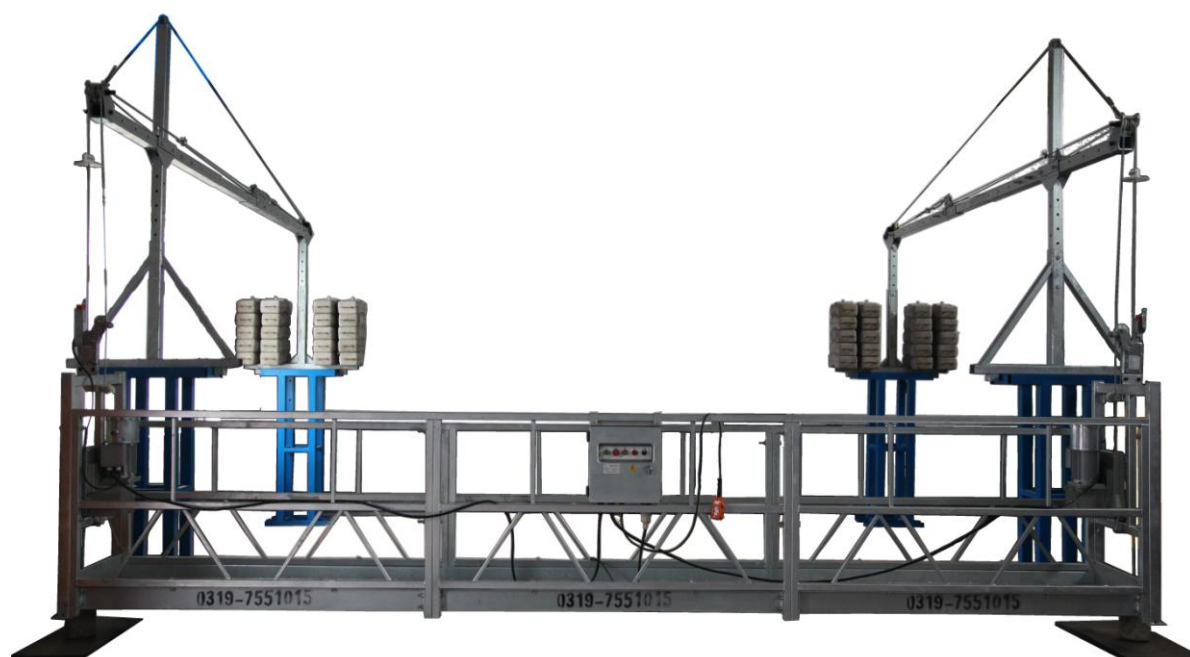




jiuchuang construction machinery technology Co., Ltd.



GONDOLA MANUAL
ZLP/500/630/800A/800



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1.Overview

Gondola is a kind of decoration machine that drives the work platform up and down by motor drive along the construction elevation.

Gondola is mainly used for the construction and decoration of high buildings and multi-floor buildings (such as mortar, tile, paint brush) and glass curtain wall installation, cleaning work, also can be used for ship repairing, elevator installation and depot, large tank, high chimney, bridge and dam engineering construction inspection and maintenance etc.

Gondola has the advantages of simple operation, easy displacement, convenience, practicability, safety and reliability. Using this product can avoid scaffolding, to make construction costs greatly decrease.

2.Specification and Performance

Jiuchuang produces ZLP800 gondola, using "S" form of winding rope mechanism. ZLP800A/630/500 height job Gondolas use “ α ” form of winding rope mechanism. This Manual will describe the performance, installation, use, and safety practices of the two products detaily.

The main technical parameters of the Gondola are in table 1 as follows:



Table 1 main technical parameters of Gondola

Name		Gondola type and main parameters				
Model		ZLP800	ZLP800A	ZLP630	ZLP500	
Rated load		800kg	800kg	630kg	500kg	
Lifting speed		8~10m/min	8~10 m/min	9~11 m/min	9~11 m/min	
Dimension of suspension platform (length * width)		7.5m×0.7m	7.5m×0.7m	6m×0.7m	5m×0.7m	
Wire rope		6*19W+1WS Φ 8.6	4*31SW+NF Φ 8.6	4*31SW+NFΦ 8.3	4*31SW+NFΦ 8.3	
Elevator	Rated lifting force		7.9 KN	7.9KN	6.3KN	5.1KN
	Motor	Model	YEJ100L1-4	YEJ90L-4	YEJ90L-4	YEJ90L-4
		power	2.2KW×2	1.8KW×2	1.5KW×2	1.1KW×2
		Voltage/frequency	380V/50HZ (According to customer needs to be produced separately)			
		Braking torque	15Nm			
Safety lock	Model: LSA 30 Swing arm anti tilt, Angle of rope lock: 3° ~8° , Allowable impact force: 30KN					
Suspension mechanism	Adjust height		1.1~1.7m			
	Front beam extension length		0.9~1.5m (>1.5mLoad capacity must be reduced accordingly)			
Suspension platform (including hoist, safety lock, electric control box)		550 kg	501 kg	428kg	382kg	
Suspension mechanism (excluding wire rope)		312 kg				
Counterweight		1000 kg	1000 kg	1000kg	750kg	
Complete machine (excluding wire rope)		1862kg	1813kg	1740kg	1694kg	
Normal working environment		Working temperature -20℃~+40℃				
		Relative humidity of environment ≤90% (25℃)				
		Supply voltage deviation from rated value ±5%				
		Gust of wind at work≤8.3m/s (Equivalent to 5 winds)				

The above parameters are standard configuration. Power type ,Type of wire rope, Suspension platform and Platform shape, Custom made.



3.the working principle and structure characteristics

Gondola is mainly composed of a hanging mechanism, suspension platform, hoist, safety lock, electric control system, wire rope, wire rope etc.See Figure 1

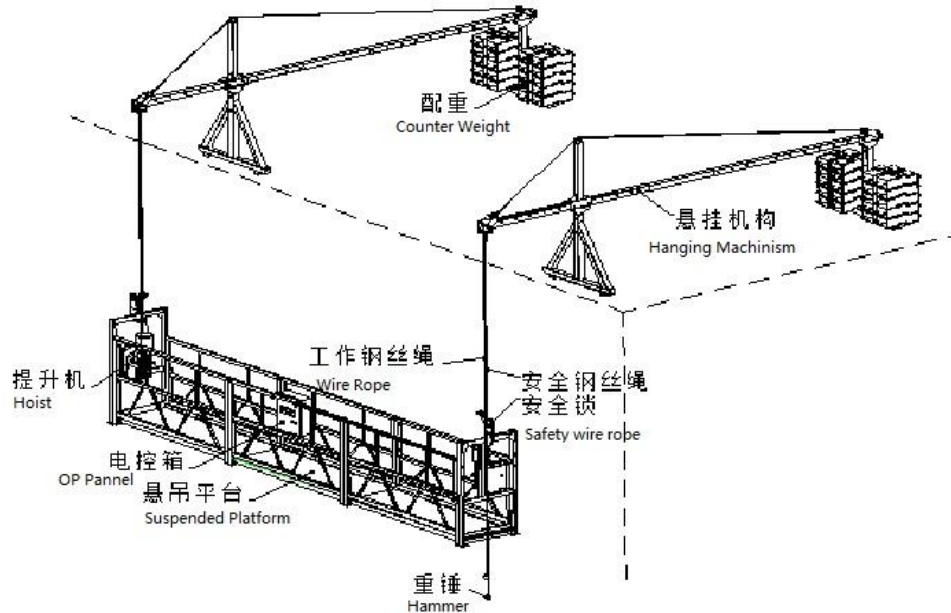


Figure 1. Gondola structure

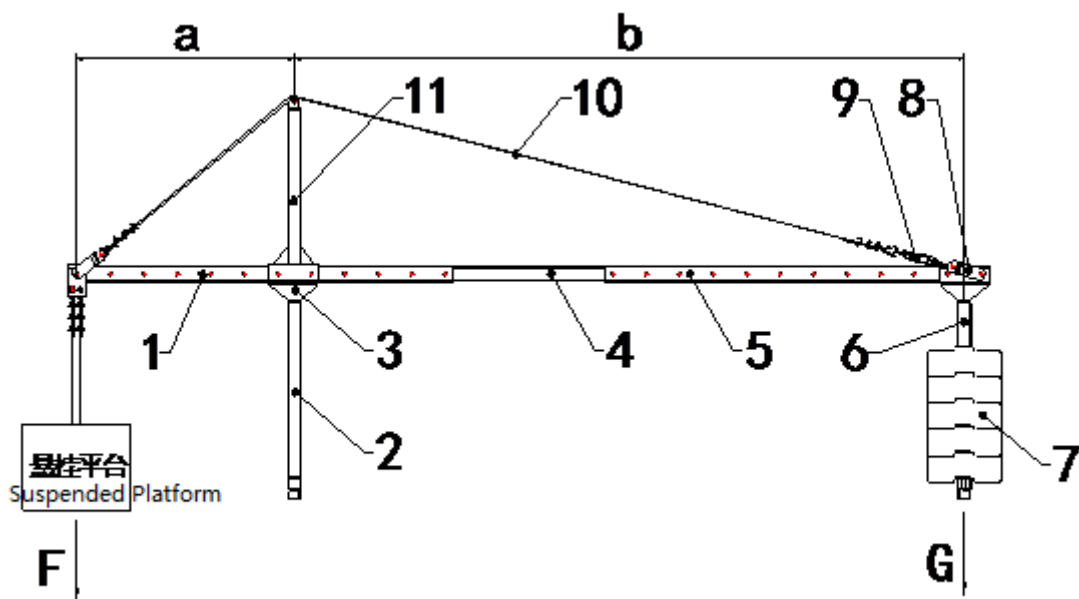


Figure 2 Suspension Mechanism



1、 The front beam 2、 Front bracket 3、 Inserted rod 4、 Intermediate beam
5、 Back rest 6、 Rear bracket 7、 Counterweight 8、 Connecting rack
9、 Rigging screw buckle 10、 Add wire rope 11、 Upper pillar

3.1 Suspension mechanism

The suspension structure is a steel structure frame which is supported on the top of the work surface of the building, through the wire rope, to support the weight of the suspension platform and the weight of the rated load (see Figure2: the diagram of the suspension mechanism). Each Gondola uses two sets of suspension mechanisms. The force exerted on the support of a building or structure shall be in accordance with the structural requirements of the building.

