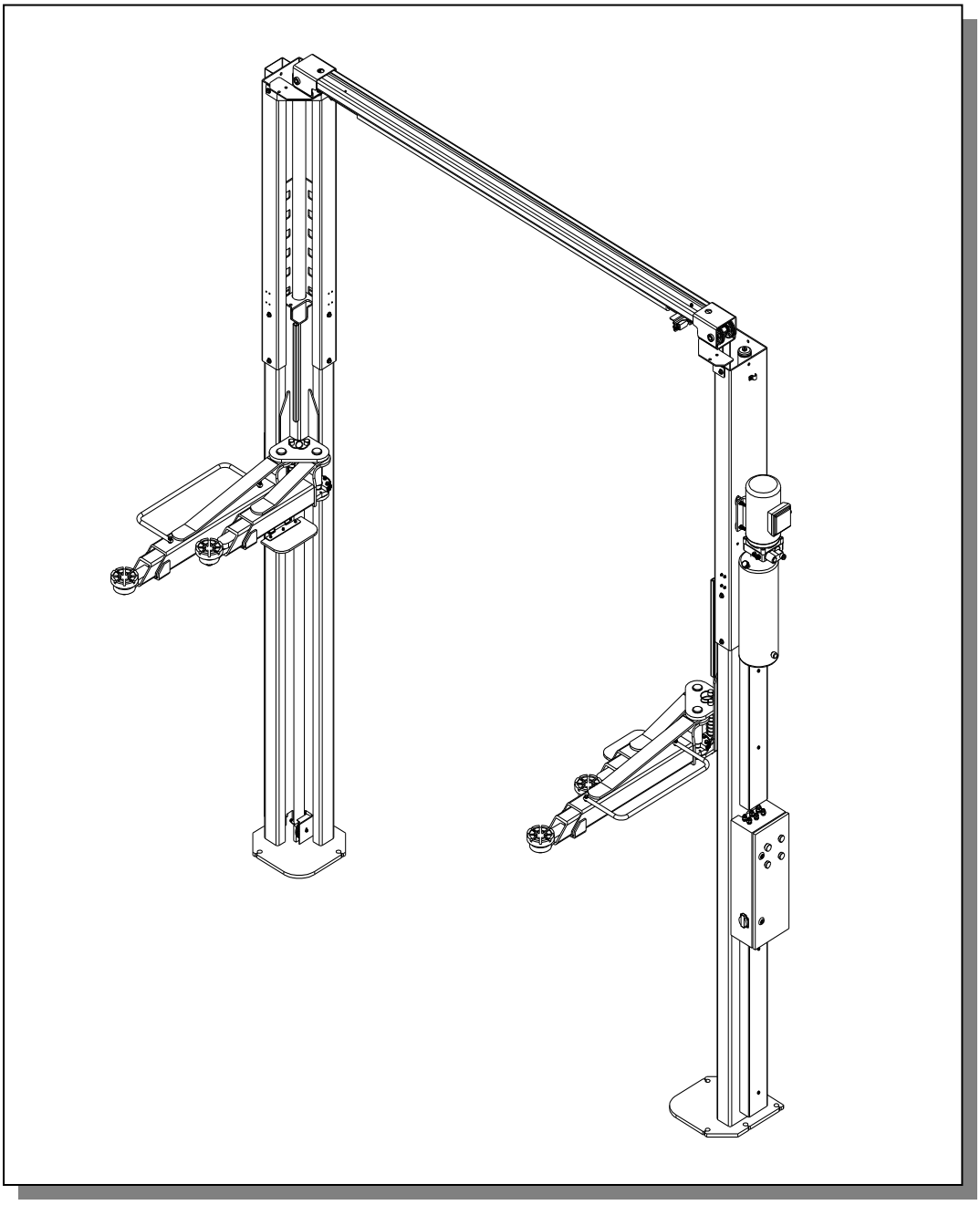
CLEAR FLOOR TWO POST LIFT



INSTRUCTION & MAINTENANCE MANUAL

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

TWO POST LIFT INSTRUCTION MANUAL

INDEX **PAGE**

1.Packing, transport and storage

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

1.1. Packing:

Standard configuration	**1＃carton**
Power unit and accessories	
Increased column	2pc
Column	2pc
Top beam	1pc
Long lifting arm	2pc
Short lifting arm	2pc
Control box	1pc
Decorate box	4pc

Table 1

1.2. Transport:

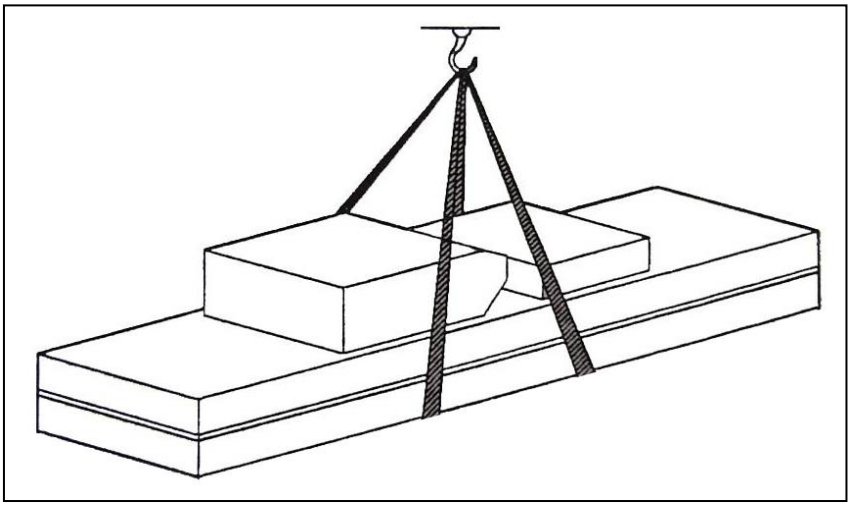
Packing can be lifted or moved by lift trucks, cranes or bridge cranes. In case of slinging, a second person must always take care of the load, in order to avoid dangerous oscillations.

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 1**)



Picture 1 (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 temperature for machine storage : -25ºC-- 55ºC

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

Two post lift can lift each kind of vehicle whose weight is less than 4000kg, suitable for use in vehicle tests, maintenance and tyre mounting/demounting.

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 lifting personnel;

-Use to lift loose-packed and fractured goods

-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.

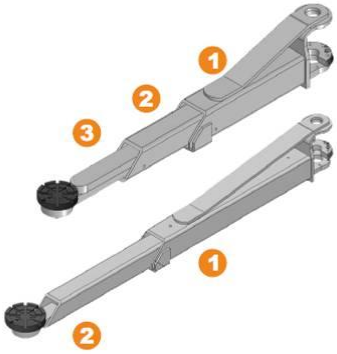
3.2.Structure Features

45°new structure design for column, with multiple safety protection

Picture 2

High strength safety lock

Picture 3



Asymmetric telescopic lifting arm, suitable for more vehicles

Picture 4

Two reliable oil cylinder drive the lift, equalization of two steel cables forced both two sides, move synchronously and stably

Picture 5

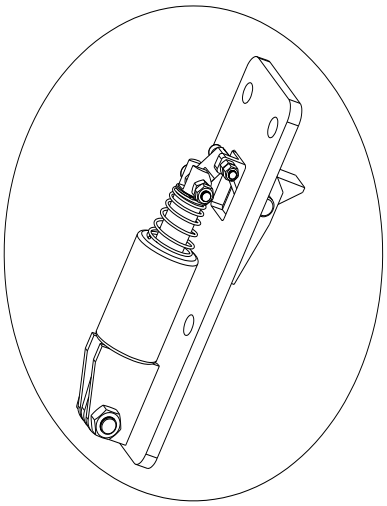
Power metallurgy, one piece welding, helper arm locking device

Picture 6

Clear floor design with 2 mechanical height limit switch, more safe and reliable

Picture 7

Safety lock structure



Picture 8

3.3.Equipment

-Machine basement (The position and space of equipment installation)

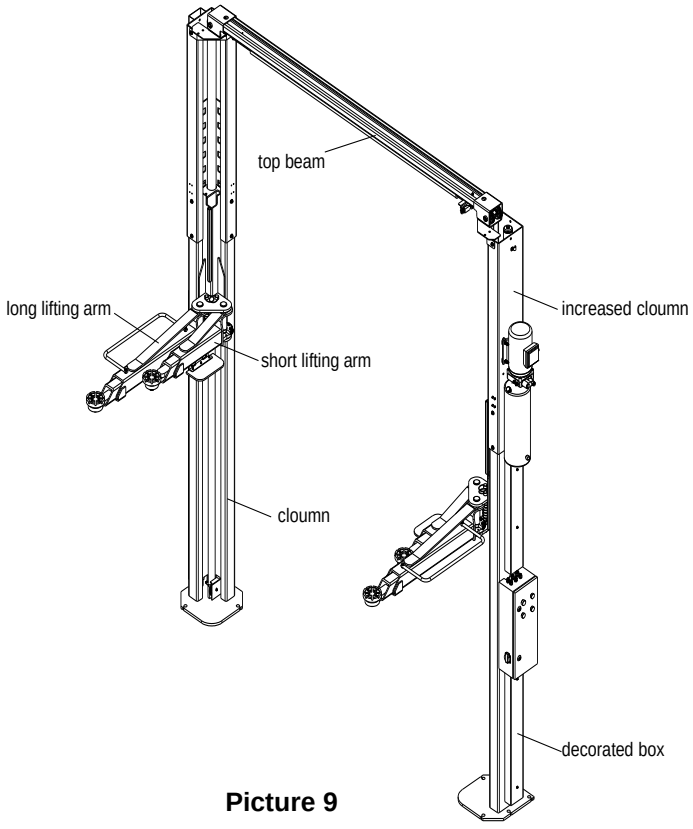
-Machine frame (The main structure of lift and insurance institution)

-Power unit（Hydraulic control part）

-Control box (Machine-controlled part)

3.4.Frame

Make of column ,increased column, top beam, long lifting arm, short lifting arm and decorated box.



Picture 9

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.
Throttle valve	Adjust 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	4T
Machine weight	700kg
Lifting capacity	4000kg
Machine lift height	1910mm
Platform initial height	110mm
Machine height	3906mm
Machine width	3140mm
Machine lifting time	≤35s
Machine descent time	≤30s
Standard power supply	3/N/PE~380V, 50Hz,16A
Whole machine power	3kw
Hydraulic oil	15L corresponds to wearable hydraulic oil
Working temperature	5-40℃
Working humidity	30-95%
Noisy	< 70db
Storage temperature	-25℃~55℃

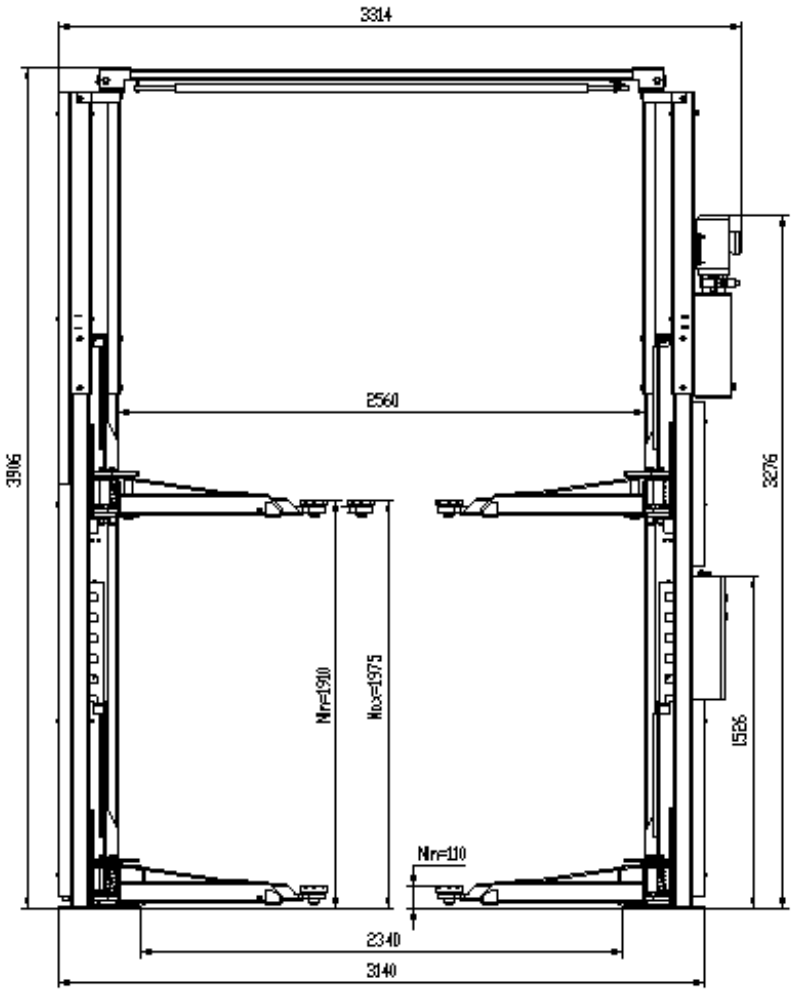
Table 3

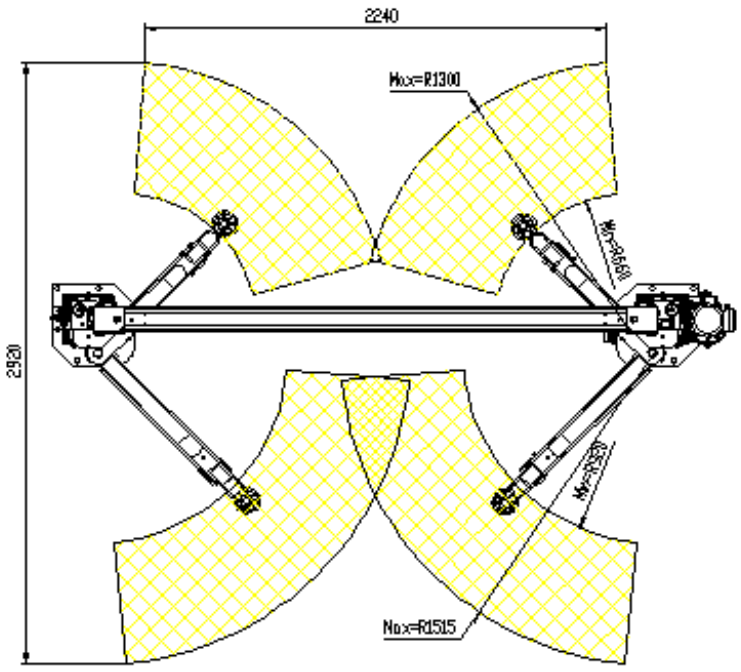
Requirements

-Portland cement with strength grade above C20, the period of desiccation is 15 days

-Clean the basic layer, thickness of concrete≥300mm, the leveling of whole length≤5mm

4.2 External dimension drawing





Picture 10 (Lift dimension picture)

4.3. Types of vehicles suitable for(For reference only)

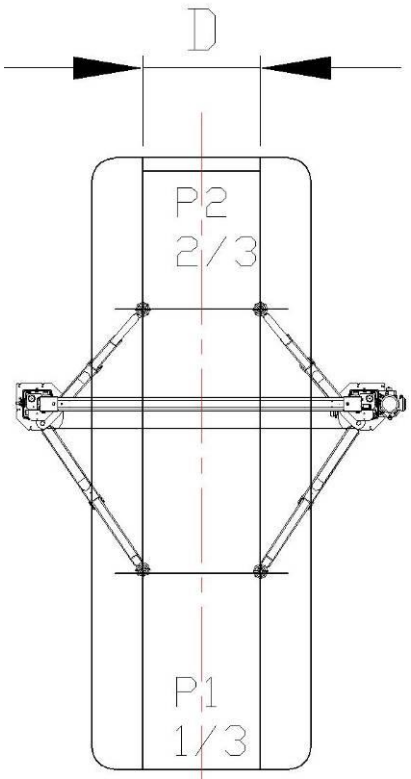
This lift are suitable for virtually all vehicles with total weight and with dimensions not exceeding the below data. Maximum weight not exceed than 4000kg

The dimension of vehicle(Table 4):

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

- Pay attention to warning signs

-Each kind of automobile differs in centre-of-gravity position. Centre-of-gravity position of automobile shall be understood at first. When automobile enters the lifter, the center of gravity shall get close to plane formed by both vertical columns. The rocker arm shall be adjusted to allow bearing point to be on bearing surface of car.



Picture 11

Lift	D(mm)	P2(kg)	P1(kg)	C=P1+P2(kg)
3.2T	710	1675	840	2515
	800	1800	900	2700
	900	1920	960	2880
	1000	2140	1060	3200
3.5T	710	1890	940	2830
	800	2020	1010	3030
	900	2160	1080	3240
	1000	2400	1200	3600
4T	710	2100	1040	3140
	800	2250	1120	3370
	900	2400	1200	3600
	1000	2650	1350	4000

Table 4

The centre-of-gravity position of each kind of vehicle is different. First know about the centre-of-gravity of vehicles. Make the centre-of-gravity close to the plane formed by the two columns when the vehicle drive into the lift. Adjust the lifting arm, make the bearing point support the bearing surface of vehicles.

5. Safety notes

5.1 General precautions

Workers should read the **<<Instruction & Maintenance Manual>>** carefully before carrying out any operation with the lift

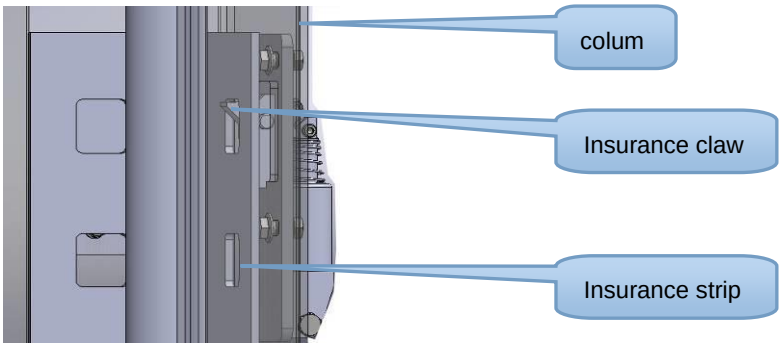
The manufacturer is not liable for any injury to persons or damage to vehicles and other property caused by the incorrect and unauthorized use of the lifts.
The operator and the maintenance fitter are required to observe the prescriptions of safety regulation in force in the country of installation of 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.

5.2 protection devices(picture 12)

The safety protection devices use to protect the operator in case of overload or machinery failure:
-In the case of overload, the overflow valve of the pump will open, the hydraulic oil will return to the oil tank.
-The mechanical insurance works automatically to prevent the carriage from falling off when the oil cylinder loose pressure.
-Operators will hear the sound when the insurance claw falls on the insurance strip in the case of normal use. If not, this machine is prohibited to use. Operator can check the insurance device by opening the decorated box. If the insurance device is blocked, adjust the screw on the insurance claw till the sound can be heard when the insurance claw falls on the insurance strip.
-Only press "LOCK" button after the machine is lifted, vehicle maintenance can be permitted.
-If the two carriages are not in the same plane, adjust the nut on steel cable to keep them in the same plane. Tighten the steel cable, or the two carriages can not be synchronous.
-Locking devices are installed in each lifting arm, it can lock automatically when lifting arm rotate to any needed angle. When the carriage in the lowest position, the lifting arm can rotates freely. In order to prevent the lifting tray from falling, we adopt the adjustable thread lifting tray to make it more safe and convenient



Picture 12

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.

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.

Risk of falling (vehicle)

This hazard may arise in the case of incorrect positioning of the vehicle on the lifting arms, overweight of the vehicle, or in the case of vehicles of dimensions that are not compatible with the capacity of the lift.

When the lifting arm 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.

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**)

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.

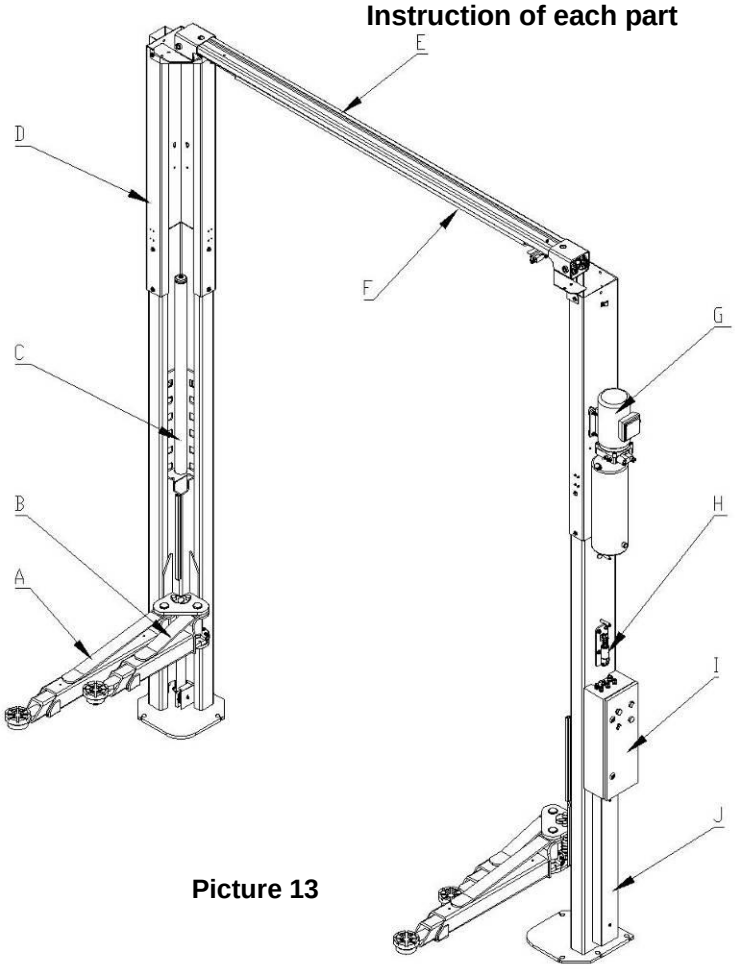
The handling of safety devices is strictly forbidden. Never exceed the maximum carrying capacity of the lift, make sure the vehicles to be lifted have no load.

6.Machine structure and drive principle

6.1 machine structure(picture 13)：

-This machine is made of column, carriage, lifting arm, top beam, spindle parts, safety lock device, oil cylinder, power unit, oil hose, control box and electric wire. mechanical lock and hydraulic lock double safety device ensure its security.

Instruction of each part



Picture 13

A	Long lifting arm
B	Short lifting arm
C	Oil cylinder
D	Column
E	Top beam
F	Limited rod
G	Power unit
H	Complete safety lock device
I	Control box
J	Decorated box

6.2 Drive principle：

-Press button "UP", the contactor and motor work. Motor drives the gear pump, the hydraulic oil goes through the one-way valve, oil hose and the piston rod and finally reach the in the downward cavity of oil cylinder. The cylinder barrel is pushed by the oil pressure. The oil cylinder drives the lifting arm synchronously with the steel cable and roller wheel. When do the vehicle maintenance, operators press the "LOCK" button, the lower solenoid valve works and the electromagnets do not work when the carriages is locked. When lower the lift, press the "DOWN" button, the time relay works, the lift raises for 2-3 seconds and lower solenoid valve works at the same time. The weight of vehicle and lift extrude the hydraulic oil into the oil tank. Finish the lowering operation.

