EKKO®
MATERIAL HANDLING EQUIPMENT
MOVING AHEAD

# Specification

## Walkie Electric Stacker

## EB16EA/EA16EAS(with side shifter )

# Introduction

In order to meet the needs of the national environmental protection request, To reduce industrial pollution and improve productivity, we develop new series of EB16EA on the basis of absorption of the advantages of domestic & overseas battery Electric Stacker ,they are especially suitable for cargo loading and unloading, handling, stacking, etc. for food, bank, light textile, station, port, logistics and other enterprises.

The Stacker adopts advanced structures such as Good view lifting system, EPS system(Electric Power Steering system), and new AC controller. It is equipped with high-quality motor, traction battery and high-power pumping station motor. Therefore, it has the characteristics of superior performance, convenient operation, wide field of view, flexible steering, reliable braking, good power, low noise, no pollution, and beautiful appearance.

This manual describes the technical parameters of the Electric Stacker, working principle and operation, maintenance, and other aspects. It can help operators use the Electric Stacker more reasonable, make its maximum effect.

It is hoped that Operator strictly abide the regulations and the precautions in this manual when using the Electric Stacker .Carefully use them so that your Electric stacker can be in the best working condition for long period of time to maximize it's effectiveness. And create better economic benefits.

# The Statement

Our company production model EB16EA /EB16EAS Electric stacker is a special motor vehicle used in factory ,tourist attractions ,amusement places which is specified by “special equipment safety supervision regulations” .

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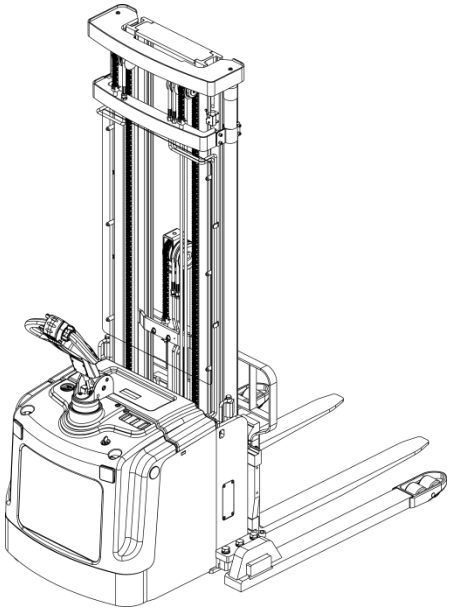
# 1.The General Introduction



EB16EA Electric Stacker uses a battery as the power source and AC motor as power to drive the truck through gear transmission, The lifting of the fork is driven by the AC motor hydraulic drive to push the cylinder to lift and lower the cargo. As the truck Electric motor for Lifting and Driving .Then it has the characteristics of labor saving, high efficiency, stable cargo operation, simple operation, safety and reliability, low noise and no pollution.

The device is suitable for Stacking & Handling cargo on firm ,flat floors

The service environment：

a. Altitude does not exceed 1200m.

b. Indoor room temperature at +5℃ to +40℃.

c. When environment temperature at +40℃,the relative humidity can't over 50%,at low temperature ,allow bigger relative humidity

d. Firm, Flat ground 。

e. It is forbidden to use this car in corrosive environment such as flammable and explosive or acid base

Due to the continuous improvement of the product, the manufacturer reserves the right to change the design and specifications of the product without prior notice. If you want to know the latest product parameters, please contact us. Note: All parameters herein are subject to the date of publication of the manual

## 2. Proper use

Please using the Electric Stacker according to this specification.

This is a walkie type electric stacker with autonomous control , lifting and lowering is controlled by the handle button.

Improper use can cause personal injury or machine damage. Operators or operating companies need to ensure proper using,

The Truck needs to be used on a firm ,flat ,intact surface and suitable surface ,the truck is designed for indoor use at room temperature from+5°C to +40°C

Use under light load without using permanent barriers or pits ,It is forbidden to operate on the slopes .During Operation ,The goods must be placed approximately at the center of the truck's load center

Lifting or Carrying people is strictly prohibited ,if carried goods .The goods must fall on the lifting point 。

It is prohibited to use this truck on lifting or loading ramps.

The rated capacity is marked on the capacity label or nameplate. And the operator must pay attention to the warming signs and safety instructions.

Operating lighting must be at least 50LUX

Modification

Any modification that may affect the truck rated capacity, stability, and safety operations must be approved in advance by the Truck's original manufacturer or Its authorized Manufacturer or its successor. This includes the effects of changes such as Braking ,steering ,Visibility, and the addition of removable accessories.

After the manufacturer or its successor approves the modification or change ,The capacity name plate ,Label, identification marks, operation and maintenance manual must be changed accordingly