3.1.1 suspension mechanism is composed of a front beam, the middle beam and the back beam, a front bracket, on balance, strengthen the pillar, steel wire rope, plug rod, connecting sleeve and other components, the beam is inserted in the front and the rear beams, flexible regulation. In order to meet the requirements of the working environment, the height of the front and rear beams can be adjusted by adjusting the height of the inserting rod, and the height is 1.1 to 1.7m.

The structure and assembly relationship are shown in Figure 2: suspension mechanism

3.1.2 The ratio of the overturning moment of the hanging mechanism of the hanging Gondola shall not be less than 2

$$K = G \cdot b / F \cdot \alpha \geq 2$$

K——Overturning safety factor

G——Weight of the counterweight, plug and rear bracket (kg)

F——Total weight of the suspension platform, hoist, electrical control system, steel wire rope, rated load capacity, wind pressure value (kg)



a—The length of the front beam overhang (m)

b—The distance from the counterweight to the front pivot (m)

ATT:Installation can be extended according to the length of building structure adjusting the front and rear beams need, the beam extending distance of B should be adjusted to the maximum, before the beam length of a is usually not more than 1.3 meters, the length of the beam is greater than 1.5 meters (including 1.5 meters) or wire rope length more than 120 meters, must reduce work load or increase the weight, in order to ensure the anti overturning safety factor K value is greater than or equal to 2. (The data are referred to attachment 2)

3.2 Suspension platform

Suspension platform for assembling platform. The assembled platform consists of front (lower) column, back (high) column, underframe and mounting frame, etc. each component is bolted.

3.2.1 Installment platform base frame is welded by steel plate, the bottom has pattern plate. Install frame is welded by steel tube.

3.2.2 The suspension platform front and rear fence is welded by steel plate. The front fence height is 1040 mm, installed in the operation area on the side of the bar, after the height of 1140 mm.

3.2.3 Structure and installation method of assembled suspension platform (see Figure 2: suspension platform)

3.3 Hoist

3.3.1 Hoist model of ZLP800 Gondola is LTD80, hoist by electromagnetic brake motor, centrifugal speed limiting device, two speed system and the rope rolling mechanism, enhance the level second machine deceleration for gear transmission, the structure shown in figure3.ZLP800 a hoist structure (deceleration machine).



The hoisting machine adopts the rope coiling mechanism in the form of "S". Its structure is detailed as shown in figure4.ZLP800 the hoisting structure of the hanging Gondola (rope part).

3.3.2 Hoist model ZLP500/630/800A Gondola is LTD50/63/8A, hoist by electromagnetic brake motor, centrifugal speed limiting device, two speed system and the rope rolling mechanism, enhance the level second machine deceleration in gear transmission, adopts "winding mechanism alpha" forms, the structure shown in figure5.ZLP 500/630/800A for elevator structure diagram.

3.3.3 The lifting machine has automatic rope feeding function, and the operator only needs to insert the working wire rope into the entrance of the hoist. (see Figure3)

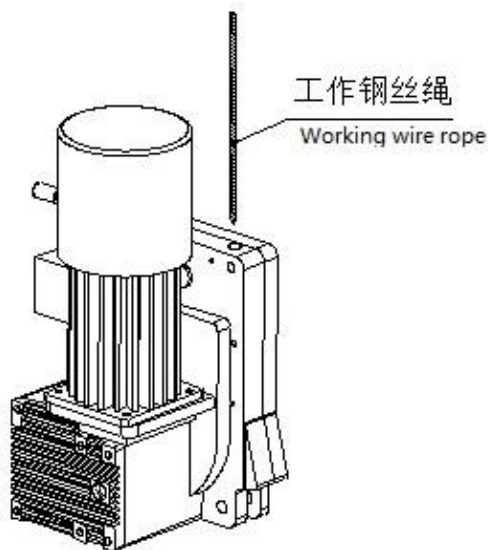


Figure3

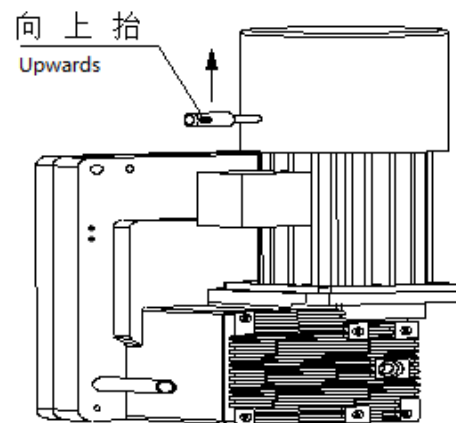


figure4

3.3.4 The electromagnetic braking device of the hoist motor can automatically engage in the case of power failure or power supply interruption, and the braking torque is generated, and the suspension platform can be stopped and supported. In case of power failure or power failure, the manual shift lever device downhill up, open the brakes, suspension platform can make the



uniform decline. (Check Figure4)

3.3.5 The hoisting machine adopts gear oil lubrication, it is recommended to use 80W/90 ordinary gear oil, LTD80 hoist oil volume is 1.2 liters; LTD63 hoist oil volume is 2 liters. In the southern part of the summer, N460 medium duty industrial gear oil should be used. According to the use of 6~12 months to replace the oil.

3.4 Safety lock

The safety lock is a mechanical device independent, when the rope breaks or suspension platform tilted to the limit, the safety lock can automatically lock the safety rope.

3.4.1 Swing arm type anti tilt lock (Figure5) is mainly composed of a rope clamp, a sleeve plate, a torsion spring, a swing arm and a roller parts, its working principle is to work on the wire rope tension swing roller arm, the rope is opened, the safety rope can smoothly pass, when suspension platform inclined to limit or work rope breaking, wire rope on work safety lock on the swing arm pressure weakened or disappeared, the safety lock rope clamp and wire rope friction between the torsion spring and has effect on the rope and quickly closed and locked, safety rope, stop suspension platform continues to incline or fall.

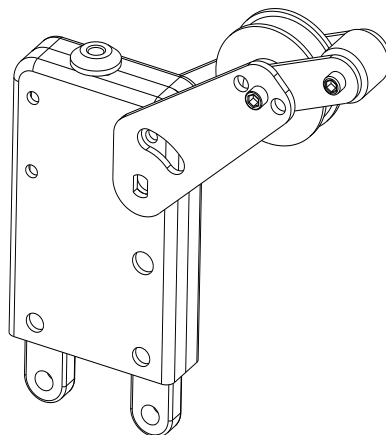


Figure5. Swing arm type anti tilt lock

3.4.2 When you buy a Gondola of products, our company has on each safety



lock for the first time calibration. When the first calibration comes into effect, every 12 months, a calibration cycle, the expiration of the calibration by manufacturers or qualified units for maintenance and repair, and re calibration. (in the dust, corrosive substances and adhesion materials in work safety lock, overhaul and re calibration cycle should be shortened accordingly)

3.5 electric control system

The electric control system consists of an electric appliance control box, an electromagnetic brake motor, an upper limit switch and a hand hold switch. (see Figure6)

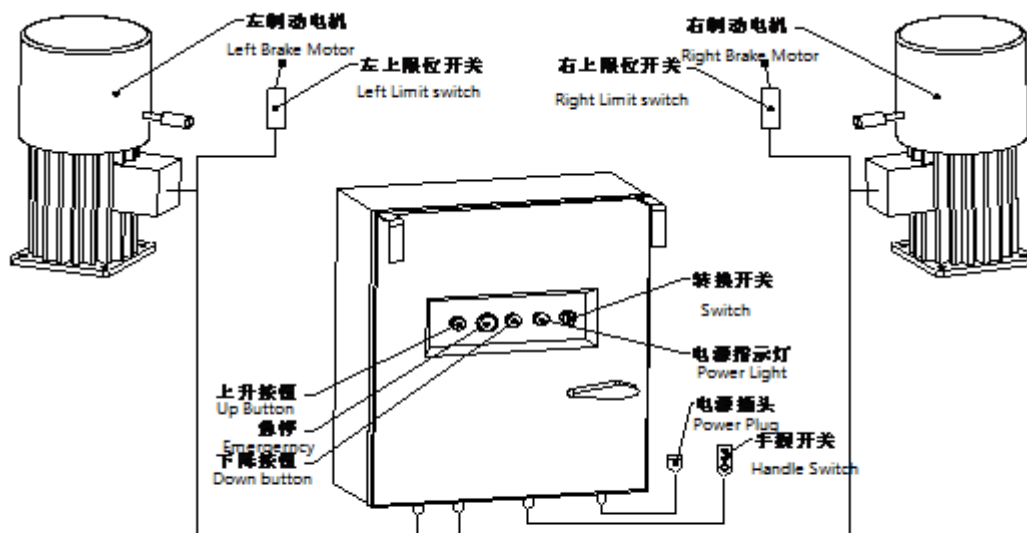


Figure6. connection diagram of electrical control system

3.5.1 The power supply adopts the three-phase five wire system, and the five core cable is connected with a waterproof type power plug to enter the electrical appliance box, and then the three-phase leakage circuit breaker is connected with the power supply. (see Figure6: electric control principle diagram). Please connect the power to the three-phase five wire system.

