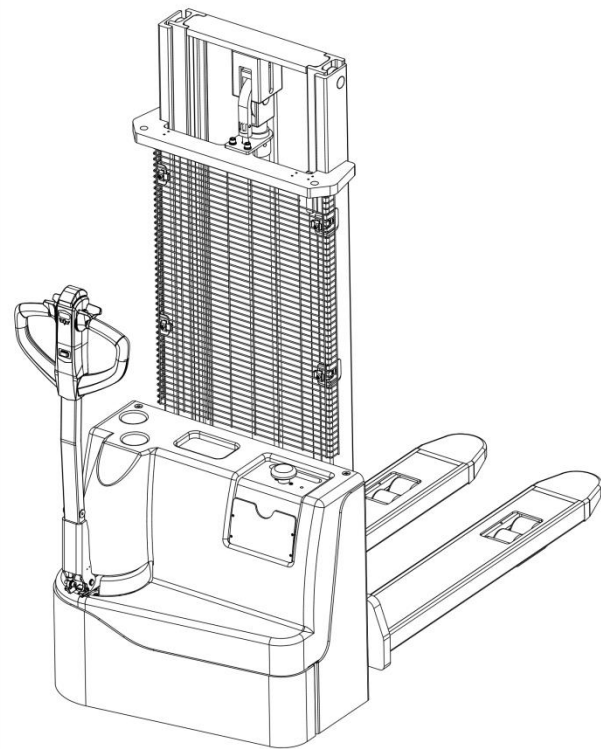


# NOBLELIFT 诺力

## INSTRUCTION MANUAL

### Electric Stacker PSE15L-C2



#### **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.

**This truck should be used in factories, tourist attractions and playgrounds only.**

Version 08/2023  
PSE15L-C2-SMS-001-EN

## **FOREWORD**

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

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

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

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

### 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 pallet truck, 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.**

### **Copyright**

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# 1.CORRECT APPLICATION

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

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

A wrong usage can cause human injuries or can damage the stacker.

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

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

Lifting or transporting people is not allowed. If so, the loads must be lowered to lifting position (<300MM).

The stacker is not allowed to be used on lifting board or loading ramps.

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

Operating lighting must be minimum 50 Lux.

## Modification

No modifications or alterations to this pallet truck which may affect, for example, capacity, stability or safety requirements of the truck, shall be made without the prior written approval of the original truck manufacturer, its authorized representative, or a successor thereof. This includes changes affecting, for example braking, steering, visibility and the addition of removable attachments. When the manufacturer or its successor approve a modification or alteration, they shall also make and approve appropriate changes to capacity plate, decals, tags and operation and maintenance handbooks. By not observing these instructions, the warranty becomes void.

## 2.DESCRPTION OF THE ELECTRIC STACKER

### a.Overview of the main parts

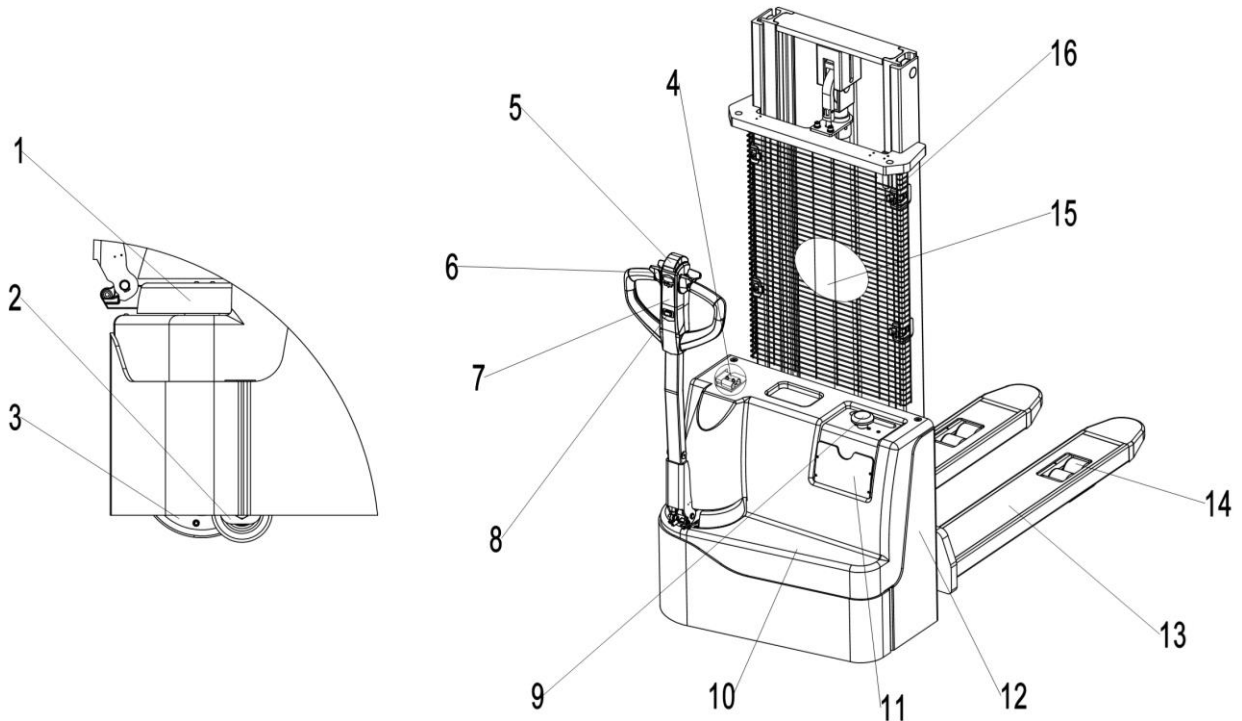


Fig. 1: Overview main parts

1	Motor cover	9	Emergency button
2	Drive wheel	10	Body protective cover
3	Steering wheel	11	Emergency stop panel cover
4	External charger interface	12	Truck body
5	Belly button	13	Fork
6	Accelerator knob (butterfly knob)	14	Load wheel
7	Multi-function tiller	15	Hydraulic system
8	Magnetic key	16	Metal mesh