**Truck damage caused by not following Instruction will lose its warranty.**

# 3.Introduce of the product

3.1Overview of main components

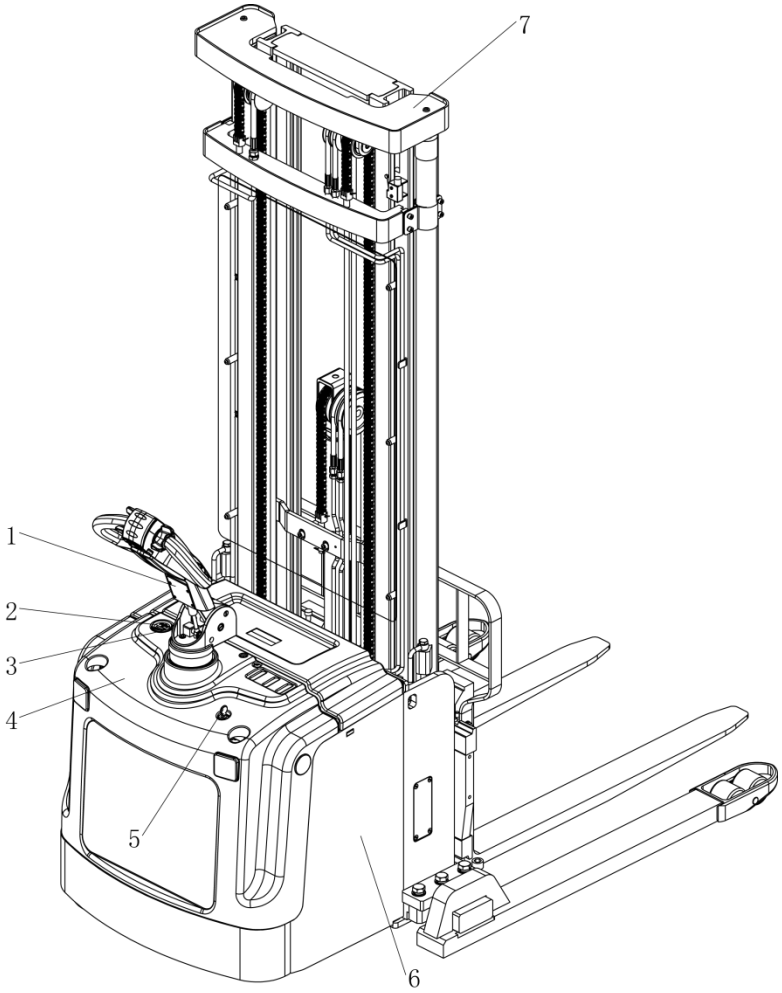



Figure 1 main components

Figure 1 main components

| No. | Description | No. | Description |
|---|---|---|---|
| 1 | Operating handle | 5 | Key switch |
| 2 | Electricity meter | 6 | Main frame assembly |
| 3 | Emergency stop switch | 7 | Door Frame Assembly |
| 4 | Cover | | |

## 3.2**Model parameters**

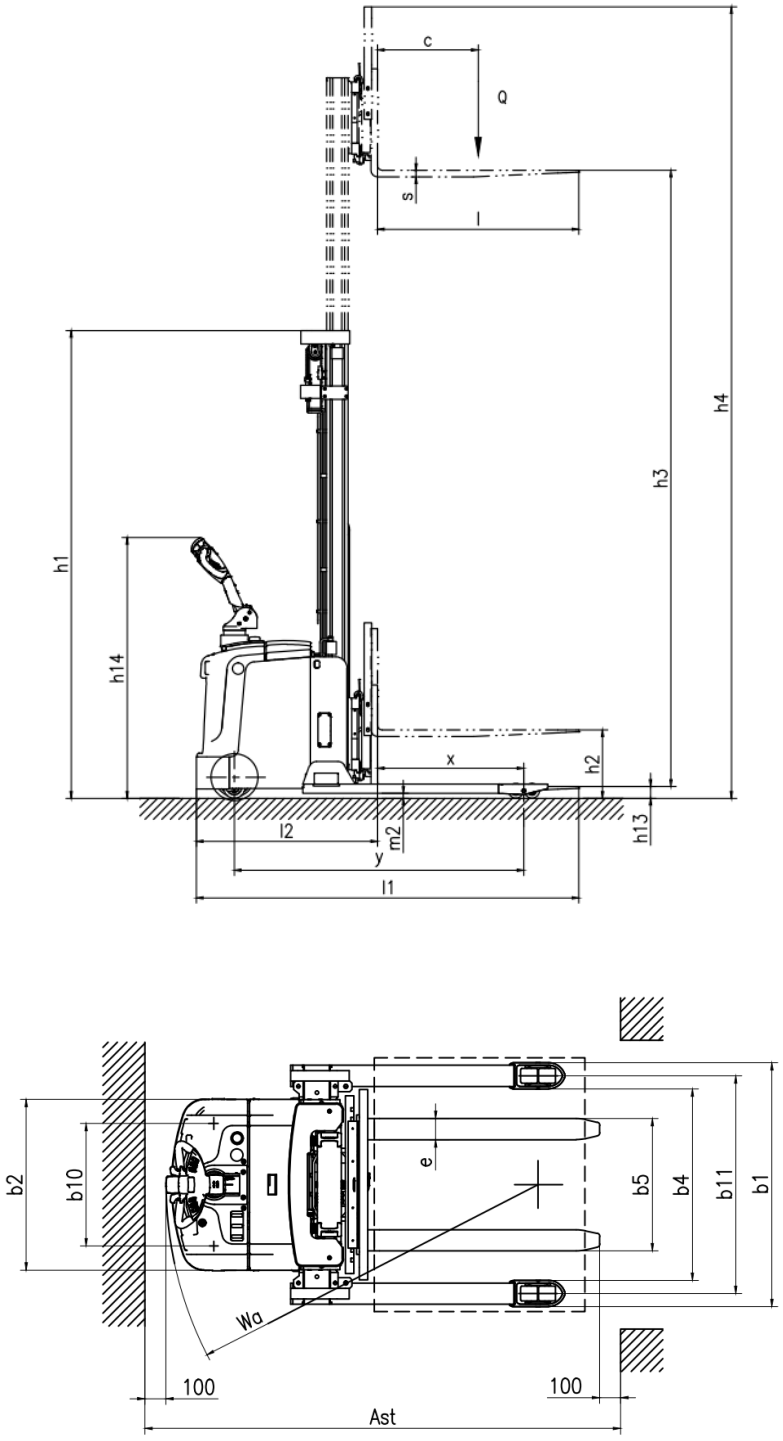



Fig 2 Schematic diagram of the stacker

Main technical parameter list

| Mode | | EB16EA | EB16EA+C(With side shifter |
|---|---|---|---|
| Drive type | | Electric | Electric |
| Type of operation | | Walkie type | Walkie type |
| Load Capacity | Q (LBS) | 4400 | 4400 |
| Load center | x (Inch) | 23.62 | 23.62 |
| Distance between fork backrest and front wheel | c (Inch) | 32.08 | 30.59 |
| Wheelbase | y (Inch) | 63.78 | 63.78 |
| Service Weight（with | Q (LBS) | 3542 | 3680 |
| Tire material | | PU | PU |
| Driving wheel size | Φ×w(Inch | Ö9.84×2.95 | Ö9.84×2.95 |
| Bearing wheel size | Φ×w(Inch | Ö3.15×2.76 | Ö3.15×2.76 |
| Balance wheel size | Ö×w(Inch | Ö4.53×2.17 | Ö4.53×2.17 |
| No of Driving wheel, Balance | | 1x+2/4 | 1x+2/4 |
| Front wheelbase | $b_{10}$ (Inch) | 22.83 | 22.83 |
| Rear wheelbase | $b_{11}$ (Inch) | 42.91-56.69 | 42.91-56.69 |
| Lowered mast height | h1 (Inch) | 98.03 | 98.03 |
| Free lift height | h2 (Inch) | 64.57 | 61.25 |
| Lift height | h3 (Inch) | 216.54 | 216.54 |
| Extended mast height | h4 (Inch) | 251.18 | 253.54 |
| The height of handle in the | $h_{14}$(Inch) | 39.76/57.08 | 39.76/57.08 |
| Lowered fork height | $h_{13}$ (Inch) | 2.36 | 2.17 |
| Overall Length | $l_1$ (Inch) | 81.65 | 80 |
| Body Length | l2 (Inch) | 36.37 | 37.87 |
| Overall Width | $b_1$/ $b_2$ | 47.8-61.58/31.81 | 47.8-61.58/31.81 |
| Fork Size | s/e/l | 1.58/4.72/45.28 | 1.58/4.72/45.27 |
| Fork Width | b5 (Inch) | 9.84-31.5 | 15.2-24.65 |
| Ground clearance under mast | $m_2$ (Inch) | 1.02 | 1.02 |
| Aisle width for pallets 1000*1200 crossways | Ast (Inch) | 101.77-107.87 | 102.76 |
| Turing Radius | Wa (Inch) | 69.57 | 69.57 |
| Driving Speed，load/unload | (km/h) | 5.2/5.5 | 5.2/5.5 |
| Lifting Speed load/unload | (mm/s) | 95/160 | 95/160 |
| Lowered Speed load/unload | (mm/s) | 130/110 | 130/110 |
| Maximum gradeability | (%) | 5 /.8 | 5 /.8 |
| Brake Type | | Electromagnetic | Electromagnetic |
| Driving Motor | (kW) | 3 | 3 |
| Lift Motor | (kW) | 3 | 3 |
| Battery，according to DIN | | no | no |
| Battery voltage/rate capacity | (V/Ah) | 24/210 | 24/210 |
| Battery Weight（±5%） | (LBS) | 462 | 462 |
| Type of drive control | | AC | AC |
| Noise level | (dB(A)) | 70 | 70 |

