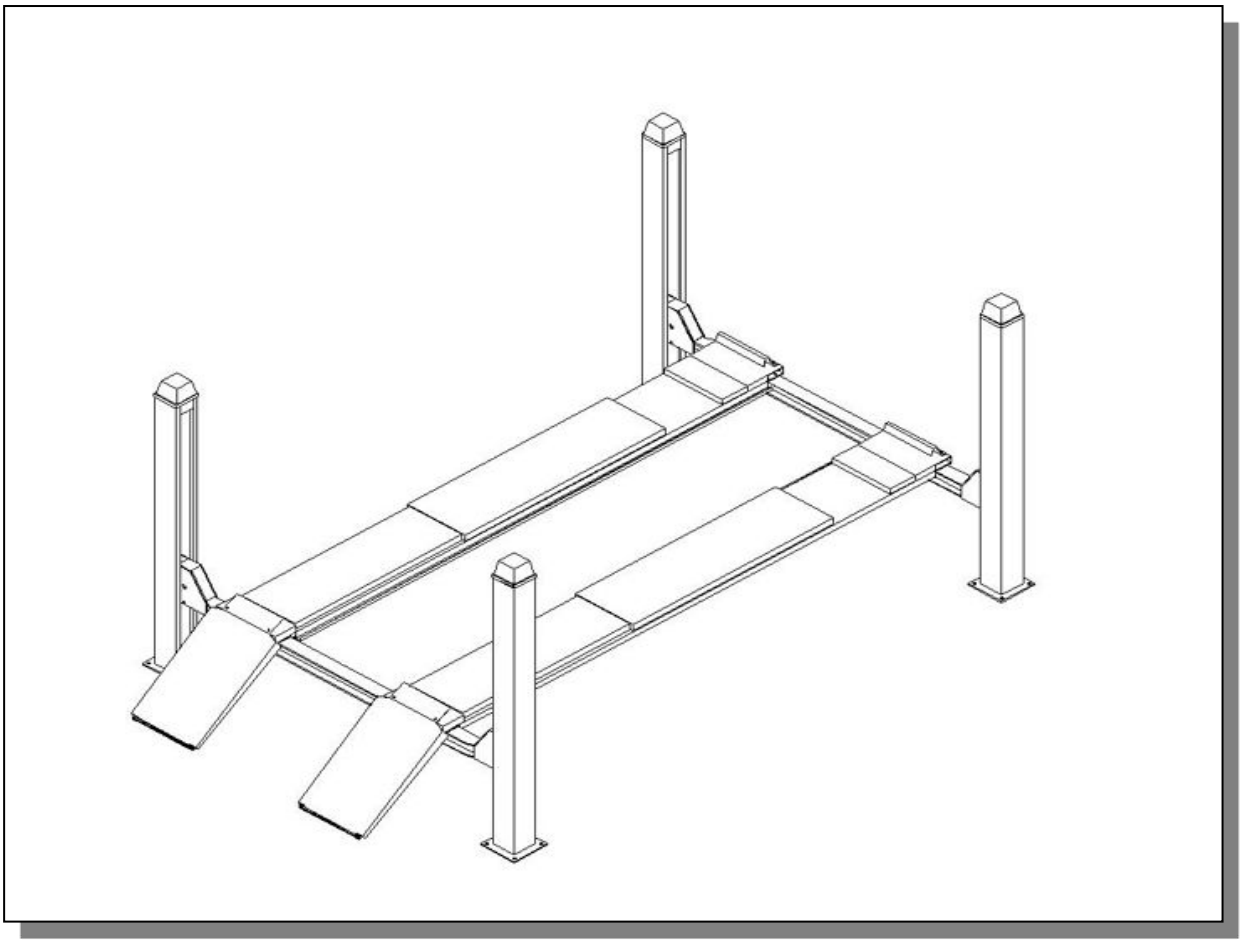
Four post series lift



User's Manual

Four-post hydraulic car lift

Model：	
Manufacturing code：	
Manufactured on：	DD MM YY

Authorized Distribution Center

Version 1 Sep. 2011

Contents

Packaging, Transportation and Storage

All the operations such as packaging, handling, transportation and dismounting shall be operated by specialized technicians.

Packaging (Fig. 1)

Standard configuration: Total 13 pieces for standard configuration including one hydraulic pressure station (1＃ packaging); one main girder and one auxiliary girder (2＃ and 3# packaging); one front beam and one rear beam (4＃ and 5# packaging); one main vertical post (6＃ packaging); three auxiliary vertical posts (7＃, 8# and 9# packaging respectively); one car loading board (10＃ packaging); one automobile blocking board (11# packaging); one secondary lift trolley (12＃ packaging) and one accessories box (13# packaging).

Packaging list:

Box number	Name	Name and quantity of accessories
1	Hydraulic pressure station	One
2. 3	Main and auxiliary girder	One for each (completely assembled)
4. 5	Front and rear beam	One for each (completely assembled)
6	Main vertical post	One (completely assembled)
7．8．9	Rear vertical post	Three (completely assembled)
10．	Car loading board	Two
11．	Car blocking boards	Two
12．	Secondary lift	One
13．	Accessories box	One (different accessories for different machine types)

Table 1

Note: Packaging 12 is provided optionally according to user demand.

Drawing for packaging dimension:

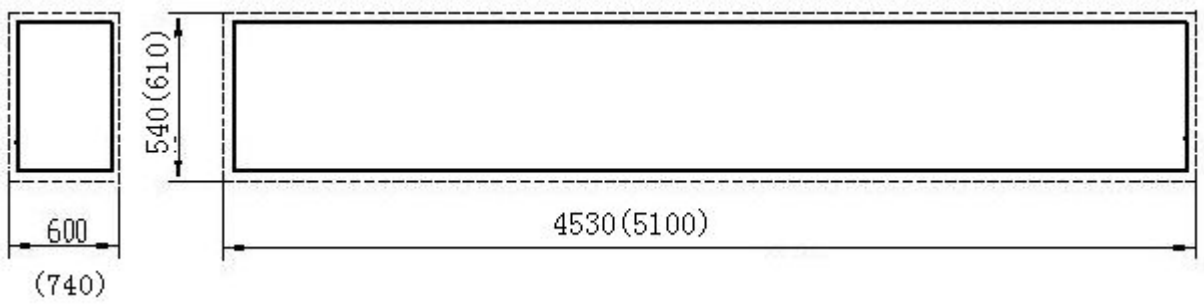


Fig. 1

Comment: The figures between brackets are for wheel alignment four post lift 3.5T and 3D wheel alignment four post lift 5T

Transportation (Figure 2)

Goods shall be handled and moved by crane and fork lift truck weighing over 2 ton.

To prevent goods from falling down, during the lifting operation, one person shall be in charge of observing the goods intently, so as to avoid accidents.

-- The goods shall be transported by vehicles or liners.

-- When the goods arrive at the destination, it is necessary to check whether the goods are complete to prevent damage and loss during the transportation.

-- If there is any damage in the package, inspection to the damaged box shall be conducted by the Encasement List to confirm the situation about the damage and loss of goods. Meanwhile, it is necessary to notify the person that undertakes the transportation immediately.

The machine is heavy goods! Manual loading, unloading and handling shall be beyond the consideration, safety during the operation is of great importance.

In addition, the lifting of goods during loading and unloading shall be operated according to the figure (Figure 2)

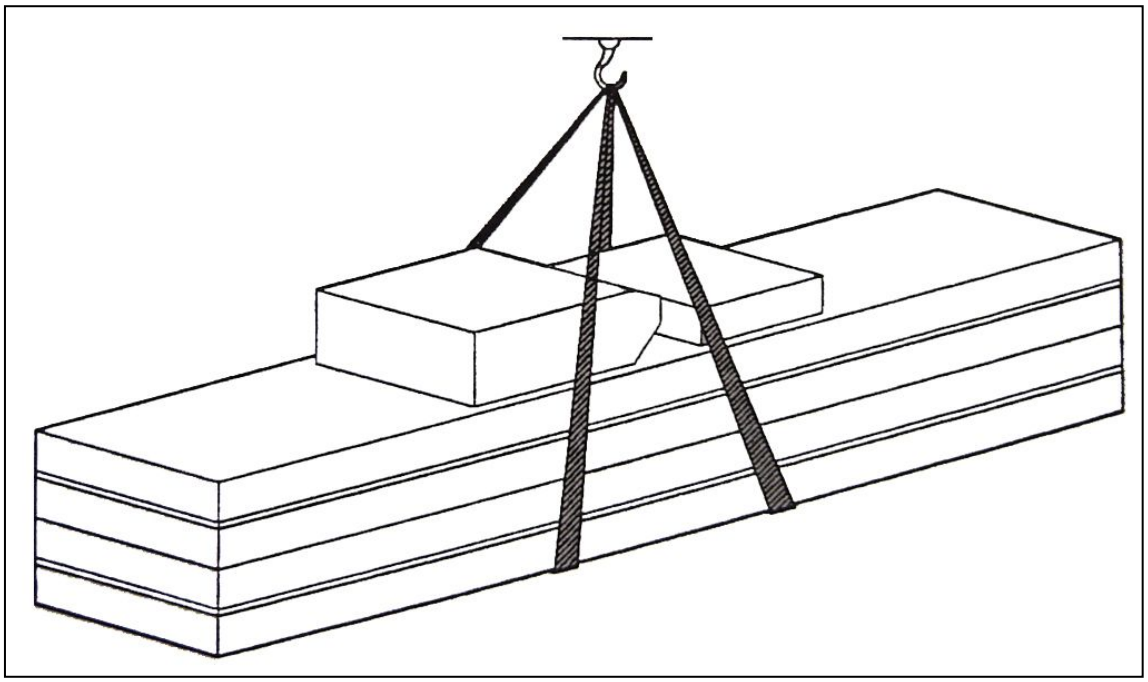


Figure 2

Storage:

The machinery and equipment shall be placed in indoor warehouse and outdoor storage shall make good water-proof treatment.

Van truck shall be adopted during the transportation and goods shall be stored in containers if they are shipped by liners.
Environmental temperature for storage of machine: -25℃~55℃.

Introduction of User's Manual

This manual is intended for operators of vehicle maintenance enterprise and routine maintenance personnel.

Before the lifter is operated, relevant personnel shall carefully read the User's Manual. There is important relevant information in the manual:
-Personal safety of operators and maintenance personnel
-Safety in installation
-Safety operation of lifter

Please keep this manual
- This manual is an important part of the lifter
- The manual shall be place around the lifter, so that the operator and maintenance personnel can read it at any time
- Please carefully read Chapter III, which contains important information on application and safety
The lifter is designed and manufactured by European Standard

Loading and unloading, transportation, dismounting, assembling, commissioning and testing; specially the maintenance, repair, overhaul, transportation and dismounting of lifter shall executed by professionals with license.

