

We follow the way that wheel moving!

CLEAR FLOOR TWO POST LIFT

CL-S245C



INSTRUCTION & MAINTENANCE MANUAL

Cautions



Warning

- The manual is indispensable part of the product and please read it carefully.
- Please conserve the manual well for reference in overhaul.
- The machine here shall be only used for the purpose specified in design, never for others.
- The manufacturer never takes any responsibility for damage caused by misuse or other use.

Cautions

- The machine here must be operated, used or maintained by qualified personnel, who has obtained specialized training, and arbitrary change of machine parts or application scope may result in damage to machine directly or indirectly if there is never approval by manufacturer or the behavior is not in line with the manual.
- Never make lifter in extreme temperature or humid environment. The installation shall be far from water tap, air humidifier or furnace.
- The lifter shall be prevented from much dust, ammonia, alcohol, diluents or spray adhesive and others.
- The person beyond operators shall never approach the machine when the machine is in operation.
- The routine inspection for lifer shall not be conducted when the lifer is in failure or there is damage to parts and the original equipment parts shall be used when the part is repaired or exchanged.
- The lifer shall never be in overload and the rated bearing capacity of lifer is marked on nameplate.
- It is forbidden to hoist the lifer when there is person in vehicle. The client or spectators shall be beyond the lifting scope in operation.
- Make sure that there is no obstacle, grease, machine oil, refuse or other impurities in lifter area.
- Locate bracket arm of lifer to make it in line with hoist point recommended by manufacturer. Hoist the lifer, ensure that bracket arm is in closed contact with vehicle and make lifer rise to proper work height.
- As for some vehicles, the removal (installation) of parts may result in severe gravity shift and instability of vehicle. The vehicle shall be balanced by support.
- Please locate bracket arm of lifer before the vehicle leaves lifting area so as to avoid obstruction in moving.

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- Use proper equipment, tools and safety protection facilities, such as, uniform, safety shoes and others.
 - Please pay special attention to different safety identifiers on machine.
 - It is forbidden to touch moving parts with hands or other parts when lifer is in operation.
 - It is forbidden to remove safety device of the machine or makes it useless.
 - The hydraulic oil for the machine is N32 or N46 wear-resistance hydraulic oil. Please make sure to use it in safety scope and refer to appendix for safety data.

Illustrations for Warning Signs

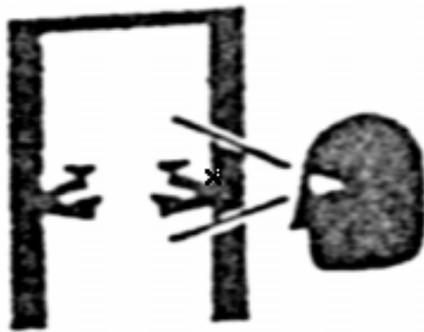
(1) Please carefully read user's manual and service manual.



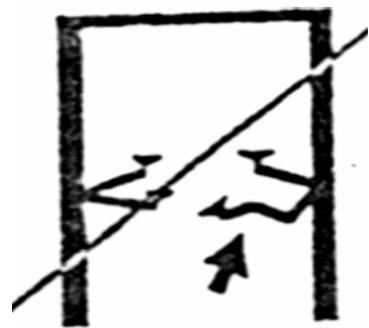
(2) Never adjust safety pressure of Hydraulic pump station of lifter



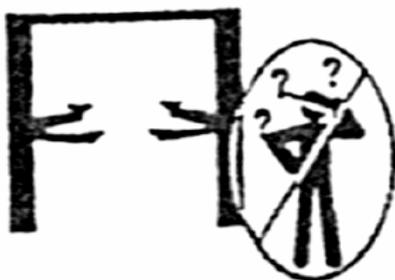
(2) Provide proper maintenance and inspection for safety operation



(4) Forbid operating damaged lifter



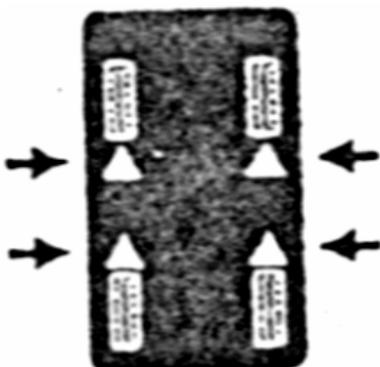
(5) The lifter shall be only used by operator trained



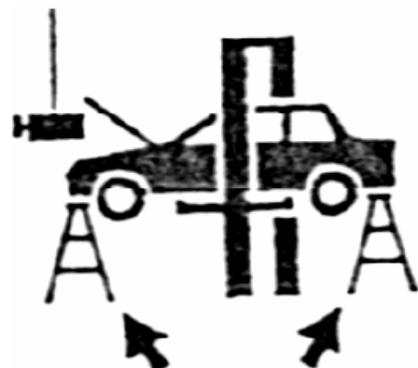
(6) Only authorized person can conduct operation in Lifter scope



(7) Use hoist point designated for vehicle



(8) Use safety support at any time when heavy parts are removed or installed



(9) Auxiliary accessories may reduce load capacity (10) Peripheral regions shall be unblocked when Vehicle tilting may occur.



(11) The vehicle must be located by tonnage in manual (12) There shall not be obstruction around lifter in hoist or falling.



(13) Prevent vehicle from excessive swing in hoist (14) Never make lifter in auto-closing or controller beyond control



(15) The feet must leave lifter when the lifter is in falling (16) It is forbidden that person stands on bracket arm when lifter is in hoist



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Chapter I: Overview and Features

1.1 Description for machine model

Machine model	Machine name	Description
PL4.0-2A	Common large-scale gantry lifter	4.0T Symmetric-arm lifter of economical and practical type

1.2 Purpose:

As excellent equipment for automobile hoist with simple operation, safety and reliability, double-column hydraulic lifter of PL series is applicable to various medium and small cars below 3.5T or 4T in hoist to conduct maintenance and care for different vehicles.

1.3 Functions, overview and features:

As the essence by our company integrating different domestic and overseas categories and models, double-column hydraulic lifter of PL series is based upon lots of data argument and long-term fatigue experiment and characterized by stability, reliability, safety, convenience, use of imported components and steady hoist and falling. The large-volume pump station is featured by high speed in hoist and low noise in operation. The electric series can release you from manual troubles. The explosion-proof valve or throttle valve is adopted in hydro-cylinder connector. The machine and hydraulic pressure with double-safety is convenient and safe; it is the best choice for vehicle maintenance, care or washing.

The company can manufacture machines with different hoist height and hoist weight in accordance with clients' requirements.

- A. Electric lifter is with hidden cable and pipeline and its appearance is beautiful and generous.
- B. Mechanical safety device based on international standard and electric unlock device is in perfect integration
- D. Double-safety self-locking protection device, safe and simple operation.
- E. Two steel cables in synchronous connection in use force both sliding ways in synchronous moving to prevent vehicle tilting.
- F. Minimum hoist height is 110mm and it is applicable to maintenance of high-grade car.
- G. High load bearing chain, safe and reliable.
- H. 24V safety voltage control for electric series
- I. Imported hydraulic components in use.

The company reserves the right to modify the products without further notice.

Chapter II: Main Technical Parameters

Basic parameters for equipment:

Name Model	Technical parameter					
	Rated load (Kg)	Rising and falling time	Hoist height	Hydraulic oil	Electric power	Rated oil pressure
PL4.0-2A	3500/4000	40~60S	≥1850mm	N46#	2.2KW	15-16Mpa

Note: 1. Voltage: The motor with different voltages can be selected in accordance with client's requirements.

