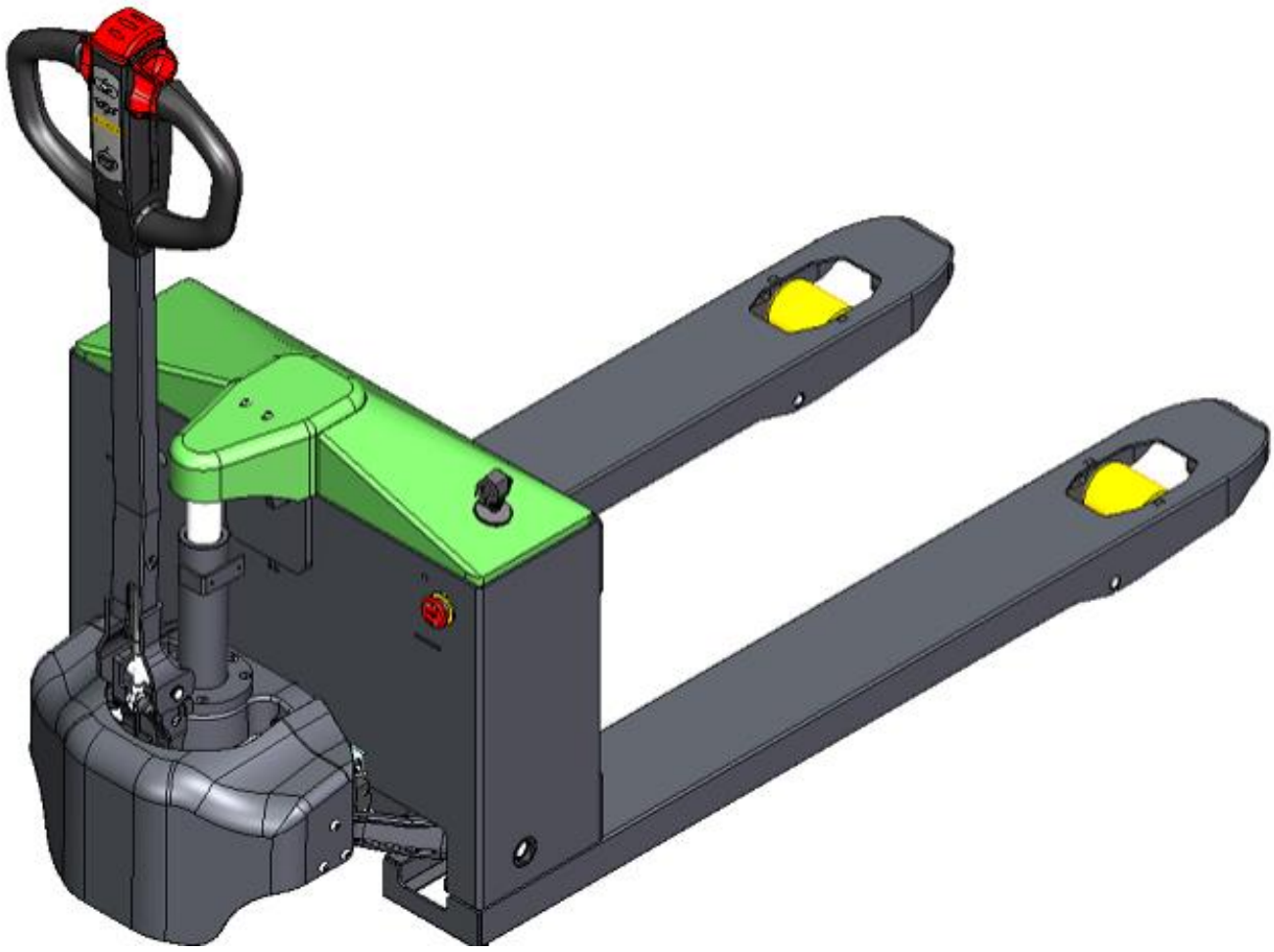
EKKO®
MATERIAL HANDLING EQUIPMENT
MOVING AHEAD

Operations & Maintenance Manual

Lithium Pallet Jack

EP15JLIC, EP18JLIC & EP20JLIC



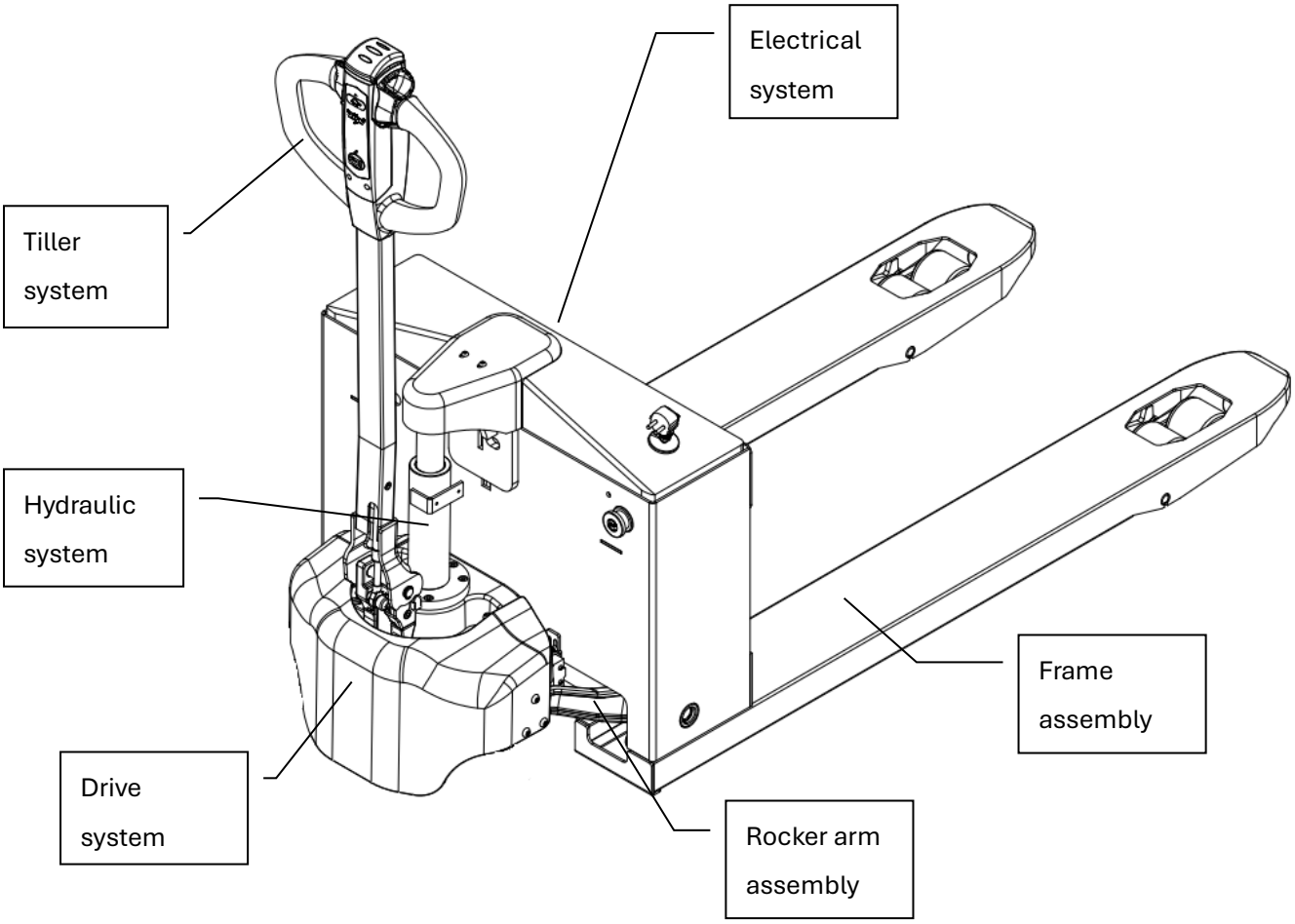
Warning

Before using this Pallet Jack, first pay attention to the following matters: :

- **Please read this manual carefully and operate the vehicle safely.**
- **Do not operate this vehicle without training.**
- **Please comply with ISO3691 "Safety Specification for Motor Vehicles Industry".**
- **Please do not modify or modify parameters or adjust pressure without authorization. Damage to the vehicle will be your responsibility and you will lose our warranty.**
- **Overload is prohibited. The load weight and load center shall comply with the requirements of the parameter table in this manual.**
- **When the vehicle is used for stacking, the center of gravity of the goods must be within two cargo forks. Stacking loose goods is strictly prohibited.**
- **No standing is allowed on the forks.**
- **After operations are completed, the power should be turned off.**

Special reminder: The company adheres to the strategy of innovation and sustainable development; therefore, it can improve the technology of its products. Therefore, we reserve the right to make changes and improvements to any product described in this specification without prior notice.