Picture 14

7. Installation

7.1 Installation requirement(picture 15),

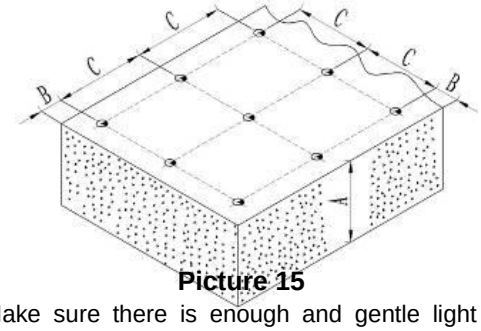
Two post lift must keep install under the safe distance requirement from the wall, column and other equipment.

Minim distance from wall is 800mm, consider the urgency situation and convenience work, the distance of exit passageway should considered having enough rooms.

Please make sure there is power supply for the control unit.

The indoor height should not be less than 4500MM

Indoor ground is available for installation, only the ground level meets the installation requirement and have enough endurance capacity (Concrete grade above C20, concrete thickness must reach 300mm and above), otherwise, please pour concrete 800 * 800mm in each column installation space, thickness must reach 300mm and above.



Picture 15

A	Concrete thickness must reach 300mm and above
B	Side- hole to the concrete edge must reach 150mm
C	Machine baseboard installation distance

Make sure there is enough and gentle light when install the machine, to ensure a safe work and machine adjustment, do not provide strong light and get eyestrain.

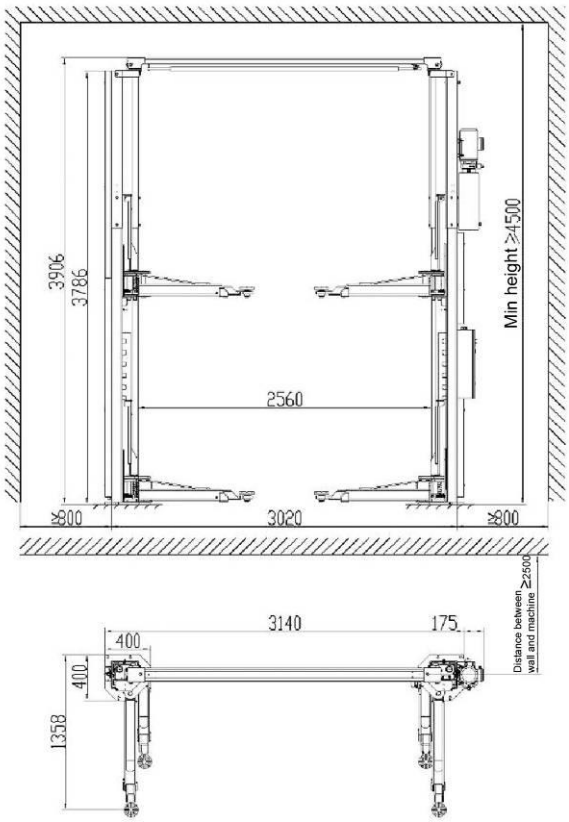
7.2. Base requirement

Portland cement with strength grade above C20, drying period ≥15days.

Clean the raw surface, concrete thickness ≥300mm，ground level degree≤5 mm

Power supply for control unit (380V or 220V)

Foundation drawing



Picture 16

Only the trained and qualified technician is allowed to install the machine, please careful read and follow below instruction before installation, in order to avoid any damage or personal safety.

Examination before installation

Foundation drying period and concrete strength must meet the requirement.

Completeness of the machine (refer to the "packing list")

Power supply connects with the control unit.

Hydraulic oil is qualified

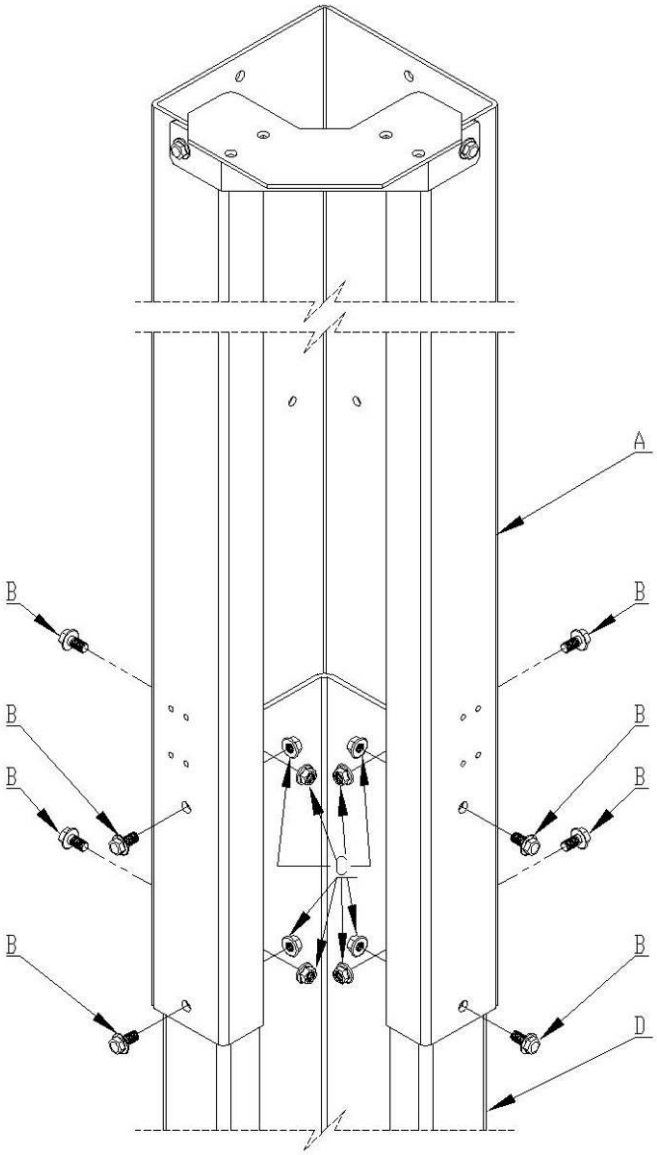
7.3 Installation

7.3.1 Column installation**(picture 17)**

a. Install the extendable column

Take the extendable column A, slide it from column D till the position as picture shows, aim at the screw holes.

Locking the holes with screw M10 *20 the hex flange bolts B and then fasten them with the M10 hex flan ge nuts (refer below picture).



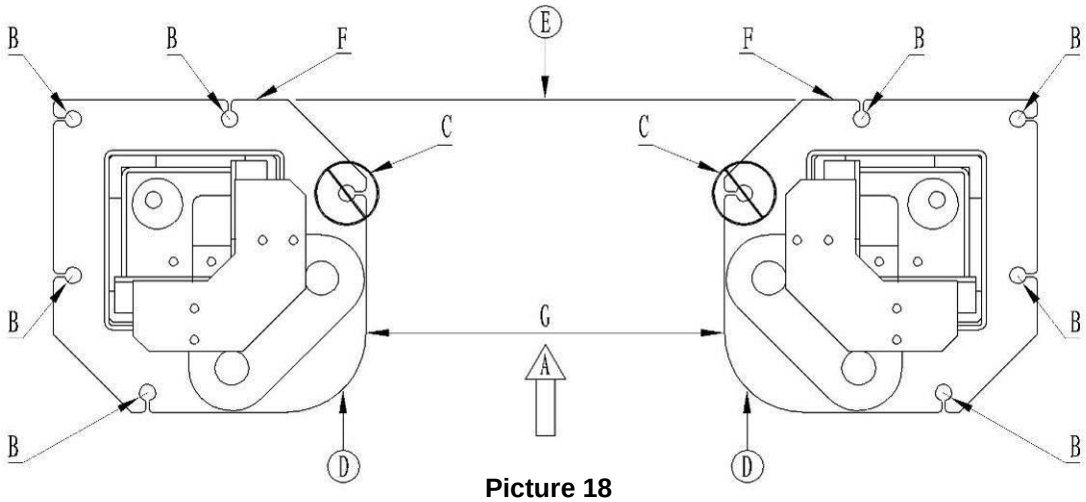
A	extendable column
B	M10×20 hex flange bolt
C	M10hex flange nut
D	column

Picture 17

b. Set up the column.**(picture 18)**

Set up the installed two columns on the concrete foundation, with a distance at 2340mm which is suitable to install the cross beam, make sure the two columns are in same level.

Hole C does not need to fix the expansion bolt. Columns must be in vertical with the ground, if the ground is not level, please adopt iron pad to adjust it, please refer below picture,



Picture 18

A	Vehicle enter direction
B	Expansion bolt
C	No need to fix Expansion bolt
D	Arc angle point to the vehicle entrance
E	Chalk line
F	The edge of base plate aligned with the chalk line
G	Distance between two column base plate is 2340MM

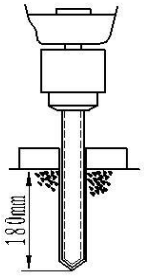
c. Install the expansion bolt

The expansion bolt must work after finished the maintenance of the concrete foundation, otherwise, it will affect the locking quality.

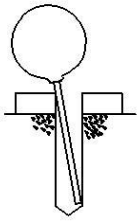
-Adjust the position & vertical degree of the two columns.

-Use a hammer clip with φ18mm impact bit (the length of the bit ≥180mm) drill the hole from the base plate hole till depth 160MM**(picture 19)**, and clean the hole with dust cleaner**(picture 20)**

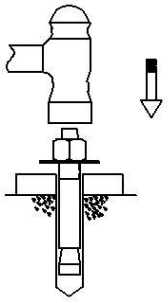
- Use the light hammer to knock the expansion bolts to the 8 holes (no need to insert the center expansion nail, fix it after finished the level adjustment).**(picture 21)**



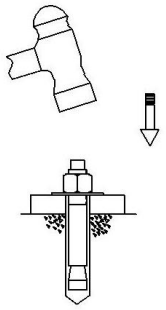
Picture 19



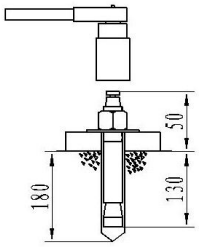
Picture 20



Picture 21



Picture 22



Picture 23

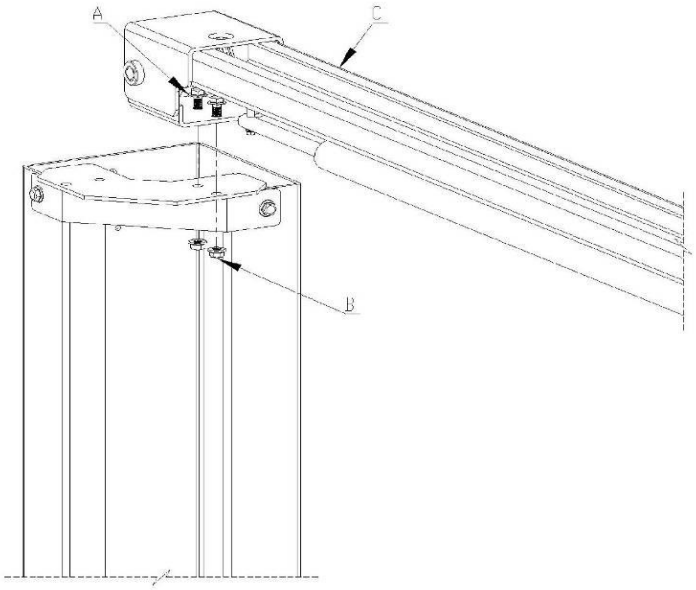
d. Level adjustment

- Use a transparent horizontal tube or gradienter to exam the all around level of the master & vice column, if level degree is no problem, insert the center expansion nail, heavy hammer knocks the center expansion nail, tighten the nuts after finished to install the top beam and the master & vice column is still in level degree.**(picture 22 & 23)**

If the concrete foundation is under the maintenance, please do not knock in the center expansion bolt. The space between the base plate and ground must fill with cement mortar after adjust the level degree.

7.3.2 Top beam installation.**(picture 24)**

- After raised the two columns stand up, put the top beam C on the top of the two columns, the side assemble with height limited switch must put in the same column side which has the control unit.
- Locking the holes with screw M10 *20 the hex flange bolts A and then put on the M10 hex flange nuts (refer below picture), please do not fasten them now



A	M10×20 hex flange bolts
B	M10 hex flange nuts
C	Top beam

Picture 24

After assembled the top beam, please exam the two columns are in the same position or not, if yes, please fasten the expansion bolt, meanwhile, the vertical degree of both two columns must keep within **±0.5** with the ground level, then fasten the top beam, make it in the vertical with two columns (if the vertical degree cannot meet the requirement, please adjust it with the thin iron pad) .

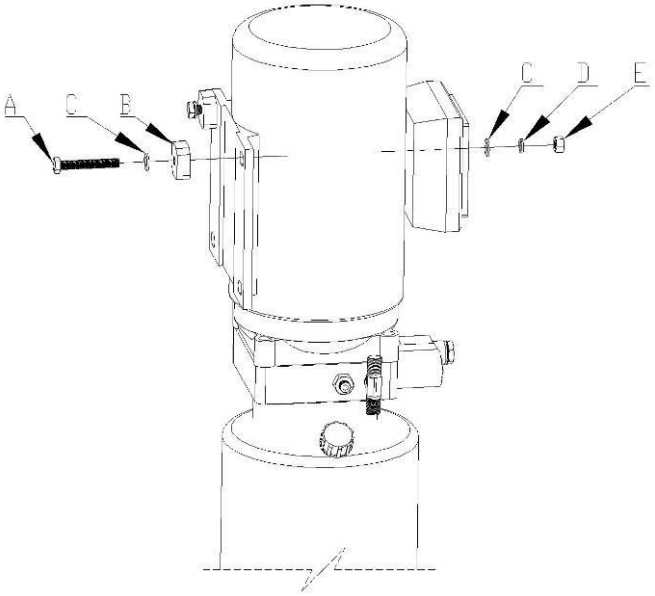
7.3.3 Install the power unit.**(picture 25)**

a. fix the bolts of the power unit.

- Put the flat washer C and motor cushion B through the full thread hex flanges bolts A, keep a little space between the airket & cushion.

-Through the motor assemble holes, please put φ8 flat washer, φ8 spring washer D in order through the M8*55 full

thread hex flanges bolt A, fasten it with M8 nut E, fix the top two holes of the power unit,



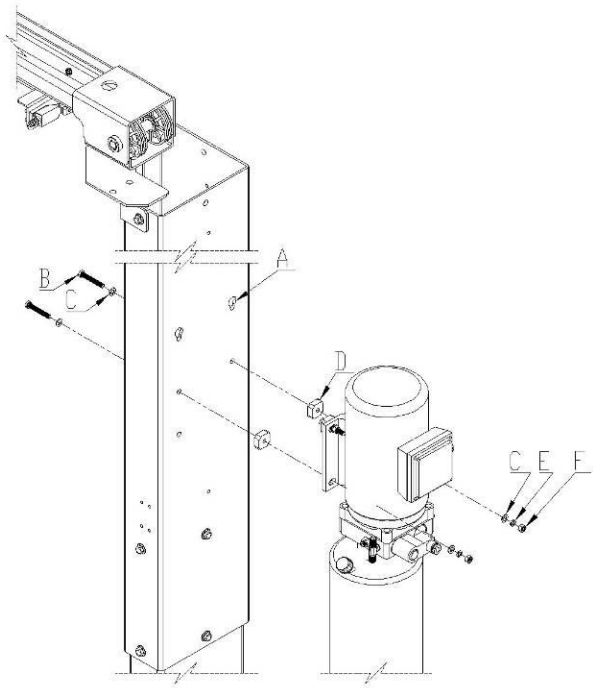
A	M8×55 full thread hex flanges bolts
B	motor cushion B
C	φ8 flat washer
D	φ8 spring washer
E	M8 nuts

Picture 25

b. Hang up the power unit.**(picture 26)**

-After fix the two bolts, hang up the power unit on the column which has the height limited switch at the same side, by M8*55 full thread hex flanges bolt from hole A.

-The rest two M8*55 full thread hex flanges bolts, put them through the inner column, through the cushion airket D, fasten the power unit (below we call the column with power unit as Master column, another column is called Sub column), please refer picture:



A	Hang up holes of power unit
B	M8×55 full thread hex flanges bolt
C	φ8 flat washer
D	motor cushion B
E	φ8 spring washer
F	M8 nut

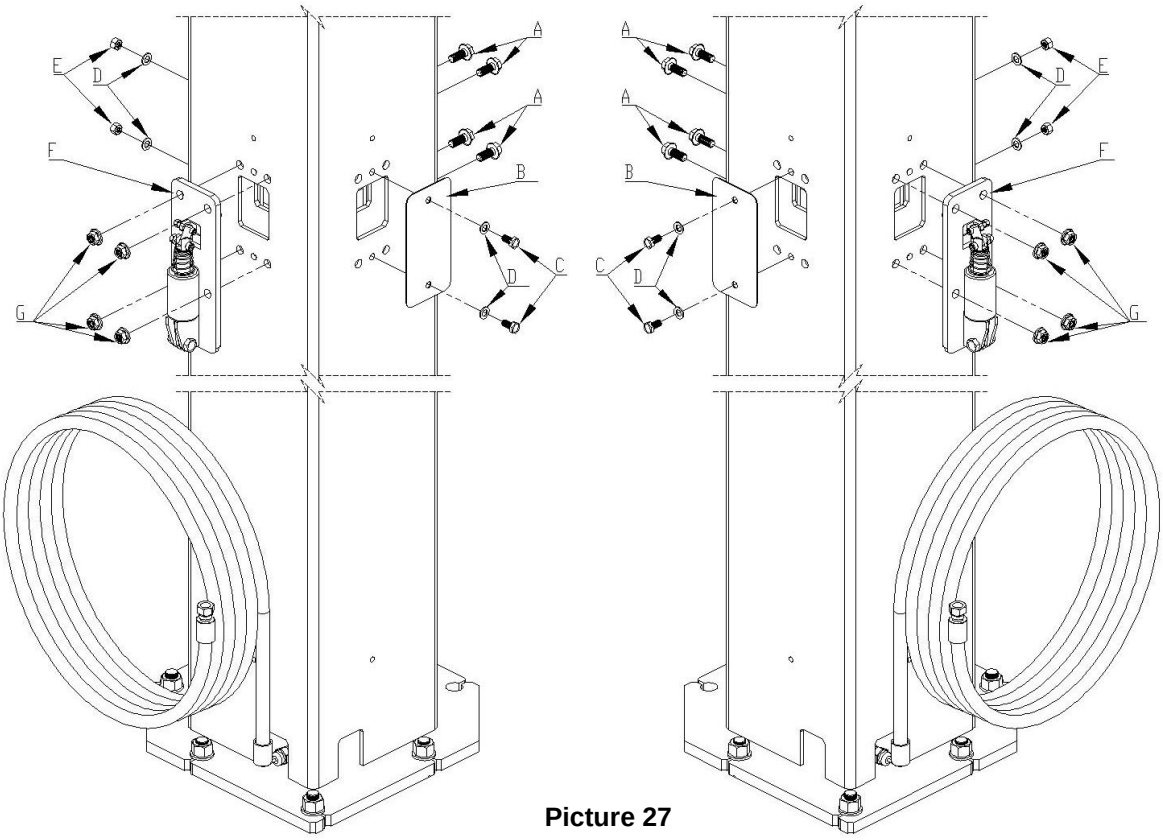
Picture 26

Cushion should put between the column and control unit, decrease the shock

7.3.4 Install the complete insurance device assembly **(picture 27&28)**

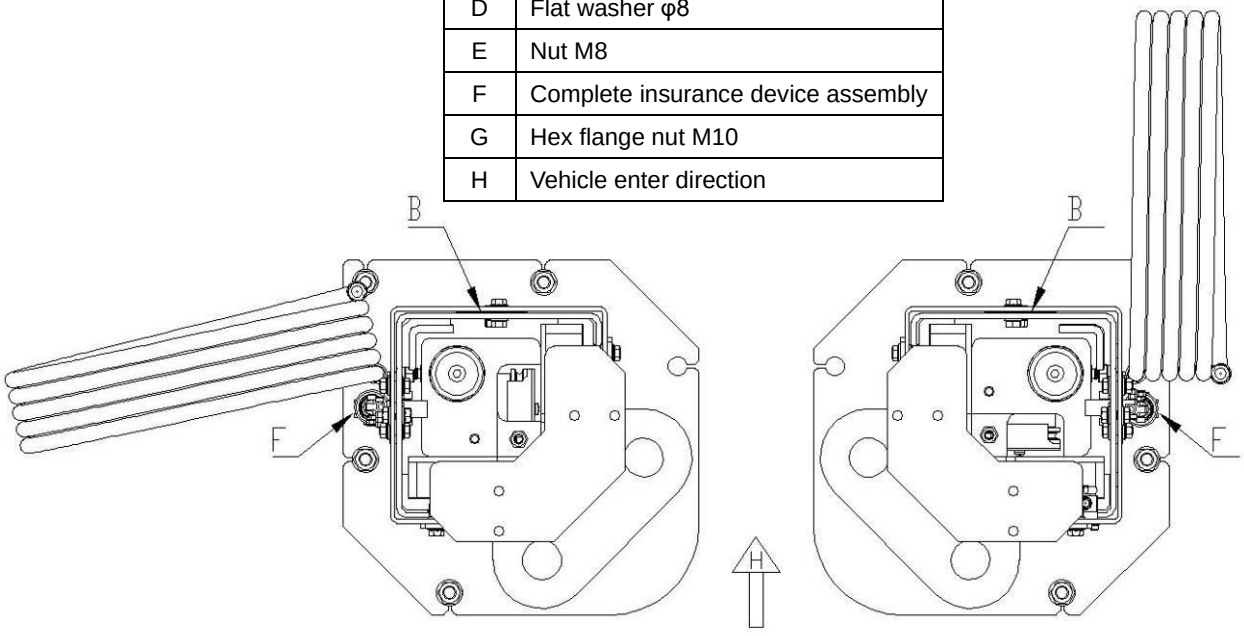
-Install the complete insurance device assembly on the side of column with oil hose. Put M10X25 hex flange bolt A through the column after adjusting the installation hole well. Screw down M10 hex flange nut G.