## 3.3Safe operation and warning labels

A. Lifting position

B. It is forbidden to stand on /off the fork

C. Four kinds of mis operations are prohibited

D. .Loading capacity graph

E. Warning label

F. Name plate

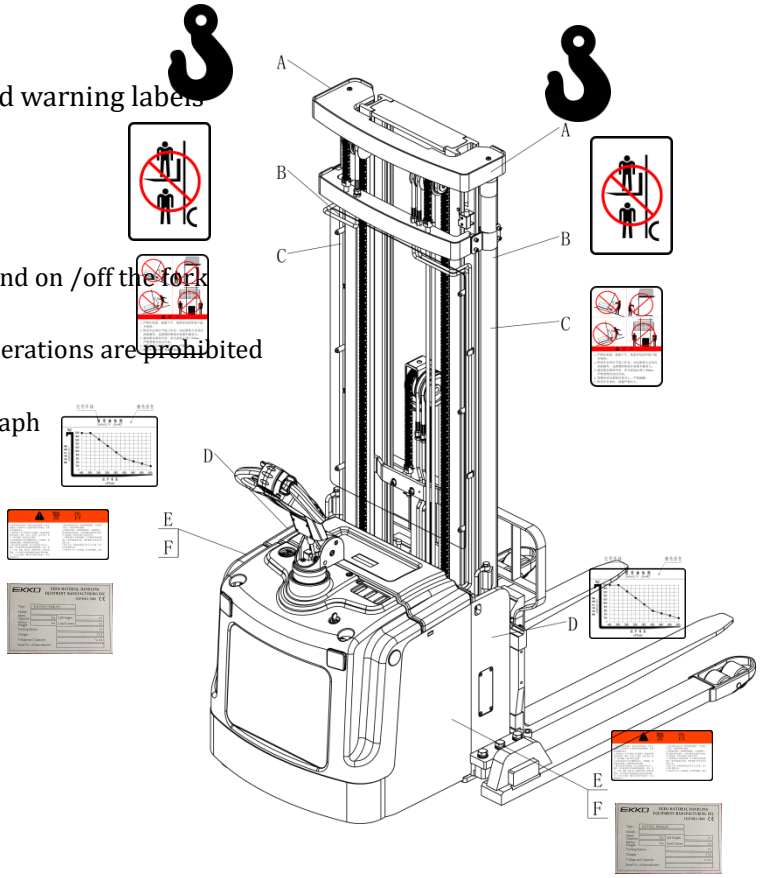



Figure 3 label diagram

## 3.4Nameplate


Fig4,Nameplate

# 4.Safety Caution

**Please don't**

- **When travel outdoor, The stacking operation makes the lifting height of the cargo higher than the lifting point**
- **Place the foot or hand under or into the lifting mechanism**
- **Allow Non-Operators to stand in front of or behind the truck during moving or lifting / lowering**
- **Overload**
- **Put your foot on the front of the wheel may cause injury**
- **When lifting person, they may fall and cause serious injury**
- **Push and pull cargo**
- **Use the car on the slope**
- **Use the car without Shielding panel**
- **Side load or tail load ,the cargo must be evenly distributed on the fork**
- **Use this car to load unstable ,unbalanced cargo**
- **Use this car without the manufacturer's written consent**
- **The uplifted cargo will become unstable because of wind .Don't lift the cargo in windy condition**

Observing different ground condition during driving .The cargo may fall down, or the car may lose control ,please check the loading situation frequently, If the cargo becomes unstable .Stop the operation of the truck immediately . When the cargo slide or slide off the truck, Stop the car by pressing emergency stop switch .Please refer to Chapter 10 for any truck Trouble .Maintain according to regular inspection. The forklift is not waterproof, Please use it in dry environment. Continuous operation for a long time may damage the power box ,please stop operating when Hydraulic oil temperature is too high .

- **The operator should put on safety shoes when operating the forklift**
- **The car is suitable for indoor use in temperature from +5° C to 40° C**
- **Operating lighting must be at least 50LUX**
- **Don' t use the car on the slope**
- **In order to prevent sudden movement of the car when the car is not operated**

**(such as caused by others),turn off the car power and remove the key when not operating**

# 5.Test run, Transportation, Outage

## 5.1Test run

Table 3 test data

| Model | EB16EAS | EB16EA |
|---|---|---|
| Packing weight（lbs.） | 3680 | 3542 |
| Lifting height（Inch） | 216.54 | 216.54 |
| Size（Inch） | 80*47.8*98.036 | 81.65*47.8*98.03 |

After receiving our new forklift or when it needs to be retest please with process with following steps before (the first )operation of the forklift :

- Check if all parts are included .and there is no damage
- Battery installation and charging (refer to Chapter 9)
- Carry out daily inspection and machine function inspection

## 5.2Lifting & Transportation

Remove the cargo during transportation ,Lowered the fork to the lowest position And according to Figure 5 Safety fixed the car with special lifting equipment