1、Main parts overview



2、Main technical parameters

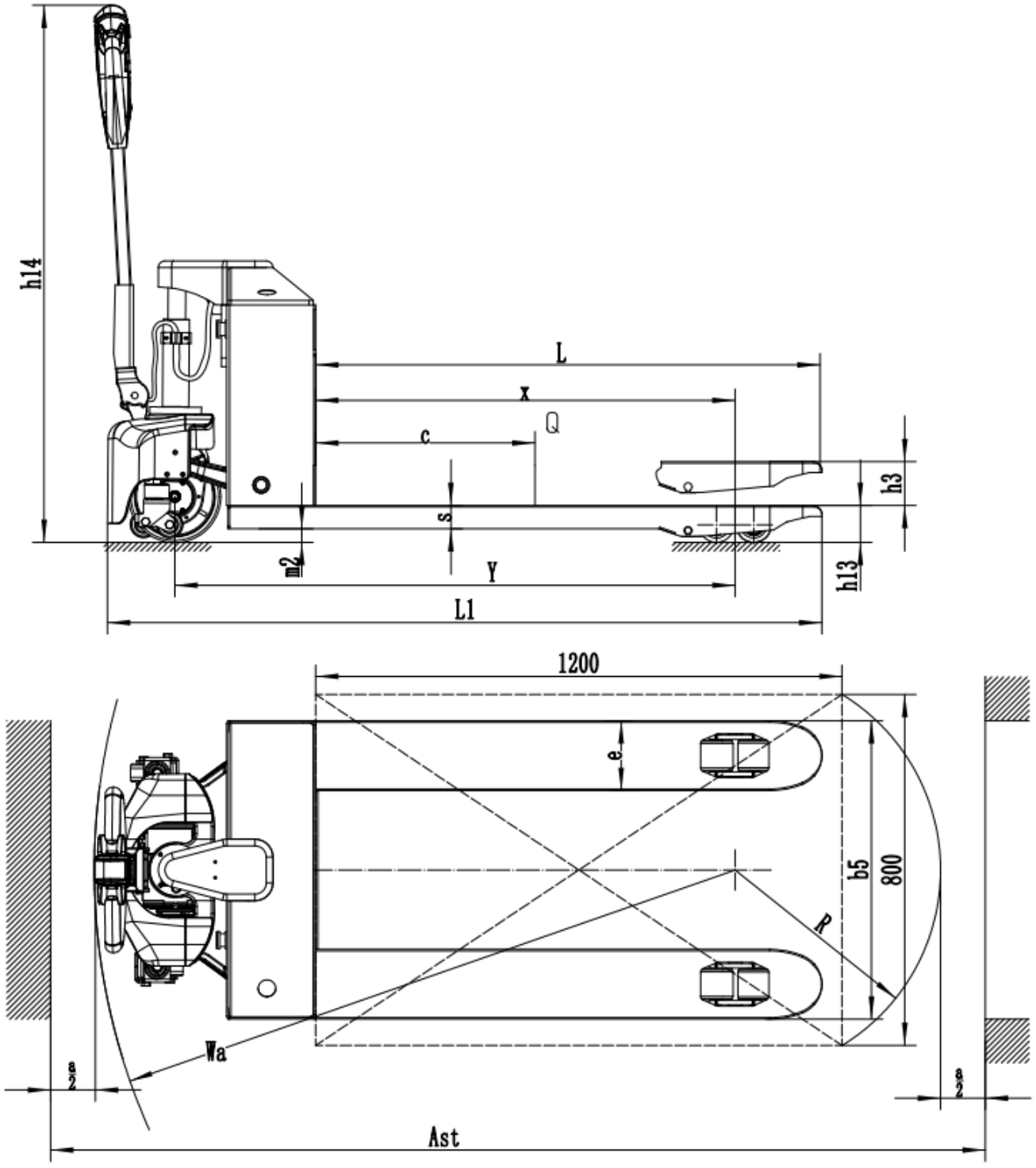


Figure 1-1

Features	**Model number**		EP15-18-20JLIC
	Rated load	Q(lbs.)	3,300 - 4,000 - 4,4000
	Load center distance	in.	24
Weight	**Service weight with battery**	lbs.	463
Wheel	**Front wheel**	in.	Φ8.26 × 2.95
	Rear-wheel	in.	Φ2.91 × 3.66
	Wheel layout		Three supports
Dimensions	**High height**	h3（in）	7.48
	Lowered height	h13（in）	2.9
	Total length	l1（in）	64
	Body width	b1（in）	26.7
	Fork size	s/e/l（in）	2.2 / 6.2 / 45.2
	Outside width of forks	b5（in）	26.77
	Turning radius	Wa（in）	57.48
	Highest/lowest dimensions of joystick	h14（in）	48.18
Property	**Travel speed, full/empty**	mph	2.6 / 2.8
	Climbing ability, full load/no load	%	6 / 10
Electric machine	**Drive motor power**	kw	0.75
	Boost motor power	kw	0.8
	Battery voltage/rated capacity	V/Ah	24/40

3、Use and usage environment

The electric pallet truck uses lithium batteries as the power source and cooperates with the DC drive system to implement electric driving and electric lifting. It has the features of labor saving, light weight, high efficiency, stability, simple operation, safety and reliability, low noise, and no pollution.

Use environment:

a. Electric vehicles are suitable for use on hard and flat surfaces indoors but are not suitable for use on slopes and uneven surfaces. The ground should be free of pits and gravel that would interfere with wheel rolling.

b. The altitude does not exceed 3,930 feet.

c. Ambient air temperature shall not exceed +140°F, not lower than -77°F.

d. When the ambient temperature is +140°F, the relative humidity is not more than 50%, and at lower temperatures, a larger relative humidity is allowed.

e. It is prohibited to use the pallet jack in flammable and explosive, or acid and alkali corrosive environment.

4. Instructions for use

Correct use and operation of the vehicle will bring great convenience to your work. Improper operation and use of the vehicle will damage the vehicle or bring danger to your personal safety and cargo.

Before use, please check whether the vehicle is normal: whether the hydraulic pipeline is leaking oil, whether each set of wheels is intact and normal, and whether there is any jamming. The use of defective vehicles is prohibited.

4.1. Instrument desk

There is a power switch on the instrument bench, which is the basic control of the vehicle, as shown in Figure 2-1.

4.1.1 Power switch: When lightly pressing the power-off button, turn the power-off button clockwise about 5 to 10 degrees, and the button will automatically move upward, which turns on the vehicle's main power supply. Press the off button again and the power is cut off.

4.1.2 Magnetic switch: magnetic key can operate the vehicle.

4.1.3 Only after the power switch and electric door lock are turned on, the electricity meter will display the battery status, which is displayed by the four-color indicator light.

A. If the indicator of the meter is green, the power supply is sufficient.

B. The indicator of the meter is blue, indicating that the power supply is sufficient for normal use.

C. Meter indicator light shows yellow, indicating that there is still a small amount of power, please pay attention to charging.

