Let's grow together

Operation Manual

CPD15L1S/CPD20L1S、CPD25L2

Original Instruction

Part No.508000002681
V1 12/2019

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
Address: XIAQUAN, DIPU, ANJI, ZHEJIANG, CHINA
Tel: + 86-0571-28023920
Website: www.ep-ep.com
Email: service@ep-ep.com

Foreword

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

Our trucks are under 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 mark-ups

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

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 to activate your account

EP EQUIPMENT CO., LTD

Address: XIAQUAN, DIPU, ANJI, ZHEJIANG, CHINA

Tel: + 86-571-28023920

Website: www.ep-ep.com

Email: info@ep-care.com

2019.12 01st EDITION

Legal requirements for marketing

Declaration

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

We declare that the

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. Unauthorized 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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Table of contents

A Introduction

The truck described in the present operator manual is an industrial truck designed for lifting and transporting load units.
It must be used, operated and maintained according to the information in this operation manual. Any other uses are outside the design envelope 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. admissible load to be picked up is indicated on the nameplate or load diagram 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. The truck has been passed CE certification.

Duties of the user

For the purposes of the present operating instructions, the operating company 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 operating company is considered to be the person who is to carry out the specified operational duties in accordance with existing contractual agreements between the owner and operator of the industrial truck.

The operating company must ensure that the truck is used only for its intended purpose and that dangers to the health and safety of the operator and third parties are prevented. Further more, accident prevention regulations, safety regulations and operating, servicing and repair guidelines must be followed. The operating company must ensure that all operator have read and understood these operating instructions.

Mounting of attachments

The mounting or installation of 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.

Check that loads are handled safely before commissioning a truck with attachments. It may be necessary to make adjustments, depending on the type of attachment, e.g. to pressure settings or adjusting stops and operating speeds.

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 modifcation of your truck, in particular fitting of equipment or conversion of the truck, is prohibited without the permission of the manufacturer.

1.1 Intended use

- The industrial truck is used for moving and lifting the loads indicated on the capacity rating plate.
- Damages and other defects to industrial trucks or to attachments must be reported to the supervisor immediately. Industrial trucks and attachments which are not safe to operate may not be used until they have been properly repaired.
- Safety installations and switches may not be removed or rendered unusable. Specified settings may only be changed with the approval of the manufacturer.
- Only the areas approved by the operating company or its representative may be used for transportation purposes. Loads may only be deposited or stored at the intended places.
- Inclines used by industrial trucks shall not exceed the limits specified by the manufacturer and must have an adequately rough surface. Level and smooth transitions at the upper and lower end shall prevent the load from touching the floor or causing damages to the chassis.
- Danger points on driving lanes or routes shall be secured or marked by the customary road traffic signs and by additional warning signs, if necessary.
- Driving routes shall be sufficiently paved, level and free of objects. Drain channels and railways crossings, etc., shall be levelled and, if necessary, covered with ramps in such a way that they can be driven over without bumps as far as possible.
- The EU Directive 89/654/EEC (Minimum Regulations for Health and Safety for the workplace) shall be observed. The respective national regulations apply for non-EU countries.
- When driving on public roads, the corresponding regulations must be observed, as well as country-specific restrictions for winter road conditions.
- The operating company is responsible for adequate fire protection in the vicinity of the industrial truck. Depending on the form of use, it is responsible for additional fire protection on the industrial truck. Enquiries should be directed to the responsible supervisory authority in case of doubt.
- Industrial trucks may only be used to tow trailers if they are intended for this purpose by the manufacturer and if they are fitted with the appropriate trailer coupling. The maximum towed load specified in the operating instructions for unbraked or braked trailers must not be exceeded. The towing industrial truck must be operated in such away that safe driving and braking of the towed vehicle is ensured for all driving movements.

1.2 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. The following list is exemplary and is not intended to be exhaustive.

- 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 bodyoutside the confines of the truck, lean on the edge of the truck or attempt to jump onto another truck or object.
- Do not use open flame to check level, or for leakage of electrolyte and fluids or oil. Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.
- Do not stand on the fork arms when raised.
- Do not increase the truck's load capacity, e.g. by attaching an additional weight.

CAUTION

Taking into account stability and the specified minimum braking distance, do not carry out stacking/destacking operations on a slope.

The climbing degrees in the model parameters table are ascertained from the forklift truck traction, and only apply when going over small obstacles and driving on relatively flat surfaces.

1.3 Forklift truck handover

Before leaving the factory, every forklift truck must be carefully examined so that it is completely up to standard and can be delivered to the user in perfect condition.

In order to guarantee the forklift truck works correctly, EP dealers are obliged to check the following items before the handover:

- Check whether the driving wheel nuts are tightened
- Check the battery status
- Checking the hydraulic oil level
- Check the braking function
- Check the steering function
- Check the traction function
- Check the mast lift and attachments operating function
- To avoid the inconvenience of making a claim after use, check the forklift truck is in perfect condition and repair, and confirm your satisfaction with the vehicle on the manufacturer's product qualification certificate upon handover.

B Truck Description

1.1 Application

The industrial truck described in the present operating instructions is designed for lifting, lowering and transporting load units. It is an lithium battery-powered truck. With maximum economic efficiency, safety and driving comfort. It is waterproof and can be used for a long time.

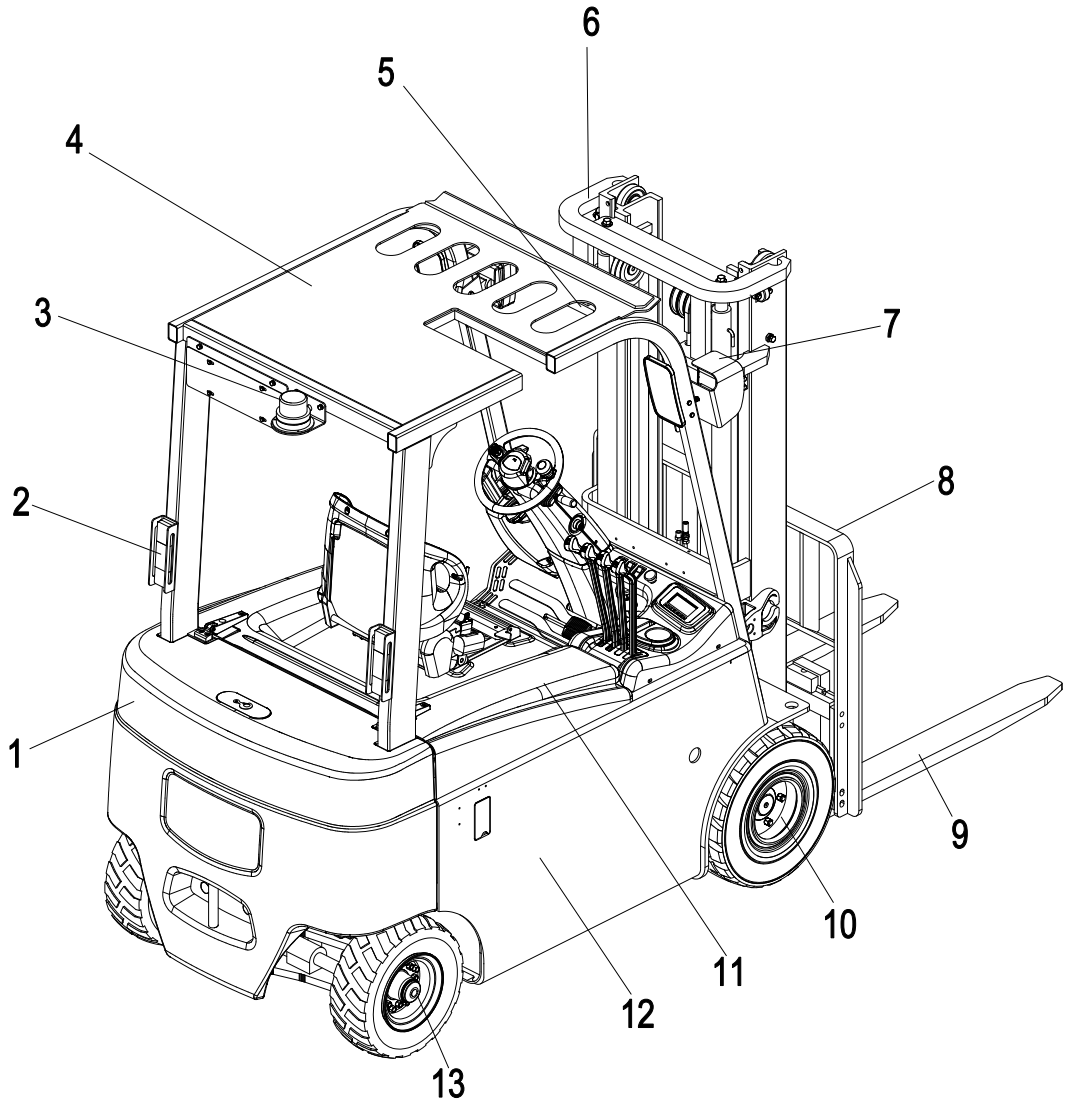
- Customer can choose attachments randomly.
- The capacity can be obtained from the data plate.
- The capacity with respect to lift height and load center of gravity is indicated on the capacity plate.
- We adhered to all CE safety requirements.
- We carried out all compliance tests required by law.
- This is proven by the CE stamp shown on the data plate.

WARNING

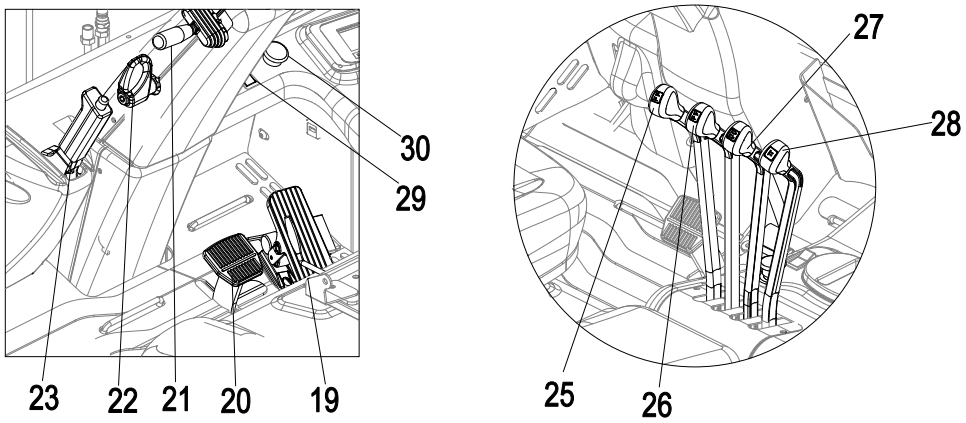
Operating the truck under extreme conditions can result in malfunctions and accidents. Special equipment and authorization are required if the truck is to be used in extreme conditions, especially in dust-laden or corrosive environments. Operation in explosive atmospheres is not permitted.

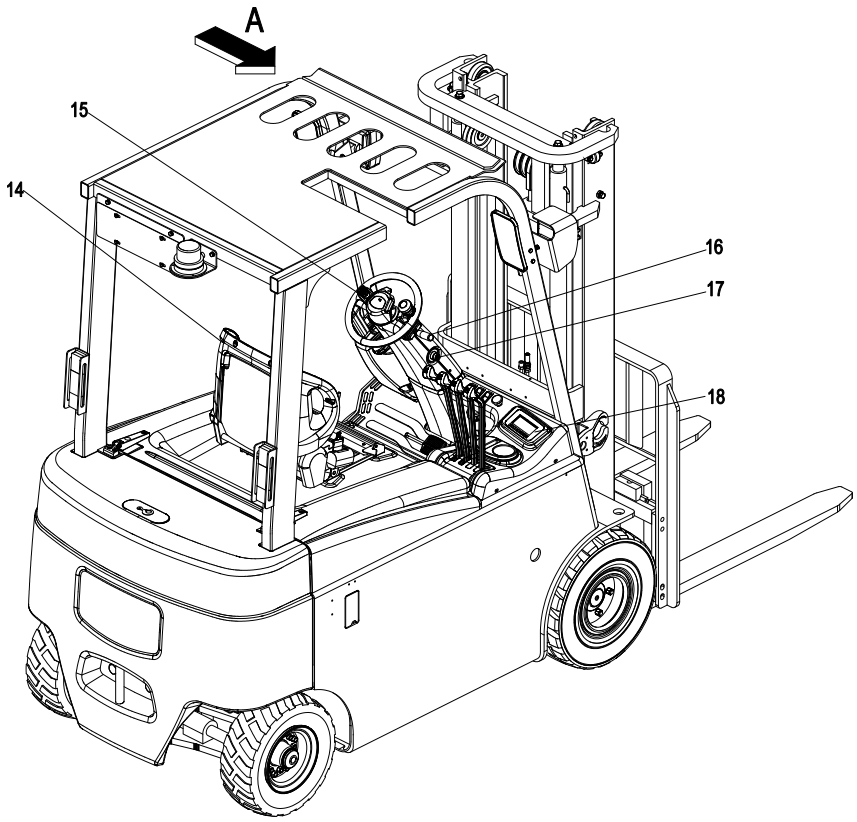
- Indoor and outdoor use.
- The truck's max operation altitude is up to 2000m.
- Permissible temperature range -10℃ to +40 ℃.
- Operation in partially public traffic.
- Do not negotiate inclines crosswise or at an angle. Transporting loads downhill.
- Negotiating inclines up to a maximum of 15 %.

1.2 Truck Assemblies



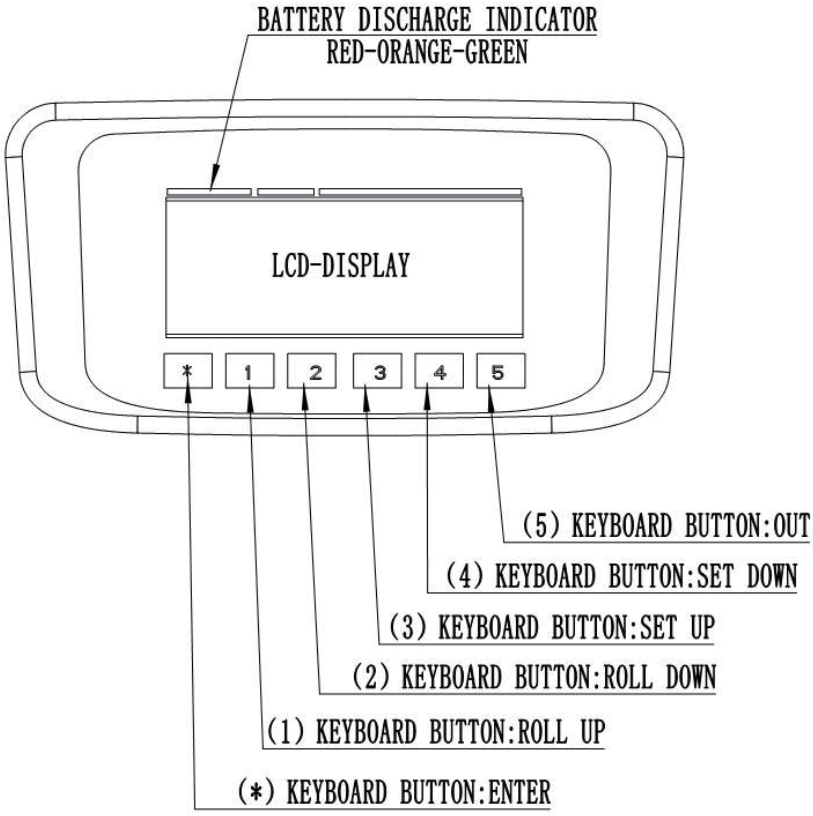
1	Counterweight	8	Load backrest
2	Rear combination lights	9	Fork
3	Caution light	10	Front wheel
4	Overhead head guard	11	Battery cover
5	Rearview mirror	12	Chassis
6	Mast	13	Rear wheel
7	Headlight		

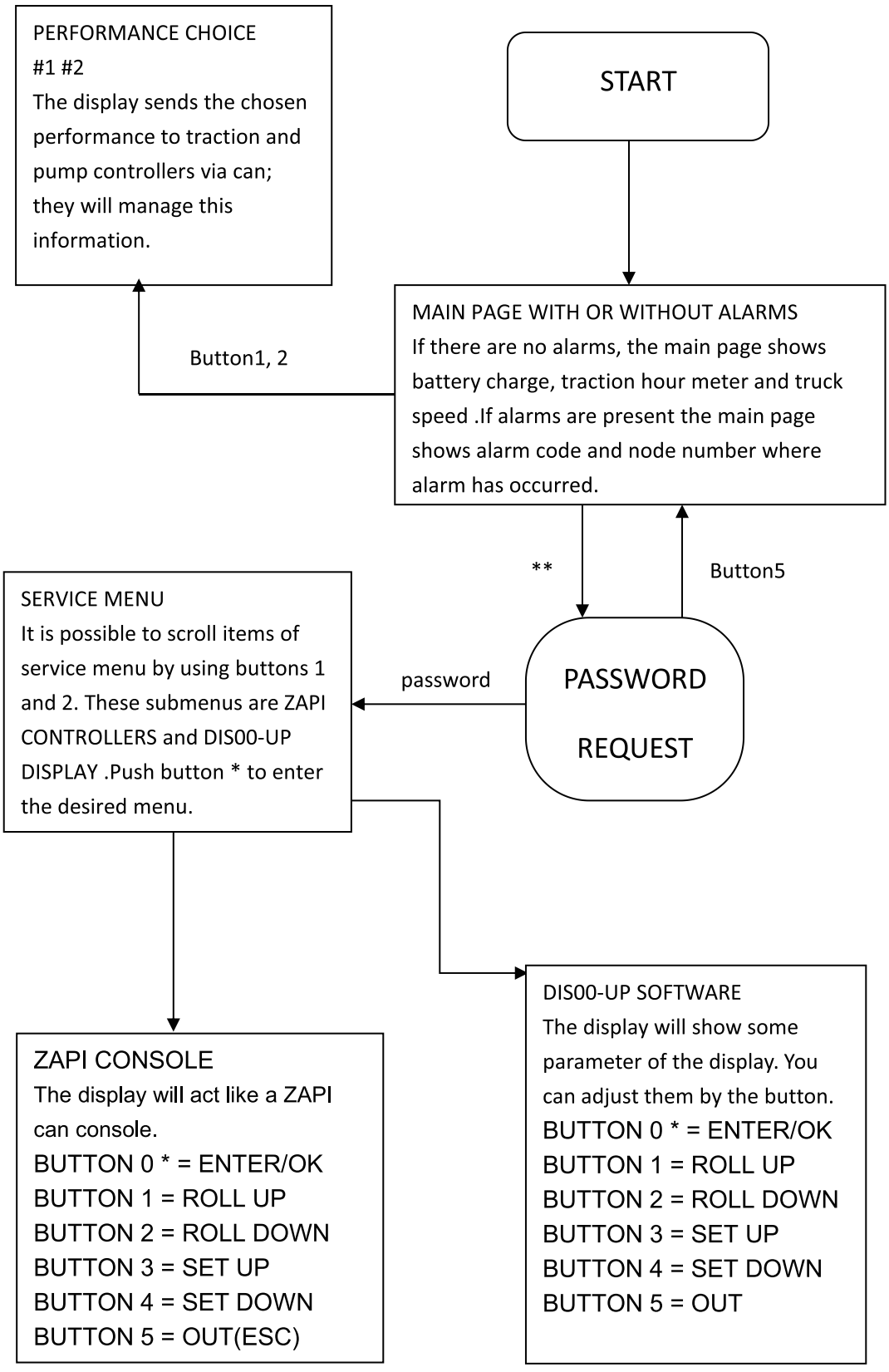




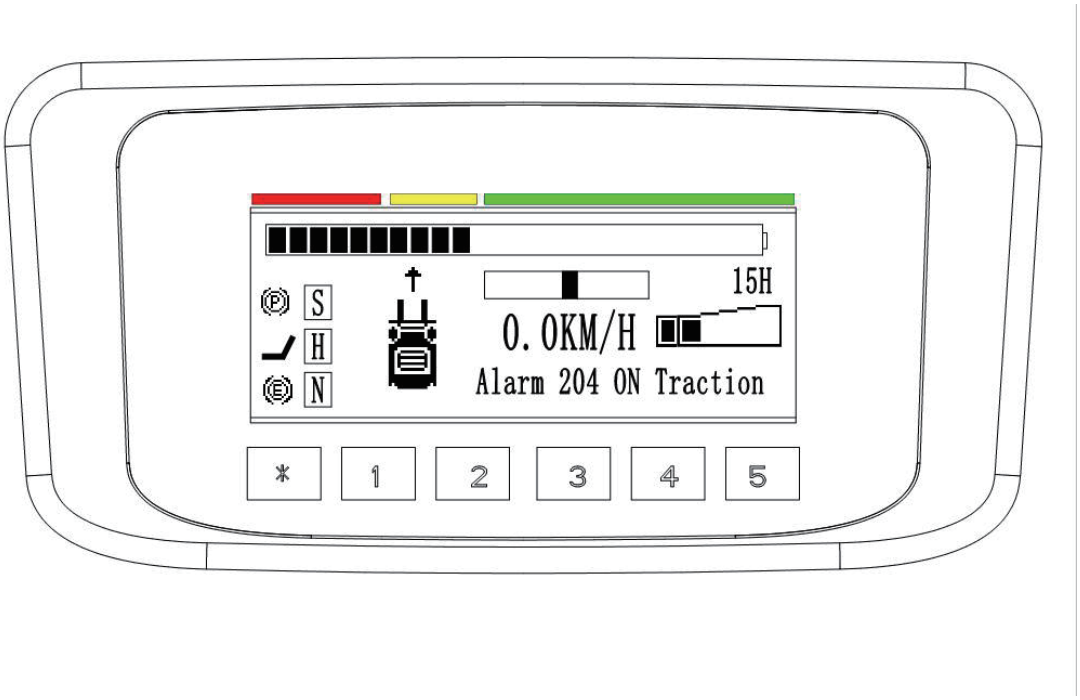
14	Seat	23	Hand brake lever
15	Steering wheel	24	Attachment lever
16	Combined lamp switch	25	Lifting lever
17	Key switch	26	Tilting lever
18	Display	27	Side lever
19	Accelerator pedal	28	Attachment lever
20	Brake pedal	29	Caution light switch
21	Travel combination switch	30	Emergency stop switch
22	Steering column tilting angle adjuster		


*
1
2
3
4
5


BATTERY DISCHARGE INDICATOR
RED-ORANGE-GREEN
LCD-DISPLAY
*
1
2
3
4
5
(5) KEYBOARD BUTTON:OUT
(4) KEYBOARD BUTTON:SET DOWN
(3) KEYBOARD BUTTON:SET UP
(2) KEYBOARD BUTTON:ROLL DOWN
(1) KEYBOARD BUTTON:ROLL UP
(*) KEYBOARD BUTTON:ENTER


PERFORMANCE CHOICE
#1 #2
The display sends the chosen performance to traction and pump controllers via can; they will manage this information.
START
MAIN PAGE WITH OR WITHOUT ALARMS
If there are no alarms, the main page shows battery charge, traction hour meter and truck speed .If alarms are present the main page shows alarm code and node number where alarm has occurred.
Button1, 2
**
Button5
SERVICE MENU
It is possible to scroll items of service menu by using buttons 1 and 2. These submenus are ZAPI CONTROLLERS and DIS00-UP DISPLAY .Push button * to enter the desired menu.
password
PASSWORD REQUEST
DIS00-UP SOFTWARE
The display will show some parameter of the display. You can adjust them by the button.
BUTTON 0 * = ENTER/OK
BUTTON 1 = ROLL UP
BUTTON 2 = ROLL DOWN
BUTTON 3 = SET UP
BUTTON 4 = SET DOWN
BUTTON 5 = OUT
ZAPI CONSOLE
The display will act like a ZAPI can console.
BUTTON 0 * = ENTER/OK
BUTTON 1 = ROLL UP
BUTTON 2 = ROLL DOWN
BUTTON 3 = SET UP
BUTTON 4 = SET DOWN
BUTTON 5 = OUT(ESC)

1.2.1 Display



Battery Indicator

DIS00-UP display doesn't calculate the remaining capacity of the battery. It just reads the battery information from the controller and shows the percentage with twenty grids.