Single-phase/three-phase: 110V/380V 60Hz

Single-phase/three-phase: 220V/380V 50Hz (standard configuration)

2. The pump station of 220V is adopted and the user must provide power stabilizer to make sure that motor and related electrical components are not damaged for undervoltage.
3. The hydraulic oil may differ much in different regions and seasons. It is proposed that No.46 wear-resistance hydraulic oil be used in 10~40°C and No. 20 # wear-resistance hydraulic oil be used in -5~10°C.
4. Environmental requirement:

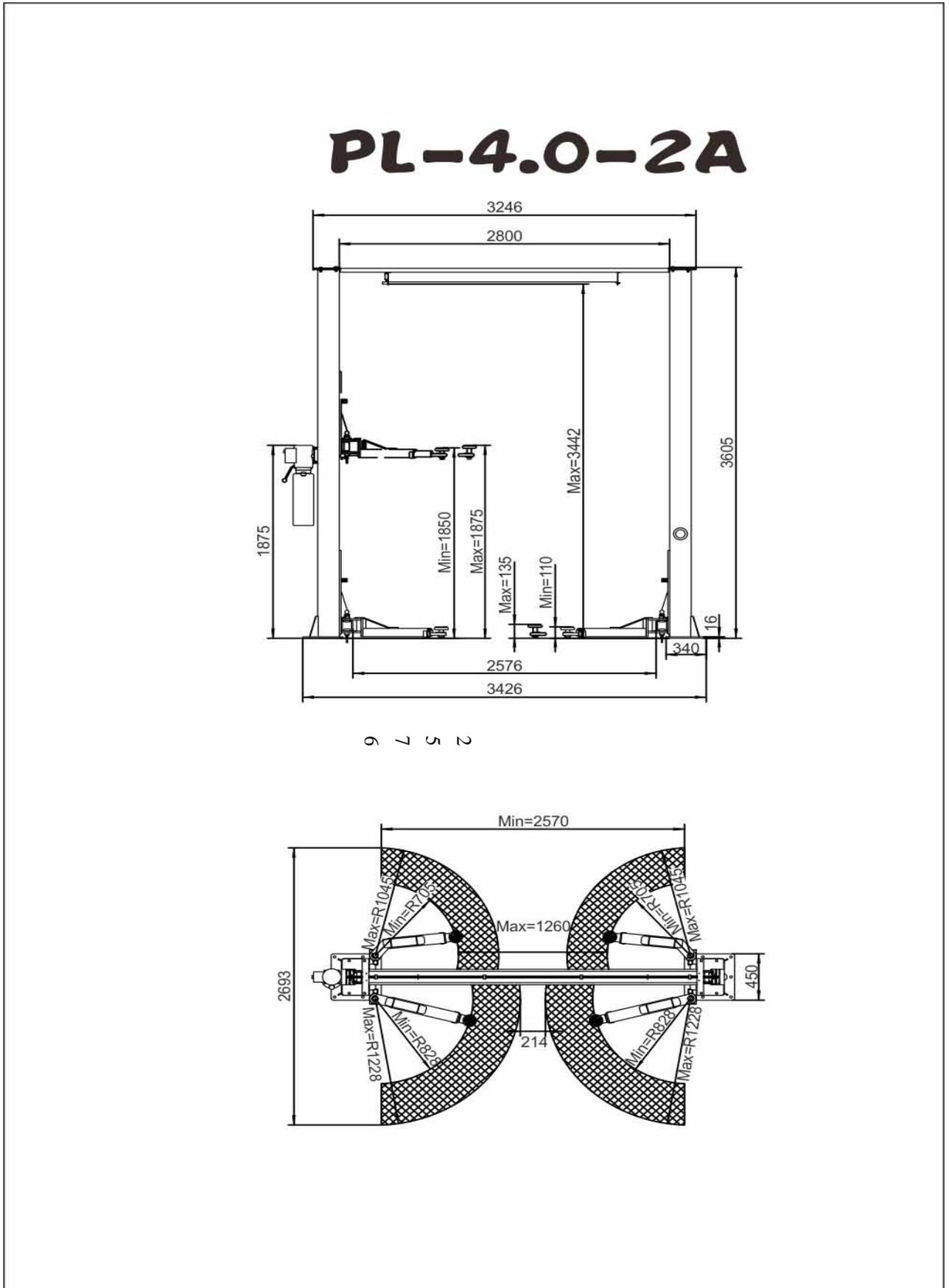
Working temperature: -5°C ~ +40°C Relative humidity: Temperature +30°C,
relative humidity ≤80%

Transport storage temperature: -25°C ~ +55°C Altitude in use: Up to 2,000m

The noise of the machine in operation shall be below 80dB (A).

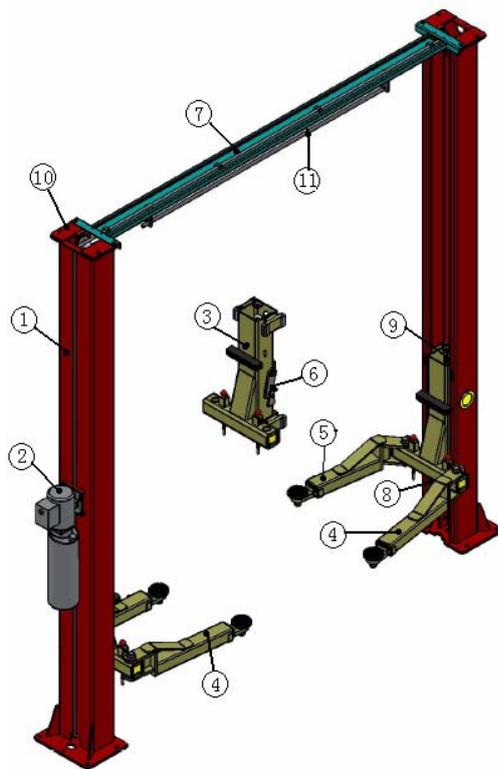
Chapter III: Overall Dimension of Machine

3.1 Outline dimensional drawing of PL4.0-2A common large-scale gantry lifter:



Chapter IV Machine Structure and Working Principle

The machine is mainly composed of main column, auxiliary column, slide, bracket arm, spindle part, safety device, oil cylinder, chain, dynamic unit, oil pipe, electric cabinet (electric cabinet is only for electric series) and wires. The machine lock and explosion-proof valve as double-safety ensures the safety and the user can use the machine at ease.



S/N	Name
1	Common gantry column
2	Hydraulic pump station
3	Common slide
4	Medium extended arm
5	Curved arm
6	Mechanical safety
7	Portal frame
8	Oil cylinder
9	Chain
10	Gantry supporting plate assembly
11	Gantry limit pole

§4.1 Description for different parts of common large-scale gantry lifter

connected large-scale gantry lifter

Driving principle of common lifter: Press “RISING” button, the contactor is power on, the motor is also power on and in operation, the motor drives oil pump, the hydraulic oil is input to lower cavity of oil cylinder through one-way valve and oil pipe, piston driven by oil pressure pushes oil cylinder to pass steel wire rope and rope wheel set and drags bracket arm for rising so as to complete hoist. When the vehicle is in maintenance, press falling handler, mechanical lock is in safety status and the operator can conduct vehicle maintenance. Press “RISING” button firstly in falling, make machine rise for about 20mm, unlock safety lock and press falling handler to make machine fall.