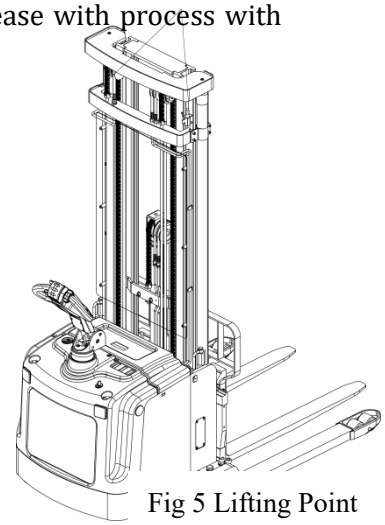


Fig 5 Lifting Point

**Lifting**

**Use Special Crane and lifting equipment**

**Don’t stand under shaking cargo**

**Don’t enter the dangerous area when rising**

Parking the truck safely， and bind the truck as figure 5 Shows
Lifting the truck to the destination ,Before Moving lifting equipment please safety Fixed the car ,
The rope point can refer to figure 6

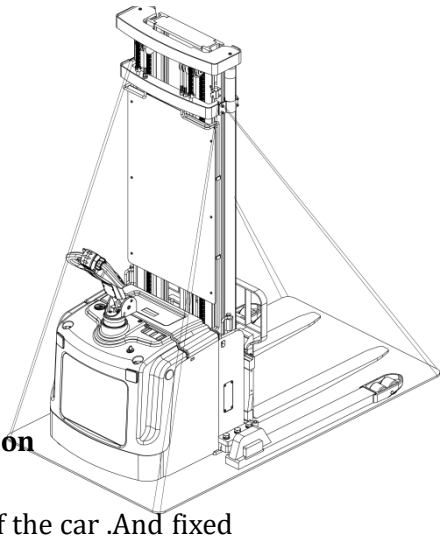


Fig6 Fixed Point

**Transportation**

**The Truck should be firmly fixed on the truck during transportation**

Lowered fork and parking the truck safety
As figure 6 shows Use the special binding belt to fix the tow big ribs of the car .And fixed other side on the carrier

## 5.3Outage

When Storage remove the cargo and lowered the fork to lowest position. Grease all lubrication points mentioned in this manual (check regularly)to prevent rust and dust.

Remove the battery and check the truck to ensure no extrusion during storage.
When the car finally out of service ,send the car to designated recycling company .According to regulations ,Oil, Batteries and electronic components must be recycled .

## 6.Routine Inspection

This Chapter Describes check the car before using

Routine inspection can effectively find out the defect or error of this car. The following points should be checked before operation.

**Remove the cargo ,Lowered the fork. Please don't use the car if there is any Problem.**

- Check for scratches ,Deformation .or Cracks
- Check if the cylinder leaks of oil
- check running condition of the car
- Check if the chain or roller damage or corrosion
- Check if the wheels can move smoothly
- Press the emergency stop button to check the emergency brake function
- Check the Buzzer
- Check that all bolts and nuts are tightened
- Check the function of Key switch
- Visually Check for any damaged tube or wires
- If the car with Protective barrier .Check for damage and correct installation.

### 7.The Schematic diagram of Operating Mechanism

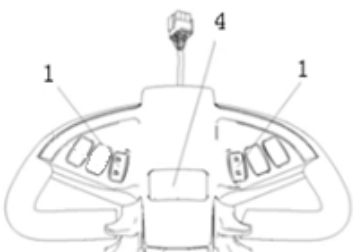





Fig 7 Operating console Fig 8 Key Switch

P.S.:：Position of Emergency stop switch and Electricity meter is shown in fig 1.

# 8.Operating specification

**Please follow the warning and safety instructions before operating the car (see as chapter 3)**

**Please Ensure that cargo or other equipment will not lead to poor visibility before operating the car**

Ensure cargo level and stable placed .And conduct daily inspection .Insert the key into the key Switch(Figure 8),Turn the key clockwise to “ON” position. Before finally inserting the key switch,The emergency stop switch1.3(Figure 1) must be carefully pulled up. Press the horn button(as figure7 .4)to start the buzzer

## 8.1Parking

**Pls Don’t Park on the ramp**

The car is equipped with an electromagnetic error protection Parking and Parking brake Please always lower the forks completely and drive the car to a safe area. Turn the key counterclockwise to the OFF position and pull out the key

## 8.2Loading capacity Graph

The loading capacity Graph shows a given load center c [Inch] and a car with horizontal load ,the maximum load capacity Q [LBS] In the corresponding lifting height of the truck H [Inch]

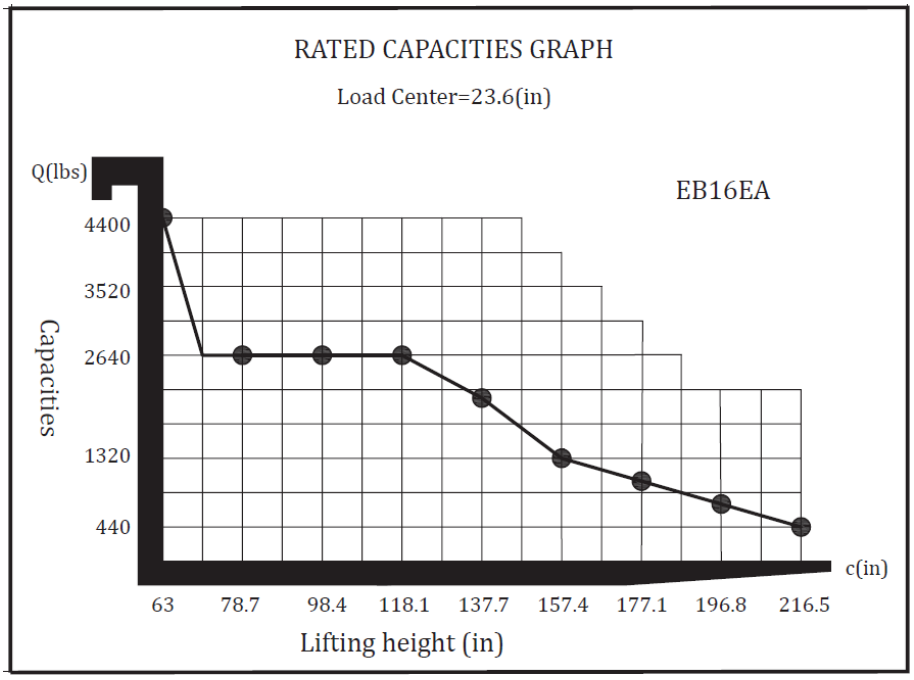



Fig 9 loading capacity graph For EB16EA

## 8.3Lifting up/Lowering down

**Pls don't overload, The related capacity is 1000KG/1600KG/2000KG .Only increase the load capacity allowed by the load capacity graph**

Please lower the fork completely on the leg during driving .Then press lift up button(Figure 7.1)until reach your desired height .