Injury of human and damage of the machine caused by operation of no-authorized personnel or operation not in accordance with the operating rules occur, the manufacturer bears no liability for this.

The manual suggests: operation and safety is guarantee for operator and maintenance personnel. To better understand the structure and operating rules of the machine, please carefully read the User's Manual before you use the machine.

To better understand the terms in the manual, operator shall possess experience on service at factory, maintenance and repair, etc. and can read the explanations in drawings and the manual and relevant special national safety ordinance on equipment installation.

This is also applicable to maintenance and the maintenance personnel shall possess special knowledge on machinery engineering

-Operator: Personnel that have been trained and authorized to use the lifter

-Maintenance personnel: Routine maintenance personnel that have been trained and authorized

The manufacturer keeps the right of the minor modification of the manual due to advancement of technology

Chapter I: Description of Machine

Purposes of Machine:

Wheel alignment four post hydraulic car lift can lift various cars with weights not more than 3500kg and 5000kg and is applicable to car troubleshooting, car repair, tyre dismounting, car care and four-wheel positioning detection for car service company.

Structure characteristics:

- Low-pressure control for good safety performance
- Multiple safety devices including hydraulic lock and main safety positioning mechanism as well as rope broken protection mechanism to ensure safety and reliability
- In case of rope rupture and safety mechanism failure, the machine will not fall rapidly under hydraulic pressure failure protection and overload relief valve protection
- Extended type double-stage rear wheel sliding panel and adjustable front wheel steering position make it applicable to cars of various types (F4 type)
- Be equipped with secondary lift trolley sliding guidway can be used for secondary lift trolley of multi-type.
- Convenient and accurate horizontal adjustment of platform for highly accurate four-wheel poisoning detection (F4 type)
- Hydraulic pump station (hydraulic pressure supply part) (by client)

The machine requires the following conditions for devices
-Foundation of machine (position for equipment installation and space)
-Frame of lifter (main structure of lifter and safety mechanism)
- Hydraulic pump station (Hydraulic supply part)
-Control cabinet (control part of the machine) (by client)

Basic structure
The foundation of machine is composed by concrete structure.

Lift frame part:
Consists of vertical posts, main girder and auxiliary girder as well as front and rear beam

Hydraulic pump station
Consists of hydraulic pump, pump motor and oil box.

Control box part
Control box is for electrical control (by client)

Four-post series lift is designed for lifting cars; it is not applicable to be used for

other applications, especially flushing and spraying operation, and even to be used to lift what exceeds the lifting weight.

Chapter II Specification Parameters

Main technical parameters:

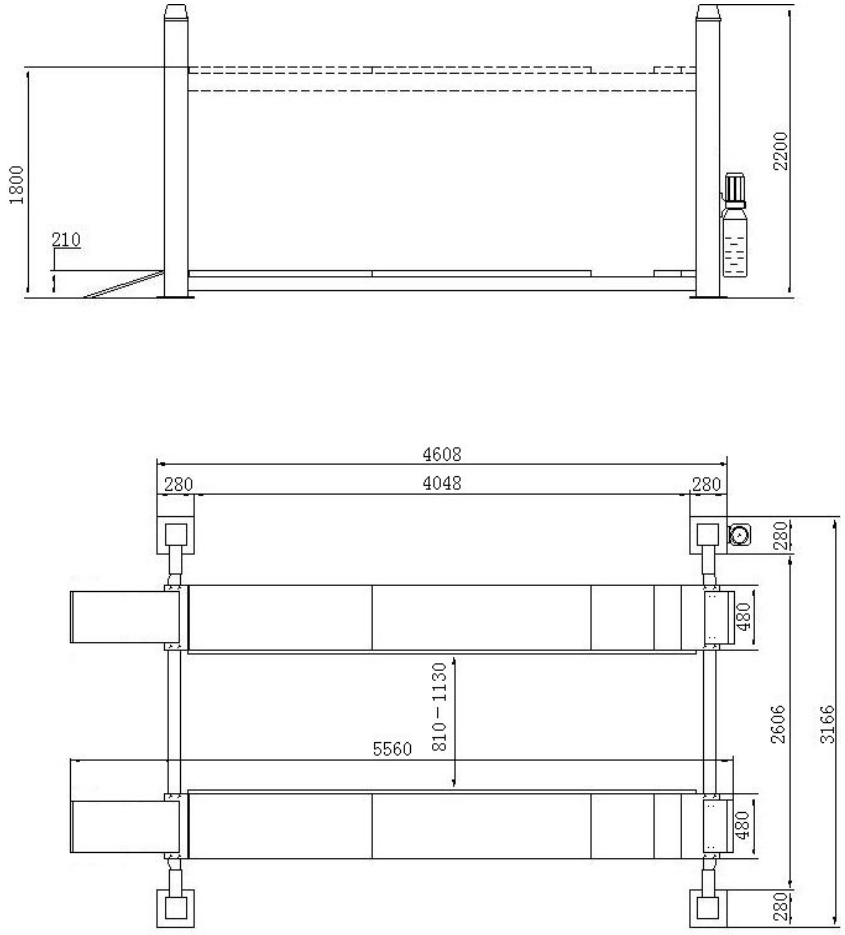
Model	**CW435EW**	**CW450EW**
Driving method	Hydraulic drive	
Rated lifting weight	3500Kg	5000Kg
Hoist height of host	1800mm	
Original height of	210mm	230mm
Length of platform	4530mm	5080mm
Width of platform	480mm	500mm
Lifting time	≤50s	
Falling time	≤50s	
Total width	3166mm	3470mm
Total length	5560mm	6130mm
Weight of the whole machine	1200Kg	1550Kg
Power supply	AC 400 or 230V±5% 50Hz	
Power of the whole machine	2.2kw	3.0kw
Hydraulic oil	16L The same as that of 20# wear-resistance hydraulic oil (user prepares it by himself/herself)	
Related lifting weight of secondary trolley	2000Kg	2000Kg
Lifting height of secondary	350mm	350mm
Towing arm of secondary	810－1130mm	810－1130mm
Wheel track of secondary	810－920mm	810－920mm
Ascending time of secondary trolley	≤10S	
Descending time of secondary trolley	≤10s	
Weight of secondary trolley	100Kg	
Temperature of working environment	5-40℃ 5-40℃	

Humidity of working	30-95%
Noise of machine	< 76db
Height of installation of	Altitude ≤1000M
Temperature for storage of	-25℃~55℃

Table 2

Chapter II Specification Parameters

Dimension drawing of lift



Wheel alignment four post lift 3.5T CW435EW dimension drawing (including high level\low level\vertical view)

Fig.4

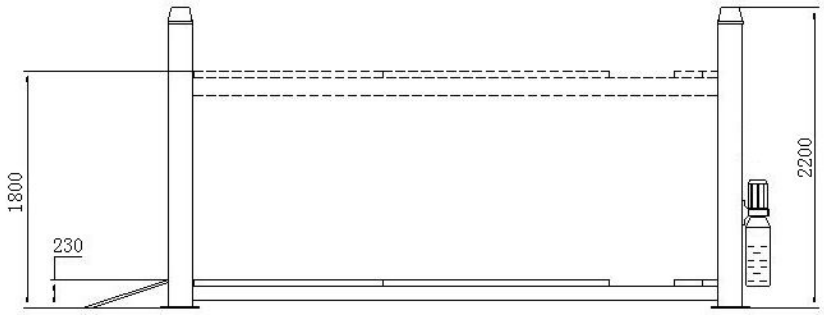
Motor:

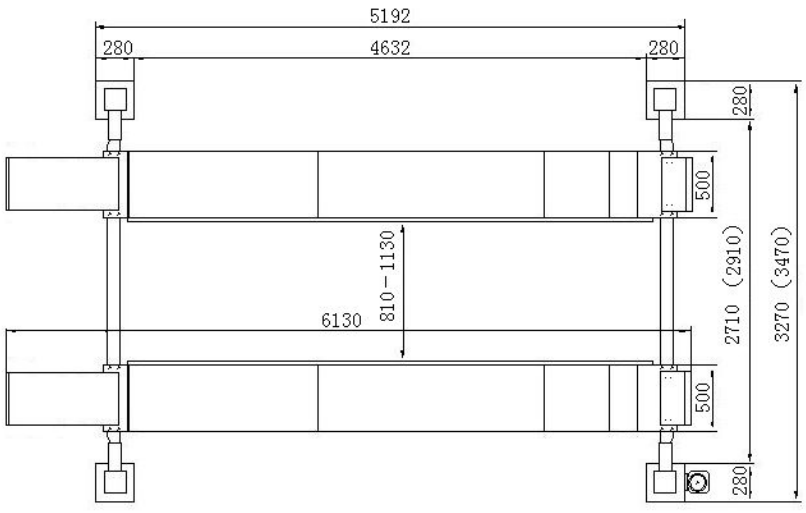
Rated power…… 2.2kw
Rated voltage…AC 400 或 230V ±5%
Rated current…… 400V:5A
…….230V:10A
Rated frequency……50Hz
Limit No.…… 4
Rotating speed……2800rpm/min
Connecting form…… B14
Insulation class……F
The connecting of motor is indicated in the diagram, the direction of motor is clockwise (see from top to bottom)

Oil pump:

Model……P2.1
Type……Gear pump
Rated flow……2.1cc/r
Connecting type……Direct connection

Overflow valve
Successive working pressure…210bar
Intermittent working pressure 150~300bar
Fill 20 L that is the same as 20# wear-resistance hydraulic oil into oil tank of the pump station.





