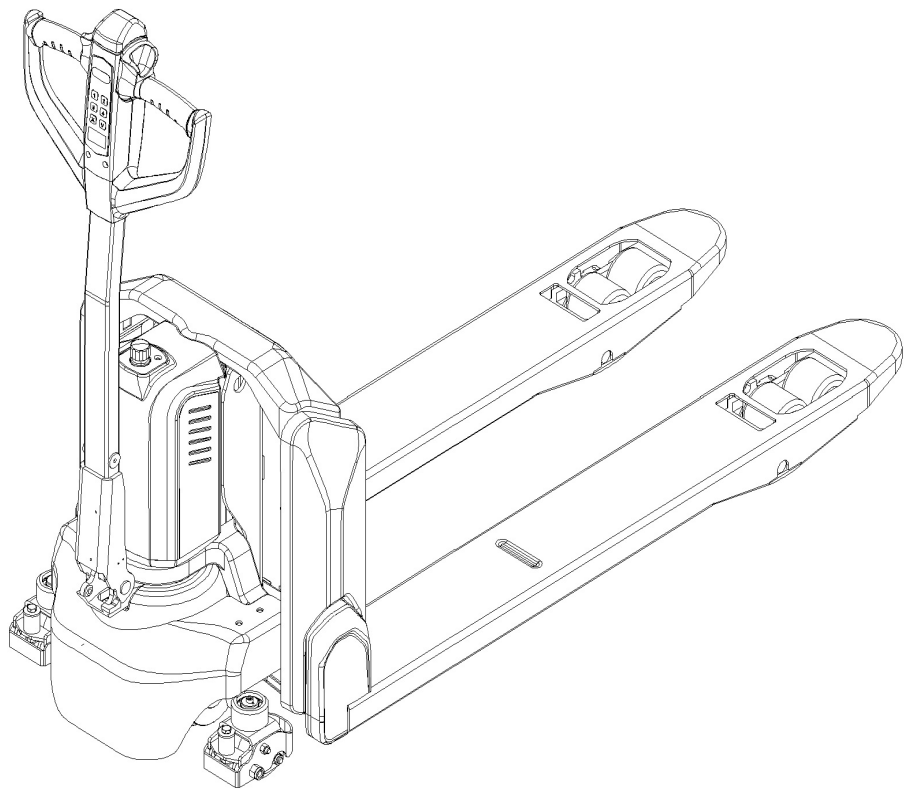


INSTRUCTION MANUAL

Logitrans Mover

LM1500



WARNING

Do not use the pallet truck before reading and understanding these operating instructions.

NOTE:

- Please check the designation of your present type on the ID-plate.
- Keep for future reference.

Version 07/2019

LM 1500_EN

FOREWORD

Before operating the truck, read this INSTRUCTION MANUAL carefully and understand the usage of the truck completely. Improper operation could create danger.

This manual describes the usage of LM1500 electric pallet trucks. When operating and servicing the truck, make sure, that it applies to your type.

Keep this manual for future reference. If this or the warning/ caution labels are damaged or got lost, please contact your local dealer for replacement.

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.

ATTENTION:

- 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 manual 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 manual.



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

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1. CORRECT APPLICATION

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

The trucks described in this manual 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 +5°C and +40°C 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.

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

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

By not observing these instructions, the warranty becomes void.

2. DESCRIPTION OF THE PALLET TRUCK

a. Overview of the main components

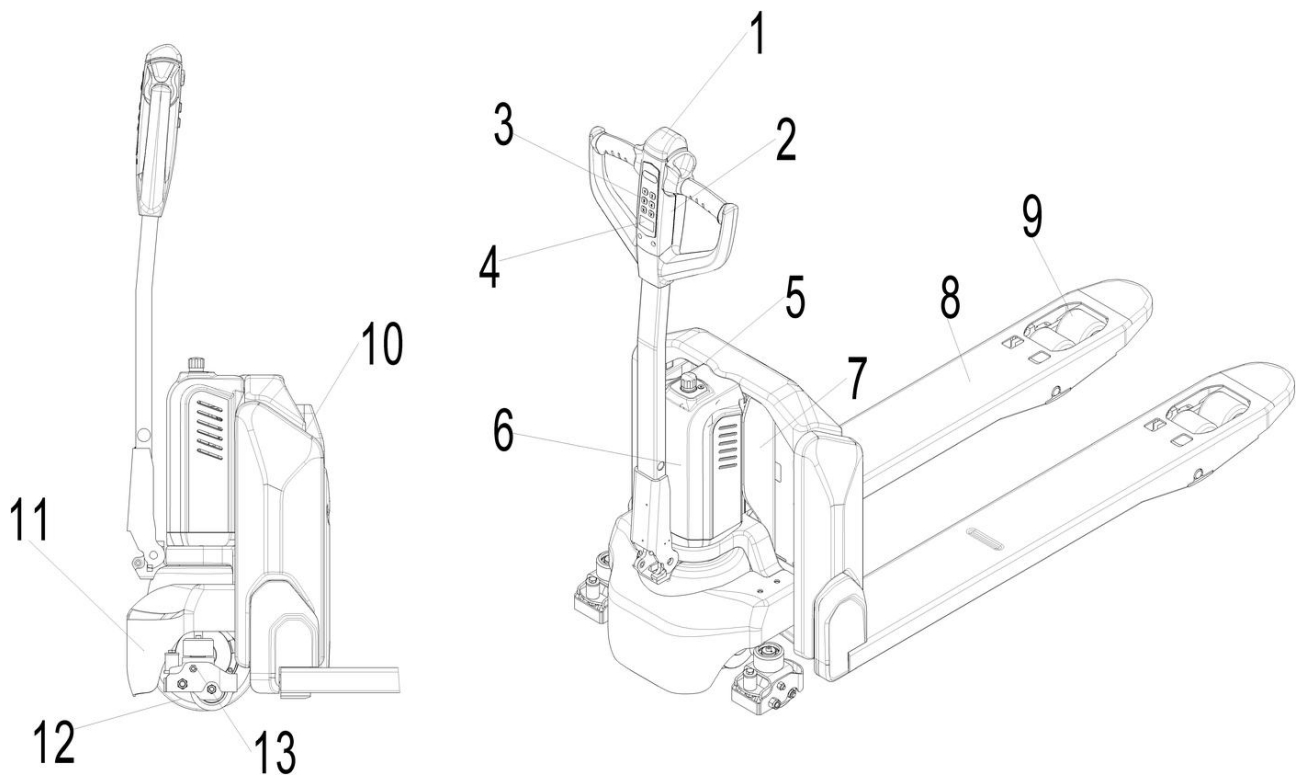


Fig. 1: Overview main components

- | | |
|--|------------------|
| 1. Safety (belly) button | 8. Leg |
| 2. Tiller | 9. Load roller |
| 3. Pin-code panel | 10. Battery |
| 4. Discharge indicator and charging indicating LED | 11. Apron |
| 5. Emergency button | 12. Driving unit |
| 6. Hydraulic unit cover | 13. Side roller |
| 7. Chassis | |

