LAUNCH

TLT235SBA/TLT240SBA
TLT235SBA(E)
TLT240SCA/TLT235SCA(U)

Electronic Two Post Lift User's Manual

In case of the equipment damage or loss due to the accident of the user himself or third party, abuse or misuse of this equipment, unauthorized change and repair of this equipment, or not conforming to the operation and maintenance requirement of Launch, Launch and its branches won't undertake any responsibility for the expenses and expenditures generated.

For the equipment damage or problem caused as a result of using other optional accessories or consumables instead of original Launch product or its recognized product, Launch won't undertake any responsibility.

Official statement: The purpose of other- product- names mentioned in this manual is to describe how to use this equipment. Their registered trademarks still belong to the original companies.

This equipment is for the use of professional technical personnel or maintenance personnel.

Registered Trademark

Launch has registered its trademark in China and several foreign countries, with the symbol of LAUNCH. Other trademarks, service symbol, domain name, icon, and company name of Launch mentioned in this manual belong to the property of Launch and its subsidiary companies. In the countries where Launch's trademark, service symbol, domain name, icon and company name haven't been registered, Launch declares its ownership on such unregistered trademark, service symbol, domain name, icon and company name. The trademarks of other products and company names mentioned in this manual still belong to the originally registered companies. Without prior written agreement of the owner, nobody can use the trademark, service symbol, domain name, icon and company name of Launch and other companies mentioned in this manual. If you have any question, please visit website of Launch: http://www.cnlaunch.com or write to Sales Dept. of Launch Shanghai Machinery Co., Ltd. at No. 661 Baian Road, International Automobile City Auxiliary Parts Park, Anting Town, Jiading District, Shanghai City to contact Launch.

Insured by PICC

WARNING

- This instruction manual is an essential integral part of this product. Please read all instructions.
- Properly keep this manual for use during the maintenance.
- Use only as described in this manual. Use only manufacturer's recommended adapters.
- This equipment is only used for its clearly designed purpose, and never use it for other purposes.
- The manufacturer is not responsible for any damage caused by improper use or other purposes of use.

PRECAUTION

- Only the qualified personnel having undergone special training can operate this machine. Without the permission of the manufacturer or not following the requirement of the manual, any changes in the machine part and in the usage scope may cause direct or indirect damage to the machine.
- Don't keep the lift in the extreme temperature and humidity environment. Avoid installation beside the heating equipment, water tap, air humidifier or stove.
- Prevent the lift from contacting large amount of dust, ammonia, alcohol, thinner or spray adhesive, and prevent it from rain shower.
- During the machine operation, non-operators should be kept away from the machine.
- Inspect machine daily ,do not use lift with damaged parts or being damaged .Use original components to replace damaged parts
- The lift can't be overloaded. The rated load of the lift is already marked on the nameplate.
- Please don't raise the lift when there are people in the vehicle. During the operation, the customer and spectators shouldn't stand in the lifting area.
- Keep the lifting area free from obstacle, grease, machine oil, garbage and other impurities.
- Position the swing arm of the lift, making it contact the lifting point as recommended by the manufacturer. Raise the carriage and confirm the lifting pad and vehicle are closely contacted. Raise the carriage to the appropriate working height.
- For some vehicles, the parts dismantling (or installation) will cause severe deviation of the center of gravity, leading to unstable vehicle. The support is needed to keep the balance of the vehicle.
- Before moving the vehicle away from the lifting area, please position the swing arm and lifting pad back away to avoid blockage during the movement.
- Use appropriate equipment and tools as well as safety protection facilities, e.g. working uniform, safety boot, etc.
- Pay special attention to various safety marks attached to the machine body.
- Keep hair, loose clothing, fingers, and all parts of body away form moving parts
- Pay special attention not to dismantling the safety unit of the machine or making it not functioning.
- The hydraulic oil used for this lift is N32 or N46. Please refer the safety data of grease and oil shown in the manual.
- Let components cool down before storage, loosen component cables completely in storage
- Do not install lift in the open air or expose to rain ,special requirements should be offered to manufacturer if it can't be avoided.
- Carefully check equipment list before installation .Immediately connect distributor or Launch for any question.
- **Launch Shanghai Machinery Co., Ltd. is dedicated to continuously improving the product quality and upgrading the technical spec. They are subject to change without notice.**

Caution Labeling Exemplification

（1） Read operating and safety manuals before using lift!

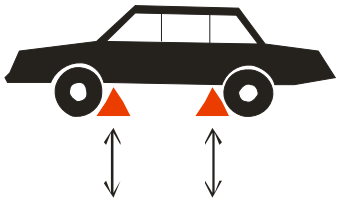
（2）Proper maintenance and inspection is necessary for safe operation!

（3）Don not operate a damaged lift !

（4）Lift can be used by trained operators ONLY!

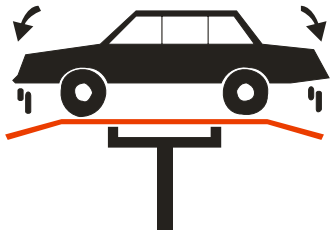
（5）Only Authorized personnel can be in the lift area!

（6）Use LAUNCH commend lifting points!



（7）Use bracket to help disassembly or installation!

（8）Auxiliary adapters would reduce load capacity!



（9）Area should be unimpeded in case of vehicle overturn!

（10）The central of gravity should be between two arms!

（11）Keep area clear when lifting and lowering machine!

（12）Do not shake the vehicle on the lift !

（13）Do not lift single side of vehicle!

（14）Keep feet away when lowering lift!

（15）Do not stand under carrying arms or other load carrying device while lift is being operated with load!

Table of Contents

1. Outline

1.1 Model Description

Model	Description
TLT235SBA floor-plate 2-post lift	3.5T Electronic symmetric floor-plate 2-post lift (Fig1a、Fig2a)
TLT240SBA floor-plate 2-post lift	4.0T Electronic symmetric floor-plate 2-post lift (Fig1a、Fig2a)
TLT235SBA(E) floor-plate 2-post lift	3.5T Electronic symmetric wide floor-plate 2-post lift(Fig1b、Fig2b)
TLT240SCA clear-floor 2-post lift	4.0T Electronic clear-floor 2-post lift (Fig1c、Fig2c)
TLT235SCA(U) clear-floor 2-post lift	3.5T Electronic clear-floor 2-post lift (Fig1d、Fig2d)
TLT240SBA floor-plate 2-post lift	4.0T Electronic symmetric floor-plate 2-post lift (Fig1a、Fig2a)

1.2 Purpose

This machine is applicable for the lifting of various small and medium-sized vehicles with total weight below 3.5t/4.0t in garage and workshop.

1.3 Functions and Features

- The cable and oil pipe are fully concealed, with decent and elegant appearance.
- Designed based on the international standard, meeting the demand of the garage and workshop.
- Electromagnetic full-scope high-safety lock.
- Lowering electrically, safe and simple in operation.
- Dual hydraulic cylinder and high strength chain drive, stable lifting and lowering.
- Cover for chain and chain wheel, protects safety of vehicle repair personnel.
- Adopt two steel cables for equalization, force two carriages to move synchronously, and effectively prevent the vehicle from tilting.
- Lowest height of lifting pad is 110mm, good for repairing low chassis or low profile car.

1.4 Technical Specifications

Basic parameters of the equipment:

Model	Rated load	Lifting height	Rising time	Descending time	Net weight	Passing width	Machine width	Machine height
TLT235SBA	3500 kg 7875 lb	1850 mm 72.8 in	≤50s	≥20s ≤40s	620 kg 1367 lb	2486 mm 97.9 in	3370 mm 132.7 in	2860 mm 112.6 in
TLT240SBA	4000 kg 9000 lb	1850 mm 72.8 in	≤50s	≥20s ≤40s	655 kg 1444 lb	2486 mm 97.9 in	3370 mm 132.7 in	2860 mm 112.6 in
TLT235SBA(E)	3500 kg 7875 lb	1850 mm 72.8 in	≤50s	≥20s ≤40s	735 kg 1620 lb	2486 mm 97.9 in	3400 mm 133.9 in	2900 mm 114.2 in
TLT240SCA (Symmetric installation)	4000 kg 9000 lb	1850 mm 72.8 in	≤50s	≥20s ≤40s	700kg 1543 lb	2486 mm 97.9 in	3420 mm 134.6 in	3840 mm 151.2 in
TLT240SCA (Asymmetric installation)						2415 mm 95.1 in	3563mm 140.3 in	

TLT235SCA(U) (Symmetric installation)	3500 kg 7875 lb	1850 mm 72.8 in	≤50s	≥20s ≤40s	670kg 1477 lb	2424 mm 95.4 in	3392 mm 133.5 in	3840 mm 151.2 in
TLT235SCA(U) (Asymmetric installation)						2378 mm 93.6 in	3544mm 139.5 in	

Noise:

Working noise: ≤ 75dB（A）

Power unit:

Working pressure: 16MPa (TLT235SBA)
16Mpa (TLT235SBA(E))
16Mpa(TLT235SCA(U))
18MPa（TLT240SBA）
18MPa（TLT240SCA）

Electrical parameters of the machine：
Motor (optional)
Voltage： According to client's requirement
Single phase: 110V/60Hz 2.2kW ； 220V/50Hz 2.2 kW
Single phase: 200V/60Hz 2.2 kW
Three phase 380V/50Hz 2.2 kW

1.5 Environmental Requirement

Working temperature： -5℃～+40℃
Transport/storage temperature：-5℃～+40℃
Relative humidity: Temperature +30℃， relative humidity 80%
Height above sea level： No more than 2000m

2. Lift Structure

2.1 Lift structures are shown as below：

Model	Description
TLT235SBA floor-plate 2-post lift	3.5T Electronic symmetric floor-plate 2-post lift (Fig1a、Fig2a)
TLT240SBA floor-plate 2-post lift	4.0T Electronic symmetric floor-plate 2-post lift (Fig1a、Fig2a)
TLT235SBA(E) floor-plate 2-post lift	3.5T Electronic symmetric wide floor-plate 2-post lift(Fig1b、Fig2b)
TLT240SCA clear-floor 2-post lift	4.0T Electronic clear-floor 2-post lift (Fig1c、Fig2c)
TLT235SCA(U) clear-floor 2-post lift	3.5T Electronic clear-floor 2-post lift (Fig1d、Fig2d)