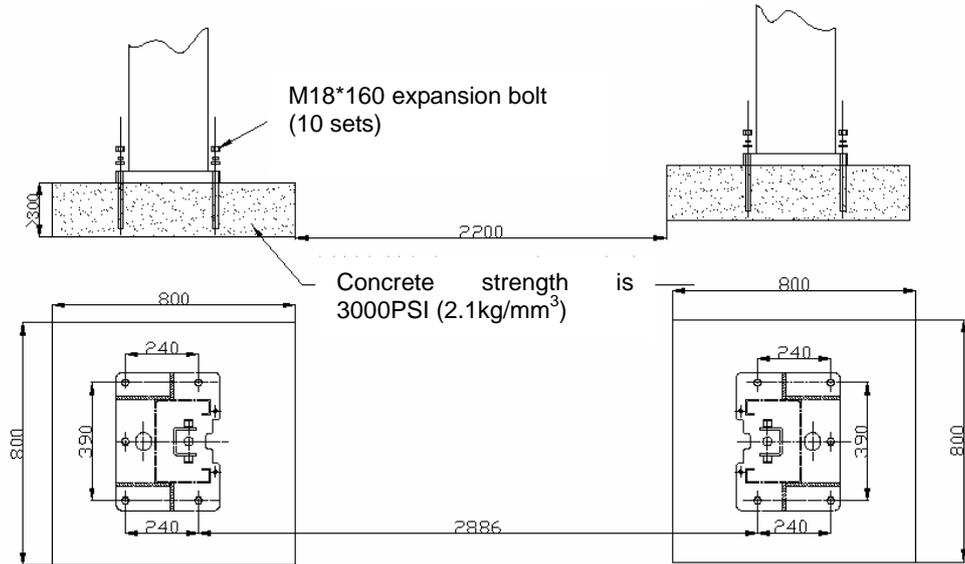


Chapter V Equipment Installation and Commissioning

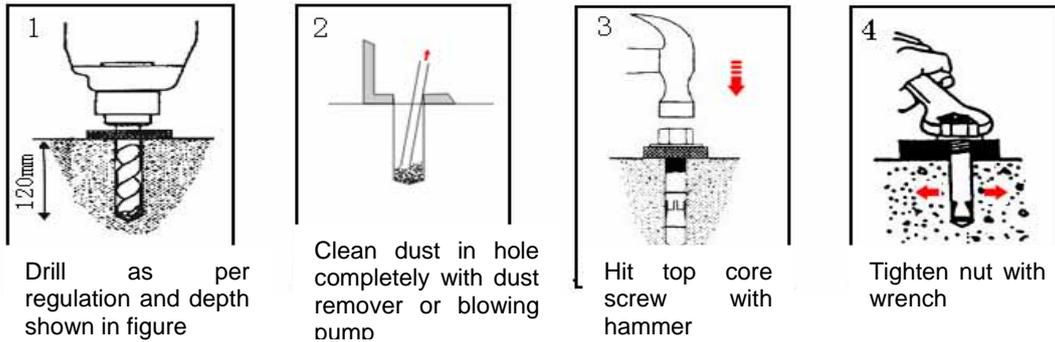
Carefully read the manual, make clear the structure and inspect whether there is damage in transportation or loading& unloading and whether accessories are complete before machine installation. Then the installation and commissioning shall be conducted in procedures as follows. (The product shall never be connected outdoors)

1. The equipment shall be installed on the ground where there is no dust, pollution or humidity , the horizontal error is not less than 5mm, the concrete thickness is more than 300mm and the strength is 3,000PSI (2.1Kg/MM²) , basic dimension is 4,000MM long, 1,000MM wide and 400MM deep; It is proposed to add steel bar and consolidate ground fastness. (See foundation installation diagram). The foundation installation diagram shall be selected according to machine type in selection.