## b.Main technical data

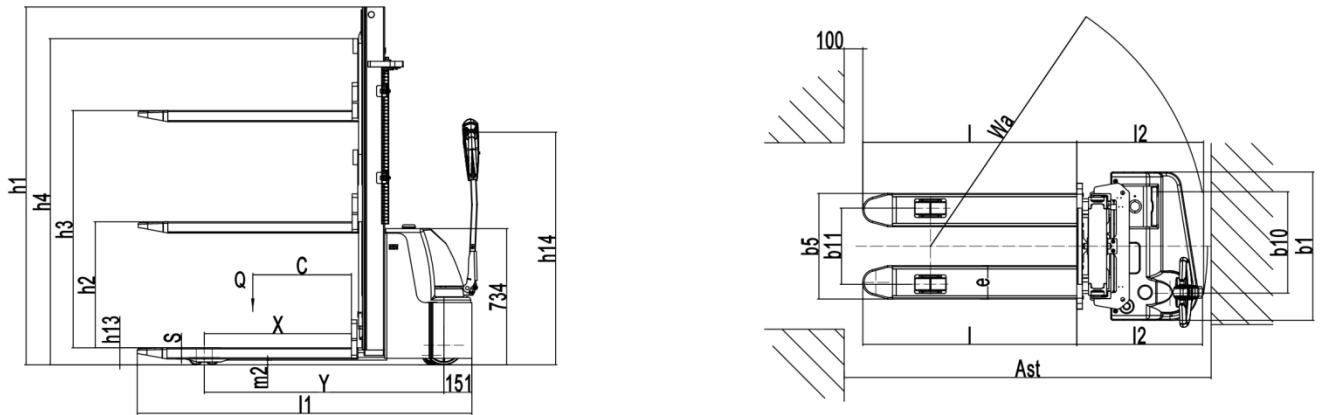


Fig. 2: Technical data

Table1: Main technical data for standard version

Type sheet for industrial truck according to VDI 2198					
Distinguishing mark	1.2	Manufacturer's type designation	PSE15L-C2		
			1600	3600	
	1.3	Drive: electric (battery type, mains...), diesel, petrol, fuel	Electric		
	1.4	Operator type (hand, pedestrian, standing, order picker)	Pedestrian		
	1.5	Rated capacity/ rated load	Q(t)	1.5	
	1.6	Load centre distance	C(mm)	600	
	1.8	Load distance, centre of drive axle to fork	X(mm)	794	
	1.9	Wheelbase	Y(mm)	1296	1296
Weight	2.1	Service weight	kg	440	560
	2.2	Axle loading, laden front/rear	kg	565/1285	615/1445
	2.3	Axle loading, unladen front/rear	kg	305/135	390/170
Tires	3.1	Tires: solid rubber, superelastic, pneumatic, polyurethane	聚胺酯轮		
	3.2	Tyre size, front	∅ x w (mm)	Φ210×70	
	3.3	Tyre size, rear	∅ x w (mm)	Φ80×70	
	3.4	Additional wheels (dimensions)	∅ x w (mm)	Φ100×50	
	3.5	Wheels, number front/ rear(x=driven wheels)		1x+1/2	
	3.6	Thread, front	b <sub>10</sub> (mm)	547.5	
	3.7	Thread, rear	b <sub>11</sub> (mm)	410/525	
Dimensions	4.2	Height, mast lowered	h <sub>1</sub> (mm)	1980	2282
	4.3	Free lift	h <sub>2</sub> (mm)	1508	78
	4.4	Lift	h <sub>3</sub> (mm)	1513	3513

	4.5	Height, mast extended	h <sub>4</sub> (mm)	1980	4039
	4.9	Height drawbar in driving position min./max.	h <sub>14</sub> mm	670/1228	
	4.15	Height, lowered	h <sub>13</sub> mm	91	
	4.19	Overall length	l <sub>1</sub> (mm)	1805	
	4.20	Length to face of forks	l <sub>2</sub> (mm)	684	
	4.21	Overall width	b <sub>1</sub> (mm)	800	
	4.22	Fork dimensions DIN ISO 2331	s/ e/ l(mm)	60/180/1150	
	4.25	Fork spread	b <sub>5</sub> (mm)	570/685	
	4.32	Ground clearance, centre of wheelbase	m <sub>2</sub> (mm)	25	
	4.33	Aisle width for pallets 1000X1200 crossways	A <sub>st</sub> (mm)	2324	
	4.34	Aisle width for pallets 800×1200 lengthways	A <sub>st</sub> (mm)	2269	
	4.35	Turing radius	W <sub>a</sub> (mm)	1481	
<b>Performance</b>	5.1	Travel speed, laden/ unladen	km/h	4.0/4.4	
	5.2	Lift speed, laden/ unladen	m/s	0.087/0.148	
	5.3	Lowering, laden/ unladen	m/s	0.125/0.117	
	5.8	Max. gradeability, laden/ unladen	%	5/10	
	5.10	Service brake		Electromagnetic	
<b>Motor</b>	6.1	Drive motor rating S2 60min	kW	0.75	
	6.2	Lift motor rating S3 7.5%	kW	2.2	
	6.3	Battery according to DIN 43531/35/36 A, B, C, no		no	
	6.4	Battery voltage/ nominal capacity K5	V/Ah	2x12/75	
	6.5	Battery weight	kg	2x20	
	6.6	Energy consumption according to DIN EN 16796	kWh/h	0.6	
<b>Other</b>	8.1	Type of drive unit		AC	
	8.4	Sound pressure at the driver's seat according to DIN EN 12053	db(A)	<70	

Specification		Height, mast lowered h <sub>1</sub> (mm)	Height, free lift h <sub>2</sub> (mm)	Lift height h <sub>3</sub> (mm)	Maximum height, mast extended h <sub>4</sub> (mm)	Maximum lift Height h <sub>3</sub> +h <sub>13</sub> (mm)
<b>Mono-mast</b>	<b>1600</b>	1980	1508	1513	1985	1600
	<b>2000</b>	2380	1908	1913	2385	2000
<b>Two stage mast</b>	<b>2600</b>	1782	78	2513	3039	2600
	<b>2900</b>	1932	78	2813	3339	2900
	<b>3200</b>	2082	78	3113	3639	3200
	<b>3600</b>	2282	78	3513	4039	3600

### c. Description of safety devices and warning labels (Europe and others, except USA)

- A Decal (crane hook)
- B Warning decal (do not stand under or on the forks)
- C Label (load curve)
- D Decal (read and follow these instructions)
- E Decal (no passenger)
- F Label (ID plate)
- G Label (oil filling)

The truck equips with an emergency button (9) which stops all lifting-, lowering-, driving- functions and engages the fail-safe electromagnetic brake when it is pressed. After checking the functions of the controller, by pulling this button out the stacker can be operated.

