Let's grow together

Operation Manual

EPL1531

Original Instruction

Part No. 508000003738
V1 07/2020

Foreword

The present operation manual are designed to provide sufficient instruction for the safe operation of the industrial truck. The information is provided clearly and concisely.

Our trucks are subject to ongoing development. EP reserves the right to alter the design, equipment and technical features of the system. No guarantee of particular features of the truck should therefore be assumed from the present operation manual.

Safety notices and text markups

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

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

Please pay attention to the important safety instructions.

Pay attention to Instructions.

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 to activate your account

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2020.7 15st EDITION

Legal requirements for marketing

Declaration

EP EQUIPMENT CO., LTD
Address: XIAQUAN, DIPU, ANJI, ZHEJIANG, CHINA

We declare that the

Industrial truck: according to these operation manual

Type: according to these 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 conserved and kept ready to be presented to the relevant authorities. If this industrial truck is sold, this declaration document must be handed over to the new owner.

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Pg.

A Application

The truck described in these operation manual is designed for transporting loads. It must be used, operated and maintained according to the information presented in this operation manual. Any other uses exceed the design scope and can lead to injury to persons or damage to equipment and property. Above all, overloading caused by excessively heavy or unbalanced loads must be avoided. The max. permissible load to be picked up is indicated on the nameplate or load curve label shown on the truck. The truck must not be operated in spaces subject to fire or explosion hazards, or in spaces where corrosive or very dusty atmospheres prevail.

Duties of the user: A “user” within the meaning of these operation manual is defined as any natural or legal person who either uses the truck himself, or on whose behalf it is used. In special cases (e.g. leasing or renting), the user is considered the person, who, in accordance with existing contractual agreements between the owner and the user of the truck, is charged with the observance of the operating duties.
The user must ensure that the truck is not abused and only used within its design scope and that all danger to the operator, or third parties, is avoided. In addition to this, it must be ensured that the relevant accident prevention regulations and other safety related provisions, as well as the operating, servicing and maintenance guidelines, are observed. The user must also ensure that all persons operating the truck have read and understood this operation manual.

If this operation manual is not observed, the warranty becomes void. The same applies if improper works are carried out on the device by the customers and/or third parties without permission of our customer service.

Adding attachments: Adding or fitting any attachments which will interfere with, or supplement, the functions of the truck is permitted only after written approval by the manufacturer has been obtained. If necessary, the approval of local authorities has to be obtained. Any approval obtained from local authorities does not, however, make the approval by the manufacturer unnecessary.

Modification: If you want to use the truck for purposes that are not mentioned in the user manual, please contact dealers accredited by EP. Any modification to your truck, in particular fitting of equipment or conversion to the truck, is prohibited without the permission of the manufacturer.

Intended use

The truck is designed for transporting and stacking the loads indicated in the load capacity diagram. Especially:

- In accordance with the safety rules of your industry association
- Other local regulations

In all cases, the people in charge, particularly operators and service personnel, must comply with the specific approved rules for the use of industrial trucks.
The user, and not the manufacturer EP, is liable for any hazards caused by any application not authorised by the truck manufacturer.
Please contact your authorised dealer if you want to use the truck for an application that is not specified in this manual.
The truck must not be altered, especially by making modifications or installing attachments, without the manufacturer's approval.

Improper use

The operating company or driver, and not the manufacturer, is liable if the truck is used in a manner that is not permitted.One of the main causes of accidents is the driver ignoring or being unaware of the basic safe operating practices of the truck.

The following basic safe operating practices must be observed to ensure the safety of operators and others.Never operate the truck in environments with s potentially explosive atmosphere.

- Never carry passengers.
- Do not overload the truck. (by exceeding the rated load indicated on the load designation plate)
- Overloading can affect braking distances, truck stability and the strength of the lift mast.
- Do not pick up an off-centre load.
- Do not stack loads or turn when driving on a ramp.
- Do not operate the truck on loose or greasy surfaces.
- Do not drive on uneven or obstructed surfaces. Never park the truck in a place that may obstruct fire extinguishers, fire escapes or aisles.
- Do not dismount from the truck while it is moving.
- Do not leave the truck unattended when the load is raised.
- Never leave the vehicle unattended on a ramp. When driving, do not place any part of your body outside the confines of the truck, lean on the edge of the truck or attempt to jump onto another truck or object.
- Do not use the forks or any other part of the truck to push, pull or support items, unless the design permits this.

B Truck Description

1.1 Application

The truck is intended for transporting goods on a level floor. It can pick up pallets that are open to the ground or trolleys.

Permissible application temperature range of truck -10°C to 40°C. Lithium-ion battery operation application 0°C to 40°C.

Industrial trucks must be specially equipped and approved for continuous use in environments with temperatures below 5°C or in cold stores respectively with extreme temperatures or humidity changes.

Only use the truck at altitudes not exceeding 2000 meters.

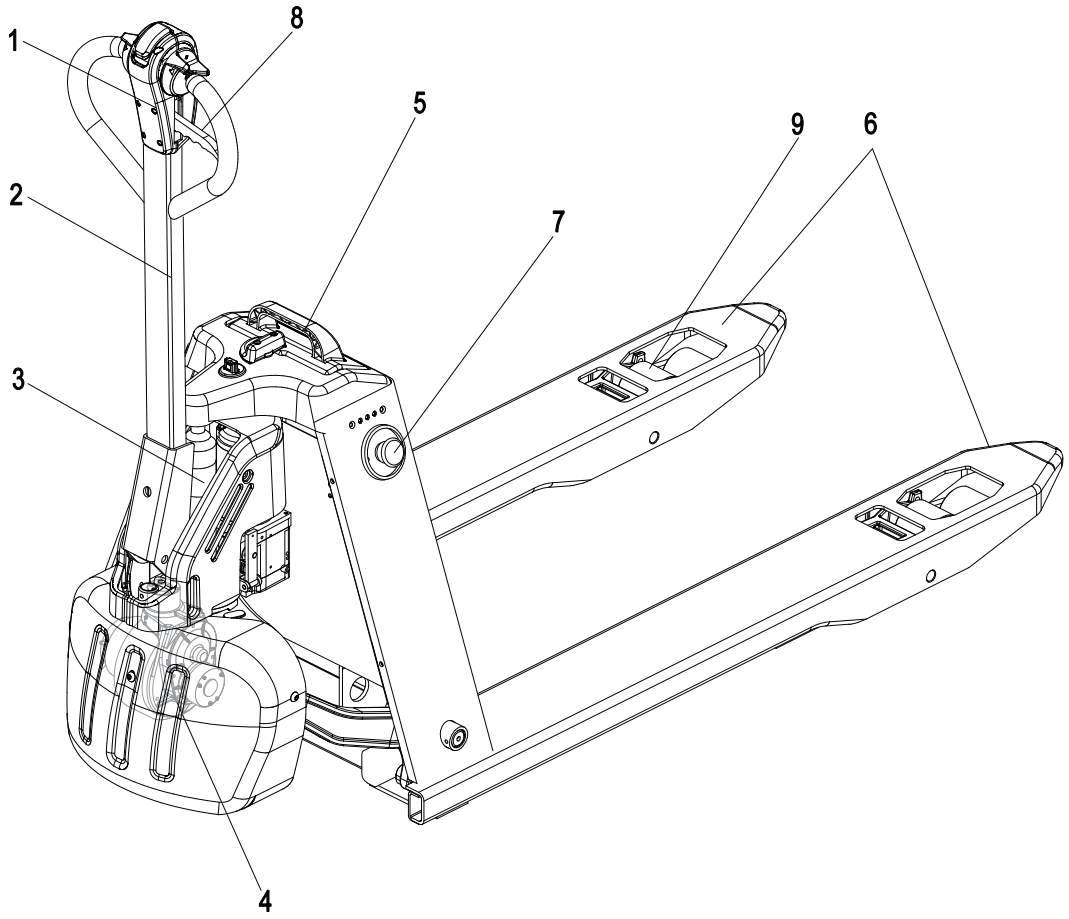
The walking, lifting and lowering devices, harnesses and components are IP55 dust and water-resistant.

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 Performance Data Sheet)

There should be no risks of fire, explosion or corrosion in the working area, or too much dust.

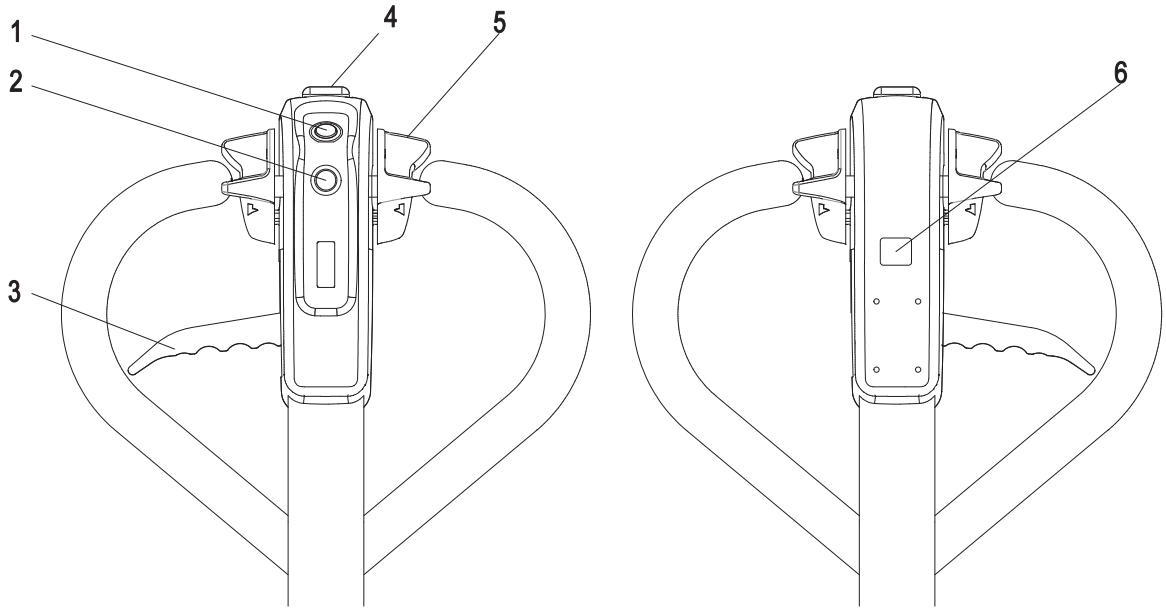
Forks can only be operated in adequately illuminated working areas to avoid injuries or injuries. In case of insufficient light, an additional equipment is needed to run the fork lift truck.

