babco

USER MANUAL

FOR INSTALLATION, OPERATION
AND MAINTENANCE
OF TWO POST CAR PARKING LIFTS

BR-6000

Read this entire manual carefully and completely before installation or operation of the lift.

Table of Contents

1. Important Safety Instructions

1.1 Requirements of installation

Generally, the parking lifts are to be installed in the following conditions:

1) Supply voltage: 0.9 – 1.1 nominal supply voltage
2) Source frequency: 0.99 – 1.01 nominal frequency
3) Ambient temperature: 5°C – 40°C
4) Relative humidity: not exceed 50% at 40°C
5) Atmosphere: Free from excessive dust, acid fumes, corrosive gasses, and salt
6) Avoid exposure to direct sunlight or heat
7) Avoid exposure to abnormal vibration
8) Electrical parts can withstand the effects of transportation and storage temperature within a range of -25°C to 55°C and for short periods not exceeding 24 hours at up to 70°C

The BR-6000 is designed for parking cars not exceeding the stated maximum lift capacity; any other use is not approved. The manufacturer is not liable for any damage or injuries caused by improper use or by the non-observance of the following instructions.

The parking lift is designed for indoor use only. Appropriate roof and fencing are to be placed to prevent damage from rain or snow when the parking lifts have to be installed outdoors. A protection set for outdoor use is supplied as an option, please contact Babco for more info.

Read this manual carefully before installing and using the lift. Follow the instructions in this manual to ensure safe operation and required maintenance.

1.2 Qualified personnel

1.2.1 The parking lift shall only be installed, operated and maintained by authorized and trained staff, properly trained for the specific use of the parking lift.

1.2.2 The wiring/electrical work must comply with local code and be carried out by a certified electrician according to local laws & regulations.

1.2.3 All adjustments, whether mechanical or electrical, shall only be carried out by authorized persons in accordance with manufacturer's instructions.

1.3 Notes

1.3.1 Do not install the parking lift on **any** asphalt surface. Please contact Babco if in need of installation on an asphalt surface.

1.3.2 Read and understand all safety warning procedures before operating the parking lift.

1.3.3 Keep hands and feet away from any moving parts. Keep feet clear of the parking lift when the platform is lowering.

1.3.4 Make sure there is no one in the vehicle before operation.

1.3.5 The parking lift is only designed to lift the entire body of the vehicle with maximum weight not exceeding that of the rated capacity.

1.3.6 Always ensure that the safety devices are in good condition before operating the parking lift or parking/retrieving vehicle.

1.3.7 It is strongly recommended to back the car onto lift, with forward exit.

1.3.8 Vehicle shall be parked on the left-right center of the platform, with rear tires reaching the backboard of the platform.

1.3.9 Do not modify the parking lift without the manufacturer's permission.

1.3.10 If not to be used anymore, it's recommended to turn off the power supply, empty the oil tank and dispose of the fluid properly according to local regulations.

1.3.11 If the parking lift is to be left unused for a long period of time, it's recommended to:

1.3.11.1 Turn off control box power switch and main switch of power supply

1.3.11.2 Empty the oil tank and dispose of unused oil properly according to local environmental laws and regulations.

1.3.11.3 Apply rust preventive oil on chains regularly

1.3.11.4 Grease the moving parts which might be damaged by dust or moisture

1.4 Warning signs

The presence of safety warning signs on the parking lift is essential to protect users. Read carefully and follow during operation. The labels must be kept clean and have to be replaced once unrecognizable or damaged.

(1) Warning signs

2. Overview of Parking Lift

2.1 Product Introduction

The BR-6000 is the latest versions of the two post parking lift available from BabcoPark.

A two-post parking lift mainly consists of two posts, two carriages, one cylinder, one control box, one operation panel, one power pack and one platform covered by waving plates.

The post can be shared if several units are installed in a line.

This parking lift is driven by a hydraulic power pack, which delivers the hydraulic fluid to the hydraulic cylinder behind the primary post, which is then transmitted to the lifting chain which carries the platform.

The mechanical anti-falling block can automatically lock the platform from 19.6”(500mm)up to 82.6”(2100mm) to prevent the platform from falling all the way.

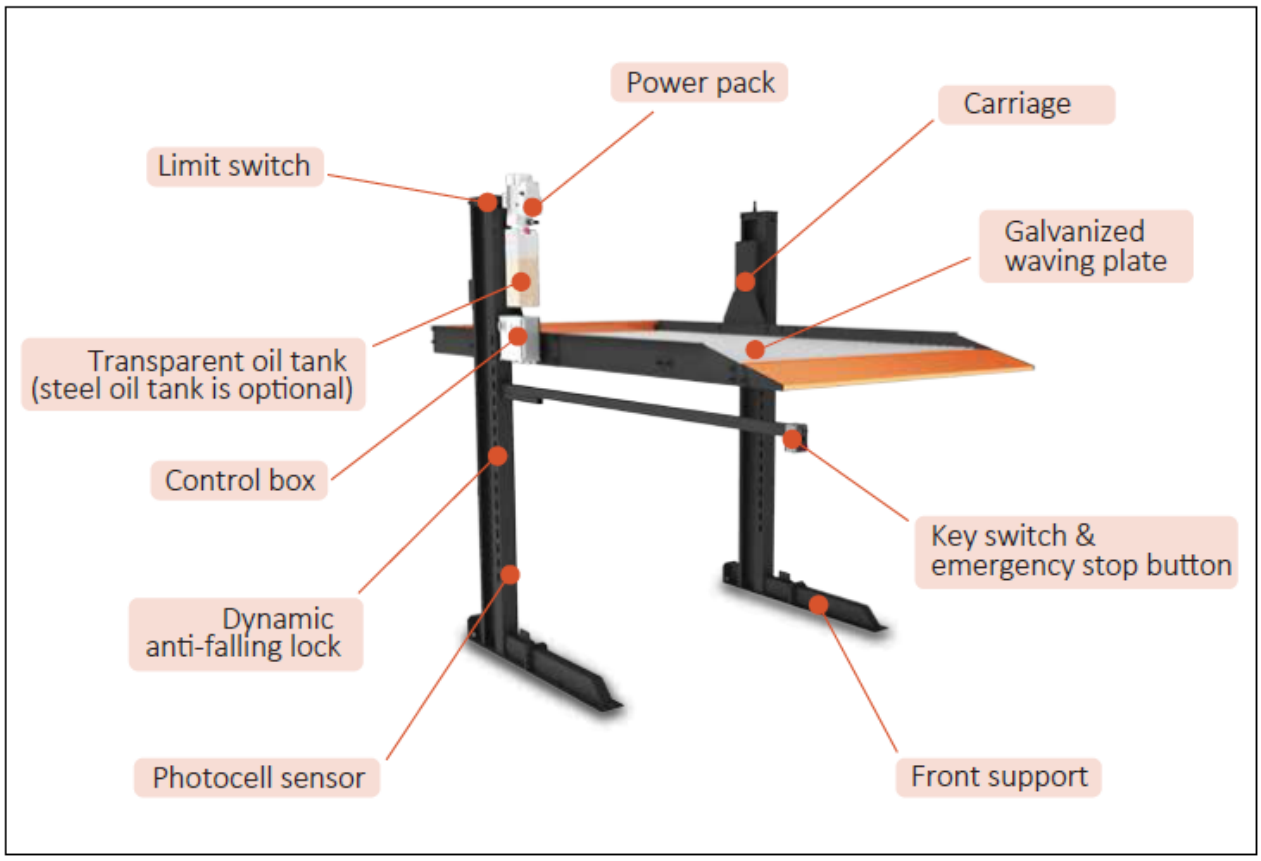
2.2 Scope of application

Suitable for residential buildings, office buildings and business premises. Only for long-term users that have been instructed on how to use the system.

For frequently changing users (e.g. for office, hotel and business premises or similar):

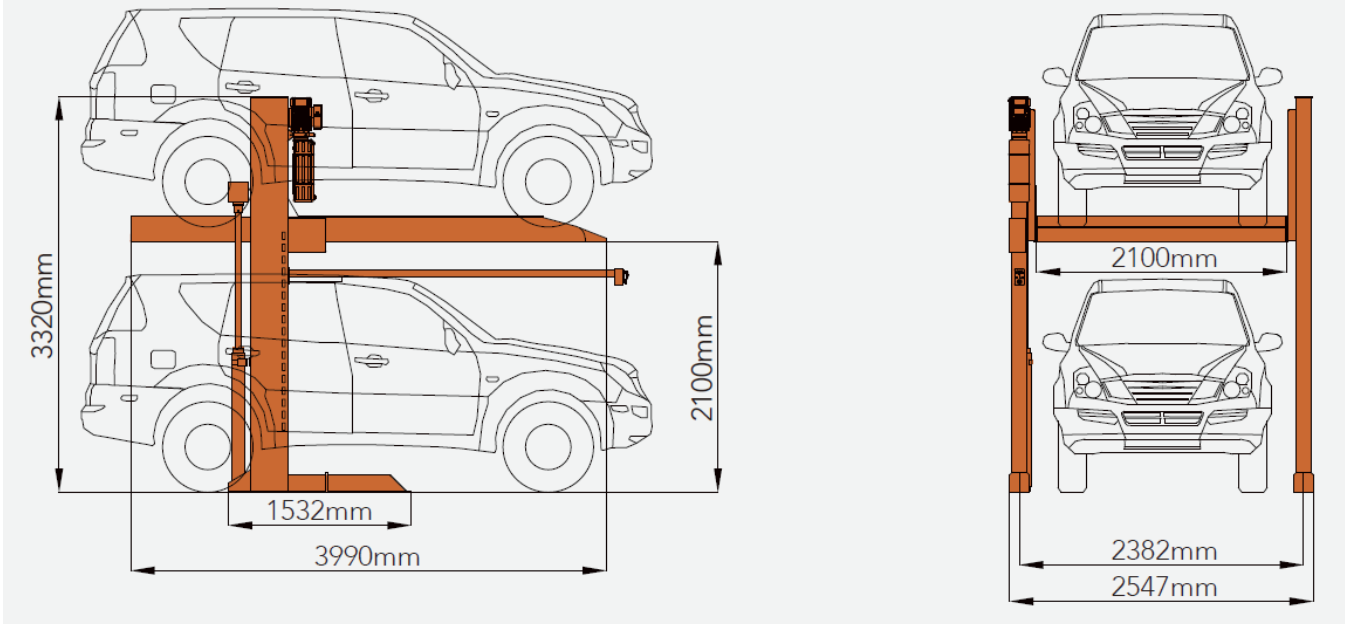
- park frequently changing cars on ground level

2.3 General parts



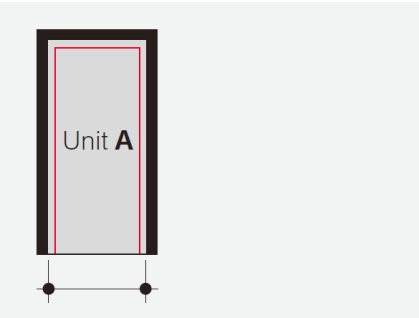
(2) Parts description

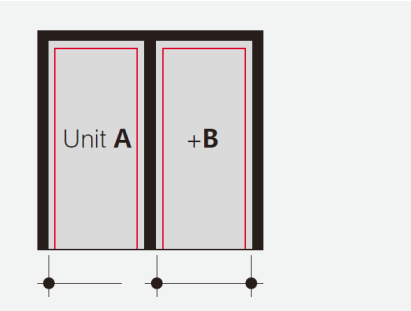
2.4 Dimensions of standard models

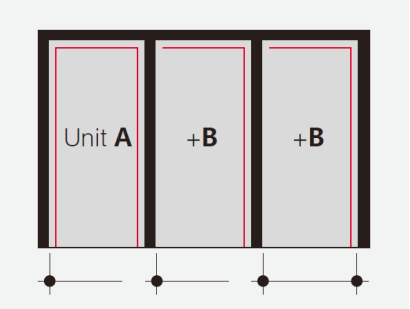


(3)Dimensions of BR-6000

2.5 Sharing post feature







Total width required	Clear platform width		Total width required	Clear platform width		Total width required	Clear platform width
2547	2100		4929	2100		7311	2100
2647	2200		5129	2200		7611	2200
2747	2300		5329	2300		7911	2300
2847	2400		5529	2400		8211	2400
2947	2500		5729	2500		8511	2500

(5) Width dimensions

Notes:

Clear platform width of 2,100 mm suitable for car widths up to 1,850 mm. Layout dimensions subject to change with any customization.

According to ISO 3864 the floor must be marked with 100 mm wide yellow-black at a distance of 500 mm from the platform edge by the purchaser (to be performed according to local regulations.)

The lowering speed of an empty platform is considerably lower than a loaded one.

It is not possible to have channels or undercuts and/or concrete haunches along the floor-to-wall joints. If channels or undercuts are necessary, the system width needs to be reduced or the installation width needs to be wider.

The manufacturer reserves the right to construction or model modifications and/or alterations. Furthermore, the right to any subsequent part modification and/or variations and amendments in procedures and standards due to technical and engineering progresses or due to environmental regulation changes, are also hereby reserved.

2.6 Noise protection

Insulation figure of the construction of min. Rw = 57 dB

Walls which are bordering the parking lifts must be done as single wall and deflection resistant with min. m = 300 kg/ m² Solid ceiling above the parking lifts with min. m = 400 kg/ m²

At differing constructional conditions additional sound absorbing measures are to be provided by the customer The best results are reached by separated sole plates from the construction.

2.7 Protection against corrosion

A regular maintenance program is required according to Surface Cleaning and Protection mentioned in section 8 of this manual.

Clean up galvanized parts and platforms of dirt and road salt as well as other pollution to reduce corrosion.

2.8 Fire safety

Each and every fire safety requirement and all possible mandatory item(s) and equipment(s) (fire extinguishing systems and fire alarm systems, etc.) are to be provided by the customer.

2.9 Railings

If walkways are arranged directly to the side or behind the lifts, railings have to be provided acc. EN ISO 13857 by client acc. to local requirements, height min. 2000mm.

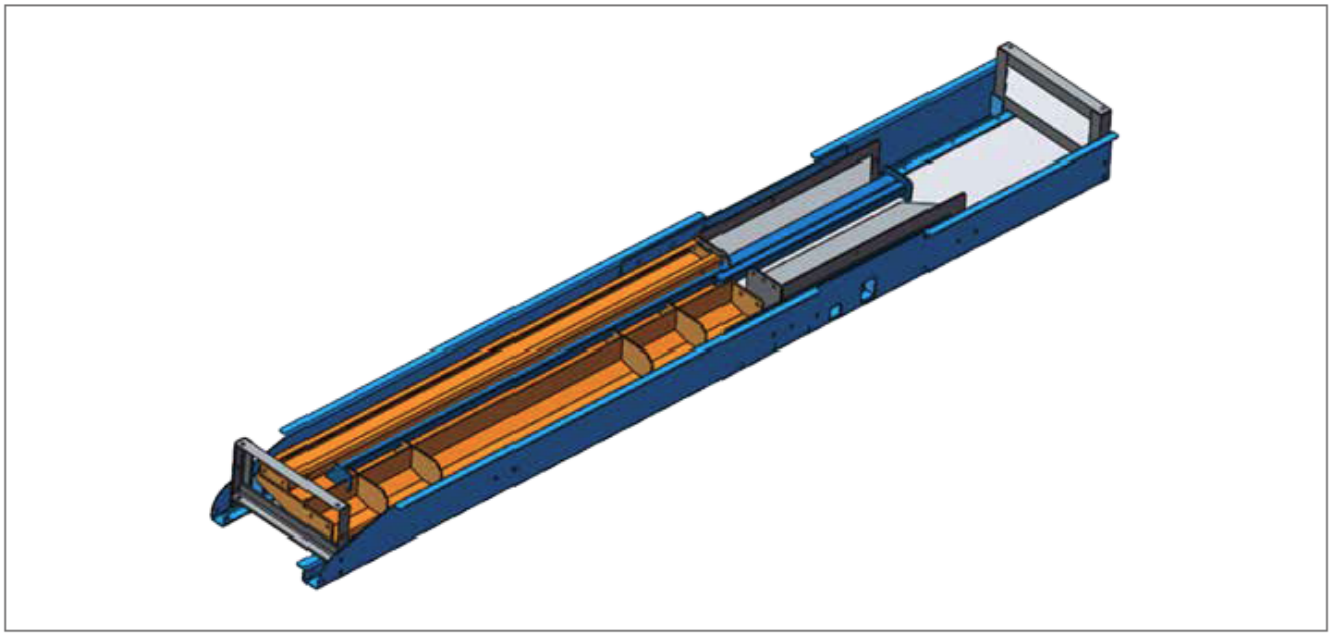
3. Packaging

The BR-6000 is packed by a packing frame, straps, and paper board to avoid damage during transportation.

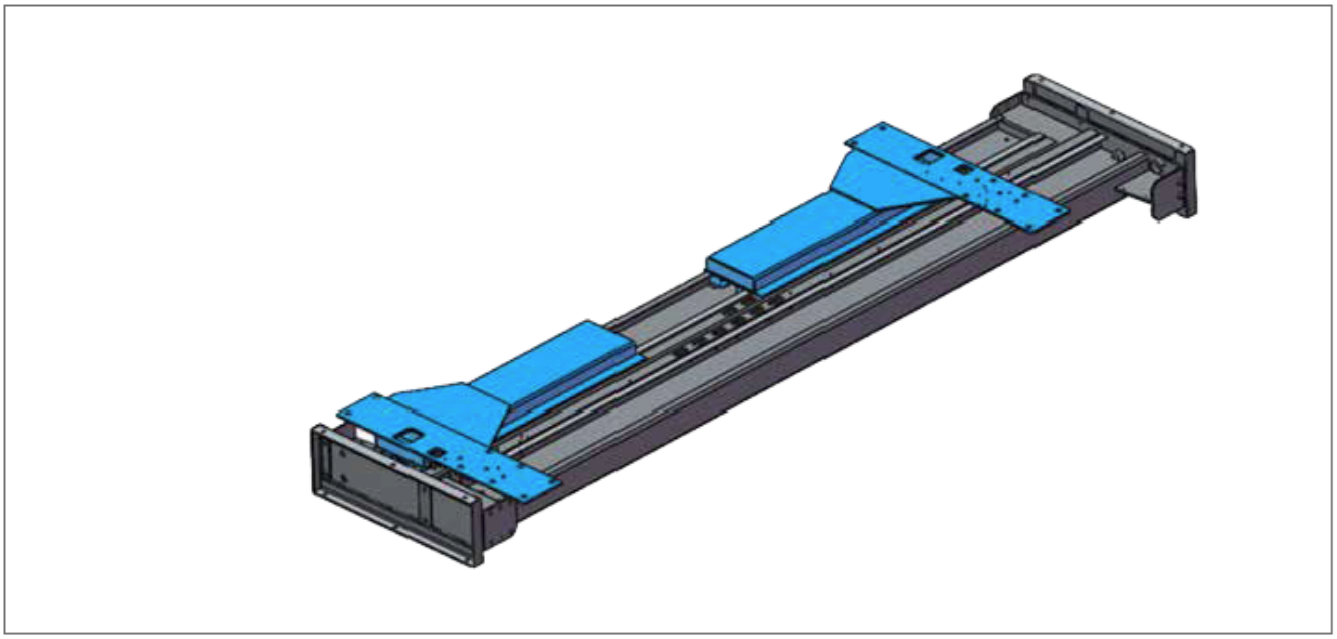
One unit of mechanical structure contains one flatpack from the posts package and one from the platform package.

Check carefully and note if there is any damage or shortage when receiving the parking lift.

A dry and clean storage area with enough space is essential to keep all parts of the parking lift in good condition.



(6) Platform package



(7) Post Package

4. Installation

4.1 Important note

4.1.1 Before installing the parking lift, please read and understand the safety warnings in detail

4.1.2 Keep the working site dry, clean and tidy.

4.1.3 Check the working environment of the product. Do not leave the products in the rain. Do not use the product in a damp environment. Keep good ventilation and enough light in the working area.

4.1.4 The installation work has to be carried out **only** by trained staff. Untrained staff should not be in the working area.

4.1.5 Motor must be grounded to avoid electric shock.

4.1.6 Do not power on before installation finishes to avoid getting an electric shock.

4.1.7 Be careful in all activities while working to avoid accidents.

4.1.8 Strictly follow this manual to install, operate and maintain the parking lifts. Do not modify this parking lift or use any part which is not from the manufacturer.

4.1.9 Do not dismantle any part from the parking lift without the manufacturer's instruction.

4.1.10 Safety devices should be well protected.

4.1.11 The unfinished equipment, unused parts/package, installation tools should be well arranged, protected and labeled with warning notice, to avoid unauthorized usage, mis-operation, or lost or stolen items.

4.1.12 Warning: Keep any flammable items away from the parking lift as there may be a spark when engaging the electrical system.

4.1.13 This mark means safety warning.

4.2 Preparation

Before installing this parking lift, check the following:

4.2.1 The working area should be well planned and have adequate space. Sufficient space with 800mm to 1,000mm distance (adjustable according to local vehicle sizes) from back board of platform to rear wall shall be considered and reserved for parked cars.

4.2.2 Keep obstacles away from the installation area.

4.2.3 **Check carefully for cracks in the concrete where the parking lifts will be installed** and check if the foundation intensity achieves the following requirements. The compressive strength should be no less than 200kg/cm2. and the thickness of the concrete base should be no less than 150mm, the strength should be no less than 250 class and the finished concrete slab **must** be solidified for an appropriate amount of days. Otherwise, the parking lift may crush the ground, causing damage to the parking lift and can cause injury or death.

4.2.4 Make sure the concrete slab is level; over 5mm tolerance is not allowed, the tolerance within this limit can be adjusted by shims. Ground slab should be constructed according to Foundation Treatment mentioned in section 4.4 of this manual if it is seriously uneven or untreated.

4.2.5 Do not install the parking lift on the pitch ground or other non-concrete ground.

4.2.6 Do not install the parking lift on concrete with cracks or dirty surfaces.

4.2.7 Do not install the parking lift on second floor or higher floor without approval by architect and/or municipal authorities.

4.2.8 If there is no proper protection, do not install the parking lift outdoors. Abnormal damage of parts can occur due to too high and too low temperature or a high humidity environment.

