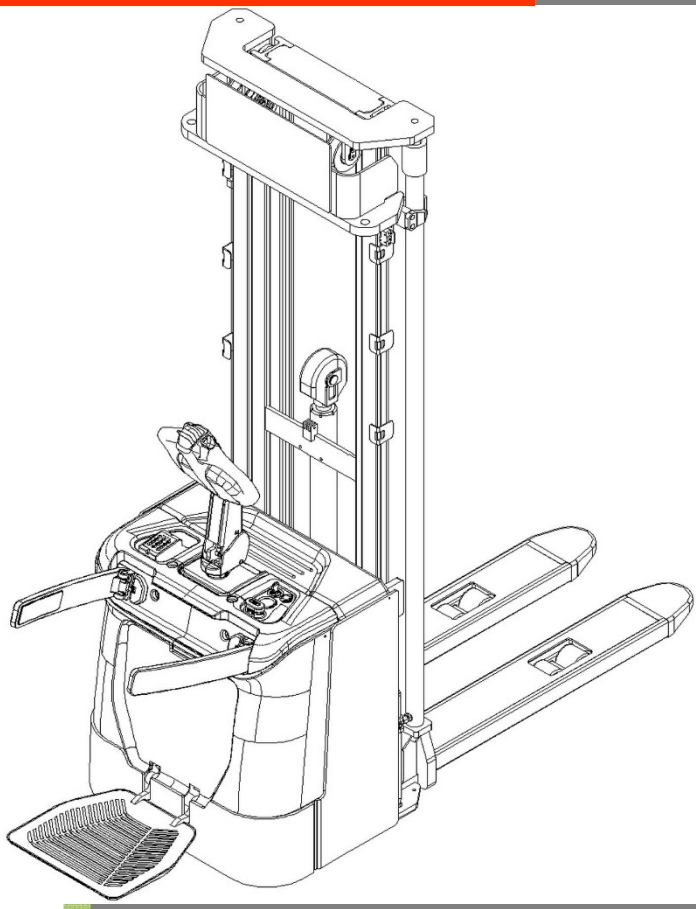
INSTRUCTION HANDBOOK

Electric Stackers

PS 12N, PS 16N, PS 20N



WARNING

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

NOTE:

- **Please check the designation of your present type at the last page of this document as well as on the ID-plate.**
- **Keep for future reference.**

Version 05/2018

PS 12/16/20N-SMS-001-EN

FOREWARD

Before operating the electric stacker, read this ORIGINAL INSTRUCTION HANDBOOK carefully and understand the usage of the truck completely. Improper operation of the truck may create a danger situation. This handbook describes the usage of different electric stackers. When operating and servicing the truck, make sure, that it applies to your type.

Chapter 13 describes specialized stipulations and regulations for the American market. Follow these instructions and stipulations if you operate the truck within the American market!

Keep this handbook 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 (Industrial trucks - safety requirements and verification, part 1), 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 < 70 dB(A) according to EN 12053.
The vibration is 0,85 m/s2 (if equipped with a platform) according to EN 13059.

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. The information written in this handbook is provided as reference for operating and servicing the stacker and may vary in terms of description of particular features of the truck.

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 stacker according to this instruction handbook.

The trucks described in this handbook are self-propelled pedestrian controlled electric power stackers, with electrically powered lifting function. The trucks are designed for stacking operations in dedicated racking by lifting and lowering the palletized loads up to the desired lifting heights.

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 truck is used only by staff, which is trained and authorized to use this truck.

The 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 intensive operations without crossing permanent obstacles or potholes. Operating on ramps is not allowed. During the operation the load must be placed approximately on the longitudinal centre plane of the stacker.
Lifting or transporting of people is forbidden. During traveling the load must be lowered to the height below 300 mm.

It is not allowed to use this truck on tail lifts or loading ramps.

The capacity is marked on the load diagram 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 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 STACKER

a. Overview of the main components

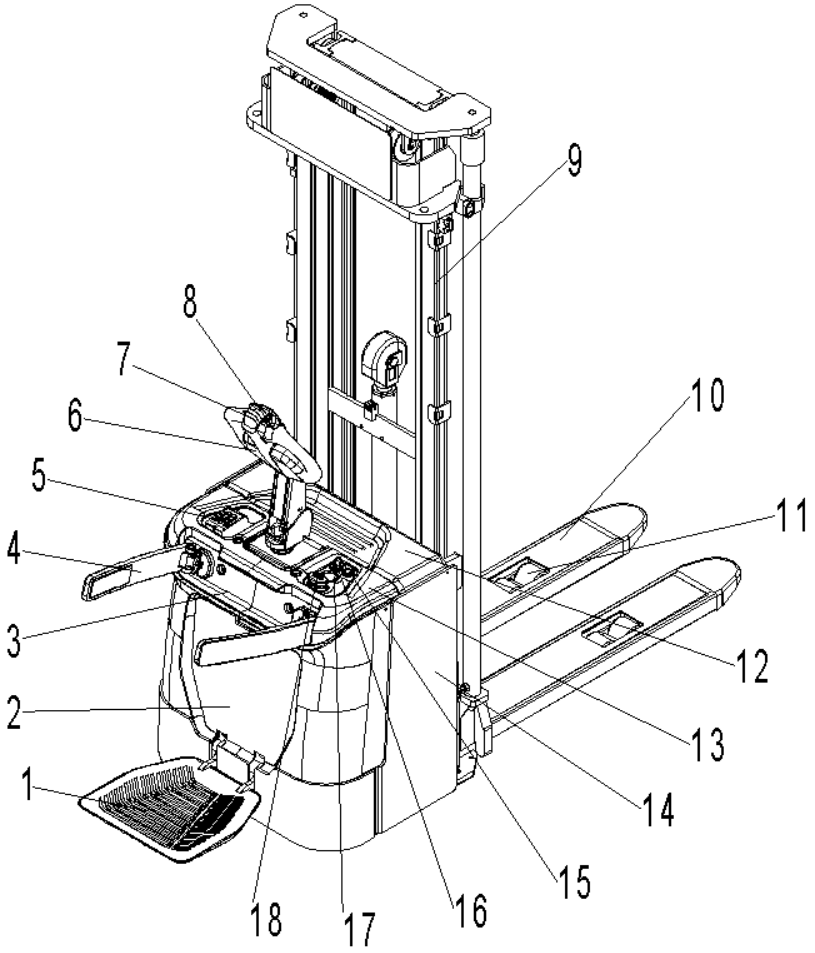


Fig. 1: Overview main components

1. Platform
2. Main cover
3. Protective arm cover
4. protective arm
5. Pin-code panel (option)
6. Tiller
7. Safety button/Belly button
8. Accelerator
9. Mast
10. Fork
11. Load roller
12. Battery cover
13. Top cover
14. Chassis
15. USB port
16. Key switch
17. Discharge indicator and charging indicating LED
18. Emergency button

b. Main technical data

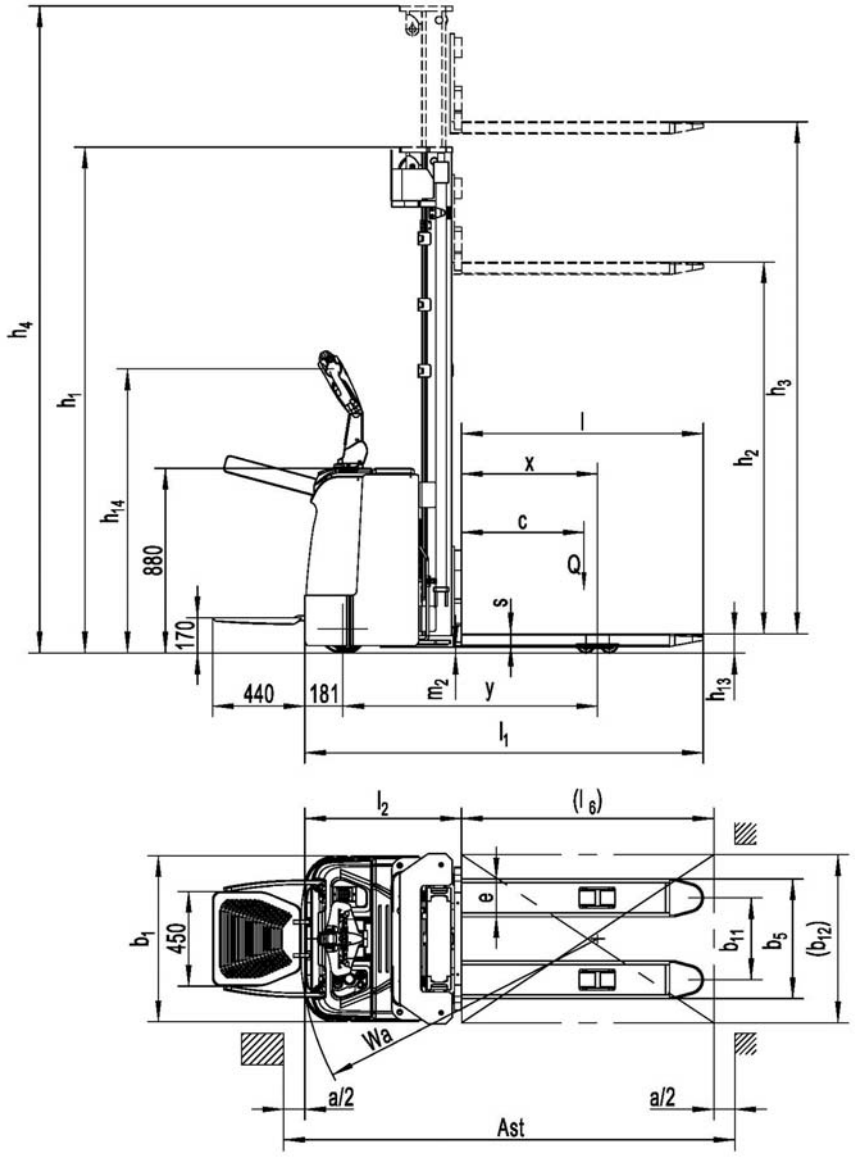


Fig. 2: Technical data

Table1: Main technical data for standard version

	Type sheet for industrial truck acc. to VDI 2198					
General data	1.2	Manufacturer`s type designation		PS 12N(3600)	PS 16N(5500)	PS 20N(4600)
	1.3	Power (battery ,diesel, petrol, gas, manual)		Battery		
	1.4	Operator type		Pedestrian		
	1.5	Load Capacity / rated load	Q(t)	1.2	1.6	2.0
	1.6	Load centre distance	C(mm)	600		
	1.8	Load distance ,centre of drive axle to fork	x(mm)	647		
	1.9	Wheelbase	y(mm)	1167	1215	1327