3.5.2 Emergency braking and overload protection circuit

The power switch, the contactor thermal relay connector to the motor



conversion and, if abnormal situation work, press the electric panel box on the "emergency " button, the contactor is power off, the power supply to the motor hoist stop work, implement emergency braking, ensure the safety of thermal relay overload caused by overheating in the cause of brake pads too tight when the automatic power-off protection.

3.5.3 Motor Brake circuit

Motor brake is inside the motor fan cover, Brake power switch control 220V AC power to half-wave rectifier block for the 99V DC power supply, and through the contactor to achieve rapid braking control.

3.5.4 control circuit

The circuit has a control transformer, converted into 36V low-voltage electric control, safe and convenient operation. When working, the utility model can be operated on an electric box, and can also be operated by hand holding switches. The motor can run at the same time, and can also run separately, so the operation can be converted simply by turning the switch on the panel of the electrical appliance box. When the switch switches to one side, you can click run.

3.5.5 Upper limit alarm circuit

The limit position is installed at the highest position of the suspension platform. When the limit stroke switch is reached, the motor stops and the alarm bell rings.

3.5.6 Spare Power

In order to facilitate the construction, in the electrical box for the user set up a backup power cord terminal. Below 500W of lighting, the power of the power tool can be connected to the terminal. Refer to Figure6 and Figure7 for installation.

3.6 Wire Rope

The utility model is composed of a working steel wire rope, a safety steel wire



rope and a reinforced steel wire rope, and the operation, suspension and safety prevention of the suspension platform are completed. Steel wire rope is made of special galvanized steel wire.

3.6.1 ZLP800 gondola used in the structure of the rope for the 6 * 19W + 1 WS, diameter 8.6mm, nominal strength of 2160Mpa, breaking tension of not less than 70kN. ZLP630 Gondola used in the structure of the wire rope 4 * 31SW + NF, diameter 8.3mm, nominal strength of 2160Mpa, breaking tension of not less than 53kN.

3.6.2 Steel wire rope, safety rope of the effective length of more than 120m, must be reduced suspension platform on the rated load or increase the number of weight hanging mechanism, in order to ensure the suspension mechanism of anti overturning moment is greater than or equal to 2. Specific conversion value: the effective length of each increase of 10m, steel cord weight increased by 12kg, that is, the rated load on the work platform should be reduced by 12kg.

3.6.3 The fixing method of the end of the wire rope is carried out according to the regulation of GB5144-1994 (see Figure7). The U-screw buckle is on the tail section of the steel wire rope, and the clamp holder is buckled on the work section of the steel rope, and can not be reversed. The wire clips shall not be arranged alternately on the wire rope, with a number of not less than 3EA, spaced at about A 60mm and sequentially secured from the ring.

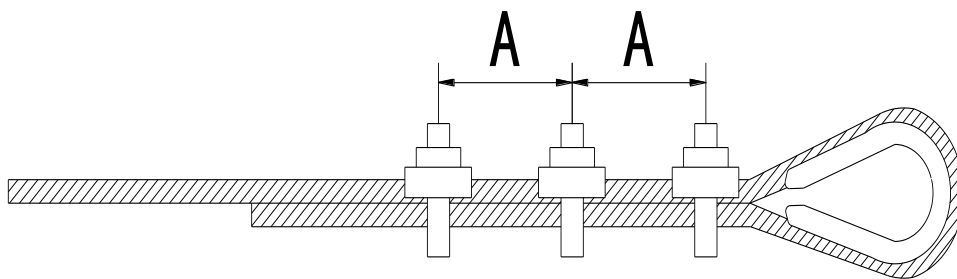


Figure7. Wire rope clip correct installment

3.6.4 Maintenance and inspection of steel rope

The steel rope should be properly maintained and maintained to prevent



pollution and corrosion and to check the steel rope for deformation, breakage and breakage. Scrap of wire rope shall be carried out in accordance with GB5972-86 regulations

Special Attention:

The wire rope shall be replaced immediately In case of any of the following circumstances:

A. wire rope oddlot, kink, loose knot, flattening. Bending or any other distortion or distortion.

B. wire rope in a 6D (D for wire rope diameter) within the pitch range, broken wire number reached 5, should be scrapped. When the surface of the wire rope is worn or corroded, the standard of scrap must be reduced, and the percentage of reduction will be allowed to be broken by 5 pieces at each twist interval, and then multiplied by the percentage of wear or corrosion on the surface of the wire rope.

There are obvious signs of corrosion on the C. steel wire rope, that is, the surface is sinking and the steel rope is loose.

D. steel wire nominal diameter reduced to 6%, even if no broken wire was found.

E. outer wire wear reaches 40% of wire diameter.

F. damage or accumulation caused by the action of heat or arc.

4.Installation, commissioning and disassembly

4.1 preparation before installation

Before installation, please check the quantity of each part according to the packing list Check all parts for abnormal conditions.

4.2 installation and adjustment of suspension mechanism

(see Figure1: suspension mechanism)

4.2.1 Inserted rod is inserted into the front bracket casing triangle, adjusted



according to the parapet height rod height, fixed with bolts, the front seat installation is complete.

4.2.2 inserts the rod into the rear support sleeve, the height of the rod is higher than the front bracket, the insertion lever, etc., the bolt is fixed, and the back seat is installed.

4.2.3 the front and rear beams are respectively arranged before and after stent insertion, with the beam to the front and rear beams connected according to the selected before and after the suspension of the front beam of the distance and the actual situation, before and after stent distance should be put to the maximum, the small connecting sleeve are respectively arranged on the front beam and the rear bracket plug rod, rod will be placed in the pillar of the front bracket, fixed with bolts, assembled on the pillar.

4.2.4 Make the strengthen wire rope end through the front beam rope suspension frame of Big sleeve roller with wire rope clamps, end rigging screw mouth hook bracket pin inserting rod on the connecting sleeve, the other end of the wire rope through the other end of the rigging screw with wire rope clamps, regulation screw buckle, the reinforcing wire rope taut.

4.2.5 According to article 3.6.3, the work wire rope and the safety steel wire rope are respectively fixed on the steel rope suspension rack of the front beam, and the upper limit block is arranged at the appropriate place of the safety steel wire rope.

4.2.6 check whether the above components are properly installed, especially the installation of bolts, wire clips and so on. After confirmation, the suspension mechanism is put into the working position, and the work rope is about 60cm away from the working surface. The distance between the sides of the two suspension mechanisms shall equal the length of the suspension platform. The counterweight is evenly placed on the base of the rear support frame, and the anti-theft bolt is tightened. Slow down the work wire rope and



the safety wire rope from the end. Before the second steel wire rope of the hanging Gondola is lowered, a special steel wire rope shall be pulled out on the ground by a special person, and it is forbidden to carry out the rope work in the winding state.

4.3 installation and adjustment of suspension platform

(see Figure2: assembled suspension platform)

4.3.1 put the floor pad over 200mm, flat, and put on the railings, low railings on the side of the work face, and use M12*90 bolts to connect.

4.3.2 the hoist mounting frame is mounted on both sides of the rail. During the installation, attention shall be paid to the size, length and installation position of the bolt. (refer to figure2). A large washer must be used to contact the steel tube. The caster is mounted at the lower end of the handrail at both ends of the platform and fixed with M12*100 bolts.

4.3.3 check whether the components are properly installed, if there is any dislocation, and confirm all the bolts.

4.3.4 installation must be checked by personnel to see if all the bolts have been tightened.