1.2 Truck assemblies



1	Control handle	6	Forks
2	Control lever	7	Emergency stop switch
3	Lift cylinder	8	Lowering lever
4	Driving wheel	9	Load wheels
5	Battery Box		

1.2.1 Control handle



Item	Control / Display	Function
1	"Horn" button	Activates the horn.
2	"Lifting" button	Press the lift button and hold. The forks will be lifted to its maximum height and stop on its own.
3	Lowering lever	Pull the lowering lever and hold. The forks will be lowered to its minimum height and stop on its own.
4	Emergency reverse switch	By pressing this switch, the vehicle starts to travel in the opposite direction.
5	Drive switch	Select the required driving direction and speed.
6	Creep speed switch	Keep the handle in the vertical state, and press creep speed switch and drive switch at the same time, then the vehicle will move at a low speed.

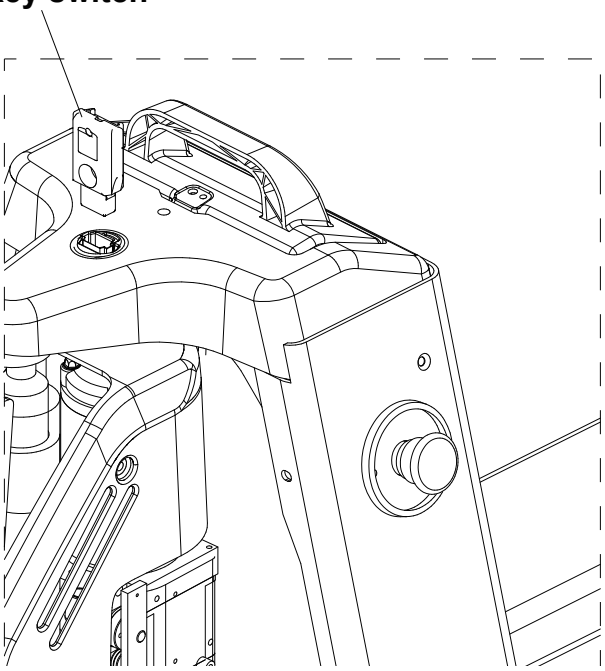
1.2.2 Key switch

Connect and interrupt the control current.

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

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

Key switch

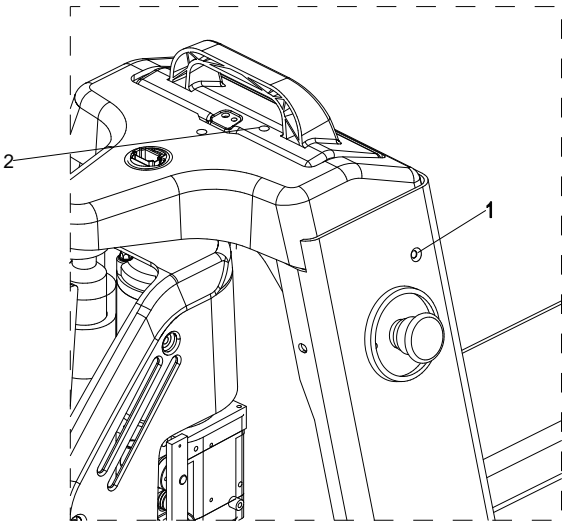


1.2.3 Charging indicator

The LED (1) remain green light lit under normal, flashing show the failure state of truck. (See section H Controller Error Message)

The LED display (2) show battery residual capacity.
The color of the LED (2) represent the following conditions:

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



If the controller detects a battery failure, flashes of LED（2）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.

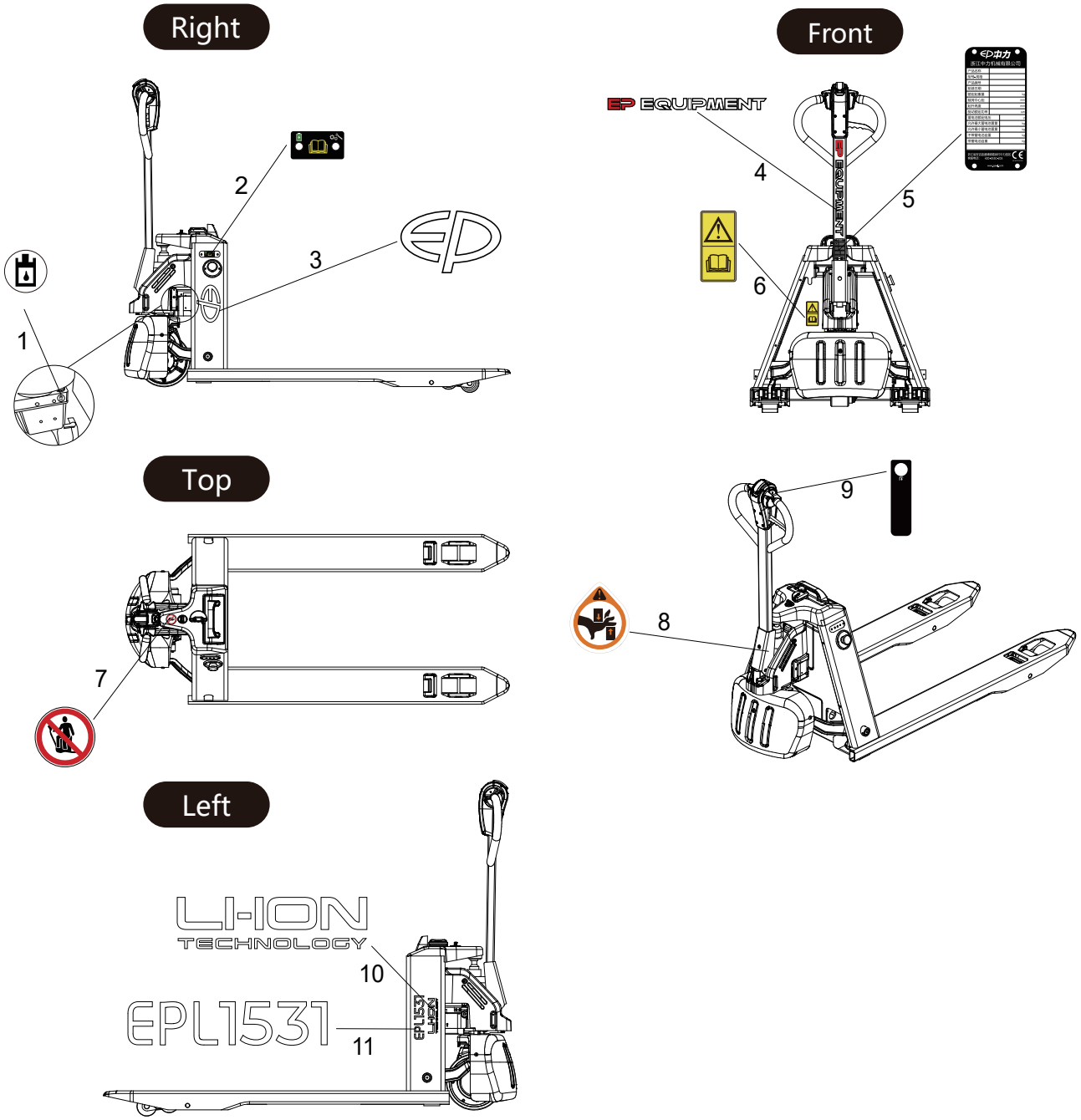
⚠ When powered off, if the green light of power indicator is always on, it means that the battery is in a balanced state, which is a normal phenomenon.

1.2.4 Emergency reverse switch

To protect the operator from becoming pinned against an obstacle by the control handle, an emergency reverse switch is provided at the end of the control handle. If this switch is pressed during operation, the truck will move off in reverse. The mechanical brake will then engage to stop the truck. The travel control must then be returned to neutral before the truck can again be operated.

