

Instruction Manual

XE & XEH Electric Stacker



This Book Contains Important Information Regarding: SAFETY, ASSEMBLY, OPERATION, MAINTENANCE and WARRANTY POLICY. Please Read And Keep This Book For Future Reference.

Thank You For Choosing A Electric Stacker

Welcome to use our electric stacker. Our stacker is made of high quality steel and was designed to give a durable, reliable and easy to use product.

The following pages contain instructions for using and maintaining the stacker properly as well as recommendations and directions for operating the truck efficiently and safely.



WARNING!

Read these instructions carefully, be familiar with the controls and the proper use of the truck. Please keep the instructions safe for later use.

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

Customer Service / Summary Information

- Contact your local dealer for any problems encountered with your truck or spare parts needs.
- Use only genuine spare parts to repair your truck, thus keeping its technical features intact.
- Refer to the spare parts catalog, available from your local dealer, for ordering spare parts.
- We recommend that you copy from the product label and / or plates the information in the table below so that you can provide it to the dealer when necessary.

Product model	
Serial No	
Delivery date	
Manufacturing Date	

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Chapter 1 Introduction – General Instruction

1.1 – INTRODUCTION

1.1.a – General Description



IMPORTANT!

When using equipment, The safety precautions and rules in this manual must be observed to avoid injuries and damage. Please read the complete operating manual with due care. Keep this manual in a safe place, so that the information is available at all times. If you give the equipment to any other person, give them these operating instructions as well. We accept no liability for damage or accidents which arise due to non-observance of these instructions and the safety information.



IMPORTANT!

Carefully read the warnings below before operating the truck:

- Many accidents result from insufficient knowledge or because safety instruction were not observed while operating or maintaining the stacker.
- The truck may only be operated by properly trained personnel. Contact your local dealer for personnel training needs.
- To operate the truck properly and avoid accidents, the user must read, understand and observe all the precautions and warnings contained in this manual, and on the plates attached to the truck.
- The truck may only be used in accordance with the regulations specified in its operating instructions.
- Never allow children or people unfamiliar with these instructions to use the unit. Local regulations may restrict the age of the operator.
- Never use the unit while people, especially children or pets, are nearby.
- The operator or user is responsible for accidents or hazards occurring to other people or their property.
- This manual must be kept carefully on board of the truck so that they can be quickly accessed.
- Some of the illustrations in this manual show the truck without its protective devices (guards, panels, etc.) in order to present the information more clearly. Don't use the stacker without these protective devices. Maintenance operations must be performed by qualified technicians ONLY.

1.1.b – Customer service department

- For certain types of repair and maintenance work, contact your local dealer for a qualified technician with the appropriate equipment and genuine spare parts.

1.1.c – Spare parts

- Use only genuine spare parts supplied by the manufacturer. Using unauthorized spare

parts will void the warranty and the user will assume full responsibility for any accidents caused by the inadequacy of unauthorized parts.

1.1.d – Warranty policy

- The warranty policy is at the end of this manual, which contains the exact guarantee period for different components.

1.1.e – How to use the manual

- This manual is divided into chapters covering different topics. There is a table of contents at the beginning of each chapter to facilitate consultation.
- The following symbols are used to indicate the safety messages contained in the manual:



DANGER TO PEOPLE

Not observing some or all of the instructions indicated by this symbol might seriously compromise the safety of the driver or maintenance personnel.



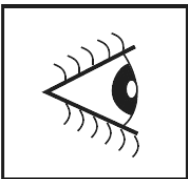
DANGER TO THE TRUCK

Not observing some or all of the instructions indicated by this symbol might cause serious damage to the stacker, and in some cases void the warranty.



IMPORTANT INFORMATION

This symbol indicates important information for the driver.



SEE PARAGRAPH

This symbol indicates that the topic is covered in another paragraph.

1.2 – AREAS WITH THE RISK OF EXPLOSION



DANGER: Never use a standard truck in area where there is a risk of explosion from gases, vapors, or inflammable and explosive powders, or areas threatened by corrosion or excessive dust.

1.3 – TYPE OF USE AND INSTRUCTIONS FOR USE

The truck described in the present operating instructions is an industrial truck designed

for lifting and transporting loads.

It must be applied, operated and serviced in accordance with the instructions contained in the present manual. Any other type of use is beyond the scope of application and can result in damage to personnel, the truck or property. In particular, avoid overloading the truck with loads that are too heavy. The data plate attached to the truck and load curve chart are binding for the maximum load capacity.



Failure to comply with the operator manual shall invalidate the warranty. The same applies if improper work is carried out on the truck by the customer or third parties without the permission of the manufacturer's customer service department.

It must be used for these operations only.

Normal conditions of use are as follows:

- Using the stacker (moving and/or lifting) on surfaces that are relatively firm, smooth, flat and adequately prepared.
- Using the stacker with the center of gravity of the load more or less in the median longitudinal plane of the stacker.
- The load must be uniformly distributed on the forks.



DANGER!

The following are not normal condition of use because they may cause the stacker to accidentally overturn:

- Taking curves too quickly.
- Making sudden turns at a high rate of speed.
- Move with the load elevated.
- Turning or moving sideways on inclines or going up and down hill.
- Carrying shifting loads or loads where the center of gravity is not in line with the median longitudinal plane of the stacker.
- When transporting a load on an incline always travel forwards up the incline and backwards down the incline, the truck is empty or unloaded , travel with the forks facing downhill, this means travelling in reverse up the incline and forwards down the incline).
- Traveling over irregular surfaces (uneven surfaces, inclines or soft ground).
- Overloading the stacker.
- Bumping into stationary and/or mobile structures.
- Misjudging the center of gravity of the load.

1.4 – USAGE PROHIBITIONS

- If necessary, please contact your dealer for assistance.
- Don't make casual repair. if repaired by unprofessional people, the safety modulus of the machine could be altered.
- Carry out all the work and maintenance according to the norms after using it.
- Move the stacker always keeping the forks at the lowest position while no loading on the forks. Pay attention not to hurt anybody around your working area.

- People are forbidden to stand on the forks of the stacker. Don't leave the stacker on the working place after using. The load capacity of the stacker depends on the lifting height and the position of the load center, please refer to relative technical features and load curve chart in this instruction.
- During maintenance, don't disperse any working material into the environment. Carry out any maintenance as shown in this instruction, because any different intervention can cause a danger for the operator or alter the security of the machine. Use original spare parts for maintenance.
- During the work or maintenance, the name plates and stickers must not be removed, concealed or be illegible.
- Choose carefully the materials with which to clean the machine, in particular, we suggest you not to use inflammable materials.

1.5 – DESCRIPTION OF THE STACKER

The stacker offers the following features:

- It's a vehicle on wheels for carry loads;
- It's powered by storage battery;
- It's tiller-steered;
- The truck is a stacking truck with load bearing side member, equipped with forks. Whose arm cover the side members, the truck version with initial arm lift can also be used for transporting as well as stacking .
- The truck is used to lift, stack or place onto shelves loads of a specific size and weight, in view of its construction; the truck version with initial arm lift can also be used to transport loads of a specific size and weight.

1.5.a – Fastening attachments

- The mounting or installation of additional equipment which affects or supplements the performance of the industrial truck requires the written permission of the manufacturer. In some cases, local authority approval shall be required. Approval of the local authorities however does not constitute the manufacturer's approval.



IMPORTANT: To use an attachment, contact your local dealer who will install and test it, and update the carrying capacity plates. Mounting an attachment requires an additional carrying capacity plate. The attachment must also be equipped with an identification plate.

1.5.b – Modifications to the truck

- Contact the dealer if any special modification to the truck are required for non-standard uses.



IMPORTANT: Never modify the truck without prior authorization from the manufacturer, in which case contact the dealer.

1.6 – TRUCK DELIVERY

- The truck is tested and inspected by the manufacturer before it leaves the plant. The

dealer must perform additional inspection before delivering the truck.

- Upon delivery, check that all the accessories ordered have been delivered together with instruction manual;



IMPORTANT: If the truck is delivered with additional attachments and fittings, they must also be accompanied by the relative use and maintenance manuals.



IMPORTANT: Manual must be kept carefully so that they can accompany the truck throughout its lifetime.

After checking these requirements, confirm to be the dealer that they have been delivered.

1.7 – Proprietor responsibilities

Proprietor responsibilities: For the purposes of the present operator manual the “proprietor” is defined as any natural or legal person who either uses the industrial truck himself, or on whose behalf it is used. In special cases (e.g. leasing or renting) the proprietor is considered the person who, in accordance with existing contractual agreements between the owner and user of the industrial truck, is charged with operational duties.

The proprietor must ensure that the industrial truck is used only for the purpose it is intended for and that danger to life and limb of the user and third parties are excluded. Furthermore, accident prevention regulations, safety regulations and operating, servicing and repair guidelines must be followed. The proprietor must ensure that all truck users have read and understood this operator manual.

Chapter 2

Safety

2.1 – SAFETY INSTRUCTIONS



IMPORTANT: Below is a list of some safety instructions that must be followed.

These rules are part of and don't replace, the standards described in the manual that is provided with the truck.

2.1.a – General safety instructions

- The truck must be used by qualified and authorized individuals only.
- Don't install any equipment on the truck unless it has been supplied or approved by the manufacturer.
- Always maintain the truck in good condition, which is a prerequisite for keeping risks to a minimum.
- Keep the warning labels on the truck in good condition, and replace them if they are damaged.
- Carefully read and follow all the safety instructions on the truck.
- Make sure that there is enough free spare room available above the truck.
- Don't park the truck in front of fire extinguishers, emergency exits, or anywhere

where it can block traffic.

- If the truck shows signs of damage or breakage and it cannot be safety, stop the vehicle, park it, and notify the maintenance manager.
- Pay attention to the distance that must be maintained when working near overhead high-tension wires. Observe the safe distances established by the responsible authorities.
- Never lift the load by using one fork only.
- Place the load next to the fork carriage assembly, or so that its load center is as close as possible to the fork carriage assembly.
- Position the load so that center falls on the center line between the forks.
- Don't drive with off-center loads with respect to the median axis of the truck. Doing so might jeopardize the stability of the truck.
- Make sure that the surface supporting the load can carry the weight.
- Always use protective clothing as required by law.
- Don't travel over uneven or obstructed ground or step.
- Don't drive with loads elevated more than 300mm from the ground and with the mast NOT Tilted backward.
- Don't turn around or stack on slopes.
- Don't overload the truck beyond the capacity limits on the appropriate labels and load curve chart.
- Always use the operator safety devices (for example, safety belt, etc).
- Do not damage or remove any protection & carter on the machine.
- The carried load must be layed neatly on the forks in the right way and the weight of goods should be distributed on the two forks evenly, the center of gravity of goods should be in the center of two forks, and position should be 600mm away from the end of fork. When loading, please refer to the load graph on the sticker. Overload is not permitted.
- When the forks in the high position, it is forbidden to drive it fleetly or stop it urgently, all startup, stop and moving should be progressed slowly.
- During lifting or lowering, you can not move the machine. While moving, be sure that the fork should be in the lowest position.
- Make sure the heaviest objects in the load are at the bottom of the load and nearest the back plate of the forks.

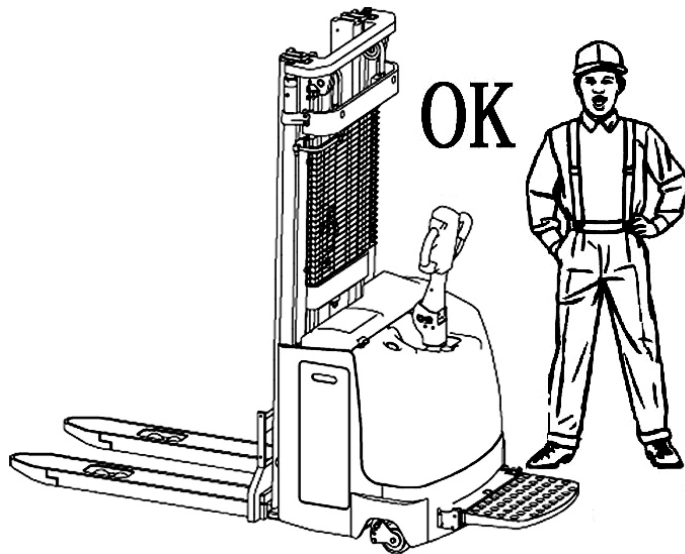
2.1.b – Flooring requirements

The trucks are not equipped with a shock absorber system, so floors where they travel must be even and without holes in areas that could create a problem for the trucks. Steps must be equipped with ramps to avoid bumping the wheel, which would reverberate through the entire body of the truck.