4.2.9 The proper wiring route from the main power supply to the parking lift is good for easier installation and long-term usage. Make sure all wires are connected correctly and protected well.

4.2.10 Draw up positions of the post baseplates with chalk with less than 3mm tolerance.

4.2.11 Check carefully to make sure the layout is correct.

4.3 Necessary tools

- 1 set of non-adjustable spanners and allen wrench.
- 1 set of screwdrivers (including slotted screwdriver and phillips screwdriver)
- 1 piece of leveling instrument for 1M and 3M.
- Forklift with 2T capacity.
- 1 piece of percussion drilling with 12x200 mm aiguille.
- Insulated rubber tape
- Sealing tape
- electric portable drill
- hammer
- grease gun
- 1 piece of tapeline for 5M

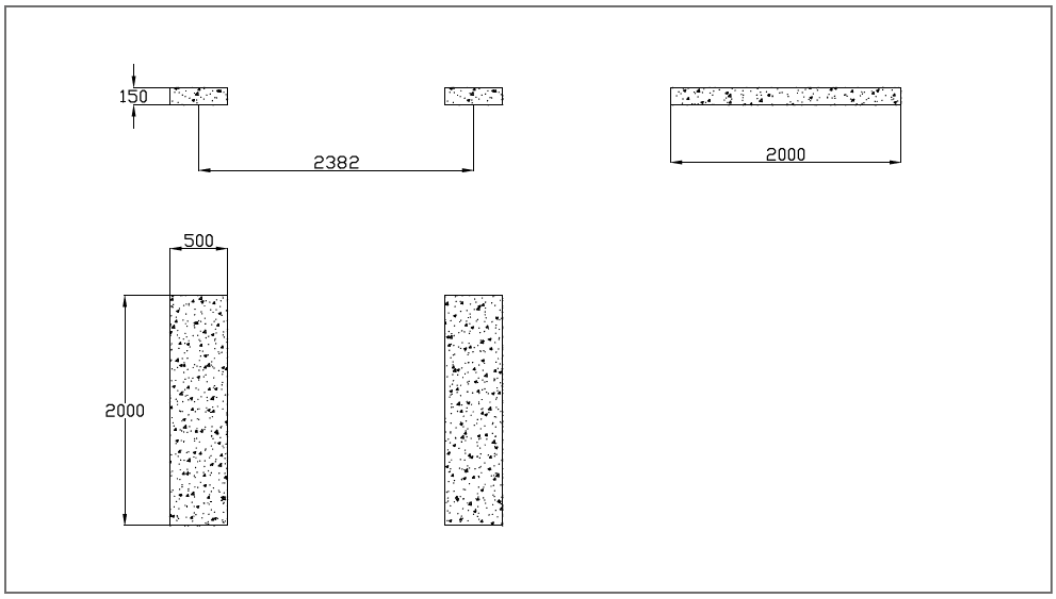
4.4 Foundation treatment

4.4.1 Concrete ground with minimum 150mm depth is essential to install the parking lift. The concrete grade should be at least C30.

4.4.2 For reinforced concrete, the foundation thickness should be at least 100mm.

4.4.3 Pour concrete at the base of posts as shown in the diagram below.

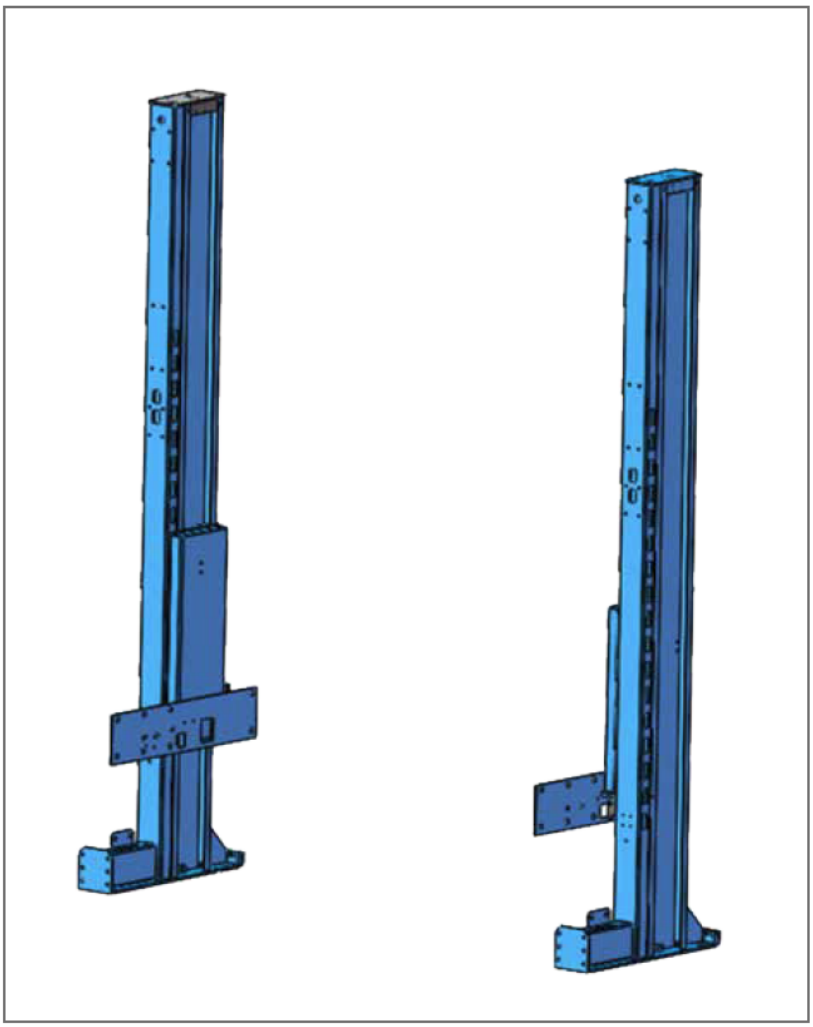
4.4.4 Pre-embedded anchor bolts are not needed.



(8) Foundation diagram

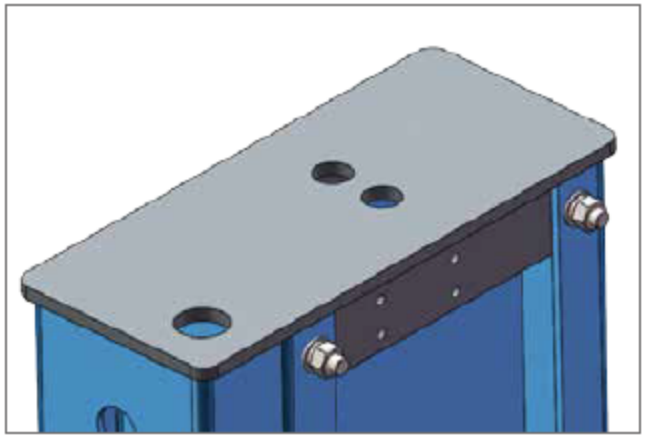
4.5 Assembly

4.5.1 Place the left and right carriage onto the post, with the left and right carriage facing to the other.

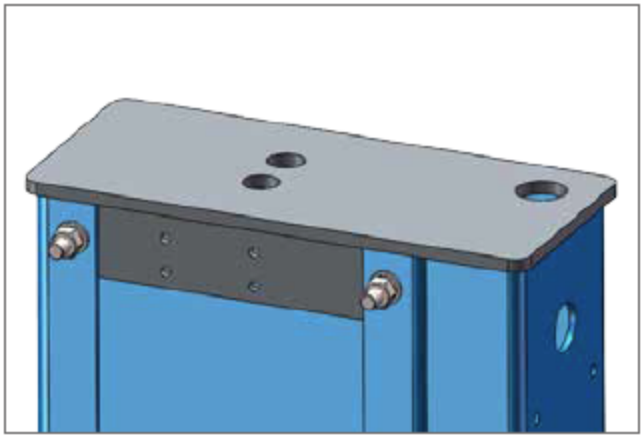


(9) Primary post with left carriage and subsidiary post with right carriage

4.5.2 Fix the top cover plate onto each post by bolts.



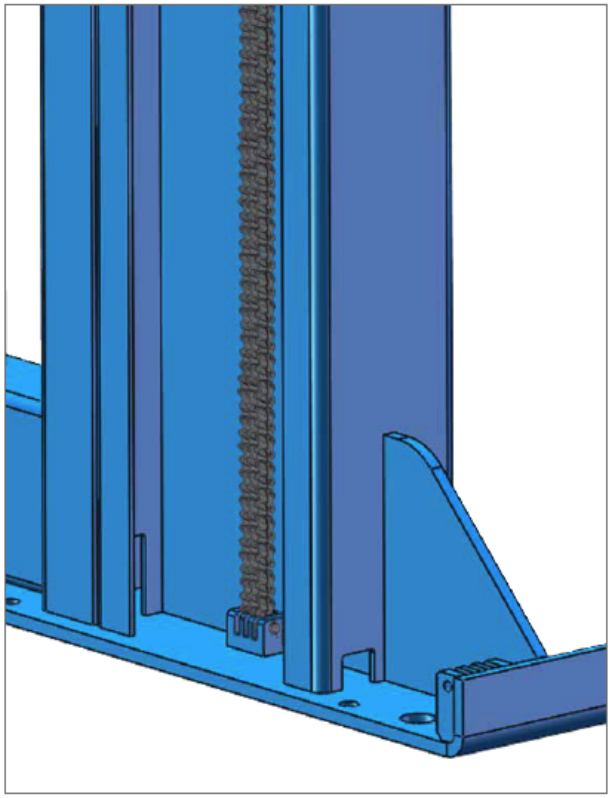
(10) One side of top cover plate with bolts



(11) The other side of top cover plate with bolts

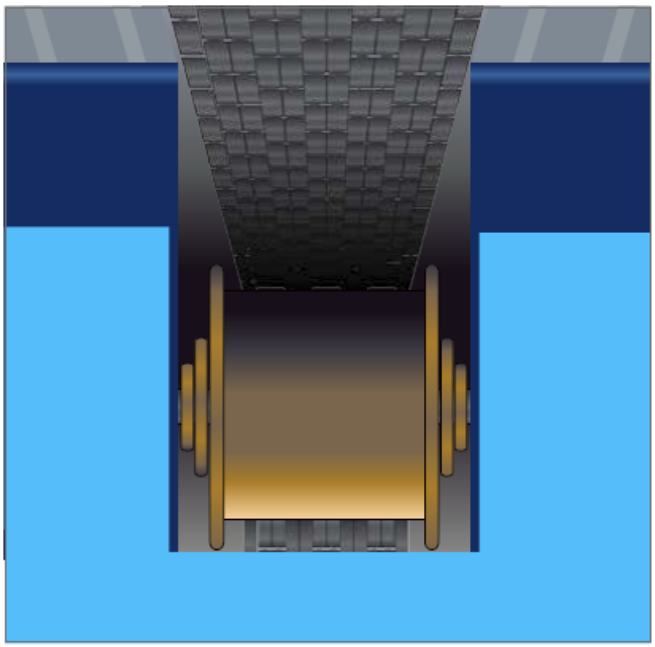
4.5.3 Fix one end of the balance chain to the chain fixture on the bottom of the primary post (on which the power pack, control box and control arm will be installed).

Keep chains clean and away from dirt during installation.



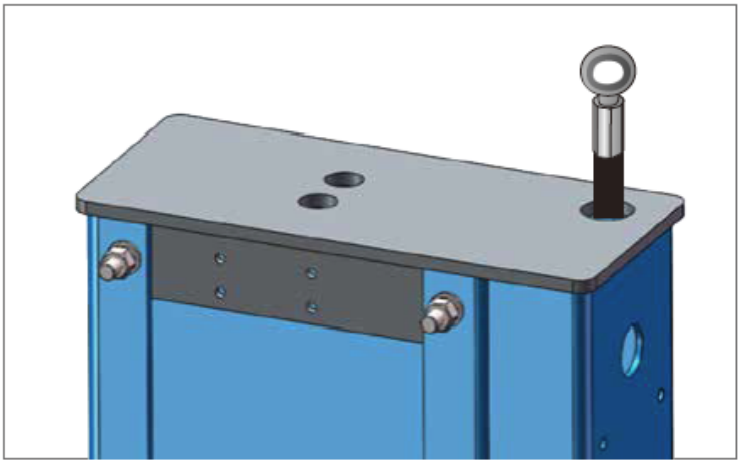
(12) Balance chain fixture on base of primary post

4.5.4 Make the other end of the balance chain pass through above the chain wheel in the carriage of the primary post.

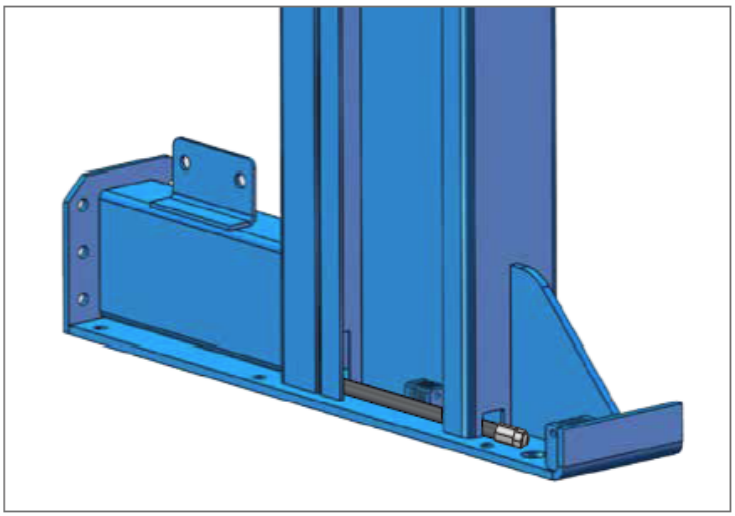


(13) Balance chain & chain wheel in the left carriage

4.5.5 Make the oil hose go through the inside from the top to the bottom of the primary post. Temporarily fix the two ends of the oil hose onto the primary post by adhesive tape or cable ties to avoid the oil hose falling out when erecting the post.

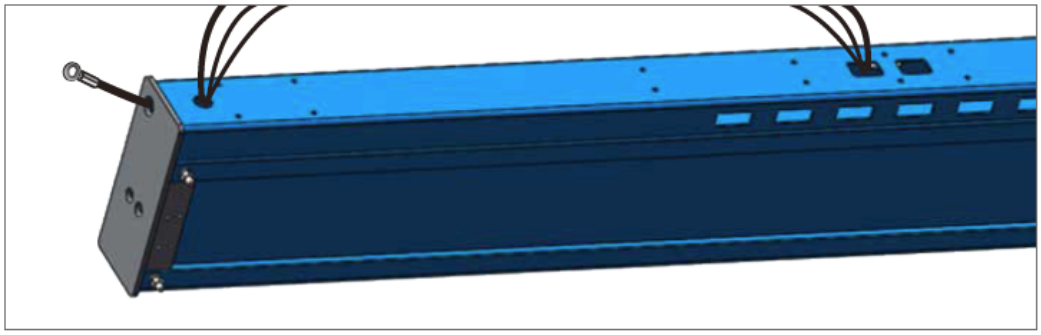


(14) Top of primary post



(15) Base of primary post

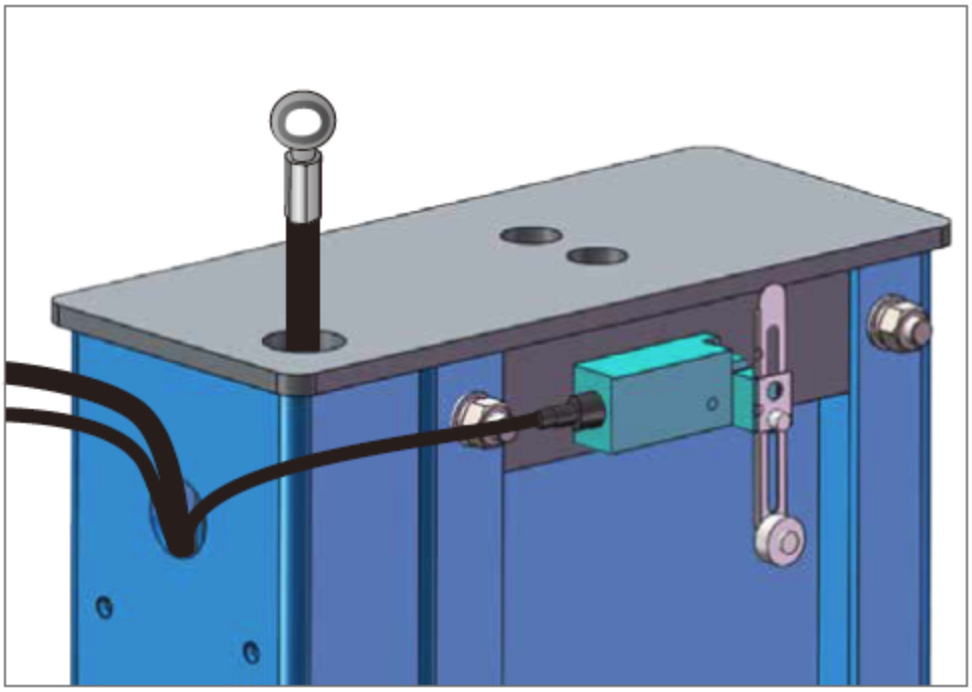
4.5.6 Make the wires of the limit switch, motor and solenoid valve (the thicker wire is for motor, the long one with two thinner wires is for solenoid valve and the short one is for limit switch) go through from the hole on the top of the primary post to the wire hole above the control arm. Temporarily fix the two ends of wires onto the primary post by adhesive tape or cable ties, to avoid oil hose falling out when erecting the post.



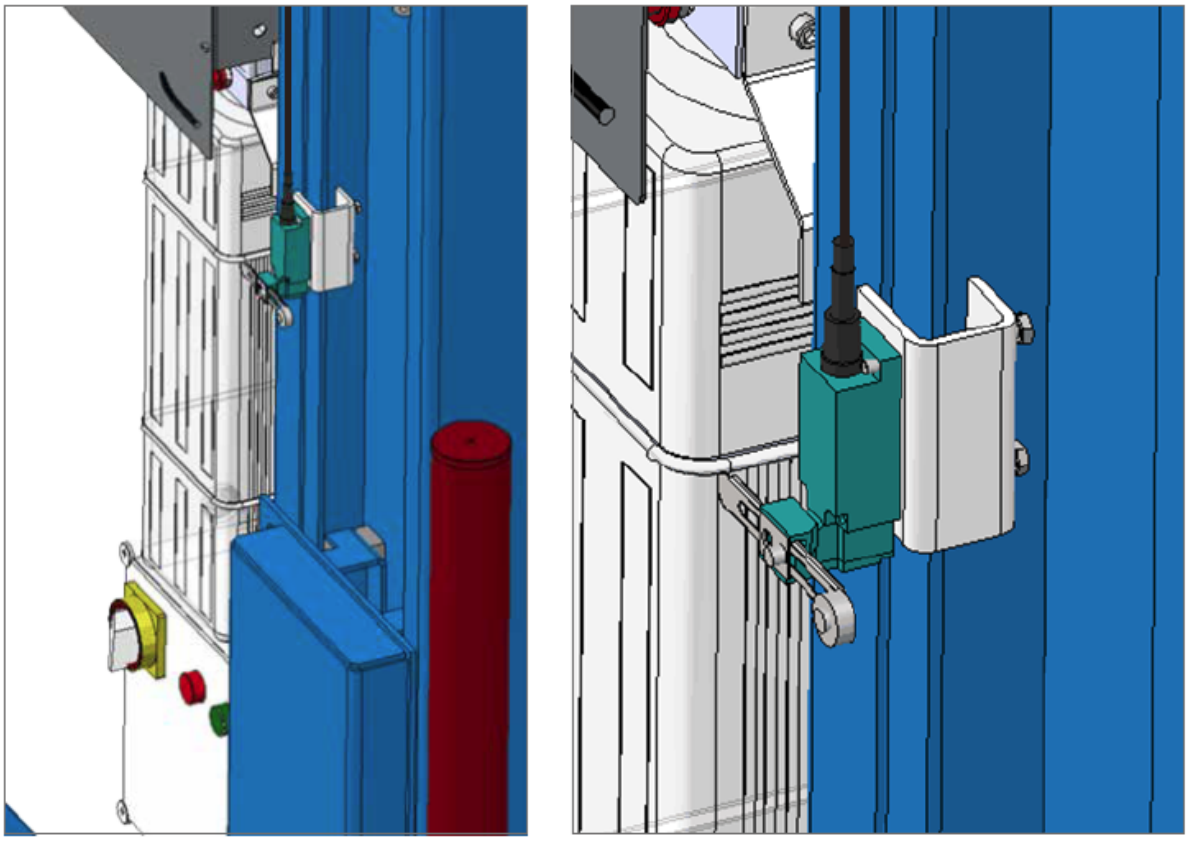
(16) Wire holes of primary post

4.5.7 Fix the limit switch onto the top cover plate of the primary post.

If the lifting height is customized, the limit switch will be mounted onto the slide rail of the primary post below the bracket shown in picture (18). The mounting position is determined by the maximum lifting height needed.