Before operating the stacker, insert the Magnetic key switch (8). To prevent against unauthorized access, turn the key counterclockwise and pull it out. The stacker equips with a safety (belly) button (5) which switches the driving function away from the operator if the stacker travels towards the operator and the tiller is activated in operation zone. Follow the instructions indicated on the labels and decals, if they are damaged or missed, replace them with new one in time.

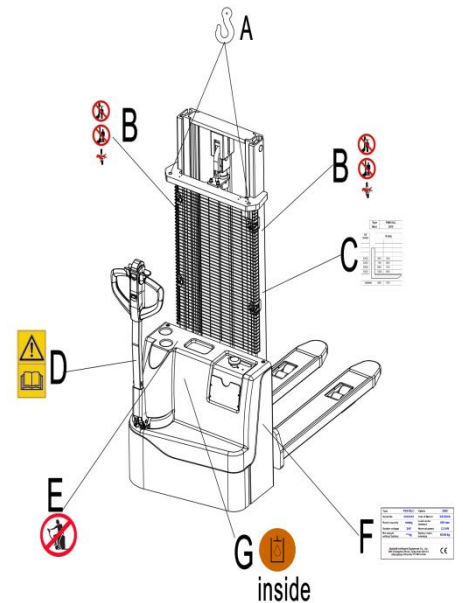


Fig.3: Safety devices and warning labels

### d. Frame number position

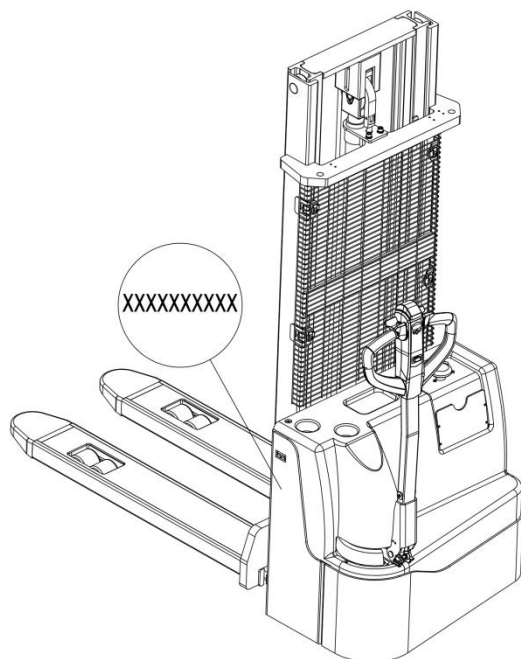


Fig.4: Frame number position

The frame number is located on the vehicle body.



## e. Identification plate

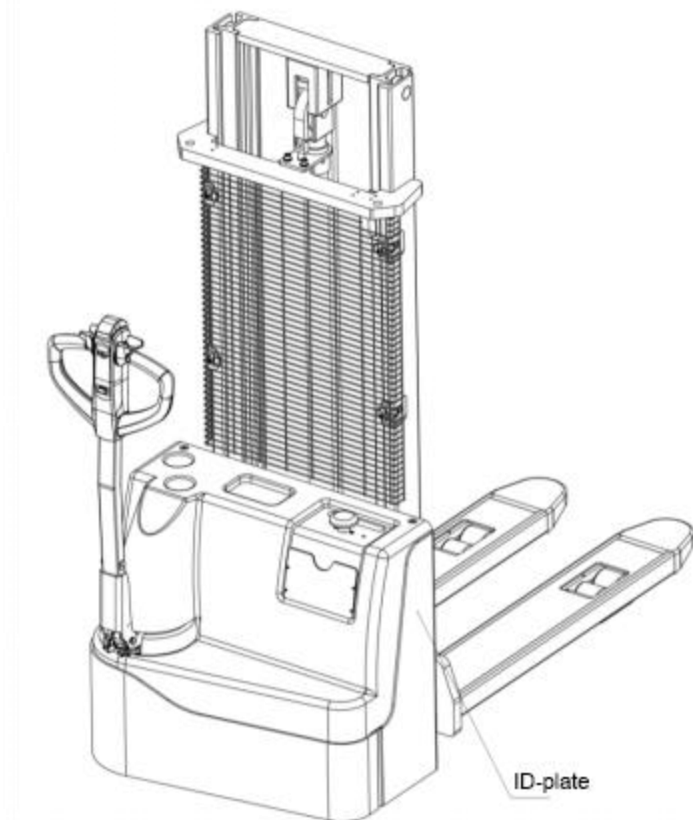


Fig.5: ID-plate location

The Identification plate is located on the left or right side of the vehicle body.

