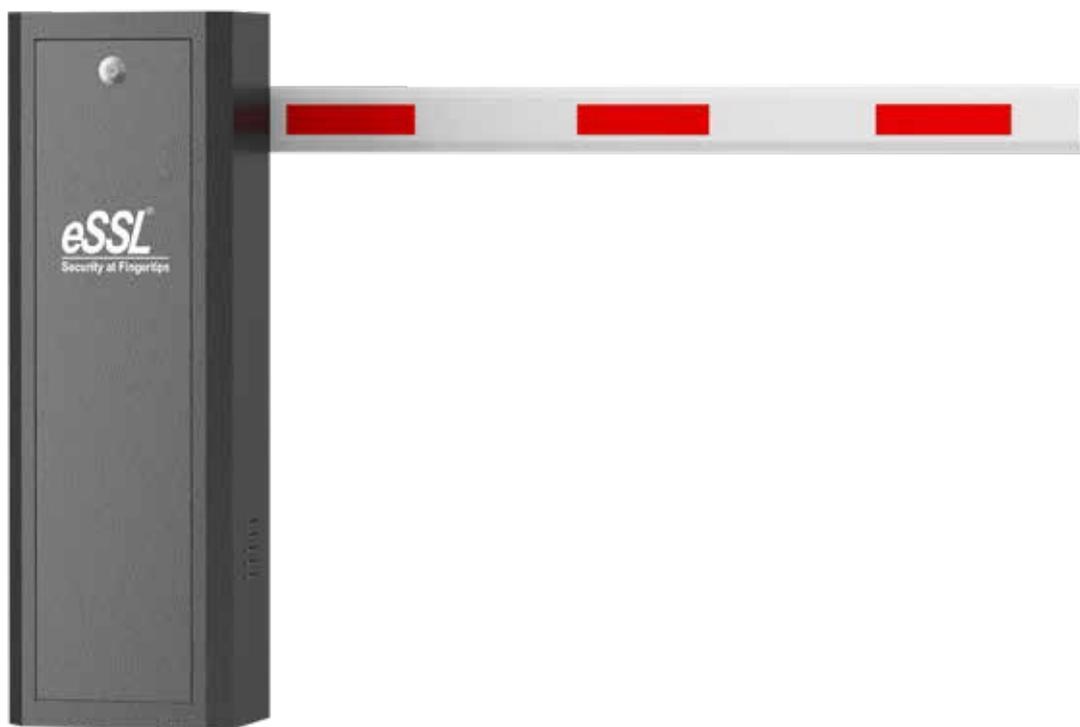


# BG-DC-101

B O O M   B A R R I E R



**MANUAL**

## **WARNING**

### **AUTOMATIC BARRIERS ARE NOT FOR PEDESTRIAN!**

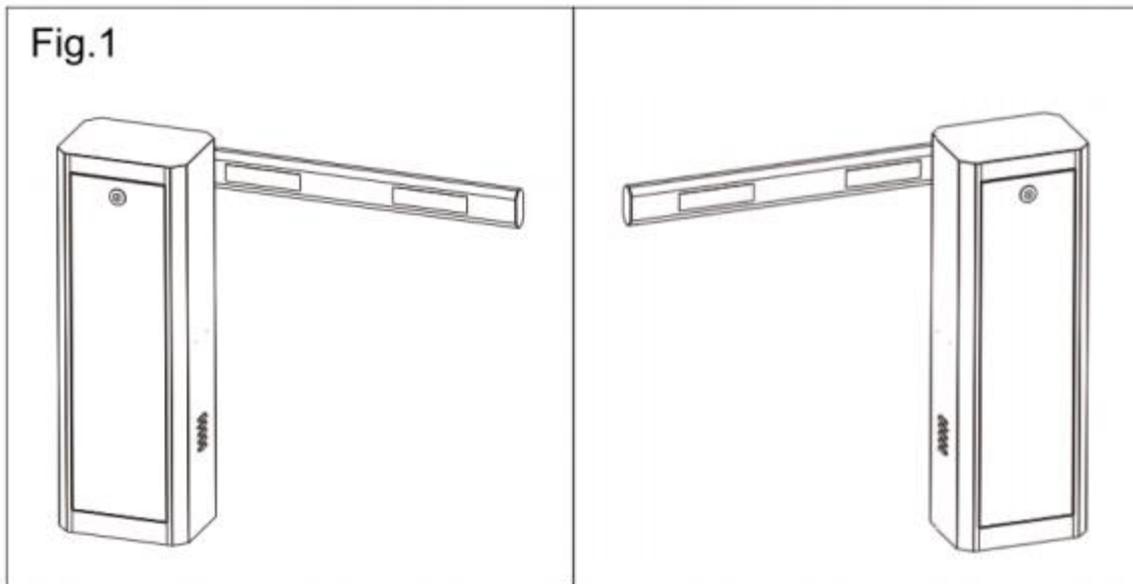
**To reduce the risk of INJURY or DEATH, read and follow all instructions.**

- Automatic boom barrier is designed for vehicles ONLY. Pedestrian must use separate entrance.
- Installation and maintenance MUST be executed by qualified service person. Keep boom barriers properly maintained.
- Ground wire and current breaker MUST be connected.
- Power MUST be cut off when performing installation or maintenance.
- When power outage, power MUST be cut off before using the manual release under the motor to open the barrier.
- ONLY operate when the boom barrier is in sight.
- NEVER perform operating or setting without the boom installed. This WILL result in severe injury.
- NEVER dismount the boom when barrier is at close status with spring attached. This will result in severe injury, even death.
- DO NOT replace the original wire.
- NEVER let children operate or play with barrier control. Controller MUST be installed at least 1.5m above the ground.
- SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

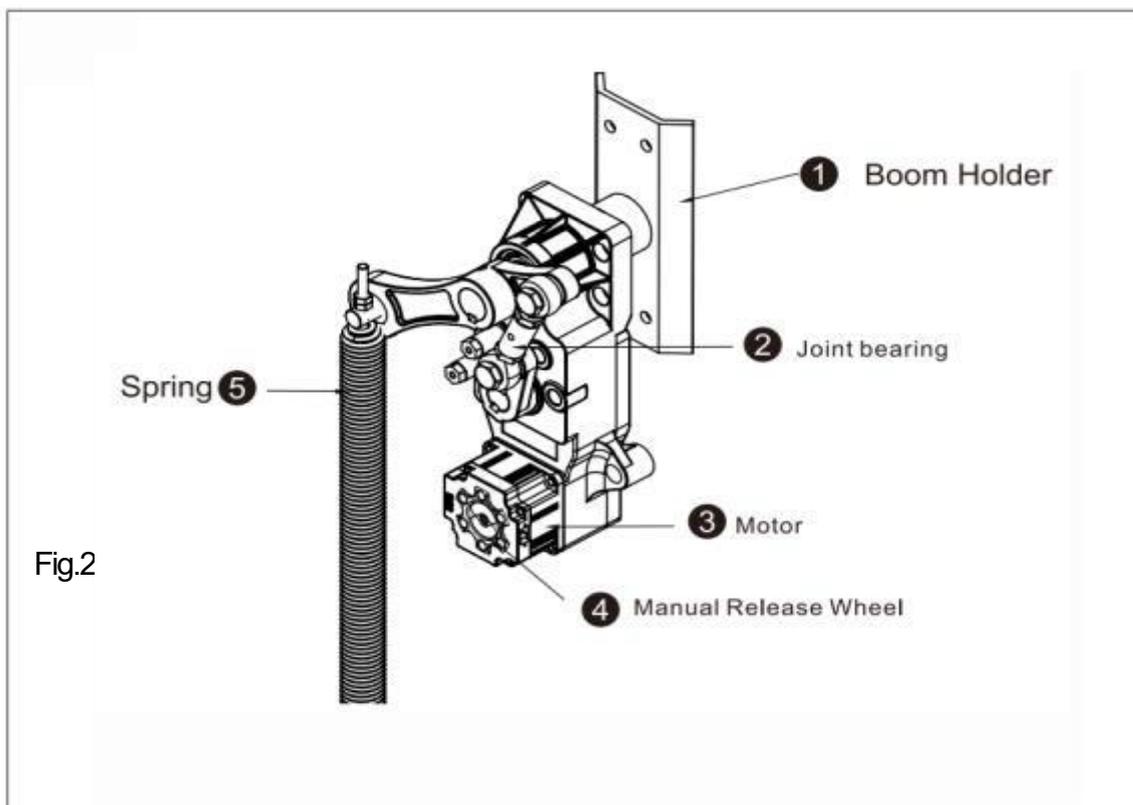
# 1. Direction Definition and main components of the machine