If the battery is fully charged and the controller verifies the capacity of battery is 100%, the display will show twenty grids as 100%.

If the battery is not fully charged or used for several times, the controller verifies the percent of the battery capacity. And the display will show the percent by grids. Each grid means 5% of the battery capacity.

When the controller verify the remaining capacity of the battery is nearly empty, the display will show just one grid. And this grid will keep blinking.

STEER ANGLE

Below the battery indicator, there's the information of steer angle .

If the controller can update the steer angle information by can net, the display could show this onbelow the battery indicator. It's showed through a moving grid.
When the grid is in the middle, it means the steer angle is 0 deg, and the truck is moving straight.

When the grid is in the max position of left, it means the steer angle is 90 deg to the left. The truck is turning left with max angle.

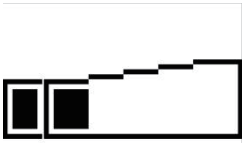
When the grid is in the max position of right, it means the steer angle is 90 deg to the right. The truck is turning right with max angle.

DIS00-UP present a software structure made by menus and submenus. It is possible to have access to DIS00-UP menu structure by the six operator buttons integrated in a membrane keyboard. At turn on the display shows the software release for some
seconds, then asks the starting password to have access to the main page. The main page, if there aren't alarms, shows battery charge, truck speed (in Km/h) and traction hourmeter; if alarms are present it will show alarm code and node number in which alarm has occurred. To enter a password is necessary to push twice the first button (*) of membrane keyboard; this will show a entering password page. By using service password it's possible to enter SERVICE MENU which presents two items: "ZAPI CONTROLLERS" and "DIS00-UP DISPLAY". This menu allow user to use dashboard as a real ZAPI can console connected to one module of can-bus net. It follows flow chart diagram of software structure.

Information of accelerator

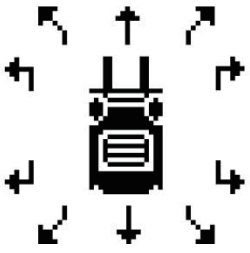
The information of accelerator is consisting of two parts. One is pedal enable signal and another one is speed require signal. The left grid is used for pedal enable signal. When the pedal is released the display will show the information like picture above.

When you push the pedal gently, the display will show the information like picture above. The grid of the left turns black, means the controller receive the enable signal. And the black grid on right area means how much acceleration the pedal required.



When you push the pedal to the max position, the display will show the information like picture above.

The truck icon can provide the information of the driving direction, if the controller can calculate the data of angle.
If the controller can't provide the information of angle, there're just forward arrow and backward arrow. When the forward or backward switch is active, the display will show the forward or backward arrow. If no one is active, there will be no arrow showed.

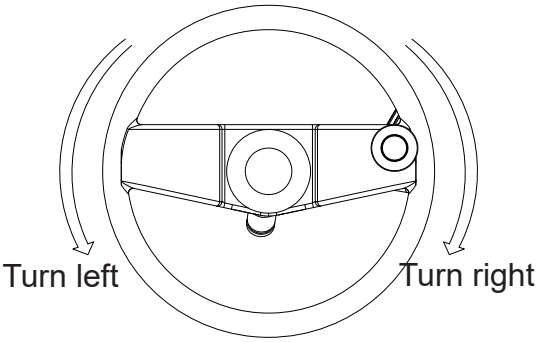


ICON	EXPLANATION
	If this icon is showed on display, the truck is in high speed mode. The mode can be selected by button 1.
	If this icon is showed on display, the truck is in normal speed mode. This mode is the default mode, and can be selected by button 1
	If this icon is showed on display, the truck is in low speed mode. The mode can be selected by button 1.
	If this icon is showed on display, the truck is in high acceleration performance mode. The mode can be selected by button 2.
	If this icon is showed on display, the truck is in normal acceleration performance mode. This mode is the default mode. The mode can be selected by button 2.
	If this icon is showed on display, the truck is in low acceleration performance mode. The mode can be selected by button 2.
	If this icon is showed, it means the handbrake is not released.
	If this icon is showed, it means the seat switch is open.
	If this icon is showed, it means the EABS(Electronic Brake Assistance system) is activate.
	If this icon is showed, it means the direction switch is in normal position.
	If this icon is showed, it means the direction switch is in forward position.
	If this icon is showed, it means the direction switch is in reverse position.
*****H	This shows the total working time, the max value is “65535H”
**.*KM/H	This shows the truck speed, the max value is “99.9KM/H”

1.2.2 Controls

➢ Steering

When the steering wheel is turned right, the forklift will turn to the right; when the steering wheel is turned left, the forklift will turn to the left. The rear end of the forklift swings out when turning.

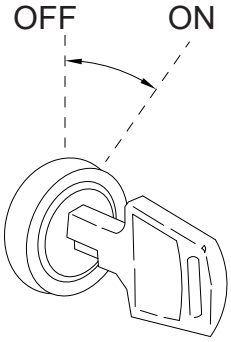


WARNING

This forklift truck adopts a fully hydraulic steering system. Therefore, steering will be impaired when the oil pump motor stops running. Immediately restart the oil pump motor before turning again.

➢ Key switch

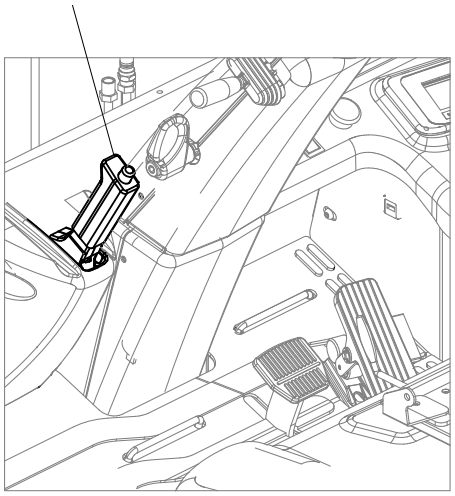
The key switch has two positions: ON and OFF.
Truck power supply is cut off when the key turn is turned to"OFF".
Truck power supply is turned on when the key is turned to "ON".
If you start of the truck to drive. First set the combination switch to the neutral position, then take your foot off the accelerator pedal. Turn the key clockwise to the ON position.
Remove the key to prevent the truck from being switched on by unauthorised personnel.



WARNING

If the combination switch is not in neutral or the accelerator pedal is depressed, the forklift will not start when the key switch is turned to ON. At this point a fault code will be displayed, which is perfectly normal. Return the combination switch to the neutral position and take your foot off the accelerator pedal before attempting to start the forklift. The fault code will then disappear.

Hand brake lever

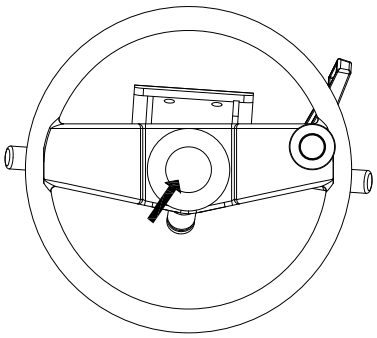


➢ Hand brake lever

When braking, pulling on the brake lever generates a braking force on the front wheels. To release the brake, Press the button ,move the lever forwards at the same time.

WARNING

If parking on the slope is unavoidable, block the wheels with solid wedge.



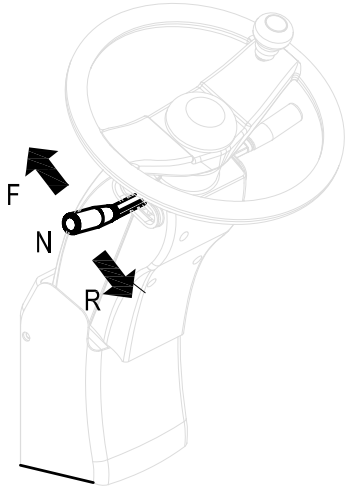
➢ Horn button

Press the horn button in the middle of steering wheel, the horn sounds.

➢ Travel Combination Switch

For switching travel direction of truck: Forward (F) , Reverse (R) and Neutral (N).

The travel combination switch is used to switch between forward and reverse directions of travel. When the combination switch is pushed forward and the accelerator pedal is depressed, the forklift truck will travel forward. When the travel combination switch is pulled back, the forklift will travel in reverse.

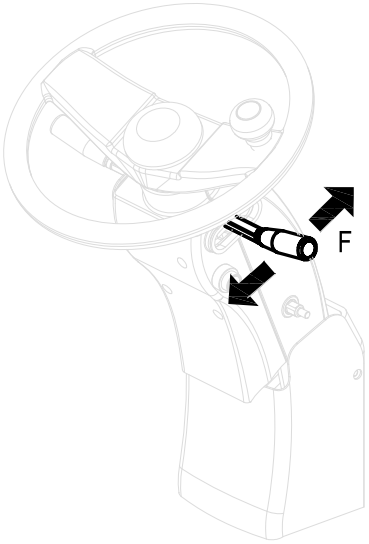


➢ Combination light switch

The combination light switch includes turn signal indicator and light switch.

Turn signal: Push or pull this switch, the corresponding signal light flashes.

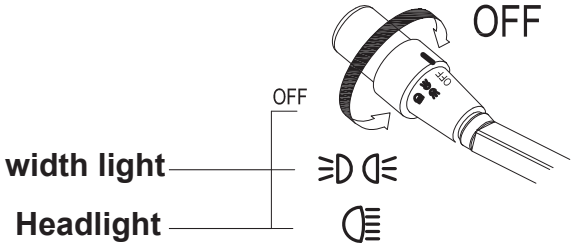
Push Forward	⬅	Left turn light flashes
Neutral		Off
Pull back	➡	Right turn light flashes



CAUTION

The turn signal lever does not automatically return to the neutral position, reset it by hand.

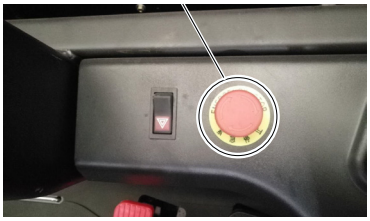
➢ **Light switch:**
Rotation type switch. Control the light through the knob on the head of combination switch.



➢ **Emergency stop switch**

In an emergency, press the red mushroom head button to cut off the vehicle's main power supply. The vehicle will not be able to move, turn or lift.

Emergency stop switch



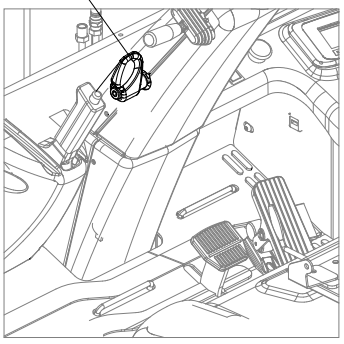
CAUTION

Do not use the emergency stop switch to stop the truck under normal circumstances as the key switch.

➢ **Steering column tilting angle adjuster**

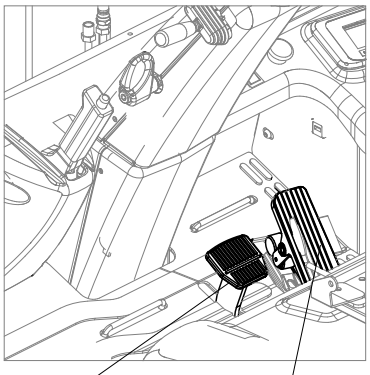
The tilting angle of the steering column is adjustable with a range of 14.5 degrees to suit individual operators. The steering column is unlocked by turning the right handle counterclockwise and locked by turning the right handle clockwise.

Steering column tilting



➢ **Brake pedal**

Depressing the brake pedal will slow down or stop the forklift.



CAUTION

Do not depress the accelerator and brake pedals at the same time, as this will damage the drive motor.

➢ **Accelerator pedal**

Slowly depress the accelerator pedal, the drive motor will start running and the forklift will move off. The travel speed can be increased gradually based on the force applied to the pedal.

➢ Control lever

Control levers includes lift lever, tilt lever, sideshifter lever and attachment lever.

➢ Attachment lever(optional)

Apply when installing the attachment with 4th valve. Push and pull this lever can apply the attachment function.

➢ Lift lever

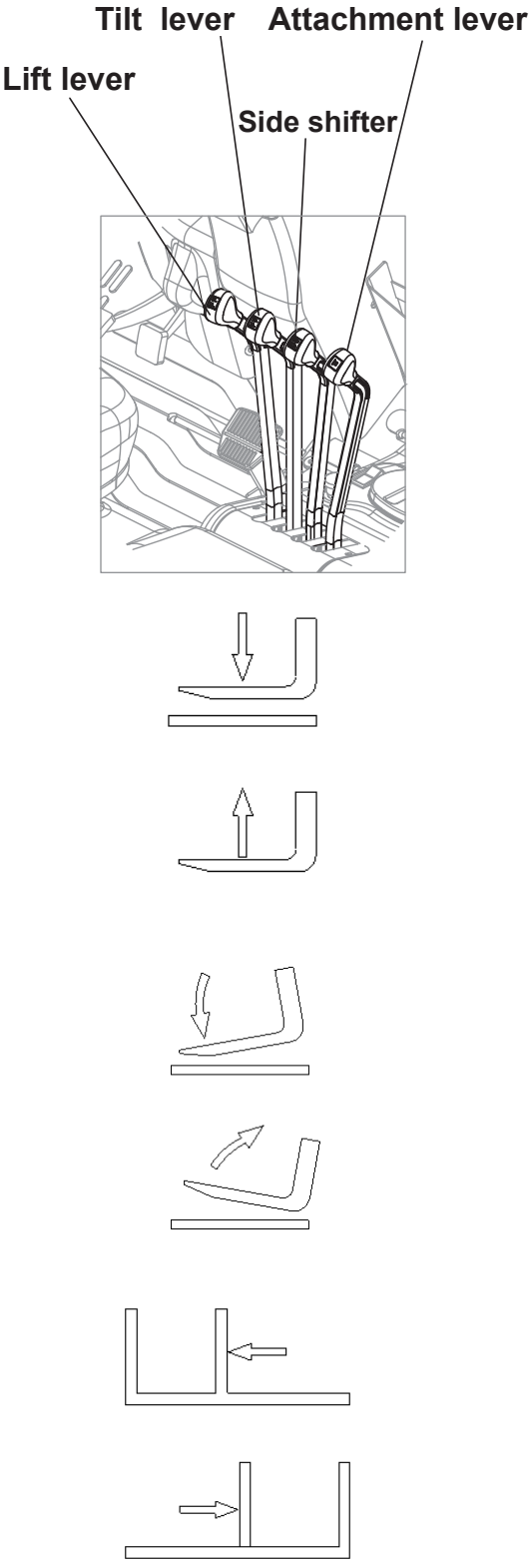
Pull back to raise the forks. Push forward to lower the forks. The lifting speed depends on the distance that the lever is moved backward. The lowering speed is depends on the distance that the lever is moved forward.

➢ Tilt lever

The tilt lever is used to tilt the mast forward and backward. Push forward to tilt the mast forward, pull backward to tilt the mast back. The tilting speed is determined by the distance that the lever is moved.

➢ Sideshifter lever (optional)

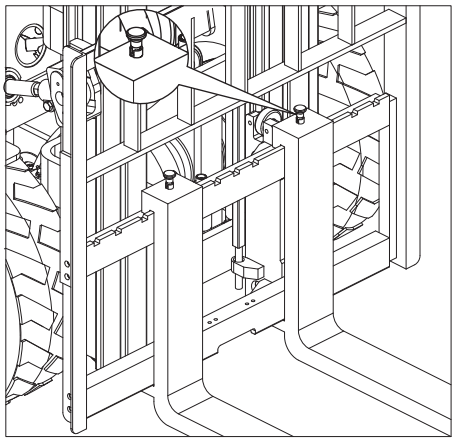
Control the fork to move to left or right.
Push or pull this lever can make the mast move leftwards/rightwards.



1.2.3 Components

➢ **Fork stopper**

Used when adjusting the spacing of the forks. Pull up the fork stopper and rotate it 90°, then adjust the forks to the desired positions according to the load to be handled.



WARNING

Fork spacing should be adjusted symmetrically
to the truck centreline. After adjustment, make sure that the fork stoppers are securely locked.
The lower crossbar of the fork carriage has an opening for fitting and removing the forks.
Do not secure forks at the opening position, in order to prevent them falling through the opening.

➢ **Air spring**

When opening the battery cover, the air spring is used to support the cover. When closing the battery cover, press the air spring according to the arrow direction, meanwhile, press the cover hard and lock it with lock catch.

Air spring

➢ **Overhead guard**

The overhead guard protects the operator against injury from falling objects. It must have sufficient impact strength. Its gap is used to lift battery. Do not use the forklift without the overhead guard.

➢ **Chassis**

The chassis, in conjunction with the counterweight, forms the supporting base structure of the truck. It is used to support the main components.

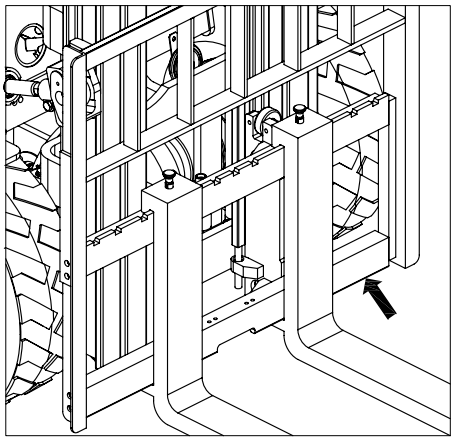
Headlights

➢ **Headlights**

Front combination lights (turn signal and lighting) are installed on the front pillars of the overhead guard. Protect the lights from damage and clean them up if dusty. Any damaged lights must be replaced.

➢ Load backrest

Load backrest is an important safety part that prevents loads dropping. It's prohibited to dismantle and remould the load backrest. Never use truck without load backrest. Unscrew the bolts on the left and right sides of the load backrest,then take off the load backrest.



DANGER

Loads should be arranged so that they do not project beyond the edge of the truck loading surface and cannot slip, topple over or fall off.

➢ Safety step and handrail

A safety step is provided on one side of the forklift body and a handrail is located on the left pillar of the overhead guard. Use the step and handrail to safely get on /off the forklift.

➢ Rear combination lights

The rear combination lights include turn signal lights, show width lights, brake lights and reversing lights. Protect the lights from damage and clean them up if dusty. Any damaged lights must be replaced.