D. Meter indicator light shows red, indicating insufficient power supply, please charge immediately!

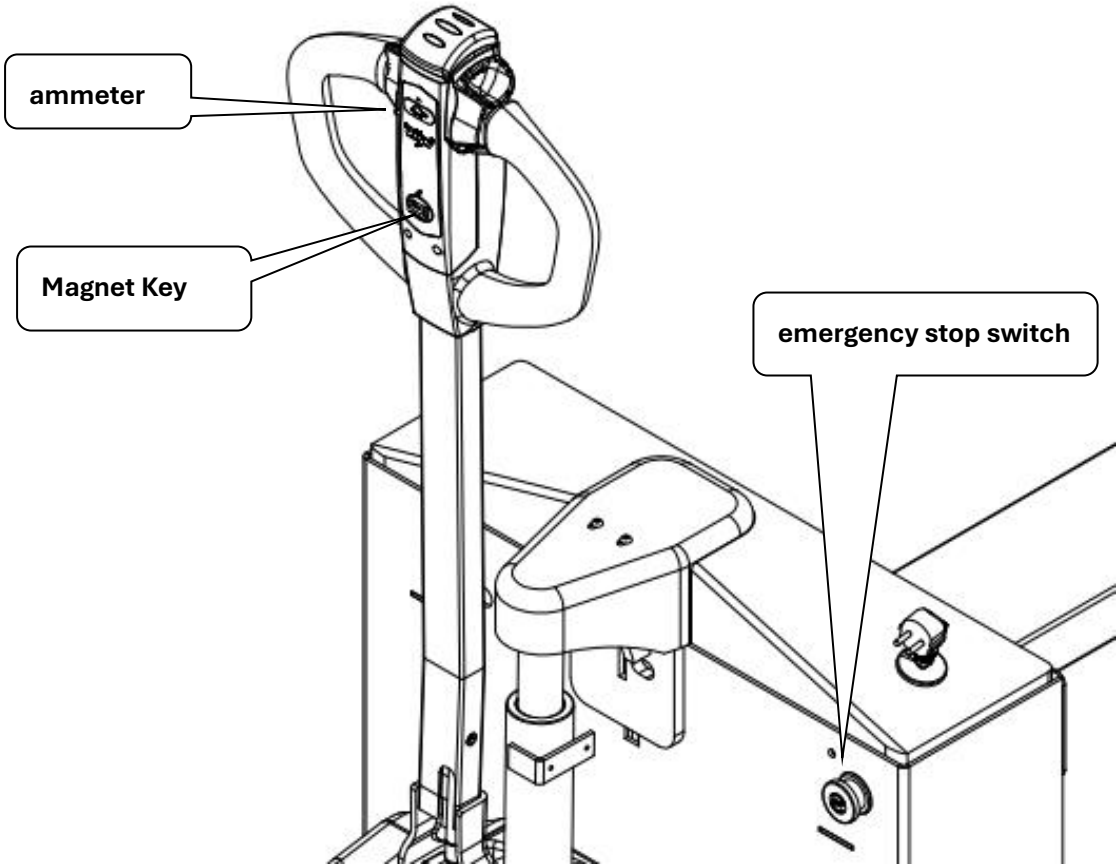


Figure2-1

4.2. Forward driving and reverse driving

The flower-shaped turning knob located above and left of the rudder handle is used for running speed control. It can be operated with the left-hand thumb or the right-hand finger in a single action or at the same time, as shown in Figure 2-2.

a Push the speed button forward, the vehicle to move forward, the speed is proportional to the Angle, release the finger, the speed button will return to 0 position, the vehicle will gently stop.

b Push the speed button down and back, the vehicle moves backward, the speed is proportional to the Angle; after releasing the finger, the speed button will return to 0 position by itself, and the vehicle will stop gently.

4.3 Emergency Reverse Switch

The red button at the top of the rudder handle is an emergency reverse switch, as shown in Figure 2-2.

When this switch is touched, the vehicle will reverse course.

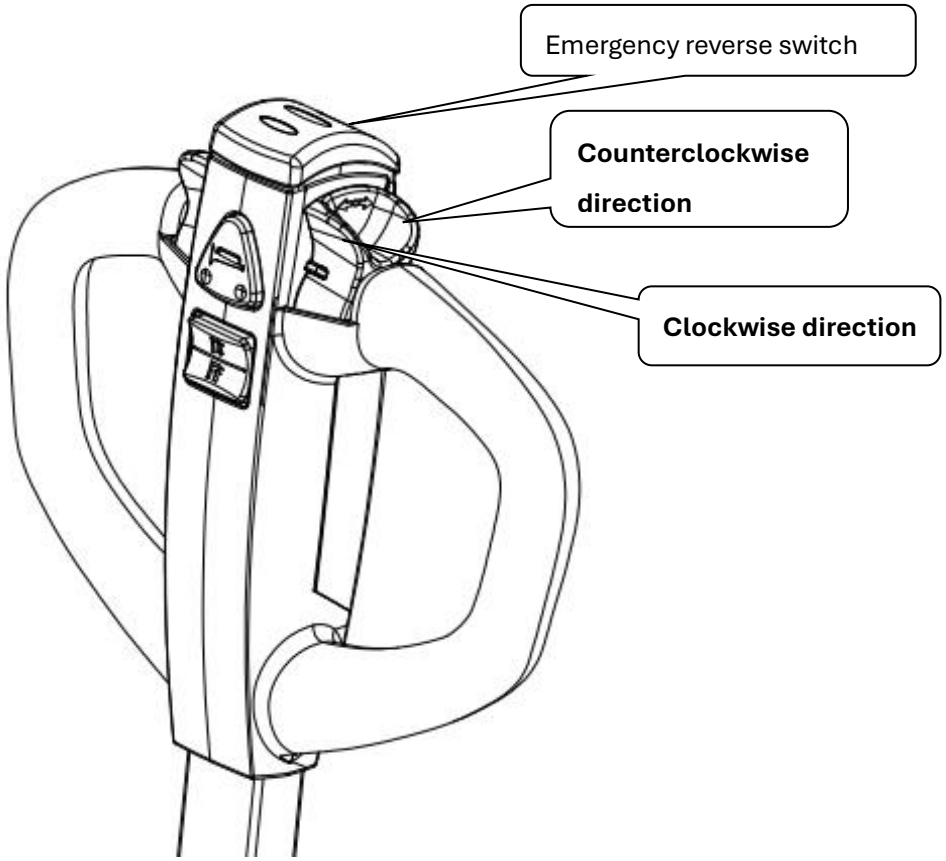


Figure 2-2

4.4 Lift and drop switches and horn buttons, as shown in Figure 2-3

The lift button is located on the right side above the rudder handle. Press this switch to make the fork move upward.