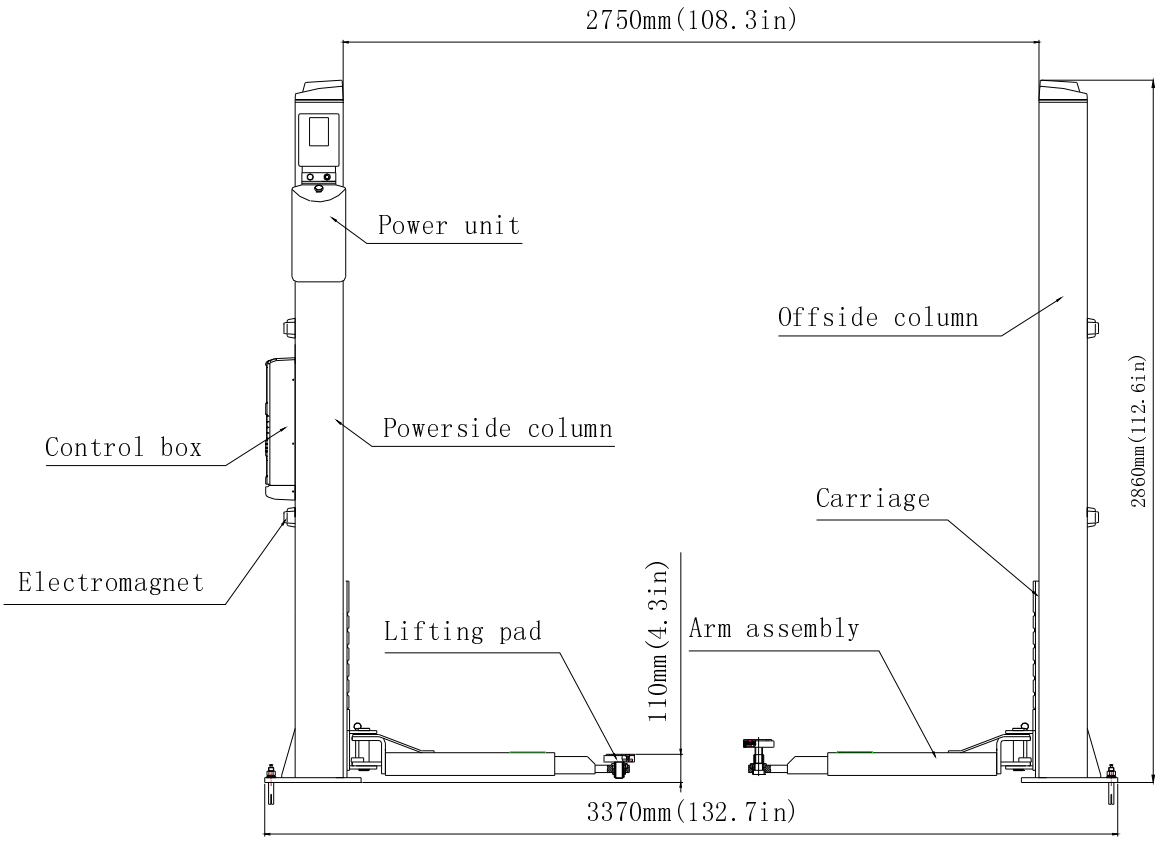


Fig 1a

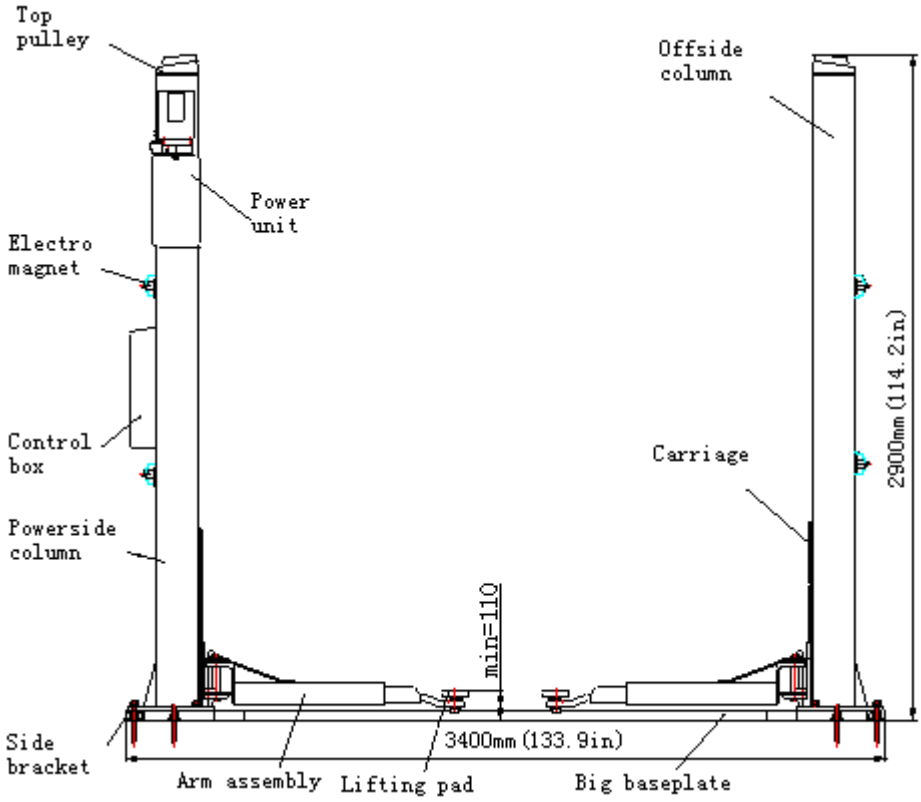


Fig 1b

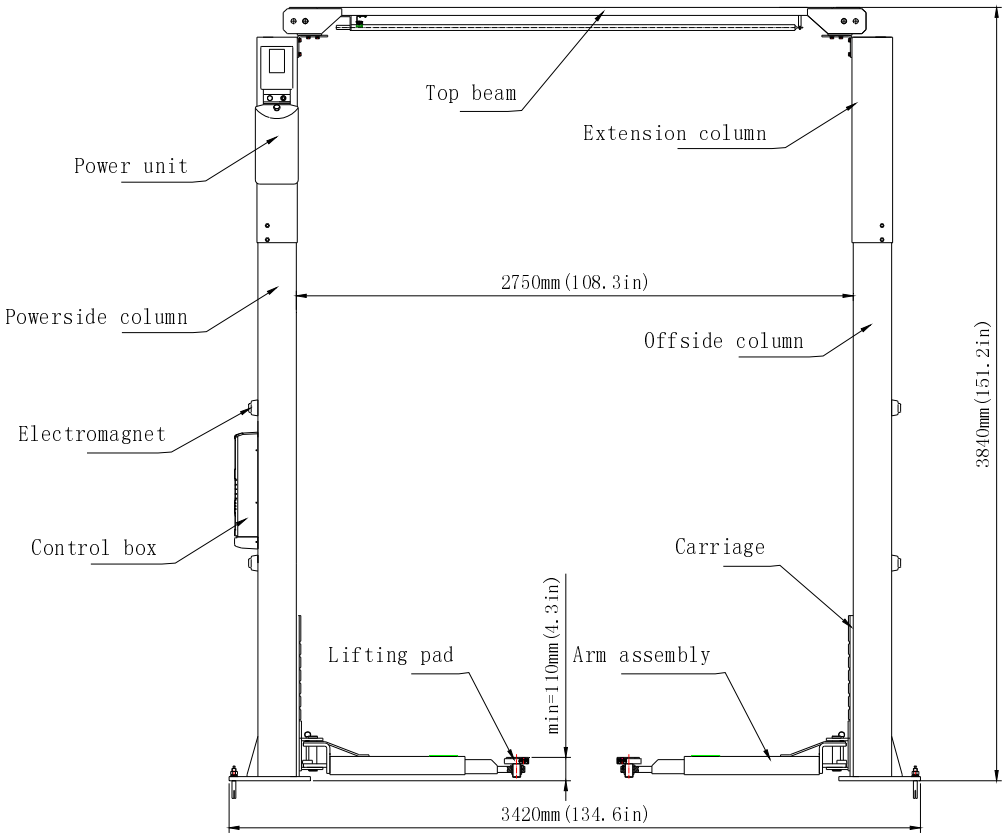


Fig 1c

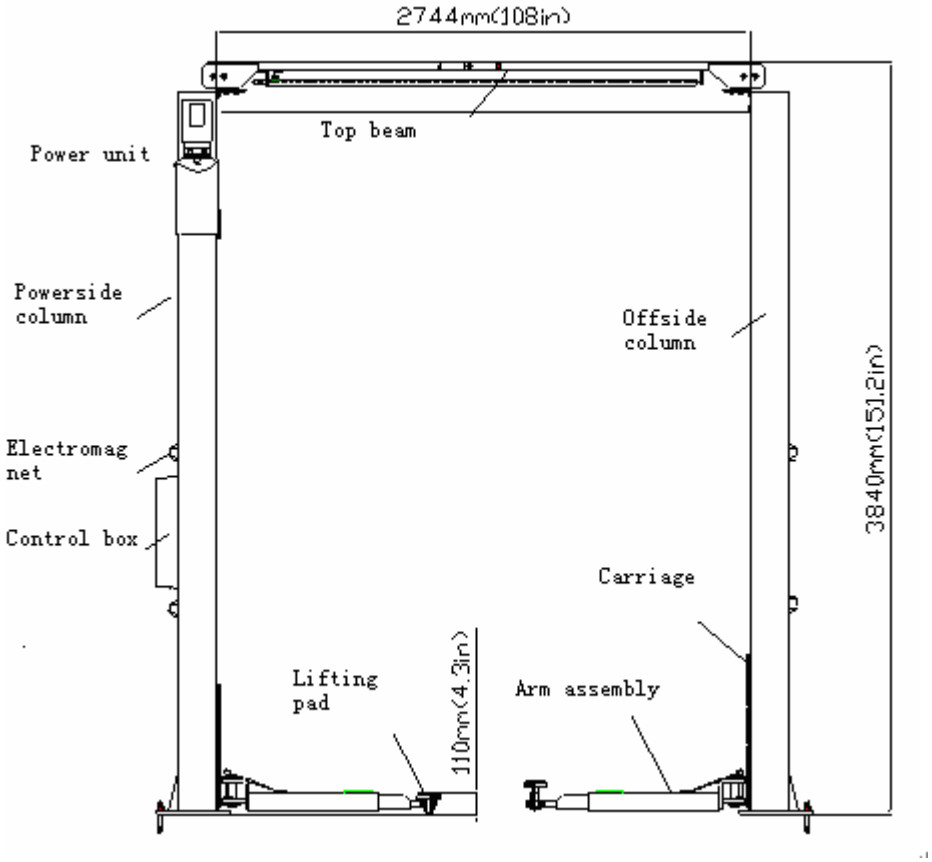


Fig.1d

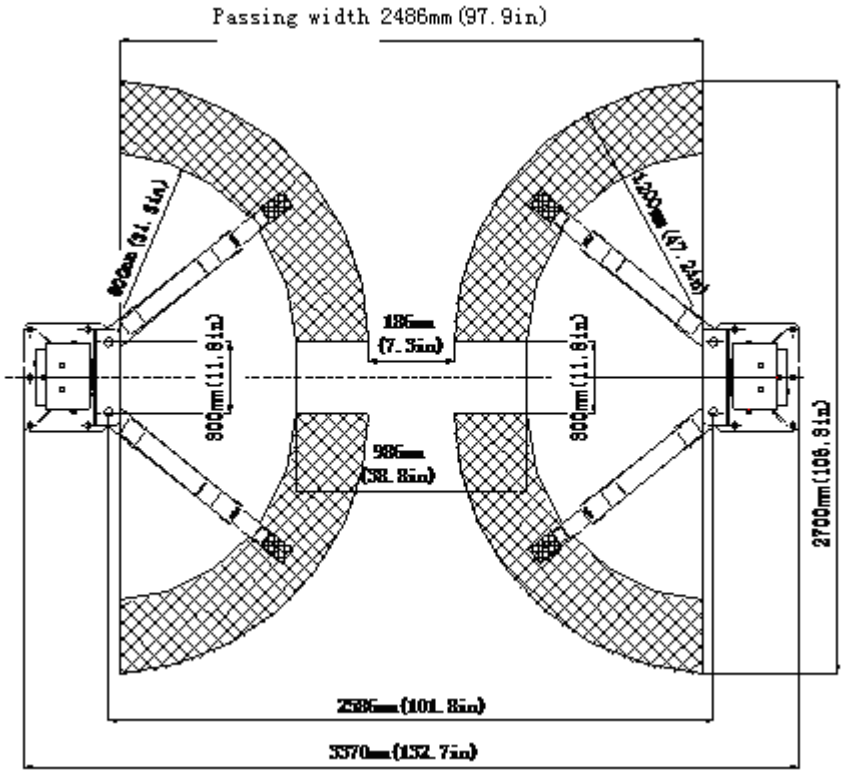


Fig 2a

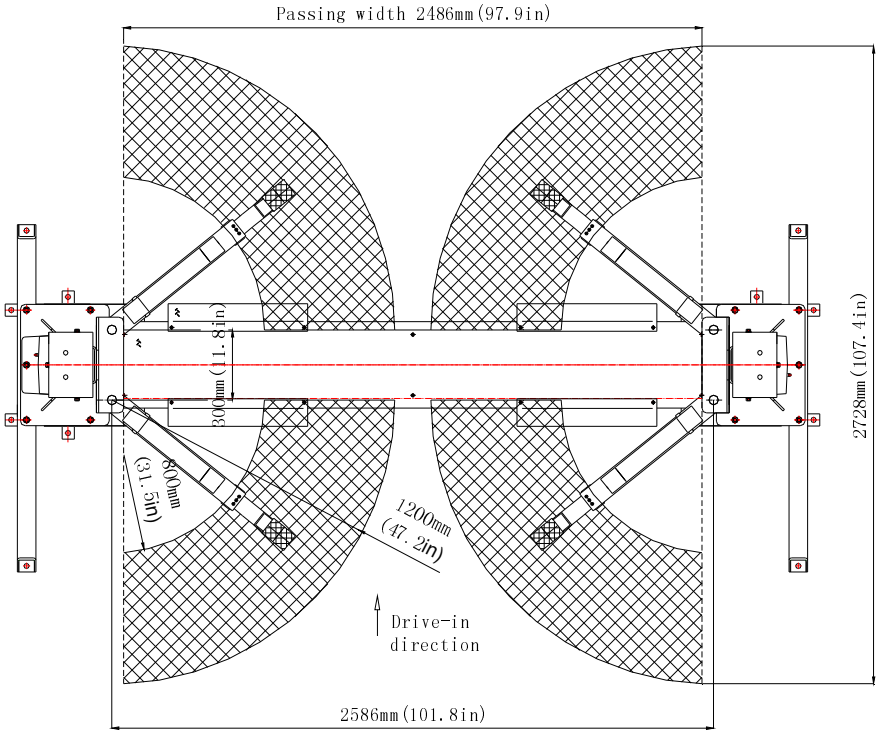
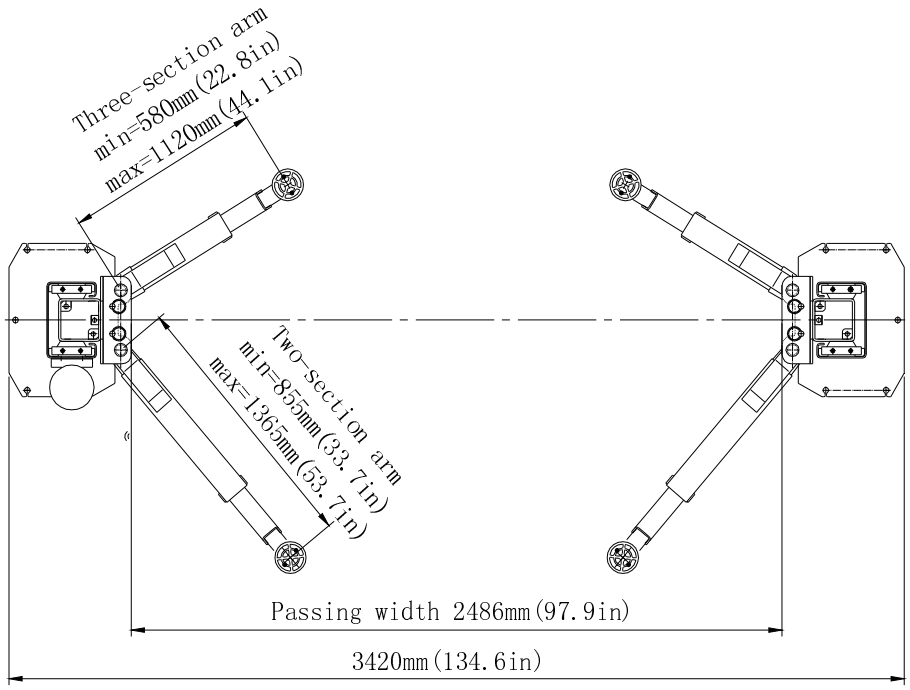