Wheel alignment four post lift 5T CW450EW dimension drawing (including high level\low level\vertical view)
Appearance dimension drawing (between brackets) of 3D wheel alignment four post lift 5T
Fig. 5

Motor:

Rated power…… 3.0kw
Rated voltage…AC 400 或 230V ±5%
Rated current…… 400V:5A
……230V:10A
Rated frequency……50Hz
Limit No.…… 4
Rotating speed……2800rpm/min
Connecting form…… B14
Insulation class……F
The connecting of motor is indicated in the diagram, the direction of motor is clockwise (see from top to bottom)

Oil pump:

Model……P2.1
Type……Gear pump
Rated flow……2.1cc/r
Connecting type……Direct connection

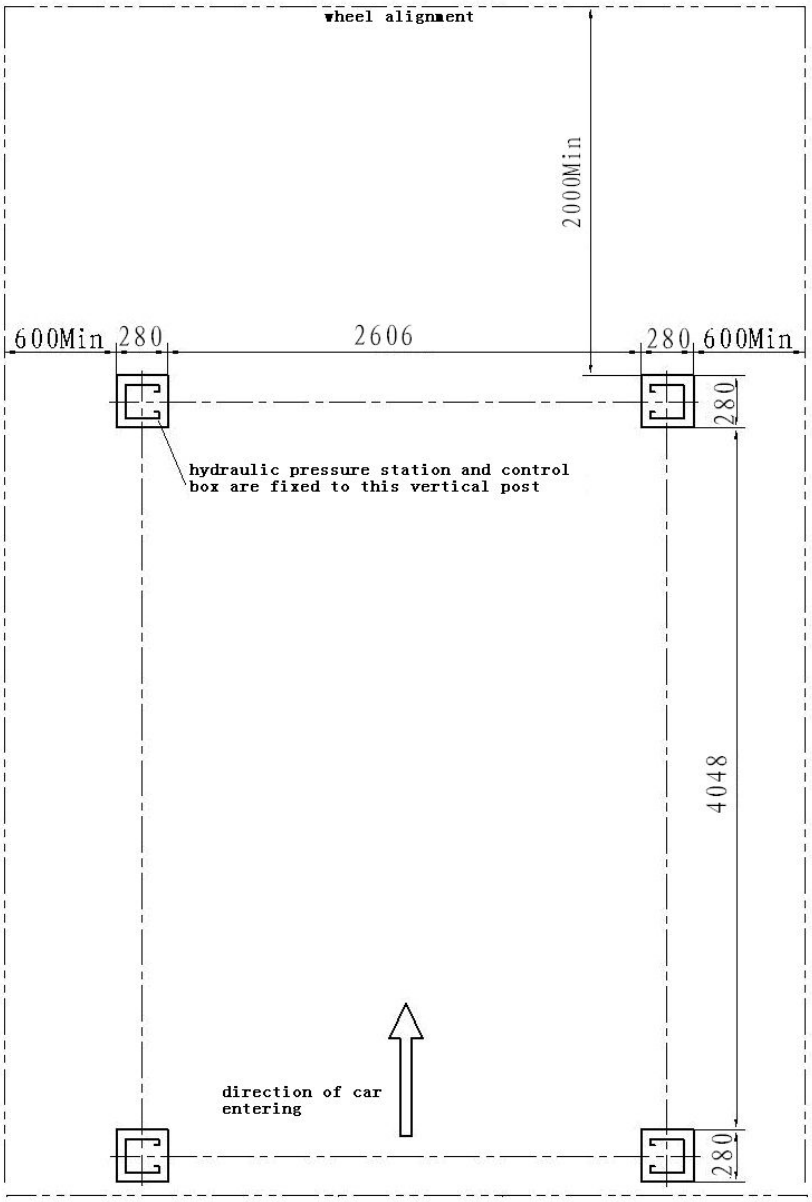
Overflow valve
Successive working pressure……210bar
Intermittent working pressure……150~300bar
Fill 20 L that is the same as 20# wear-resistance hydraulic oil into oil

Chapter II Specification Parameters

Schematic drawing for four-post lift installation

Attention: Basic requirements
- Concrete type is 425#, the dry period is 15 days
- Remove the internally generated surface in the foundation pit, the thickness of concrete at the pit bottom is ≥300mm, The levelness is≤ 5mm

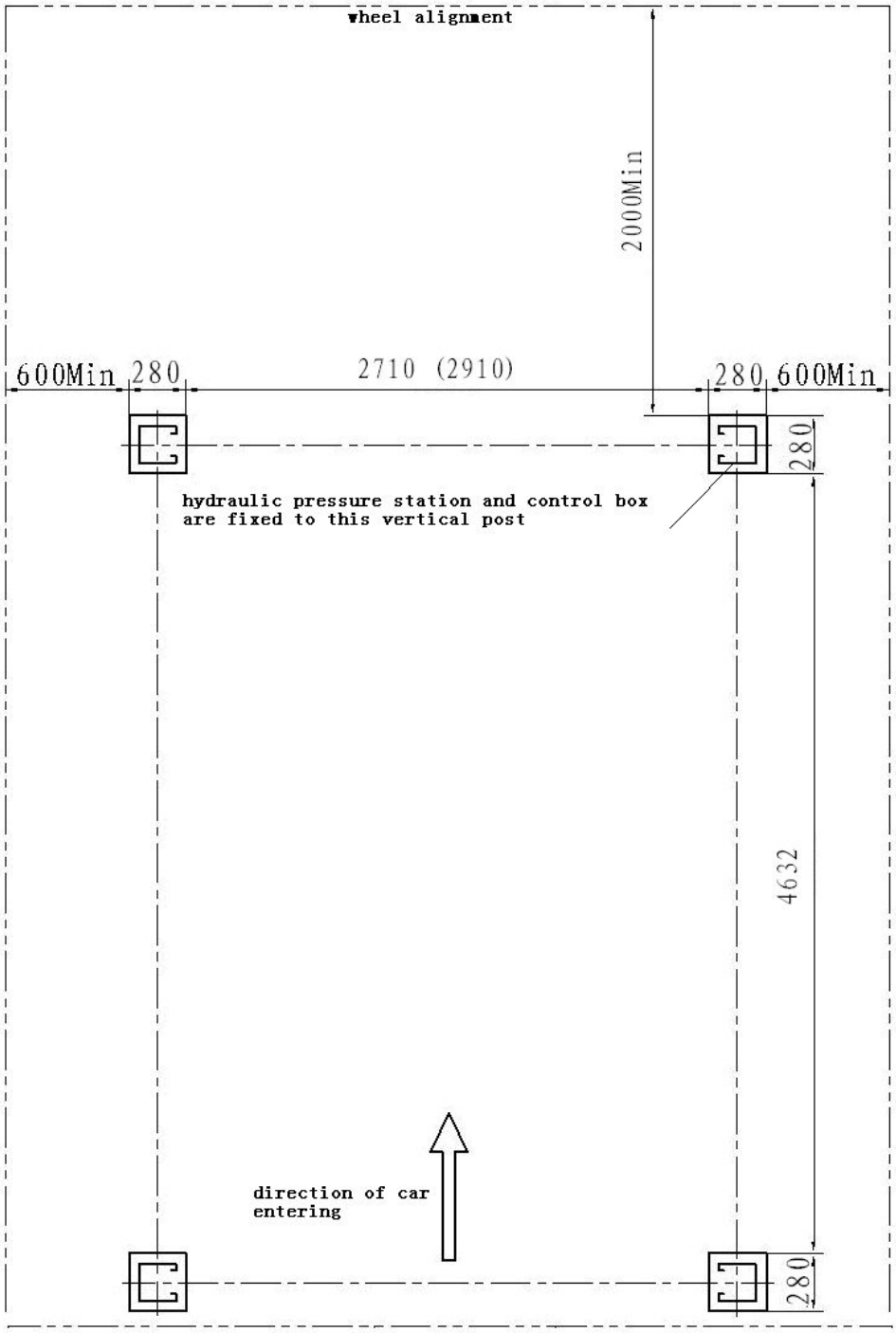
Provide the following at the same time:
-Connect to the power of the control box (400V or 230V 15 A)



Foundation drawing for wheel alignment four post lift 3.5T CW435EW

Fig.6

Concrete thickness and levelness of foundation are very critical. Do not lay too much expectation on the horizontal adjustment ability of the machine.



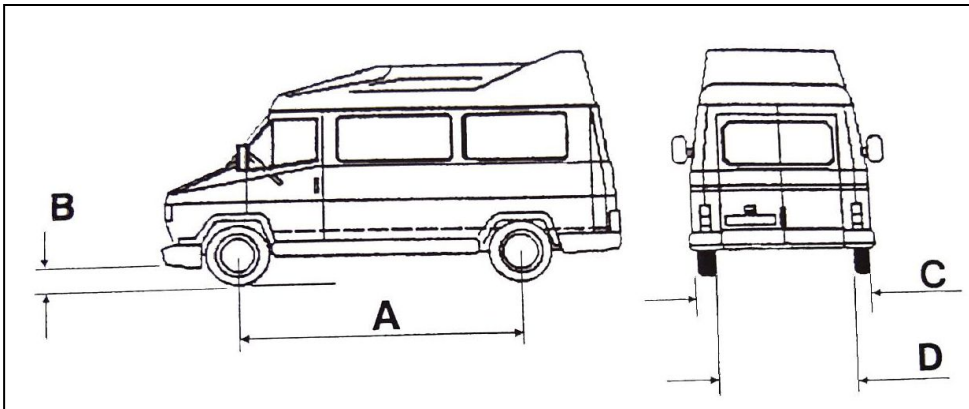
Foundation drawing for wheel alignment four post lift 5.0T CW450EW

Fig.7

Concrete thickness and levelness of foundation are very critical. Do not lay too much expectation on the horizontal adjustment ability of the machine

Vehicle type that the lifter is suitable for:
This lifter is applied to vehicles with weight and dimension within the following data:

Maximum lifting weight:
Not more than 3500kg for wheel alignment four post lift CW435EW
Not more than 5000kg for wheel alignment four post lift CW450EW



	3.5T(4T)	5.0T
A	3150	3900
B	200	
C	1840	1880
D	900	

Fig. 8

The lower bottom of the vehicle may collide with parts of the lifter. When one drives the vehicle, one shall pay special attention to this.

The lifter can also hoist ordinary or non-standard vehicles, when the weight of vehicle does not exceeds the maximum hoist capability

There shall also be different definition of dimensions in personnel safety area

Chapter III Safety

There is important content in this chapter. Operators shall carefully read this chapter.

The following content is explanation and description about danger and the possible danger during the operation, the correct effect and description of safety devices of equipment, other dangers, correct operating rules and potential dangers, etc.

The designing and manufacturing of lifter is intended for hoisting and maintenance of vehicles. It is inappropriate for the hoisting of other goods. It is suitable especially for the following operation:

-Washing and cleaning of vehicles
-The hoisting operation where there are persons on the platform
-The hoisting operation of goods in bulk or broken goods
-It is applied as the elevator
-It is applied in vehicles with severely tilt frame or severe deformed tire

The manufacturer bears no liability for personal injury or loss of property caused by incorrect operation or operation that violates the operating rules.

During the falling, operator shall operation within the safety area shown in the diagram.

As is shown in the diagram, operations by operator or other irrelevant personnel within this dangerous area are strictly forbidden.

Only when the vehicle is completely hoisted to the required position and the operation platform becomes still and the safety devices of the machine is completely prepared (such as the insurance gear is fully locked), can the operator and maintenance personnel be permitted to conduct operation under the vehicle.

Lifter shall never be used when there are no safety protection devices.

The might be casualty of personnel, damage of machine and damage of the vehicle that is to be hoisted if the operating rules mentioned above are not observed.