1.3 Identification points and data plates

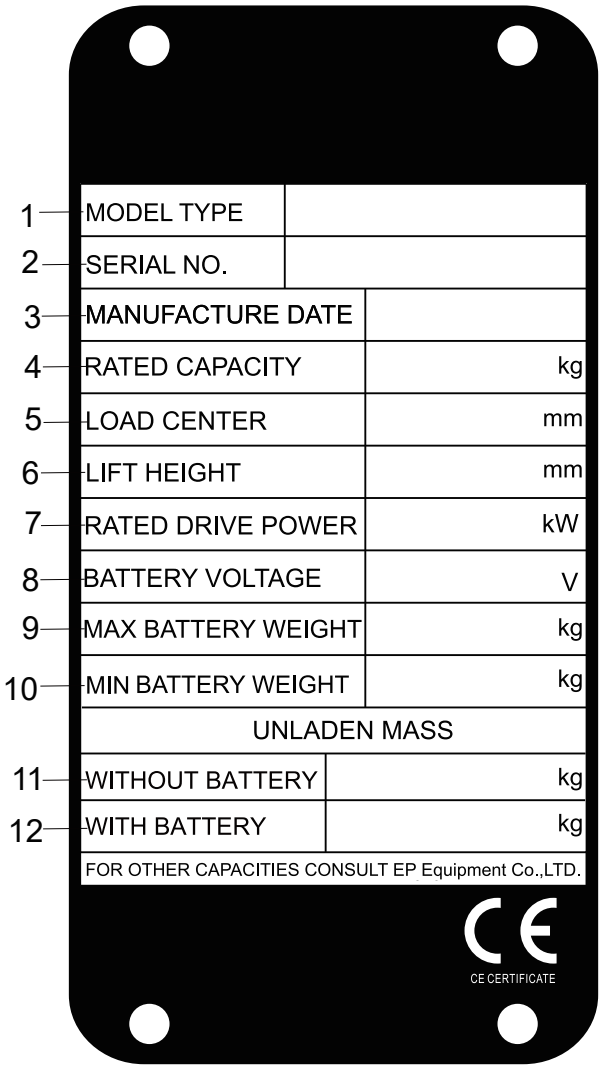
Item	Description	Item	Description
1	Hydraulic oil label	7	No riding label
2	Charging trouble light label	8	Anti pinch hand label
3	EP Logo	9	Function label
4	“EP equipment” Logo	10	Lithium-ion label
5	Nameplate	11	Type label
6	“Instructions” label		



1.3.1 Truck data plate

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

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



1.4 Standard version specifications

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

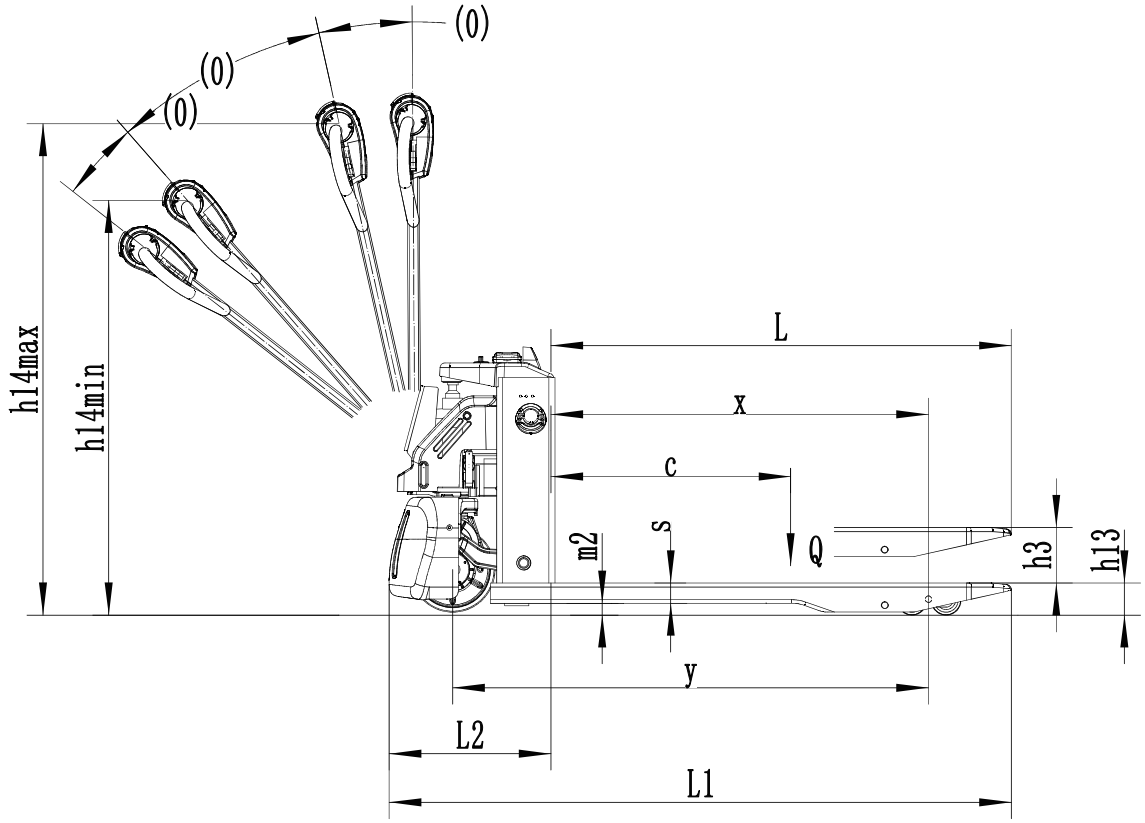
1.4.1 Performance data for standard trucks

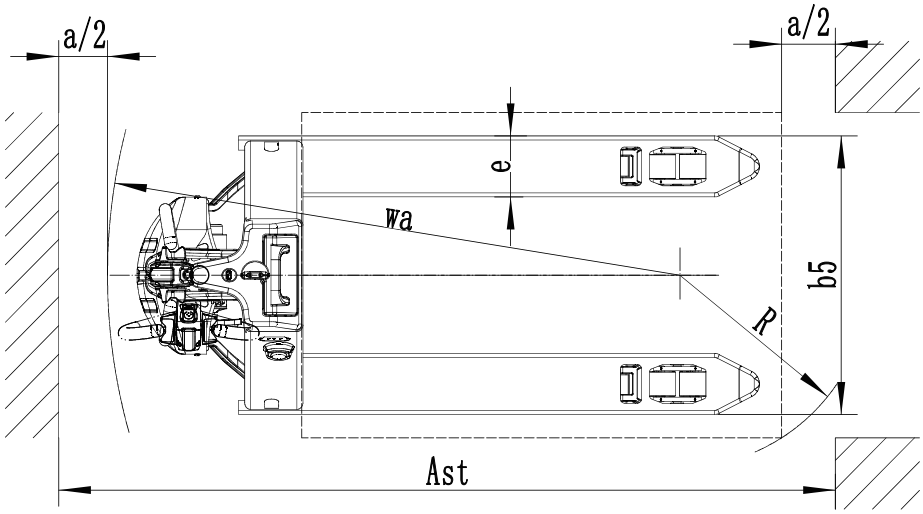
Distinguishing mark						
1.1	Manufacturer					EP
1.2	Model designation					EPL1531
1.3	Drive unit					Battery
1.4	Operator type					Pedestrian
1.5	rated capacity	Q	lb.	kg		1500
1.6	Load center distance	c	in.	mm		600
1.8	Load distance	x	in.	mm		950(880)
1.9	Wheelbase	y	in.	mm		1190/1120
Weight						
2.1	Service weight (include battery)		lb.	kg		120
2.2	Axle loading, laden driving side/ loading side		lb.	kg		480/1140
2.3	Axle loading, unladen driving side/loading side		lb.	kg		90/30
Types,Chassis						
3.1	"Tyre type driving wheels/loading wheels"					PU/PU

3.2	Tyre size, driving wheels(diameter×width)		in.	mm		Φ210x70
3.3	Tyre size, loading wheels(diameter×width)		in.	mm		Φ80x60 (Φ74x88)
3.5	Wheels, number driving, caster/loading (x=drive wheels)		in.	mm		1x, 4(1x, 2)
3.6	Track width, front,driving side	b10	in.	mm		/
3.7	Track width,rear,loading side	b11	in.	mm		410 (535)
Dimensions						
4.4	Lift height	h3	in.	mm		115
4.9	Height drawbar in driving position min./max.	h14	in.	mm		750/1190
4.15	Lowered height	h13	in.	mm		80
4.19	Overall length	l1	in.	mm		1540
4.20	Length to face of forks	l2	in.	mm		400
4.21	Overall width	b1/ b2	in.	mm		685
4.22	Fork dimensions	s/ e/ l	in.	mm		50x150x1150
4.25	Distance between fork-arms	b5	in.	mm		560(685)
4.32	Ground clearance, center of wheelbase	m2	in.	mm		30
4.34.1	Aisle width for pallets 1000 × 1200 crossways	Ast	in.	mm		2145
4.34.2	Aisle width for pallets 800 × 1200 lengthways	Ast	in.	mm		2050
4.35	Turning radius	Wa	in.	mm		1330
Performance data						
5.1	Travel speed, laden/ unladen	km/ h	mph	km/h		4.5/5
5.2	Lifting speed, laden/ unladen		fpm	m/ s		0.017/0.020

5.3	Lowering speed, laden/ unladen		fpm	m/ s	0.09/0.06
5.8	Max. gradeability, laden/ unladen		%		6\16
5.10	Service brake type				Electromagnetic
Electric-engine					
6.1	Drive motor rating S2 60 min		hp	kW	0.75
6.2	Lift motor rating at S3 15%		hp	kW	0.7
6.3	The maximum allowed size battery		in.	mm	200x100x300
6.4	Battery voltage/nominal capacity K5		V/ Ah		24V/20
6.5	Battery weight		lb.	kg	7
Addition data					
8.1	Type of drive control				DC
10.5	Steering type				mechanical
10.7	Sound pressure level at the driver’s ear		dB (A)		<74

1.4.2 Dimensions





C Safety

1.1 Before operation

Before using the truck, inspect the work area. It should be neat, well lit, adequately ventilated, and free from hazardous material. Aisles and roadways should be unobstructed and well marked. Operators must know the classification for the truck and use the truck only in permissible areas. Ensure that there are no loose objects on the truck or in the operator compartment, especially on the floor plate where they could interfere with pedal operation (if equipped) or foot room. Fire extinguishers and other emergency equipment should be visible and easy to reach.
Wear safety equipment when required. Don't smoke in "No Smoking" areas, or while charging batteries or refueling combustion engine trucks. Never operate the truck with greasy hands. This will make the controls slippery and result in loss of truck control. Any questions or concerns about safety should be brought to the attention of a supervisor. If an accident should occur, it must be reported immediately.

WARNING

Unauthorized modifications to the truck can result in injury or death.
Do not remove, disable or modify any safeguards or other safety devices. These include any alarms, lights, mirrors, overhead guards, and load backrest extensions. If present, an overhead guard is intended to provide protection to the operator from falling objects, but cannot protect from every possible impact.