b. Main technical data

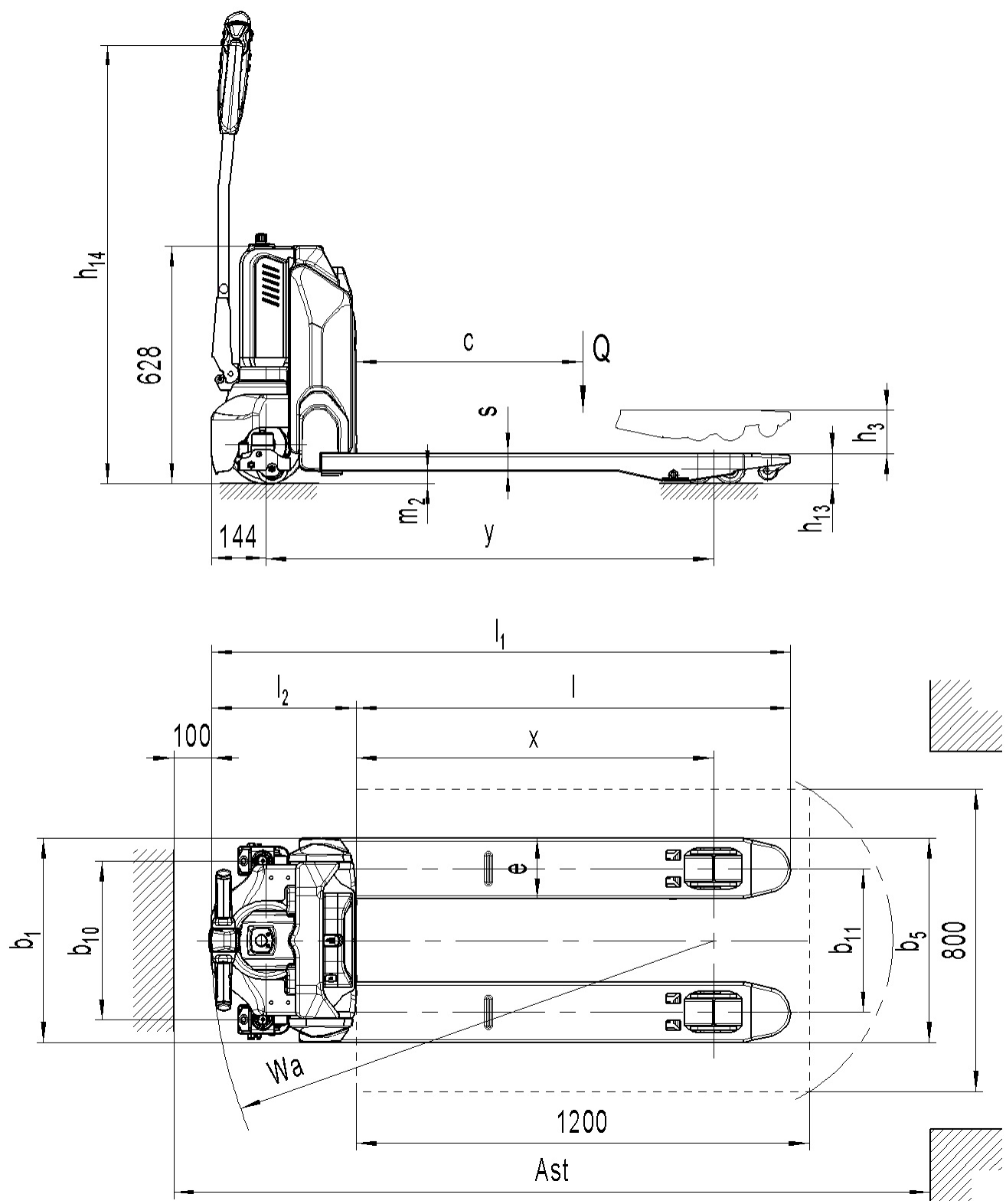


Fig. 2: Technical data

Table 1: Main technical data for standard version

Type sheet for industrial truck acc. to (VDI2198)				
Distinguishing mark	1.2	Manufacturer's type designation		LM 1500
	1.3	Power(battery,diesel,petrolgas>manual)		Battery
	1.4	Operator type		Pedestrian
	1.5	Load Capacity / rated load	Q (t)	1.5
	1.6	Load centre distance	c	l/2
	1.8	Load distance, centre of drive axle to fork	x(mm)	947 1017
	1.9	Wheelbase	y (mm)	1185 1255
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	Ø x w (mm)	Ø 210×70
	3.3	Tire size, rear	Ø x w (mm)	Ø 80×93
	3.4	Additional wheels (dimensions)	Ø x w (mm)	Ø 80×30
	3.5	Wheels, number front/ rear(x=driven wheels)		1x +2 / 2
	3.6	Tread, front	b ₁₀ (mm)	420
	3.7	Tread, rear	b ₁₁ (mm)	380 525
Dimensions	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 1600
	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 47/160/1220
	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 1400
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
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
	6.5	Battery weight	kg	4.6
	6.6	Energy consumption acc. to EN16796-2	KWh	0.22
	8.1	Type of drive control		DC -Speed Control
	8.4	Sound level at driver's ear acc. to EN 12053	dB(A)	69

c. Description of the safety devices and warning labels (Europe and other, excepting USA)



For the USA –market, the description of the safety and warning labels is mentioned in chapter 12.

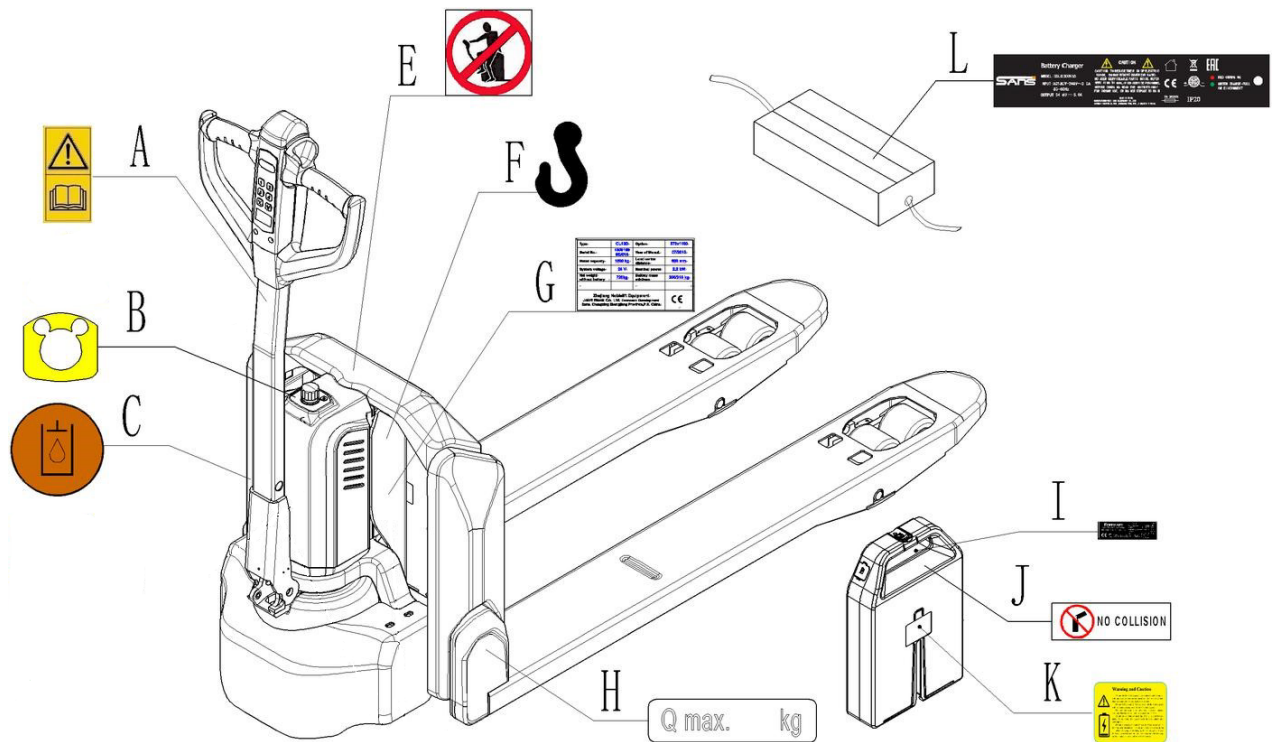


Fig. 3: Safety and warning labels

- A Sticker to read and follow this instruction
- B Emergency button sticker
- C Sign oil filling point
- E “No passengers” decal
- F Crane hook label
- G Identification plate (ID-plate)
- H Capacity sticker
- I Battery ID plate
- J No collision sticker
- K Battery warning sticker
- L Charger ID plate