If the goods is on the shelf when lowering down, Remove the truck carefully with the pallet rack or move the truck off the shelf separately ,Then press Lower down key(Figure7.1) Lower the cargo until the fork left the pallet rack .then carefully drive the car away from

the cargo

## 8.4Traveling

**Only drive on the slope when the cargo is facing up**

**Don’t drive on the slope in excess the specified specifications .**

**Only can driving when the fork falls to the lifting point (<300mm)**

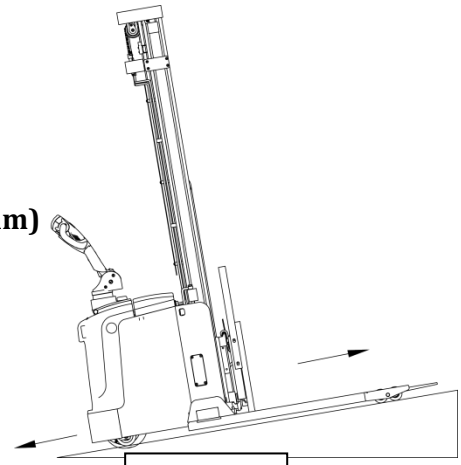


Figure 10

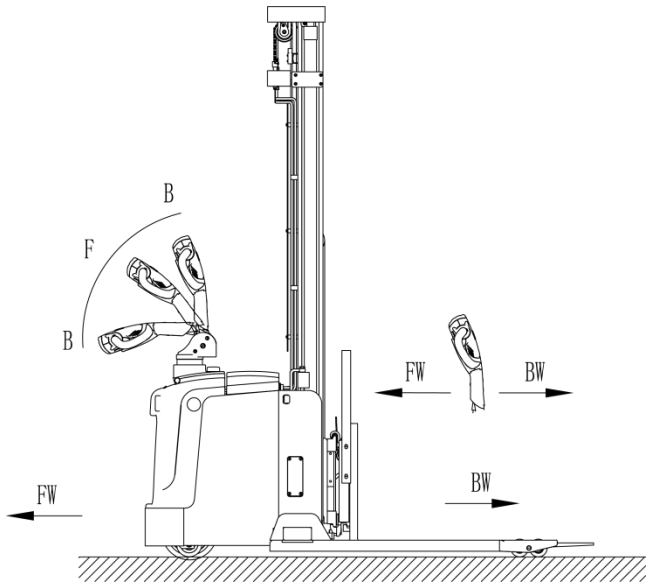



Figure11,Operating Direction

- Turn the inserted key to the “open” position(Figure 8),Then pull up the emergency stop switch (Figure 7.4), to start the truck.
- Move the handle to the operating area（‘F’figure 13）.Turn the accelerator button

to the forward direction‘Fw”or backward direction‘Bw’(Figure 11)

- Control the driving speed by carefully moving the button (fig.7.2)until reach your desired speed .If you move the accelerator button back to the middle position, the controller will slow down the truck until it stops. If the truck stops, the parking brake starts to work.
- Drive the car carefully to the destination, Observe the road situation and adjust the speed with the travel switch button

## 8.5Steering

The car with EPS steering system, Be careful when operating.

Steering the car by turning the handle to the left or the right

## 8.6Braking

**Braking performance depends on road conditions and the loading conditions of car**

**The brake function can be activated in the following ways :**

- By moving the accelerator (figure 7.2) to the “0)position or release the button, Regenerative braking is activated and the truck brakes until it stops .
- By moving the accelerator (figure 7.2) directly from the drive direction to the opposite direction., the truck regenerates braking until it starts driving in the opposite direction
- The truck brakes if the handle moves up and down to the braking zone（‘B’）.If release the handle, it will automatically moves to the upper braking zone（‘B’） and the car brakes until it stops

**Emergency reverse button(figure 7.3)prevents the operator from being squeezed. And if this button is activated ,the car slows down /or begins to travel backwards （‘Bw’）and then stops. If the handle is in the operating area and the truck is not moving .consider that this button still works for this situation**

## 8.7Brake structure &Brake Schematic

Braking principle：as figure12 shows including ：Brake by magnetic yoke assembly 6、Magnet exciting coil 7、Spring 2、brake disc 5、Armature 1、Geared sleeve 4、Mounting screw 3 .The brake is mounted on the end cap of the motor ,and the mounting screw is adjusted to the specified air gap value. The gear sleeve is fixed on the shaft .The external teeth cooperate with the internal teeth of the brake disc. And the torque is transmitted during operation. Then the brake disc can move axially on the gear sleeve .

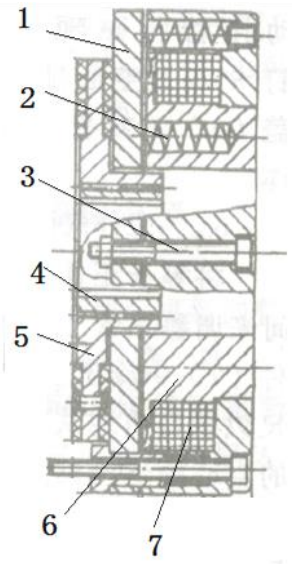


Figure12 brake schematic

When Magnet exciting coil 7 of brake is energized .the coil produces a magnetic field that caused the armature 1 draw toward the magnetic yoke assembly 6.Armature 1 detached from the brake disc 5(Release).Then the motor drive shaft with brake disc 5 start and operate normally. When Magnet exciting coil 7 is de-energized., The magnetic flux disappears .Armature 1 is released .and spring 2 process armature 1,then the friction plate on the brake disc is pressed to generate frictional force for braking purposes

## 8.8Trouble

If there is any error or the car is not operate,Stop using and press the emergency stop switch(Figure 1.7).Parking the car in safe area if possible .Turn the key counterclockwise and remove the key(figure 8).Notify the manager or contact your after-sales service staff immediately .Use a special towing equipment /lifting equipment to pull the truck out of the operating area if necessary .

## 8.9Emergency situations

Keep a safe distance in an emergency situation or the car is turned over. Press the emergency stop switch(Figure 1.7) and all electrical functions will stop.