Rear combination lights

➢ Caution light

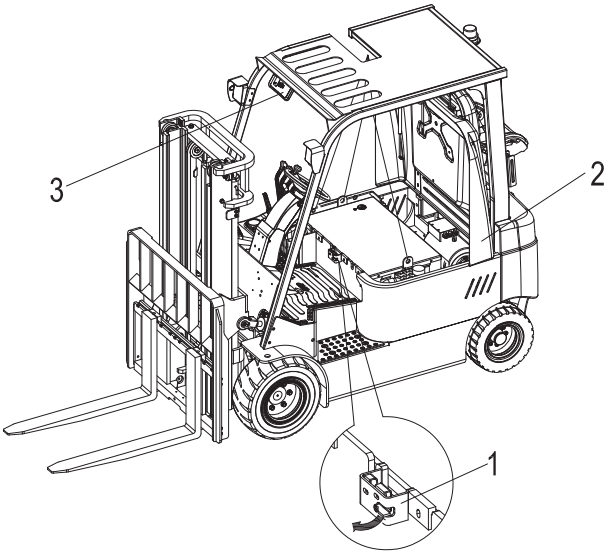
Press the caution light button, the caution light will flash.

Caution light

WARNING

When start the truck, you must press the caution light button to keep the caution light on.

1.2.4 Cover and Seat



➢ Procedures to open the battery cover

- Press the switch (1), then the cover(2) will be open.
- With the help of air spring in the cover, the cover can be fully opened upward with small force.

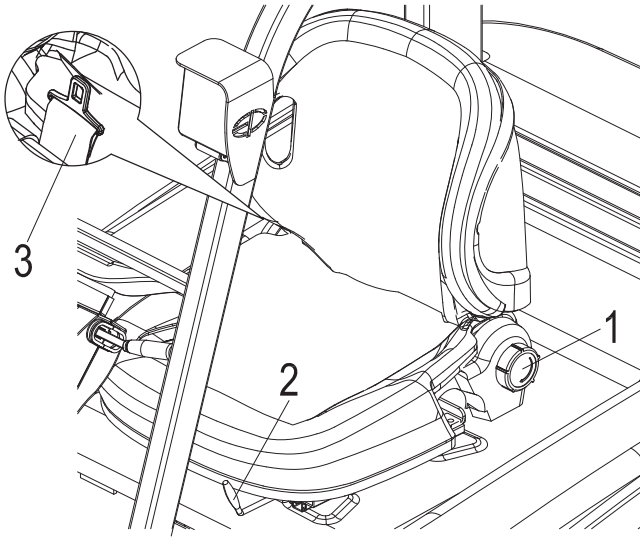
➢ Procedures to close the cover

Release the spring, and meanwhile press the cover.

➢ Rearview mirror

Adjust rearview mirror (3) to make sure the rearview mirror angle is proper.

➢ Seat and adjusting lever



Adjust seat position

Pull the driver seat forward-backward with adjusting lever(2), and move the seat forward or backward to proper position.

Release the adjusting lever, the driver seat will be locked.

WARNING

Lock the driver seat forward-backward adjusting lever on the set position. Never adjust seat when driving.

➢ Adjust seat back

Driver sits on.

Rotate the seat back adjusting knob switch (1)clockwise, and adjust the back inclination.

Release the knob switch, the seat back will be locked.

➢ Safety belt

Fasten safety belt before driving. It protects driver when accidents happen. Regularly clean and check safety belt, avoid dirt.

➢ Regular check items realted to the safety belt:

1)cut or frayed straps;
2)worn or damaged hardware, including anchor points;
3)buckle or retractor malfunction;
4)loose stitching.

➢ Correctly use safety belt

Sit on the seat correctly.
Check if the safety belt twisted.
Fasten the safety belt and check safety belt lock.

➢ Periodically check the safety belt

Check if safety belt is damaged or cracked.
Check if the metal pieces of safety belt(including anchor point) are worn or damaged.
Check if lock catch for safety belt or traction machine functions normally.

WARNING

In any case, if there is damage or flaw etc. on the safety belt, please repair or replace it immediately.
Never do any changes to the safety belt. Replace a new one after each accident.

DANGER

The seat belt should be fastened when using the forklift truck! The seat belt can only be used by one person. For the driver's safety, the vehicle doors (rigid or folding) must be shut tightly when the truck is in operation.

➢ Operating attachments

Attachments are optional equipment purchased by the user and installed onto the truck (for example: lateral forks, clamps etc.). Pay close attention to the working pressures and operating instructions for each attachment. An additional operating lever should be installed for use by the attachments.

NOTE

After installing each attachment, a label should be attached to the battery hood, explaining the truck's load capacity after installing the attachment. An attachment operating notice should also be attached to the back of the attachment control lever.

CAUTION

If the attachment was not supplied with the truck, it can only be used if verified by your EP dealer and safe operation of the truck is guaranteed in terms of load capacity and stability after installation of the attachment.

1.3 Standard Version Specifications

Technical specification details in accordance with VDI2198. Technical modifications and additions reserved.

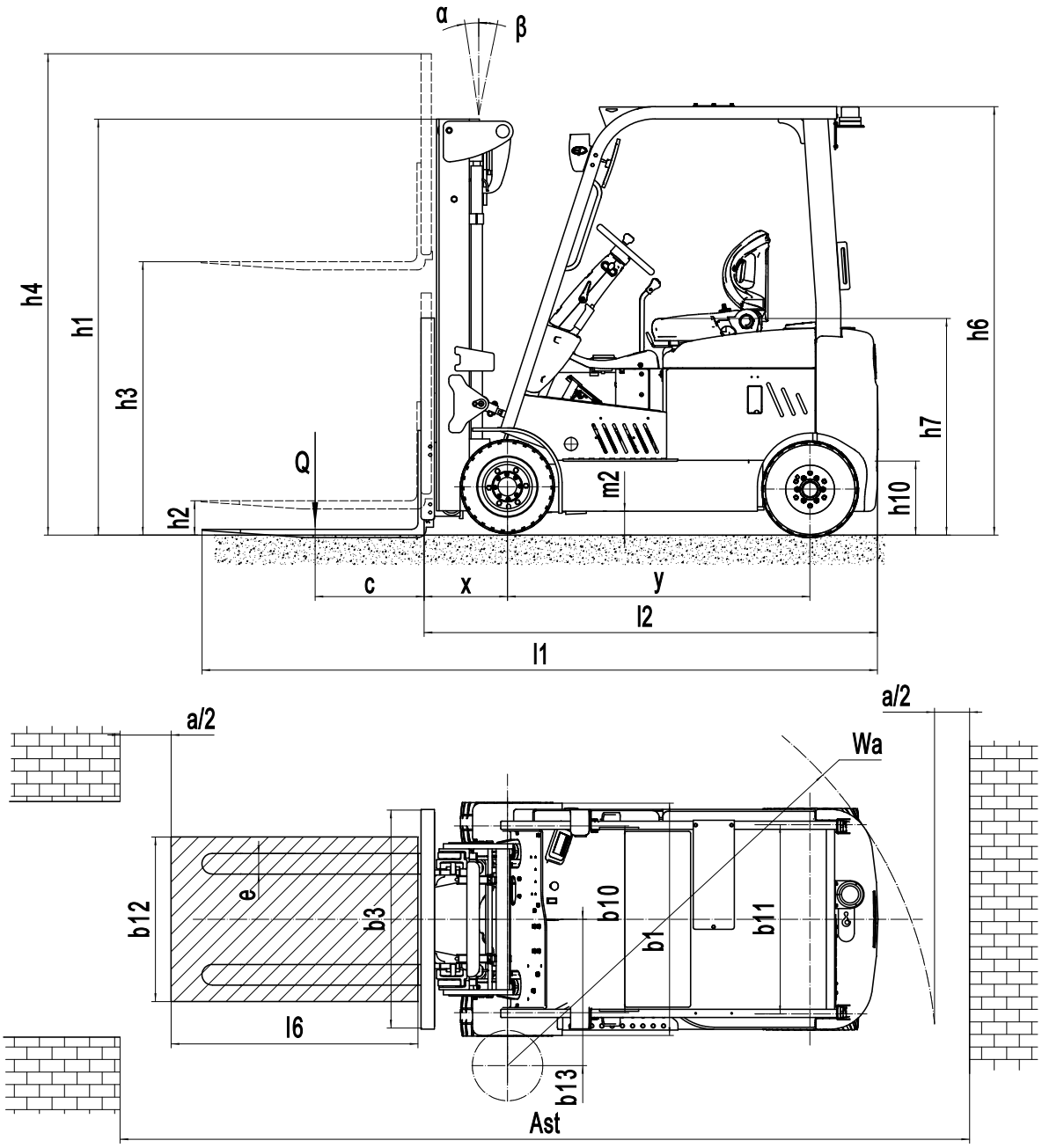
1.3.1 Performance data for standard truck

Distinguishing mark				
1.1	Manufacturer		EP	EP
1.2	Model designation		CPD25L2	CPD15L1-S/ CPD20L1-S
1.3	Drive unit		Electrics	Electrics
1.4	Operator type		seated	seated
1.5	rated capacity	t	2.5	1.5
1.6	Load center distance	mm	500	500
1.7	Load distance centre of drive axle to fork	mm	425	435
1.8	Wheelbase	mm	1550	1470
Weight				
2.1	Service weight (include battery)	kg	4450	2975、3280
2.2	Axle loading, laden driving wheels /steering wheels	kg	6290/660	3700/775、4512/768
2.3	Axle loading, unladen driving wheels /steering wheels	kg	2180/2270	1245/1730、1240/2040
Types,Chassis				
3.1	"Tyre type,driving wheels /steering wheels"		solid rubber	solid rubber
3.2	Tyre size, driving wheels(diameter×width)	mm	21×8-9	200/50-10
3.3	Tyre size, steering wheels(diameter×width)	mm	18×7-8	5.00-8
3.4	Wheels, number driving/ steering (x=drive wheels)	mm	2×/2	2x/ 2
3.5	Tread, Driving wheels	mm	1017	942
3.6	Tread, Steering wheels	mm	990	920

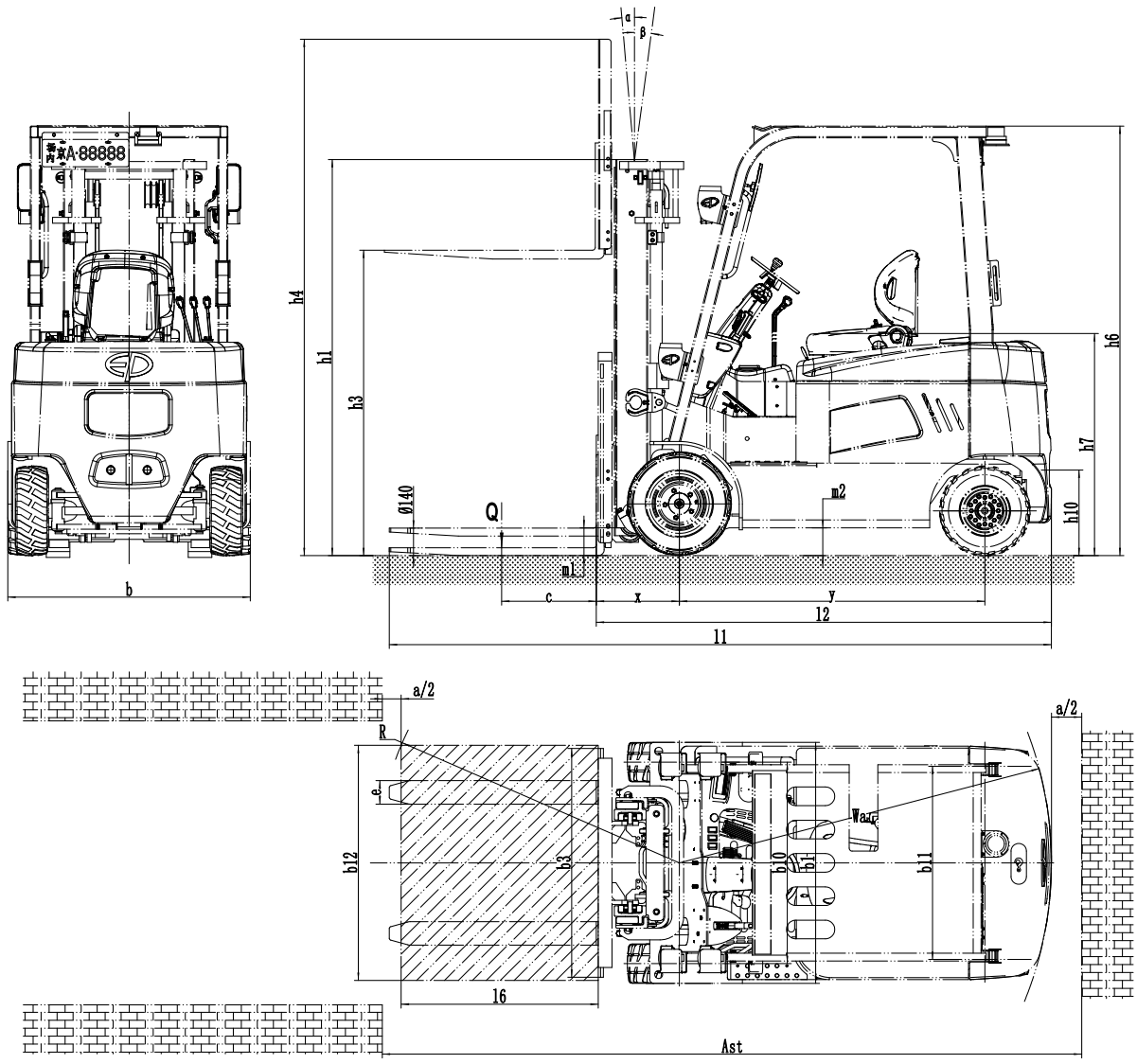
Dimensions				
4.1	Tilt of mast/fork carriage forward/ backward		5/ 7.5	6/ 11
4.2	Height, mast lowered	mm	2020	2080
4.3	Free lift （load backrest）	mm	110	105
4.4	Lift height	mm	3000	3000
4.5	Height, mast extended	mm	4070	4028
4.6	Height of overhead guard (cabin)	mm	2190	2080
4.7	Seat height	mm	1135	1050
4.8	Tow center of pin height	mm	430	360
4.9	Overall length	mm	3380	3315
4.10	Length to face of forks	mm	2310	2245
4.11	Overall width	mm	1230	1130
4.12	Fork dimensions	mm	40×120×1070	40×100×1070
4.13	Fork carriage class/ type A, B		A	2A
4.14	Fork carriage width	mm	1168	1040
4.15	Ground clearance, laden, below mast	mm	100	110
4.16	The minimum ground clearance of frame	mm	140	105
4.17	Aisle width for pallets 1000 × 1200 crossways	mm	3640	3685
4.18	Aisle width for pallets 800 × 1200 lengthways	mm	3760	3885
4.19	Turning radius	mm	1890	2080
Performance data				
5.1	Travel speed, laden/ unladen	km/ h	14/16	15/16
5.2	Lifting speed, laden/ unladen	m/ s	0.25/0.35	0.45/0.48
5.3	Lowering speed, laden/ unladen	m/ s	0.44/ 0.435	0.42/ 0.45
5.4	Drawbar pull, laden/ unladen	N	——	——
5.5	Max. drawbar pull, laden/unladen (time)	N	13500	——
5.6	Gradeability, laden/ unladen	%	——	——
5.7	Max. gradeability, laden/unladen	%	15/16	16/20
5.8	Service brake type		Hydraulic / Mechanical	Hydraulic / Mechanical
5.9	park brake type		Mechanical	Mechanical

Electric-engine				
6.1	Drive motor rating S2 60 min	kW	2X6	7
6.2	Lift motor rating at S3 15%	kW	20.7	11
6.3	The maximum allowed size battery	mm	——	930X340X595
6.4	Battery voltage/ nominal capacity K5	V/ Ah	80/270	48V360AH
6.5	Battery weight	kg	310	220
Addition data				
8.1	Type of drive unit		AC	AC
8.2	Steering type		Hydraulic steering	Hydraulic steering
8.3	Sound pressure level at the driver's ear	dB (A)	70	73

1.3.2 Dimensions



CPD15/20L1S

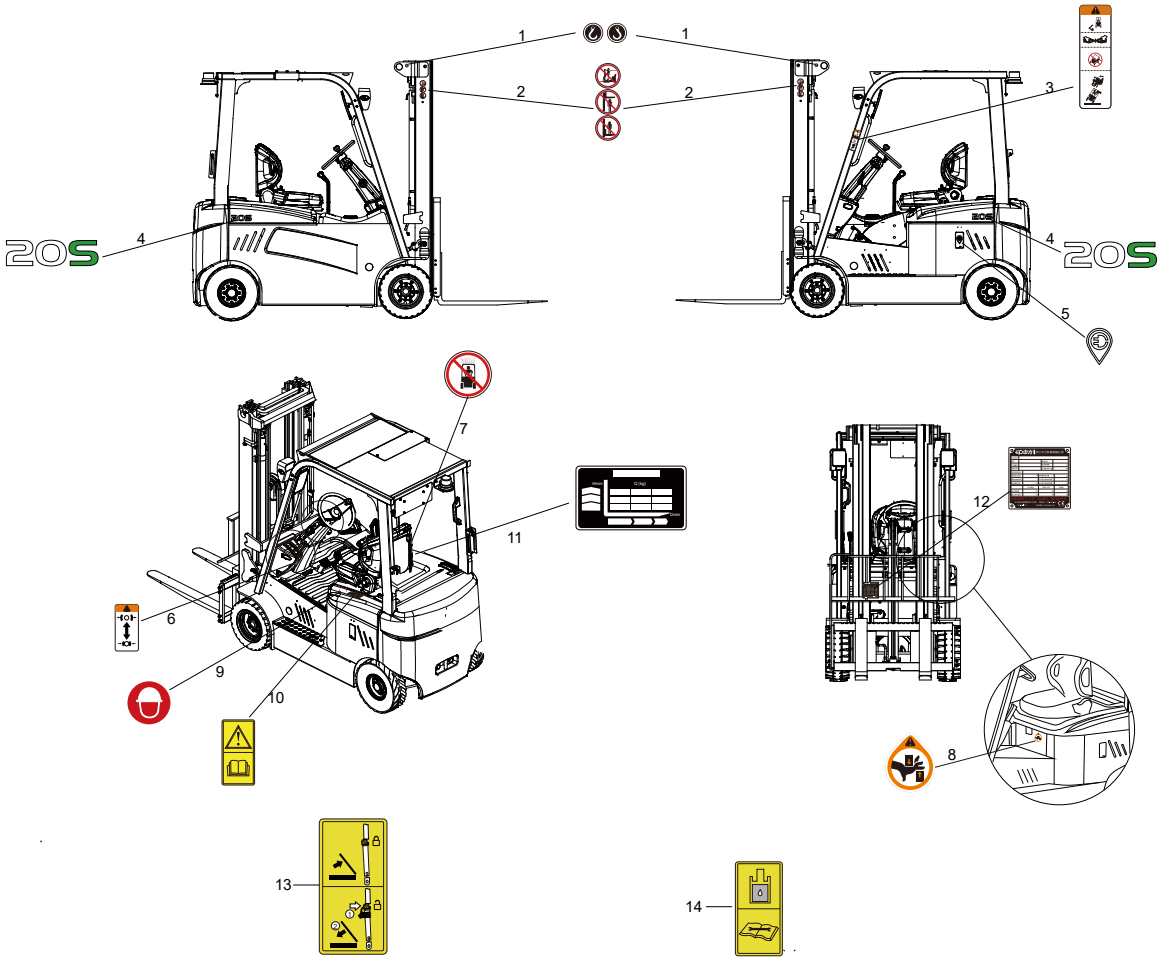


Ast=Wa+R+a

CPD25L2

1.4 Data plate and Identification points

Item	Description	Item	Description
1	Sling label	9	Helmet safety label
2	Notice “No standing under the load carriage”label	10	“Instruction” label
3	Safety warning label	11	The load capability chart
4	Capacity label	12	Nameplate
5	Charging indicator label	13	Gas spring indicator label
6	Hand brake label	14	“Fill port”label
7	“Don’t drive in rain” warning label		
8	Anti-pinch label		