-Install the cover plate B on the other side of column with M8X16 hex full thread bolt C, please refer picture:



Picture 27

A	Hex flange bolt M10×25
B	Cover plate
C	Hex full thread bolt M8×16
D	Flat washer φ8
E	Nut M8
F	Complete insurance device assembly
G	Hex flange nut M10
H	Vehicle enter direction



Picture 28

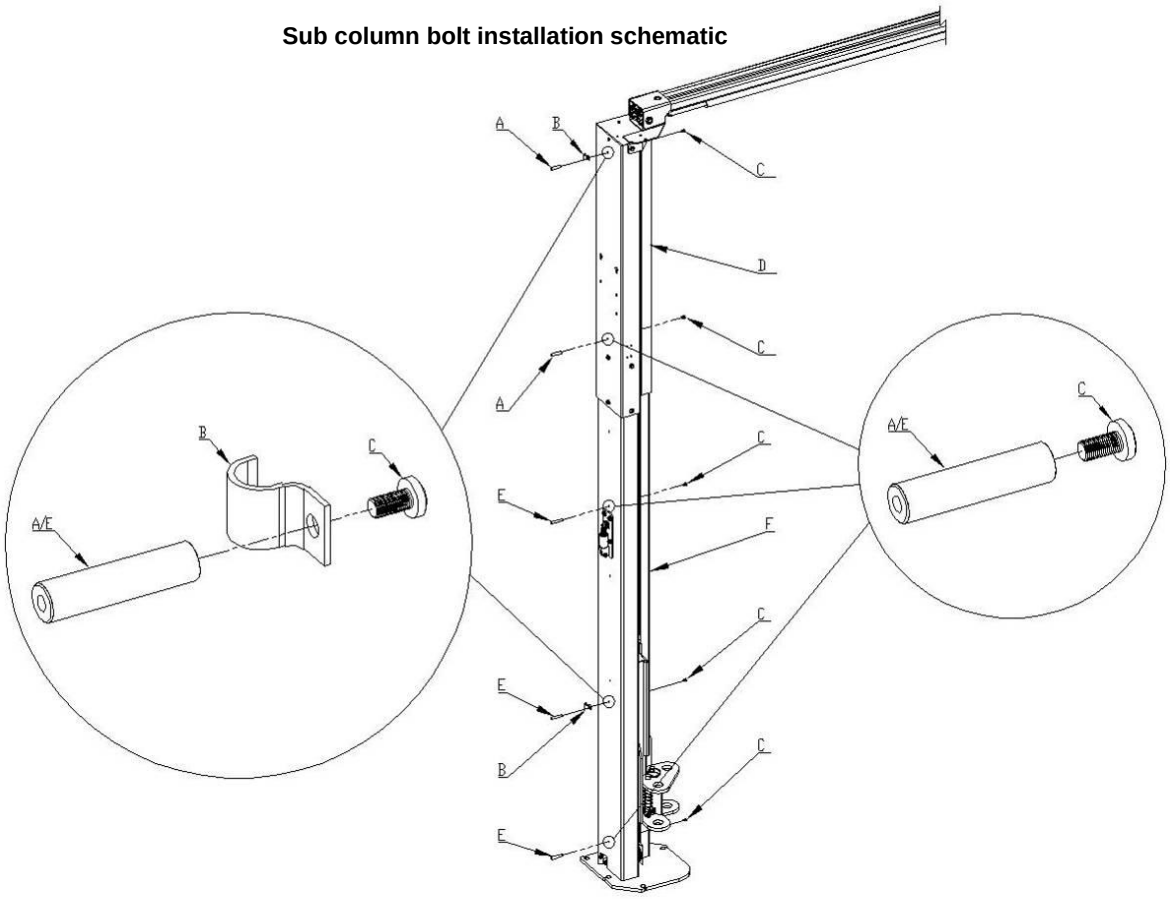
Test the flexibility of insurance device after installation, any phenomenon of blocking insurance device is not allowed

7.3.5 Screw bolt, Unilateral hose clamp and oil hose installation **(picture 29,30,31,32,33)**

- The crew bolt has two lengths: 50mm and 58mm. Length 50mm screw bolt is installed on the increased post D. Length 58mm screw bolt is installed on post F. When install the two bolts of post bottom , it's required to raise the bottom of carriage to the minimum height 500mm (at least), then it can proceed.

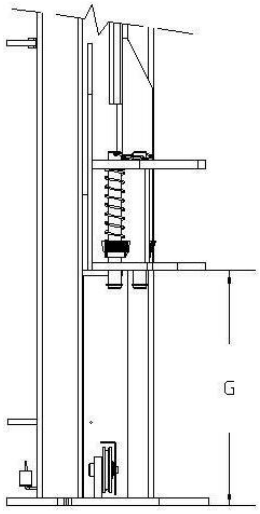
-Unilateral hose clamp is used to clamp the oil hose, so, oil hose and unilateral hose clamp is required to install at the same time when screw bolt is proceeding installation. Oil hose must go through the top beam (please as per oil hose installation schematic diagram), oil hose can't rub with steel cable and steel cable pulley

Sub column bolt installation schematic



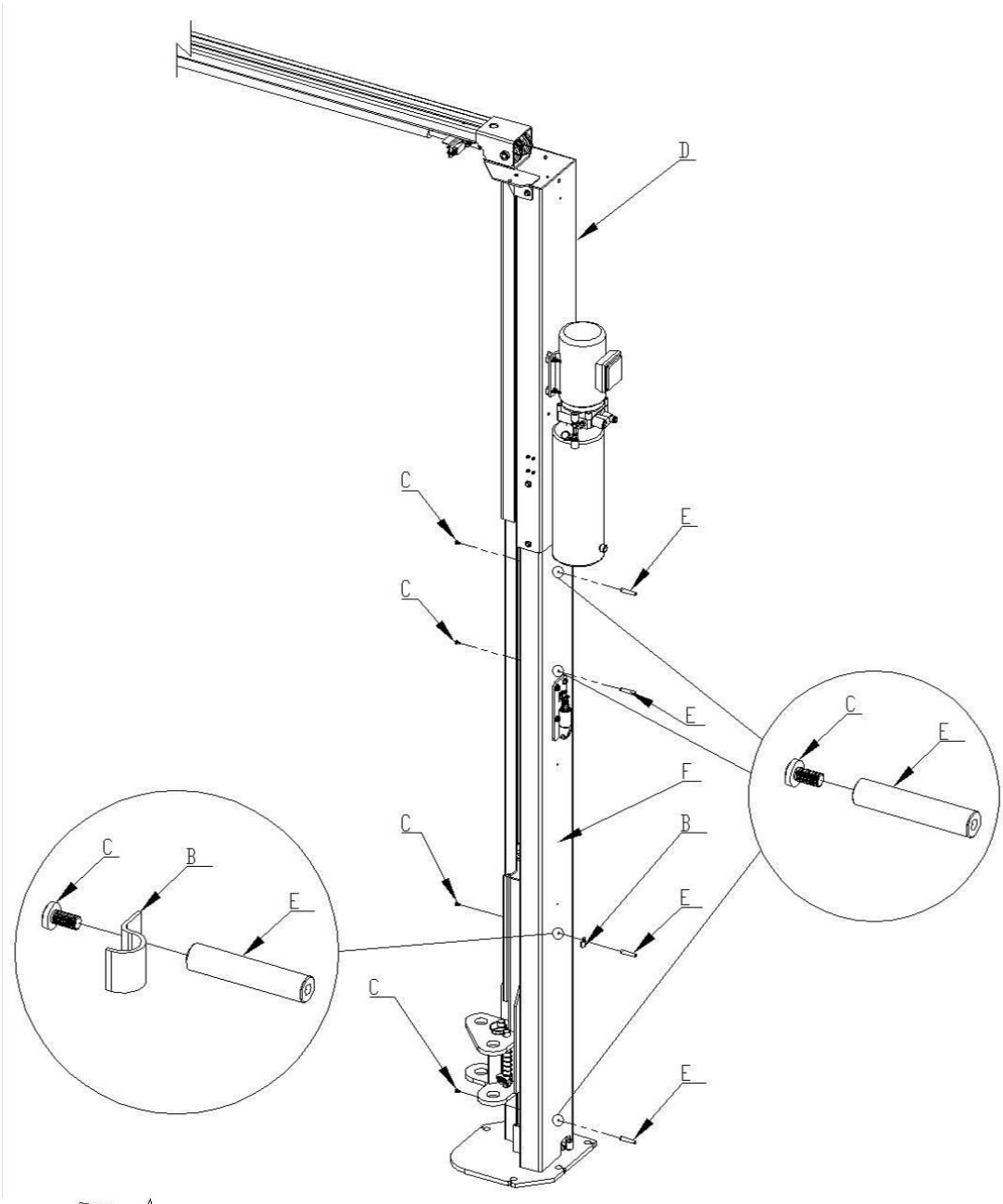
Picture 29

A	Length 50mm screw bolt
B	Unilateral hose clamp
C	M6×16 cross pan head screw
D	Extendable column
E	Length 58mm screw bolt
F	Column
G	Raise the minimum height 500mm

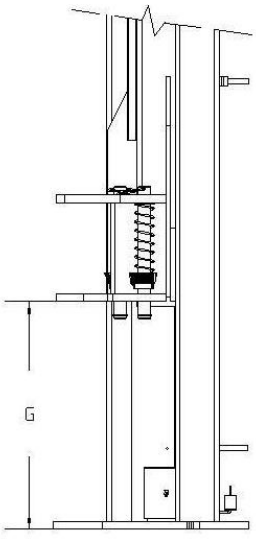


Picture 30

Main column bolt installation schematic



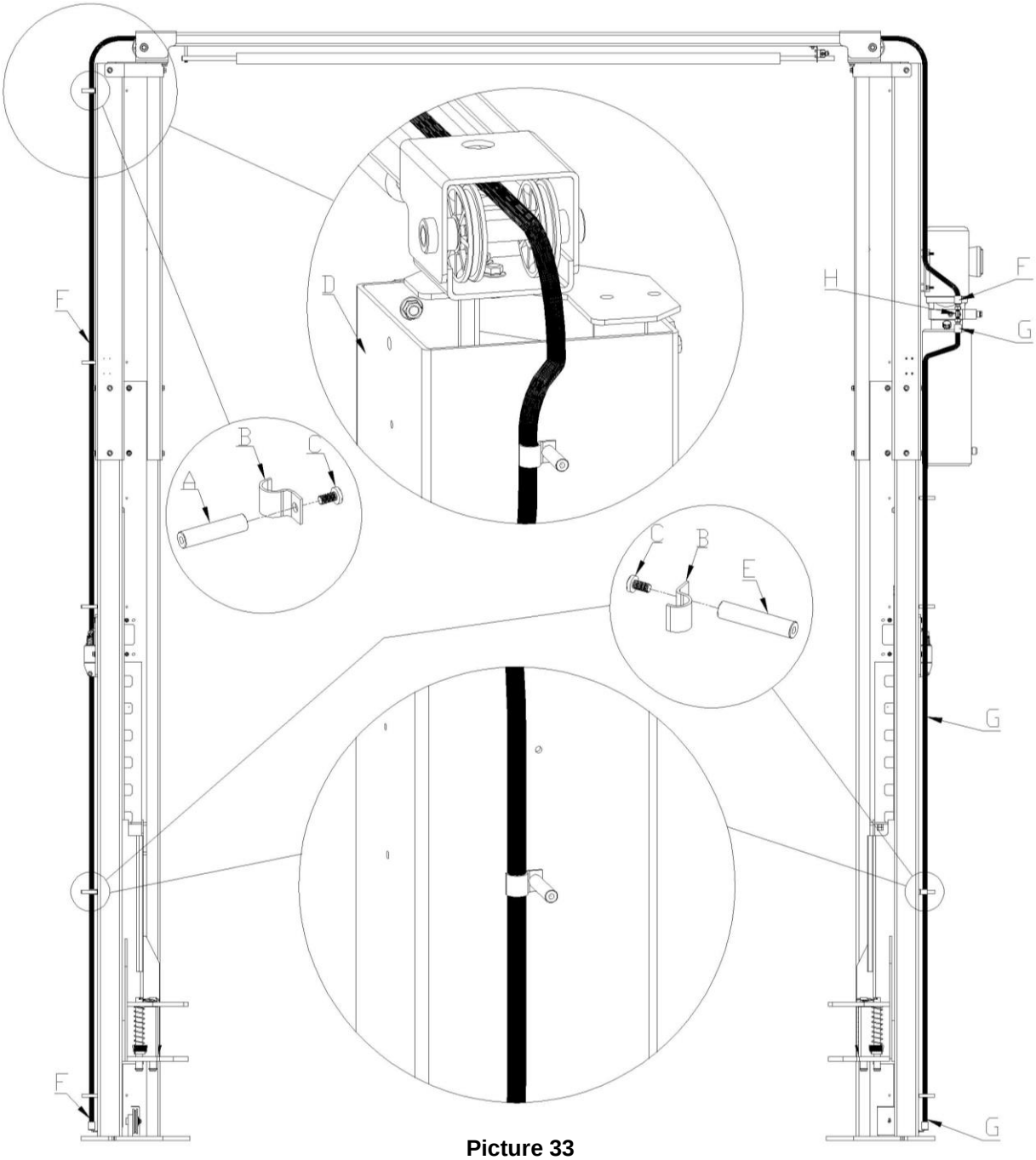
Picture 31



Picture 32

B	Unilateral hose clamp
C	M6×16cross pan head screw
D	Increased column
E	Length 58mm screw bolt
F	Column
G	Raise the minimum height 500mm

When connect oil hose F、G to Power unit's three way oil hose connector H, oil hose connector must tighten up, ensure no oil leakage.



Picture 33

Oil hose installation schematic diagram

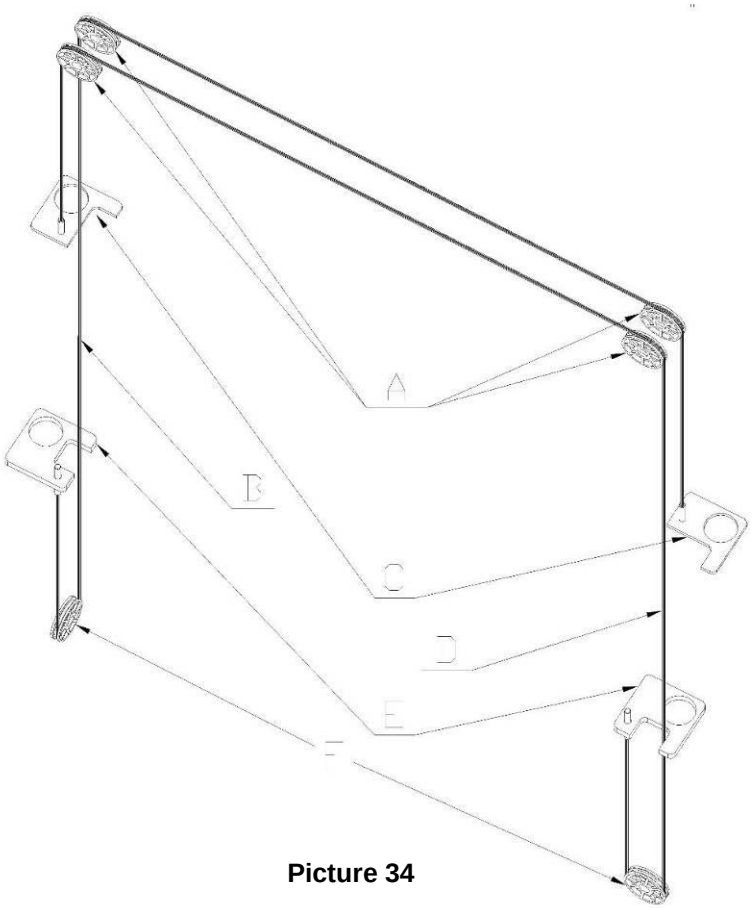
A	Length 50mm screw bolt
B	Unilateral hose clamp
C	M6×16cross pan head screw
D	Extendable column
E	Length 58mm screw bolt
F	High pressure oil hose 7730mm
G	High pressure oil hose 2900mm
H	Three way oil hose connector

7.3.6 Steel cable installation: **(picture 34)**

- After pull the synchronous steel cable 2 (that draw from the lifting carriage of main vertical column) upward through the top beam pulley (roller) A, pass the top beam, and go through another side beam pulley (roller) A, then fix the steel cable by M12 nut in the hole of the fixed plate C ,which on the carriage of deputy vertical column. Similarly to draw the steel cable 1 from the lifting carriage of deputy vertical column , and fixed it in the hole of the fixed plate C , which on the main vertical column carriage.

-Check the left carriage and the right carriage, watch if they are at the same height. If not, please loose the nut that located on the hole of fixed plate C, which on the main vertical column. And then make the carriage of main vertical column drop down. Or tighten up the nut that located on the hole of fixed plate C, which on the deputy vertical column. And then make the deputy vertical column lift up. Similarly, when the carriage of main vertical column is lower than the one of deputy vertical column, reversed adjustment

The adjustment is required to both reach to the same height, two carriage (left and right) must be in the same height, the steel cable must be tighten up, not allow any loose, moreover, the steel cable must be inside the skating slot of steel cable roller, parallel to each other, not allow any cross, otherwise, two carriages can't have synchronization effect. Please as per following photo：



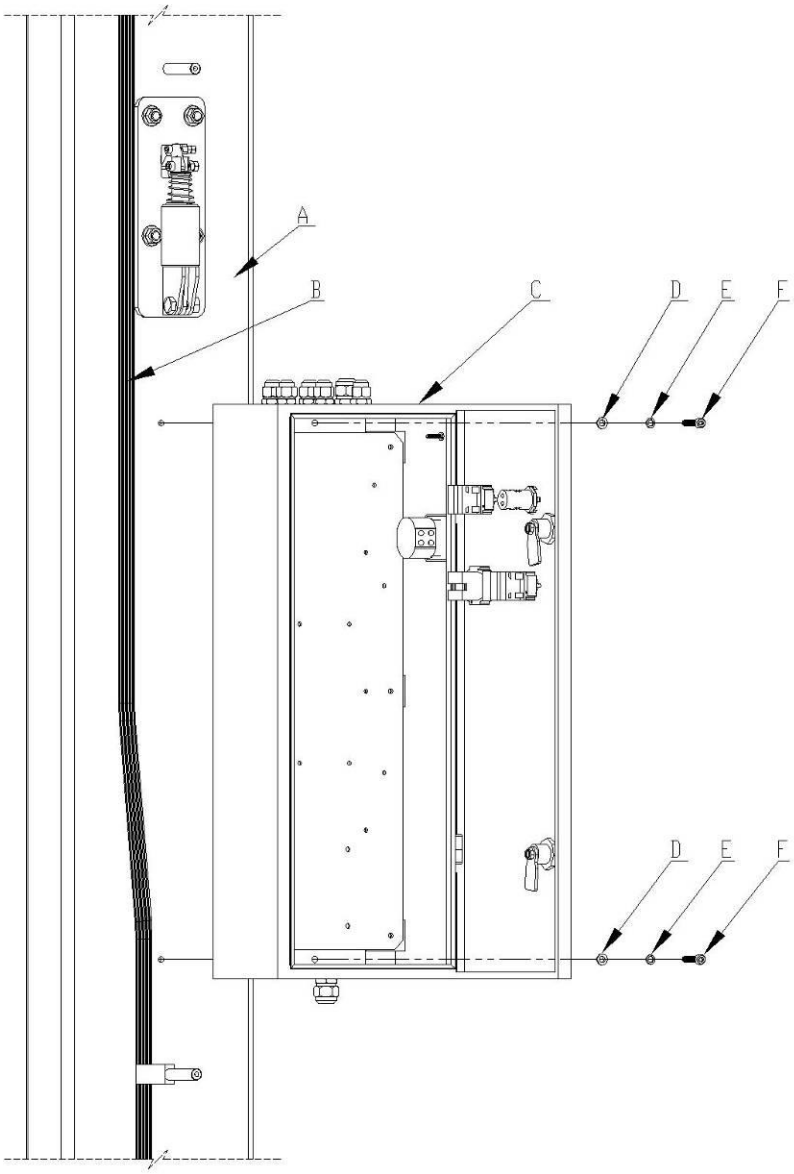
Picture 34

A	Beam pulley
B	Steel cable 1
C	Top fixed plate
D	Steel cable 2
E	Bottom fixed plate
F	Base plate bottom pulley

7.3.7 Control box installation **(picture 35)**

- Open the control box cover with a key

-Install the control box under the insurance assembly of the main vertical column (the vertical column with power unit), tightened and locked by two pieces of M6×30 hexagon socket head cap screws F, please as per below photo：



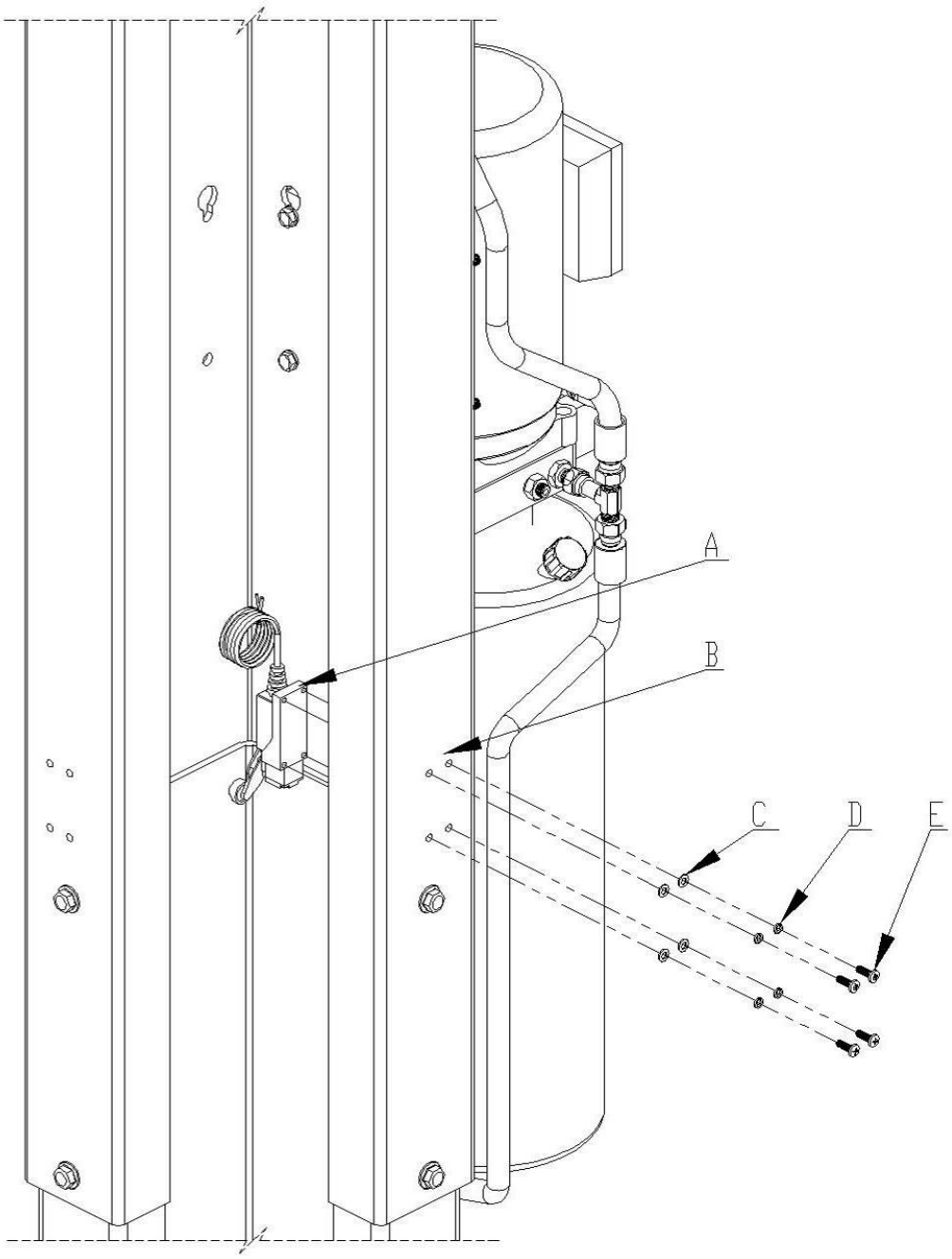
Picture 35

A	Main vertical column
B	High pressure oil hose 2900mm
C	Control box
D	φ6 flat washer
E	φ6 spring washer
F	M6×30hexagon socket head cap screws