# 9.Changing and Replacement for battery

- **Only Qualified personnel are allowed to repair or recharge the battery .Please be sure to follow this manual and battery manufacturer's instructions.**
- **The battery is Lead-Acid battery**
- **Battery recycling is subject to national regulations .Please follow these rules .**
- **When handling batteries .Don't use open flame which my cause gas explosion.**
- **Don't place flammable materials and work equipment that may generate sparks within a distance of at least 2M around the forklift that needs to be recharged**
- **It is forbidden to burn materials or burn liquid in the charging area of the battery. It is strictly forbidden to smoke. The area must be well ventilated.**
- **Parking the car safely before you start charging ,installing /replacing the battery**
- **Before finishing the repairing .please make sure that all cables are connected and there is no interference to the other part of car .**

For standard batteries, this model is equipped with the following lead acid battery models:

1PC 2PZS/24V/210AH/790X210X570(LXWXH)

**Only lead-acid batteries are allowed**

**The battery weight has a certain influence on car operation .Please consider the max working temperature of the battery.**

## 9.1Replacement

Park the car safely, Move the Mast forward to the appropriate distance,. Turn off the car by key(Figure8) and press the emergency stop switch(Figure 7.4) to open the battery

cover ,Remove the battery connector .Then lift the battery from the top of the frame directly .Caution: If the lifting equipment is not safe. The battery may tip over .Installation is the opposite procedure of remove ,Please connect the positive terminal firstly .Otherwise the car is easy to damage

## 9.2Battery display

As shown in Figure 13,The discharge condition is indicated by 10 red LED display segments. The rightmost LED will only illuminate when the battery is properly charged. As the state of charge of the battery drops, the LED lights illuminate in sequence, but only one light at a time.

- The second LED on the left flashes, indicating “energy reserve” (70% discharge depth)
- The leftmost 2 LED flash alternately, indicating “power is empty” (80% of the depth of discharge)

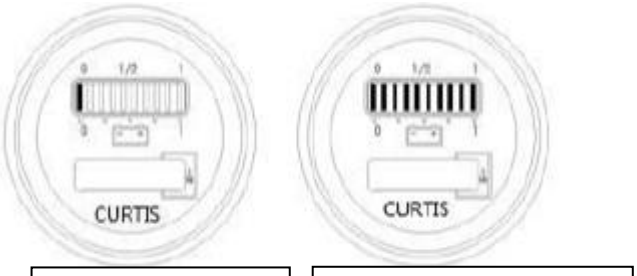



Figure13：Battery discharge display

## 9.3Charging

- **Only be charged with included charger**
- **Before using the charger ,please fully understand the contents of the charger manual**
- **Ensure good ventilation in charging room**
- **Fully Charged situation can only be viewed from the display.to check this situation ,you need to interrupt the charging and start the car.**

Park the car in a safe area that provide dedicated power .Lower fork and remove the cargo. Turnoff the power of car, Open the battery cover, then connect the connector and Charger. The charger starts charging .Finishing charging .Remove

the connector from the charger, Connect the connector to the car and cover the battery cover .

# 10.Maintain Introduction

- **Only Qualified and trained personnel are allowed to maintain the car .**
- **Remove the cargo from the fork and lower the fork to the lowest point before maintenance .**
- **Please use the designated binding equipment or lifting equipment in accordance with chapter 4 if it is necessary to lift the car .Before operation .Place safety device(such as lifting jacks, Wedges or Wooden blocks)under the car to prevent accidental falling ,moving or sliding .**
- **Use approved and distributor 'S original accessories .**
- **Please consider the machine failure and accident that may be caused by the leakage of hydraulic oil.**
- **Only trained maintenance technicians are allowed to adjust the pressure Valve .**

If need to replace the wheel .Please follow the above instructions. Casters must be round and free of abnormal wear .Check the key point on the maintenance list .

10.1Maintenance list

| Table 4 Maintain list | | Time interval(Month) | | | |
|---|---|---|---|---|---|
| | | 1 | 3 | 6 | 12 |
| No. | Hydraulic system | | | | |
| 1 | Check if there is any damaged noise and leakage for | | • | | |
| 2 | Check if there any damage and leakage for Hydraulic | | • | | |
| 3 | Check hydraulic oil level and refill if necessary. | | • | | |
| 4 | Refill hydraulic oil(12 months or 1500 working hours) | | | | • |
| | Mechanical system. | | | | |
| 5 | Check the fork for deformation and cracks | | • | | |
| 6 | Check the base for deformation and cracks | | • | | |
| 7 | Check all screws are fully fixed | | • | | |
| 8 | Check the mast & chain for corrosion. Deformation or damage ,And replace if necessary | • | | | |
| 9 | Check the gear box for noise and leakage | | • | | |
| 10 | Check the wheels for deformation and damage and | | • | | |
| 11 | Lubricated steering bearing | | | | • |
| 12 | Check and lubricate the pivot point | | • | | |
| 13 | Grease fitting | • | | | |
| 14 | Protect, protective plates and replace it if they are | • | | | |
| | Electric system | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 15 | Check the wires for damage | | • | | |
| 16 | Check electrical connections and terminal conditions | | • | | |
| 17 | Check the function of Emergency stop switch | | • | | |
| 18 | Check the electric motor for noise and damage | | • | | |
| 19 | Check the display | | • | | |
| 20 | Check if the fuse is used correctly and replace if | | • | | |
| 21 | Detection buzzer | | • | | |
| 22 | Check the current contactor | | • | | |
| 23 | Check the frame for leaks (Insulation test ) | | • | | |
| 24 | Check the function and wear of the accelerator | | • | | |
| 25 | Check the electrical system of the drive motor | | • | | |
| | Braking system | | | | |
| 26 | Check the braking performance | | • | | |
| | battery | | | | |
| 27 | Check the battery voltage | | • | | |
| 28 | Clean and grease the terminal ,Check for corrosion and | | • | | |
| 29 | Check if battery box damage | | • | | |
| | Charger | | | | |
| 30 | Check if the main power cord is damage | | | • | |
| 31 | Check the start protection procedure during charging | | | • | |
| | Function | | | | |
| 32 | Detection buzzer | • | | | |
| 33 | Check the air gap for electromagnetic braking | • | | | |
| 34 | Check emergency braking function | • | | | |
| 35 | Detect reverse braking and regenerative braking | • | | | |
| 36 | Check steering function | • | | | |
| 37 | Check lift up & lift down function | • | | | |
| 38 | Check key switch for damage and function | • | | | |
| 39 | Check speed limit switch(lifting height >~400mm) | • | | | |
| | Comprehensive | | | | |
| 40 | Check if all labels are clear and complete | • | | | |
| 41 | Check if the shield panel and protection is not damaged | • | | | |
| 42 | Check the caster ,to height adjust or replace it if worn | | • | | |
| 43 | Conduct a test run | • | | | |