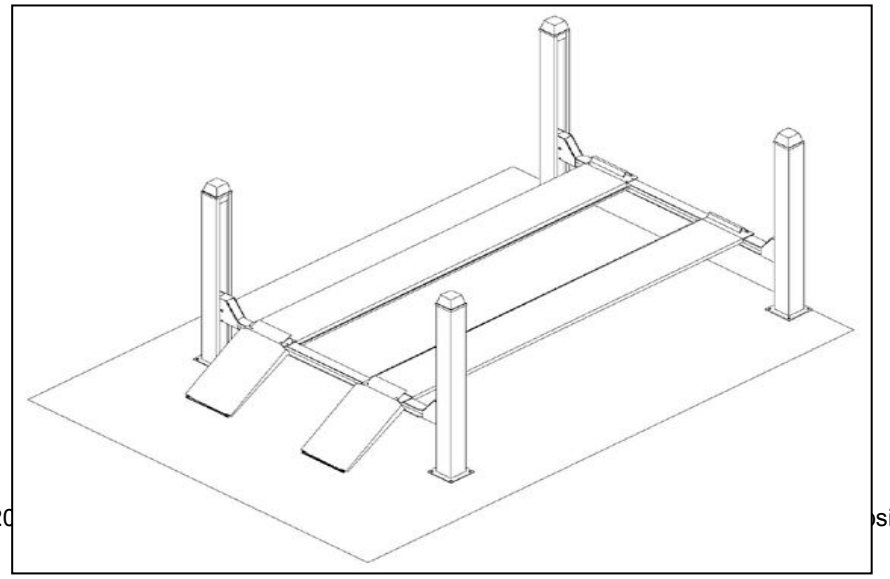


Figure 9

Overall Prevention

Operator and maintenance personnel shall operate the machine according to the ordinance on safety formulated by the country where the lifter is located.

In addition, operator and maintenance personnel shall:

-Conduct operation in the safety area required in the manual

-Make no alteration of the safety devices casually.

-Read carefully the safety warnings on the machine and the safety information in the manual

-Here are the safety warnings:

Warning Suggests the following operation will cause personal injury, damage of the lifter and vehicle or other loss of property.

Caution: It is the situation that is unsafe and might cause more personal casualty and loss of property.

Safety mark in the place where the lifter might have an electric shock

Safety protection device

When the vehicle is on the hoisting platform, operator and maintenance personnel shall check the possible danger, the manufacturer also shall adopt various protection devices to avoid and reduce the occurrence of dangers as possible.

The safety of personnel and vehicle shall operate according to the following rules:

-When the vehicle-hoisting, operator and maintenance personnel shall never enter the non-safe working area (in the lower part of the machine and the vehicle)

-When the vehicle is placed on the platform, the engine of the vehicle shall be turned off and the brake shall be pulled tightly.

-Make sure that the vehicle is at the correct position on the platform (See Figure 8)

-Make sure only vehicles with weight, height and length being within the permitted scope of weight, maximum height and length can be hoisted.

During the vehicle-hoisting, personnel shall never stay on the platform

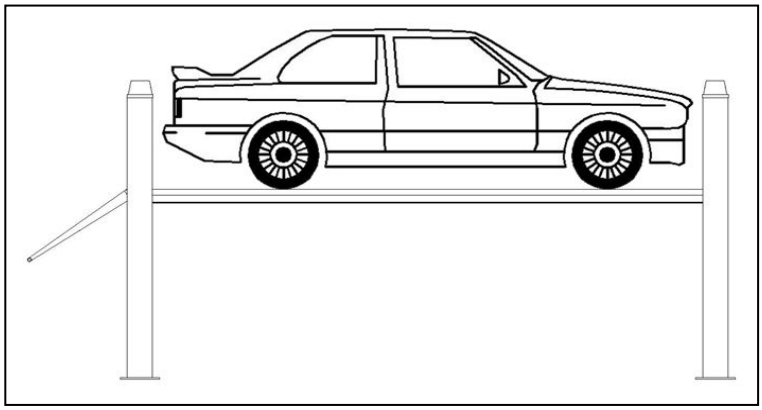


Figure 10

The potential dangers during vehicle-hoisting:

The following safety devices are intended for protecting overloading or mechanical failure protection:
Under the situation of overloading, the overflow valve at the pump station will open and return oil into the oil tank (See Figure 8)
-In case of oil pipe rupture or wire rope broken, the corresponding rope broken protection mechanism will work to prevent platform from sliding (see Fig.9).

Fig. 11

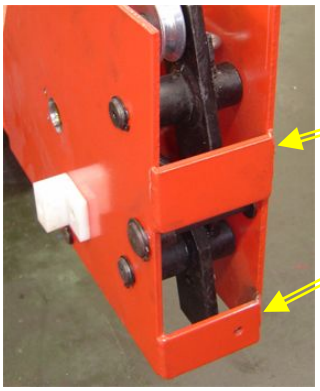


Fig. 12

The main safety mechanism, which shall be guaranteed to be in good condition, is used to ensure operation safety of the personnel under the machine.

No sundries are allowed on the safety components to ensure normal engagement.

Danger of personnel

This item suggests: the possible potential danger due to incorrect operation of operator and maintenance personnel any other personnel within the working area.

Danger of extrusion

Danger caused by personnel's failure in leaving the area mentioned above according to the rules when the lifter is hoisting or falling.

No personnel can work under the moving parts of the machine when the lifting platform is hoisting or falling. Personnel shall stay in safety position.

Danger of impact

Operator can conduct hoisting and falling of the lifter when he/she has confirmed that there are no personnel within the dangerous area. Meanwhile, when the lifter is at a rather low height (less than 1.75 meter from the ground), since there is no color on the machine, impact of collision of personnel due to no color on the machine, shall be avoided.

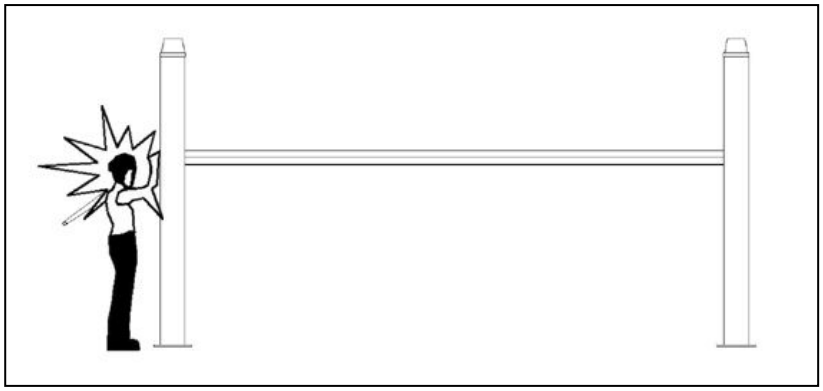


Figure 13

Danger of personnel falling down

There shall be no personnel on the lifting platform or inside the vehicle that is to be hoisted when the lifter is hoisting or falling, so as to prevent them from falling.

Risk due to car movement:

Risk caused by forced car movement during operation

Danger of vehicle-falling:

Danger caused when vehicle is placed at the incorrect position, the over-weight of vehicle and the dimension of vehicle is not in accordance with standards.

Never start the engine of vehicle to conduct hoisting or falling and testing on the lifting platform.

Never lay articles at the falling area and moving parts of the lifter.

Danger of sliding:

Danger of personnel slipping due to oil pollutant on the ground in the surrounding of the lifter, the lower part of the lifter or the surrounding area and platform shall be clean. If there is oil pollutant, please remove it immediately. (Figure 14)

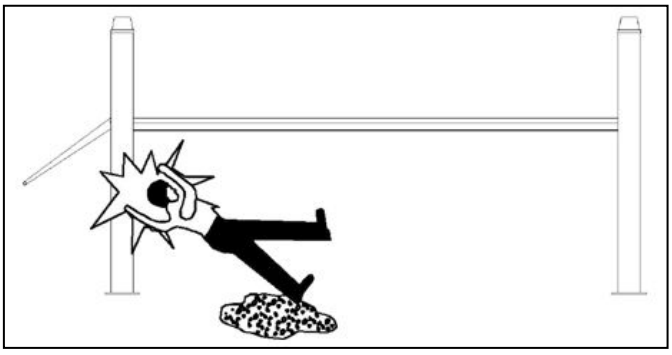


Figure 14

Danger of electric-shock:

Danger of electric shock caused by damage of insulation of electrical equipment

Never use water and steam, etc. to clean the machine, never use solvent or paint, etc. to approach the control panel of the lifter

Danger caused by insufficient lighting:

Operator and maintenance personnel shall install lighting required for working area of lifter operation in the corresponding position to prevent loss of parts and personal danger due to insufficient light.

Operator shall constantly observe the lifter and conduct operation within the position of operator due to hoisting and falling.

Rubber cushion shall be placed under the chassis when the sub-machine is hoisting and falling.

Never move the safety devices, Hoist weight shall not exceed the maximum hoist capability required for the machine and make sure that the machine is not over-loaded.

It is necessary to operate according to the rules in the manual on using, maintenance and safety, etc.

Chapter IV Installation

Only the specialized personnel can conduct installation. They shall carefully read and follow the following instructions to avoid damage of machine and personnel casualty.

Only the authorized technicians can install the lifter.

Installation requirements:

The lifter shall be installed according to the specified distance between walls, columns and other facilities. (Figure 15)

The minimum distance to wall surface is 1000 mm. To prevent against emergency and provide convenience to work, the sufficient space of safety channel shall also be taken into consideration.

The site for installation shall be equipped with power supply and air supply, which are connected to the control box.

Indoor height shall be no less than 4000mm.

- It can be installed on any indoor-ground; the ground level shall conform to the requirements and have adequate capacity to bear certain weights (≧250kg/cm2, cement

concrete thickness of the ground level≧300mm and level≤10mm), or, the concrete foundation (dimension≧600×600mm and thickness≧300mm) shall be grouted for the four posts position.

- When the machine is to be installed, there shall be enough light to guarantee the safe operation of commissioning and maintenance and avoid the eyestrain of personnel caused by stimulated light.

