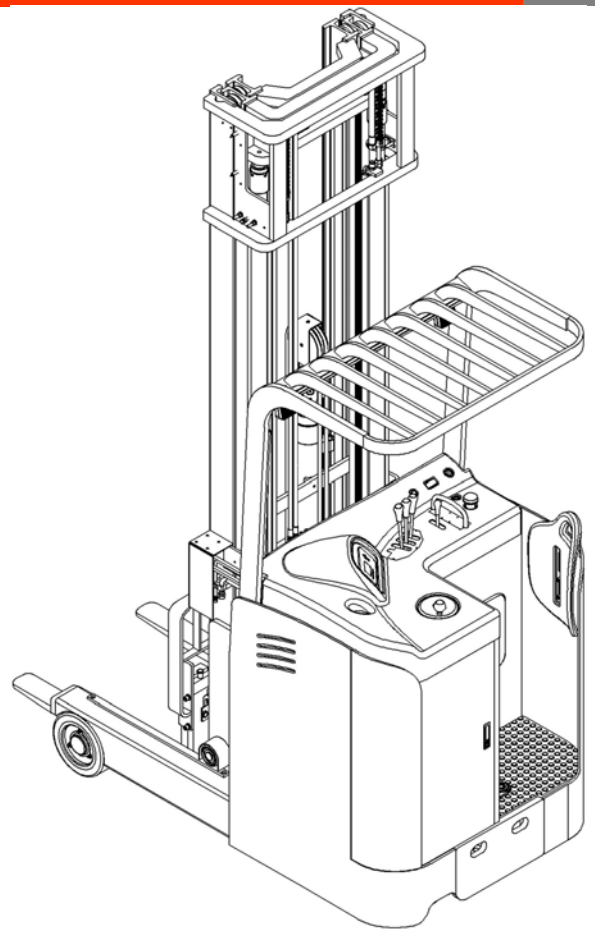


INSTRUCTION HANDBOOK

Electric Reach Truck



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

RT15ST-SMS-003-EN

FOREWORD

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

This handbook describes the usage of different electric stackers. When operating and servicing the truck, make sure, that it applies to your type.



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 (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.

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 handbook is only for the purpose of operating /servicing the stacker, therefore please have understanding, that there is no guarantee out of particular features out of this handbook.



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 reach truck according to this instruction handbook.

The trucks described in this handbook are electric reach trucks, with electrically powered lifting function. The trucks are designed for stacking operations in dedicated racking by lifting and lowering the palletized load up to the desired lifting height.

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. While operating, the load must be placed approximately on the longitudinal centre plane of the stacker.

Lifting or transporting people is forbidden. If travelling the load must be lowered to the lifting point.

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.

By not observing these instructions, the warranty becomes void.

2. DESCRIPTION OF THE STACKER

a. Overview of the main components

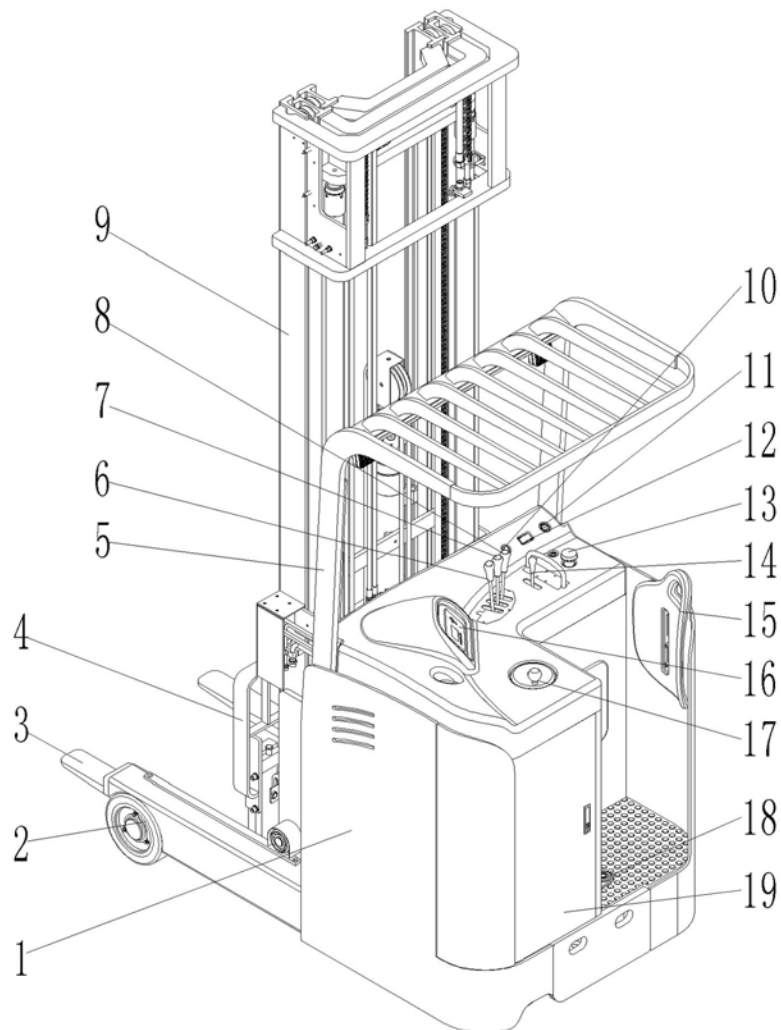


Fig. 1: Overview main components

- | | |
|-----------------------------|----------------------|
| 1. Truck body | 11. Key switch |
| 2. Load roller | 12. Headlight switch |
| 3. Fork | 13. Emergency switch |
| 4. Load backrest | 14. Switch |
| 5. Overhead guard | 15. Backrest |
| 6. Lifting operating tiller | 16. Instrument |
| 7. Control handle | 17. Driving wheel |
| 8. Tilt operating tiller | 18. Pedal switch |
| 9. Mast | 19. Motor box door |
| 10. Horn switch | |