Fig 2b



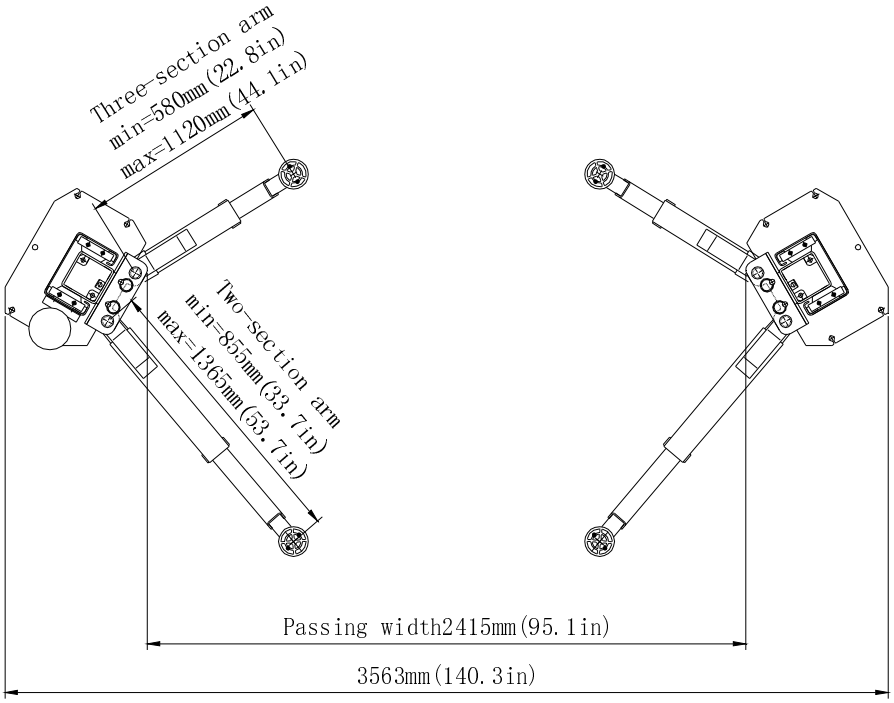
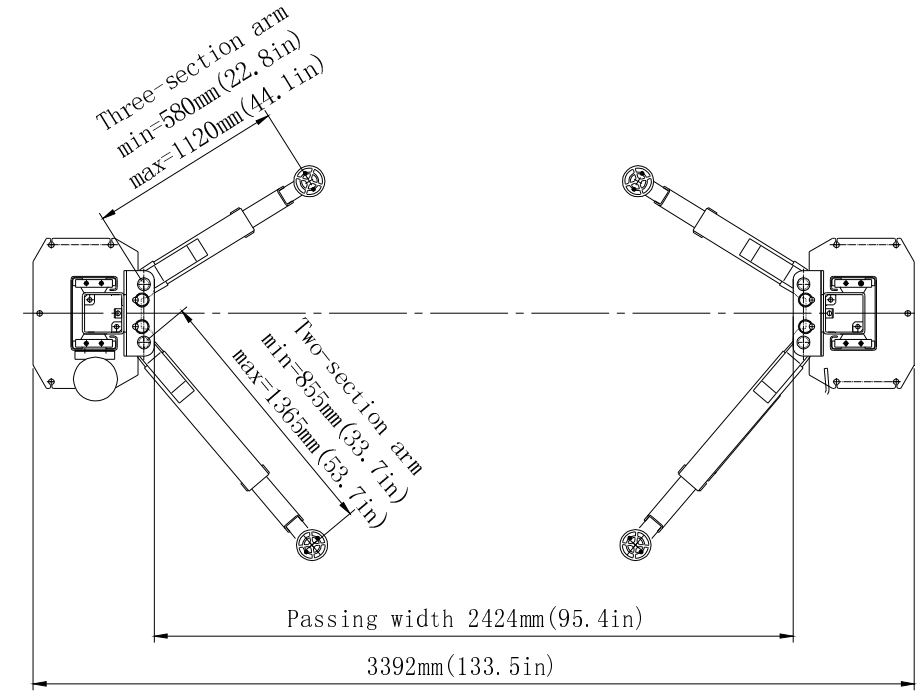


Fig 2c



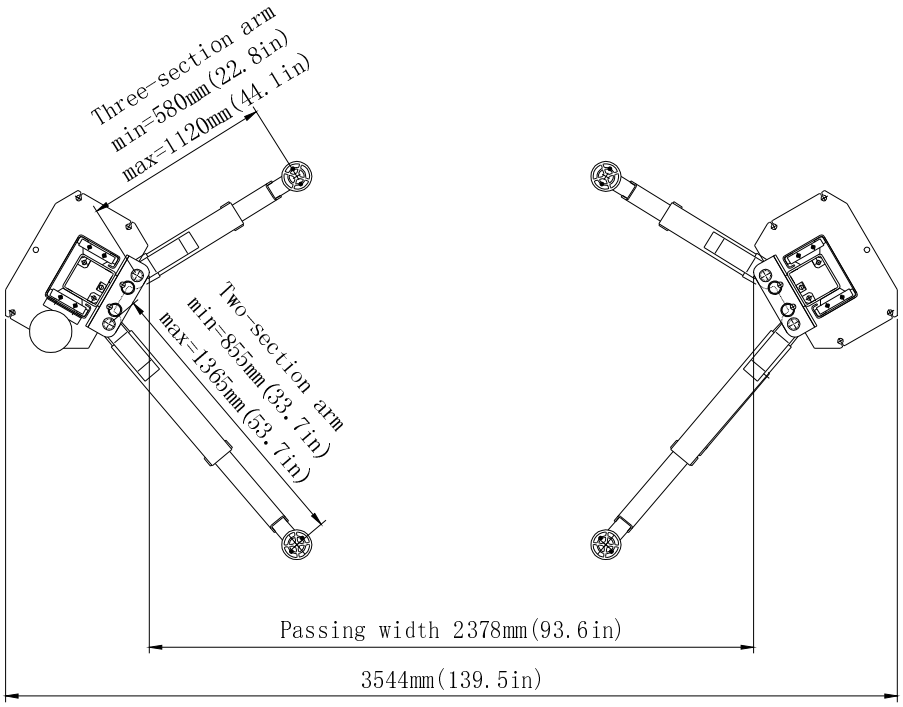


Fig 2d

2.2 Main structure principles:

- Lifting mechanism：Each column is installed with a hydraulic cylinder, when hydraulic oil is pressed from power pack into the lower chamber of main cylinder, piston rod moves upwards to drive the upward movement of carriage through leaf chain.
- Load supporting mechanism： When vehicle drives into the working area, adjust the angle and telescopic length of arms to make lifting pads at the effective load supporting position that contact with vehicle, then adjust the lower screw 's height of lifting pad to make it applicable for vehicles with different chassis.
- Balance mechanism： In order to keep machine balanced during lifting and lowering, two carriages are interconnected and forced to move synchronously by two wire ropes. If the right and left carriages and arms are not at the same level, adjust the end nut of wire rope and pull wire ropes tight to make arms leveled.
- Electromagnet safety lock mechanism: Each column is installed with two safety lock devices, when they start to work, this dual safety mechanism can make the machine stop reliably without falling during lifting process.
- Principles of electromagnet safety lock mechanism： The upper end of safety plate always attaches to the safety orifice closely. When the carriage rises, the safety orifice utilizes its inclined angle to push away the safety plate and rises progressively. In case of failure during the moving of the carriage, the rapid falling will occur, then the safety plate will block into the safety orifice, preventing the falling of the carriage (Fig. 3). When the electromagnet is actuated, the safety plate is released for carriage lowering (Fig.2e、2f)
- To prevent the vehicle slip, the swing arm is installed with positioning mechanism, making the swing arm capable of automatic locking during operation.
- Safety lock scope: Safety lock mechanism works when the front end of carriage is between 450mm and 1900mm high above the ground.

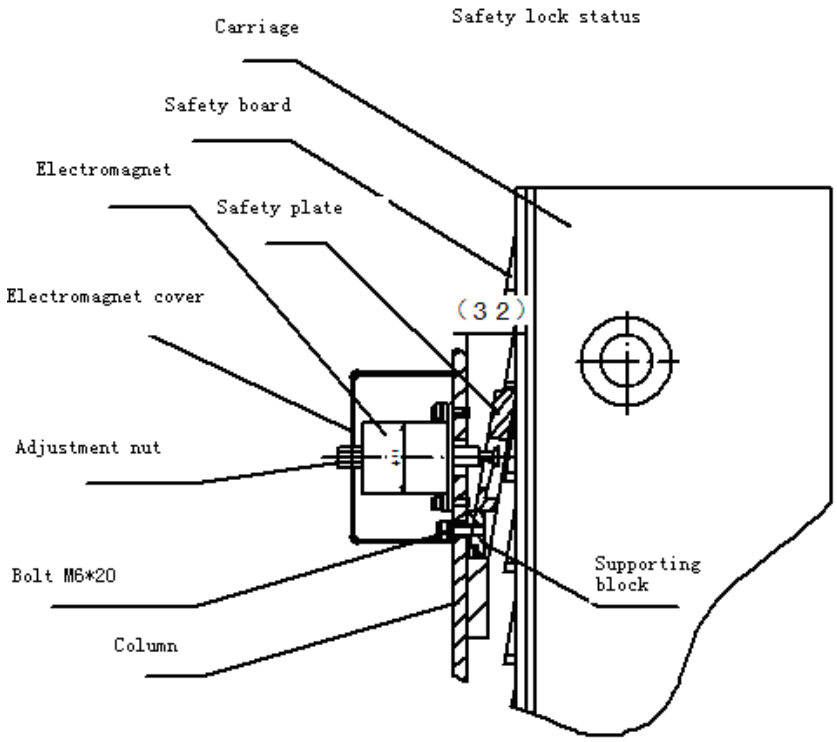


Fig 2e

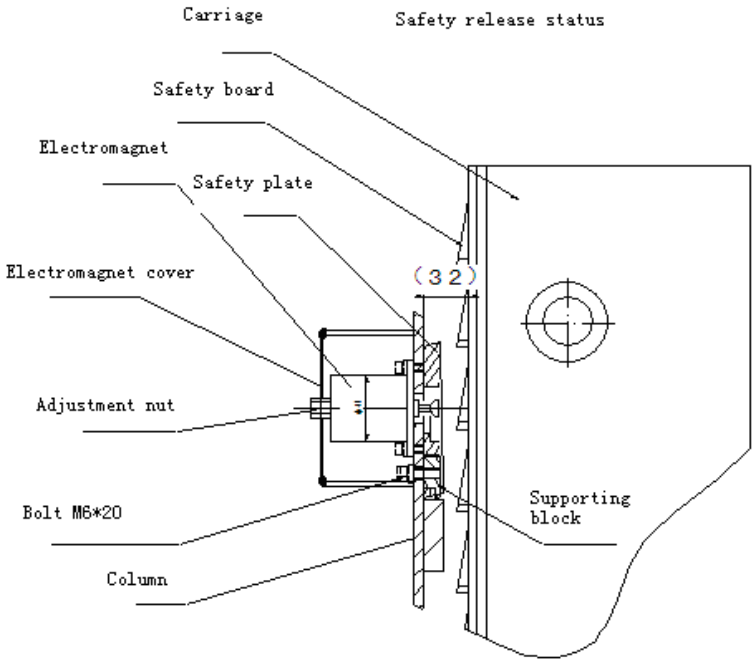


Fig 2f

3 Operation Description

3.1 Precautions for vehicle repair work

- Different vehicles have different center of gravity positions. First understand the position of center of gravity, and when the vehicle enters into the lift, make its center of gravity close to the plane formed by two columns. Adjust the swing arm, and make the lifting pad support onto the lifting point of the vehicle.
- Carefully read the warming symbol.
- The hydraulic valves have been adjusted before ex-factory, and the user can't make self-adjustment, otherwise it will be responsible for all the consequences generated.
- Based on the production needs, some specifications in the instruction manual are subjected to change without notice

3.2 Preparation before Operation

- Lubricate contact surface of the carriage with general-purpose lithium grease（GB7324-87）. All sliding surface should be coated evenly from the top to bottom.
- Fill hydraulic oil N32 or N46 to the oil reservoir of the power unit.

3.3 Inspection before operation

- Check to see if the motor power is installed properly.
- Check to see if all the connection Bolt s are fastened.

Note: Don't operate the lift with damaged cables or damaged and missing part, until it is inspected and repaired by the professionals.