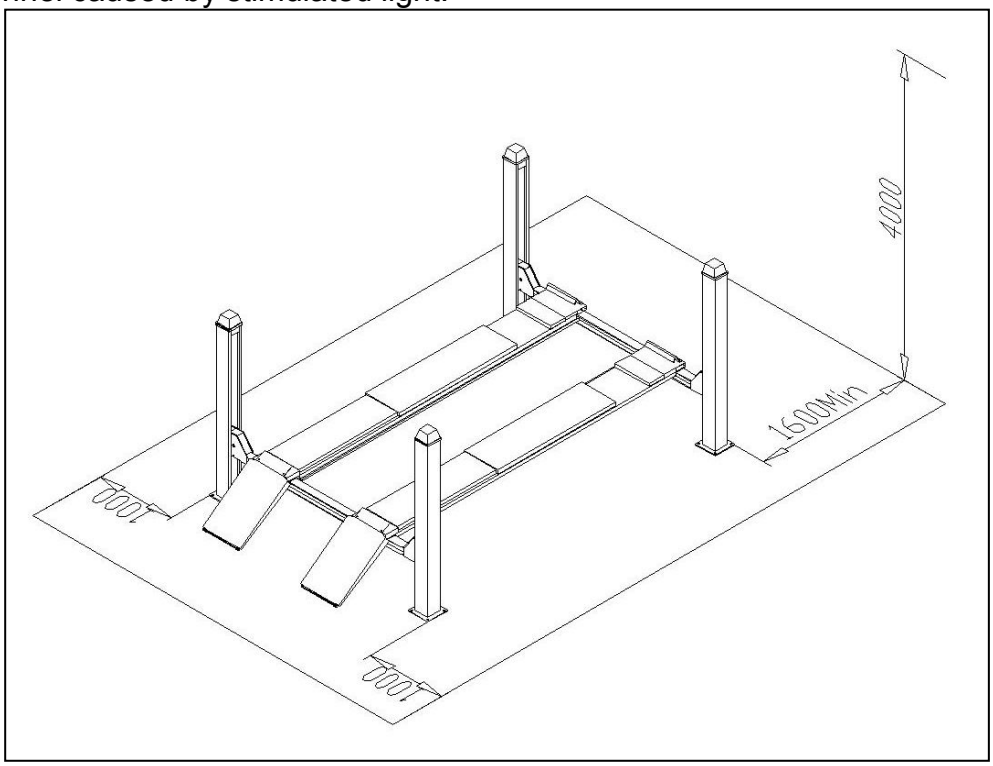


Figure 15

It is necessary to check the completeness of the goods before the lifter is installed.
Moving and installation of lifter shall be conducted by specialized personnel.
Transportation and storage can be referred to chapter of package, transportation and storage.

Beam installation:

- Place the front and rear beams on the ground according to the installation positions (the beam with handles is placed in the front of loading direction and the installation screw holes are located on the left side of loading direction)
- The beam will be blocked up by 100-300mm with blocks of wood or iron from the bottom
- Eight nylon anti-collision blocks are installed on the inner side and outer side of the two ends of the beam (the gap is vertical outward)

Installation of girder platform

- The main girder is at the left side of the beam and auxiliary girder is at the right side of the beam. Trolley guide rails face the inside (the direction of loading)
- Place the main girder(with the oil cylinder) on the position of tapped hole at the left side

of the beam and make it in with compressed air from the bottom of oil cylinder (with muffler); four people pull the wire ropes out of the main girder at both ends (one long rope , one short rope).

- Make the wire rope pass through wire rope hanging wheel slots at both ends of front and rear beams, along the inside of the of the beam

Wire rope must not twist. Make the short rope pass through left beam hanging wheel slot

Remove the wire rope head nut; at the same time, loosen the wire rope handing wheel shaft inside the beam. After making it pass, install the hanging wheel shaft.

- Insert front and rear beams into both ends of main platform girder and tighten them with screws (It is not needed to tighten the auxiliary girder with bolts in order to facilitate adjusting platform spacing)

Installation of posts:

- Remove the screw at the safety rack inside the post
- The post is at the end of beam and connects to nylon stop block on the beam. Insert the safety rack into the safety slot.

The main post is located at the left-front position in the loading direction; (5T four posts are located at right-front position). When you place other posts, note that waist-shaped hole on the upper safety rack lean to the outside

- Make the wire rope head screw stem pass through the hole at the post top and tighten the rope head nut

- Install and fasten the control box and hydraulic station at the main post
- Check the platform spacing and diagonal line of both beams and make relevant adjustment

Trolley installation: (Optional, no item is available for that with out the trolley)

- Regulate the spacing of traveling mechanisms for the lift trolley; place the trolley wheel on the sliding rail between two platforms
- Regulate the auxiliary girder to ensure that the trolley can freely move on the sliding rail.

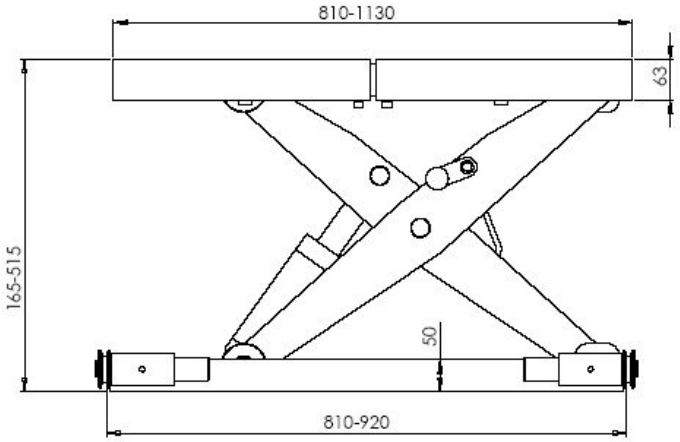


Fig. 16

Pipeline connection

Make circuit and oil line connection according to “Electrical connection diagram” and “Oil line connection diagram”

The oil pipe and wire cannot be damaged; during oil pipe connection, special attention shall be paid to protection of pipe joint to prevent sundries from entering the oil line and air line and damaging the hydraulic system.

Electric circuit connection:

Electric circuit shall be connected in accordance with wire diameters and wire number specified in Electrical Connection Diagram.

Electric mounting operation shall be only carried by professionals with electric operation qualification.

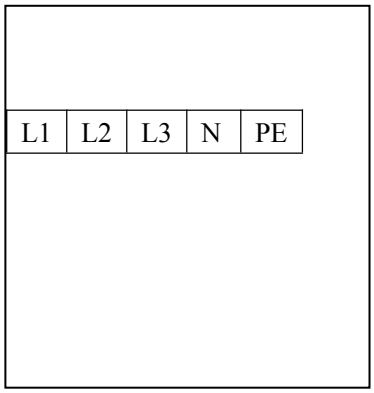


Fig. 17

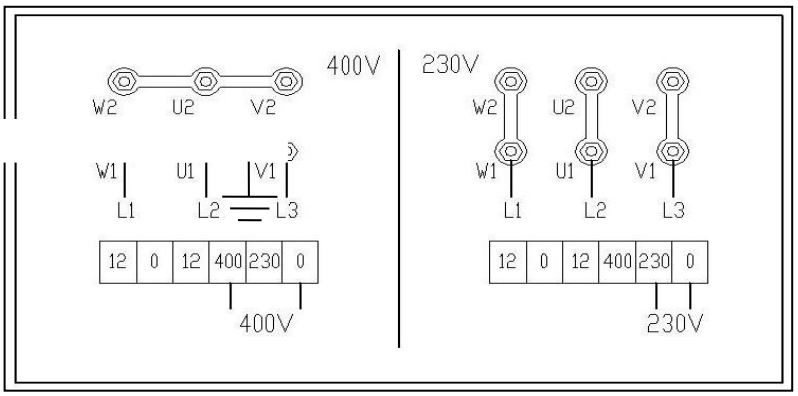


Fig. 18

With control line：

-Motor line connection: connect U12＃, V12＃ and W12＃ cable from the control box to **the junction box of the motor.**

-For 230 three-phase power supply, it is necessary to adjust control transformer and motor connection (control boxes are needed for this kind of connection method).

Without control box:

Directly connect 400V Three-phase Four-wire power line (3×2.5mm2＋2×1.5 mm2 cable）to the junction box.

Hydraulic pipeline connection:

Connect the hydraulic oil pipes according to “Oil line connection diagram”

Only authorized professional and technical personnel can engage in the installation of hydraulic circuit.

Special attention shall be paid to protection of oil pipe joint to prevent sundries from entering the oil line and causing failure.

- Connect the high-pressure oil pipes from the oil outlet of the hydraulic pump station to oil cylinder of the main platform (See “Oil line connection diagram”)

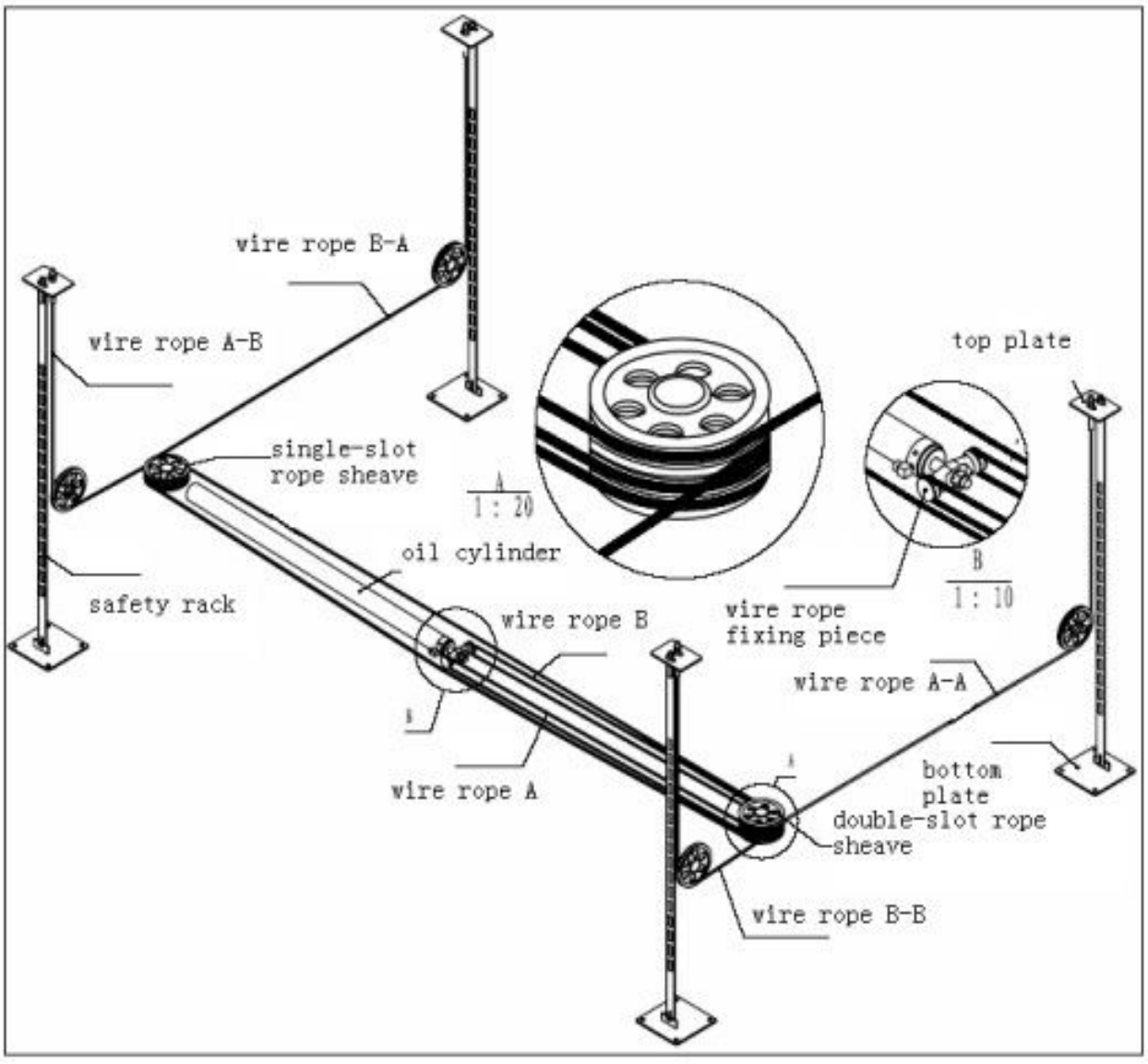
-If equipped with electric secondary trolley, the high-pressure oil pipes of the main platform

will be connected from the manual reversing valve to the main oil cylinder.
- While connecting the oil pipes, pay attention to protection of oil pipes joints to prevent sundries from entering the hydraulic circuit.