The drop button is located on the left side above the rudder handle. Press this switch to make the fork

drop.

The horn button is located in the middle above the rudder handle. Press this switch to sound the horn.

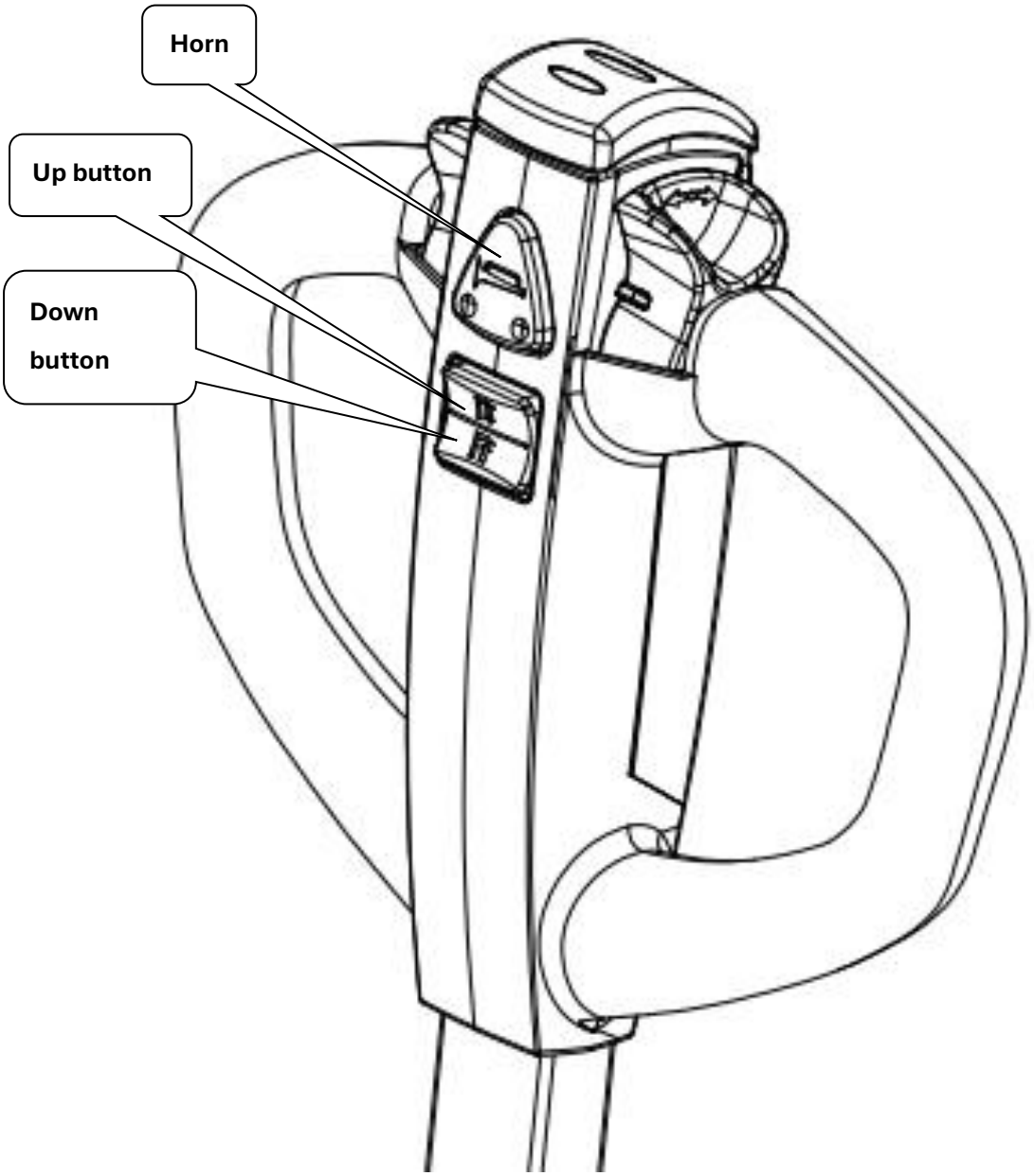


Figure 2-3

4.5 Running and braking

The rudder handle is divided into three sections A, B and C in the vertical plane, and the two zones A and C are the braking zones.

When the rudder handle is located in zone A or zone C, the vehicle is in the braking state.

If the rudder handle is located in area B, the vehicle is in normal running condition.