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.

d. Identification plate

- | | | | |
|---|--|----|----------------------------------|
| 1 | Designation, type | 6 | Name and address of manufacturer |
| 2 | Serial number | 7 | Battery weight minimum/ maximum |
| 3 | Rated capacity in kg | 8 | Nominal power in kW |
| 4 | Supply voltage in V | 9 | Load center distance |
| 5 | Own mass (self weight) in kg without battery | 10 | Manufacturing date |
| | | 11 | Option |

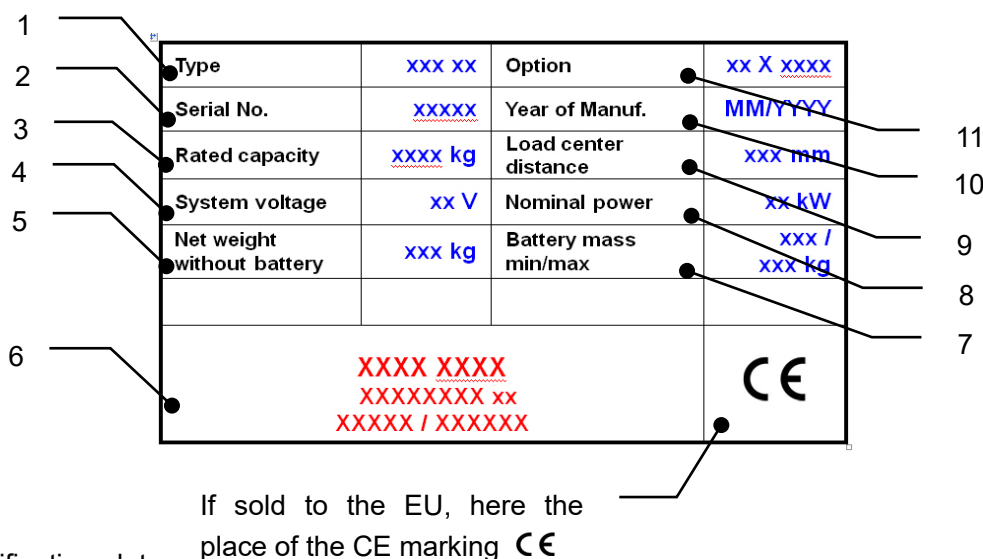


Fig. 4: Identification plate

3. 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 +5°C and + 40°C.
- The operating lighting must be minimum 50 Lux.
- To prevent unintended sudden movements when not operating the truck (i.e. from another person, etc.), press emergency switch (5) or press the X button of pin-code panel.
- Always maintain safe speed according to the working environment.

4. COMMISSIONING, TRANSPORTING, DECOMMISSIONING

a. Commissioning

Table 2: Commissioning data

Type	LM1500 (540X1150)	LM1500 (685X1220)
Commissioning weight [kg]	123kg	130kg
Dimensions [mm]	1530x540x1250	1530x685x1320

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
- Make sure the tiller is assembled correctly (electrical socket is connected and fixed with two plastic clamps, circlip of the axle is installed)
- Check that battery is charged (follow chapter 8)
- Do the work according to the daily inspections as well as functional checks.

b. 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

Park the truck securely and lash the truck according to the points identified in Fig. 5. Lift the truck to its destination and place the truck securely before removing the lifting gear. The lashing points are according to the Fig. 5.

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 Fig. 6 by fixing dedicated lashing belts to each side of the trucks crane hook holes and fasten the other side at the transporting truck.

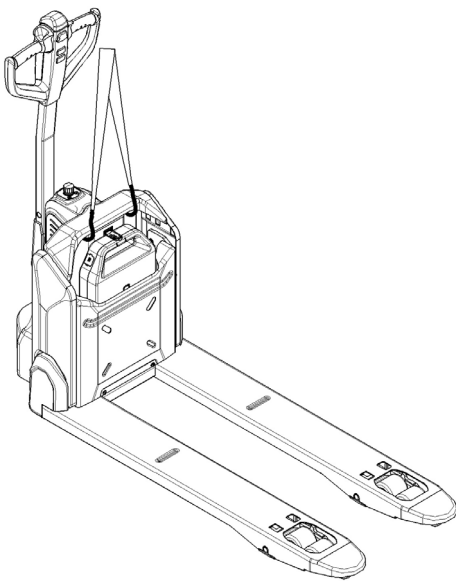


Fig. 5: Lifting with a crane

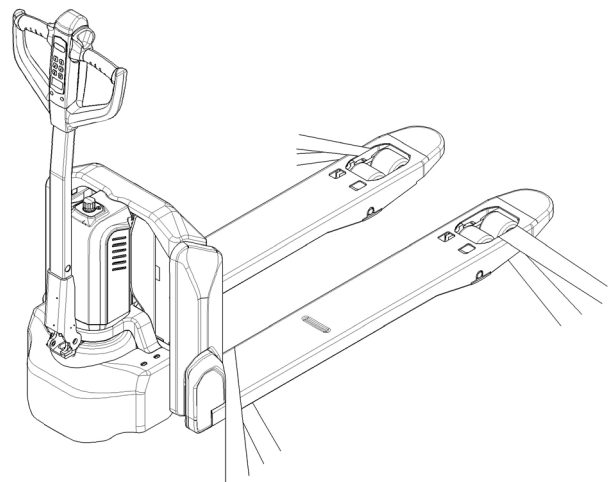


Fig. 6: fixing points

c. 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.

5. 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 smooth movement of the wheels.
- Check the function of driving in both directions (section 6d).
- Check the functions of braking by activation of tiller arm sensor, reversing of driving buttons, release of driving buttons and of the safety (belly) button (section 6f).
- Check the function of driving with tiller in its vertical position (section 6d).
- Check the function of the emergency brake by activating the emergency button.
- Check the lifting and lowering functions by operating the buttons (section 6b and 6c).
- Check the function of steering by turning the tiller from one end position to the other one. The steering should be smooth, without jerks or abnormal sound.
- 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.
- Check the presence of warning stickers and signs (section 2c and section 12)

6. OPERATING INSTRUCTIONS



BEFORE OPERATING THIS TRUCK, PLEASE FOLLOW THE WARNINGS AND SAFETY INSTRUCTIONS (CHAPTER 3).

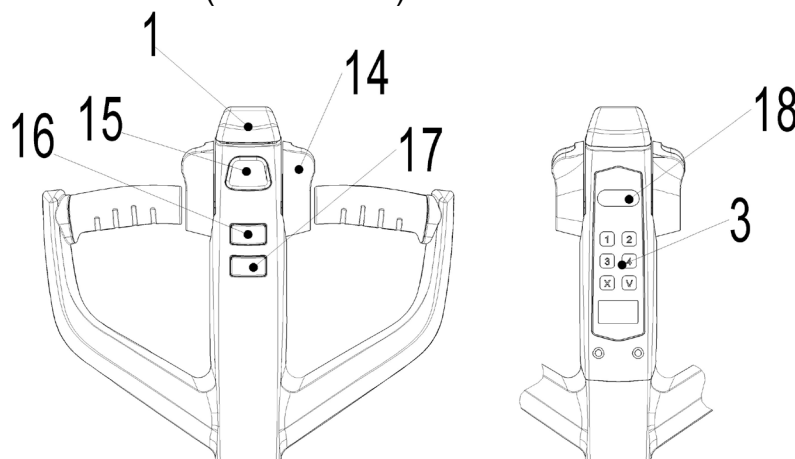


Fig.7: Tiller operating controls

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 (Fig.7,15) to activate the audible warning signal.

a. 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).

b. Lifting



DO NOT OVERLOAD THE TRUCK!
THE MAXIMUM CAPACITY OF LM1500 IS 1500 kg.

Travel with the lowered forks fully underneath the pallet and press the lifting button (Fig. 7, 16) until you reached the desired lifting height.

c. Lowering

Press the lowering button (17) carefully.
Lower the load until the forks are clear of the pallet, then
drive the truck carefully out of the load unit.