b. Main technical data

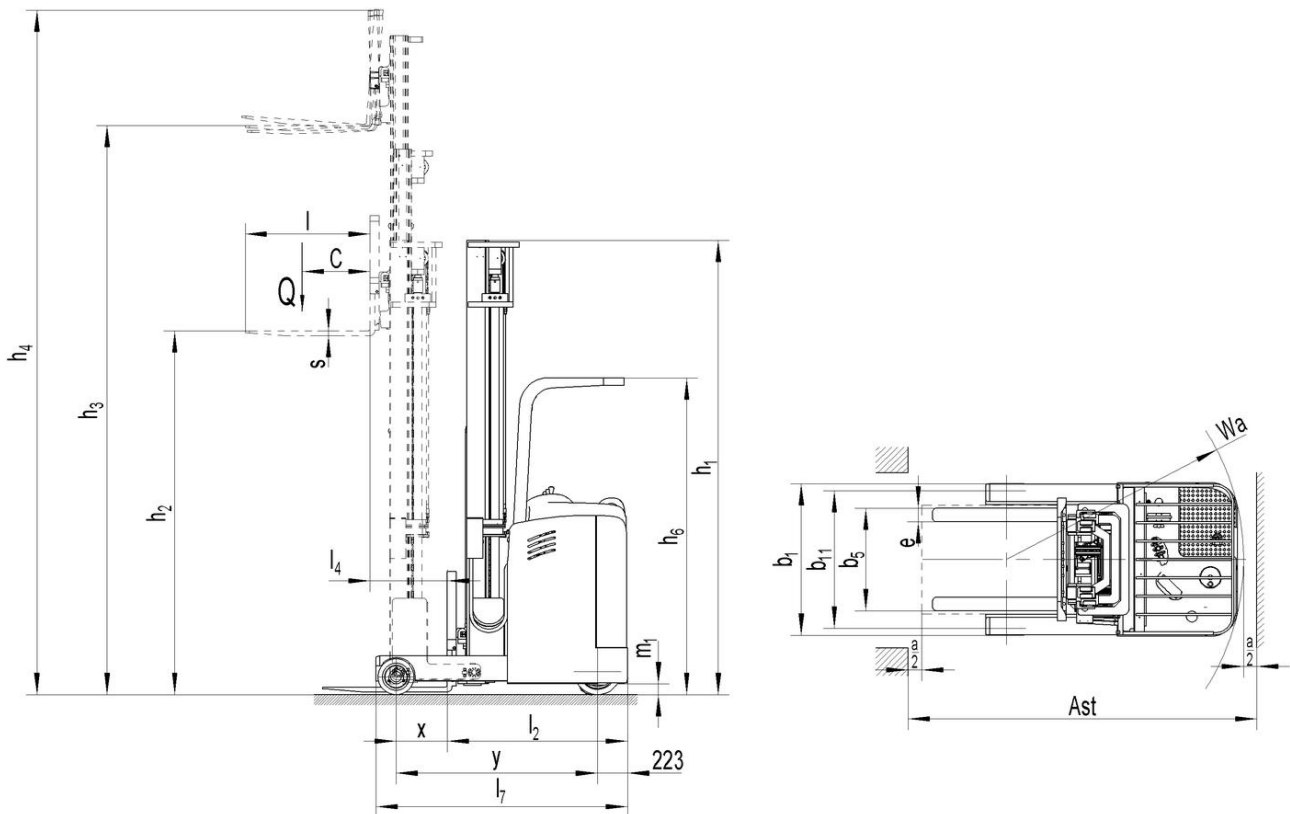


Fig. 2: Technical data

Table1: Main technical data for standard version

Technical data sheet for industrial truck acc. to VDI 2198				
Distinguishing mark	1.2	Manufacturer's type designation		RT15ST
	1.3	Power (battery ,diesel, petrol gas, manual)		Battery
	1.4	Operator type		Standing
	1.5	Load Capacity / rated load	Q (t)	1.5
	1.6	Load centre distance	c (mm)	500
	1.8	Load distance ,centre of drive axle to fork	x (mm)	380
	1.9	Wheelbase	y (mm)	1482
Weight	2.1	Service weight	kg	3630
	2.3	Axle loading, laden front/rear	kg	2260/1370
	2.4	Axle loading, unladen front/rear	kg	840/4290
	2.5	Axle loading, laden front/rear, fork retracted	kg	1960/3170
Tires, Chassis	3.1	Tires		Polyurethane
	3.2	Tire size, front	ØxW (mm)	343×140
	3.3	Tire size, rear	ØxW (mm)	267×106
	3.5	Wheels, number front/rear(x=driven wheels)		2/1x+2
	3.7	Tread, front/rear	b_{11} (mm)	1010/660
Dimensions	4.1	Tilt of mast/fork carriage forward/backward	α/β (°)	2/4
	4.2	Lowered mast height	h_1 (mm)	3340
	4.3	Free Lift height	h_2 (mm)	2655
	4.4	Lift height	h_3 (mm)	8000
	4.5	Extended mast height	h_4 (mm)	8850

	4.7	Overhead guard height	h_6 (mm)	2330
	4.19	Overall length	l_1 (mm)	2246
	4.20	Length to face of forks	l_2 (mm)	1326
	4.21	Overall width	b_1 (mm)	1130
	4.22	Fork dimensions	s/e/l (mm)	35/100/920
	4.25	Distance between fork- arms(min./max.)	b_5 (mm)	200/760
	4.28	Reach distance	l_4 (mm)	560
	4.31	Min. ground clearance	m_1 (mm)	80
	4.34	Aisle width for pallets 800X1200 lengthways	Ast (mm)	2695
	4.35	Turning radius	Wa (mm)	1750
	4.37	Distance to the rotor arm front end	l_7 (mm)	1855
Performance data	5.1	Travel speed, laden/ unladen	km/h	9.5/9.5
	5.2	Lift speed, laden/ unladen	m/s	0.28/0.32
	5.3	Lowering speed, laden/ unladen	m/s	0.35/0.31
	5.4	Reach forward speed laden/ unladen	m/s	0.09/0.12
	5.8	Max. gradeability, laden/ unladen	%	10/15
	5.10	Service brake		Electromagnetic
Electric-motor	6.1	Drive motor rating S2 60min	kW	5.5
	6.2	Lift motor rating S3 15%	kW	8.6
	6.3	Battery acc. to DIN 43531/ 35/ 36 A, B, C, no		A,4Pzs
	6.4	Battery voltage, nominal capacity K5	V/ Ah	48/360
	6.5	Battery weight	kg	600
Additional data	8.1	Type of drive control		AC-Speed control
	8.2	System pressure	(bar)	110
	8.3	System flow	(l/min)	40
	8.4	Sound level at driver's ear acc.to EN 12053	dB(A)	<70

Mast table RT 15ST				
Designation	Lift height h_3 mm	Free Lift height h_2 mm	Lowered mast height h_1 mm	Extended mast height h_4 mm
RT 15ST				
Two stage mast -Standard Lift	2500	135	1830	3350
	2700	135	1930	3550
	3000	135	2080	3850
	3300	135	2230	4150
	3600	135	2380	4450
	4000	135	2580	4850
	4500	135	2830	5350
Three stage mast FFL-Full Free Lift	4500	1490	2172	5350
	5000	1655	2340	5850
	5300	1755	2440	6150
	5500	1820	2507	6350
	5800	1920	2607	6650
	6000	1990	2672	6850
	6500	2155	2840	7350
	7000	2320	3007	7850
	7500	2490	3172	8350
8000	2655	3340	8850	

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

- A. Crane hook label
- B. Warning decal: Do not step under or on the forks
- C. Hydraulic oil sticker
- D. Manufacturer logo
- E. Name plate
- F. "No passengers" decal
- G. Residual lift capacity sticker

The truck has an emergency button (13) which stops all lifting-, lowering-, driving- functions and engages the failsafe electromagnetic brake when it is pushed. Pulling this button before operating the truck, Before operating, insert the key and turn the switch clockwise, and stamp the safety switch. To prevent against unauthorized access, turn the key anti-clockwise and remove it, if you not operate this truck. This truck is equipped with foot braking, which can be used as service brake during driving the truck. Follow also the instructions given on the decals. Replace the decals if they are damaged or missing.

