LiuGong 柳工

201908000

CLG2015

PALLET TRUCK

(英文)

OPERATION AND MAINTENANCE MANUAL

Important Safety Information

Most accidents involving product operation, maintenance and repair are caused by failure to observe safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

Improper operation, lubrication, maintenance or repair on this product can be dangerous and could result in injury or death.

Do not operate or perform any lubrication, maintenance or repair on this product, until you have read and understood the operation, lubrication, maintain and repair information.

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or other persons.

The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "WARNING" as shown following.

⚠WARNING

The meaning of this safety alert symbol is as follows:

Attention. Be alert. Your safety is involved.

The message that appears under the warning, explaining the hazard, can be either written or pictorially presented.

Operations that may cause product damage are identified by NOTICE labels on the product and in this publication.

LiuGong cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are therefore not all inclusive. If a tool, procedure, work method or operating technique not specifically recommended by LiuGong is used, you must satisfy yourself that it is safe for you and others. You should also ensure that the product will not be damaged or made unsafe by the operation, lubrication, maintenance or require procedures you choose.

The information, specification, and illustrations in this publication are on the basis of information available at the time when it was written. The specification, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service given to the product. Obtain the complete and most current information before starting any job. LiuGong has the most current information available.

CALIFORNIA PROPOSITION 65

Diesel engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects and other reproductive harm.

Battery post, terminal and related accessories contain lead and lead compounds, Always wash hands after handling.

CONTENTS

Preface

This manual includes important instructions concerning operation, lubrication, checking, testing, adjusting the machine and permanent key components.

This manual should always be kept safe, clean and with the machine where it is convenient to find for operators to use. This manual should not be separated from the machine even when reselling or leasing.

Some photographs and illustrations in this manual show details of attachments those may be different from your machine. Guards and covers may have been removed for the purpose of illustration.

Read this manual carefully and follow all instructions for proper operation and maintenance of this machine. Instructions in this manual should help the reader avoid possible personal injury or damage to the machine. The operator should proficiently and correctly operate the machine to ensure safety.

Use this machine only for the purpose described in this manual. Contact your Liugong dealer for approval before making any modifications or adding attachments to the machine. The addition of any unauthorized attachment may cause operation of the machine to become unsafe and reduce the service life of the machine. Guangxi Liugong accepts no liability for any damage resulting from the use of unapproved attachments or working practices.

Only trained or experienced personnel should be allowed to operate or maintain this machine. Correctly record the machine type, serial number, engine serial number and all major component serial numbers for your reference when ordering parts or in the event of theft. Record the correct numbers to both the operator’s manual and a secure place outside the machine.

Safety

The safety section lists basic safety precautions. In addition this section identifies the text and locations of warning signs and labels used on the machine.

Read and understand the basic precautions listed in the safety section before operating or performing lubrication, maintenance or repairs on this machine.

Operation

The operation section is a reference for the new operator and a refresher for the experienced operator. Read, understand and reference it whenever necessary. This section includes a description of gauges, machine controls, switches and other controls at the operators’ station. It also provides transportation and towing information.

Photographs and illustrations guide the operator through correct procedures of checking, starting, operating and stopping the machine.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the machine and its capabilities.

Maintenance

The maintenance section is a guide for equipment care. The illustrated, step-by-step instructions are grouped by servicing intervals. Items without specific intervals are listed under the "When Required" service interval. Items in the "Maintenance Intervals" are referenced to detailed instructions that follow.

For the replacement of environment-friendly key parts and components when maintaining an engine, please use the OEM parts and components of the same type and the same specifications. Otherwise, LiuGong accepts no legal liability for any consequence resulting from the use of unapproved parts.

Maintenance Intervals

Use the service hour meter to determine servicing intervals. Calendar intervals shown (daily, weekly, monthly, etc) can be used instead of service hour meter intervals if they provide more convenient servicing schedules and approximate the indicated service hour meter reading. Recommended service should always be performed at the interval that occurs first.

Under extremely severe, dusty or wet operating conditions, more frequent lubrication than is specified in the "Maintenance Intervals" may be necessary.

Perform service on items at multiples of the original requirement. For example, at every 500 service hours, also service those items listed under every 250 service hours, 50 service hours and every 10 service hours or daily.

All the information, figures, tables and specifications are the latest product information obtainable at the time of publication. Guangxi LiuGong Company will reserve the right to make change without notice.

This truck complies with the requirements according to EN 3691-1; -5 (Industrial trucks- safety requirements and verification, part 1; part 5), EN 12895 (Industrial trucks- electromagnetic compatibility), EN 12053 (Safety of industrial trucks- test methods for measuring noise emissions), EN 1175-1 (Industrial truck safety – electrical requirements), assumed the truck is used according to the described purpose.

The noise level for this machine is 69 dB(A) according to EN 12053.

⚠CAUTION

Environmentally hazardous waste, such as batteries, oil and electronics, will have a negative effect on the environment, or health, if handled incorrectly.

The waste packages should be sorted and put into solid dustbins according to the materials and be collected disposal by local special environment protection bureau. To avoid pollution, it's forbidden to throw away the wastes randomly.

To avoid leaking during the use of the products, the user should prepare some absorbable materials (scraps of wooden or dry duster cloth) to absorb the leaking oil in time. To avoid second pollution to the environment, the used absorbable materials should be handed in to special departments in terms of local authorities.

Our products are subject to ongoing developments. Because this handbook is only for the purpose of operating /servicing the pallet truck, therefore please have understanding, that there is no guarantee out of particular features out of this handbook.

On this manual, the left sign means warning and danger, which can lead to death or serious injury if not followed.

Declaration

The Pallet Lift Truck CLG2015L manufactured by LiuGong are special industrial machines, which can be operated only in special areas that is stipulated in the Regulation on Safety Supervision for Special Equipment, such as factories, scenic spots and amusement sites.

Safety Information

Safety Symbol

The symbol for safety alerting appears on machines, safety signs, manuals or for important safety information at other places. When you see this symbol, you should follow the instructions in the safety information, guarding against any possibility of personal injuries or death.

Safety Signs

Definitions of the safety signs with the words "Danger", "Warning" and "Caution" which appear in this manual and on the machine are as follows:

⚠ DANGER

- Danger: this word denotes an impending danger, failure to observe instructions could result in death or serious injuries.

⚠ WARNING

- Warning: this word denotes potential danger, failure to observe instructions could result in death or serious injuries.

⚠ CAUTION

- Caution: this word denotes potential danger, failure to observe instructions could result in minor to medium degree of injury.

"Caution" is also used to indicate safety information relating to unsafe operations which may cause personal injuries. "Danger" represents the most dangerous conditions. The safety signs "Danger" or "Warning" are placed near particular dangerous places. General notice information is placed on the safety sign "Caution."

Safety Decals and Decal Locations

There are several specific safety decals on your machine. The exact location of and description of the hazards are reviewed in this section. Take time to read, understand and familiarize yourself with each and every one of these safety decals.

Make sure that you can read all safety decals. Clean or replace if you cannot read the words or see the pictures. When cleaning the decals use a cloth, water and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety decals. Solvents, gasoline or harsh chemicals could loosen the adhesive backing of decals causing them to fall off the machine.

You must replace a decal if it is damaged, missing or cannot be read. If a decal is on a part that is replaced, make sure a new decal is installed on the replacement part. Pay attention to the instructional and safety decals located in the cab before starting.

Correct Application

It is only allowed to use this electric pallet truck according to this instruction handbook.

The trucks described in this handbook are self propelled electric power pallet trucks. The trucks are designed to lift, lower and transport palletized loads.

A wrong usage can cause human injuries or can damage equipment.

The operator/ the operating company has to ensure the correct usage and has to ensure, that this pallet truck is used only by staff, which is trained and authorized to use this truck.

The pallet truck has to be used on substantially firm, smooth, prepared, level and adequate surfaces. The truck is intended to be used for indoor applications with ambient temperatures between +5C and + 40C and for various transportation applications without crossing permanent obstacles or potholes. The work on ramps is allowed if ramp is not exceeding the allowed angle. While operating, the load must be placed approximately on the longitudinal centre plane of the truck.

Lifting or transporting people is forbidden.

If used on tail lifts or loading ramps, please ensure that these are used correctly according to the operating instructions.

The capacity is marked on capacity sticker as well on the Identification plate. The operator has to consider the warnings and safety instructions.

Operating lighting must be minimum 50 Lux.

Modification

No modifications or alterations to this pallet truck which may affect, for example, capacity, stability or safety requirements of the truck, shall be made without the prior written approval of the original truck manufacturer, its authorized representative, or a successor thereof. This includes changes affecting, for example braking, steering, visibility and the addition of removable attachments. When the manufacturer or its successor approve a modification or alteration, they shall also make and approve appropriate changes to capacity plate, decals, tags and operation and maintenance handbooks.