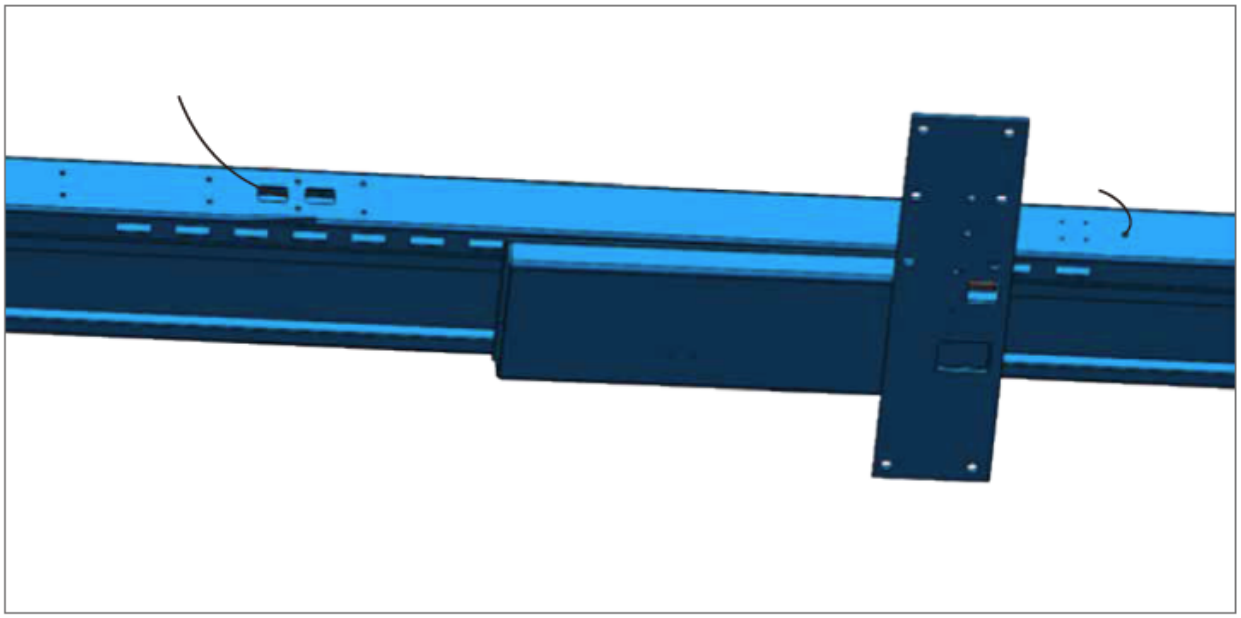


(17) Standard position of limit switch on top cover plate



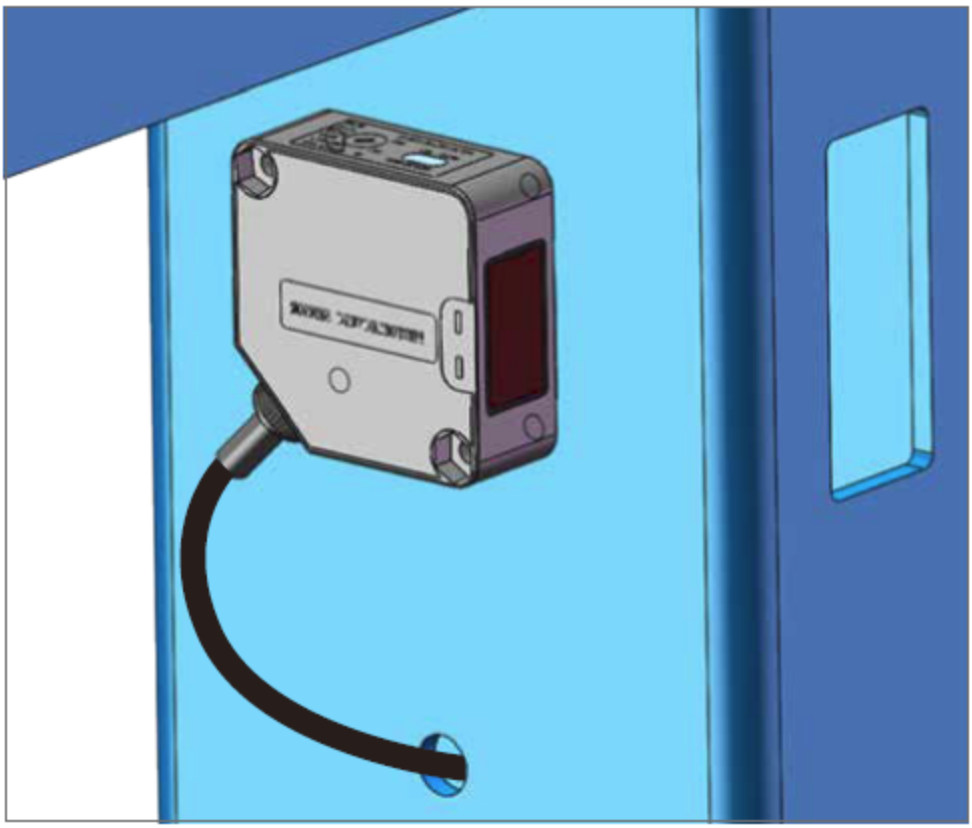
(18) Adjustable position and mounting method of limit switch

4.5.8 Make the wire of the photocell sensor go through from the cable hole of the photocell sensor to the cable hole above the control arm.



(19) Wire holes of photocell sensor

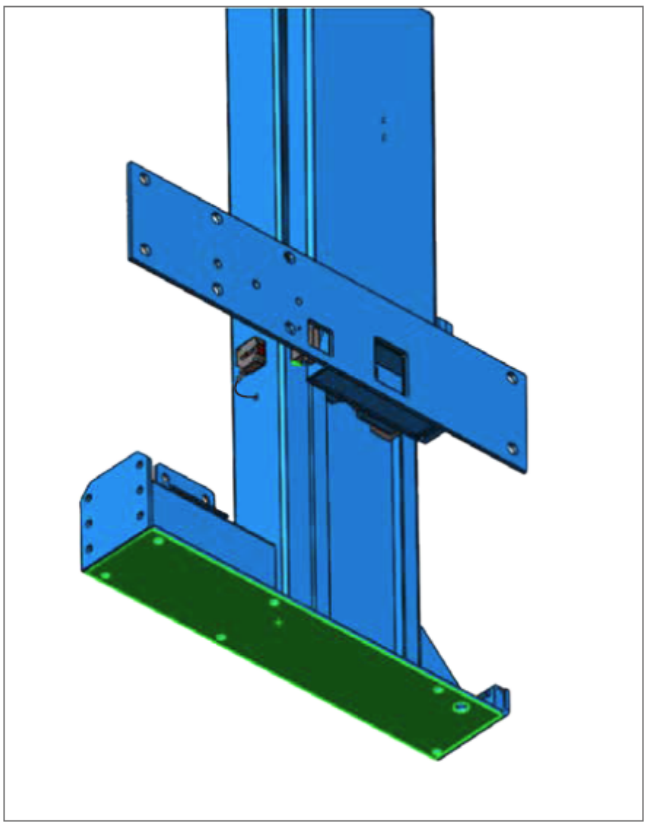
4.5.9 Fix the photocell sensor onto the primary post by bolts. Make the sensor face towards the inside of the parking lift.



(20) Position of photocell sensor

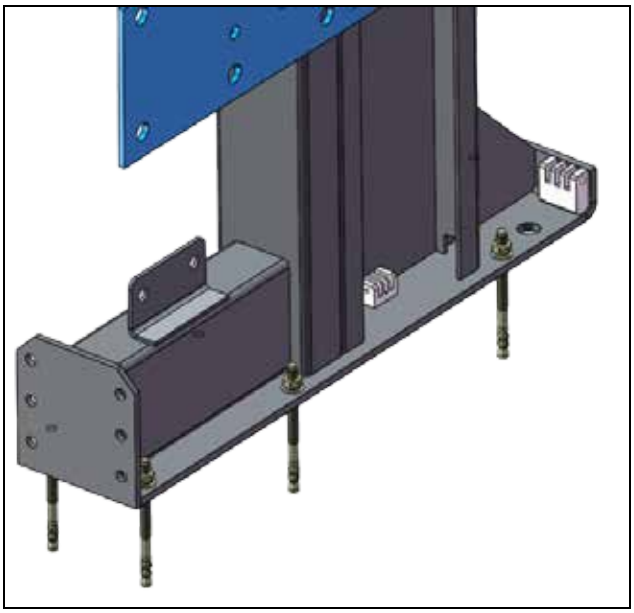
4.5.10 Draw lines on the slab to get the exact installation position according to equipment dimensions and project layout requirements.

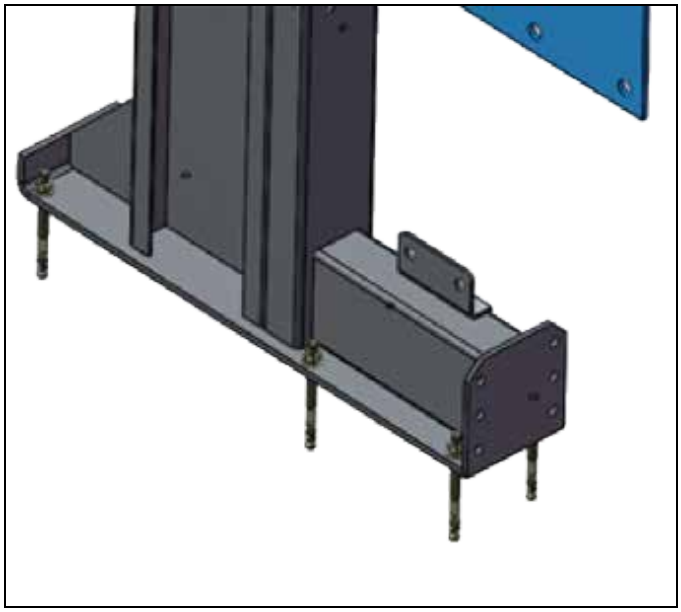
4.5.11 Erect the primary post at specified position according to lines drawn on the slab. Slide the carriage to the height of the lowest locking hole to make the carriage lock automatically at the lowest locking position.



(21) Primary post and left carriage

4.5.12 Fix the primary post onto ground by anchor bolts.

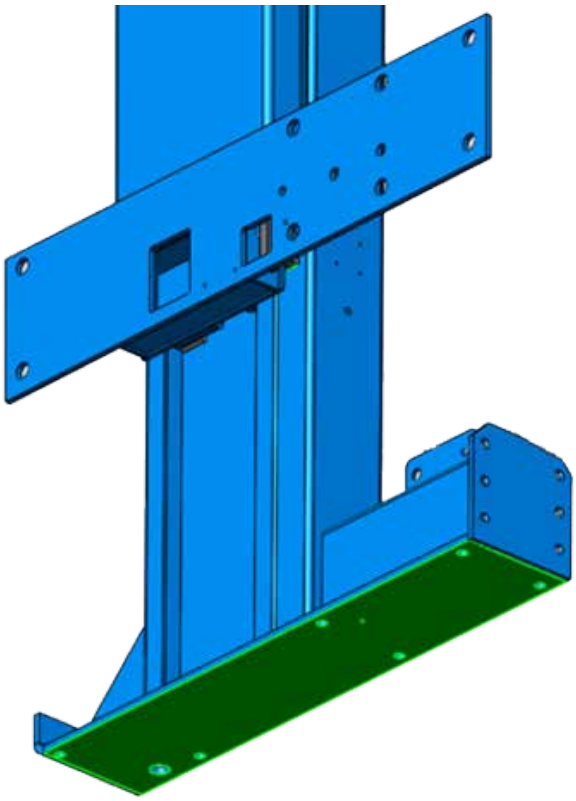




(22) Anchor bolts on base of primary post (23) Anchor bolts on base of primary post

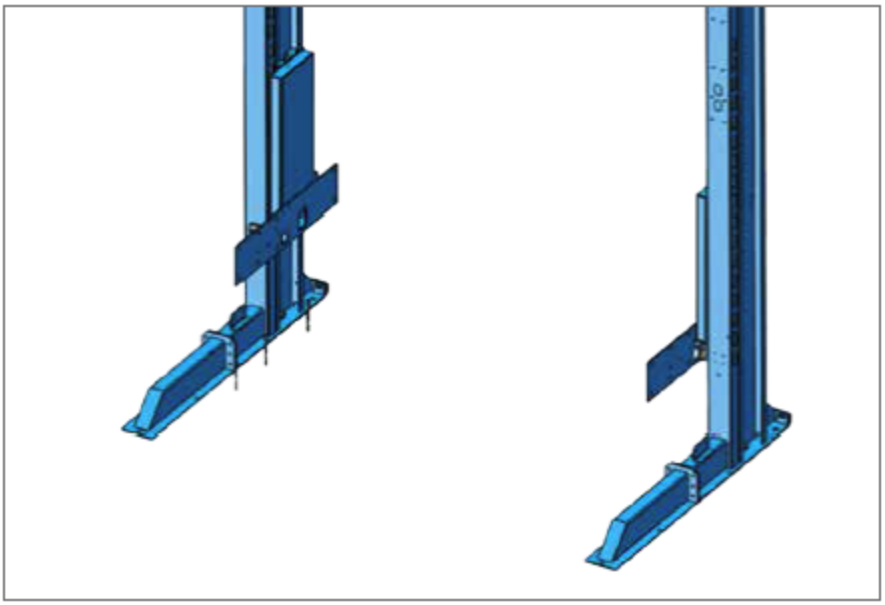
4.5.13 To fix the anchor bolts, drill holes on the ground by electric drill with drill diameter 12mm at the positions of anchor bolt holes on the base of the post. Then hammer the anchor bolts vertically into the ground at approx. 130mm deep. Do not fasten the nuts at this moment, it's possible to slightly adjust the post during testing.

4.5.14 Erect the subsidiary post at the specified position according to the lines drawn on the slab. Slide the carriage to the height of the lowest locking hole to make the carriage lock automatically at the lowest locking position.



(24) Subsidiary post and right carriage

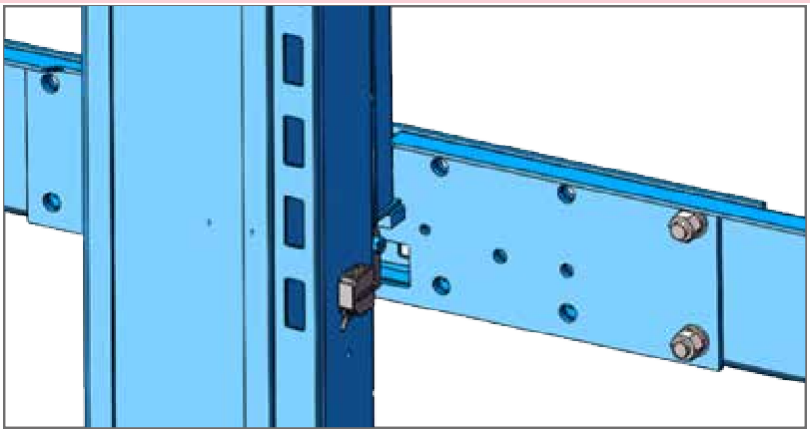
4.5.15 Fix front support onto the primary post and subsidiary post by the bolts.



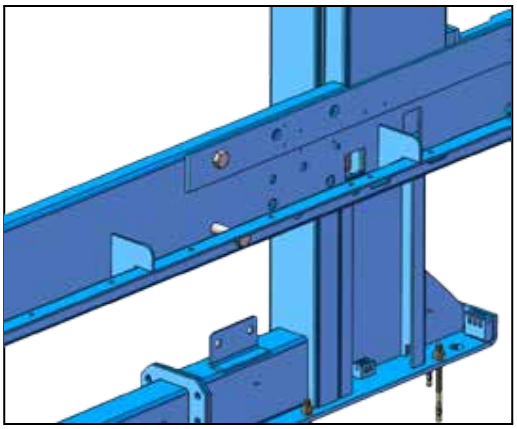
(25) Front support

4.5.16 Fix the left-side beam onto the left carriage, and the right-side beam onto the right carriage by bolts. Make sure every bolt goes outwards from the platform.

(26) Left and right side beam

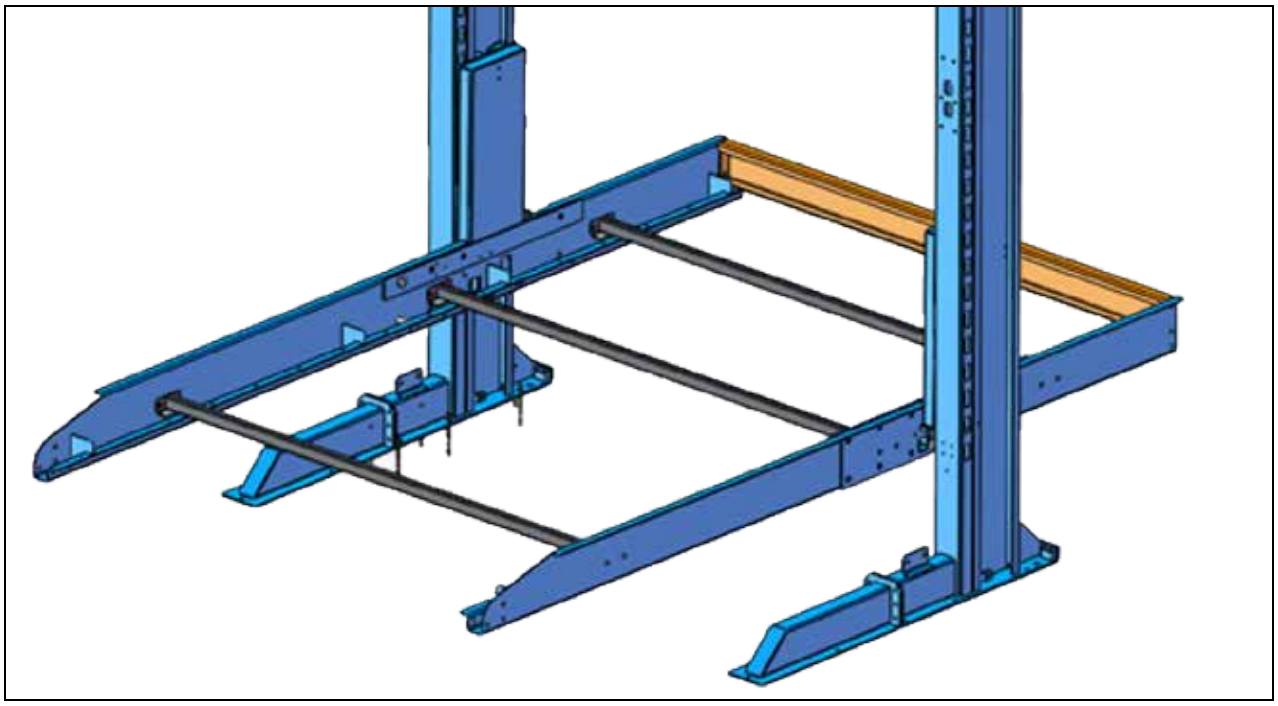


(27) Bolts direction



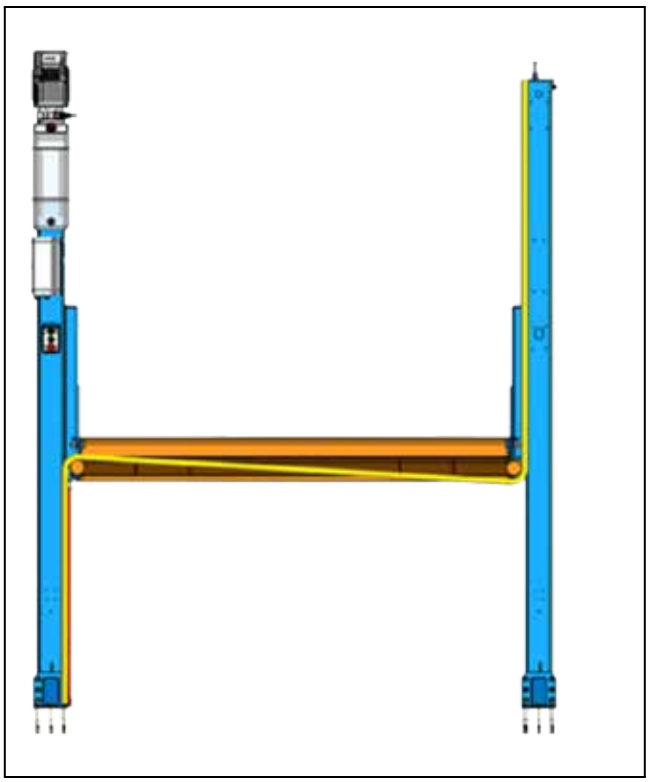
(28) Bolts direction

4.5.17 Fix the back board and three connection rods with left and right-side beams at exact positions shown as below. Do not fasten the nuts at this moment, to provide enough space for waving plates assembly.



(29) Backboard and connection rods

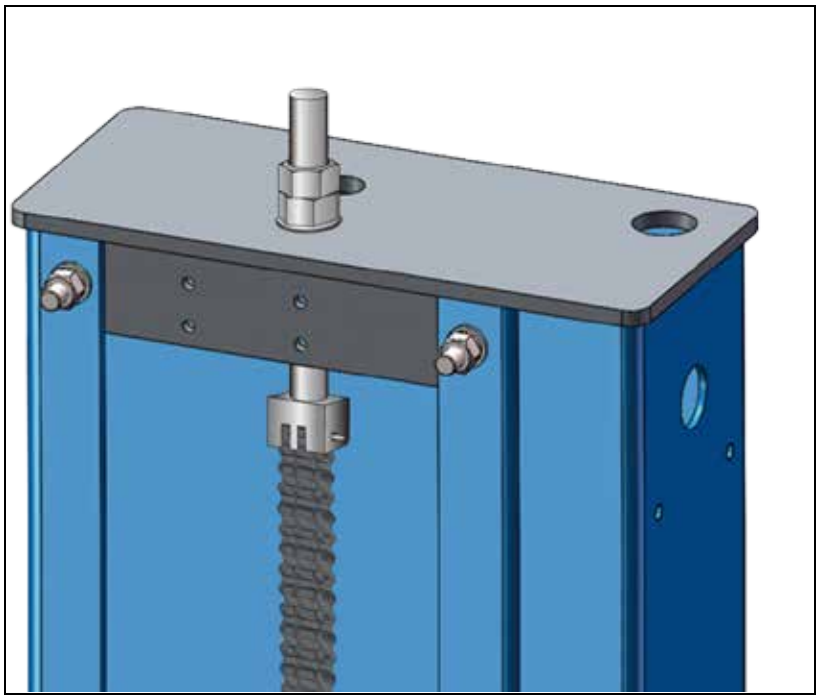
4.5.18 Make the balance chain pass through under the chain wheel in the right carriage, then go up to the top of the subsidiary post.