A.Close to Rjght

B.Close to Left



C. Main Components of the Motor



## 2. Features

- 24V DC Brushless Motor drive, safe electrical, no risk of leakage.
- DC brushless mechanism, DC brushless motor, hull limit switch, operate stably, low sound, long lifetime.
- Operate speed at the fastest 1.2S, the speed adjustment is available, soft start and soft stop function, high efficiency pass.
- With reverse, auto-close, & auto-intelligent check functions are available.
- External Interface suitable device, loop detector, radar sensor, Photocell, Access Controller with UHF Controller with UHF Readers & RS485 is optional.
- Cabinet is electrophoresis, then powder coating, for outdoor use.
- Manual Lift and Lower: Equipped with a motorized hand wheel, the lever can be manually raised and lowered during a power outage
- Ingenious Design: Utilizes a sinusoidal mechanism and maintenance-free bearings to minimize wear & tear on components
- Safe Use: The lever will not rapidly rise or fall.

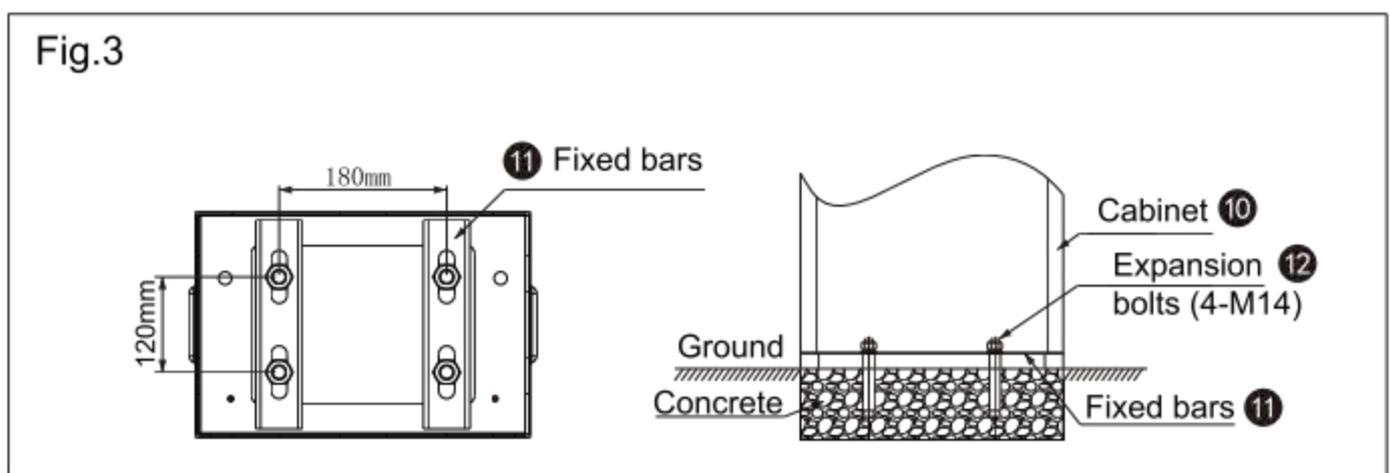
### 3. Specifications

- Motor Type: 24Volt DC Brushless Motor
- Operational Type: Electromechanical
- Power Supply : 220 Volts
- Frequency: 60Hz
- Operational Voltage: 24 Volts DC
- Max power Consumption: 120 W
- Working Temperature : -35°C to 70°C
- Boom Barrier Arm Length & Operating Speed : 6m (6s), 4m (3s), 3m (1.5s)
- Boom Barrier Arm Type: 6Mts (3.6 Straight + 2.7 Extension) Telescopic Boom
- Barrier Mechanism: Supported by 2 Springs
- Environment humidity : 10%~90% (non-condensing)
- IP class : IP54
- Working Temperature: -20°C to 80°C
- Barrier Dimension: 348\*248\*1060 mm
- Boom Barrier Weight: 45Kg
- Boom Barrier Remote Range:  $\pm \leq 20$ Mts
- MCBF: 2Million

## 4. Installation

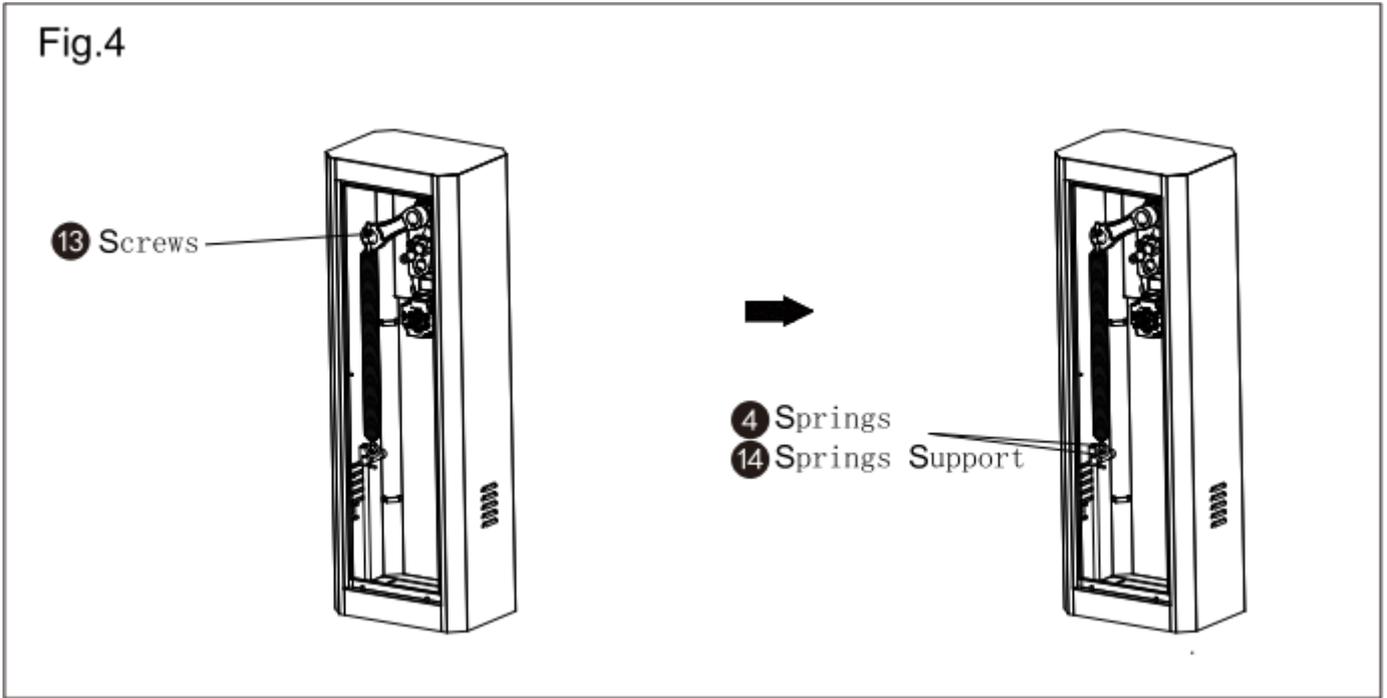
### 4.1 Cabinet Installation

- Open the Cabinet door and take out the attachment pack.
- Place ⑩ the Cabinet at desired position.
- Place ⑪ the Fixed Bars on the bottom of the Cabinet inside.
- Mark out the boreholes for ⑫ the Expansion Bolts (Fig. 3: L and W) according to the Fixed Bars.
- Move away the cabinet.
- Use an electric drill with 21mm to drill the boreholes. The depth of the boreholes should be 110 ~ 120mm. Place the Expansion Bolts.
- Move the cabinet back to the desired position and place the Fixed Bars on the bottom of the cabinet inside.
- Tighten the Expansion Bolts.