Oil pipes connection for electric trolley: (No for that without trolley)

- Oil pipes of the small trolley are connected from the Manual reversing valve to the oil cylinder of the trolley.

Schematic diagram on winding method of wire rope for wheel alignment four post lift 3.5T CW435EW



Schematic diagram on winding method of wire rope for wheel alignment four post lift 5T CW450EW

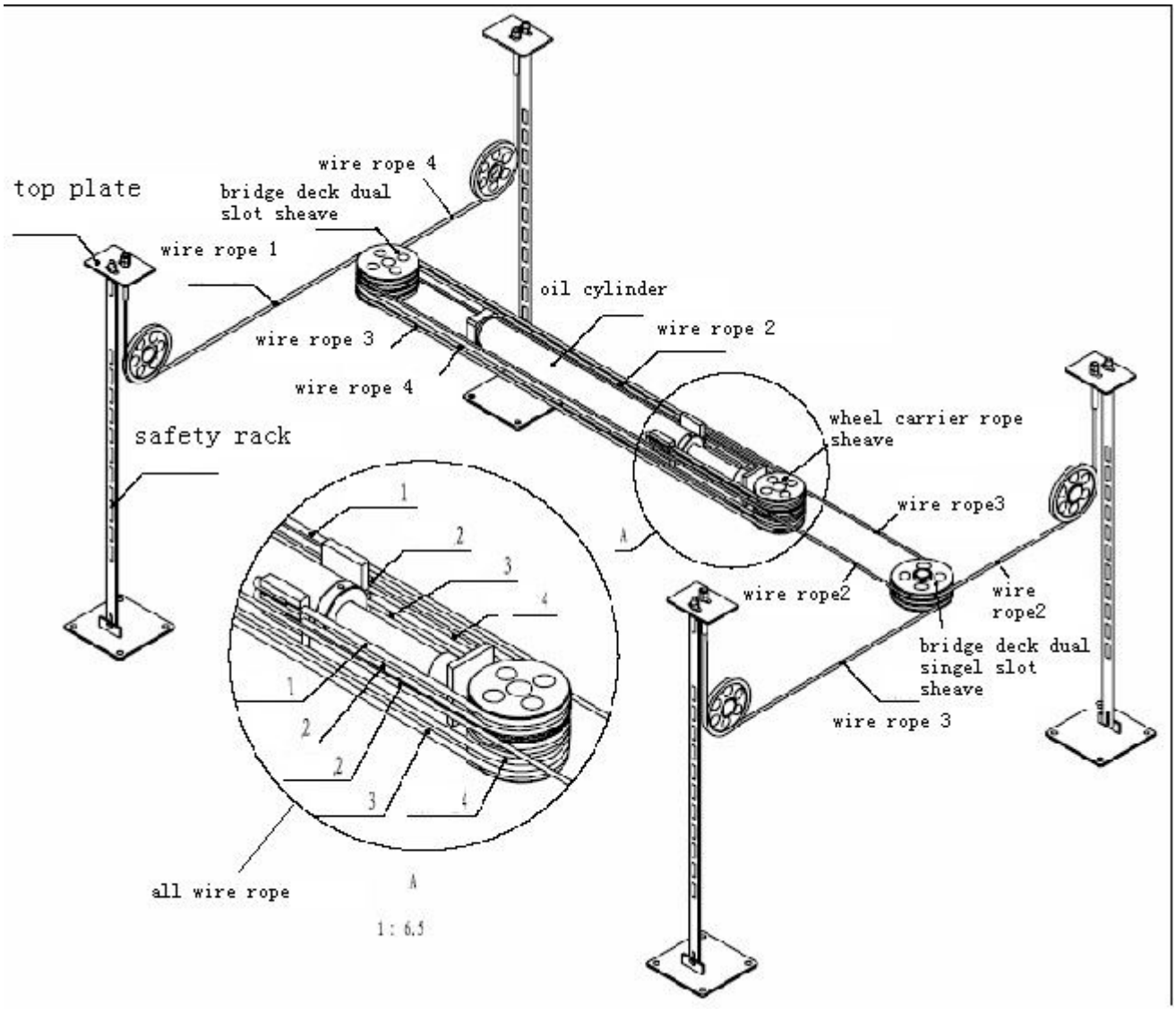


Fig. 20

Chapter V Commissioning

Add oil and check phase sequence:

After hydraulic circuit, electrical circuit and air-way are connected according to the annex, operate according to the following procedures:

-Remove the cover of the control cabinet and fill 18 L that is the same as “ESSO-NUTO H20” wear-resistance hydraulic oil to the oil tank with funnel (users prepare hydraulic oil by themselves).

When hydraulic oil is injected into the oil line, ensure that the hydraulic oil is clean and prevent any sundries from entering the oil line and causing blocking.

-Switch on power supply and press “Up” button to check whether the direction of rotation for the motor is correct; if reversion, cut off the power supply and adjust the phase sequence of power supply

After the power supply is connected, high-voltage electric shock inside the control panel is likely to occur. Operation shall be only carried out by professionals with electric operation qualification and it is necessary to prevent electric shock (Control box selection).

Debugging of main machine

-Set “3-way ball valve” to the position of “main machine” (Fig. 22, no for that without trolley)

–Press “Up” button to lift the girder to the position of 1000mm from the ground surface.

-Press “Down handle” to check weather the safety mechanism has dropped in place and been reliable.

- Fasten the screw at the bottom of the safety rack in the post.

-While pressing the “pressing and holding down handle”, press and hold the safety handle （Fig. 21）on the front beam to bring the platform down.

-There are 2 kinds of control modes; the one without control box is a standard configuration and the other with control box is a optional one.

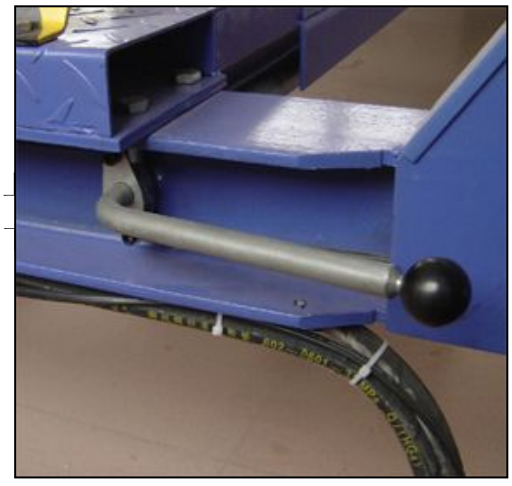


Fig. 21 **Fig 22 (Pump station without control box)**

Fig. 23 Pump station with control box (selected by customer) Fig. 24 Panel of control box (selected by customer)

Chapter V. Debugging

With electric trolley: (no for that without trolley)

- Place “manual reversing valve” to the “trolley” position

-Press “Up” button to lift the trolley about 300mm.

-While lifting the bumper of the trolley, press “Down handle” to lower the trolley.

-Press “Down handle” to check weather the safety mechanism has dropped in place and been reliable.

Installation of foundation bolt:

The construction of foundation bolt shall be undertaken after the expiration of maintenance for concrete. Otherwise the strong quality shall be affected.

-Adjust the diagonal of the beam, position and verticality on the four posts (which must stand against the beam nylon blocks)

- Impact drill hammer ofΦ18 shall be drilled to the deep hole of 120mm from ground through base hole of platform with electric hammer pinch (figure 25) and entrance to hole shall be cleaned.

-Foundation bolt shall be installed in the holes with light hammer (without installing the central expansion nail of foundation, it shall be installed after leveling adjustment is completed.

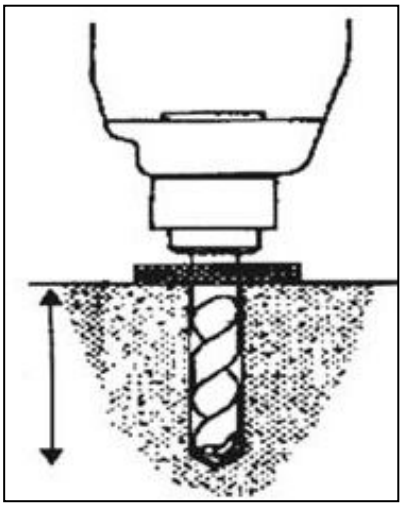


Fig. 25

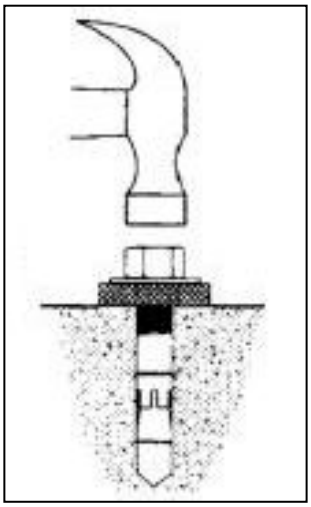


Fig. 26

Leveling adjustment:

- Inspect the levelness on all sides of plan for left and right platform with transparent leveling pipe or level-mete (figure 27)

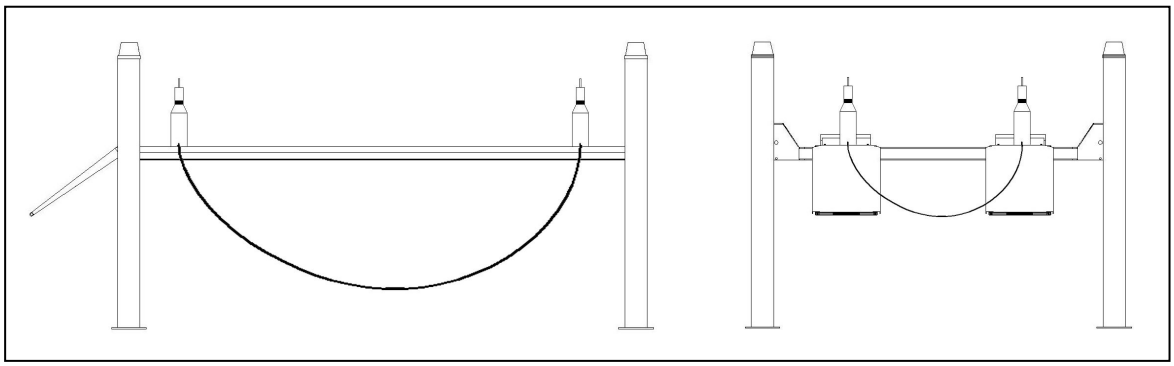


Figure 27

Horizontal adjustment on the safety rack:

–When uneven foundation brings unevenness of the platform, we can adjust the height of the safety rack in the post.