By not observing these instructions, the warranty becomes void.

Specialized Stipulations for the US-American Market

Operating this truck requires knowledge which can be acquired from this instruction handbook. This handbook must be kept available throughout the entire period of use of the industrial truck.

IT IS LAW; YOU MUST BE TRAINED AND CERTIFIED TO OPERATE THIS TRUCK! READ AND OBEY ALL WARNINGS AND INSTRUCTIONS IN THIS MANUAL AND ON THE TRUCK!

Only properly trained operators are allowed to operate a powered industrial truck. Your employer must train you and certify, that you are qualified to operate this truck (required by OSHA § 1910.178). The training must satisfy OSHA requirements and as minimum the topics mentioned in this handbook. Depending on the context in this operating manual, the user can refer to several people, including the owner of the truck, anyone who leases or borrows this truck, and the operator as defined in ASME B56.1. Please pay attention to the section in ASME B56.1 concerning the operator. In this standard, it is defined that the safe operation is the responsibility of the operator (ASME B56.1-2003, Part II, section 5.1.1). You and others can be seriously injured or even killed if you don’t use this truck correctly. Before operating your truck, inspect your truck and ensure that it is in correct working order. This truck was designed and built to current industry and government standards. For more information see following:

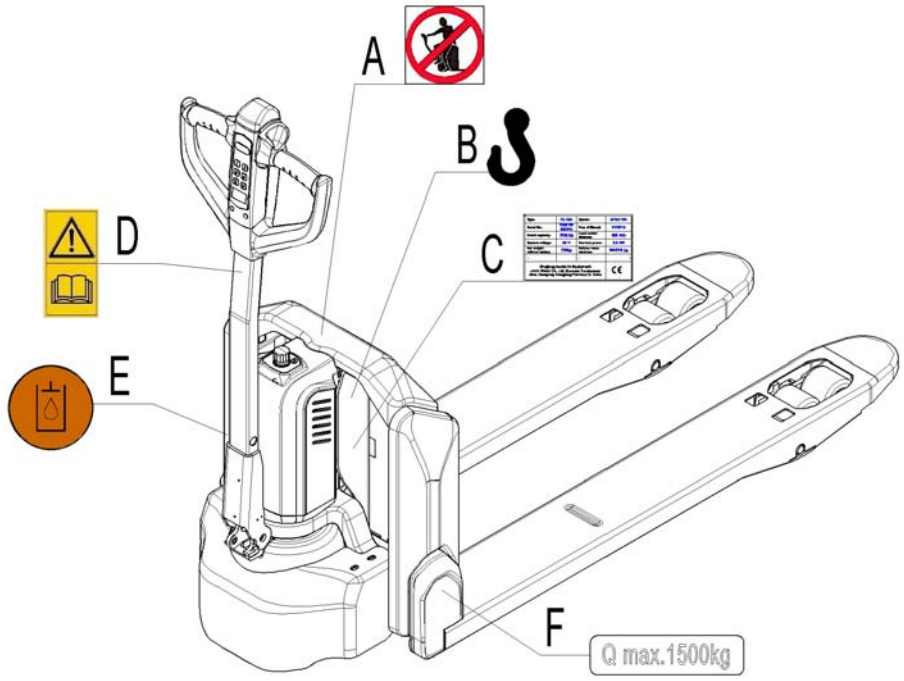
- ASME B56.1 (American Society of Mechanical Engineers)

- OSHA §1910.178 (Occupational Safety and Health Act)

- UL 583 (Underwriters Laboratory)

- ANSI Z535.4 (American National Standards Institute)

Description of the Safety Devices and Warning Labels (Europe and other, excepting USA)



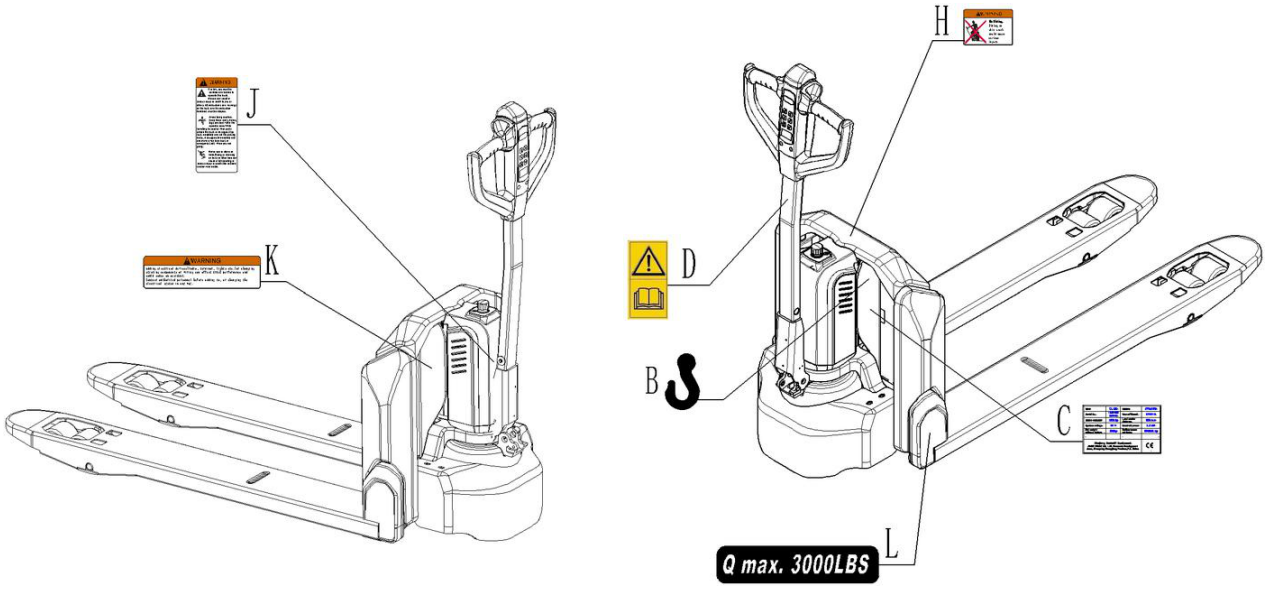
A. “No passengers” decal
B. Crane hook label
C. Identification plate (ID-plate)
D. Sticker to read and follow this instruction
E. Sign oil filling point
F. Capacity sticker

The truck is equipped with an emergency switch (5) which stops all lifting-, lowering-, driving- functions and engages the failsafe electromagnetic brake when it is pressed. By turn this button clockwise, the truck can be operated after the controller checked the functions. Before operating, type the password on pin-code panel and press the √ button.

To prevent against unauthorized access, press emergency switch (5) or press the X button of pin-code panel.

The truck is equipped with a safety (belly) button (1) which switches the driving function away from the operator, if the truck travels towards the operator and the tiller is activated in the tillers operating zone. Follow also the instructions given on the decals. Replace the decals if they are damaged or missing.

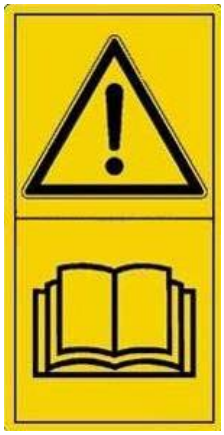
Description of the Safety Devices and Warning Labels (only US-market)



C CE sticker
D Sticker to read and follow these instructions
E Filling sticker
G Tiller sticker
H No passenger
J Sign warning stay clear stop truck
K Sign warning electrical device
L Capacity sticker

The truck is equipped with an emergency button (5) which stops all lifting-, lowering-, driving- functions and engages the failsafe electromagnetic brake when it is pushed. The function is described in chapter 2c. Follow the instructions given on the decals. Replace the decals if they are damaged or missing.

Sign read and follow this instruction (D)



Sign oil filling point (E)

Sign warning stay clear stop truck (J)

Sign warning electrical devices (K)

Warnings, Residual Risk and Safety Instructions

Do not

- Put foot or hand under or into the lifting mechanism.
- Allow other person than the operator to stand in front of or behind the truck when it is moving or lifting/lowering.
- Overload the truck.
- Put foot in front of the wheels, injury could result.
- Lift people. People could fall down and suffer severe injury.
- Push or pull loads
- Side or end load. Load must be distributed evenly on the forks.
- Use the truck with unstable, unbalanced not stable load.
- Use truck without manufacturer’s written consent.
- Lifted loads could become unstable at wind forces. In the case of wind forces do not lift the load if there is any influence to the stability

Watch difference in floor levels when driving. Load could fall down or the truck could get uncontrollable.

Keep watching the condition of load. Stop operating the truck if load becomes unstable.