1.2 Operating position

The truck may be operated in either direction while walking. When operating in reverse(forks leading), always keep both hands on the control handle. When operating forwards(forks trailing) keep one hand on the controls and, if possible, walk ahead and to the side of the truck. During operation, always grasp the handle at the travel control. Keep fingers within the protec ted area of the handle at all times. Operators must not ride the truck unless it is designed for riding.

WARNING

Injury to hands can occur if the handle is grasped incorrectly. Keep hands and fingers within the protected area of the handle. Injury can occur if the truck contacts any part of the body. Remain clear of the truck frame at all times.

1.3 Travel

The truck is designed for operation on smooth, dry surfaces such as warehouse and factory floors, loading docks or paved areas. Under all travel conditions operate the truck at a speed that will permit it to be brought to a stop in a safe manner. Avoid running over loose objects on the roadway surface.

WARNING

Loss of control!
Do not travel at excessive speeds; keep your truck under control at all times.
Always watch for pedestrians. When travelling in reverse (load end leading) be careful of drive end swing. The drive end of the truck will swing out if a turn is made while travelling in reverse. Always use caution when turning into an aisle. The load wheels can cut the corner sooner than expected.

Unstable loads are hazardous. Ensure all loads are secure and evenly positioned across both forks. Never lift a load with only one fork. Never carry anything on any part of the truck except the forks unless a specific area has been provided by the manufacturer.During travel, always watch for over head obstructions such as lights, wiring, pipes, sprinkler systems, doorways, etc. Never overtake another truck at an intersection, blind spot or other dangerous location. Use the horn at intersections and any location where visibility is limited.
Inclines, Ramps, Docks, Elevators If you must travel on an incline, do so with caution. Do not operate truck on a wet incline.
Keep the forks upgrade to maintain control when travelling up or down an incline with a loaded truck.Keep the forks downgrade when travelling up or down an incline with an empty truck.

DANGER

Tip-over will occur if you turn while travelling on a ramp or travel at an angle other than straight up or straight down a ramp.
Never turn on an incline or ramp either loaded or unloaded. Travel straight up or straight down.

Be aware that when descending an incline your stopping distance will be greater than when on a level surface. Reduce your speed, and ensure that there is adequate clear space at the bottom of the ramp to stop and turn.

To avoid hazards associated with a dock, you should personally check that the trailer brakes have been applied, wheel chocks are in place, and that any trailer-to-dock locking systems are being utilized. The impact of moving in and out of a trailer may cause the trailer to creep or move. Confirm that the driver will not move the trailer until you are done.

Do not drive the truck onto an elevator without specific authorization. Verify that the capacity of the elevator exceeds the weight of the truck and the weight of the load. Approach elevators slowly and ensure that the elevator car is level with the floor before entering. Enter elevators squarely with the load end leading. Ensure that no part of the truck or load contacts any part of the elevator other than the floor. Once on the elevator, neutralize the truck controls, shut off the power, and set the brakes. Any other personnel should leave the elevator before the truck is allowed to enter or leave.

Be especially cautious when driving the truck on ramps or bridge plates. Be sure to maintain a safe distance from each edge. Before driving the truck over a ramp or bridge plate, verify that its position is secured to prevent movement. Never exceed the rated capacity of a ramp or bridge plate.

1.4 Battery safety

WARNING

Batteries contain dissolved sulfuric acid, which is poisonous and caustic. Batteries also can produce explosive gases.

Remain aware of the following information.

- Wear protective equipment (protective apron and gloves) and protective glasses when working with battery acid. If clothing, skin or eyes come into contact with battery acid, immediately flush the affected areas with water. If acid contacts the eyes, seek medical attention at once. Clean spilled battery acid immediately with large amounts of water.
- Remove any metal rings, bracelets, bands, or other jewelry before working with or near batteries or electrical components.
- Never expose batteries to open flame or sparks.
- Areas in which batteries are stored or charged must be well ventilated to prevent concentration of explosive gases.
- If a battery is charged while installed in the truck, the battery cover must remain completely open during the entire charging period.
- Shorting of battery terminals can cause burns, electrical shock, or explosion. Do not allow metal parts to contact the top surface of the battery. Make sure all terminal caps are in place and in good condition.
- Batteries may only be charged, serviced, or changed by properly trained personnel. Always follow all instructions provided by the manufacturers of the battery, charger, and the truck.

1.5 EMC-Electromagnetic compatibility

Electromagnetic compatibility (EMC) is a key quality feature of the truck.
EMC involves

- Limiting the emission of electromagnetic interference to a level that ensures the troublefree operation of other equipment in the environment.
- Ensuring sufficient resistance to external electromagnetic interference so as to guarantee proper operation at the planned usage location under the electromagnetic interference conditions to be expected there An EMC test thus firstly measures the electro-magnetic interference emitted by the truck and secondly checks it for sufficient resistance to electromagnetic interference with reference to the planned usage location . A number of electrical measures are taken to ensure the electromagnetic compatibility of the truck .

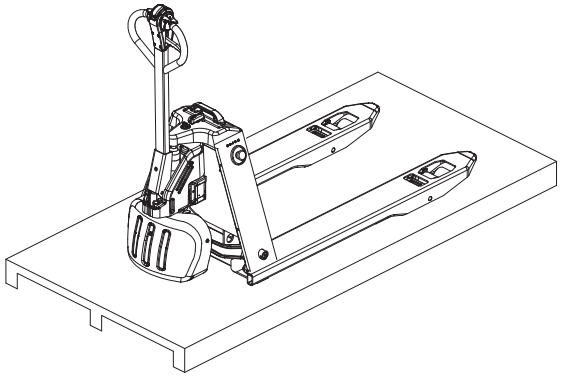
CAUTION

The EMC regulations for the truck must be observed.
When replacing truck components the protective EMC components must be installed and connected again.

D Transport and Commissioning

1.1 Truck transport

Place the truck on a wooden pallet.

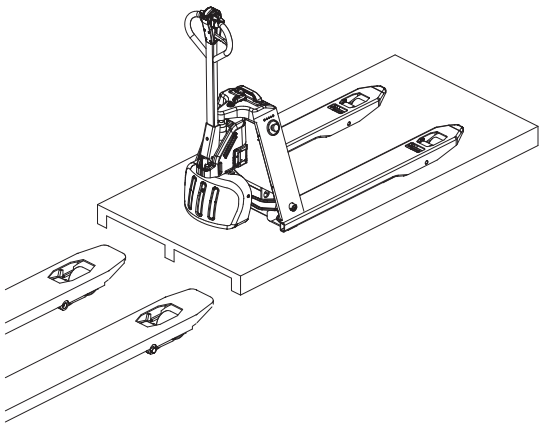


NOTE

Only use haulage equipment with sufficient load capacity.

- *The load weight is greater than the net weight of the truck (including battery weight).*
- *The load weight does not just include the net weight of the truck, it also includes the wooden pallet.*
- *The pallet or wooden box should be large and strong enough to withstand the weight of the truck.*

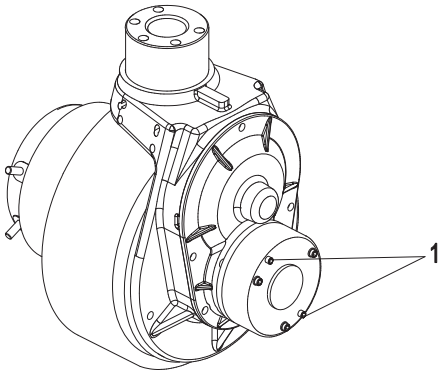
Pay attention to the fork blades when lifting.



The truck onto the pallet, to prevent injuries caused by the fork blades trailing on the ground.
Follow the prescribed steps and park the vehicle correctly.
Make sure the forks are aligned with the pallet, move slowly and stop after insertingthe 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 palletto prevent the truck from tipping.
When transporting the truck, make sure it is fully secured and take precautionary measures against bad weather.



1.2 Operating the truck without its own drive system

This operating mode is not permitted when negotiating
inclines and gradients.
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(see section 1.4.2 Remove the cover -G).
- Screw in two screws(2), M4 *35mm)until the truck can be moved (no braking action).
- After setting down the truck at the destination, unscrew two screws(2).
- Braking action is restored!

1.3 Using the truck for the first time

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.
- Charge the battery.
- Put the truck into operation in the stipulated manner.
  When the truck is parked, the surface of the tyres may flatten. The flattening will disappear after the truck has been operated for a short time.
- Check for fluid leakage.
- Check forks and chassis.
- Check battery connector.
- Check decal condition.
- Check control handle pivot.
- Check operating controls.

1.4 Break-in period precautions

Fasten wheel screws again at 50 hours of operation.
Within the first 100 hours in particular, the following requirements should also be met:

- Excessive discharge of a new battery during initial use must be prevented.It should generally be charged promptly when at 20%.
- The specified preventive maintenance must be done thoroughly.
- Avoid sudden braking, driving quickly or sharp turns.
- Change oil or lubricant promptly according to the instructions.
- Limit the load weight to 70-80% of the rated load.

E Operation

1.1 Safety regulations for the operation of pallet trucks

Driving permission: The fork lift truck must only be operated by persons who have been trained in the operation of trucks, who have demonstrated to the user or his representative their capability of moving and handling loads, and who have expressly been charged by the user or his representative with the operation of the truck.

Rights, duties and conduct of the driver: The driver must be: informed of his rights and duties; trained in the operation of the fork lift truck; and familiar with the contents of these operation manual. All necessary rights must be granted to him. If the fork lift truck can be used in the pedestrian-controlled mode, the driver must wear safety boots when operating the truck.

Prohibition of unauthorized use: The driver is responsible for the fork lift truck during working time. He must forbid unauthorized persons to drive or operate the fork lift truck. The transport or lifting of persons is forbidden.

Repairs: Without specific training and express authorization, the driver is not allowed to perform any repairs or modifications on the fork lift truck. Under no circumstances must the driver change the setting of switches or safety installations or render them ineffective.

