Ground clearance, center of wheelbase	m2	mm	30	30
4.34.1	Aisle width for pallets 1000 × 1200 crossways	Ast	mm	2145	2145
4.34.2	Aisle width for pallets 800 × 1200 lengthways	Ast	mm	2050	2050
4.35	Turning radius	Wa	mm	1330	1330

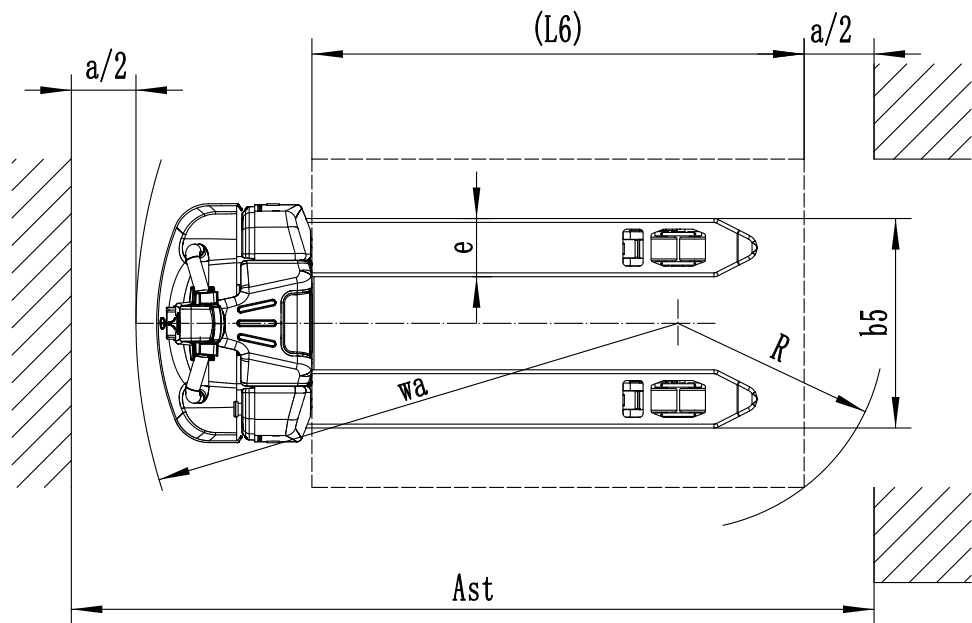
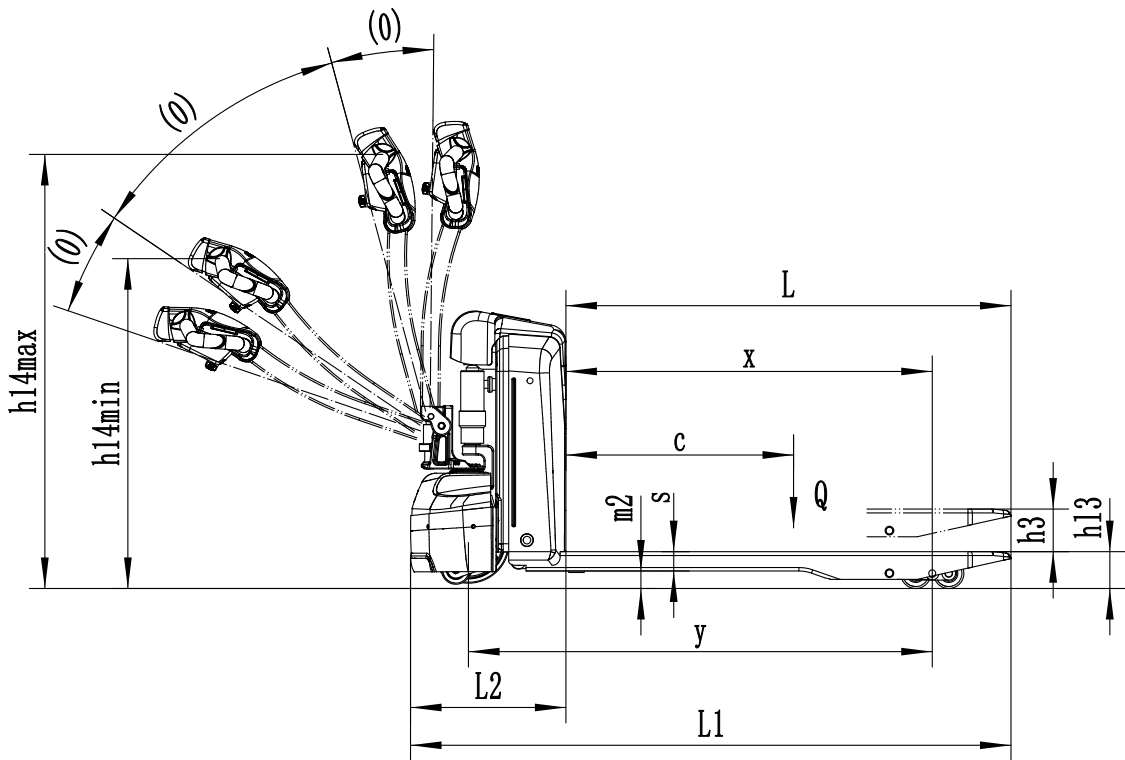
### Performance data