3.4 Lifting the Vehicle

- Keep work area clean, don't operate the lift in cluttered work area.
- Lower the carriage to the lowest position.
- Reduce the swing arm to the minimum length.
- Swing the arm along the route of the vehicle
- Move the vehicle to the location between the two columns
- Swing the arm and put the lifting pad below the recommended lifting point, and adjust the height of lifting pad to touch lifting point of vehicle
- Press the UP button on the electric control box, slowly lift the vehicle to ensure the load balance, and then raise the lift to the required height.
- Release the UP button and the carriage will stop.
- Press the DOWN button to engage the safety lock of carriage. At this time, the vehicle can be repaired.

⚠ ***Note:***

- ***Before operation, the safety locking devices must be Inspected.1) The gear blocks of the arm end must engage the gear block of the restraint shaft.2)No broken strand in the steel cable. 3)No deformation in the arm pad.***
- ***When lifting the vehicle, all the swing arms must be used.***
- ***Before lifting the vehicle, check all the hydraulic hose and fittings for oil leakage. In case of leakage, please don't use the lift. Remove the fitting with leakage and re-seal. Re-install the fitting and check if oil leakage still exists.***
- ***After the vehicle is lifted, when adding or removing any major heavy object, use jack stand to maintain the balance of the vehicle.***

3.5 Lowering the Vehicle

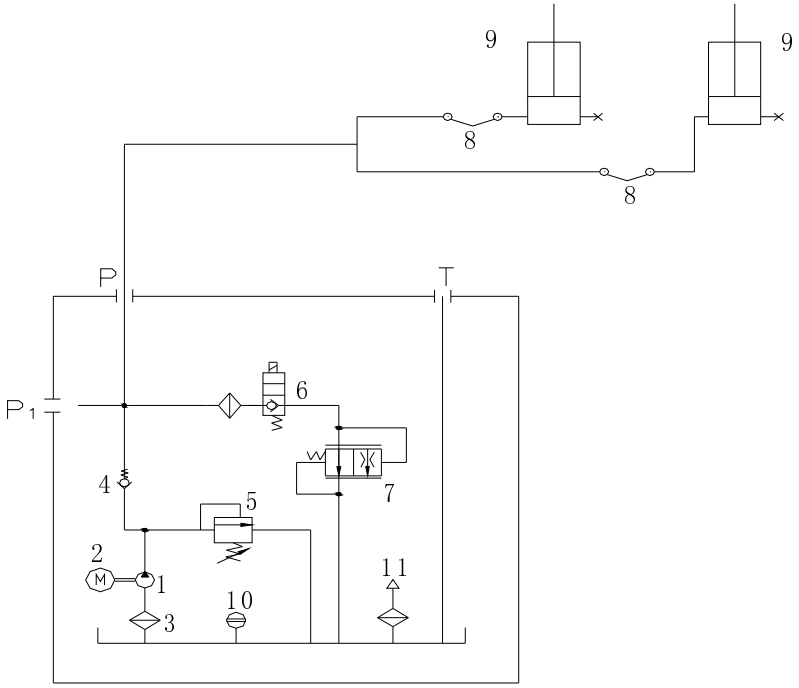
- Clean the work area before lowering the vehicle.
- First press the UP button to raise the vehicle a little, then press and hold the UNLOCK button to disengage the safety lock, and then press DOWN button to lower the vehicle.
- Lower the vehicle till the swing arm down to the bottom and the lifting pads leave the vehicle chassis, and then release the two buttons.
- The swing arms under the vehicle must be fully shrunk

⚠ ***Note: When the lift doesn't work, you must switch off the power.***

4 Hydraulic and Electrical System of the Equipment

4.1 Hydraulic System of the Lift

Diagram of the hydraulic system of clear-floor 2-post lift



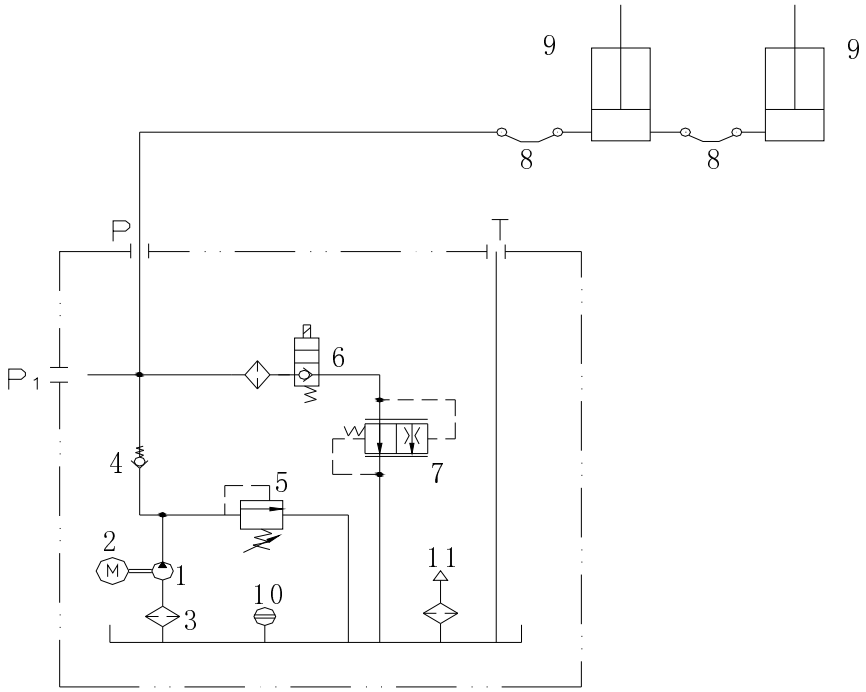
1- Gear pump, 2- Motor, 3- Oil filter, 4- Check-valve, 5- Safety valve, 6- Solenoid valve,
7- Servo flow-control valve, 8- Hose, 9- Hydraulic cylinder, 10- Level gauge, 11- Air filter

Fig 3a

The working principle of the hydraulic system is as follows:

When the UP button is pressed, the motor is started, driving the oil pump, sucking the hydraulic oil from the oil tank into the oil cylinder 9, forcing the piston rod move. At this time, the safety valve 5 is closed, and the Max working pressure is already adjusted before ex-factory. The safety valve can ensure the capacity of the rated load, but when the pressure in the system exceeds the limit, automatically overflow will be happened inside safety valve to protect the hydraulic system. Release the UP button to stop the oil supply and the lifting will stop. For lowering, press and hold the UNLOCK button, the electromagnetic safety lock mechanism will be released, meanwhile press the DOWN button, the solenoid valve 6 is actuated, the hydraulic oil flows back from the hydraulic cylinder into the oil tank through the solenoid valve 6 and flow-control valve 7, and the lift starts the lowering.

Diagram of the hydraulic system of floor-plate 2-post lift



1- Gear pump, 2- Motor, 3- Oil filter, 4- Check-valve, 5- Safety valve, 6- Solenoid valve, 7- Servo flow-control valve, 8- Hose, 9- Hydraulic cylinder, 10- Level gauge, 11- Air filter

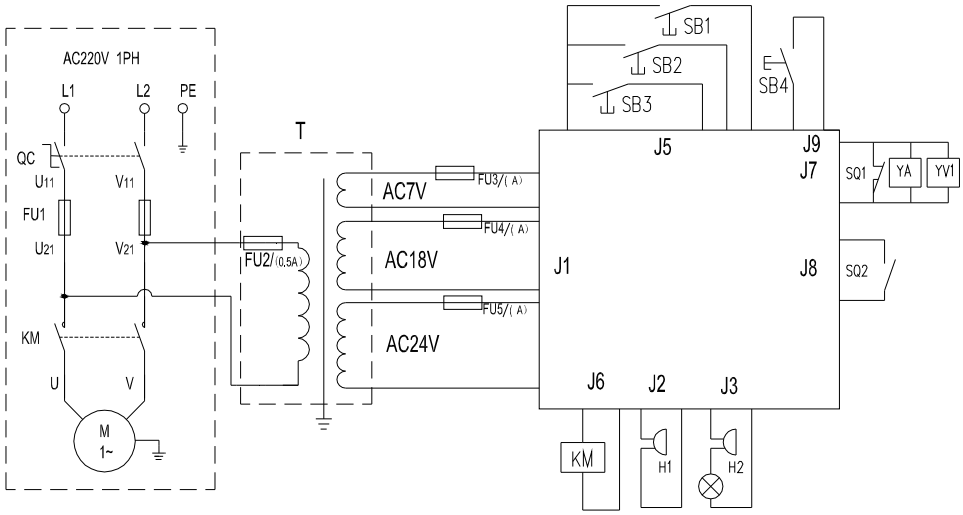
Fig 3b

The working principle of the hydraulic system is as follows:

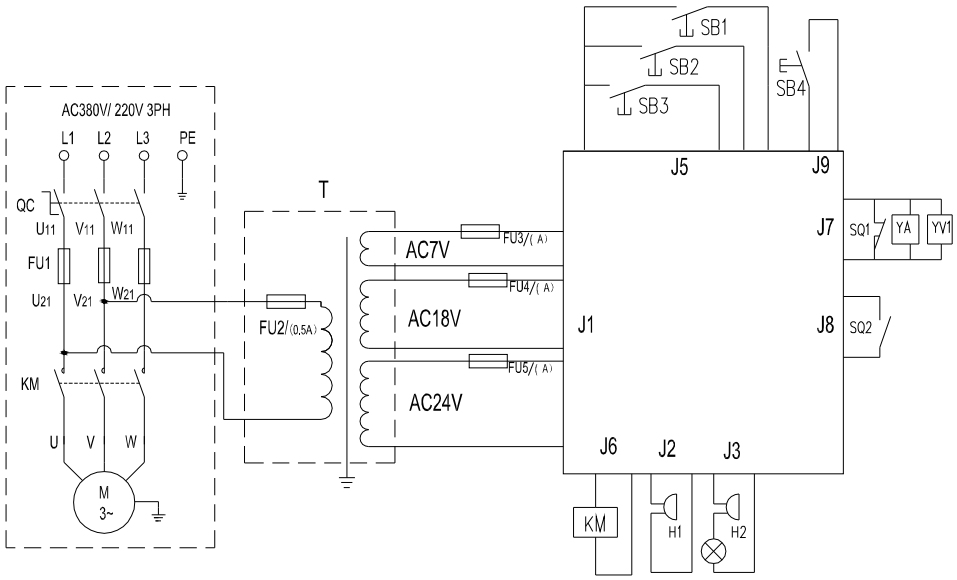
When the UP button is pressed, the motor is started, driving the oil pump, sucking the hydraulic oil from the oil tank into the oil cylinder 9, forcing the piston rod move. At this time, the safety valve 5 is closed, and Max working the pressure is already adjusted before ex-factory. The safety valve can ensure the capacity of the rated load, but when the pressure in the system exceeds the limit, automatically overflow will be happened inside safety valve to protect the hydraulic system. Release the UP button to stop the oil supply and the lifting will stop. For lowering, press and hold the UNLOCK button, the electromagnetic safety lock mechanism will be released, meanwhile press the DOWN button, the solenoid valve 6 is actuated, the hydraulic oil flows back from the hydraulic cylinder into the oil tank through the solenoid valve 6 and flow-control valve 7, and the lift starts the lowering.

4.2 Electrical System of the Lift

Diagram of the electrical system



SB1 UP button SB2 DOWN button SB3 LOCK button SB4 Manual and automatic switching button KM Contactor SQ1 Cylinder travel limit switch ,upper limit switch SQ2 CE-stop lower limit YV Pressure relief solenoid valve YA Parallel 4 electromagnets H1 Buzzer alarm H2 Maintenance alarm



SB1 UP button SB2 DOWN button SB3 LOCK button SB4 Manual and automatic switching button KM Contactor SQ1 Cylinder travel limit switch ,upper limit switch SQ2 CE-stop lower limit YV Pressure relief solenoid valve YA Parallel 4 electromagnets H1 Buzzer alarm H2 Maintenance alarm

5. Solutions to FAQ

Symptom	Reason	Solution
Motor not operation	◆ Check the circuit breaker or fuse ◆ Check the voltage to the motor ◆ Limit switch is failed ♦ Motor wire is burnt	◆ Replace the burnt fuse or reset the circuit breaker ◆ Supply correct voltage for motor ◆ Replace the limit switch ♦ Replace the motor
Motor is running, but the lift can't be raised.	◆ Motor rotation reversed ◆ Solenoid valve body open. ◆ Hydraulic pump sucks the air ◆ Suction tube is separate from the hydraulic pump ◆ Low oil level	◆ Change the motor rotating direction by changing wire connection. ◆ Repair or replace the solenoid valve body ◆ Fasten all the suction pipe fittings ◆ Replace the suction tube ◆ Add the oil into the oil tank
Motor is running, the lift can be raised without load, but the vehicle can't be raised	◆ Motor is running under low voltage ◆ Impurities inside the solenoid valve body ◆ Regulation pressure of safety valve is incorrect ◆ Lift is overloaded	◆ Supply correct voltage to the motor ◆ Remove impurities from the solenoid valve body. ◆ Adjust the safety valve ◆ Check the weight of the vehicle
The lift is lowering slowly without pressing the down button	◆ Impurities on the solenoid valve body. ◆ External oil leakage	◆ Clean the solenoid valve body ◆ Repair the external leakage
The lifting speed is slow or oil flows out of the oil fill cap	◆ Air and oil are mixed ◆ Air and oil suction are mixed ◆ Oil return pipe is loosened	◆ Replace the hydraulic oil ◆ Fasten all the suction pipe fittings ◆ Re-install the oil return pipe
The lift can't rise horizontally	◆ Balance cable is not adjusted properly ◆ The lift is installed on the slop floor	◆ Adjust the balance cable to the proper tension ◆ Shimming the columns to level the lift(no more than 5mm), If exceeding 5mm, pour new concrete floor and make it leveled. Refer to installation description.
Anchor Bolt is not fastened	◆ Hole is drilled too big ◆ Concrete floor thickness or fastening force is insufficient	◆ Pour the fast curing concrete into the big hole and reinstall the anchor Bolt , or use new drill to drill the hole for re-positioning the lift ◆ Cut open the old concrete and make new concrete slab for the lift. Refer to installation description.