High pressure oil hose B needs pass through the hollow space of the control box's bottom position

7.3.8 Height limited switch installation.**(picture 36)**

-Align the height limited switch A from the main column B inside with the mounting hole, make the execution head of the limit switch downward, then tightened and locked by M5×16 cross pan head screw E. Please as per below picture：



Picture 36

A	Height limited switch
B	Main vertical column
C	φ5 flat washer
D	φ6 spring washer
E	M5×16 cross pan head screw

7.3.9 Lifting bracket arm installation.

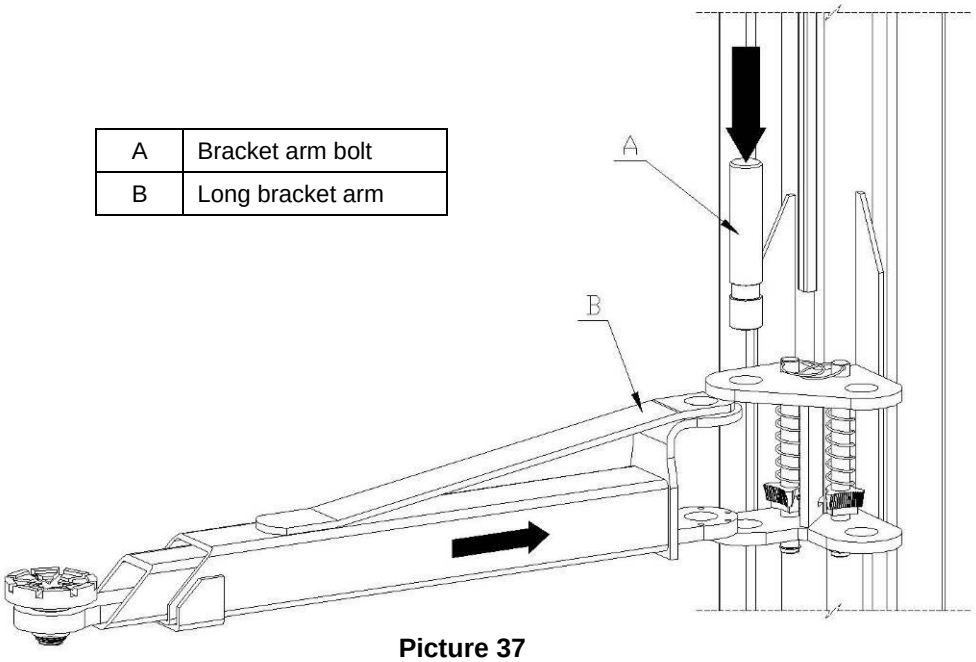
-Hydraulic two post lift equips long bracket arm and short bracket arm, which are installed on the main carriage and sub carriage, enable two types of bracket arm on each side of the vertical column accordingly. When lift the vehicle, short bracket arm is used on the vehicle's front direction。

Bracket arm installation steps：**(picture 37&38)**

- First, take down the semi-circle block and arm bolt which installed on the lifting bracket, put aside

- Then install the lifting bracket arm on the carriage's support lug, insert arm bolt, make the downside slot of both arm bolt and arm support lug just on the same level. Please as per below photo：

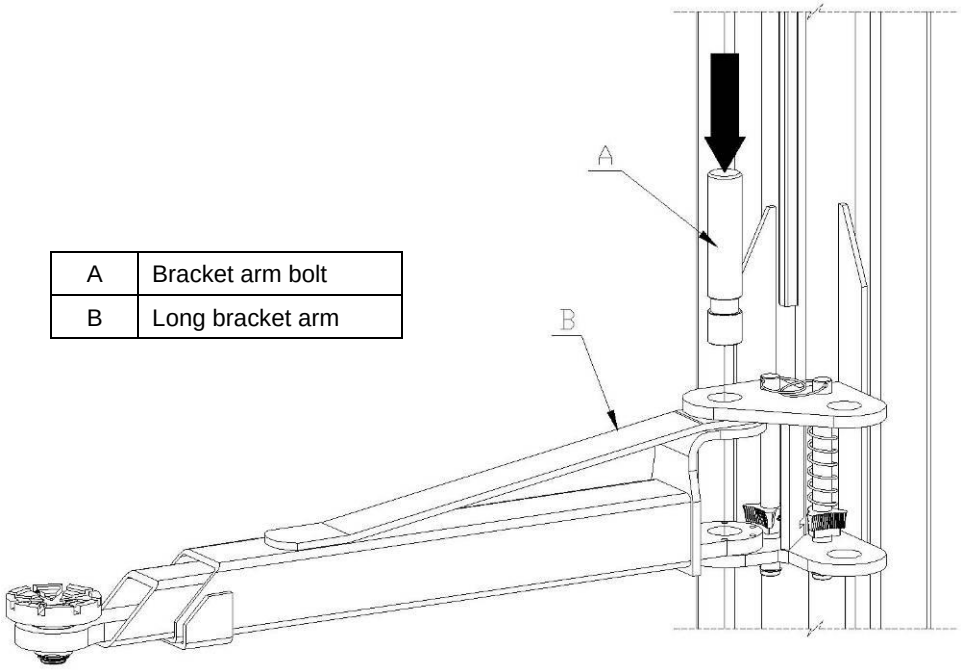
A	Bracket arm bolt
B	Long bracket arm



Picture 37

Aligning the hole, arm bolt needs vertical align with the hole to install

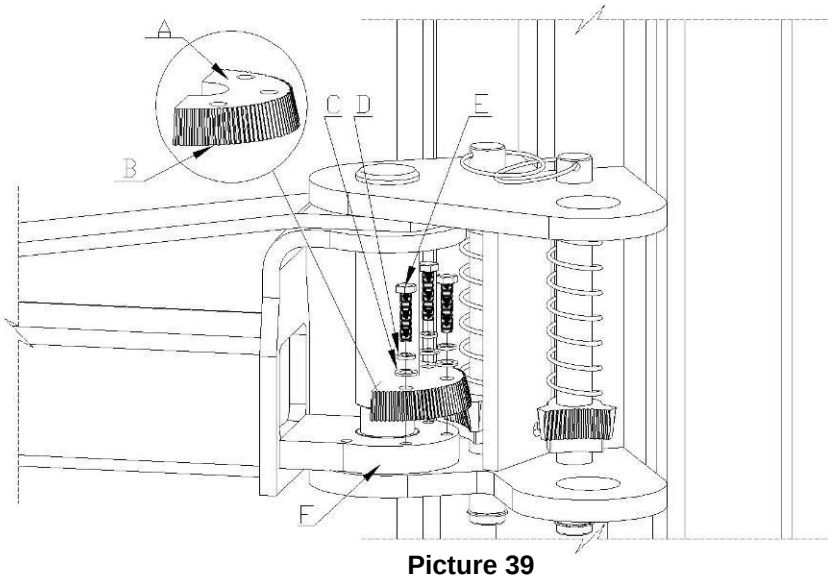
A	Bracket arm bolt
B	Long bracket arm



Picture 38

There are five mounting holes in the downside arm support lug, it can adjust semi-circle block and teeth block meshing well.

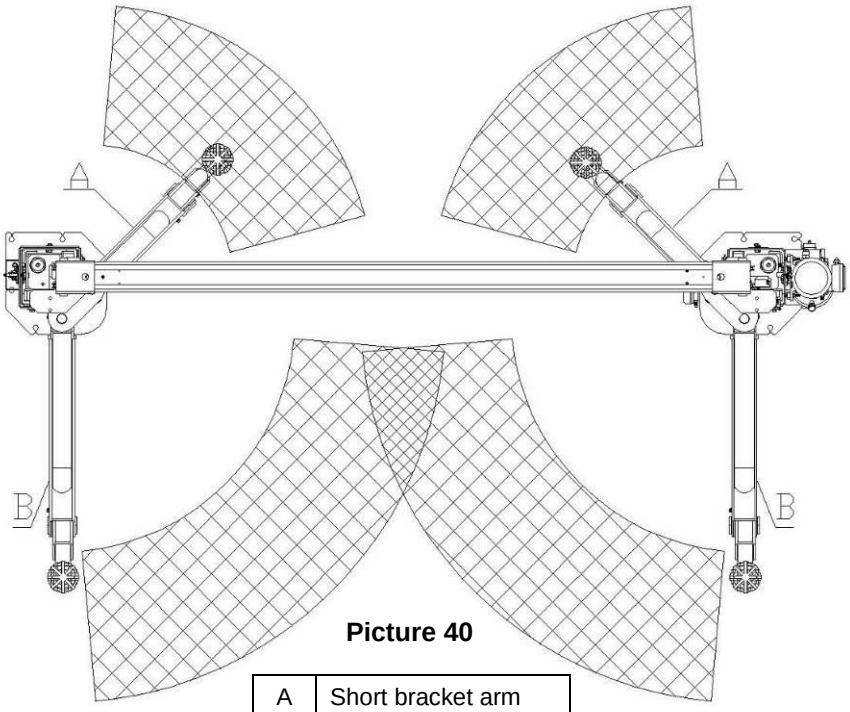
-And then, put into the semi-circle block , semi-circle block bottom B should joint with the downside arm support lug F, make the semi-circle block just into the slot of bracket arm bolt, align all holes, tightened and locked by M8×35 full threaded hexagonal head bolt, please as per below photo：**(picture 39&40)**



Picture 39

A	Topside semi-circle block
B	Downside semi-circle block
C	φ8 flat washer
D	φ8 spring washer
E	M8×35 full threaded hexagonal head bolt
F	Downside arm support lug

Lifting arm assembly diagram



Picture 40

A	Short bracket arm
B	Long bracket arm

Before screw down the bolts, the semi-circle block needs to mesh the teeth block well.

7.4 Electrical Circuit Connection: (picture 41)

Electrical circuit should be connected in accordance with the wire diameters and line numbers specified in the Electrical Wiring Diagram.

Only electrical professionals are qualified in the operation of electrical installation work.

- As per the wire diameters and line numbers specified in the Electrical Schematic Diagram, connect the electrical circuit.

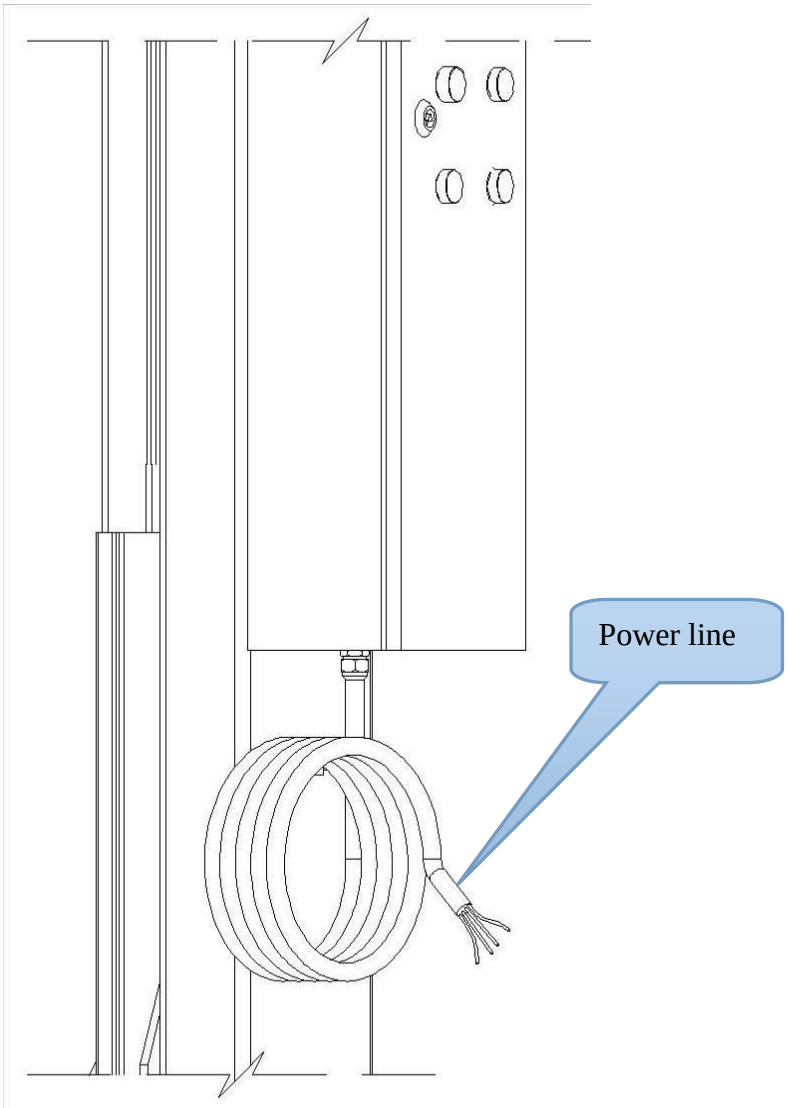
-Make sure the power switch is off and hang the warning sign "DON'T TURN ON THE POWER".

-For 380V, wire the 4×1.5mm^2 cable of the control box to the power input terminals.

-For 220V, wire the 3 × 2.5mm^2 cable to the power input terminals.

-Connect bicolor ground wire to the grounding bolt.

The power line of the control box can be wired only after the other circuits have been connected inside the control box, in order to avoid the risk of electric shock.



Picture 41

7.4.1 Circuit Connection for Safety Electromagnet:

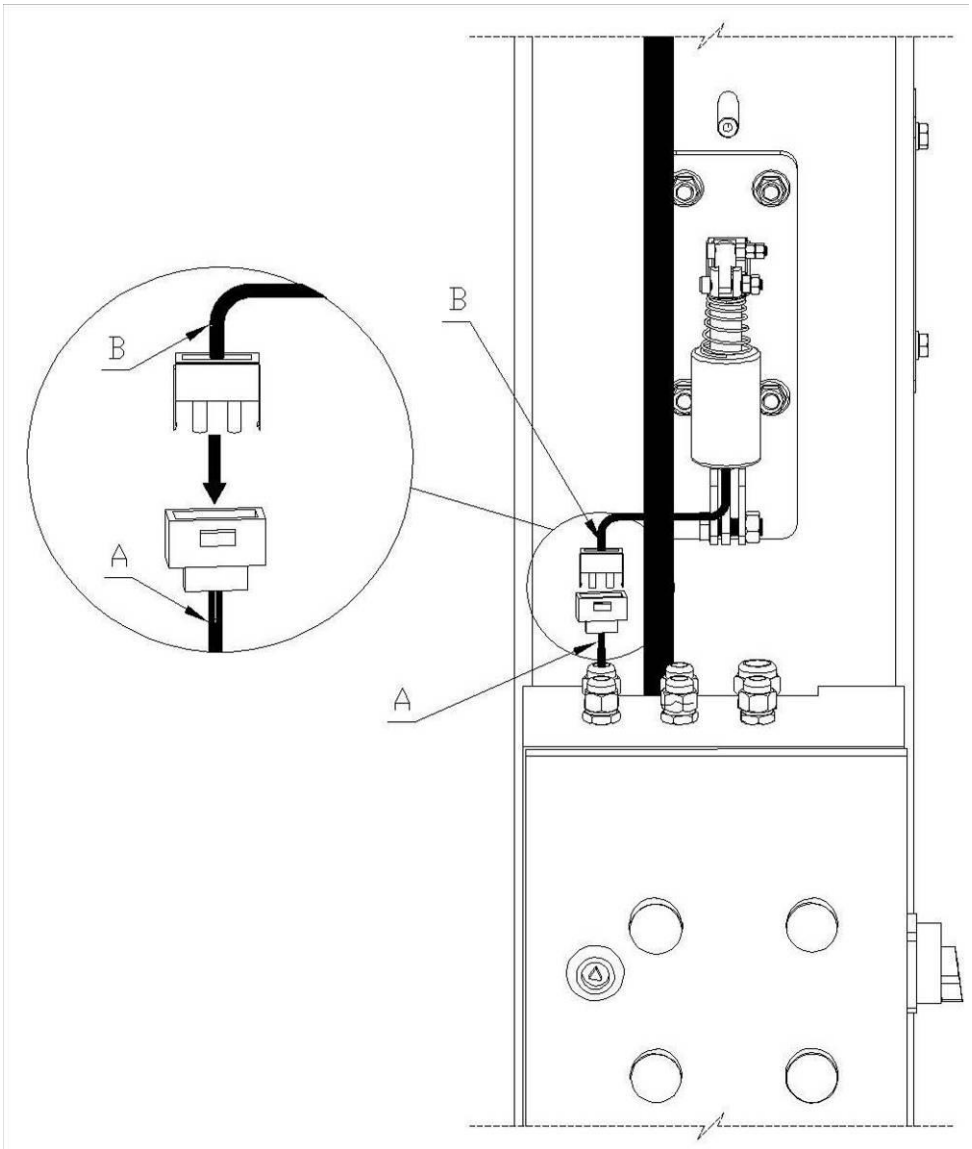
-Two lines with quick connectors on the control box are to connect with safety electromagnets （MQ1 & MQ2）of both columns.

-The quick connector of line A directly connects with the outlet B of safety electromagnet （MQ1）above the control box on the main column.

-Line C goes through the top beam and connects with the outlet C of safety electromagnet （MQ2） on the auxiliary column.

Line C cannot wind and contact the steel cable on the top beam.

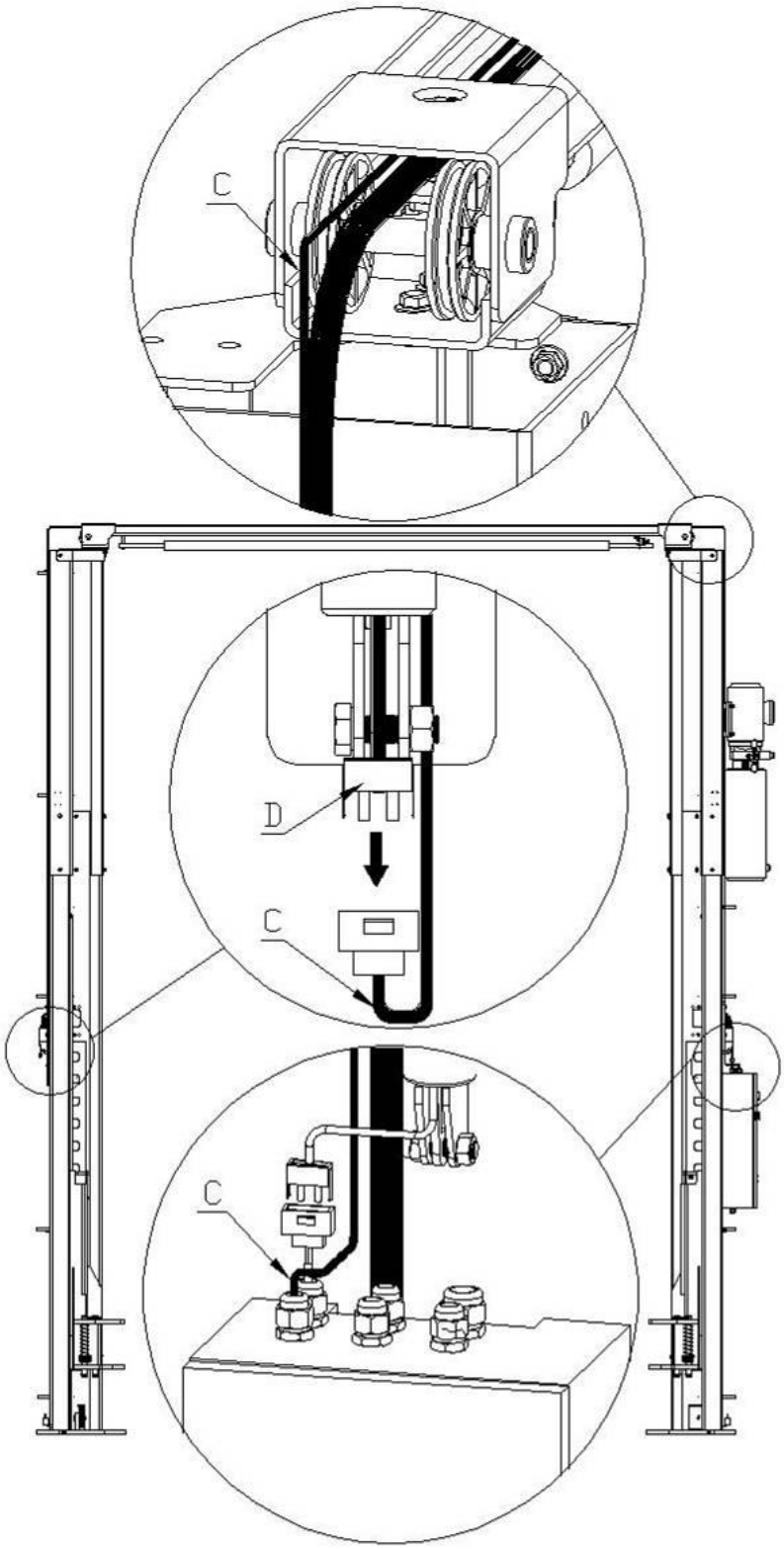
Connect circuit as per the below **picture 42&43**