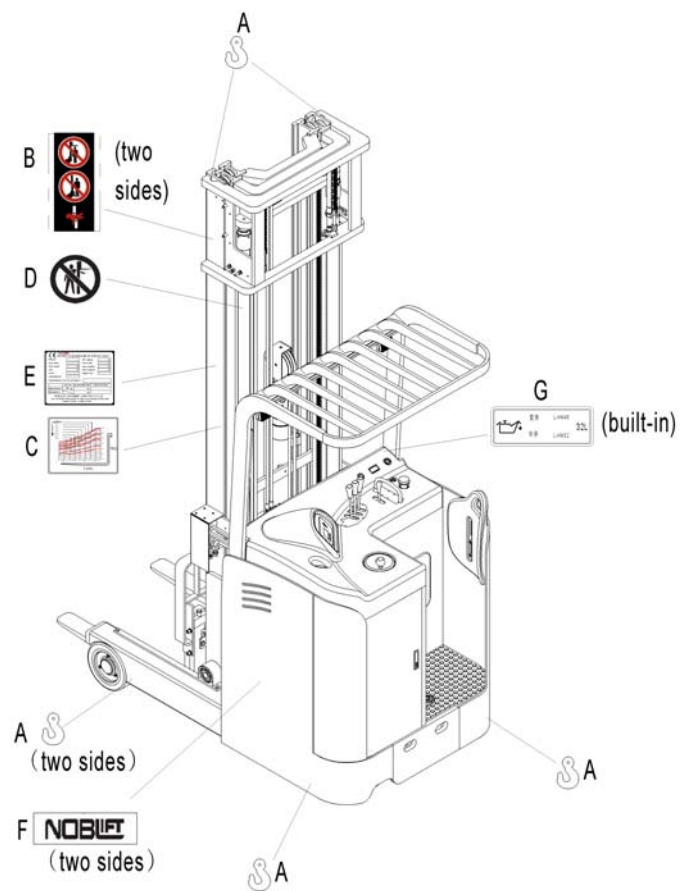


Fig.3: Safety and warning labels

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 data |
| | | 11 | Option |

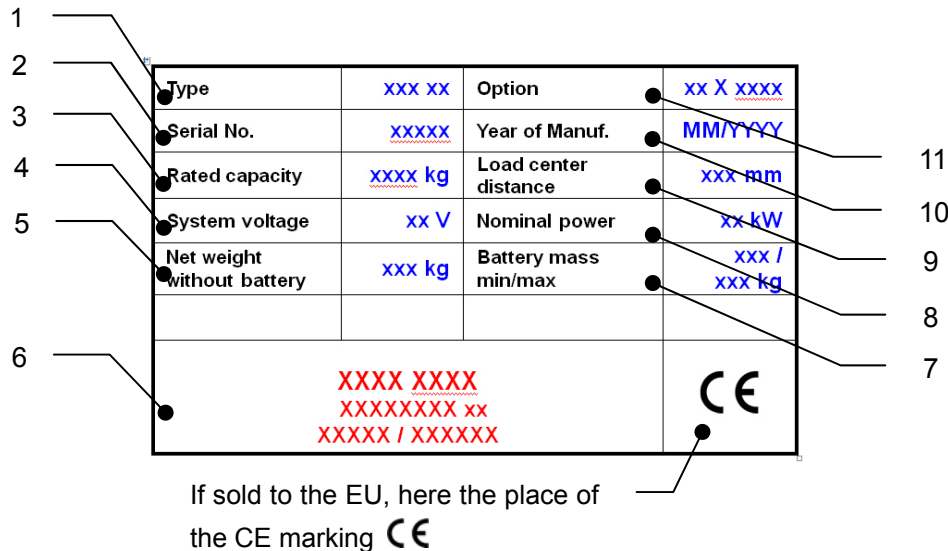


Fig. 4: Identification plate

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 (fig.1, pos. 19/ guarding).
- 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 (13) by pushing when sliding load on or off the truck. If the truck has any malfunctions, follow chapter 8.

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.

4. COMMISSIONING, TRANSPORTATION, DECOMMISSIONING

a. Commissioning

Table 2: Commissioning data

Type	RT 15ST80	RT 15ST75	RT 15ST70	RT 15ST65	RT 15ST60
Commissioning weight [kg]	3630	3450	3350	3250	3150
Version/ Lift [mm]	8000	7500	7000	6500	6000
Dimensions [mm]	2250x1130 X3340	2250x1130 X3170	2250x1130 X3000	2250x1130 X2840	2250x1130 X2670

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
- Eventually installation and charging the batteries (follow chapter 7)

Do the work according to the daily inspections as well as functional checks.

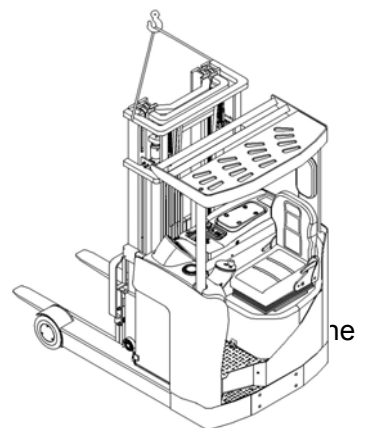
b. Lifting/transportation

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.

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.