Foundation installation diagram

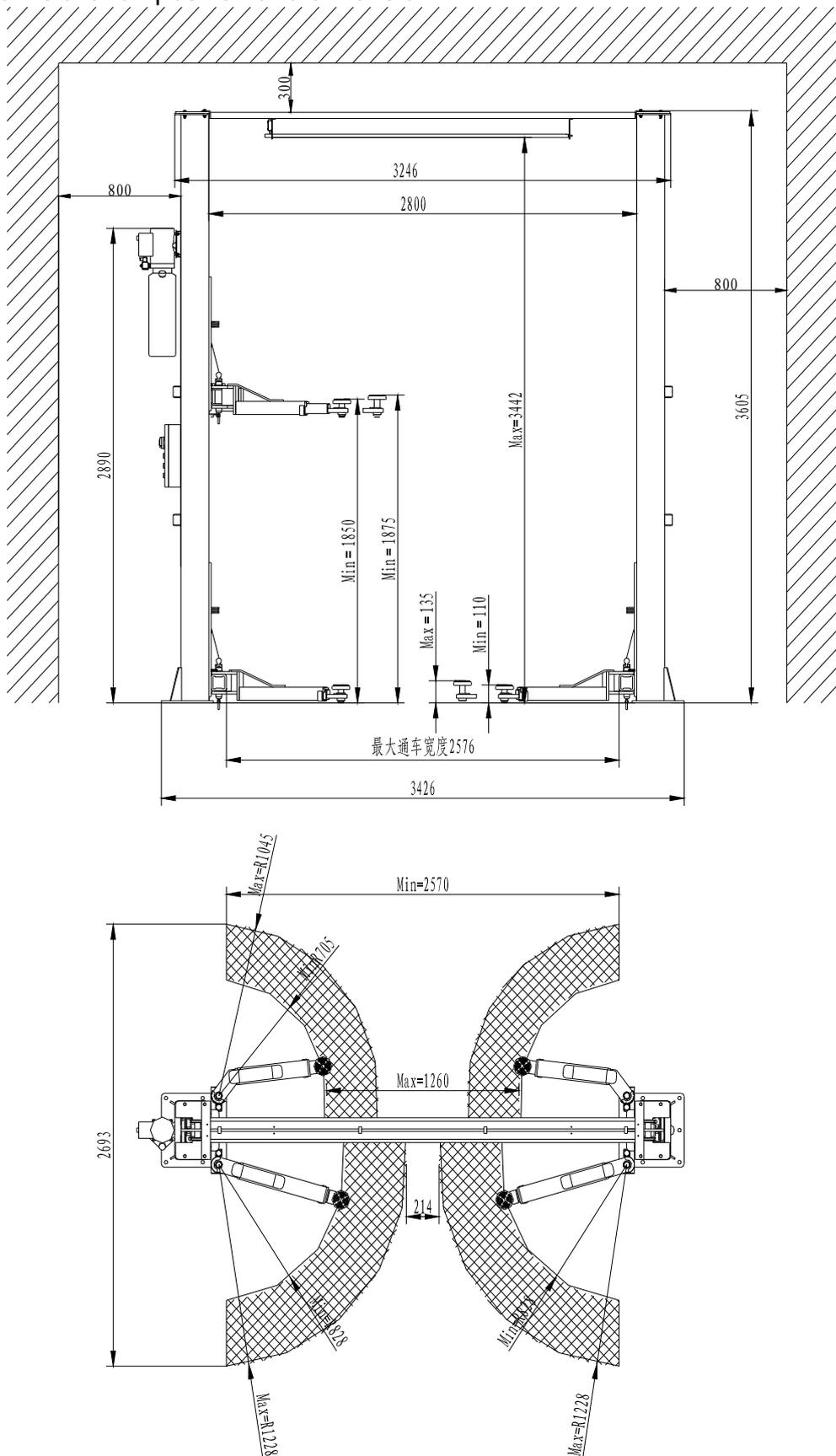


lifter foundation Diagram



Expansion bolt installation diagram

2. The luminance shall not be lower than 1001X indoors.
3. Ensure installation position and dimension:

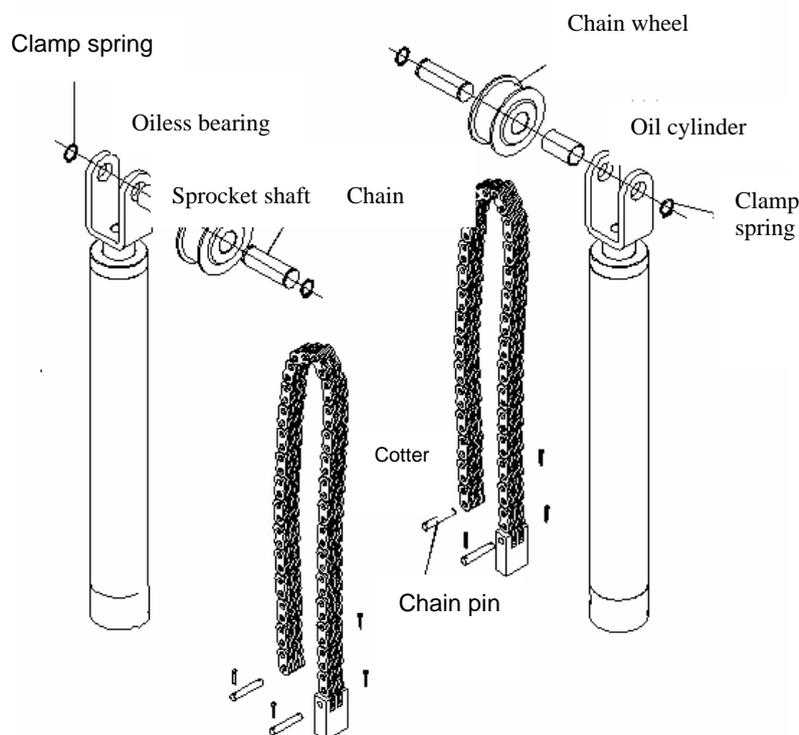


lifter installation position diagram

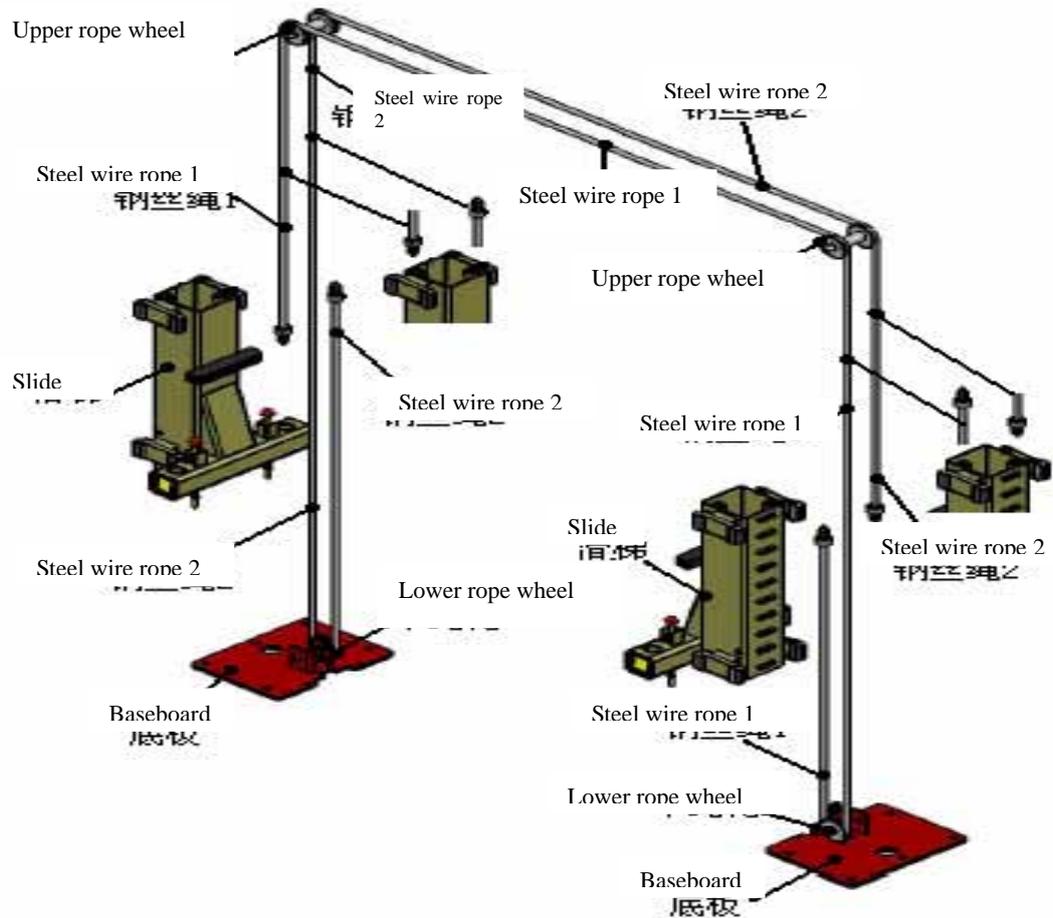
Erect both vertical columns (main column with motor mount, used for motor fixing), set pattern backplate in open middle, make both vertical columns on the same straight line, drill

hole with impact drill hammer or electric hammer pinch $\phi 20$ and fix both vertical columns with ten M18X160 expansion screws. The vertical column must be vertical to the ground. If the ground is rough, the filling can be conducted with thin block for regulation. The large gantry shall be installed in similar way and gantry frame shall be set in open middle of large gantry respectively so as to keep both vertical columns on the same straight line. The installation dimension is shown in outline dimensional drawing.

4. Install and connect synchronous steel wire rope and long oil pipe: remove back plate (**gantry shall be installed in reverse way as shown in steel wire rope installation diagram**), hoist main column on slide, extended synchronous steel wire rope can insert steel wire rope wheel at bottom of auxiliary column through steel wire rope at bottom of main column, after it inserts steel wire rope at the top, fix it at screw hole in square hole of slide with two M16 nuts, hoist auxiliary column and fixed it on slide of main column with steel wire rope on bracket, block up slid slightly when steel wire rope is fixed so as to facilitate adjustment and fixture of steel wire rope screw. Take block away after fixing, inspect whether left slide and right slide at the same height and adjust it to the same level. Both slides shall be on the same surface. Adjust height of left slide in same way, loosen steel wire rope and regulate slide height. However, both steel wire ropes must be tightened, not loose, otherwise, both slides can not be synchronous (**see steel wire rope installation diagram**). Fill butter on steel wire rope, sliding block and sliding way of column and fill engine oil on axis and safety.