Danger area: A “danger area” is considered to be the area within which persons are endangered by the travelling or lifting movements of the fork lift truck or its load lifting devices (e.g. fork or attachments), or by the loads being transported. This also includes the area within reach of falling loads or falling / lowering truck attachments.

Unauthorized persons must be asked to leave the danger area. The driver must give a warning signal whenever a situation presenting danger to persons might develop. The fork lift truck must immediately be brought to a standstill if persons, although asked, do not leave the danger area.

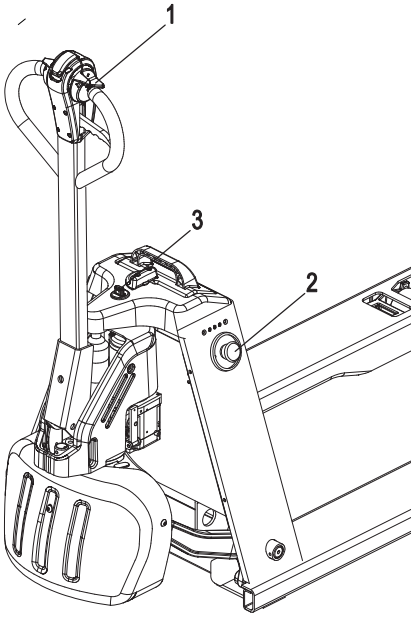
Safety devices and warning labels: The safety devices, warning labels and warning notes described in the present operation manual must always be heeded.

1.2 Operate and run the truck

1.2.1 Turning the truck on and off

Switching the truck on

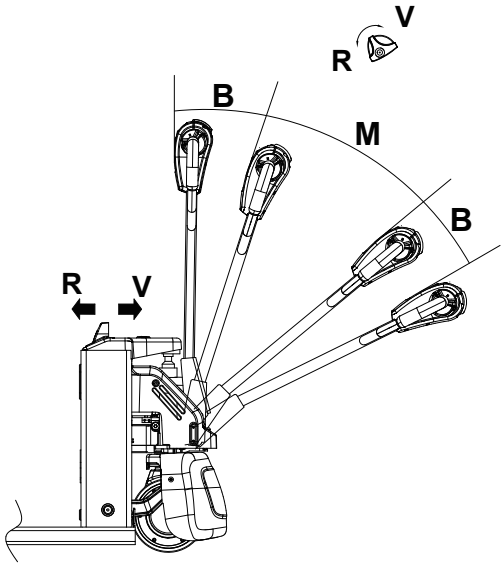
- Insert the key (3) into the key hole and switch on the power supply;
- Make sure the emergency stop button (2) is not pressed;
- Tilt the control handle to the drive positio M;
- Rotate the drive switch (1) to drive the truck forward or backward.



The truck is equipped with a static-return-to-neutral function. If the control handle is held in its working range (M) when the truck is turned on, the travel function will not operate. The control handle must then be returned to either end position and then moved back into its working range to enable travel.

Switching the truck off

To turn the truck off, remove the key from its slot.
Press the emergency stop switch.



1.2.2 Driving, steering, braking

Driving

Operators must be familiar with all safety procedures that apply to truck operation before driving.
Read and understand all safety information in Section C before operating the truck.

Tilt the control shaft into the driving range (M) and set the controller to the desired direction (V or R).

Steering

Steering the truck is done using the control handle. Manually moving it to the left or right will swivel the drive wheel. The truck then turns in forward or reverse according to the handle direction.

Emergency stop

Push the emergency stop switch. All of the electrical functions are switched off.

Braking

The braking behaviour of the truck strongly depends on the state of the floor. This must be taken into account by the driver for his driving behaviour.
The truck can be braked in three ways:

- by using the generator brake (controller)
- by counter-current braking (controller)
- by using the service brake (control shaft)

Braking using the generator brake:

- Release the drive switch.

Counter-current braking:

- While driving, switch the controller to the opposite direction.
- The truck is decelerated by counter-current braking until it starts moving in the opposite direction. In case of emergency, the service brake must be used to brake the truck.

Braking using the service brake:

- Tilt the control shaft upwards or downwards into one of the braking ranges (B).

WARNING

If the control handle moves slowly or not at all to the upper brake zone, the truck must be taken out of service until the cause of this fault is be rectified.
Replace the gas pressure spring if necessary.

WARNING

In hazardous situations set the control handle to the brake position or set the travel switch to the opposite direction.

WARNING

If the travel switch moves slowly or not at all to 0, the truck must be taken out of service until the cause of this fault is be rectified.

WARNING

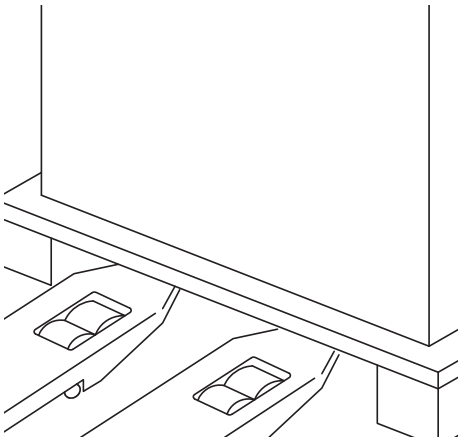
When driving on a hill or uneven roads, please lift fork to stop the bottom of fork and the ground being rubbed.

1.2.3Loading

CAUTION

Before lifting a load, ensure that its weight does not exceed the truck's maximum load capacity.
Refer to the rated load capacity specified on the truck's nameplate.

Ensure that the load is stable and uniform to prevent any partial spillage.
Check that the width of the load is compatible with the width of the forks.



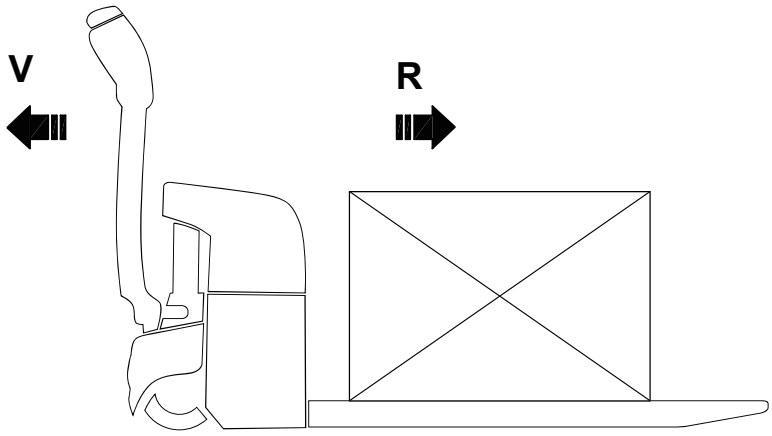
Take care not to disturb any adjacent loads, or those which may be to the side or in front of the load being handled. Loads should be laid out as follows:
Line up loads with a small space between each one and its neighbour to avoid any fouling.

CAUTION

Only transport loads that have been positioned and secured in accordance with regulations. Take appropriate protective measures if the load is at risk of tipping over or falling during transport.

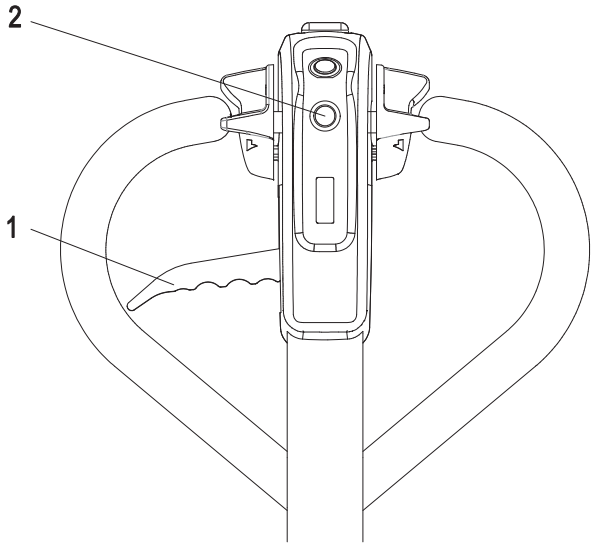
Approach the load carefully.
Adjust the height of the forks until they can be easily inserted into the pallet. Insert the forks under the load. If the load is shorter than the forks, position the forks so that the front of the load overhangs them by a few centimeters, to avoid interference with the load immediately ahead. Raise the load a few centimeters above
its support. Back 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.

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. Reverse travel (V) is to be used solely for unloading. 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. Back the truck away in a straight line. Raise the forks to mid-height.



CAUTION

Take care not to disturb any adjacent loads, or those which may be to the side or in front of the load being handled.

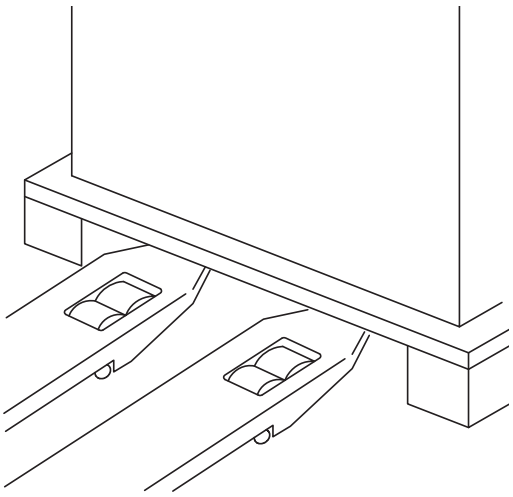
1.3 Raising and lowering the forks

Lifting

Press “Lift” button(2) until the height you need.

Lowering

Set fork to the lowest position by pulling lowering lever (1) upward.



WARNING

Before lifting a load unit the driver must make sure
that it has been correctly stowed and does not exceed
the truck’s capacity.
Make sure long loads are stable supported by the forks.