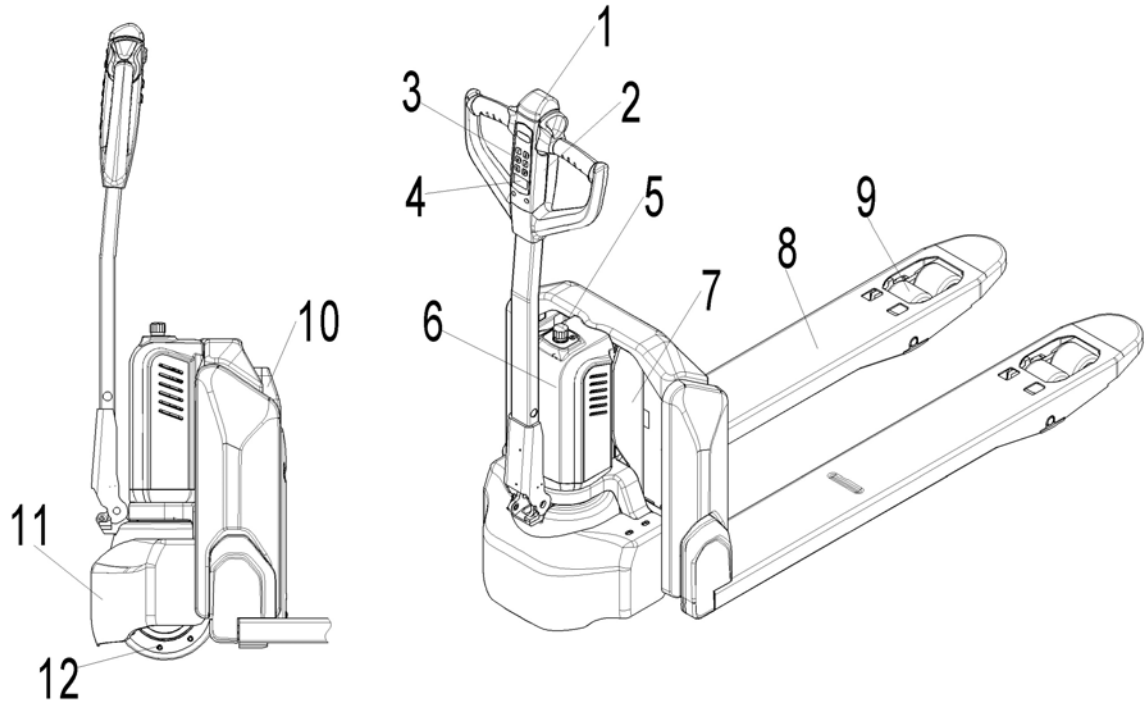
Brake the truck and activate the emergency button (5) by pushing when sliding load on or off the truck. If the truck has any malfunctions, follow chapter 10.

Practice maintenance work according to regular inspection. This truck is not designed to be water resistant. Use the truck under dry condition. Prolonged continuous operation might cause damage of the power pack. Stop operation if temperature of hydraulic oil is too high.

- When operating the electric pallet truck, the operator has to wear safety shoes.
- The truck is intended to be used for indoor applications with ambient temperatures
- between +5C and + 40C.
- The operating lighting must be minimum 50 Lux.
- To prevent unintended sudden movements when not operating the truck (i.e. from another person, etc.), switch off the truck and remove the key.
- Avoid any crashes of the foldable platform against surrounding objects, especially moving in Fw direction as it may lead to crushing and shearing hazards. Always maintain safe speed according to the working environment.

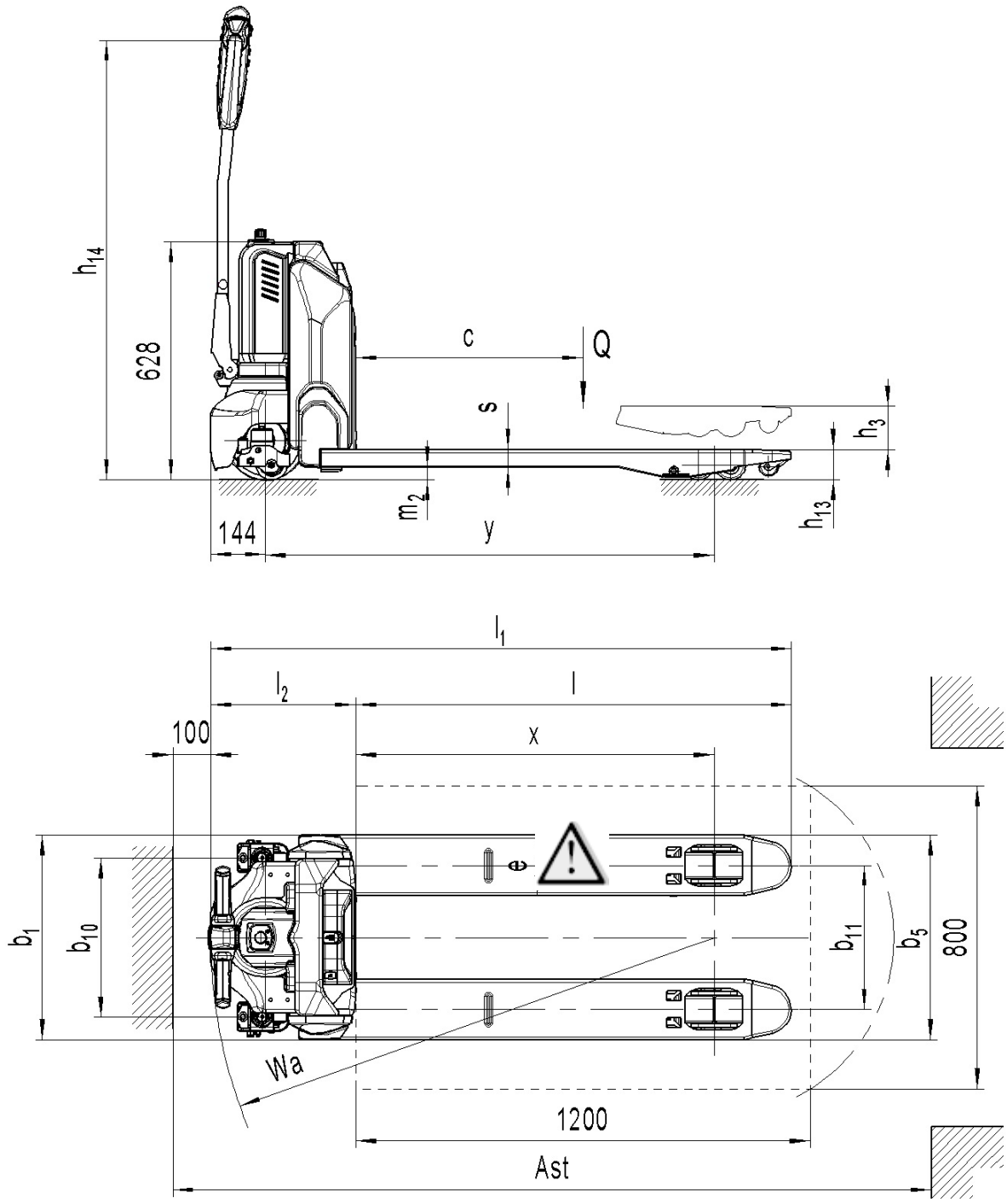
Description of the pallet truck

Overview of the main components



1. Safety (belly) button
2. Tiller
3. Pin-code panel
4. Discharge indicator and charging indicating LED
5. Emergency button
6. Hydraulic unit cover
7. Chassis
8. Leg
9. Load roller
10. Battery
11. Apron
12. Driving unit

Main technical data (Europe and other, excepting USA)