Next to the Gas spring device

Next to hydraulic tank

CPD15/20L1S

Item	Description	Item	Description
1	Sling label	9	Helmet safety label
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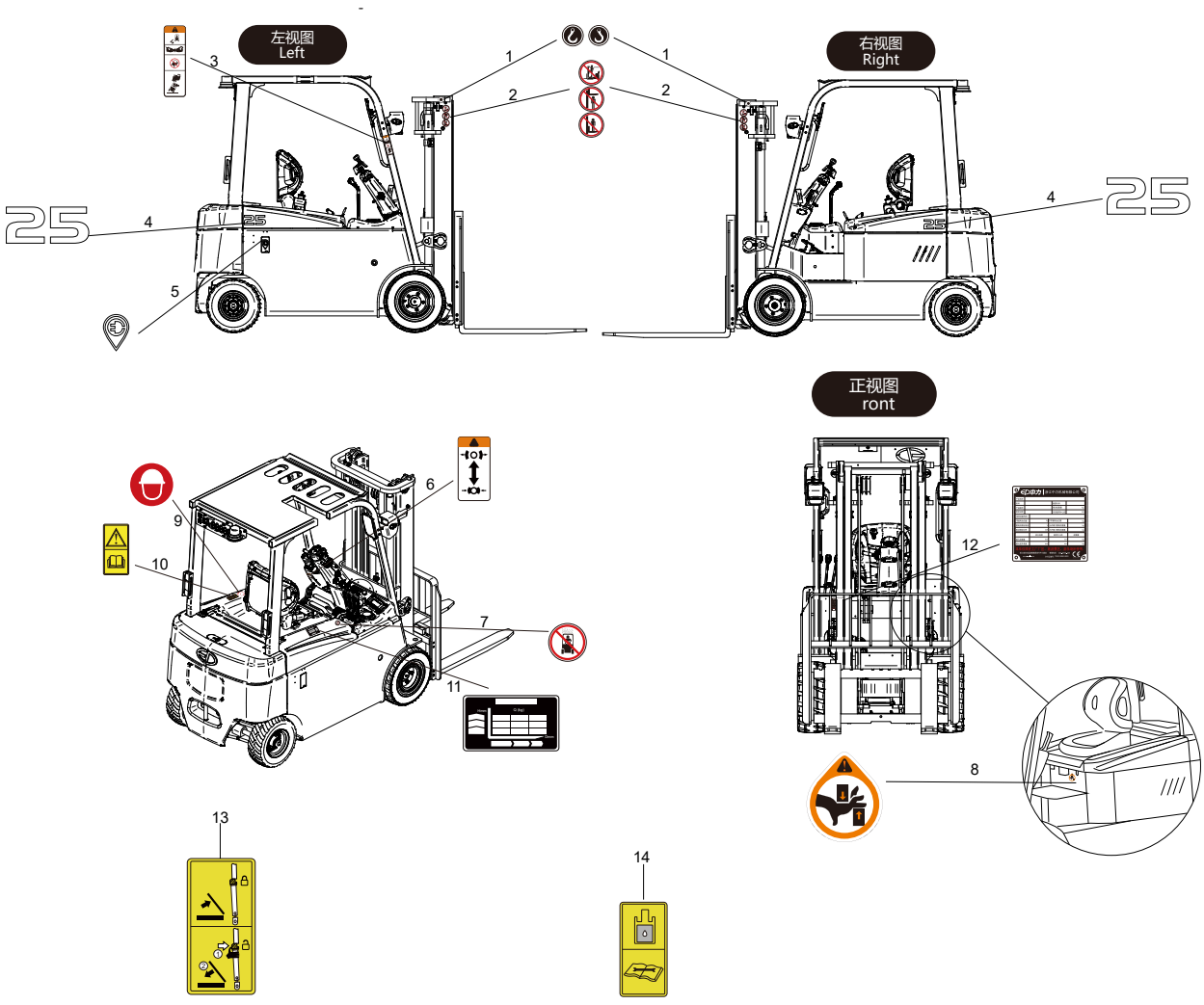


Next to the Gas spring device

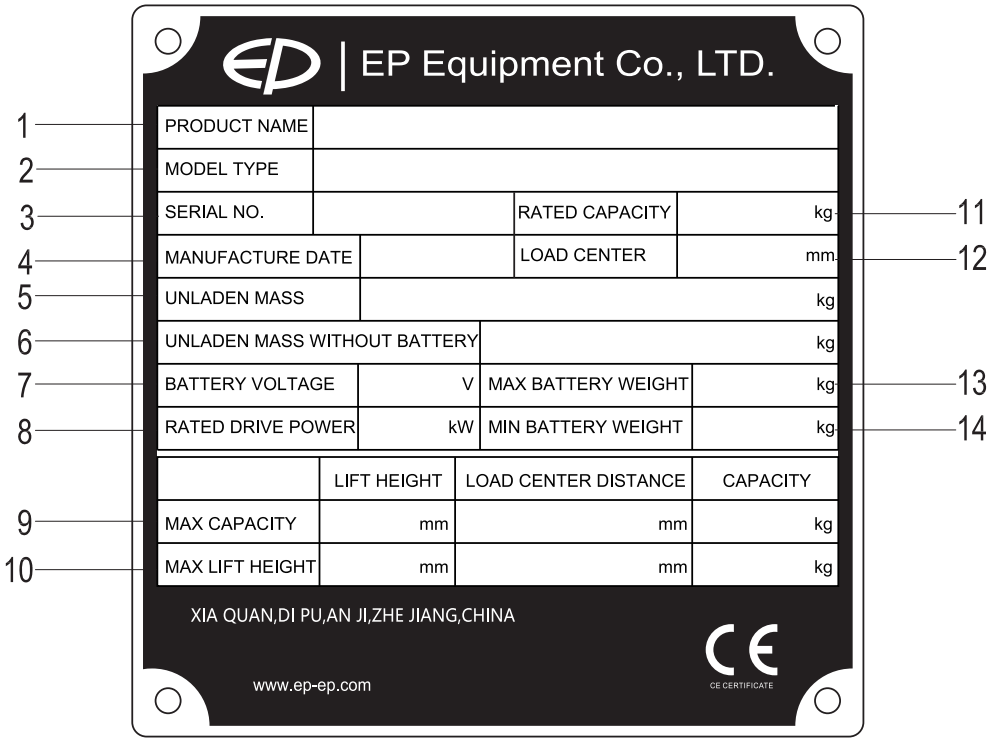
Next to hydraulic tank

CPD25L2

1.5 Truck data plate

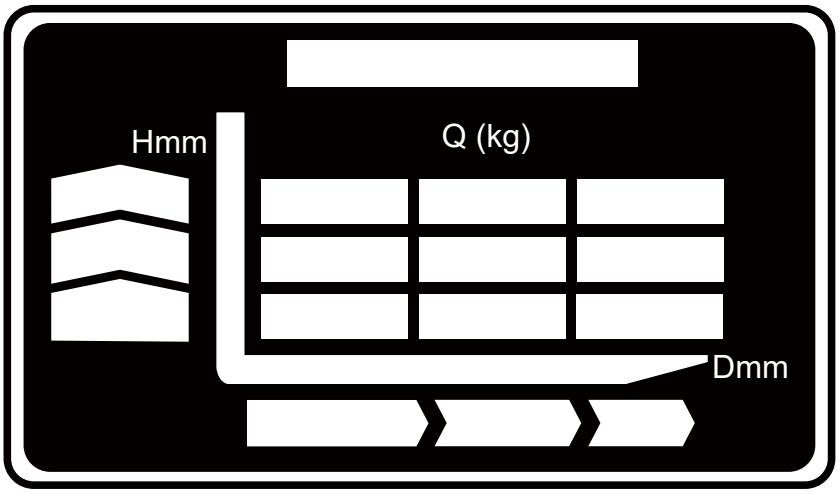
For queries regarding the truck or ordering spare parts please quote the truck serial number.

Item	Description	Item	Description
1	PRODUCT NAME	11	RATED CAPACITY
2	MODEL TYPE	12	LOAD CENTER
3	SERIAL NO.	13	MAX BATTERY WEIGHT
4	MANUFACTURE DATE	14	MIN BATTERY WEIGHT
5	UNLADEN MASS	15	
6	UNLADEN MASS WITHOUT BATTERY	16	
7	BATTERY VOLTAGE	17	
8	RATED DRIVE POWER	18	
9	MAX CAPACITY	19	
10	MAX LIFT HEIGHT		



1.6 The load capability chart

The capacity plate gives the capacity (Q) of the truck in kg for a vertical mast.
The maximum capacity is shown as a table with a given load centre of gravity D (in mm) and the required lift height H (in mm).
The capacity plate of the truck indicates the truck's capacity with the forks as originally supplied.



NOTE

When a forklift truck with attachments leaves the factory, For each attachment, an additional capacity rating plate for the attachments should be provided along with the vehicle.

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 modification to the truck can result in injury or death.
Can 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 Safety

Safety Regulations For The Operation Of Forklift Trucks

Operating safely is every operator's obligation and responsibility. The "Safety Instructions" cover basic safety procedures and warnings of general application to the forklift trucks. However, safety precautions given on the following pages are also applicable to lift trucks that have special specifications or attachments.
Read this manual carefully and become completely familiar with your truck to make sure the driver understands all the information , directives and safety guidelines that are applicable to your industrial truck are complied with.

1. Know your truck sufficiently

For the purpose of doing material handling job, the forklift truck is different from general passenger carrying vehicles in structure as follows:
View is partially obstructed due to the hoist system.
Rear wheel steering makes the rear of the truck swing outwards when going round comers .
Compactly designed, the forklift truck is heavy. Most of the weight of the truck and loads is on the front wheels when loaded.
Read the operator's manual and nameplates on the truck, and become familiar with your truck and operating procedures. If there is anything in the manual you do not understand, ask your service-partner to explain it to you.

2. Operation permissions

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

3. Make periodic checks

Inspect the truck at periodic intervals for oil leak, deformation, lousiness, etc. If neglected, short life of components will be caused and in the worst case a fatal accident would occur.
Make sure to replace “key safety parts”during periodic check.
Wipe off oil, grease or water from the floor， foot and hand levers, if any.
Strictly prohibit smoking, fire and spark nearby the battery when checking it.
If maintenance is performed on high position, such as mast, front and rear lamp, please be careful of falling off or being clamped.
Be careful not to be scalded when inspect the motor, controller etc.

4.Stop using the forklift when it malfunctions

Whenever malfunctions arise, you must stop the forklift, hang a sign of “danger” or “malfunction” and take off the key, then report the malfunction immediately.
only after the malfunction is eliminated, you may use the forklift.

5. Protect yourself

Operator must wear helmet, safety shoes and work(protective) clothes, whenever you operate and maintain the truck, handle the consumables etc.

6. Prevent explosion

Because there will be explosive gas in the bosom of the battery, prohibit any flame or sparks nearby it strictly.
Don’t let any metal tools contact the terminals of the battery to avoid sparks or short circuit.

7.Working condition

Make sure to operate the truck on fairly stable and even road surface.
If there is snow, ice accretion, or other obstacles, clean it before you operate the truck, or the truck may be out of control and even cause safety accidents.
Truck cannot be operated in potentially explosive atmosphere.

8.Tilting safely

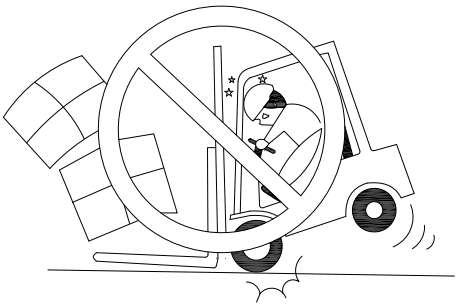
Don’t tilt the mast with load high
Use minimum forward and reverse tilt angle when stacking and unstacking loads. Never tilt forward unless load is slightly above the stack or at low lift height.
When stacking loads on a high place, make the mast vertical at a height of 15 to 20 cm above the ground and then lift the load. Never attempt to tilt the mast beyond vertical when the load is raised high.
To unstack loads from a high place, insert forks into the pallet, lift slightly and drive backwards, then lower the load. Tilt the mast backwards after lowering. Never attempt to tilt the mast with the load raised high.

9.To handle bulky, long loads

When handling bulky loads, which restrict your vision, operate the machine in reverse or have a guide to help you, and when you are guided, make sure you understand the meaning of the guide’s gesture, flag, whistle or other signals.
When operating with long loads such as lumber, pipe, etc., or in the case of the Large-sized model or the truck with spreader(load or truck with a stretched-out attachment), be extremely careful of load at corners or in narrow aisles. Be alert for fellow workers.

10. Start safely

Before staring up(starting the truck), make sure that: Your safety belt is fastened; The vehicle doors is closed tightly. The parking brake lever is applied securely(released). The travel switch is in neutral. No one is under, on and close to(in the vicinity of) the truck. Don't step(depress) the accelerate pedal or control(operate) the lifting lever or tilting lever before turning on the power. Start slowly and never travel at excessive speed.



11. Prohibit sudden stops, starts or sharp turns

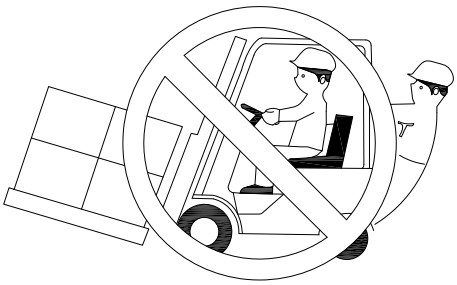
Operate the controls smoothly. Avoid sudden stops, starts or sharp turns. It is dangerous to make a sudden brake. for it may cause the truck to overturn.

12.Focus on the travelling route·

Pay attention to the route of the truck, be sure to keep a clear view of it and look in the direction of travelling.

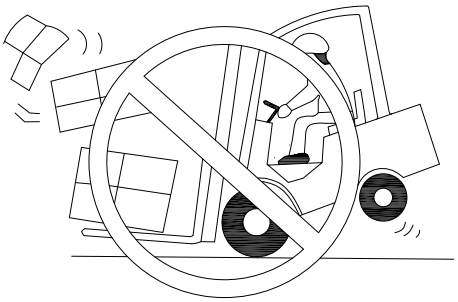
13.Don't offer rides to others

Other person is not allowed to get on the fork, tray or forklift. Do not use people as an additional counterweight.

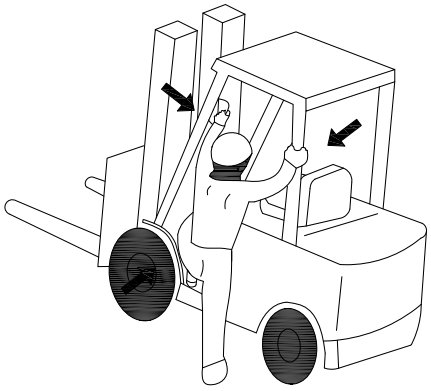


14.Carry the loads in a proper manner

- Taking account of the shape and material of loads to be handled, use a proper attachment and tools.
- Avoid hoisting the load with wire rope suspended from the forks or attachment, since the wire rope may slide off. If needed, a qualified personnel (should perform the slinging), making use of a hook or crane arm attachment.
- Take care not to protrude the forks out of the load. The protruded fork tips may damage or turn over/bump the adjacent load.



Be careful not to let the forks touch the floor, so as to avoid damaging the fork tips or driving surface.



15. Concentrating on your work

Keep your mind on your work. Learn to estimate danger before it arises.

16.Mount and dismount properly

Never mount or dismount the moving truck. Use the safety steps and safety handgrip and face the truck when mounting or dismounting the truck. Don't jump!

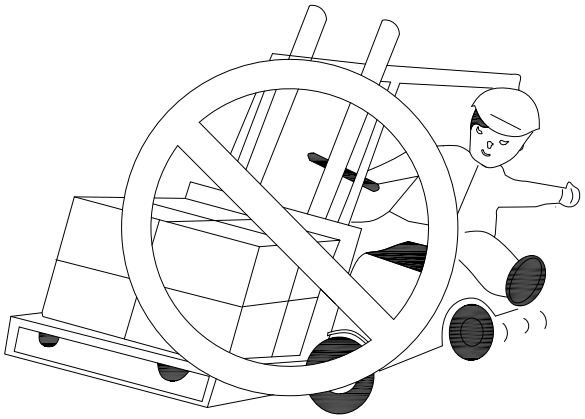
17. Never operate the truck unless the operator is properly seated

Before staring the truck, adjust the seat so you can get easy access to all hand and foot controls.

18. Know the capacity of your truck

Know the rated capacity of your lift truck and its attachments, and never exceed it.

Do not use a man as an additional counterweight. It's quite dangerous.



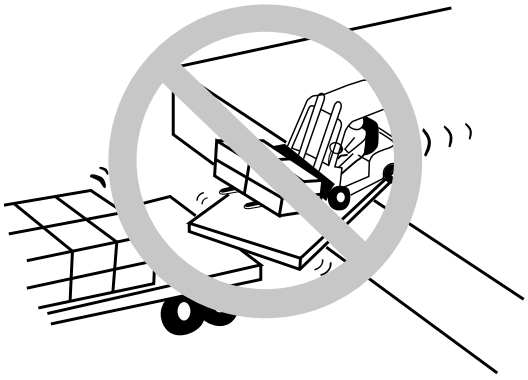
19. Be seated safely

Keep your head, hands, arms, feet and legs within the confines(cab) of the operator's compartment(truck). Never (stick your hands or any other parts of your body out of it) for any reason.

20. Use proper attachments

We afford all types of attachments, such as rotating roll clamp, bale clamp, side shifter, and crane jib. You should refit the truck under ours license if you want(Modifications to the truck must be authorized by the manufacturer). Only specialists are permitted to fit the attachments and connect the energy supply for power-driven attachments.

It is forbidden to refit the truck by yourself.



21.Driving over a dock-board or bridge-plate

Before driving over a dock-board or bridge-plate, be sure that it is properly secured and strong enough to sustain the weigh.

22. Overhead guard and load backrest

Safeguard protect you not to be hurt by the goods fallen. Load backrest can keep the load stable. It is forbidden to use truck without overhead guard or load backrest.

Any additional bores or welding to the overhead guard on the overhead guard will compromise its rigidity. It is therefore strictly prohibited to drill holes in the overhead guard or to weld to it.

23.Never climb the masts.

It is forbidden to stand or walk under the upraised fork or the attachments.

It is also forbidden to walk up the or stand on the forks.

24. Avoid being clamped by the mast

It is forbidden to put your hands, arms or head between the mast and overhead guard.

It is forbidden to put your hands between inner and outer masts.

25. No off-center loads

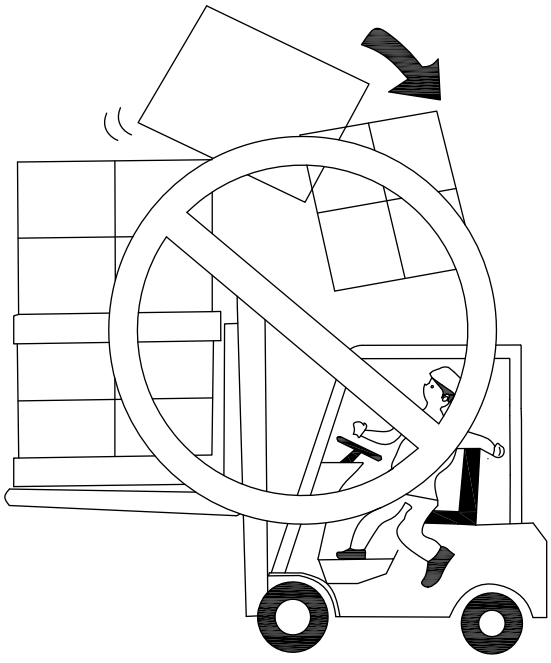
The goods is easy to drop when turning or passing rough road for off-center loads. And the forklift may topple over more probably.

26.Don't tilt the mast with load high

Use minimum forward and backward tilt when stacking and unstacking loads. Never tilt forward if load is over stack or at low lift height.

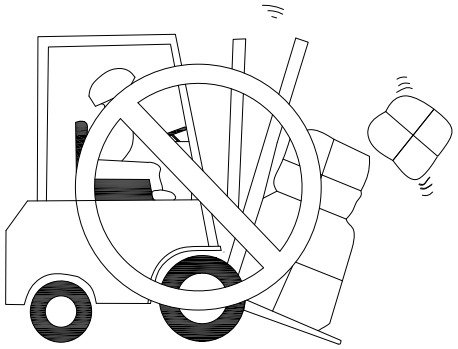
When stacking loads on a high place, once make the mast vertical at a height of 15 to 20 cm above the ground and then lift the load farther. Never attempt to tilt the mast beyond vertical when the load is raised high.

To unstack loads from a high place, insert forks into the pallet and drive backwards, then lower the load. Tilt the mast backwards after lowering. Never attempt to tilt the mast with the load raised high.



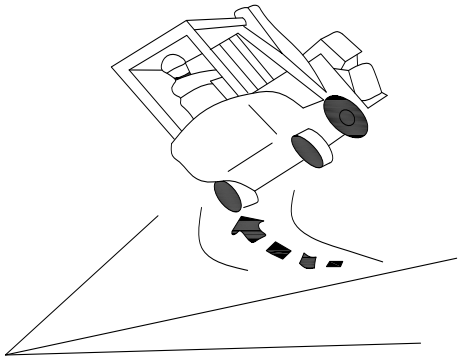
27. Tilt backwards when loaded

Travel with load as low as possible and tilt back. If operating with steel pallet or the like, be sure to tilt back the mast to prevent it from slipping off the forks.



28.Watch for doorways and slow down at corners

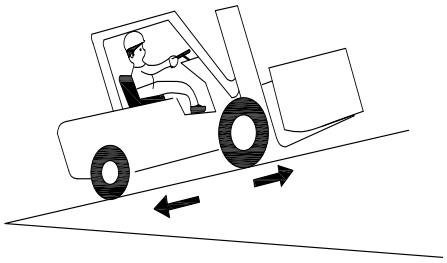
Watch for branches, cables, doorways, or overhangs. Be cautious when working in congested areas.
Slow down and sound the horn at the entrances and exits of the aisles and other locations where vision is restricted.
When make a turn, be sure the speed of the truck is lower than the 1/3 of the max. allowable speed.



29. Keep some distance from the roadside and the kerb

30.Do not turn or travel in a horizontal direction when moving up a ramp in case of toppling over.

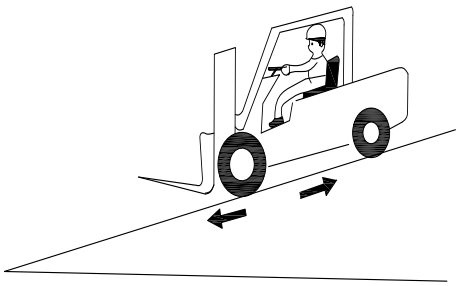
When operating loaded truck, have the rear end of your machine pointing downhill.
When operating unloaded truck, have the rear end of your machine pointing uphill.



31. After the protective device like overhead guard and mast load bracket is dismantled, it is prohibited to operate the truck or carry loads.