Weight	2.1	Service weight	Kg	1080	1380	1620
	2.2	Axle loading, laden front/rear	Kg	860/1420	1040/1940	1210/2410
	2.3	Axle loading, unladen front/rear	Kg	780/320	940 /440	1090/540
Tires, chassis	3.1	Tires		Polyurethane (PU)		
	3.2	Tire size, front	∅xW (mm)	∅230×70		
	3.3	Tire size, rear	∅xW (mm)	∅84×70		
	3.4	Additional wheels(dimensions)	∅xW (mm)	∅150x54		
	3.5	Wheels, number front/rear(x=driven wheels)		1x+1/4		
	3.6	Track, front	b10(mm)	510		
	3.7	Track, rear	b11(mm)	390/505		
Dimensions	4.2	Lowered mast height	h1(mm)	2308	2410	2228
	4.3	Free Lift height	h2(mm)	1760	1820	1520
	4.4	Lift height	h3(mm)	3530	5430	4530
	4.5	Extended mast height	h4(mm)	4088	6110	5208
	4.9	Height of tiller in drive position min./ max.	h14(mm)	950/1350		
	4.15	Height, lowered	h13(mm)	90		
	4.19	Overall length	l1(mm)	1855 [1)]	1896 [1)]	2025 [1)]
	4.20	Length to face of forks	l2(mm)	705 [1)]	746 [1)]	875 [1)]
	4.21	Overall width	b1(mm)	790		
	4.22	Fork dimensions	s/e/l(mm)	60/180/1150		
	4.25	Distance between fork-arms	b5(mm)	570/685		
	4.32	Ground clearance, centre of wheelbase	m2(mm)	28	28	23
	4.33	Aisle width for pallets 1000X1200 crossways	Ast(mm)	2285 [1)]	2325 [1)]	2455 [1)]
	4.34	Aisle width for pallets 800X1200 lengthways	Ast(mm)	2250 [1)]	2290 [1)]	2420 [1)]
	4.35	Turning radius	Wa(mm)	1380 [1)]	1420 [1)]	1550 [1)]
Performance	5.1	Travel speed, laden/ unladen	km/h	7.0/8.0	7.0/8.0	6.0/7.0
	5.2	Lift speed, laden/ unladen	m/s	0.09/0.14	0.13/0.20	0.13/0.20
	5.3	Lowering speed, laden/ unladen	m/s	0.25/0.20	0.28/0.23	0.28/0.23
	5.8	Max. gradeability, laden/ unladen	%	6/12	6/12	6/12
	5.10	Service brake		Electromagnetic		
Electric	6.1	Drive motor rating S2 60min	kw	1.4	1.4	1.4
	6.2	Lift motor rating at S3 10%	kw	1.5	3.2	3.2
	6.3	Battery acc. to DIN 43531/35/36 A, B, C, no		2VBS	3VBS	3PZS
	6.4	Battery voltage, nominal capacity K5	V/Ah	24/160-180	24/210-270	24/270-350
	6.5	Battery weight	kg	155	185	235
	6.6	Energy consumption acc: to VDI cycle	kWh/h	0.95	1.34	1.70
Other	8.1	Type of drive control		AC- speed control		
	8.4	Sound level at driver's ear acc. to EN 12053	dB(A)	<70		

1）With unfolded platform: + 440 mm

Type	Lowered mast height h1(mm)	Free Lift height h2(mm)	Lift height h3(mm)	Extended mast height h4(mm)	Lift+fork height h3+h13(mm)
PS 12L					
Two stage mast	1958	—	2830	3380	2920
	2108	—	3130	3680	3220
	2308	—	3530	4080	3620
Two stage mast FFL (Full-Free-Lift)	1958	1410	2830	3380	2920
	2108	1560	3130	3680	3220
	2308	1760	3530	4080	3620
PS 16L					
Two stage mast	1958	—	2830	3380	2920
	2108	—	3130	3680	3220
	2308	—	3530	4080	3620
Two stage mast FFL (Full-Free-Lift)	1958	1410	2830	3380	2920
	2108	1560	3130	3680	3220
	2308	1760	3530	4080	3620
Three stage mast	2008	—	4230	4780	4320
	2108	—	4530	5080	4620
Three stage mast FFL (Full-Free-Lift)	1708	1120	3330	3880	3420
	1908	1320	3930	4480	4020
	2008	1420	4230	4780	4320
	2108	1520	4530	5080	4620
	2343	1756	5230	5780	5320
	2410	1820	5430	6110	5520
PS 20L					
Two stage mast	2078	—	2830	3500	2920
	2228	—	3130	3800	3220
	2428	—	3530	4200	3620
Two stage mast FFL (Full-Free-Lift)	1978	1310	2630	3300	2720
	2078	1410	2830	3500	2920
	2228	1560	3130	3800	3220
	2428	1760	3530	4200	3620
Three stage mast	2128	—	4230	4900	4320
	2228	—	4530	5200	4620
Three stage mast FFL (Full-Free-Lift)	1978	1310	3930	4600	4020
	2128	1420	4230	4900	4320
	2228	1520	4530	5200	4620

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

For the USA –market, the description of the safety and warning labels is mentioned in chapter 11.

A Crane hook label
B Warning decal: Do not step under or on the forks
C Residual lift capacity sticker
D Never reach through
E Identification plate (ID-plate)
F Sticker to read and follow these instructions
G Sign of filling point
H Warning sticker
J Indicating sticker

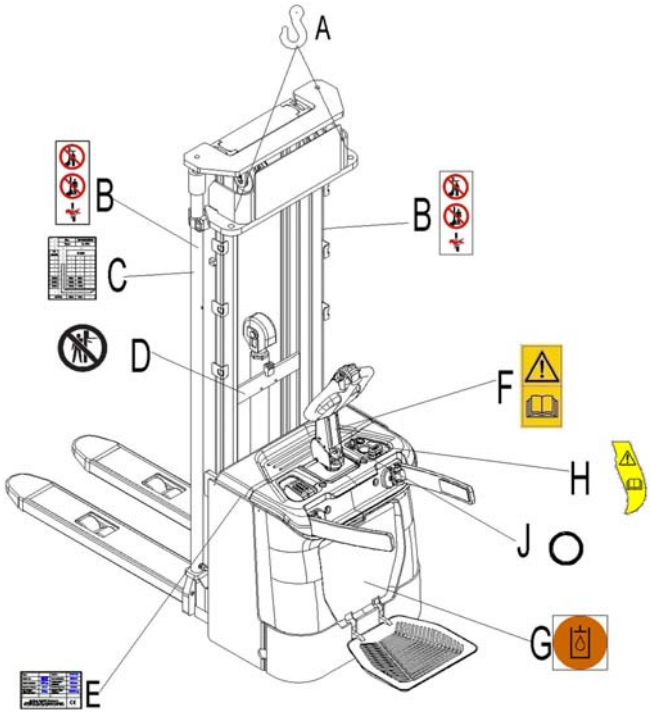


Fig.3: Safety and warning labels

The truck has an emergency button (18) which stops all lifting-, lowering-, driving- functions and engages the failsafe electromagnetic brake when it is pushed. By pulling this button, the truck can be operated after the controller checked the functions. Before operating, insert the key and turn the switch (16) clockwise or, in case the truck is equipped with Pin-code panel, press the start-button and enter the Pin-code or use RFID access card. To prevent against unauthorized access, turn the key anti-clockwise and remove it if you do not operate this truck or, in case the truck is equipped with Pin-code panel, press the start-button or press the X button of pin-code panel. The truck is equipped with a safety (belly) button (7) which switches the driving function away from the operator, if the truck travels towards the operator and the tiller is in its 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
2 Serial number
3 Rated capacity in kg
4 Supply voltage in V
5 Own mass (self weight) in kg without battery
6 Name and address of manufacturer)
7 Battery weight minimum/ maximum
8 Nominal power in kW
9 Load center distance
10 Manufacturing data
11 Option

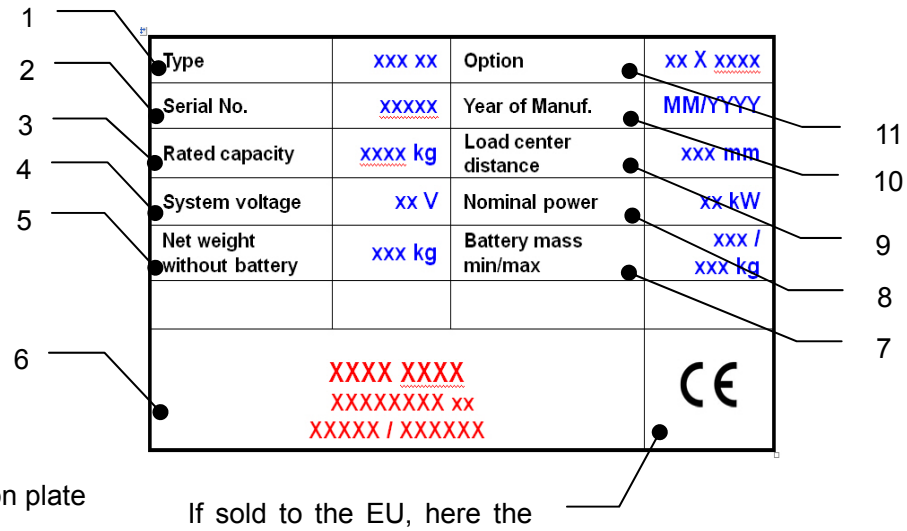


Fig. 4: Identification plate

If sold to the EU, here the place of the CE marking

3. WARNINGS, RESIDUAL RISK AND SAFETY INSTRUCTIONS

DO NOT

- Drive outside the stacking operation with a lifted load higher than the lifting point.
- 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.
- Use this truck on ramps.
- Use the truck without a removed protective screen
- locate load at side or end of forks. Load must be distributed evenly on the forks.
- Use the truck with unstable or unbalanced load.
- Use the truck without manufacturer's written consent.
- Supply on board charger with AC voltage other than 100V or 240V.

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 (18) 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 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.
- It is not allowed to use the truck on ramps.
- To prevent unintended sudden movements when not operating the truck (i.e. from another person, etc.), switch off the truck and remove the key.
- 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.
- Lifted loads can overlap the field of view, take all necessary safety measures and use visual aid if necessary.
- 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.