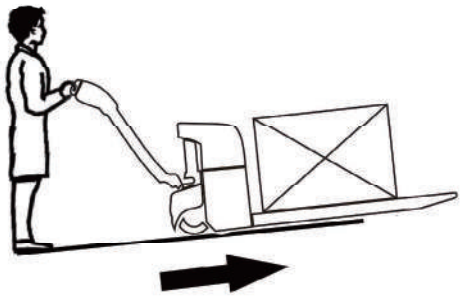
1.4 Parking the truck securely

- Lowering the forks.
- Press emergency stop switch.
- Remove the key.
- It is forbidden to park on the slope for a long time.

1.5 Using the truck on a slope

NOTE

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



Be particularly careful near slopes:

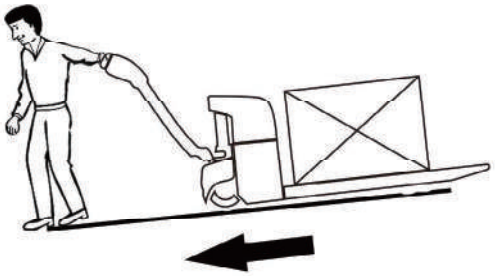
- Never attempt a slope with a gradient greater than that specified in the truck's data sheet.
- Make sure that the ground is dry with non-slip surface and that the route is clear.

Ascending slopes

Always ascend slopes travelling in the reverse direction, with the load facing uphill.

Without a load, it is recommend 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.

1.5.1 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.

1.6 Hoisting the truck

This section explains the attachment of lifting equipment to the truck for the purpose of hoisting. Many methods of rigging to a crane or hoist are possible. Explanation of such methods as well as operation of lifting equipment is outside the scope of this manual. Both the attachment of lifting equipment to the truck and the hoisting operation itself must be performed by personnel experienced in hoisting.

WARNING

Lifting equipment of insufficient capacity can fail and cause severe injury or death.

Ensure that all lifting slings, hardware, or other equipment has sufficient capacity to carry the weight of the truck. Refer to the truck data plate for truck weight. If a battery is installed, its weight must be added to the truck weight listed on the data plate. Switch the truck off and press the emergency stop button. Attach lifting equipment to the holes in each side of the chassis. Attach lifting equipment to the fork tips to keep the truck approximately horizontal as it is lifted.

1.7 Operator daily checklist

At the beginning of each shift, inspect your truck by using the EP operator's daily checklist. If necessary, refer to the Maintenance section of this manual for details on how to carry out this inspection. Check for damage and maintenance problems. Any necessary repairs must be completed before the truck is operated. In addition to daily inspection, scheduled maintenance is vital to safe operation of the truck. Adhere to the inspection, lubrication and maintenance schedule given in the Maintenance section of this manual.

Check for fluid leakage

Check the entire truck as well as the surface beneath it for signs of fluid leakage.

Check forks and chassis

Inspect the forks, chassis, and if equipped, the load back rest for deformity, cracks, or other damage.

Check battery connector

Disconnect and reconnect the battery to confirm smooth operation. Inspect the battery connector and its cables for damage.

Check decal condition

Inspect all decals and the data/capacity plate for condition and legibility. Decal locations are given in the overview section of this manual. Any damaged or unreadable decals must be replaced.

Check control handle pivot

Check the pivot point where the control handle attaches to the chassis for smooth operation by moving the handle through its entire range.

Check operating controls

Returnspring

Pull the control handle down into its operating range and release it. It should return to the vertical position under spring tension.

Brake interlock - handle

Operate the truck in forward or reverse. Move the control handle all the way up or down out of the operating range without releasing the travel control. The drive system should switch off and the brake should engage after a delay.

Brake interlock - travel control

Operate the truck in forward or reverse. Release the travel control without moving the control handle out of its operating range. The truck should slow to a stop using electric braking.

Emergency reverse button

Operate the truck forwards and press the emergency reverse button. The truck should stop and then move in the opposite direction until the button is released.

Perform operational check

Before returning the truck to service, perform an operational check of the following items:

- Electro-magnetic brake (audible sound during engage/release)
- Multi-function display/battery discharge indicator
- Horn
- Forward and reverse travel
- Electric braking (plugging)
- Fork lift and lower function (operate through complete range of motion)
- Working lights (if equipped)

Operator's Daily Checklist

Date _____ Operator_____

Truck No. _____ No._____

Department _____

Runtime
Meter Reading _____

Daily Check Items		O.K.(√)		Remark	
Check for fluid leakage					
Check forks and chassis					
Check battery capacity					
Check decal condition					
Check control handle pivot					
Check operating controls					
Check the load wheels					
Check the drive wheels					
Check electro-magnetic brake function					
Check horn function					
Check Forward and reverse travel function					
Check lift and lower function					

F Battery Maintenance & Charging

1.1 Safety regulations for handling acid batteries

The truck must be parked and rendered safe before any operations on batteries are under taken.Operational application
temperature

Fire protection measures: Smoking and naked flames are not permitted when handling batteries. No inflammable substances or spark-generating materials must be present or stored within a distance of 2 meters of the truck parked for battery recharging. The location must be well ventilated and fire fighting equipment must be kept ready.

DANGER

- *Battery has high voltage and energy.*
- *Do not short circuit.*
- *Do not place any metal objects on the battery.*
- *Do not put tools on the battery.*

1.2 Battery type & dimension

All the batteries are maintenance free.

Battery type & dimension as follow:

Tuck type	Voltage/ Rated capacity(V/AH)	Dimension (mm)	Charger(A)	Charging time(h)
			Internal	
EPL1531	24/20	200*100*300	10A	2

1.3 Charging the battery

Safety regulations for charging the battery

- Before charging, check all cables and plug connections for visible signs of damage.
- Before start and finish charging make sure power is turn OFF.
- It is essential to follow the safety regulations of the battery and charging station manufacturers.

The charging environment temperature should be 5°C to 40°C.

NOTE

The truck can be operated at -20°C for a short period after it work above 5°C for a while.

WARNING

1.Battery life will be shortened if the battery is used for a long time at low temperature or stored.
2.No charging below 0°C.

NOTE

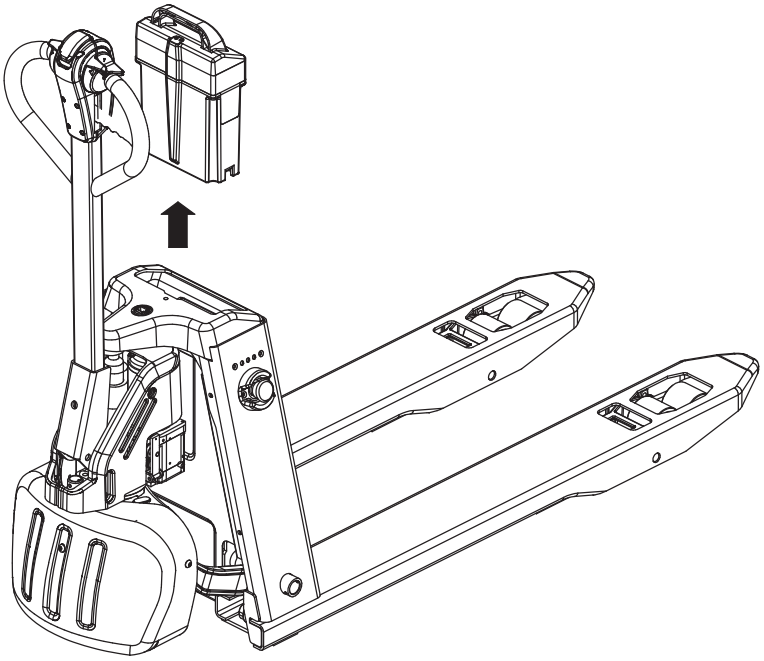
A fully charged battery will provide approximately 2 hours of continuous use. Capacity will be reduced when used in low-temperature environments.

1.4 Battery removal and installation

Park the truck securely(See Parking the truck securely) and turn off the power before removal and installation of the battery.

Battery removal and installation steps:

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



WARNING

Well place cables to avoid be damaged when you remove and install battery.

Installation is in the reverse order, pay attention on battery install position and cable connection. Make sure to protect the cables to avoid damage when you install the battery.

1.5 Daily maintenance

- When it is displayed in the display instrument that the electric quantity is insufficient, please charge timely without any excessive discharging. Please refer to 2.2.3 display instrument for details.
- Maintain clean the surface of the battery.

1.6 Storage

If batteries are taken out of service for a lengthy period they should be stored in the fully charged condition in a dry, frost-free room.

If the battery is not used for an extended period, it must receive a supplementary charge every two months to prevent permanent damage to the battery.

- We recommend that batteries are stored at a heightbetween 60 and 120 cm.
- Store the battery in a dry place at a temperaturebetween 0 and 40° to preserve its service life. This area must not be hermetically sealed to allow air renewal.
- In case of long-term storage of the storage battery, the supplementary charging should be conducted for the battery once every two months, and charging quantity should be proper but not full, namely maintaining the discharging depth at about 80%.

1.7 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.

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 a lithium-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.
  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.

NOTE

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

G Pallet Truck Maintenance

1.1 Operational safety and environmental protection

- The servicing and inspection operations contained in this chapter must be performed in accordance with the intervals indicated in the service checklists.
- Only use original spare parts that have been certified by our quality assurance.
  Used parts, oils and fuels must be disposed of in accordance with the applicable environmental protection regulations. For oil changes, the oil service of the manufacturer is available to you.
  Upon completion of inspection and servicing, carry out the activities listed in the
- "Recommissioning "section.

1.2 Maintenance safety regulations

Servicing and maintenance personnel:

Only qualified personnel authorized by the owner are permitted to perform maintenance or repair work. All items listed in the Scheduled Maintenance Charts must be performed by qualified truck technicians only. They must have knowledge and experience sufficient to assess the condition of a truck truck and the effectiveness of the protective equipment according to established principles for testing truck trucks. Any evaluation of safety must be unaffected by operational and economic conditions and must be conducted solely from a safety standpoint

Daily inspection procedures and simple maintenance checks, e.g. checking the hydraulic oil level or checking the fluid level in the battery, may be performed by operators. This does not require training as described above.

