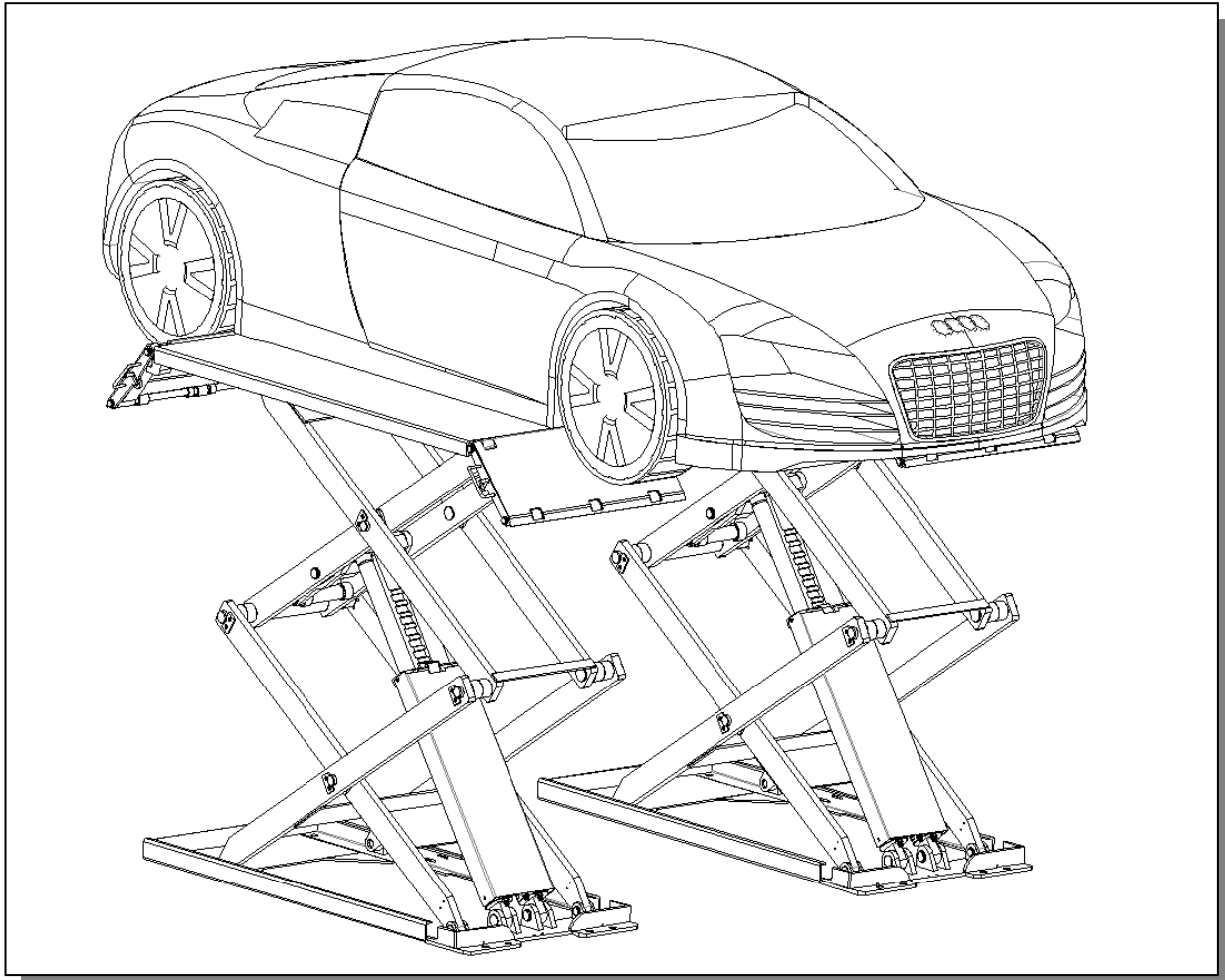


# SMALL PLATFORM LOW PROFILE SCISSOR LIFT



## INSTRUCTION & MAINTENANCE MANUAL



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

## SCISSOR LIFT INSTRUCTION MANUAL

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## 1. Packing, transport and storage



All packing, lifting, handling, transport and unpacking operations should be performed exclusively by expert personnel.

### 1.1.Packing:

#### Standard equipment:

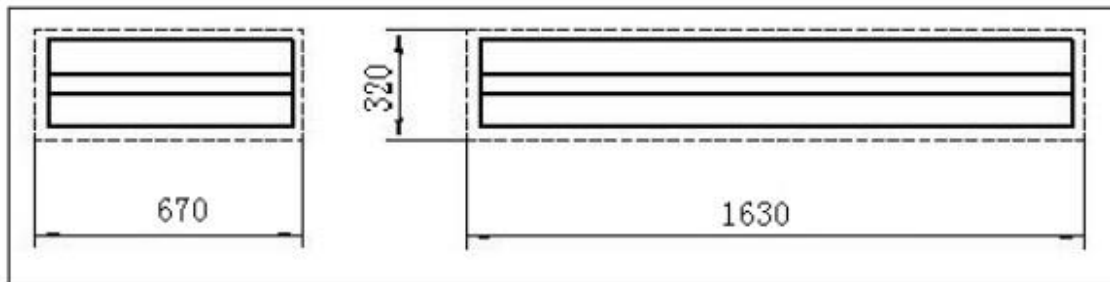
Accessory box (3# CTN), main and sub Platform (1# CTN), control box ( 2# CTN).

#### Packing List

NO.	Name	Accessory name and quantity
1	Lift Platform	Main Platform 1 piece
1	Lift Platform	Sub Platform 1 piece
2	Control Box	1 set
3	Accessory box	1 set(details are in the accessories packing list)

Table 1

#### Packing dimension picture



Picture 1

### 1.2.Transport:



Packing can be lifted or moved by lift trucks, cranes or bridge cranes. In case of slinging, a second person must always take care of the load, in order to avoid dangerous oscillations.

During loading and unloading operation, goods must be handled by vehicles or ships.

At the arrival of the goods, verify that all items specified in the delivery notes are included. In case of missing parts possible defects or damage may due to transport operations.

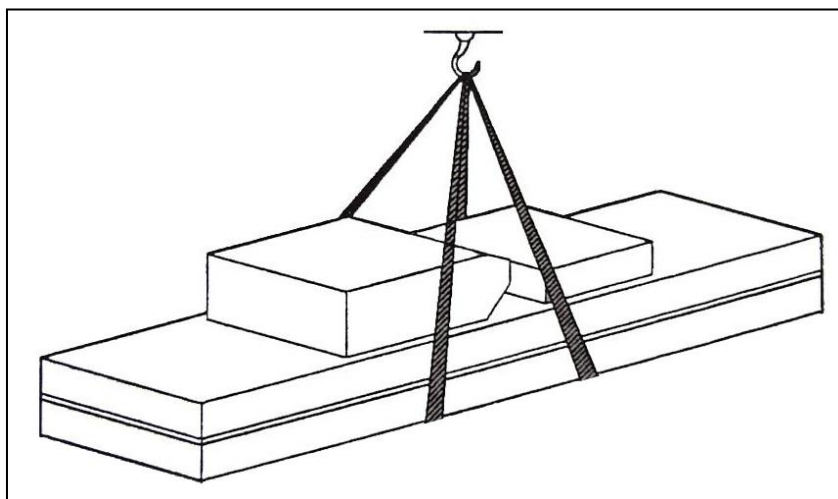
If finding missing parts, possible defects or damage due to transport, one should examine damaged

cartons according to <<Accessories Packing List>> to verify the condition of damaged goods and missing parts, also the person in charge or the carrier must be immediately informed.



**The machine is heavy goods! Don't take manpower load and unload and transporting way into consideration, the safety of working is important.**

**Furthermore, during loading and unloading operation goods must be handled as shown in the picture. (Picture 2)**



**Picture 2 (Goods-lifted)**

### 1.3.Storage:

-The machine equipment should be stocked in the warehouse, if stocked outside should do the disposal well of waterproof.

-Use box truck in the process of transport, use container storage when shipping.

-The control box should be placed perpendicularly during the transport; and prevent other goods from extrusion.

-The temperature for machine storage : -25°C-- 55°C

## 2. Manual introduction



**This manual has been prepared for workshop personnel expert in the use of the lift operator and technicians responsible for routine maintenance fitter.**

Workers should read the <<Instruction & Maintenance Manual>> carefully before carrying out any operation with the lift. This manual contains important information regarding:

-The personal safety of operators and maintenance workers.

-Lift safety.

-The safety of lifted vehicles.



Several tips should be done by the operator as follow:

1.Well conserving the manual. Manufacturer owns the right to make little change for the manual owing to the improvement of technology.

2.Good disposal the used oil.

3.The machine must be demolished by authorized technicians, just like for assembling

### 3. Description of the machine

#### 3.1. Machine Application



the small platform low profile scissor lift can lift each kind of vehicle whose weight is less than 3000kg, suitable for use in vehicle tests, maintenance and caring for automobiles, which is particularly suitable for use in the basement or on the floor, without construction and hole.



**Lifts are designed and built to lift vehicles and hold them in the elevated position in an enclosed workshop. All other uses of the lifts are unauthorized. In particular, the lifts are not suitable for:**

- Washing spray work;
- Use in outdoors;
- Creating raised platforms for personnel or lifting personnel;
- Use as a press for crushing purposes;
- Use as elevator;
- Vehicle with severely tilted or bent frame, or with deformed wheels.

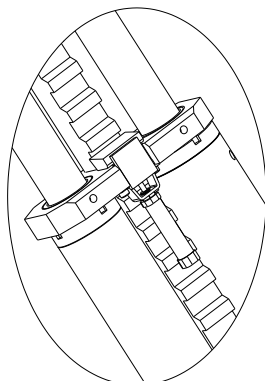


The manufacturer is not liable for any injury to persons or damage to vehicles and other property caused by the incorrect and unauthorized use of the lifts.

#### 3.2. Structure Features

- Use hidden and thin scissor structure, dispense with construction and ground hole, the occupation is small
- Independent control box, low-voltage controlling, good security
- Same hydraulic cubage and in-phase cylinder, the synchronization of platform
- With hydraulic lock and mechanical dual-gear safety-claw lock double safety device automatically open when lowering. Lock operation can has the safety-claw located, adversely, safe & reliable.
- Own protection of safety valve and burst-proof equipment for hydraulic failure and over loading. So when the oil pipe bursts, the machine will not fall quickly.
- Sliding blocks adopt oil free super-wearable materials.
- Use high quality hydraulic or electric element parts made in Italy, Germany, Japan and so on.
- Own manual lowering operation when the power is cut.

#### Safety lock structure



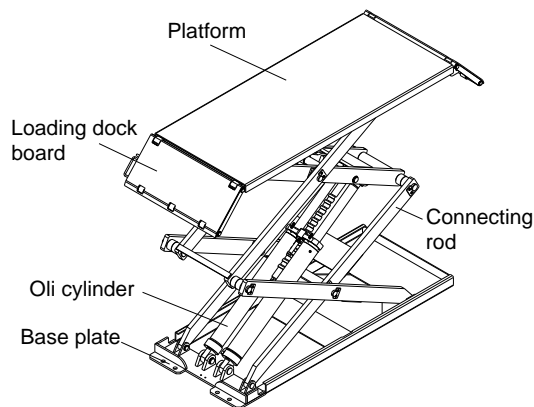
Picture 3

### 3.3. Equipment

- Machine basement (The position and space of equipment installation)
- Machine frame (The main structure of lift and insurance institution)
- Control box (Machine-controlled part)

### 3.4. Frame

Make of base plate, connecting rod, main lifting platform, hydraulic oil cylinder and loading dock board



Picture 4

### 3.5. Control box

Under the control box is hydraulic oil tank and hydraulic pump, valve and other control system. On the control box is electrical system.

Function of each valve on the power unit	
Name	Function
Gear pump	Extract hydraulic oil and provide high pressure.
Connecting block	Connect the motor and the gear pump.
Motor	Provide power for the gear pump.
Overflow valve	Adjust oil pressure.
Pressure-compensated valve	Control the speed of falling.
Lowering solenoid valve	Control flow of the hydraulic oil.
One-way valve	Control the one-way flow of hydraulic oil.
Ball valve	Debugging and control the returned oil.

Table 2

## 4. Specifications

### 4.1 Main technical parameter

Machine type	3T
Drive	Electrical hydraulic
Lifting capacity	3000kg
Machine lift height	1850mm
Platform initial height	105mm
Platform length	1450-2050mm

Platform width	660mm
Lifting time	≤55s
Descent time	≤55s
Whole machine length	2020mm
Whole machine width	2045mm
Power supply	3/N/PE~380V, 50Hz, 16A
Whole machine power	2.2kw
Hydraulic oil	16L corresponds to wearable hydraulic oil
Gas pressure	6-8kgf/cm <sup>2</sup>
Working temperature	5-40°C
Working humidity	30-95%
Noisy	< 70db
Storage temperature	-25°C~55°C

**Table 3**

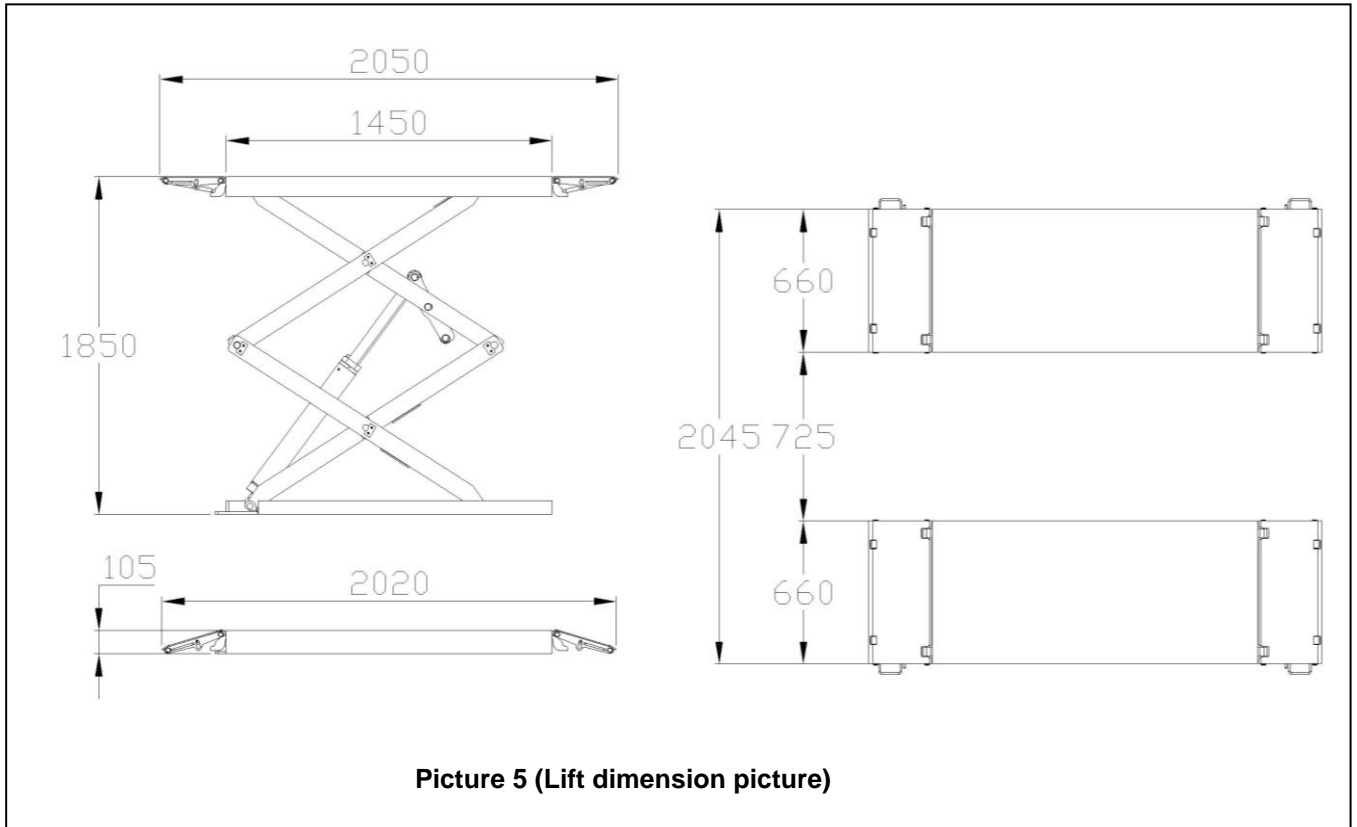
**Requirements**

- Portland cement with strength grade above C20,the period of desiccation is 15 days
- Clean the basic layer, thickness of concrete≥150mm, the leveling of whole length≤5mm