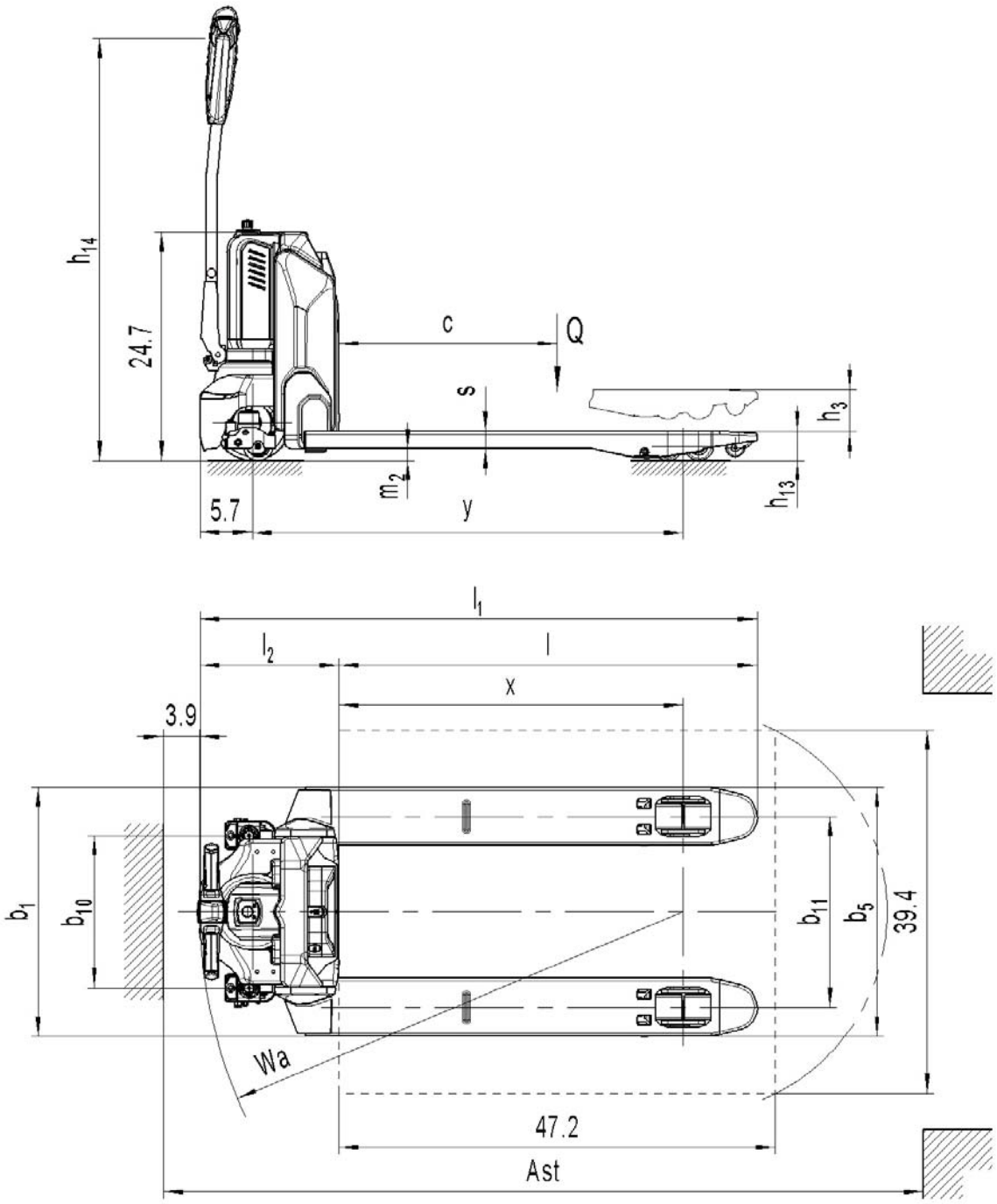
Main technical data for standard version

Type sheet for industrial truck acc. to VDI 2198					
Distinguishing mark	1.2	Manufacturer`s type designation		CLG2015L	
	1.3	Power(battery,diesel,petrol gas,manual)		Battery	
	1.4	Operator type		Pedestrian/Stand	
	1.5	Load Capacity / rated load	Q (t)	1.5	
	1.6	Load centre distance	c (mm)	600	
	1.8	Load distance, centre of drive axle to fork	x(mm)	947	
	1.9	Wheelbase	y (mm)	1185	
Weight	2.1	Service weight	kg	123	126
	2.2	Axle loading, laden front/rear	kg	623 / 1000	626 / 1000
	2.3	Axle loading, unladen front/ rear	kg	96 / 27	99 / 27
Tires, chassis	3.1	Tires		Polyurethane (PU)	
	3.2	Tire size, front	∅ x w (mm)	∅ 210×70	
	3.3	Tire size, rear	∅ x w (mm)	∅ 80×93(∅ 80×70)	
	3.4	Additional wheels (dimensions)	∅ x w (mm)	-/∅ 80×30	
	3.5	Wheels, number front/ rear(x=driven wheels)		1x/ 2(1x/ 4) or 1x +2/ 2(1x +2/ 4)	
	3.6	Tread, front	b_{10} (mm)	-/420	
	3.7	Tread, rear	b_{11} (mm)	380	525
Dimension	4.4	Lift height	h_3 (mm)	115	
	4.9	Height of tiller in drive position min. / max.	h_{14} (mm)	700 / 1160	
	4.15	Height, lowered	h_{13} (mm)	80	
	4.19	Overall length	l_1 (mm)	1530	
	4.20	Length to face of forks	l_2 (mm)	380	
	4.21	Overall width	b_1 (mm)	540	685
	4.22	Fork dimensions	s/e/l (mm)	47 / 160 / 1150	
	4.25	Width across forks	b_5 (mm)	540	685
	4.32	Ground clearance, centre of wheelbase	m_2 (mm)	33	
	4.34	Aisle width for pallets 800X1200 lengthways	Ast(mm)	2000	
	4.35	Turning radius	Wa (mm)	1330	
Performance	5.1	Travel speed, laden/ unladen	km/h	4.6/ 4.8	
	5.2	Lift speed, laden/ unladen	m/s	0.020 / 0.025	
	5.3	Lowering speed, laden / unladen	m/s	0.05 / 0.04	
	5.8	Gradeability, laden/ unladen	%	4 / 16	
	5.10	Service brake		Electromagnetic	

Main technical data for standard version

Motors	6.1	Drive motor rating S2 60min	kW	0.65
	6.2	Lift motor rating at S3 10%	kW	0.50
	6.3	Battery acc. to DIN 43531 /35 / 36 A, B, C, no		/
	6.4	Battery voltage, nominal capacity K5	V/Ah	24 / 20(24 / 30； 24 / 36)
	6.5	Battery weight (minimum)	kg	4.6
	6.6	Energy consumption acc. to VDI cycle	KWh/h	0.18
Addition data	8.1	Type of drive control		DC -Speed Control
	8.4	Sound level at driver`s ear acc. to EN 12053	dB(A)	69

Main technical data (US Market)



Main technical data for standard version (US market)

Type sheet for industrial truck acc. to VDI 2198					
Distinguishing mark	1.2	Manufacturer`s type designation		CLG2015L	
	1.3	Drive		Battery	
	1.4	Operator type		Pedestrian	
	1.5	Load Capacity / rated load	Q (lbs)	3300	
	1.6	Load centre distance	c (in)	23.6	
	1.8	Load distance ,centre of drive axle to fork	x (in)	37.3	
	1.9	Wheelbase	y (in)	46.6	
Weight	2.1	Service weight	lbs	271	278
	2.2	Axle loading, laden front/rear	lbs	1102 / 2469	1380 / 2198
	2.3	Axle loading, unladen front/rear	lbs	211 / 60	218 / 60
Tires, chassis	3.1	Tires		Polyurethane (PU)	
	3.2	Tire size,front	∅ x w (in)	∅ 8.27×2.76	
	3.3	Tire size,rear	∅ x w (in)	∅ 3.15×3.66(∅ 3.15×2.76)	
	3.4	Additional wheels(dimensions)	∅ x w (in)	-/∅ 3.15×1.18	
	3.5	Wheels,number front/rear(x=driven wheels)		1x/ 2(1x/ 4) or 1x +2/ 2(1x +2/ 4)	
	3.6	Tread, front	b_{10} (in)	-/16.5	
	3.7	Tread, rear	b_{11} (in)	15	20.7
Dimension	4.4	Lift	h_3 (in)	4.53	
	4.9	Height of tiller in drive position min./ max.	h_{14} (in)	27.6 / 45.7	
	4.15	Height, lowered	h_{13} (in)	3.15	
	4.19	Overall length	l_1 (in)	60	
	4.20	Length to face of forks	l_2 (in)	15	
	4.21	Overall width	b_1 (in)	21.3	27
	4.22	Fork dimensions	s/e/l (in)	1.85 / 6.3 /45.3	
	4.25	Distance between fork- arms	b_5 (in)	21.3	27
	4.32	Ground clearance, centre of wheelbase	m_2 (in)	1.3	
	4.34	Aisle width for pallets 39.4X47.2 lengthways (7.9in safe distance)	Ast (in)	82.2	
	4.35	Turning radius	Wa (in)	52.36	

Main technical data for standard version (US market)

Performance	5.1	Travel speed, laden/ unladen	mph	2.85 / 2.98
	5.2	Lift speed, laden/ unladen	fpm	3.93 / 4.92
	5.3	Lowering speed, laden/ unladen	fpm	9.8 / 7.9
	5.8	Max. gradeability, laden/ unladen	%	5 / 16
	5.10	Service brake		Electromagnetic
Motors	6.1	Drive motor rating S2 60min	HP	0.87
	6.2	Lift motor rating at S3 10%	HP	0.67
	6.3	Battery acc. to DIN 43531/ 35/ 36 A, B, C, no		No
	6.4	Battery voltage, nominal capacity K5	V / Ah	24 / 20(24 / 30； 24 / 36)
	6.5	Battery weight	lbs	10
	6.6	Energy consumption acc. to VDI cycle	kWh/h	0.18
Addition data	8.1	Type of drive control		DC speed Control
	8.4	Sound level at driver`s ear acc. to EN 12053	dB(A)	<70

Nameplate

PALLET TRUCK			
MODEL	Xxxx	RATED CAPACITY	xxxx kg
BATTERY VOLTAGE	xx V	SPECIFICATION	xxxx
UNLADEN MASS	xxx kg	RATED POWER	xxx Kw
UNLADEN MASS WITHOUT BATTERY	xxx kg	MIN. & MSX. BATTERY MASS	xxxx kg
SERIAL NO.	xxxxxxxxxxx	PRODUCTION DATE	xxxxxxxxxxx
MANUFACTURE NAME:XXXXXXXXXXXXXXX MANUFACTURE ADRESS:XXXXXXXXXXXXXXXXX			

Note:The nameplate format is subject to the equipment posting.