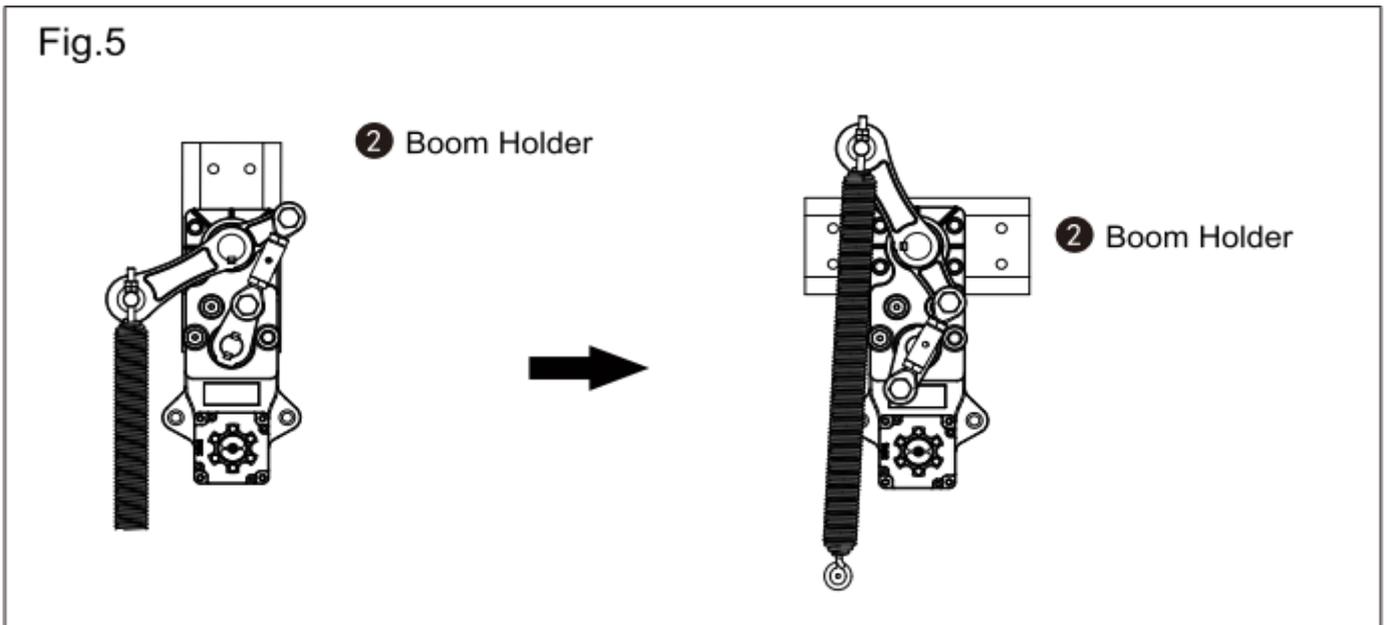


## 4.2 Boom Installation

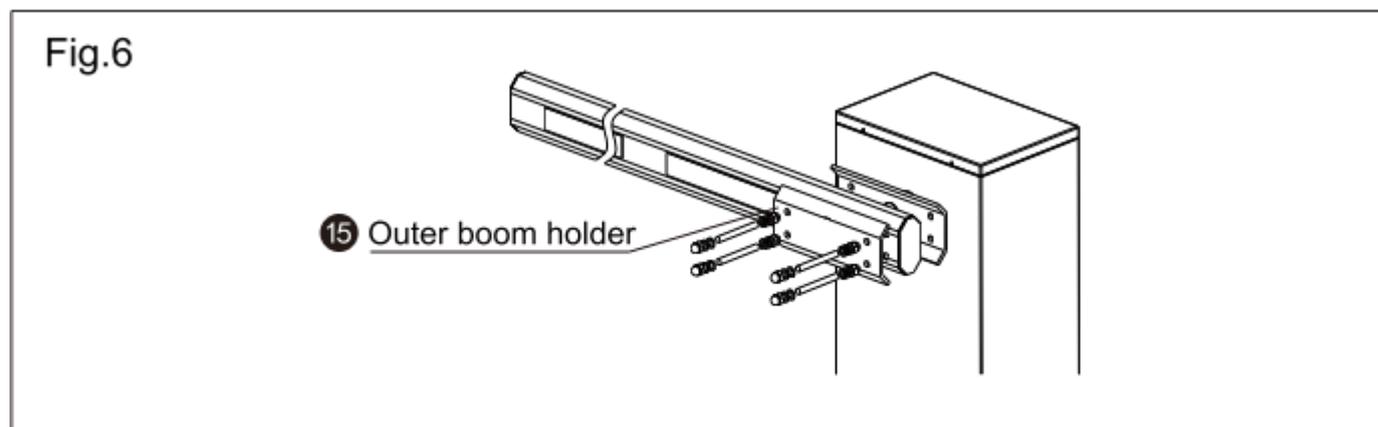
4.2.1 Loosen ⑬ the Screws and move ④ the spring(s) away from ⑭ the Spring Support. (Fig. 4)



4.2.2 Using ⑥ the Manual Release Handle to steer ② the Boom holder to horizontal position.

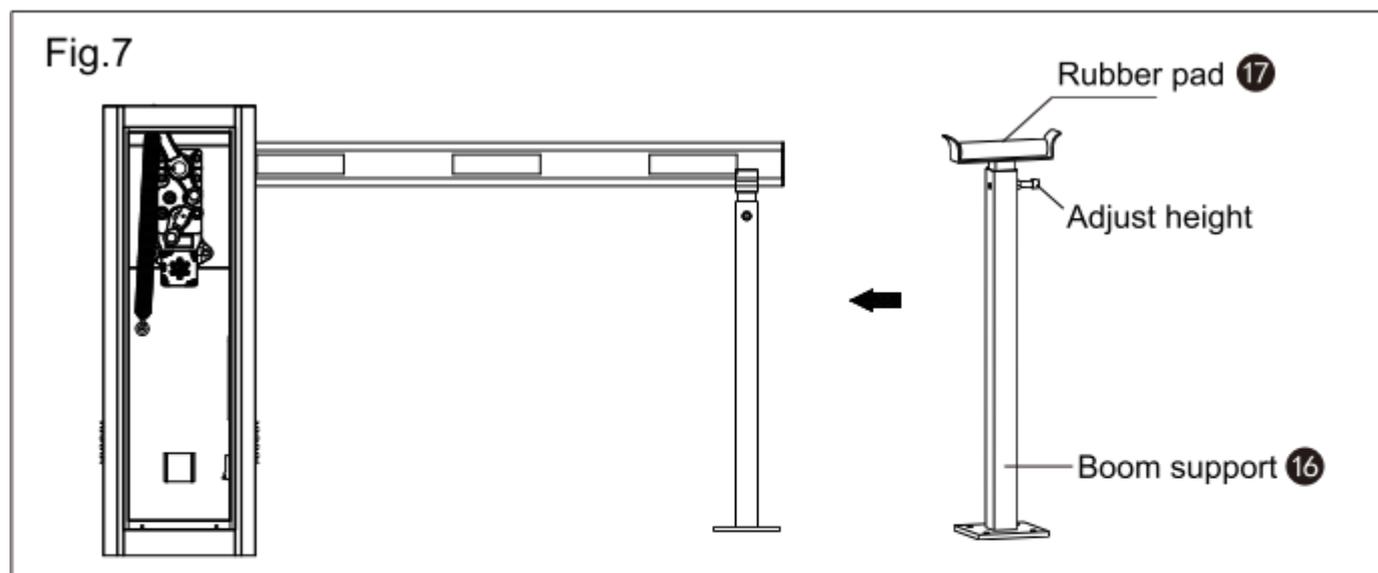


4.2.3 Install the boom and 15 the Outer boom holder according to Fig. 6.



4.2.4 Fix 16 the Boom Support on the ground. Adjust the height as 17 the Rubber pad touches the boom when the boom is at horizontal position.