5.1	Travel speed, laden/ unladen	km/ h	km/h	4/4.5	5/5.5
5.2	Lifting speed, laden/ unladen		m/ s	0.028/0.031	0.020/0.025



5.3	Lowering speed, laden/ unladen		fpm	m/ s	0.068/0.043	0.065/0.030
5.8	Max. gradeability, laden/ unladen		%		6\16	6\16
5.10	Service brake type				electric	electric
<b>Electric-engine</b>						
6.1	Drive motor rating S2 60 min		hp	kW	0.75	0.9
6.2	Lift motor rating at S3 15%		hp	kW	0.8	0.8
6.3	The maximum allowed size battery		in.	mm	270*110*440	270x110x440
6.4	Battery voltage/nominal capacity K5		V/ Ah		24/30 (optional 60)	48/20 (option 30)
6.5	Battery weight		lb.	kg	10	14
<b>Addition data</b>						
8.1	Type of drive control				DC	DC
10.5	Steering type				mechanical	mechanical
10.7	Sound pressure level at the driver's ear		dB (A)		<74	<74



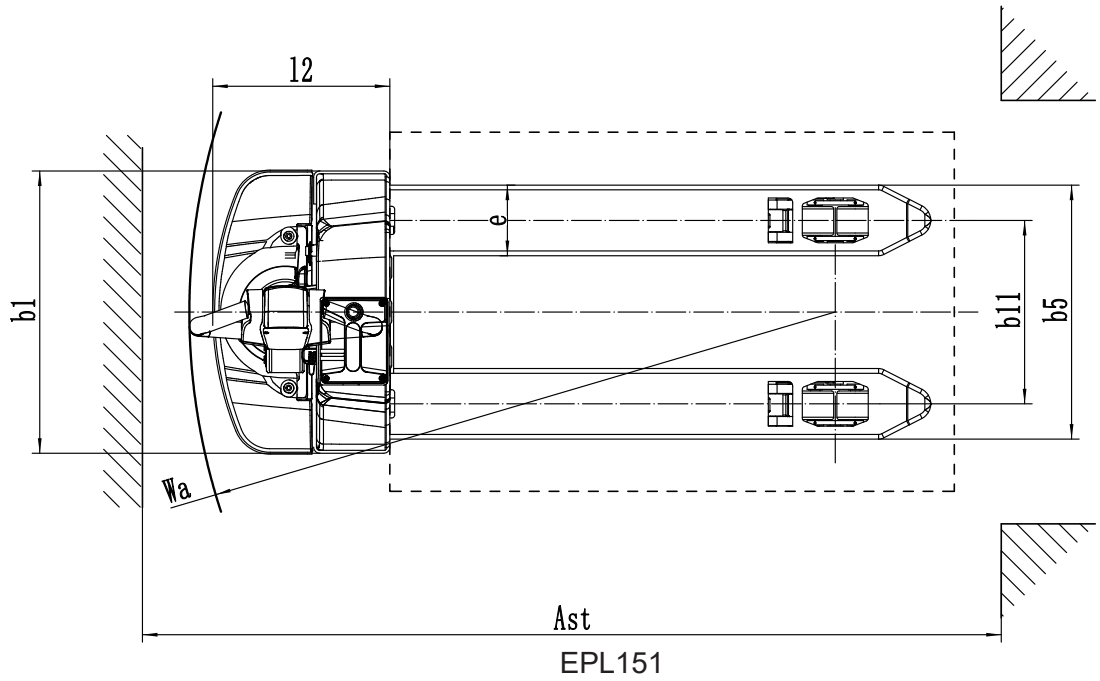
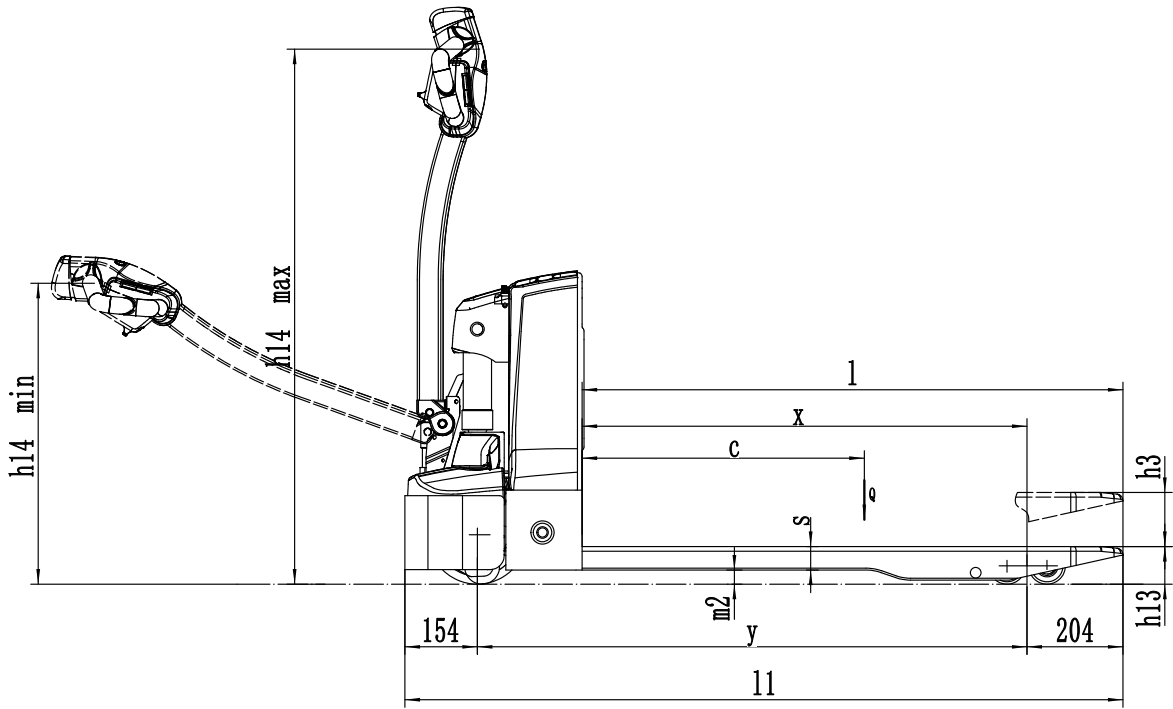