Lifting and jacking up:

When a fork truck is to be lifted, the lifting gear must only be secured to the points specially provided for this purpose. When the truck is to be jacked up, suitable measures must be taken to prevent the truck from slipping or tipping over (use of wedges, wooden blocks). Work underneath the raised load lifting device must only be carried out when the fork is immobilised and supported by a chain of adequate strength.

Cleaning operations:

No inflammable liquids must be used when cleaning the fork truck. Prior to commencing cleaning operations, all safety measures that are required to prevent sparking (e.g. by short circuits) have to be taken. For battery operated trucks, the battery plug must be removed. Only weak pressure, weak compressed air and non-conducting, antistatic brushes must be used for the cleaning of electric or electronic assemblies.

Work on the electric system:

Work on the electric system of the truck must only be performed by personnel specially trained for such operations. Before commencing any work on the electric system, all measures required to prevent electric shocks have to be taken. For battery-operated trucks, the truck must also be powered down by removing the battery plug.

Settings

When repairing or replacing hydraulic, electric or electronic components or assemblies, always note the truck specific settings.

1.3 Servicing and inspection

Thorough and expert servicing is one of the most important requirements for the safe operation of the industrial truck. Failure to perform regular servicing can lead to truck failure and poses a potential hazard to personnel and equipment.

The service intervals stated are based on single shift operation under normal operating conditions. They must be reduced accordingly if the truck is to be used in conditions of extreme dust, temperature fluctuations or multiple shifts.

The following maintenance checklist states the tasks and intervals after which they should be carried out. Maintenance intervals are defined as:

W = Every 50 service hours, at least weekly

A = Every 250 operating hours

B = Every 500 operating hours, or at least annually

C = Every 2000 operating hours, or at least annually

W service can be performed by the customer.

In the run-in period - after approx. 100 service hours - or after repair work, the owner must check the wheel nuts/bolts and re-tighten if necessary.

1.3.1Maintenance checklist

		Maintenance interval●			
		W	A	B	C
Brake	Check brake plate clearance			●	
Electrics	Test instruments, displays and control switches.	●			
	Test warning and safety device.		●		
	Make sure wire connections are secure and check for damage.			●	
	Test micro switch setting.	●			
	Check relays.			●	
	Fix the motor and cable			●	
Power supply	Visually inspect battery		●		
	Check battery cable connections are secure, grease terminals if necessary.			●	
Travel	Check the transmission for noise and leakage.			●	
	Check travel mechanism, adjust and lubricate if necessary. Check control handle lifts back to braking position.		●		
	Check wheels for wear and damage.			●	
	Check wheel bearings and attachments.			●	
Truck frame	Check truck frame for damage.			●	
Hydraulic operation	Test hydraulic system.		●		
	Check that hose and pipe lines and their connections are secure, check for leaks and damage.		●		
	Check cylinders and piston rods for damage and leaks, and make sure they are secure.			●	
	Check hydraulic oil level.			●	
	Replace hydraulic oil.			●	
	Check and clean hydraulic oil filter. Replace it if necessary.			●	

1.3.2 Lubrication Points

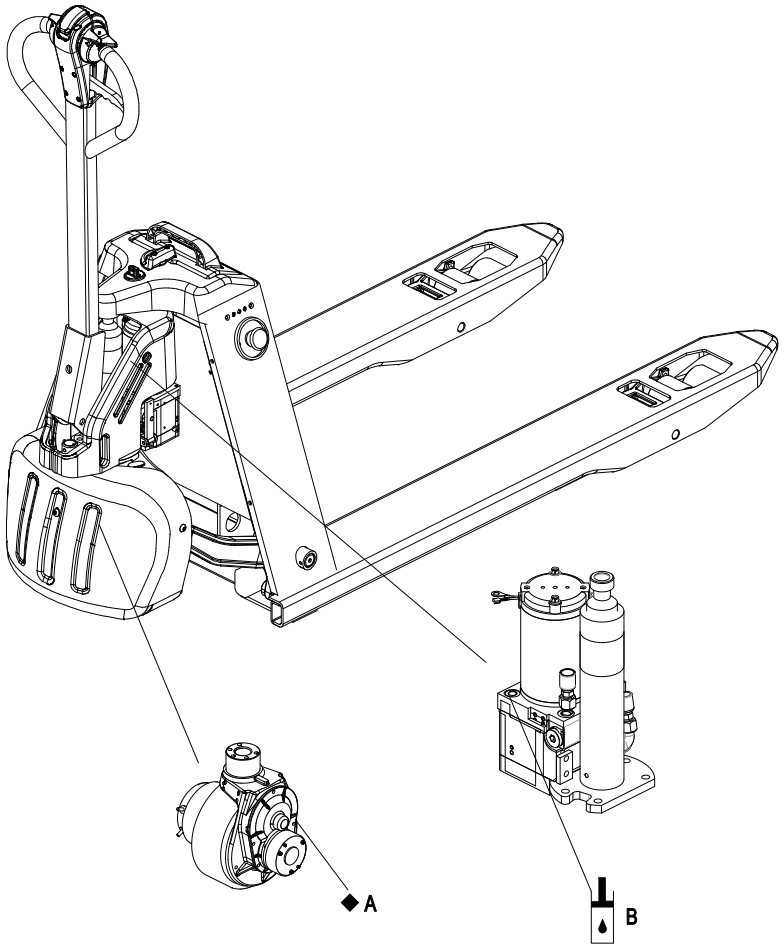
Lubricant

Improper operations may constitute hazards to the operator's health and life, as well as to the surrounding environment.

When storing or adding lubricant, use clean containers. It is strictly forbidden to mix different types and specifications of lubricants with each other (except for those can be mixed under clear statement).

CAUTION

The use and disposal of lubricants must be carried out in strict accordance with the manufacturer's regulations.



▼ Sliding surface

Hydraulic oil injection nozzle

◆ Grease

Table 1 Lubricants				
Code	**Type**	**Specification**	**Amount**	**Position**
A	Anti-wear hydraulic oil	L-HM32	180-200mL	Hydraulic System
B	Multi-purpose grease	Polylub GA352P	Appropriate amount	Sliding surface (See Table 1)
C	Grease (MoS_2)	-	100 grams	Gearbox

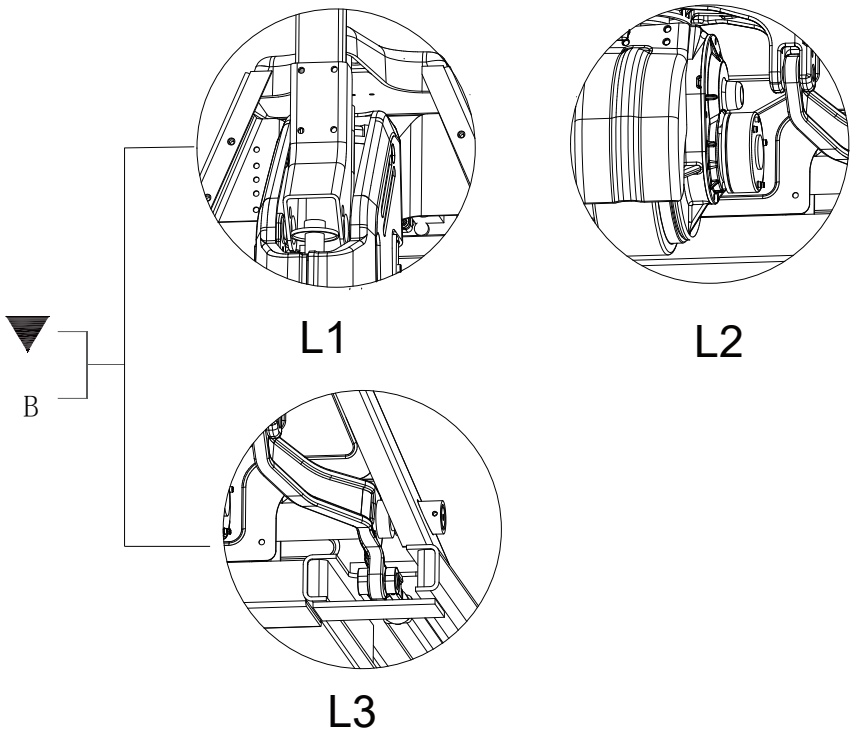


Table 1 Sliding Surface Lubrication Table	
Code	**Position**
L1	Steering shaft
L2	Drive Wheel
L3	Long Shaft