Electric Stacker			
Special Equipment Manufacturing License No.			
Type	xxxx	Rated capacity	xxxx kg
Rated voltage	xx V	Service weight	xxxx kg
Battery weight, maximum	xxx kg	Battery weight, minimum	xxx kg
Weight, without load and battery	xxx kg	Lift height, maximum	xxxx mm
Serial number	xxxxxxxxxx	Manufacturing date	xxxxxxxx
车架号	xxxxxxxxxx	Factory item number	xxxxxxxx
Equipment code			
Name of manufacturer XXXXXXXXXXXXXXXX			
Address of manufacturer XXXXXXXXXXXXXXXX			

Fig. 6: Identification plate(Subject to specific posting)

### 3. WARNINGS, RESIDUAL RISK AND SAFETY INSTRUCTIONS



#### **DO NOT**

- Lift the load higher than the lift point when operating the stacker outdoors.
- Put feet or hands under or inside the lifting mechanical structure.
- Allow other person than the operator to stand in front of or behind the stacker when it is moving or lifting/ lowering.
- Overload the stacker.
- Put feet in front of the wheels, otherwise you may get injured.
- Lift people. People could fall down and suffer severe injury.
- Push or pull the loads.
- Operate the stacker on ramps.
- Use a truck without a protective mesh (Fig 1, item 15-protective mesh).
- Load the goods on sides or tines. Load must be distributed evenly on the forks.
- Load the stacker with unstable or unbalanced goods.
- Operate truck without manufacturer's written consent.
- Supply the truck with AC voltage other than 110V or 220V required by the charger

Watch difference in floor levels when driving. Load could fall down or the truck could lose control. Keep watching the condition of load. Stop operating the truck if load becomes unstable. Brake the truck and activate the emergency button (9) by pushing when sliding load on or off the truck. If the truck has any malfunctions, follow chapter 6.

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

- When operating the electric pallet stacker, the operator has to wear safety shoes.
- The truck should be used indoors with ambient temperatures between +5°C and + 40°C.
- The minimum operating lighting must be more than 50 Lux.
- Use the truck on ramps.
- To prevent unintended sudden movements when not operating the truck(i.e.from another person, etc.), turn off the power for non operation.



## 4.COMMISSIONING, TRANSPORTING, DECOMMISSIONING

### a.Commissioning

Table 2: Commissioning data

Type	PSE15L-C/1600	PSE15L-C/3600
Commissioning weight [kg]	365	575
Dimensions [mm]	1600	3600

After receiving our new pallet stacker or for re-commissioning you have

to do following before (firstly) operating the truck:

- Check if are all parts included and not damaged
- Check the package and charging of the battery (follow chapter 7)
- Operate the truck according to the daily inspections as well as the functional checks.

### b.Hoisting/ transportation

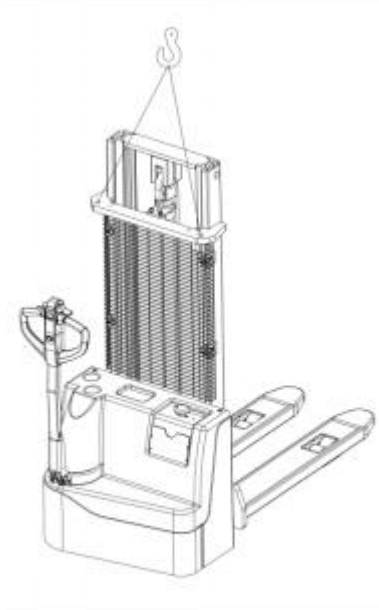


Fig.7 : Transportation by crane lift

For transporting, remove the load, lower the forks to the lowest position and fasten the truck safely with dedicated crane or hoisting equipment according to Fig 7.

## Hoisting

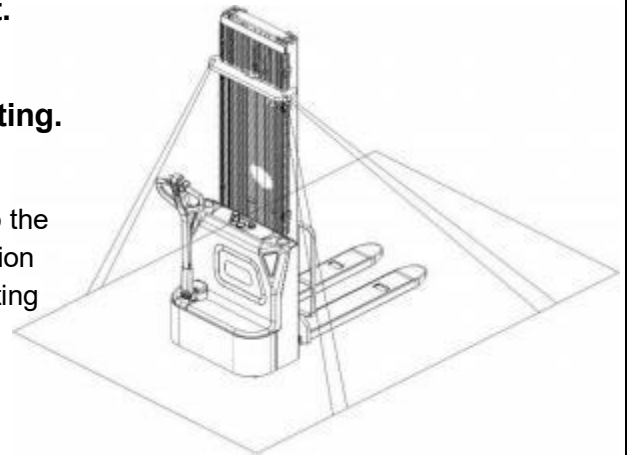


**Use dedicated crane and hoisting equipment.**

**Do not stand under the swaying load.**

**Do not walk into hazardous area during hoisting.**

Park the truck securely and lash the truck according to the points identified in Fig. 6. Hoist the truck to its destination and place the truck securely before removing the hoisting equipment.



**Fig. 8:** Fixing points

## 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. 8 by fixing dedicated lashing belts to chassis, Fork carriage and mast, and fasten the other side at the transporting truck.**

## c.Storage / Decommissioning

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

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

## 5.DAILY INSPECTION

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

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

Remove load from truck and lower the forks.



**REMOVE LOAD FROM TRUCK AND LOWER THE FORKS.**

**DO NOT USE THE TRUCK IF ANY MALFUNCTION IS FOUND.**

- Check for scratches, deformation or cracks.
- Check if there is any oil leakage from the cylinder.
- Check the smooth movement of the wheels.
- Check the function of driving in both directions .
- Check the functions of braking by activation of tiller arm sensor, reversing of driving buttons, release of driving buttons and of the safety (belly) button .
- Check the function of the emergency brake by activating the emergency button.
- Check the lifting and lowering functions by operating the buttons.
- Check the function of steering by turning the tiller from one end position to the other one. The steering should be smooth, without jerks or abnormal sound.
- Check if all bolts and nuts are tightened firmly.
- Visual check if there are any broken electric wires.
- If supplied with a backrest extension, check it for damages and correct assembling.
- Check the presence of warning stickers and signs.

## 6.OPERATION INSTRUCTIONS



BEFORE OPERATING THIS TRUCK, PLEASE FOLLOW THE WARNINGS AND SAFETY INSTRUCTIONS (CHAPTER 2).

BEFORE OPERATING THIS TRUCK, ENSURE THAT THE LOAD OR OTHER EQUIPMENT NOT CAUSES INSUFFICIENT VISIBILITY!