Operation Manual

Daily Inspection

This chapter describes pre-shift checks before putting the truck into operation.

Daily inspection is effective to find the malfunction or fault on this truck. Check the truck on the following points before operation.

Remove load from truck and lower the forks.

DO NOT USE THE TRUCK IF ANY MALFUNCTION IS FOUND.

- Check for scratches, deformation or cracks.
- Check if there is any oil leakage from the cylinder.
- Check the vertical creep of the truck.
- Check the smooth movement of the wheels.
- Check the function of the emergency brake by activating the emergency button.
- Check, the tiller arm- switch braking function
- Check the lifting and lowering functions by operating the buttons.
- Check if all bolts and nuts are tightened firmly.
- Visual check if there are any broken electric wires.
- If supplied with a backrest extension, check it for damages and correct assembling.

Operation Instructions

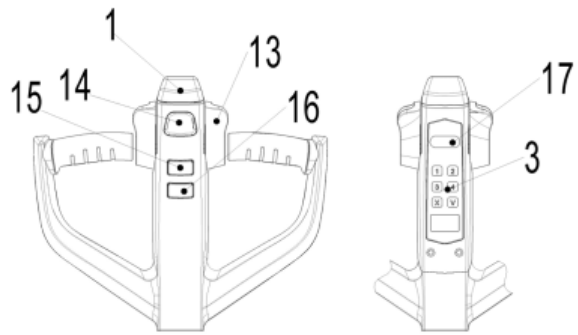
BEFORE OPERATING THIS TRUCK, PLEASE FOLLOW THE WARNINGS AND SAFETY INSTRUCTIONS.

Make sure, that the load is palletized and stable and that the daily inspection is carried out.

Type the password on pin-code panel and press √ button to start the truck.

Press the horn button to activate the audible warning signal.

Tiller operating controls



Parking

DO NOT PARK THE TRUCK ON INCLINED SURFACES

The truck is equipped with an electromagnetic failsafe stopping and parking brake.

Always lower the forks fully. Press the emergency switch (5)

Lifting

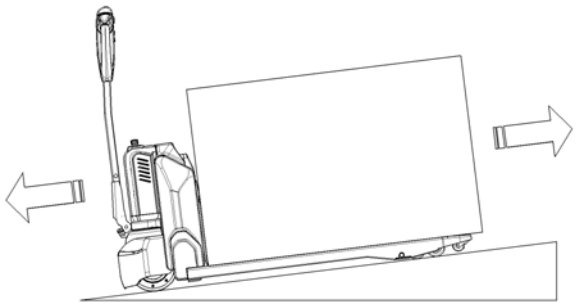
**DO NOT OVERLOAD THE TRUCK!
THE MAXIMUM CAPACITY IS 1500 kg.**

Travel with the lowered forks fully underneath the pallet and press the lifting button until you reached the desired lifting height

Lowering

Press the lowering button (22) carefully. Lower the load until the forks are clear of the pallet, then drive the truck carefully out of the load unit.

Load facing uphill



Travelling

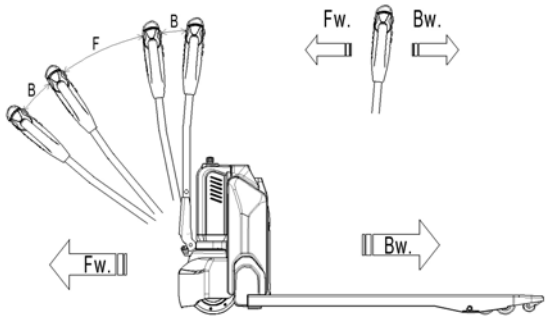
TRAVEL ON INCLINES ONLY WITH THE LOAD FACING UPHILL.

DO NOT TRAVEL ON INCLINES MORE THAN SPECIFIED WITH THE TECHNICAL DATA.

After starting the truck by activation from Pin-code panel, move the tiller to the operating zone.

Turn the accelerator button to the desired direction forward ‘Fw.’ or backwards Bw.’

Operating direction



Control the travelling speed by moving the accelerator button carefully until you reached the desired speed. If you move the accelerator button back to the neutral position, the controller decelerates the truck until the truck stops. If the truck stopped, the parking brake will be engaged.

Drive carefully the truck to the destination. Watch the route conditions and adjust the travelling speed with the accelerator-button.

Press turtle button to enter into slow speed mode, travel slowly by moving the accelerator button , press turtle button again to return back to regular mode.

Press turtle button and hold for 2 seconds to realize driving with tiller vertically when in confined area.

Steering

You steer the truck by moving the tiller to the left or right side.

Braking

PLEASE CHECK THE BRAKING DISTANCE WITH TRUCK BEFORE OPERATION

THE BRAKING PERFORMANCE DEPENDS ON THE TRACK CONDITIONS AND THE LOAD CONDITIONS OF THE TRUCK

The braking function can be activated on several ways:

- By moving the accelerator button (13) back to the initial ‘0’ position or by releasing the button, the regenerative braking is activated. The truck brakes until it stops.
- By moving the accelerator button (13) from one driving direction directly to the opposite direction, the truck brakes regenerative until it starts traveling into the opposite direction.
- The truck brakes, if the tiller is moved up or down to the braking zones (‘B’). If the tiller is released, the tiller moves automatically up to the upper baking zone (‘B’).The truck brakes until it stops.
- The safety (belly) button (1) prevents the operator from being crushed. If this button is activated, the truck decelerates and/ or starts traveling into the backwards direction (‘Bw.’) for a short distance and stops. Please consider, that this button also operates, if the truck is not traveling and the tiller is in the operating zone.

Malfunctions

If there are any malfunctions or the truck is inoperative, please stop using the truck and activate the emergency button (5) by pushing it. If possible, park the truck on a safe area and press the X button of pin-code panel. Inform immediately the manager and, or call your service. If necessary, tow the truck out of the operating area by using dedicated towing/ lifting equipment.

Emergency

In emergencies or in the event of tip over (or off dock), keep safe distance immediately. If possible push the emergency button (5). All electrical functions will be stopped.

Commissiong, Transporting, Decommissioning

Commissioning

Commissioning data

Type	CLG2015L (540X1150)	CLG2015L (685X1150)
Commissioning weight [kg]	123kg	126kg
Dimensions [mm]	1530x540x1250	1530x685x1250

After receiving our new pallet truck or for re-commissioning you have to do following before (firstly) operating the truck:

- Check if are all parts included and not damaged
- Eventually installation of the multifunction tiller
- Eventually installation and charging the batteries
- Do the work according to the daily inspections as well as functional checks.

Lifting/ transportation

For transporting, remove the load, lower the forks to the lowest position and fix the truck safe with dedicated lifting gear according to the following figures.