4. COMMISSIONING, TRANSPORTING, DECOMMISSIONING

a. Commissioning

Table 2: Commissioning data

Type	PS 12N/ 3600	PS 16N/ 5500	PS 20N / 4600
Commissioning weight [kg]	1080	1500	1660
Version/ Lift [mm]	3600	5500	4600

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

- Check if are all parts included and not damaged
- Install and charge the battery (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 Fig. 5.

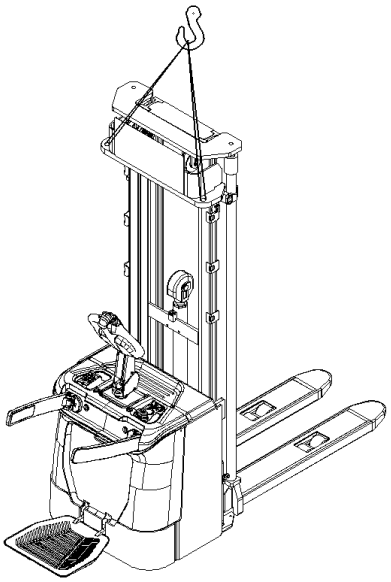


Fig.5: Lifting with a crane

Lifting

USE DEDICATED CRANE AND LIFTING EQUIPMENT
DO NOT STAND UNDER THE SWAYING LOAD
DO NOT WALK INTO THE HAZARDOUS AREA
DURING LIFTING

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 truck's crane hook holes and fasten the other side at the transporting truck.

Transportation

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

Lower the forks and park the truck on the metal plate securely. Fix the forks by the metal plank with two screws to the bottom metal plate. Fasten the truck by dedicated lashing belts according to fig. 6 and fasten the other side at the transporting truck.

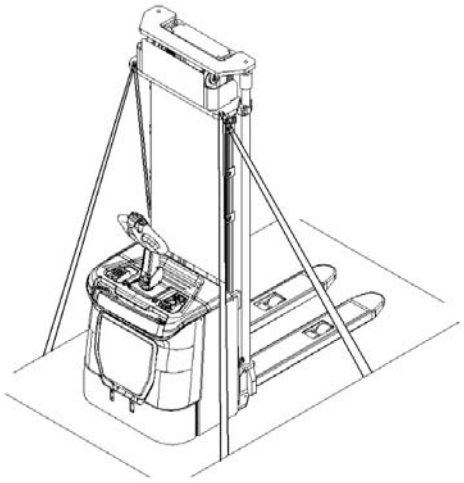


Fig. 6: Fixing points

c. Decommissioning

For storage, remove the load, lower the truck to the lowest position, grease all in this handbook mentioned greasing points (regular inspection) protecting the truck against corrosion and dust. Remove the batteries and jack the truck safely, so that there will be no flattening of wheels 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 vertical creep of the truck.
- Check the chain and rollers for damages or corrosion.
- 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 the protective screen has no damages and that is correctly assembled.
- Check the audio warning signal.
- Check if all bolts and nuts are tightened firmly.
- Check the function of the key switch.
- Check the speed limitation switch.
- Visual check if there are any broken hoses or broken electric wires.
- If supplied with a backrest extension, check it for damages and correct assembling.

6. OPERATING INSTRUCTIONS

BEFORE OPERATING THIS TRUCK, PLEASE FOLLOW THE WARNINGS AND SAFETY INSTRUCTIONS (CHAPTER 3).
BEFORE OPERATING THIS TRUCK, ENSURE THAT THE LOAD OR OTHER EQUIPMENT NOT CAUSES INSUFFICIENT VISIBILITY!

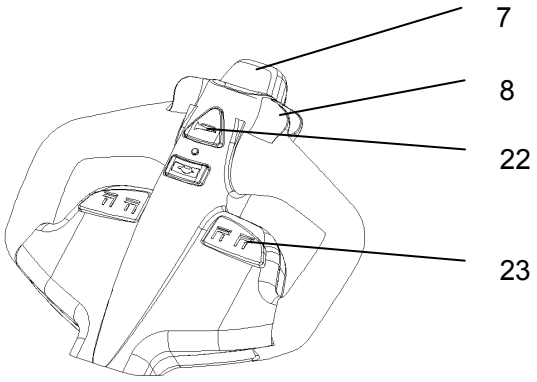


Fig.7: Tiller operating controls

Make sure that the load is palletized and stable and that the daily inspection is carried out. For starting, insert the key and turn it clockwise to the “ON”- position. Eventually before inserting the key switch (16), the emergency button (18) must be pulled carefully.
Press the horn button (22) 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 and drive the truck to a safe area. Turn the key anti- clockwise to the “Off” – position and remove the key.

b. Residual lift diagram

The residual lift diagram indicates the maximum capacity Q [kg] for a given load centre c [mm] and the corresponding lift height H [mm] for the truck with horizontal load.
The white markings on the mast indicate if the specific lifting limits reached.
For instance with a load centre of gravity distance c of 600 mm and a maximum lift height H of 5500 mm, the max. capacity Q is 600 kg.

Type	PS 16N		
Mast	5500		
h3 (mm)	Q (kg)		
5500	600	350	
5300	700	400	
4600	800	500	
4300	900	600	
3600	1000	700	
3200	1200	900	
2900	1400	1100	
2500	1600	1200	
c(mm)	600	700	

Fig. 8: Residual lift diagram

c. Lifting

DO NOT OVERLOAD THE TRUCK! THE MAXIMUM CAPACITY IS 1200/1600/2000 kg.
LIFT ONLY CAPACITIES ACCORDING TO THE RESIDUAL LIFT DIAGRAM.

Travel with the lowered forks fully underneath the pallet and press the lifting button (Fig. 7, 23) until you reached the desired lifting height.

In case the sideways protective arms are opened the lifting above 1800 mm will not be possible which is mandatory safety function in case of truck's tip over or falling objects. In case of tip over an operator needs to step off and away from the truck.

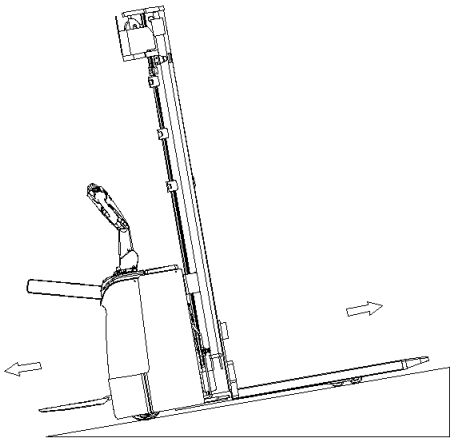


Fig.9: Load facing uphill

In order to lift forks higher close both protective arms and continue lifting.

d. Lowering

If the forks are in the racking, firstly travel out of the racking carefully with or without the pallet. By travelling out of the racking, take care that the forks are not touching the racking.
Press the lowering button (Fig. 7, 23) carefully.
Lower the load until the forks are clear of the pallet, then drive the truck carefully out of the load unit.

e. Travelling

TRAVEL ON INCLINES ONLY WITH THE LOAD FACING UPHILL.
DO NOT TRAVEL ON INCLINES MORE THAN SPECIFIED WITH THE TECHNICAL DATA.
TRAVELLING IS ONLY ALLOWED IF THE FORKS ARE LOWERED DOWN TO THE LIFTING POINT (<300MM).

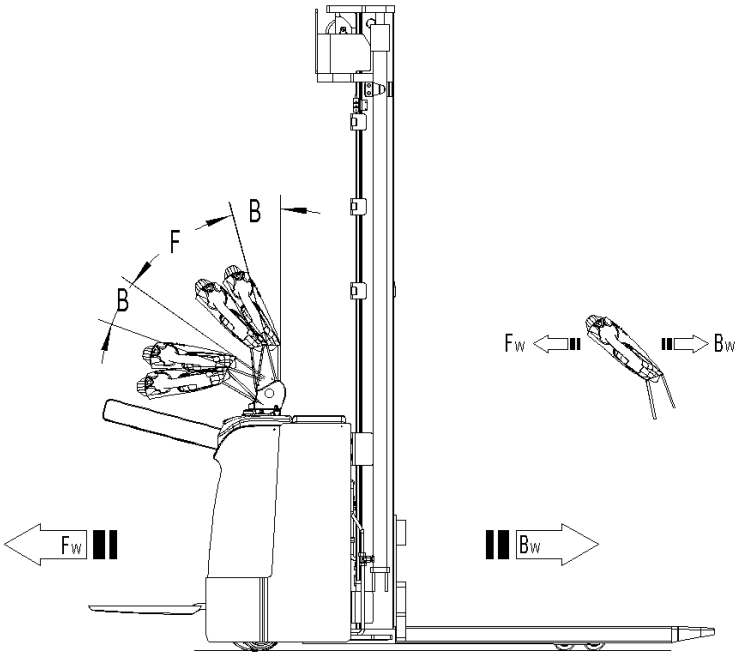


Fig.10: Operating direction

After starting the truck by turning the inserted key to the “ON”- position or by activation from Pin-code panel carefully move the tiller to the operating zone (‘F’, fig.10).
Turn the accelerator button to the desired direction forward ‘Fw.’ Or backwards ‘Bw.’(fig. 10).
Control the travelling speed by moving the accelerator button (8) 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.

THE TRUCK IS EQUIPPED WITH A FOLDABLE PLATFORM AND SIDEWAYS PROTECTIVE ARMS. PAY ATTENTION, THE BEHAVIOR FOR THE RIDE-ON MODE IS DIFFERENT TO THE PEDESTRIAN MODE.

Besides the pedestrian mode, following travelling modes can be used:

- Travelling with platform (1) folded downside and sideways arms (4) in protective position
  Travelling with maximum speed.
- Travelling with platform (1) folded downside and sideways arms (4) folded downside
  Depending on the Controllers parameter setting, reduce the speed, not higher than 6km/h.

- Travelling with platform (1) folded upright and sideways arms (4) folded downside
  Depending on the Controllers parameter setting, reduce the speed, not higher than 6km/h.

f. Steering

OPTIONAL THE TRUCK CAN BE EQUIPPED WITH AN ELECTRIC STEERING SYSTEM. TAKE CARE BY OPERATING A TRUCK WITH THIS KIND OF SYSTEM; THE BEHAVIOR OF THE TRUCK MIGHT BE DIFFERENT WITH A TRUCK WITHOUT ELECTRIC STEERING SYSTEM.