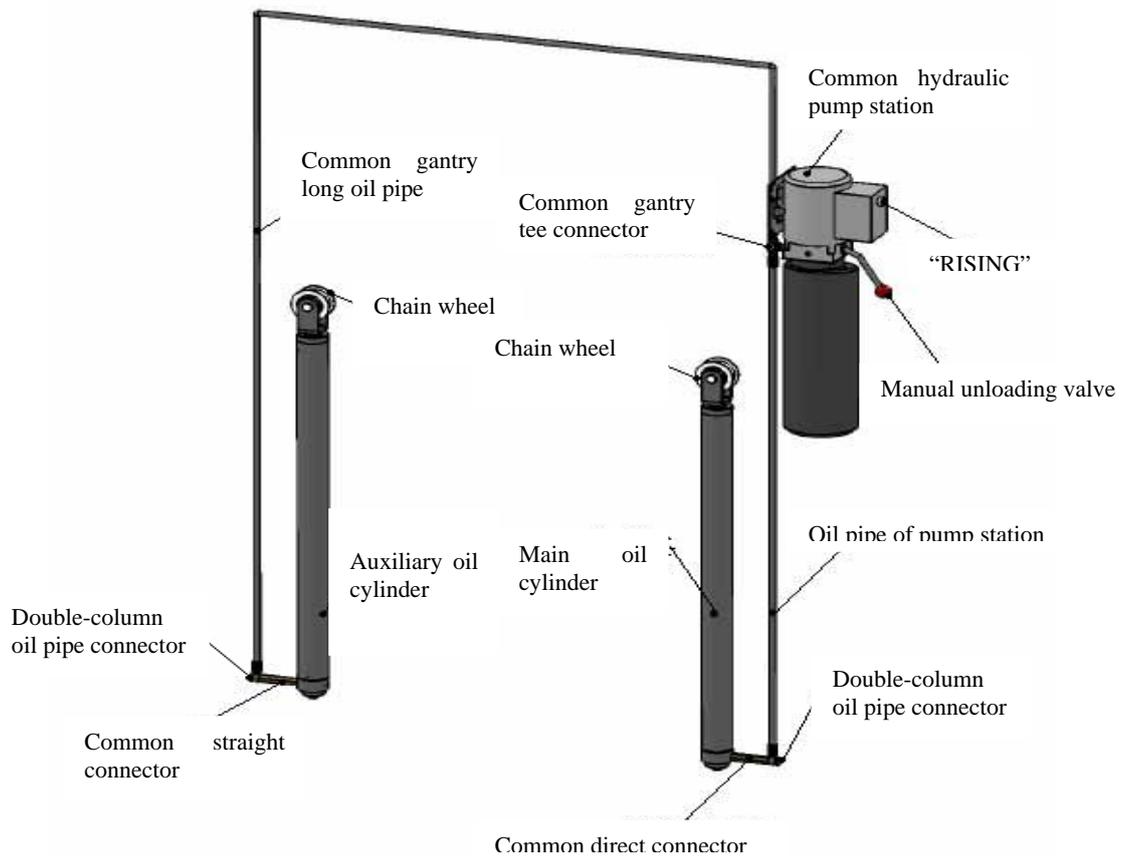


PL4.0-2B, PL4.0-2E, PL4.0-2A, PL4.0-2ET, PL3.8-2A, PL4.0-SW
Installation diagram for chain and oil cylinder of lifter



Insert long high-pressure oil pipe from bottom of main and auxiliary columns on the ground, connect them with oil cylinder connector respectively and tightly and avoid leakage.

5. Hydraulic dynamic pump station: fix hydraulic dynamic pump station on motor mount of main column with four M8X35 hexagon bolts, then connect oil pipe, tighten them and avoid leakage. (See hydraulic system installation diagram).



Connection diagram for oil pipe connector of PL4.0-2A lifter

6. Fill hydraulic oil:

Fill 46# or 20#wear-resistance hydraulic oil into oil tank (the user shall provide hydraulic oil), the maximum oil level shall be about 10mm from filling opening and minimum oil level shall be about 50mm from filling opening(the inspection shall be conducted with gage rod on filling air cover above oil tank). It is proposed to use 20# wear-resistance hydraulic oil in cold place.

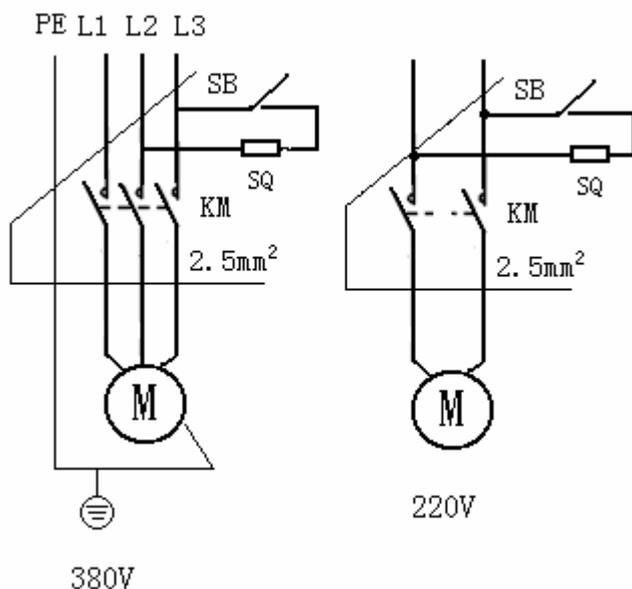
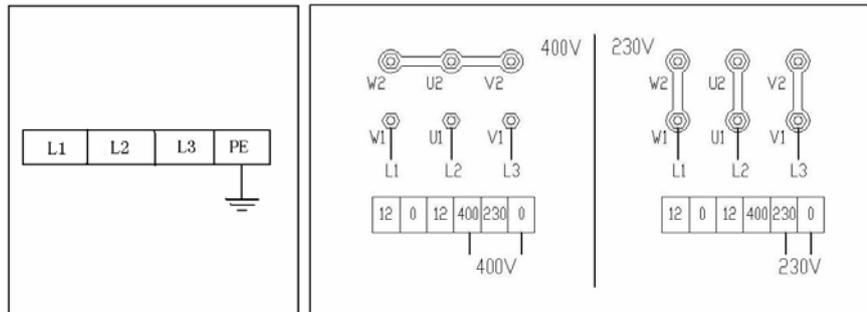
7. Install bracket arm: install four bracket arms on the left and right respectively, make long bracket arm and short bracket arm on different sides of column and use short bracket arm in head direction when the vehicle is in hoist.

8. The safety device shall be installed as shown in safety installation diagram, the flexibility is required after the safety is installed and the safety block shall not be clamped.

⚠ 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

- Open upper cover of control cabinet
- Power cord connection: connect 400V three-phase four-wire system power cord (3x2.5mm²+1x1.5 mm² cable) to control panel L1, L2,L3 and incoming terminals; Connect PE ground wire to stud with grounding sign (Figure 21) and stud with grounding sign provided at the bottom of two platforms.
- If it is 230V two-phase power supply, control transformer and wire connection of motor is required to adjust (Figure 22)