(30) Route of balance chain

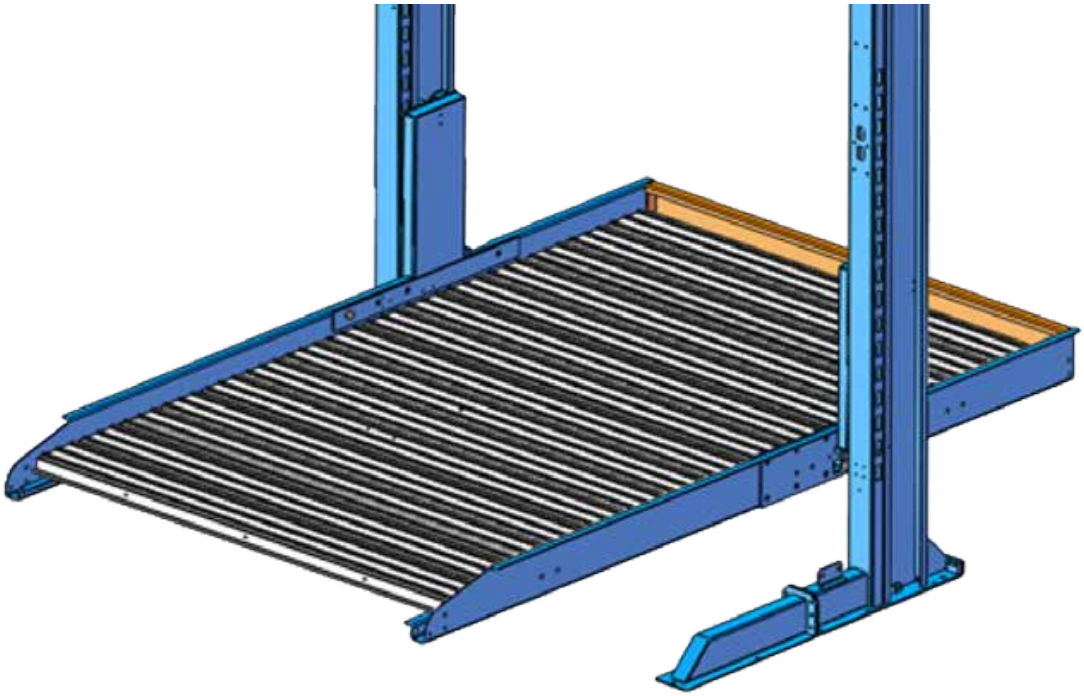
(31) Platform frame

4.5.19 Fix the adjustable screw rod onto this end of the balance chain by a split pin, then fix the adjustable screw rod to the top cover plate of the subsidiary post by two nuts, which are required to avoid chain loosening during long-term working.



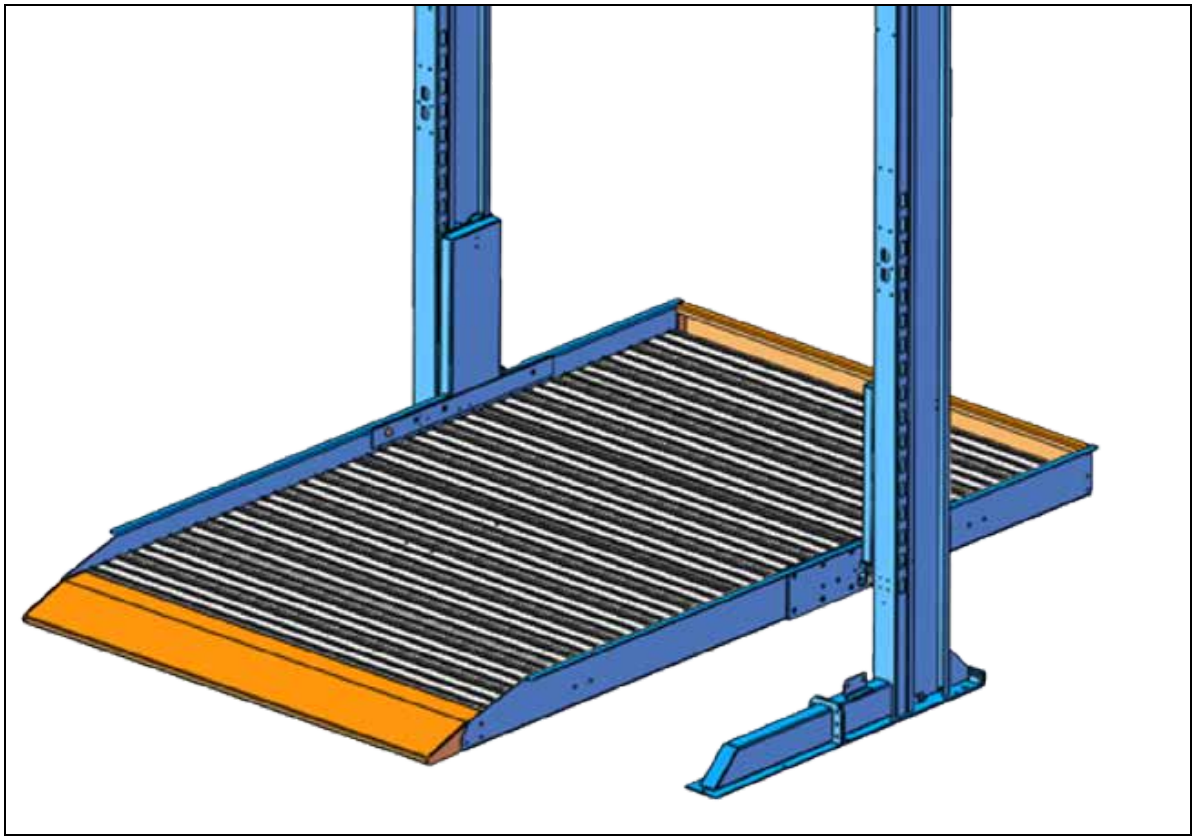
(32) Adjustable screw rod on top cover plate

4.5.20 Place all the waving plates one by one from the back to the front. There are 16 pieces of waving plates for BR-6000, and 15 pieces for BR-5000.



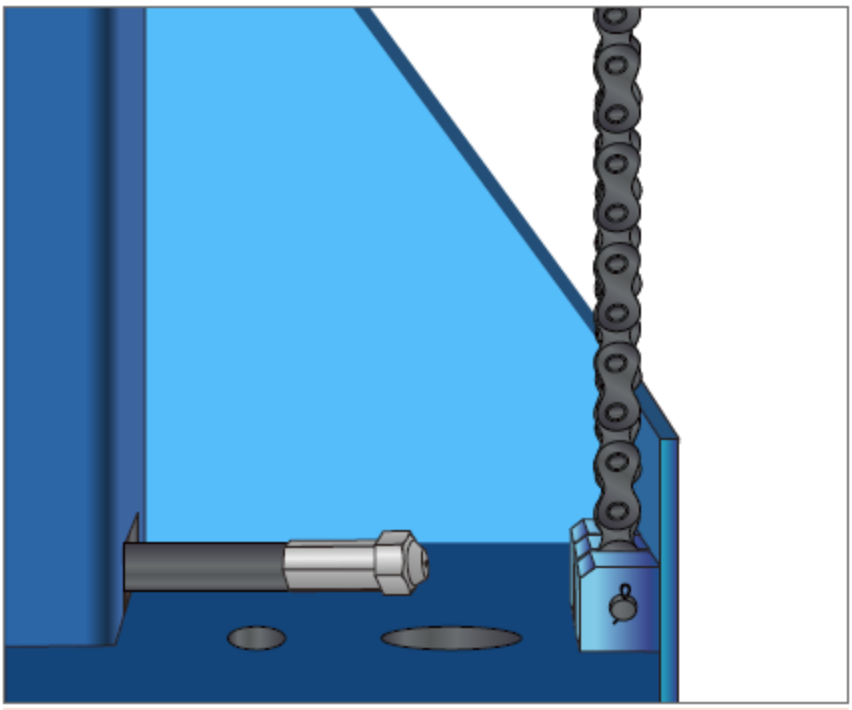
(33) Waving plates

4.5.21 In the front of the platform, fix the ramp with the left and right-side beam.



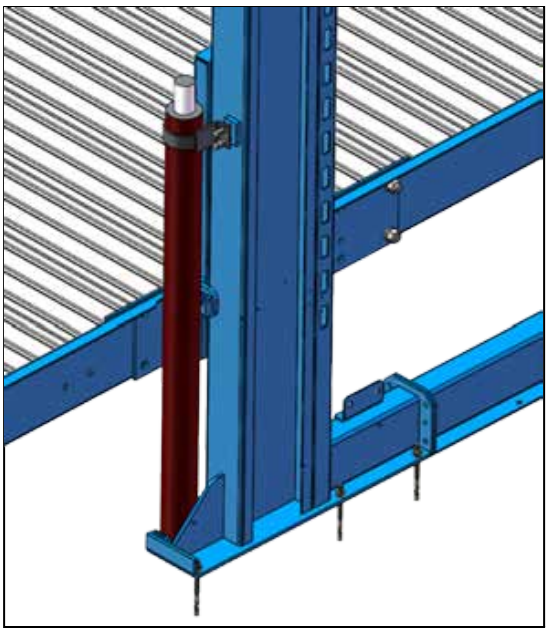
(34) Ramp

4.5.22 Fix one end of the lifting chain to the chain fixture on the bottom of the primary post.

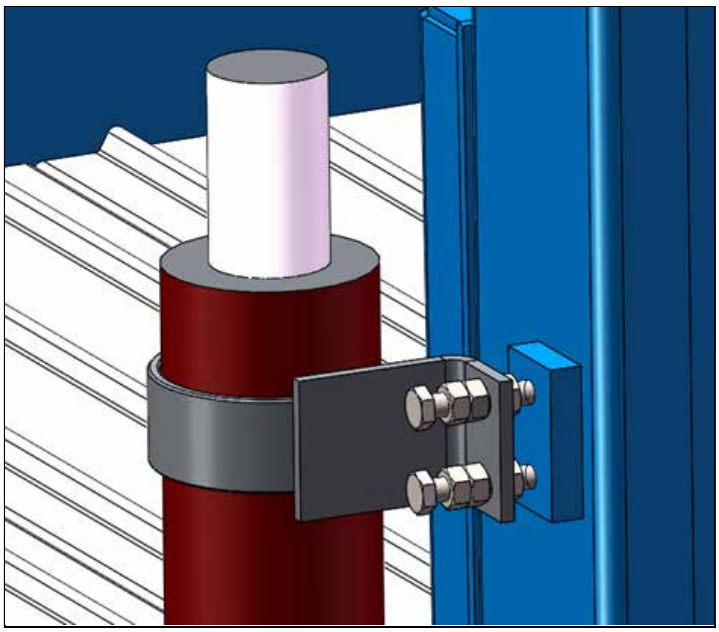


(35) Lifting chain fixture on the base of primary post

4.5.23 Erect the cylinder at a specified position on the bottom of the primary post. Then fix the cylinder bracket with the primary post by bolt. Adjust the screw to make sure the cylinder is standing vertically.



(36) Erecting cylinder

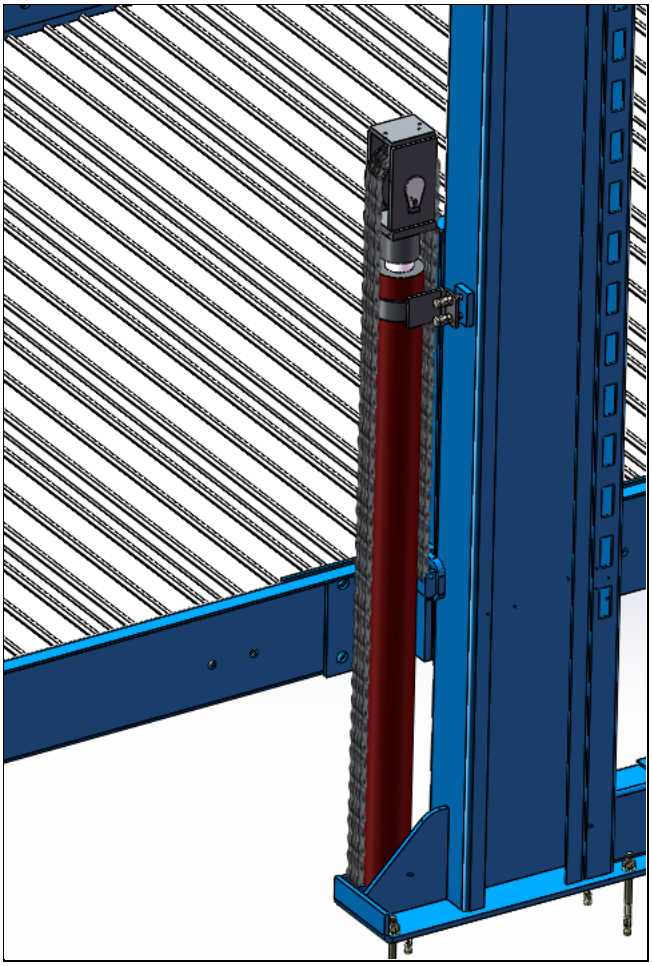


(37) Fixing cylinder bracket

4.5.24 Put the cylinder head onto the piston end of the cylinder.

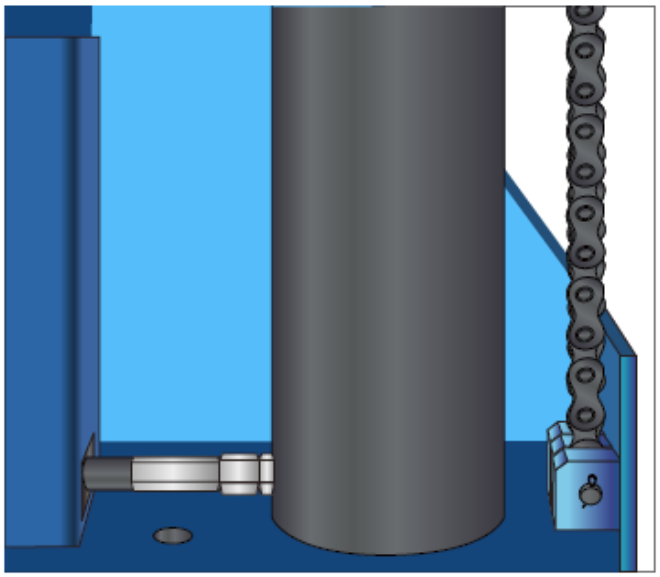
(38) Cylinder head on cylinder

4.5.25 Make the other end of the lifting chain go through the chain wheel of the cylinder head, then attach to the chain fixture on the left carriage of the primary post.



(39) Assembly of lifting chain

4.5.26 Connect the bottom end of the oil hose with the cylinder oil port, and fasten the screw to avoid any leakage.



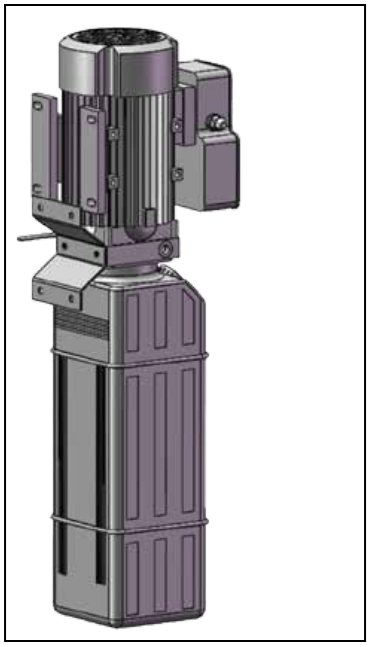
(40) Oil hose to cylinder

4.5.27 Fill the power pack with 10L hydraulic oil.

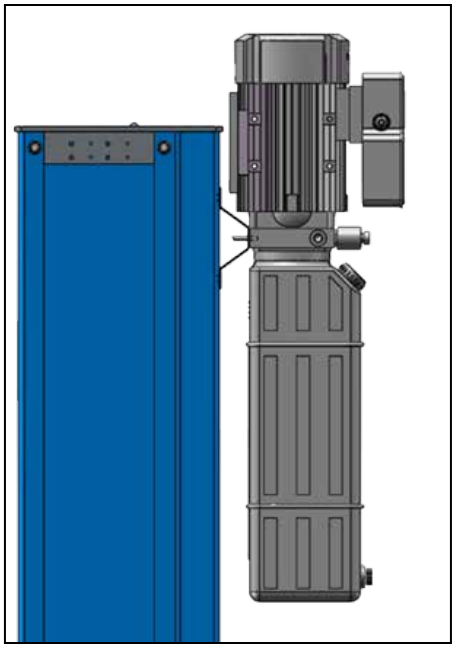
Note: In normal temperature, hydraulic oil L-HV 46# is recommend, and 32# for low temperatures. Viscosity of hydraulic oil should be 15 – 46 cst. Hydraulic oil AFT Dexron III is acceptable as well. Biodegradable hydraulic oil can be used as long as it's abrasion-resistant and compatible with the NBR O ring. Automotive engine oil is not acceptable.

Fix the bracket of the power pack onto the power pack, and the other side of the bracket fixed to the top of the primary post.

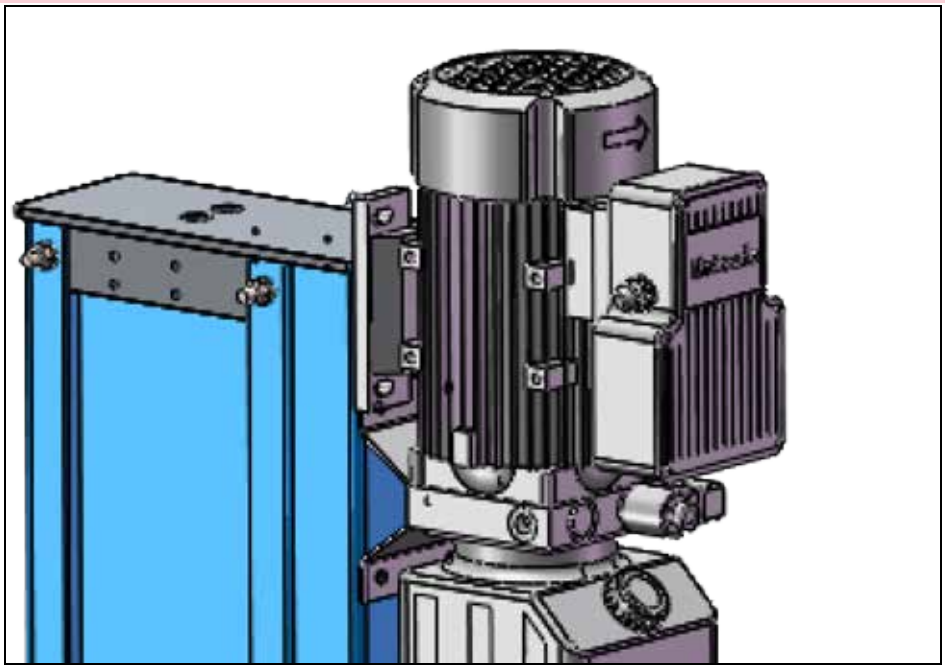
Then connect the top end of the oil hose to the oil outlet of the power pack, the motor wire into the capacity box of the motor, the solenoid valve wire into the solenoid valve, and the limit switch wire to the limit switch.



(41) Power pack and bracket

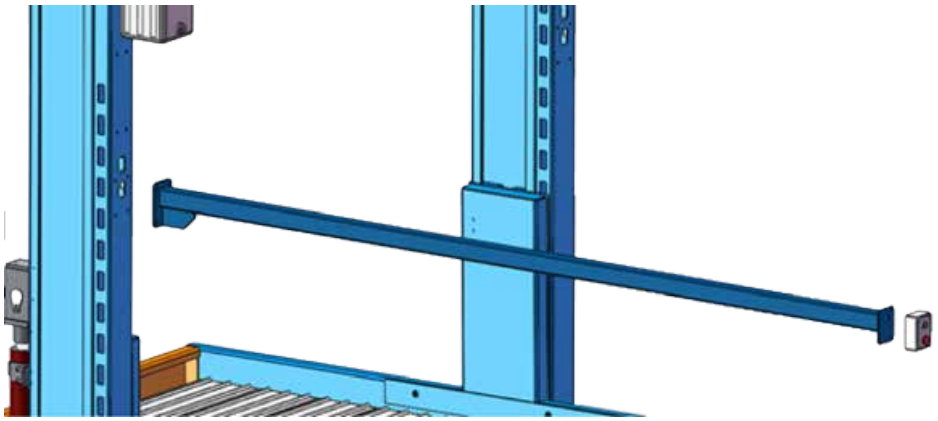


(42) Power pack on primary post



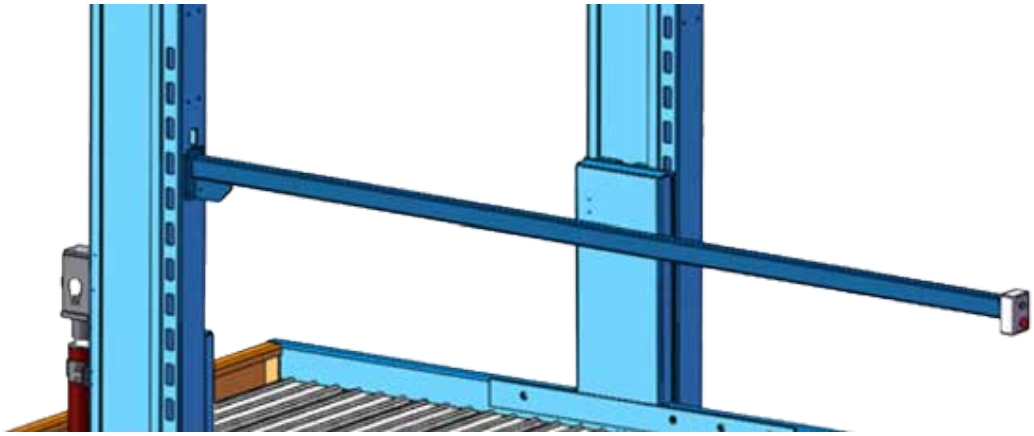
(43) Oil hose, motor wires and solenoid valve to the power pack

4.5.28 Make the wire of the operation panel go through the inside of the control arm from the front end to the rear end, then go into the cable hole of the control arm and out from the above the cable hole.