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

g. Braking

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

The braking function can be activated on several ways:

- By moving the accelerator button (8) 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 (8) from one driving direction directly to the opposite direction, the truck brakes regenerative until it starts travelling 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 (7) prevents the operator from being crushed. If this button is activated, the truck decelerates and/ or starts travelling into the backwards direction (‘Bw.’) for a short distance and stops. Please consider, that this button also operates, if the truck is not travelling and the tiller is in the operating zone.

h. Malfunctions

If there are any malfunctions or the truck is inoperative, please stop using the truck and activate the emergency button (18) by pushing it. If possible, park the truck on a safe area, turn the key switch (16) anti- clockwise and remove the key, in case the truck is equipped with Pin-code panel, press the start-button or 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.

i. Emergency

In emergencies or in the event of tip over (or off dock), keep safe distance immediately. If possible push the emergency button (18). All electrical functions will be stopped.

7. PIN-CODE PANEL

The truck can be equipped with an optional pin-code panel (5), and a button (26) will replace the key switch (16) if equipped with pin-code panel.

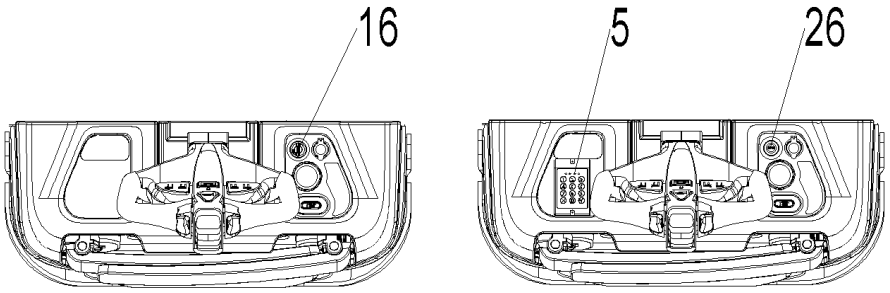


Fig.11: Pin-code panel

a. Introduction

Pin-code panel is an electronic system for access limitation. The truck will not able to be operated before typing a correct password, the main function is to prevent unauthorized operation.

b. Main parameters

Working voltage：12V-60V
Ambient temperature：-40℃ to +90℃
IP grade：IP65

c. Main functions

This pin-code panel supports Max. one password and five cards.

Please check the administrator password on the separated instruction. Default user password is 1234, you can use it immediately. If you need to change the password, please refer to separated instruction.

d. Operation

1. ID card

Put the ID card close to the code panel, there will be a short buzzer if it is a valid ID card, then the blue light is on, truck can be operated. (If the red light is on, means you made some mistakes during card start or card is not valid. The truck can't be used)

2. Password

- Type the password, press "√" button. If the password is correct the truck can be operated.
- To turn off the truck press "×". The truck will go out from the operation mode.
- To start operation again need to re-enter the password.

e. Pin-code panel indicator

Red	fault code
Yellow	waiting for further instruction
Blue	active
Green	power on

8. BATTERY CHARGING AND REPLACEMENT

- Only qualified personnel is allowed to service or charge the batteries. The instructions of this handbook and from the battery manufacturer must be observed.
- The batteries are lead-acid traction batteries with liquid electrolyte.
- Be aware about the risk of accumulation of hydrogen under battery cover, keep it opened during charging.
- Recycling of batteries undergoes with national regulations. Please follow these regulations.
- By handling batteries, open fire is prohibited, gases may cause explosion!
- 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 not disturbed towards other components of the truck.

The trucks are equipped with the following lead-acid traction batteries with liquid electrolyte:

PS 12N 1 pc 2PzB 24V/ 180 Ah (C5) [660 x 146 x 657 (LxWxH)] weight 175kg
PS 16N 1 pc 3VBS 24V/ 270 Ah (C5) [752x172x657 (LxWxH)] weight 230kg
PS 20N 1 pc 3 PzS 24V/ 350 Ah (C5) [624 x 284 x 627 (LxWxH)] weight 288 kg

IT IS ONLY ALLOWED TO USE LEAD-ACID TRACTION BATTERIES WITH LIQUID ELECTROLYTE. THE WEIGHT OF THE BATTERIES HAS AN INFLUENCE TO THE TRUCKS OPERATING BEHAVIOR. PLEASE CONSIDER THE MAXIMUM OPERATING TEMPERATURE OF THE BATTERIES.

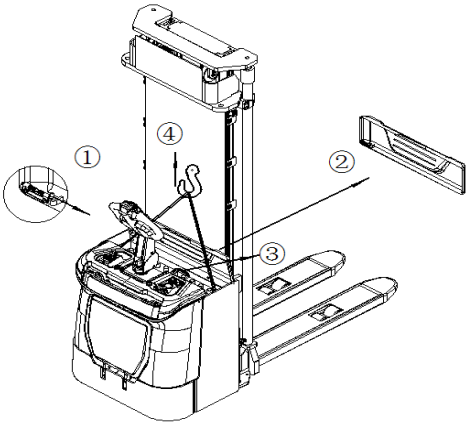


Fig. 12: Battery replacement without sideways battery

a. Replacement

PS 12/16/20N without sideways battery

Park the truck securely and switch off the stacker with the key (or start-button) and activate the emergency button (18). Open the battery cover and pull out its hinge. Then, remove the battery cover, pull out the battery plug (Fig.12), and take the battery out with a crane. The installation is in the reverse order.

PS 16/20N with sideways battery (option)

Park the truck securely and switch off the stacker with the key (or start-button) and activate the emergency button (18). Disconnect
battery plug (20) and lock pin (24), turn up the battery locker (25), then pull out the battery from side. The installation is in the reverse order.

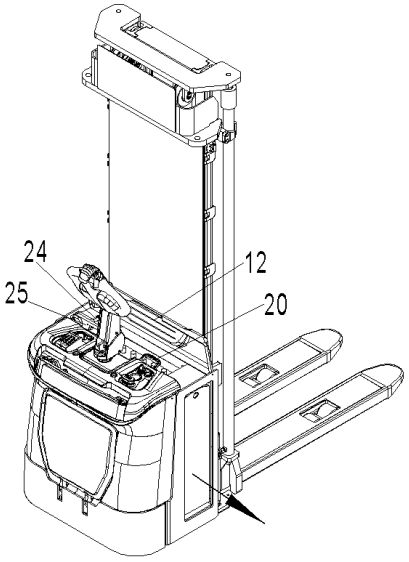
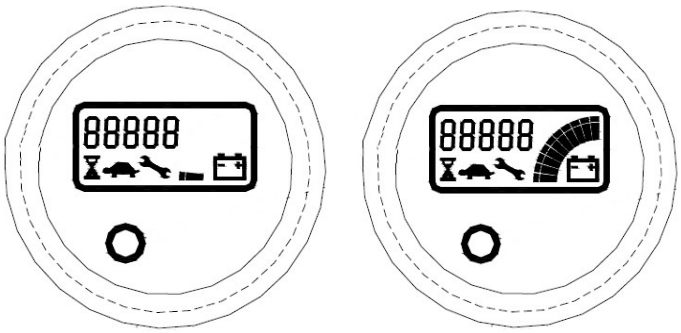


Fig. 13: Battery replacement with sideways battery

b. Battery Indicator



Battery **Battery**

Fig. 14: Battery discharge indicator

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. To attract attention, the red LED will start blinking when an alarm is generated.

Software version

When the key switch is initially closed, in case truck is equipped with pin-code panel, please press start-button and enter the Pin-code or use RFID access card, then display shows the eprom version for a few seconds (EPXXX, where XXX represents the version) and traction controller eprom version appears, each one for 2 seconds. Simultaneously the symbol of a monkey wrench appears.

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, is displayed in the tester menu of the Zapi console connected to the controller. 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 is normally off, 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 dischrge indicator. To control the status, the charging must be interrupted and the truck must be started.
- Optional built-in charger can only be used with 110V or 220V.

External charger

Park the truck at a dedicated secured area with a deidcated power supply. Lower the forks and remove the load. Open the battery cover and let it stay upright. Switch the truck off and connect the battery plug (20) to the charging plug of the charger. The charger starts charging the battery if the charger is connected to the main power supply. Disconnect the battery plugs after the charger finished charging. Connect the battery plug with the plug at the truck. Close the battery cover.

Built-in charger

Park the truck at a dedicated secured area with a deidcated power supply. Lower the forks and remove the load. Switch the truck off and pull out spring cord (21) and connect to the power socket. The charger starts charging the battery. Battery is fully charged when green light is on (Fig. 16, 27), and charger goes into a floating mode to prevent the battery against damages. When charging is finished, disconnect the connector from the socket and place it in the designated pocket.
Table 3 shows the function of the LED-status:

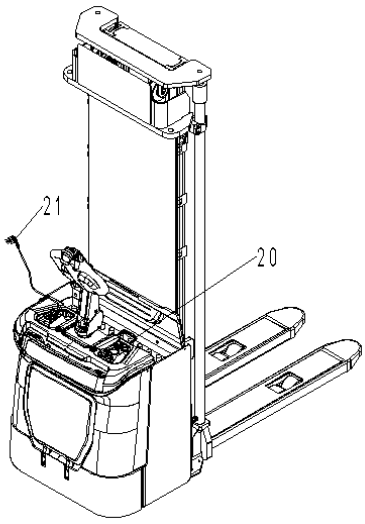


Fig.15: Battery charging
built in charger

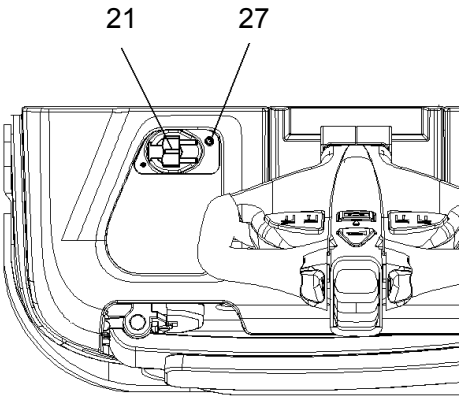


Fig. 16: LED status

Table 3: LED-Status

LED- signal	Function
Red	Battery discharged
Orange	Charging
Green	Fully charged

Table 4:The specification of built-in chargers:

PS 12N	25A24V
PS 16N	35A24V
PS 20N	45A24V

9. AQUAMATIC SYSTEM (OPTION)

The truck can be equipped optional with aquamatic watering system.

a. Water After Charge

Electrolyte levels drop during discharge and rise during charge. In addition, charging generates heat, fluid expansion and explosive gases. Watering a battery before charge (or with a low charge level) can lead to boil over resulting in potential damage of the watering system, battery and vehicle.