32.Ensure adequate lighting

The industrial truck working area must be adequately lit. Turn on the headlamps and lights when working in the dark area to make sure the operator can see clearly.



In the case of tip-over

The stability of your truck is ensured if used properly and as intended. But once it tips over during unapproved applications or incorrect operation,

- always follow the instructions below:
- Stay buckled up;
- Don't jump;
- Hold on tight;
- Brace feet;

Lean away.

33.Avoid the following possible instability related to loads:

- Loads are protruding to the side;
- Loads are too wide;
- Loads are too high;
- Loads exceed the capacity.
- The load is liquid, and its center of mass inside the container may shift due to inertial force such as pulling away, braking or turning.
- Loads are not homogeneous;
- Loads are off-center;
- Loads are not arranged properly or fastened tightly.
- Loads are swinging while operating;
- Loads are raised high while travelling;
- Loads are on the downhill side while driving on gradients.
- Loads are higher than the backrest while tilting.

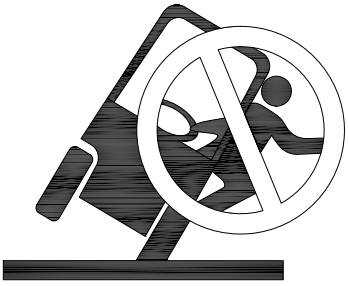
34. Small loads should be carried on a pallet and not placed directly on the forks.

35.Avoid lifting loads on a grade

Never lift loads with the truck inclined. Avoid loading and unloading on a grade.

36. Never lift a load over anyone

Never permit anyone to stand on or walk under upraised forks or other attachments if equipped. If unavoidable, use a safety stand or block to prevents a possibility of fork attachments falling down or moving unexpectedly.



37. Check the ground of the work area

Inspect the surface over which you will run. Look for holes, drop-offs, obstacles, and protrusions. Look for anything that might cause you the truck to lose control, or jolt.
Clear away trash and debris. Pick up anything that might puncture a tire or let the load lose balance.
Slow down for wet and slippery roads.
Stay away from the edge of the road.
Do not drive the truck up or down steps.
If the ground is bumpy, it will cause the truck jolt and bring much noise.
Do not operate the truck when the weather is execrable, such as windy, thunder storm, snow and etc. Especially when wind speed is higher than 10m/s, don't operate the truck outdoors.

38. Carry the load low

It is dangerous to travel with forks higher than appropriate position regardless of whether loaded or not. Keep the good traveling posture. (When traveling, the forks should be 15 to 30 cm above the ground or floor, and the mast should be tilted backwards.)
Do not operate the side shift mechanism, if equipped, when the forks are raised and loaded, this will cause the truck to be unbalanced.

39. Parking correctly

Park the truck on a level surface and depress the foot brake securely. If parking on an incline is unavoidable, be sure to block the wheels with wooden wedges.
Lower the forks to the floor and tilt slightly, turn off the key switch and remove the key.
Pull out the battery plug.
The parking place must be far away from fire and sparks.

40. Towing

You can tow the forklift to the safe place with towing pin when the forklift can't run.
Don't tow the truck of which its steering system or brake system has been damaged.

41. Nameplate and labels

There are nameplates and warning labels on the truck. Please
operate the truck oaccording to the relevant instructions in this manual.
Often inspect the nameplates and labels, Replace those are damaged or lost.

42.Fire extinguishers

The workplace should be equipped with fire extinguishers. Users can also select a vehicle equipped with fire extinguisher which is usually placed on the frame.
Make sure operators know the fire extinguisher's location and are familiar with how to use it in an emergency situation. Relevant handling information is provided on the fire extinguisher.

43.Gas spring

Gas springs on your truck play an important role in various functions, and they are complex components that contain high internal pressure.

They must not be opened under any circumstance, unless you have received specific instructions to do so. In addition, they must only be dismantled when not under compression. Any type of damage, lateral force, tight fastening, and the dirt must be avoided in every environment.

Damaged or deformed gas springs must be replaced immediately, and the pressure in them must be relieved before recycling.

44.Hydraulic system risks

Hydraulic system is under pressure, whenever take out the inspection or maintenance, be aware of the risk of injury, wear protective equipment.

Before connecting hydraulic lines or hydraulic couplings, the hydraulic system must be depressurized.

45.Unauthorized truck modification is not permitted.

Any modifications or alterations to a powered industrial truck which could affect the capacity, stability or safety requirements etc.of the truck shall not be made without the prior written approval of the original truck manufacturer or the authorized representative. This includes changes affecting the braking, steering, visibility and the addition of removable attachments etc. When the manufacturer or his representative approves a modification or alteration, they shall also make and approve appropriate changes to the capacity plate, stickers, tags and operation and service manuals.

When retrofit your truck, using solutions other than those recommended by the truck manufacturer will render CE conformity null and void, and is therefore expressly prohibited. So trucks may only be retrofitted with the approval of the truck manufacturer.

46.Essential measures required for modification or alteration.

Only when the truck manufacturer is no longer in business and there is no successor for the business, the user may arrange for a modification or alteration to the industrial truck provided that the user arrange for the modification or alteration to be designed, tested and implemented by an engineer(s) expert in industrial trucks and their safety.

Maintain a permanent record of the design, test(s) and implementation of the modification or alteration.

Approve and make appropriate changes to the capacity plates, stickers, tags and instruction manuals.

Affix a permanent and readily visible label to the truck stating that 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 the tasks.

47.Residual risks

In spite of careful work and compliance with all applicable and regulations, the possibility of other dangers when using the industrial truck cannot be entirely excluded.
Residual dangers can include:

- Escape of consumables due to leakages or the rupture of lines, hoses or containers;
- Risks of accident when driving over uneven ground, wet, icy or greasy ground, gradients, irregular surfaces, or with poor visibility;
- Risks of fire and explosion due to the battery and electrical voltage;
- Risk caused by insufficient maintenance or testing;
- Risk caused by using the wrong consumables;
- Disregarding the safety regulations.

48.Braking distance

Taking into account the specified minimum braking distance, do not use the truck on a long slope with a gradient of more than 15%. If you need to use the truck on slopes with higher gradients, please first consult your dealer. The gradabilities given in the type sheet are calculated based on the truck's traction and are only applicable to situations in which the truck must surmount small obstacles or when driving on fairly even road surfaces.

1.3 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 unless the battery is maintenance free and does not gas out.
- 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 trucks.

1.4 Related Safety Instruction and Standard(For CE)

The design and manufacture of electrical element comply with the low voltage standard 2006/95/EC.

Noise emission level

CPD15/20L1S: 73 dB(A)
CPD 25L2: 70 dB(A)
Noise will be according with EN12053:2001 and 2000/14/EC.
Sound pressure level on the operator's position is lower than 75dB(A), measurement uncertainty is 1.5dB(A).

Vibration and acceleration

Vibration parameters are measured according to standards of ISO5349-2:2001, EN13059:2002, ISO2631-1:1997, and the result meets the requirement of 2002/44/EC.
Whole body vibration is lower than 1.1m/s2.

Electrical requirements

The manufacturer certifies compliance with the requirements for the design and manufacture of electrical equipment, according to EN 1175 "Industrial Truck Safety - Electrical Requirements", provided the truck is used according to its purpose.

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 electromagnetic 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.
- Our truck has been successfully tested according to EN12895 as well as the standardized instruction contained there in.

CAUTION

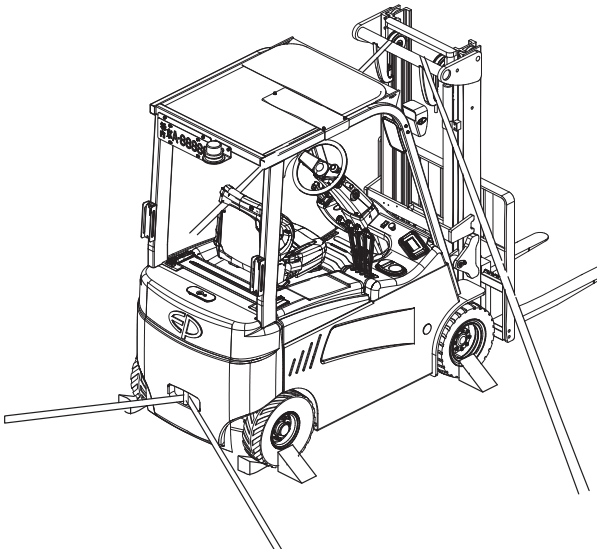
The EMC regulations for the truck must be observed.
When replacing truck components ts for repair the protective EMC components must be installed and connected again.

D Transport and Commissioning

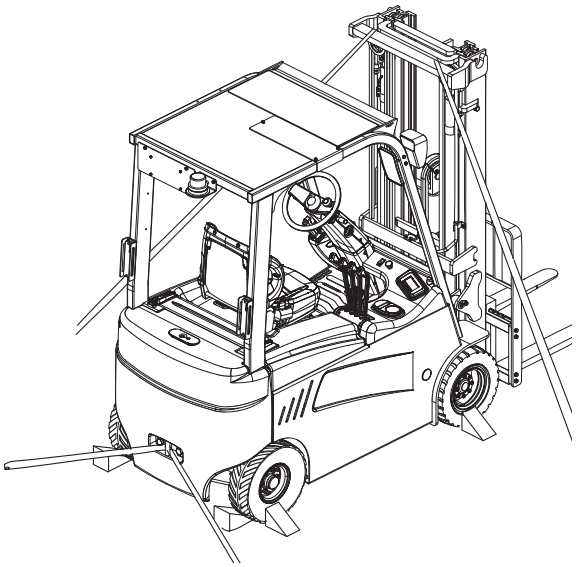
1.1 Transport

Use a truck or flatbed trailer to carry the forklift truck

- Lower the lift mast.
- Pull on the brake lever.
- Secure the front wheels(2) and rear wheels (1)with chocks to prevent slipping.
- To lash the fork lift truck with a lifting mast installed use the holes on the top cross beam of the mast and the trailer coupling pin.
- The truck can now be transported.



CPD15/20L1S



CPD25L2

WARNING

If the truck is to be transported without a mast, it must be tied at the front overhead guard.

1.2 Use a hoist to lift the truck

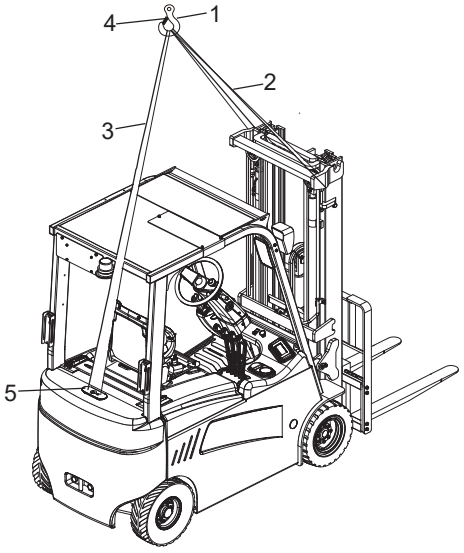
DANGER

Ensure that no one is in the working range of the hoist when using it to lift the truck! Walking around under the lifted load is absolutely prohibited.

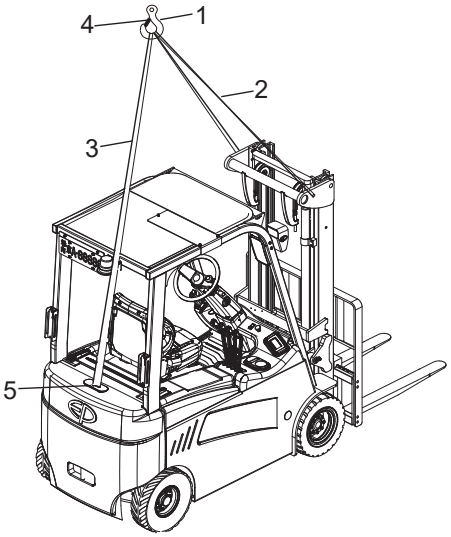
CAUTION

Use lifting equipment and a hoist that has sufficient carrying capacity to lift the truck. For the truck weight (including the battery), see the factory nameplate.
The sling must be fastened at the designated lifting points when using the hoist.

- Fasten the sling(3) onto rear fastening point (5).
- Fasten the sling (2) (minimum load 3500 kilograms for CPD15/20L1-S,minimum load 3500 kilograms for CPD15/20L1-S Minimum load 4500 kilograms for CPD25L2) onto the crossmember of the outer lift mast pillar.
  Hang all sling ends on the lifting hook (1)
- of the hoist.



CPD25L2



CPD15/20L1S

CAUTION

- *After hanging the sling on the lifting hook, the safety lock (4) must be fastened. The sling must not touch the overhead guard when the truck is being lifted.*
- *Never walk under a forklift when it is being lifted.*

Towing regulations

When the truck needs to be moved, a tow rope or rod can be attached to the tow pin. A tow rope can also be attached to the base of the lift mast.

CAUTION

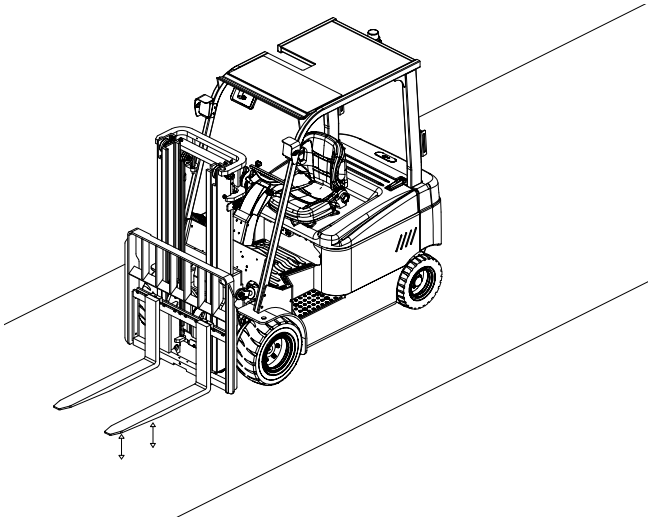
Braking can only be performed by the brake pedal or foot brake pedal during towing.

Towing procedure

NOTE

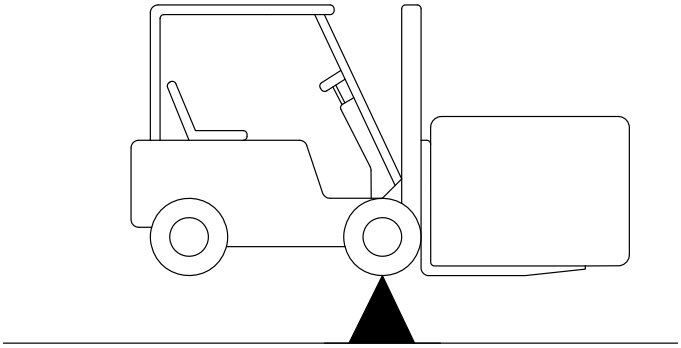
Power will be disabled after pressing the emergency stop button.

- Press the emergency stop button.
- Lower the goods, but do not allow the fork arms to touch the ground.
- Remove the load. Secure the tow bar to the tow pin or rope on the base of the lift mast.
- Release the foot brake pedal.
- The driver should operate the steering wheel during towing, and the brake when necessary.
- Do not exceed the truck's maximum working speed when towing.



1.3 The structure and stability of truck

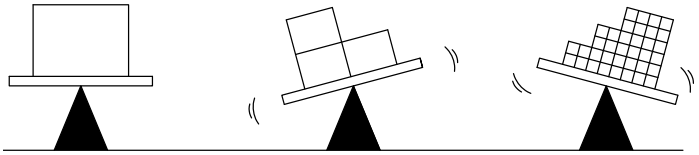
Prevent the forklift to tip over! It is very important for operator to know the truck's structure and relationship between load and stability.



WARNING

The structure of the truck

The forklift truck essentially consists of the lifting device (forks and mast) and the truck itself (with tires).
The front wheels are the fulcrum of the forklift and keep the centre of gravity of the forklift and load balanced.
The relationship between the forklift's centre of gravity and the load's centre of gravity is very important to maintaining the operation of the forklift.



WARNING

Load center

The forklift handles loads of different shapes, from crates to boards and elongated objects. In order to assess the forklift and its stability, it is very important to distinguish between the centres of gravity of different-shaped loads.

WARNING

Gravity and stability

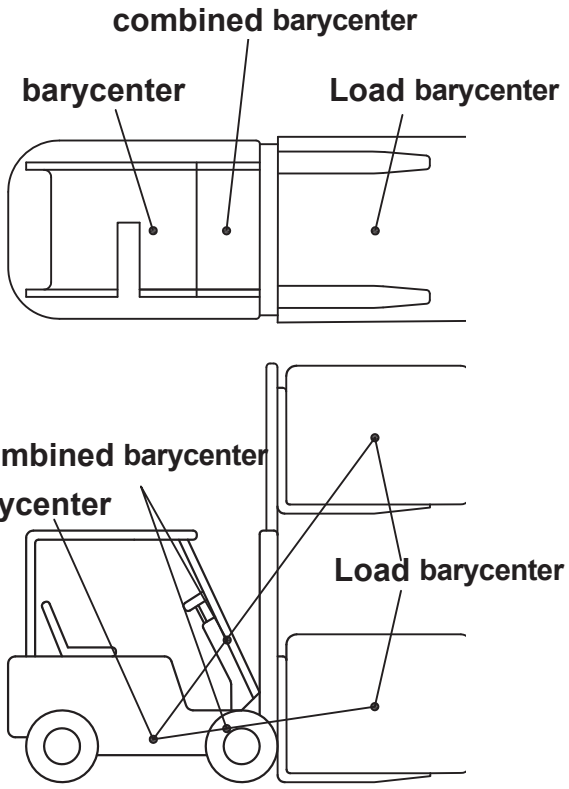
The combined center that is composed of the barycenter and the load barycenter determine the stability of lift trucks.

When unloaded, the barycenter does not change; when loaded, the barycenter is determined by the truck and the load's barycenter.

The barycenter is also influenced by the angle and height of the mast.

The combined center is determined by these factors:

- Load's size, weight and shape.
- The lifting height.
- The tilting angle.
- The pressure of the tire.
- The radius of turning.
- The road and grade's angle.

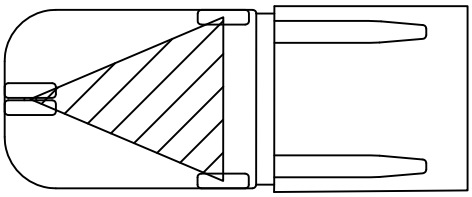


WARNING

The stability zone of the barycenter

In order to make the truck stable, the combined center must be in the triangle which is made up of two points that the two front wheels attach ground and the midpoint of the rear axle.

If the combined barycenter is in the front axle, the two front wheels become two fulcrums, the truck will overturn. If the combined barycenter departures the triangle, the trucks shall overturn in the corresponding direction.



WARNING

A stationary object will remain stationary unless an external force acts on it. Similarly, in the absence of an external force, a moving object will continue moving at the same speed. This is inertia.

Due to inertia, a rearward force is exerted when the forklift starts moving, and a forward force is exerted when the forklift stops moving.

Sudden braking is dangerous because it generates a large forward force that will cause the forklift to tip over, or the load to slide off.

When the forklift turns a corner, a centrifugal force is exerted outward from the centre of the turn. This force pushes the forklift outward and makes it tip sideways.

The truck has narrow lateral stability, so cornering must performed slowly to prevent the forklift from tipping sideways. If the forklift is handling an elevated load, the overall centre of gravity is higher and therefore the forklift is more prone to tip over.

1.4 Using the Truck for the First Time

Only operate the trucks with battery current.
Preparing the trucks for operation after delivery or transport.
Procedures:

- Check whether is complete.
- Check the hydraulic oil level.
- Install the battery if necessary, (see Battery removal and installation") do not damage battery cable.
- Charge the battery, (see Charging the battery").
- When the truck is parked the surface of the tyres will flatten. The flattening will disappear after a short period of operation.
- Check the condition and function of the driver's seat and seat belt.
- Check the entire truck as well as the surface beneath it for signs of fluid leakage.
- Check the oil level in the oil tank of the working and steering hydraulic systems.
- Check battery connector.
- Check decal condition.
- Check the tyres.
- Check the condition and function of the driver’s seat and seat belt.
- Check brake system and parking brake.
- Check hand brake lever and brake pedal.
- Check display/battery discharge indicator.
- Check working lights.
- Check forward and reverse functions.
- Check horn.
- Check lifting and lowering function.

1.5 During running-in

- We recommended operating the machine under light load conditions for the first stage of operation to get the most from it. Especially the requirements given below should be observed
- while the machine is in a stage of 100 hours of operation.
- Must prevent the new battery from over discharging when early used. Please charge when remain power is less than 20%.
- Perform specified preventive maintenance services carefully and completely.
- Avoid sudden stop, starts or turns.
- Oil changes and lubrication are recommended to do earlier than specified.
- Carry only 70-80% of the rated load.

CAUTION

When the truck is in the running-in stage (approx.100 hours of operation), the equipment user should check the fastening of the wheel nuts and bolts and refasten them if necessary.

E Operation

1.1 Safety Regulations for the Operation of trucks

Driving permission

The truck must only be operated by persons who have been trained in the operation of trucks, who have demonstrated to the owner 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 truck; and familiar with the contents of these operation manual. All necessary rights must be granted to him.