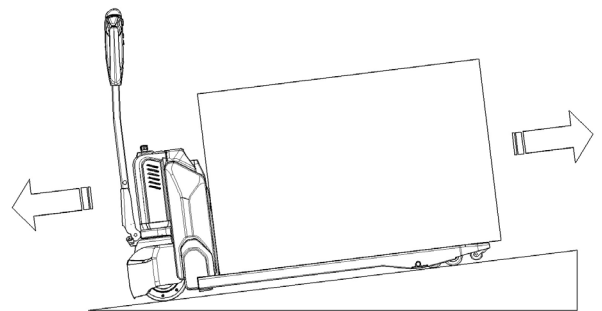


Fig. 8: Load facing uphill

d. 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 ('F', Fig.9).
Turn the accelerator button to the desired direction forward 'Fw.' or backwards Bw.'(Fig. 9).

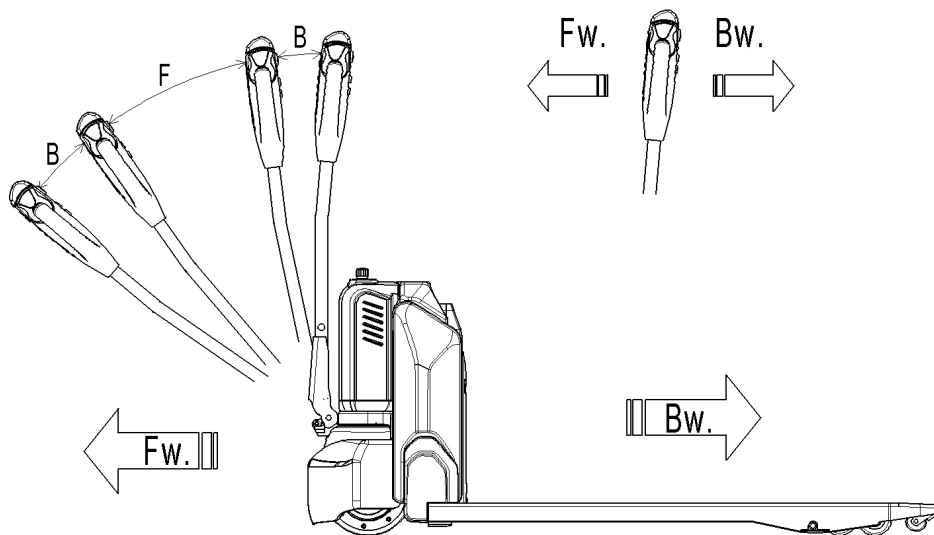


Fig. 9: Operating direction

Control the travelling speed by moving the accelerator button (Fig.7, 14) 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 (Fig.7, 18) to enter into slow speed mode, travel slowly by moving the accelerator button (Fig.7, 14) , press turtle button again to return back to regular speed mode.

Press turtle button and hold to activate driving function with tiller in its vertical position when operating in confined areas. The driving function is active only when turtle button is pressed (the speed is reduced); the release of turtle button will cause immediate stop. The activation of accelerator button in time gap shorter than two seconds after the turtle button is pressed will not activate the driving function, the activation cycle has to be repeated from the beginning. Accelerator button should remain in neutral position till two seconds passed.

e. Steering

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

f. 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 (14) 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 (14) 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 braking 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.

g. 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.

h. 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.

7. PIN-CODE PANEL

LM1500 is equipped with a pin-code panel (3).

a. 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.

b. Main parameters

Working voltage: 12V-60V

Ambient temperature: -40°C to +90°C

IP grade: IP65

c. Main functions

For LM1500, it 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 3232; 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".

8. BATTERY CHARGING AND REPLACEMENT



- Only qualified personnel are allowed to service or charge the batteries. The instructions of this handbook 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.

Table 3: Available batteries

Model	Battery options
LM1500	24V20Ah lithium battery, 4.5kg



IT IS ONLY ALLOWED TO USE LITHIUM BATTERIES.
PLEASE CONSIDER THE MAXIMUM OPERATING
TEMPERATURE OF THE BATTERIES.

a. 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.

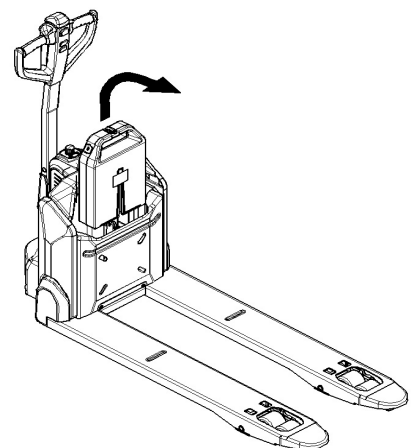


Fig. 10: Battery replacement

b. Battery indicator

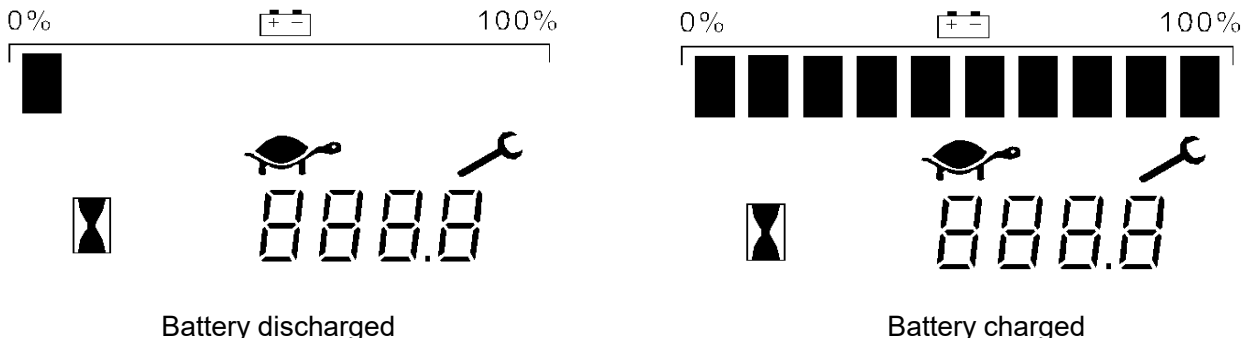


Fig. 11: Battery discharge indicator

Display

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 display by the controller via CAN-BUS.

LM1500: When there is fault code 0 on the display, means BATTERY LOW POWER. The lifting function will be cut off. Fault code 91 will appear if truck is further used without charging, driving speed will be slower.

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.

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.

c. 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 (20) to the charging port (21) on the battery. The charger starts charging the battery if the charger plug (19) 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 (19) from the socket and place it in the designated pocket.

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

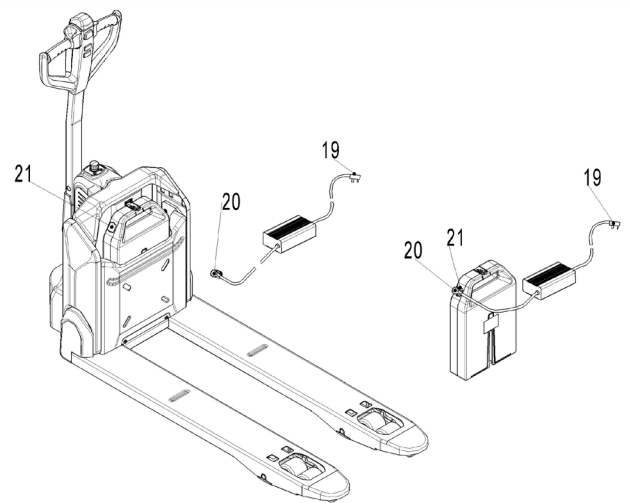


Fig.12: Battery charging

Table 4: LED-Status

LED- signal	Function
Red	Charging
Green	Fully charged

Table 5: Charger LM1500

Model	Specification	Input	Output
SSLC300V29	24V8A (EU)	180Vac -240Vac~3.0A MAX	29.4V 8.0A
SSLC300V29	24V8A (US)	108Vac -132Vac~5.0A MAX	29.4V 8.0A

9. 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 fluid can cause failures and accidents.
- It is allowed to adjust the pressure valve only from trained service technicians.