Picture 42

Circuit Connection Diagram for Safety Electromagnet of Main Column

A	Power line
B	Electromagnet Outlet



Picture 43

Circuit Connection Diagram for Safety Electromagnet of Auxiliary Column

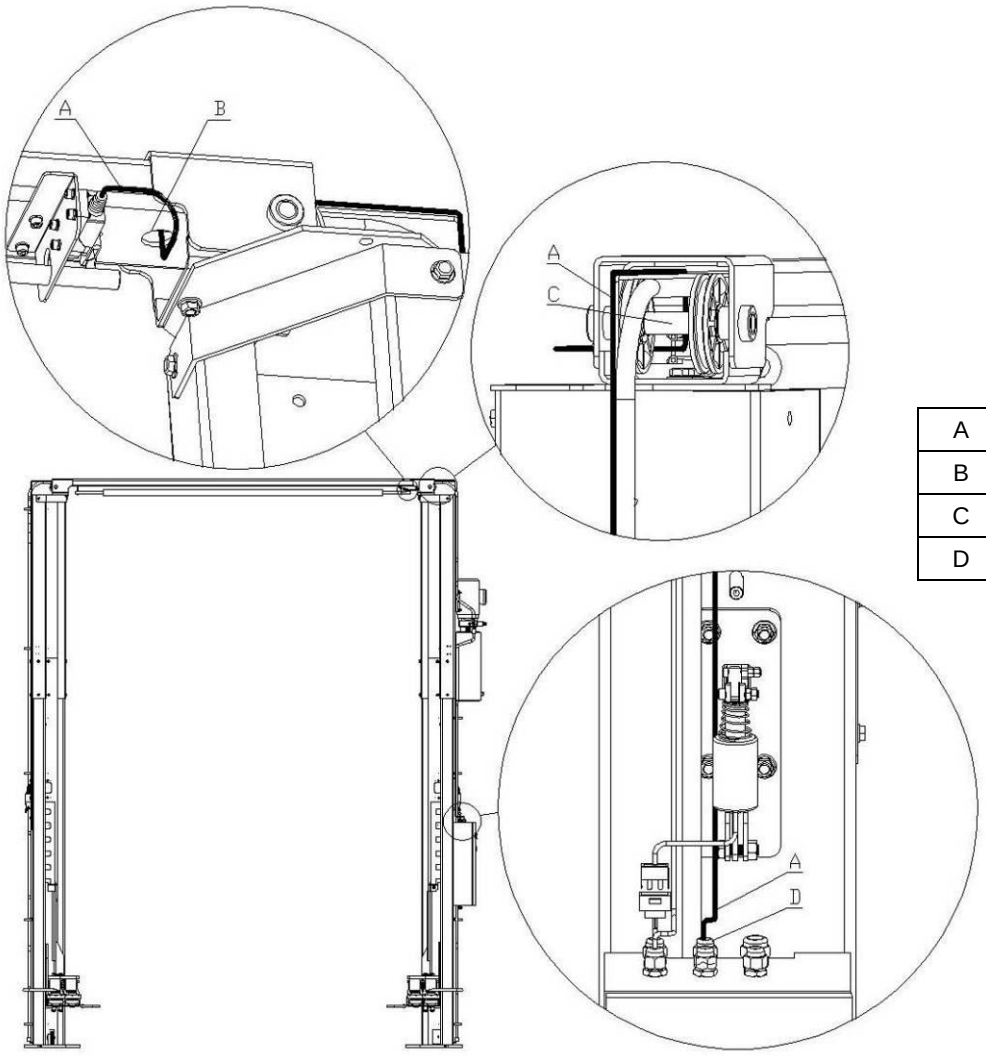
C	Power line
D	Electromagnet Outlet

7.4.2 Circuit Connection for Top Limit Switch.**(picture 44&45)**

-Make line A of top limit switch（SQ2）go through the hole B on the top beam and pass the roller shaft C on the top beam;

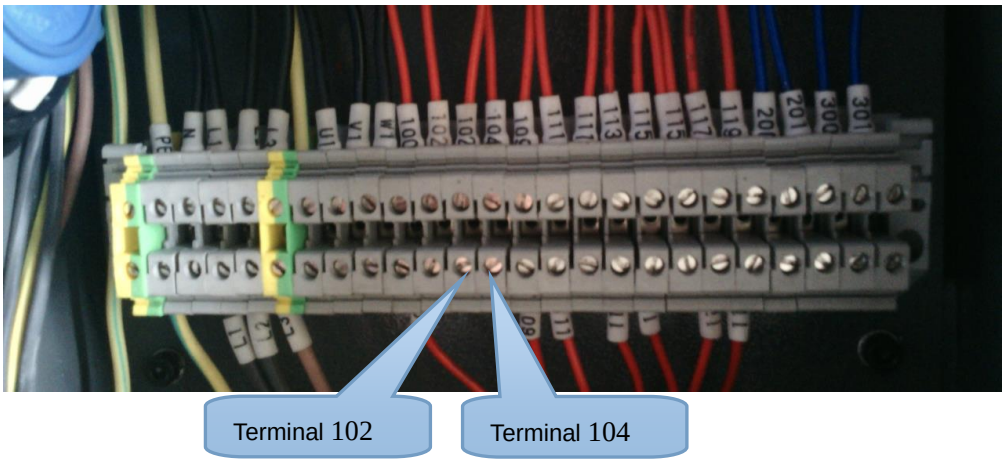
-Pass the power unit and enter the control box through the cable joint D;

-Connect with the terminals 102 and 104 in the control box, as per the below picture:



A	Line of top limit switch
B	Top beam
C	Pulley shaft on top beam
D	Cable joint PG9

Picture 44



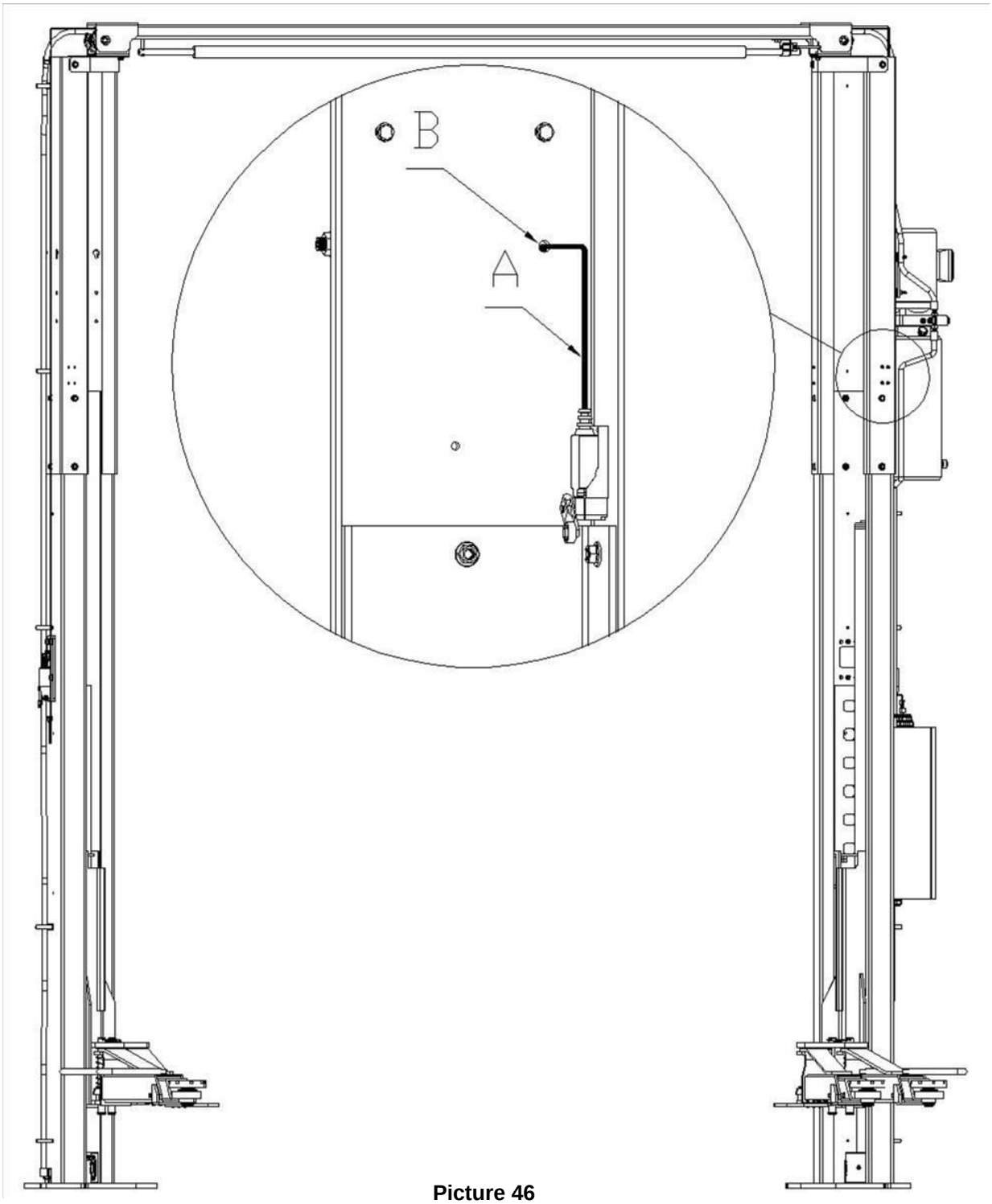
Picture 45

7.4.3 Circuit Connection for Height Limit Switch.**(picture 46,47,48)**

- Make line A of height limit switch（SQ1）go through the hole B on the increased part of the main column;

- Pass the power unit and enter the control box through the cable joint C;

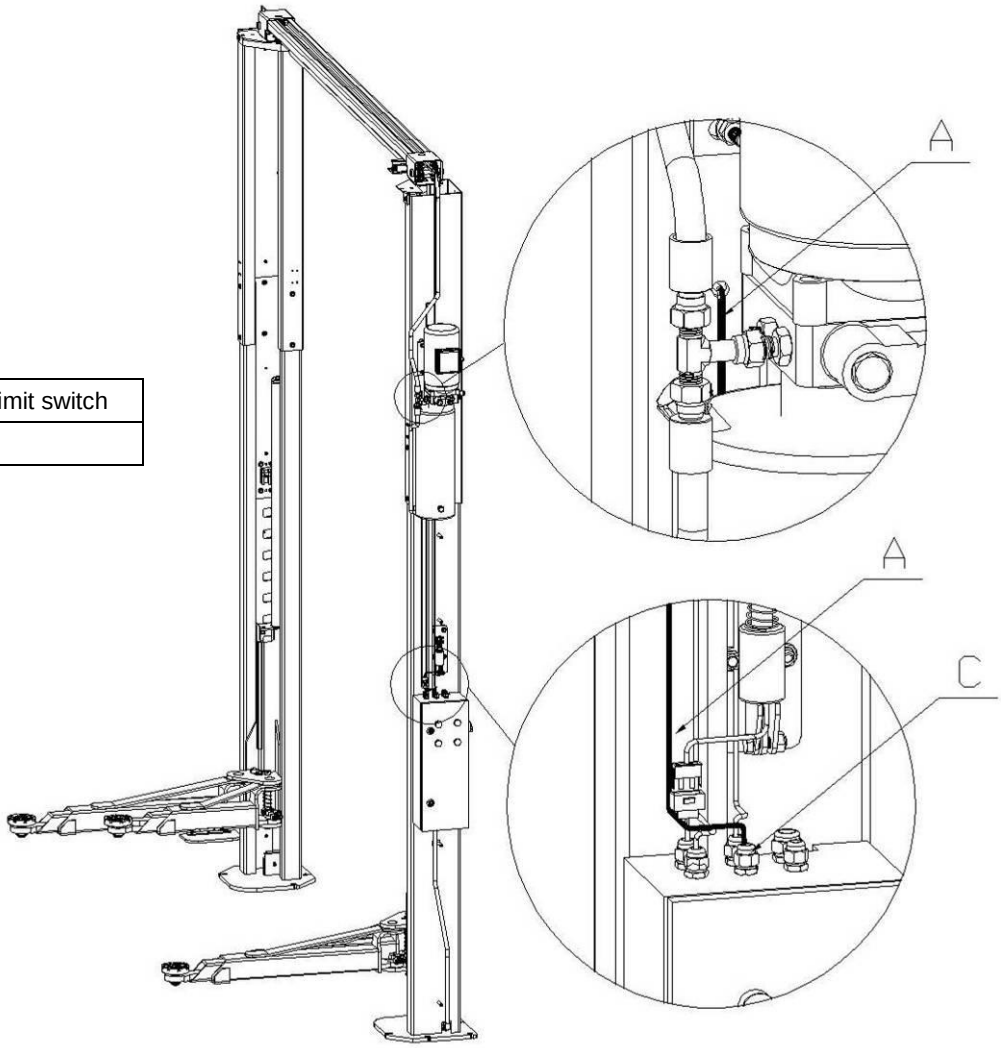
- Connect with the terminals 102 and 111 in the control box, as per the below picture:



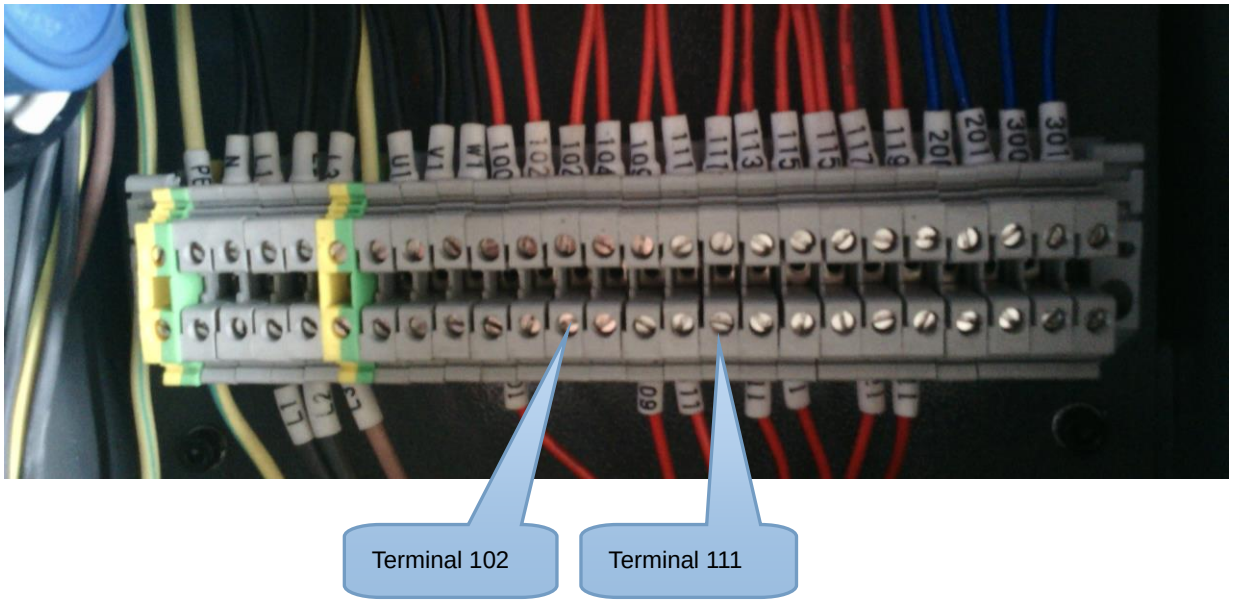
Picture 46

A	line A of height limit switch
B	Extendable column

A	line A of height limit switch
C	Cable joint PG9



Picture 47



Picture 48

7.4.4Circuit Connection for Power Unit.**(picture 49&50)**

-Make the power line B of the drop solenoid valve（YV）and the power line A of the power unit's motor (M) enter the control box through the cable joints D and C respectively;

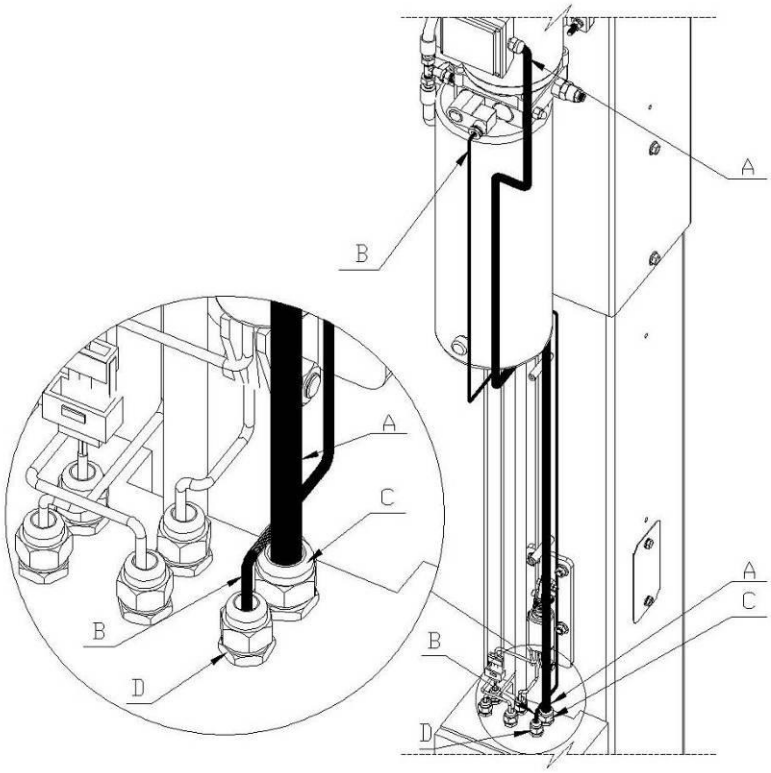
-Connect the power line B to the terminals 200 and 201 in the control box;

- For 380V motor, connect the motor power line A to the terminals U1, V1 and W1 in the control box;

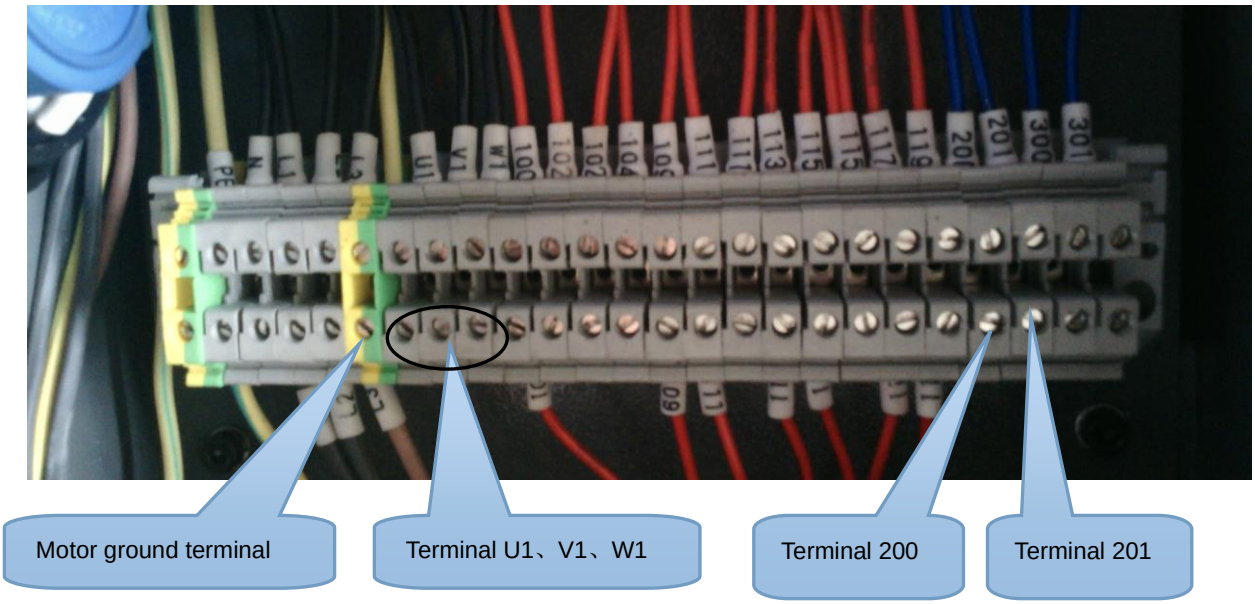
-For 220V motor, connect the motor power line A to the terminals U1 and W1 in the control box;

-Connect the bicolor ground wire of the motor power line A to the motor ground terminal, as per the below pictures:

A	Motor power line
B	Power line
C	Cable joint PG13.5
D	Cable joint PG9



Picture 49



Picture 50

8. Commissioning

8.1 Fill hydraulic oil：

After the hydraulic and electric circuits have been connected as instructed, operate as per the below steps:

-Fill 12L corresponds to wearable hydraulic oil (supplied by the user) into the oil tank. **And add 3L oil after lift is lifted.**

Before filling, ensure the hydraulic oil is clean, in order to prevent any impurities from entering the oil-way and causing it rough.

Attention: The oil has been discharged before the machine leaves the factory. After commissioning, make the lift rising and check if the filled oil is enough to lift up to the highest position. If not, descend it to the lowest position and refill some oil to ensure the lift can go up to the highest position.

8.2 Commissioning:

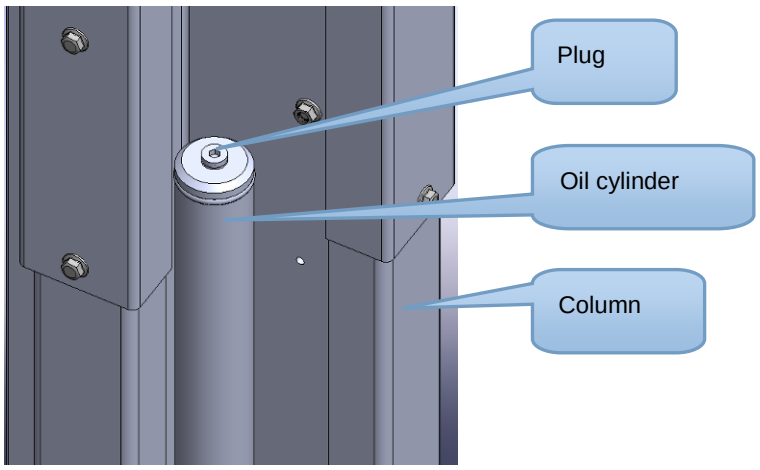
8.2.1 Check Phase Sequence：

-Turn on the power switch on the control box and the power indicator lights. Press the UP button to see if the lifting slipways go up or not. If not up, cut off the power and adjust the power phase sequence to enable the oil pump to supply oil normally. Then check if the joints between the oil pipe and the oil cylinder leaks oil or not. If yes, check if the joints loosen or not.

After the power is turned on, there is a possibility of high voltage electric shock in the control box. Thus this operation should be engaged by authorized professionals with qualifications and experience in electric operation, to avoid the risk of electric shock.

8.2.2 Oil Cylinder Exhaust.**(picture 51)**

-When the lifting declines to the lowest place, loosen the plugs at the top of both oil cylinders. Then press the UP button and release it as soon as the air exhausts and the oil comes out. At last, tighten the plus. See the below picture:



Picture 51

8.2.3 No-load Test：

- Press the UP button SB1, and observe if the main and auxiliary carriages are in the same height or not, while the lift carriages and arms are rising. At the same time, listen to the safety block's sound and judge the position of slipways is high or low. Readjust the steel cable correctly to make the safety blocks' position in the same height. That is, the main and auxiliary slipways are in the same height.