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

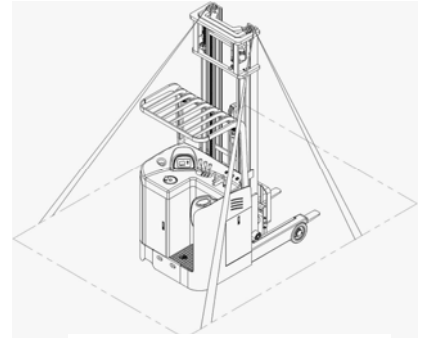


Fig. 6: Fixing points

C. Decommissioning

For storage, remove the load, lower the truck to the lowest position, grease all in this handbook mentioned greasing points (regular inspection), eventual 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 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. OPERATION INSTRUCTIONS

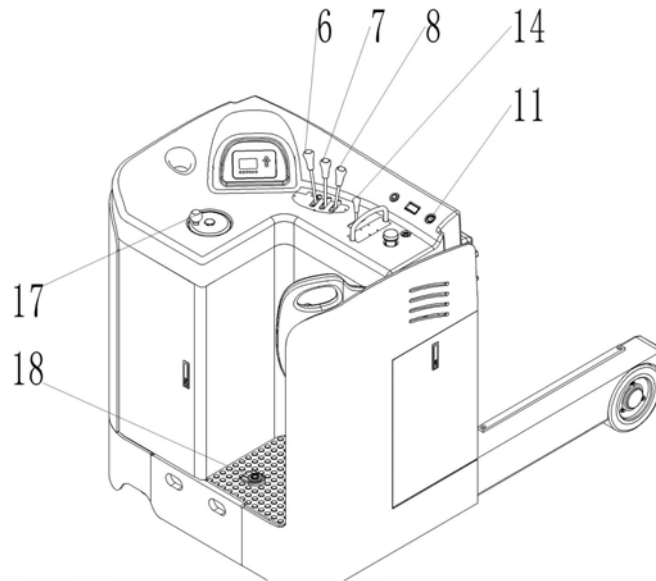


Fig.7: Tiller operating controls



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!

Make sure, that the load is palletized and stable and that the daily inspection is carried out. For starting, insert the key switch(11), pull out the emergency button(13), and turn it clockwise to the “ON”- position. Press the horn button (10) 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.

Type	RT15 ST
Mast	8000mm

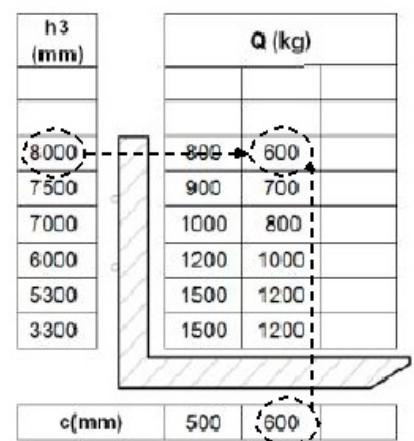


Fig. 8: Residual lift diagram

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 8000 mm, the max. capacity Q is 600 kg.

c. Lifting



**DO NOT OVERLOAD THE TRUCK! THE MAXIMUM CAPACITY IS 1500 kg.
LIFT ONLY CAPACITIES ACCORDING TO THE RESIDUAL LIFT DIAGRAM.**

Travel with the lowered forks fully underneath the fork and draw backwards the control handle(6) until you reached the desired lifting height.

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.

Move the control handle (6) forwards.

Lower the load until the forks are clear of the pallet, then drive the truck carefully out of the load unit.

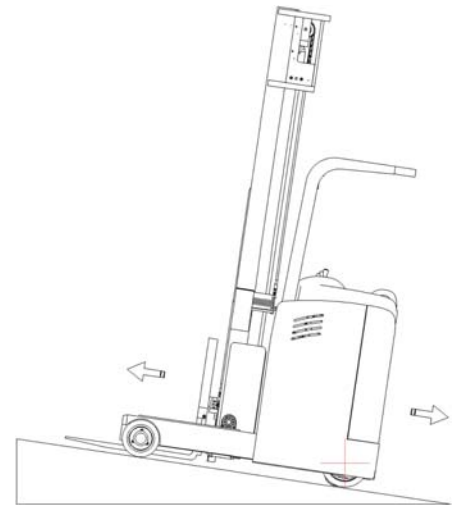


Fig.9: Load facing uphill

e. Moving forks

Move the lever (7) forwards, the reach pantograph moves out of the truck.

Move the lever (7) backwards, the reach pantograph moves back into the truck

f. Fork tilts

Move the lever (8) forwards, the forks moving upwards.

Move the lever (8) backwards, the forks moving downside.

g. Travelling



TRAVEL ON INCLINES ONLY WITH THE LOAD FACING UPHILL.
DO NOT TRAVEL ON INCLINES MORE THAN SPECIFIED WITH THE TECHNICAL DATA.

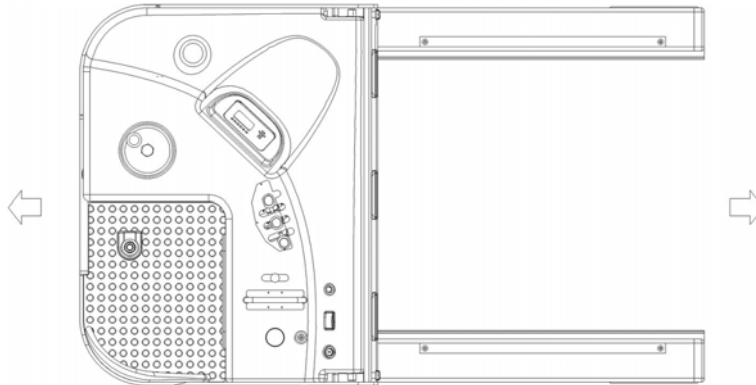


Fig.10: Operating direction

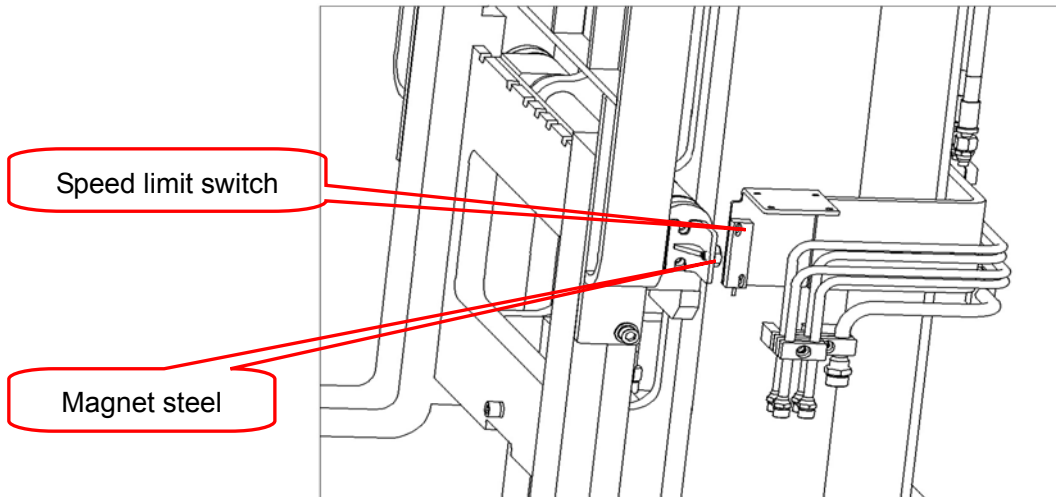
- A) After starting the truck by turning the inserted key to the "ON"- position, put your hand on the switch (14), hold on the knob on the driving wheel (17) with your hand, and the other hand grasp the accelerator. Release the electromagnetic brake with your foot stamping on the pedal switch(18) , Pay attention that you must keep on stamping when driving. The truck will drive forward or backward when you move the accelerator forward or backward, the fast you move, the quick the speed is, and the same for the accelerated speed. Do not suddenly increase or decrease the speed!
- B) There are three methods to brake the truck:
- By decrease the input voltage of speed potentiometer, or return the potentiometer to neutral position. This way of braking is smooth and steady and is suggested to apply.
 - Reverse braking. For example, change the driving direction, that is move the potentiometer in the opposite direction, the more you move ,the faster the braking is.
 - Move the accelerator to the middle position, then release the foot pedal to brake, this is only applied for urgent braking.