4.4 installation of hoist, safety lock and electric box

4.4.1 the hoist is mounted on the mounting frame of the suspension platform, with the handle and the lock pin fixed, and the spring of the detent must be leveled and locked. (see figure8: Gondola hoisting machine, safety lock, electric control box installation diagram)

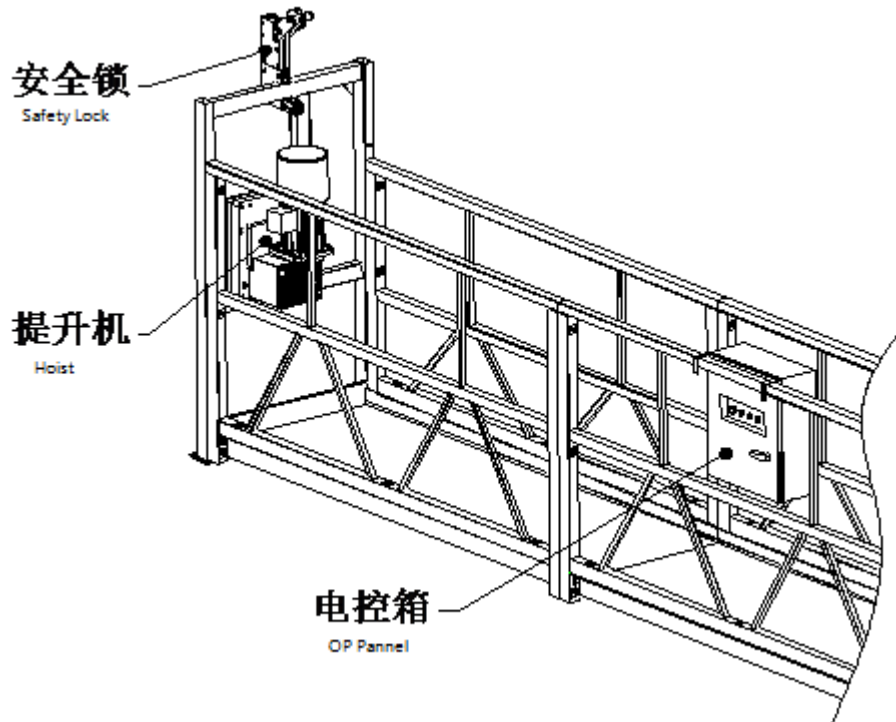


Figure8.Hoist, safety lock, electric control box installation diagram

4.4.2 install the safety lock bracket mounting plate, bolt. (safety locks roll toward the inside of the platform)

4.4.3 hang the electrical box in the middle of the fence behind the work platform, insert the motor plug and the hand switch plug into the corresponding socket in the lower part of the electric box.

4.4.4 All the air plugs of the 4.4.4 are inserted into the socket corresponding to the lower part of the appliance box, and all the air plugs must be aligned with the notch during the insertion process, and the plug joint is ensured to be in place so as to prevent the virtual connection from sparking damage. After confirming the error, connect the power supply according to the three-phase five wire system.

4.5 installation notes

4.5.1 Between the two sets of suspension mechanism inside the distance to work and the length of the platform, so as not to affect the use of the safety lock.



4.5.2 The extending length of the front beam is generally controlled at 1.1 ~ 1.3m, and the distance between the front and rear brackets (Figure2-b) shall be placed at the maximum, and all the weights shall be uniformly distributed on the counterweight branches of the rear support.

4.5.3 all bolts, nuts (including wire clips) shall be tightened. The spring of the detent on the pin of the hoist mounting must be locked.

4.5.4 hoist cable plug and hand switch plug to check the direction, and then inserted into the electrical control box at the bottom of the corresponding socket, do not plug hard, so as not to damage.

4.5.5 access to the electrical box must have zero line, otherwise it will cause leakage circuit breaker and electromagnetic brake does not move.

4.6 suspension mechanism, two transfer installation program

Suspension mechanism two shift refers to the same installation height of small range movement, should according to the following procedures.

4.6.1 remove the heavy hammer on the wire rope.

4.6.2 suspend the platform on a flat and solid ground to prevent possible displacement and overturning, resulting in damage to the suspension platform

4.6.3 remove the safety rope from the safety lock, then exit the wire rope from the hoist.

4.6.4 move the bracket to the desired position before and after moving.

4.6.5 adjust the bracket position before and after adjustment and install the suspension mechanism.

4.6.6 move the suspension platform to the desired location.

4.6.7 Incoming work wire rope into the hoist, the safety rope into the safety lock in.

4.6.8 the heavy hammer for mounting the wire rope

4.6.9 inspection, acceptance, qualified before use.

4.7 Gondola disassembly procedures



4.7.1 Before the demolition, should be carried out a comprehensive inspection of the hanging Gondola, record the damage.

4.7.2 disassembly methods and procedures:

4.7.2.1 remove the heavy hammer on the wire rope;

4.7.2.2 parked the suspension platform on a flat and compacted ground to prevent possible displacement or overturning and cause damage to the suspension platform;

4.7.2.3 Disassembly on a wire rope

4.7.2.3.1 first the safety rope is removed from the safety lock, and then the wire rope to exit from the elevator;

4.7.2.3.2 pull the wire over the top

4.7.2.3.3 wire rope from the suspension device is removed, a diameter of 60cm disk, even in at least 3 positions;

4.7.2.4 Power cable disassembly

4.7.2.4.1 cut off the power supply;

4.7.2.4.2 remove the power cable from the distribution box

4.7.2.4.3 remove the power cable from the nacelle

4.7.2.4.4 power cable to the top or put to the ground, a diameter of 60cm disk, even in at least 3 positions;

4.7.2.5 Removal of suspension mechanisms

4.7.2.5.1 remove the bolts, remove the upper pillar, in front;

4.7.2.5.2 remove the bolts and remove the insert, front and rear support;

4.7.2.5.3 put the front bracket firmly;

4.7.2.5.4 remove the counterweight, and don't use the rear support as the lifting tool.

4.7.2.6 place all the disassembled parts in the prescribed location and keep them in good order.

5. commissioning and daily use



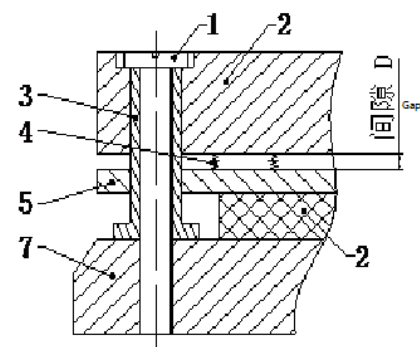
5.1 check and adjust

5.1.1 check whether the connecting parts are firm and reliable, whether the nut is tightened, whether the wire rope is in good condition and whether the wire rope clip is arranged correctly. Plug the power plug of the electrical appliance box into the corresponding socket of the cable wire and switch on the power supply.

5.1.2 check that the wiring is correct. The power supply voltage must be within the range of $380V + 5\%$. When the power supply is connected, the leakage circuit breaker shall act quickly according to the test button on the leakage breaker. Shut the door, check the bell, limit switch, a switch, switch and motor is normal.

5.1.3 Inspection and adjustment of electromagnetic brake

The gap between the armature and the D friction plate should be in the range of $0.5 \sim 0.6\text{mm}$, its structure is shown in Figure, the adjustment method is first loose electromagnetic sucker 2 on the inner six angle mounting screws 1, then rotate the hollow screw 3 to adjust clearance around the gap should be as uniform as possible, finally re tighten the install screws 1. Power check the electromagnetic brake armature action, the armature must be completely



1.Install screw 2.Electromagnetic sucker 3.Hollow screw 4.Spring 5.Armature
6.Friction plate 7.Motor cover

Figure9.Motor Electromagnetic Brake



separated from the friction plate, no power when the phenomenon of stagnation, the armature in the system under the action of the spring completely suppress the friction plate.

5.1.4 Wire rope check

The electric switch is rotated to the unilateral lifting machine, wire rope through the safety lock wheel, into the elevator, to start on the button, can automatically complete the work of wire rope winding rope carry. The work of wire rope in place, the safety rope is inserted into the hole at the upper end of the safety lock. (the other side of the hoist operates the same procedure)

ATT: Shall arrange two kinds of wire rope distinguish first, then inserted into the elevator and the safety lock, so as not to distort the wire rope. Both sides of the wire rope installation completed, the suspension platform elevated to 1 meters from the ground, in the safety wire rope from the ground 15cm installation of heavy hammer. If not properly installed weight may be hoist and the safety lock does not work accident.

5.1.5 The excess wire rope to be good, after the circle after the bundle is good, to prevent loss or bending outside.

5.2 testing running

5.2.1 The user must bring up the safety rope and fix it separately on the reliable fixture above the work area. The operator must wear the safety helmet according to the relevant regulations, fasten the seat belt and buckle the safety belt rope on the safety rope.

5.2.2 Check the safety rope, concrete steps: converting the electrical box on the panel of the switch to the middle position, the suspension platform rise after 1 ~ 2m stopped, then switch to pull to one side, the suspended platform tilt, when the suspension platform tilt to 3 degrees to 8 degrees at both ends (suspended platform is in the height of 7.5m is 40 ~ 100cm, both ends of



suspended platform 6.0m long height is 32 ~ 80cm, both ends of suspended platform 5.0m long height difference of 26 ~ 70cm), the safety lock can lock the safety rope. Adjust the level of suspension platform, safety lock automatic reset. (left and right safety lock must be checked according to the above method)

5.2.3 No-loading weight test: the suspension platform runs up and down 3~5 times, each stroke of 3 to 5m, the whole process should rise and fall smoothly, no abnormal sound, electromagnetic brake action flexible and reliable, no looseness at each connection. Press the "emergency stop" button, the suspension platform should stop running.