- Press the DOWN button SB2. The oil pump works, the carriages rise first, the time relay is electrified, the mechanical lock and the drop solenoid valve open in 2-3 minutes, and the hydraulic oil inside the oil cylinder is

pressed back to the oil tank by the weight of working table. Then the decline completed.

- Press the LOCK button SB3. The drop solenoid valve is electrified, and the mechanical lock is not energized. Then the slipways decline and the mechanical lock reset under the mechanical spring force to lock the slipways. The Locking completed and next operation can start safely.

During no-load test, observe if the host lifting is stable or not, the mechanical lock is properly placed or not, and the oil-way leaks oil or not.

8.2.4 Load test:

-lubricating grease shall be applied to each lubricating point and surface. In addition, the inspection on whether oil leakage phenomenon exists in oil-way or whether the foot margin assembly is fasten. After the above is normal, the load test can be carried out.

-Drive the vehicle that weighs within its outmost lifting capacity between two posts, persons shall not approach the vehicle, put pads on lifter arm.

-Press UP button SB1, rise the carriage, observer whether the vehicle rise steady or not.

- Press DOWN button SB2,observer whether the vehicle lower steady and smooth or not.

-Check whether the rack and pump station got abnormal noise or not, press LOCK button SB3, observer the insurance assembly works well or not.

Make sure the safety lock of the lift is engaged before start working under the vehicle and no people under the vehicle during lifting and lowering process.

The testing vehicle weight can not exceed the maximum weight of the lifting capacity.

Check whether oil leakage phenomenon exists, stop using the machine when find abnormal situation, test the machine after trouble is shot.

After load test, the length of steel cable will be slightly extended. Thus, the leveling shall be carried out once again. The machine can be put into use after step 5.3.6 is repeated

8.2.5 Install decorated box. **(picture 52)**

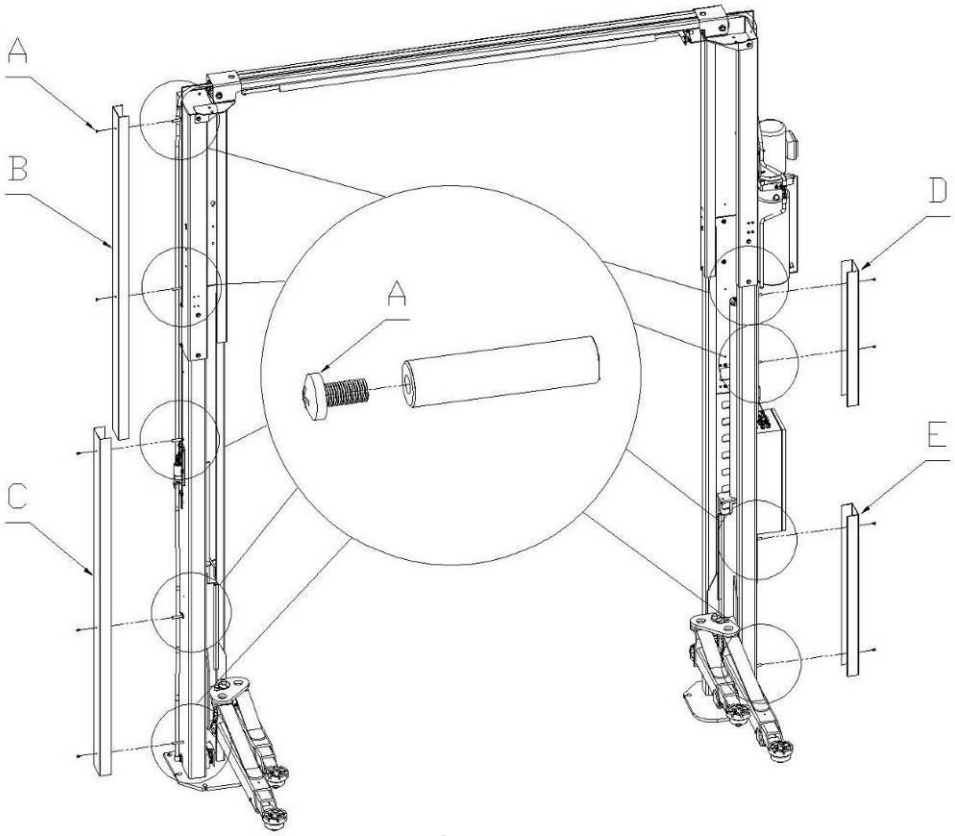
-Put the decorated box (1830mm)B to the vice-vertical column's extendable column, align it with hole, be screwed by M6×12 cross pan head screw A

-Put decorated box (1910mm) C to the bottom position of vice-vertical column, align it with hole, be screwed by M6×12 cross pan head screw A

-Put decorated box (800mm) D to the main vertical column's power unit, align it with hole, be screwed by M6×12 cross pan head screw A

-Put decorated box (860mm)E to the bottom position of main-vertical column's control box， align it with hole, be screwed by M6×12 cross pan head screw A

See the figure as below.:



Picture 52

A	M6×12 Cross pan head screw
B	decorated box 1830
C	decorated box 1910
D	decorated box 800
E	decorated box 860

The high-pressure oil pipe and wires must be put in the decorated box

9. Operation

Only these qualified people, who have been properly trained, can operate the lift.

Please inspect the machine according to the following cautions before operating the machine.

9.1 Pre-commissioning：

-The barriers around lifter and people inside of vehicle shall be removed before work.

-Observer whether the two carriage up-and-down smooth and synchronization or not;

-Whether the machine's insurance claw works flexible and reliable or not;

-Whether the oil tank, oil pipe, connector leaks or not;

-Whether the running sound of motor, pump is normal or not.

-The weight of vehicle capacity can never be beyond lift capacity of the lifter.

9.2 Operating process:

-Drive the vehicle that weighs within its outmost lifting capacity between two posts, speed should be kept in 5 km/h.

-Stop the car, the manual brake of car shall be well pulled, adjust the arm and pad, make sure the supporting point support the surface supporting of the vehicle.

-Press UP button, lift the vehicle 200~250MM upper from the ground, check whether two carriage are synchronous and if there is other abnormal situation or not.

-Continue pressing UP button, lift the vehicle to the desired height

-Observer whether the two carriage are synchronous or not, and if there is other abnormal situation, stop using the lifter, reuse it after trouble is shot

-It's required to "LOCK" the machine when care and maintenance the lifter, and make sure the two carriage are locked at same height, the vehicle maintenance can be carried out after the lifter is locked.

-Before lowering the lifter, observer whether there are foreign matter or person around lifter, carriage or inside of vehicle or not.

-Press DOWN button, time relay electrified, the mechanical lock and decline solenoid valve open 2~3 seconds later, then the carriage is lowering. when insurance claw trip out from the hole of insurance rack, otherwise the lifter can not descend.

- Lower the carriage to its lowest position and do remember to cut off the power source when service finishes.

9.3 Electrical operation instructions：

9.3.1 Lift raising ：

-Press UP button SB1, motor drives the gear pump work, cylinder piston drives the platform move up, the carriage is raised

-Loosen SB1, the cylinder stop working and carriage stop rising.

9.3.2 Lift lowering：

- Press DOWN button SB2, oil pump work and carriage rise at first, time relay electrified, the mechanical lock and decline solenoid valve open 2~3 seconds later, then the carriage is lowering.

-Loosen SB2, the mechanical lock and decline solenoid valve are shut off, the carriage stop lowering.

9.3.3 Lift locking：

- Press LOCK button SB3, the carriage is lowering, when insurance claw fall over to hole of insurance rack, the carriage stop lowering and locked.

9.4 Cautions：

- Pay attention to warning signs

-Each kind of automobile differs in centre-of-gravity position. Centre-of-gravity position of automobile shall be understood at first. When automobile enters the lifter, the center of gravity shall get close to plane formed by both vertical columns. The rocker arm shall be adjusted to allow bearing point to be on bearing surface of car.

10. 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 one month.

·Check whether the foundation bolts well anchored.

·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.

·.Lubricate all the active parts.

·.Drain the hydraulic oil of oil cylinder, oil hose and oil tank.

·Sheathe the machine with dust-proof cover.

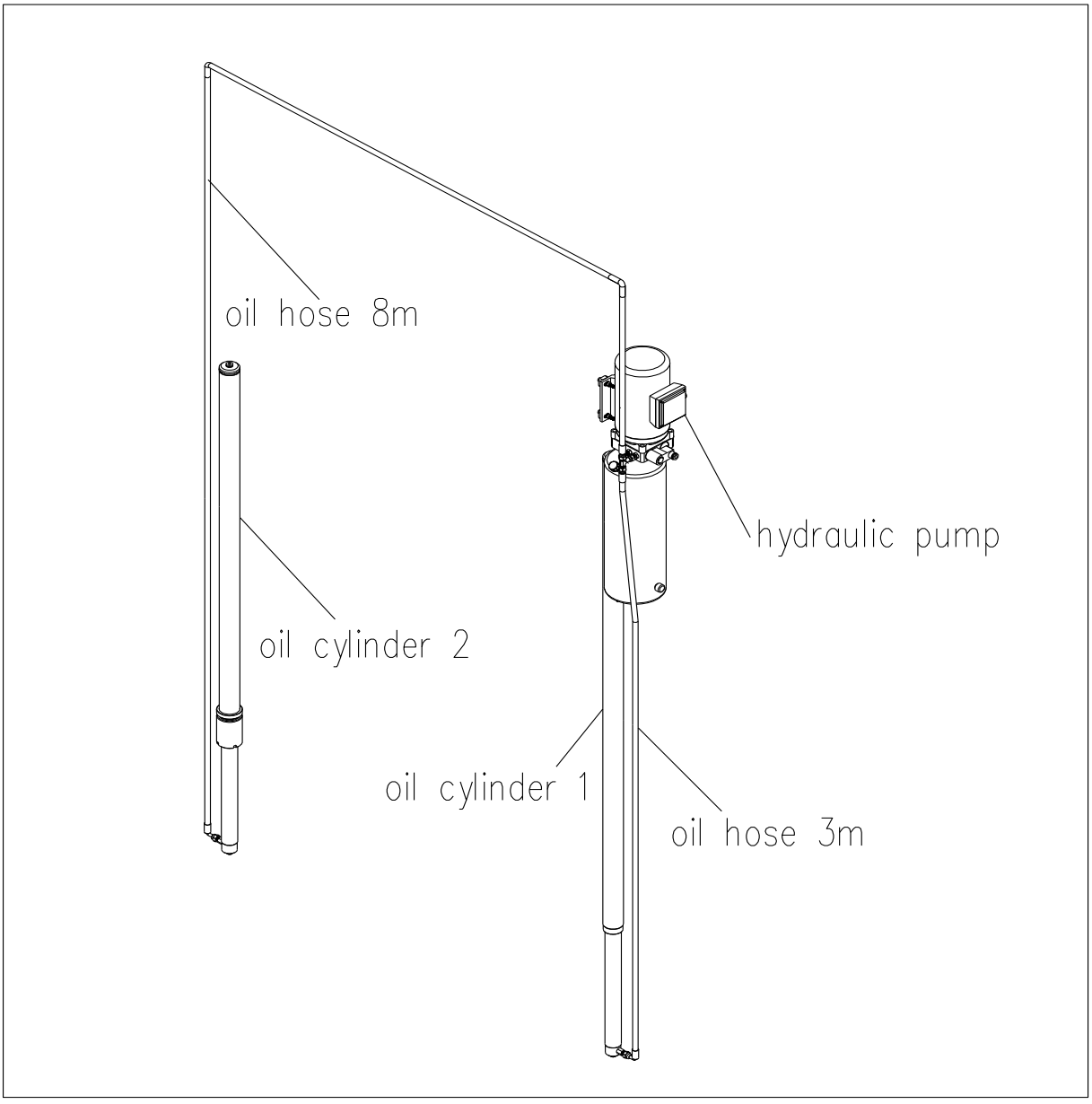
11. Trouble shooting table

Skilled personnel only is allowed to perform the operations

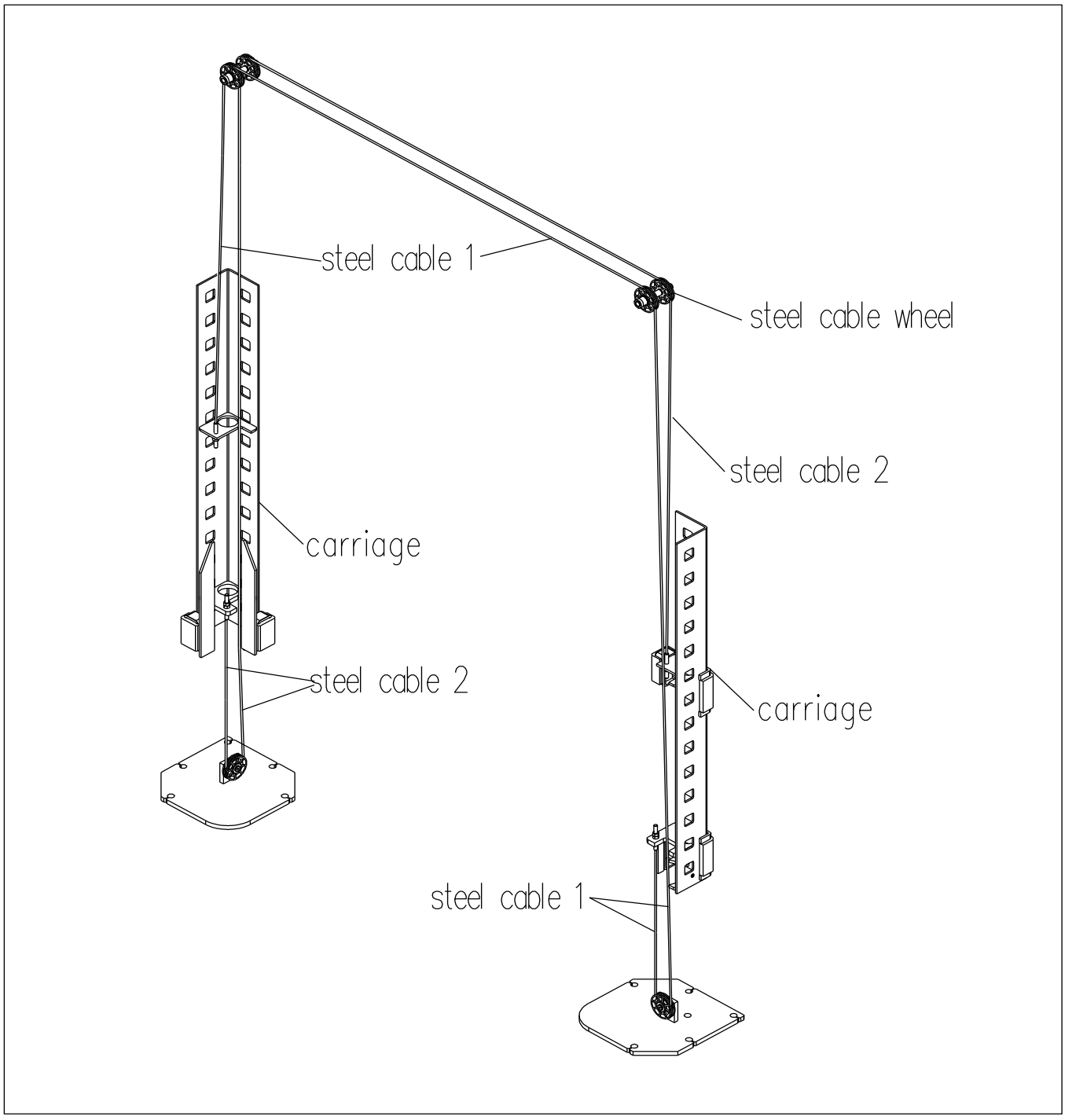
Failure Phenomena	Cause and Phenomena	Resolutions
The motor does not run in lifting operation.	①Power supply is abnormal	Check and correct wire connection
	②There is a short in the AC contactor in the circuit	Check the wire of AC contactor
	③The limit switch is broken	Check the limit switch, wires and adjust or replace the limit switch.
The motor has noise but can not run	Motor phase loss	Stop run the motor and check the wire
In lifting operation, the motor runs, but there is no lifting movement.	①The motor turns reverse.	Change the phases of the power supply wires.
	② The amount of hydraulic oil is not enough.	Add hydraulic oil.
	③There is some air in the pump due to the transport, causing the air block-up	Dismount the one-way valve and raise the lift a little(pay attention to the oil). Mount the one-way valve if the oil outflow from the hole.
	④ Throttle valve is out of order	Check the valve element and seal rings of throttle valve , clean the valve element and replace the seal rings
	⑤Some block in the valve element of oil return solenoid valve	Clean the valve element
	⑥Seal rings in the oil pump outlet are damaged	Demount the gear pump and replace the seal rings
	⑦Motor runs heavily. Out net of oil filter blocks seriously	Clean the oil filter
The lift raises slowly	Seal rings in the oil pump outlet are damaged	Demount the gear pump and replace the seal rings
The lift trembles in the lifting operation	①There is some air in the oil hydraulic circuit	Raise the lift up and down to exhaust the air
	②Air leakage on the upper connector of absorbing oil hose	Check the absorbing oil hose of oil pump
	③The oil filter blocks	Clean the oil filter
The lift can raise but can not fall	①The button is out of order	Replace with hydraulic oil in accordance with the instruction book.
	②The insurance claw is not divorced from the insurance plate	Check the electromagnet, replace it if it is damaged. If not, adjust the insurance to make it normal

Table 5

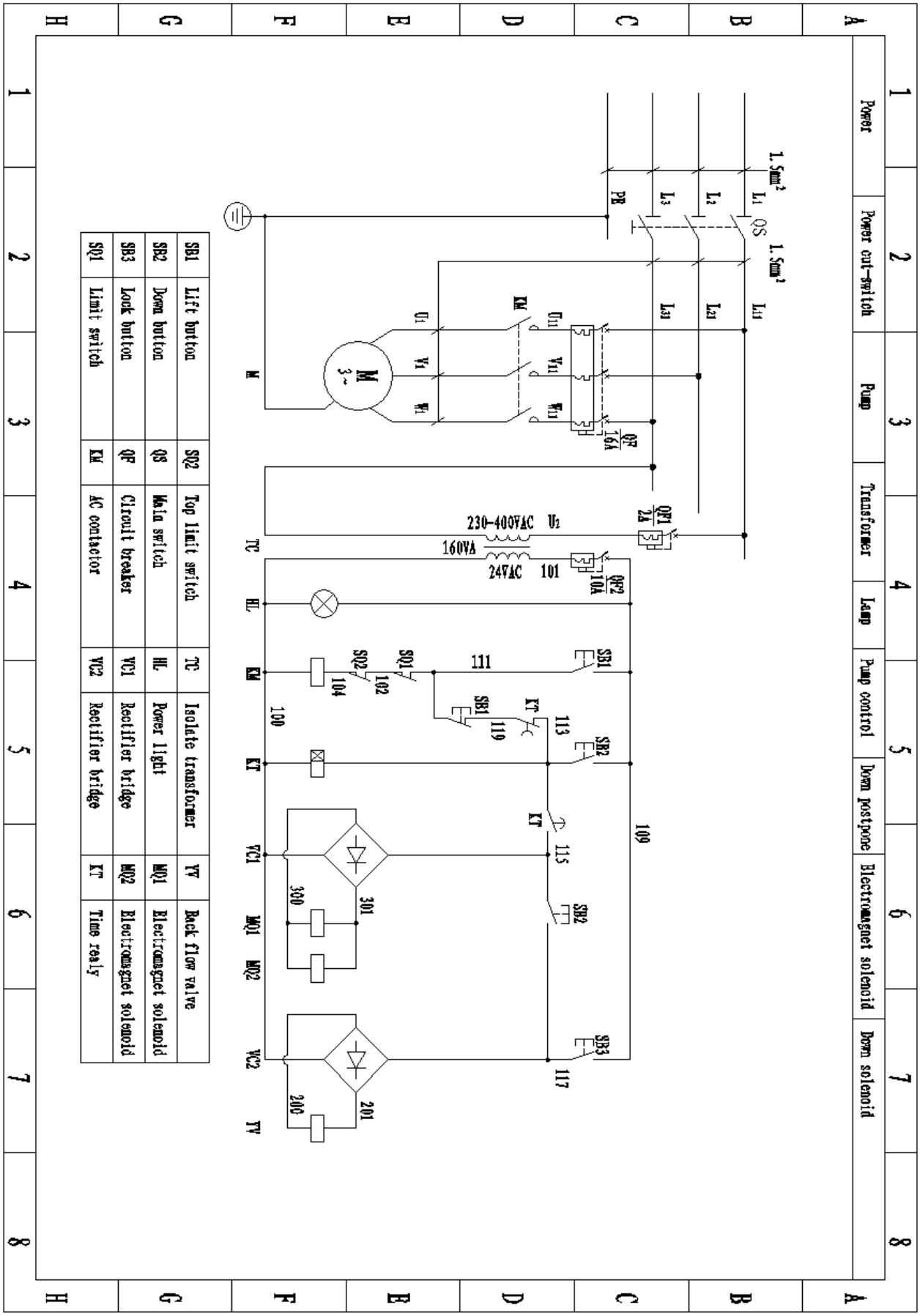
12. Oil hose connection diagram



13. Steel cable connection diagram



14. Circuit diagram

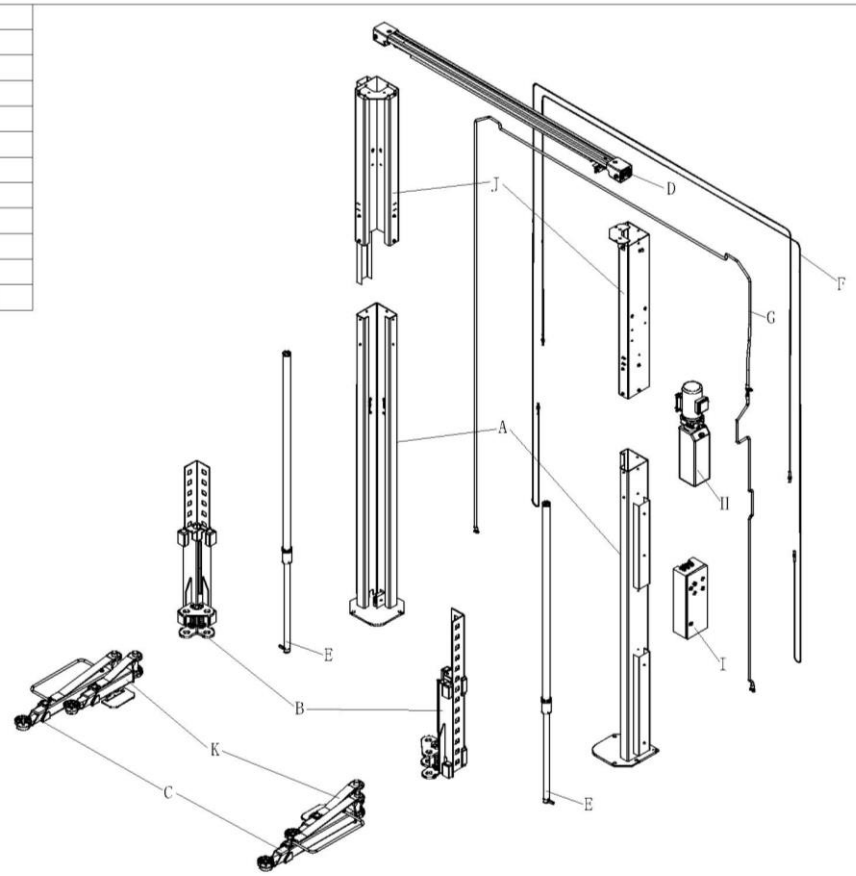


SB1	Lift button	SQ2	Top limit switch	TC	Isolate transformer
SB2	Down button	QS	Main switch	HL	Power light
SB3	Lock button	QF	Circuit breaker	YC1	Rectifier bridge
SQ1	Limit switch	KM	AC contactor	YC2	Rectifier bridge