-Lift the platform about 1000mm and then press “Down handle” to make the safety rack fall in the hole on the same layer.

-Loosen the bolt at the bottom of the post; observe the horizontal line and adjust the screw nuts at the upper end of the safety racks of the four posts up and down.

- After finishing the horizontal adjustment, fasten the bottom end bolt and upper end screw nut of the safety rack.

-Insert the central expansion nail of anchor bolt; hammer the expansion nail in and then tighten the anchor screw cap.

When the guarantee period of concrete is not expired and central expansion nail of foundation bolt shall not be installed.

After leveling, the space between base plate and ground shall be filled with cement mortar.

Horizontal adjustment on wire rope:

-Lift the platform about 1000 mm.

-Observe the horizontal line and adjust the screw nuts at the wire rope ends in the four posts up and down.

-After finishing the horizontal adjustment, fasten the screw nut at the wire rope end

No-load testing on the main machine:

-Switch on the power supply, (if equipped with the electric trolley, set the “manual reversing valve” to the “main machine” position)

-Press “Up” button to make the main machine platform ascend.

-While pressing “Down handle”, press and hold the safety handle to make the platform descend.

-Press “Down handle” once and the four trolley safeties will be locked in place.

-Check whether the main machine lifting is stable, the safety locking position is reliable and the oil line is leaking.

During test, there shall not be persons and other articles in the lifter rising and falling or regulated area.

No-load testing on secondary trolley

Electric trolley:

-Set “manual reversing valve” to the “trolley” position

–Press and release the “Up” button to make the trolley ascend

-While pressing “Down handle”, press down the safety handle to make the trolley descend.

-Press “Down handle” once and the trolley safety will be locked in place

Check whether the trolley lifting is stable, the safety locking position is reliable and the oil line is leaking

No-load testing on main machine

-Drive the car which does not exceed the maximum lifting weight to the platform and personnel in the car leave the car and the platform.

-If equipped with electric trolley, “manual reversing valve” shall be set to the “main machine” position (no for that without electric trolley)

-Press “Up” button to lift the main machine platform and then check whether the platform is stable.

-Check whether there is abnormal sound about the lift frame and the hydraulic pump station.

-Press “Down handle” and check whether the main safety mechanism is correct and reliable.

Load testing on the secondary trolley

-Push the trolley to the front and rear shaft position of the car, take out the trolley bracket to aim at the top parking and then put the rubber pad on it.

- Lift the trolley to check whether it is stable.

-Descend the trolley to check the trolley safety is reliable.

During test, there shall not be persons and other articles in the lifter rising and falling or regulated area.

The weight of tested vehicle can not exceed the minimum lifting capacity of the lifter

Inspect whether there exists oil or gas leakage in oil-way and gas-way. For any abnormal conditions, shut down the machine timely and commission once again after the failure is removed

Chapter Ⅵ. Operation

Only operator that has been trained is allowed to operate the lifter. Inspect according to the following cautions

Operational cautions

-The obstacle around and below the machine shall be removed before work

-During rising and falling, there shall not exist persons in the regulated area for the lifter, below the machine and in the vehicle on the platform

-The lifter can not lift vehicles and other goods that weighs beyond the lifter operation scope

- When the secondary trolley is lifted, put the rubber pad on the trolley bracket

- Prior to descending, first ascend the platform a little and press down the safety handle and then check whether the four safety catches and the safety rack are completely separately, otherwise, it cannot descend.

-When the machine will not operate for a long time or during night, the platform shall be lowered to the lowest position on the ground, the vehicle shall be driven away and the power supply shall be cut

Electric operational instruction: (refer to operation panel diagram)

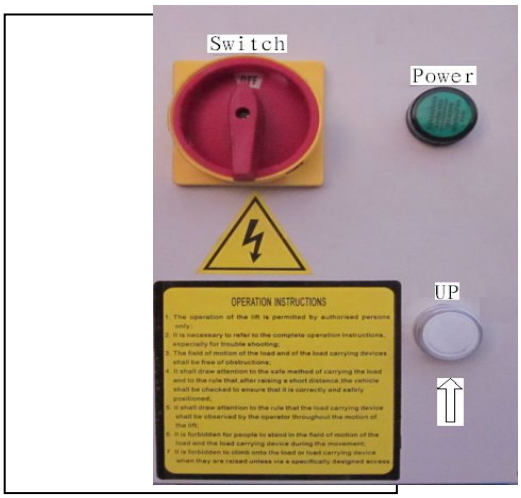


Fig. 27 Standard configuration (pump station without control box) Fig. 28 Selection of control box

Main machine ascending:

-If equipped with the electric trolley, first set “manual reversing valve” to the “main machine" position (no for that without electric trolley)

- If press “Up” button, the oil pump will run and the platform will ascend.

-If loosen the “Up” button, the oil pump will stop running and the platform will stop ascending immediately.

Main machine descending

-While pressing “Down handle”, press down the safety operating handle and the platform will descend; if loosen the handle, it will stop descending

- When the safety mechanism exists in the safety rack, first lift the platform a little (make the safety catch and tooth separate) and then press “Down handle”

–Press “Down handle” once to make the platform descend; when the safety mechanism fall on the next safety rack hole position, descending will stop and the platform will be locked.

People can only operate under the machine or calibrate the four-wheel aligner after “locking” operation is made.

Ascending of secondary trolley:

Electric trolley:

- Place the “manual reversing valve” at the “trolley” position
- Press and release the “Up" button to make the trolley ascend

As the electric trolley has high speed in ascending, you can not press the “Up” button for a long time for lifting; you can only press and then release the “Up” button for lifting and to control the speed.

Descending of secondary trolley:
Electric trolley:
- Press the “Down handle” and lift up the trolley safety mechanism at the same time to make the trolley descend
- If the trolley safety mechanism is locked, first lift the trolley a bit to ensure that the safety mechanism is disconnected, and then press the “Down handle”

Chapter Ⅶ Maintenance

Lift maintenance shall be carried out by well-trained operators

- Apply engine oil with a oil container to all wheels and shafts of this machine once a week
- Apply lubricating grease to moving parts including safety catch and wire rope one a week
- Disassemble the side slide plate of the special four-wheel aligner once a year and apply lubricating grease
- Change the hydraulic oil once a year; the oil level shall always be kept at the upper limit
- Check wear of wire ropes once per three months. In case of any broke strand, immediately stop using of it and contact the manufacturer
- Install the rotary cover type grease cup on the steel wire wheel shaft at the lower end of main girder. Apply the grease once per half a year
- Check the completeness of safety mechanism each day

Upon replacing hydraulic oil, old oil in oil tank shall be released. Upon filling new oil, such oil shall be filtered with oil filter.

- If the electric secondary trolley is provided, check reliability of the safety mechanism each day

Chapter VIII Faults and Troubleshooting

Machine faults solving shall be undertaken by operators having been trained with professional experience.

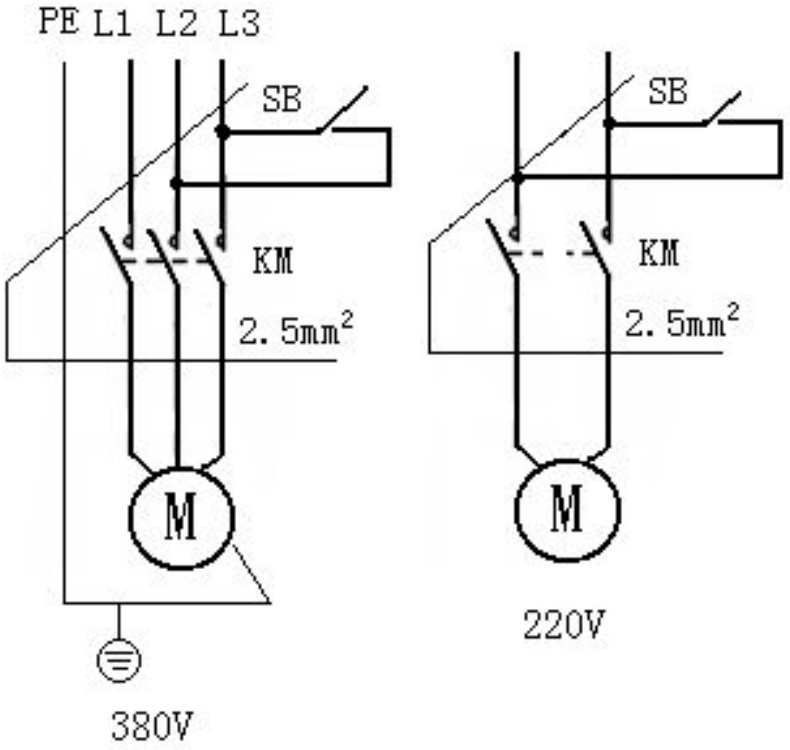
Fault phenomenon and troubleshooting:

Fault phenomenon	Phenomenon and reasons	Troubleshooting
Motor fails to rotate upon pressing rising	① Power is abnormal	After inspecting and eliminating, wires are connected
	② AC connector of main circuit for motor of pump is not connected	If motor shall operate after pressing motor by insulating rod, inspect control circuit. If the voltage of coil end for contactor is normal, contactor is replaced.
	③Fault in limit switch occurs	If the faults are eliminated after the terminals connecting limit switch of SQ1or SQ2 is short connected via wire, such limit switch and shall be inspected. Meanwhile, limit switch shall be adjusted or replaced.
	④ Button switch is damaged	Inspect contact point of button and wire for eliminating.
Motor can rotate but fail to rise upon pressing rising	① Motor rotates in reverse	Change incoming sequence of power supply
	②Motor shall rise with light load and it fails to rise with heavy load	Heighten the safety pressure setting of overflow valve by slightly screwing right. If there is dirt in the falling solenoid valve plug, clean the plug.
	③Hydraulic oil is not sufficient	Fill hydraulic oil.
When you press the “Down Button”, the lift does not descend.	①The safety catch is not disconnected from the safety mechanism	First make the platform ascend a bit, and then make it descend.
	③Error operation leads to seizing of safety mechanism	Make the safety rack out of the safety catch and do not damage relevant parts.
Oil leakage	①Loose pipe joint	Tighten the pipe joint