DANGER: Never travel with the truck over cracks or damaged floors. Trash or obstacles obstructing the work area must be removed immediately.

2.1.c – Safety instructions for operating the truck



- Be confident that the truck is safe and reliable.
- Be familiar with the truck so that you can accurately describe malfunction and thus be of assistance to the maintenance technicians. Trained and authorized drivers must be familiar with the controls and function of the truck.
- Report any malfunctions (unusual noises, leakage.etc.) immediately because they could result in damage of a much larger scale if ignored.



IMPORTANT: Report any oil and/or battery liquid leakage because they are dangerous and highly polluting substances.



ATTENTION: If there is a smell of burning, stop the truck, switch off the engine, and unplug the battery.

2.1.d – Safety instruction for supplies

Hydraulic oil

- Avoid contact with the skin.
- Don't inhale oil vapors.
- Never dispose of oils in the environment because they will pollute water. Collect them and take them in legally approved containers to a collection center.
- Always wear protective clothing when performing maintenance operations on the truck (glove, glasses, etc.) to prevent oil from coming into contact with the skin.



DANGER: It's extremely dangerous if hydraulic oil leaks under pressure and penetrates the skin. Consult a doctor immediately if this occurs.



DANGER: Oil squirting at high pressure can penetrate the skin. Use a piece of cardboard to locate any leaks.

Battery acid

- Don't inhale the vapor because it's toxic.

- Use appropriate protection to avoid contact with the skin.
- Rinse with plenty of water if contact with battery acid occurs because it's corrosive.
- Make sure that battery-charging areas meet all legal regulations due to the risk of mixing explosive gasses.
- Don't smoke or use an open flame or light within a 2-meter radius of the battery while it's being charged ,or in the battery–charging area.



IMPORTANT: See also the use of traction battery.

2.2 - LOCATION OF THE WARNING LABELS

2.2.a - Operation caution scutcheon.



2.2.b – Battery maintenance items

Battery Maintenance Guidelines

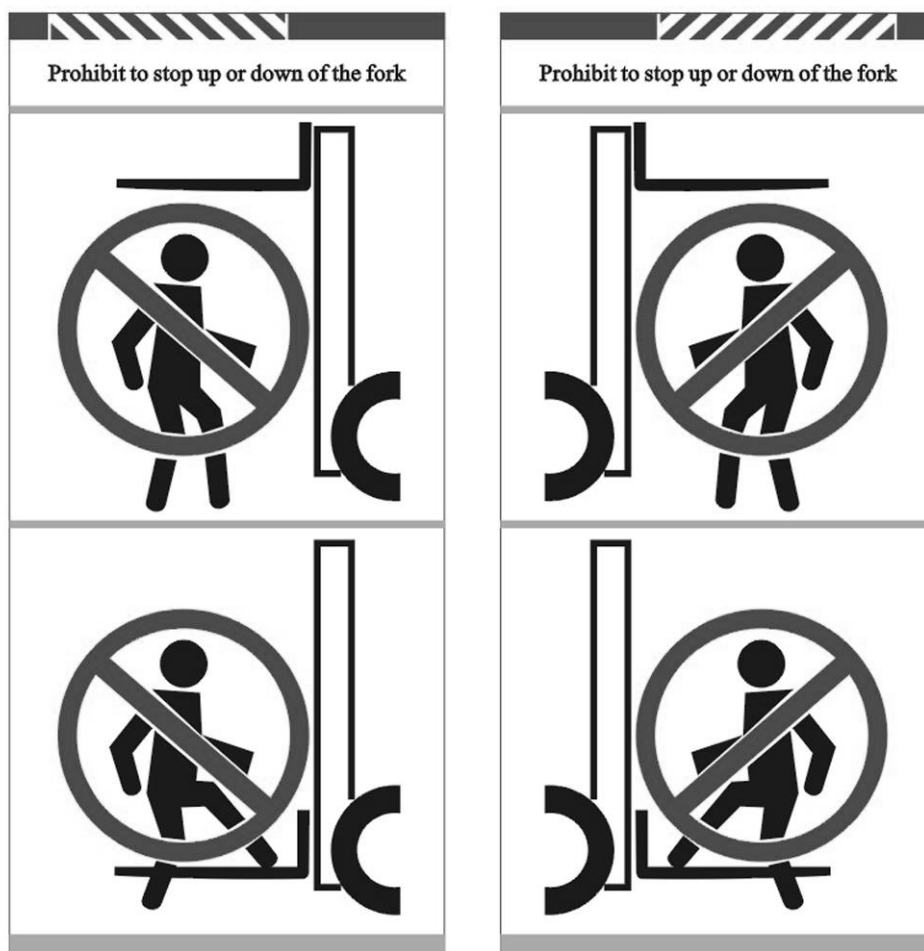
- 1.Battery voltage should not be lower than 85% of the load voltage in the use.
- 2.It is needed to charge within 24 hours after the using of the battery, and the charging should be adequate, but not too more.
- 3.It is needed to fill distilled water or dilute sulfuric acid often to keep the normal proportion and level height of the electrolyte.
- 4.Full charge the battery before storage and be sure to charge the battery once a month if you don't use the battery often.
- 5.The temperature of the battery should not surpass 55°C and it is prohibited to near the flame.
- 6.Keep the battery surface clean and dry.

2.2.c – Notes of battery using

Notes Of Battery Using

- 1.Fill in the distilled water or dilute sulfuric acid when add the electrolyte. Take the small move of the float chamber as standard, it is prohibited to be over height level.
- 2.Open all the battery covers and guarantee a well ventilation when charging.
- 3.To avoid the electrolyte spill out, the opening-cap of the signal battery should be back to its position when traveling.
- 4.When replace the battery, pull the battery box horizontally out of the stacker, put down slowly to avoid the electrolyte spill out.
- 5.Clean the battery bracket in time to avoid the acid of the battery rot the bracket.

2.2.d – Safety signs

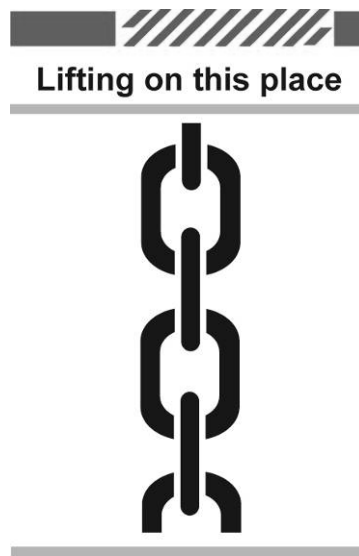


2.2.e- Operation caution

**ATTENTION !**

- People without drive technical training may not be qualified, should not drive the stacker.
- Please understand the specification completely, and operate the stacker as the specification.
- Do not drive when there are over-loading and deviation from the load center.
- The operation of loading and unloading should be slow, Lower the fork and keep the balance of the goods while moving.
- Do not start, brake and turn suddenly.
- Shut the build-in detent and set the gear stick into natural strat position.
- Put the forks fully down and remove the key.

2.2.f – The sign of Lifting

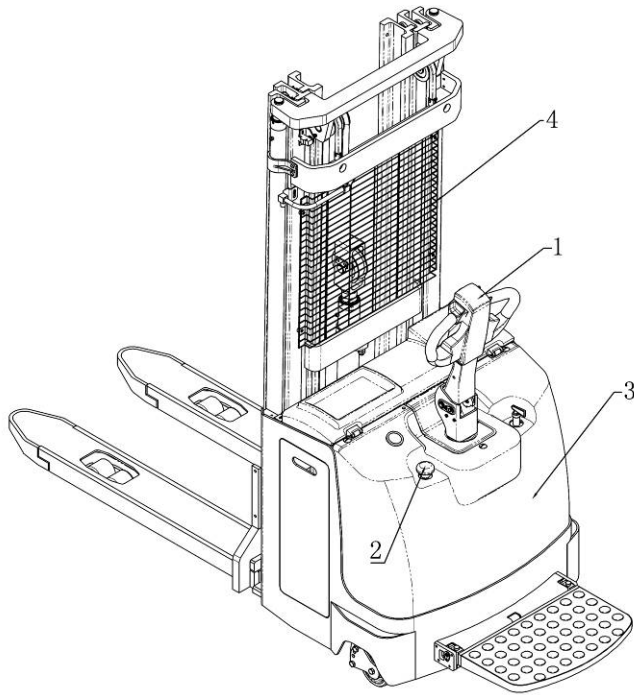


2.3 – SAFETY DEVICE

The truck has been designed to provide maximum safety to the operator and minimum risk of damage to the truck.

Some of the safety devices on the truck include the following:

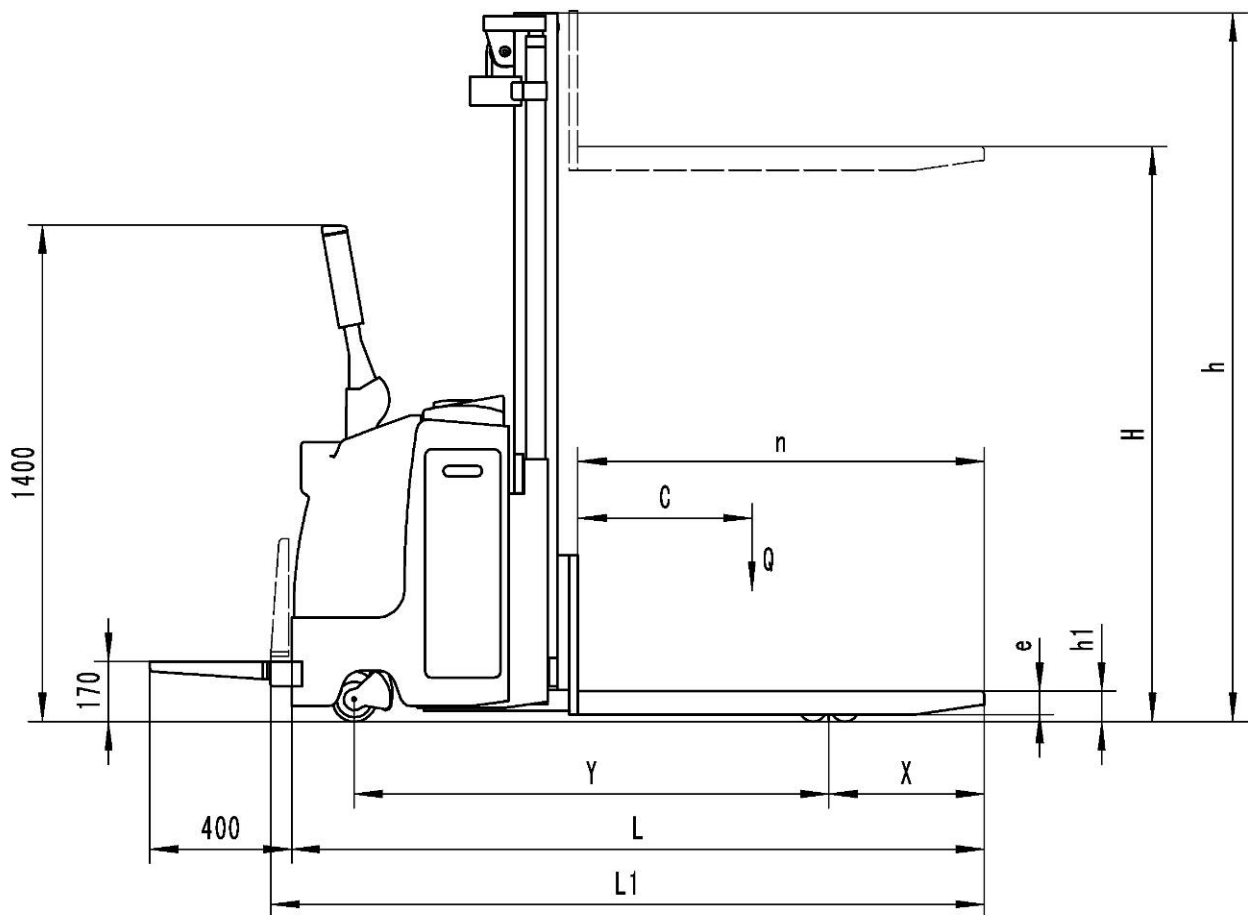
- 1) Safety button to prevent crushing.
- 2) Emergency stop button.
- 3) Safety guards fastened with screws.
- 4) Fork carriage (load backrest extension) to prevent tearing.