Lifting

USE DEDICATED CRANE AND LIFTING EQUIPMENT

DO NOT STAND UNDER THE SWAYING LOAD

DO NOT WALK INTO THE HAZARDOUS AREA DURING LIFTING

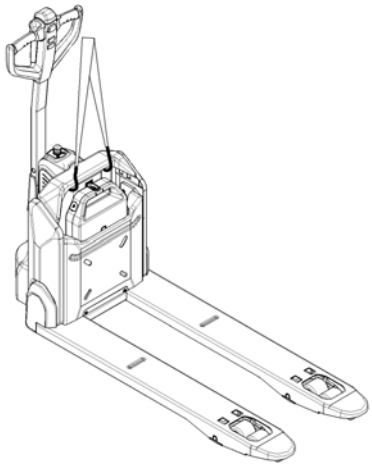
Transportation

DURING TRANSPORTATION ON A LORRY OR TRUCK ALWAYS FASTEN THE TRUCK SECURELY

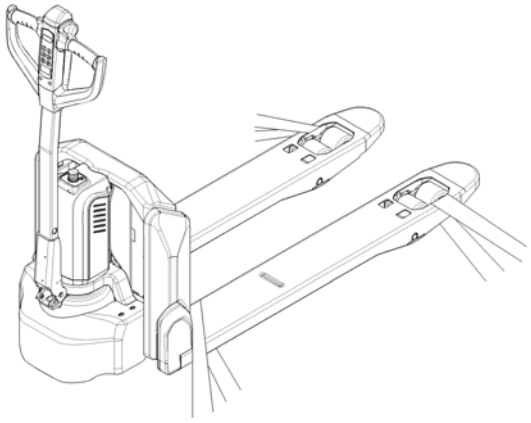
Lower the forks and park the truck securely.

Fasten the truck according to below figure by fixing dedicated lashing belts to each side of the trucks crane hook holes and fasten the other side at the transporting truck.

Lifting with a crane



Fixing points



Decommissioning

For storage, remove the load, lower the truck to the lowest position, grease all in this handbook mentioned greasing points (regular inspection), and eventually protect the truck against corrosion and dust. Remove the batteries and jack the truck safely, so that there will be no flattening after storage.

For final decommissioning hand the truck to a designated recycling company. Oil, batteries and electric components must be recycled due to legal regulations.

PIN-CODE PANEL

Introduction

Pin-code panel is an electronic system which is similar with an electronic alarm system. Truck will not able to operate before typing a correct password, the main function is to prevent unauthorized operation.

Main parameters

Working voltage:12V-60V

Ambient temperature:-40°C to +90°C

IP grade:IP65

Main functions

Truck can be operated only when correct password is typed.

There are two passwords of pin-code panel, one is the default user password 1234, and you can use it immediately. The other one is the administrator password 3131; with this you can set a new user password according to the following steps:

- Type “3232”, click “√”.
- Type previous user password, click “√”.
- Type new password, and click “√”, previous password will be replaced.
- In case you need to reset the password, please follow the procedure under:
- Type “123”, click “√”.
- Type “123” again, click “√”. Password will be “1234”.

Maintenance Manual

Battery Charging and Replacement

Only qualified personnel are allowed to service or charge the batteries. The instructions of this handbook and from the battery- manufacturer must be observed.

The batteries are lithium batteries.

Recycling of batteries undergoes national regulations. Please follow these regulations.

By handling batteries, open fire is prohibited!

In the area of battery charging neither burning materials nor burning liquids are allowed. Smoking is prohibited and the area must be ventilated.

Park the truck securely before starting charging or installing/changing the batteries

Before finishing the maintenance work, make sure, that all cables are connected correctly and that there are no disturbing towards other components of the truck.

The truck is equipped with following lithium traction battery- type:

24V20Ah lithium battery, 4.5kg; 24V30Ah lithium battery, 6kg; 24V36Ah lithium battery, 7kg.

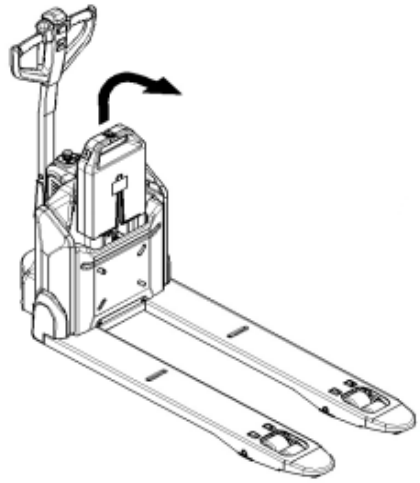
IT IS ONLY ALLOWED TO USE LITHIUM BATTERIES.

PLEASE CONSIDER THE MAXIMUM OPERATING TEMPERATURE OF THE BATTERIES.

Replacement

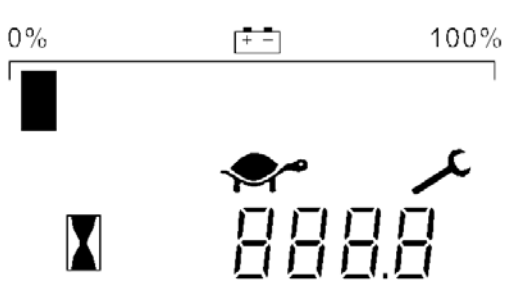
Park the truck securely and press emergency switch (5). Hold the battery grip with one finger pull out the lock, and then take out the battery vertically. The installation is in the reverse order.

Battery replacement

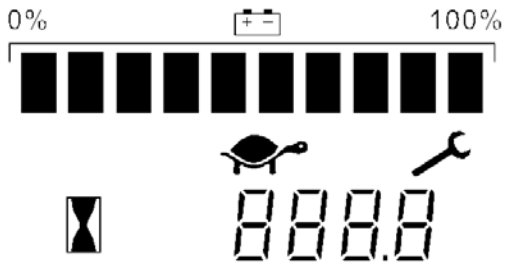


Battery Indicator

Battery discharged



Battery charged



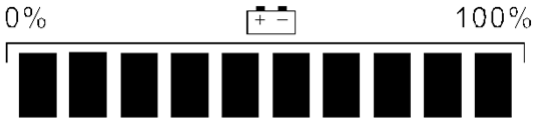
Hour meter

An alpha-numeric liquid crystal display is fitted in the centre of the unit that shows the hours worked. The display is backlight (the backlight is normally lighted).

Alarms

The same display can also indicate the alarm state, showing a code corresponding to the type of alarm.

Battery State of charge



The battery's state of charge indication is integrated in the LCD display; it is shown by ten notches. Each notch represent the 10% of the battery charge. As the battery becomes discharged, the notches turn off progressively, one after the other, in proportion to the value of the residual battery charge. This value, sent to the MDI-CAN by the controller via CAN-BUS. When BATTERY LOW alarm appears on the controller, the battery symbol which is under the notches blinks.

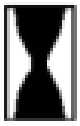
Turtle Symbol:

It is normally off, when it appears (fixed) it shows activation of the “soft” mode of the truck, in which maximum speed and acceleration are reduced.

Monkey Wrench Symbol:

It is normally off, when it appears (fixed) it shows the request of programmed maintenance or the alarm state. In this case the relative code will be displayed. The information supplied by the MDI-CAN can be extremely useful. Failures can be quickly identified by the operator or service technician thereby finding the fastest solution to the problem.

Hourglass Symbol:



It blinks when the hour meter is working.

Charging

- Before charging ensure that you are using an appropriate charger for charging the installed battery.
- Before using the charger, please fully understand the instructions of the charger instructions.
- Always follow these instructions.
- The room, where you are charging must be ventilated.
- The exactly charge status can be only checked from the discharge indicator. To control the status, the charging must be interrupted and the truck must be started.

Park the truck at a dedicated secured area with a dedicated power supply.

Lower the forks and remove the load;

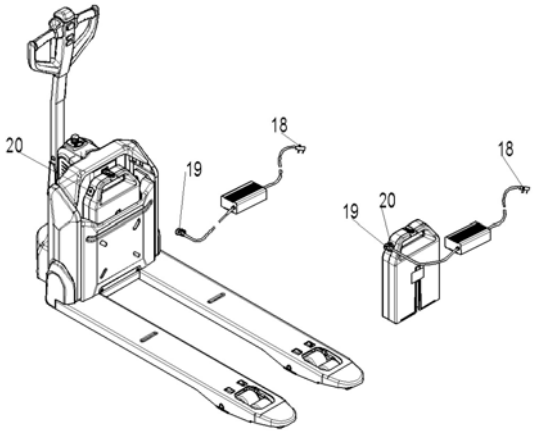
Switch the truck off and connect the charger plug (19) to the charging port (20) on the battery. The charger starts charging the battery if the charger plug (18) is connected to the main power supply.

Disconnect the charger plug from the battery and close the cap after the charger finished charging.

When charging is finished, disconnect the plug (18) from the socket and place it in the designated pocket.

It's also allowed to remove the battery out and charge in dedicated area.