Unauthorized Use of truck

The driver is responsible for the truck during the time it is in use. He shall prevent unauthorized persons from driving or operating the truck. It is forbidden to carry passengers or lift personnel.

Repairs

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

Safety devices and warning labels

The safety devices, warning signs and warning instructions in the present operating instructions must be strictly observed.

Hazardous area: A hazardous area is defined as the area in which a person is at risk due to truck movement, lifting operations, the load handler (e.g. forks or attachments) or the load itself. This also includes areas which can be reached by falling loads or lowering operating equipment. Unauthorized persons must be kept away from the hazardous area.

- Where there is danger to personnel, a warning must be sounded with sufficient notice.
- Give a warning signal with plenty of time for people to leave.
- If unauthorized personnel are still within the hazardous area stop the truck immediately.

1.2 Run the truck

Checks and operations to be performed before starting daily work.

- Visually inspect the entire truck (in particular wheels) for obvious damage.
- Visually inspect the battery attachment and cable connections.
- Check the mast , load backrest and forks for visible damage such as cracks.
- Check wheels for wear and damage.
- Test the warning device.
- Make sure the load chains are evenly tensioned.
- Check all the devices for normal functions.

- Pull up emergency stop button.
- Turn on the key switch and start the forklift.
- Before starting the forklift, place the direction lever in neutral; do not step on the accelerator pedal.

WARNING

Never start the truck before any damage or failure to the truck has been settled.

1.3 Driving

Procedures

- Tilt the mast back: Operate the lift lever, raise the forks 15~20cm off the ground. Operate tilt lever and tilt the mast back to the end.
- Release parking brake: Press the button, move the lever forwards.
- Turn the combination switch: Push the combination switch forward, truck goes forward; pull the combination switch backward, truck reverses.
- Hold steering wheel with left hand, lean on the steering wheel with right hand, step on the accelerator pedal with right foot slightly, and then the truck travels.

WARNING

The distance from the driver's head to the overhead guard has been reduced in certain EP forklift trucks (such as the container overhead guard, etc.). Only drivers where the distance from the driver's head to the overhead guard exceeds 30 mm are permitted to operate this kind of forklift truck.

WARNING

For trucks with cab, the doors must be closed before driving the truck.

➢ Steering

A forklift is not like an ordinary vehicle, and it is rear-wheel steered, which means that the rear counterweight swings outward when turning. Decelerate when steering. Move the steering wheel counterclockwise, the truck turns left; move the steering wheel clockwise, the truck turns right.

➢ Braking

Braking ways have service brake and parking brake.
Service brake:Step on the brake pedal to decelerate or stop.
Parking brake: In order to avoid accident move of the forklift, make sure pull on brake lever after stop.

WARNING

Never adopt parking brake instead of service brake in normal travelling.
Emergency stop is unavoidable in travel, only when the service brake is out of control can pull on the brake lever *to stop the truck.*
Be careful when braking and avoid loads sliding.

➢ Parking

Procedures:

- Decelerate, then depress the brake pedal until the vehicle stops.
- Get the combination switch in neutral.
- Pull on the brake lever to avoid truck move.
- Lower the mast to the floor and tilt the mast all the way forward.
- Turn the key switch to stop the forklift, remove the key and keep it in a secure place.
- Press the red emergency stop button to shut down the power.

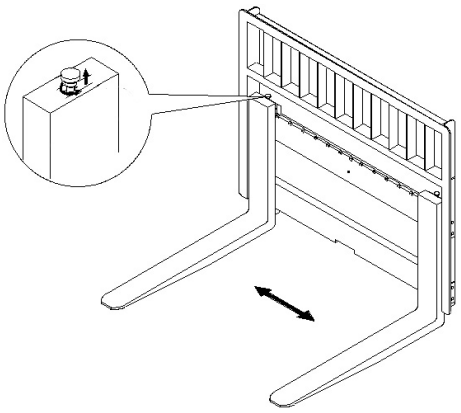
WARNING

Never park the truck on the slope to avoid slipping.
Never park the truck on the travelling route to influence other truck travelling.

1.4Loading

➢ Adjusting the fork spacing

Toggle the fork positioning lock.
Move the forklift truck closer to or further away from the goods to be lifted according to their size. Note that the two forks should be equidistant from the centreline of the forklift truck.
Insert the positioning lock into the notch.



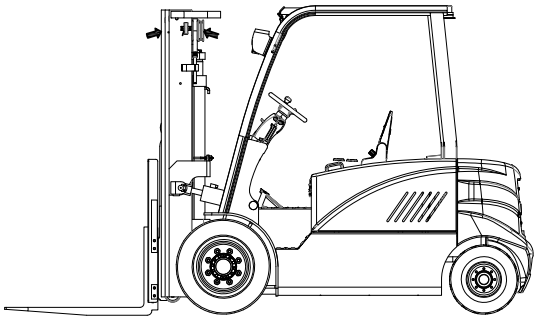
NOTE

The centre of gravity of the goods should be at the centre of the fork arms.

➢ Loading

WARNING

Do not get on the goods being loaded due to the danger of falling or being hit.



WARNING

Lift the goods, and make sure that they are within the load range of the truck to avoid toppling and falling.

- Approach goods carefully and as accurately as possible.
- Place the lift mast in a vertical position. Lift or lower the forks to a suitable position.
- Drive the truck forwards carefully, and insert the fork arms beneath the goods, ensuring that the goods are leaning against the vertical section of the fork arm as much as possible and taking care that they do not touch adjacent goods.
- Lift the forks until the fork arms are firmly supporting the goods.
- Reverse the forklift truck until the lifted goods separate from the other stacked goods.
- Tilt the mast back.

CAUTION

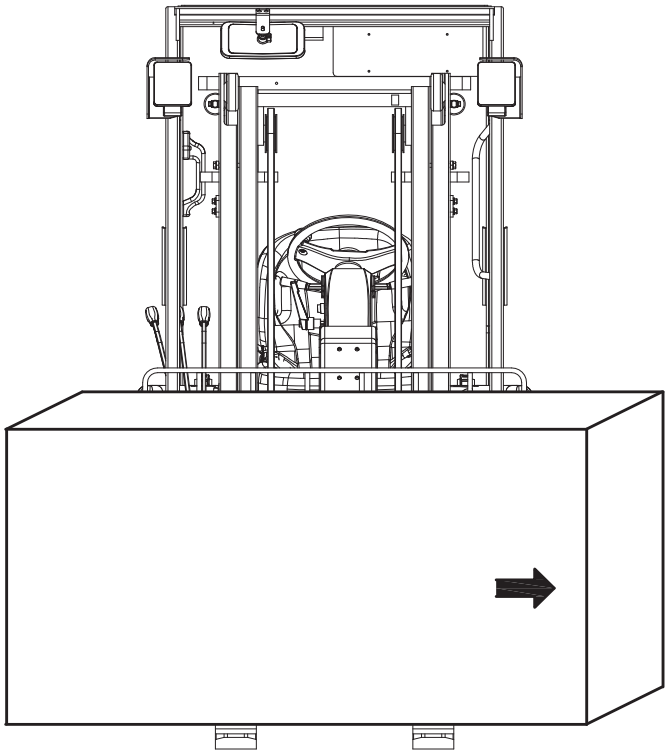
Do not stand below lifted goods. When driving, the goods should be as close to the ground as possible, and the lift mast tilted back.

➢ Transport

NOTE

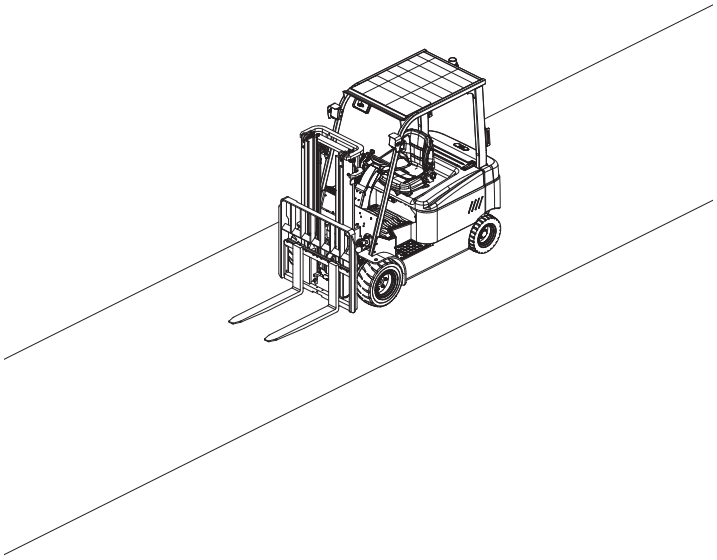
The consignor should secure the goods safely during transport. Attention should be given to appropriate stacking of the goods, to avoid damage to the packaging of the goods, the pallet etc. Responsibility for the safe loading of the goods lies with the transportation personnel.

- When driving with a load, the goods must not lean to one side (such as when fitted with lateral forks).
- Goods should be close to the ground during transport.
- The truck absolutely must not turn or travel in a horizontal direction when moving up a ramp.
- If the field of vision is poor, ask a guide for assistance.
- If the goods on the fork arms are stacked too high, so that they block the line of sight, then the truck must be driven in reverse, but if it is on a slope, it's not allowed to be driven in reverse.



➢ Unloading

Carefully approach the shelf or goods stacking area.
Lift the fork carriage to a suitable height. Place the lift mast in a vertical position. Carefully drive the forklift truck into the shelf. Slowly lower the goods until the fork arms are able to separate from the goods.
Reverse the forklift truck.



1.5 Parking the truck securely

When you leave the truck it must be securely parked even if you only intend to leave it for a short time.

- Lower the fork carriage to its full extent.
- Set the emergency stop switch“OFF”.
- Turn off the key switch and remove the key.

The truck is now parked securely.

WARNING

An unsecured truck can cause accidents

- *Parking the truck on an incline, without the brakes applied or with a raised load is dangerous and is strictly prohibited.*
- *Always park the truck on a level surface. In special cases the truck may need to be secured with wedges.*
- *Always fully lower the mast and load.*
- *Tilt the mast forward.*
- *Select a place to park where no other people are at risk of injury from lowering forks.*
- *Do not park and leave the truck on an incline.*

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 Hydraulics**

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

Check the oil level in the oil tank of the working and steering hydraulic systems.

➢ **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 "data plate and identification points" of this manual. Any damaged or unreadable decals must be replaced.

➢ **Check Chassis, bodywork and fittings**

Check the condition and function of the driver's seat and seat belt.

Checking the tyres.

Check brake system and parking brake.

➢ **Perform Operational Check**

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

- Hand brake lever and brake pedal
- Display/battery discharge indicator
- Horn
- Forward and reverse travel
- 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 the condition and function of the driver's seat and seat belt.		
Check the entire truck as well as the surface beneath it for signs of fluid leakage.		
Check the oil level in the oil tank of the working and steering hydraulic systems.		
Check Battery Connector		
Check Decal Condition		
Checking the tyres.		
Check the condition and function of the driver’s seat and seat belt.		
Check brake system and parking brake.		
Check hand brake and brake pedal		
Check display/battery discharge indicator		
Check working lights		
Check forward and reverse travel		
Check horn		
Check lifting and lowering 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.

➢ **Fire protection measures:** Smoking and open flames are not permitted when handling batteries. Wherever the truck is parked for charging there shall be no flammable material within 2 meters around the truck. The location must be well ventilated and fire fighting equipment must be available.

DANGER

- *Battery has high voltage and energy.*
- *Do not short circuit.*
- *Do not place any metal objects on the battery.*
- *Do not reverse the battery polarity.*
- *Do not open the battery, electrical risk.*

1.2 Battery type & dimension

All the batteries are maintenance free.

Battery type & dimension as follow:

Tuck type	Battery type	voltage/ rated capacity	Dimension(mm)	Charger	Charging time(h)
CPD15L1-S	Lithium Battery	48V360AH	930X340X595	150A	2.4
CPD20L1-S	Lithium Battery	48V360AH	930X340X595	150A	2.4
CPD25L2	Lithium Battery	80V/270AH	/	200A	1.8

➢ Checking the battery level

Depress the foot brake pedal.
Press the emergency stop switch.
Insert the electric switch key and turn clockwise.
Check the power level shown on the discharge indicator.

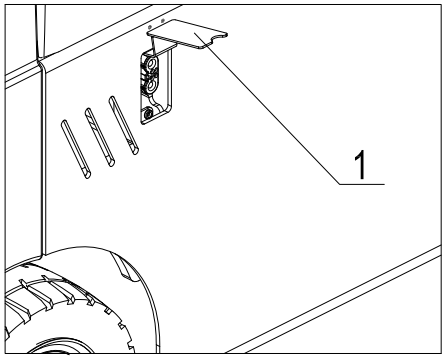
i NOTE

Charge and maintain the battery in accordance with instructions from the manufacturer. If there are no instructions, please contact your maintenance agent. Optional battery chargers must also be operated according to instructions.

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 turned OFF.
- It is essential to follow the safety regulations of the battery and charging station.



➢ Charging Procedure

- Insert the electric key switch and turn clockwise.
- Tilt the lift mast forwards slightly. The truck must be stationary on the ground.
- Pull the hand brake.
- Press the emergency stop switch.
- Press the cover(1), cover open automatically.
- Connect the battery charging station cable to the battery connector.
- Switch on the battery charging station and charge the battery in accordance with the battery and charging station manufacturers' instructions.
- After the battery is fully charged, finish charging according to the charger manual.
- Close the cover.

WARNING

The battery charging station should be plugged into a standard 380V, 3-phase, 50/60Hz walloutlet.The battery plug and socket may only be withdrawn or connected when the main switch and the charging equipment are switched off.

WARNING

Output voltage, current and application range of the charger must match the battery, otherwise it will influence the volume and service life of the battery.
Charging cable polarity must match the charger output terminal polarity.

WARNING

Recharge the battery in time. Do not keep the battery fully discharged or lower than 20%.

NOTE

A fully charged battery will provide approximately 3 hours of continuous use. Capacity will be reduced when used in low-temperature environments.

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 month to prevent permanent damage to the battery.

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.

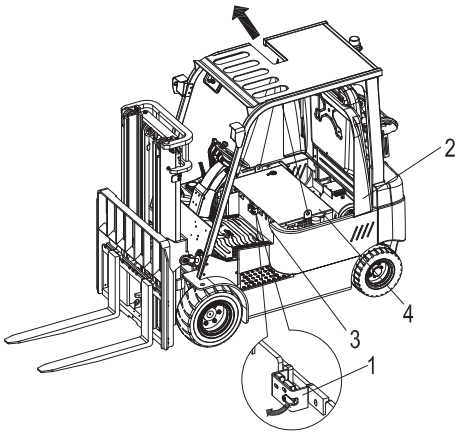
WARNING

- *The truck must be parked on level ground. To prevent short circuits, batteries with exposed terminals or connectors must be covered with a rubber mat. Place the battery connector or the battery cable in such a way that they will not get caught on the tractor when the battery is withdrawn.*
- *When transporting batteries with the aid of a crane, ensure that the crane is of adequate capacity (the battery weight is indicated on the battery identification plate at the battery trough). The lifting gear must exert a vertical pull so that the battery container is not compressed. Attach the hooks to the battery hand(or battery strap) in such a way that the lifting gear, when slack, cannot collapse on the battery cells.*
- *When removing the battery make sure it does not get caught on the battery panel,causing the tractor to tip over.*
- *After installing the battery, check all cables and plug connections for visible signs of damage. Ensure that the battery is firmly secured in the tractor to prevent any damage caused by sudden movements of the tractor. Whenever you replace the battery make sure it cannot slide. The battery cover must be securely closed and locked.*

➢ **Procedures:**

- Park the truck on the flat ground, and pull on the brake lever.
- Turn the switch (1)clockwise, then open the battery cover (2), expose the battery.
- Remove the pin(3), pull out the signal wire first then the plug.
- Attach the lifting hook to the battery.
- Sling the battery to a certain height with a hoist, then move it rightwards.
- Place the battery to one side after lifting it away from the chassis.

Install according to the reverse order of removal.



CAUTION

The battery must be secured so that it does not slide. Please contact your EP dealer if necessary.

1.5 Battery maintenance

Do not over-discharge battery:

- If you discharge the energy of battery completely till the trucks do not move any more, you will shorten the lifetime of the battery.
- As soon as the signal for charging appears that is no more lifting or traveling, please charge it immediately.

Battery Disposal

Batteries must only be disposed of as stipulated in the national environmental protection regulations or waste disposal provisions. The battery specifications for the disposal must be followed.

➢ **Cleaning the battery**

- Do not use dry cloth or fiber cloth to clean the battery to avoid static charging and explosion.
- Unplug the battery..
- Clean with wet cloth.
- Wear glasses to protect eyes, wear rubber overshoes and rubber gloves.

G 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. 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 technicians only. They must have knowledge and experience sufficient to assess the condition of a truck and the effectiveness of the protective equipment according to established principles for testing 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 truck is to be lifted, the lifting gear must only be secured to the points specially provided for this purpose.

When jacking up the truck, take appropriate measures to prevent it from slipping or tipping over (e.g. wedges, wooden blocks).

➢ Cleaning operations:

No inflammable liquids must be used when cleaning the 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-powered 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-powered 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.

➢ Hydraulic hoses

The hoses must be replaced every six years. When replacing hydraulic components, also replace the hoses in the hydraulic system.

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
Before starting maintenance work:	Clean the fork lift truck if necessary			●	
	Check the time and date settings on the display unit; adjust if necessary.			●	
	Check for error codes on diagnostic software and delete.			●	
	Calibrate the potentiometer and joysticks.			●	
	Set a reminder for the next maintenance check on diagnostic software.			●	
Reduction gearbox	Check whether the speed reduction gearbox is leaking			●	
	Check the drive axle and reduction gearbox fastenings			●	
	Clean both sides of the traction motor, the power steering and working hydraulic pump motor.			●	
Functions and Control	Check alarm system functions			●	
	Check parking brake functions			●	
	Check the emergency switch functions			●	
	Check the steering wheel functions			●	
	Check the cables for damage and if the terminals are secure			●	
	Check the seat switch functions			●	
	Check and tighten the controllers and contactors			●	
	Check accelerator pedal functions			●	
	Check fault information records and operating hours			●	
Power Supply & Drive System	Check the battery cables for damage and replace if necessary			●	
	Check the battery charge connector			●	
	Check if the cable connections between battery monomers are secure, apply some grease to electrodes if necessary			●	
	Check electrolyte fluid level			●	
	Check electrolyte density			●	
	Check battery temperature			●	
	Check battery locking mechanism			●	
	Check and tighten motor mounting bolts				●
	Check the connections of motor connectors				●
	Check the position of various bearings for noise			●	
	Check transmission oil level			●	
	Clean or replace the gear oil	Replace once every 1000 hours.			
	Check the gearbox for abnormal noise or leaks			●	
	Check the drive wheel and steering wheel for wear or damage	●			
	Check and lubricate the wheel bearings			●	
	Check the travel speed				●

		Maintenance interval●			
		W	A	B	C
Frame and installation	Chassis, tilt cylinders and steering axle: Check fastening.			●	
	Check the counterweight, motors, chassis, speed reduction gearbox, overhead guard and steering axle fastenings.			●	
	Lubricate the overhead guard pin shaft.			●	
	Check and lubricate the other pins and swivel points.			●	
	Check the condition of the antistatic belt.			●	
Chassis frame	Check for correct operation of the parking brake and readjust if necessary.			●	
	(As required) Check wheel fastenings and tighten if necessary (after each maintenance or repair, at the latest after 100 hours).			●	
	Check the brake system			●	
	(As required) Wheel change			●	
	Check the release of the multi-disc brake for the towing procedure: press the brake			●	
	lever at the brake valve several times.			●	
	Check/lubricate the compact steering axle.			●	
	Check/lubricate the movable steering axle.			●	
	Check the chassis for cracks or damages				●
Operating devices	Checking the joystick pad			●	
	Checking and lubricating the pedal mechanisms, control linkage mechanisms and the overhead guard locking devices.			●	
	Check the horn for correct function.			●	
Mast System	Check the mast for damages				●
	Clean and lubricate the rolling surface of lift mast column with grease		●		
	Check and lubricate mast rollers			●	
	Check the fixation of lift mast			●	
	Check the tubing on mast for connections and leaks			●	
	Check the side shifter functions	●			
	Check and lubricate the chains			●	
	Check the lifting chains and chain guides for wear, adjust and grease			●	
	Check the fork carriages for wear and damage			●	
	Visual inspection of rollers, sliders and stoppers			●	
	Check the lifting and lowering speed				●

		Maintenance interval●			
		W	A	B	C
Hydraulic System	Check the functions of hydraulic system	●			
	Check if the hoses, pipes and interfaces are fastened or sealed securely, and check if there is damage			●	
	Check the connections of pump motor connectors				●
	Check and tighten pump motor mounting bolts				●
	Check the gear pump fixation and check for leaks			●	
	Check the cylinders for leaks			●	
	Check the cylinders for damages and check the fixation				●
	Check the oil tank fixation and check for leaks				●
	Check the hydraulic oil level			●	
	Clean or replace the hydraulic oil	Replace once every 2000 hours.			
	Check and clean oil tank air filter			●	
	Replace the oil tank air filter and filter				●
	Check the relief pressure				●
Braking System	Check the braking functions	●			
	Check the brake fluid level			●	
	Check the brake pump and piping connections for leaks			●	
	Check the release of brake pedal is normal			●	
	Check the braking distance of brake				●
Other	Check if the signs are clear and complete			●	
	Carry out a functional test and test drive.				●
	Attach the maintenance sticker.				●
	Check the connections of bolts and nuts			●	
	Check the engine hood and lubricate the hinges			●	

NOTE

If the forklift truck is used in an extreme environment(such as excessive heat, excessive cold or areas with high dust concentrations), the time intervals given in the maintenance tables should be reduced accordingly.