(Fig. 7)



## 5. Setting springs' balance with boom weight

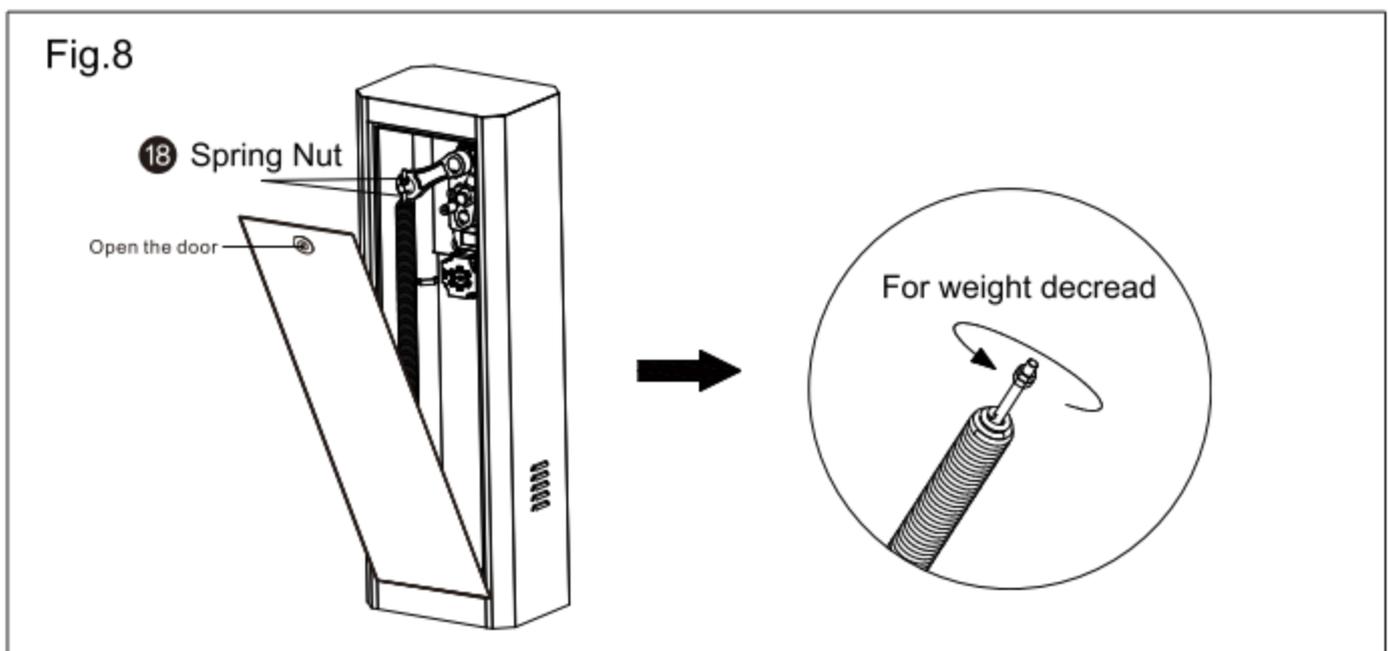
Attention: The springs are set to be balanced in factory. DO NOT change the boom length or weight if it is not necessary. If the boom length or weight must be changed (e.g.: adding a Stop Sign on the boom), the balance must be adjusted by a qualified service person.

### 5.1 Spring Quantity and Size

| Boom Length      | Quantity of spring | Spring Size       |
|------------------|--------------------|-------------------|
| $3 \leq X < 4$   | 1                  | $\Phi 4$          |
| $4 \leq X < 5$   | 1                  | $\Phi 5$          |
| $5 \leq X < 5.5$ | 2                  | $\Phi 4 + \Phi 5$ |
| $5.5 \leq X < 6$ | 2                  | $\Phi 5$          |

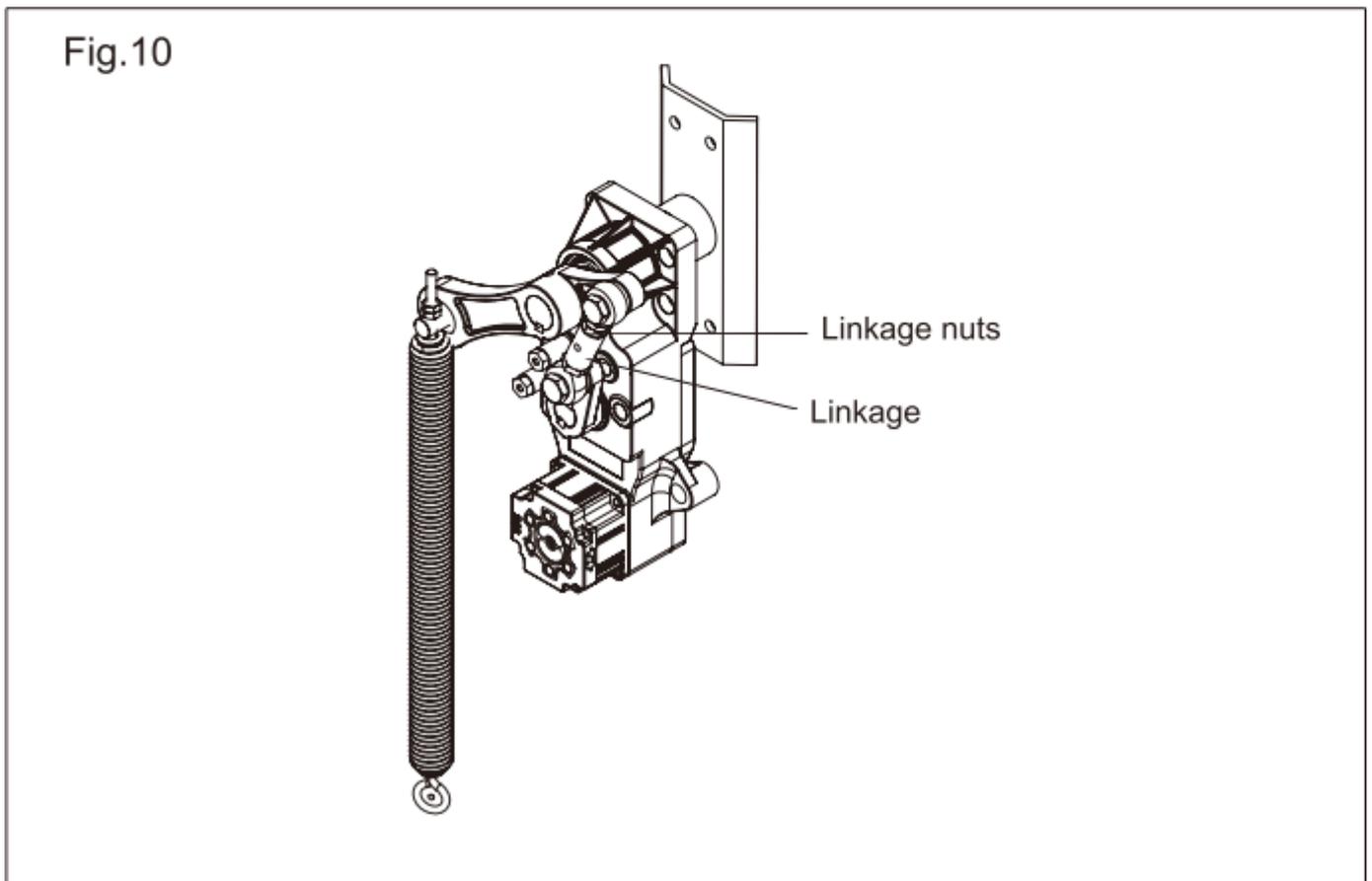
### 5.2 Spring Adjustment

5.2.1 Based on the weight added or subtracted on the boom, adjust the ⑱ Spring Nut. Tighten the nut clockwise if the weight increased. Loosen the nut counter-clockwise if the weight decreased. When adjusting, all nuts should be turned at the same cycles, in order to avoid the unevenly distributed loads. (Fig. 9)