Water, when needed, must be added to a fully charged battery. Prior to charging, there must be sufficient water to cover the plates. If the battery has been discharged (partially or fully), the water level should still be above the plates.

b. Watering Intervals

Watering intervals are dependent on the local climate, charging methods, application, and age of batteries. It is recommended for new batteries to be checked once a month and older batteries be checked weekly until you get a feel for your water consumption rate.

Typically for a heavy use application, watering a maximum of once per week is recommended, and for light use applications once per month. Do not water a battery that has been sitting for an extended period of time with no activity (non-use or not on charge) such as a battery that has sat idle over the weekend. It is best to water a warm battery that has just been fully charged.

Water quality is important to maintain the life of your battery and watering system. Always use water that meets the quality requirements of your battery's manufacturer.

c. Operation

1. Remove dust cover

Fig.17: Remove dust cover

Fig.18: Mate couplers

2. Mate couplers

Insert the male coupler on the single point watering system into the female coupler on the end of the water supply.

3. Observe flow indicator

As the cells fill, the red balls inside the flow indicator will spin. As the valves close, the balls will begin to spin slower until they come to a stop. This indicates that all valves have closed and filling is complete.

Fig.19: Observe flow indicator

Fig.20: Disconnect couplers

4. Disconnect couplers

When the balls stop spinning, and not before, immediately disconnect the couplers by depressing the push button on the female coupler

If the water supply is left connected after the filling process is finished, it could lead to an overfill.
Disconnecting before the balls come to a complete stop will lead to under filled cells.

5. Replace dust cover

Place dust cover back over the male coupler and place feed tube on top of battery.

Fig.21: Replace dust cover

10. REGULAR MAINTENANCE

- Only qualified and trained personnel is allowed to do maintenance on this truck.
- Before maintaining, remove the load and lower the forks to the lowest position.
- If you need to lift the truck, follow chapter 4 b 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, platform or protective arms. The gas pressure springs are 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.

If you need to change the wheels call your service partner as the procedure requires use of special lifting equipment and needs to be performed by trained personnel. The castors must be round and they should have no abnormal abrasion.
Check the items emphasized maintenance checklist.

a. Maintenance checklist

Table 5: Maintenance checklist		Interval (Month)			
		1	3	6	12
	Hydraulic				
1	Check the hydraulic cylinder, piston for damage noise and leakage		•		
2	Check the hydraulic joints and hose 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 the function of the pressure valve (1200/1600/2000 kg +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 mast and chain for corrosion, deformation or damages, replace if necessary	•			
10	Check the gearbox for noise and leakage		•		
11	Check the wheels for deformation and damages, replace if necessary		•		
12	Lubricate the steering bearing				•
13	Inspect and lubricate the pivot points		•		
14	Lubricate the grease nipples	•			
15	Replace the guarding and/or protective screen if it is damaged	•			
	Electric system				
16	Inspect the electric wiring for damage		•		
17	Check the electric connections and terminals		•		
18	Test the Emergency switch function		•		
19	Check the electric drive motor for noise and damages		•		
20	Test the display		•		
21	Check if correct fuses are used, if necessary replace.		•		
22	Test the audio warning signal		•		
23	Check the contactors		•		
24	Check the frame leakage (insulation test)		•		
25	Check function and wear of the accelerator		•		
26	Check the electrical system of the drive motor		•		

	Braking system				
27	Check brake performance, if necessary replace the brake disc or adjust the air gap		•		
	Battery				
28	Check the battery voltage		•		
29	Clean and grease the terminals and check for corrosion and damage		•		
30	Check the battery housing for damages		•		
	Charger				
31	Check the main power cable for damages			•	
32	Check the start-up protection during charging			•	
	Function				
33	Test the audio warning signal	•			
34	Check the air gap of the electromagnetic brake	•			
35	Test the emergency braking	•			
36	Test the reverse and regenerative braking	•			
37	Test the safety (belly) button function	•			
38	Check the steering function	•			
39	Check the lifting and lowering function	•			
40	Check the tiller arm switch function	•			
41	Test the key switch of damages and function	•			
42	Test the speed limitation switch (lifting height >~300mm)	•			
	General				
43	Check if all decals are legible and complete	•			
44	Check if the protective screen and or guarding is not damaged	•			
45	Inspect the castor, adjust the height or replace it, if worn out		•		
46	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.

1 Load roller bearing
2 Mast
3 Chain
4 Hydraulic system
5 Steering bearing
6 Platform rotating part

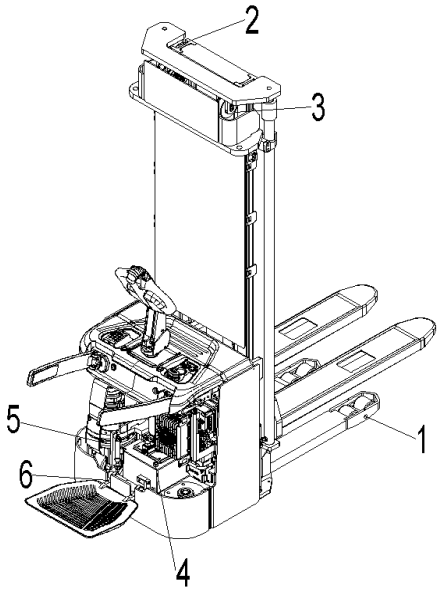


Fig. 22: Lubricating points

c. Check and refill hydraulic oil

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

Environment temperature	–5℃~25℃	>25℃
Type	HVLP 32，DIN 51524	HLP 46，DIN 51524
Viscosity	28.8-35.2	41.4 - 47
Amount	9.4L (depends on specific model)	

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. 9.3L to 9.5L.
If necessary add oil at the filling point.

d. Checking electrical fuses

Remove the main cover. The fuses are located according to Fig. 23; the size is according to table 6.

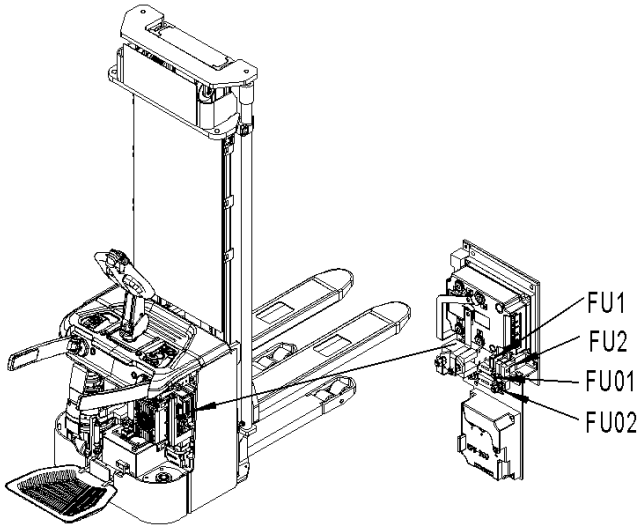


Fig. 23: Location of fuses

Table 6: Size of the fuses

	Rate
FU1	10A
FU2	10A
FU01	350A
FU02	30A

e. Removing, reattaching guarding

DO NOT USE THIS TRUCK, IF THE GUARDING IS DAMAGED OR NOT CORRECTLY ASSEMBLED!

If the guarding needs to be removed - de-attach holding clamps carefully. For reattaching place the screen to its correct position and place holding clamps back to their original position. If you need to replace parts, please call your service partner. Please make sure that the screen is fixed correctly and that the fixing elements are not damaged.

11. TROUBLE SHOOTING

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

Table 7: Trouble shooting

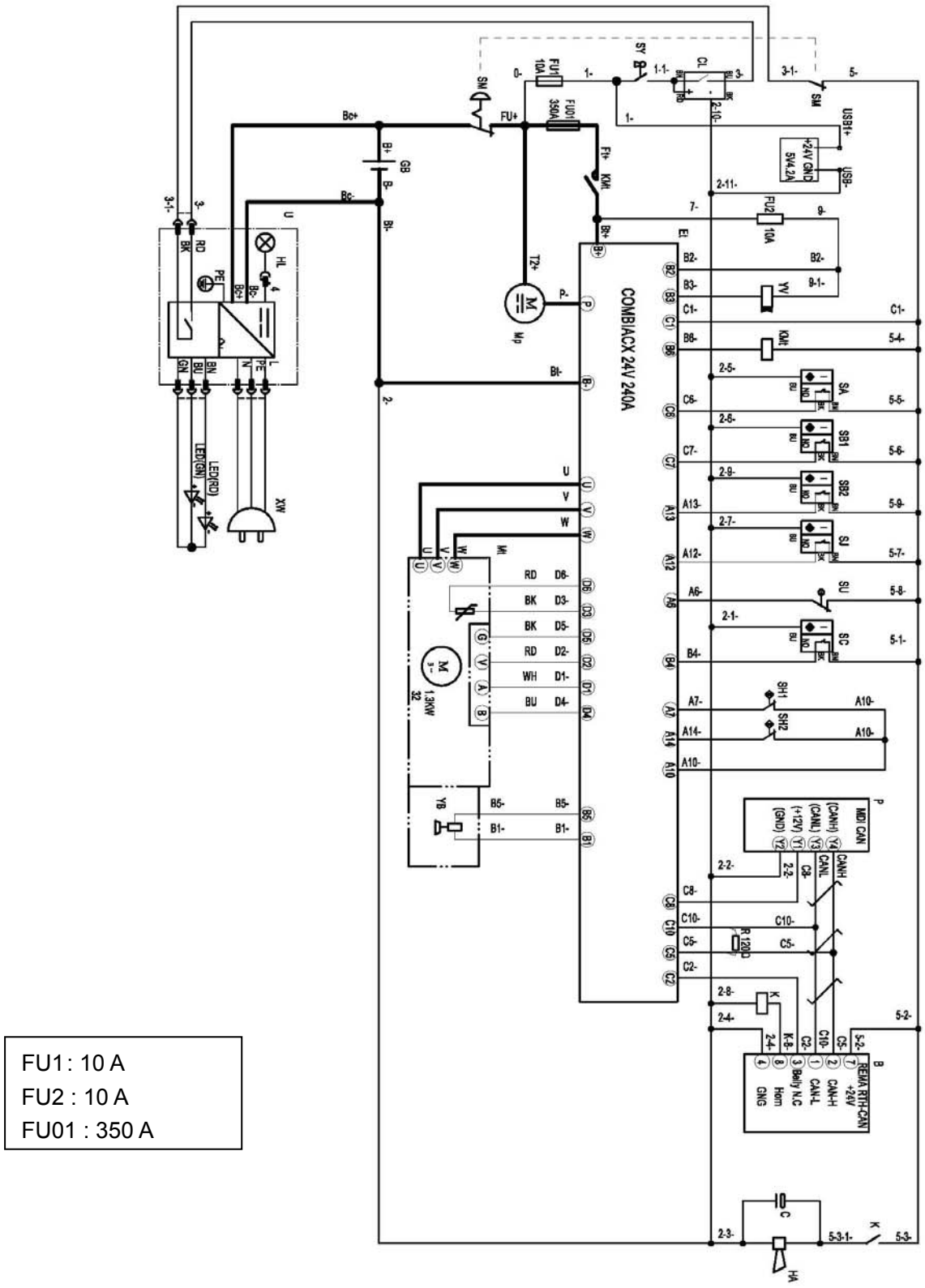
TROUBLE	CAUSE	REPAIR
Load can't be lifted	Load weight too high	Lift only the max. capacity, mentioned on the ID-plate
	Battery discharged	Charge the battery
	Lifting fuse faulty	Check and eventually replace the lifting fuse
	Hydraulic oil level too low	Check and eventually refill hydraulic oil
	Oil leakage	Repair the hoses and/or the sealing of the cylinder
	Lifting stops at ~1800mm	Move the protective arms into the downside position
	Lifting stops at ~1800mm	Check the sensor for the protective arm
	Height sensor for 1800mm height defect	Check the height sensor on the mast
Oil leakage from air breathing	Excessive quantity of oil.	Reduce oil quantity.
Stacker 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
	The fuse is faulty	Check and eventually replace fuses
	Battery discharged	Charge the battery
	Combined emergency switch is activated	De-activate the combined emergency switch by insert and pull the knob.
	Tiller in the operating zone	Move the tiller firstly to the braking zone.
	Protective arms in the upright position, platform folded upright	Move the protective arms into the downside position
	Foldable platform or protective arms in one of the allowed positions	Check the proximate sensors for the arms and platform
	Foldable platform or protective arms not in one of the allowed positions	Check the correct function of the arms and/or platform
Only travelling in one direction	The accelerator and the connections are damaged.	Check the accelerator and the connections.
The stacker only travels very slowly	The battery is discharged.	Check the battery status at the discharge indicator
	The electromagnetic brake is	Check the electromagnetic