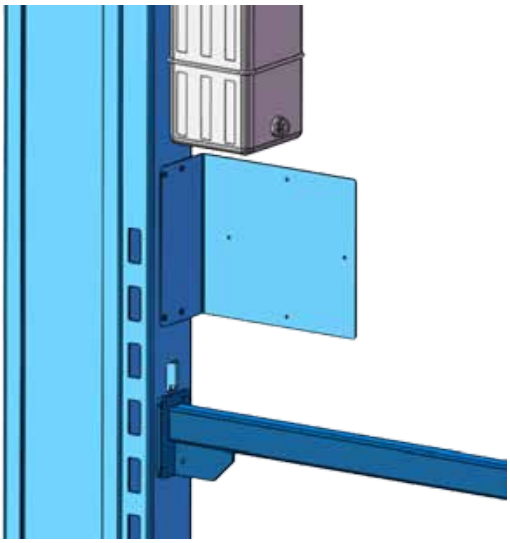
(44) Wire of operation panel passing through the control arm

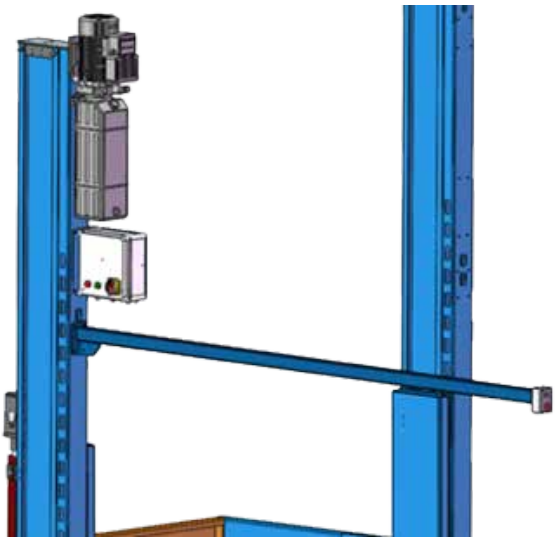
4.5.29 Fix the control arm onto the primary post and the operation panel onto the front end of the control arm by bolts.



(45) Fixing the operation panel and the control arm

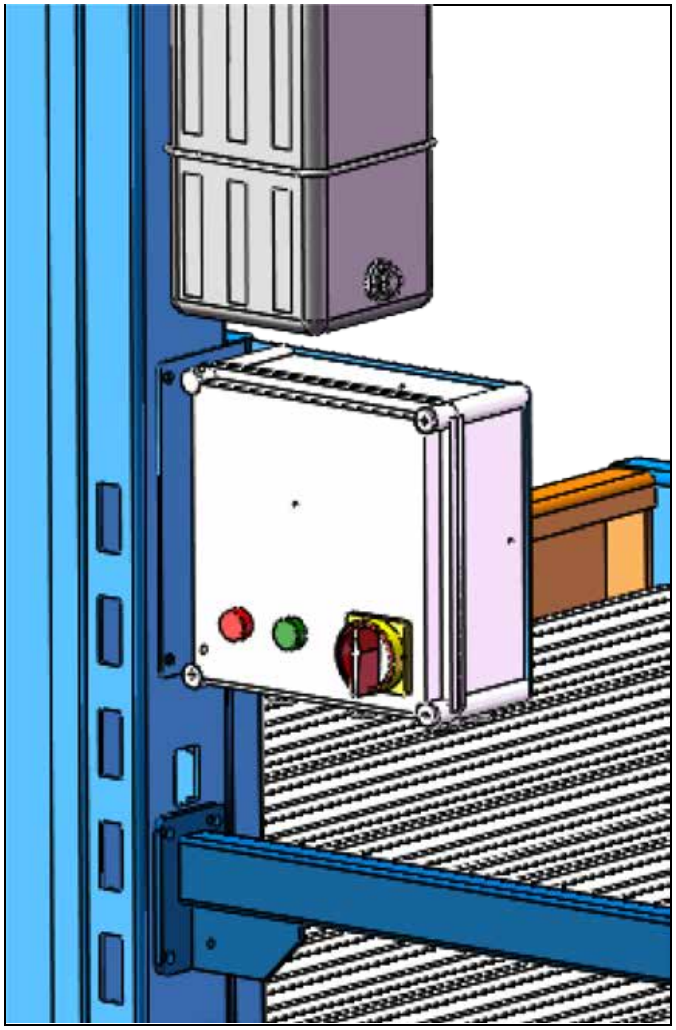
4.5.30 Fix the bracket of the control box onto the primary post, then the control box onto its bracket.





(46) Control box bracket onto the primary post (47) Fixing the control box

4.5.31 By going through the cable holes in the bottom of the control box, connect the wires of the limit switch, motor, solenoid valve, photocell sensor and operation panel to the corresponding points on the electrical board in the control box. Connect each wire to the correct point with the same number labeled on both the wire and the electrical board. Check and follow the electrical diagram and the wiring diagram attached in this manual, and make sure that all the wires are connected correctly and tightly.



(48) Wires into the control box

4.5.32 Connect the main power supply to the control box.

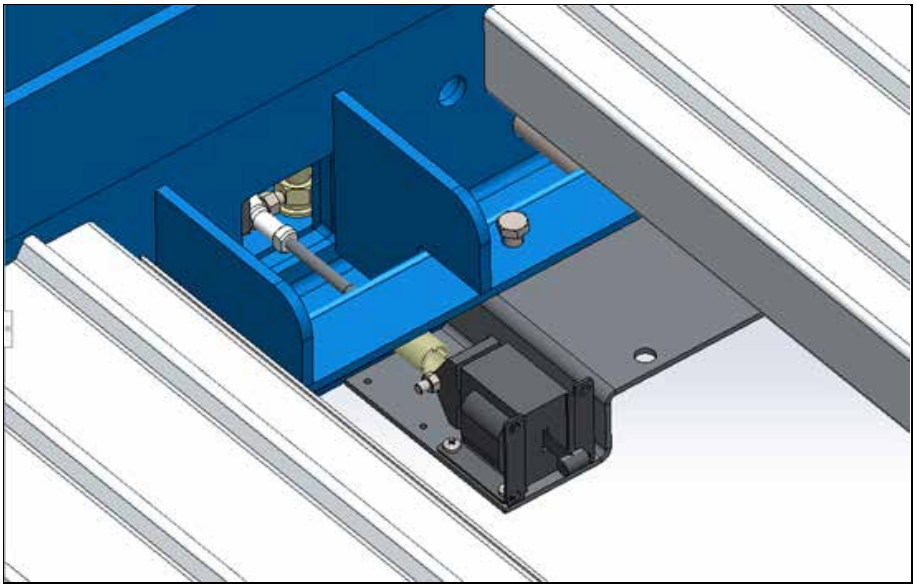
Note:

1) Protect the power pack from hitting or damage during transportation, installation and storage to avoid any product failure.
2) The Power pack should be mounted properly according to local regulation.
3) Make sure that the main power supply is turned off during wiring.
4) 10% of rated voltage is acceptable maximum voltage loss.
5) Wires with larger wire diameter and short length are good for lowering voltage loss.
6) Starting with voltage shortage will lead to abnormal operation or motor failure.
7) If it's a 3 phase power supply, check whether the motor is rotating in the correct direction first once connecting the power pack with the main power supply.
8) Each O ring of the seals is to be lubricated by hydraulic oil and all seals are to be installed before fixing the power pack.
9) Do not bend oil hoses and wires too much. (The bending radius should be more than 9 times the outer diameter of oil hose or wires)
10) Keep oil hoses and wires away from sharp items.

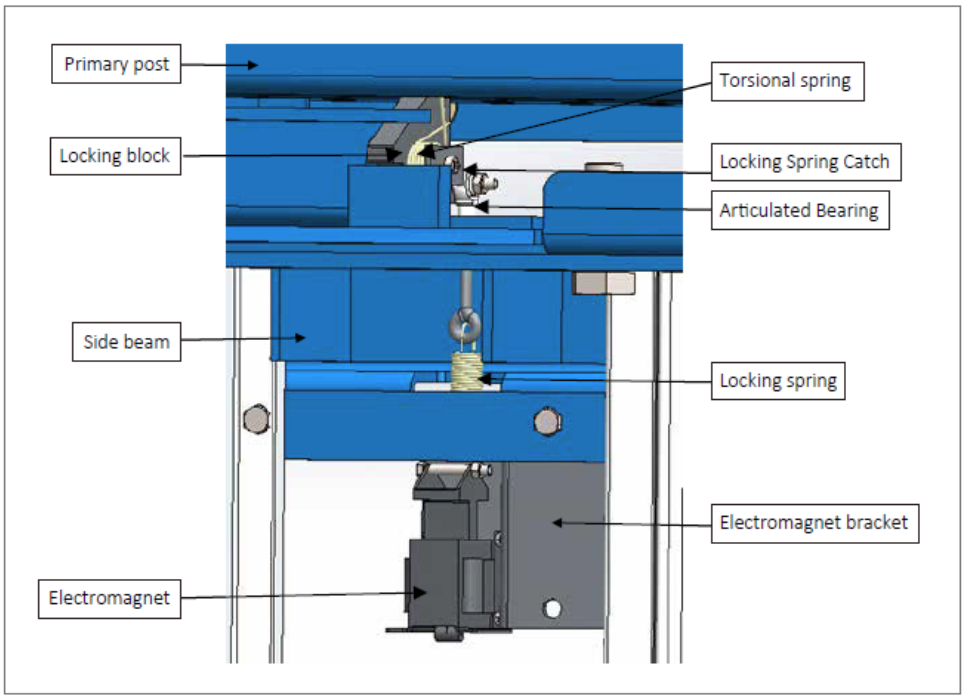
4.5.33 Keep turning the key switch on the operation panel to make the platform go up to the height of about 1.8 meters.

4.5.34 Affix the electromagnet onto its bracket, and connect the front part of the electromagnet, locking spring and articulated bearing. Then affix the articulated bearing with a locking block on carriage by torsional spring, locking spring latch, screw bolt and nut as shown below. After that, affix the electromagnet bracket onto the side beam.

Repeat the above-mentioned actions at the other side of carriage and side beam.



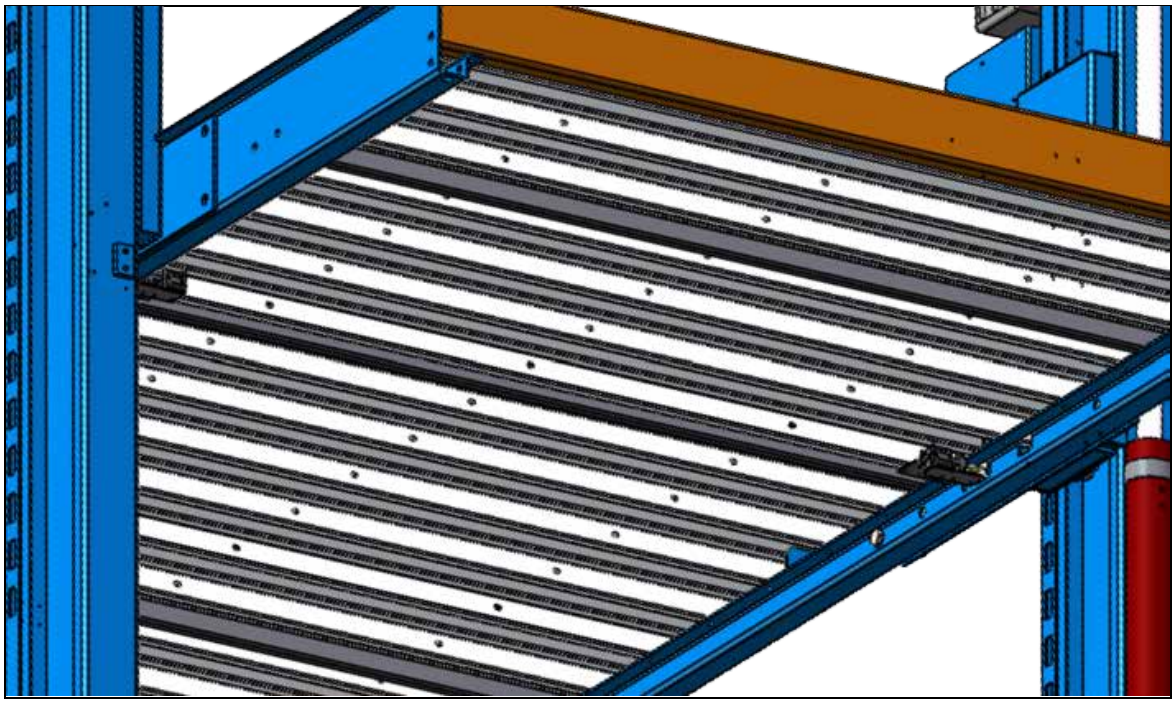
(49) Connection from electromagnet to locking block



(50) Connection from electromagnet to locking block

4.5.35 Fix all the waving plates by bolts.

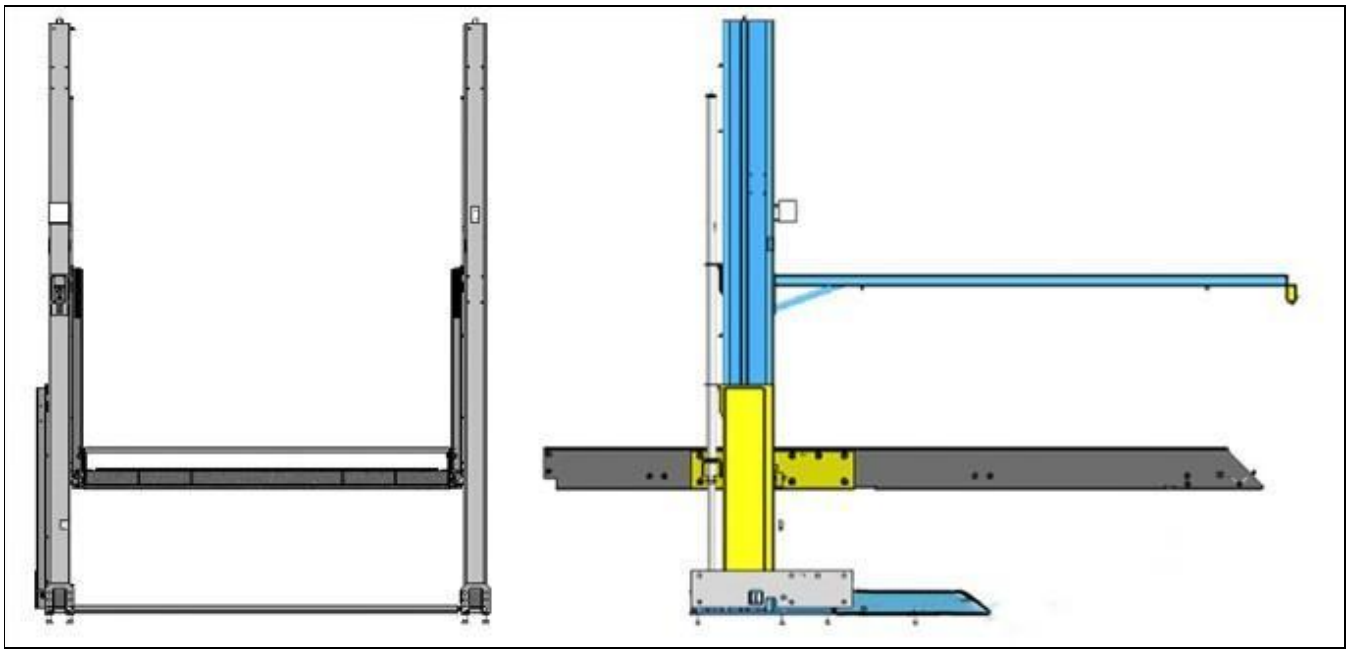
4.5.36 Make sure the wires of two electromagnets are connected together, then lead into the control box by spring wire.



(51) Connection of electromagnet wires

4.5.37 By Adjusting the nut on an adjustable screw rod to make the balance chain tighter or looser, **make sure the platform is always level**.

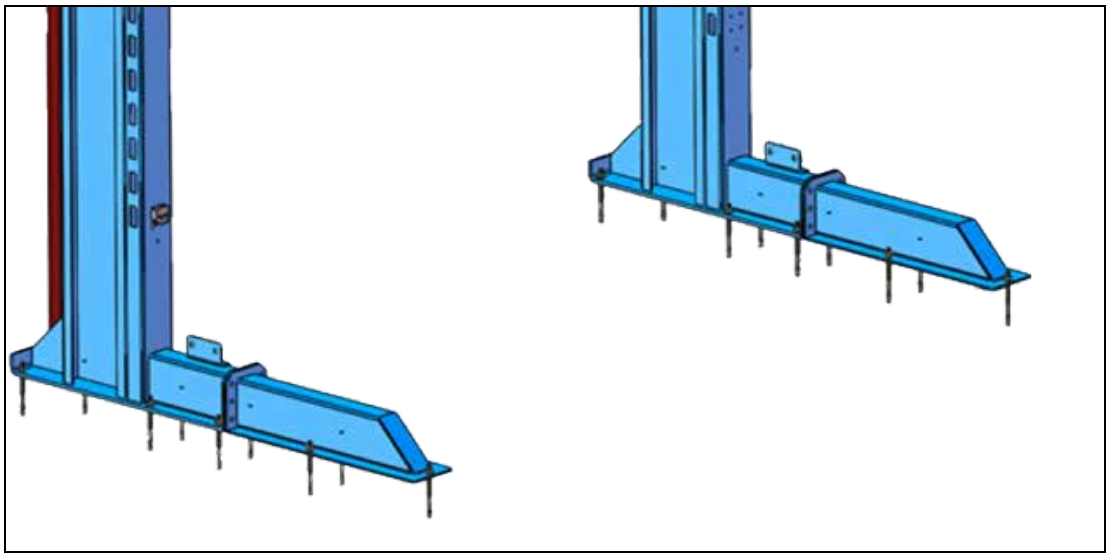
4.5.38 Adjust the posts by adding shims under post to make sure the distance A = B and A1 = B1, so the posts are completely vertical to the ground.



(52) Perpendicularity of parking lift

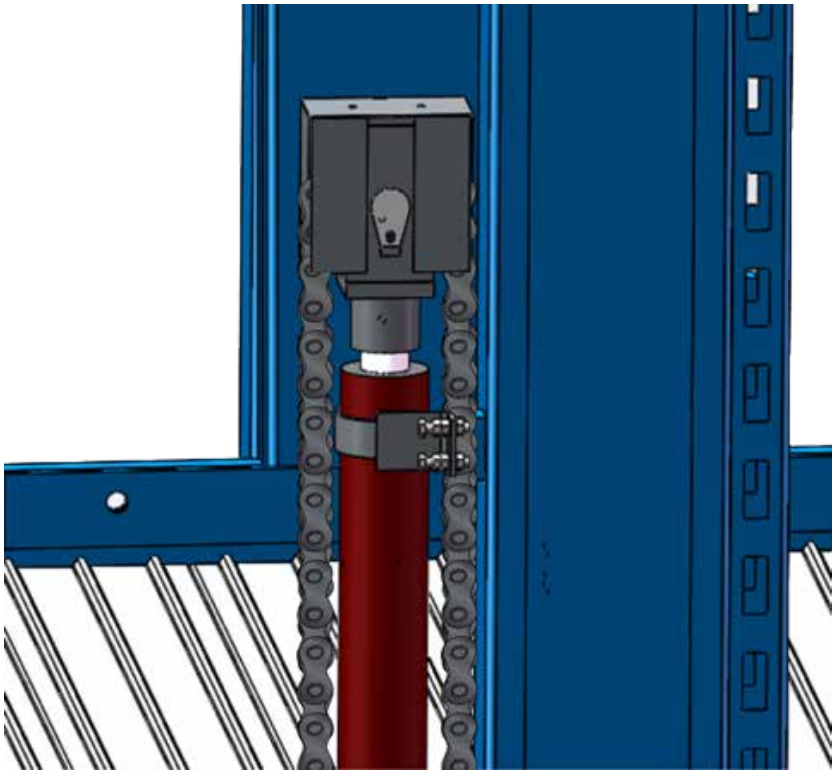
4.5.39 Fasten all the bolts except the anchor bolts if no problem is found after 5 times of up and down movements. Check rotation of chain wheels, tension of chains and smoothness of platform movement.

4.5.40 Fasten all the anchor bolts if no problem is found after another 5 times of up and down movements.



(53) All anchor bolts

4.5.41 Fix the cylinder head cover onto the cylinder head.



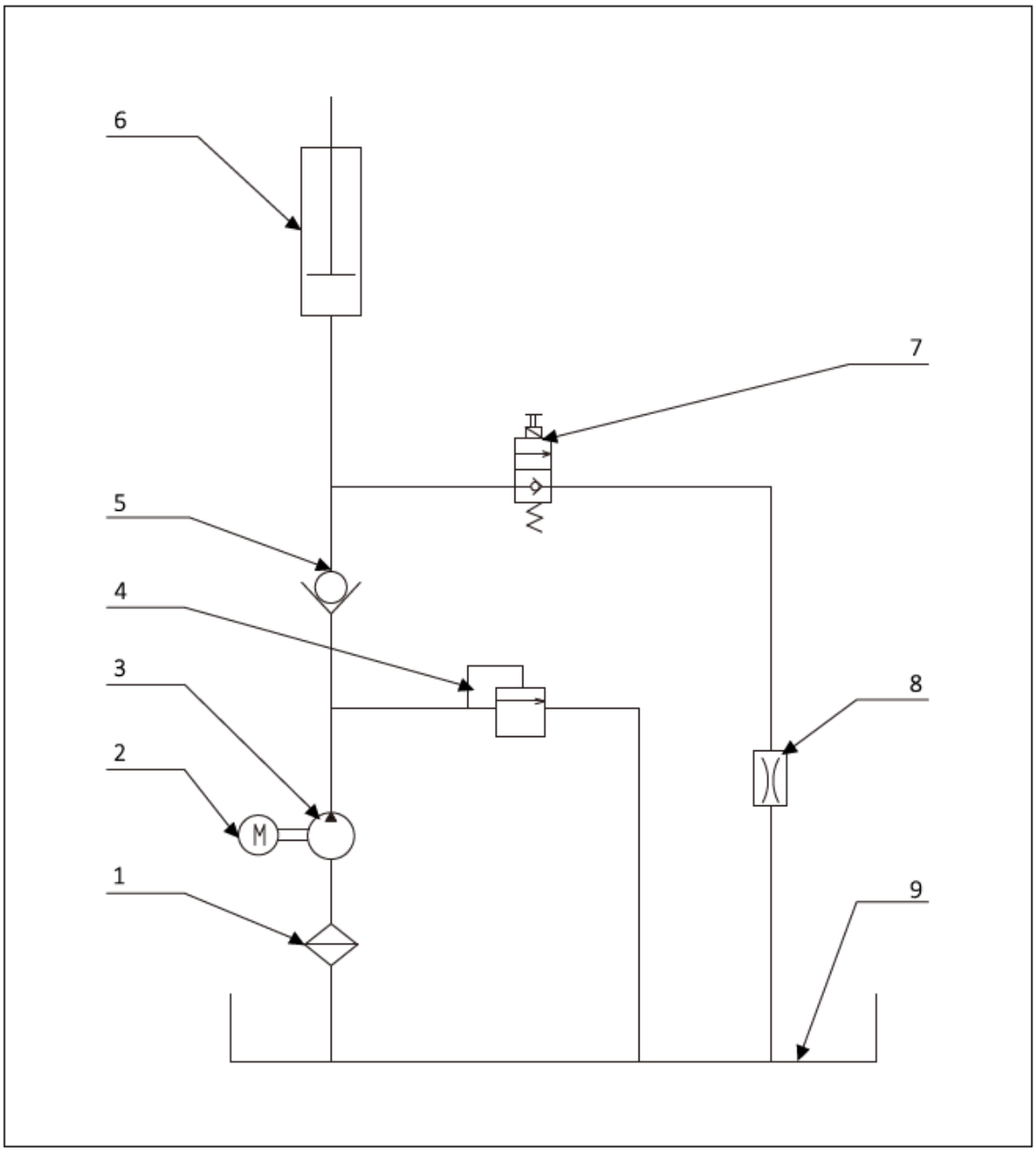
(54) Cylinder head cover

4.5.42 Lubricate every sliding part with lubricant after installation.

ATTENTION: during all operations, **please check all moving parts carefully** to make sure that they are assembled correctly and work well. Fix any problem before installation finishes.