6. Repair and Maintenance

Keep clean

- This unit should be cleaned with dry cloth frequently to keep it clean. Before cleaning, first switch off the power to ensure the safety.
- The working environment of this unit should be clean. In case of dust in the working environment, it will speed up the parts wearing and shorten the service life of the lift.

Every day:

- Before the operation, carefully check the safety mechanism of the lift to ensure the electromagnet suction and release action is proper, and the safety plate is in good condition. When finding any abnormal situation, make adjustment, repair or replacement immediately.
- Check to see if the connection between hydraulic cylinder and carriage is proper, if the connecting nut between the steel chain and carriage is loose or falling. Refer to Fig.4
- Check to see if the steel cable connection is proper, and if the tension is at the optimum status.

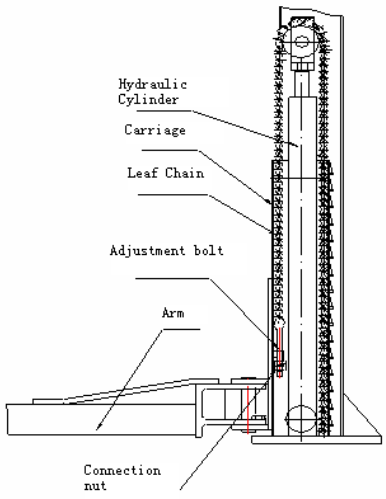


Fig 4

Every month:

- Retighten the anchor Bolt s.
- Lubricate chains/cables.
- Check all the chain connectors, Bolt s and pins to ensure correct installation
- Check all the hydraulic lines for wearing
- Check to see if the carriage and the inner side of the column are properly lubricated. Use high-quality heavy lubrication grease (lithium based lubrication grease GB7324-87).

⚠ ***Note: All the anchor Bolt s should be tightened completely. If any screw doesn't function for some reason, the lift can not be used until the bolt is replaced***

Every six months:

- Check all the movable parts for possible wearing, interference or damage.
- Check the lubrication of all the pulleys. If the pulley has dragging during the lifting and lowering, add appropriate lubricant to the wheel axle.
- When necessary, check and adjust the balancing tension to ensure the horizontal lifting and lowering.
- Check the verticality of the column.

⚠ ***Note: The inner corner of each column should be lubricated with lubricant, to minimize the roller friction and ensure the smooth and even lifting.***

Maintenance of hydraulic system:

- Clean and oil change
  In the six months after initial use of this unit, clean the hydraulic oil tank and replace the oil, later clean the hydraulic system once a year, and replace the oil. See Fig. 5.
- Replace the seal
  After this unit is put into operation for certain period, if finding the oil leakage, carefully check it; if the leakage is due to the wearing of sealing materials, immediately replace the worn one based on the original spec. See Fig. 5

Diagram of hydraulic line of clear-floor 2-post lift

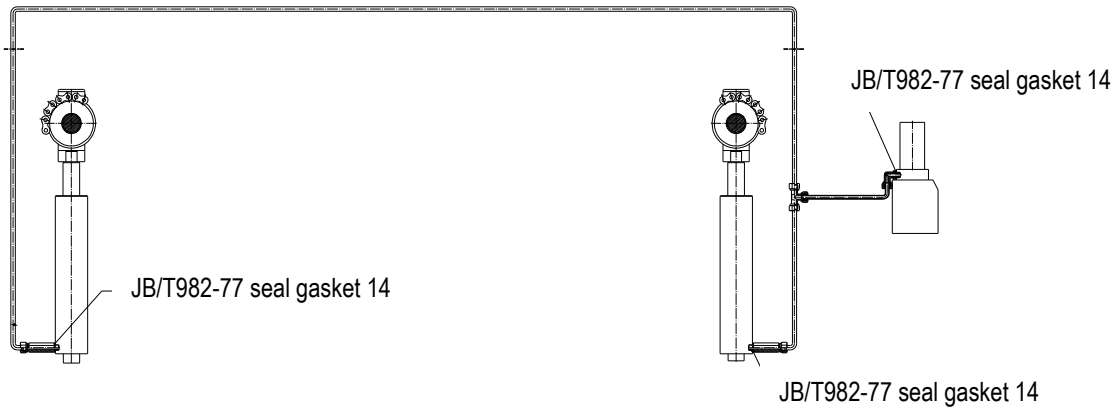


Diagram of hydraulic line of floor-plate 2-post lift

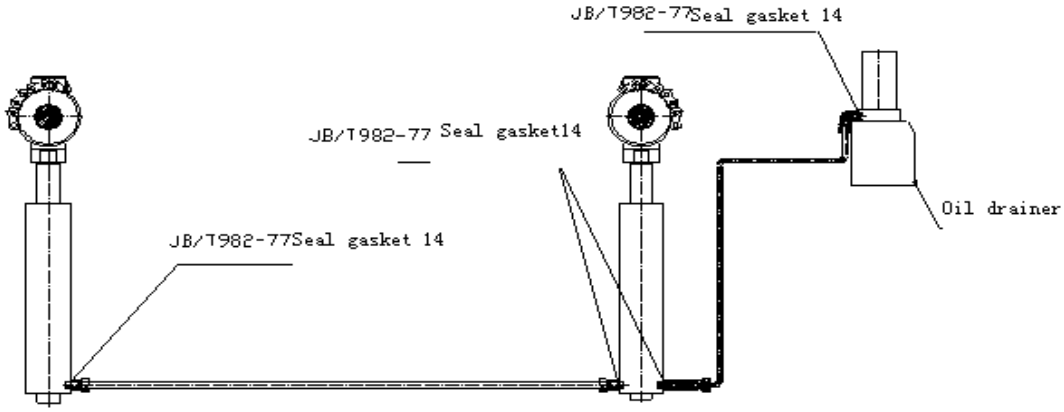


Fig 5

Wearing Parts

No.	Name	Model	Spec	Qty	Remark
1	O rubber sealing ring	GB3452.1-92	53×5.3	1	
2	Dust proof ring		DHS40	1	
3	Shaft sealing ring		UHS53×63×6	1	
4	Rubber pad			4	Self-made part

7. Storage and Scrap

7.1 Storage

When the equipment requires long-time storage:

- Disconnect the power supply
- Lubricate all the parts requiring lubrication: mobile contact surface of the carriage, etc.
- Empty all the oil/liquid storage units
- Put the plastic cover over the equipment for dust protection

7.2 Scrap

When the equipment service life is expired and can no longer be used, disconnect the power supply, and properly dispose of as per relevant local regulations.

8. Tools for Installation and Adjustment

To ensure proper installation and adjustment, please prepare the following tools:

Tool	Model
Leveling instrument	Carpentry type
Chalk line	Min 4.5m
Hammer	1.5kg
Medium crescent wrench	40mm
Open-end wrench set	11mm-23mm
Ratchet socket set	
Flat Screw driver	150mm
Rotary hammer drill	20mm
Concrete drill-bit	∅19mm

9. Unpacking

Open the packing box; remove the packing materials and inspect the lift for any sign of shipment damage. Check by packing list to see if the main parts and accessories are complete.

Keep the packing materials away from the children to avoid danger; if the packing materials cause the pollution, they shall be treated properly.

10. Installation

10.1 Important notice

- The wrong installation will cause the lift damage or personal injury. The manufacturer will not undertake any responsibilities for any damage caused due to incorrect installation and usage of this equipment, whether directly or indirectly.
- The correct installation location shall be "horizontal" floor to ensure the horizontal lifting. The slightly slope floor can be corrected by proper shimming. Any big slope will affect the height of the lifting pad when at the bottom or the horizontal lifting. If the floor is of questionable slope, consider a visual inspection, or pour a new horizontal concrete slab if possible. In short, under the optimum horizontal lifting status, the level of the lifting relies on the level of the floor where it is installed. Don't expect to compensate for the serious slope.
- Don't install the lift on any asphalt surface or any surface other than concrete. The lift must be installed on concrete floor conforming to the minimum requirement showed in this manual. Don't install the lift on the concrete with seams or crack and defect. Please check together with the architect.
- Without the written approval of the architect, don't install the lift on a second floor with basement.
- Overhead obstruction: The lift installation area can't have any overhead obstruction, such as heater, building support, electrical pipe, etc.
- Concrete drilling test: The installation personnel can test the concrete thickness at each site by drilling test. If several lifts are installed at one place, it is preferred to make drilling test in each site.
- Power supply: Get ready the power supply before the installation. All the electric wiring and connecting should be performed by a certified electrician.

10.2 Installation Procedure

10.2.1 Selecting installation site

Selecting installation site based on the following conditions:

- Lift can only be installed on concrete slab, which must have a minimum thickness of 250mm and should be aged 7days at least .
- The concrete slab shall have reinforcement by steel bar.
- The concrete slab must be leveled.
- If the thickness of the whole ground concrete is greater than 250mm, the lift can be installed directly
- Check the possible obstruction, e.g. low ceiling, top pipeline, working area, passage, exit, etc.
- The front and back of the lift should be reserved with sufficient space to accommodate all the vehicles (Fig. 6).(evaluating from the center line ,each edge should be about 4m)

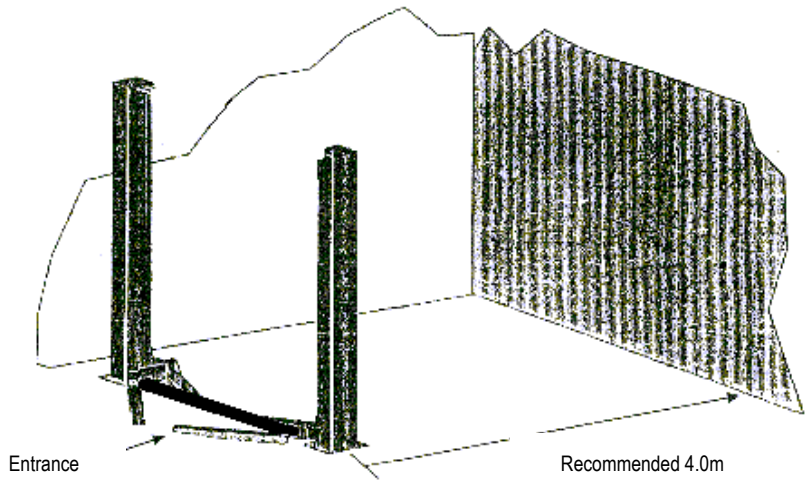


Fig 6

10.2.2 Base plate layout

- **TLT235SBA、TLT240SBA Models：** With total width (A) as the basis, draw two parallel lines (#1 and #2) on the concrete slab, with the error within 3mm. Determine the power side column location on any chalk line, and mark the total width (B) of the base plate. Mark the points 3 and 4. Starting from point 3, draw one diagonal line (C) ,forming a triangle. In this way, the vertical lines can determine the location of the two columns.(as shown in 7a)

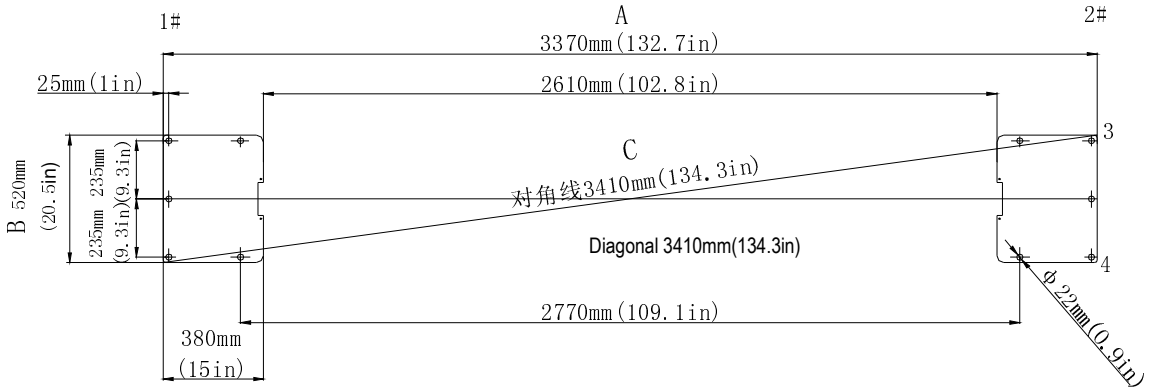


Fig 7a

TLT235SBA（E）Model： The Base plate and four pieces corrugated steel plate are connected by fasteners.(as shown in Fig.7b)

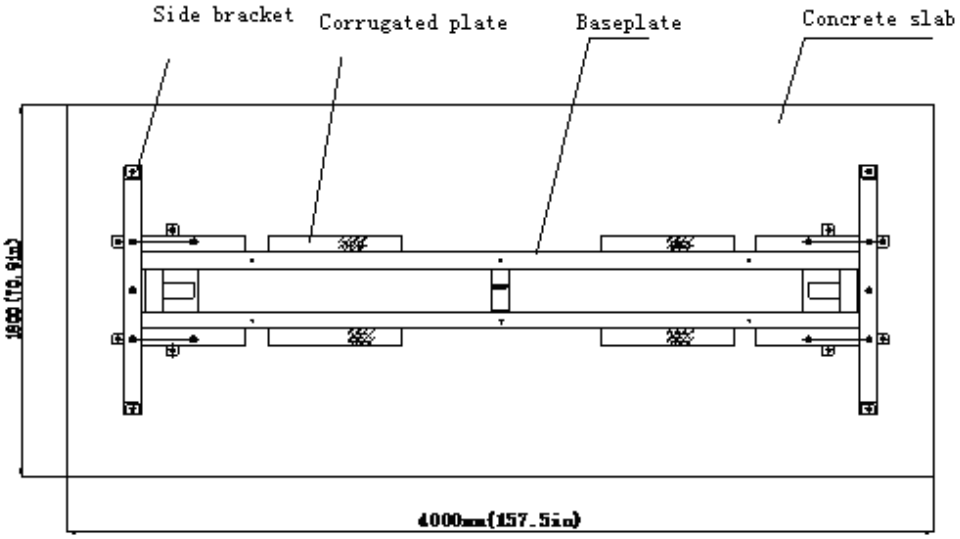


Fig.7b

TLT240SCA Model：

- Base plate symmetric installation is as shown in 7c1: With total width (A) as the basis, draw two parallel lines (#1 and #2) on the concrete slab, with the error within 3mm. Determine the power side column location on any chalk line, and mark the total width (B) of the base plate. Mark the points 3 and 4. Starting from point 3, draw one diagonal line (C) , forming a triangle. In this way, the vertical lines can determine the location of the two columns.