	engaged.	brake
	The relating tiller cables are disconnected or damaged	Check the tiller cables and connections.
	Defective height sensor for reduced speed at ~300mm height	Check the sensor
	Electric system overheated	Stop using and cool down the truck
	Defective heat sensor	Check and if necessary replace the heat sensor
The stacker starts up suddenly	The controller is damaged.	Replace the controller.
	The accelerator not moves back to its neutral position.	Repair or replace the accelerator.

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 the truck out of the aisle.

12. WIRING/ CIRCUIT DIAGRAM

a. Electrical circuit diagram

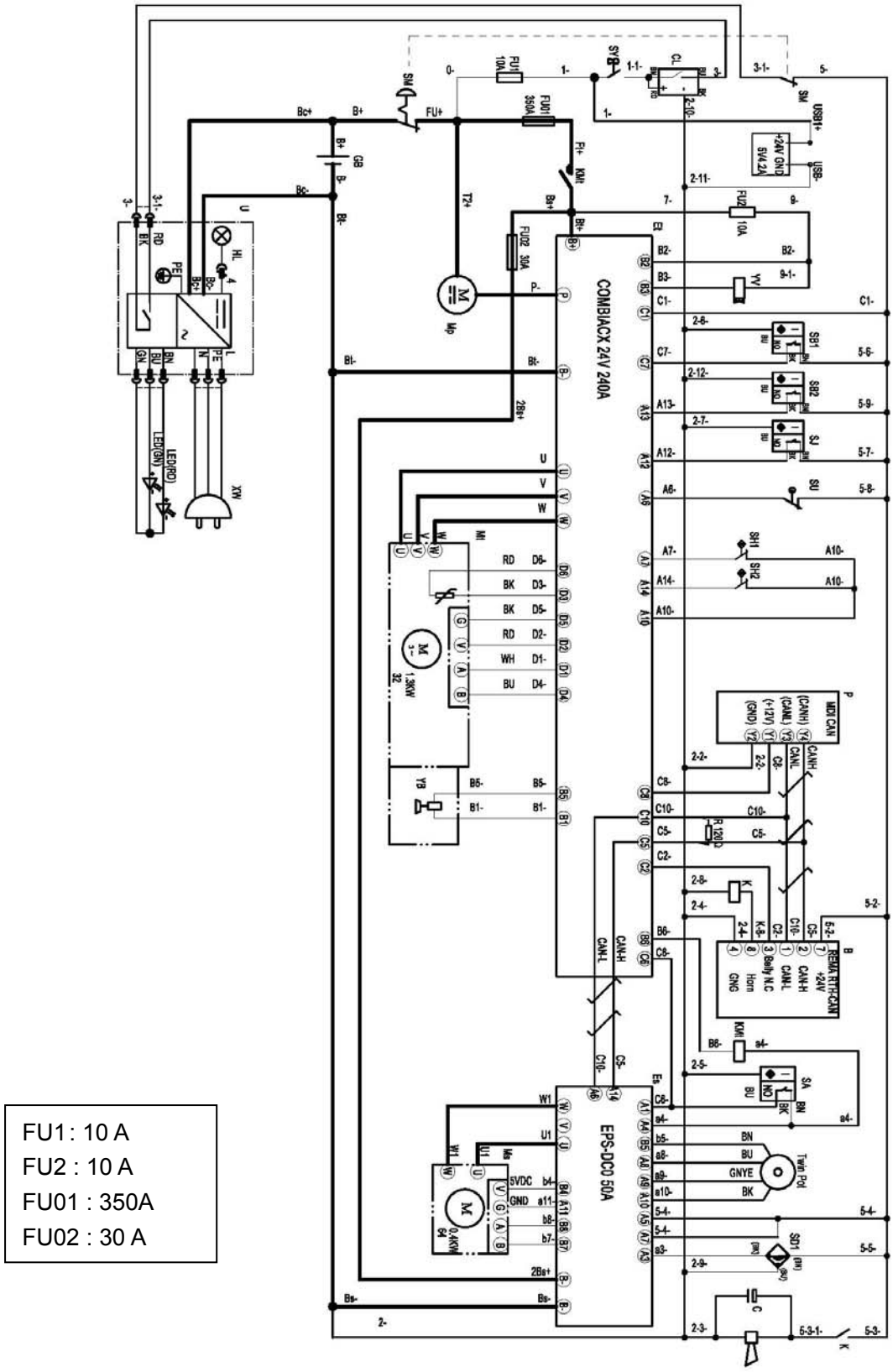


FU1 : 10 A
FU2 : 10 A
FU01 : 350 A

Fig. 24: Electrical diagram manual steering

Table 8: Description of electrical diagram

Code	Item	Code	Item
GB	Battery	K	Relay
SM	DC power switch	SA	Inter-lock switch
Et	Controller	P	Indicator
KMt	Main contactor	B	Tiller
FU01	Fuse 350A	C	Capacitor
FU02	Fuse 30A	HA	Horn
FU1	Fuse 10A	SU	Limit switch
FU2	Fuse 10A	YV	Electromagnetic valve
SY	Key switch	SB1、SB2	Proximity switch
Mp	Pump motor	SJ	Proximity switch
Mt	Traction motor	R	Resistance
YB	Electromagnetic brake	USB	USB
U	Charger	LED	Diode
SH1、SH2	Magnetic switch	SH1、SH2	Magnetic switch
SC	Proximity switch		



FU1 : 10 A
FU2 : 10 A
FU01 : 350A
FU02 : 30 A

Fig. 25: Electric diagram EPS

Table 9: Description of electrical diagram

Code	Item	Code	Item
GB	Battery	K	Relay
SM	DC power switch	SA	Inter-lock switch
Et	Controller	P	Indicator
KMt	Main contactor	B	Tiller
FU01	Fuse 350A	C	Capacitor
FU02	Fuse 30A	HA	Horn
FU1	Fuse 10A	SU	Limit switch
FU2	Fuse 10A	YV	Electromagnetic valve
SY	Key switch	SB1、SB2	Proximity switch
Mp	Pump motor	SJ	Proximity switch
Mt	Traction motor	R	Resistance
YB	Electromagnetic brake	USB	USB
U	Charger	LED	Diode
SH1、SH2	Magnetic switch	SH1、SH2	Magnetic switch
Twin Pot	Potentiometer	Es	Steering Controller
SD1	Proximity switch	Ms	Steering motor

b. Hydraulic circuit

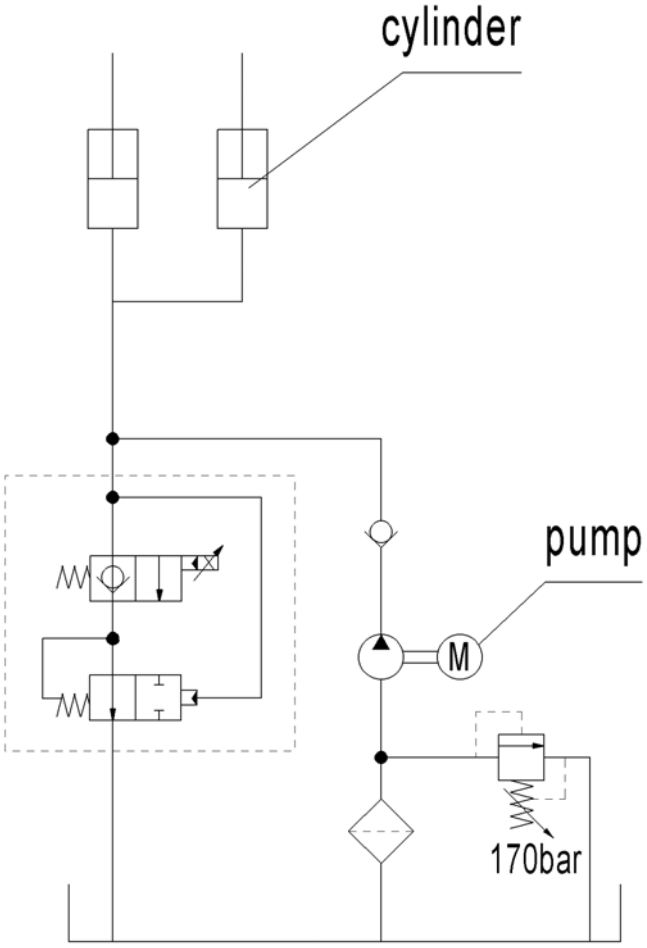


Fig. 26: Hydraulic circuit

13. 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)