YT	Back flow valve		
MQ1	Electromagnet solenoid		
MQ2	Electromagnet solenoid		
KT	Time realy		

15.Explosion drawing

T40EF	
A	Column
B	Carriage
C	Long lifting arm
D	Top beam
E	Oil cylinder
F	Wire rope
G	Oil pipes
H	Power unit
I	Control box
J	Higher column
K	Short lifting arm



A
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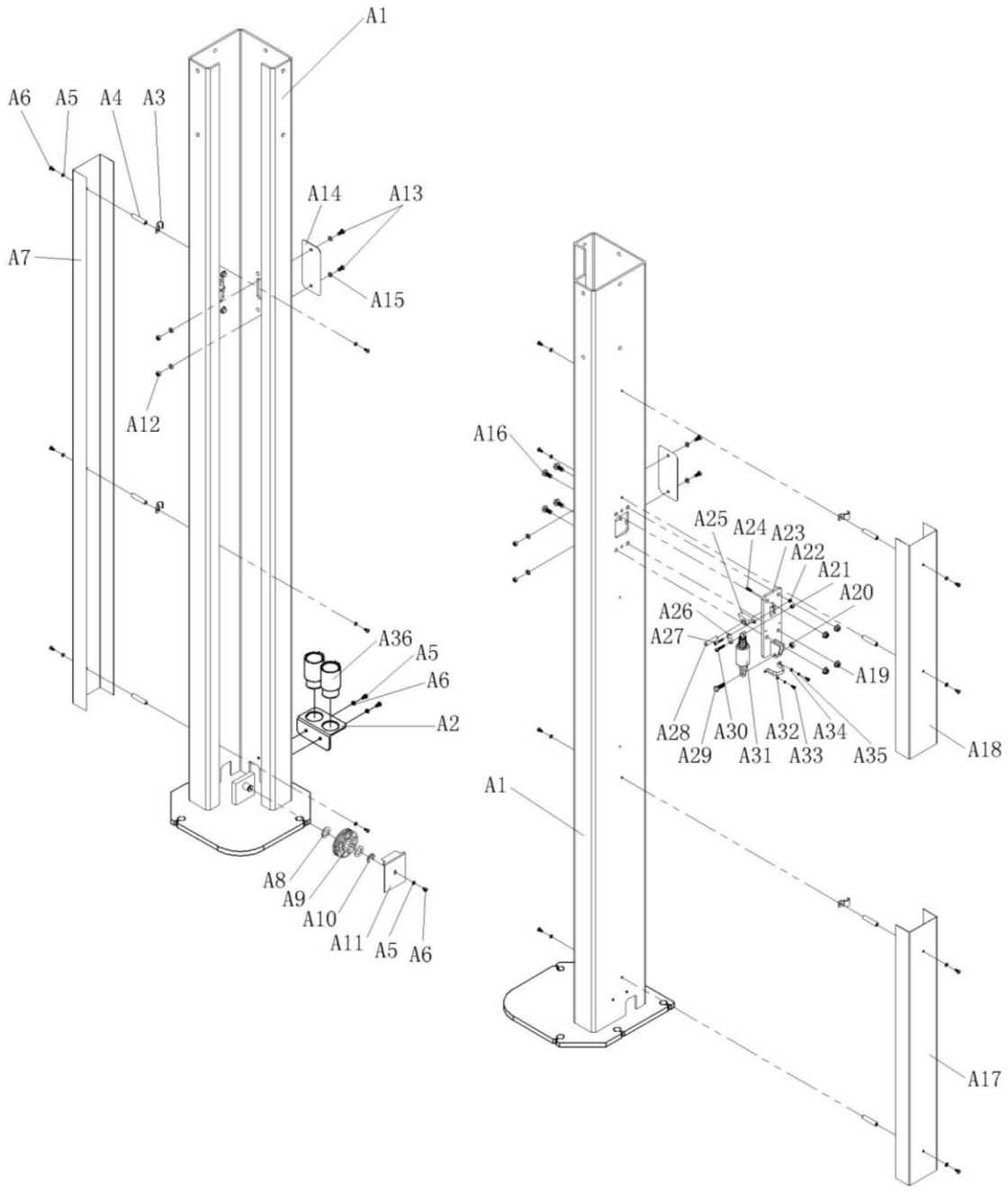
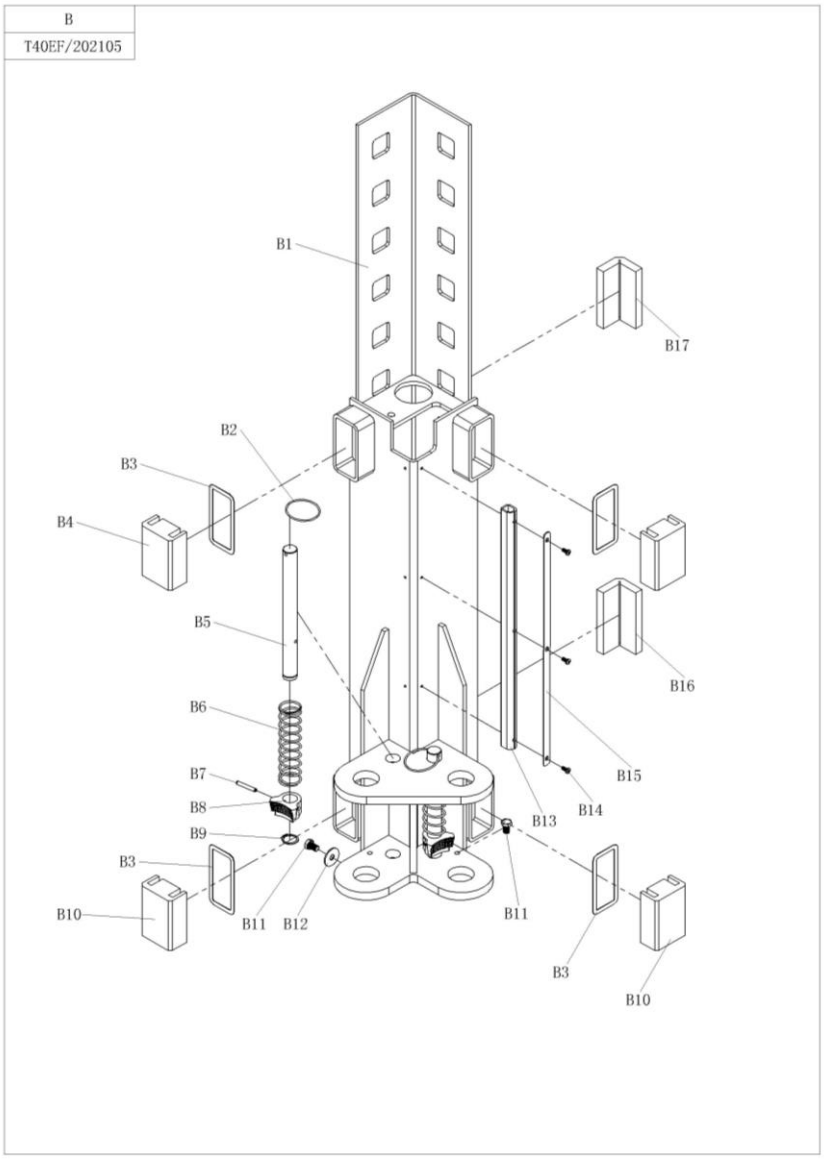
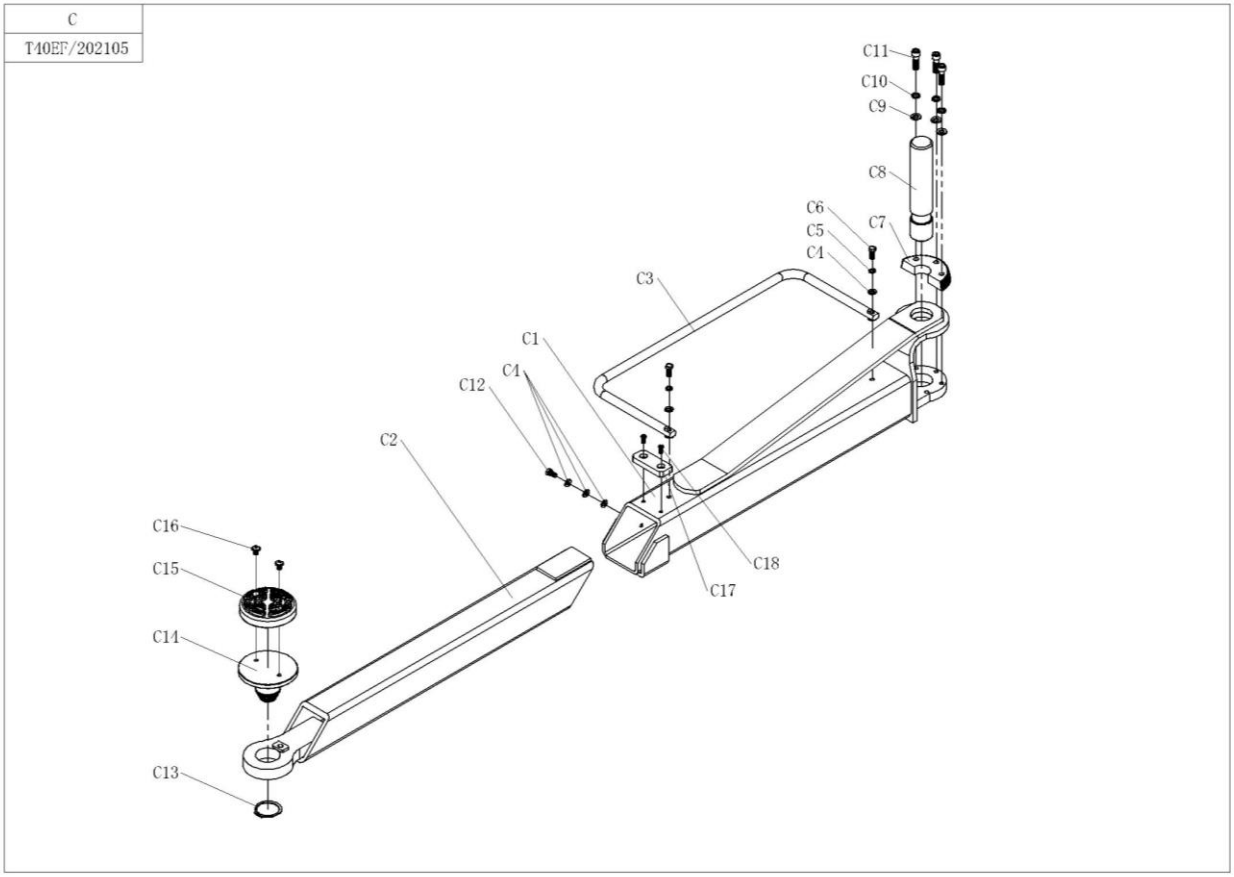


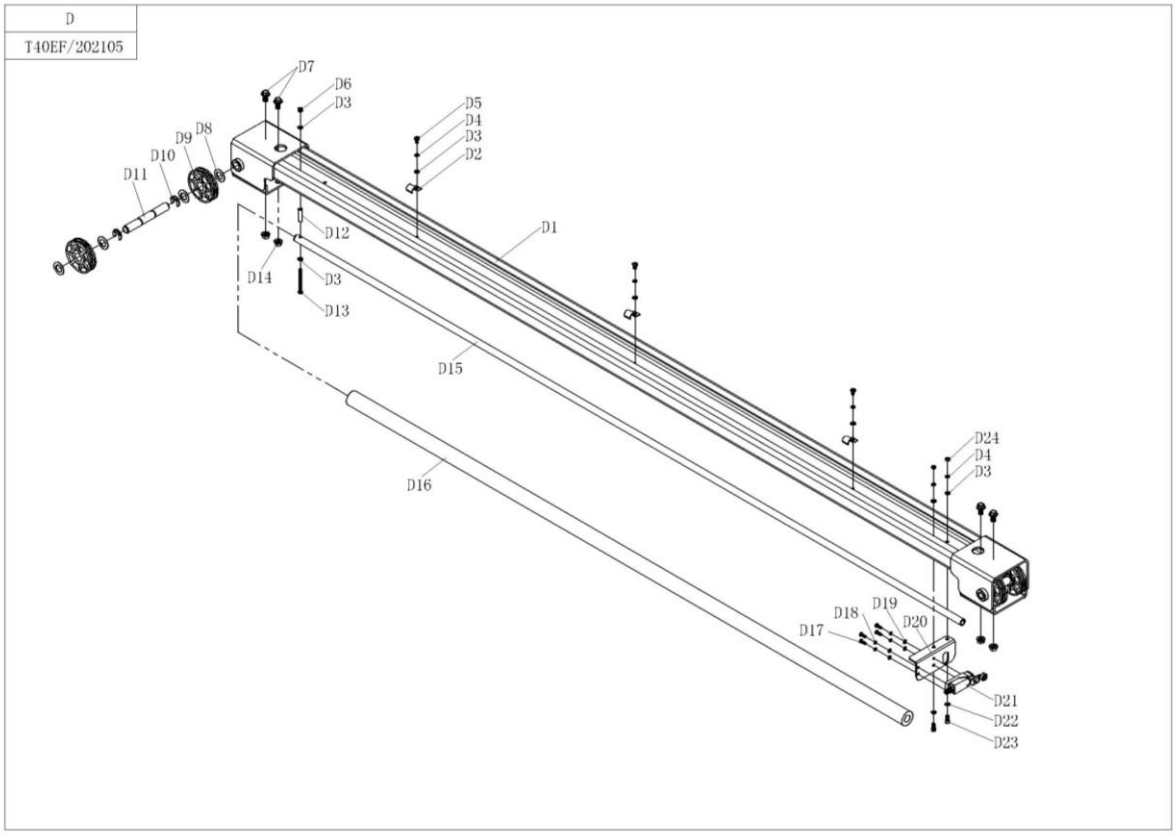
A1	column assembly
A2	higher column support
A3	unilateral card
A4	stud 58
A5	plain washer Ø6
A6	cross recessed pan head screw M6×12
A7	decorative box 1910
A8	roller gasket
A9	roller
A10	opening circlip M15
A11	roller baffle
A12	hexagon nut M8
A13	hexagon head bolt full thread M8×16
A14	safety seat cover plate
A15	plain washer Ø8
A16	hexagon flange bolt M10×25
A17	decorative box 860
A18	decorative box 800
A19	hexagon flange nut M10
A20	hexagon nut M10
A21	hexagon locking nut M6
A22	hexagon locking nut M5
A23	safety seat assembly
A24	hexagon socket head cap screw M5×16
A25	insurance claw
A26	connecting rod
A27	hexagon socket head cap screw M5×30
A28	insurance shaft
A29	hexagon head bolt full thread M10×30
A30	hexagon socket head cap screw M6×30
A31	electromagnet MQZ2-5N-25
A32	stainless steel riding macca
A33	cross recessed pan head screw M5×10
A34	plain washer Ø5
A35	spring washer Ø5
A36	higher column 70mm



B1	carriage assembly
B2	key ring
B3	adjust the pad
B4	upper groove type slider
B5	locking shaft
B6	locking shaft spring
B7	spring-type straight pin Ø6×40
B8	semi-circle block（small）
B9	circlip for shaft Ø25
B10	groove type slider
B11	hexagon head bolt full thread M10×16
B12	plain washer Ø10×30
B13	D type foam tube
B14	cross recessed pan head screw M5×12
B15	layering
B16	V-shaped slide block
B17	V-type upper slider

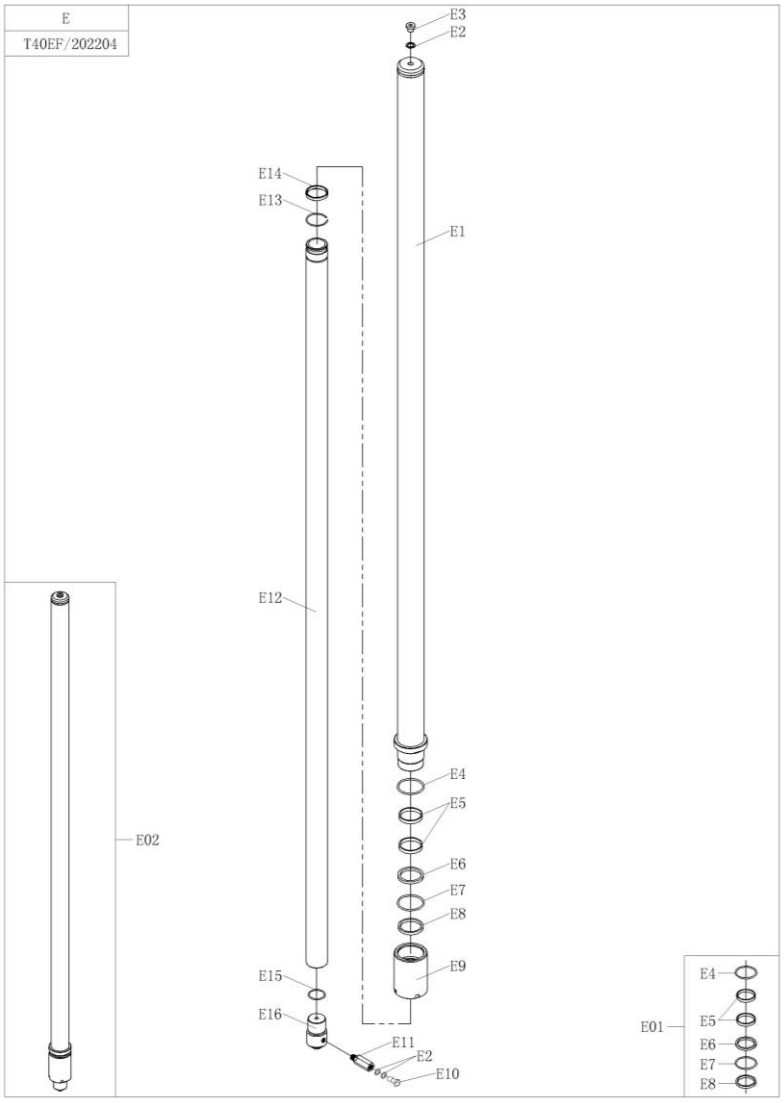


C1	long outside lifting arm assembly
C2	long inside lifting arm assembly
C3	long outer bracket guard block assembly
C4	plain washer Ø8
C5	spring washer Ø8
C6	hexagon head bolt full thread M8×20
C7	semi-circle block（big）
C8	arm pin
C9	plain washer Ø10
C10	spring washer Ø10
C11	hexagon socket head cap screw M10×35
C12	hexagon head bolt full thread M8×16
C13	circlip for shaft Ø50
C14	three pallets Ø107
C15	rubber mat Ø107
C16	hexagon socket button head screw M8×12
C17	arm rubber mat
C18	cross recessed countersunk head screw M6×18



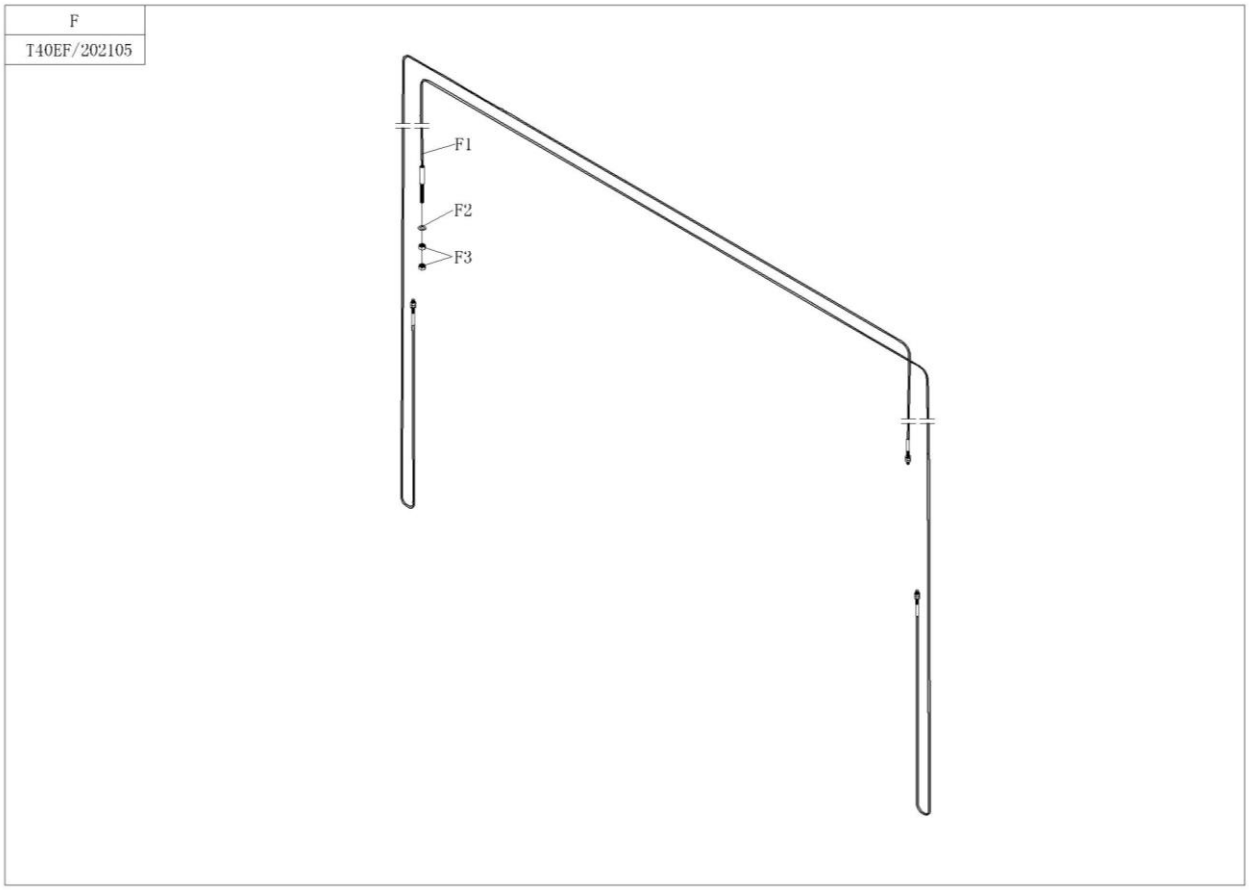
D1	top beam assembly
D2	unilateral card
D3	plain washer Ø6
D4	spring washer Ø6
D5	cross recessed pan head screw M6×12
D6	hexagon locking nut M6
D7	hexagon flange bolt M10×20
D8	roller gasket
D9	roller
D10	opening circlip M15
D11	top beam roller shaft
D12	limit lever position sleeve
D13	hexagon bolt M6×70
D14	hexagon flange nut M10
D15	top beam limit lever rod
D16	top beam foam pipe
D17	cross recessed pan head screw M5×12
D18	spring washer Ø5
D19	plain washer Ø5
D20	limit switch support
D21	limit switch
D22	hexagon socket head cap screw M6×16