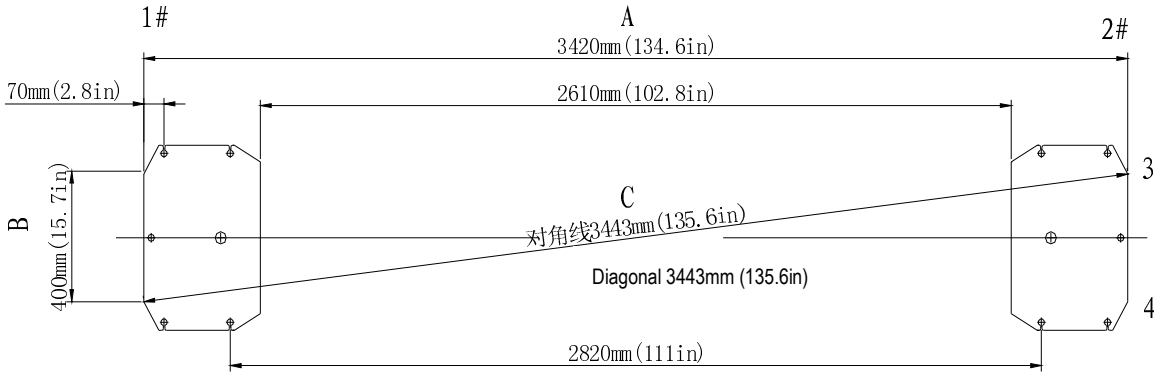


Fig.7c1

Base plate asymmetric installation is based on a total width (A) shown in 7c2, draw two parallel lines (#1 and #2) on the concrete slab, with the error within 3mm.Determine a point B at any point on chalk line #1, based on point B, move down 131mm, then move right 228mm to get point C. Based on point B, draw #1's vertical line M with a length of A to get point D .Based on point C, draw line M's parallel line N with a length of L to get point E. With four points B,C,D,E, each post's position can be decided.

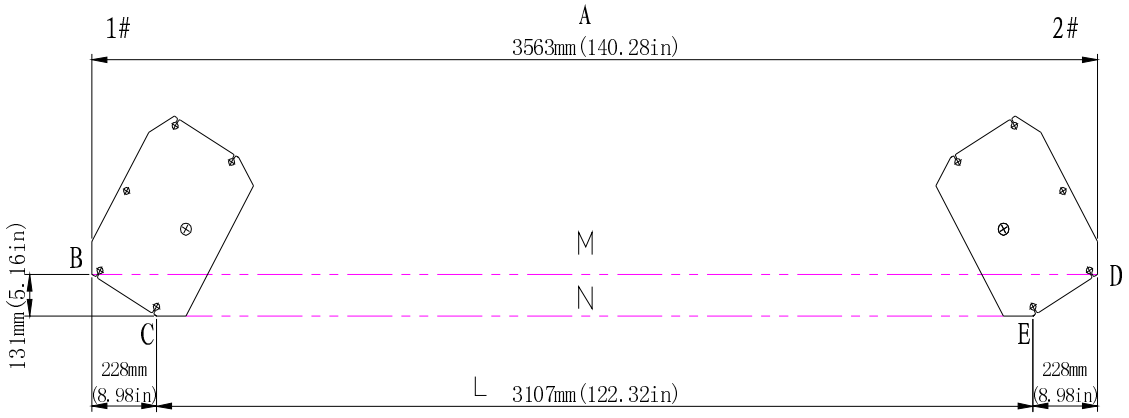


Fig. 7c2

TLT235SCA（U）Model:

- Base plate symmetric installation is as shown in 7d1: With total width (A) as the basis, draw two parallel lines (#1 and #2) on the concrete slab, with the error within 3mm.Determine the power side column location on any chalk line, and mark the total width (B) of the base plate. Mark the points 3 and 4.Starting from point 3, draw one diagonal line (C), forming a triangle. In this way, the vertical lines can determine the location of the two columns.

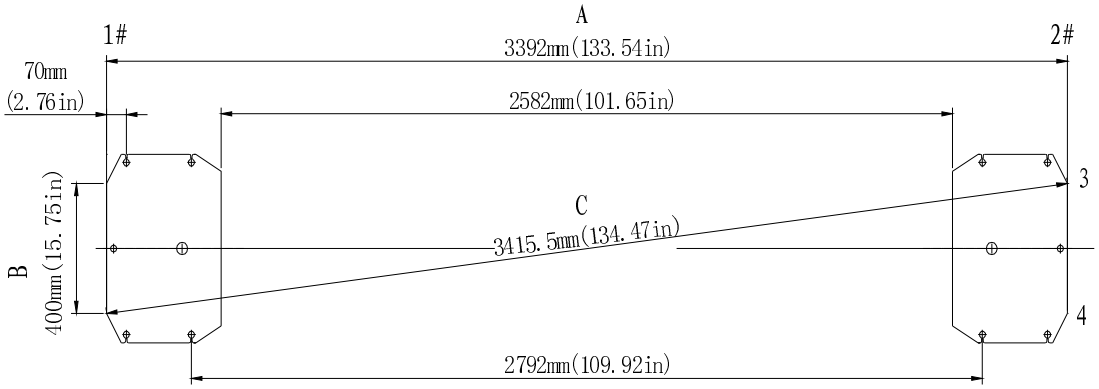


Fig.7d1

Base plate asymmetric installation is based on a total width (A) shown in 7d2, draw two parallel lines (#1 and #2) on the concrete slab, with the error within 3mm.Determine a point B at any point on chalk line #1, based on point B, move down 131mm, then move right 228mm to get point C. Based on point B, draw #1's vertical line M with a length of A to get point D .Based on point C, draw line M's parallel line N with a length of L to get point E. With four points B,C,D,E, each post's position can be decided.

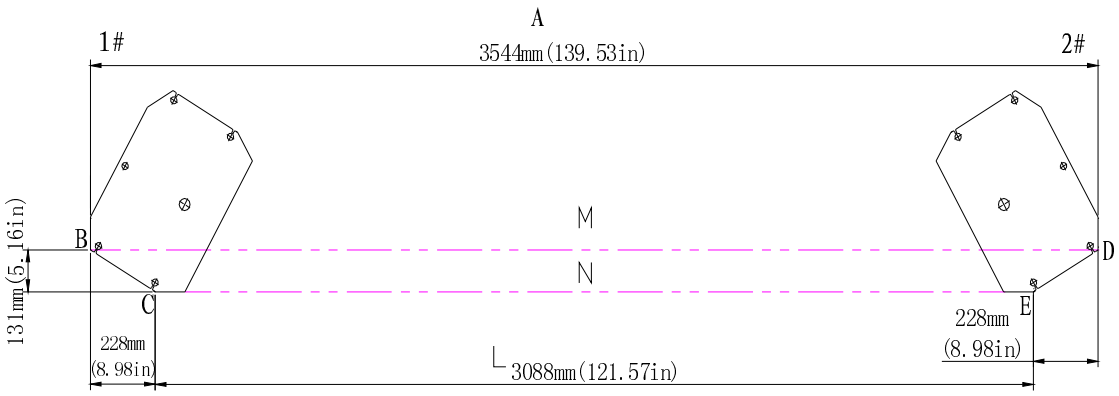


Fig 7d2

Note:

- ***All the dimensions are based on the external border of the base plate.***
- ***Ensure the overall error is controlled within 6mm. In this way, the difficulties in the final assembly, or early wear or non-alignment of the chain can be eliminated. The marking and layout is very important. If it is inaccurate, there will be problems during the final assembly and operation.***

10.2.3 Install the power side column

TLT235SBA、TLT240SBA Models：

First use lifting equipment to put the power side column upper right to the location. Align the base plate of column with the chalk line layout.Guided by holes on the base plate of the column, use 5 concrete anchor Bolt s to fix it onto the ground. Drill and install anchor Bolt s at one time, during the drilling process, ensure no movement of the column from the chalk line (Fig.8a).

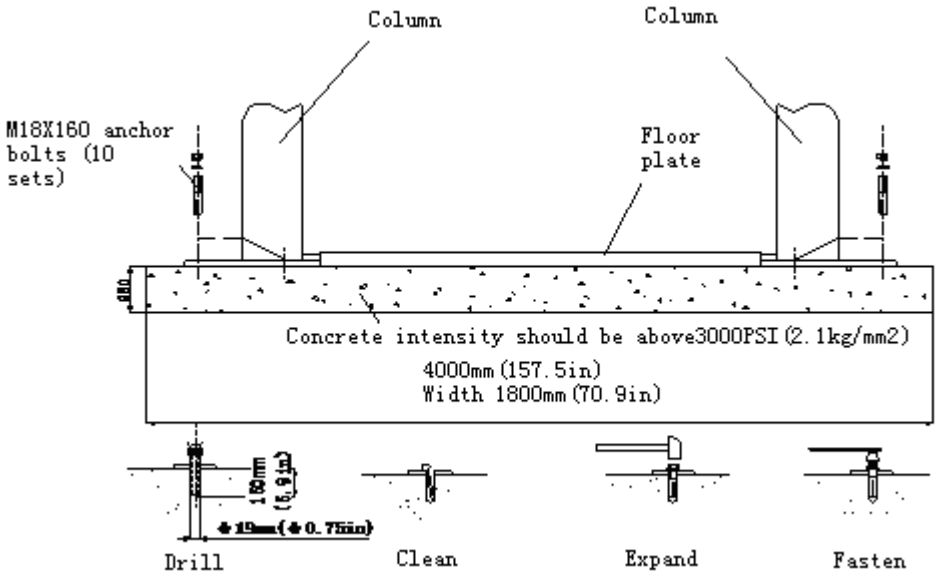


Fig. 8a

TLT235SBA（E）Model：

- Place the big base plate and side brackets to pre-calculated position. Use lifting equipment to place columns at pre-calculated position and fix them by using standard installation parts,. Guided by holes on the big base plate and side brackets, use 12 concrete anchor Bolt s to fix it onto the ground. Drill and install anchor Bolt s at one time, during the drilling process, ensure no movement of big base plate and side brackets, as shown in 10b.Insert appropriate shims under big base plate and side brackets ,to plumb columns and make sure no inclination would be more than 3mm.

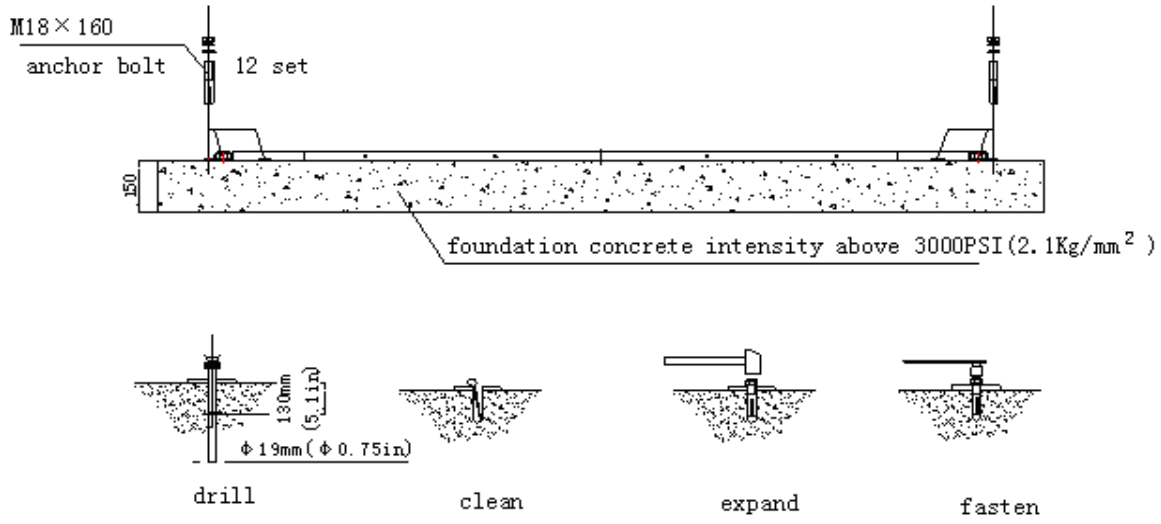


Fig.8b

TLT240SCA、TLT235SCA（U）Models：

First install extension column with column, then use lifting equipment to place power side column upper right to the location. Align the base plate of column with the chalk line layout. Guided by holes on the base plate of the column, use 5 concrete anchor bolts to fix it onto the ground. Drill and install anchor Bolt s at one time, during the drilling process, ensure no movement of the column.(Fig.8c) .