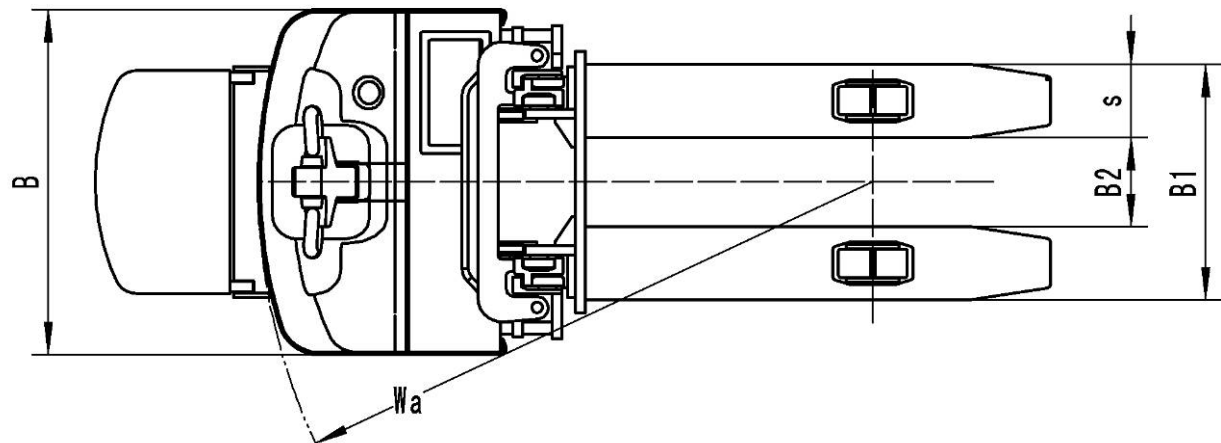


The truck is also equipped with electric and/or electronic devices to protect the motors and the control unit.

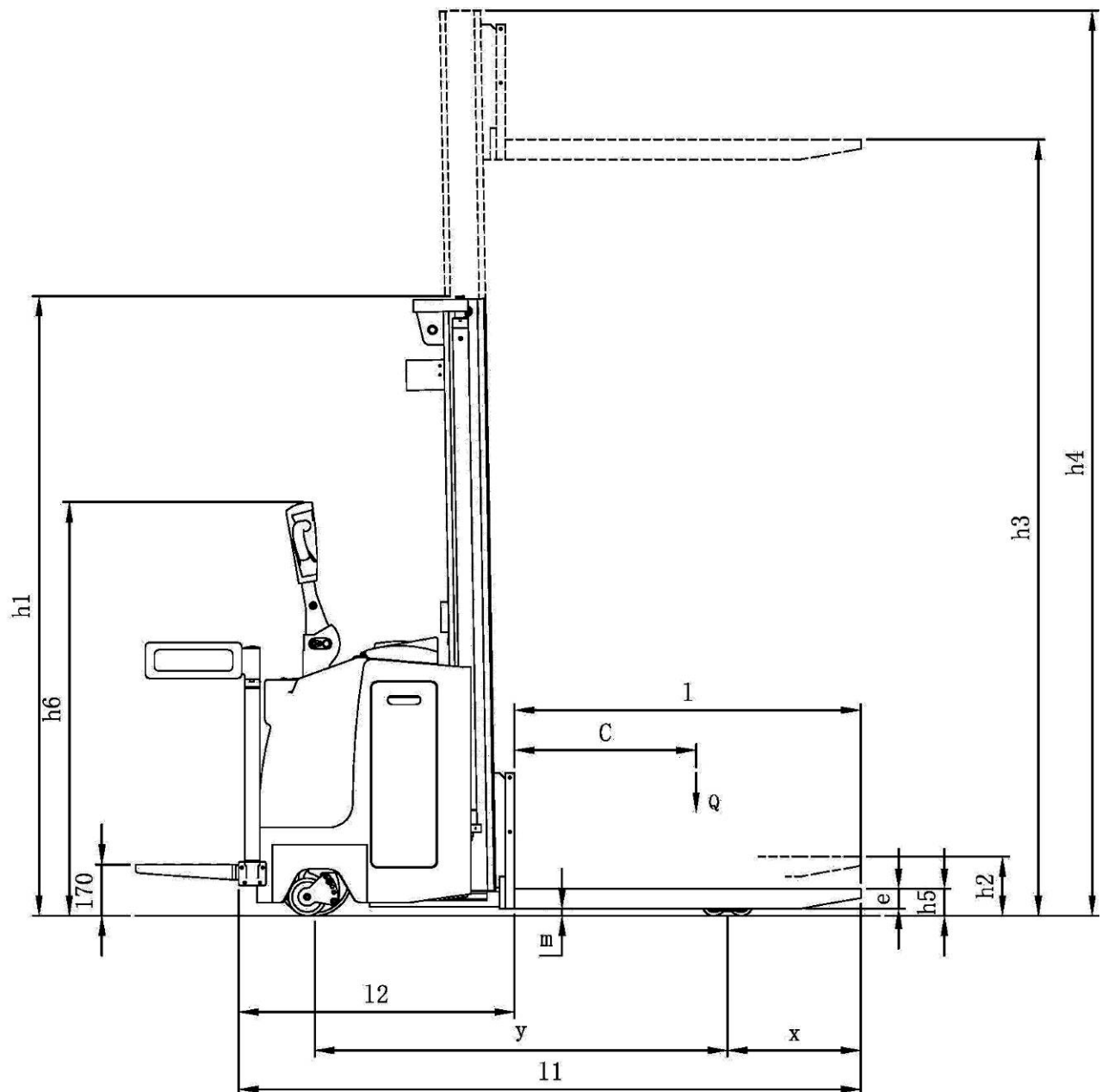
Chapter 3 Technical Data– Identification of The Truck

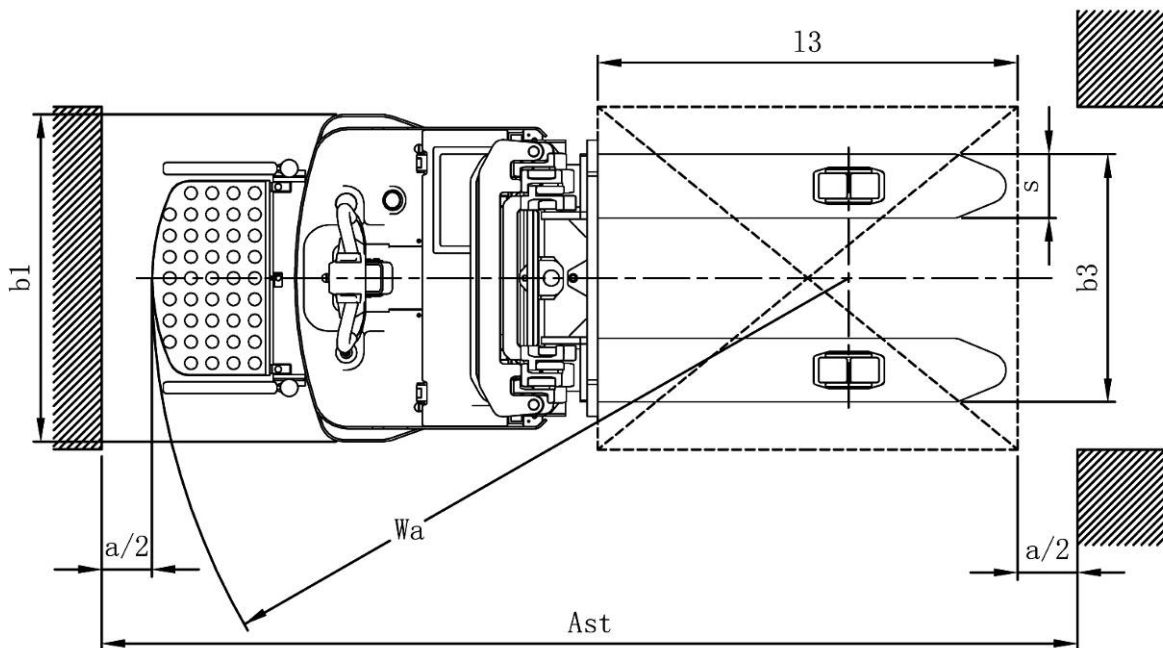
3.1.1 – XE DIMENSIONS





3.1.2 – XEH DIMENSIONS





Remark: $A_{st} = W_a + a + l_3 - l + x$, $a = 200$, l_3 = the length of pallet

3.2.1 - XE ELECTRIC STACKER TECHNICAL DATA

Identification	1	Product model		XE15A	XE15B
	2	Drive unit		Electric	Electric
	3	Operator type		Standing	Pedestrian
	4	Load capacity	Q kg	1500	1500
	5	Load center	C mm	600	600
	6	Load distance, centre of drive axle to fork face	X mm	440	440
	7	Wheelbase	Y mm	1330	1330
Weight	1	Truck Weight (without battery)	kg	775	755
	2	Axle loading, loaded (front/rear)	kg	962/1563	937/1568
	3	Axle loading, unloaded (front/rear)	kg	705/320	680/325
Wheel	1	Tyres		Polyurethane	Polyurethane
	2	Driven wheels size	mm	Φ 250×80	Φ 250×80
	3	Loaded wheels size	mm	Φ 80×70	Φ 80×70
	4	Balance wheels size	mm	Φ 125×50	Φ 125×50
	5	Wheels number		1x-2/4	1x-2/4
	6	Tread, front	mm	690	690
	7	Tread, rear	mm	400	400
Dimensions	1	Height, mast lowered	h1 mm	1750	1750
	2	Free lift	h2 mm	/	/
	3	Lift height	h3 mm	2500	2500
	4	Height, mast extended	h4 mm	2965	2965
	5	Forks height, lowered	h5 mm	86	86

	6	Height of tiller in drive position (max/min)	h6 mm	1350/985	1350/985
	7	Overall length	L1 mm	2020	1960
	8	Length to face of forks	L2 mm	869	809
	9	Overall width	b1 mm	850	850
	10	Fork dimensions	s/e/lmm	180/66/1150	180/66/1150
	11	Max. forks width	b3 mm	580 or 680	580 or 680
	12	Min. ground clearance	m mm	30	30
	13	Aisle width for pallet 800*1200 lengthways	Ast mm	2300	2210
	14	Turning radius	Wa mm	1610	1520
Performance	1	Travel speed loaded/unloaded	km/h	5.2/6	4/5
	2	Lift speed loaded/unloaded	m/s	90/120	90/120
	3	Lowering speed loaded/unloaded	m/s	125/80	125/80
	4	Max gradeability loaded/unloaded	%	5/8	5/8
	5	Service brake		Electromagnetic brake	
Electric Motor	1	Drive motor rating	kW	1.2	1.2
	2	Lift motor rating	kW	2.2	2.2
	3	Battery voltage/capacity	V/Ah	24/xxx	24/xxx
	4	Battery weight	kg	xxx	xxx
Other	1	Control unit type		MOSFET control	
	2	Sound level	dB(A)	<70	

Note: Please check battery capacity and weight at data label/ plate on the product.