In order to have a good view, please drive as far as possible in the opposite direction of the fork.

- a. This truck is fully equipped with safety device to avoid accident. When the fork lifts to 600mm, the magnet steel will go through the surface of magnet control switch, and the speed decreases 60% to ensure safe driving and working; When the fork lowers, the magnet steel goes through the magnet control switch again, the driving speed will restore. Of course you can control the lifting and lowering speed by the lifting and lowering control lever.

- b. Turn on the power supply, the system will start self inspection. If there is something wrong with the electrical system, such as open circuit, short circuit, or button on the active state, and you stamp the pedal switch, speed controller will not in the neutral position, and the truck will not drive and report default, only when the electrical system is OK, the truck will start normal work.



Drive carefully, the truck speed is 9.5km/h.

h. Steering



THE TRUCK IS EQUIPPED WITH AN ELECTRIC STEERING SYSTEM. TAKE CARE BY OPERATING A TRUCK WITH THIS KIND OF SYSTEM

You steer the truck by turning the steering wheel clock wise and anti-clock wise.

Turn the steering wheel to make the drive wheel move straight, and reach full speed. Turn the steering wheel a certain angle to turn the drive wheel. When turning, the angle is larger than $\pm 10^\circ$, comparing with straight driving, the speed will be different when turning, the speed is more smaller if the turning angle is much larger.

i. 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 control handle (14) from one driving direction to another opposite direction, the truck regenerative brake and drive into the opposite direction.
- The truck brakes, move the control handle (14) to neutral position until it stops.
- Release the safety pedal switch (18).
- Press the emergency switch (13).

j. Malfunctions

If there are any malfunctions or the truck is inoperative, please stop using the truck and activate the emergency button (13) by pushing it. If possible, park the truck on a safe area, turn the key switch (11) anti- clockwise and remove the key. 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.

When the truck has fault, the wrench indicator on the bottom of the instrument will light on. Then we can use CURTIS handheld unit to find out the fault reason.

k. Emergency

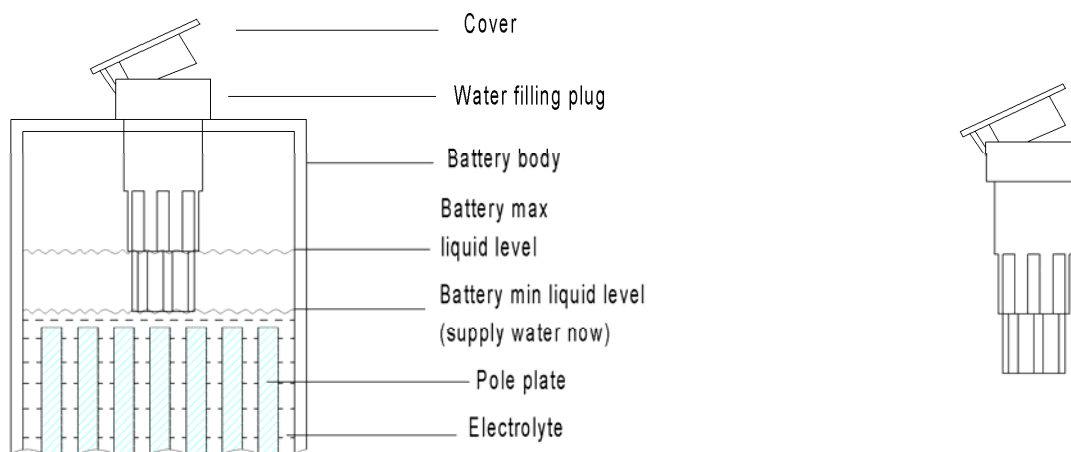
In emergencies or in the event of tip over, keep safe distance immediately. If possible push the emergency button (13). All electrical functions will be stopped.

7. BATTERY CHANGES AND REPLACEMENT



- Only qualified personnel are allowed to service or charge the batteries. The instructions of this handbook and from the battery- manufacturer must be observed.
- The batteries are liquid acid traction batteries. Optional maintenance free batteries might be available; for these batteries re- filling is prohibited.
- Recycling of batteries undergoes national regulations. Please follow these regulations.
- By handling batteries, open fire is prohibited, gases could 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 that there are no disturbing towards other components of the truck.
- In the process of charging or operating, due to water evaporation, check the electrolyte weekly, the battery should be added distilled water regularly, the electrolyte level must be maintained between the highest and the lowest level, charging after filling distilled water.

Distilled water supplement and filling quantity shown as below:





Note: if the electrolyte level is not enough, must fill distilled water other than other liquid

The truck is equipped with following lead-acid battery- type:

RT15ST 1 pc 48V 4PzS 360H (standard configuration) [1022x412x570 mm (LxWxH)]



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

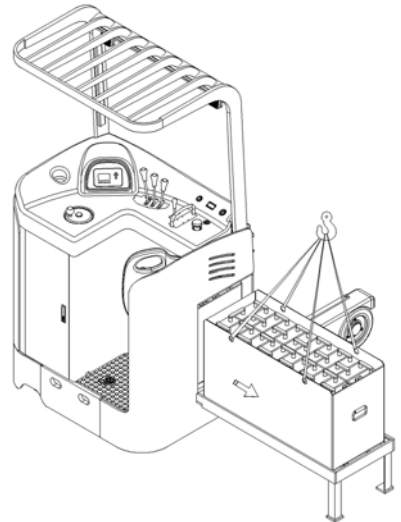


Fig. 11: battery replacement

a. Replacement

Park the truck securely, turn off the truck with key (11), and press emergency switch(13), open the side door, disconnect the battery plug, put away the battery replacement frame and pull out the battery, then remove the battery with a crane. The installation is in the reverse order of the removal, otherwise the tuck could be damaged.