**Supply at the same time**

- Connect to the power supply jack of control box (400V)
- Connect to the compressed air-entering pipe of control box (φ8×5mm)

### 4.2 External dimension drawing



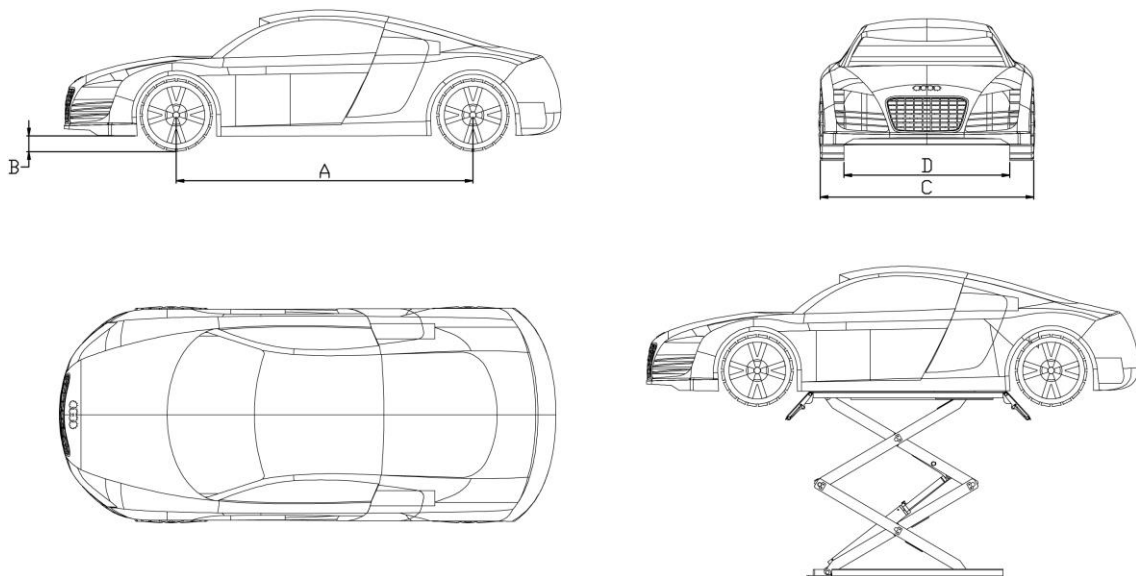
Picture 5 (Lift dimension picture)

### 4.3. Types of vehicles suitable for

This lift is suitable for virtually all vehicles with total weight and with dimensions not exceeding the below data. **Maximum weight not exceed than 3000kg.**

#### The max dimension of vehicle:

The following diagrams illustrate criteria used to define the operating limits of the lift.



Picture 6



	3T	
	Min	Max.
A	2000	4000
B	110	/
C	/	
D		900



The lower parts of the vehicle under-body could interfere with structural parts of the lift. Take particular parts of the sports-car.

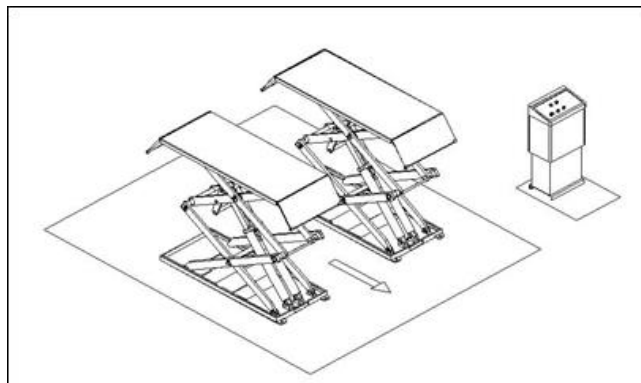
The lift will also handle customized or non-standard vehicles provided they are within the maximum specified carrying capacity.

Also the personnel safety zone must be defined in relation to vehicle with unusual dimensions.

Do not use the lift without protection devices or with the protection devices inhibited.

Failure to comply with this regulation can cause serious injury to persons, and irreparable damage to the lift and the vehicle being lifted.

## 5. Safety notes



Picture 7



### General precautions

The operator and the maintenance fitter are required to observe the prescriptions of safety regulation in force in the country of installation of the lift.

Furthermore, the operator and maintenance fitter must:

- Always work in the stations specified and illustrated in this manual;
- Never remove or deactivate the guards and mechanical, electrical, or other types of safety devices;
- Read the safety notices placed on the machine and the safety information in this manual.



**In the manual all safety notices are shown as follows:**

**Warning:** indicates following operations that are unsafe and can cause minor injury to persons and damage the lift, the vehicle or other property.



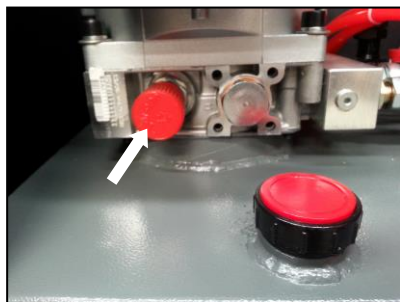
**Risk of electric shock:** a specific safety notice placed on the lift in areas where the risk of electric shock is particularly high.



**Risk and protection devices**

For optimal personal safety and safety of vehicles, observe the following regulations:

- Do not enter the safety and safety of vehicles is being lifted. **(Picture 7)**
- Be sure to lift only approved vehicles, never exceed the specified carrying capacity, maximum height, and projection (vehicle length and width);
- Make sure that there is no person on the platforms during up and down movements and during standing



**Picture 8**



**Picture 9**



**General risks for lifting or descent**

The following safety equipments are used to protect over loading or the possibility of engine failure.

In the condition of over loading, the over-falling valve will open and directly return oil to the oil tank. **(Picture 8)**

Each bottom of oil cylinder is equipped with antiknock and locked valve(**optional**). When the oil pipe is burst in the circuit of hydraulic pressure, the relevant antiknock and locked valve will work and limit the speediness of platform. **(Picture 9)**

Safety tooth and gear module are parts which guarantee the safety of personnel beneath the machine in failure condition of other protections.

So make sure the integrity of gear module and that the safety tooth has occluded completely. **(Picture 10)**

There is nothing abnormal should be left on the safety modules to prevent safety gear from occlude normally.

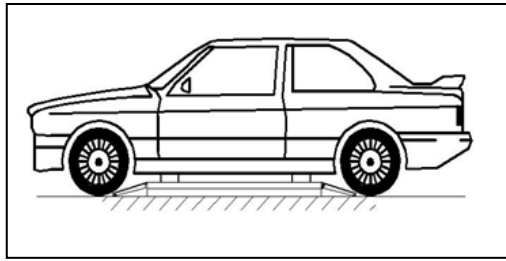


**Picture 10**



**Risk for extrusion**

During up and down operations, personnel leave the said area without following the rule and instruction. During up and down operations, no person is admitted to work beneath the movable parts of the lift, should work in the safe zone. **(Picture 11)**

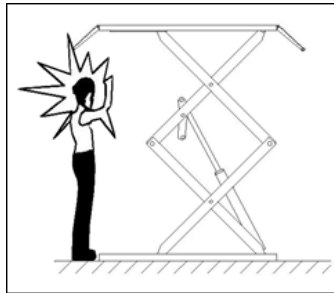


Picture 11



**Risk of impact**

Before the operator begins up and down movements, make sure that there are no personnel inside the danger zone. When, due to operational reasons, the lift is stopped at relatively low elevations (lower than 1.75m above the ground) personnel must be careful to avoid impact with parts of the machine not marked with special labels. (Picture 12)

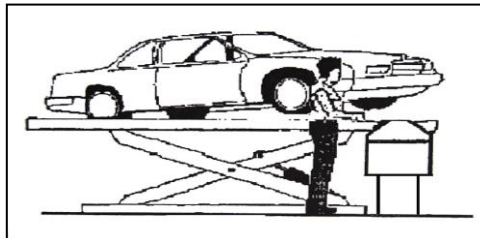


Picture 12



**Risk of falling (vehicle)**

This hazard may arise in the case of incorrect positioning of the vehicle on the platforms, overweight of the vehicle, or in the case of vehicles of dimensions that are not compatible with the capacity of the lift. When the platform is being tested, the vehicle engine can not be turned on. There is nothing should be placed on the lift-lowering area and the movable parts of the lift.

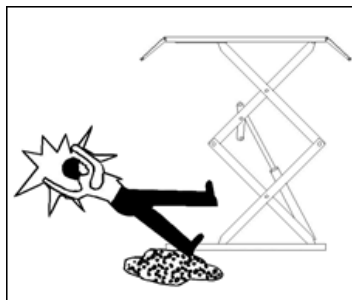


Picture 13



**Risk of slipping**

The floor caused by lubricant contamination of around the lift. The area beneath and immediately surrounding the lift and also the platforms must be kept clean. Remove any oil spills immediately.(Picture 14)



Picture 14



**Risk of electric shock**

Risk of electric shock in areas of insulated and shattered electric equipments

Do not use jets of water, steam solvents or paint next to the lift, and take special care to keep such substances clear of the electrical control panel.



**Risks related to appropriate lighting**

The operator and the maintenance fitter must be able to assure that all the areas of the lift are properly and uniformly illuminate compliance with the laws in force in the place of installation.

During up and down operations, the operator should continually observe the lift and can operate it only in the position of operator. When lifting and lowering the vehicle, the cushion needs being put in the bottom of chassis.



**The handling of safety devices is strictly forbidden. Never exceed the maximum carrying capacity of the lift, make sure the vehicles to be lifted have no load.**

**It is therefore essential to adhere scrupulously to all regulations regarding use, maintenance and safety contained in this manual.**

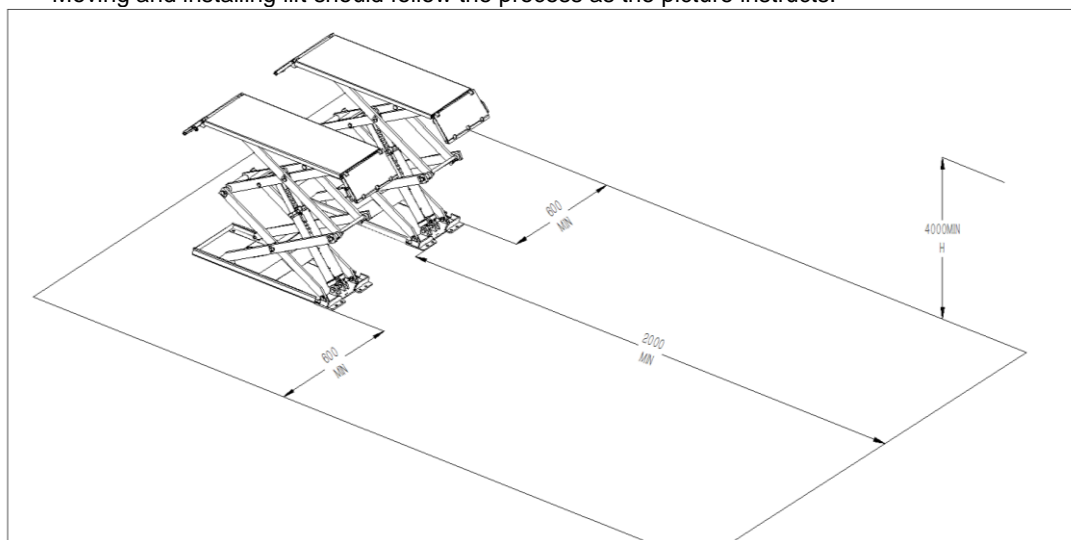
## 6. Installation



**Skilled and authorized personnel only should be allowed to perform these operations, follow all instructions shown below carefully, in order to prevent possible damage to the car lift or risk of injury to people.**

### Installation requirements (Picture 15)

- The car lift must be installed according to the specified safety distances from walls, pole -The specified safety distances from walls must be 600 mm at least, taking into consideration the necessary space to work easily. Because space for the control site and for possible runways in case of emergency is also necessary.
- The room must be previously arranged for the power supply and pneumatic feed of the car lift.
- The room must be 4000 mm in height, at least.
- The car lift can be placed on any floor, as long as it is perfectly level and sufficiently resistant. (Concrete grade above C20, the thickness of concrete  $\geq 150$ mm)
- All parts of the machine must be uniformly lit with sufficient light to make sure that the adjustment and maintenance operations can be performed safely, and without reflected light, glare that could give rise to eye fatigue.
- The integrity of arrived goods should be checked before the lift is installed.
- Moving and installing lift should follow the process as the picture instructs.



Picture 15



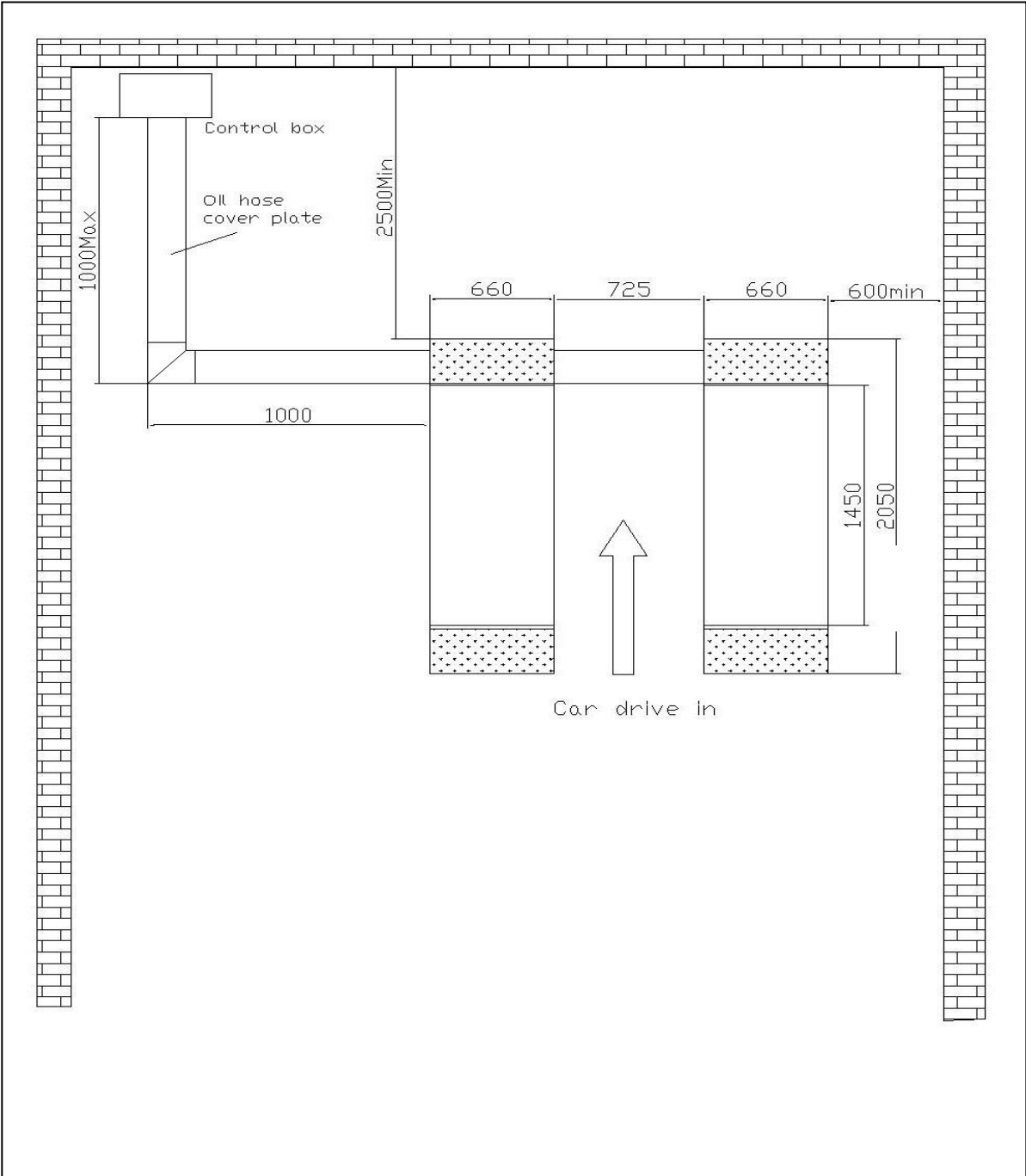
**Note:** The foundation of the end of the lift platform P1, P2 is the structure of concrete. When the thickness of inside level ground is less than 150mm, the end of P1, P2 should be irrigated the acreage: 6000×2500mm and thickness of concrete≥150mm

The basic thickness of concrete and leveling are keys, shouldn't egregiously expect the ability of level adjustment of machine-self.