Table 3

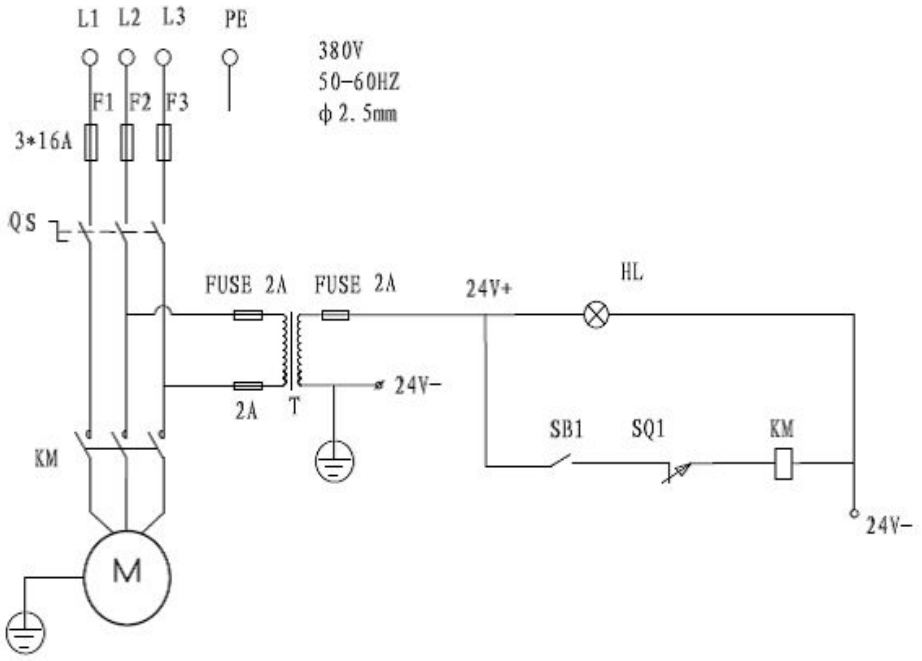
Four post series

Appendix Ⅰ Electrical schematic diagram of four-post series lift



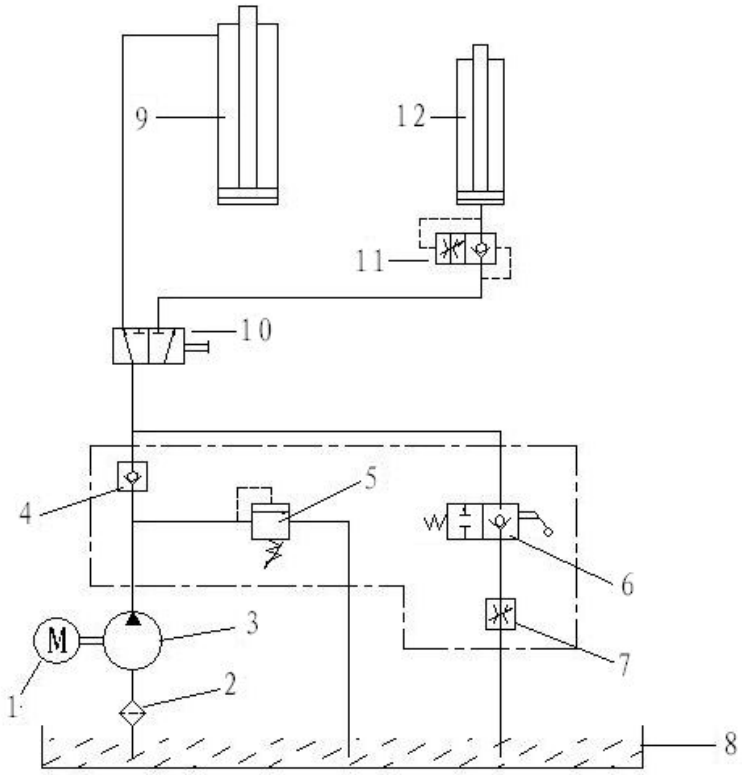
Electrical

schematic diagram of four-post series lift with standard configuration

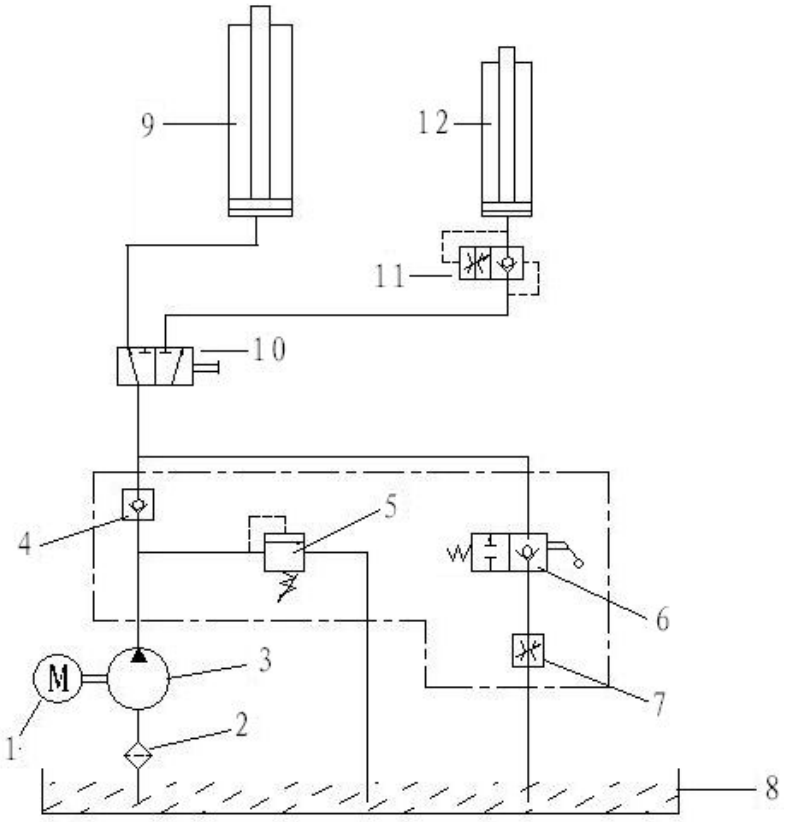


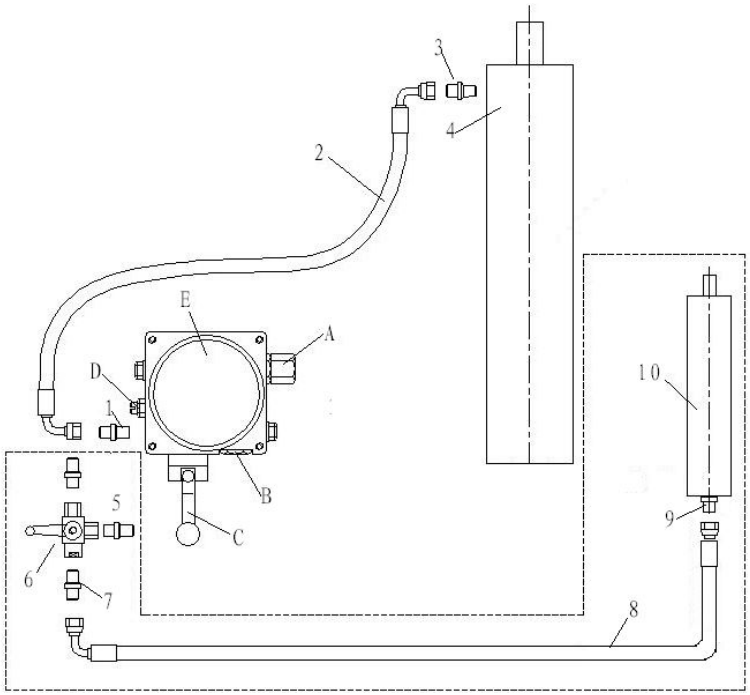
Electrical schematic diagram of four-post lift with electrical control box (selected by customers)

Hydraulic schematic diagram of wheel alignment four-post lift 3.5T CW435EW

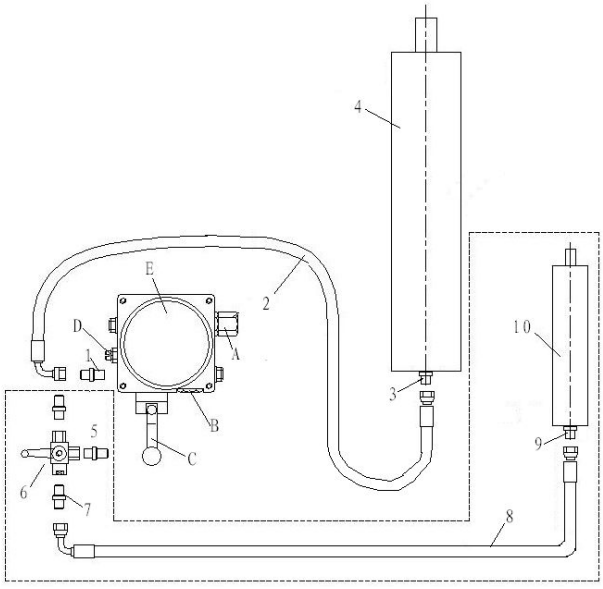


Hydraulic schematic diagram of wheel alignment four-post lift 5T CW450EW





Appendix Ⅲ Schematic diagram of oil circuit connection for wheel alignment four post lift 3.5T CW435EW



Schematic diagram of oil circuit connection for wheel alignment four post lift5T CW450EW

The part within broken line indicates oil circuit connection with secondary lift.

To ultimate users:
The guarantee card is important certificate for ultimate users in guarantee service. No card supplied for loss, please conserve it well.

[Instructions for Guarantee]

I. Guarantee period:

The guarantee period lasts for 12months from the second day after machine purchase and invoice issuing.

II. Guarantee scope:

If quality problem occurs in lifter manufactured by our company in normal installation, operation and maintenance based upon the manual, our company will provide free maintenance for the user according to regulations.

III. Guarantee method:

If the quality problem occurs in the lifter, the user can get contact with special dealer of our company for guarantee based upon invoice and guarantee, or direct contact after-sales service of our company. The company will provide free maintenance or replacement for damaged parts in guarantee scope.

IV. Any situation below never belongs to guarantee scope (that is charging service)

1. Beyond guarantee period.
2. The faults caused by the user's arbitrary dismounting and change or the operation and maintenance not as per the manual.
3. Rising and falling steel wire rope, rubber tray and slide pad for the lifter.
4. The guarantee period of electronic components is beyond six months.

V. All explanation rights in manual above are reserved by sales department of the company.

Product model		Product No.		Invoice No. or Contract No.	
User's name		Address		Contact person, telephone	
Purchase date		Operation organization		Telephone	
Faults and maintenance service situation				Maintained by	Date
Note: The user shall clearly fill out return receipt of guarantee card, the guarantee procedure is handled within one month since the purchase date and the return receipt shall be mailed to our company; the guarantee card is never supplied for loss and it is invalid for arbitrary change.					

Return Receipt

Product model		Product No.	
User’s name		Contact person	
User’s address		Telephone	
Operation organization		Purchase date	
Invoice No. or Contract No.			