Height Data

Model \ Height	Lowered mast height		Free Lift	Lift height	Extended mast height
	h1 mm	h2 mm	h3 mm	h4 mm	
XE1516	1980	1600	1600	1980	
XE1518	2180	1800	1800	2180	
XE1525	1750	/	2500	2956	
XE1530	2000	/	3000	3465	
XE1533	2150	/	3300	3765	
XE1535	2250	/	3500	3965	
XE1537	2350	/	3700	4165	
XE1540	2500	/	4000	4465	
XE1542	1955	1390	4200	4679	
XE1545	2055	1490	4500	4979	

3.2.2 - XEH ELECTRIC STACKER TECHNICAL DATA

Identification	1	Product model		XE15
	2	Drive unit		Electric
	3	Operator type		Standing
	4	Load capacity	Q kg	1500
	5	Load center	C mm	600

	6	Load distance, centre of drive axle to fork face	X mm	443
	7	Wheelbase	Y mm	1342
Weight	1	Truck Weight (without battery)	kg	930
	2	Axle loading, loaded (front/rear)	kg	1126/1554
	3	Axle loading, unloaded (front/rear)	kg	826/354
Wheel	1	Tyres		Polyurethane
	2	Driven wheels size	mm	Φ 250×80
	3	Loaded wheels size	mm	Φ 80×70
	4	Balance wheels size	mm	Φ 125×50
	5	Wheels number		1x-2/4
	6	Tread, front	mm	690
	7	Tread, rear	mm	500
Dimensions	1	Height, mast lowered	h1 mm	2055
	2	Free lift	h2 mm	1500
	3	Lift height	h3 mm	4500
	4	Height, mast extended	h4 mm	4985
	5	Forks height, lowered	h5 mm	86
	6	Height of tiller in drive position (max/min)	h6 mm	1350/985
	7	Overall length	L1 mm	2023
	8	Length to face of forks	L2 mm	873
	9	Overall width	b1 mm	924
	10	Fork dimensions	s/e/l mm	180/66/1150
	11	Max. forks width	b3 mm	680 or 700
	12	Min. ground clearance	m mm	30
	13	Aisle width for pallet 800*1200 lengthways	Ast mm	2300
	14	Turning radius	Wa mm	1610
Performance	1	Travel speed loaded/unloaded	km/h	4.6/5.2
	2	Lift speed loaded/unloaded	m/s	120/150
	3	Lowering speed loaded/unloaded	m/s	150/125
	4	Max gradeability loaded/unloaded	%	5/8
	5	Service brake		Electromagnetic brake
Electric Motor	1	Drive motor rating	kW	1.2
	2	Lift motor rating	kW	3
	3	Battery voltage/capacity	V/Ah	24/240
	4	Battery weight	kg	250
Other	1	Control unit type		MOSFET control
	2	Sound level	dB(A)	<70

	6	Load distance, centre of drive axle to fork face	X mm	443
	7	Wheelbase	Y mm	1342
Weight	1	Truck Weight (without battery)	kg	930
	2	Axle loading, loaded (front/rear)	kg	1126/1554
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	3	Loaded wheels size	mm	Φ 80×70
	4	Balance wheels size	mm	Φ 125×50
	5	Wheels number		1x-2/4
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Performance	1	Travel speed loaded/unloaded	km/h	4.6/5.2
	2	Lift speed loaded/unloaded	m/s	120/150
	3	Lowering speed loaded/unloaded	m/s	150/125
	4	Max gradeability loaded/unloaded	%	5/8
	5	Service brake		Electromagnetic brake
Electric Motor	1	Drive motor rating	kW	1.2
	2	Lift motor rating	kW	3
	3	Battery voltage/capacity	V/Ah	24/240
	4	Battery weight	kg	250
Other	1	Control unit type		MOSFET control
	2	Sound level	dB(A)	<70

Height Data

Height Model	Lowered mast height	Free Lift	Lift height	Extended mast height
	h1 mm	h2 mm	h3 mm	h4 mm
XEH1548	2155	1600	4800	5285
XEH1550	2225	1660	5000	5485
XEH1552	2295	1720	5200	5685
XEH1555	2395	1820	5500	5985

3.3 - NOISE

The value is determined in a test cycle in accordance with European Standard EN 12053 with time percentages of the translation, lifting and idling modes. It can only be used as a comparison value for different forklifts.



IMPORTANT: Noise values that are lower or higher than those indicated above can occur actual forklift use, for example, following different operating modes, different environmental conditions, additional noise sources.

3.4 - IDENTIFICATION OF THE TRUCK

- The forklift truck and its main parts have serial number so that they can be identified.
- The serial numbers must be provided to the dealer for maintenance service or spare parts needs.
- The serial numbers can find on the identification plate / label on the truck.

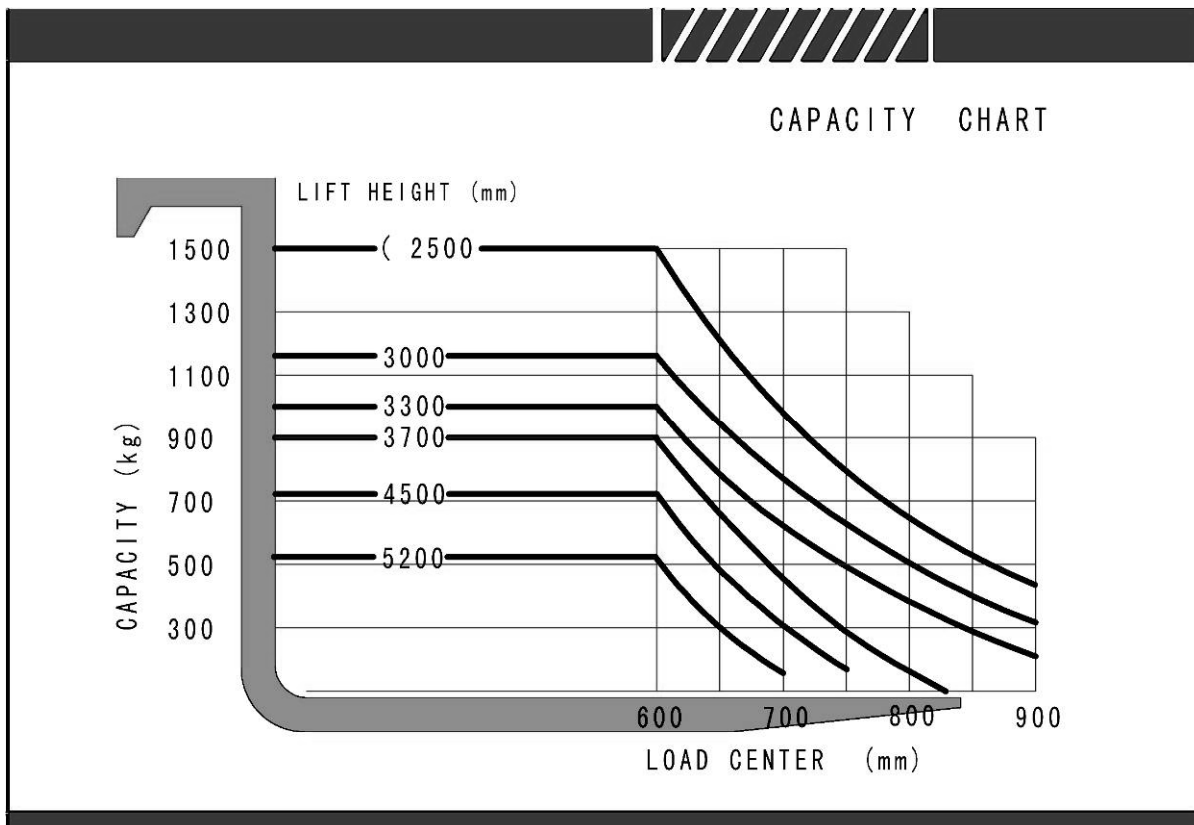
3.4a - Truck identification plate

Electric Stacker					
Model	xxx	Max. Lifting Height	xxx	mm	
Serial No	xxx	Truck Weight	xxx	kg	
Self Weight	xxx kg	Battery Capacity	xxx	Ah	
PROD Year	xxx	Battery Voltage	24V		
Equipment Code	xxx	Battery Weight	Min.	Max.	kg
Lifting Height		xxx	mm	xxx	mm
Loading Capacity		xxx	kg	xxx	kg
Suzhou Pioneer Material Handling Equipment & Technology Co., Ltd					

Note:

- Please find the blank information in the label and/ or plates on the truck.
- For queries regarding the truck or ordering spare parts always quote the truck serial number.

3.4.b - Carrying capacity plate --- Load Curve Chart

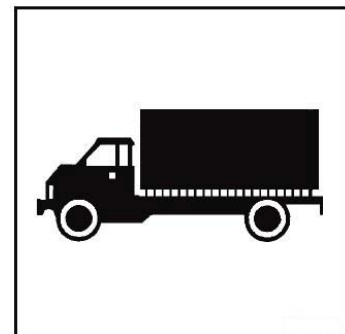


When loading, please refer to above load curve chart on the sticker. The load capacity of the stacker depends on the lifting height and the position of the load center. Overload is not permitted.

3.5 - TRANSPORTING AND LIFTING THE TRUCK

3.5.a - Transporting the truck

The truck is usually transported by road or rail complete with mast. If the truck is bigger than the permissible limits, it must be disassembled and reassembled by the dealer. Make sure that the truck is adequately secured during transportation, with blocks placed under the wheels to prevent any chance movements.



3.5.b - Climatic conditions for transporting and storing the Truck

The truck must be transported and stored protected from the weather.

3.5.c - Loading and unloading the truck

Load and unload the truck by means of a ramp or mobile platform. If the truck is not operational, follow the instructions below to lift the truck.



DANGER:

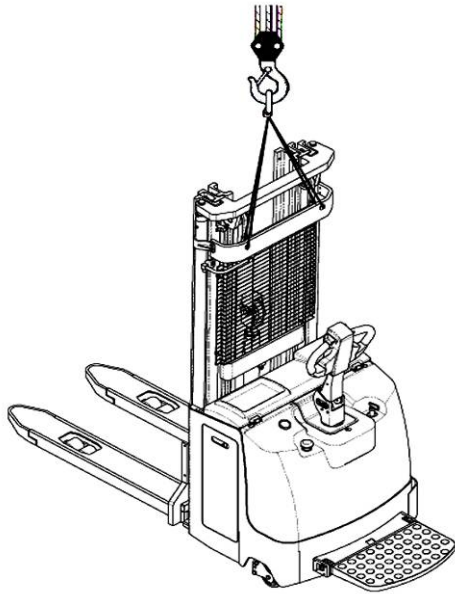
Use a crane that is big enough to handle the weight of the truck, indicated on the information plate.

Make sure that the truck is lifted by qualified personnel only.

Don't stand within the radius of action of the crane or under the raised truck.
Use NON-METALLIC cables. Make sure the cables can support the weight of the truck.

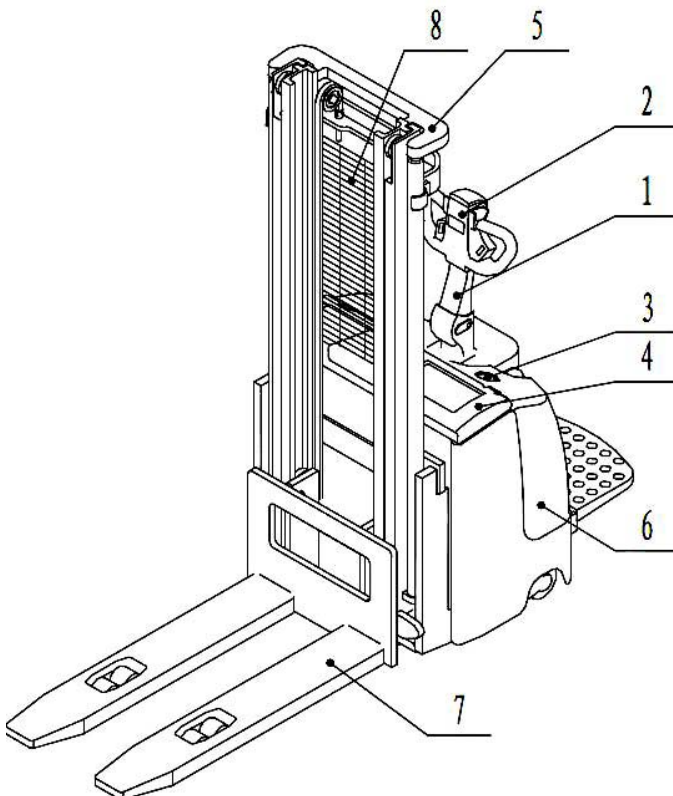
Proceed as following to lift the truck:

- Insert two lifting shafts capable of supporting the weight of the truck into the points indicated on the mast, and hook them to a crane.