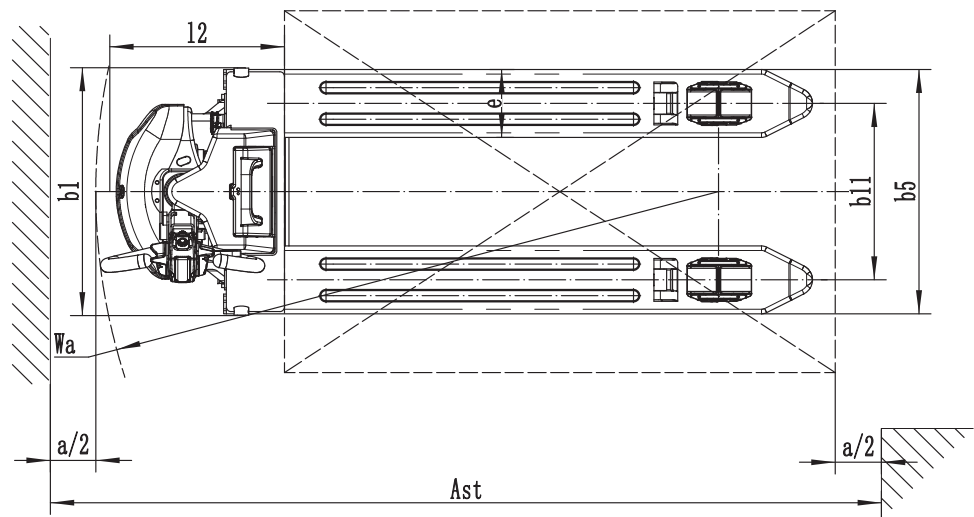
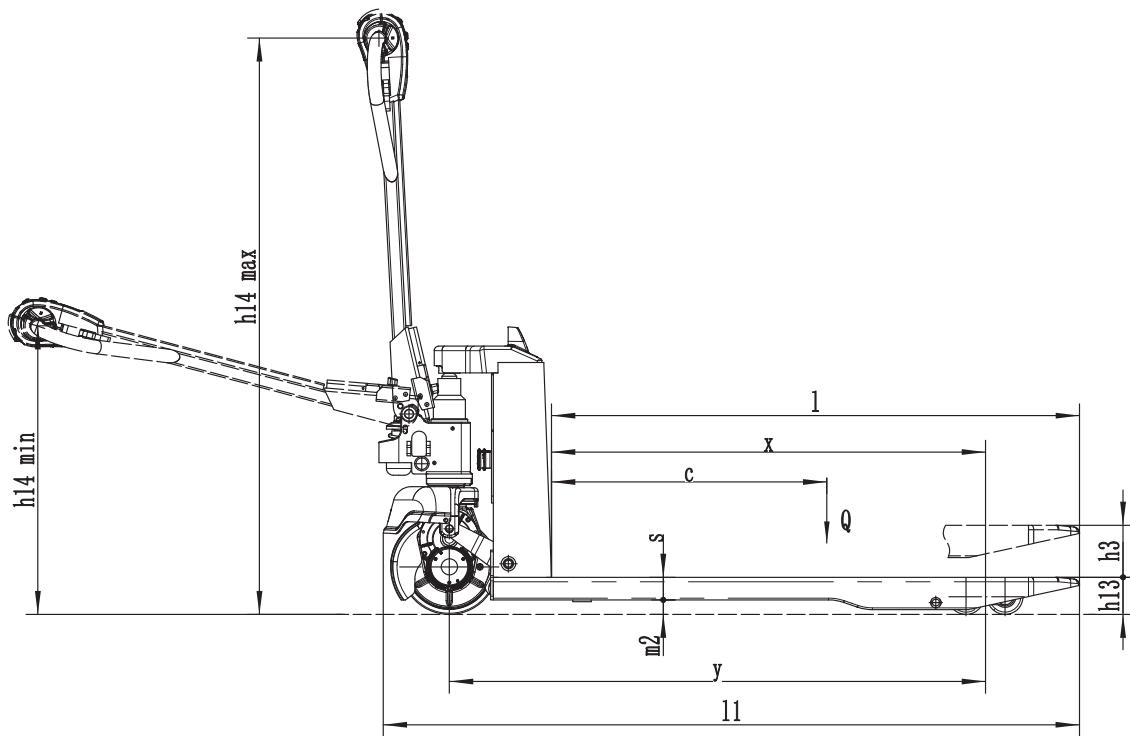
**EPL185**