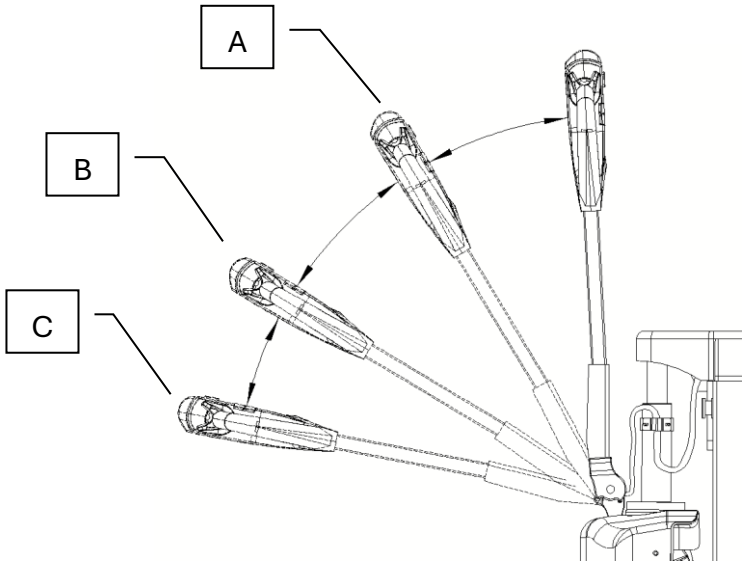


Figure 2-4

4.6 Vehicle Running

The direction of the vehicle is controlled by the rudder handle. See Figure 2-5

a Turn the rudder bar to the left and the vehicle turns to the left.

b Turn the rudder bar to the right and the vehicle turns to the right.

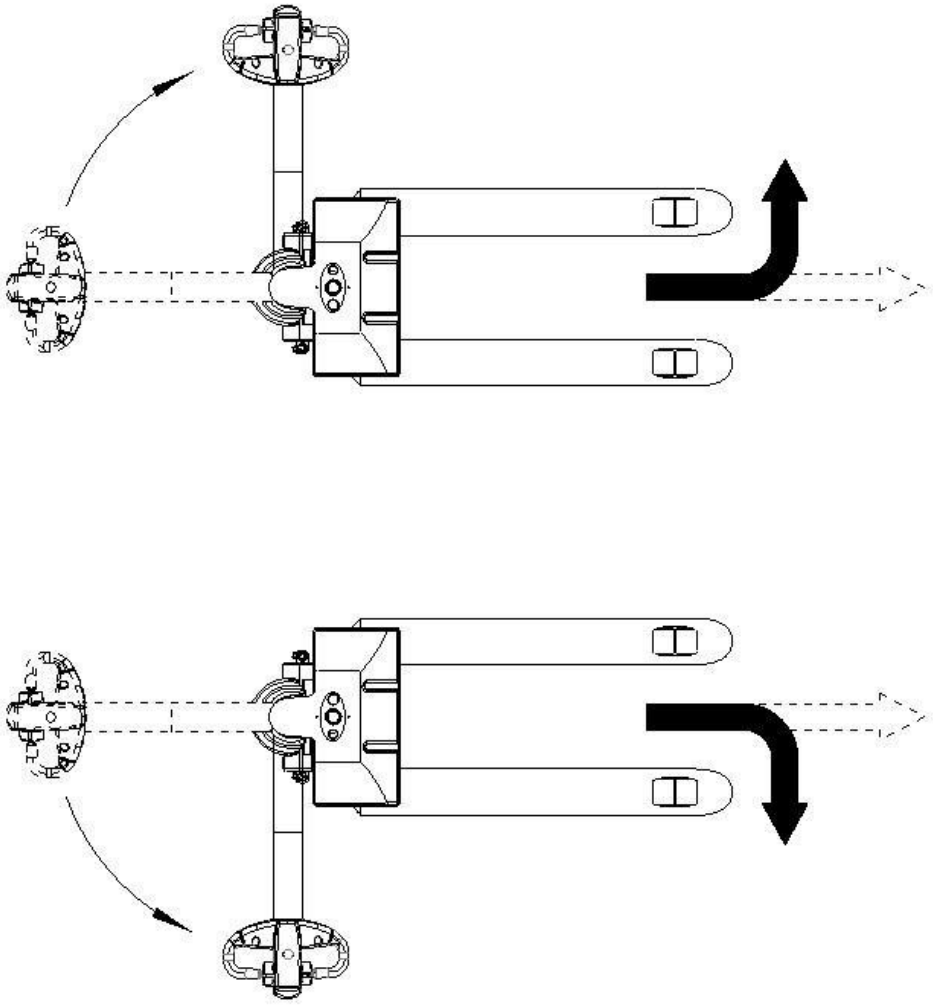


Figure 2-5

5. Use and maintenance of lithium batteries.

5. Precautions for using batteries

(1) Do not put the battery pack into water or get it wet!

(2) Do not charge the battery pack under fire or extreme heat conditions! Do not use or store battery packs near heat sources such as fire or heaters! If the battery leaks or gives off an odor, remove it immediately from near an open flame. When using a battery for the first time, fully charge the battery before using it.

(3) Do not reverse the positive and negative terminals!

(4) Do not put the battery pack into the fire or heat the battery pack!

(5) Do not use wires or other metal objects to short-circuit the positive and negative batteries!

(6) It is prohibited to pierce the battery pack housing with nails or other sharp objects, and it is prohibited to hammer or pedal the battery pack.

⑺ Disassembly of battery packs and cells in any way is prohibited! .

⑻ Do not use battery series in parallel.

(9) Do not use the battery if it has an odor, heat, deformation, discoloration or other abnormality; if the battery pack is being used or charged, remove it from the device or charger immediately and stop using it.

(10) Do not use battery packs in extremely hot environments, such as direct sunlight or inside a truck on a hot day. Otherwise, the battery pack will overheat, which will affect the performance and shorten the service life of the battery pack.