Chapter 4 Learning About The Truck

4.1 - OVERALL VIEWS



- 1 - Tiller mechanism
- 2 - Tiller
- 3 - Battery status indicator and hour counter
- 4 - Battery compartment cover
- 5 - Mast
- 6 - Removable safety guards
- 7 - Fork
- 8 - Barrier (optional)

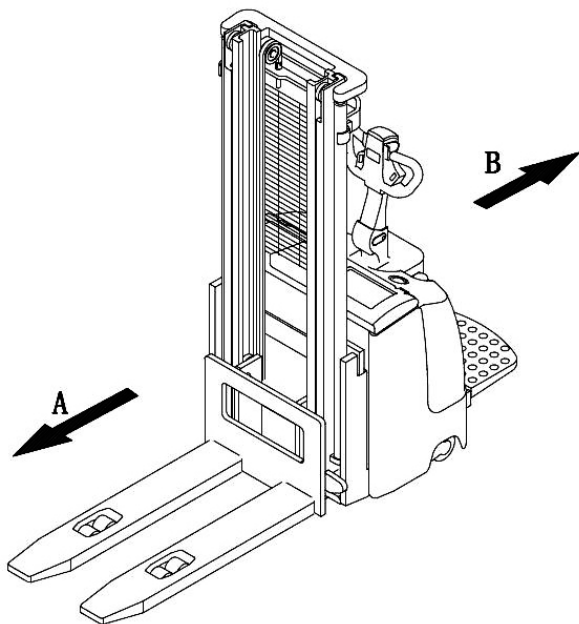
4.2 - DEFINION OF THE DIRECTION OF TRAVEL

The manual defines the direction of travel as follows:

A = Direction of travel towards the forks

B = Direction of travel towards the operator

The preferred direction of travel is "B".



4.3 - INSTRUMENTS AND CONTROLS

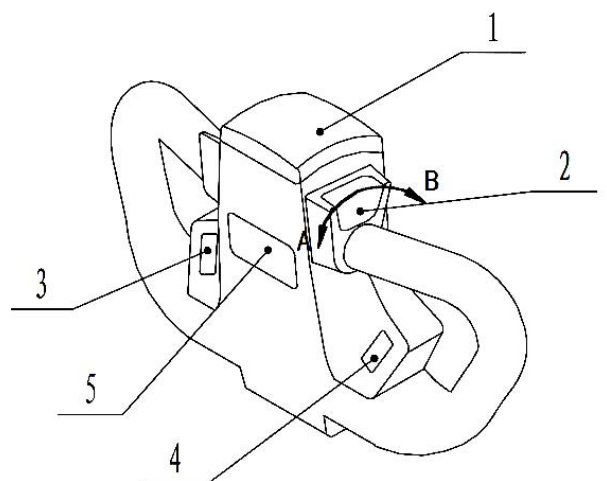
4.3.a-Tiller controls

- 1 = Crush prevention safety button.
- 2 = Traction control butterfly.
- 3/4 = Lift control button.
- 5 = Acoustic signal button.



IMPORTANT:

All the traction and lift controls are available when the tiller is in the working position.



Crush prevention safety button (1)

- If the button (1) is pressed when the truck is traveling towards the operator, it will travel oppositely and come to a stop

Traction control butterfly (2)

- If the butterfly control (2) is turned direction "A", the truck will travel in the direction of the forks. If the butterfly control is turned in direction "B", the truck will travel in the direction of the operator.
- If the butterfly is released, the truck will brake (electric braking upon release), and then come to a stop.
- The speed of the truck increases depending upon the angle of the butterfly control.



IMPORTANT:

The speed of the truck will be reduced if the forks exceed the height recommended by the manufacture, which may vary depending upon the carrying capacity of the truck, the type of the mast used, and the level of oil in the reservoir.

Lift control button (3/4)

- press the button (3) to raise the forks
- press the button (4) to lower the forks

Acoustic warning button (5)

- Press the button (5) to sound the warning signal.
This device allows the operator to signal his presence when necessary.



IMPORTANT:

If with load, the stacker can not make sudden starts and stop. Adjust the traveling speed of the stacker according to the different situations such as presence of other stacker, people near the stacker, uneven floor or in presence of little bumps that can modify.

The security position of the stacker, In case the load blocks the visibility, it is necessary to be helped by another operator.

Carry out following steps during unloading of the goods:

1. Get close to position.
2. Lift the load up to the desired height position.
3. Advance slowly the forks to the proper position.
4. Lower the load to make the bottom of the forks on the shelf, the stacker can leave the shelf.



IMPORTANT:

While transporting the loads on the slope, you have to pay attention to: with the load directed to the top.

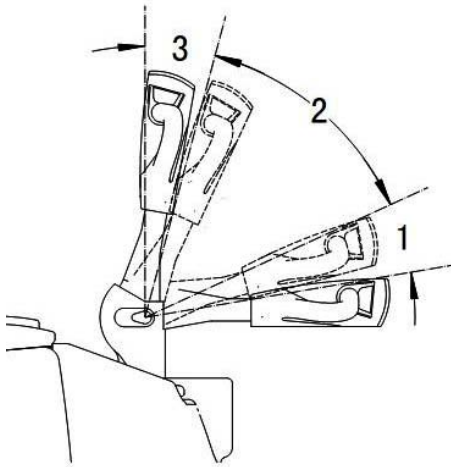
While climbing and descending ramps with the empty stacker, you have to forward leveled and solid place.

Do not leave the stacker parked with the key inside the commutator.

Park the stacker in such a way that gives the possibility to people to move, and park it with the forks lowered to the bottom.

4.3.b - Tiller positions

Function of the controls with respect to the position of the tiller.



1. Instruction for the standard tiller.

The tiller has three positions:

Position “1” = braking position;

In this position, the traction function is locked and the parking brake will be applied.



ATTENTION : Don't use this type of braking as braking system.

Position “2” = working position;

In this position, the operator can drive the truck and operate the forks by means of the appropriate controls.

Position “3” = braking position;

- In this position, traction is disabled and the parking brake is applied.



ATTENTION : Don't use this type of braking as braking system.



IMPORTANT:

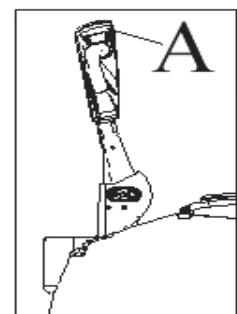
- In this position, the lift function of the forks and frame members, if present, is locked out.
- In this position, the forks and arms (if present) will lower as normal.



IMPORTANT:

After releasing the tiller, it will automatically return to position “A”, which is the braking position.

2. Instructions for using the tiller with the “tiller always enabled” function



With respect to the standard tiller, the tiller with the “tiller always enables ” function differs only in tiller position “3”.

This function allows the operator to drive and operate the forks even when the tiller is in position “3”. In position “3”, the “tiller always enabled” function is enabled.



IMPORTANT: When the tiller is released, it will automatically return into position “A”, the braking position.



IMPORTANT: Recharge the battery at the latest before it's 70% discharge (LED 2 blinking); the forklift does not lift below this threshold.

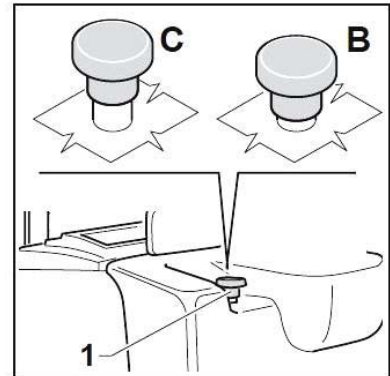
4.4 - CONTROL PANEL

4.4.a - Emergency stop button

Press the emergency stop button (1) (position B) to bring all the function of the truck to a stop.

To bring the truck back into operation, correct the reasons for the emergency then proceed as follows:

- Release the tiller into the rest position.
- Release the emergency button (1) (position C) by pulling it out.



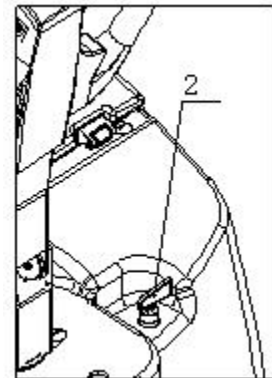
DANGER: This button should only be used if necessary; repeated use of this button may cause the electronic system to malfunction.

4.4.b – Start / stop switch

The switch (2) is in one of two following positions:

0 = The machine is switched off.(The key is removed)

1 = The machine is switched on.



4.4.c-Battery status indicator and hour counter

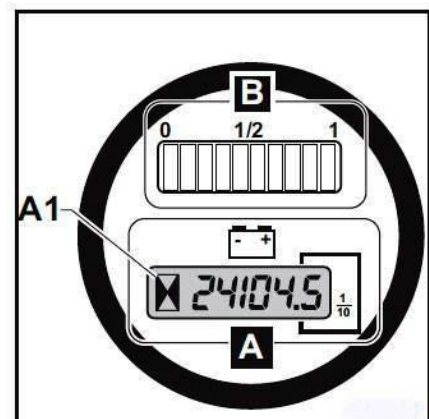
The instrument is subdivided into two zones as follows;

Zone A

- Indicates the actual operation time, expressed in hours.
- When the counter is working, clock “A1” blinks, five numbers plus one decimal digit are displayed. The hours are counted progressively and start from zero.

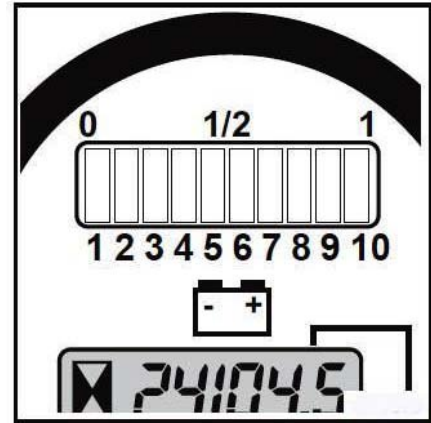
Zone B

- Indicates the battery charge level; it's subdivided into



ten sectors with respective colored LEDS.

- When the battery is 100% charged, LED 10 remains lit up.
- As the battery discharges, the LEDS light up one by one from right to left, starting from LED 10, which indicates the completely charged battery status.
- When the battery is 70% discharge, LED 3 blink, indicating that the battery is on reserve and must be charged. Bring the truck to the charging area and charge the battery.
- When the battery is 80% discharged, LEDS1 and 2 blink alternately. Lifting is blocked at this discharge threshold.



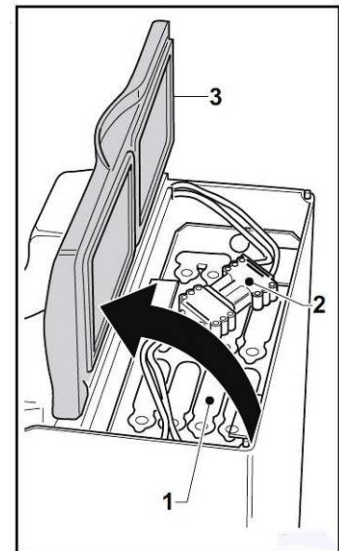
CAUTION!

The battery voltage should not be lower than 70% of the load voltage in the use.

It is needed to charge within 24 hours after the using of the battery, and the charging should be adequate.

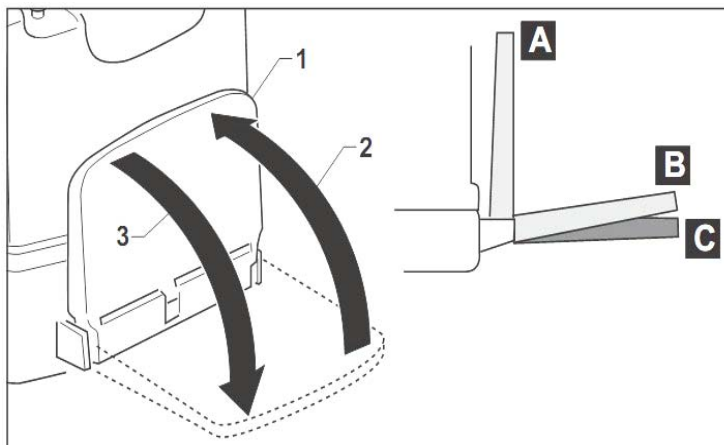
4.5 – ACCESS TO THE INSIDE

To access the inside of the truck (electronic, electric and mechanical parts), please refer to the “Maintenance” chapter. To access the battery (1) and the socket/plug (2), raise the cover (3).