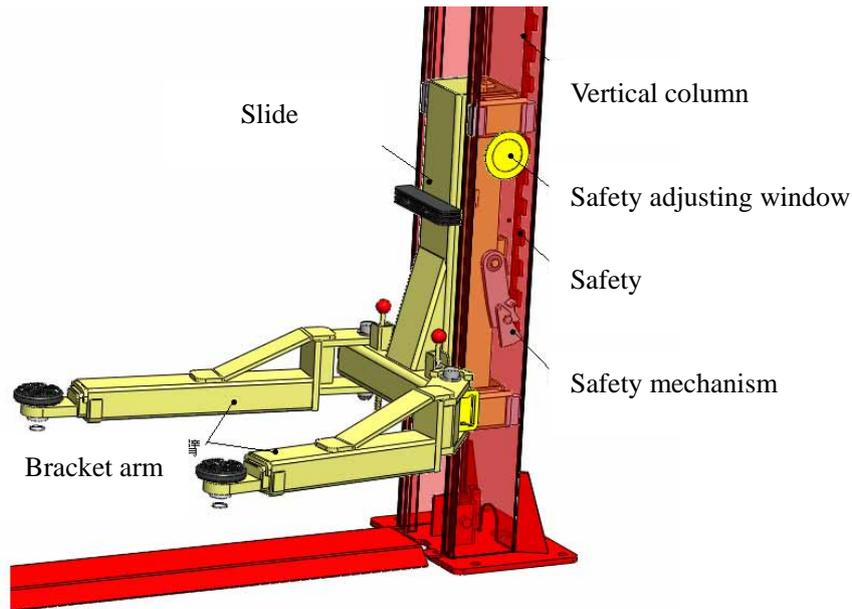
Electrical schematic diagram for
PL4.0-2A, gantry lifter

9 Power on: the plug of power cord shall be inserted into preassembled power socket. Circuit breaker shall be installed in power supply. The power switch lights when the main switch installed in control cabinet is opened. Press the “RISING” button to determine whether the slide of lifter rises. If the slide does not rise, sequence of power supply shall be changed, making the motor rotate in positive direction and oil pump supply oil normally. In this case, lifter slide and bracket arm rise, moreover, whether the height for left slide and right slide is uniform shall be observed. Meanwhile, the slide height shall be judged by hearing sound of safety block. In order to guarantee the uniform position of safety blocks, left slide and right slide, the steel wire rope shall be accurately adjusted. Upon falling, the “FALLING” button

shall be pressed and time relay shall be on. After 2 seconds, the mechanical lock and oil return solenoid valve shall be opened. Under the weight of working platform and lifting vehicle, the hydraulic oil in lower cavity of oil cylinder is pressured to oil tank, and then the falling is completed. Upon vehicle maintenance, when pressing "lock button", the oil return solenoid valve is on and mechanical lock is off. In this case, the slide descends, and mechanical lock resets under the self-weight and normal condition. In addition, the slide is locked by mechanical lock. The locking can be completed and safety operation can be performed. Upon completion of above tests, safety housing and electric cabinet housing shall be well assembled.

- 10.leaning at site: the several times of lifting and falling of lifter and bracket arm shall be repeated to determine whether the operation is normal. If some problems exist, such lifter and bracket arm can be used only after the abnormal phenomenon is inspected and eliminated following above steps. Finally, the cover plate with decorative pattern shall be coated to observe whether lubricating grease is filled to guide surface of column and sliding block. If there is no lubricating grease, proper amount of lubricating grease can be filled. Meanwhile, lubricating grease or oil shall be applied to wheel and axle of upper and lower steel wire rope to reduce wear and prolong service life.
- 11 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 test can be carried out. The method of load test is identical to no-load test. The load-test ends where there is no noise and leakage and the hoist time and height is compliant with technical parameters after 2~3 times loading is performed.
- 12 After load commissioning, the length of steel wire rope will be slightly extended. Thus, the leveling shall be carried out once again. The machine can be put into use after step 4 is repeated.

Chapter VI Safety Mechanism



Safety mechanism of, PL4.0-2A, lifter



Note: upon the use of, **PL4.0-2A**, especially lifting vehicle, our lifter will generate the sound indicating that safety mechanism is locked in its safety. If user hears such sound, it shows that our safety mechanism operates normally. In this case, the lifter can be used in a safe way. If the safety does not generate the sound indicating that safety mechanism is locked, it is not allowed to use machine. In this case, we shall open safety adjusting window, screw down cross screw in safety mechanism till such sound is generated. After the mechanical hoisting, we shall press down manual unloading valve to make safety mechanism locked in its safety. Only then, the vehicle maintenance can be carried out, otherwise, it is not allowed to conduct vehicle maintenance. Upon falling, we shall press down the “RISING” button at first, and then safety rope for two slides can be undrawn. Finally, the manual unloading valve shall be pressed down, and the lifter will descend.

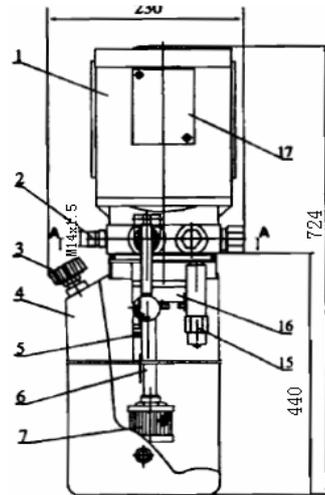


- Note:**
1. it is not allowed to install safety mechanism of electric lifter by persons without training
 2. Persons without training shall not be allowed to arbitrarily adjust safety mechanism

Our company will not undertake any responsibility for damage to safety or electromagnet caused by above two points.

Chapter VII Hydraulic System

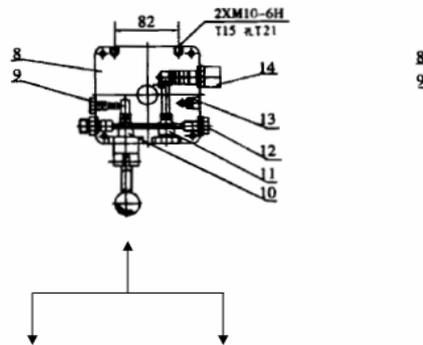
Contour dimension of hydraulic pump station



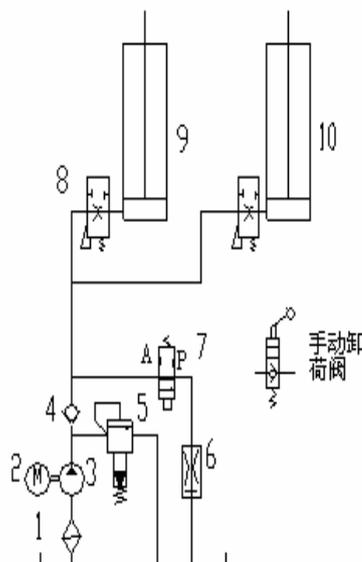
Details for hydraulic pump

- 1. Motor 2. Delivery connection 3. Oil inlet
 - 4. Fuel tank 5. Oil filling pipe 6. Oil inlet
 - 7. Oil filter 8. Valve body 9. Throttle valve for oil return
 - 10. Oil drain valve (Electronic oil drain valve)
 - 11. One-way valve 12. Drain plug for oil outlet 13. Drain plug for return opening 14. Turbulence valve 15. Buffer valve 16. Oil pump 17. Junction box
- Note: position of 2 and 12 can be mutually replaced.