**Installation scheme for scissor lift**

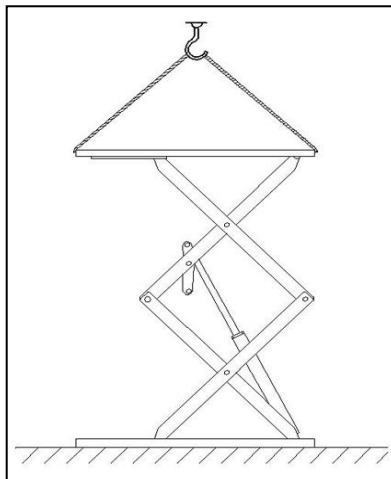
**Equipment basic picture**

**Picture 16** (The control box can be placed on the left or right)



**Platform Installation:**

- Place two lift platforms on the position of the location
- The label on the machine should face outward
- The bottom of oil cylinder is located in the frontage of machine (the direction of getting on the vehicle)
- Use fork car or other lifting equipments to lift the platform (**Picture17**) and make sure that the safety equipment of machine is both turned on and locked.



**Picture 17**



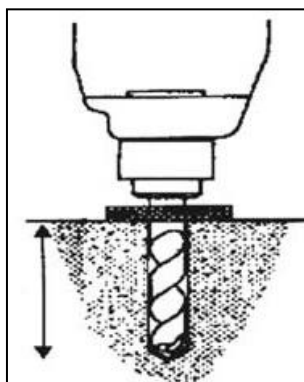
To avoid failure of machine safety equipment, can insert a wood in the middle part of joint-pole. Prohibit working beneath the lift when hydraulic system is not completely equipped with hydraulic oil and take the action of up and down operations.

-When moving the lift platform, adjust the space between two platforms; make sure that the two platforms are parallel.

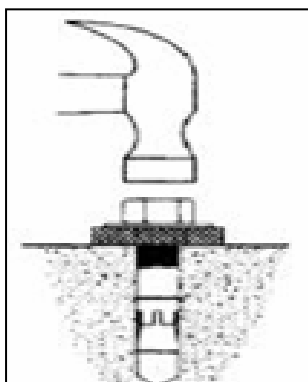
**Ground bolts installation**

The ground bolts installation must start after the expiry date on the maintenance of concert, otherwise, it will affect the quality of solidity.

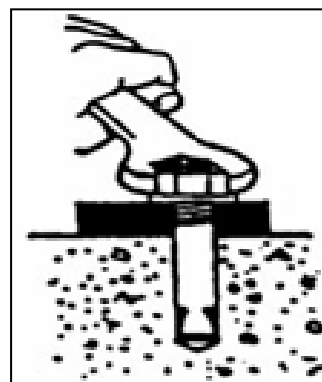
- Adjust the parallel of the platform and the distance of two platform as **Picture 18** requires.
- Fix the anchor bolts with a percussion electric drill (percussion drill bit is of 16), drill to 120mm hole and clean the hole.(**Picture 18**)
- Use light hammer to install the ground bolts into the hole (need not install the central expanded nail of ground bolts, install it after level adjustment.) (**Picture 19**)



**Picture 18**



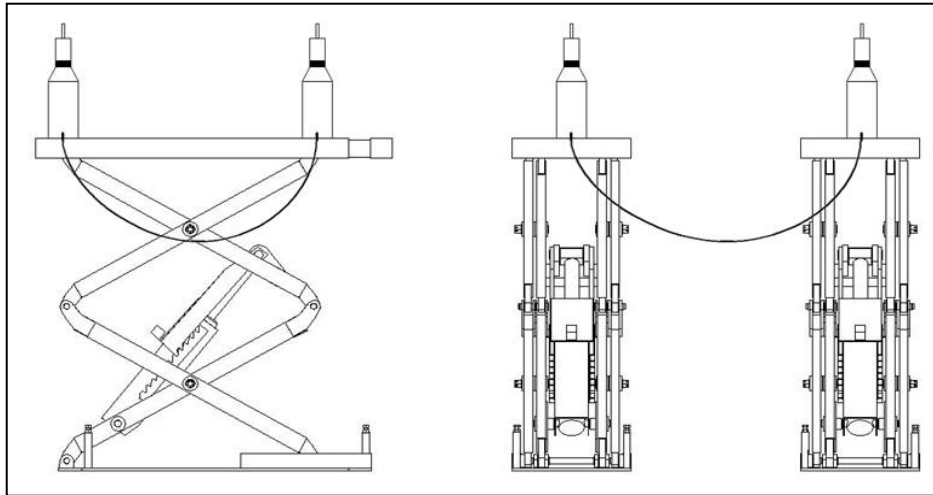
**Picture 19**



**Picture 20**

**Level adjustment**

- By using a level bar and the horizontal pipe and adjusting the adjustment screws at two sides of the base plate.
- If platform unevenness is resulted from basic unevenness, use iron block to fill up the low place.(**Picture 21**)
- After level adjustment, insert the central expanded nail of ground bolts and use heavy hammer to hammer it.(**Picture 19**)
- Screw down the ground bolts cap(**Picture 20**)



**Picture 21**

**Line connection**

Connect the electrical and oil line according to << circuit diagram>> and <<oil hose connection diagram>>.

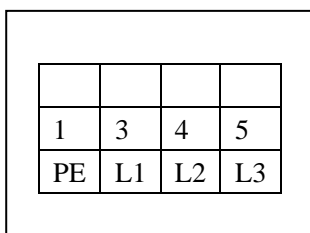


Only after connecting the hydraulic system can connect the air loop, can not damage oil pipe, wire, and gas pipe.

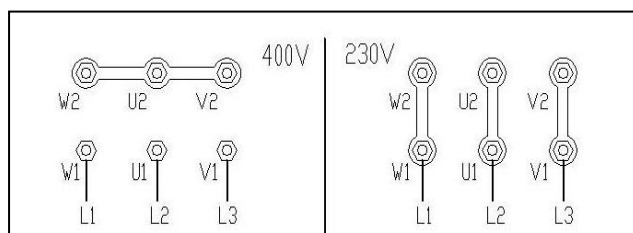
In the process of connecting oil pipe and gas pipe, pay particularly attention to the protection of pipe tie-in to prevent abnormal thing from entering oil loop and gas loop, then damaging hydraulic system.

**Electric circuit connection**

Follow the stated line-diameter and line-number of <<the circuit diagram>> to connect electric circuit.



**Picture 22**



**Picture 23**





**Only skilled special person is allowed to perform the operations.**

- open the control box' front cover
- connection of power supply: the 400VAC three-phase and four-line connection wires (4x1.5mm<sup>2</sup> cable wire) for power supply are connected to L1,L2,L3, and PE labeled entering-wire terminal in control box. The PE ground wire is connected under the bolt marked ground firstly (**Picture 22**) and then connected under the bolt marked ground of two platforms.
- if the lift is operated at 230V three-phase, change the connection on the transformer and motor. (**Picture 23**)
- connect the limit switch to the corresponding terminal in the control box.

**Hydraulic pipeline connection**

Follow <<oil hose connection diagram >> to connect the hydraulic oil hoses



**Only skilled and authorized person is allowed to perform the operations. And pay particularly attention to the protection of vita head.**

- Following tubing number to lead the high-pressure tubing out from the "working stop valve G" and "H" of control box and then connect it to oil cylinder. (Refer to <<oil hose connection diagram>>)
- When connecting tubing, pay attention to the protection of tubing tie-in to prevent impurities from entering hydraulic circuit.



**When connecting the tubing, be care of the mistake of each tubing number.**

**During the standard installation, control box is in the nearside of vehicle-entering direction. If placed on the right should adjust relevant tubing.**

**Compressed air pipe connection**

Follow <<gas loop diagram>> to connect gas loop



**Only skilled and authorized person is allowed to perform the operations.**

- Connect  $\Phi 8 \times 6$  compressed air supply pipe to the air supply jaws of pneumatic electromagnetic valve inside the control box. (**Picture24**)
- Follow <<gas loop diagram >> to lead the compressed air pipe out from pneumatic electromagnetic valve and then connect it to the uplifted-pawl air valve. (**Picture 25**)
- Pay attention to the protection of windpipe tie-in to prevent impurities from entering compressed air circuit.
- Connect compressed air pipe to the extra-installed grease separator which is in front of control box to prolong the life of pneumatic components and the reliability of action.



**Picture 24**



**Picture 25**





In the process of windpipe installation, the windpipe cannot be folded or tied to avoid that the gas loop is not smooth or it is jammed.

Before leading the compressed air supply pipe to the air supply jaws of pneumatic electromagnetic valve inside the control box, should extra install grease separator to separate compressed air, avoiding the failure of pneumatic cell action.

## 7. Adjustment

### Preparation



Add oil and check the order of phase.

After installing lift as Picture 16 required and connecting hydraulic circuit, electric circuit and gas loop, operate it as following:

-open the hydraulic oil tank, add 16L corresponds to wearable hydraulic oil into the oil tank, the hydraulic oil is provided by the user.



Make sure the clean of hydraulic oil, prevent any impurity into the oil line, lead the digest of the oil line and no working of the solenoid valve.

-Press the "POWER" button to turn on power, clicking the "UP" button, check whether the motor turns clockwise (looking downward), if not press "POWER" button, change the phase of the motor.

When turn on power, the high voltage will exist in the control box, only authorized person can operate it.

### "PHOTO" button operate instruction(optional)



- "PHOTO" button shall be used in the first installation, and used to adjust the level degrees of two platforms. In two of the situations there is no lifting, descent, locking function.

- "PHOTO" button shall be pressed before user presses other button when the platform is at the lowest position

- Press "PHOTO" button during adjustment then follow the adjustment section 5 to operate.

- It is forbidden to use "PHOTO" button during normal operation, this button is only for adjustment.

### Oil make-up adjustment

- Open all 3 ball stop valve ( Rotate the valve G 1~2 times in a counter clockwise direction, make handle of the valve H and I parallel to valve's body ).

- Press "UP" button SB1, motor start to lift the two platforms to the apex.

- Close the valve G( Rotate the valve G 1~2 times in a clockwise direction ).

- Vent air by Loosen the screws at the top of main oil cylinders, then press "UP" button SB1. Tighten the screws after there is no air vent out from the oil cylinder.

- Open the valve G( Rotate the valve G 1~2 times in a clockwise direction ) and close the valve H and I(make handle of the valve H and I perpendicular to the body of valve). Press "DOWN" button SB2 to let the two platforms down to the ground.

- Repeat the step 2 to step 5 for 4-5 times until there is no air out.

- Finish the oil make-up and air bleeding process.

### Platforms level micro adjustment

- Press the "UP" button SB1 to lift the two platforms to going up to about 500 mm.

- Close the valve G, and open the valve H OR I.

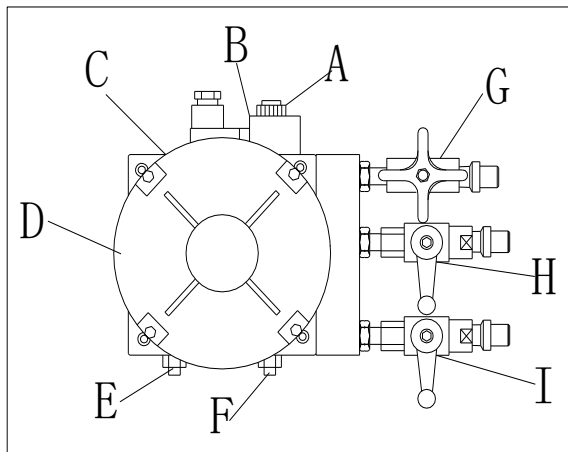
- Inching "UP" button and "DOWN" button to adjust the platform to going up and down to let them,

at the same level. Then close the valve I OR the valve H .Open the valve G.

**Check:** whether the locations of two safety-pawl equipments are agile and reliable, no leakage of the hydraulic system and the air system.



**When conducting oil make-up operation, the platforms must not be load.**



Picture 26

**No load of main machine test:**

- Turn on the power QS.
- Press “UP” button SB1, pay attention to the synchronization and placidity of the lifting.
- Check whether highest limit of platforms is correct and reliable. Adjust the position of limit switch to control the maximum lifting height of platform shall not exceed 1850mm.
- Press “LOCK” button SB3,check whether safety pawl is correctly located, the oil line and the gas line are leakage.



**When testing the lift, no person or other things are allowed to stand or be put near the two sides and beneath the machine. If any abnormal is found, stop it timely. After clearing obstacles, do the test again.**

**Load of main machine test**

- Drive the vehicle whose weight doesn't exceed maximum lift weight to the platform, and then the driver leave it.
- Press “UP” button SB1, lift the platform and pay attention to the synchronization and placidity of the lifting.
- Check whether rack and hydraulic pump work normally .
- Check whether highest limit of platforms is correct and reliable.
- Press “LOCK” button SB3,check whether safety pawl is correctly located,the oil line and the gas line are leakage.



**When beginning load of machine test, no person or other things are allowed to stand or be put near the two sides and beneath the machine.**

**Test vehicle whose weight doesn't exceed maximum lift weight.**

**Check whether the oil line and the gas line are leakage. If any abnormal is found, stop it timely. After clearing obstacles, do the test again.**

## 8. Operation



Only skilled and having been trained personnel is allowed to perform the operations. Check proceedings as following.

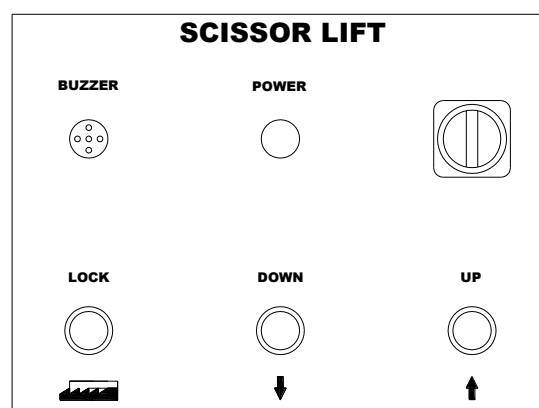
### Text before operation:

- Clear obstacles around the lift before operation.
- Pay attention to the synchronization and placidity of the lifting.
- Check whether the safety claw is flexible and reliable.
- Check whether the lift will stop automatically when it lift to the highest position
- No air leakage in the solenoid valve,air cylinder,air hose and union.
- Check whether the working sound of motor and gear pump are normal.
- Check whether the lifting vehicle or other goods exceed the capacity of the lift.