5. Hydraulic & Electrical

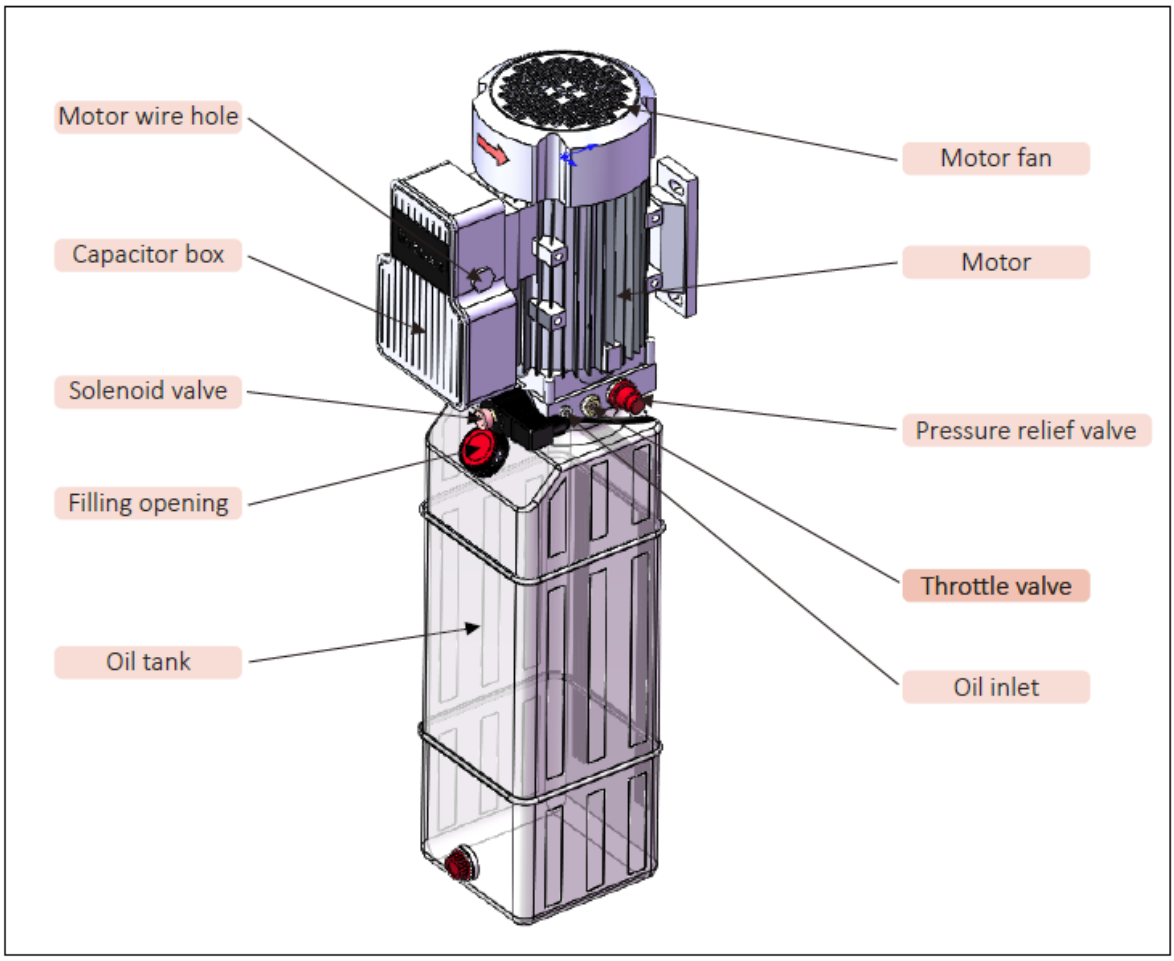
5.1 Hydraulic diagram



1	Filler	6	Cylinder
2	Motor	7	Solenoid valve
3	Gear pump	8	Throttle valve
4	Relief valve	9	Oil tank

5	One-way valve		

5.2 Hydraulic valves on power pack



Caution: Serious malfunction, even human injury may occur if the following adjustment method requested by the manufacturer is not followed. Contact Babco or a local Babco partner for permission and technical support before adjustment.

5.2.1 Setting the pressure adjustment of the pressure relief valve

5.2.1.1 Unscrew cap from the pressure relief valve, and rotate the inner adjusting screw to reset pressure.

5.2.1.2 The pressure gauge is essential to set the pressure of the pressure relief valve.

5.2.1.3 Setting the pressure will raise approx. 1.2MPa by rotating the adjusting screw clockwise by 45 degrees, and vice versa. Screw down cap after adjustment finishes.

5.2.1.4 Repeat depressurizing and pressurizing to make sure the new setting pressure reaches the manufacturer's requirement.

5.2.2 Descending speed adjustment

5.2.2.1 Unscrew the nut on the throttle valve.

5.2.2.2 This can be rotated by 15 degrees each time. The Speed of cylinder retracting will be lowered down by rotating the adjusting screw clockwise, and vice versa.

5.2.2.3 Screw down the nut after adjustment finishes.

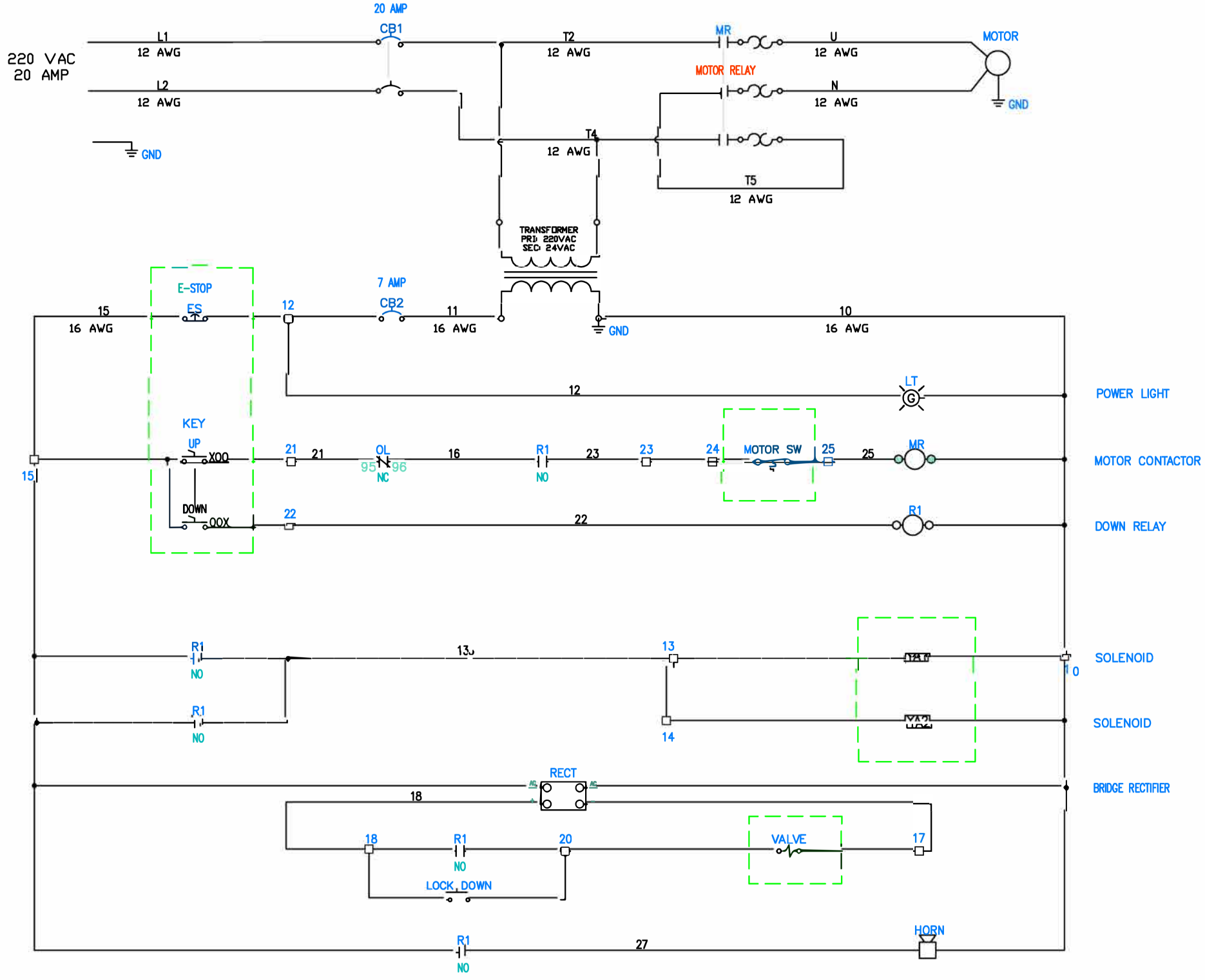
5.2.3 Emergency depressurizing device of solenoid valve

5.2.3.1 Screw off the cap nut from the emergency depressurizing device of the solenoid valve.
5.2.3.2 Turn the emergency depressurizing screw slowly counterclockwise to make the platform descend.
5.2.3.3 The emergency depressurizing screw and cap nut is to be screwed down once the platform descends to the ground.

5.3 Electrical diagram

Note:

The diagram below is for single phase power supply only. Please contact Babco for 3-phase power supply.