A-A Manual unloading valve



Hydraulic pump station for, PL4.0-2A,



Hydraulic schematic diagram for PL4.0-2A

- 1. Filter 2. Motor 3. Gear pump 4. One-way valve 5. Overflow valve 6. Descent velocity regulating valve 7. Electronic unloading valve (manual unloading valve) 8 throttle valve or explosion-proof valve 9. Main oil cylinder 10 Auxiliary oil cylinder

Chapter VIII Operating Instructions

1. Pre-commissioning

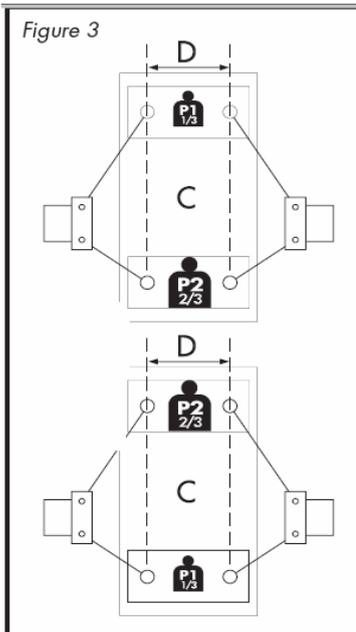
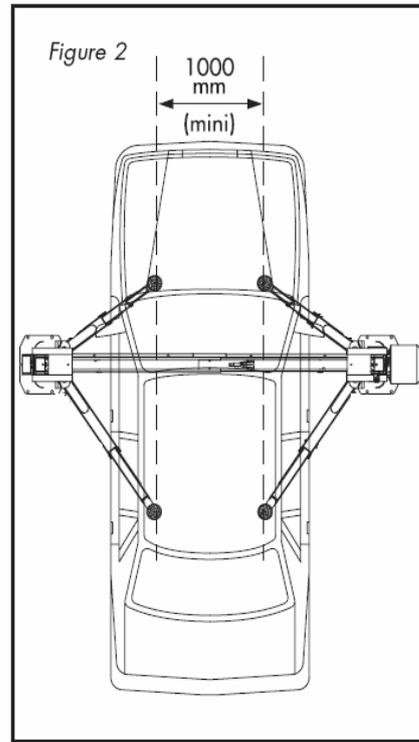
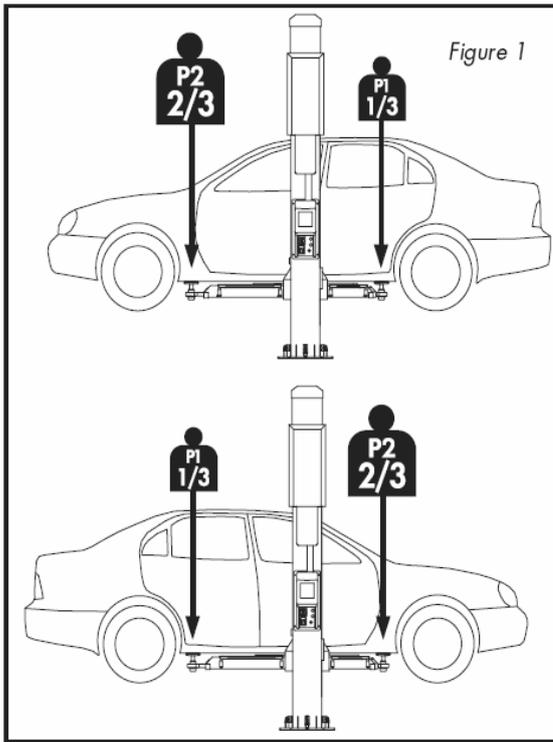
- 1.1 Inspect motors to check whether its power supply is accurately installed or whether it can be normally used.
- 1.2 General 2# lithium base grease (GB7324-87) shall be applied to moving contact surface of slides. It is required that all sliding surface from top to bottom shall be uniformly painted.
- 1.3 Hydraulic oil in oil tank shall be sufficient to use.
- 1.4 Inspect steel wire rope, rope wheel and wheel and axle.
- 1.5 Inspect connecting bolt to check whether they are firm.

2. Operating process:

The hoist shall be conducted for 200~300mm before commissioning, depending on whether two slides are synchronous and provided with equal height. Otherwise the commissioning shall be started after adjustment. The vehicle shall be driven to middle part of two vertical columns, and the manual brake of car shall be well pulled. The bracket arms and trays shall be adjusted to make the bearing point to support the bearing surface of car. The inspection on whether there is barrier shall be carried out. Persons shall not approach it or lift with overweight. Press down "RISING" button in control cabinet and connect contactor. After the motor powers up, the hydraulic oil will be extracted. In addition, such hydraulic oil will be flowed into oil cylinder via high-pressure oil pipe. With the oil pressure, oil cylinder propels piston and piston rod. In this case, slides and bracket arms start to rise. Upon vehicle maintenance, the lock button shall be pressed down. In this case, solenoid valve for oil return powers on and oil return valve is opened. The slide descends if the pressure of oil-way is lost. Safety block will reset under the effect of spring and self-weight. Meanwhile, the slides are locked. Upon the completion of vehicle maintenance, the "down" button shall be pressed down. After the lifter is lifted for 2 seconds, the safety will be opened to allow lifter descend. The operation will be ended.

3. Cautions:

- 3.1 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.



Lift	D	P2 (2/3)	P1 (1/3)	C=P1+P2
3. 2T	710 mm	1675 kg	840 kg	2515 kg
	800 mm	1800 kg	900 kg	2700 kg
	900 mm	1920 kg	960 kg	2880 kg
	1000 mm	2140 kg	1060 kg	3200 kg
3. 5T	710 mm	1890 kg	940 kg	2830 kg
	800 mm	2020 kg	1010 kg	3030 kg
	900 mm	2160 kg	1080 kg	3240 kg
	1000 mm	2400 kg	1200 kg	3600 kg
4. 0T	710 mm	2100 kg	1040 kg	3140 kg
	800 mm	2250 kg	1120 kg	3370 kg
	900 mm	2400 kg	1200 kg	3600 kg
	1000 mm	2650 kg	1350 kg	4000 kg
5. 0T	710 mm	2620 kg	1310 kg	3930 kg
	800 mm	2750 kg	1375 kg	4125 kg
	900 mm	3000 kg	1500 kg	4500 kg
	1000 mm	3350 kg	1650 kg	5000 kg
6. 0T	710 mm	3140 kg	1570 kg	4710 kg
	800 mm	3370 kg	1680 kg	5050 kg
	900 mm	3600 kg	1800 kg	5400 kg
	1000 mm	4000 kg	2000 kg	6000 kg

3.2 Pay attention to warning signs

3.3 Maintenance and care for lifters shall be undertaken by operators having been trained.

Lubricating oil shall be applied to all axis of the machine for once a week via engine oil container. In addition, lubricating grease shall be applied to moving parts including safety rack and block and sliding for once a week. Hydraulic oil shall be replaced once a year. The oil level shall be kept at upper limit for a long period of time. Upon replacing hydraulic oil, old oil in oil tank shall be released. Upon filling new oil, such oil shall be filtered with oil filter. For each shift, the inspection on whether the safety device is flexible and reliable shall be carried out.

3.4 Moving condition of steel wire rope shall be normally observed. If there is damage, such steel wire rope shall be replaced in time.

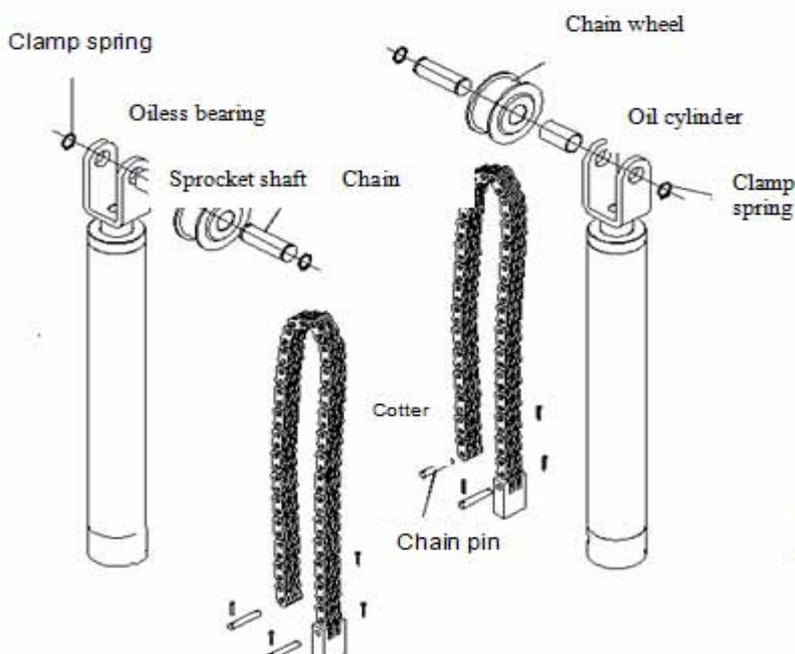
3.5 The oil-way (such as oil cylinder, oil pipe and connector) shall be frequently observed.