Check the items emphasized in maintenance checklist.

a. Maintenance checklist

Table 7: 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(LM1500)+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 abnormal sound and noise		•		
11	Inspect the wheels for deformation and damages		•		
12	Inspect and lubricate the steering bearing if necessary				•
13	Inspect and lubricate the pivot points if necessary		•		
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	•			

b. Lubricating points

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

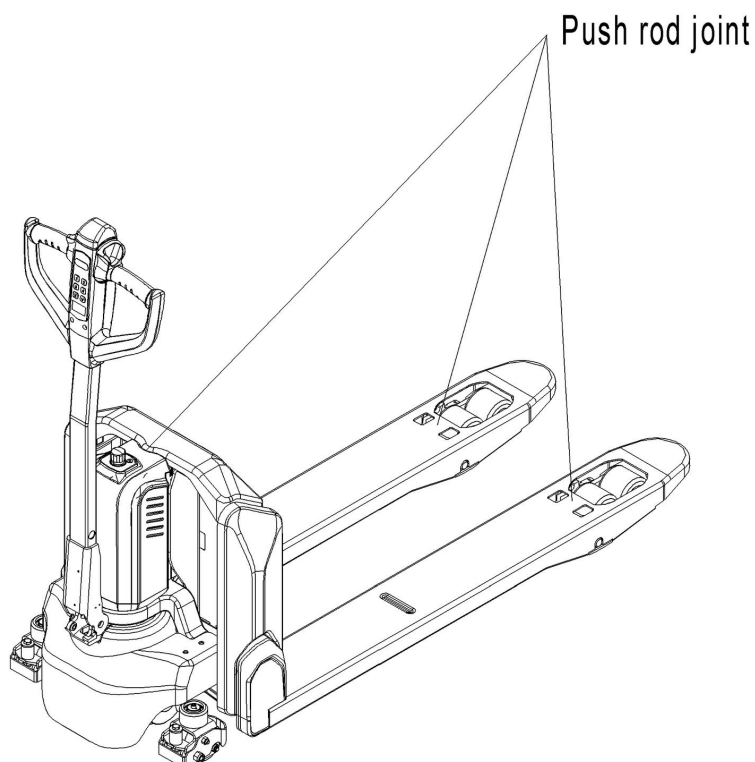


Fig. 13: Lubricating points

c. Check and refill hydraulic oil

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

Environment temperature	-5°C~25°C	>25°C
Type	HVLP 32, DIN 51524	HLP 46, DIN 51524
Viscosity	28.8-35.2	41.4 - 47
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 in the oil tank should be between min and max marks with fully lowered forks.

If necessary add oil at the filling point.

d. Checking electrical fuses

Remove the main cover. The fuses are located according to Fig. 14; the size is according to table 8.

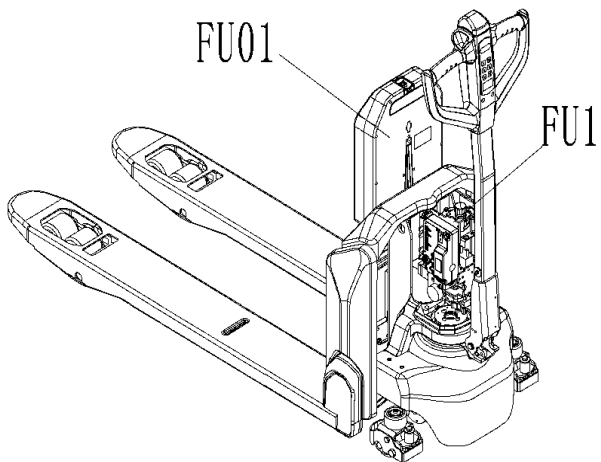


Fig. 14: Location of fuses for LM1500

Table 8: Size of the fuses

	Rate
FU 1	10A
FU 01	70A

10. TROUBLE SHOOTING



- If the truck has malfunctions follow the instructions, mentioned in chapter 6.

Table 9: Trouble shooting

TROUBLE	CAUSE	REPAIR
Load can't be lifted	Load weight too high	Lift only the max. capacity, mentioned on the ID-plate
	Battery low power	Charge the battery
	Lifting contactor failure	Check and contact with service support for replacement if necessary
	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	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.

Table 10: 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		

b. Hydraulic circuit

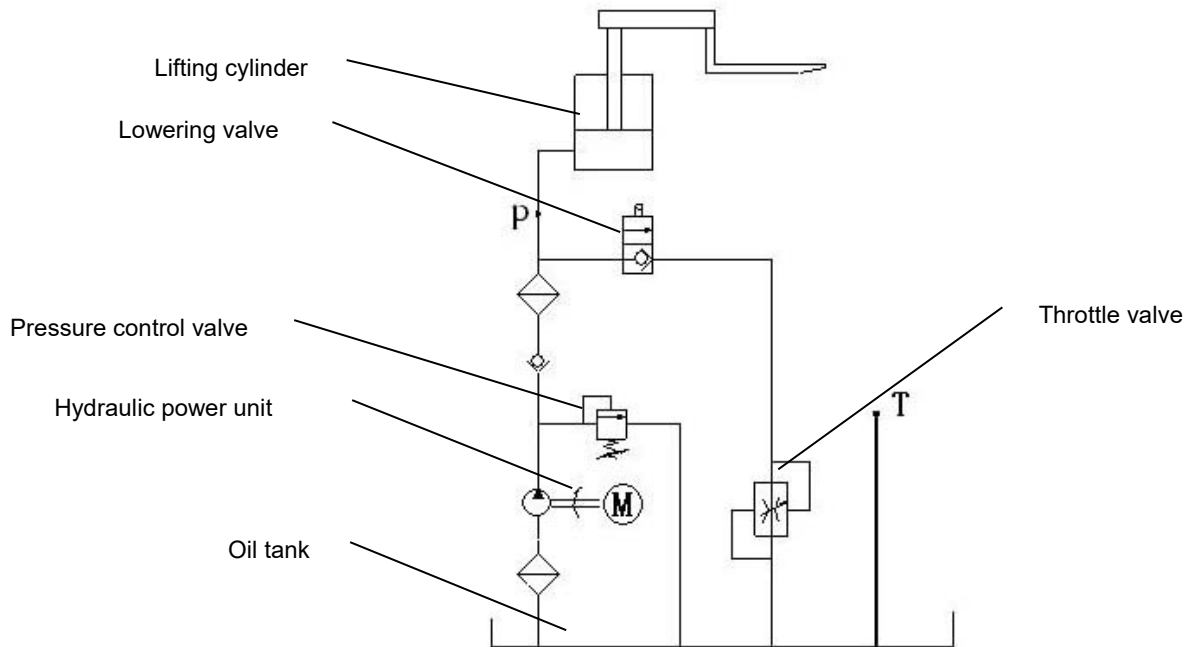


Fig. 20: Hydraulic circuit

12. SPECIALIZED STIPULATIONS FOR THE US- AMERICAN MARKET

The content in this chapter is specialized for the US-American market.

a. Foreword/ Compliance

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)

⚠ DANGER This sign indicates hazard situations, if not avoided, will result in serious injury or death. The instructions or precautions to this message must be observed to avoid the potential risk of injury or death.

⚠ WARNING If not followed, warning indicates hazard situations which may lead to moderate injury. The instructions or precautions to this message must be observed to avoid the potential risk of injury or death.