Ensure that the goods are placed horizontally and stably, and conduct daily inspections. At the beginning, insert the magnetic key. Magnetic keys can only be used on walking controlled electric stackers. Before finally placing the magnetic key,

the emergency stop button must be carefully pulled out. Press horn button 21 (Figure 9) to activate the horn.

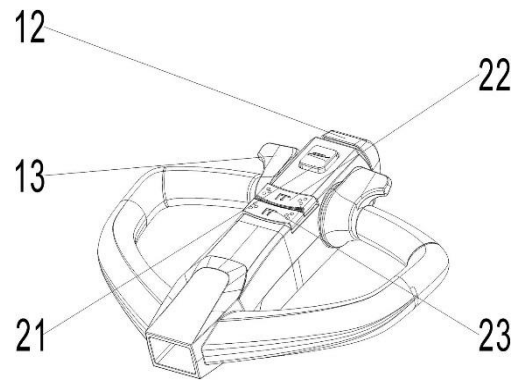


Fig.9: Tiller operating controls

### a.Parking



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



Fig.10 magnetic key switch

The truck is equipped with an electromagnetic failsafe stopping and parking brake. Always lower the forks completely and drive the vehicle to a safe area. Remove the magnetic 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 3600 mm, the max. Capacity  $Q$  is 800 kg.

### c.Lifting



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

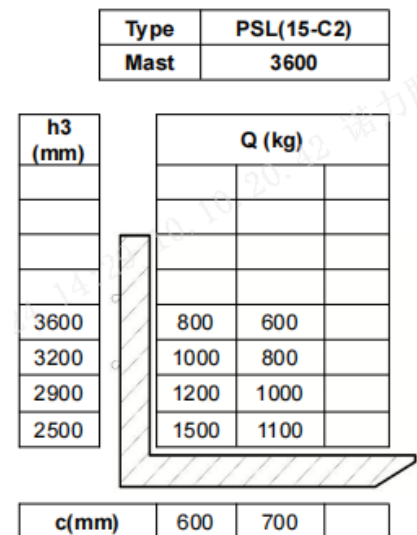


Fig.11: Residual lift diagram

Travel with the lowered forks fully underneath the pallet and press the lifting button (Fig. 9, 22) 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.

Press the lowering button (Fig. 9, 23) carefully.

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

## e. Driving



**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).**

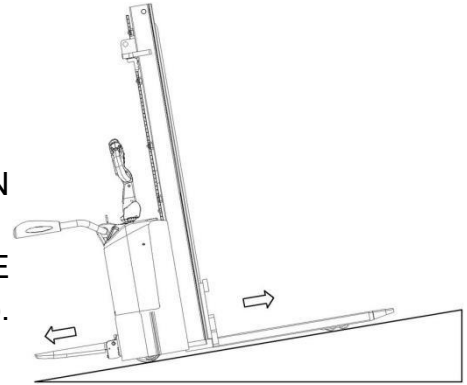


Fig.12: load facing uphill

Carefully pull out the emergency button and start the truck by activation

Then move the tiller to the operating zone ('F', Fig.13).

Turn the accelerator knob to the desired direction forward 'Fw.' Or backwards 'Bw.'(Fig. 12).

Control the travelling speed by moving accelerator knob (13, Fig 9) carefully until you reached desired speed.

If you move the accelerator knob back to the neutral position, the controller decelerates the truck until the truck stops. If the truck stops, the parking brake will be engaged.

Carefully drive the truck to the destination. Watch the route conditions and adjust the travelling speed via the accelerator knob.

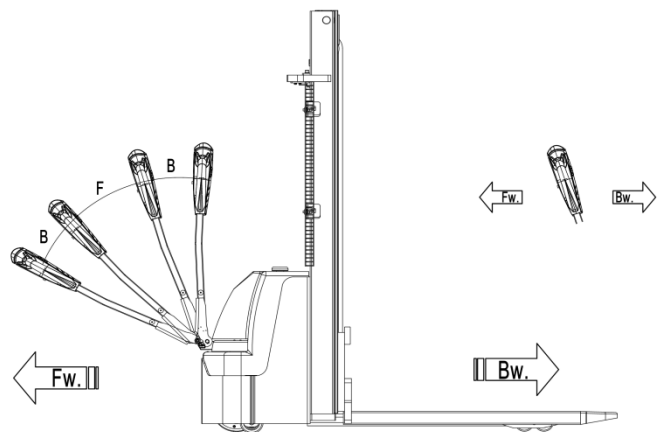


Fig.13 steering operation

## f. Steering

Steer the truck by moving the tiller to left or right side.

## g. Braking



**PLEASE CHECK THE BRAKING DISTANCE WITH TRUCK BEFORE OPERATION**

---

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

The braking function can be activated on several ways:

- By moving the accelerator button (Fig.9, 13) back to the initial '0' position or by releasing the button, the regenerative braking is activated. The truck brakes until it stops.
- By moving the accelerator button (Fig.9, 13) from one driving direction directly to the opposite direction, the truck brakes regenerative until it starts traveling into the opposite direction.
- The truck brakes, if the tiller is moved up or down to the braking zones ('B'). If the tiller is released, the tiller moves automatically up to the upper baking zone ('B').The truck brakes until it stops.
- The safety (belly) button (Fig.9, 12) prevents the operator from being crushed. If this button is activated, the truck decelerates and/ or starts traveling into the backwards direction ('Bw.') for a short distance and stops. Please consider, that this button also operates, if the truck is not traveling and the tiller is in the operating zone.

### **h.Malfunctions**

If there are any malfunctions or the truck cannot be operated, please stop using the truck and activate the emergency button (Fig 1,9) by pressing it. If possible, park the truck in a safe area. Remove the magnetic key 8 (Figure 1)

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 emergency situations or when there is a risk of vehicle overturning, please maintain a safe distance. If possible push the emergency button (Fig 10). All electrical functions will be stopped.