Distinguishing mark						
1.1	Manufacturer			EP	EP	EP
1.2	Model designation			EPL151	HPL152	WPL201
1.3	Drive unit			Electrics	mechanical and electric	Electrics
1.4	Operator type			Pedestrian	Pedestrian	Pedestrian
1.5	rated capacity	Q	kg	1500	1500	2000
1.6	Load center distance	c	mm	600	600	600
1.8	Load distance	x	mm	883/946	945	1000
1.9	Wheelbase	y	mm	1105/1168	1170	1268
Weight						
2.1	Service weight (include battery)		kg	165	130	250
2.2	Axle loading, laden driving side/loading side		kg	574/1096	558/1172	685/1565
2.3	Axle loading, unladen driving side/loading side		kg	130/40	84/46	185/65
Types, Chassis						
3.1	"Tyre type driving wheels/loading wheels"			Polyurethane	Polyurethane	Polyurethane

3.2.1	Tyre size, driving wheels(diameter×width)		mm	Φ210x70	Φ210x70	Φ250x102
3.3.1	Tyre size, loading wheels(diameter×width)		mm	2x Φ78x60 (Φ78x88)	Φ80x61	2×Φ82x85/ Φ82×115
3.4	Tyre size, caster wheels(diameter×width)		mm	Φ74x48	/	Φ74x48
3.5	Wheels, number driving, caster/loading (x=drive wheels)		mm	1×,2/4(1× 2/2)	1x,-/4	1×,2/4(1× 2/2)
3.6.1	Track width, front,driving side	b10	mm	438	/	441
3.7.1	Track width,rear,loading side	b11	mm	390	390	370/(515)
<b>Dimensions</b>						
4.4	Lift height	h3	mm	115	115	140
4.9	Height drawbar in driving position min./max.	h14	mm	700 / 1170	800 /1200	716 / 1240
4.15	Lowered height	h13	mm	80	82	82.5
4.19	Overall length	l1	mm	1525	1518	1592
4.20	Length to face of forks	l2	mm	375	367	423
4.21	Overall width	b 1 / b2	mm	600	548	645 / 625
4.22	Fork dimensions	s/ e/ l	mm	50/150/1150	50/150/1150	55×170×1170
4.25	Distance between fork-arms	b5	mm	540(685)	540	540(685)
4.32	Ground clearance, center of wheelbase	m2	mm	30	30	27
4.34.1	Aisle width for pallets 1000 × 1200 crossways	Ast	mm	2091	2175	1850
4.34.2	Aisle width for pallets 800 × 1200 lengthways	Ast	mm	2148	2045	2050
4.35	Turning radius	Wa	mm	1330	1370	1428
<b>Performance data</b>						
5.1	Travel speed, laden/ unladen	km/ h	km/h	4/4.5	4/4.5	5 / 5.5
5.2	Lifting speed, laden/ unladen		m/ s	0.02/0.022	100mm/per time	0.028/0.04