5.2.4 manual downhill check: suspension platform increased by 3 ~ 5m, to carry on the manual handle on the motor, steady decline of suspension platform.

5.2.5 Upper limit block installation position adjustment: lift the suspension platform up to the highest operating height, adjust the upper limit block position, and swing arm angle, the swing arm round wheel should be in the upper limit block plane.

5.2.6 Rated load test: the loading weight is uniformly loaded in the suspension platform. The Gondola rises and falls at least three times during the stroke of 3 meters to 5 meters. In the course of movement should be no abnormal sound, stop not decline. The platform tilted safety lock should be flexible and reliable to lock the safety rope, the fastening connection should be firmly without loosening.

5.3 daily use

5.3.1: Inspection prior to use: View suspension platforms, hoists. At the junction of the lifting machine and the suspension platform should be no abnormal wear, corrosion, surface cracks, loose connections, welding and other phenomena; suspension mechanism of the joints should be firm, without



rupture. The counterweight is in good condition and no shortage; the wire rope is fixed normally; the wire rope has no transition wear and tear. The heavy hammer hanging on the lower end of the steel wire rope is installed normally; the electric box, cable, control button and plug should be in good condition, and the upper limit switch and the hand hold switch should be flexible and reliable, with no leakage.

5.3.2: Electrify check

According to the requirements of 5.2.2, 5.2.3, 5.2.6 check Gondola, lifting machine should be no abnormal sound and vibration phenomenon, the braking of the electromagnetic brake is flexible and reliable, no abnormal function of lock rope.

5.3.3 configuration (user owned) safety rope and seat belt should be kept intact.

During 5.3.4 operation, the suspension platform tilts and pulls the switch to the lower side and rises to the horizontal level.

When the 5.3.5 platform suspended ceiling switches touch the ceiling limit block or hand press any upper limit switch, suspension platform should be able to immediately stop running, alarm bell calls, press down the switch down suspension platform.

5.3.6 when the power failure occurs in the work, the power switch should be switched off, and if the suspension platform is lowered back to the ground, the upper part of the hood in the motor can be pulled up and the suspension platform will fall at a uniform speed. Manual downhill, should operate simultaneously or alternately at both ends is downhill, suspended platform to maintain the level of the basic state, to prevent the swing arm type anti tilt safety lock up lock.

6. installation operating procedures

Gondola is a manned operating equipment on the high level, we should pay



special attention to its safe operation and use. When using, strict work, labor safety, safety construction, safety power consumption and other relevant regulations and standards promulgated by the state and local authorities shall be strictly implemented. According to the characteristics of the Gondola, should strictly abide by the following safety operations and rules of use.

6.1 Gondola must have technical training qualified personnel operation, maintenance, maintenance. These personnel must all adapt to the diseases and physical defects of the higher level work. Drink transition fatigue, mood disorders may not mount guard.

6.2 the person entering the gondola must wear a safety belt and a safety helmet. The safety belt should be set individually on the safety rope.

6.3 before the operator is on the plane, he must study and master the contents of the instruction manual. Inspection must be carried out before the use of the item, test by item, inspection can be put into use; in the use of strict implementation of the installation operation procedures; after use, do a good job of maintenance work.

6.4, the Gondola strictly prohibited overloading (Gondola load weight, including the weight of personnel), and the load in the platform should be basically uniform length. When the construction height is higher and the length of the front beam extends beyond the specified range, the loading capacity of the platform must be reduced. When the wind is large, the influence of the wind pressure must be taken into account (equivalent to increasing the load of the platform). Specific provisions is to ensure the weight of the suspension anti overturning moment is greater than two times caused by the lifting of the Gondola part weight, rope weight, weight, rated load and load the overturning moment (see Table 2). No hanging Gondola, sick work.

6.5 in the normal work, strictly dispatched with a safety lock brake device or downhill.



6.6 operation of the use of other electrical equipment in the suspension platform, below 500W electrical equipment can be connected with a spare power Gondola in the terminal, but higher than that of 500W electrical equipment is connected to the standby power supply terminal, with independent power supply.

6.7 when working around the high tension line, the hanging Gondola should have enough safety distance with the high tension line, and should be carried out according to the local electrical regulation, reported to the relevant department for approval, and can be used only after taking precautions and monitoring measures.

6.8 suspended platform hanging in the air, it is strictly prohibited to remove hoist, safety lock, wire rope etc.. If a repair is necessary due to a fault, a full-time personnel who has been trained shall be allowed to carry out safe and reliable measures.

6.9, the Gondola should not work in the dust, corrosive substances or thunderstorms, more than five winds and other environments.

6.10 the assembling length of the assembled suspension platform shall not exceed the length specified in this manual.

6.11 do not allow ladders, stools, or stepping feet to be used in the suspension platform.

The 6.12 gondola is not allowed to be used as a manned or a lift, and no sling is allowed on the Gondola.

6.13, if the work occurs in the work of steel wire rope rupture, hoist abnormal sound and other emergency situations, the operator should be calm and calm, immediately stop and evacuate the suspension platform, strictly prohibited to continue down. Equipment failures are handled by full-time maintenance personnel.

6.14 the ground below the Gondola for pedestrians forbidden area, good



isolation measures and a clear warning signs. Other requirements concerning construction safety technology, on-site operation, safety measures, labor protection and safety, electricity consumption, fire protection, etc., shall be strictly implemented in accordance with the relevant regulations issued by the state and local authorities.

The 6.15 suspension platform on both sides inclined than 15cm should be timely adjustment, otherwise it will seriously affect the use of the safety lock, or even damage the internal parts.

6.16, the suspension platform railings are not surrounded by a cloth or other airtight material, so as not to increase the drag coefficient and security risks.

6.17, the steel wire rope shall not be bent, shall not be stained with oil, debris, no welding slag and ablation phenomenon, it is strictly prohibited to work wire rope, safety wire rope as the welding collateral circuit. In the case of 3.6.4, a, B, C, D, e, and F, a short period of time occurs

7. Common faults and troubleshooting methods



Fault phenomenon	Reason analysis	Repair method
When the suspension platform stops, it glides	①The electromagnetic brake of the motor is out of order ②The distance between the friction plate and the iron is too large	①Replace the electromagnetic brake ②Adjust the clearance, and the reasonable clearance is 0.5 ~ 0.6mm
The suspension platform does not stop when it rises or falls	①The main contact of AC contactor is not disengaged ②Control button corruption	①Press the "emergency stop" to stop the suspension platform and replace the contactor ②Stop the suspension platform according to the above method and replace the control button
The suspension platform can not lift	The electricity is not working.	①Check the leakage ②Check whether the three-phase power supply (including zero line) is normal
	Control circuit failure ①Transformer Damage ②Protection or damage of thermal relay ④Damage of fuse or contactor Poor contact	①Transformer replacement ②Start in five minutes, or replace the thermal relay ③Replace fuse or contactor ④Check plug-in or replace



Tilting of suspension platform	①Motor brake sensitivity difference ②Centrifugal speed limiter spring relaxation	①Adjust the brake clearance of the motor ②Replace the centrifugal speed limiter spring
	Load unevenness in suspension platform	Adjust the load on the suspension platform
Motor noise or fever abnormal	Phase failure operation The supply voltage is too low or too high Bearing damage	Check the power supply Adjust the supply voltage Replace
The suspension platform does not go down when it rises to the roof	The suspension spacing is too small, the safety lock is locked	Adjust the clearance of the suspension mechanism
Lock rope slipping or lock rope angle is too large	There is grease on the safety wire rope Rope clamp injury The safety lock slow The distance between two sets of suspension mechanism is too large	Clean or replace the wire rope Replacing rope clamps The replacement of safety lock spring Adjust the clearance of the suspension mechanism

8. maintenance and safety technology

When you purchase the overhead hanging Gondola, you should be responsible for the maintenance, management and strict implementation of the operating



procedures. Conscientiously perform their duties, not only to maintain the performance of the whole machine, to ensure personal safety, but also to extend life

Maintenance includes routine maintenance, routine inspection and regular maintenance work, and daily maintenance and inspection work on the record, and staff to sign and archive, the leaders of the unit to supervise salary

8.1 daily maintenance

No-involved the replacement of parts and components, by the operator on time to upgrade oil changes, cleaning, maintenance and electromagnetic brake clearance checks, adjustments. Remove dirt from the wire rope and remove rust as much as possible. Remove the suspended platform, elevator safety lock, the dirt on the surface.

8.2 daily checking

Daily checking before using the operator should check according to the requirements of article 5.3, especially the safety lock, and the wire rope hoist. Professional maintenance personnel "Schedule 1: Gondola daily inspection items and content" for serious inspection, the need for maintenance projects should be completed in a timely manner. No hanging Gondola, sick work.