4.6 - OPERATING FOOTREST (optional, not standard part)

To raise or to lower the footrest (1) is freedom. When the operator drive stacker in the sense of the narrow, we can raise it (2). Obviously we can lay down the footrest in the sense of the width (3). Standing on the footrest can be more comfortable to operate the stacker (A-B-C).



Chapter 5 Using The Truck

5.1 DAILY CHECKING BEFORE USE



DANGER:

It's a good rule to perform the daily checks listed below to maintain the truck in good condition. These checks are part of, don't replace, the scheduled maintenance operations.

- Perform a visual check that the parts of the truck are in the correct positions: forks, barrier or transparent guard if equipped.
- Check the position and connection of the battery socket/plug.
- Check that the ignition switch (key switch) is working correctly.
- Check that the acoustic warning signal is working correctly.
- Check that the buttons and butterfly control located on the tiller are working correctly.
- Check that emergency stop button is working correctly.
- Check that the tiller automatically returns to the vertical position after the emergency brake has been applied.
- Check that the crush prevention button is working correctly.



DANGER: If something on the truck is malfunctioning or you are not sure if it's working correctly, don't use the truck but contact the service department of your dealer.

5.2 USING THE TRUCK

5.2.a Position of the operator

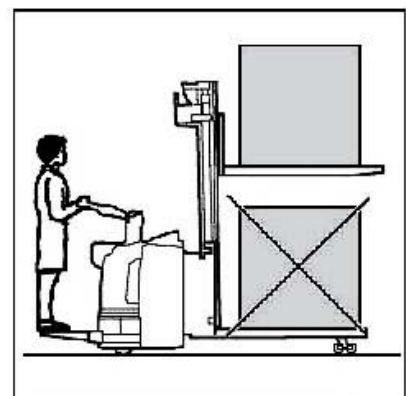
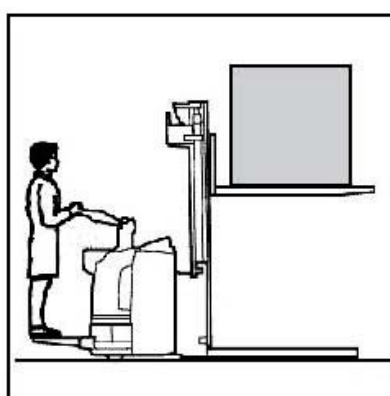
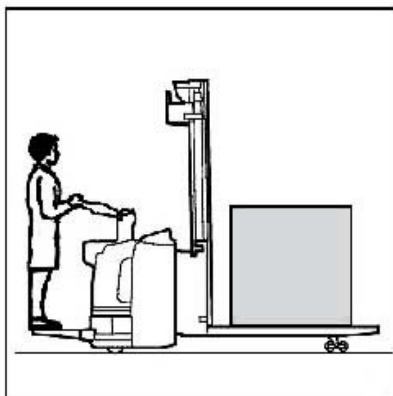
- The operator steers the truck from the GROUND using the travel and lift controls located on the tiller.

5.2.b Users for truck versions with initial arm lift function

These trucks can be used for elevating or transporting.

Truck used for elevating.

The loading capacity at different lifting height should be strictly according to carrying capacity plate --- Load Curve Chart (See figure below).

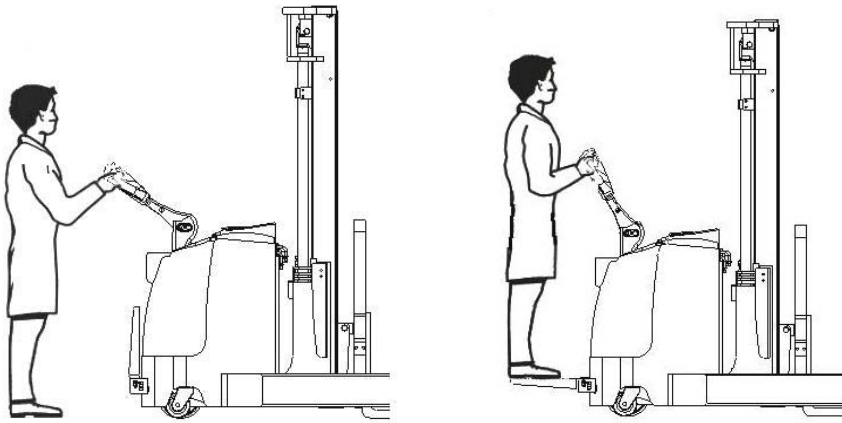




DANGER: It's absolutely prohibited to lift and carry loads on the arms.

Truck used for transporting

The rated carrying capacity still remain at 1500kg if the truck is used for transporting. (See figure below)

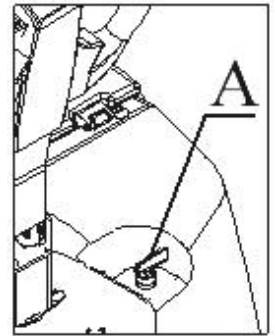


5.2.c Starting the truck

After performing the daily checking, Proceed as follows before using the truck:

Insert the key (A) and turn to a position, the battery status indicator and hour counter will light up indicating the hours of operation and the status of the battery.

- Make sure that the emergency button is not depressed.



5.2.d Traveling

- Operate the tiller to the working position.
- Turn the butterfly control in the desired direction of travel. The speed of the truck increases depending upon the angle of the butterfly control.

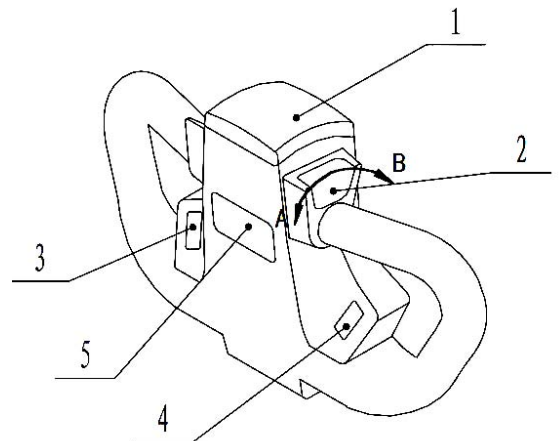


IMPORTANT: If the truck doesn't start easily, don't persist but find out the reason why.

5.2.e Reversing the direction of travel

- To do this, turn the butterfly control (2) in the opposite direction of travel. The truck will come to a forceful but gradual stop, and then continue in the opposite direction.

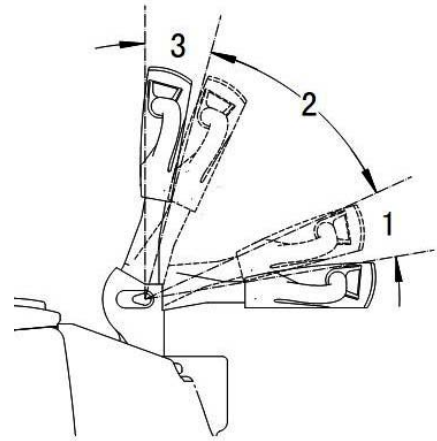
- 1 = Crush prevention safety button.
- 2 = Traction control butterfly.
- 3/4 = Lift control button.
- 5 = Acoustic signal button.



5.2.f Stopping the truck

The truck can be stopped as follows:

- 1) Release the butterfly control;
- 2) Keeping the position 1 or 3 can also stop the truck.



5.2.g Stopping the truck in an EMERGENCY

The truck can be stopped in an EMERGENCY as follows:
Press the button (above 1).

After the emergency stop button has been enabled, proceed as described in chapter 4.4.a.

5.2.h Stopping the truck for a long period

- If the truck is going to be stopped for a long period of time, lower the forks to the ground. Switch off the truck by turning the key into the other position, then remove the key.

5.3 ENGAGING AND DISENGAGING THE LOAD



DANGER!

Before picking up the load, make sure that the truck can handle its size and weight as indicated in the “TECHNICAL DATA” chapter and load curve chart.



DANGER: The loads must be arranged so that it cannot slide nor tip over and fall.



DANGER: Don't stand or move under the raised load.



DANGER: Don't leave the truck unattended with the forks raised whether they are loaded or unloaded.

5.3.a Fork lift / lower function

- Tilt the tiller.
- Turn the fork lift/lower function as described in paragraph 4.3.a.

5.4 CHARGING THE BATTERY BY MEANS OF EXTERNAL BATTERY CHARGER



DANGER: Switch off the truck before charging the battery.



IMPORTANT: Charge the battery in a location that complies with the regulations in effect.

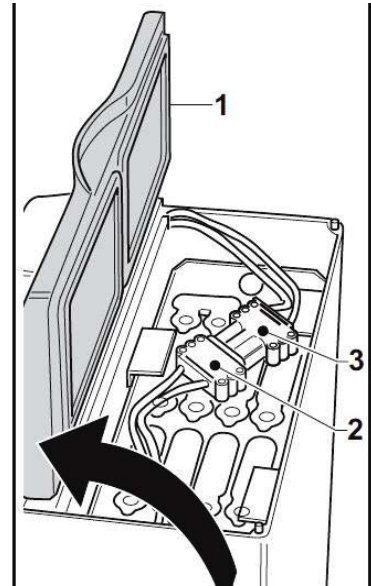


IMPORTANT: Make sure that the voltage of the mains meet the requirements of the charger. .



IMPORTANT: See also the use of traction battery in this manual.

- Lift the battery compartment hood (1) as described in the relevant paragraph.
- Remove the battery plug (2) from the socket (3) of the electronic system of the truck.
- Remove the caps if the battery is not equipped with a vent.
- Switch on the external battery charger.
- Connect the plug (2) to the battery charger to start charging .
- After charging the battery, switch off the battery charger.
- Remove the plug (2) from the battery charger.
- Replace the battery caps, if any.
- Reinsert the battery plug (2) in the socket (3).
- Lower the battery compartment hood (1).



5.5- BATTERY CHARGE BY THE BATTERY-CHARGER ON BOARD (if equipped)



CAUTION: The battery must be charged with the truck motor off.



IMPORTANT: Charge the battery only in areas that meet the required regulations.



IMPORTANT: Refer to the use of traction battery for the method of charger, checking levels, etc. making sure that the correct voltage is delivered.



IMPORTANT: Refer to the use of traction battery for safety instructions.

- When the charging is completed, the battery-charger will stop automatically.
- Put the plug back into its storage place.

5.6- USE OF THE TRUCK WITH EXTENSION CORDS



DANGER: The truck may only be operated with extension cords up to a maximum length of 20 meters if they are equipped with a filler and are by the manufacturer.

5.7- USING THE “COLD STORAGE” TRUCK

This truck is operated in exactly the same way as the standard version.

The two versions differ only in the respect that the “cold stores” version can be used at a different environmental temperature.

- The “cold stores” version should be used in cold stores with a minimum temperature of -32°C and a maximum temperature of $+25^{\circ}\text{C}$, or $+40^{\circ}\text{C}$ for short periods of time.
- The “cold stores” version can be used alternately inside or outside the cold store.
- The truck should not remain outside the cold stores for longer than 10 minutes (to prevent condensation from forming) or for less than 30 minutes (to allow the condensation to evaporate).



DANGER: It's absolutely prohibited to enter the cold stores with condensation on the truck.

5.8- RUNNING IN THE TRUCK

The truck doesn't need a running in period.



IMPORTANT: To obtain maximum performance from the traction battery, follow the manufacturer's directions for the first time it's used (see the use of traction battery.).

5.9-MALFUNCTIONS – CAUSES – REMEDIES

This paragraph describes the various malfunction that may occur when using the truck, the reasons they occurred, and how to remedy them.

If the malfunctions continue after performing all the suggested checks, please contact the Customer Service Department of your dealer.

5.9.1 Troubleshooting chart for the truck

Malfunction:	Cause	Remedy
The truck will not start.	The battery plug is not inserted, or is inserted incorrectly.	Check the battery plug.
	The emergency stop button is depressed.	Lift up the emergency stop button.
	The battery is discharged.	Check the charge on the battery and recharge it if necessary.
	The sequence of operations has not been performed correctly when switching on the truck.	Repeat the sequence of operations correctly.
	The traction butterfly control is not turned.	Turn the butterfly control in the desired direction of travel.