➢ Periodic replacement of safety-critical parts

- Some parts are difficult to inspect during periodic maintenance. Therefore, in order to further improve safety, users should carry out periodic replacement of the parts listed in the following table.
- If any of these parts are found to be damaged or faulty before they are due for replacement, they should be replaced immediately.

Name of safety-critical part	Useful life (years)
Brake hose or rigid pipe	1~2
Lifting system hydraulic hoses	1~2
Lifting chain	2~4
Hydraulic system high-pressure hoses	2
Brake fluid cup	2~4
Hydraulic system inner seals and rubber parts	2

1.3.2 Lubrication Points

➢ Lubricant

Improper operations may pose 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 (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.

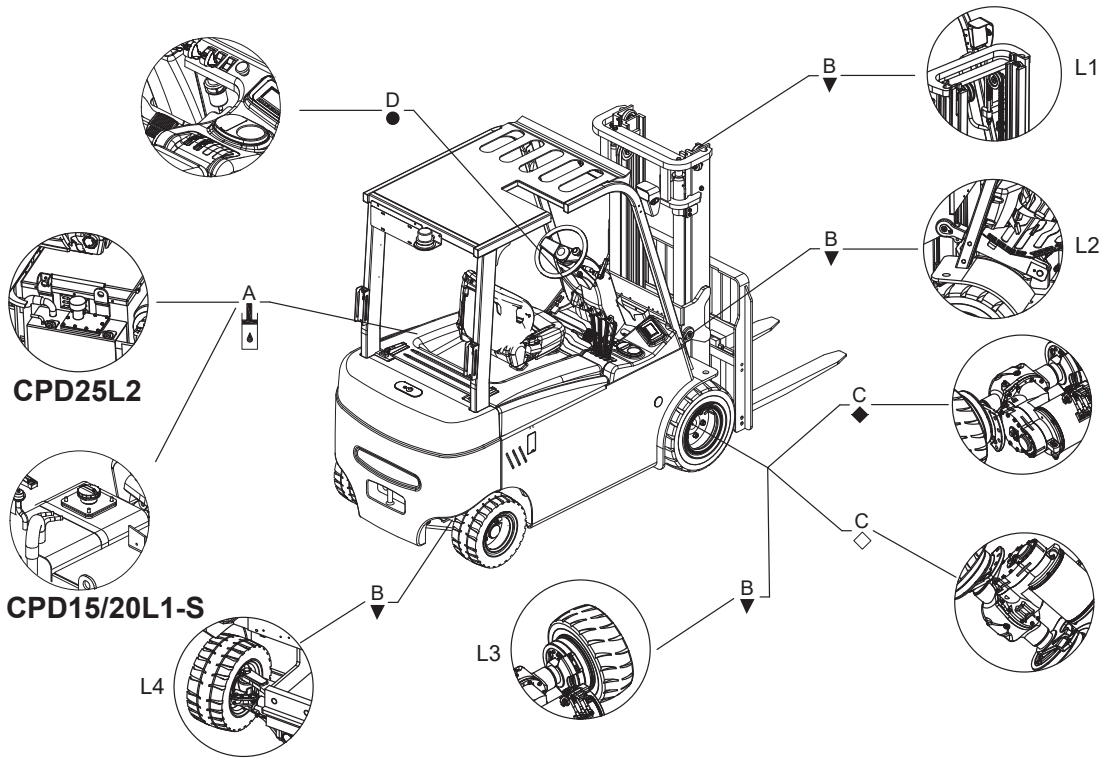


Table 1 Lubricants				
Code	**Type**	**Specification**	**Amount**	**Position**
A	Anti-wear hydraulic oil	L-HM46	See Table1	Hydraulic System
	Low temperature anti-wear hydraulic oil (cold storage)	L-HV32		
B	Multi-purpose grease	Polylub GA352P	Appropriate amount	Sliding Surface (See Table2)
C	Heavy duty gear oil	85W-90GL-5	3.5L for CPD15/20L1S (Align with oiling port)3.8L for CPD25L2 (Align with oiling port)	Drive axle or Gearbox
D	Brake fluid	ZSM207DOT3	After the gas within the system is completely discharged, add to 2/3 of the oil cup	Brakes

Table 1 Application Amount of Hydraulic Oil - 1		
Mast Series	**Lifting height (mm)**	**Amount (L)**
2-stage Mast	2000	15.3
	2500	16.1
	2700	16.4
	3000	16.9
	3300	17.3
	3500	17.7
	3600	17.8
	4000	18.5
	4250	18.9
	4500	19.3

CPD15/20L1S

Table 1 Application Amount of Hydraulic Oil - 1		
Mast Series	**Lifting height (mm)**	**Amount (L)**
2-stage Mast	2000	24
	2500	26
	2700	27
	3000	28
	3300	29
	3500	30
	3600	30
	4000	32
	4300	33
	4500	34

CPD25L2

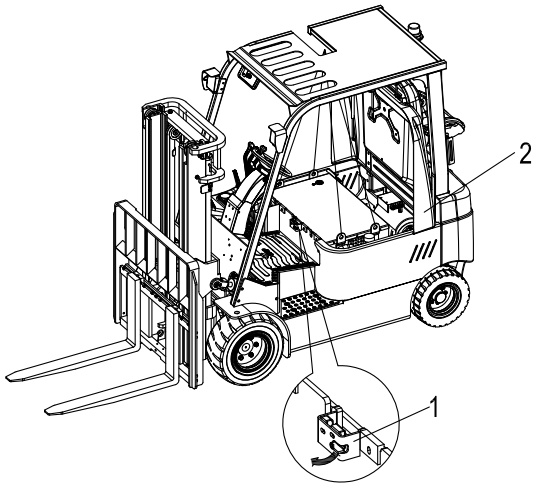
Table 2 Sliding Surface Lubrication Table	
Code	**Position**
L1	Steel channel,Rollers,Chains
L2	Mast mounting shaft
L3	Driving axle
L4	Steering axle

1.4 Maintenance Instructions

➢ 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 improper operation.
- When working under a raised lift truck, secure it to prevent it from tipping or sliding away.



➢ Open the battery cover

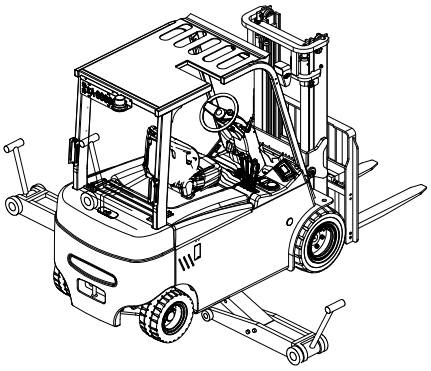
- Unlock the battery cover(1),
- Open the battery cover(2).

1.4.1 Steering Wheels Removal and Installation

➢ Removal

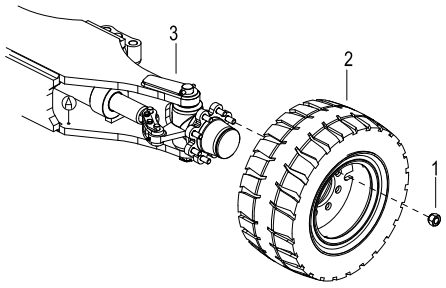
- Jack up the vehicle with lifting equipment, make the drive wheels off the ground;
- Power off and place a wooden wedge under the chassis near steering wheel, make the wheel off the ground;
- Remove the five lock nuts (1) on the drive axle assembly (3).
- Remove the Steering Wheels

Install according to the reverse order of removal.



WARNING

Tire is solid tire. When replacing wheels, be sure that the truck won't tilt.



NOTE

The wheels must only be replaced by authorized service personnel.

1.4.2 Drive Wheels Removal and Installation

- Jack up the vehicle with lifting equipment (1), make the drive wheels off the ground;
- Power off and place a wooden wedge under the chassis near steering wheel, make the wheel off the ground;
- Remove the five lock nuts (1) and protectors (4) for CPD25L2 on the
- Drive axle assembly (3).
  Remove the Steering Wheels (2).

➢ **Installation and Commissioning**

Install according to the reverse order of removal.

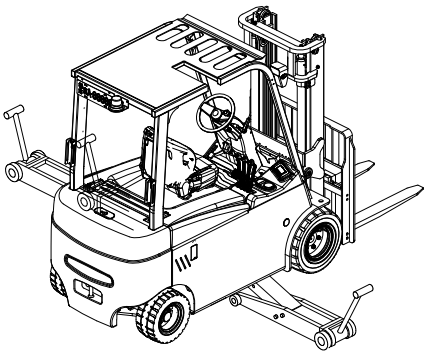
Tyre wear can affect the stability of the truck, replace the drive wheel with heavy wear.

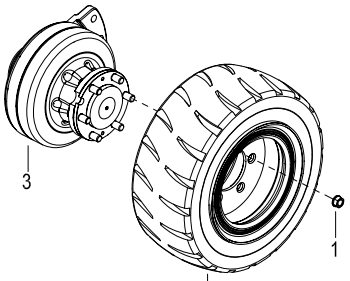
CAUTION

- *Screw the six nuts.*
- *Tighten the nuts of steering wheels in order and mark with the torque: 220 Nm.*
- *Tighten the nuts of driving wheels in order and mark with the torque: 220 Nm.*
- Turn the wheel to see if it is rotating smoothly, and if there is blocking or not.
- Run the truck to see if the wheels are functioning properly. If there is blocking or noise, please check if the wheel bearings are functioning properly.

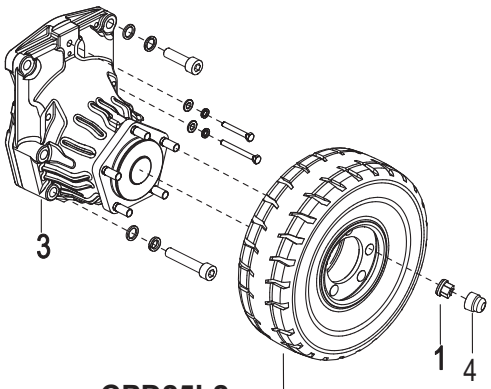
CAUTION

Quality of tyres directly affects the stability and driving performance of the device.
If you need to replace the factory-fitted tyres, please use original spare parts provided by the equipment manufacturer to reach the original design performance of the truck.

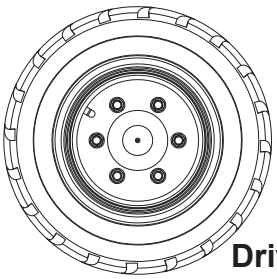




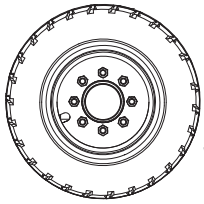
CPD15/20L1S



CPD25L2



Driving Wheels



Steering Wheels

CAUTION

The nuts must be tightened at least once every 1000 operating hours.

Check the tightening torque of all tyre nuts: front tyre 220Nm and rear tyre 220Nm.

1.4.3 Checking the Drive Axle oil level

Pull on the brake lever and switch off the truck.

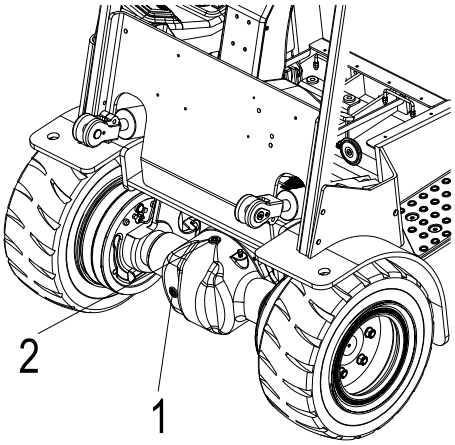
Clean the areas surrounding the oil level plug (1).

Unscrew the oil level plug (1).

The oil level must reach the lower edge of the oil level plug hole.

Unscrew the oil plug (2), Please fill up with gear lubricating oil if necessary.

Screw the oil level plug (1) back in.



CPD15/20L1S

➢ **Checking whether the Drive Axle is leaking**

Check the lubrication ports on the bottom of Drive Axle.

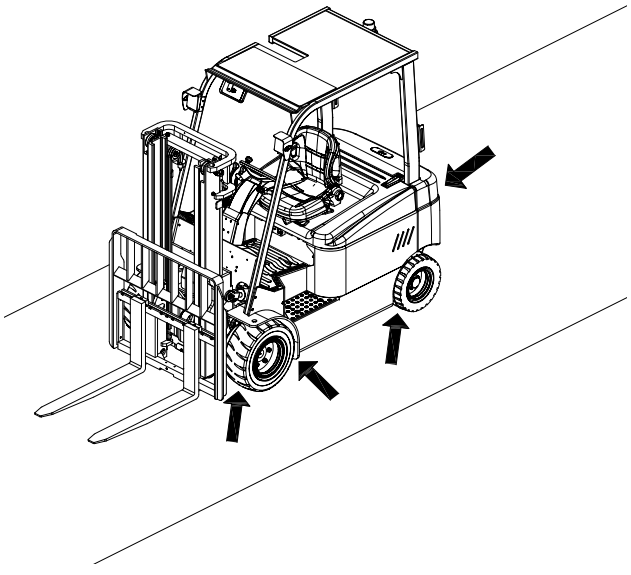
If there is leakage, please contact your manufacturers.

1.4.4 Checking the counterweight, motors,chassis, drive axle, overhead guard and steering axle fastenings

Check the tightness and wear of the motor drive assembly, power steering, working hydraulic oil pump, motor, counterweight, chassis, drive axle, overhead guard and the steering axle.

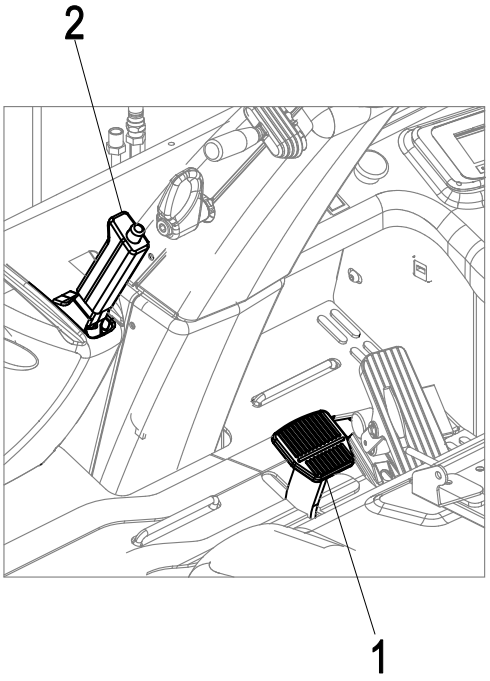
Tighten loose nuts and screws.

Replace damaged parts. Respray if necessary.



1.4.5 Check the brake system

- The hand brake lever (2) and brake pedal (1) must be used correctly. If there is damage of brake system, please contact your EP dealer.
- Clean the main brake oil cylinder with compressed air.
- Tighten all loose brake oil pipe joint connections.

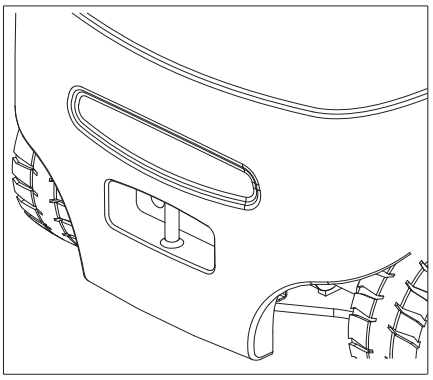


1.4.6 Cleaning/Lubricating the steering axle

CAUTION

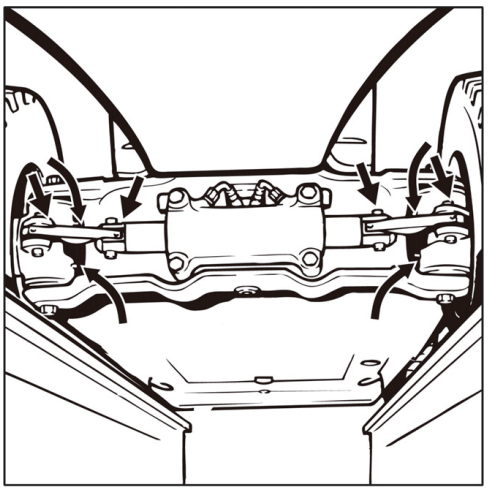
- *Press the emergency stop switch.*
- *Do not allow water to splash into the electrical system.*

- *Use water or a cold cleaning agent to carefully clean the steering axle.*



➢ **Lubricating the steering axle**

Use lubricating grease to lubricate the piston rod of the steering cylinder through the right and left injection nozzles (shown by the arrow).
Lubricate with a grease gun until the fresh oil overflows.



NOTE

We recommend that lubricating be carried out after steam cleaning.

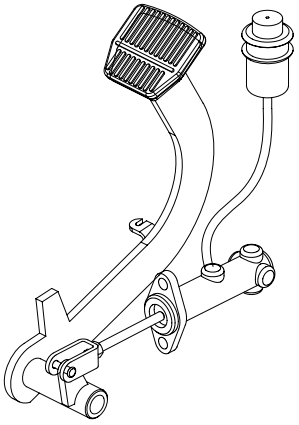
NOTE

Using a little lubricating grease and lubricating often is better than using a lot of lubricating grease and lubricating infrequently.

1.4.7 Replace the brake fluid

WARNING

The brake fluid level must be higher than the lowest marking, otherwise a decline in braking performance will result.
Use the correct brake fluid according to recommended oil types. If the brake fluid is used up very quickly, please contact your manufacturer.



WARNING

The brake fluid must be replaced at least once every 2 years.

1.4.8 Checking the status and tightness of the electrical cables, electrical connections and plug connectors

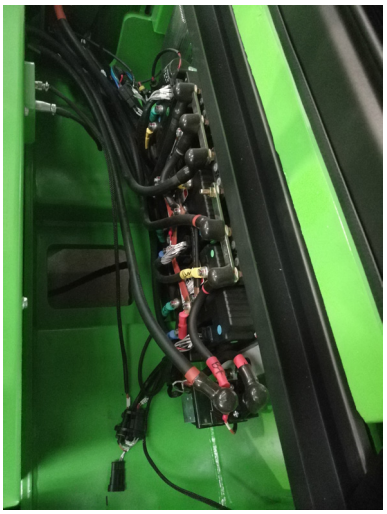
NOTE

Pull on hand brake lever and press the emergency stop button before carrying out this maintenance task.

- Open the battery cover.
- Motor terminals: check the tightness of the connections and whether there is any oxidation or rust.
- Check that the battery cables are secure.
- Check the cables whether there is damage to the insulation and the tightness of the connections.

NOTE

Oxidised and rusted connections and broken cables will lead to a drop in voltage, causing the truck to malfunction. Remove the oxidised rust then lubricate, or replace the broken cables.



CPD25L2

CPD15/20L1-S

1.4.9 Check the hydraulic oil level

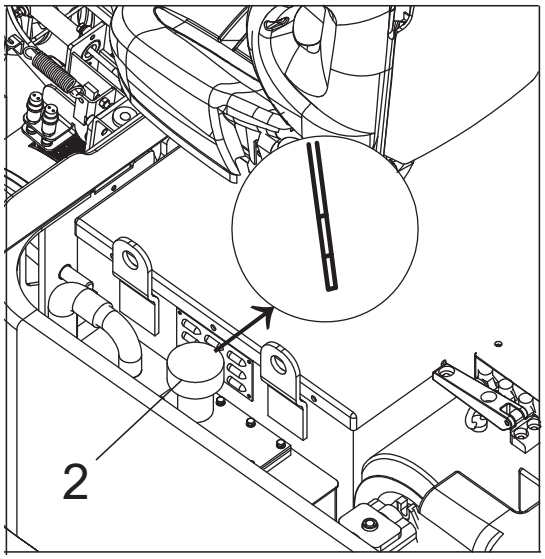
WARNING

Please follow the procedures for the safe handling of oil and lubricating grease.

NOTE

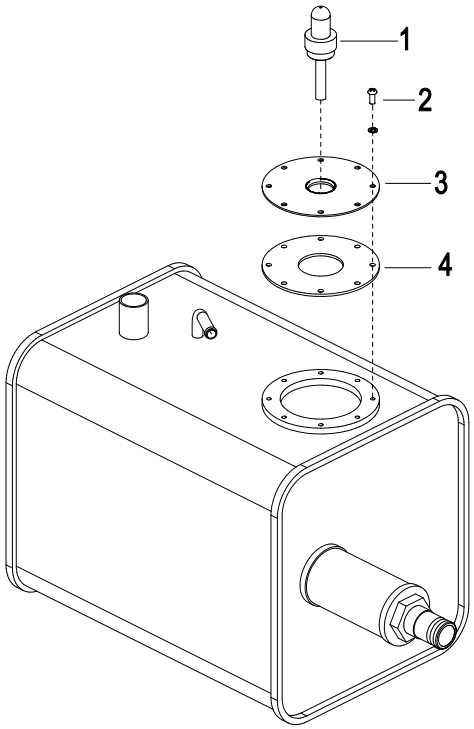
The oil level can only be checked after lowering the lift mast.