3.6 Before leaving factory, the hydraulic valves have been well adjusted. Thus, users shall make every effort possible to voluntarily adjust; otherwise, all consequences shall be undertaken by users.

Chapter IX Care and Maintenance

Maintenance on mechanical system:

- ▲ This machine shall be wiped and cleaned with dry cloth, for the purpose of keeping clean. Prior to wiping and cleanup, the power supply shall be cut off to guarantee the safety.
- ▲ Working environment of this machine shall be normally cleaned. If there is too much dust in working environment, machine wear will be sped up, and its service life will be shortened.



Every day

- ▲ Inspection on whether the connection between hydraulic cylinder and slides is normal or whether connection between chain and slides is loosen or dropped shall be performed.
- ▲ The inspection on whether wire rope connection presents normal tensile force or is in optimum state.

Every week: ▲ General 2# lithium base grease (GB7324-87) shall be applied to moving contact surface of vertical columns of slide blocks. It is required that all sliding surface from top to bottom shall be uniformly painted.



▲ Note: within one month upon initial use, general lithium base grease shall be applied to moving contact surface of vertical columns of slide blocks twice a week.

Every month: ▲ Foundation bolt shall be screwed down once again.

- ▲ Lubricate and tighten up steel wire rope of chain.
- ▲ Inspect all hydraulic pipes to check whether the wear exists.
- ▲ Inspect the movement inside the column of slipway slides to check whether the accurate lubricating is performed. High-quality lubricating grease (lithium base grease (GB7324-87)) shall be used.
- ▲ Inspect all dowels, bolts, clamp springs and other parts to check whether the

connection is normal or tightened.



Note: all foundation bolts shall be securely tightened. If some screws are damaged and do not work, the lifter shall be closed till the bolts are replaced.

Every six months ▲ Inspect wear, interference or damages may be caused to moving parts.

- ▲ Inspect lubricating condition for all pulley wheels. If the dragging phenomenon occurs upon rising and falling period, appropriate amount of lubricating oil shall be applied to wheel shaft.
- ▲ The balanced tensile force shall be inspected and adjusted to guarantee the horizontal rising and falling.
- ▲ Verticality of vertical columns shall be inspected.



Note: lubricating oil shall be applied to interior angle for each vertical column to make friction of slide block reduce to minimum and guarantee uniform hoist.

Maintenance for hydraulic system

Cleaning and oil change

- ▲ After the machine is put into initial use for six months, the hydraulic oil tank shall be cleaned and oil shall be replaced. Later, the hydraulic system shall be cleaned once a year. Meanwhile, the oil shall be replaced.

▲ Replacement of sealing elements

After this machine is put into use for a period of time, careful inspection shall be made if oil leakage phenomenon is found. If the oil leakage phenomenon is caused by wear of sealing materials, such sealing materials shall be timely replaced in accordance with original specification.

Chapter X Faults and Troubleshooting

Fault phenomenon	Reasons	Troubleshooting
Motor fails to rotate upon rising	1. There is wire break of button switch. 2. Short-circuit occurs in coil of AC connector occurs. 3. Limit switch is damaged	1. Inspect the circuit of button switch 2. Inspect the circuit of AC connector 3. If the faults are eliminated after the terminals connecting limit switch is short connected via wire, such limit switch shall be inspected. Meanwhile, limit switch shall be adjusted or replaced. 4. Replace limit switch
Motor generates sound but fails to rotate	Default phase of three-phase supply	The rotation shall be stopped immediately. Meanwhile, the inspection on major loop of motors shall be performed to check whether wire break or loss of loop occurs in such loop.

Motor can rotate but the working platform fails to rise.	<ol style="list-style-type: none"> 1. Incorrect motor direction of turning. 2. Insufficient hydraulic oil. 3. Air is filled in the pump due to transport and other reasons, making air-plugging phenomenon occur. 4. Overflow is out of work 5. The oil return solenoid valve plug is jammed with dirt. 6. The sealing of oil outlet of oil pump is damaged. 7. The work of motors is heavy and vibratory. Outside screen of oil filter is seriously jammed. 	<ol style="list-style-type: none"> 1. Change phase sequence of motors. 2. Supplement and discard hydraulic oil. 3. Remove one-way valve, and the inching rises (attention shall be paid to oil injection). Upon the oil flowing out of the hole, the one-way valve shall be well assembled (tighten up). 4. Inspect the condition of sealing and sealing elements of overflow valve plug; clean valves or replace damaged seal ring. 5. Inspect oil return solenoid valve and clean valve plug. 6. Gear pump can be removed to inspect and replace seal rings. 7. Clean filter.
Rising velocity is too slow	Oil leakage phenomenon occurs due to the damage to oil outlet of oil pump	See above
Upon operation, the vibratory phenomenon occurs.	<ol style="list-style-type: none"> 1. Air exists in hydraulic circuit. 2. Air leakage exist in upper connector of oil suction pipe of oil pump. 3. Filter is jammed. 	<ol style="list-style-type: none"> 1. Vent by operating up and down repeatedly. 2. Check the connecting and sealing condition of the oil suction pipe. 3. Clean oil filter.
Lifter can rise but fail to fall	<ol style="list-style-type: none"> 1. Poor contact of the internal button switch. 2. Lock cylinder fails to be separated from the plate. 3. The clearance between the column and beam is too narrow. 	<ol style="list-style-type: none"> 1. Disassemble to remove the problem. 2. Shorten the lock cylinder rod to lock cylinder to get rid of the square rack when the lock bar is placed in the locking position. 3. Adjust the clearance between the column and the beam.

Chapter XII Safety Cautions

1. The user's manual must be carefully read before use of machine and it is forbidden to operate the machine by personnel who never read the manual.
2. The barriers around lifter shall be removed before work.
3. The person shall never stand around lifter in rising and falling process and there shall be no person in vehicle in rising or falling.
4. The weight of vehicle capacity can never be beyond lift capacity of the lifter.
5. The manual brake of vehicle must take effect in hoist and the hoist can be conducted when locking arm device is in normal status.
6. The maintenance operation can be conducted when it is ensured that both safety blocks enter square rack.
7. The power shall be off when lifter is not used.
8. After the lifter is used for a period, steel wire rope will be strengthened in different degree

so as to lead to unbalance of two slides. The nut of steel wire rope shall be adjusted at this moment until there is equal height and synchronization.

9. The machine shall be maintained seriously based upon the manual and the main parts shall be inspected and maintained often.

10. The equipment in use shall be equipped with firefighting device, such as, extinguisher (the user shall provide it).

11. The protection switch of 10A (the user shall provide it) must be mounted at input power of 380V for the machine and the switch shall be in 50meters.

[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.