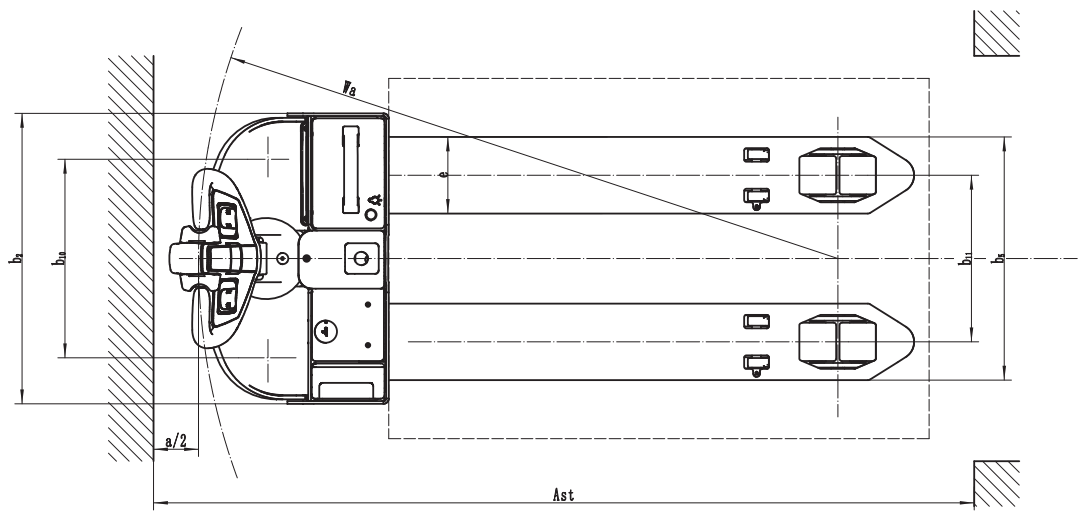
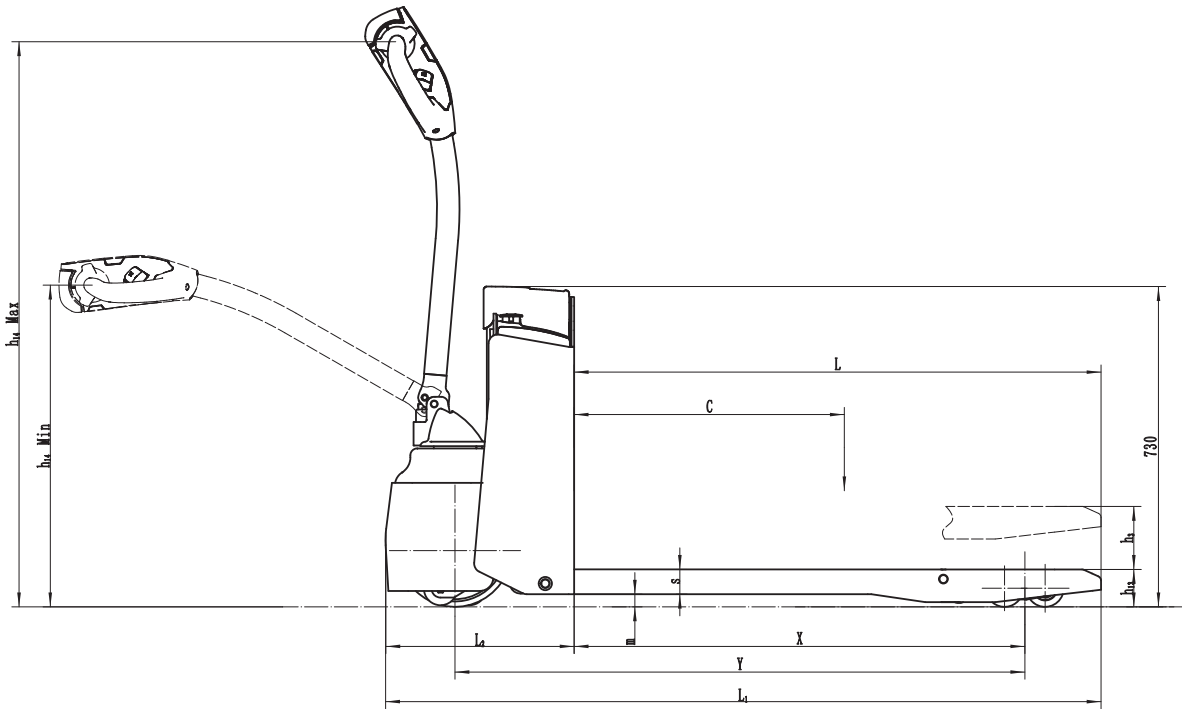
5.3	Lowering speed, laden/ unladen	fpm	m/ s	0.037/0.021	Hand down	0.04 / 0.022
5.8	Max. gradeability, laden/ unladen	%		5/16	5 / 10	8 / 16
5.10	Service brake type			Electroma gnetic	Electroma gnetic	Electrom agnetic
<b>Electric-engine</b>						
6.1	Drive motor rating S2 60 min	hp	kW	0.65	0.75	0.75
6.2	Lift motor rating at S3 15%	hp	kW	0.8	man-up	0.84
6.4	Battery voltage/nominal capacity K5	V/ Ah		24V*1/40Ah	24 / 20AH	48/30(Li-ion)
6.5	Battery weight	lb.	kg	13*1	5*1	14
<b>Addition data</b>						
8.1	Type of drive control			DC	DC	DC
10.5	Steering type			mechanical	mechanical	mechanical
10.7	Sound pressure level at the driver's ear	dB (A)		74	74	<74