- Open the battery hood(See cover and seat).
- Remove the oil cover (1).
- Fill the hydraulic oil up to the proper amount(See Table 1 Application Amount of Hydraulic Oil - 1).
- Reinstall the oil cover.



CPD25L2

- Open the battery hood(See cover and seat);
- Unscrew eight bolts on the tank, remove the breather(1), oil tank cover(3) and gasket(4);
- Fill the hydraulic oil up to the proper amount(See Table 1 Application Amount of Hydraulic Oil - 1).



CPD15/20L1-S

1.4.10 Checking the condition, tightnessand function of the lift mast, lift chains

Thoroughly clean the mast channel and lift chains.
Check the status of the lift chains, along with any signs of abrasion, pay particular attention to the area around the chain wheels.
Check that the chain fixed pins are secure.
Replace damaged chains.

Check the status and tightness of the lift mast, channel surfaces and rollers.
Check the status and function of the stop block.

CPD15/20L1-S

CPD25L2

➢ Adjusting the length of the lift chains

NOTE

Use over time will cause the lift chains to stretch, therefore it is necessary to check and adjust the lengths of both the left and right chains.

- *Fully lower the lift mast.*
- *Undo the lock nut (1).*
- *Adjust the adjustable nut on the fixed pin of the chain (2) to adjust the chain length.*
- *The guide pulley under the fork carriage can extend to a maximum of 25 millimetres out from the mast channel.*
  Tighten the lock nut (1).
- *Adjust the 2nd chain.*

➢ Fuse

1st is control circuit fuse 5A.
2nd is horn circuit fuse 10A.
3rd is turning light 5A, 4th is combined lamp fuse10A.
5th is spare fuses 5A.

WARNING

When replacing for a new fuse, please choose the fuse of same capacity as the old one.

1.5 Decommissioning the trucks

If the forklift truck is not to be used for over 2 months, it must be parked in a frost-free, clean 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 trucks 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.
- Lift and lower the fork carriage to its full extent and tilt the lift mast forwards and backwards several times. Repeat the same operation several times on attachments if they exist.
- 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 trucks 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 months to avoid depletion of the battery through self-discharger.

CAUTION

Jack up the forklift truck to prevent permanent tyre deformation.

NOTE

Do not cover the forklift truck with plastic film as it may gather water vapour.

1.5.2 Restoring the truck to operation after decommissioning

- 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.

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.

NOTE

If you want to carry out maintenance on the forklift truck yourself, we recommend that maintenance be carried out by technicians appointed by the dealer at least for the first three times. Your maintenance personnel should also be present, in order to receive appropriate training.

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 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.

H Troubleshooting

This chapter is designed to help the user identify and rectify basic faults or the results of incorrect operation. When locating a fault, proceed in the order shown in the table.
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.The manufacturer has a customer service department specially trained for these tasks.

Fault	Fault Symptom	Troubleshooting Order *	Troubleshooting Measures
Power supply failure	1. Whole vehicle power outage	a. Power supply failure b. Fuse failure c. Emergency stop switch or circuit failure d. Key switch or circuit failure	1. Check the voltage of storage battery 2. Check the fuses 3. Check key switch and its circuit 4. Check emergency stop switch and its circuit
Travel Fault	1. Forward and reverse moving failures of the vehicle, but other functions are normal	a. Parking brake switch and seat switch or its circuit connection failure b. Gearbox failure c. Travel switch or its circuit connection failure d. Drive motor or its circuit connection failure e. Controller failure	Controller failure error, carry out troubleshooting according to the fault code information on the instrument. 1) Check if parking brake switch and seat switch or the connection of its circuit is normal; 2) Check the gearbox; 3) Check the travel switch and its connection circuit; 4) Check the drive motor and its connection circuit; 5) Replace the controller.
	2. The vehicle can travel at low speed, but cannot travel at high speed	Failures due to external factors: a. Motor bearing blocked b. Gearbox bearing blocked Failures due to internal factors: a. Drive motor speed encoder failure b. Controller failure	Controller failure error, carry out troubleshooting according to the fault code information on the instrument . 1) Check if the motor rotation is normal; 2) Check the speed encoder and its connection circuit; 4) Remove the gearbox, check if the gear rotation is smooth and if there is blocking; 5) Replace the controller

Fault	Fault Symptom	Troubleshooting Order *	Troubleshooting Measures
Hydraulic Failure	1. The vehicle cannot lift	1. Pump motor does not work: a. Parking brake switch and seat switch or its circuit connection failure b. Pump motor or its circuit connection failure c. Control switch or its circuit connection failure d. Controller failure 2. Pump motor works: a. Overload b. Insufficient hydraulic oil c. Hydraulic pipeline leakage d. Pump motor reverse rotation e. Cylinder failure (blocked) f. Solenoid valve blocked and cannot reset g. Valve body failure: excessive wear of gear pump, serious internal leaks, insufficient pressure of relief valve or blocked, check valve blocked	1. Pump motor does not work: 1) Check if parking brake switch and seat switch or the connection of its circuit is normal; 2) Check the pump motor and its connection circuit; 3) Check the control button and its connection circuit; 4) Replace the controller. 2. Pump motor works: 1) Refer to the rated capacity marked on the nameplate; 2) Lower the mast to the bottom, check if the amount of oil in the oil tank can meet the requirements; 3) Check the pipe and hydraulic components for oil leaks; 4) Check the pump motor wiring; 5) Check the cylinder for damage or deformation, remove the cylinder to check for wear or aged seals inside; 6) Wash or replace the solenoid spool 7) Wash or replace the valve body
	2. The vehicle cannot be lowered	a. Solenoid valve (or manual valve) or its circuit connection failure b. Lowering switch or its circuit connection failure c. Valve failure; d. Cylinder deformation or blocked e. Explosion-proof valve blocked	1) Check the lowering button and its connection circuit; 2) Check the solenoid valve and its connection circuit; 3) Check the cylinder for deformation, remove the cylinder to check if the internal assembly is normal 4) Clean or replace the valve; 5) Replace the explosion-proof valve.

Fault	Fault Symptom	Troubleshooting Order *	Troubleshooting Measures
Lift Failure	3. Slow Lifting of Vehicle	a. Overload b. Hydraulic pipeline leakage c. Valve failure: Gear pump wear, internal leakage occurs Insufficient relief valve pressure or blocked	1) Refer to the rated capacity marked on the nameplate; 2) Check the pipe and hydraulic components for oil leaks; 3) Wash or replace the valve body
	4. Slow Lowering of Vehicle	a. Solenoid valve blocking b. Valve body failure: throttle valve failure or blocked	1) Wash or replace the solenoid spool 2) Wash or replace the valve body
	5. Unstable Lifting / Lowering of Vehicle	a. Chain loosening; b. Poor lubrication between steel channel and rollers; c. Improper adjustment of rollers, or blocked.	1) Adjust the chain tension; 2) Check if the steel channel grease is normal, clean and re-lubricate steel channel and rollers; 3) Adjust the side roller spacing through roller screw; or replace the roller.
* Under the circumstances of normal lifting and lowering, if failure occurs to any of other hydraulic actions (forward/backward shifting, forward/backward tilting and left/right shifting), perform troubleshooting to the corresponding control switch and its control circuit.			
Steering Fault	1. The vehicle cannot be steered (the vehicle can travel)	a. Steering potentiometer or its circuit connection failure b. Redirector or the tubings connection failure c. Steering bridge or the tubings connection failure d. Pump motor failure e. Gear pump failure f . Pump controller failure	Controller failure error, carry out troubleshooting according to the fault code information on the instrument; 1) Check the steering potentio-meter or its connection circuit; 2) Check if the mechanical connection between steering wheel and redirector is solid; 3) Check the redirector or the tubings connection; 4) Check the steering bridge or the tubings connection. 5) Check the pump motor or its connection circuit; 6) Check the pump; 7) Replace the controller.

Fault	Fault Symptom	Troubleshooting Order *	Troubleshooting Measures
Other Failures	1. Lights do not light	a. Light failure or circuit not conducted b. Lighting combination switch or its circuit connection failure c. Fuse failure	1) Check the light and its circuit connection; 2) Check Lighting combination switch and its connection circuit; 3) Check fuse and its connection circuit;
	2. Horn does not sound	a. Horn switch or its circuit connection failure b. Horn failure c. Fuse failure	1) Check the horn button and its connection circuit; 2) Check the horn and its connection circuit; 3) Check fuse and its connection circuit;

Carry out troubleshooting in accordance with the order listed in the table, it can help you quickly identify problems and resolve accordingly.

• To provide targeted and rapid response to faults, the following details are useful and important to
• provide for the customer service department:
• Truck serial number
• Display unit error number (if present)
• Error description
• Current location of truck.

APPENDIX

1.1 Lithium Battery Use and Maintenance Manual

➢ Information on the conformity of lithium-ion batteries

The manufacturer of the lithium-ion battery and EP group provider declares that: the lithium-ion battery conforms with the provisions of the following
EU directive 2014/30/EU in accordance with EN 12895.
This declaration of conformity with EU directives applies only to battery use that conforms to the recommendations described in the operating instructions.

➢ Special lithium-ion safety rules

DANGER

There is a risk of fire.
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.

DANGER

Electrical danger
Do not open the battery. Electrical risk.
Only the After-Sales Service Centre technicians can open the battery.

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 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.
- Improper use may cause overheating or serious injury. Respect the following safety rules:
- Never short circuit the battery terminals
- Do not reverse the battery polarity
- Do not open the battery
- Do not submit the battery to excessive mechanical constraints
- Do not expose the battery unit to humidity or water (> 80%)

CAUTION

- *DO NOT short-circuit battery.*
- *DO NOT collide, handle gently, and avoid excessive vibration, high drop, etc.*
  DO NOT place the battery or battery pack in a corrosive chemical environment.
- *DO NOT charge the battery without a charging device or with a charging device that we do*
- *not recognize.*
  DO NOT expose the battery or leave it in an environment above 40 °C for a long time.
- *DO NOT disassemble, squeeze, puncture or heat the battery.*
- *Lithium batteries are forbiddento be used by those who lack the knowledge of safe use of lithium batteries.*
- *DO NOT immerse the battery in water or other conductive liquids.*
- *DO NOT use the battery in series or in parallel with other models or types of batteries.*
- *Serial and parallel operation of a complete power supply system containing a lithium-ion battery protection circuit board or battery management system is prohibited.*

- *It is strictly forbidden to hot swap battery to avoid fire or electric shock.*

- *Be careful of corrosion to avoid damage to the battery or shortening its life.*

- *Smoking, spark or open flames are strictly prohibited near the battery.*

1.1.1 Instructions

- Before the first use, charge battery completely with original charger.
- The lithium battery should be used at an ambient temperature of 0°C ~ 40°C, do not use or store the battery near a fire source/heat source where the temperature exceeds the safety range;
- when the battery is low, please charge the battery in time to avoid over-discharge; the replaced battery should also be charged in time to avoid damage caused by over-discharge of the battery after self-discharge.
- Do not place metal objects (such as wrenches, knives) on the lithium battery, or other objects that may cause short-circuiting of the battery to avoid short circuit between the positive and negative terminals;
- Do not bump or strike the lithium battery during use, If leakage is found on the battery, stop using it right away, pull out all the plugs connected to it, place it in open and well-ventilated space, and contact the after-sales service.
- If the battery life is significantly shortened, please contact the after-sales for check;
- If the lithium battery fails and cannot be used, please remove the battery from the material handling equipment, the trained personnel can use our BMS special reading instrument to read the information for preliminary judgment; for problems that cannot be solved, please contact the after-sales service department for solutions;
- Before installing and removing the battery, be sure to read the user manual; the weight of the battery body is evenly distributed, please pay attention to the installation

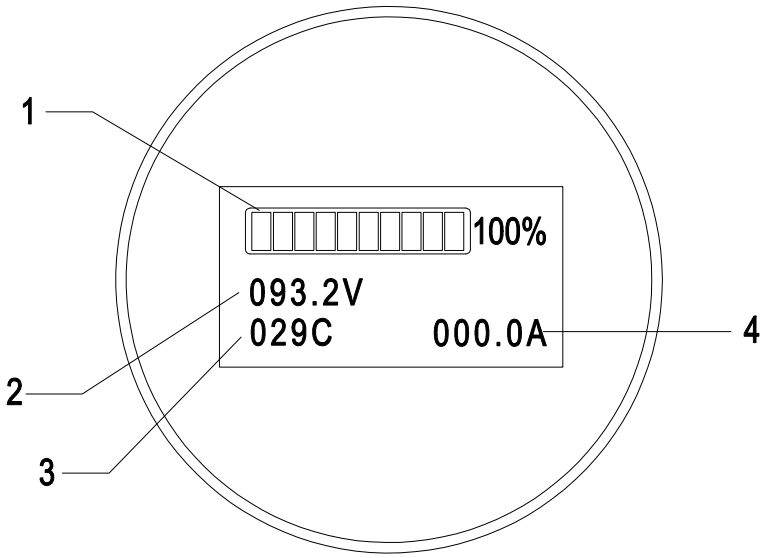
and removal when there is an external weight; please use two hooks to hang on the lifting rings during the lifting process, and gently lift it to keep it stable and not inclined;

- The operator must read the instructions carefully before use and receive relevant safety training to be able to handle emergencies;

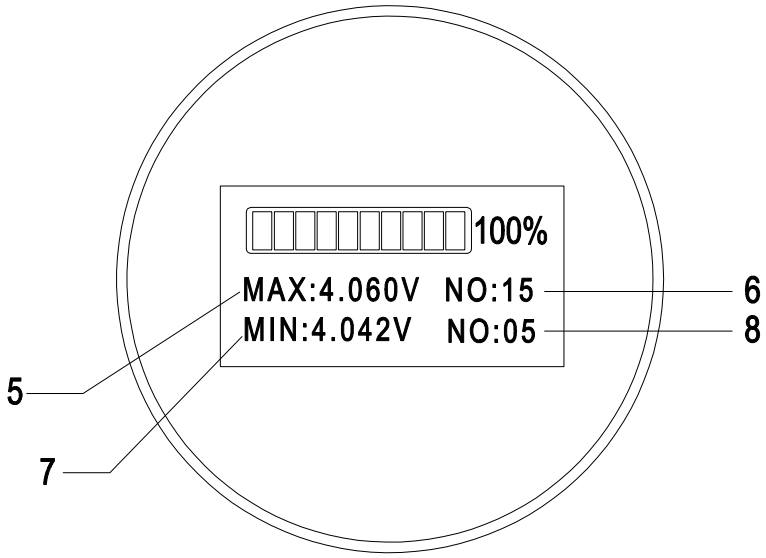
CAUTION

Ambient temperature for use: 0°C ~ 40°C.

1.1.2 Battery indicator

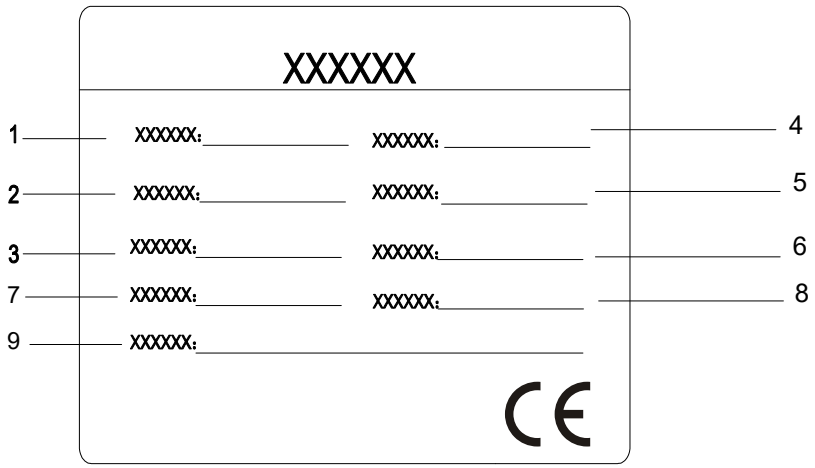


No.	Name	Description
1	Energy display	When all 10 cells are on, it indicates that the battery is full; When the first cell and the second flash alternately, it indicates that the battery is low and must be charged. The battery remaining charge is displayed; “100%” indicates that the battery is fully charged.
2	Total voltage	The sum of the total voltages of the lithium battery series
3	Temperature	Battery temperature
4	Charging current	Current value when charging the lithium battery



No.	Name	Description
5	Maximum cell voltage	Maximum value of cell voltage
6	No. of cell	Identification No. of the cell with maximum voltage.
7	Minimum cell voltage	Minimum value of cell voltage
8	Cell No. of minimum cell voltage	Identification No. of the cell with minimum voltage.

1.1.3 Lithium Battery Nameplate



No.	Name	No.	Name
1	Battery model	4	Cell Type
2	Nominal Voltage	5	Nominal Capacity
3	Nominal Energy	6	Version NO.
7	Battery Weight	8	Date
9	Serial No.		

➢ **Identification**

1.1.4 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.

WARNING

Lithium batteries are strictly prohibited from overcharging and over discharging.

CAUTION

1. The normal charging temperature range of the battery is: 5°C~40°C.
2. The voltage difference between the maximum and minimum cell voltages during charging is less than 0.1V.
3. The lithium battery voltage matches the charger voltage.
4. The charger should be periodically checked for charging over voltage protection device.

➢ **Charging procedure:**

- Move the truck close to the charger, turn off the key switch;
- Before charging, make sure the voltage of the battery matches that of the charger;
- Connect the charger and the battery;
- Check whether the data displayed on the indicators of charger and battery is normal or not;

1.1.5 Storage

1. Try to ensure that the battery or battery pack's power is ≥50% before long-term storage as the battery has the function of self-discharge, be sure to charge the battery once every 3 months to ensure the battery power is ≥50%;
2. The battery should be stored in a temperature environment of 0°C~40°C;
3.The battery in a dry, ventilated and cool environment, avoid direct sunlight, high temperature, high humidity, corrosive gas, severe vibration, etc.
4. DO NOT stack, stacking of the batteies is not allowed.
5. Disconnect the batteries from other electrical items before storage, it is prohibited to have any form of discharge behavior during storing;
6. If the battery is found to be bulged, cracked, or has a low voltage value after long-term storage, the battery may be damaged; please contact the relevant technical department of the company for technical support.
7. After not using the battery for a long time, do not charge or discharge the battery if the smell of leakage is found near the battery.

➢ 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 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.

➢ Scrapping lithium-ion batteries

ENVIRONMENT NOTE

Comply with current regulations for scrapping batteries. Take care to minimise, as far as possible, any impact on the environment. Lithium-ion batteries must be sent to the collection centre to be recycled. Contact the After-Sales Service Centre to agree how to send them.

- Apply the following main rules for transport:
- Make sure that the battery is discharged Affix the Class

i 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.

- Use packaging that complies with international regulations
- Use the original packaging, if possible. Use sturdy packaging capable of bearing the weight of the batteries. Store it in a dry place.
- Wedge the battery well in the packaging to prevent it moving during transport
- Pack batteries individually in plastic bags. Package them to prevent any risk of shortcircuit between terminals.
- Identify the type and number of batteries on the outside of the packaging
- Do not store near to a heat source

- During the loading, unloading and transportation process, severe vibration and large external impact should be avoided, and throwing, rolling, inverting, squeezing and excessive stacking are prohibited;
- Prevent rain during transportation;
- Ensure that the battery or battery pack has been disconnected from the load or charging device before transportation, without any form of charging and discharging.

WARNING

Don't bump, handle gently.

1.1.6 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 before and during installation, immediately stop using the battery and bury it with sand, and notify the after-sales service department of the company for record and obtain technical support;

1.1.7 Maintenance

➢ Daily Maintenance

- It is necessary to arrange professionals for care during the charging operation, especially when the battery is almost fully charged; make sure that the plug and the socket are in good contact during the charging process to ensure the normal work of the charging device and good contact of the connection points of the battery pack. If an abnormality occurs, the battery needs to be repaired before charging;
- Check the battery voltage, temperature, voltage difference, etc. displayed on the circular display meter before charging and discharging to ensure that all values are within the normal range;
- If there is a large amount of dust, metal shavings or other debris on the upper cover and poles of the battery pack, use compressed air or wet cloth to clean it in time, avoid cleaning with water or water-soaked objects;
- When charging and discharging, try to avoid water or other conductive liquids splashing on the top cover and poles of the battery, such as rainwater;
- Estimate the charging time and discharging time of the battery according to the actual status of use of the battery or battery pack, observe whether there is any abnormality in the battery or battery pack at the end of charging and the end of discharging, such as the voltage difference of the battery.

➢ Regular Maintenance

- Check the nodes such as the conductive strips and voltage collection terminals for looseness, shedding, rusting or deformation, etc., to ensure that the series-parallel harness used in the battery pack is firm and reliable (once a month);
- Check the battery casing for cracks, deformation, loose poles, bulging and other abnormal conditions (once a month);
- Check the reliability of the charging device to ensure that the charging device performs the charging action in accordance with the voltage and current adjustment signals sent by the BMS and to ensure that the battery will not be overcharged (once a month);
- Check discharge protection equipment, such as fast-acting fuses, AC contactors, relays, etc., to ensure that the battery pack can be quickly disconnected from the main circuit in the event of a dangerous situation such as short circuit or over current (once a month);
- Check the insulation resistance between the battery pack and the vehicle body to ensure that the resistance value meets the Chinese national standard (≥500Ω/V) and to ensure that there is no electric leakage with the battery (once a month);

1.1.8 Disposal of Used Battery Packs

To prevent environmental pollution, the battery should be sent to a local recycling center or special organization.