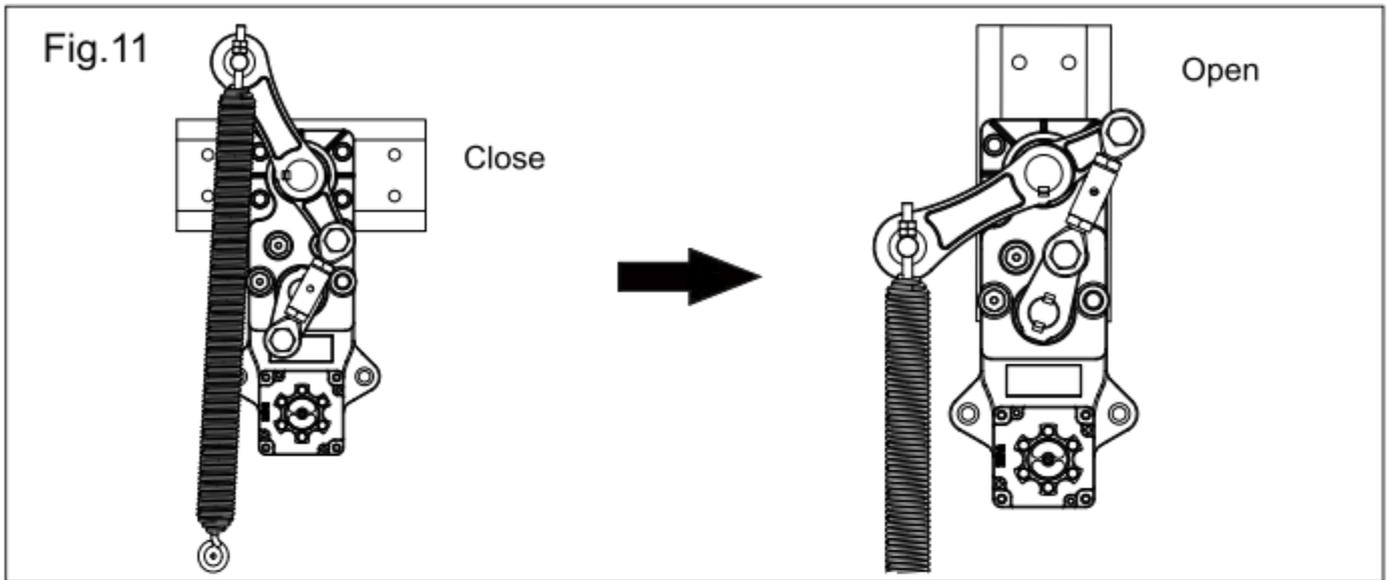
5.2.3 Loosen 21 the Lower Linkage nut and take off 20 the Upper Linkage nut. Turn 6 the Manual Release towards Open Status to pull out 22 the Adjusting Insert. Turn the Manual Release towards Close Status, and stop when the boom is between 30° to 60°. If the boom moves towards Open Status, 18 the Spring Nut should be loosened or reduce the number of springs. If the boom moves toward Close Status, the Spring Nut should be tightened or increase the number of springs. (Fig. 10)

Tighten the Upper and Lower Linkage nuts after the adjustment.



## 6. Operating Instructions

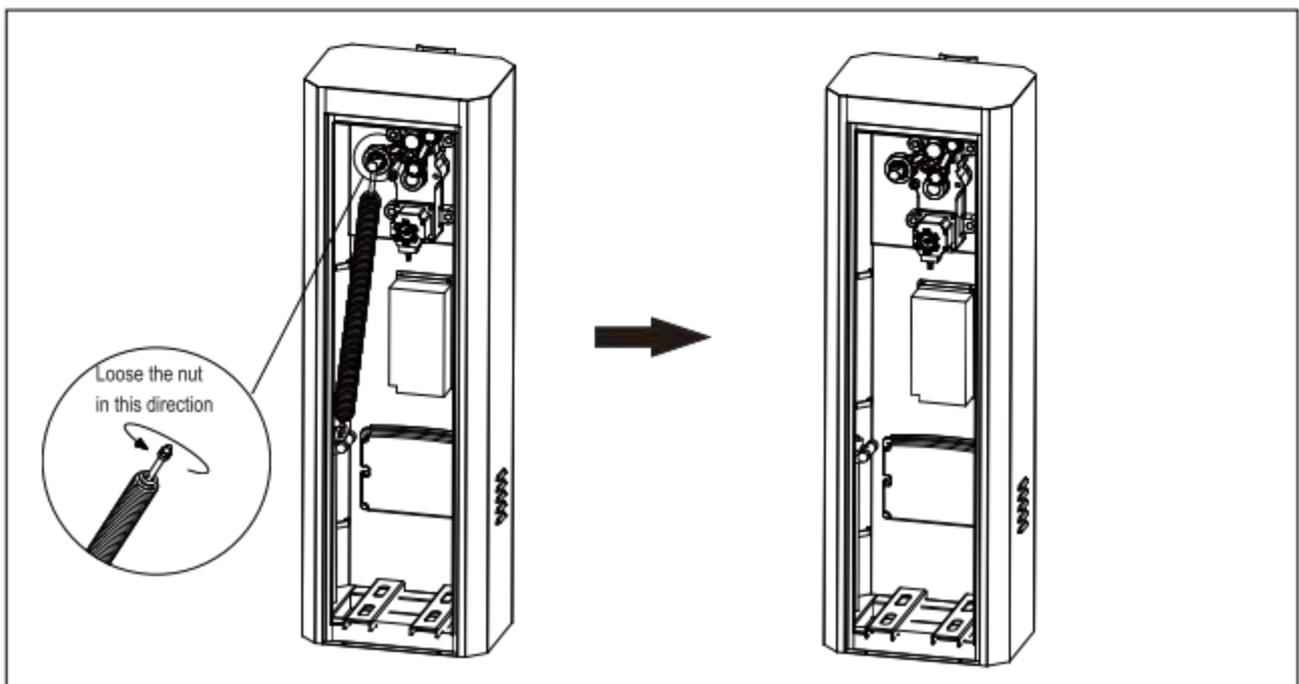
- A. Use remote controller to operate Automatic Boom Barrier.
- B. During power outage, turn the Manual Release towards Open Status to open the Automatic Boom Barrier. (Fig. 11)



## 7. Exchange the direction

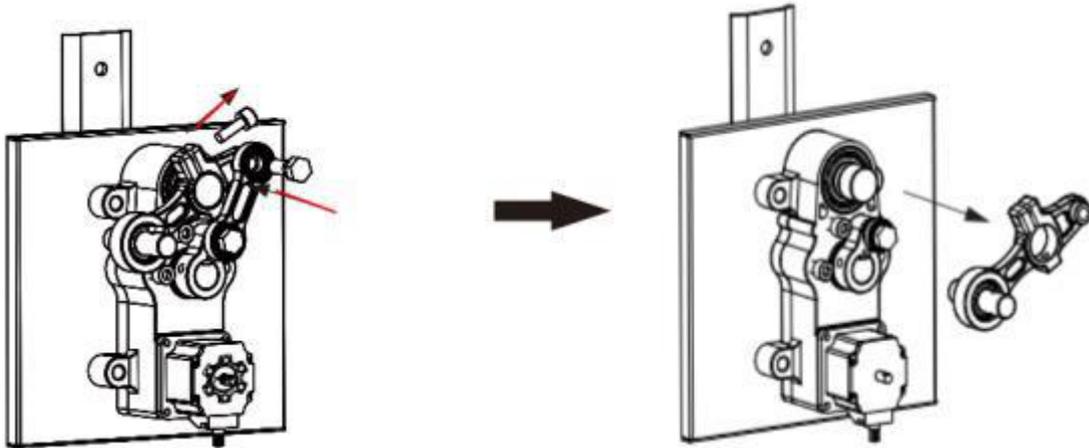
Change the barrier from right to left

7.1 Loose the nut of spring by #14 spanner.

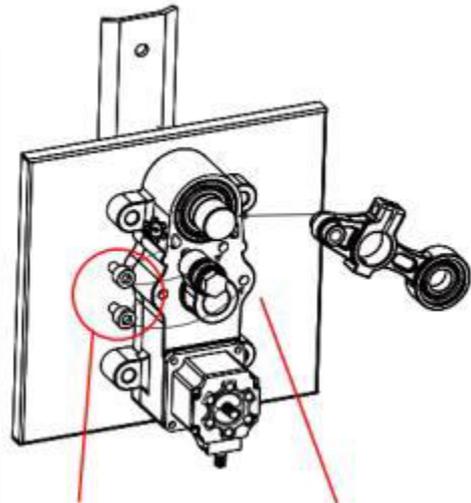
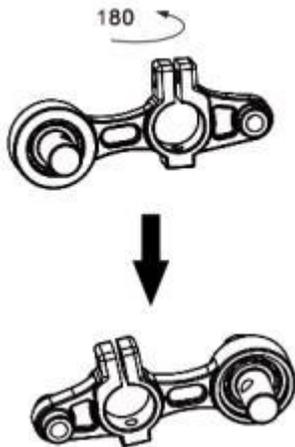