## 10.2Lubrication point

Lubrication point according to the maintenance list .required grease specification :DIN:51825

1.Front wheel bearing

2.Door frame Roller

3. Chain

4.Hydraulic system

5.Steering Bearing

6.Gear box

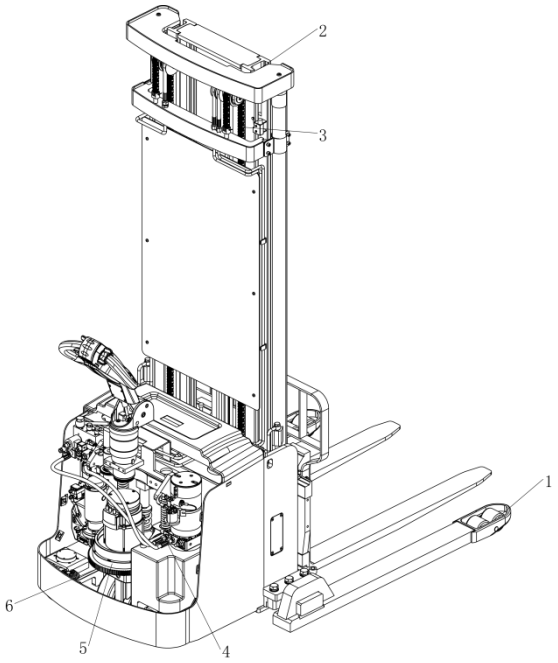



Figure14

## 10.3Check and refill hydraulic oil

Required hydraulic oil type：

- H-LP 46, DIN 51524
- Viscosity 41.4 – 47
- According to the model, the amount of oil depends on the height

Waste material such as waste oil, Waste batteries or other materials must be treated and recycled in accordance with the national regulations, It should be send to the recycling company for recycling .if necessary. The oil level should not be lower than the min amount oil required to lift cargo .Add oil to filling point if necessary.