1.4 Maintenance Instructions

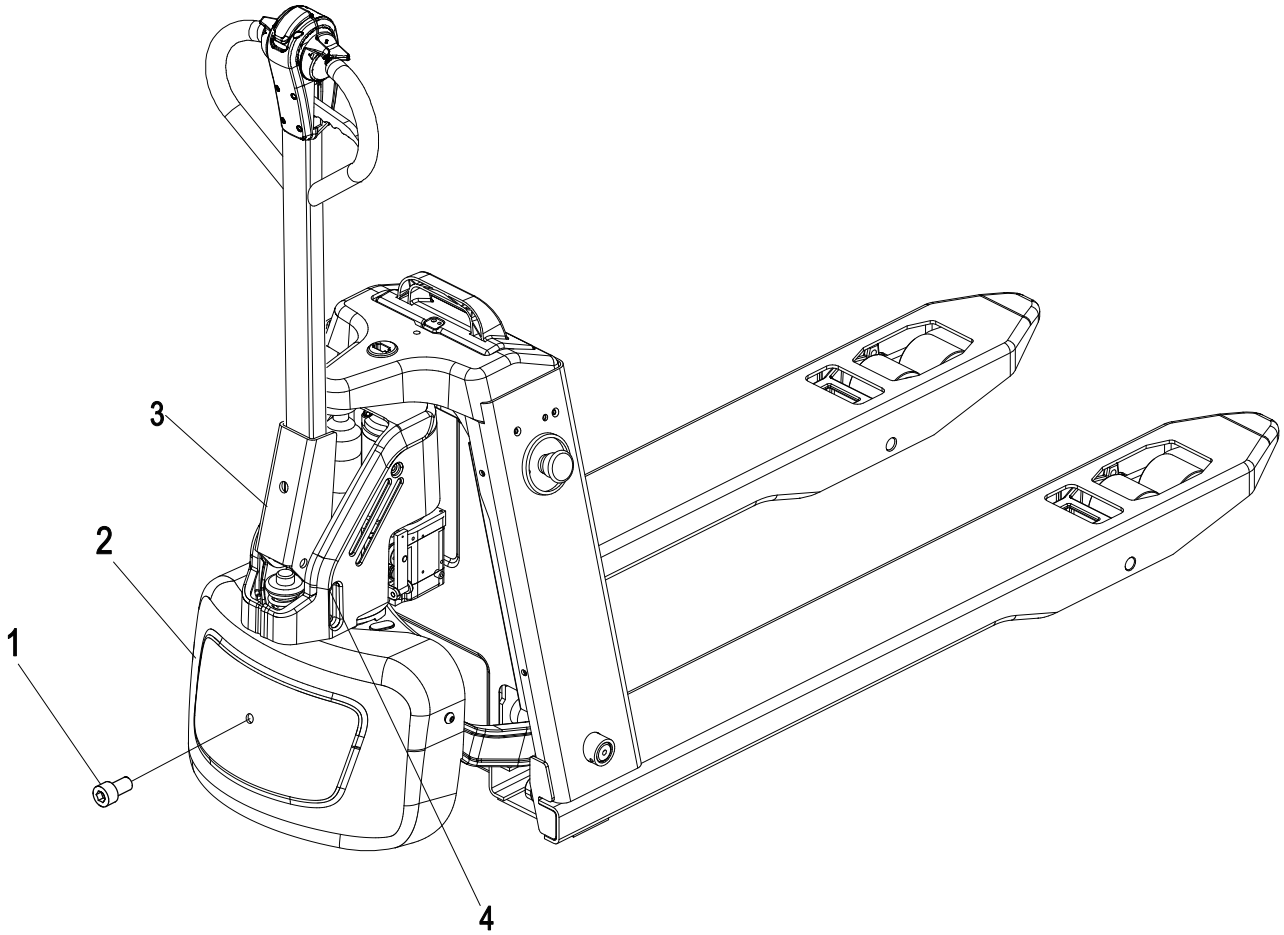
1.4.1 Prepare the truck for maintenance and repairs

All necessary safety measures must be taken to avoid accidents when carrying out maintenance and repairs. The following preparations must be made:

- Park the truck securely (See Parking the truck securely). Remove the key to prevent the truck from accidentally starting.
- When working under a raised lift truck, secure it to prevent it from tipping or sliding away.

1.4.2 Remove the cover

- Unscrew the screw (1), remove driving cover(2).
- Rotate the handle 90 degrees, unscrew the four screws (4), remove the hydraulic cover (3) through the spaces.



1.4.3 How to add oil

It is necessary to add hydraulic oil when you heard explosion sound from pipe during lifting.

- Prepare the truck for maintenance and repairs (See Maintenance Instructions).
- Remove the hydraulic cover.(See
- Section1.4.2).
- Add hydraulic oil of the correct grade (See Lubrication point).
- Add hydraulic oil till you can't hear explosion sound during lifting any more.

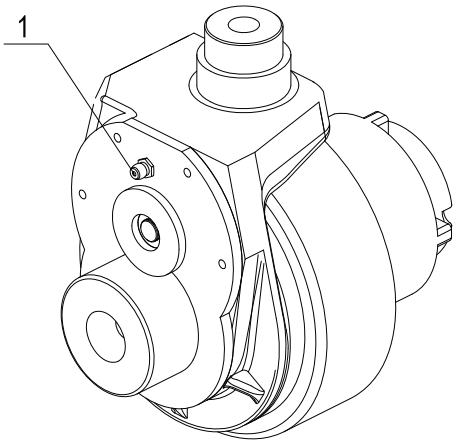
Re-installation in the reverse order.

1.4.4 How to add grease

Prepare the truck for maintenance and repairs (See Maintenance Instructions).
Remove the front panel.

- Add grease of the correct grade (See Lubrication point).
- Add transmission oil every 500 operating hours, or at least annually.

- Re-installation in the reverse order.



WARNING

It is forbidden to add hydraulic oil with impurity.

1.4.5 Checking the fuses

- Fully lower the forks.
- Press the emergency stop switch.
- Remove the electrical cover(See section battery removal and installation)
- Fuse 5A installed on main harness. If necessary, replace it with fuse that match the parameters specified in the table below

Item	To protect:	Rating
1	Wire harness	5A

1.4.6 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.

1.5 Decommissioning the industrial truck

If the truck is to be decommissioned for a long period, it must be parked in a frost-free and dry location.

On decommissioning the truck must be jacked up so that all the wheels are clear of the ground. This is the only way of ensuring that the wheels and wheel bearings are not damaged.

If the truck is to be out of service for more than 6 months, further measures must be taken in consultation with the manufacturer's service department.

1.5.1 Prior to decommissioning

- Clean the truck thoroughly.
- Check the brakes
- Check the hydraulic oil level and top up if required.
- Apply a thin layer of lubricating oil or grease to all nonpainted mechanical components.
- Lubricate the truck in accordance with the lubrication schedule.
- Remove the battery and recharge it at least once per month.
- Clean the battery and apply specialised grease to the terminals.
- Spay all exposed electrical contacts with a suitable contact spray.

WARNING

Charge the battery every two months to avoid depletion of the battery through self-discharger.

1.5.2 Restoring the truck to operation after decommissioning

- Thoroughly clean the fork 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 required.
- Follow the daily checklist.

If there are switching problems in the electrical system, apply contact spray to the exposed contacts and remove any oxide layers on the contacts of the operating controls by applying contact spray repeatedly.

Perform several brake tests immediately after recommissioning the truck.

1.6 Safety checks to be performed at regular intervals and following any unusual incidents

Carry out a safety check in accordance with national regulations. EP has a special safety department with trained personnel to carry out such checks.
The truck must be inspected at least annually (refer to national regulations) or after any unusual event by a qualified inspector. The inspector shall assess the condition of the truck from purely a safety viewpoint, without regard to operational or economic circumstances. The inspector shall be sufficiently instructed and experienced to be able to assess the condition of the truck and the effectiveness of the safety mechanisms based on the technical regulations and principles governing the inspection of truck trucks.
A thorough test of the truck must be undertaken with regard to its technical condition from a safety aspect. The truck must also be examined for damage caused by possible improper use.
A test report shall be provided. The test results must be kept for at least the next 2 inspections.
The owner is responsible for ensuring that faults are immediately rectified.

A test plate is attached to the truck as proof that it has passed the safety inspection.This plate indicates the due date for the next inspection.

1.7 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.

NOTE

Any repairs or maintenance to the truck must be performed only by trained and authorized technicians.

1.8 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.

H Troubleshooting

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

Fault	Probable Cause	Action
Truck does not start.	–Battery connector not plugged in –Key switch not insert –Incorrect CanCode code –Battery charge too low –Faulty fuse –Truck in charge mode	–Check the battery connector and connect if necessary. –Set key switch to “I” –Check code –Check battery charge, charge battery if necessary –Check fuses. –Interrupt charging
Load cannot be lifted	–Charging capacity below 20 / 40% –Truck not operational –Hydraulic oil level too low –Faulty fuse	–Charging the battery –Carry out all measures listed under “Truck does not start” –Check the hydraulic oil level –Check fuses.

Controller Error Message

The error message can be obtained in two ways:

1) By reading the appropriate display on the hand held unit ;
2) By observing the fault codes issued by the LED(1) fault indicator.

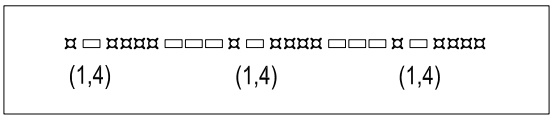
Handheld Unit Diagnostics

The fault information is shown in the Diagnostics menu of the hand held unit.

LED Fault Indicator Diagnostics

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:



¤ LED Blinks ▭ 1 Second Stop

LED BLINKS digit 1	LED BLINKS digit 2	Error Message Error text	Explanation	Possible cause
1	1	THERMAL FAULT	over-/under-temperature cutback	1. Temperature >80°C or < -10°C. 2. Excessive load on vehicle. 3.Operation in extreme environments. 4.Electromagnetic brake not releasing.
1	2	THROTTLE FAULT	Pot Low and/or Pot Wiper out of range	1.Throttle input wire open or shorted. 2.Throttle pot defective. 3.Wrong throttle type selected.
1	3	SPEED POT FAULT	speed limit pot wiper out of range	1.Speed limit pot wire(s) broken or shorted. 2. Broken speed limit pot.
1	4	UNDER VOLTAGE FAULT	battery voltage too low	1. Battery voltage <17 volts. 2. Bad connection at battery or controller.
1	5	OVER VOLTAGE FAULT	battery voltage too high	1. Battery voltage >31 volts. 2. Vehicle operating with charger attached. 3.Intermittent battery connection.
2	1	MAIN OFF FAULT	main contactor driver Off fault	1.Main contactor driver failed open.
2	3	MAIN FAULT	main contactor fault	1.Main contactor welded or stuck open. 2. Main contactor driver fault.
2	4	MAIN ON FAULT	main contactor driver On fault	1.Main contactor driver failed closed.
3	1	WIRING FAULT	HPD fault present >10 sec.	1.Misadjusted throttle. 2.Broken throttle pot or throttle mechanism.

LED BLINKS digit 1	LED BLINKS digit 2	Error Message Error text	EXPLANATION	Possible cause
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.