HPL152





WPL201

**Lithium-ion battery**

## 1 Information on the conformity of lithium-ion batteries

The manufacturer of the lithium-ion battery declares that: the lithium-ion battery conforms with the provisions of the following EU directive 2014/30/EU in accordance with EN12895.

These batteries has been certified according to EN 62619:2017 for safe use and according to UN38.3 for safe transport.

## 2 It is necessary to respect the following guidelines:

- Read the documents provided with the battery carefully.
- Only persons who have been trained to work with lithium-ion technology are permitted to work on the batteries (for example After-Sales Service Centre technicians).
- Do not drop it or allow anything to fall on it.
- Do not expose the battery unit to humidity or water ( > 80%).
- Protect the battery from solar irradiation.
- Do not physically machine or modify the battery.
- Do not open the battery. Electrical risk. Only the After-Sales Service Centre technicians can open the battery.
- Do not place lithium-ion batteries on or near flames or hot heat sources (> 65°C). This may cause the batteries to overheat or burst into flames. This type of use also impairs the performance of the batteries and reduces their service life.
- It is forbidden to take out the battery in the charging state state.
- It is forbidden to use and store the battery at low power (the use and storage of power loss will cause the early loss of battery system capacity and accelerate the service life of the battery pack);
- During the charging process, liquid and metal substances are not allowed on the charger, and it is forbidden to use the charger in a high temperature and high humidity environment;
- It is forbidden for unqualified personnel to dismantle and overhaul the battery system and supporting charger and other devices; the battery system is a dangerous product, and maintenance and replacement can only be performed by professionals;
- Before the vehicle is started, power on through the button switch. After the vehicle is stopped, the battery system must be powered off and stopped through the button switch, which can be judged by the state of the display screen. If the time is too long, the battery will be over-discharged. In severe cases, it will affect the battery performance);
- The battery should be fully charged for the first time;
- After each use, it should be charged in time (the initial state of charging should keep the battery system temperature below 40° C to ensure the smoothness of charging);
- Have class D fire extinguishers or inert gas, carbon dioxide, powder or foam fire extinguishers near the zone in which the lithium-ion batteries are used.
- Do only use in trucks manufactured by EP and if the battery type is released for that truck.

### 3 Intended use

- Operational application temperature 0° C-40° C, humidity < 80%;
- Charging application temperature 5° C-40° C;
- The battery's maximum operation altitude is up to 2000m;
- Do not pull out the battery for emergency stopping, use instead the emergency switch (see page B14).
- The truck shall not be used in a potentially explosive atmosphere or in an especially dusty environment.

### 4 Reasonably foreseeable misuse

- Never short circuit the battery terminals.
- Do not reverse the battery polarity.
- Do not overcharge.



#### **DANGER**

*Failure to comply with these safety instructions can result in fire and explosion or the leakage of harmful materials.*

### 5. Accessories

*Do not use a charger that is not released by EP for lithium-ion battery.*



#### **WARNING**

*Should such issues as failing to abide by the operation manual, failing to use the original parts for maintenance or damaging caused by users themselves occur, the quality guarantee will be invalid automatically!*

### 6.BMS (Battery Management System)

The battery is permanently monitored by the BMS (Battery Management System).

This provides the communication with the truck.

The BMS continually monitors items such as the cell temperature, the voltage and the charge status of the cells.

## 7 Safety and warning



- Abide by the operation manual!
- All the operations related to the storage battery must be implemented under the instruction of professionals!



Always wear protective clothing (e.g. safety goggles and safety gloves) when working on cells and batteries.



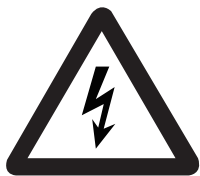
- No smoke and fire!
- Avoid the existence of open fire, fiery metal wire or sparks around the storage battery, otherwise explosion or fire disaster may occur!