## **7.BATTERY CHARGING AND REPLACEMENT**



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

For lead-acid models, this vehicle is equipped with the following sealed acid batteries:

- 2 × 12V/ 75Ah



IT IS ONLY ALLOWED TO USE LEAD ACID BATTERY FOR ECL15B. IT IS ONLY ALLOWED TO USE LITHIUM BATTERY FOR ECL15N.

PLEASE CONSIDER THE MAXIMUM OPERATING TEMPERATURE OF THE BATTERIES

### a.Replacement

Park the truck safely, turn off the stacker with the Magnetic key (Fig1, 8) and press the emergency button (Fig1, 9). Unscrew the 2 screws on the

main cover and remove the main cover. Remove the screws on the negative anode from the two batteries (indicated as '-'), then remove the screws on the positive anode (indicated as '+'), put the wire harness aside, loosen the battery cover and remove it. Observe when removing the battery and do not touch the upper electrical indicator display or the oil tank on the side. Remove

the second battery of the lower position (only for lead-acid truck) in the same way; Assembling way is in reverse way.

Please

connect the positive anode of the battery first. Otherwise, the truck will be damaged.

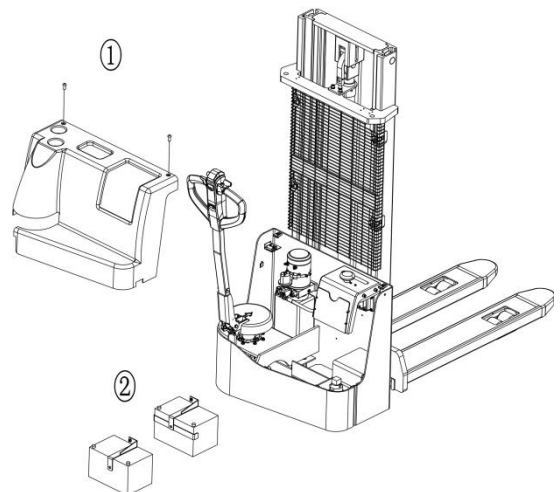
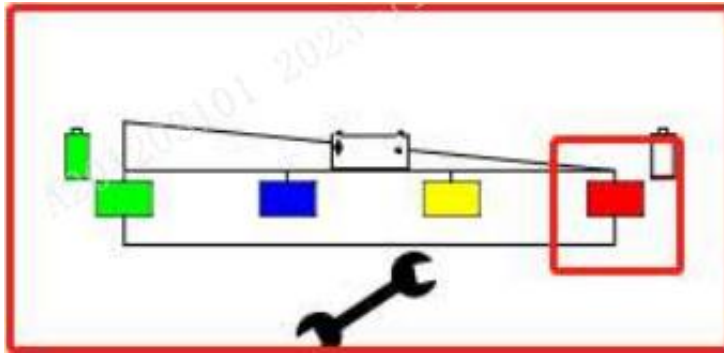


Fig. 14: Battery replacement

## b. Battery Indicator



The battery level display is divided into four compartments, each representing 25% of the battery level. The last 15% red light will flash, and at this point, the speed limit mode will enter. The output throttle of the handle is 50% of the full throttle, indicating the need for charging.

## c. Charging

- This vehicle has a built-in charger and does not allow charging with other chargers.
- Before using the charger, please fully understand the contents of the charger instruction manual.
- The charging space must be well ventilated.
- The exact charging situation can only be viewed on the discharge monitor. To control the charging situation, you must interrupt charging and start the vehicle.

Park the vehicle in a specialized secure area provided with a dedicated power supply. Lower the forks and remove the cargo. Turn off the power to the vehicle, and insert the plug into the specified power outlet. The charger starts charging the battery.

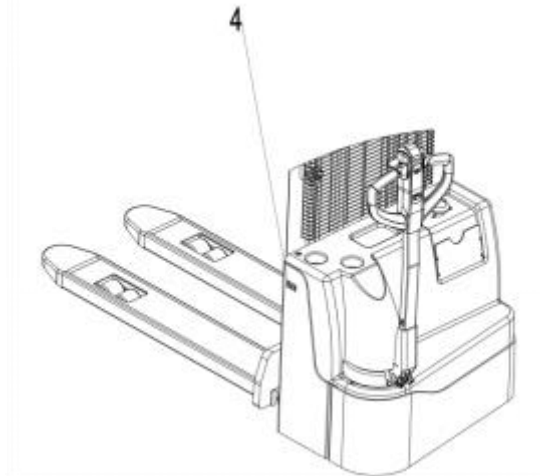


Fig. 15: Battery charging

## 8. REGULAR MAINTENANCE



- Only qualified and trained personnel are allowed to do maintenance on this truck.
- Before maintaining, remove the load from the forks and lower the forks to the lowest position.
- If you need to lift the order picker, please use the specific binding equipment or lifting equipment mentioned in Chapter 4. Before lifting the order picker, please put the safety device (for instance designated jack, wedge, or wooden blocks) under the order picker to avoid accidental fall, movement or sliding.
- Please pay attention by maintain the tiller arm. The gas pressure springs are assembled by

compression. Carelessness causes injury.

- Use approved and from your dealer released original spare parts.
- Please consider that oil leakage of hydraulic fluid can cause failures and accidents.
- If you need to replace the wheel, please follow the instructions above. Casters must be round and free from abnormal wear.
- Check the key items emphasized in the maintenance checklist.