(11) The ambient temperature will affect the discharge capacity, when the ambient temperature exceeds the standard environment (77 ± 41° F), the discharge capacity will be reduced.

(12) Battery pack in the charging process, if there is an odor or abnormal sound, please stop charging immediately.

(13) When the battery needs to be stored for a long time, please charge the battery to about 50% of the electricity (after the discharge, charge 1~2 hours with the charger (100A)), put it in a dry and ventilated place, and charge it for 1~2 hours with the charger every 2 months.

(14) Battery pack and charger should be stored in a clean, dry, ventilated place, should avoid contact with corrosive substances, away from fire and heat sources

(15) If the above phenomenon occurs, please contact the manufacturer, do not disassemble.

6.Typical faults and troubleshooting

故障现象 Symptom	故障原因 Trouble Reason	故障排除 Troubleshooting
电池组无输出 Battery with no-output	电池组输出线未连接 Battery output cable is not connected	按照规格书要求正确连接好电池组输出线 Connect the output line properly in accordance with the specifications
	电池组已没电 Battery pack is out of power	对电池组进行充电 Charging the battery pack
电池组不能充电 Battery pack can not be charged	充电器输出插头松动 Charger output plug loose	检查充电器输出插头是否与电池组接插牢靠 Check the charger output plug and battery plug is firm or not
	电池组已经充满电 Battery pack is fully charged	电池组可以正常使用 Battery pack can be used normally

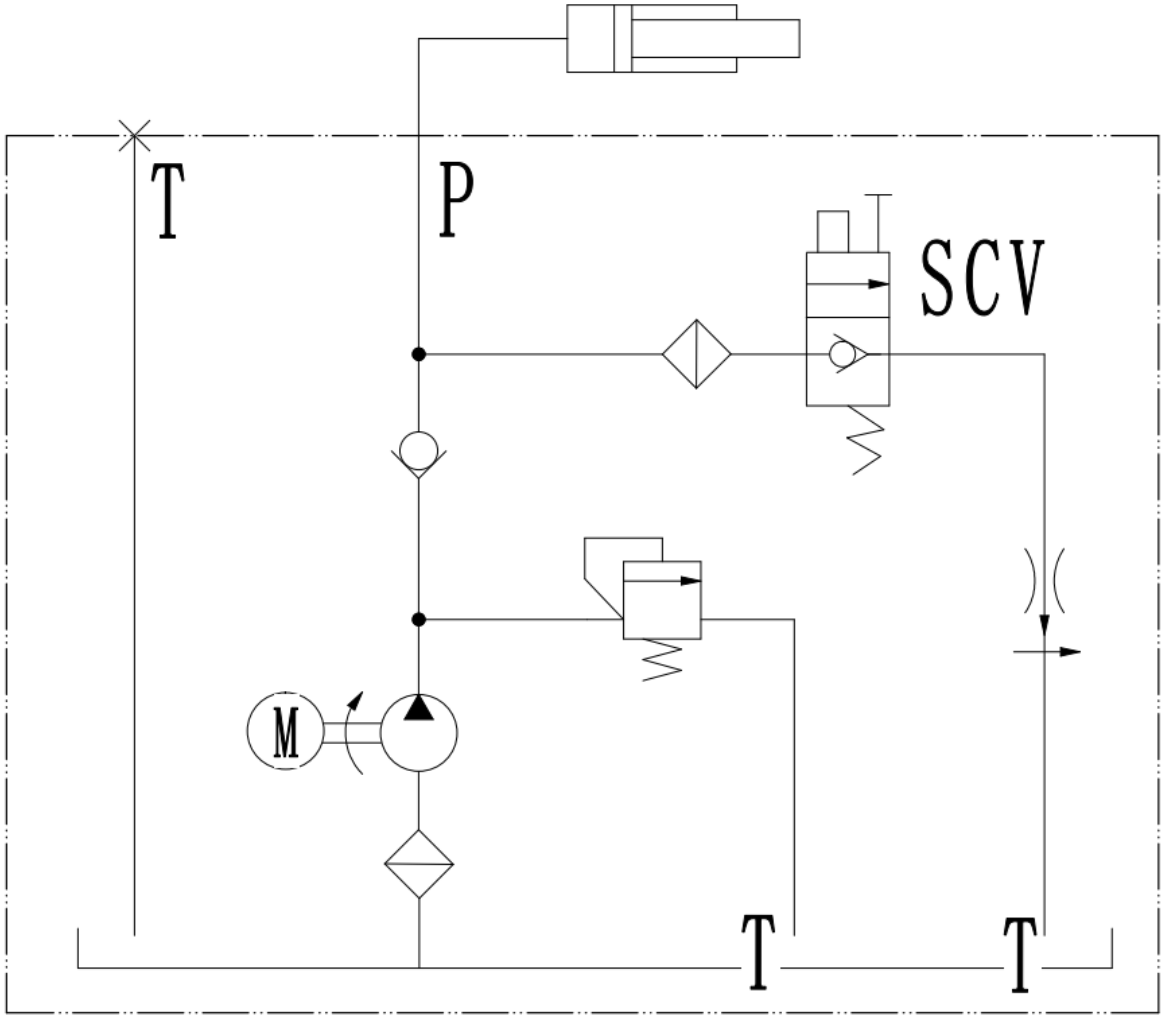
6. Possible faults and troubleshooting methods during use