- Explosion or fire disaster is likely to occur; avoid short circuit!
- Keep the battery away from all fire sources, heat sources and flammable or explosive materials.



- Don't knock over the storage battery!
- Using lifting and delivery devices as specified. Prevent the storage battery cell, interface and connection cable from being damaged by the lifting hook!
- If the materials leak out, do not inhale the fumes. Wear safety gloves.



- Dangerous voltage!
- Avoid hot plugging!
- Notice: the metal part of the storage battery cell is electrified, so don't place any external object or tool on the battery cell!



Do not place the battery on top of conductive objects.



- Don't trample on the battery to prevent it from fierce shaking or shacking!

## 8 Hazard of faulty or discarded battery

Please monitor the battery status when in use and in storage. If you find any broken batteries, electrolyte leakage, abnormal expansion or pungent odors due to shipping damage or abnormal vibration, please stop use immediately and keep at least a 5 meter perimeter around the effected batteries. Please dispose of the damaged batteries properly and contact a recycling company to recycle the batteries. For batteries that are under EP warranty policy, EP will access the warranty claim according to your submission of the battery nameplate photo .

During the period waiting for disposal or recycle, please stock damaged and old batteries carefully by following instructions:

1.Damaged and discarded battery temporary storage needs to be placed in an iron or plastic container with water that can cover whole battery at least 5 days (The battery may emit smoke when immersed in water. This is the process of consuming energy by the leaking battery, which is a normal reaction).

- Keep the container and batteries outdoors and 5 meters away from other things, especially flammable items.
- Use protective gloves when putting batteries in or out of water.
- Do not stack damaged or old batteries.

2.For big battery with inner and outer boxes structure, Keep the batteries outdoors at least 5 days. and contact a recycling company to recycle the batteries.



### **WARNING**

1. *Do not store the battery for a long time;*
2. *No load bearing, squeezing and contact stacking when storing the batteries;*
3. *Do not place the batteries near cargo warehouses or near flammable and explosive dangerous goods.*

## 9 Transportation

Before transporting any lithium-ion battery, check the current regulations on the transport of dangerous goods. Comply with these when preparing the packaging and transport. Train authorised staff to dispatch lithium-ion batteries.

### **i** NOTE

*It is recommended that the original packaging is kept for any subsequent dispatch.*

*A lithium-ion battery is a special product.*


*Special precautions should be taken when:*

- *Transporting a truck equipped with alithium-ion battery*
- *Transporting only the lithium battery*

*A class 9 danger label must be affixed to the packaging for transport.*

*It is different if the battery is transported on its own or in a truck. An example of a label appears in this supplement(see figure below). Refer to the latest current regulations before dispatch as the information might have changed since this supplement was written.*

*Special documents must be sent with the battery. Refer to the applicable standards or regulations.*

<b>For UN3480</b>	Lithium Ion Batteries	
<b>For UN3481</b>	Lithium Ion Batteries packed with Equipment or Lithium batteries built into Equipment	



### **WARNING**

*Do not pack higher than 1.2 m above the floor of the container and secure properly.*

### **i** NOTE

*"Overpack" is the name for the outer packaging of the dangerous goods.*

### **i** NOTE

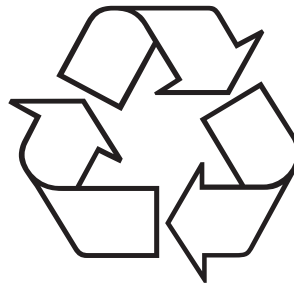
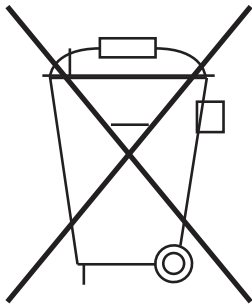
*Recharge the lithium-ion battery before transporting it taking account of the transport mode ( boat, road). Excessive discharge on arrival could damage the performance of the battery.*

### 9.1 Shipping faulty batteries

To transport these faulty lithium-ion batteries, contact the manufacturer's customer service department. Faulty lithium-ion batteries must not be transported independently.

## 10 Instructions for disposal

- Lithium ion batteries must be disposed of in accordance with the relevant environmental protection regulations.
- Used cells and batteries are recyclable economic goods. In accordance with the mark showing a crossed rubbish bin, these batteries may not be disposed of as domestic waste. Return and / or recycling must be ensured as required by the Batteries Legislation.
- The method of battery recovery and reuse can be discussed with our company. We reserve the right to change the technology.