## a.Maintenance checklist

Table 4: Maintenance checklist		Interval (month)			
		1	3	6	12
	Hydraulic unit				
1	Check the hydraulic cylinder, piston for damage noise and leakage		•		
2	Check the hydraulic joints and hose for damage and leakage		•		
3	Check 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 (1000 kg +0/ +10%)				•
	Mechanical system				
6	Check 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 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	Check and lubricate the pivot points		•		
14	Lubricate the grease nipples	•			
15	Replace the damaged protections and/or protection board	•			
	Electric system				
16	Inspect the electric wiring for damage		•		
17	Check the electric connectors 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 brake disc or adjust 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 fail-safe protection during charging			•	
Function					
33	Check the horn function	•			
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 buttons on the tiller	•			
41	Check whether the magnetic key switch is damaged and check the function	•			
42	Check the speed limit sensor (lift height >~300mm)	•			
General					
43	Check if all decals are legible and complete	•			
44	Check and ensure that the protection board and/or protections are not damaged	•			
45	Check the casters, adjust the height or replace the worn wheel		•		
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 Steering bearing
- 5 Gear box
- 6 Steering roller bearing

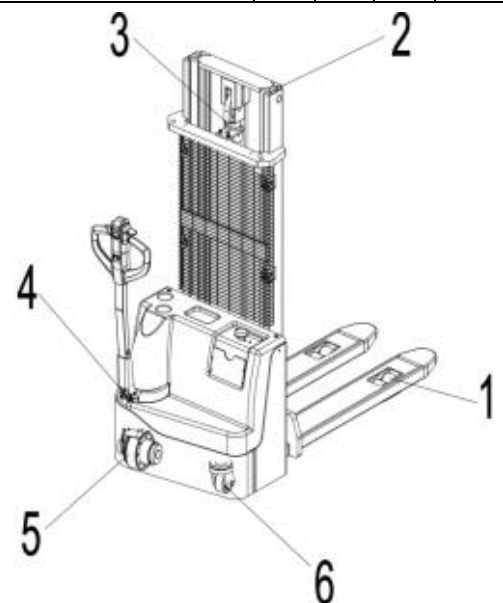


Fig.16. Lubricating points

### c. Check and refill hydraulic oil

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

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

If necessary add oil at the filling point.

### d. Checking electrical fuses

Remove the main cover. The fuse is located in the position shown in Fig. 16. Check Table 5 for the specifications.

Table 5: Specifications of the fuses

	Specification
FU 01	10A
FU 1	200A

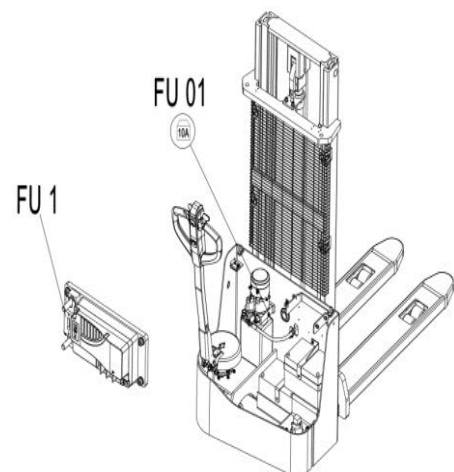


Fig. 17: Location of fuses

## e.Removing, reattaching guarding



**DO NOT USE THIS TRUCK IF THE PROTECTIVE MESH IS DAMAGED OR NOT ASSEMBLED CORRECTLY!**

If you want to remove the protective mesh, remove the fixed screws and carefully remove the protective mesh. The screws are still on the truck. When you reassemble the protective mesh, place the mesh and fix each screw correctly. If you need to replace spare parts, please contact after-sales service.

## 9.TROUBLE SHOOTING



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

Table 6: 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
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
Only travelling in one direction	The fuse is faulty	Check and eventually replace fuses
	Battery discharged	Charge the battery
	Tiller in the operating zone	Move the tiller firstly to the braking zone.
	The accelerator and the connections are damaged.	Check the accelerator and the connections.
	Excessive quantity of oil.	Check the battery status at the discharge indicator
	Battery is charging	Check the electromagnetic brake
The stacker only travels very slowly	Battery not connected	Check the tiller cables and connections.
The stacker starts up	The battery is discharged.	Replace the controller.

suddenly	The electromagnetic brake is engaged.	Repair or replace the accelerator.
	The relating tiller cables are disconnected or damaged	Lift only the max. capacity, mentioned on the ID-plate
Load can't be lifted	The controller is damaged.	Charge the battery
	The accelerator not moves back to its neutral position.	Check and eventually replace the lifting fuse