7.2 Remove screws and the take off the balance rod.

Remove these screws

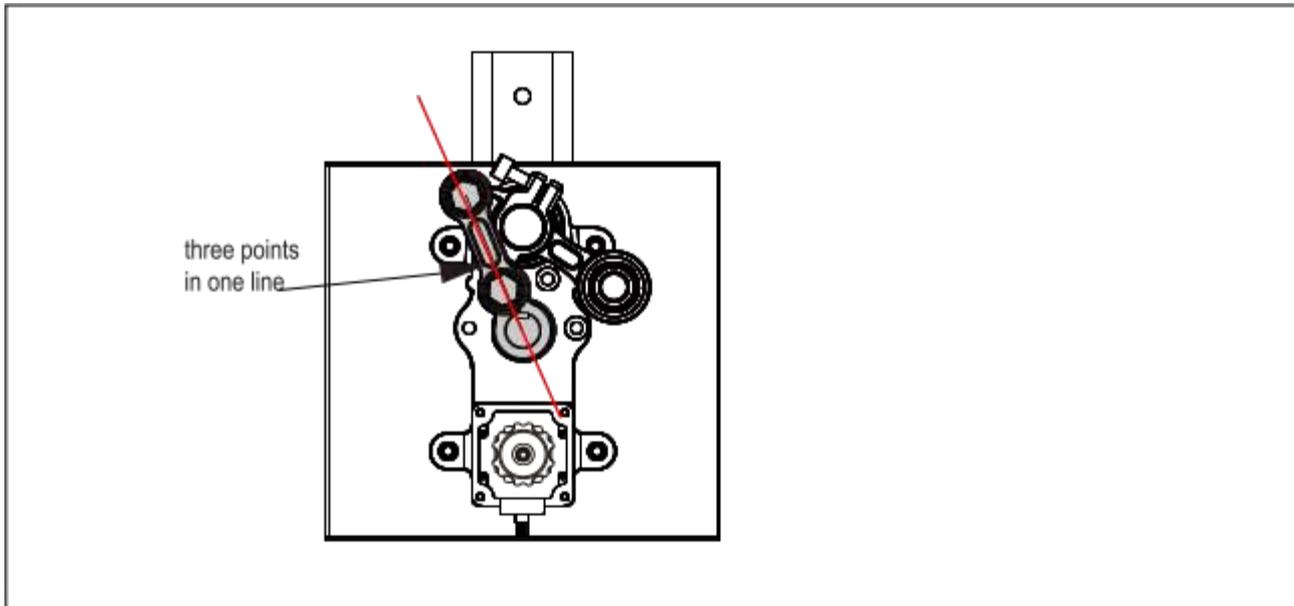


7.3 Rotate the balance rod by 180°, then assemble it back to shaft

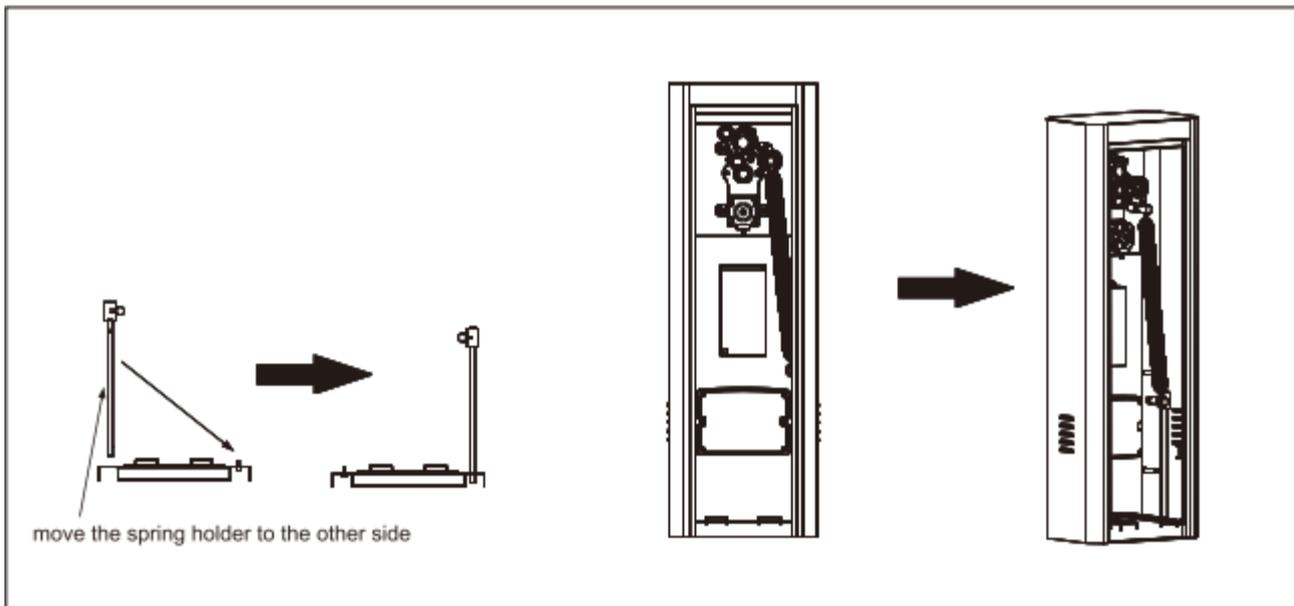


move these 2 screws to the other side

7.4 Connect the rod to balance arm, adjust the rod and link rod to three points in one line by the way: make sure the boom support is vertical, turn the release clutch, make the rod three point in one line.