⚠ CAUTION If not followed, caution indicated situations which may lead to minor injury. Instructions or precautions must be observed to avoid minor injury.

b. Description warning labels (only US- market)

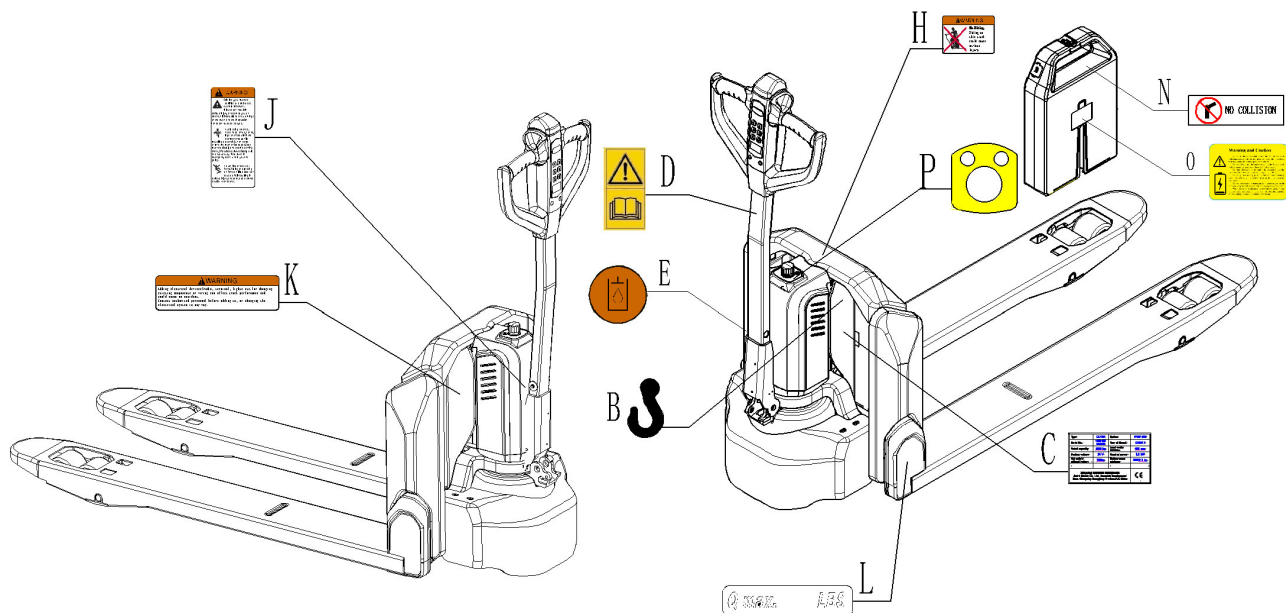


Fig. 21: Warning labels and safety devices (only USA)

- | | | | |
|---|---|---|------------------------------------|
| C | CE sticker | J | Sign warning stay clear stop truck |
| D | Sticker to read and follow these instructions | K | Sign warning electrical device |
| E | Filling sticker | L | Capacity sticker |
| G | Tiller sticker | N | Charge sticker |
| H | No passenger | | |
| P | Emergency switch | | |
| O | Warning 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.

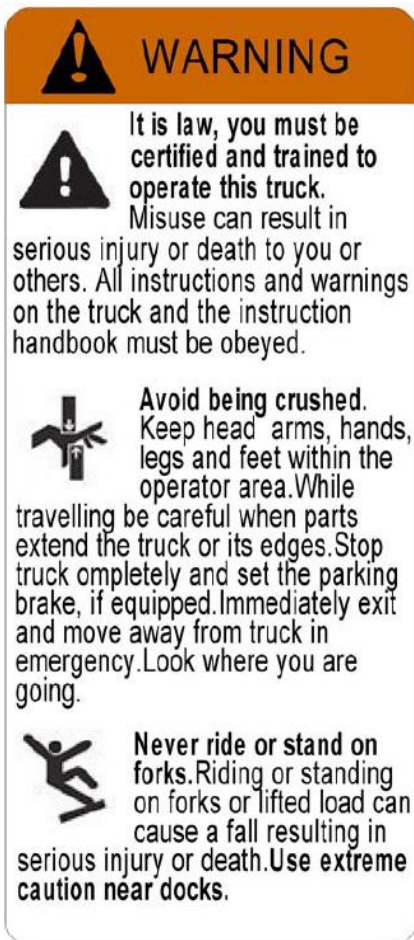
Sign read and follow this instruction (D)



Sign oil filling point (E)



Sign warning stay clear stop truck (J)



Sign warning electrical devices (K)



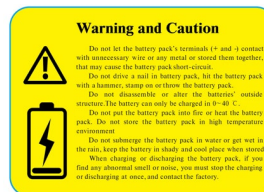
Sign no collision (N)



Sign emergency switch (P)



Warning sticker



c. Technical data for US market

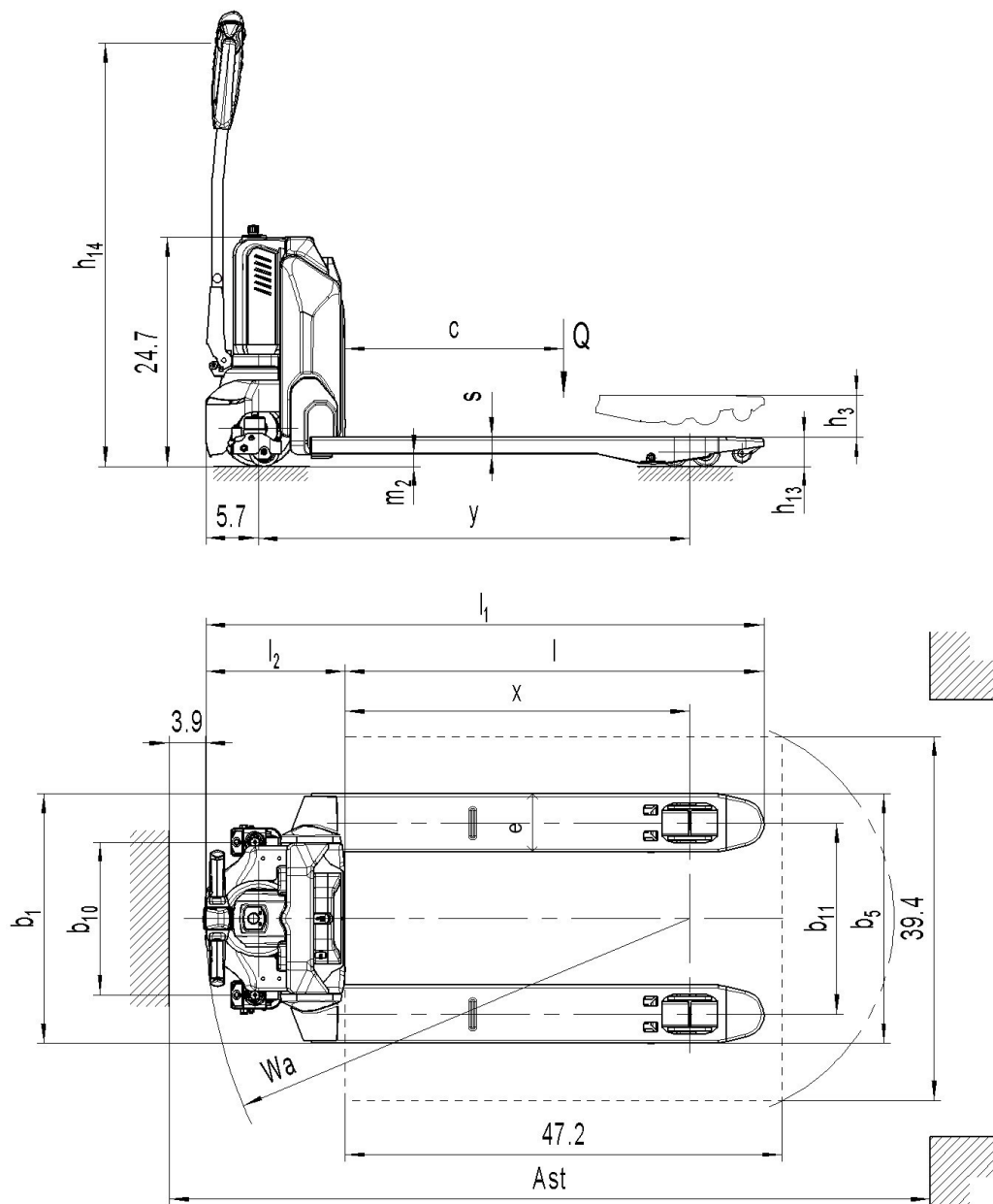


Fig. 22: Technical data US

Table 14: Main technical data for standard version (US market)