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

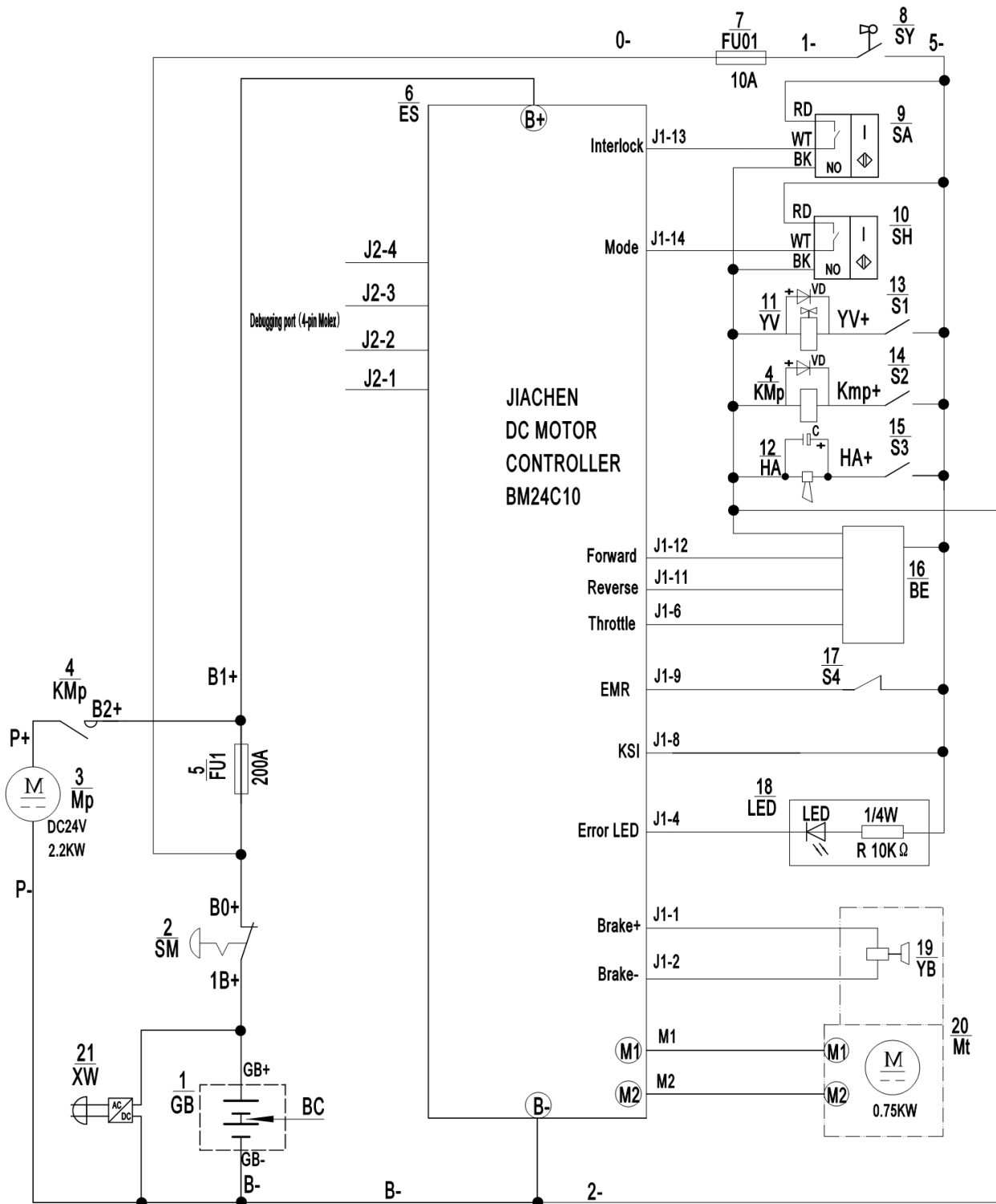


Fig. 18: Electrical diagram



Table 7: Description of electrical components

Code	Item	Code	Item
GB	24V lead-acid battery	S3	Horn button
SM	Emergency switch	BE	accelerator
Mp	Pump motor	S4	Belly button
KMp	Pump contactor	LED	LED fault light
ES	Traction controller	YB	Brake
FU1	200A fuse	Mt	Traction motor
FU01	10A fuse	WX	charger
SY	key switch	HA	Horn
SA	Interlocking proximity switch	S1	Descent button
SH	Speed limit proximity switch	S2	Up button
YV	Lowering solenoid valve		

## b. Hydraulic circuit diagram

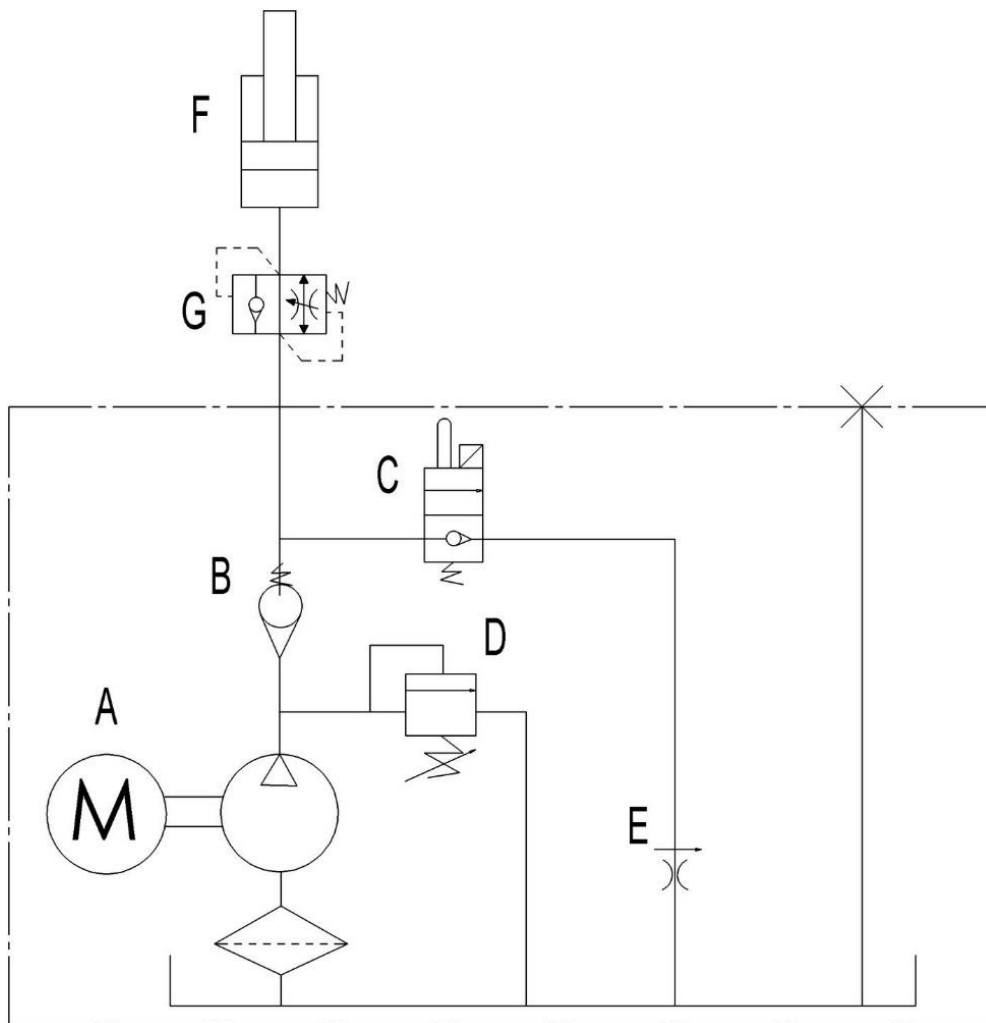


Fig. 19: Hydraulic circuit diagram

Table 9: Description of hydraulic components

Code	Item	Code	Item
A	Hydraulic power unit (motor and pump)	E	Throttle valve
B	One-way valve	F	Cylinder
C	Electromagnetic valve	G	Safety valve
D	Relief valve		

**c.Schematic diagram of braking system**