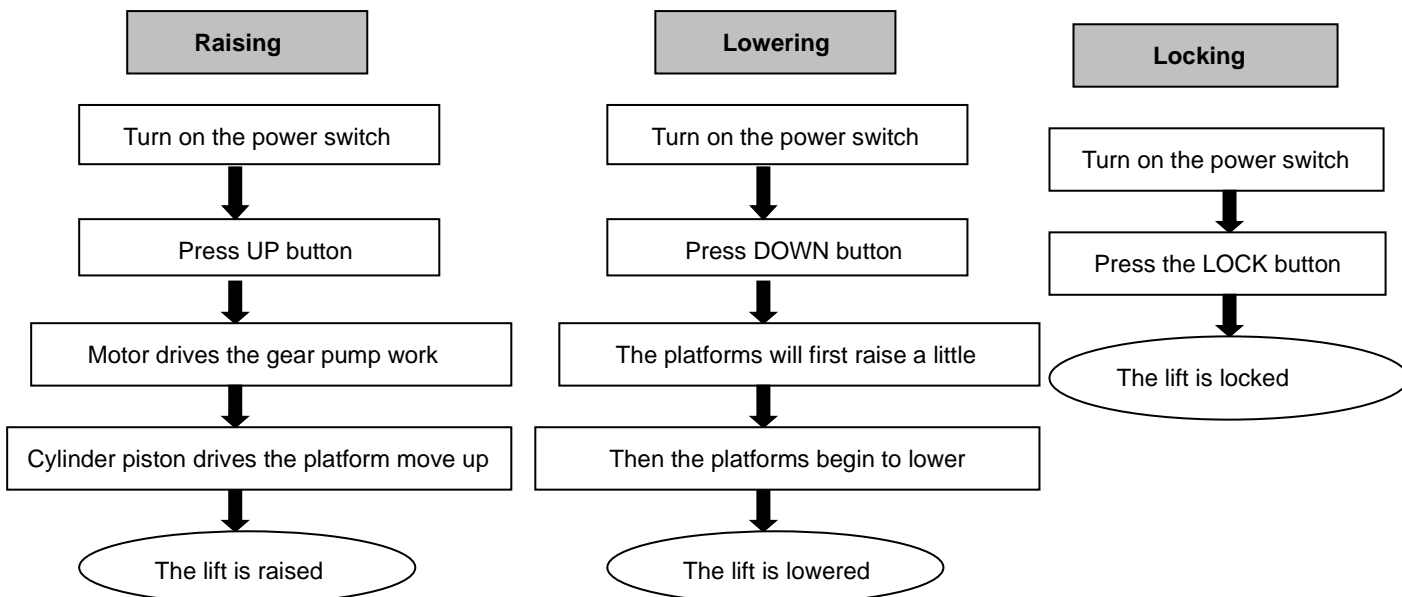
### Operation notices

- Speed of vehicle should be kept in 5km/h when vehicle drives on the lift.
- The front wheel lies on the middle of the groove of turntable(the position of groove is adjustable) and the rear wheel lies on the sliding plate when vehicle stop.
- Tighten the brake and stack up antiskid(equipped by user) for vehicles.
- Press up button to lift the vehicle for 200-300mm,pay attention to the synchronization of the lifting.
- Go on press up button to lift the vehicle to the needed height.
- The chassis of vehicle should be filled up with rubber mat when the sub machine is lifting and lowering. The telescopic boom of sub machine should be taken back when the lift lowers.
- Pay attention to the synchronization of the lifting and lowering. If any abnormal is found, stop the machine timely, check and remove the trouble.
- The lift should be locked to keep the two insurance claw of platform in the same horizontal height during maintenance and four wheel alignment adjustment. Only after locking operation, personnel can enter below the lift and vehicle.
- Check whether the insurance claw is out of the insurance gear entirely and personnel is around the vehicle and the platform.
- Press down button to lower the vehicle to the ground or needed height.
- When the equipment is not used for a long time or over night, the machine should be lowered to the lowest position on ground, and remove vehicle, and cut off power supply.

### Instructions on control panel operation



Picture 27



**Emergency manual operation for lowering (power failure)**



When lowering through manual operation, should observe the condition of platform at any time because there are vehicles on the platform. If there is anything abnormal, screw down oil loop valve immediately.(refer to **Picture 26**)

**The process of manual operation**

- Firstly lift two safety pawls of platform and use thin iron bar to fill up it.
- Switch off the power button (avoid abruptly incoming electricity). Open the back cover of control box to find the electromagnetic valve A for lowering.
- Loosen manual oil loop stud anticlockwise at the end of lowering electromagnetic valve core, then the platform begins lowering.(**Picture 28**)
- After the machine has been lowered, screw down manual oil loop stud clockwise in time, the process of manual lowering comes to the end.(**Picture 29**)



**Picture 28**



**Picture 29**

## 9. Maintenance and care



**Skilled personnel only is allowed to perform the operations**

### Daily checking items

The user must perform daily check. Daily check of safety system is very important – the discovery of device failure before action could save your time and prevent you from great loss, injury or casualty.

- Always wipe clean, keep the machine clean.
- Clear barriers and ground oil, keep the working condition clean.
- Check the integrity of each safety devices, ensure the motion is flexible and reliable.
- Check the reliability of limit switch motion.
- Check whether oil/air leakage of the machine exist.

### Weekly checking items

- All bearings and hinges on this machine must be lubricated once a week by using an oiler
- Check the working conditions of safety parts.
- Check the amount of oil left in the oil tank. Oil is enough if the carriage can be raised to highest position. Otherwise, oil is insufficient.
- Check whether the expansion bolts well anchored.

### Monthly checking items

- The safety gear, the upper and lower sliding blocks and other movable parts must be lubricated once a month.
- Check whether the foundation bolts anchored well.
- Check the abrasion and leakage of oil/air hose.

### Yearly checking items

- The hydraulic oil must be replaced one time each year. The oil level should always be kept at upper limit position.
- Check abrasion and damage of all the active parts.
- Check the lubrication of sliders. Lubricate it if drag phenomenon exist.



The machine should be lower to the lowest position when replace hydraulic oil, then let the old oil out, and should be filtering the hydraulic oil.

- Each team checks the agility and reliability of pneumatic safety equipment.

### Storage after use

When the machine does not use for a long time:

- Cut off the power supply and air source and lubricate all the active parts.
- Drain the hydraulic oil of oil cylinder, oil hose and oil tank.
- Sheathe the machine with dust-proof cover.

## 10. Trouble shooting table

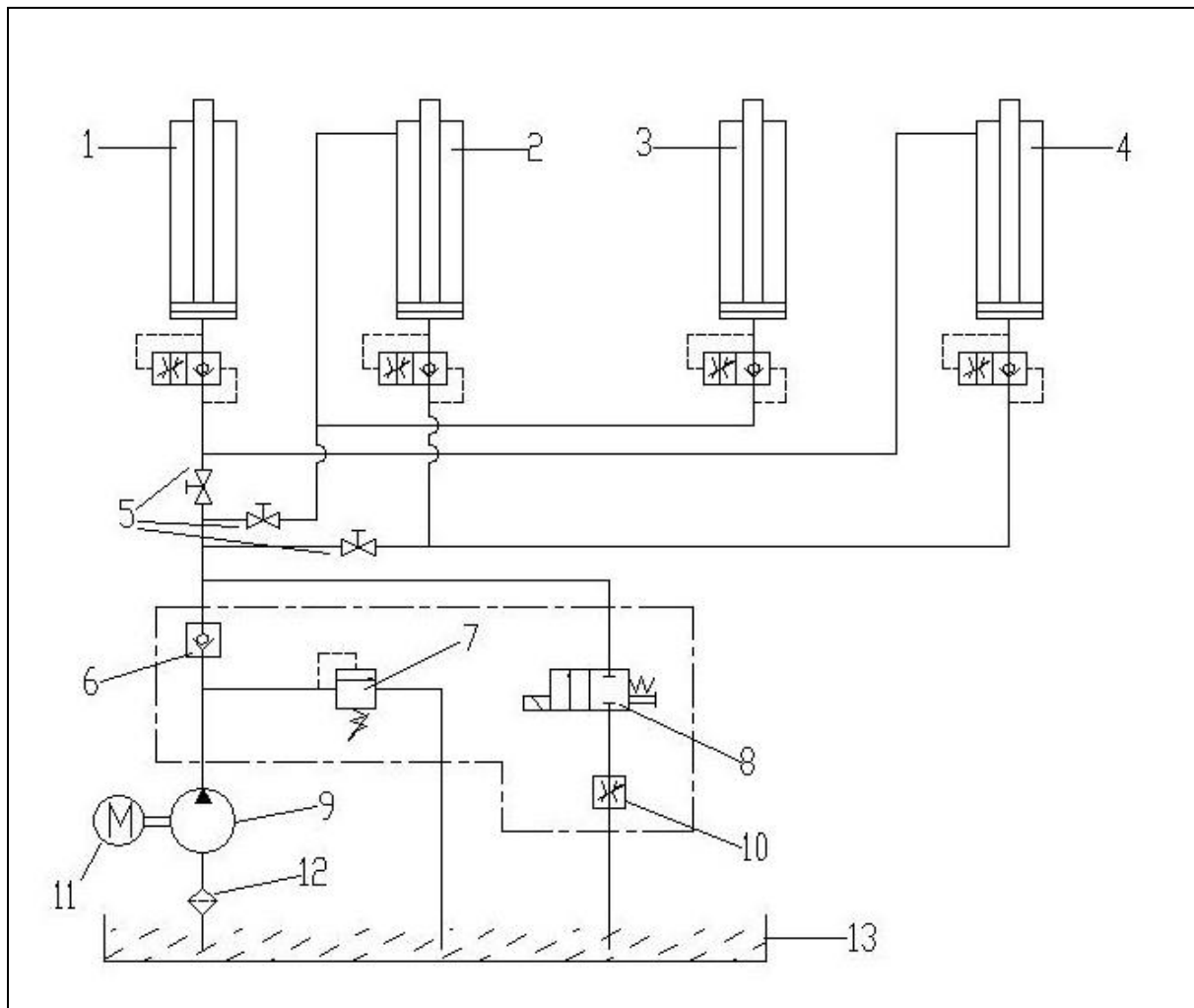


Skilled personnel only is allowed to perform the operations

Failure Phenomena	Cause and Phenomena	Resolutions
The motor does not run in lifting operation.	①Connection of power supply wires is not correct.	Check and correct wire connection
	②The AC contactor in the circuit of the motor does not pick up.	If the motor operates when forcing the contactor down with an isolation rod, check the control circuit. If the voltage at two ends of the contactor coil is normal, replace the contactor.
	③The limit switch is not closed.	Check the limit switch, wires and adjust or replace the limit switch.
In lifting operation, the motor runs, but there is no lifting movement.	①The motor turns reverse.	Change the phases of the power supply wires.
	②It is normal while lifting with light load but abnormal while lifting with heavy load.	Lift is overloaded and is unable to carry the load being attempted. Carefully lower and remove vehicle from lift. The spool of the lowering solenoid valve is stuck by dirt. Clean the spool.
	③The amount of hydraulic oil is not enough.	Add hydraulic oil.
	④The "operation stop valve" is not closed.	Screw down the "Operation stop valve"
When press "DOWN" button, the machine is not lowered.	①The safety pawl are not released form the safety teeth.	First lift a little and then lowering
	②The safety pawl is not lifted.	The air pressure is not enough, the safety pawl is stuck or the gas pipe is broken off, adjust pressure, check the gas pipe and replace it.
	③The solenoid air valve does not work.	If the solenoid air valve is energized, but does not open the air loop, check or replace the solenoid air valve.
	④The lowering solenoid valve is energized but does not work.	Check the plug and coil of the lowering solenoid valve and check the right turn tightness of its end copper nut and so on.
	⑤The "antiknock valve" is blocked.	Remove the "antiknock valve" from the oil supply hole at the bottom of the oil cylinder, and clean the "antiknock valve".
The machine lowers extremely slowly under normal loads.	①The hydraulic oil has too high viscosity or frozen, deteriorated (in Winter).	Replace with hydraulic oil in accordance with the instruction book.
	②The "antiknock valve" for preventing oil pipe burst is blocked.	Remove or close air supply pipe and thus lock the safety pawl of the machine without lifting of the safety pawl. Remove the "antiknock valve" from the oil supply hole at the bottom of the oil cylinder, and clean the "antiknock valve".
The right and left platforms are not synchronous and not in the same height.	① The air in the oil cylinder is not vent completely.	Refer to " Oil Make-up 'Adjust' Operation".
	②Oil leakage on oil pipe or at its connections.	Tighten oil pipe connections or replace oil seals and then make-up oil and adjust levelness.
	③The "oil make-up stop valve" can not be closed tightly and almost make-up oil and adjust every day.	Replace oil make-up stop valve, and then make-up oil and adjust.
Noisy lifting and lowering.	①Lubrication is not enough.	Lubricate all hinges and motion parts (including piston rod) with machine oil
	② The base or the machine is twisted.	Adjust again the levelness of the machine, and fill or pad the base.