b. Battery indicator

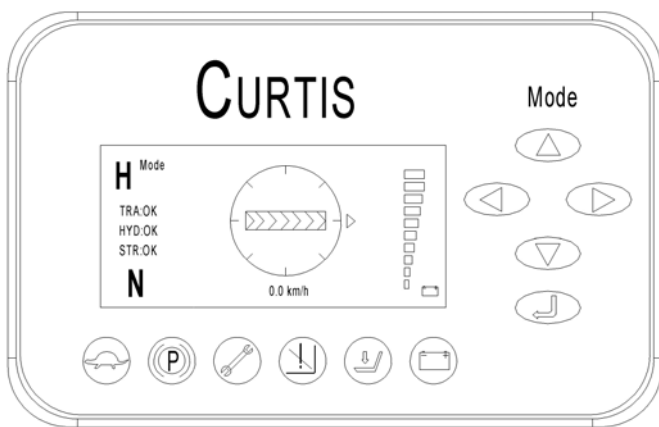


Fig.12: Battery discharge indicator

Battery power is displayed in the right side, if fully charged, the indicator shows 100% (10 segments) , when the battery power only has 20%, the battery symbol will light on (the sixth one from left) , indicating the battery needs charging. When the battery power only has 10%, the forbid symbol will light on (the fourth one from left, and the truck can't lift, but can drive slowly.

There is key Mode on the right side of the indicator, you can switch driving mode by this key Mode. Shown as upper left corner in Fig. 13

H Mode high speed mode top speed drive 9.5Km/h

S Mode normal mode top speed drive 7.6Km/h

E Mode economic mode top speed drive 5.7Km/h

When switch to the economic mode, the slow speed indicator is on (the first one from left) .

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.

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

Lower the forks and remove the load.

Switch the truck off, open the side door, connect the battery plug to the charging plug of the charger.

The charger starts charging the battery.

Disconnect the battery plug after the charger finished charging.

Connect the plug with the plug at the truck.

8. REGULAR MAINTENANCE



- Only qualified and trained personnel are 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 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.

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

Check the items emphasized in the maintenance checklist.

a. Maintenance checklist

Table 3: 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)				•
	Mechanical system				
5	Inspect the forks for deformation and cracks		•		

6	Check the chassis for deformation and cracks		•		
7	Check if all screws are fixed		•		
8	Check mast and chain for corrosion, deformation or damages, replace if necessary	•			
9	Check the gearbox for noise and leakage		•		
10	Check the wheels for deformation and damages, replace if necessary		•		
11	Lubricate the load wheel bearing				•
12	Inspect and lubricate the pivot points		•		
13	Lubricate the grease nipples	•			
14	Replace the guarding and/or protective screen if it is damaged	•			
Electric 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	Check the display		•		
20	Check if correct fuses are used, if necessary replace.		•		
21	Check the buzzer		•		
22	Check the contactors		•		
23	Check the frame leakage (insulation test)		•		
24	Check function and wear of the accelerator		•		
25	Check the electrical system of the drive motor		•		
Braking system					
26	Check brake performance		•		
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 buzzer	•			
33	Check the air gap of the electromagnetic brake	•			
34	Test the emergency braking	•			
35	Test the reverse and regenerative braking	•			
36	Check the steering function	•			
37	Check the lifting and lowering function	•			
38	Check the tiller arm switch function	•			
39	Test the key switch of damages and function	•			
40	Test the speed limitation switch (lifting height >~600mm)	•			
General					
41	Check if all decals are legible and complete	•			
42	Check if the protective screen and or guarding is not damaged	•			

43	Inspect the castor, adjust the height or replace it, if worn out		•		
44	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. Guide rail
3. Short axle
4. Mast
5. Chain
6. Drive wheel gear

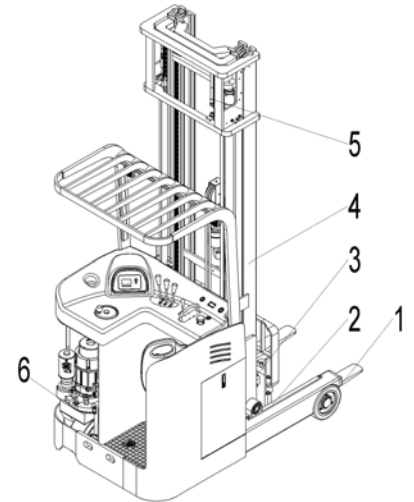


Fig. 13: Lubricating points

c. Check and refill hydraulic oil

The required hydraulic fluid- type is

- H-LP 46, DIN 51524
- Viscosity is 41.4 – 47

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.24L to 28.5L.

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 4.

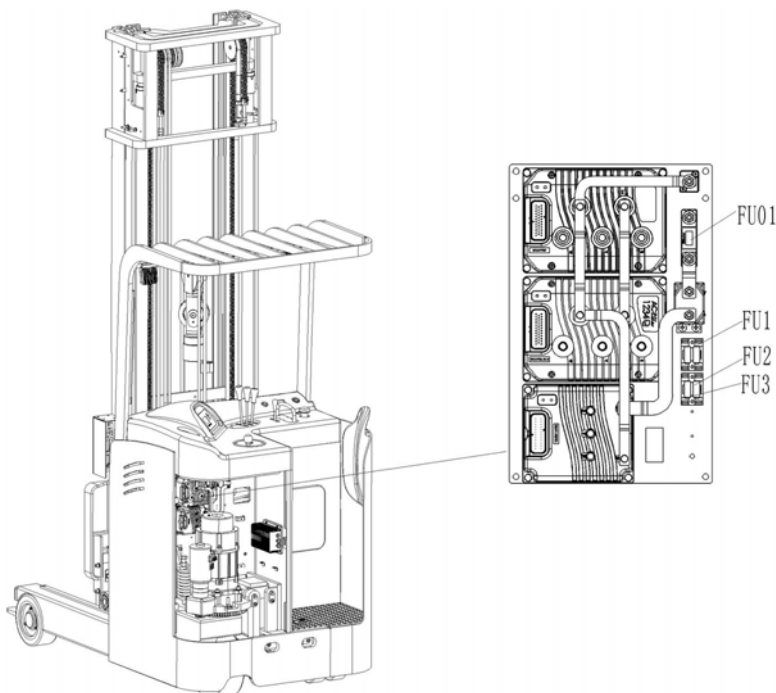


Table 4: Size of the fuses

	Rate
FU 1	10A
FU 2	10A
FU 3	10A
FU 01	350A

Fig. 14: Location fuses

9. TROUBLE SHOOTING



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

Table 5: 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 engaged.	Check the electromagnetic 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.