8.3 regular overhaul

Maintenance cycle by the use of units, depending on the use and length of work made clear provisions (usually 1~2 months). After the complete use of the machine, generally should be a comprehensive maintenance and repair work. Inspection of parts wear by professional maintenance personnel, replacement of damaged parts, disassembly and assembly, replacement of lubricating oil, grease and so on. Check the wiring status of the electrical control box, no damage to the wire, no leakage of the whole machine.

In compliance with the rules of maintenance, use and maintenance conditions, hoist used for a full year or a total of 300 full day work, the general should be



overhauled, used in dust corrosive substances in the harsh environment, needs to shorten the overhaul cycle.

The safety lock from the date of every twelve months for a period of calibration, calibration period, by the user to the manufacturer or a qualified unit to apply for maintenance and repair, and re calibration. (in the dust, corrosive substances, adhesion materials etc. work environment safety lock, three months to carry out overhaul and re calibration). The company's re calibration of the security must be affixed to the company's special label affixed before it becomes effective.

As for the scrap of wire rope, as mentioned above, the wire rope that reaches the scrap condition must be scrapped.

9. handling storage

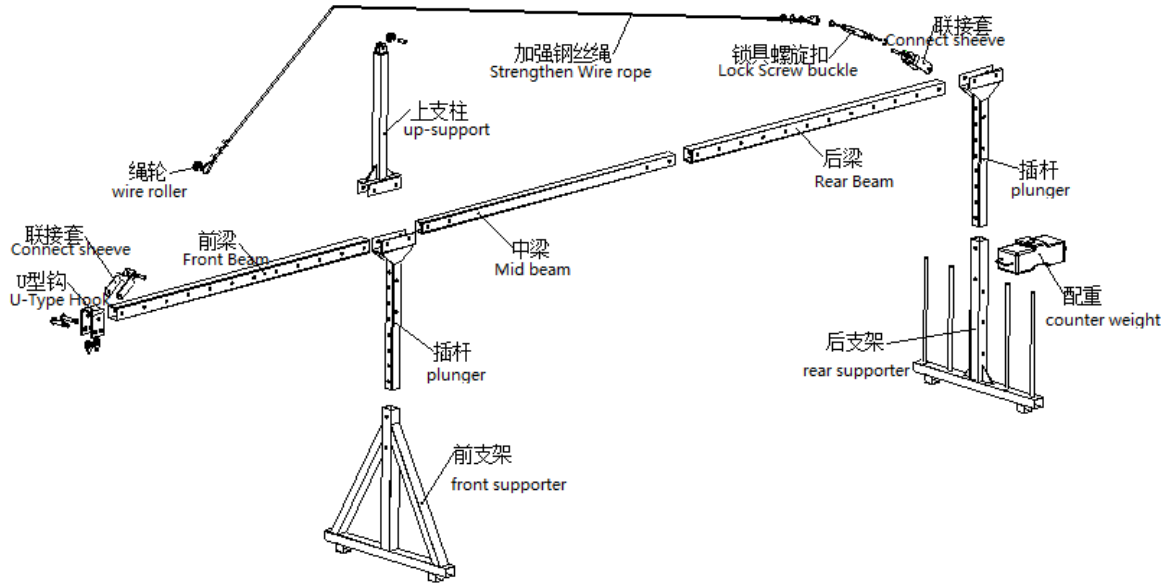
When the whole machine is moving, the hoist, safety lock and electrical control box shall be packed separately and shipped as a whole. The wire ropes should be wrapped in coils before shipment. The suspension mechanism and the suspension platform can be disassembled for shipment, but be careful not to deform these structures.

Storage should be stored in dry, ventilated, non corrosive gas warehouse, to prevent gas corrosion. Storage period of more than one year, need to be re - maintained.

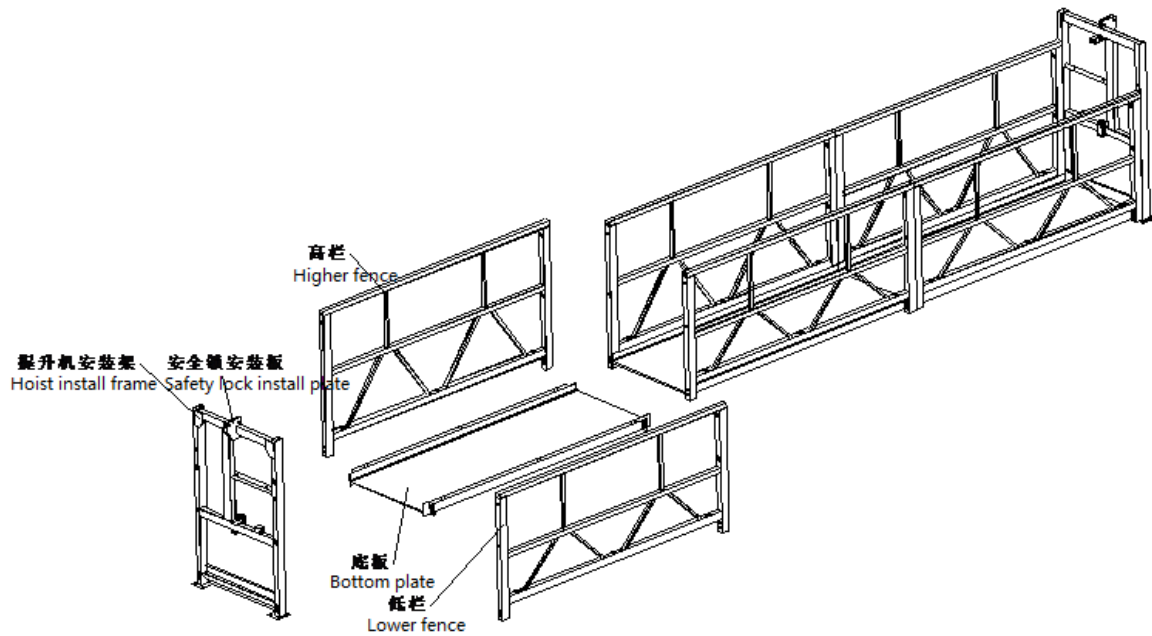


10. Easy-Worn Parts

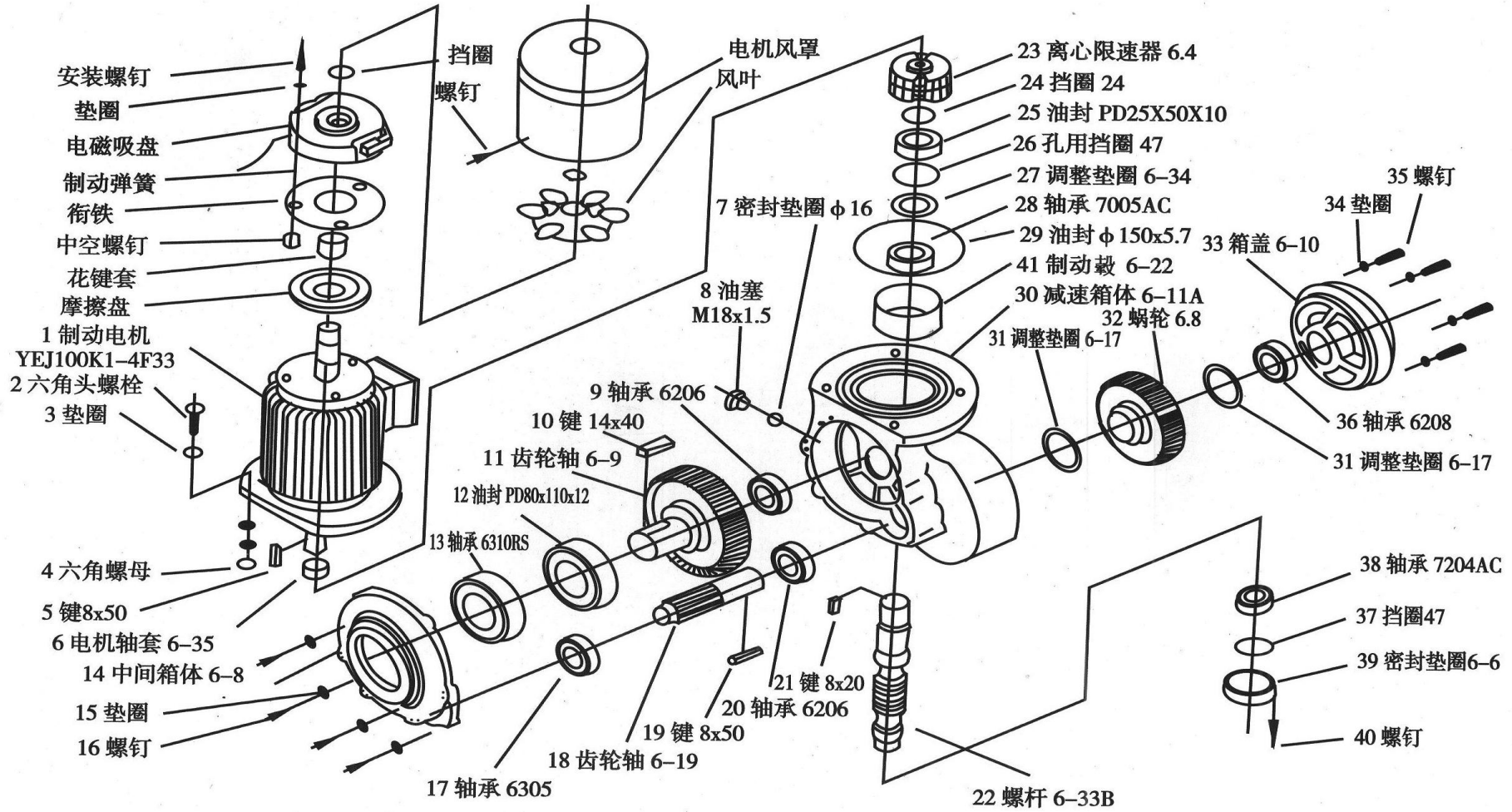
No.	Name	Drawing No.	Install position
1	Wire	6*19W+1WS-8.6	LTD80 HOIST
2	Wire	4*31SW+NF-8.3	LTD63 HOIST
3	Brake	YRJ100L-4F33	LTD80 HOIST MOTOR
4	Brake	YEJ90L-4F YEJ90L-4F	LTD63 HOIST MOTOR
5	Speed-Limit	ZLP800.6.4	LTD80 HOIST MOTOR
6	Speed-Limit	ZLP630.1.4	LTD63 HOIST
7	Bearing	ZLD800A.6.3	LTD80 HOIST UP-PANNEL
8	Press-rope machinism	ZLP630.1.1	LTD63 HOIST MOTOR
9	Steel-round	ZLD800A.6.5-2	LTD80 HOIST DOWN-PANNEL
10	Steel-plate	ZLP630.1.3	LTD63 HOIST
11	Direction sleeve	ZLD800A.6-30A	LTD80 HOIST DOWN-PANNEL
12	Direction bearing	6200-2Z	LTD80 HOIST DOWN-PANNEL
13	Rope-separate	ZLP630.1-02A	LTD63 HOIST
14	Rope-entrance tube	ZLP630.1-01	LTD63 HOIST
15	Rope-exite tube	ZLP630.1-05	LTD63 HOIST
16	Sleeve plate	LSA-02B LSA-05B	SAFETY LOCK
17	Rope-clip	LSA-03B	SAFETY LOCK
18	Rectifier	ZL06A-99	ELECTRIC PANNEL
19	Insurance tube	250V4A	ELECTRIC PANNEL