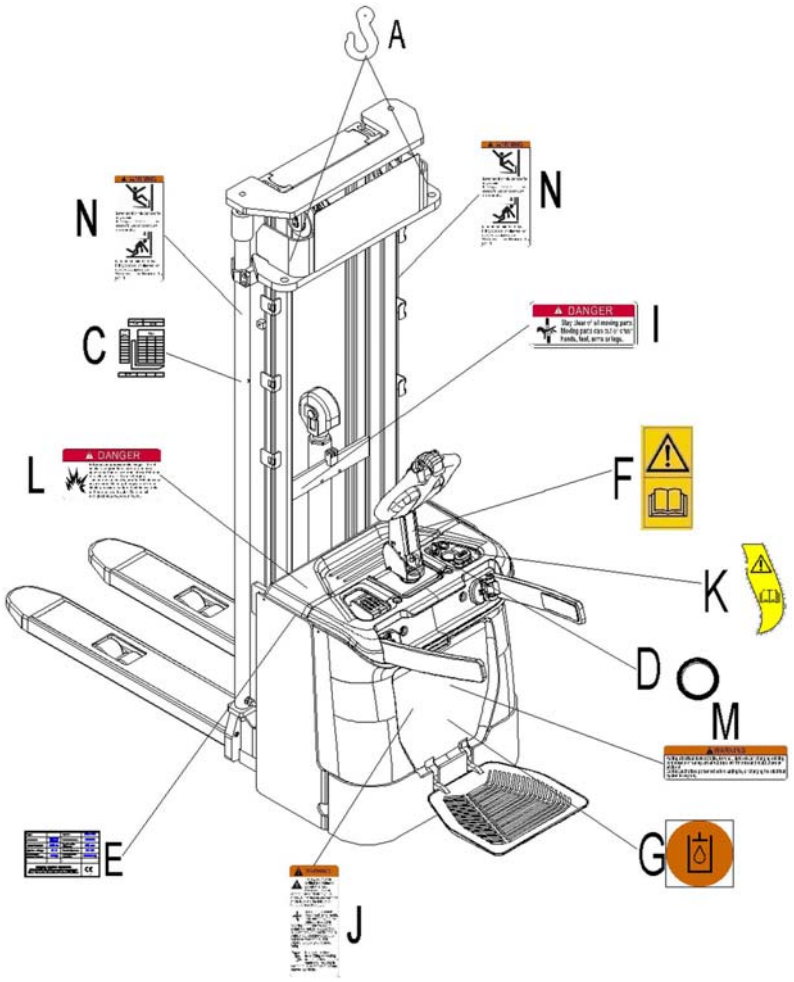


Fig. 27: Warning labels and safety devices (only USA)

A Crane hook label
C Residual lift capacity sticker
D Indicating sticker
E Identification plate (ID-plate)
F Sticker to read and follow these instructions
I Sign danger being crushed
K Warning sticker
G Sign oil filling point
J Sign warning stay clear stop truck
L Sign danger battery
M Sign warning electrical devices
N Sign not under, on forks

The truck is equipped with an emergency button (18) 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 (F)

Sign warning electrical devices (M)

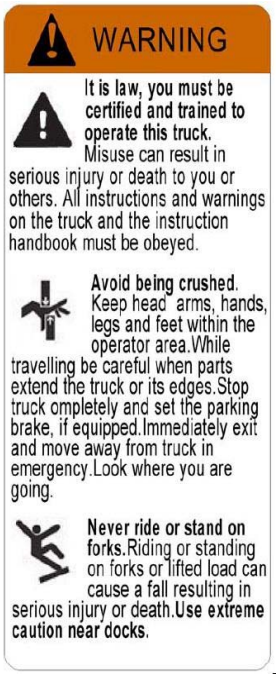
Sign danger being crushed (I)

Sign danger battery (L)

Sign not under, on forks (N)

Sign oil filling point (G)

Sign warning stay clear stop truck (J)



c. Technical data for US market

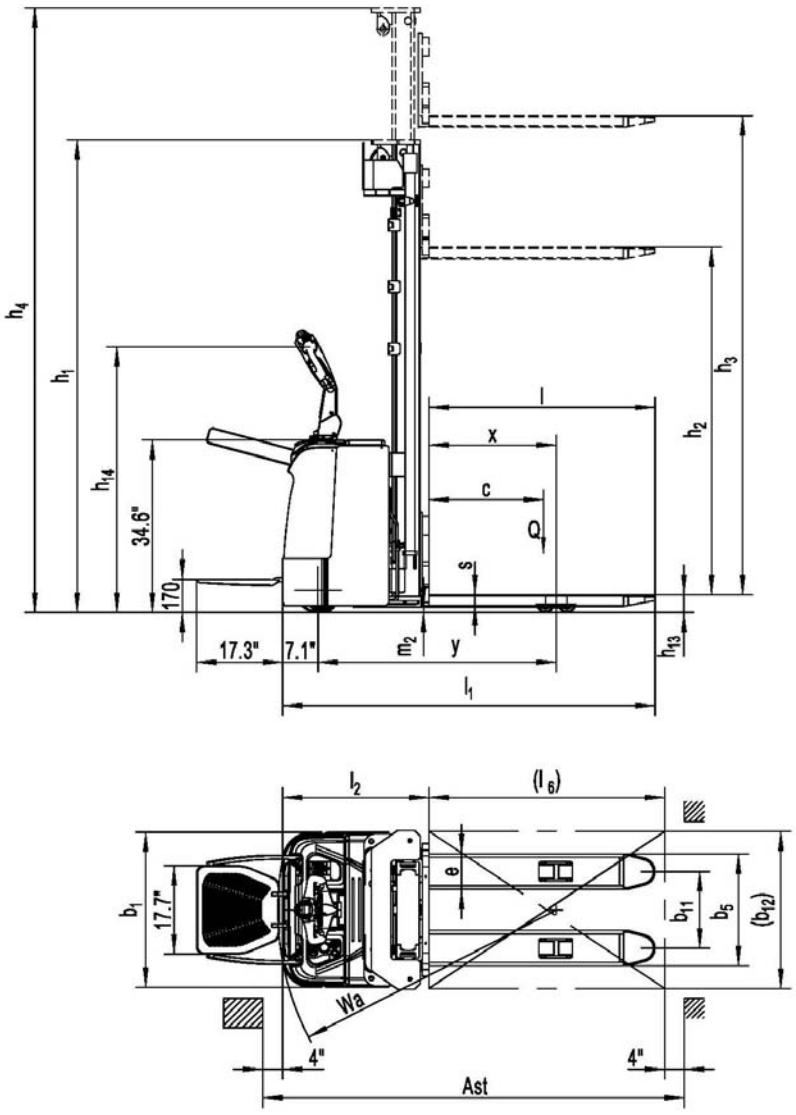


Fig. 28: Technical data (US)

Table 10: 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		PS 12N(141.7”)	PS 16N(216.5”)	PS 20N(181.1”)
	1.3	Power (battery ,diesel, petrol, gas, manual)		Battery		
	1.4	Operator type		Pedestrian		
	1.5	Load Capacity / rated load	Q(lbs)	2640	3520	4400
	1.6	Load centre distance	C(in)	24		
	1.8	Load distance ,centre of drive axle to fork	x(in)	25.5		
	1.9	Wheelbase	y(in)	45.9	47.8	52.2
Weight	2.1	Service weight	lbs	2376	3036	3564
	2.2	Axle loading, laden front/rear	lbs	1892/3124	2288/4268	2662/5302
	2.3	Axle loading, unladen front/rear	lbs	1716/704	2068 /968	2398/1188

Tires, chassis	3.1	Tires		Polyurethane (PU)		
	3.2	Tire size, front	∅xW (in)	∅9×2.76		
	3.3	Tire size, rear	∅xW (in)	∅3.3×3		
	3.4	Additional wheels(dimensions)	∅xW (in)	∅5.9x2		
	3.5	Wheels, number front/rear(x=driven wheels)		1x+1/4		
	3.6	Track, front	b10(in)	20.5		
	3.7	Track, rear	b11(in)	15.3/19.9		
Dimensions	4.2	Lowered mast height	h1(in)	90.9	94.9	87.7
	4.3	Free Lift height	h2(in)	69.3	71.7	59.8
	4.4	Lift height	h3(in)	139.0	213.8	178.3
	4.5	Extended mast height	h4(in)	160.9	240.6	205.0
	4.9	Height of tiller in drive position min./ max.	h14(in)	37.4/53.2		
	4.15	Height, lowered	h13(in)	3.5		
	4.19	Overall length	l1(in)	73.0 [1)]	74.6 [1)]	79.7 [1)]
	4.20	Length to face of forks	l2(in)	27.8 [1)]	29.4 [1)]	34.5[1)]
	4.21	Overall width	b1(in)	31.1		
	4.22	Fork dimensions	s/e/l(in)	2.4/7.1/45.3		
	4.25	Distance between fork-arms	b5(in)	22.4/27.0		
	4.32	Ground clearance, centre of wheelbase	m2(in)	1.1	1.1	0.9
	4.33	Aisle width for pallets 39.4”X47.2”crossways	Ast(in)	90.0 [1)]	91.5 [1)]	96.7 [1)]
	4.34	Aisle width for pallets 31.5”X47.2” lengthways	Ast(in)	88.6 [1)]	90.2 [1)]	95.3 [1)]
	4.35	Turning radius	Wa(in)	54.3 [1)]	55.9[1)]	61.0 [1)]
Performance data	5.1	Travel speed, laden/ unladen	mph	4.4/5.0	4.4/5.0	3.7/4.4
	5.2	Lift speed, laden/ unladen	fpm	17.7/27.6	25.6/39.4	25.6/39.4
	5.3	Lowering speed, laden/ unladen	fpm	49.2/39.4	55.1/45.3	55.1/45.3
	5.8	Max. gradeability, laden/ unladen	%	6/12	6/12	6/10
	5.10	Service brake		Electromagnetic		
Electric- engine	6.1	Drive motor rating S2 60min	HP	1.9	1.9	1.9
	6.2	Lift motor rating at S3 10%	HP	2.0	4.3	4.3
	6.3	Battery acc. to DIN 43531/35/36 A, B, C, no		2VBS	3VBS	3PZS
	6.4	Battery voltage, nominal capacity K5	V/Ah	24/180	24/270	24/350
	6.5	Battery weight	lbs	385	506	634
	6.6	Energy consumption acc: to VDI cycle	kWh/h	0.95	1.34	1.70
Additio nal data	8.1	Type of drive control		AC- speed control		
	8.4	Sound level at driver`s ear acc. to EN 12053	dB(A)	<70		