Type sheet for industrial truck acc. to (VDI 2198)					
Distinguishing mark	1.2	Manufacturer's designation	type	LM 1500	
	1.3	Drive		Battery	
	1.4	Operator type		Pedestrian	
	1.5	Load Capacity / rated load	Q (lbs)	3300	
	1.6	Load centre distance	c	l/2	
	1.8	Load distance ,centre of drive axle to fork	x (in)	37.3	40

	1.9	Wheelbase	y (in)	46.6	49,4
Weight	2.1	Service weight	lbs	271	278
	2.2	Axle loading, laden front/rear	lbs	1373/2198	1380 / 2198
	2.3	Axle loading, unladen front/rear	lbs	211 / 60	218 / 60
Tyres, chassis	3.1	Tires		Polyurethane (PU)	
	3.2	Tire size,front	Ø x w (in)	Ø 8.27×2.76	
	3.3	Tire size,rear	Ø x w (in)	Ø 3.15×3.66	
	3.4	Additional wheels(dimensions)	Ø x w (in)	Ø 3.15×1.18	
	3.5	Wheels,number front/rear(x=driven wheels)		1x +2/ 2	
	3.6	Tread, front	b ₁₀ (in)	16.5	
	3.7	Tread, rear	b ₁₁ (in)	15	20.7
Dimensions	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	63
	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	1.85 / 6.3 / 48
	4.25	Width across forks	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)	78.7	
	4.35	Turning radius	Wa (in)	52.36	55.14
Performance data	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	%	4 / 16	
	5.10	Service brake		Electromagnetic	
Electric- engine	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	
	6.5	Battery weight	lbs	10	
	6.6	Energy consumption acc. to 16796-2	kWh	0.22	
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	

13. DECLARATION OF CONFORMITY (valid, if sold within the EU)

[GB] CE Declaration of Conformity

The signatory hereby declares that the specified machine conforms to the EU Directive 2006/42/EC (Machine Directive) and 2014/30/EU (Electro-Magnetic Compatibility, EMC) including their amendments as translated into national legislation of the member countries. The signatory is individually authorized to compile the technical documents.

[D] EG-KONFORMITÄTSEKKLÄRUNG

Der Unterzeichner bescheinigt hiermit, dass die im Einzelnen bezeichnete Maschine den Europäischen Richtlinien 2006/42/EG (Maschinenrichtlinie) und 2014/30/EU (Elektromagnetische Verträglichkeit - EMV) einschließlich deren Änderungen sowie dem entsprechenden Rechtserlaß zur Umsetzung der Richtlinien in nationales Recht entspricht. Der Unterzeichner ist bevollmächtigt, die technischen Unterlagen zusammenzustellen.

[E] DECLARACIÓN DE CONFORMIDAD CE

El signatario certifica por medio de la presente que la máquina especificada cumple con las Normas Europeas 2006/42/CE (Normativa para maquinarias) y 2014/30/EU (Compatibilidad electromagnética), incluyendo sus respectivas modificaciones, así como con el decreto-ley para la adaptación de las normas al derecho nacional. El signatario dispone de una autorización individual que le permite compilar la documentación técnica.

[F] DECLARATION DE CONFORMITE CE

Par la présente déclaration, les soussignés certifient que le machines spécifié ci-dessus est conforme à la loi et aux directives européennes 2006/42/CE (directive sur les machines) et 2014/30/EU (compatibilité électromagnétique - CEM), y compris aux modifications qui y sont apportées et à l'arrêté autorisant sa transposition en droit national. Chacquesignataireesthabilité à établirindividuellement la documentation technique.

[NL] EG-KONFORMITEITSVERKLARING

Ondergetekenden verklaren hierbij dat - volgens de nationale wetgeving van de Lidstaten - de hierboven vermelde opgegeven machina beantwoordt aan de bepalingen qua veiligheid bij machines (EG richtlijn 2006/42/EC) en electro-magnetische compatibiliteit (EG richtlijn 2014/30/EU).

Ondergetekenden zijn ieder individueel gemachtigd het technisch dossier samen te stellen.

[P] DECLARAÇÃO DE CONFORMIDADE CE

Pela presente, os signatários certificam que o máquina especificado está conforme às Directivas Europeias 2006/42/CE („Máquinas“) e 2014/30/EU („Inocuidade Electromagnética - IEM“), incluindo as alterações das mesmas e o respectivo decreto-lei para a transposição em lei nacional. Cada um dos signatários está autorizado a proceder à elaboração da documentação técnica.

[I] DICHIARAZIONE DI CONFORMITÀ CE

I sottoscrittichiaranocheilveicolo per trasportiinterniamacchinaspecificatosoddisfa le DirettiveEuropee 2006/42/EC (DirettivaMacchine) e 2014/30/EU (Compatibilitàelettromagnetica - EMV) comprese le relative modifiche, come pure ilrispettivodecretolegislativo per la conversionedelledirettive in dirittionazionale. I sottoscrittisonosingolarmenteautorizzatiallacreazioneedelladocumentazione tecnica.

[BG] ЕВРОПЕЙСКА ОБЩНОСТ - ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

Подписаните удостоверяват с настоящето, че подробноописанотомашина средствоотговаря на европейския норматив 2006/42/EG (норматив за машини) и на2014/30/EU (електро-магнетична съвместимост), включително с техните промени, както и на съответния указ за прилагане на нормативите в националното право. Подписаните при това са упълномощени поотделно да съставят техническата документация.

[CZ] EG - PROHLÁŠENÍ OSHODĚ

Níže podepsaný tím potvrdzuje, že podrobný popis uvedený stroje odpovídá Evropským směrnicím 2006/42/EC (směrnice pro stroje) a 2014/30/EU (elektromagnetická interference - EMV) včetně jejich pozdějších úprav, jakož i příslušným právním výnosům pro uplatnění příslušné směrnice v rámci národního práva. Každý z podepsaných jsou jednotlivě zplnomocněni k vytvoření technických podkladů.

[DK] EF-OVERENSSTEMMELSESEKKLÆRING

Undertegnede attesterer hermed, at det specificerede maskine stemmer overens med de Europæiske Direktiver 2006/42/EU (maskindirektiv) og 2014/30/EU (elektromagnetisk kompatibilitet - EMC) samt med den modsvarende lovgivning til implementering af direktiver i den nationale lovgivning. De undertegnede er hver for sig beføjede til at sammenstille de tekniske dokumenter.

[EST] EL vastavusavaldus

Allakirjutatud tõendavad käesolevaga, et üksikasjaliselt kirjeldatud täpsustatud masin vastab Euroopa direktiividele 2006/42/EÜ (Direktiiv masinate kohta) ja 2014/30/EU (Elektromagnetiline sobivus - EMS) kaasa arvatud nende muudatused ja nende vastavatele õigusmäärustele direktiivide muutmiseks siseriiklikuks õiguseks. Iga allakirjutanu üksikult on volitatud koostama tehnilist dokumentatsiooni.