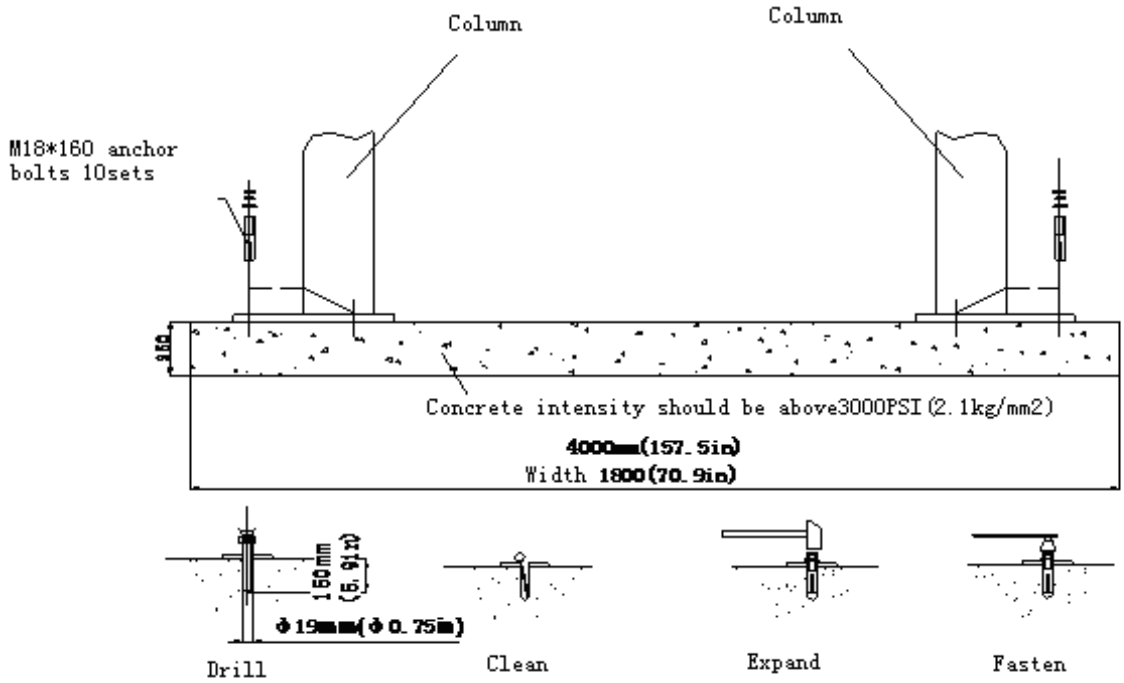


Fig.8c

Note：

- ***Use sharp Φ19mm concrete drill-bit to drill the holes so as not to drill the hole too large,. Use proper pneumatic tool to remove the dust from the hole. The depth of the hole is the same as that of the anchor Bolt . Insert the anchor Bolt and make the washers lean against the base of the column.***
- ***Only use torque wrench instead of impact tools to fasten anchor Bolt s. Insert proper steel shim under the base seat of column to plumb the column.***

Note: The thickness of shims shouldn't exceed 5mm.

To get the correct and safety installation, please follow the following installation steps.

- Wear the safety goggles
- Use hard alloy drill-bit.
- Don't use the drill-bit with wearing exceeding the tolerance.
- The drill and concrete surface should be kept perpendicular.
- Let the drill work itself. Don't apply the extra force, and don't ream the hole or allow the drill to wobble.
- The drilling depth of hole is based on the length of anchor Bolt .The distance from the Bolt head to the concrete floor should be more than twice of the Bolt diameter.
- Remove the dust from the hole.
- Gently tap the Bolt into the hole till the washer rests against the base plate of column.
- Fasten Bolts

10.2.4 Install the floor plate, top beam

10.2.4.1 Install the floor plate

TLT235SBA、TLT235SBA（E）、TLT240SBA Models：

Position the offside column at the designated chalk line location, carefully making the base align with the chalk line layout. Insert the floor plate into the U gaps of the base seat of two columns.

Note:

- ***Since the offside column is not fixed to the ground, you must operate carefully to avoid the falling of the column.***
- ***The wire protective pipe on the floor plate must be in same direction with the pipe on the column near the base. And the floor plate would be placed in front position.***

10.2.4.2 Install the top beam

TLT240SCA、TLT235SCA（U）Models：

Position the offside column at the designated chalk location. Lift the top beam to its high position, and use four M12 Bolt s, washers and lock nuts to fix it with the columns (as shown in Fig. 9a). When installing the top beam, ensure the above micro switch support bracket adjacent to the power side column. In Fig 9a:The symmetric top pulleys are to be installed at position 1、1",asymmetric top pulleys are to be installed at position 2、2".

Note: Since the offside column is not fixed to the ground, you must operate carefully to avoid the falling of the column.

Diagram of column, extension column and top beam

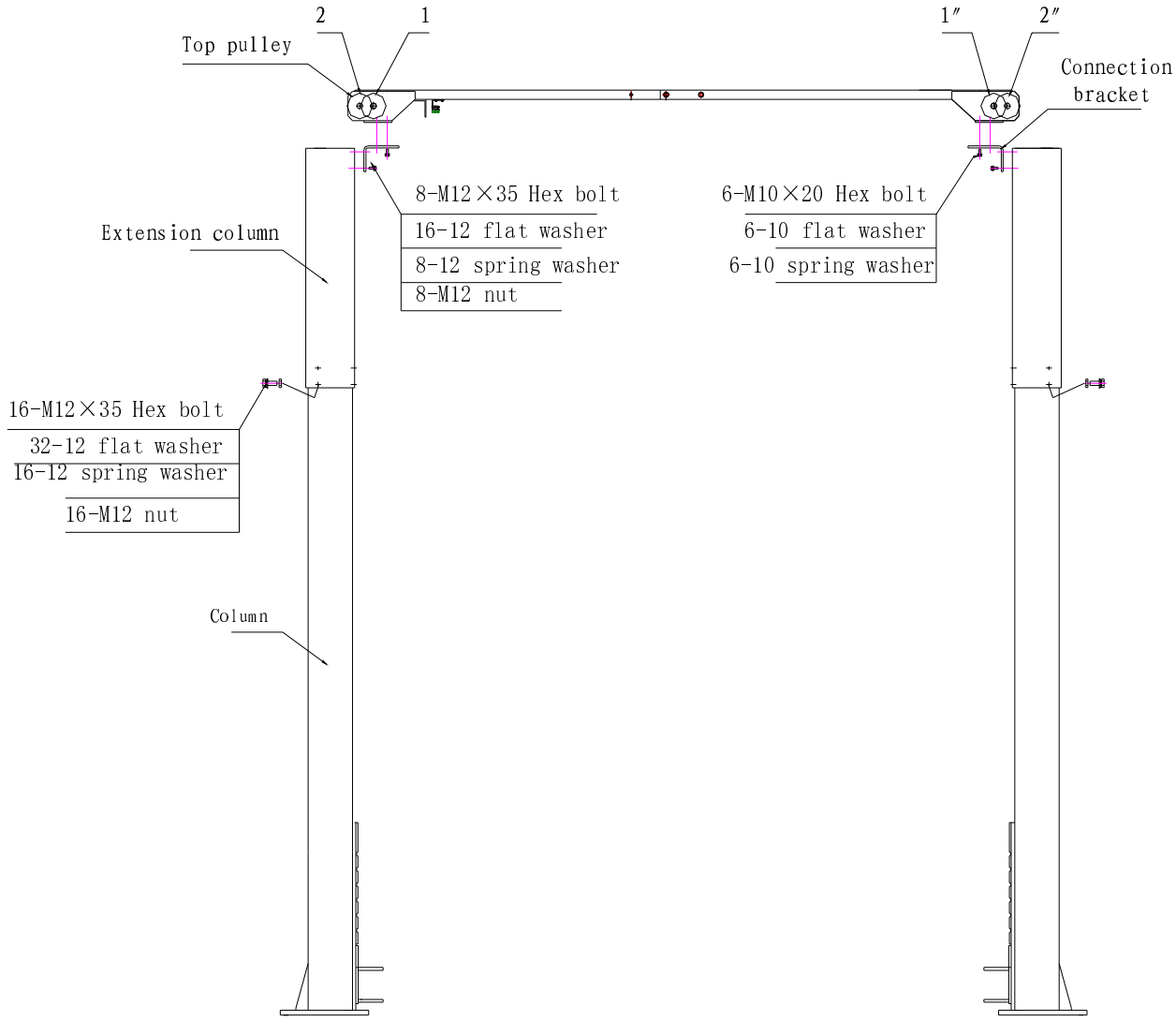


Fig 9a

10.2.5 Install the offside column

- Install the offside column as the procedures in10.2.3.

10.2.6 Install and adjust the balancing steel cables

- Raise the two carriages to the safety locking position, make sure the two carriages are of the same height from ground. for TLT235SBA、TLT235SBA（E）、TLT240SBA models, route the steel cables as Fig. 9b shows ,for TLT240SCA、TLT235SCA（U）models, route the steel cables as Fig9c shows..
- Adjust the tension of cables through the adjustment nuts on each end of steel cable. The steel cables should be tight in equal tension. Each steel cable should be ensured in the pulley when adjusting tightly, otherwise the steel cable will be damaged.

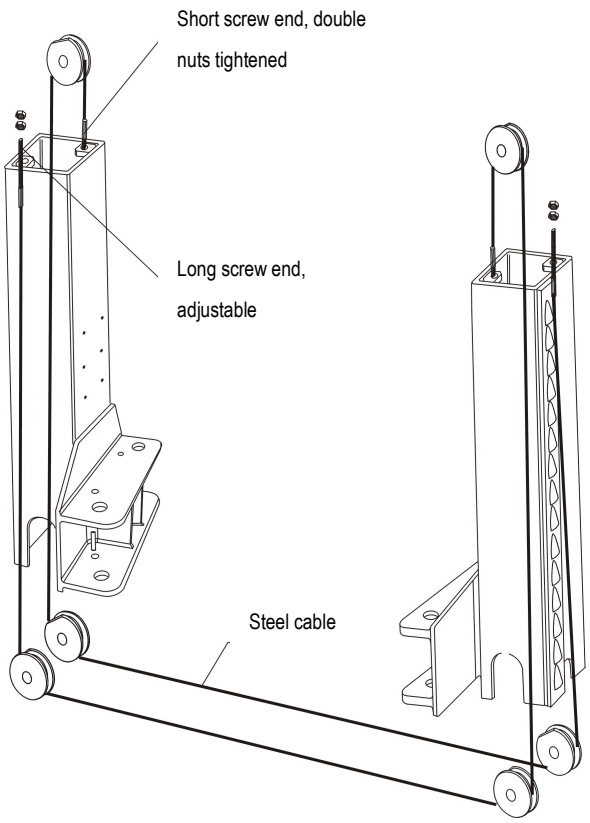


Fig 9b

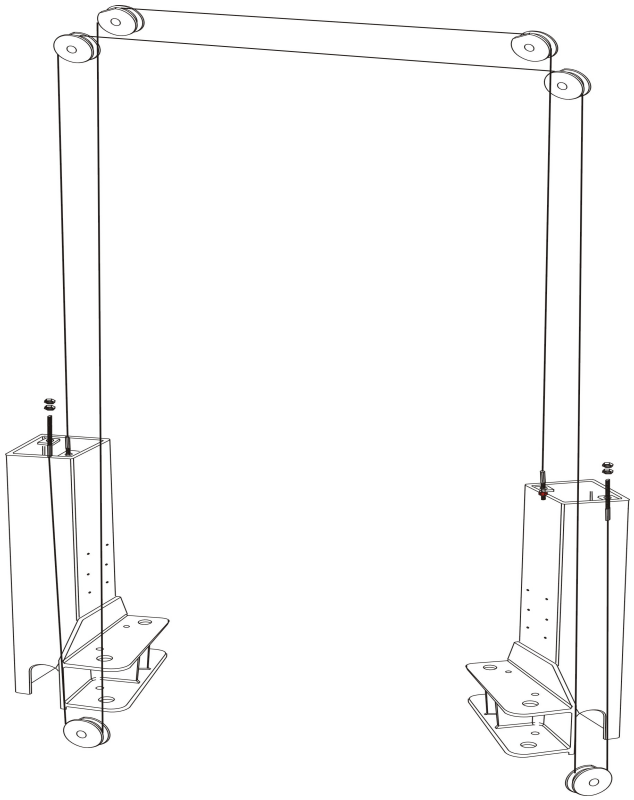


Fig 9c

Note:

- ***The two steel cables are required to adjust to certain uniform tension to ensure the two carriages move synchronously.***
- ***Short Screw must be installed in the way as shown in above Fig. The tightened double nuts are nonadjustable otherwise it will affect the safety use of lift.***
- ***Before operating the lift, re-check the balancing steel cables and ensure they are not intersected or wrongly installed. Ensure the steel cables are still in the pulley.***

10.2.7 Install the power unit and hydraulic lines

- Use two M10 Bolt s and washers to fix the power unit as shown in Fig. 10a, for TLT235SBA、TLT235SBA（E）、TLT240SBA models, install the hydraulic line as shown in Fig. 10a , for TLT240SCA、TLT235SCA（U）models, , install the hydraulic line as shown in Fig. 10b and tighten all the fittings to prevent oil leakage.
- Fill the reservoir with hydraulic oil (oil capacity of 10L). Operate carefully to avoid dust and other pollutants mixed with the hydraulic oil.