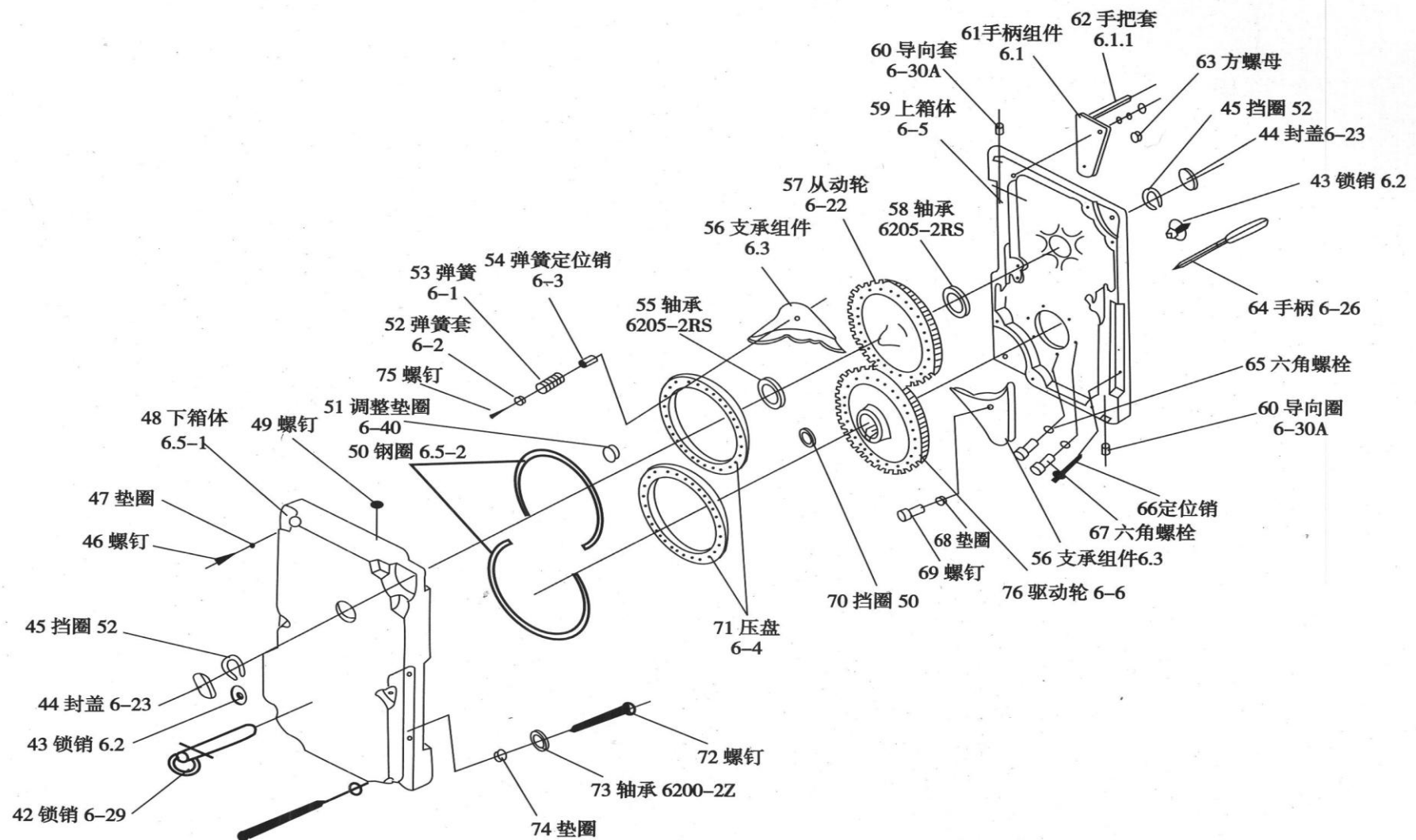
Attached 1: Suspension mechanism



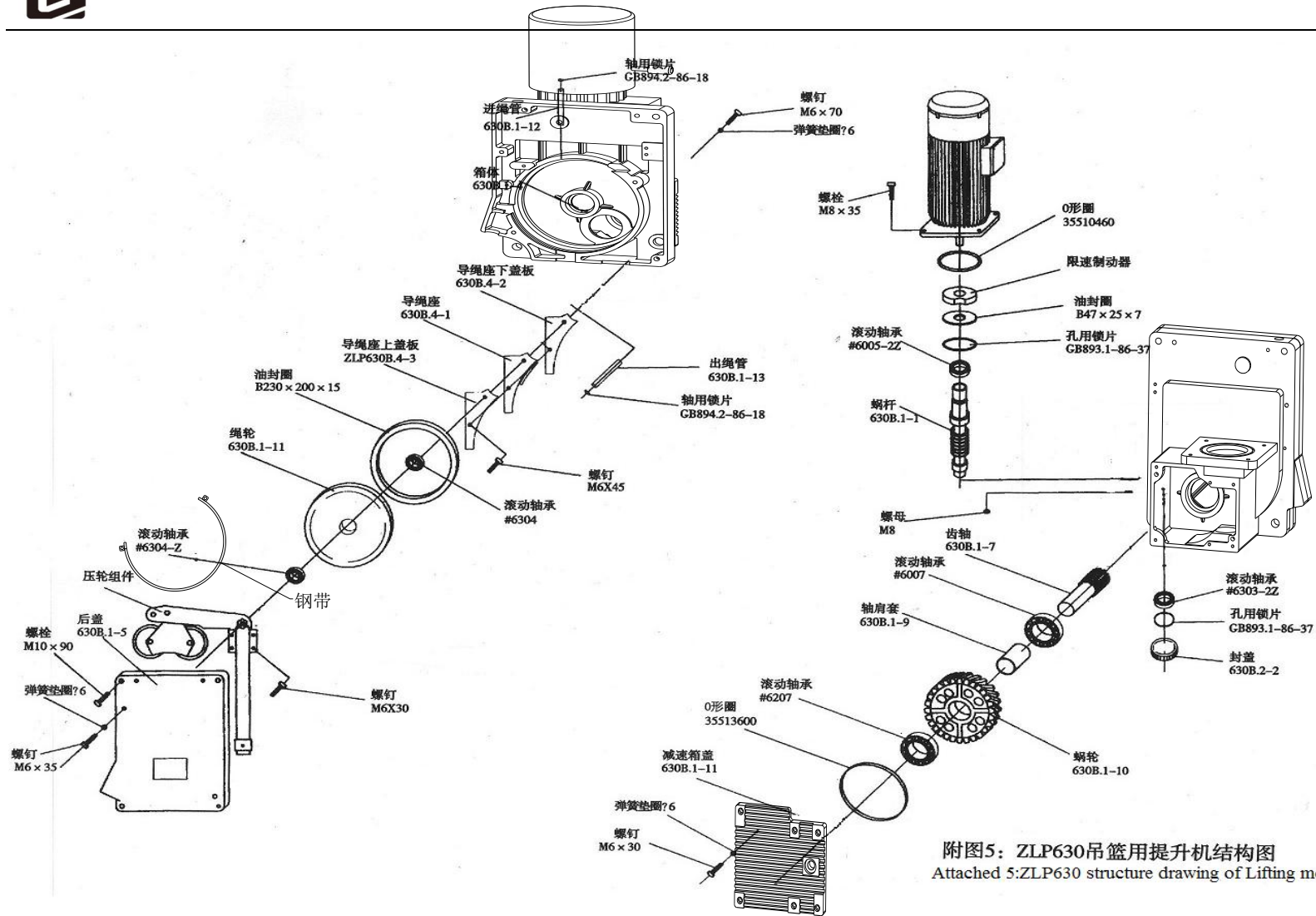
Attached 2: Suspension Platform



Attached 3:ZLP800 structure drawing of Lifting motor (reducer part)