## 10.4Check the electrical fuse

Remove the cover ,the fuse is located as figure 15,

The fuse specification is shown in table 5

table 5 fuse specification

| Code | Specification | Qty |
|---|---|---|
| FU | 200A | 1 |

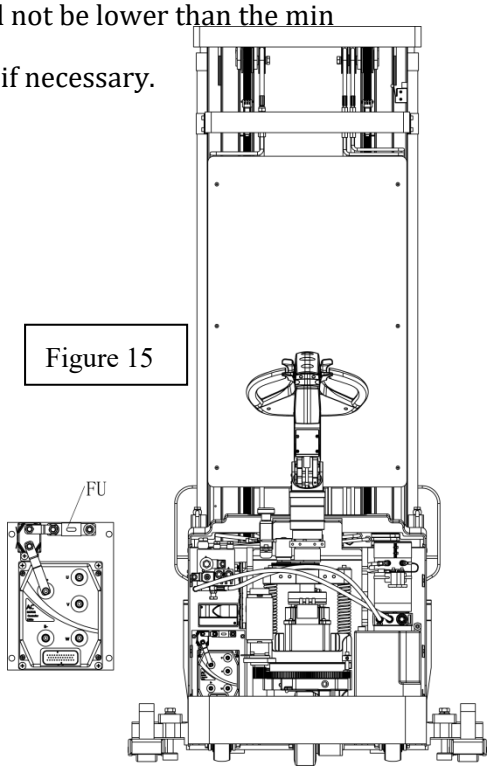



Figure 15

# 11.Trouble shooting

- If the car is still in trouble ,please follow the instruction in chapter 6

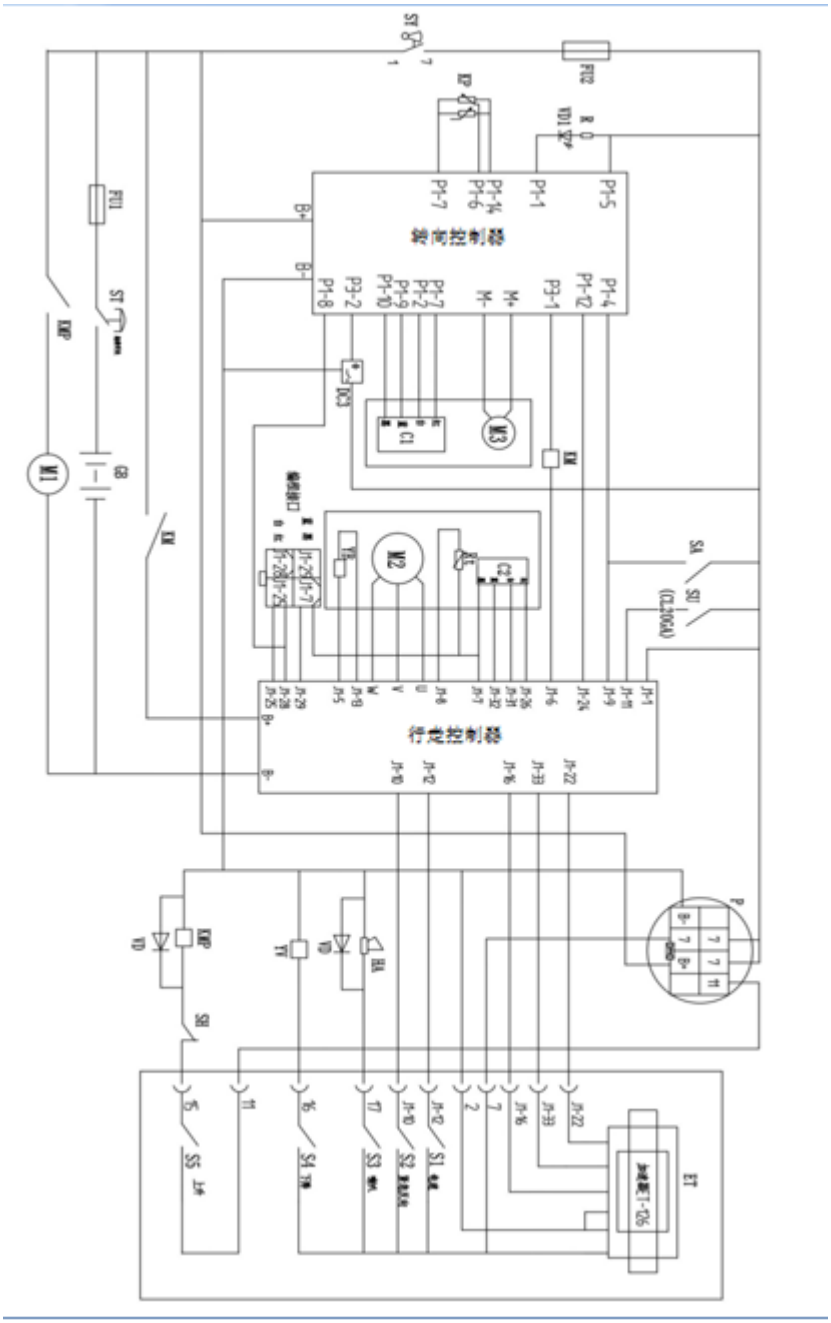
Table6 Fault analysis

| Effect of fault | Cause | Solution |
|---|---|---|
| The truck can't move | Battery connector is not connected | Check the battery connector and connect if necessary |
| | The electric lock switch is in the "OFF" position | The electric lock switch is placed at the "0" position |
| | Emergency stop switch did not open | Open Emergency stop switch |
| | Battery is exhausted | Check the battery charge and recharge if necessary |
| | Stacker is charging | Interrupt charging process |
| | Fuse damage | Check the fuse |
| Cargo can't lift up | The truck is not running | Operate as listed in the "Vehicles Cannot Move" fault |
| | Too little hydraulic Oil | Check Hydraulic Oil |
| | Fuse damage | Check the fuse |
| | Cargo overweight | Only lift up the max Load shown on the nameplate |
| | Lifting micro switch is not good or damaged | Check the fuse |
| Cargo Can't lower down | Oil dirty blockage control valve | Check hydraulic oil and purge control valve, replace hydraulic oil if necessary, |
| | he drop solenoid valve is not open or damaged | Check the drop solenoid valve or replace it |
| Can't stop when Lifting up | Lifting micro switch is damaged | Turn off the power and replace the lift micro switch |
| One direction move | Micro switch and connection cable are not in good contact | Check the micro switch and connecting cable in the control handle |
| Move slowly | nsufficient battery or poor cable contact | Check the battery level indicator and the corresponding cable |
| The truck start suddenly | Controller damaged | Change Controller |
| | Control forward and reverse handles are not reset | Repair to reset or replace |

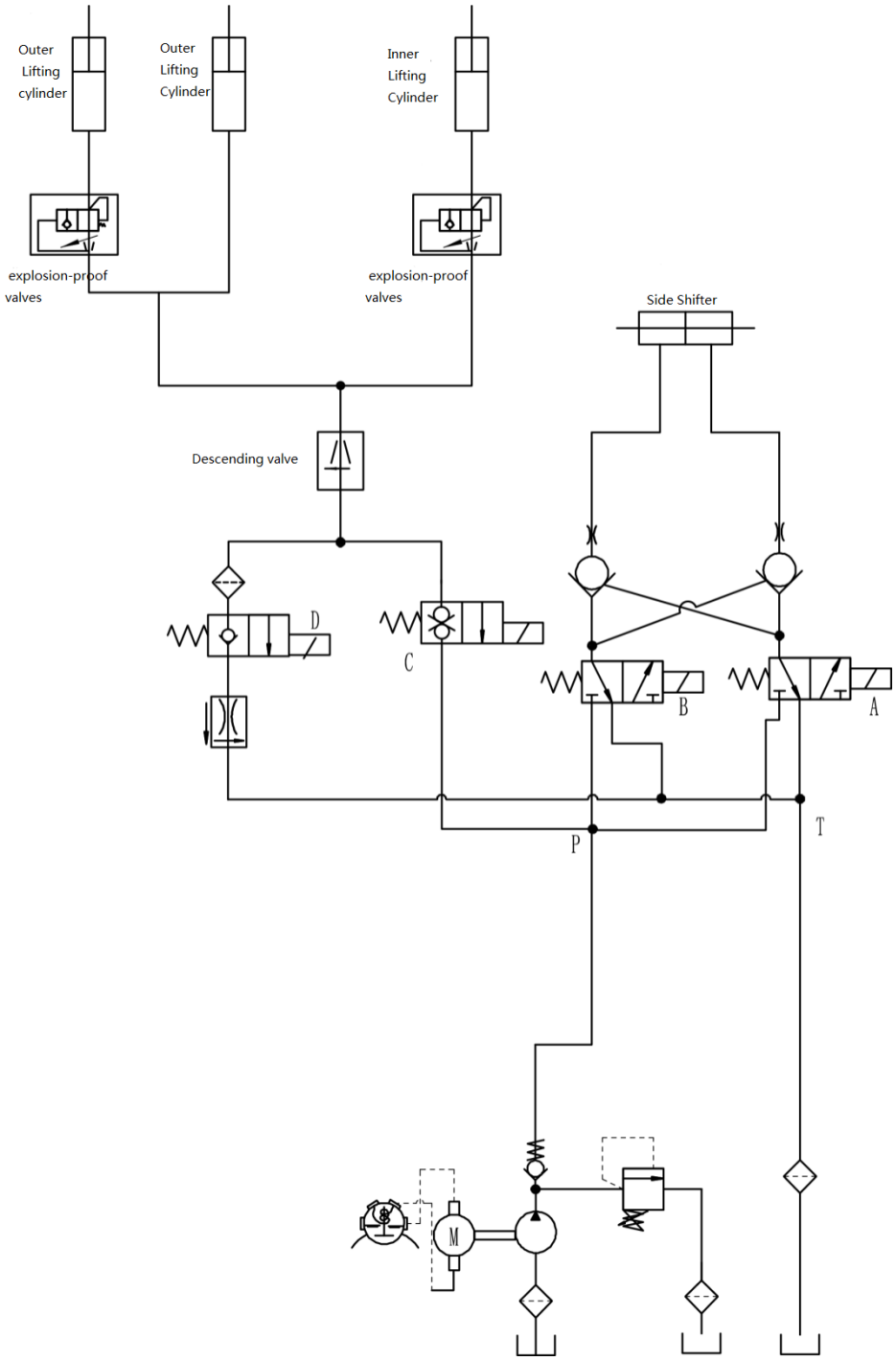
If the fault cannot be eliminated by Trouble shooting list, please inform the manufacturer's

after-sales service team and let excluded by specially trained service personnel to Repair .

# 12Electrical Schematic diagram



# 13Hydraulic Schematic diagram



## 14.After-sales service

If there is a fault that cannot be eliminated by professional service personnel, please contact our after-sales service personnel in timer ,Sales line:8772326517

**This manual final interpretation retained by manufacturers.**