1）With unfolded platform: + 17.3 in

Type	Lowered mast height h1(in)	Free Lift height h2(in)	Lift height h3(in)	Extended mast height h4(in)	Lift+fork height h3+h13(in)
PS 12N					
Two stage mast	77	—	111	133	114.5
	83	—	123	145	126.5
	91	—	139	161	142.5
Two stage mast FFL (Full-Free-Lift)	77	55.5	111	133	114.5
	83	61.4	123	145	126.5
	91	69.3	139	161	142.5
PS 16N					
Two stage mast	77	—	111	133	114.5
	83	—	123	145	126.5
	91	—	139	161	142.5
Two stage mast FFL (Full-Free-Lift)	77	55.5	111	133	114.5
	83	61.4	123	145	126.5
	91	69.3	139	161	142.5
Three stage mast	79	—	167	188	170.5
	83	—	178	200	181.5
Three stage mast FFL (Full-Free-Lift)	62	44.1	131.1	152.8	134.5
	75	52	155	176	158.5
	79	55.9	167	188	170.5
	83	59.8	178	200	181.5
	92	69.1	206	228	209.5
	95	71.0	214	241	217.5
PS 20N					
Two stage mast	82	—	111	138	114.5
	88	—	123	150	126.5
	96	—	139	165	142.5
Two stage mast FFL (Full-Free-Lift)	78	51.6	104	130	107.5
	82	55.5	111	138	114.5
	88	61.4	123	150	126.5
	96	69.3	139	165	142.5
Three stage mast	84	—	167	193	170.5
	88	—	178	205	181.5
Three stage mast FFL (Full-Free-Lift)	78	51.6	155	181	158.5
	84	55.9	167	193	170.5
	88	59.8	178	205	181.5

14. 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-KONFORMITÄTSERKLÄRUNG
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 certifico 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 odificaciones, 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. Chaque signataire est habilité à établir individuellement la documentation technique.

[NL] EG-CONFORMITEITSVERKLARING
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 compatibilteit (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 sottoscritti dichiarano che il veicolo per trasporti interni a macchina specificato soddisfa le Direttive Europee 2006/42/EC (Direttiva Macchine) e 2014/30/EU (Compatibilità elettromagnetica - EMV) comprese le relative modifiche, come pure il rispettivo decreto legislativo per la conversione delle direttive in diritto nazionale. I sottoscritti sono singolarmente autorizzati alla creazione della documentazione tecnica.

[BG] ЕВРОПЕЙСКА ОБЩНОСТ - ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ
Подписаните удостоверяват с настоящето, че подробно описаното машина средство отговаря 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 упълномощении поотделно да съставят техническата документация.

[CZ] EG - PROHLÁŠENÍ O SHODĚ
Níže podepsaný tímto potvrzuje, že podrobný popis uvedené 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-OVERENSSTEMMELSESERKLÆRING
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 lovvedtagelse til implementering af direktiver i den nationale lovgivning. De undertegnede er hver for sig beføjet til at sammenstille de tekniske dokumenter.

[EST] EL vastavusavaldus
Allakirjutanud 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 nendele vastavatele õigusmäärustele direktiivide muutmiseks siseriiklikuks õiguseks. Iga allakirjutanu üksikult on volitatud koostama tehnilist dokumentatsiooni.

[FIN] EU-YHDENMUKAISUUSSELOSTUS
Allekirjoittaneet todistavat täten, että kukin erikseen mainittu omalla voimanlähteellä varustettu tehdaskone vastaa EU-direktiivien 2006/42/EC (koneenrakennusdirektiivi) ja 2014/30/EU (sähkömagneettinen yhteensopivuus – EMC) määräyksiä sekä niiden muutoksia ja niiden kansalliseen lainsäädäntöön soveltamista koskevaa oikeussääntöä. Jokaisella allekirjoittaneista on oikeus itsenäisesti laatia asiaankuuluvia teknisiä asiakirjoja.

[GR] ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΕΟΚ
Οι υπογράφοντες βεβαιώνουν διά της παρούσης ότι το συγκεκριμένο μηχάνημα συμμορφώνεται προς την Κοινοτική Οδηγία 2006/42/ΕΚ («Μηχανήματα») και 2014/30/EU (Ηλεκτρομαγνητικής Συμβατότητας, ΗΜΣ), καθώς και οι τροποποιήσεις τους, όπως μεταφράστηκε στην εθνική νομοθεσία των χωρών μελών. Οι υπογράφοντες είναι σε κάθε περίπτωση εξουσιοδοτημένοι ατομικά να καταρτίσουν τα τεχνικά έγγραφα.

[H] EU KONFORMITÁSI NYILATKOZAT
Alulírottak ezennel igazolják, hogy a részletesen leírt a megadott gép megfelel a 2006/42/EC (Gép-Irányelv) 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 atitikimo 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, ka norādīts mašīna atbilst Eiropas Savienības normatīvām 2006/42/EG (Mašīnu normatīvas) un 2014/30/EU (Elektromagnētiskā atbilstība – EMV), ieskaitot to izmaiņas, kā arī atbilstošos tiesiskos rīkojumus normatīvu pielāgošanai nacionālajai likumdošanai. Parakstu īpašnieki ir atsevišķi pilnvaroti sastādīt tehniskās dokumentācijas.

[N] EU-KONFORMITETSERKLÆRING
Undertegnede bekrefter hermed at de enkelte betegnede maskin med kraftdrift tilsvarer de europeiske retningslinjene 2006/42/EC (maskinretningslinje)

og 2014/30/EU (elektromagnetisk fordraglighet - EMV) inklusiv disses 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] DECLARAŢIE DE CONFORMITATE CE

Subsemnaţii adeveresc prin prezenta că vehiculul de specificat maşină descris individual corespunde directivelor europene 2006/42/CE (Directiva privind maşinile) şi 2014/30/EU (Compatibilitatea electromagnetică - CEM) inclusiv modificărilor lor precum şi actului legislativ corespunzător prentru transpunerea directivelor în drept naţional. Subsemnaţii sunt fiecare în parte împuterniciţi să întocmească documentaţia 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 uvedené 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 pooblaščeni 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 kararnamesine uygun olduğunu tasdik ederler. İmza sahibi şahıslar teknik dosyaları bir araya getirmek için münferiden vekil tayin edildi.

(1) Type/ Typ/ Tipo/ Modello/ Tyyppi/ Tipo / ΤΥΠΟΣ/ Típus/ Tip/ Тип/ Tips/ Tipas/ Tüüp:
(2) Serial No./ Serien-Nr./ N°. de série/ Serienummer/ Nº de serie/ Numero di serie/ Serienr./ Sarjanro/ αυξάνων αριθμός/ Seriové číslo/ Szériaszám/ Nr.Seryjny/ Serijska številka/ Výrobné číslo/ Серийный номер/ Seri No./ Seerianr./ Sērijas Nr./ Serijos numeris:
(3) Year of constr./ Baujahr/ Année de constr./ Bouwjaar/ Año de constr./ Anno di costruzione/ Produktionsår/ Byggeår/ Tillverkningsår/ Valmistusvuosi / Ano de fabrico / έτος κατασκευής/ Rok výroby/ Gyártási év/ Rokprodukcji / Letnik / Год изготовления / Üretim yılı / Väljalaskeaasta / Izgatavošanas gads / Gamybosmetai
(4) Manufacturer or his authorized representative in Community/ Hersteller oder in der Gemeinschaft ansässiger Vertreter/ Fabricant ou son mandataire établi dans la Communauté/ Fabrikant of zijn in de Gemeenschap gevestigde gemachtigde/ Fabricante o representante establecido en la Comunidad/ Construtor ou Representante estabelecido na Comunidade/ Costruttore oppure il suo rappresentante nella Comunità/ Fabrikant eller dennesi Fællesskabet etablerede befuldmægtigede/ Produsent eller agent innen felleskapet/ Tillverkare eller representant inom EU/ Valmistaja tai yhteisömaassa oleva edustaja / V˘robce nebo jeho zastoupení/ Gyártó / producent albo jego przedstawiciel w EG (Wspólnota Europejska)/ Καηαζθεπαζηήο ή όκηινο ηνπηθώλ αληηπξνζώπσλ/ Üretici ya da Bölgedeki Yetkili Temsilci/ Proizvajalec ali pooblaščeni zastopnik s sedežem v EU/ Výrobca alebo zástupca so stálym bydliskom v EÚ / Изготовитель или его представитель, зарегистрированный в стране Содружества/ Tootja või organisatsioonis paiknev esindaja/ Ražotājs vai vietējais uzņēmuma pārstāvis / Gamintojas arba šalyje reziduojantis atstovas:
(5) Date/ Datum/ Data/ Fecha/ datum/ Dato/ päiväys/ Kuupäev/ Datums/дата / Dátum/ dátum/ tarih/ ημερομηνία
(6) Authorised signatory/ Im Auftrag/ pour ordre/ Incaricato/ Por orden de/ por procuração/ op last van/ på vegne af/ på uppdrag/ Etter oppdrag/ psta./ Ülesandel / pavedus / v.i. / По поручению / megbízásából /длъжностно лице / z pověření / z poverenia / po nalogu / na polecenie / din sarcina / adına / θαη' ελνιή

(1) Type: **XX XX – Self-propelled industrial truck**
(2) Serial No: **XXXXXXXX**
(3) Year of constr.: **YYYY**
(4) Manufacturer or his authorized representative in Community:
Company name/ Street / Postal code Town/ Country
(5) Date: **YYYY.MM.DD**
(6) Authorized signatory: **Mr. Sample**

Sample
If you can read this text,
your declaration is not complete.
In this case please ask for a copy