D23	hexagon nut M6

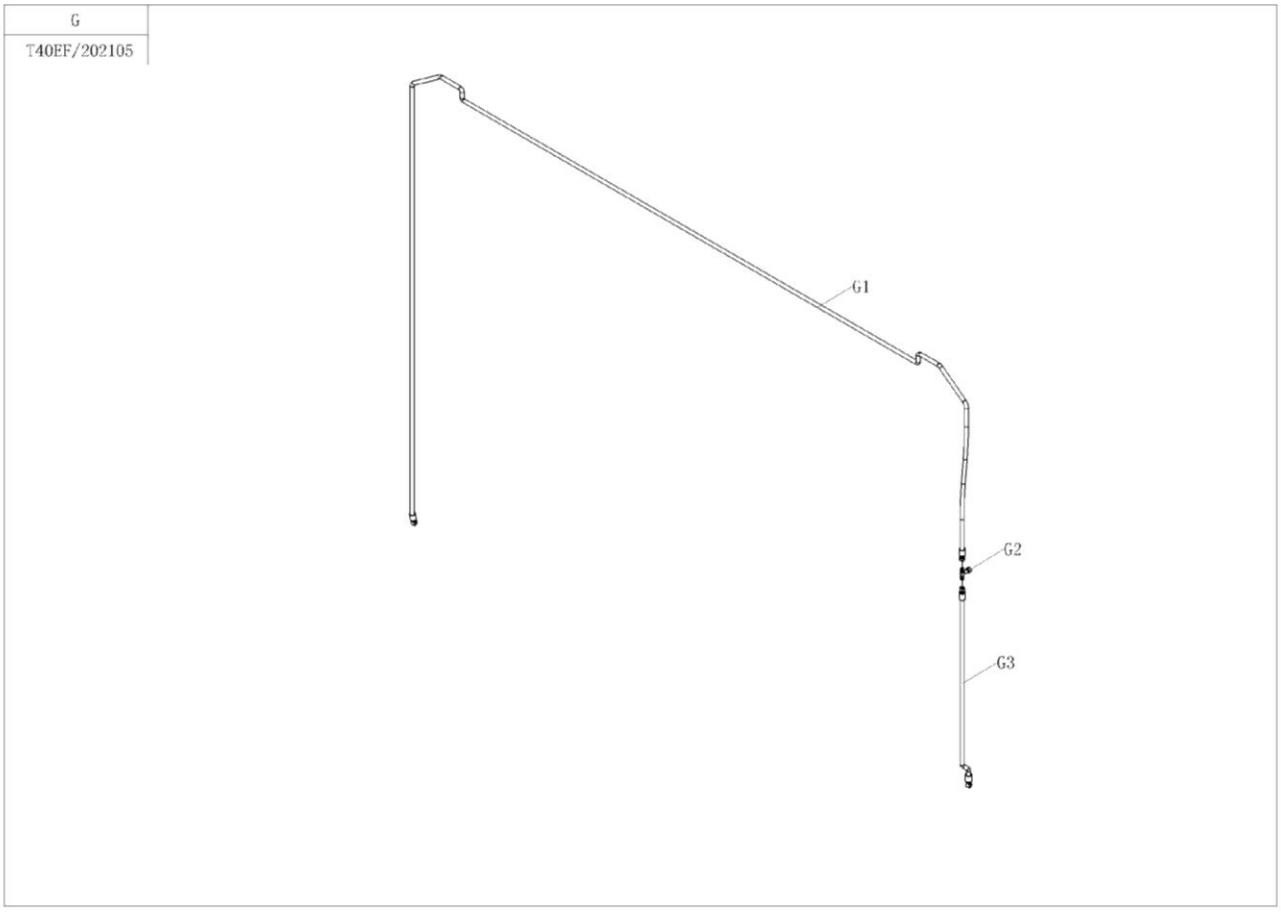


E1	oil cylinder assembly
E2	combined sealing washer G1/4
E3	plug G1/4
E4	O-ring Ø55×3.55
E5	wear ring Ø48×8×2.5
E6	U-ring Ø58×48×6
E7	O-ring Ø48×3.55
E8	dust-proof ring Ø48×58×6.5
E9	oil cylinder cover
E10	english hinged bolt G1/4
E11	safety valve joint inner thread G1/4--R1/4 60mm
E12	piston rod
E13	steel cable circlip for hole Ø45
E14	wear ring Ø45×8×2.5
E15	O-ring Ø35×3.1
E16	piston rod inlet end
E01	oil cylinder seal kit

E02	oil cylinder assembly



F1	steel cable assembly
F2	plain washer Ø12
F3	hexagon nut M12



G1	high-pressure oil pipe 7730mm
G2	three-way active connector sphereG1/4--2×G1/4
G3	high-pressure oil pipe 2900mm

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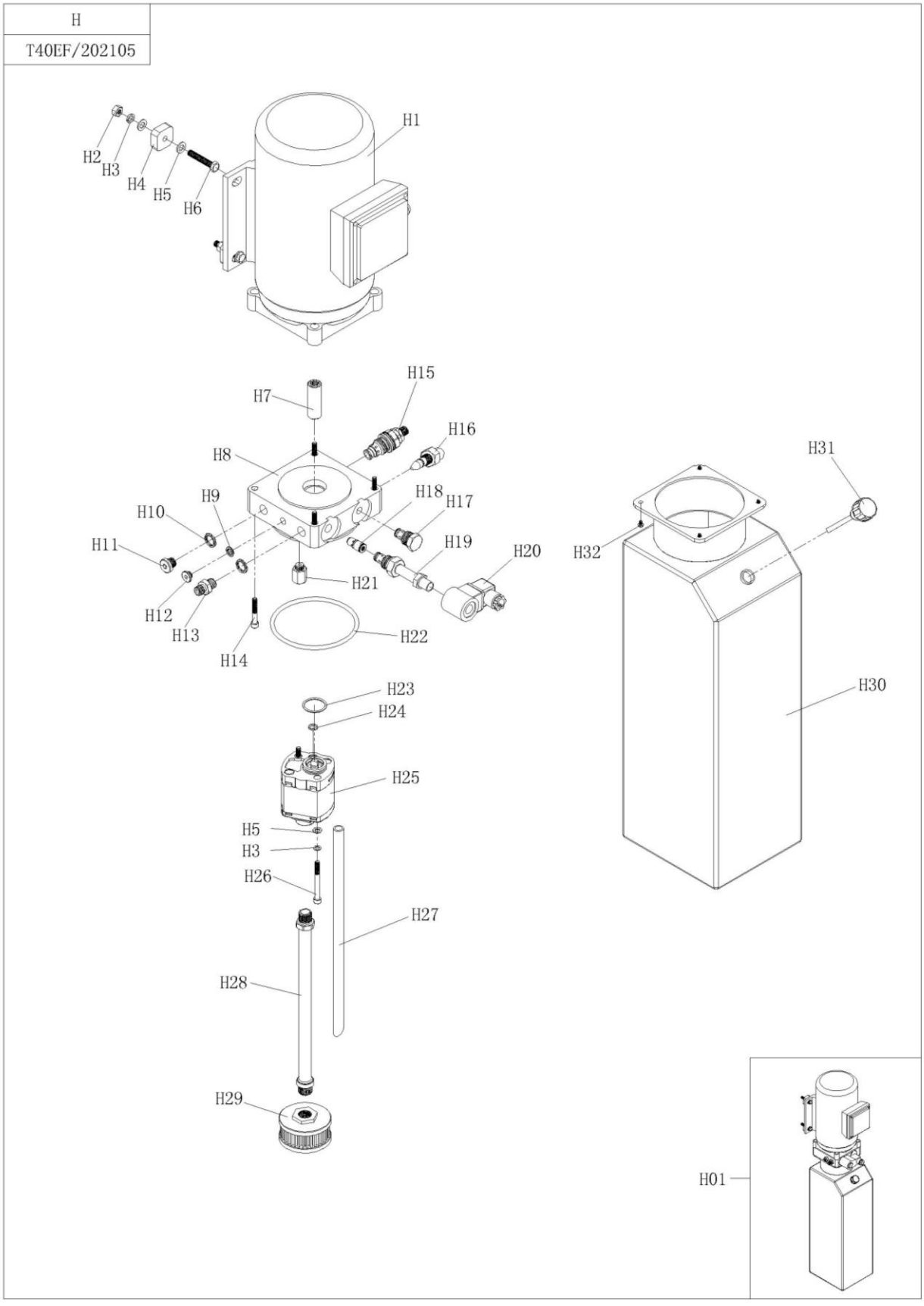
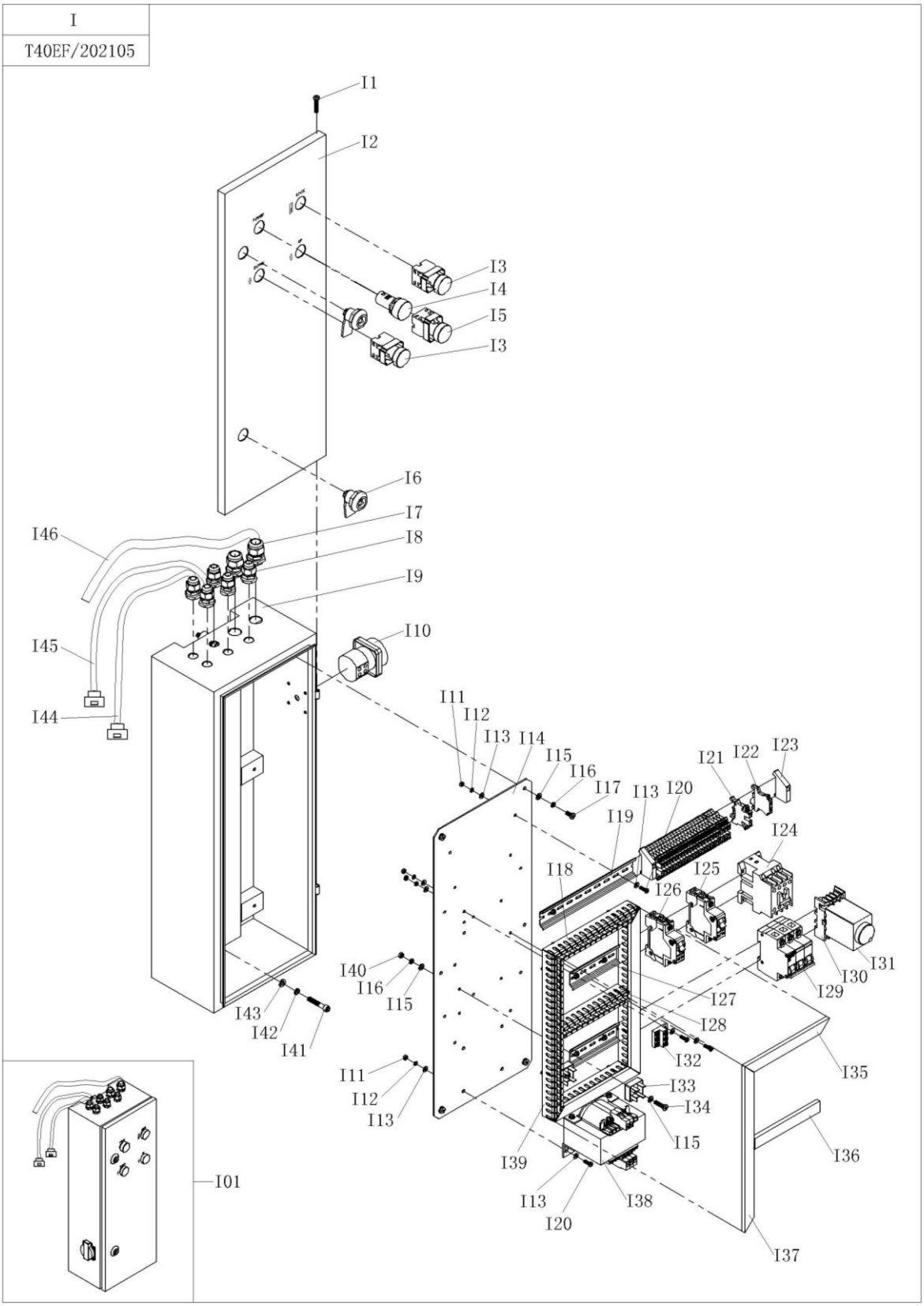
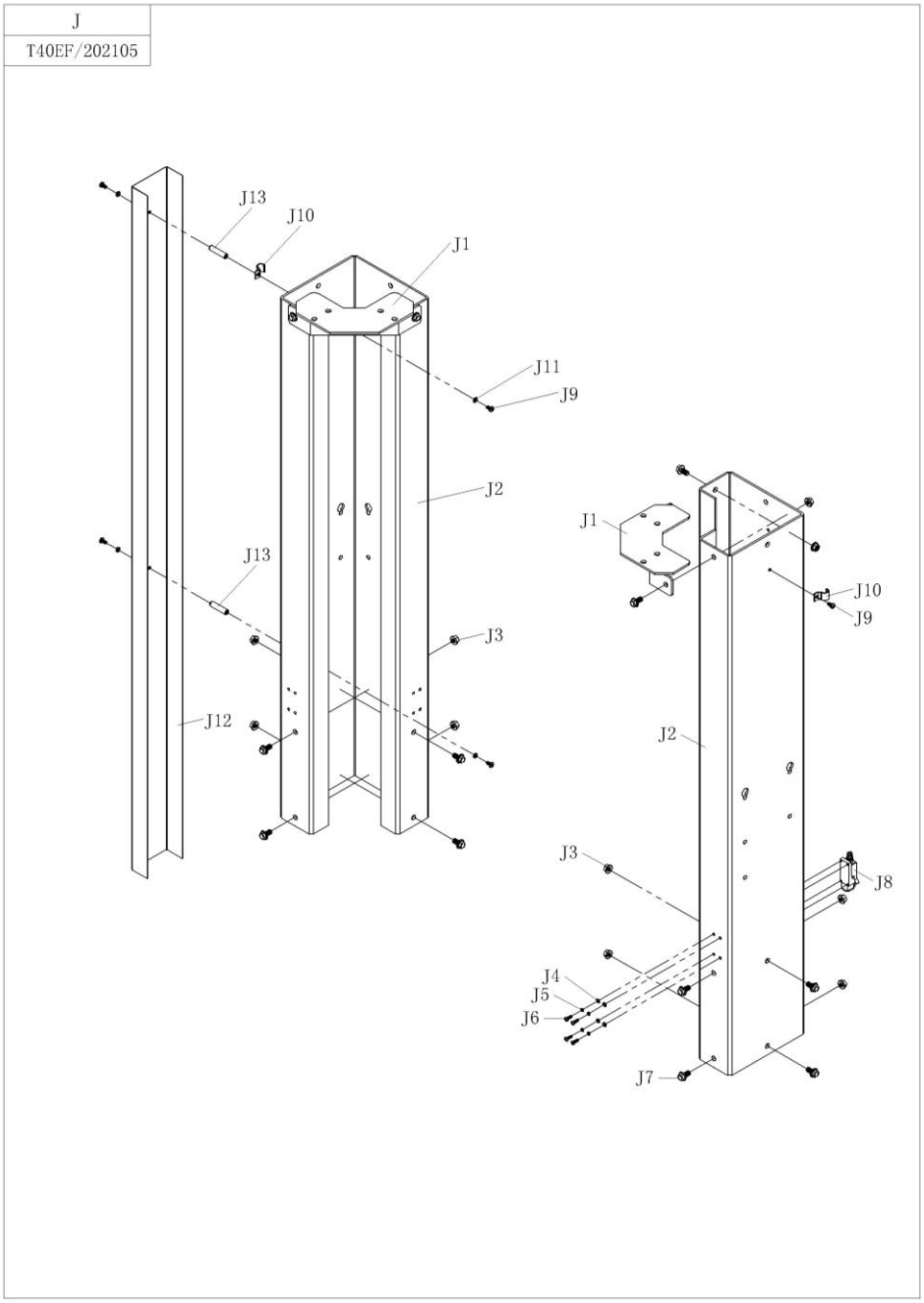


H1	3ph motor
H1(optional)	1ph motor
H2	hexagon nut M8
H3	spring washer Ø8
H4	motor cushion
H5	plain washer Ø8
H6	hexagon head bolt full thread M8×55
H7	coupling
H8	center valve socket
H9	combined sealing washer Ø8
H10	combined sealing washer G1/4
H11	plug G1/4
H12	plug M8×1
H13	oil pipe straight union inner cone G1/4--end face G1/4
H14	hexagon socket head cap screw M6×40
H15	overflow valve
H16	plug G3/8
H17	one-way valve
H18	balance valve
H19	normally closed solenoid valve element
H20	normally closed solenoid valve coil
H21	cushion valve
H22	O-ring Ø109×5.3
H23	O-ring Ø32×2.4
H24	rectangle seal ring Ø9.5×1.7
H25	gear pump
H25(optional)	gear pump
H26	hexagon socket head cap screw M8×80
H27	return tube
H28	suction tube
H29	filter
H30	oil tank
H31	oil tank cap
H32	hexagon flange bolt M5×18
H01	power unit assembly
H01(optional)	power unit assembly

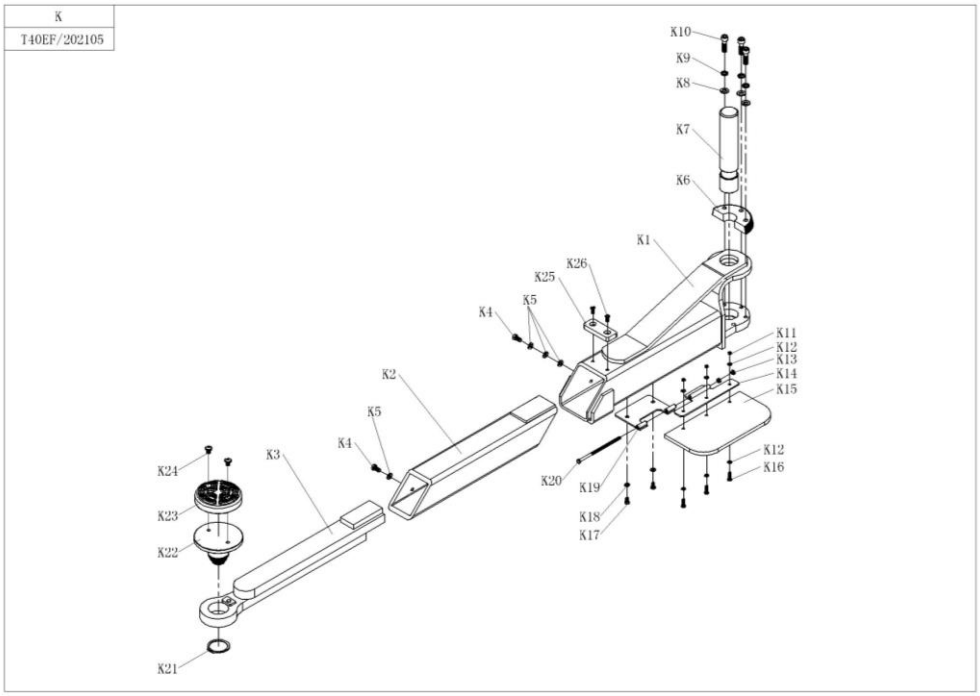


I1	cross recessed pan head screw M5×25
I2	control box cover
I3	button switch 2NO
I4	signal
I5	button switch 1NO1NC

I6	triangle swivel tongue lock
I7	cable screw joint
I8	cable screw joint
I9	control box body
I10	power switch
I11	hexagon nut M4
I12	spring washer Ø4
I13	plain washer Ø4
I14	power panel
I15	plain washer Ø5
I16	spring washer Ø5
I17	cross recessed pan head screw M5×12
I18	trough
I19	lead rail
I20	cross recessed pan head screw M4×12
I21	phoenix terminal
I22	earth terminal
I23	fixed terminal
I24	AC contactor
I25	circuit breaker
I26	circuit breaker
I27	lead rail
I28	trough
I29	circuit breaker 3phase
I29(optional)	circuit breaker 1phase
I30	relay socket
I31	time relay
I32	grounding strip
I33	rectifier bridge
I34	cross recessed pan head screw M5×20
I35	the slot cover
I36	the slot cover
I37	the slot cover
I38	transformer
I39	trough
I40	hexagon nut M5
I41	hexagon socket head cap screw M6×35
I42	spring washer Ø6
I43	plain washer Ø6
I44	black sheathed wire
I45	black sheathed wire
I46	four-phase power wire
I47(optional)	three-phase power wire
I01	control box complete
I01(optional)	control box complete



J1	column cover plate assembly
J2	increased pillar
J3	hexagon flange nut M10
J4	plain washer Ø5
J5	spring washer Ø5
J6	cross recessed pan head screw M5×16
J7	hexagon flange bolt M10×20
J8	limit switch
J9	cross recessed pan head screw M6×12
J10	unilateral card
J11	plain washer Ø6
J12	decorative box 1830
J13	stud 50



K1	short outside lifting arm assembly
K2	short middle　lifting arm assembly
K3	short inside lifting arm assembly
K4	hexagon head bolt full thread M8×16
K5	plain washer Ø8
K6	semi-circle block（big）
K7	arm pin
K8	plain washer Ø10
K9	spring washer Ø10
K10	hexagon socket head cap screw M10×35
K11	hexagon nut M5
K12	plain washer Ø5
K13	hexagon nut M6
K14	guardrail assembly
K15	guardrail rubber sheet
K16	cross recessed pan head screw M5×20
K17	hexagon head bolt full thread M6×12
K18	plain washer Ø6
K19	guardrail assembly
K20	hexagon head bolt full thread M6×140
K21	circlip for shaft Ø50
K22	three pallets Ø107
K23	rubber mat Ø107
K24	hexagon socket button head screw M8×12
K25	arm rubber mat
K26	cross recessed countersunk head screw M6×18