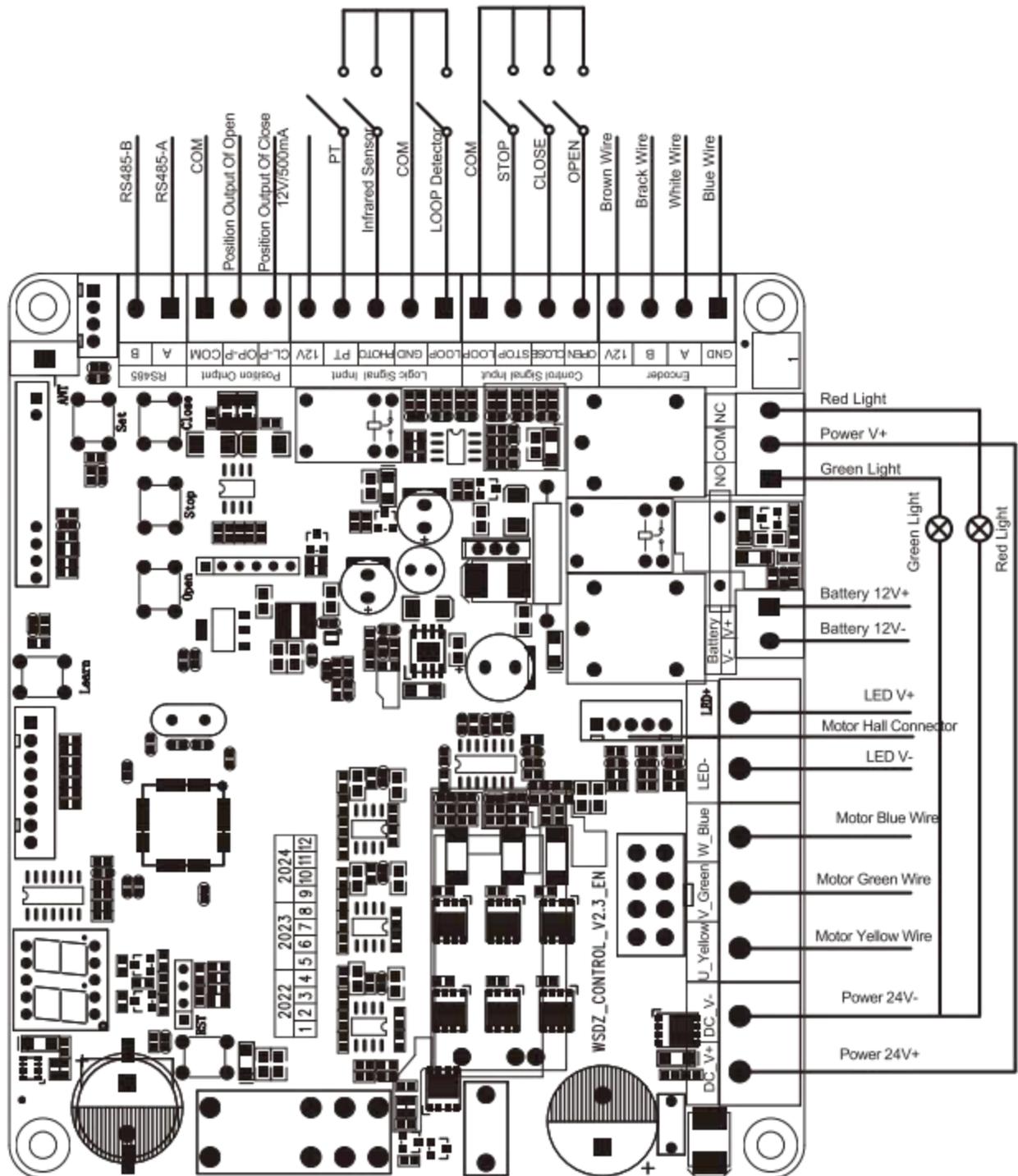


7.5 Change the spring to other side, then fix the spring.



## 8. Controller

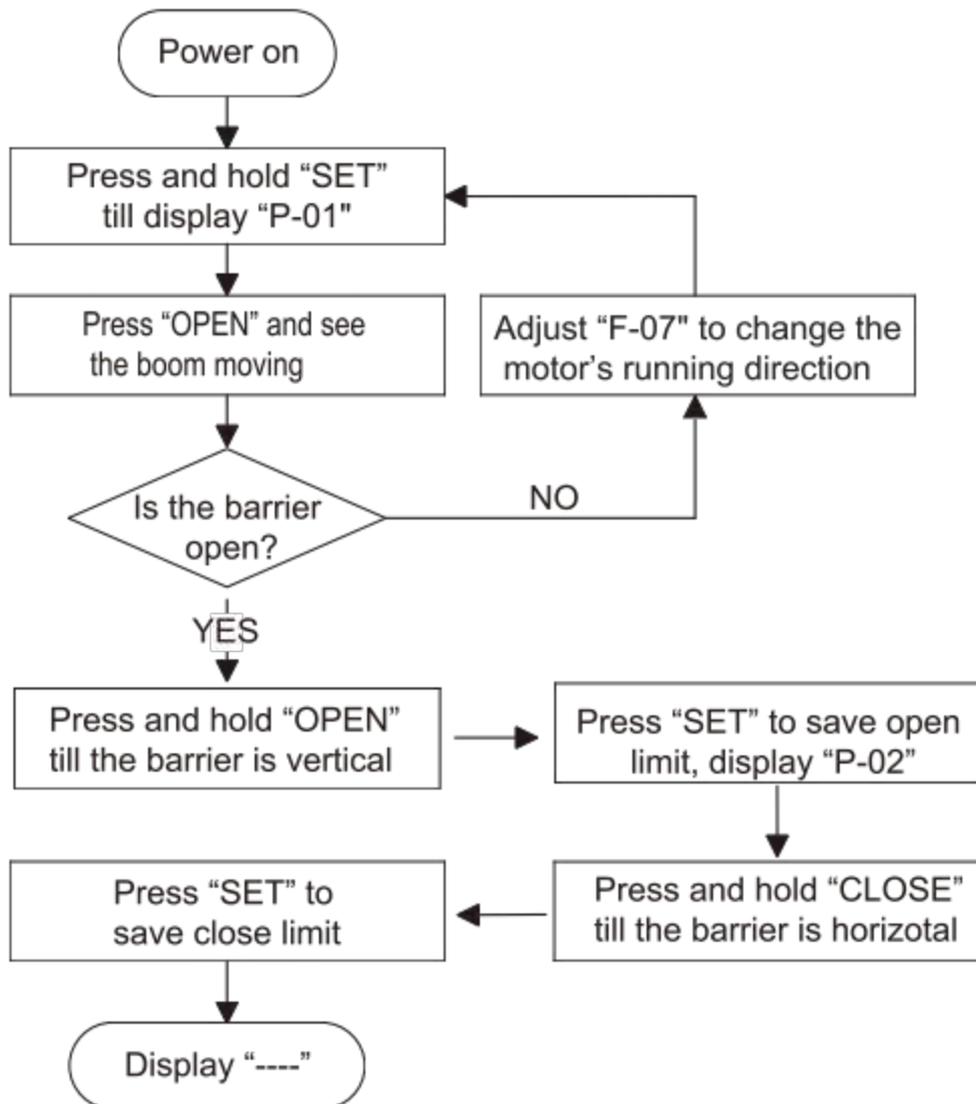
### 8.1 Electrical connections



Note:

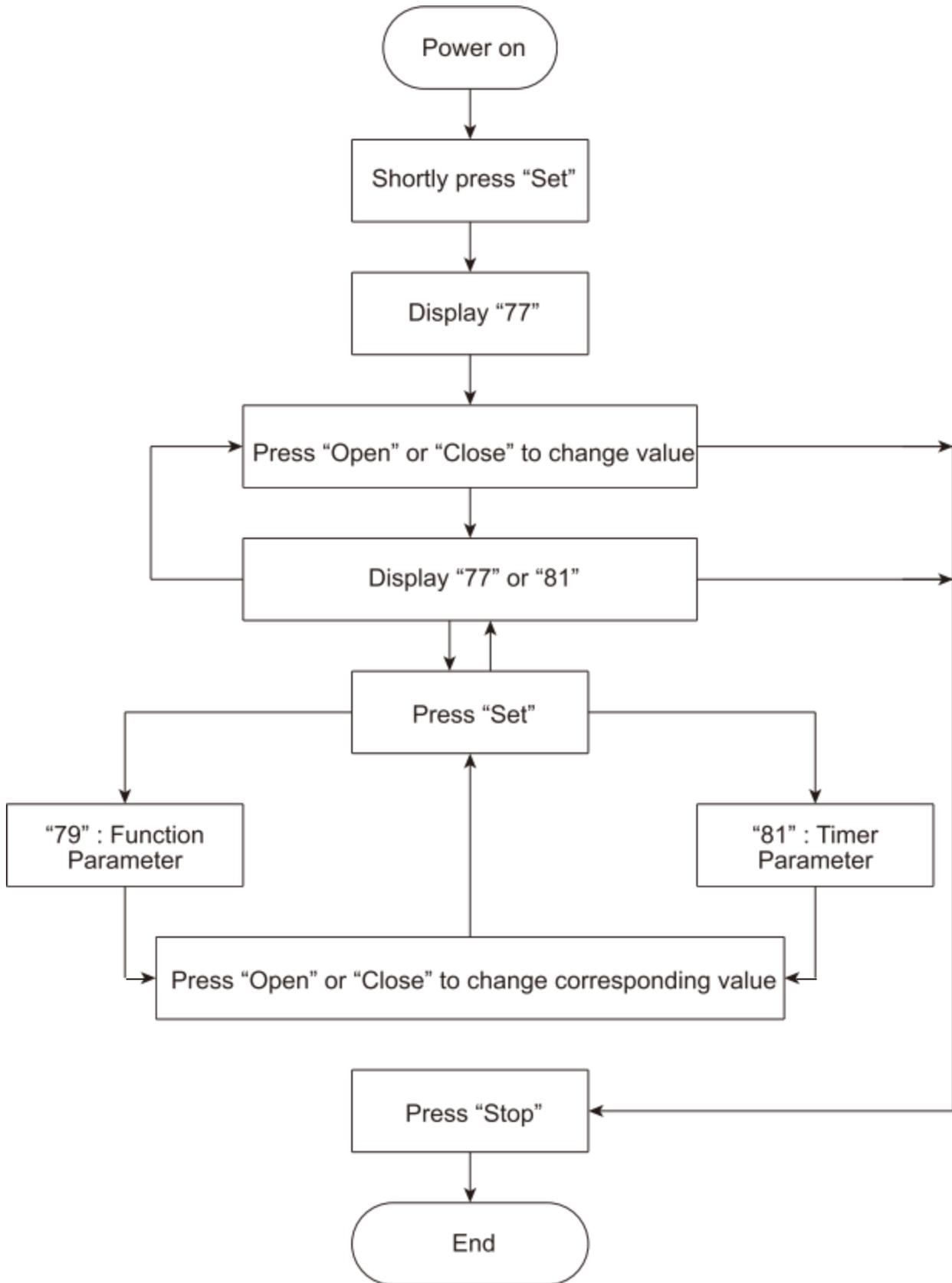
1. Terminal Battery 12V+ and 12V- are for connecting battery to auto open if power failure;
2. Terminal Power 24+ and 24V- are for connecting battery to operate the motor(remove power supply firstly).