	The ignition key is in the "0" position (truck is switched off).	Turn the switch into the "I" position (truck is switched on).
	The tiller is in the braking position.	Move the tiller into the working position.
The load cannot be lifted.	The load is too heavy.	Check that weight of the load to be lifted is less than or equal to the maximum capacity of the truck.
	The truck not ready for operation.	Perform all the check described in the paragraph above "The truck will not start".
	The level of hydraulic oil is too low.	Tap up the oil as described in the "Maintenance" chapter
	The battery is discharged.	Charge the battery.

5.9.2 Troubleshooting chart for the controller

The LED code displayed on the controller will help the service engineer to locate a fault, the following table will help the engineer to clear the faults.

LED Code	Fault Cat.	Programmer LCD Display	Possible Cause	Fault Clearance
0,1	0	NO KNOWN FAULTS	n/a	n/a
1,1	1	CURRENT SHUNT FAULT	1. Abnormal vehicle operation causing high current spikes. 2. Current sensor out of range. 3. Controller failure.	Cycle KSI. If problem persists, replace controller.
1,2	1	HW FAIL SAFE	1. Noisy environment. 2. Self-test or watchdog fault. 3. Controller failure.	Cycle KSI. If problem persists, replace controller.
1,3	1	M-SHORTED	1. Internal or external short of M- to B-. 2. Incorrect motor wiring. 3. Controller failure.	Check wiring; cycle KSI. If problem persists, replace controller.
1,4	3	SRO	1. Improper sequence of KSI, interlock, and direction inputs. 2. Interlock or direction switch circuit open. 3. Sequencing delay too short. 4. Wrong SRO or throttle type selected. 5. Misadjusted throttle pot.	Follow proper sequence; adjust throttle if necessary; adjust programmable parameters if necessary.
2,1	1	THROTTLE WIPER HI	1. Throttle input wire open or shorted to B+. 2. Defective throttle pot.	When Throttle Wiper High input returns to valid range.

			3. Wrong throttle type selected.	
2,2	1	EMR REV WIRING	Emergency reverse wire or check wire open.	Re-apply emergency reverse or cycle interlock
2,3	3	HPD	1. Improper sequence of KSI, interlock, and throttle inputs. 2. Misadjusted throttle pot. 3. Sequencing delay too short. 3. Wrong HPD or throttle type selected. 5. Misadjusted throttle pot.	Follow proper sequence; adjust throttle if necessary; adjust programmable parameters if necessary.
	3	SRVC TOTAL	Total maintenance timer expired.	Reset with programmer.
	3	SRVC TRAC	Traction maintenance timer expired.	Reset with programmer.
	3	TOTAL DISABLED	Total disable timer expired.	Reset with programmer.
	3	TRAC DISABLED	Traction disable timer expired.	Reset with programmer.
2,4	1	THROTTLE WIPER LO	1. Throttle pot wire open or shorted to B+. 2. Wrong throttle type selected. 3. Defective throttle pot.	When Throttle Wiper Low input returns to valid range.
3,1	1	FIELD SHORT	1. Main contactor coil shorted. 2. Field winding shorted to B+ or B-. 3. Field resistance too low.	Check contactor coil and field winding; cycle KSI.
3,2	1	MAIN CONT WELDED	1. Main contactor stuck closed. 2. Main contactor driver shorted.	Check wiring and contactor; cycle KSI.
3,3	1	FIELD OPEN	1. Field winding connection open. 2. Field winding open.	Check wiring and cycle KSI.
3,4	1	MISSING CONTACTOR	1. Main contactor coil open. 2. Main contactor missing. 3. Wire to main contactor open.	Check wiring and cycle KSI.
4,1	2	LOW BATTERY VOLTAGE	1. Battery voltage < under voltage cutback 2. Corroded battery terminal. 3. Loose battery or controller terminal	When voltage rises above under voltage cutoff point.
4,2	2	OVERVOLTAGE	1. Battery voltage > overvoltage shutdown limit. 2. Vehicle operating with charger.	When voltage falls below overvoltage cutoff point.
4,3	2	THERMAL CUTBACK	1. Temperature > 85°C or < -25°C. 2. Excessive load on vehicle. 3. Improper mounting of controller.	Clears when heat sink temperature returns to within acceptable range
4,4	3	ANTI-TIEDOWN	1. Mode switches shorted to B+. 2. Mode select 1 “tied down” to select Mode 2 or Mode 4 permanently	Release Mode Select 1
	3	MOTOR HOT	Field resistance > motor hot set point	When resistance < setpoint
	3	MOTOR WARM	Field resistance > motor warm set point.	When resistance < setpoint

Chapter 6

Maintenance

6.1 MAINTENANCE OPERATIONS

To keep the truck in good condition, it's recommended that the maintenance operations be performed in accordance with "Maintenance Operations Summary Table" in the following pages.

In addition to the maintenance operations described in this chapter, there are other operations that must be performed by the Customer Service Department of your dealer. We recommend that you contact your dealer to draw up a maintenance contract that is appropriate for your truck.

There are two types of maintenance operations:

MAINTENANCE AS REQUIRED

SCHEDULED MAINTENANCE



DANGER: Maintenance operations must be performed by qualified technician who have been approved by the manufacturer or your dealer. Always follow the safety requirement for handling supplies and the instructions described in chapters "1" and "2". Work in a designate maintenance area, or section off the area around the truck with appropriate signs to indicate that work is in progress.

6.1.a Preliminary maintenance operations

Proceed as follows before performing any maintenance operations.

- Place the truck on a level surface and make sure that it cannot suddenly move
- Lower the forks completely.
- Switch off the truck and remove the key.
- Press the emergency stop button.



DANGER: Remove the battery plug from the socket before performing any maintenance operation on the electrical system.



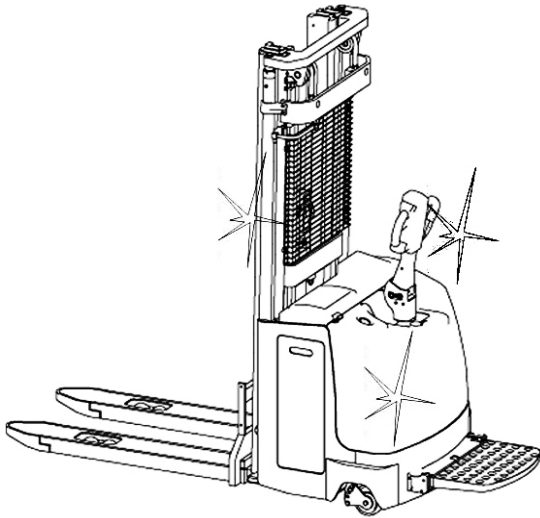
WARNING!

Risk of accidents when working under the load handler and lift truck.

When working under a raised load handler or a raised truck, secure them to prevent the truck from lowering, tipping or sliding away. When working on the parking brake, prevent the truck from accidentally rolling away (e.g. with wedges).

6.2 MAINTENANCE AS REQUIRED

Maintenance as required operations are performed on an as needs basis, such as cleaning the truck, repairing or replacing a worn or broken part.



6.2.a Cleaning the truck

The frequency with which the truck is cleaned depends upon how and where the truck is used. If the truck comes into contact with harsh substances such as salty water, fertilizers, chemical products, cement, etc., it must be thoroughly cleaned after every use.

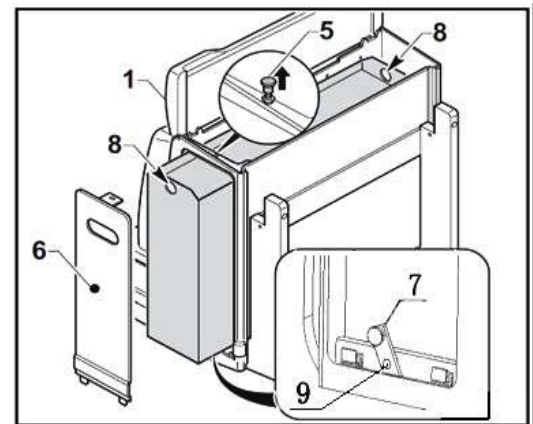
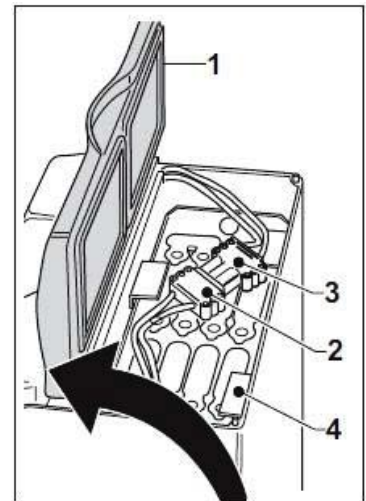
Use compressed air and detergents with cold water.



ATTENTION: Don't aim jets of water directly onto the truck, and don't use solvents or gasoline-based products because they could damage the electrical and plastic parts.

6.2.b Replacing the battery

- Switch off the truck and perform the preliminary maintenance operations.
- Lift the battery cover (1).
- Remove the plug (2) from the socket (3).
- Remove the battery locks (4).
- Lift the pin (5) and remove the panel (6).
- Turn the additional roller (7) into position "A" (only present).
- Loosen the knob (8) on the direction of the arrow.
- Place a stable surface to support the battery next to the truck, and line it up with the battery compartment.
- Remove the battery by sliding it on the rollers inside the truck, and place it on the support previously prepared.
- Hook the battery at the two points (9) with a cable or chain.
- Lift the battery with a hoist capable of supporting the weight of the battery.
- Replace the battery and assemble it by following the procedure in reverse.





DANGER: Before operating the truck, check for the proper position of the battery clamp. That must be as shown in the diagram, and check that the knob (8) is perfectly tightened.



IMPORTANT:

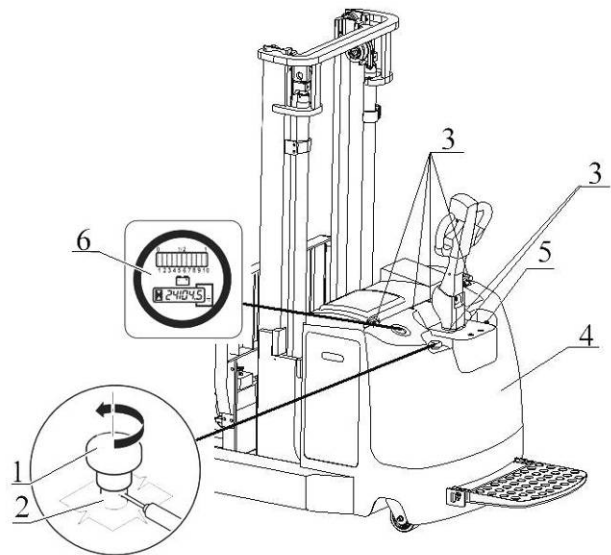
Refer to chapter “TECHNICAL DATA” for the type of battery to use.

6.2.c Disassembling the hoods



DANGER: Safety hoods should be disassembled by a qualified technician only.

- Switch off the truck and perform the preliminary maintenance operations.
- Remove the emergency button head (1) by inserting a screwdriver into the hold (2), and holding the button stem still with the screwdriver turn the head of the button in an anti-clockwise direction until it comes off completely.
- Unscrew the screws (3) and remove the hood (4), being careful with the electrical wires connecting the switch (5) and the instrument (6).
- Replace the hood (4) by following the above procedure in reverse, making sure that the emergency button (1) is working properly.



6.2.e Replacing the fuses

Switch off the truck and perform the preliminary maintenance operations.



DANGER: This operation must be performed by qualified technicians only.



DANGER: Before replacing the fuse, correct the reason that caused it to burn out. The blown fuse must be replaced by a fuse with the same amperage. Don't tamper with the electric system of the truck.

Service fuses

- Remove the cover and replace the blown fuse, then replace the cover.