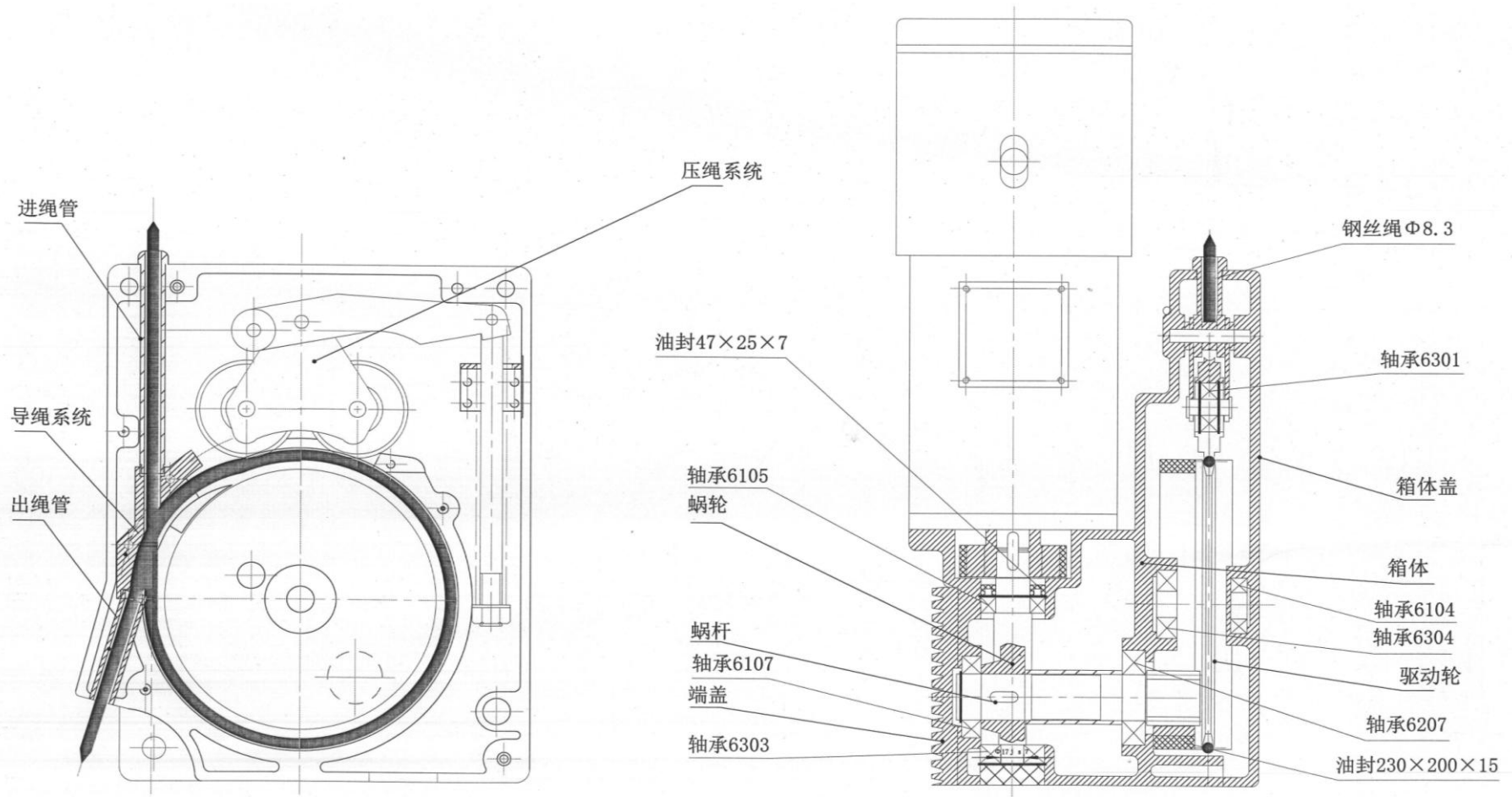


Attached 4:ZLP800 structue drawing of Lifting motor (Drum Part)

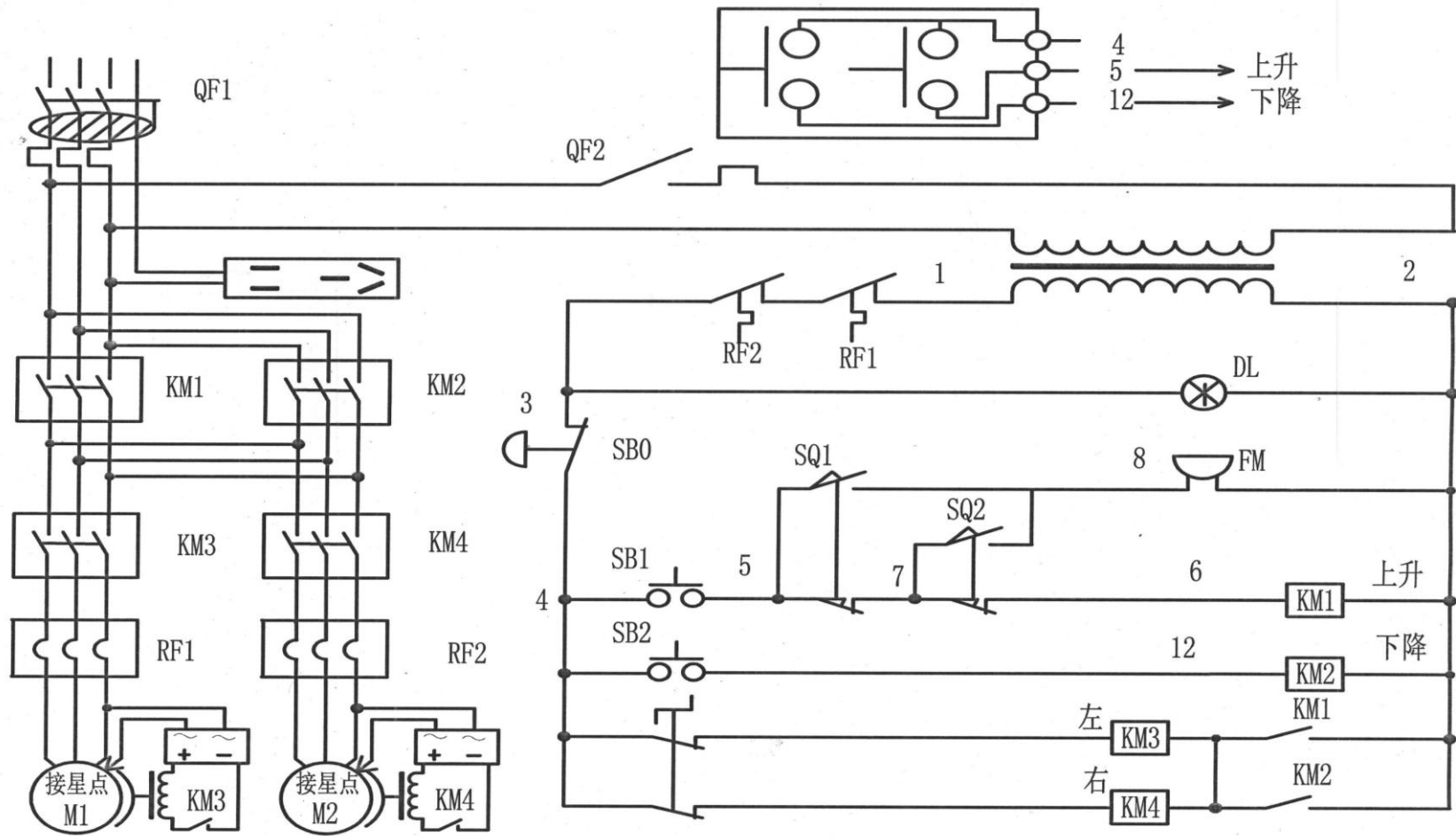


附图5: ZLP630吊篮用提升机结构图
Attached 5: ZLP630 structure drawing of Lifting motor

Attached 5: ZLP630 structure drawing of Lifting motor



Attached 6:ZLP500/630/800A Lifting machine



Attached 7: Electrical drawing