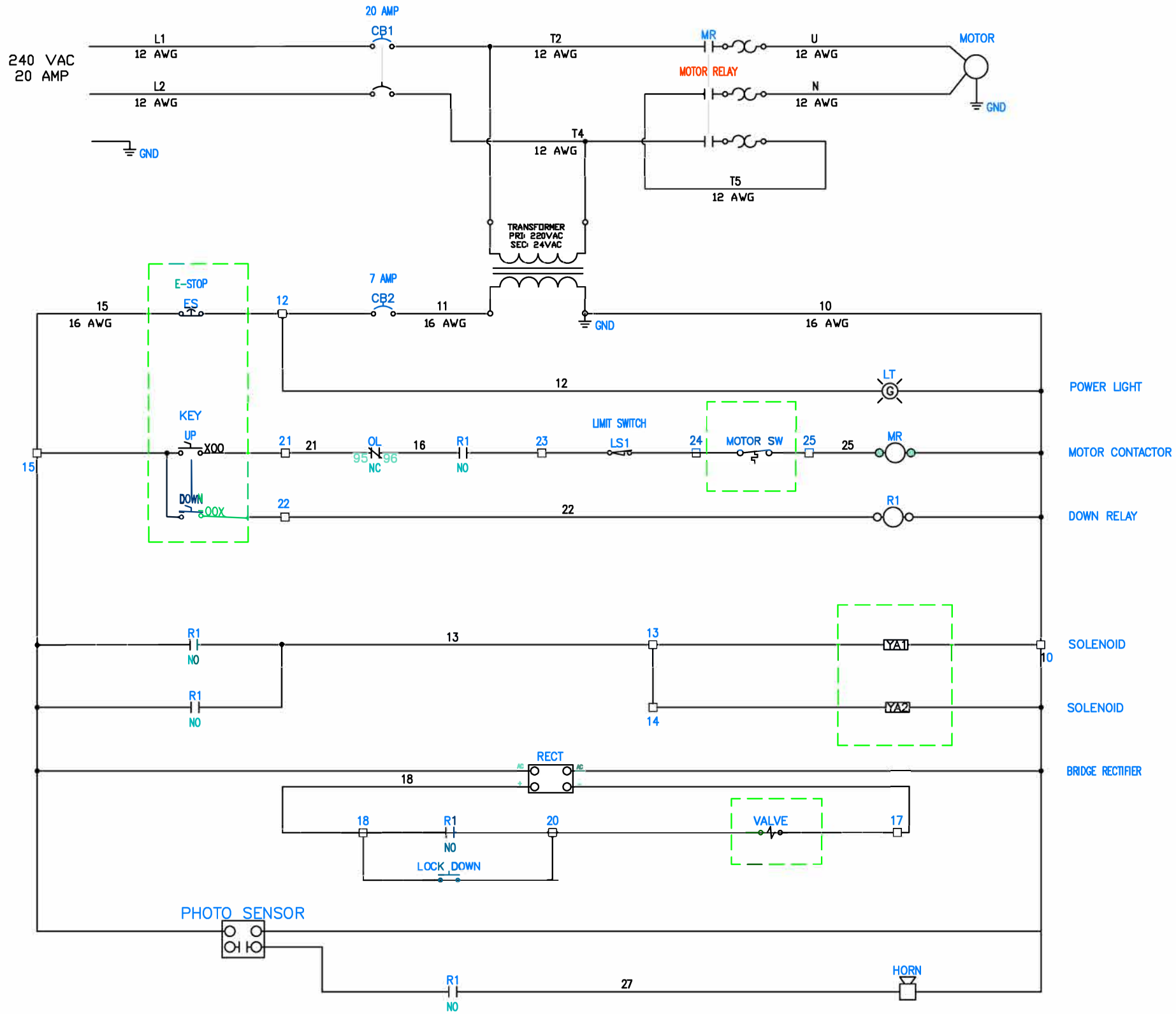


NOTE: FIELD WIRING

TERMINAL BLOCK XX

babcopark

TITLE: BR6000 OUTDOOR		
MODEL: BR6000		
SIZE: B	SCALE: N/A	DATE: AUG 02 2022



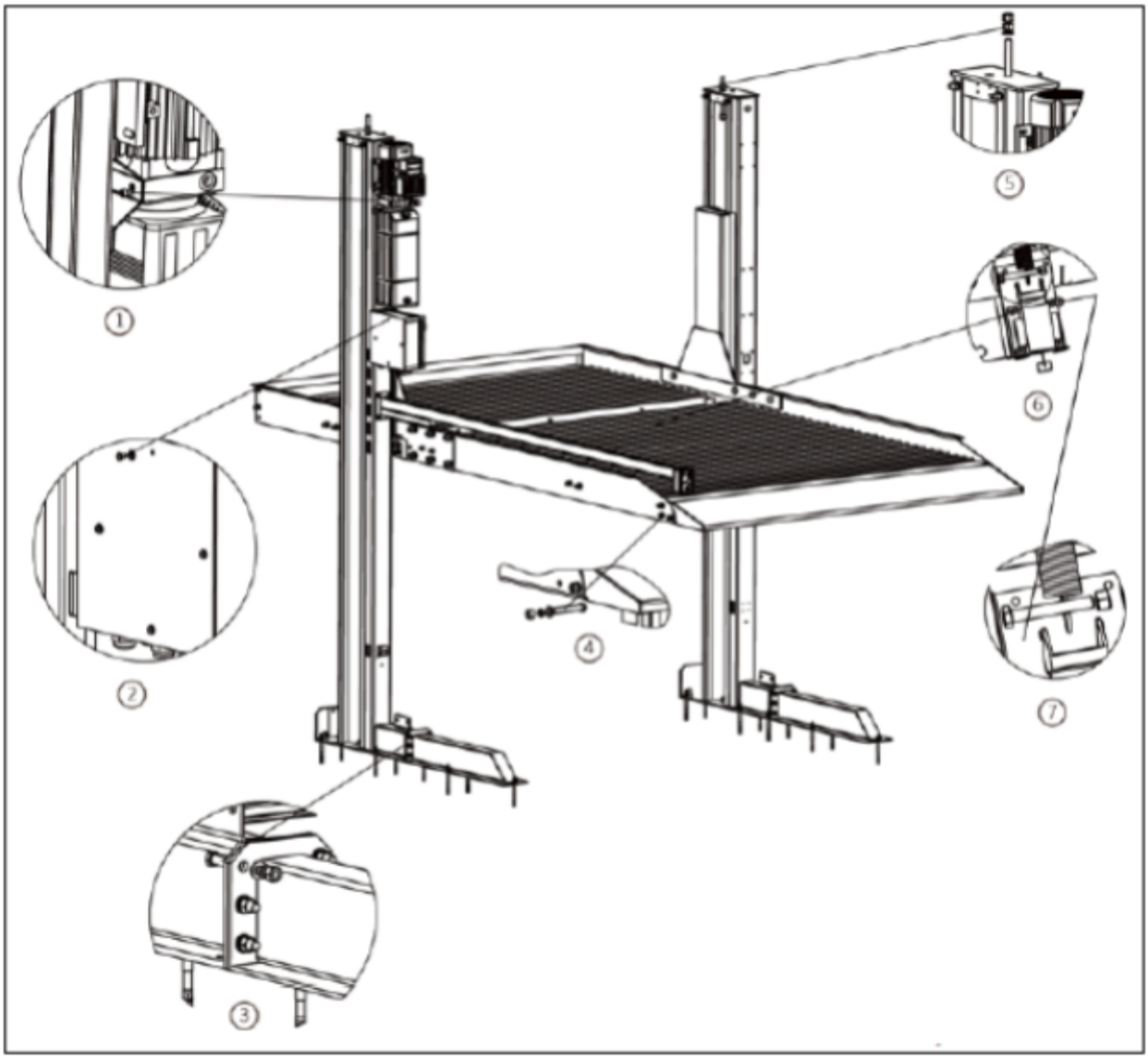
NOTE: FIELD WIRING

TERMINAL BLOCK XX

babcopark

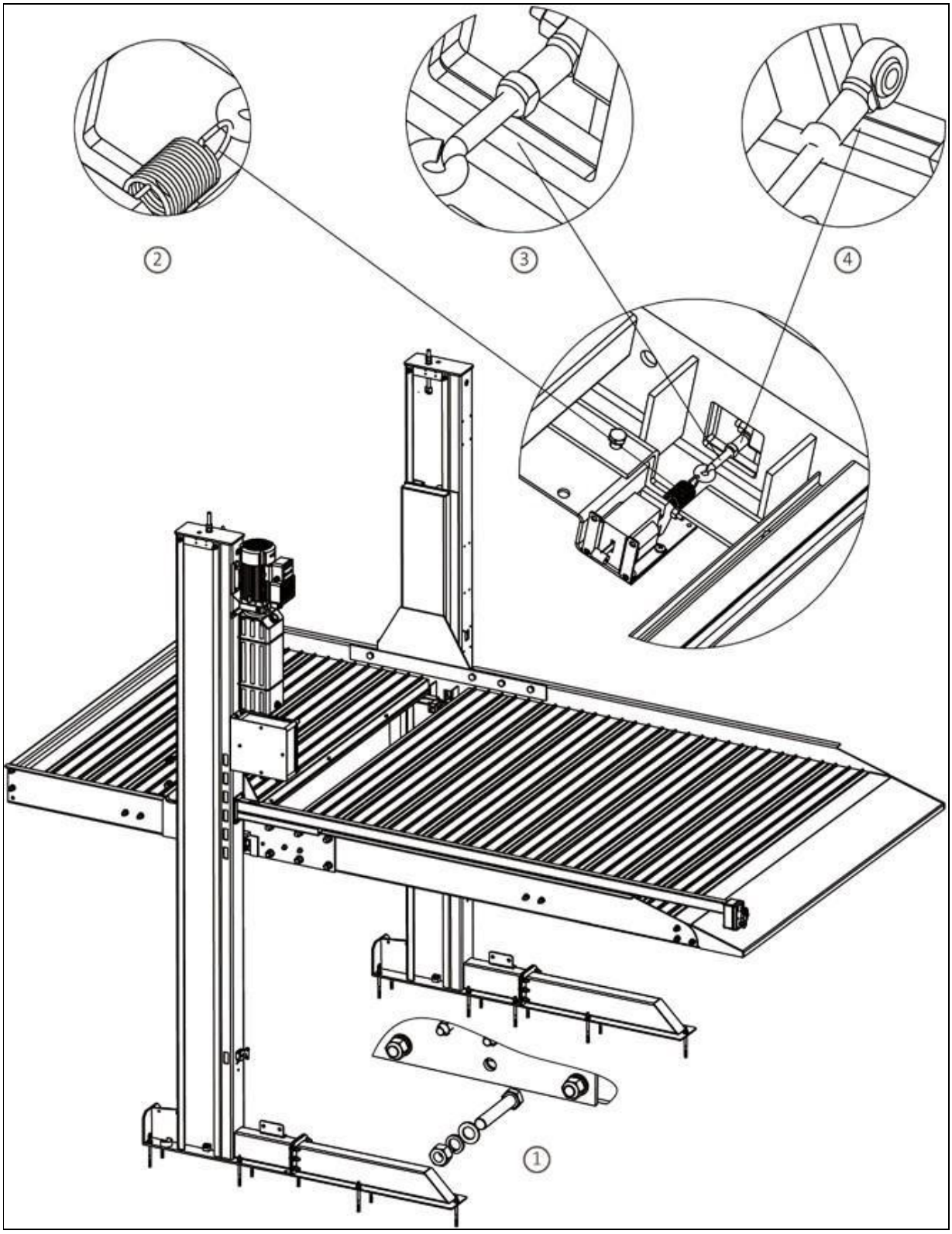
TITLE: BR6000 INDOOR		
MODEL: BR6000		
SIZE: B	SCALE: N/A	DATE: AUG 02 2022

6. Standard Parts

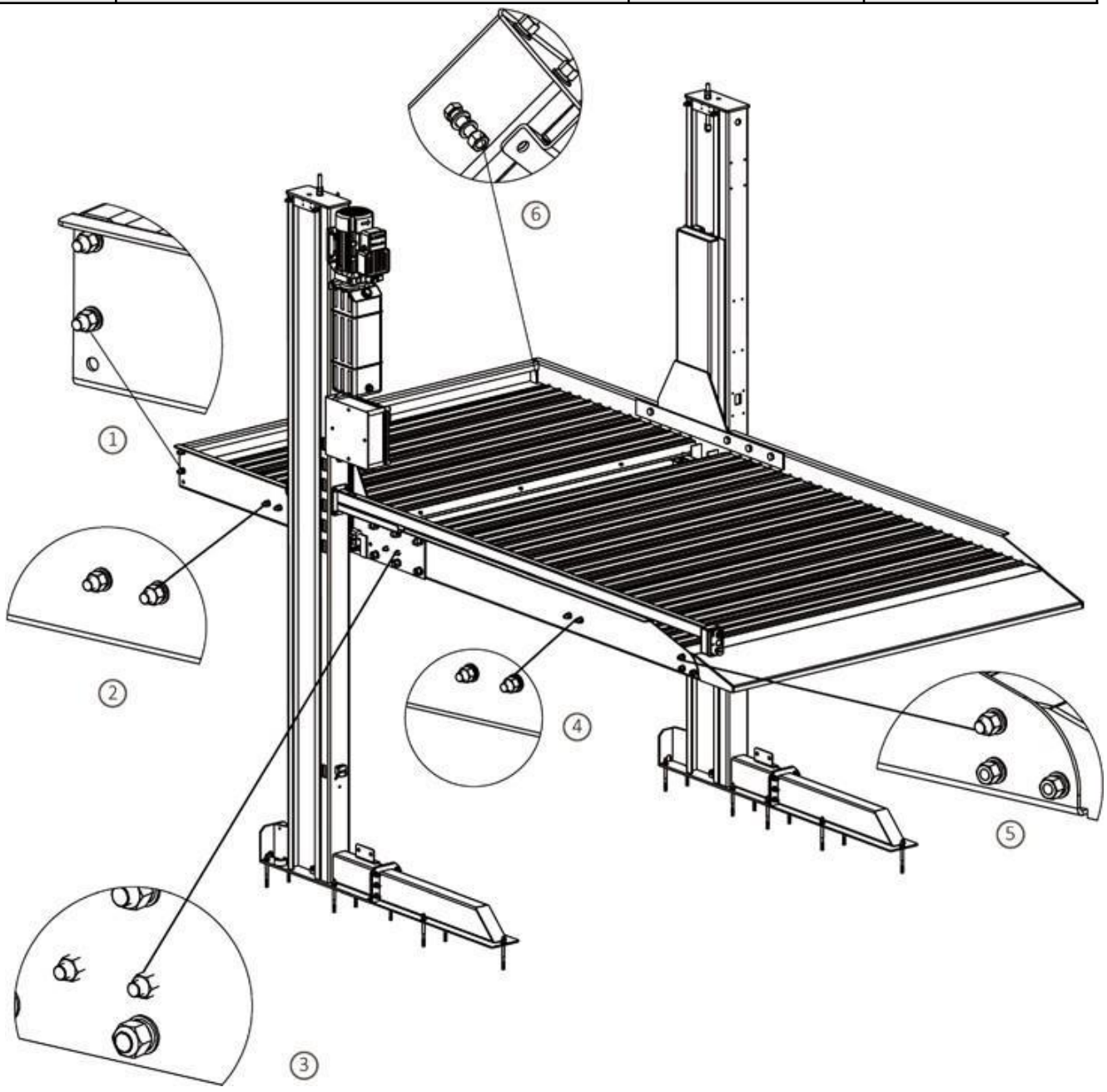


NO.	Item Name	Spec.	Quantity
1	Hexagon Socket Screw	M10*15	2 Pieces
2	Cross Recessed Pan Head Screw	M5*10	4 Pieces
	Flat washer	M5	4 Pieces
3	Hexagon Bolt	M12*45	12 Sets
4	Hexagon Bolt	M14*100	4 Sets
5	Screw nut	M16*1.5	4 Pieces
	Flat Washer	M16	2 Pieces
6	Cross Recessed Pan Head Screw	M4*10	8 Pieces
7	Hexagon Bolt	M5*35	2 Pieces
	Screw nut	M5*1.5	2 Pieces
8	Cross Recessed Pan Head Screw	M4*20	4 Pieces

	Screw nut	M4	4 Pieces
9	Hexagon Socket Screw	M6*10	4 Pieces

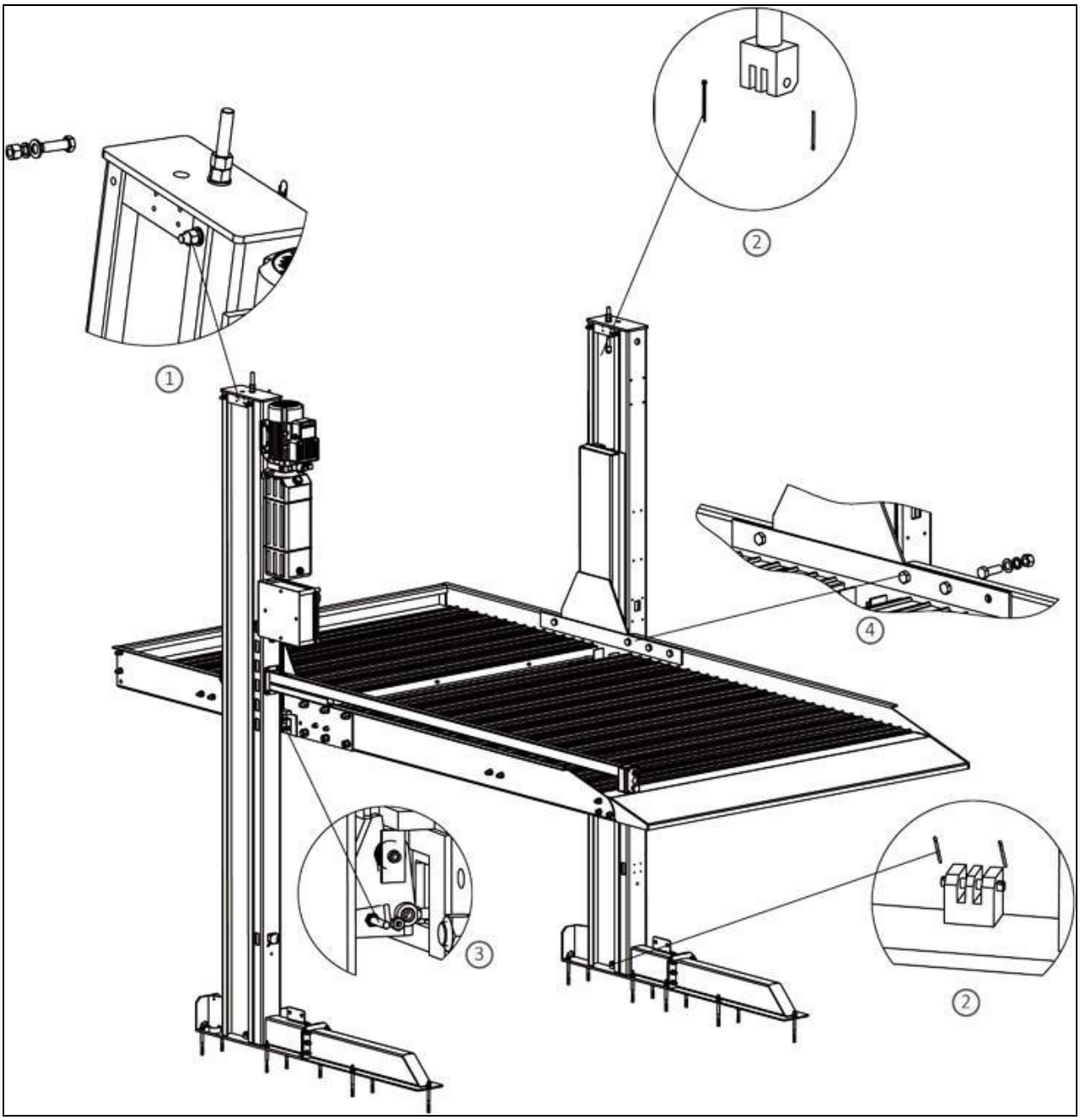


NO.	Item Name	Spec.	Quantity
1	Hexagon Bolt	M20*110	8 Sets
2	Locking Spring	φ1.8	2 Pieces
3	Locking Pull Rod	M6	2 Pieces
4	Articulated Bearing		2 Pieces

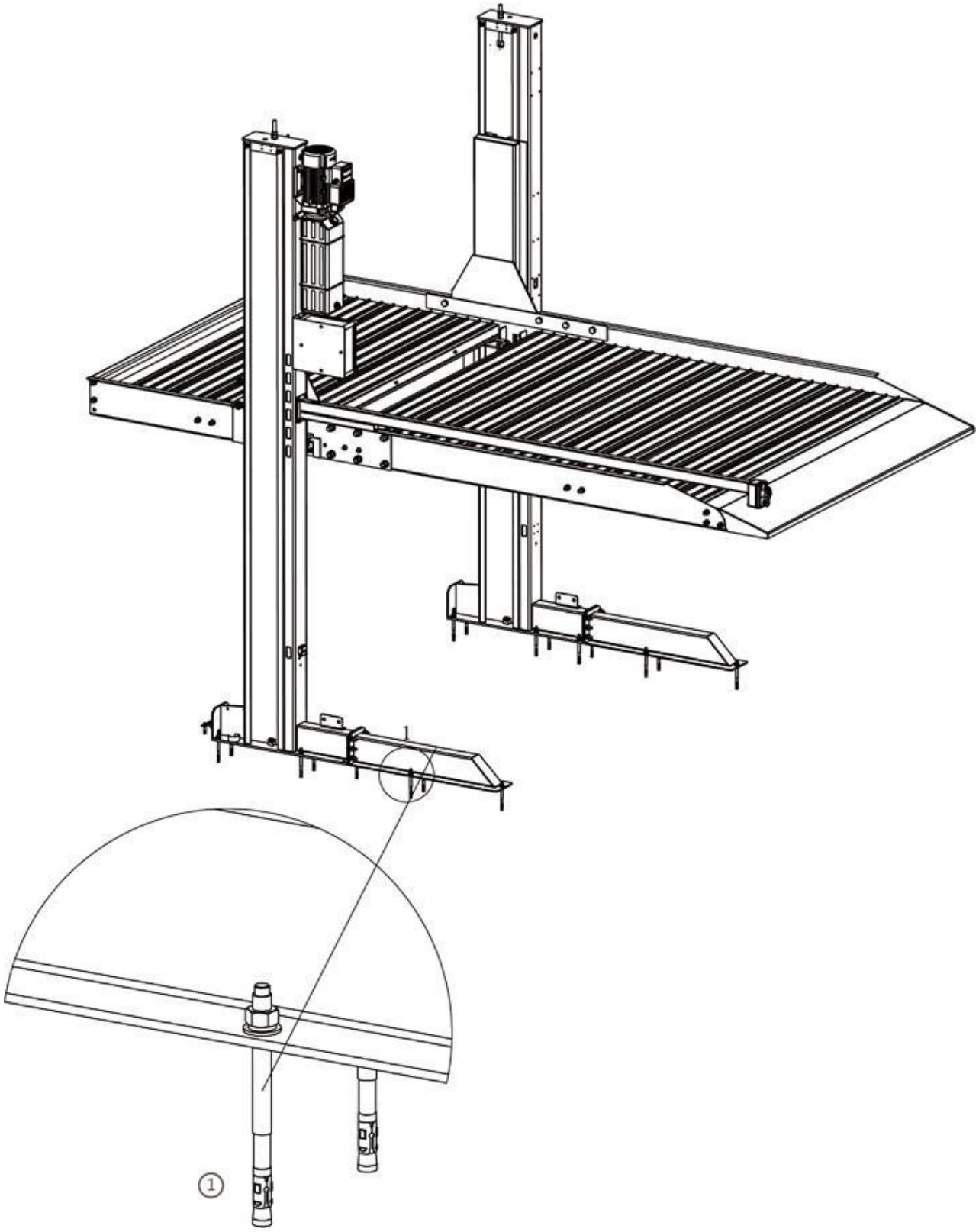


NO.	Item Name	Spec.	Quantity
1	Hexagon Bolt	M14*40	4 Sets
2	Hexagon Bolt	M14*40	4 Sets
3	Hexagon Bolt	M14*40	4 Sets
4	Hexagon Bolt	M14*40	4 Sets

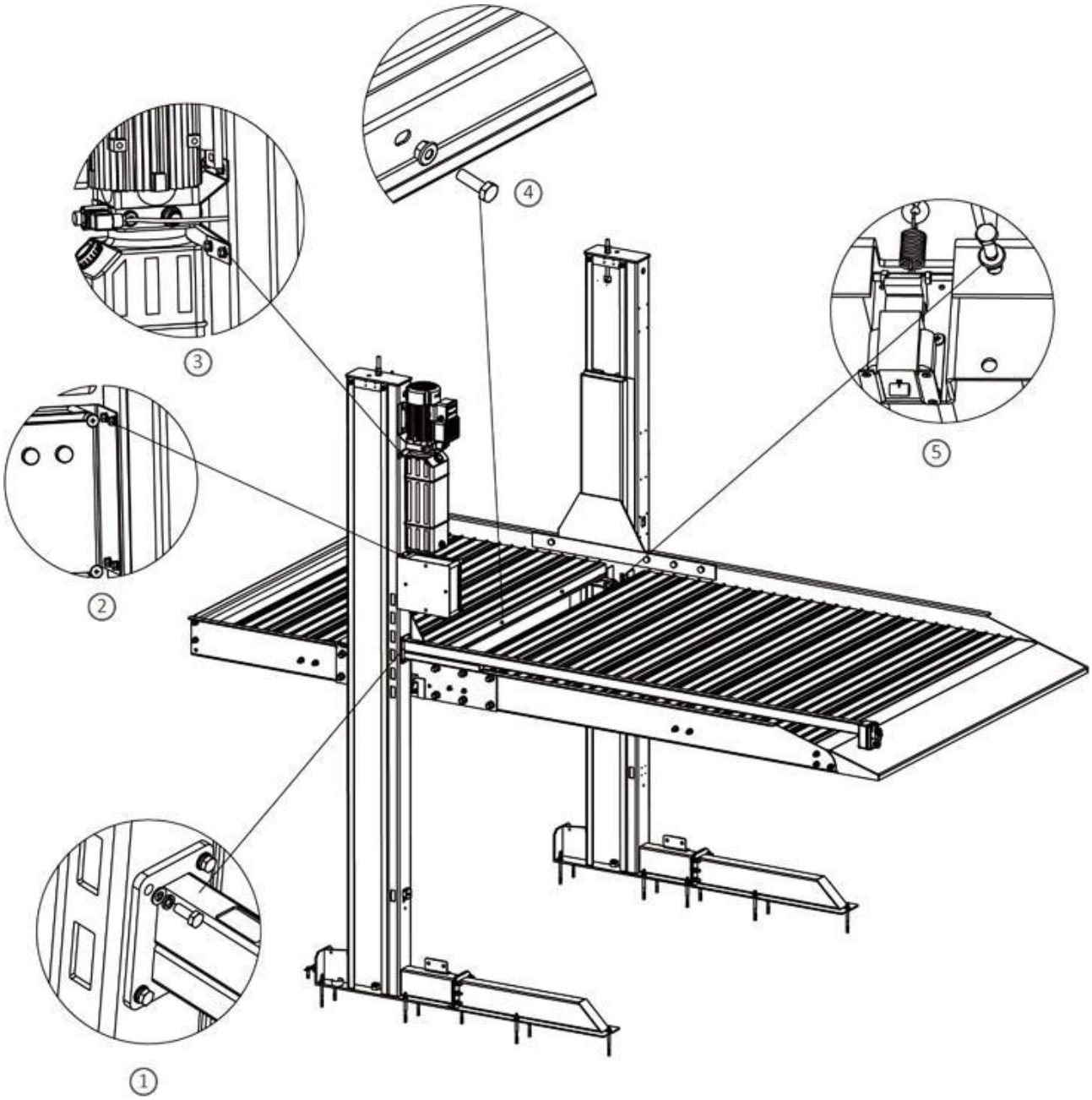
5	Hexagon Bolt	M14*40	2 Sets
6	Hexagon Bolt	M14*40	2 Sets



NO.	Item Name	Spec.	Quantity
1	Hexagon Bolt	M10*30	8 Sets
2	Split Pin	1.6*20	8 Pieces
3	Hexagon Bolt	M6*35	2 Pieces
	Screw nut	M6	2 Pieces
4	Hexagon Bolt	M20*55	8 Sets



NO.	Item Name	Spec.	Quantity
1	Bolted Anchor Bolt	M12*160	18 Sets



NO.	Item Name	Spec.	Quantity
1	Hexagon Bolt	M8*25	4 Pieces
2	Hexagon Bolt	M8*25	4 Pieces
3	Hexagon Bolt	M8*25	4 Pieces
	Hexagon Bolt	M8*25	51 Sets
4	Hexagon Bolt	M8*25	36 Sets

7. Operation

7.1 General notes

7.1.1 Do not operate the parking lift if the floor is cracked or any component is broken.

7.1.2 Do not operate the parking lift if there is a person or obstacle above or under the platform.

7.1.3 This equipment is designed for car parking only.

7.1.4 Safety locks should be in good condition at *any* time.

7.2 Parking

7.2.1 Drive the car backward onto the appropriate position of the platform. Avoid collision with the control arm and side beams.

7.2.2 Put the brake on after the vehicle is parked on the targeted position to avoid any accidental movement.

7.2.3 Open the car door carefully to avoid any collision. Pay attention to the waving plates and side beams in case any person has fallen.

7.2.4 Press UP to lift the car to the appropriate position, and the platform will be locked automatically.

7.2.5 Before another vehicle is parked under the platform, please check and make sure that that vehicle is lower than the platform height, to avoid any damage.

7.3 Operation

7.3.1 Inspection of the equipment is necessary before operation. Make sure that all functions work well and as intended.

7.3.2 Before the first operation, turn on the main switch. Secondly, turn on the power switch on the control box. Then make sure the emergency stop button on the control panel is open.

7.3.3 Make sure the vehicle is parked in the left-right, middle of the platform, and the rear tires are reaching the backboard in the back of the platform.

7.3.4 Overloading is not allowed for vehicles parked on the platform, the rated capacity of the BR-6000 is 2,700kg.

7.3.5 The wheelbase of vehicles parked on the platform should not be more than 2,900mm for the BR-6000 and the total height of a vehicle parked under the platform should not be more than 2,050mm.

7.3.6 The power indicator light is “off” until both the main switch and the power switch on the control box is turned on.

7.3.7 Pay attention to the movement of the platform during parking lift operation. Operation should be stopped immediately if any abnormal movement is found.

7.3.8 Turn the key anti-clockwise to make the platform ascend, and turn the key clockwise to make the platform go descend. Keep holding the key switch to make the platform function, which will stop immediately when the turning of the key is halted.

7.3.9 The top limit switch stops the platform lifting at maximum height, which is 2,100mm above ground for the standard version and can be customized to fit for different ceiling heights.

7.3.10 Press the emergency stop button (round, red button), to stop the movement of the parking lift if an accident happens or anything else requiring this equipment to stop. Rotate the emergency stop button to reset it after being sure the parking lift is in good condition again.

8. Surface Cleaning & Protection

8.1 Surface cleaning

8.1.1 Basic cleaning of the platform upper side:

A regular cleaning of the platform upper side helps to preserve the system and is absolutely essential. The platforms driven over by cars are swept clean by using a broom or vacuum cleaner.

Recommended frequency: **At least 1 x yearly**

8.1.2 Cleaning in winter:

As the winter months cause more heavy wear due to snow, ice, road salt, chippings etc. when the platform surfaces are driven over, the following measures are to be observed:

8.1.2.1 In winter, any regular condensation is to be removed, in particular below the platforms.
Recommended frequency: **When droplets form below the platform.**

8.1.2.2 Snow, ice, road salt and dirt deposits are to be removed from the platforms. Recommended frequency: **In winter if required, several times during the month.**

8.1.2.3 Carry out a thorough cleaning of the entire platforms with a broom, vacuum or water jet (domestic water connection up to 5 bar). **(Do not use high pressure cleaners.)**
Recommended frequency: **After the winter season ends, otherwise in addition to basic cleaning.**

8.1.3 Basic cleaning of the machine body/ground/pit, parts in the pit:

8.1.3.1 Wet clean the ground/pits:
Remove snow, rain, surface water etc. on the ground/in the pits by cleaning e.g. vacuum and then disposing of properly. **It is necessary to secure the parking lift from lowering.**
Recommended frequency: **At least 1 x yearly, in winter months check 1 additional time and clean as needed.**

8.1.3.2 Posts, post bases and post mounts are to be cleaned of dirt deposits.
Recommended frequency: **At least 2 x yearly.**

8.1.3.3 Dry clean the pits, swept-clean.
Caution: Before cleaning the ground/pits it is **essentia**l to request that your local Babco partner secure the parking lifts. **Ignoring this could lead to injury or death.**

8.1.4 Disposal:

For the proper disposal, the local authorities such as municipal authorities, environmental protection offices or trade supervisory council, are to be informed – as residual substances from car oils, batteries or similar have been collected.