Fuse values

FU1 = 200A power fuse

FU2 = 10A fuse to protect the electronic system and tiller circuit board

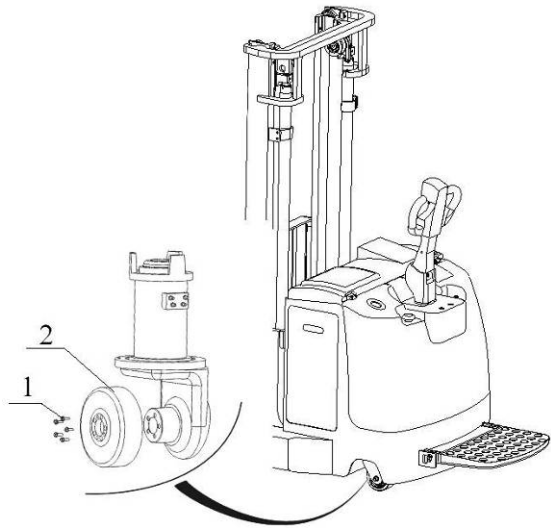
6.2.f Replacing the drive wheel

- Switch off the truck and perform the preliminary maintenance operations.



DANGER: This operation must be performed by qualified technicians only .

- Remove the wheel lugs (1).
- Raise the truck as described in chapter 3 and place supports under the frame of the truck.
- Lower the truck and place it on the supports, keeping the cable taut.
- Completely remove the lugs (1) and remove the wheel (2).



6.2.g Replacement/Adjustment of the pivoting wheels

- Replace or adjust the pivoting wheels when necessary by calling an authorized service facility.

6.3 SCHEDULED MAINTENANCE

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.



WARNING!

The application conditions of an industrial truck have a considerable impact on the wear of the service components.

We recommend that a customer service adviser of your dealer carries out an application analysis on site to work out specific service intervals to prevent damage due to wear.

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 servicing checklist indicates the operations to be performed and the respective intervals to be observed.

Maintenance intervals are defined as:

W=Every 50 service hours, at least weekly

A=Every 500 service hours, at least monthly

B=Every 1000 service hours, at least quarterly

C=Every 2000 service hours, at least annually



W maintenance interval operations are performed by the proprietor.

During the run-in period - after approx. 100 service hours - the owner must check the wheel nuts / bolts and re-tighten if necessary.

6.3.a Maintenance checklist

		Maintenance intervals				
		Standard =●	W	A	B	C
Brakes						
1.1	Test the brakes and adjust if necessary.			●		
1.2	Check the connections and wiring.			●		
1.3	Check the brake lining.			●		

		Maintenance intervals				
		Standard =●	W	A	B	C
Electrical System						
2.1	Test the warning and safety devices in accordance with operating instructions.			●		
2.2	Test the cables and motor attachments.			●		
2.3	Test the instruments, displays and control switches.			●		
2.4	Test the emergency disconnect switch			●		
2.5	Check the fuse ratings.			●		
2.6	Carry out a frame leakage test.			●		
2.7	Check the electric wiring for damage [insulation damage, connections]. Make sure wire connections are secure.			●		
2.8	Check the controller readings, check settings and adjust if necessary			●		

		Maintenance intervals				
		Standard =●	W	A	B	C
Power supply						
3.1	Visually inspect battery and battery components.			●		
3.2	Check battery cable connections are secure, grease terminals if necessary			●		
3.3	Check acid density, acid level and battery voltage.			●		
3.4	Check the battery connector for damage, test it and make sure it is secure.			●		
3.5	Check battery voltage.			●		
3.6	Check the acid level and add distilled water if necessary.			●		

		Maintenance intervals				
		Standard =●	W	A	B	C
Travel						
4.1	Check the test mode.			●		
4.2	Check the transmission for noise and leakage.			●		
4.3	Replace the transmission oil if service life exceeded (10,000 hours).					●
4.4	Check the wheel suspension and attachment.			●		
4.5	Checking the bedding and attachment of the drive system.			●		
4.6	Check the transmission oil level or grease filling of the transmission and top up if necessary.			●		
4.7	Check wheels for wear and damage			●		

		Maintenance intervals				
		Standard =●	W	A	B	C
Chassis and superstructure						
5.1	Check front cover and battery compartment cover for damage.			●		
5.2	Check labels or plates are present and complete.			●		
5.3	Check the chassis and screw connections for damage.			●		
5.4	Test the operators platform and check for damage.			●		
5.5	Check the operator mat and steps are non-slip and damage-free.			●		

		Maintenance intervals				
		Standard =●	W	A	B	C
Steering						
6.1	Test the electric steering and its components.					
6.2	Check the steering components. Lubricate the steering toothing and/or steering chain.			●		

		Maintenance intervals				
		Standard =●	W	A	B	C
Agreed performance levels						
7.1	Carry out a test run with rated load.			●		

7.2	Demonstration after servicing.			•	
7.3	Lubricate the truck according to the lubrication schedule.			•	
7.4	Maintenance and service check: remove / assemble front cover and battery compartment cover			•	



IMPORTANT:

Comments about the greasing operations

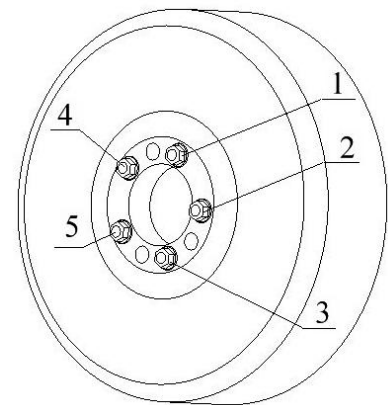
Observe the following requirements each time greasing operations are performed:

- Product safety warnings;
- Thoroughly clean the part involved;
- Use appropriate binders if the product spills;
- Store the product in an appropriate location;
- Dispose of the product in accordance with the law.

EVERY 10 HOURS

6.3.b Checking the tightness of the wheels

- Perform this operation at the frequency specified in the above maintenance table, and whenever a wheel is replaced.
- See the appropriate for instructions how to replace a wheel.
- The figure opposite show the order in which the wheel lugs are tightened.
- The table below indicates the torque values for tightening the lugs.



Drive wheel	75±5% Nm / 7.5±5% kgm
-------------	-----------------------

6.3.c Checking the wear and tear of the wheels

- Replace the drive wheel if it shows signs of wear and tear (the surface is no longer uniform or damaged).
- Replace the wheel as described in point 6.2.f.

6.3.d Checking the level and density of the electrolyte

- Raise the cover and check the level and density of the electrolyte described in the battery instructions.

EVERY 1000 HOURS

6.3.e Lubricating the slide-track of the forks

(only if the truck is equipped with movable forks)

- Lubricate the top edges of the fork rail with a general purpose grease.
- Lubricate the moving edges of the offset mechanism with a general purpose grease.

6.3.f Checking the level of hydraulic oil

- Check the level hydraulic oil with the truck on a flat surface and the forks completely lowered.
- Switch off the truck and remove the key.
- Visually check that the level of hydraulic oil is at the 11-liter mark.
Tap up the oil if necessary by removing the cap and pouring the oil into the reservoir.



IMPORTANT: See the supplies table at the end of this chapter for the type of oil to use.

6.3.g Greasing the mast

- Grease the grooves along the entire length of the mast(s).
- Use the type of grease specified in the supplies table in paragraph 6.4.
-

6.3.h Cleaning and greasing the chains

- Grease the entire length of the chains and grease the pulleys .
- Use the type of grease specified in the supplies table in paragraph 6.4.



IMPORTANT: If the truck is used in particularly harsh environments, it's a good idea to grease the truck with an adhesive water-repellent grease in addition to the regular greasing.

6.4 - SUPPLIES TABLE

Part requiring supplies	Lubricant
Hydraulic system	YB-32 ISO-L-HM46
Reducer	85W/90.SAE80W/90
Multi-purpose greasing	3# Lithium base Multi-purpose grease

Chapter 7

Out of Service

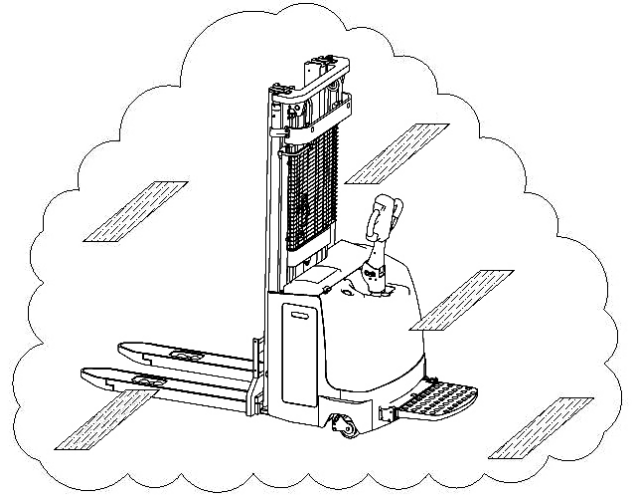
7.1 GENERAL DESCRIPTION

This chapter describes the operations to perform to take the truck “Temporarily out of service ” and “Permanently out of service”.

7.1.a Temporarily out of service

Proceed as follows if the truck is not going to be used for a long period of time.

- Clean the truck as described in the “maintenance” chapter, and store it in a dust free and dry location.
- Lower the forks.
- Lightly wipe the unpainted parts with oil or grease.
- Perform the greasing operation as described in the “maintenance” chapter.
- Remove the battery and place it in a location where there is no danger of freezing. Charge the battery at least once a month.
- Raise the truck so that the wheels do not touch the ground, otherwise they will become flattened at the point of contact.
- Cover the truck with a tarpaulin that is not made of plastic.



7.1.b Checks and inspections after a long period of inactivity



DANGER: Proceed as follows before using the truck again:

- Clean the truck thoroughly.
- Check and ensure that the battery is charged, reassemble it in the truck, and grease the terminals with Vaseline.
- Grease all the parts that have lubrication nipples and the chains.
- Check the levels of the liquids.
- Perform all the operational maneuvers of the truck and check the safety devices, when the truck is both loaded and unloaded.



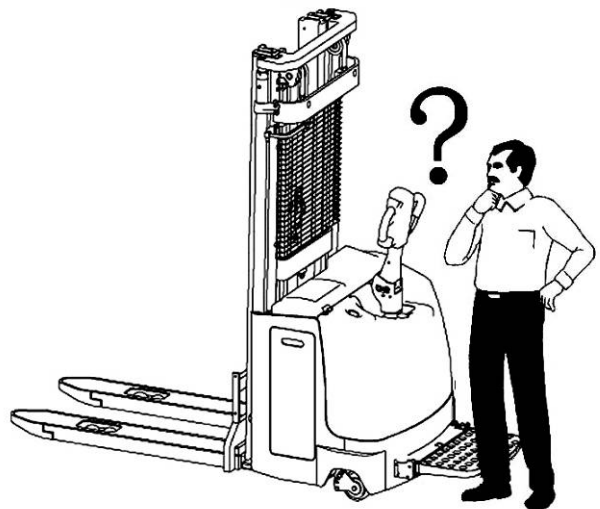
DANGER: See the “maintenance” chapter for the operations described above.

7.1.c Permanently out of service(scrap)

Proceed as follows if scrapping the truck.



DANGER: The truck must be



dismantled by a qualified technician only.

- Dismantle as many of the truck parts as possible (panels, lights, battery, chains, motors, etc.), and separate them according to the nature of the material (for example hoses, rubber parts, lubricants, aluminum, iron, etc.).
- Notify the appropriate authorities in writing in accordance with the legal requirements of each country before scrapping truck.
- Scrap the parts in accordance with legal requirements after receiving permission from the appropriate authorities.

7.1.d Disposing of toxic substances

- Check the local legal requirement for disposing of toxic substance such as lubricants, batteries etc., and proceed as required.
- Dispose of used batteries in an environmentally responsible manner



WARNING!

Do not attempt to dispose of your battery in a fire. The cell may explode.



The battery contains lead cells. After their lifetime has expired, they must not be disposed of as normal household rubbish, but must be disposed of properly.

Please dispose of the flat battery via your local municipal disposal point. It is essential to return the battery or to dispose of it via your local municipal disposal point. Only hand over the battery in a discharged condition.



IMPORTANT: See the use of traction battery for further information.



IMPORTANT: The customer is entirely responsible for any irregularities involving legal requirement before, during and after scrapping and disposing of truck parts.