[FIN] EU-YHDENMUKAISUUSSELÖSTUS

Allekirjoittaneet todistavat täten, että kukin erikseen mainittu omalla voimalla laitteella varustettutehdaskone vastaa EU-direktiivien 2006/42/EC (koneenrakennusdirektiivi) ja 2014/30/EU (sähkömagneettinen yhteensopivuus – EMC) määräyksiä sekä niiden muutoksia ja niiden kansalliseen lainsäädäntöön soveltamista koskevaa oikeussäätöä. Jokaisella allekirjoittaneista on oikeus itsenäisesti laatia asiaankuuluvia teknisiä asiakirjoja.

[GR] ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΕΚ

Οι υπογράφοντες βεβαιώνουν υπό ιδίτης παρούσης ότι το συγκεκριμένο μηχανήμα συμμορφώνεται προς την Κοινοτική Οδηγία 2006/42/ΕΚ («Μηχανήματα») και 2014/30/ΕΥ (Ηλεκτρομαγνητική συμβατότητα, ΗΜΣ), καθώς και οι τροποποιήσεις τους, όπως μεταφράστηκαν στην εθνική νομοθεσία των χωρών μελών. Οι υπογράφοντες είναι σε κάθε περίπτωση εξουσιοδοτημένοι να καταρτίσουν τα τεχνικά έγγραφα.

[H] EU KONFORMITÄSI NYILATKOZAT

Alulírottak ezenel igazolják, hogy a részletesen leírt a megadott gép megfelel a 2006/42/EC (Gép-Írányelv) és a 2014/30/EU (Elektromágneses összeférhetőség - EMV) Európai Irányelveknek, beleértve azok módosításait, valamint az irányelvek nemzeti jogba történő átültetésére irányuló megfelelő jogi rendelkezést. Továbbá az alulírottak mindegyike rendelkezik meghatalmazással arra nézve, hogy összeállíthatja a műszaki dokumentációt.

[LT] ES atitikimø deklaracija

Žemiau pasirašę asmenys patvirtina, kad atskirai aprašytas nurodyta mašina atitinka Europos Sąjungos direktyvas 2006/42/EB (Mašinų direktyva) ir 2014/30/EU (Elektromagnetinis suderinamumas – EMS) įskaitant jų pakeitimus, o taip pat ir atitinkamą teisės aktą dėl direktyvų įgyvendinimo nacionalinėje teisėje. Kiekvienas iš pasirašiusių asmenų turi teisę ruošti techninę dokumentaciją.

[LV] ES atbilstības deklarācija

Ar zemāk redzamajiem parakstiem tiek apliecināts, kanorādīts mašina atbilst Eiropas Savienības normatīvām 2006/42/EG (Mašīnu normatīvas) un 2014/30/EU (Elektromagnētiskā atbilstība – EMV), ieskaitot to izmaiņas, kā arī atbilstošos tiesiskos riskumus normatīvu pielāgošanai

nacionālajai likumdošanai. Parakstu īpašnieki ir atsevišķi pilnvaroti sastādīt tehniskās dokumentācijas.

[N] EU-KONFORMITETSERKLÆRING

Undertegnede bekræfter hermed at de enkelte betegnede maskin med kraftdrift tilsvarende de europæiske retningslinjerne 2006/42/EC (maskinretningslinje) og 2014/30/EU (elektromagnetisk fordraglighed - EMV) inklusiv disse endringer og den tilsvarende rettsforordning til omsetning av nasjonal rett. Hver undertegnede er fullmektig til å sette sammen de tekniske dokumentene.

[PL] DEKLARACJA ZGODNOŚCI WE

Niżej podpisani deklarują, że poniżej opisana maszyna spełnia wymagania określone w dyrektywach Europejskich 2006/42/EC (Dyrektywa Maszynowa) i 2014/30/EU (Kompatybilności elektromagnetycznej - EMC) wraz z ich późniejszymi zmianami oraz odpowiednimi rozporządzeniami mającymi na celu przeniesienie tych dyrektyw do prawa krajów członkowskich. Sygnatariusz jest indywidualnie upoważniony do zestawiania dokumentacji technicznej.

[RO] DECLARAȚIE DE CONFORMITATE CE

Subsemnatul/deverescrin prezenta vehiculul despecificat mașină descris individual corespunde directivelor europene 2006/42/CE (Directivă privind mașinile) și 2014/30/EU (Compatibilitatea electromagnetică - CEM) inclusiv modificărilor lor precum și actul/ilegislativ corespunzător pentru transpunerea directivelor în drept național. Subsemnatul/ii sunt fiecare în parte împuterniciți să întocmească documentația tehnică.

[RUS] Декларация соответствия стандартам ЕС

Настоящим лица, подписавшие документ, удостоверяют, что машина с указанной спецификацией соответствует европейским стандартам 2006/42/EG (Транспортная директива) и 2014/30/EU (Электромагнитная совместимость - EMC), включая изменения в них, а также соответствующим национальным стандартам и нормам. Каждое по отдельности лицо, подписавшее документ, имеет полномочия для составления технической документации.

[S] EG-KONFORMITETSFÖRKLARING

Undertecknarna intygar härmed att det i detalj betecknade maskin uppfyller de Europeiska direktiven 2006/42/EG (Maskindirektiv) och 2014/30/EU (Elektromagnetisk tålighet - EMV), inklusive ändringarna i detta och den motsvarande rättsförordningen för att omsätta direktiven i nationell rätt. Undertecknarna har var för sig fullmakt att sammanställa den tekniska dokumentationen.

[SK] vyhlásenie o zhode

Dolu podpísaní týmto potvrdzujeme, že podrobný popis uvedeného stroje zodpovedá Európskym smerniciam 2006/42/EC (ernica pre stroje) a 2014/30/EU (elektromagnetická tolerancia – EMV) vrátane jeho neskorších úprav, rovnako zodpovedá aj príslušným právnym nariadeniam na uplatnenie smerníc v rámci národného práva. Každý z podpísaných je jednotlivo splnomocnený na vytvorenie technických podkladov.

[SLO] EU IZJAVA O SKLADNOSTI

Podpisani s tem potrjujemo, da posamično označeno določeno stroj vozilo odgovarja Evropski direktivi 2006/42/EC (Direktiva o strojih) in 2014/30/EU (Elektromagnetna skladnost - EMV) vključno z njihovimi spremembami ter ustrezno pravno uredbo o prevzemu smernic v nacionalno pravo. Podpisniki so vsakokrat posamezno pooblašteni za izdajanje tehnične dokumentacije.

[TR] AB Uygunluk Açıklaması

İmza sahibi şahıslar, ayrıntıları belirtilen makine aracının, 2006/42/EC (Makine Yönergesi) ve 2014/30/EU (Elektromanyetik Uyumluluk – EMC) no'lu Avrupa Yönergelerine ve bunların değişiklik sonucu oluşan metinlerine ve yönergelerin milli hukuk hükümlerine dönüştürülmesine dair ilgili hukuk kararlarına uygun olduğunu tasdik ederler. İmza sahibi şahıslar teknik dosyaları bir araya getirmek için münferiden vekil tayin edildi.

Declaration according to 2006/42/EC

NOBLELIFT INTELLIGENT EQUIPMENT CO., LTD.

No.528, Changzhou Road, Taihu Sub-district, Changxing Country, Zhejiang, China

We herewith declare

that the following machine complies with the appropriate basic safety and health requirements of the EC Directive based on its design and type, as brought into circulation by us.

In case of alteration of the machine, not agreed upon by us, this declaration will lose its validity.

Machine Description: **Self propelled Power Pallet Truck**

Machine Type: **LM1500**

Serial No.:

The signatory hereby certifies that the specified hand powered industrial truck conforms to the EC Directive 2006/42/EC (Machine Directive) and 2014/30/EU (Electro-Magnetic Compatibility, EMC). The signatory is individually authorized to compile technical documentation and declare that the following standards, including the normative procedures contained therein, have been applied: EN ISO 3691-1:2015+AC2016, ISO/TS 3691-7:2011, EN1175-1:1998+A1:2010

Authorized Signature/Date:

Jim Liu



Sep. 28, 2018

Chief Engineer

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