### ➤ The requirements of recycling

- 1、 Only authorized EP dealers who have attended the after sales training, are authorized to do repairs on EP batteries.
- 2、 All Li-ion battery should be placed in safe place according to the EP Li-ion battery Manual;
- 3、 The transport of Li-ion battery must meet local regulation, EP will supply UN38.3 and MSDS files according with UN and ADR regulation;
- 4、 The package of Li-ion battery before delivery must meet the UN 3480 or local carrier regulation;



### **WARNING**

- *Check the status of used batteries regularly and dispose of the batteries in time;*
- *Do not store used batteries for extended periods;*
- *Do not load bearing, squeezing or contact stacking when storing batteries;*
- *Do not keep batteries in cargo warehouses or near flammable and explosive dangerous goods.*





## WARNING

*Don't bump, handle gently.*

Used cells and batteries are recyclable economic goods. In accordance with the mark showing a crossed rubbish bin, these batteries may not be disposed of as domestic waste. Return and / or recycling must be ensured as required by the Batteries Act (Act regarding the commissioning, return and environmentally responsible disposal of batteries and accumulators). For battery disposal please contact the manufacturer's customer service department.

## 11 Charging

- This battery can only be charged with the vehicle-specific charger, other chargers may cause battery damage.
- The normal charging temperature range of the battery is: 5°C ~ 40°C, please do not charge in the environment beyond the normal temperature range;
- If the battery is not fully charged in specified time, check the max. voltage of the cells of the battery, if it is higher than 3.65V, stop charging it immediately, and contact the after-sales service.
- During the charging operation, it is necessary to have professional personnel to operate and care, in order to ensure that the charging plug and socket work normally without heat, to ensure that the charging device works normally, to ensure that the battery pack and its protection circuit work normally, and the whole power supply system has no sign of short circuit, over current, over temperature or overcharge.
- When charging, connect the battery to the charger; after starting charging, the circular display meter will display the total voltage, the maximum and minimum cell voltages, power, temperature, charging current and other information; pay particular attention to the charging current and the maximum and minimum cell voltages, as well as the voltage difference between them; if there is abnormality, stop charging in time and contact the after-sales service department for solutions. Charging in non-charging area is prohibited;
- No modification of vehicles;
- Do not use irregular charging sockets;
- The net height of the charging area shall be higher than 5m, and the safe distance from other areas shall be greater than 5m.

## 12 Storage

Before a long period of inactivity, the battery must be fully charged.

We recommend that batteries are stored at a height between 60 and 120 cm.

- Store the battery in a dry place at a temperature between 0 and 40° to preserve its service life. This area must not be hermetically sealed to allow air renewal;
- If the battery system needs to be placed on hold for a long time, it would better keep the battery in the semi-electric state and charge the battery every 2 months to ensure that the battery system is in the semi-electric state;
- The positive and negative terminals of the battery system are prohibited from contacting with metal objects during storage.



### WARNING

1. *Dispose of used batteries in time;*
2. *Do not store used batteries for a long time.*
3. *No load bearing, squeezing and contact stacking when storing batteries;*
4. *Do not place batteries near cargo warehouses or near flammable and explosive dangerous goods.*

## 13 Common Problems and Solutions

During the use and maintenance of the lithium-ion battery, the battery or battery system may have one or more of the following abnormal conditions, please organize the professional engineers and technicians to perform the necessary processing according to the instructions in this manual; if you have any questions about the status or solutions, please contact ep dealer or after-sales service department of the company to obtain professional technical support.

- If the battery is found to have abnormal mechanical characteristics such as swelling, cracked casing, melted casing, and distortion of the casing before and during installation, stop using the battery immediately, place it in open and well-ventilated space, and contact the after-sales service.
- If abnormalities such as looseness, cracks, cracks in the insulation layer, burn marks, etc. of the battery's pole pressing bolts, conductive strips, main circuit wires and connectors are found before and during the installation, stop using the battery immediately, check the reason for analysis and give it a fix;
- If the polarity of the positive and negative terminals of the battery is found not match the polarity identification before installation, please stop using the battery immediately and contact the after-sales service department to replace the battery or obtain other solutions;
- If there is fire or smoke happens to the battery, move it to the open air immediately, evacuate people in time, and pour a large amount of cold water onto the battery to cool it down and put out the fire.
- If the battery is found to emit smoke , immediately stop using the battery, using fire sand or explosion-proof box for burial and isolation, wearing respirator and fireproof gloves move the battery to a safe area, notify the after-sales service department of the company for record and obtain technical support.
- If the battery is found to fire, using fire extinguisher(eg. Carbon dioxide extinguisher, Metal fire extinguisher (PM 12i extinguisher), Metal fire extinguisher powder PL 9/78 DIN/EN 3SP-44/95, Dry sand).

If there is fire or smoke happens to the battery, move it to the open air immediately, evacuate people in time, and contact a recycling company to recycle the batteries for (for For big battery with inner and outer boxes structure).