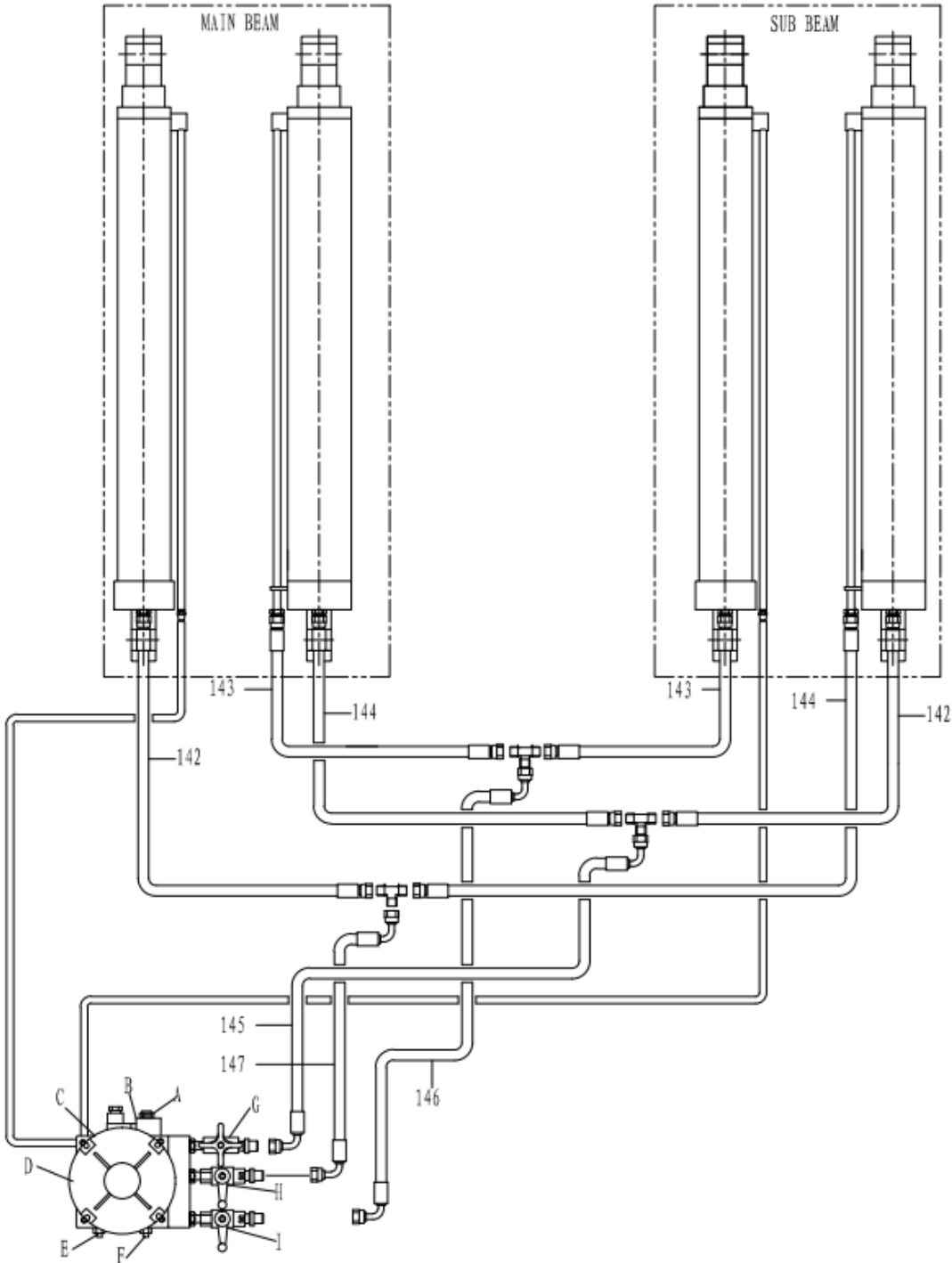
Table 4

## 11. Hydraulic pressure elements diagram



1. Main machine sub cylinder
2. Main machine main cylinder
3. Sub machine sub cylinder
4. Sub machine main cylinder
5. Stop valve
6. One-way valve
7. Overflowing valve
8. Descent valve
9. Gear pump
10. Throttling valve
11. Pump motor
12. Filter
13. Oil tank

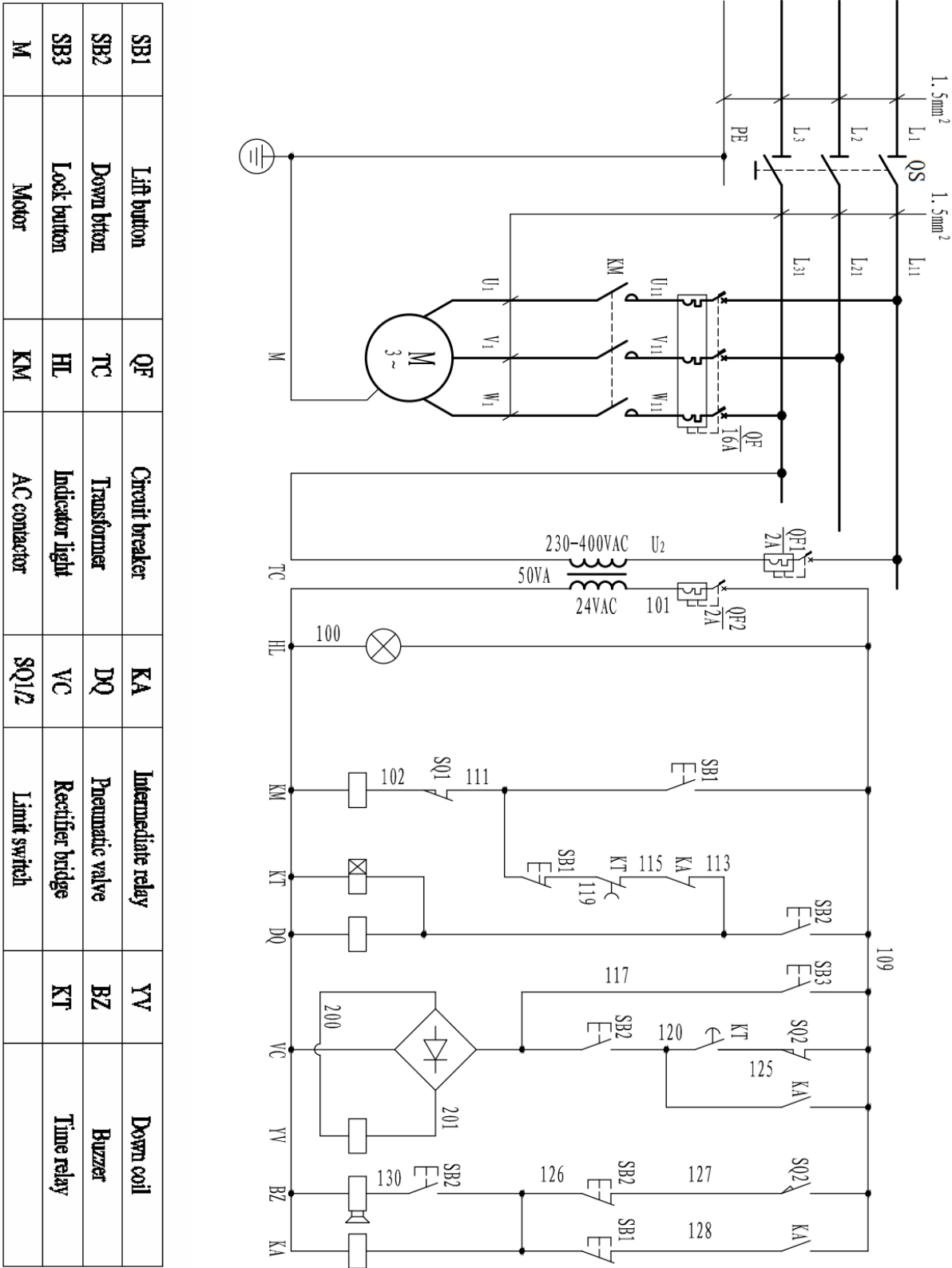
## 12. Oil hose connection diagram

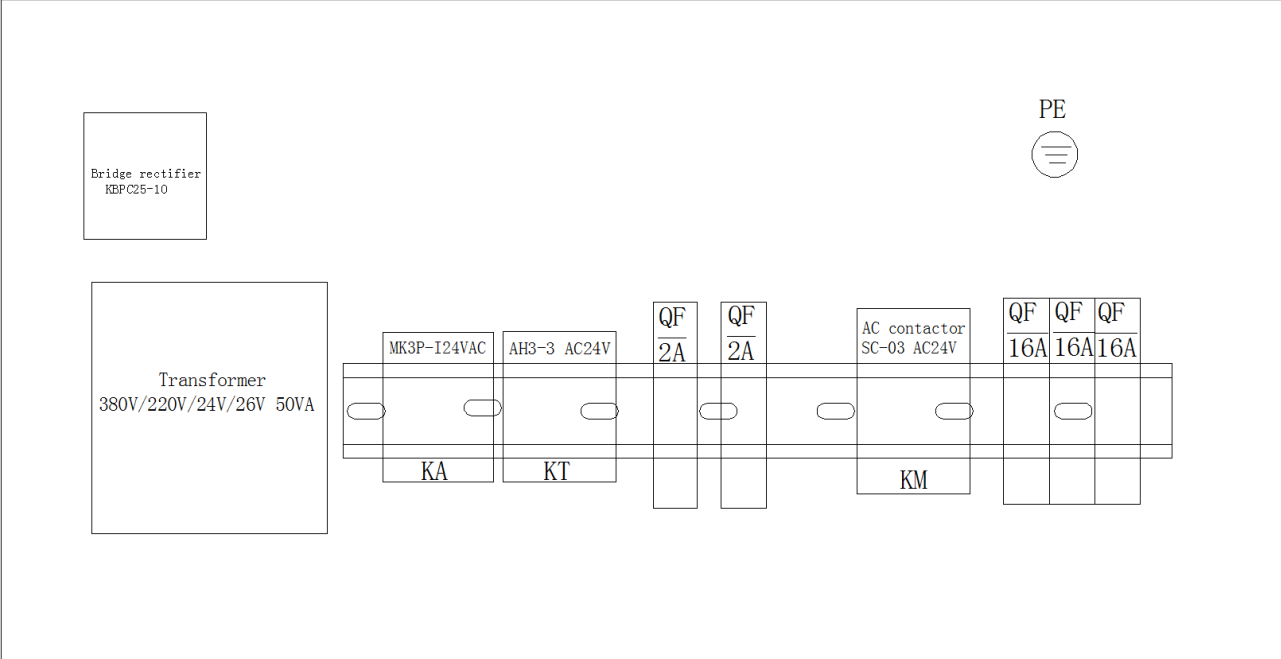


1. 142#~147# High pressure pipe
2. A: Descent valve; B: Descent coil; C: One-way valve; D: Motor; E: Plug ; F: Overflow valve; G: Working valve; H/I: The oil make-up stop valve