Fault description		
Oil leakage or leakage	The sealing washer is damaged or invalid, and the thread joint is loose	Replace the new seal ring and tighten the joint
The lifting height does not meet the design requirements	There's not enough hydraulic fluid in the tank	Add hydraulic oil
Fork not rising	The oil circuit is blocked or damaged	Repair or replace
Fork not rising (gear pump not working)	The lifting microswitch is loose or damaged	Adjust or replace
	The motor or line is faulty	Overhaul
The fork does not fall after it rises	Hydraulic station solenoid valve out of control	Repair or replace
The truck cannot stop while it is moving	The contactor contacts are damaged and the moving contacts are misaligned.	Cut off the power supply and replace the contactor contact

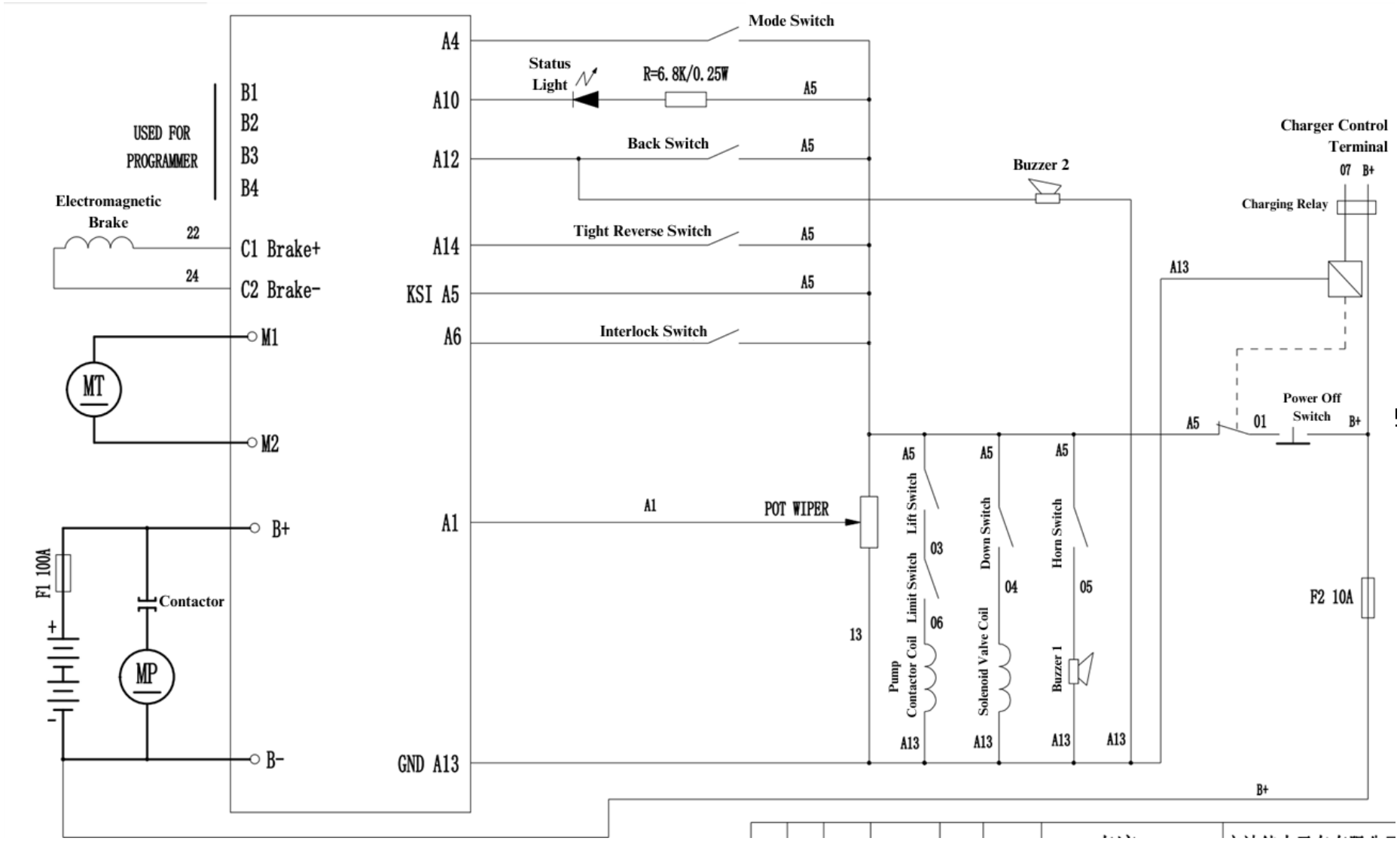
7. Packaging and transportation

The vehicle is packed in/on wooden pallets and is not allowed to be turned over or inverted during transportation. It is strictly prohibited to collide with the vehicle when lifting and loading it. Take care to not damage the exterior of the vehicle when unpacking.

8. Hydraulic schematic diagram



9. Electrical schematic diagram


B1
B2
B3
B4
USED FOR
PROGRAMMER
Electromagnetic
Brake
22
24
C1 Brake+
C2 Brake-
M1
M2
MT
B+
B-
F1 100A
Contactor
MP
A4
A10
A12
A14
KSI A5
A6
A1
GND A13
Mode Switch
Status
Light
R=6.8K/0.25W
A5
Back Switch
Tight Reverse Switch
Interlock Switch
POT WIPER
Buzzer 2
Charger Control
Terminal
07
B+
Charging Relay
A13
Power Off
Switch
01
Lift Switch
Down Switch
Horn Switch
03
04
05
06
13
Pump
Contactor Coil
Limit Switch
Solenoid Valve Coil
Buzzer 1
F2 10A