10. WIRING/CIRCUIT DIAGRAM

a. Electrical circuit diagram

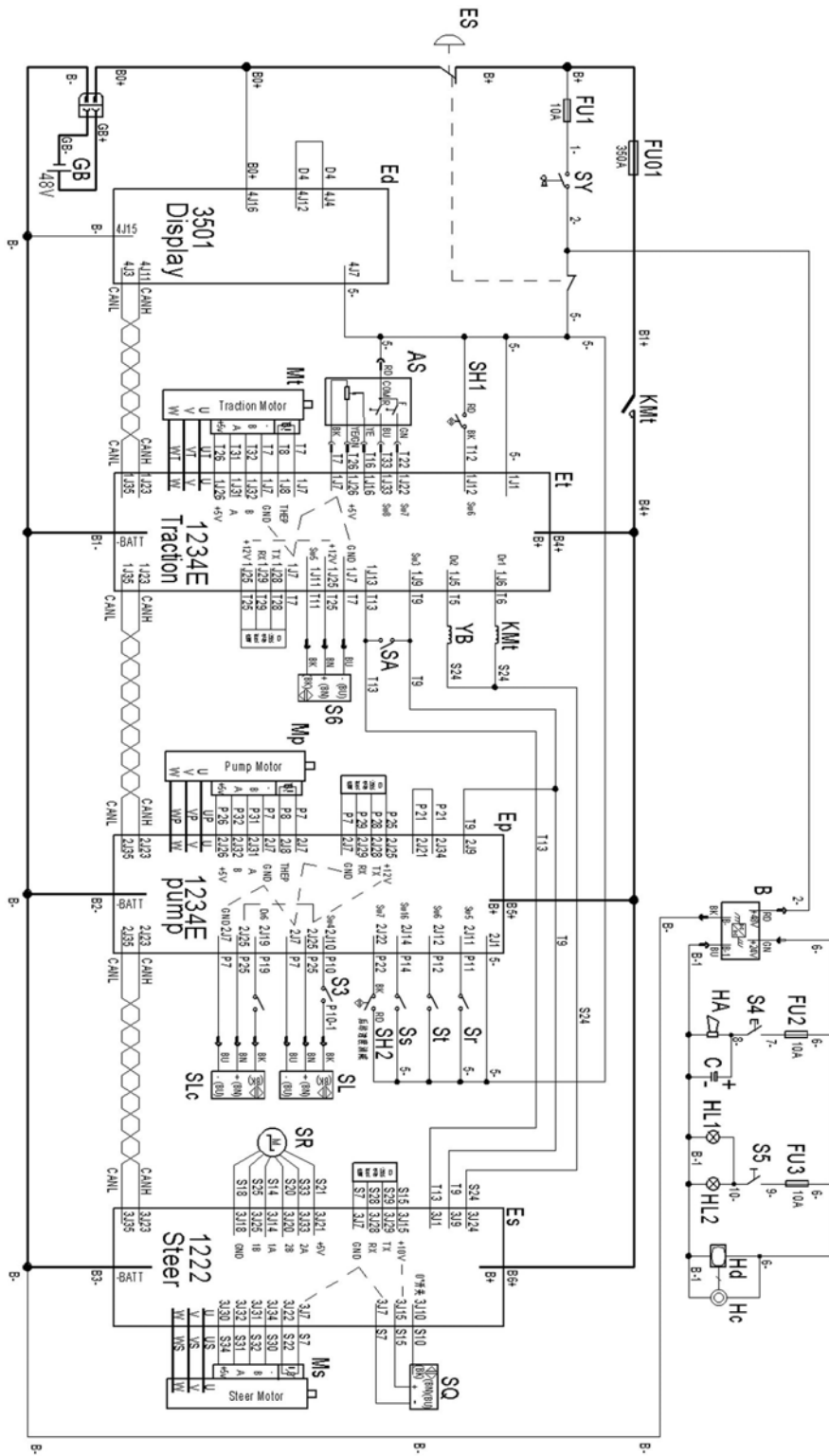


Fig. 15: Electric diagram

Table 6: Description of electrical diagram

Code	Item	Code	Item
GB	Battery	SH1、SH2	Magnetic switch
ES	DC power switch	HL1、HL2	Headlight
Mt	Traction motor	S5	Headlight switch
Mp	Pump motor	C	Capacitor
Ms	Steering motor	HA	Horn
Et	Traction controller	S4	Horn button
Ep	Pump controller	St/Sr/S3/Ss	Micro switch
Es	Steering controller	FU1~FU3	Fuse 10A
Ed	Indicator	HD	Indicator
SQ	Proximity switch	HC	Camera
SR	Steering wheel	SL	Micro switch
S6	Proximity switch	SLC	Magnetic switch
FU01	Fuse 350A	SH3	Warning light
AS	Accelerator	FU1、FU2、FU3	Fuse 10A
Kmt	Main contactor		
YB	Electromagnetic brake		
B	DC converter		
SY	Key switch		
SA	Foot pedal		