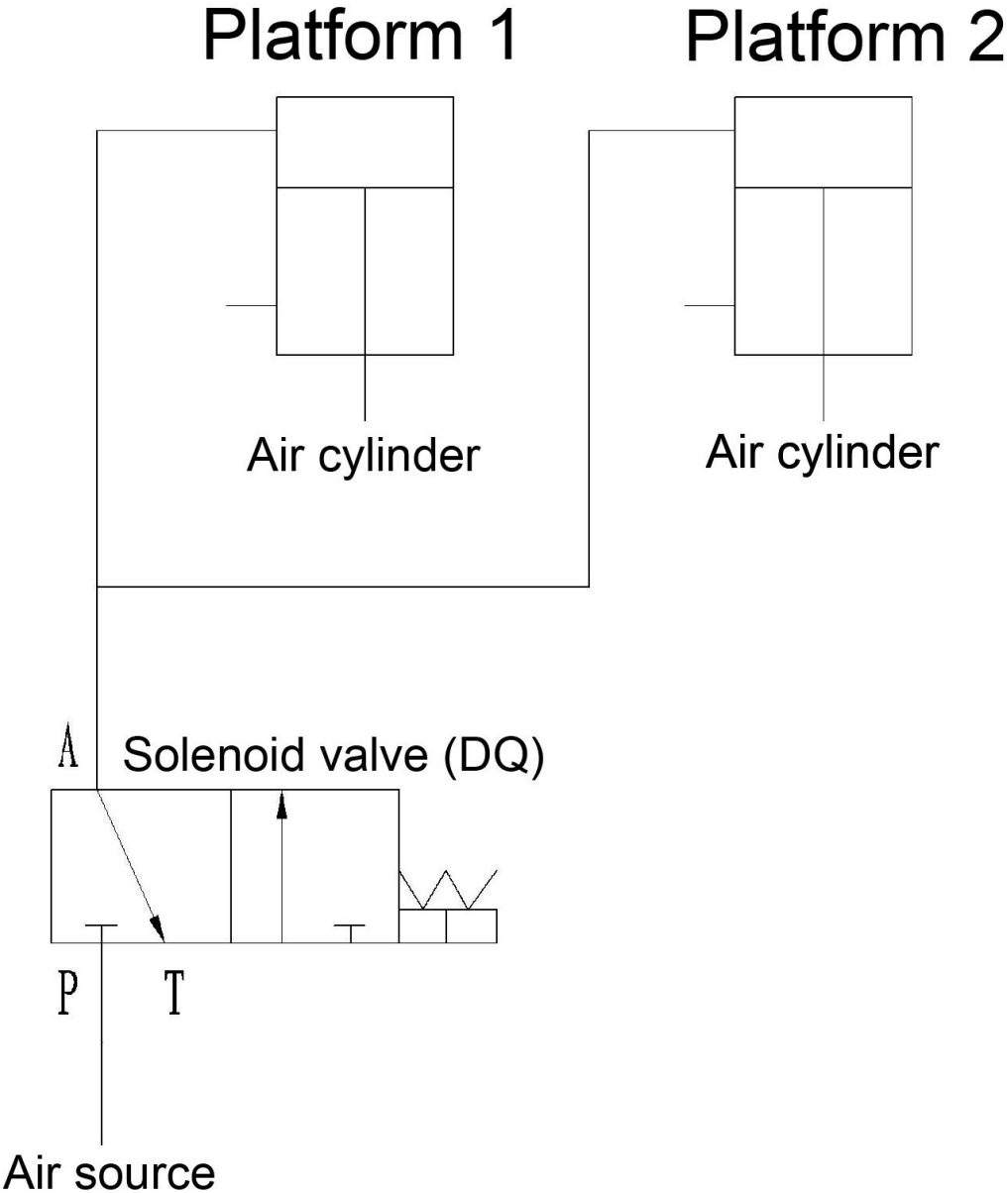


13. Circuit diagram

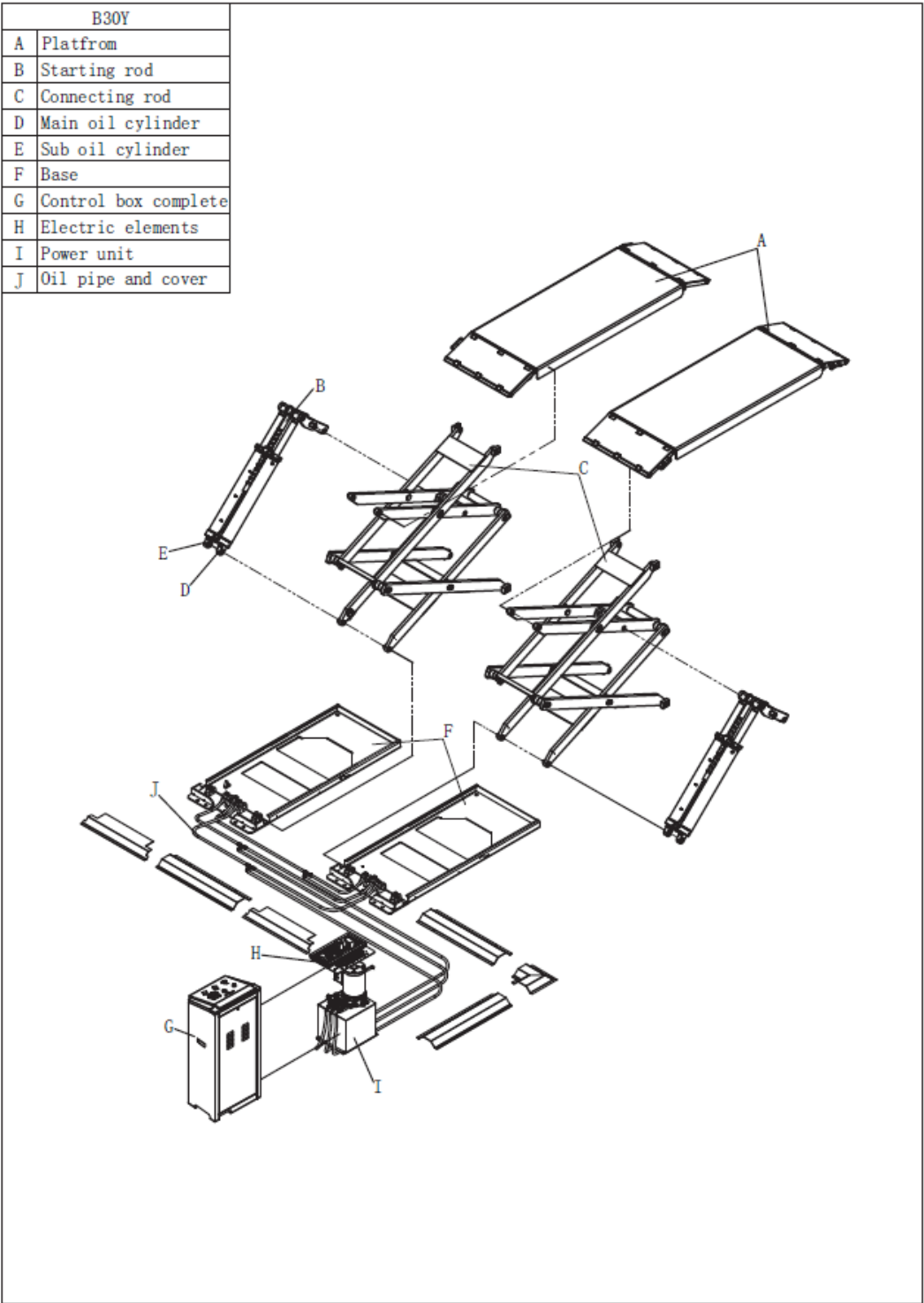


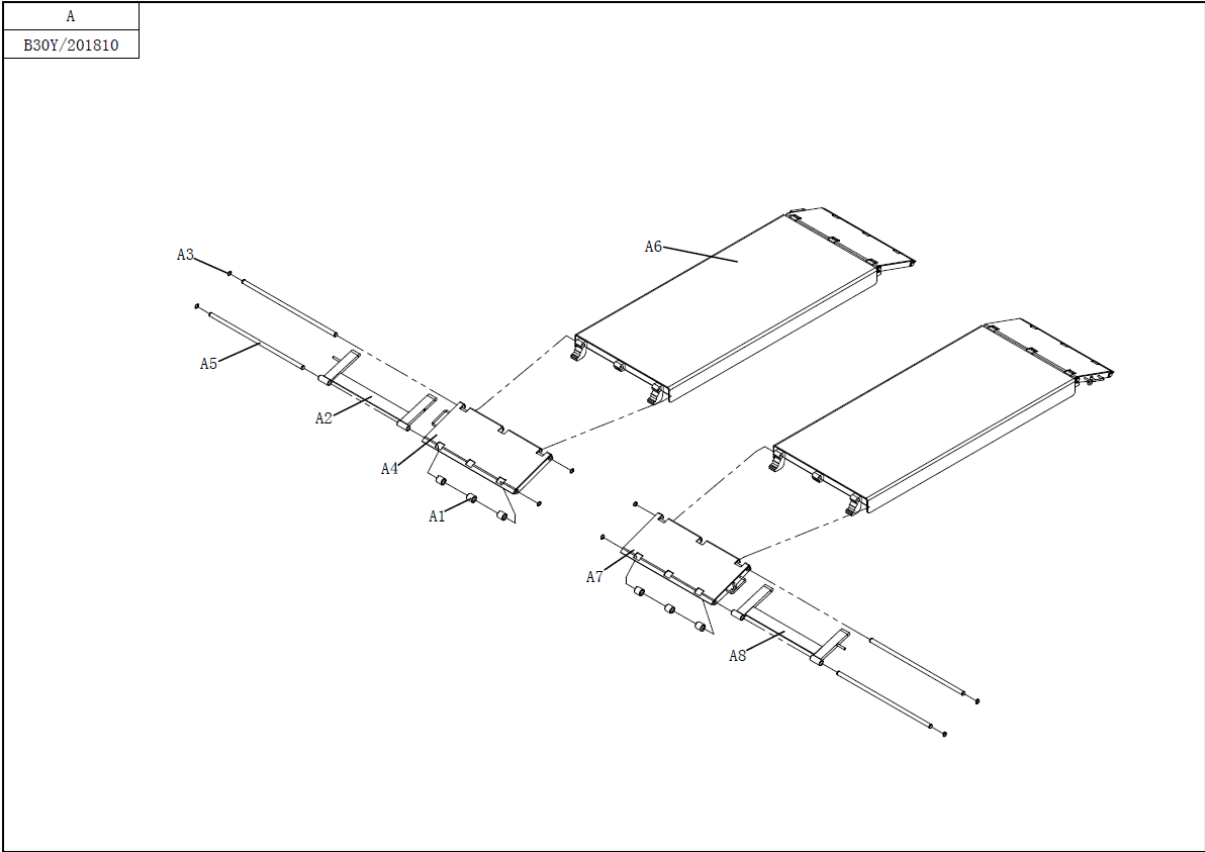


14. Gas loop diagram

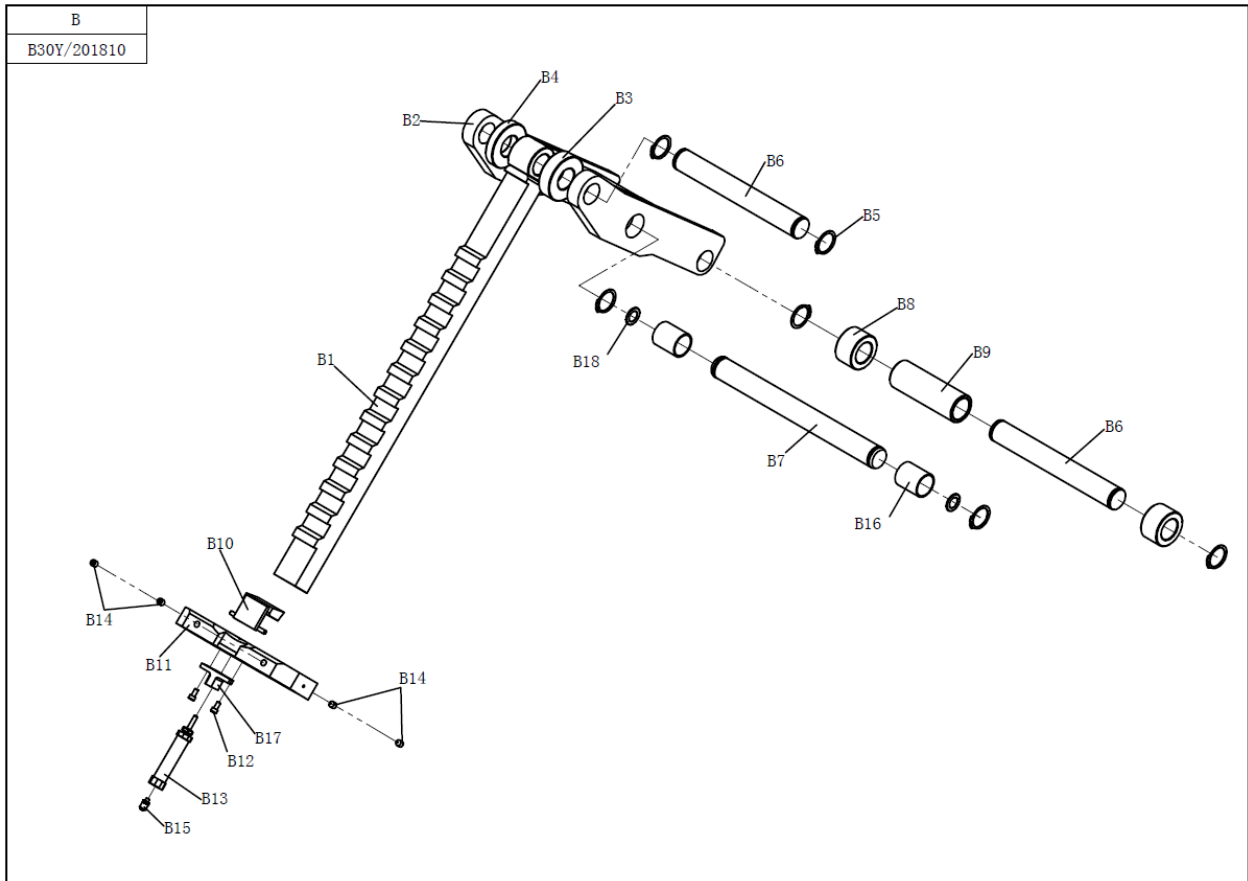


15. Explosion drawing

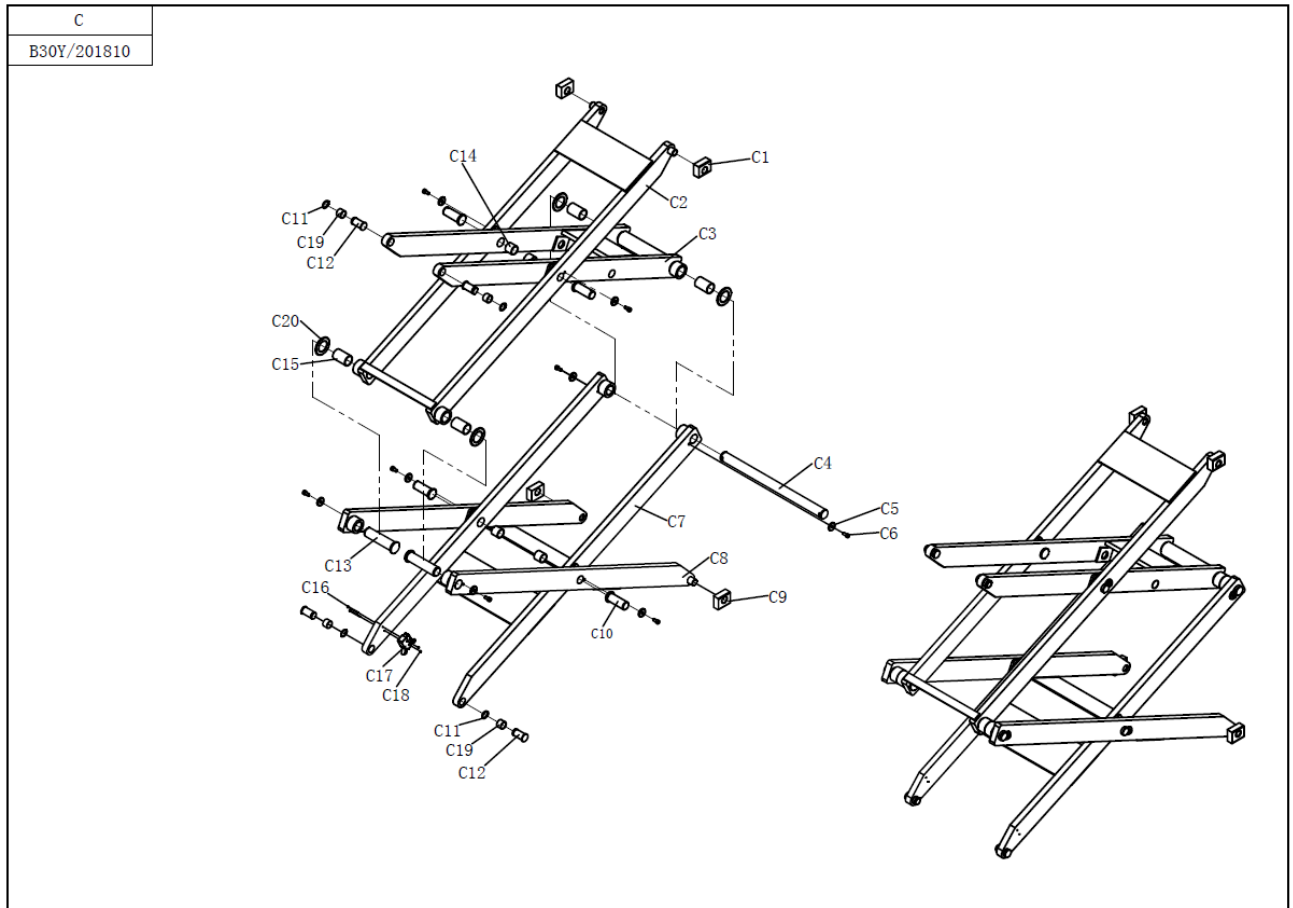




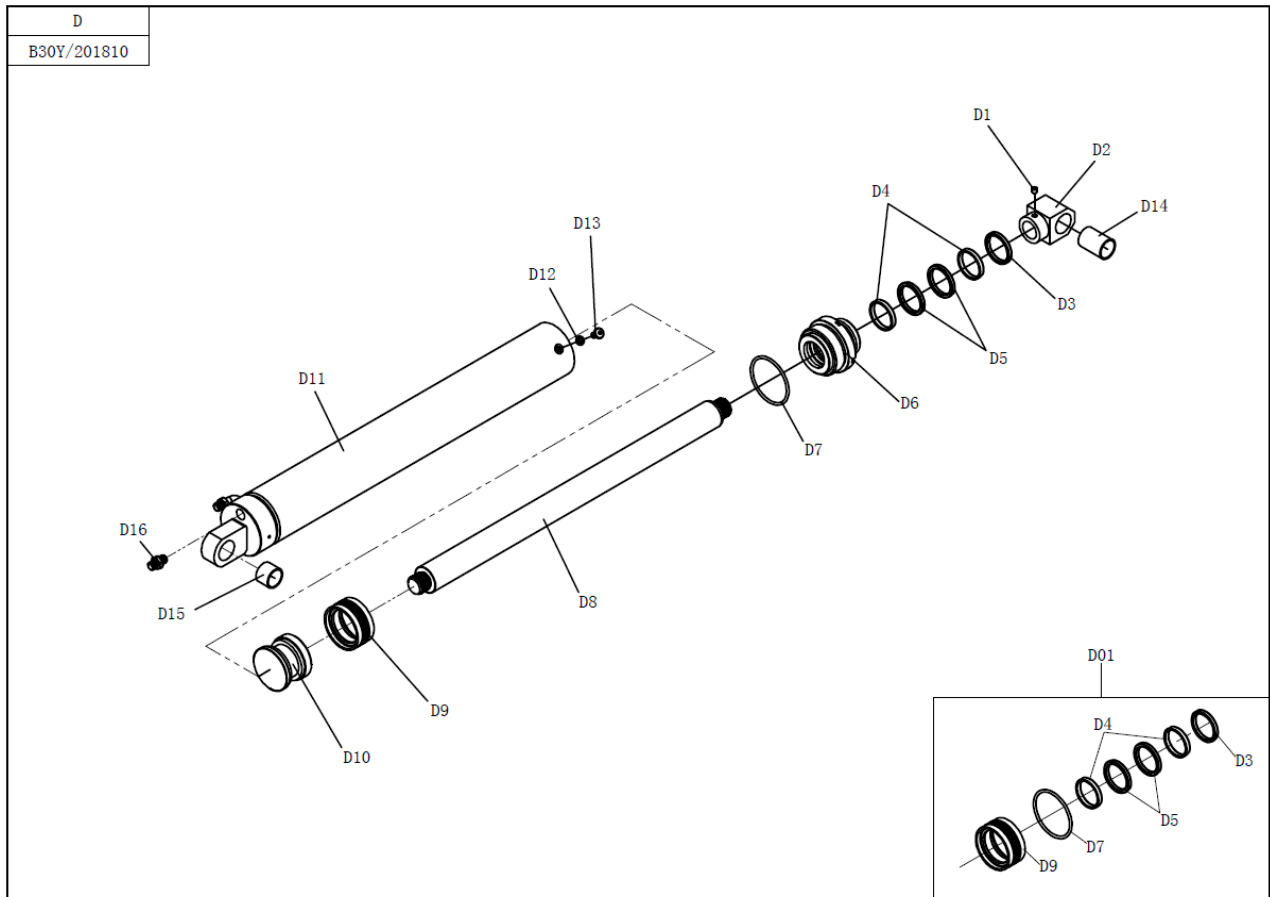
A1	JZ09016023926	loading dock board roller
A2	JZ08016021798	loading dock board support assembly 1
A3	FJ04001003743	shaft snap ring Ø20
A4	JZ08016021797	loading dock board 1
A5	JZ03016016253	loading dock board shaft
A6	JZ08016021769	top plate
A7	JZ08016021797	loading dock board 2
A8	JZ08016021798	loading dock board support assembly 2