## 8.2 Limits Setting



Attention: Limits are set well in factory any change made on length, or maintain and change controller, please follow steps below.  
Before power on, manually adjust boom to middle position <math>45^{\circ}</math> .

### 8.3 Parameters of Function and Time Resetting



## 9. Function Parameters

### 9.1 Function Definition

|    |  |
|----|--|
| F0 | Factory setting (caution I)  |
| F1 | open speed(the value bigger, the speed faster)   |
| F2 | close speed(the value bigger, the speed faster)  |
| F3 | Auto-close Timer(s). Max: 99s. Default 00 (Means auto-close function disabled)   |
| F4 | 00: Normal Mode (Default). 01: counting Mode.  |
| F5 | 08: 82L mechanism(Default)   |
| F6 | Backup   |
| F7 | Motor's running direction: 0: Default 1: opposite direction  |
| F8 | 00: open close state display(Default)<br>01: voltage<br>02: current<br>03: speed<br>04: Hall value<br>05: Trave<br>06: save record |
| F9 | 00: Hall limit(Default). 01: Encoder limit   |

### 9.2 Timer Definition

|    |       |
|----|-------|
| A0 | year  |
| A1 | Month |
| A2 | Day   |
| A3 | Hour  |

|    |                               |
|----|-------------------------------|
| A4 | Minute                        |
| A5 | second                        |
| A6 | Light-on Hour. Default: 18    |
| A7 | Light-on Minute. Default :00  |
| A8 | Light-out Hour. Default :06   |
| A9 | Light-out Minute. Default: 00 |

## 10. Transmitter (Remote Control) Setting

### 10.1 Transmitter's code setting

press "LEARN BUTTON", the "LEARN LED" light on, then, press and hold the button which you choose on the transmitter till the "LEARN LED" flashes and goes out, now the transmittier is coded. other transmitters can be coded as this way.

### 10.2 Erasing the transmitter's code

press" LEARN BUTTON" and hold onto make the "LEARN LED" light on and till go out.Now, all codes of transmitters which had been learnt are cleared.

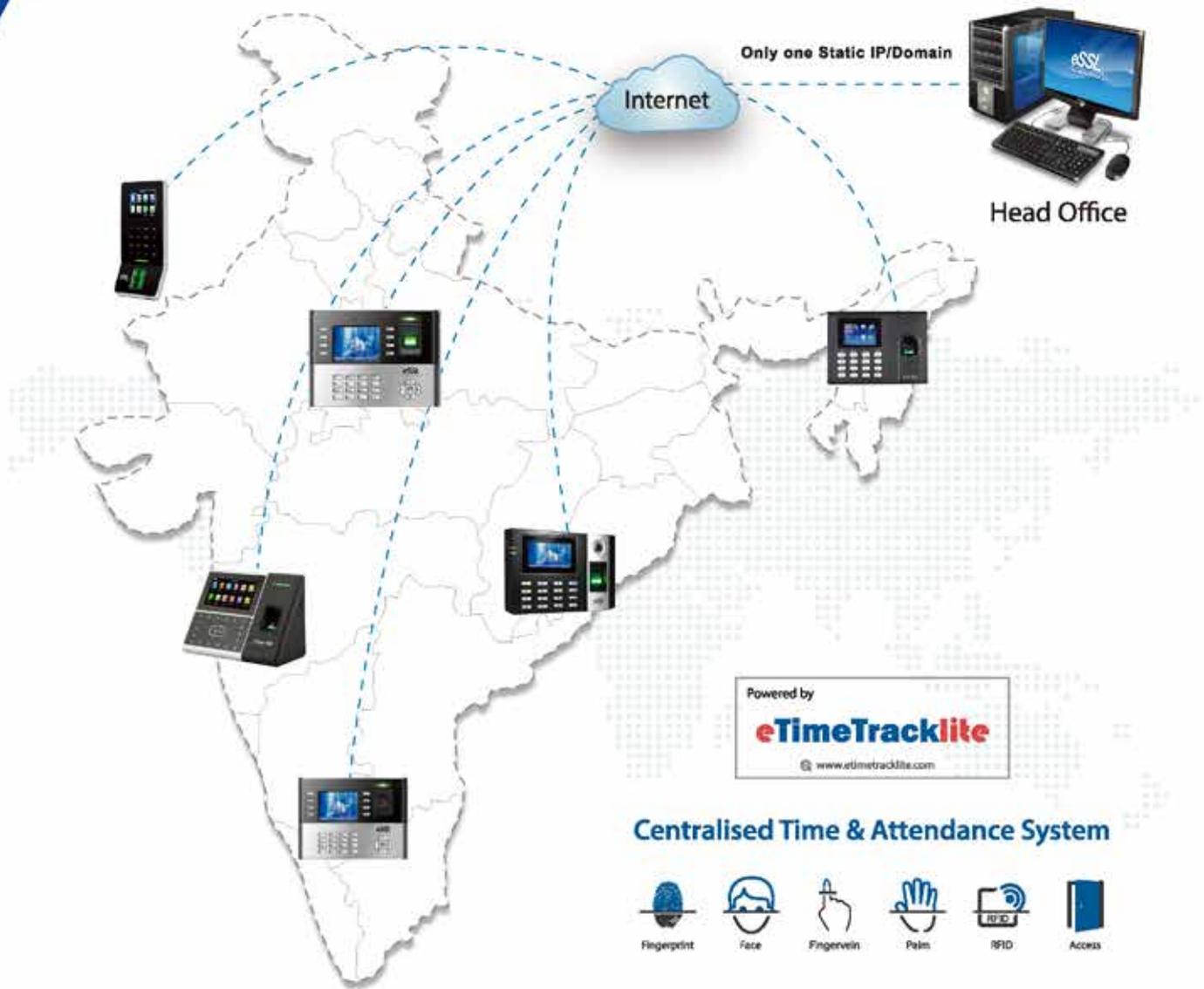
## 11. Error Codes

| code | Meaning                           | solution   |
|------|-----------------------------------|--|
| Err1 | En colder signal is invalid       | check the encoder limit wires.   |
| Err2 | Motor Nonstop Running over Limits | 1. check the optical counter Limits connecting<br>2. check the Mechanical system |
| Err3 | Motor Locked Rotor                | 1. check the Mechanical system<br>2. check Motor wires connectors                |
| Err5 | Hall of motor is invalid          | check the hal wires  |
| Err7 | photocel lisTriggered             | Remove the object that Blocks the photo Beam                                     |
| Err8 | Air wave sensor Triggered         | Remove the Object that Block the Air W avE                                       |

## 12. Trouble Shooting

| Trouble  | possible Reason   | solution  |
|--|---|---|
| power on, operate remote controller(transmitter), but no reaction. | Fuse blowout.   | check fuse inside control box and power supply.   |
|  | No battery or dead battery in remote controller(transmitter).       | change the batteries in transmitter.  |
|  | Frequency interference  | press "open"or "close"on the Main Board to test if needed , connect a wired controller. |
|  | External protectors'circuit malfunctioned or at working status.     | check the External protectors or change them if need.                                   |
|  | optical counter malfunction.  | change optical counter.   |
|  |   |   |
|  | control board malfunction.  | change control board  |
| Motor is functional but the boom doesn't work.                     | Boom starts at middle position.                                     |   |
|  | Low power voltage.  | check if the input power is at proper range.  |
| Boom does not reach correct position when opening and closing.     | Incorrect Linkage adjustment.                                       | Refer to Fig.15 (see page 10).  |
|  | Incorrect Limits setting.   | Reset.  |
| Boom shakes at open Limit and close Limit.                         | The LOCK Flat key between Boom Main shaft and Boom Holder is loose. | change the LOCK Flat key.   |

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