Battery charging



LED-Status

LED- signal	Function
Red	Charging
Green	Fully charged

Charger

Model	Specification	Input	Output
DZL2420 SS02	24V5A	100Vac -240Vac ～ 2.0A MAX	29.4V 5.0A
DZL300 SS02	24V8A	180Vac -240Vac ～ 3.0A MAX	29.4V 8.0A
SSLC30 0V29	24V8A (EU)	180Vac -240Vac ～ 3.0A MAX	29.4V 8.0A
SSLC30 0V29	24V8A (US)	108Vac -132Vac ～ 5.0A MAX	29.4V 8.0A
QQE288 - 10CH10 9	24V12A	100Vac -240Vac ～ 6.0A MAX	29.4V 12.0A

Regular Maintenance

- Only qualified and trained personnel are allowed to do maintenance on this truck.
- Before maintaining, remove the load from the forks and lower the forks to the lowest position.
- If you need to lift the truck, follow chapter 4b by using designated lashing or jacking equipment. Before working, put safety devices (for instance designated lift jacks, wedges or wooden blocks) under the truck to protect against accidental lowering, movement or slipping.
- Please pay attention by maintain the tiller arm. The gas pressure spring is pre-loaded by compression, carelessness can cause injury.
- Use approved and from your dealer released original spare parts.
- Please consider that oil leakage of hydraulic fuid can cause failures and accidents.
- It is allowed to adjust the pressure valve only from trained service technicians.

If you need to change the wheels, please follow the instructions above. The castors must be round and they should have no abnormal abrasion.

Check the items emphasized maintenance checklist.

Maintenance Checklist

		Interval(Month)			
		1	3	6	12
Hydraulic					
1	Check the hydraulic cylinder(s), piston for damage noise and leakage		●		
2	Check the hydraulic joints for damage and leakage		●		
3	Inspect the hydraulic oil level, refill if necessary		●		
4	Refill the hydraulic oil (12 month or 1500 working hours)				●
5	Check and adjust function of the pressure valve (1500kg+0/+10%)				●
Mechanical system					
6	Inspect the forks for deformation and cracks		●		
7	Check the chassis for deformation and cracks		●		
8	Check if all screws are fixed		●		
9	Check the push rods for deformation and damages		●		
10	Check the gearbox for noise and leakage		●		
11	Inspect the wheels for deformation and damages		●		
12	Inspect and lubricate the steering bearing				●
13	Inspect and lubricate the pivot points		●		

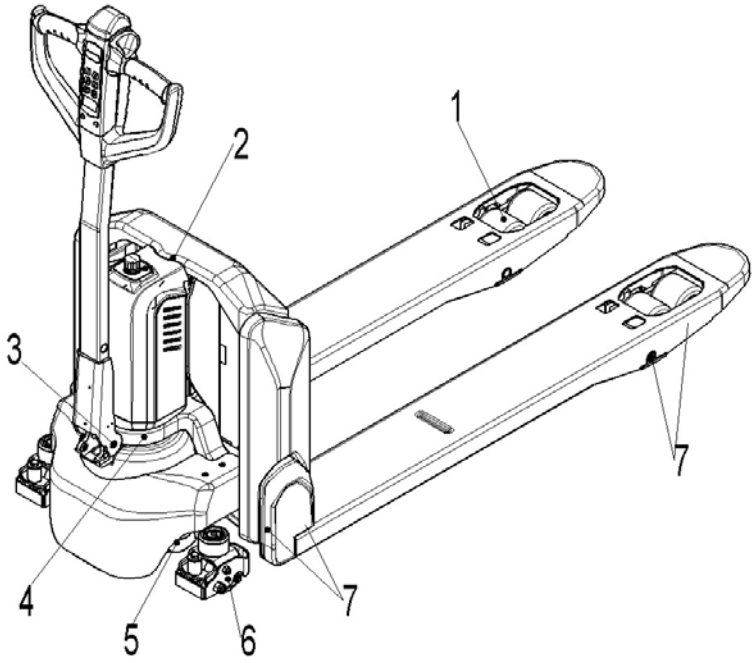
14	Lubricate the grease nipples	●			
Electrical system					
15	Inspect the electric wiring for damage		●		
16	Check the electric connections and terminals		●		
17	Test the Emergency switch function		●		
18	Check the electric drive motor for noise and damages		●		
19	Test the display		●		
20	Check, if correct fuses are used		●		
21	Test the warning signal		●		
22	Check the contactor(s)		●		
23	Check the frame leakage (insulation test)		●		
24	Check function and mechanical wear of the accelerator		●		
25	Check the electrical system of the drive motor		●		
Braking system					
26	Check brake performance, if necessary replace the brake disc or adjust the air gap		●		
Battery					
27	Check the battery voltage		●		
28	Clean and grease the terminals and check for corrosion and damage		●		
29	Check the battery housing for damages		●		
Charger					
30	Check the main power cable for damages			●	
31	Check the start-up protection during charging			●	
Function					
32	Check the horn function	●			
33	Check the air gap of the electromagnetic brake	●			
34	Test the emergency braking	●			
35	Test the reverse and regenerative braking	●			
36	Test the safety (belly) button function	●			
37	Check the steering function	●			
38	Check the lifting and lowering function	●			
39	Check the tiller arm switch function	●			
General					
40	Check if all decals are legible and complete	●			

41	Inspect the castors, adjust the height or replace these if worn out.		●		
42	Carry out a test run	●			

Lubricating Points

Lubricate the marked points according to the maintenance checklist. The required grease specification is: DIN 51825, standard grease.

Lubricating points



1. Load roller bearing
2. Cylinder
3. Axle
4. Bearing
5. Gear box
6. Side roller bearing
7. Connection point

Check and Refill Hydraulic Oil

It is recommended to use hydraulic oil in connection with average temperature:

Environment temperature	–5 ℃ ~25 ℃	>25 ℃
Type	L-HV32 low temperature anti-wear hydraulic oil	L-HM46 anti-wear hydraulic oil (high pressure)
Recommended brand	LiuGong	LiuGong
Amount	0.4L	

Waste material like oil, used batteries or other must be probably disposed and recycled according to the national regulations and if necessary brought to a recycling company.

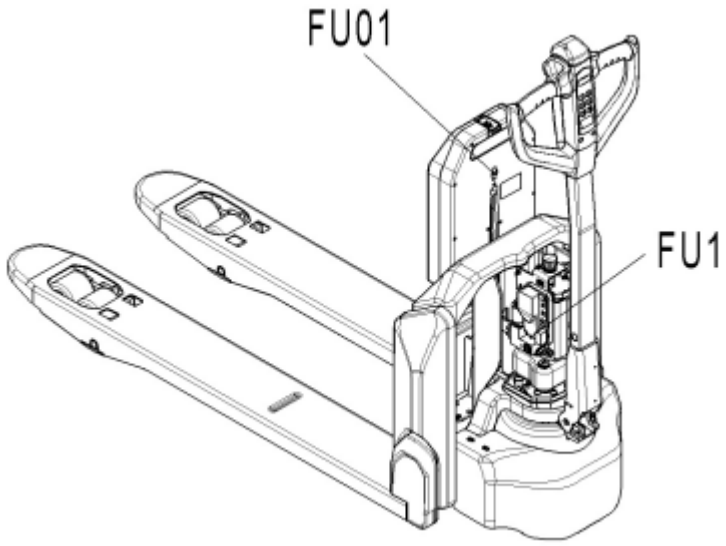
The oil level height shall be in the not lifted position min. 0.3L to 0.5L.

If necessary add oil at the filling point.

Checking Electrical Fuses

Remove the main cover. The fuses are located according to below figure; the size is according to below table.

Location of fuses



	Rate
FU 1	10A
FU 01	70A

Trouble Shooting

- If the truck has malfunctions follow the instructions, mentioned in chapter “Operating Instructions”.