B1	JZ08016021790	insurance strip
B2	JZ08016021789	starting rod
B3	JZ03016016259	oil cylinder upper spacer sleeve (thick)
B4	JZ03016016258	oil cylinder upper spacer sleeve (thin)
B5	FJ04001003749	shaft snap ring Ø30
B6	JZ09016023902	piston rod stationary shaft
B7	JZ03016016243	starting rod stationary shaft
B8	JZ03016016244	starting rod sliding sleeve
B9	JZ03016016245	starting rod spacer sleeve
B10	JZ09016023923	insurance block
B11	JZ03016016242	insurance base
B12	FJ04009004645	hex socket cap screw M5×10
B13	JZ09016023898	cylinder 16×25
B14	FJ04006004178	hex socket set screws with cone point M8×12
B15	EQ11006003398	air pipe straight union M5-4×6
B16	FJ02011003687	shaft steel sleeve 343040
B17	JZ09016023904	cylinder support
B18	JZ02022038973	adjusting washer

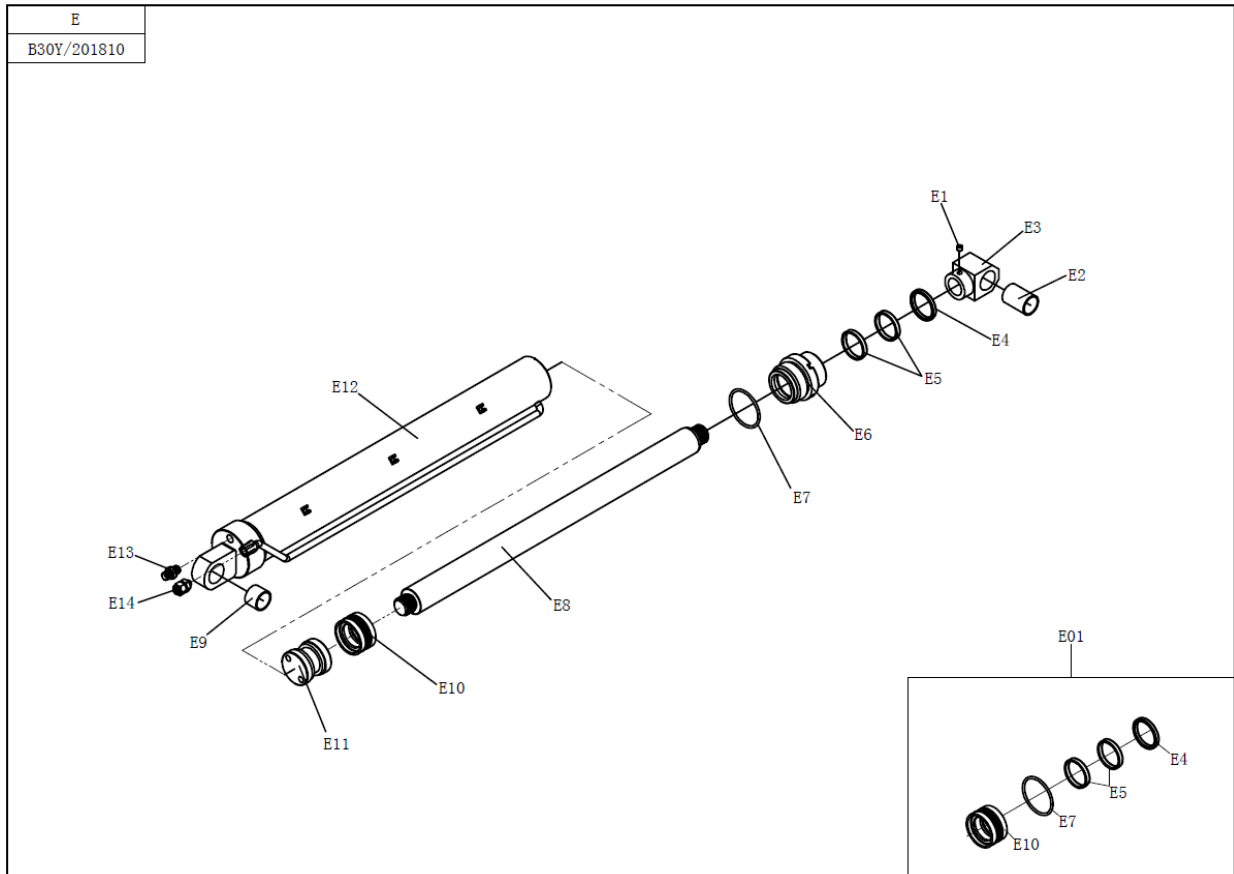


C1	JZ09016023905	upper sliding block
C2	JZ08016021760	connecting rod(up&outer)
C3	JZ08016021761	connecting rod(up&inner)
C4	JZ03016016255	inner scissor stationary shaft(up&down)
C5	JZ03016016241	stop plate key
C6	FJ04009004703	hex socket cap screw M8×16
C7	JZ08016021759	connecting rod(down&inner)
C8	JZ08016021758	connecting rod(down&outer)
C9	JZ09016023906	lower sliding block
C10	JZ03016016263	center shaft
C11	FJ04001003747	shaft snap ring Ø25
C12	JZ03016016247	inner scissor stationary shaft(up&down)
C13	JZ03016016249	outer scissor stationary shaft(up&down)
C14	FJ02011003684	shaft steel sleeve 343030
C15	FJ02011003698	shaft steel sleeve 393560
C16	FJ04006004313	cross pan head screw M3× 50
C17	DD03009001594	lower limit switch
C18	FJ04008004509	nut M3
C19	FJ02011003677	shaft steel sleeve 282525
C20	JZ02022038973	adjusting washer

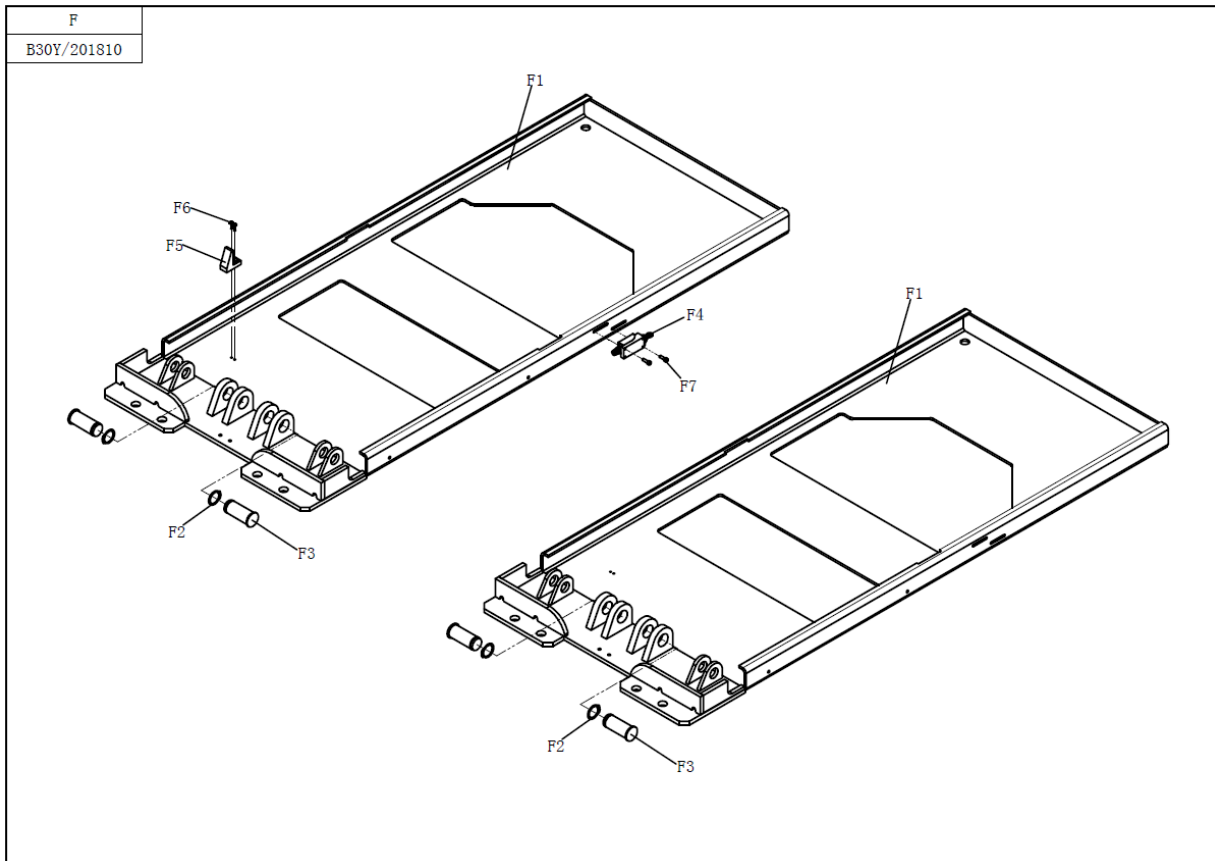


D1	FJ04006004178	hex socket set screws with cone point M8×12
D2	JZ09016023945	oil cylinder support block
D3	FJ08006005408	dust-proof ring Ø45×53×6.5
D4	JZ02022043589	wear ring Ø45×8×2.5
D5	FJ08002005382	U-ring Ø45×55×6
D6	JZ08016021802	main oil cylinder cover
D7	FJ08001005332	O-ring Ø75×4
D8	JZ09016023924	piston rod
D9	FJ08013005451	combined seal ring Ø75×55×22.4
D10	JZ02022012750	main cylinder piston
D11	JZ08016021764	main oil cylinder
D12	FJ08013005443	combined seal ring Ø8
D13	FJ04006004073	hex socket button head screw M8×10
D14	FJ02011003689	shaft steel sleeve 343048
D15	FJ02011003683	shaft steel sleeve 343025
D16	EQ08005003140	oil pipe straight union inner cone G1/4--end face G1/4
D01	JZ06015020549	oil cylinder seal kit

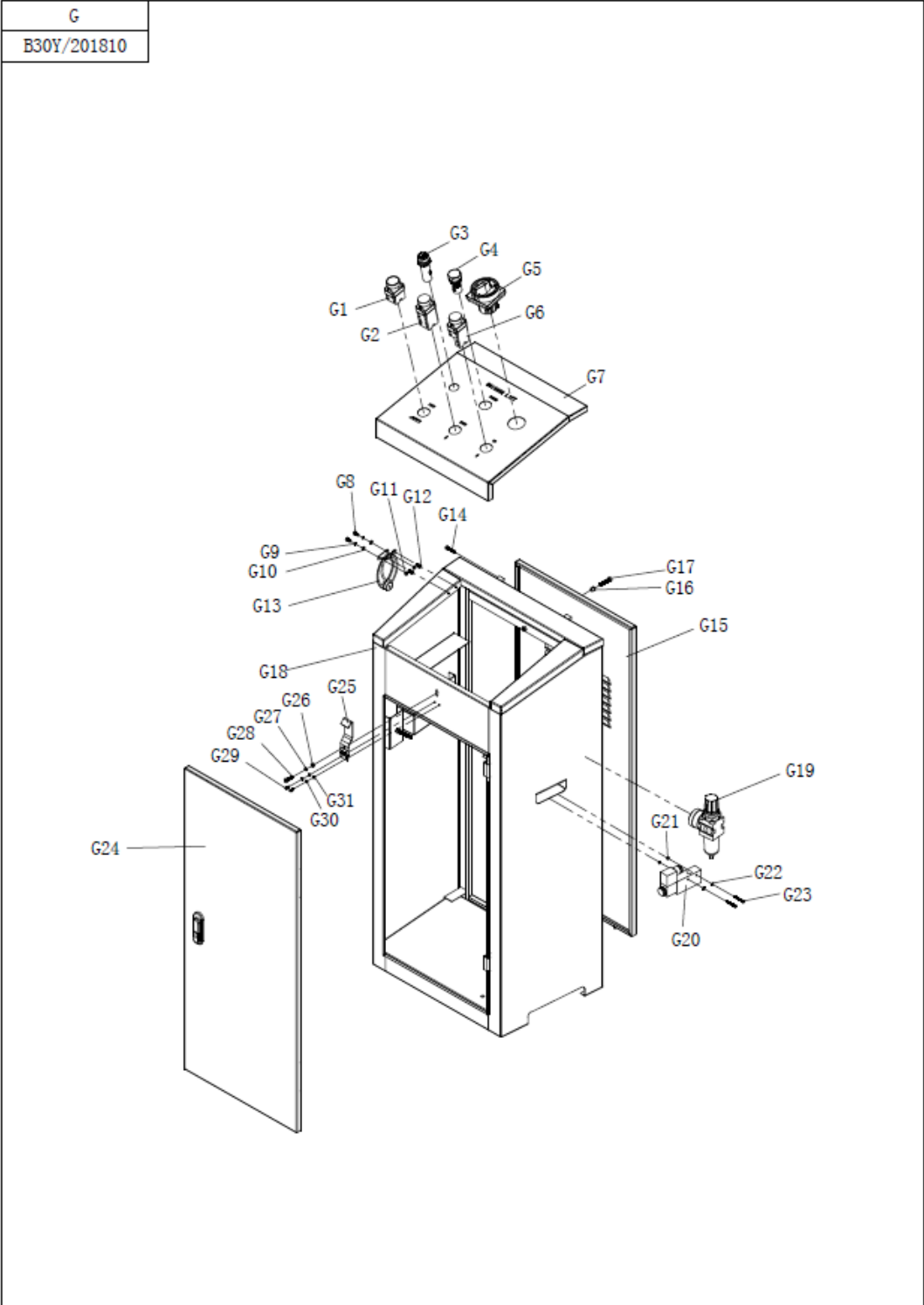




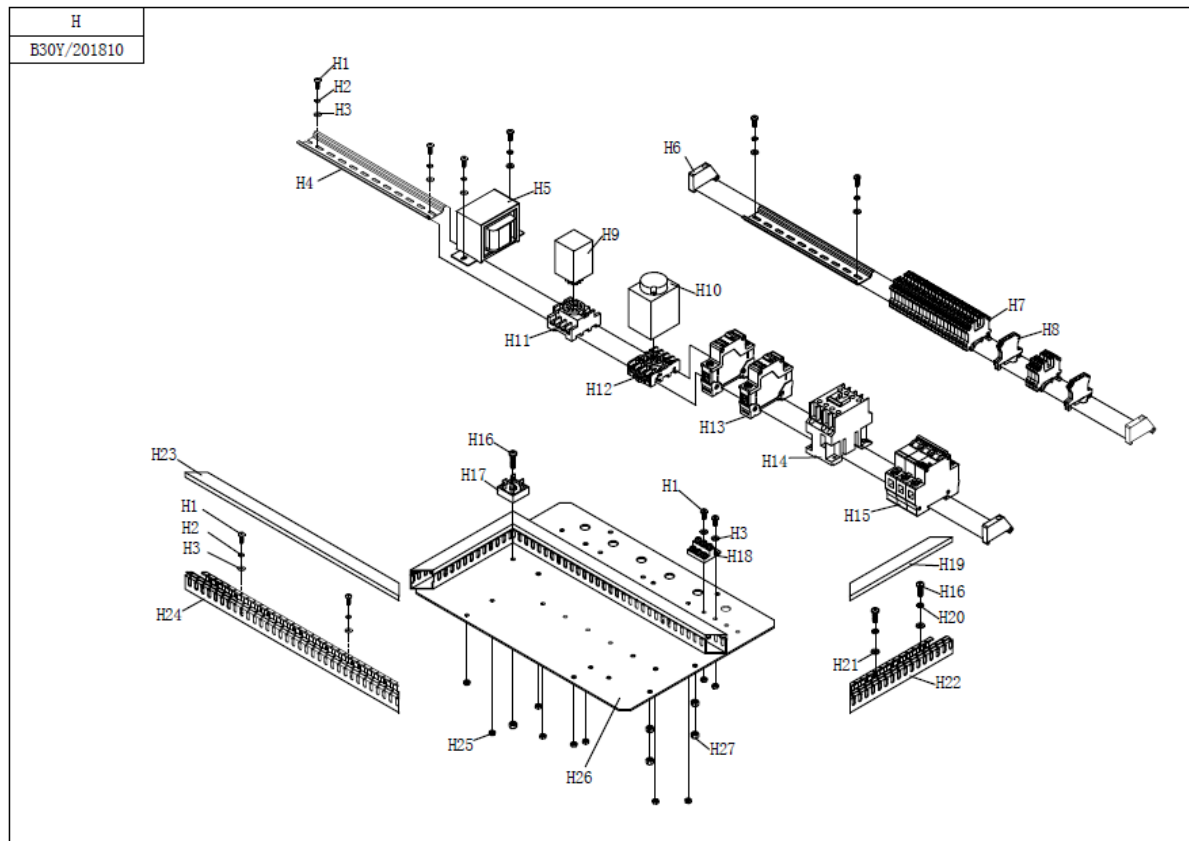
E1	FJ04006004178	hex socket set screws with cone point M8×12
E2	FJ02011003689	shaft steel sleeve 343048
E3	JZ09016023945	oil cylinder support block
E4	FJ08006005408	dust-proof ring Ø45×53×6.5
E5	JZ02022043589	wear ring Ø45×8×2.5
E6	JZ08016021803	sub oil cylinder cover
E7	FJ08001005307	O-ring Ø60×4
E8	JZ09016023924	piston rod
E9	FJ02011003683	shaft steel sleeve 343025
E10	FJ08013005449	combined seal ring Ø60×44×18.4
E11	JZ02022012751	sub cylinder piston
E12	JZ08016021765	sub oil cylinder
E13	EQ08005003140	oil pipe straight union inner cone G1/4--end face G1/4
E14	EQ10005003289	air pipe straight union G1/4-8×5
E01	JZ06015020550	oil cylinder seal kit