Recommended frequency: **As required**

8.2 Surface maintenance

The parts have undergone different corrosion protection measures, depending on their atmospheric or mechanical loading as well as the individual requirements called for by the client. For an effective, long-term protection the following care requirements are to be observed:

8.2.1 Galvanized waving plates surfaces:

8.2.1.1 Zinc oxide (white haze) is caused by steady damp, poor ventilation or similar environments. The protective action of the zinc layer underneath is not affected by white haze! A special surface service is only necessary if required for optical reasons. We recommend the use of grinding wool grain A 280 medium fine or a brass brush (**do not use wire brush!**).

Caution: do not use grinding paper or grinding cloth due to the risk of damaging the surface. If required, coat afterwards with a resistant coating material.

Recommended frequency: **If required for optical reasons.**

8.2.1.2 Iron oxide (rust) caused, for example, by mechanical loading, wear, road salt deposits, insufficient or neglected care. This is treated by lightly rubbing down the damaged surface with grinding wool grain A 280 medium fine. Paint treated surfaces.

Recommended frequency: **At least 1 x yearly. Check during basic cleaning, and treat if need be.**

8.2.2 Screws, nuts, washers:

When performing basic cleaning of the units, immediately check all screws, nuts and washers for a correct fit. In the event of rust, brush with a brass brush while applying light pressure then clean and spray protective wax after cleaning.

Recommended frequency: **At least 4 x yearly. Check and treat if necessary.**

8.2.3 Powder coated surfaces:

Damage due to mechanical or any other effects are to be treated **as soon as they are detected** in order to prevent impairments or infiltration of the powder coating. Care & improvement measures are to be carried out as follows: light rubbing with emery cloth, grain 120 or brass brush (**do not use a wire brush!**) followed by cleaning and degreasing with brake cleaner. Apply the touch-up paint to the damaged points with a brush, such as, for example Touch-up paint RAL 7016 anthracite grey, air-dried.

Recommended frequency: **At least 2 x yearly. Check during basic cleaning and treat if necessary.**

8.2.4 Disposal:

The materials we have named are to be disposed of in accordance with the respective manufacturer's recommendations. For proper disposal, the local authorities such as municipal authorities, environmental protection offices or trade supervisory council, are to be informed – as residual substances from car oils, batteries or similar have been collected.

Recommended frequency: **As required.**

8.3 Protection (to be performed by the customer)

Premature corrosion damages to the protection coating can furthermore be prevented by:

8.3.1 limiting exposure to dampness and humidity (e.g. by removing the snow clumps from vehicle wheel housings)

8.3.2 seeing to appropriate site aeration (i.e. to prevent the relative atmospheric humidity levels from reaching < 80%, particularly in the colder months of the year)

8.3.3 performing regular and appropriate cleaning of all the top surface of the platform, ground and the pit floor

8.3.4 draining away any water accumulating on the ground or in the pit and by removing dirt and debris from the pit sump and/or from the pit drainage channels

8.3.5 the regular and appropriate reconditioning of any visible surface alterations

9. Maintenance & Servicing

9.1 General maintenance

9.1.1 Make sure the power is off and there is no accidental movement of the parking lift before starting any maintenance work.

9.1.2 If the equipment will be not in service for a long time, the main power supply should be turned off to avoid any accidents and to save energy.

9.1.3 If the parking lift has not been in service for a long time, it's to be lubricated and inspected if there is any damage and rust corrosion before operation again. Check if the equipment is in good condition by no-load running.

9.1.4 **Inside of posts and rubber sliders are to be lubricated once per month**. All the sliders on carriages shall be lubricated well to make carriages slide smoothly on the posts.

9.1.5 Balance chain and lifting chain is to be lubricated **once per month**.

9.1.6 Change all the hydraulic oil **three months** after first operation; and change oil every nine months after first changing.

9.1.7 Check the screw nuts of bolts affixing the electromagnet and locking block frequently. Any loosening screw nut shall be fastened ASAP.

9.1.8 Before operation, check and fasten the connector of the electromagnet; then test the limit switch and photocell sensor, fix the problem if it cannot work, and replace it if it cannot be fixed.

9.1.9 The seals in the hydraulic cylinder should be replaced every two years.

9.1.10 The sliders must be replaced every two years.

9.1.11 The valve element in the solenoid valve and filter in the power unit shall be cleaned every half year.

9.1.12 An electromagnet with noise must be replaced ASAP.

9.1.13 Any broken safeguards, warning signs, safety information, markings and lighting must be replaced ASAP.

9.2 Servicing

9.2.1 If the platform tilts right-and-left when lifting, check and adjust the balance chain.

9.2.2 If the platform tilts fore-and-aft when lifting, first check if the vehicle is parked correctly; second check the perpendicularity of the post. Replace the rubber sliders if the platform still tilts after the above-mentioned checks.

9.2.3 If the platform tilts right-and-left when descending, first check if the mechanical locking block at higher side is unlocked, make sure the wiring and related electromagnet works well if the locking block is locked; check and adjust the balance chain if the locking block is unlocked.

9.2.4 If the platform tilts fore-and-aft when descending, first check if vehicle is parked correctly; second check the perpendicularity of post, if the platform still tilts after the above-mentioned works please replace the sliding block.

9.2.5 Adjust the throttle valve on the power pack, if the lifting/descending speed is too fast or too slow.

9.2.6 Check if the emergency stop button is open and the air switch is closed, if the platform doesn't move up when turning “UP”.

9.2.7 Check whether the solenoid valve is open, if the platform doesn't move down when turning “DOWN”.

9.2.8 Check whether the electromagnet is working to make the mechanical locking block unlocked, if the platform doesn't move down when turning “DOWN”.

9.2.9 Check whether the electromagnet is working to make the mechanical locking block unlocked, if the platform descends then stops on the locking tab when turning “DOWN”.

9.2.10 Check whether the photocell sensor works correctly if the platform only descends with a buzzer and warning light on when turning “DOWN”.

9.2.11 Open the vent valve on the cylinder to make some air inside of the cylinder release, if the platform jounces when lifted up.

9.2.12 How to get the parking lift balanced:

a) Lift the platform up to any locking hole above 500mm height;
b) Manually open the manual switch of the solenoid valve on the power unit to make the platform descend;
c) Keep turning the manual switch of the solenoid valve until both mechanical locking blocks on two sides of carriages fall on the bottom of the locking holes on the same level
d) Adjust the screw on the adjustable screw rod to fasten or loosen the balance chain, to make the platform balance during operation.

9.3 Maintenance and servicing of power pack

9.3.1 Inspection of power pack

9.3.1.1 Regular inspection:

9.3.1.1.1. Operate the parking lift for a cycle to make sure it can be normally pressurized and unpressurized if needed.

9.3.1.1.2. Any abnormal noise during operation should be checked.

9.3.1.1.3. Working temperature of the motor should be checked regularly to make sure it’s within normal range (from -10℃ to +60℃).

9.3.1.1.4. Check for possible leakage and abrasion at every oil hose connection. Fasten or replace the sealing at oil hose connections and fitting if any leakage or abrasions are found.

9.3.1.2 Monthly inspection:

9.3.1.2.1. Check and replace the oil hose if any cracks, abrasions or leakage is found.

9.3.1.2.2. Check and replace the power line if any cracks, abrasions or cuts are found on the insulating layer of the power line.

9.3.1.2.3. Check the cleanness inlet filter and inside of the oil tank. Clean or replace filters if dirty.

9.3.1.2.4. Check the oil level when the platform is at its lowest position. Hydraulic oil is to be replenished if lower than lowest oil level.

9.3.2 Maintenance of power pack:

9.3.2.1 Make sure the power supply is cut off and platform of parking lift is lowered down to ground before maintenance.

9.3.2.2 Power line, oil hose or other components are to be replaced with the same specifications.

9.3.2.3 The whole hydraulic system is to be depressurized completely before opening.

Note: the lifetime of hydraulic system may be affected by environment, human factor or lifetime of hydraulic components. Proper and regular maintenance could lower the probability of malfunction.

9.3.3 Servicing of power pack:

Trouble	Possible causes	Solutions
Motor is working, but cylinder does not work	The rotation of motor is in thewrong direction due to incorrect motor wiring	Reconnect wires from main power supply to motor to make motor rotate with correct direction
	Not enough hydraulic oil in oil tank	Hydraulic oil to be replenished
	Broken inlet oil pipe	Inlet oil pipe needs to be replaced
	Broken coupling	Coupling needs to be replaced
	No oil can be pumped out due to blocked inlet filter	Inlet filter to be cleaned or replaced
	Valve element of solenoid valve is blocked	Solenoid valve to be cleaned or replaced
	Sealing failure of cushion valve	Cushion valve to be cleaned or replaced
	Setting pressure of pressure relief valve is too low	Turn up the setting pressure of pressure relief valve (with permission of manufacturer)
	Emergency depressurizing device of solenoid valve is not turned off	Turn off emergency depressurizing device of solenoid valve
	Broken gear pump	Gear pump needs to be replaced
	Broken cylinder	Cylinder needs to be replaced
Motor is working, but platform move up slowly	Not enough hydraulic oil in oil tank	Hydraulic oil needs to be replenished
	Broken inlet oil pipe	Inlet oil pipe needs to be replaced
	Less oil can be pumped out due to blocked inlet filter	Inlet filter to be cleaned or replaced
	Valve element of solenoid valve is blocked	Solenoid valve to be cleaned or replaced
	Sealing failure of cushion valve	Cushion valve to be cleaned or replaced
	Valve element of pressure relief valve is blocked	Pressure relief valve to be cleaned or replaced
	Setting pressure of pressure relief valve is too low	Turn up setting pressure of pressure relief valve (with permission of Babco)
	Hydraulic oil deteriorates or is dirty	Replace hydraulic oil, clean inlet filter and oil tank
	Broken gear pump	Gear pump needs to be replaced
	Broken cylinder	Cylinder needs to be replaced
	Emergency depressurizing device of solenoid valve is not turned off	Turn off emergency depressurizing device of solenoid valve
	Oil temperature in oil tank is out of normal range	Stop motor to cool down hydraulic oil until it's in normal temperature range

Pressure cannot be maintained after platform lifted up	Valve element of one-way valve is blocked	One-way valve to be cleaned or replaced
	Valve element of solenoid valve is blocked	Solenoid valve to be cleaned or replaced
	Fitting of outlet pipe is not fastened or sealing is broken	Fasten fitting of outlet pipe, or replace sealing
	Hydraulic oil deteriorates or is dirty	Replace hydraulic oil, clean inlet filter and oil tank
Cylinder retracts slowly when depressurizing	Throttle valve is not properly adjusted	Throttle valve needs to be re-adjusted
	Throttle valve is blocked	Clean throttle valve and valve element
	Valve element of solenoid valve is blocked	Solenoid valve to be cleaned or replaced
Cylinder does not retract at all when depressurizing	Valve element of solenoid valve is blocked	Solenoid valve to be cleaned or replaced
	Coil of solenoid valve is broken, or working voltage is too low	Replace coil of solenoid valve, or supply normal working voltage
Working noise is too loud, or abnormal noise	Motor is broken	Motor needs to be replaced
	Air is absorbed into gear pump due to lack of hydraulic oil in oil tank	Hydraulic oil to be replenished into oil tank
	Pressure relief valve is turned on to make hydraulic oil go back to oil tank due to overloading	**Only cars within rated capacity can be parked on the platform**. Or turn up setting pressure of pressure relief valve (with permission by Babco)
	Inlet filter is blocked	Replace coupling and clean inlet filter
	Gear pump is broken	Gear pump needs to be replaced
	Hydraulic oil deteriorates or is dirty	Replace hydraulic oil, clean inlet filter and oil tank
	Pressure relief valve is broken	Pressure relief valve needs to be replaced
Motor does not work	Voltage shortage due to low supply voltage	Voltage stabilizer needs to be added
	Voltage shortage due to too long power line	Power line to be shortened, and voltage stabilizer needs to be added
	Voltage shortage due to too thin power line	Thicker power line to be used, and voltage stabilizer needs to be added
	Starting capacitor is broken	Starting capacitor needs to be replaced

9.4 Maintenance and servicing of cylinder

Only trained and qualified staff is allowed to do inspections, maintenance and service work of cylinder.

9.4.1 Inspection of cylinder:

Before installation and usage of cylinder:

9.4.1.1 Check if the cylinder specifications, such as bore diameter, rod diameter, stroke length, etc. match the model of purchased parking lift.

9.4.1.2 Check if the actual working pressure and system supply pressure of the cylinder is sufficient.

9.4.1.3 Check if hydraulic oil, working temperature and cylinder cleanliness meets the requirement of sealing.

9.4.1.4 Check the piston surface if there are any adhered foreign particles or dirt, which will damage seals and piston rod surface.

9.4.1.5 No weldment or wiring on the cylinder.

9.4.1.6 Check regularly if there is any leakage on the hydraulic fluid port, piston rod, juncture of bore and piston.

9.4.2 Maintenance of cylinder:

9.4.2.1 Clean the vent hole quarterly to keep the surface of the vent hole clean.

9.4.2.2 Keep hydraulic oil clean in the hydraulic circuit by replacing hydraulic oil regularly.

9.4.2.3 Inject lubrication oil (by injector oiler) through vent hole into lower cavity of cylinder, until lubrication oil spills from vent hole when cylinder is at maximum stroke.

9.4.2.4 Hydraulic fluid port and vent hole is to be well protected from dust, dirt or particles going into the inside of the cylinder.

9.4.2.5 Low-speed movement or jerky motion of the rod has to be stopped and checked to avoid more damage.

9.4.2.6 Connection and load parts are to be checked and lubricated regularly. Loosen, galled, bent, blocked, cracked or deformed parts should be replaced.

9.4.2.7 Score mark and scraping of chromium-layer on one side of the piston rod surface means serious wear on one side. It's necessary to dismantle and inspect the cylinder, and replace worn part(s).

9.4.2.8 Check hydraulic fluid port, vent hole and wiper seal at cylinder tube head end regularly and replace the broken seals if leakage occurs.

9.4.3 Servicing of cylinder

Trouble	Possible causes	Solutions
Jerky motion of piston rod	Aerated oil	Air to be eliminate by exhaust
	Frictional resistance is too high or changes due to improper fabrication or assembly of parts with relative motion	Reduce frictional resistance by lubrication
	Poor lubrication between surfaces of moving parts	Inlet oil pipe needs to be replaced

	Poor seals alignment of cylinder piston and rod	Piston and rod to be aligned
	Serious cylinder leakage	Replace seals or increase pump flow
	Overlarge minimum stable flow of flow valve	Flow valve with small minimum stable flow to be employed
	Flexible hose employed between cylinder and flow valve	Replaced by nonflexible hose
	Frictional resistance increases due to abrasive particles in oil	Clean hydraulic elements, and replace hydraulic oil and filter
Pressure shock	Overlarge cushion clearance	Reduce cushion clearance
	One-way valve/throttle valve failure in cushion device	One-way valve/throttle valve to be repaired
	Overlarge pressure in cushion chamber due to undersized volume	Diameter and length of cushion chamber to be increased
Insufficient thrust or lowered motion speed	Oversize or undersize fit clearance between bore and piston, broken or too tight seals result in inner leakage or large moving resistance	Repair or replace parts with wrong size and accuracy. Seals to be re-assembled, adjusted or replaced
	Bent piston rod results in intense friction	Piston rod to be straightened
	manufacture errors or poor assembly of moving parts results in decentration or intense friction on one side	Repair parts with errors, or re-assemble
	Scratch on bore results in blocked piston, or poorly processed bore	bore honing, repair or replace cylinder tube
	Contaminated oil by too much foreign particles makes piston or piston rod blocked	Clean hydraulic circuit, and replace hydraulic oil
	Too high oil temperature results in more leakage	Find out the reason of oil temperature rising and amend seal structure to lower oil temperature
	Insufficient oil supply of power pack	Power pack to be repaired or replaced
	Too high oil return resistance in hydraulic return line	Diameter of oil return pipe to be enlarged, turn down the pressure of back pressure valve
	Too low setting pressure or regulating failure of pressure relief valve	Turn up setting pressure, or fix pressure relief valve
Leakage	Galling, scratch or damage of seal	Seal needs to be replaced
	Wrong direction of seal	Sealing direction needs to be corrected
	Voltage shortage due to low supply voltage	Screw needs to be tightened
	Longitudinal scratch or groove mark between moving parts inside cylinder body	Parts to be repaired or replaced
	Vibration of inlet and outlet pipes results in loosening	Tighten oil pipes, or amend connection type
Noise	Contaminated oil by air	Air to be eliminated by exhaust

	Too tight clearance between relative sliding surfaces	To be re-assembled with proper clearance
	Too high sealing friction, lack of lubrication on sling surface	Bottom diameter and width of seal groove, compression amount of seals to be correctly designed and manufactured
	Deformed or damaged guiding support ring	Guiding support ring needs to be repaired or replaced

9.5 Inspection of hydraulic oil

Hydraulic oil, as transmission medium in hydraulic transmission system, makes mechanisms and parts in the hydraulic system lubricated, cooled and rust-proof. The pressure, temperature and flow speed of the hydraulic transmission system changes a lot in large ranges, so the different qualities of hydraulic oil have direct effect on the working performance of the hydraulic system. The proper usage of hydraulic oil requires:

9.5.1 Cleanliness of hydraulic oil NSA 9 to 10

9.5.2 Regular inspection of hydraulic oil

9.5.3 Protection from contamination, which can cause premature rod seal failure. Abrasive particles suspended in the fluid can damage the seal and the piston rod surface, while airborne contamination can be drawn into a cylinder via a faulty wiper seal. Water is a common contaminant, affecting the lubricity of oil and causing some of the most widely used seal materials to 'age harden' at temperatures above 65°C. Air is also an oil contaminant, aerated oil can cause physical damage to piston rod seals. The presence of air in the oil can also intensify the transmission of vibration which, in turn, can lead to other forms of system failure.

9.6 Maintenance and servicing of chains

9.6.1 Inspection of chains:

9.6.1.1 Regularly check the tension of chains. Fasten if needed.

9.6.1.2 Check abrasion loss on chains. Replace the entire chain if tensile length is 2% more than standard length

9.6.2 Maintenance of chains:

9.6.2.1 Keep good coplanarity of all transmission chain wheels, unobstructed path and proper sag of chains

9.6.2.2 Keep well lubricated with suitable lubrication oil or grease. Lubrication oil or grease with high viscosity is not recommended, it will be adhered with dirt which can block interstice to friction parts.

9.6.2.3 Chains need to be cleaned regularly, and checked for lubrication.

9.6.2.4 Replacing broken chain elements quickly is good for longevity.

9.6.3 Lubrication of chains:

9.6.3.1 Frequency of lubrication

Windy and dusty working environment:

Environment temperature	Oil brand	Frequency
-10～0˚C	Machine oil 20#	Once per week
0～40˚C	Machine oil 30#	

40～50˚C	Machine oil 40#	
50～60˚C	Machine oil 50#	

Windless and clean working environment:

Environment temperature	Oil brand	Frequency
-10～0˚C	SR4020	Once per two months
0～40˚C	SR4020	
40～50˚C	TX8R	
50～60˚C	TX8R	

Note: In a working environment with high humidity or acid-base medium, well rust-proof treatment and higher frequency of lubrication is necessary, once per month is recommended.

9.6.3.2 Method of lubrication

9.6.3.2.1. Interstice between inner and outer plates, chain wheel and axis pin to be instilled by lubrication oil.

9.6.3.2.2. Every piece of chain plate, interstice between chain plate and axis pin, interstice between every two chain plates to be lubricated.

9.6.3.2.3. All parts of the chain are to be lubricated evenly with lubrication grease.

9.6.3.2.4. Chains unused for a long time or a motionless part of the chain should be cleaned and lubricated regularly.

10. Packing List

Item description	Quantity	Remark
Left carriage	1	Powder coating
Right carriage	1	Powder coating
Post	2	Powder coating
Left side beam	1	Powder coating
Right side beam	1	Powder coating
Front support of post	2	Powder coating
Top cover plate of post	2	Powder coating
Control arm	1	Powder coating
Connection rod	3	Powder coating
Cylinder head	1	Powder coating
Cylinder head cover	1	Powder coating
Cylinder bracket	1	Powder coating
Control box bracket	1	Powder coating
Power pack bracket	1	Galvanized
Backboard of platform	1	Powder coating
Ramp of platform	1	Powder coating
Cover plate of platform	1	Powder coating
Cylinder	1	Black
Power pack	1	Carton packing
Accessory box	1	Carton packing
Waving plates	16	Galvanized
Lifting chain	1	Carton packing
Balance chain	1	Carton packing
Control box	1	Carton packing

11. Warranty policy

Within the warranty period, power units, hydraulic cylinders, and all other assembly components such as bolt and nuts, cables, chains, valves, switches, sliding blocks etc. are considered as consumable parts that are warranted for one year against defects in material or workmanship under normal use unless specifically specified.

The manufacturer shall repair or replace at their discretion, the defective parts during the warranty period which proved on inspection to be defective. The manufacturer will NOT be responsible for any costs other than the value of the defect parts and the delivery cost of the parts.

The manufacturer will not be responsible for any modifications or upgrades of the product by the user. These warranties do not extend to:

- defects caused by ordinary wear, abuse, misuse, shipping damage, improper installation, incorrect voltage, or lack of required maintenance;
- damages resulting from purchaser's neglect or failure to install, operate or maintain products in accordance with instructions provided in the user's manual(s) and/or other accompanying instructions supplied;
- normal wear items or service normally required to maintain the product in a safe operating condition;
- any component damaged in shipment;
- other items not listed but may be considered general wear parts;
- damage caused by rain, excessive humidity, corrosive environments, or other contaminants; or
- any change or modification made to the equipment without pre-agreement.

These warranties do not extend to any cosmetic defect not interfering with equipment functionality or any incidental, indirect, or consequential loss, damage, or expense that may result from any defect, failure, or malfunction of the product or the breach or delay in performance of the warranty.

The manufacturers' warranty is exclusive and in lieu of all other warranties expressed or implied. Babco implies no other warranty.

The manufacturer reserves the right to make design changes or add improvements to its product line without incurring any obligation to make such changes on products sold previously.

Warranty adjustments within the above stated policies are based on the model and serial number of the equipment. This data must be furnished with all warranty claims.