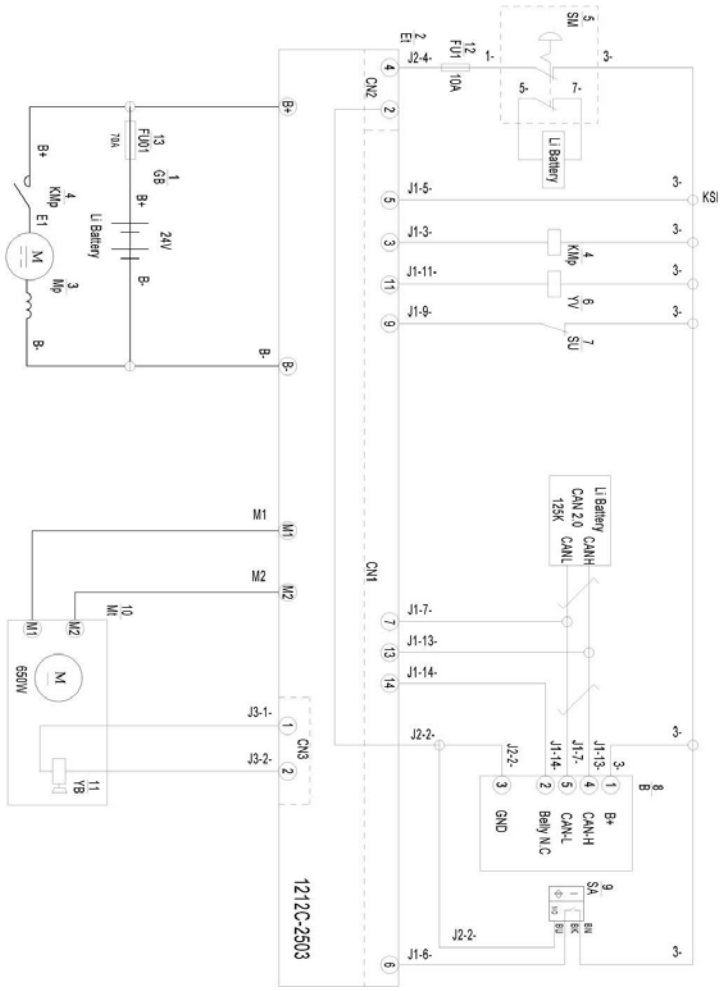
TROUBLE	CAUSE	REPAIR
Load can’t be lifted	Load weight too high	Lift only the max. capacity, mentioned on the ID-plate
	Battery discharged	Charge the battery
	Lifting fuse faulty	Check and eventually replace the lifting fuse
	Hydraulic oil level too low	Check and eventually refill hydraulic oil
	Oil leakage	Repair the sealing of the cylinder
Oil leakage from air breathing	Excessive quantity of oil.	Reduce oil quantity.
Truck not starts operating	Battery is charging	Charge the battery completely and then remove the main power plug form the electrical socket.
	Battery not connected	Connect the battery correctly
	Fuse faulty	Check and eventually replace fuses
	Low battery	Charge the battery
	Emergency switch is activated	Turn the emergency clockwise
	Tiller in the operating zone	Move the tiller firstly to the braking zone.

If the truck has malfunctions and can’t be operated out of the working zone, jack the truck up and go with a load handler under the truck and safe the truck securely. Then move truck out of the aisle.

Wiring/ Circuit Diagram

Electrical Circuit Diagram

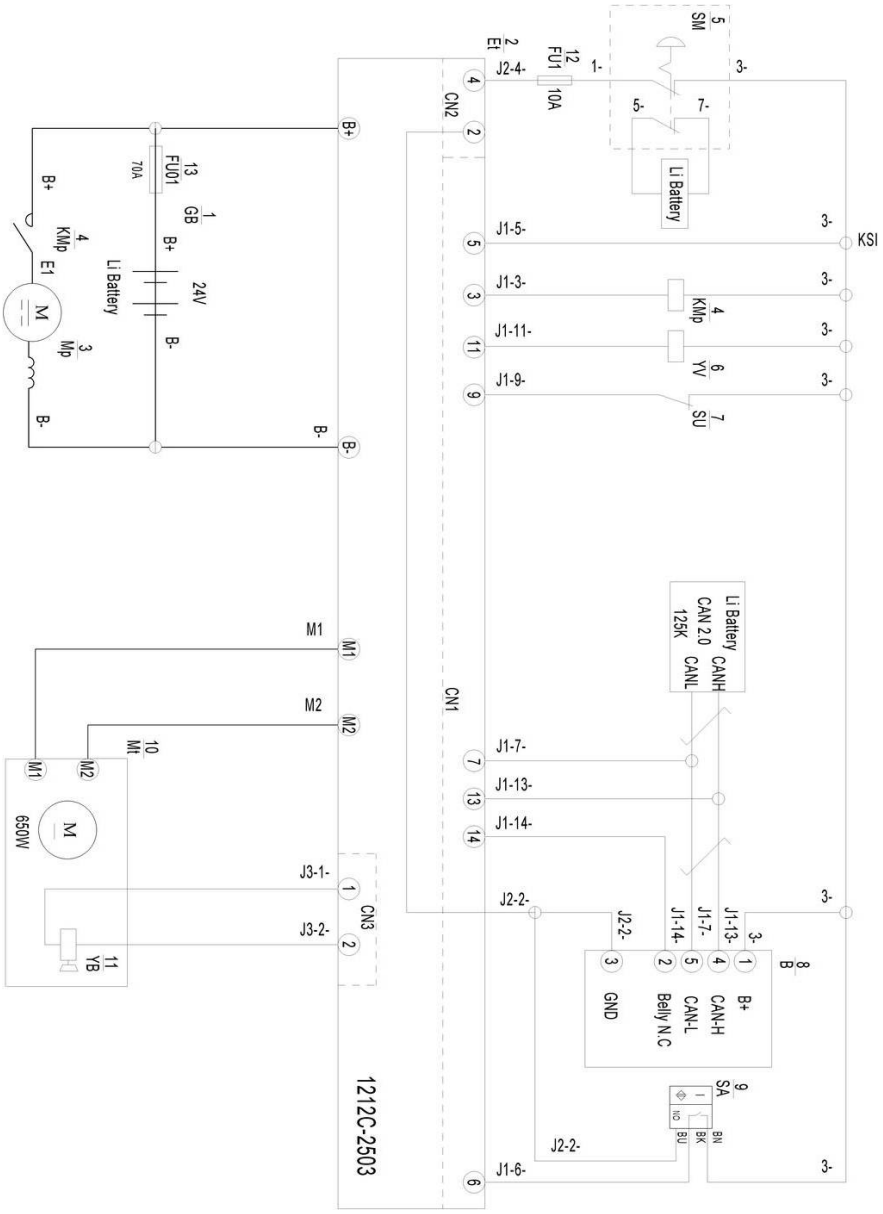
Without speed reduction on curves



Description of electrical diagram

Code	Item	Code	Item
GB	Battery	B	CAN tiller
Et	Controller	SA	Proximity switch
Mp	Pump motor	Mt	Traction motor
KMp	Pump contactor	YB	Electromagnetic brake
SM	Emergency button	FU1	10A fuse
YV	Electromagnetic valve	FU01	70A fuse
SU	Micro switch		

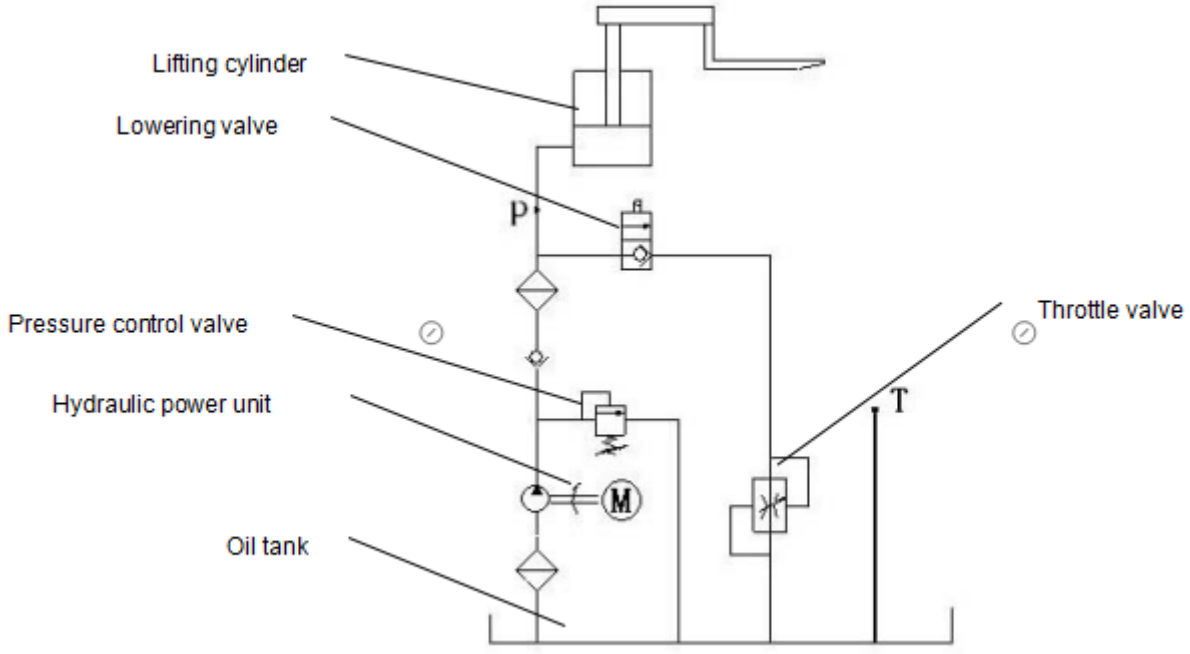
With speed reduction on curves



Code	Item	Code	Item
GB	Battery	B	CAN tiller
Et	Controller	SA	Proximity switch
Mp	Pump motor	Mt	Traction motor
KMp	Pump contactor	YB	Electromagnetic brake
SM	Emergency button	FU1	10A fuse
YV	Electromagnetic valve	SE	Proximity switch

Hydraulic circuit

Hydraulic circuit



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