F1	JZ08016021757	base
F2	FJ04001003749	shaft snap ring Ø30
F3	JZ03016016256	oil cylinder stationary shaft
F4	DD03009001592	upper limit switch 8122
F5	JZ03016016237	lower limit switch block
F6	FJ04006004323	cross pan head screw M4×16
F7	FJ04006004337	hex socket cap screw M5×12

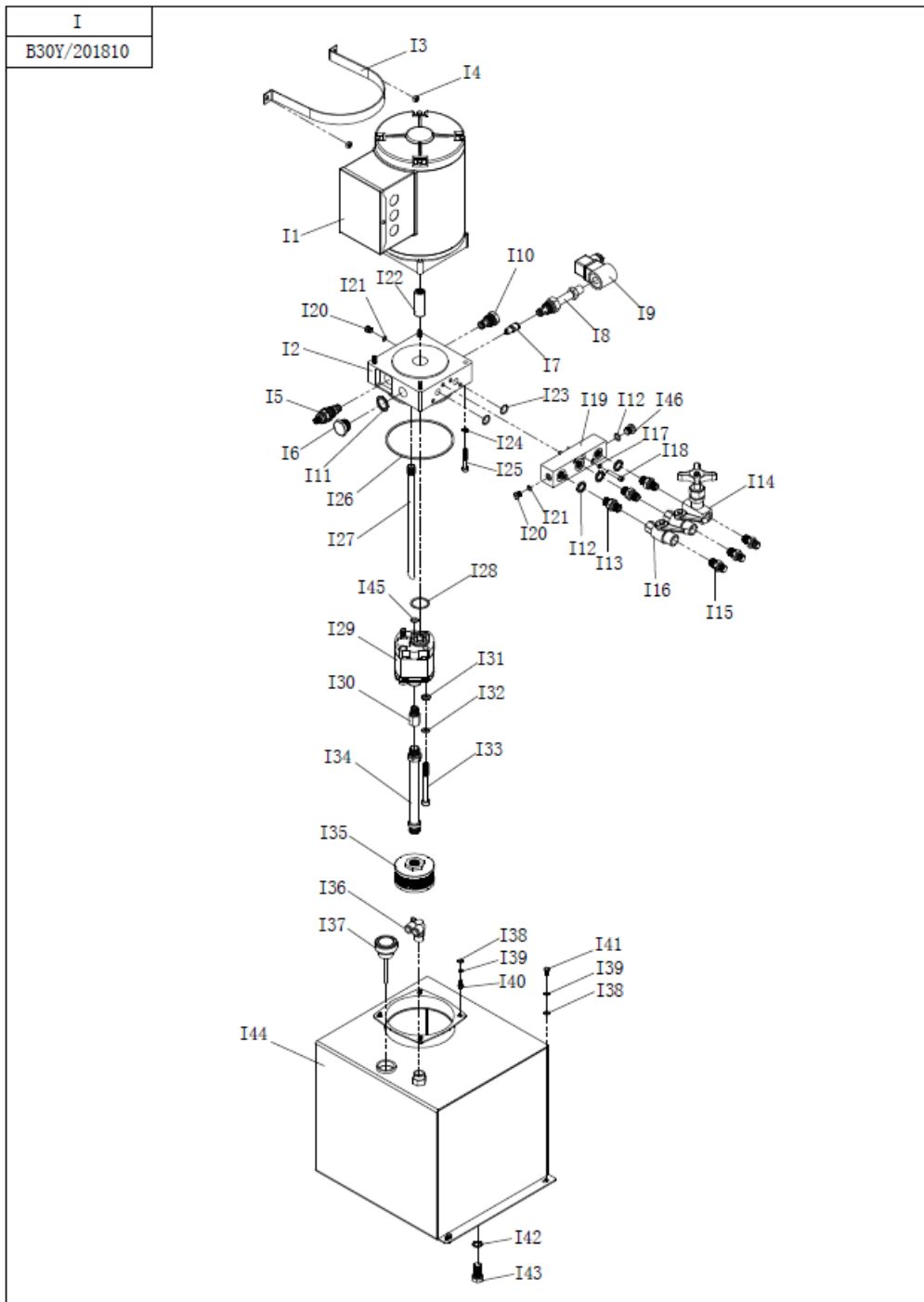


G1	DD03009001581	locking button switch 2NO
G2	JZ06006042678	down button switch 3NO1NC
G3	DD04013002114	buzzer
G4	DD03004001476	signal
G5	DD03009001612	power switch
G6	JZ06006042677	lift button switch 2NO1NC
G7	JZ09006023719	control box cover
G8	FJ04006004318	cross pan head screw M4×10
G9	FJ04002003785	spring washer Ø4
G10	FJ04002003876	flat washer Ø4
G11	FJ04008004510	hex nut M4
G12	FJ04006004318	cross pan head screw M4×10
G13	JZ09006040405	cover board hinge
G14	FJ04006004324	cross pan head screw M4×25
G15	/	control box back door
G16	/	screw plastic sleeve Ø6
G17	FJ04006004355	cross pan head screw M6×30
G18	JZ09006023712	control box body
G19	EQ03003002909	pressure regulating valve
G20	EQ02008002827	pneumatic solenoid valve
G21	FJ04008004509	hex nut M3
G22	FJ04002003860	flat washer Ø3
G23	FJ04006004310	cross pan head screw M3×30
G24	/	control box front door
G25	JZ02012040401	cover board clasp
G26	FJ04008004512	hex nut M5
G27	FJ04002003787	spring washer Ø5
G28	FJ04006004340	cross pan head screw M5×20
G29	FJ04006004316	cross pan head screw M3×8
G30	FJ04002003860	flat washer Ø3
G31	FJ04008004509	hex nut M3



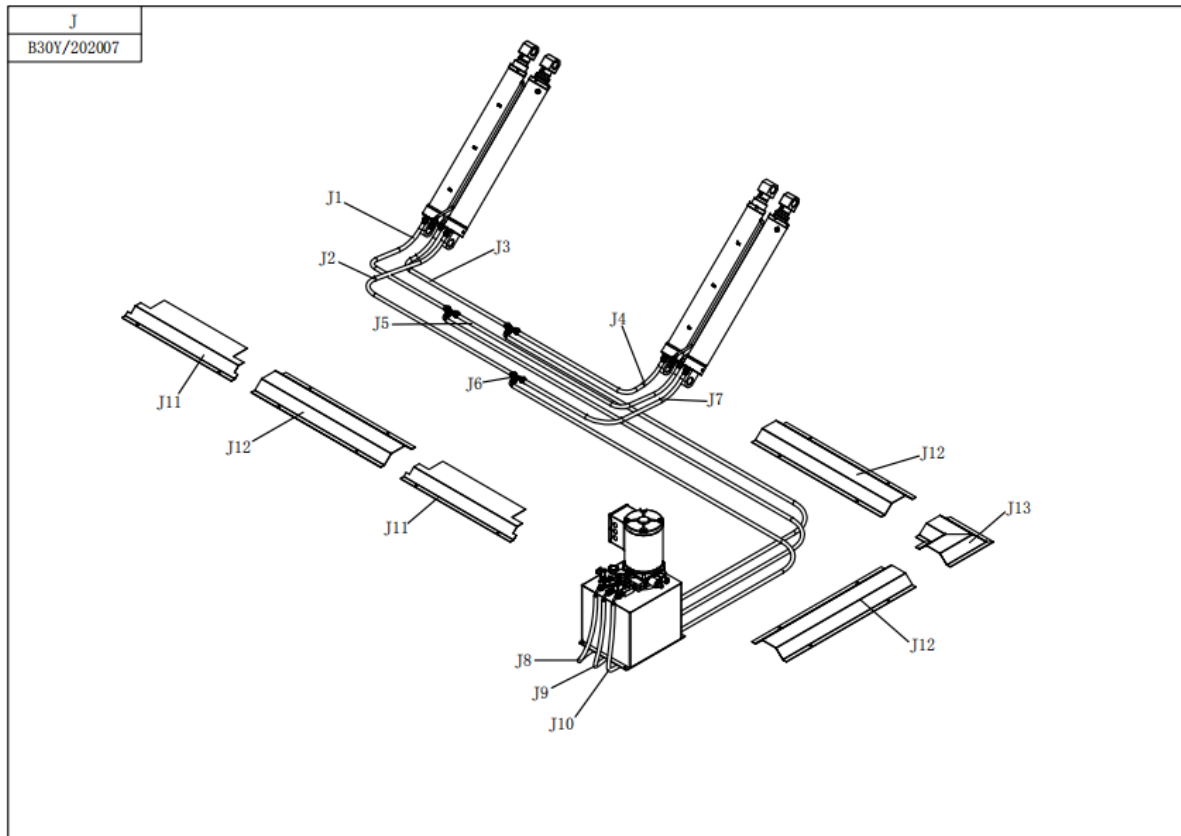
H1	FJ04006004318	cross pan head screw M4×10
H2	FJ04002003785	spring washer Ø4
H3	FJ04002003876	flat washer Ø4
H4	DD02011001431	lead rail
H5	DD04004001815	transformer
H6	DD03010001677	fixed terminal
H7	DD03010001679	phoenix terminal
H8	DD03010001680	earth terminal
H9	DD04015002143	intermediate relay
H10	DD04015002139	time relay
H11	DD04015002148	relay socket
H12	DD04015002150	relay socket
H13	DD03007001523	circuit breaker
H14	DD03008001545	AC contactor
H15	DD03007001521	circuit breaker 3phase
H15(optional)	DD03007001524	circuit breaker 1phase
H16	FJ04006004340	cross pan head screw M5×20
H17	DD04026002386	rectifier bridge
H18	DD03010001691	grounding strip
H19	/	wiring duct cover
H20	FJ04002003787	spring washer Ø5

H21	FJ04002003880	flat washer Ø5
H22	/	wiring duct
H23	/	wiring duct cover
H24	/	wiring duct
H25	FJ04008004510	hex nut M4
H26	JZ08006021555	power panel
H27	FJ04008004512	hex nut M5



I1	DD01002001212	3ph motor
I1(optional)	DD01002001204	1ph motor
I2	EQ01004002718	valve block
I3	JZ02012047077	anchor ear
I4	FJ04008004513	hex nut M6
I5	EQ01004002735	overflow valve
I6	/	plug M20
I7	EQ01004002733	pressure-compensated valve
I8	EQ01004002697	normally closed lowing electromagnetic valve spool
I9	EQ01004002692	lowing valve coil
I10	EQ01004002737	one-way valve
I11	/	combined seal ring Ø20
I12	/	combined seal ring Ø14
I13	EQ08005003160	oil pipe straight union end face G1/4--R1/4
I14	EQ02005002813	cross ball valve
I15	EQ08005003160	oil pipe straight union inner cone G1/4--R1/4
I16	EQ02010002868	high pressure ball valve
I17	FJ04002003789	spring washer Ø6
I18	FJ04009004684	hex socket cap screw M6×30
I19	EQ01004039749	additional valve block
I20	/	plug M8×1
I21	/	O-ring Ø6.5×1.5
I22	EQ01004002699	coupling
I23	/	O-ring Ø14×1.7
I24	FJ04002003789	spring washer Ø6
I25	/	hex socket cap screw M6×40
I26	/	O-ring Ø114×3
I27	EQ01004044983	return tube
I28	/	O-ring Ø32×2.4
I29	EQ01002002684	gear pump 2.1C.C
I30	EQ01004002702	cushion valve
I31	FJ04002003902	flat washer Ø8
I32	FJ04002003791	spring washer Ø8
I33	/	hex socket cap screw M8×80
I34	EQ01004002714	suction tube
I35	EQ01004002705	filter
I36	/	PA hard air pipe
I37	EQ01004002717	oil tank cover
I38	FJ04002003880	flat washer Ø5
I39	FJ04002003787	spring washer Ø5
















I40	FJ04009004846	outer hex socket bolt M5×10
I41	/	hex socket cap screw M5×16
I42	FJ08013005439	combined seal ring Ø12
I43	FJ04009004793	outer hex socket bolt M12×20
I44	JZ09006037200	oil tank
I45	/	rectangle seal ring 9.5×1.7
I46	FJ04004003985	plug G1/4



J1	JZ02085015211	high-pressure oil pipe 600mm
J2	JZ02085015220	high-pressure oil pipe 1100mm
J3	JZ02085015218	high-pressure oil pipe 800mm
J4	JZ02085015218	high-pressure oil pipe 800mm
J5	JZ02085015220	high-pressure oil pipe 1100mm
J6	EQ08001003093	oil pipe T-union 3-G1/4
J7	JZ02085015211	high-pressure oil pipe 600mm
J8	JZ02085015243	high-pressure oil pipe 3950mm
J9	JZ02085015248	high-pressure oil pipe 4250mm
J10	JZ02085015242	high-pressure oil pipe 3750mm
J11	JZ08016021786	oil hose cover plate 630
J12	JZ08016021785	oil hose cover plate 750
J13	JZ08016021791	oil hose cover plate 90°



## 16. Accessories Packing List

Name	Pic	Spec.	Qty
1. Rubber mat(filmy)		160mm*120mm*35mm	4pc
2. High pressure oil hose		3.75m (145#)	1pc
		3.95m (146#)	1pc
		4.25m (147#)	1pc
3. Air Cylinder union		φ6*4	2pc
4. Air hose T-union		φ6*4	1pc
5. Foundation bolt		M16	12set
6. Foundation bolt		M8	24set
7. Air hose		φ6*4 1700mm	2pc
		φ6*4 3500mm	1pc
		Φ8*5 5000mm	2pc
8. Oil hose T-union		G1/4	3pc
9. Combined washer		φ 8	2pc
10. Oil hose cover plate		250mm*90°	1pc
11. Oil hose cover plate		635mm	2pc
12. Oil hose cover plate		750mm	4pc
13. Loading dock board		including shaft, shaft snap ring, supporting plate and roller of loading dock board Notice: right and left direction each for 2pc	4set
14. Use manual		(including instruction manual, certificate of soundness, warranty bill and packing list)	1pc
15. Ribbon		4*200mm	10pc