b. Hydraulic circuit

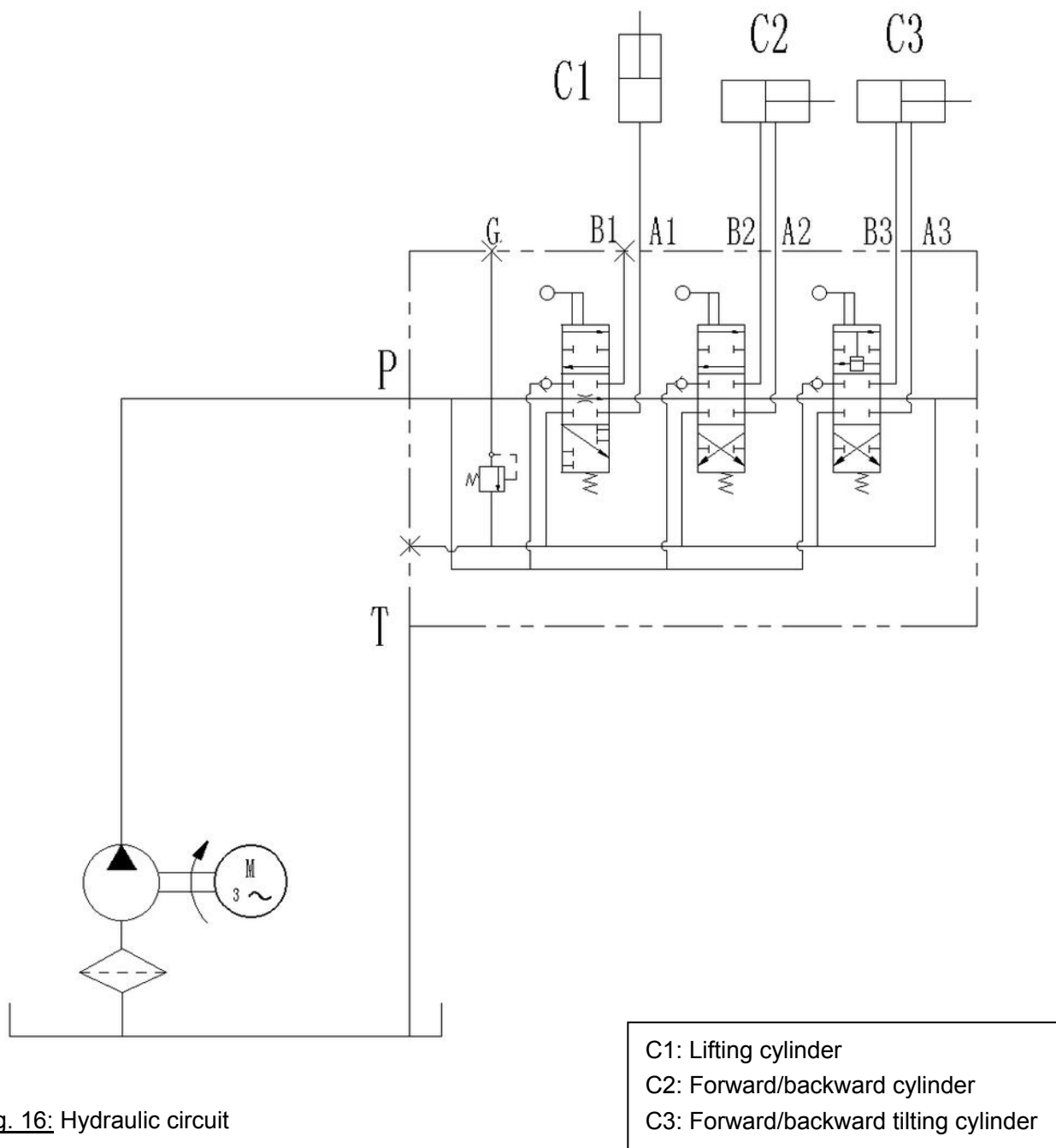


Fig. 16: Hydraulic circuit

11. SPECIALIZED STIPULATION FOR THE US-AMERICAN MARKET

[GB] CE Declaration of Conformity

The signatory hereby declares that the specified machine conforms to the EU Directive 2006/42/EC (Machine Directive) and 2004/108/EEC (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-KONFORMITÄTSEKTLÄRUNG

Der Unterzeichner bescheinigt hiermit, dass die im Einzelnen bezeichnete Maschine den Europäischen Richtlinien 2006/42/EG (Maschinenrichtlinie) und 2004/108/EG (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 2004/108/CE (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 2004/108/CEE (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 compatibiliteit (EG richtlijn 2004/108/EEC).

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 2004/108/CEE („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 2004/108/EEC (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 на 2004/108/EG (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 O SHODĚ

Níže podepsaný tímto potvrzuje, že podrobný popis uvedené stroje odpovídá Evropským směrnícím 2006/42/EC (směrnice pro stroje) a 2004/108/EEC (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 způsobilí k vytvoření technických podkladů.

[DK] EF-OVERENSSTEMMELSESEKTLÆRING

Undertegnede attesterer hermed, at det specificerede maskine stemmer overens med de Europæiske Direktiver 2006/42/EU (maskindirektiv) og 2004/108/EØF (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

Allakirjutatud tõendavad käesolevaga, et üksikasjaliselt kirjeldatud täpsustatud masin vastab Euroopa direktiividele 2006/42/EÜ (Direktiiv masinate kohta) ja 2004/108/EMÜ (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-YHDENMUKAISUUSSELOSTUS

Allekirjoittaneet todistavat täten, että kukin erikseen mainittu omalla voimalla laite on varustettu tehokkone vastaa EU-direktiivien 2006/42/EC (koneenrakennusdirektiivi) ja 2004/108/EEC (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 ΕΟΚ

Οι υπογράφωντες βεβαιώνουν διά της παρούσης ότι το συγκεκριμένο μηχάνημα συμμορφώνεται προς την Κοινοτική Οδηγία 2006/42/ΕΚ («Μηχανήματα») και 2004/108/ΕΟΚ (Ηλεκτρομαγνητικής Συμβατότητας, ΗΜΣ), καθώς και οι τροποποιήσεις τους, όπως μεταφράστηκε στην εθνική νομοθεσία των χωρών μελών. Οι υπογράφωντες 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 2004/108/EEC (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 2004/108/EEB (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 normatīvam 2006/42/EG (Mašīnu normatīvas) un 2004/108/EG (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 bekræfter hermed at de enkelte betegnede maskin med kraftdrift tilsvarer de europeiske retningslinjerne 2006/42/EC (maskinretningslinje) og 2004/108/EEC (elektromagnetisk fordraglighed - 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 2004/108/EEC (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

Subsemnatii adevăresc prin prezenta că vehiculul de specificat mașină descris individual corespunde directivelor europene 2006/42/CE (Directiva privind mașinile) și 2004/108/CEE (Compatibilitatea electromagnetică - CEM) inclusiv modificărilor lor precum și actului legislativ corespunzător pentru transpunerea directivelor în drept național. Subsemnatii 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 2004/108/EWG (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 2004/108/EEG (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 2004/108/EWG (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 2004/108/EEC (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 2004/108/EEC (Elektromanyetik Uyumluluk – EMC) no'lu Avrupa Yönergelerine ve bunların değişiklik sonucu oluşan metinlerine ve yönergelerin milli hukuk hükümlerine dönüştürülmesine dair ilgili hukuk karamamesine 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/ Τίπος/ Τίπ/ Тип/ Tips/ Tipas/ Tüüp:
- (2) Serial No./ Serien-Nr./ N°. de série/ Seriennummer/ N° de serie/ Numero di serie/ Serien/ Sarjanro/ αυξάνων αριθμός/ Serionév 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 / Väijalaskaasta / 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)/ Κατασκευαστής ή ο άκτινο ηπιθώλ αληπιζώπισλ/ Üretici ya da Bölgedeki Yetkili Temsilci/ Proizvajalec ali pooblašteni 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/ Datum/дата / Datum/ 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 / длжносно лице / z pověření / z poverenia / po nalogu / na polecenie / din sarcina / adina / θαη' εληπιή

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