Note:

- ***Clean the impurities in the hydraulic line and remove the protective plug from the hydraulic cylinder.***
- ***When the hydraulic hose installation needs to go through the column, ensure the hydraulic hose won't touch any movable parts inside the column***

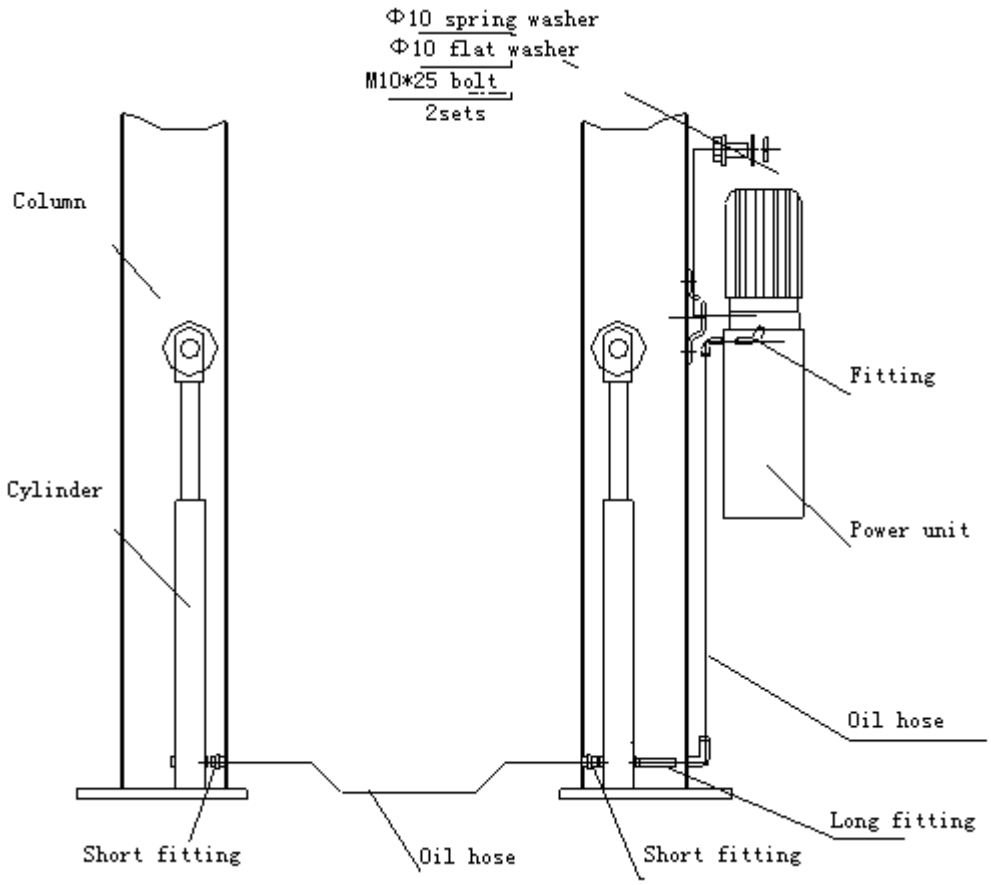


Fig 10a

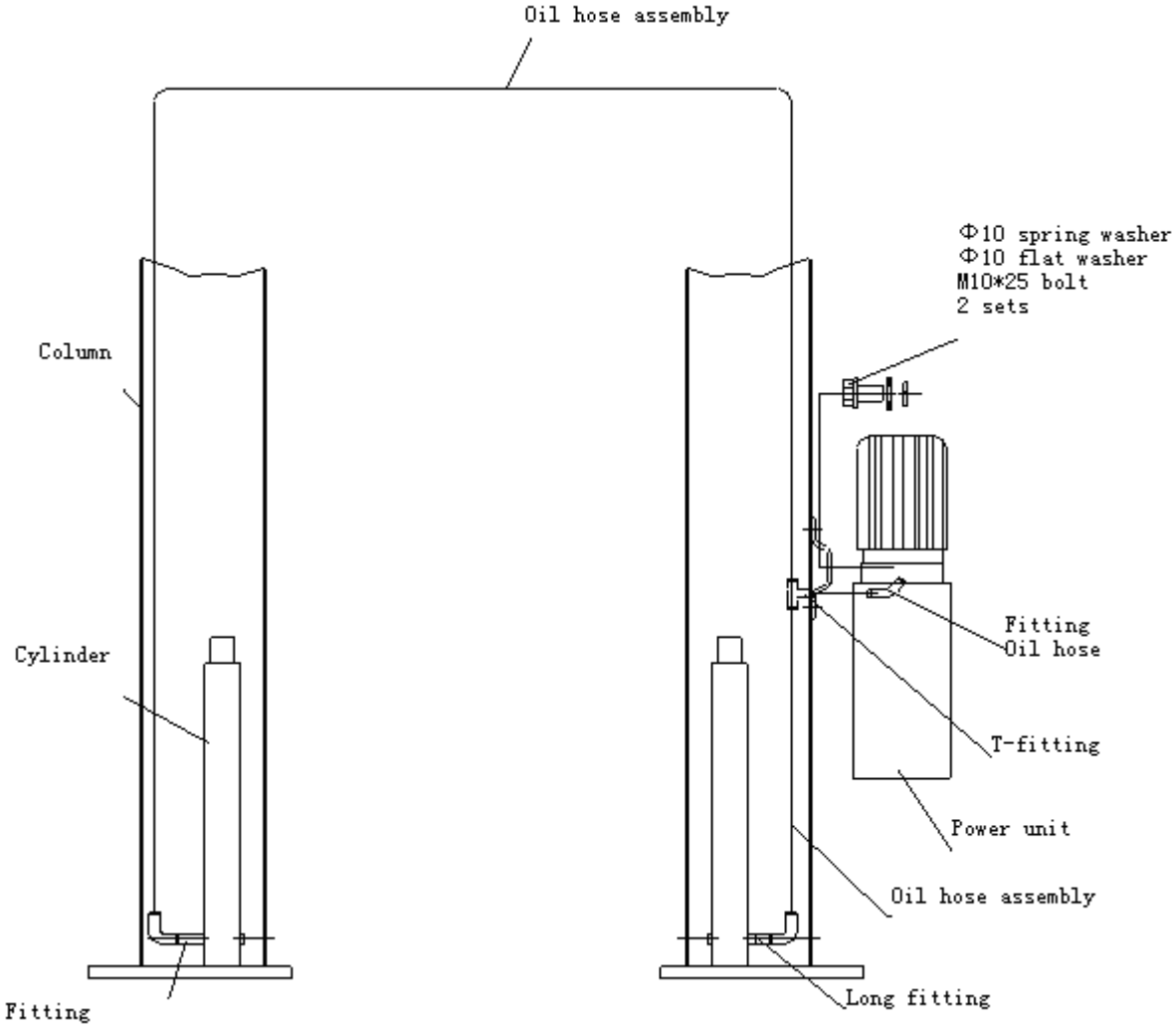


Fig.10b

10.2.8 Install the swing arm

Install the swing arm as shown In Fig.11

Note:

Before use ,check if the positioning gear mechanism at the end of arm fits, adjust the Screw s of fixed semi-gear for its fitness.

During the installation, lubricate the moving parts of swing arm and carriage if accessory, so that the swing arm can move freely.

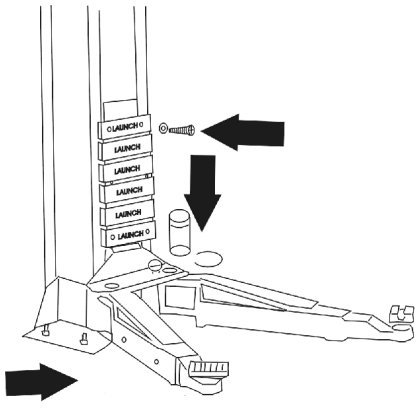


Fig 11

10.2.9 Install the electric control box

- Use M5x12 Screw and washer to fix the electric control box casing onto the column.(Fig.12)
- Connect the electrical wiring as shown in Fig. 12.
- Install the bottom case of the electric control box.

⚠ ***Note:***

This equipment needs NFB (non-fuse breaker) upon installation. This equipment does not include it. It should be bought and installed by users. The NFB is 16A.

- ◆ ***The power cable is required to be greater than 2.5mm².***

✧***Coat the roller and carriage passage with the lubrication grease. Raise and lower the carriages twice without load t o see if they work well.***

✧***After the column is fixed, operate with load***

Installation schematic diagram of electric control box

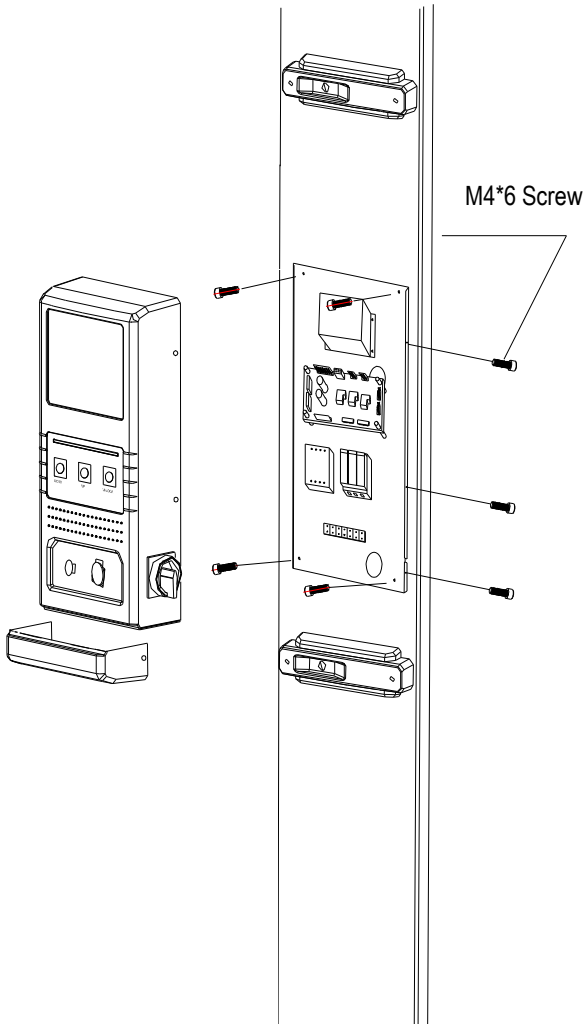


Fig 12

Wiring diagram

- TLT235SBA、TLT235SBA（E）、TLT240SBA models are shown in Fig13a.
- TLT240SCA、TLT235SCA（U）models are shown in Fig13b.

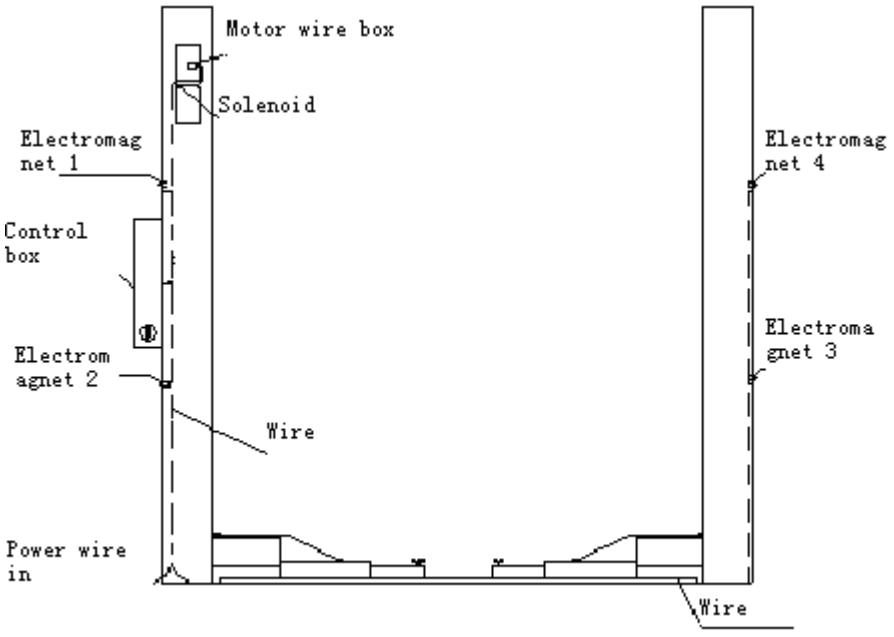


Fig 13a

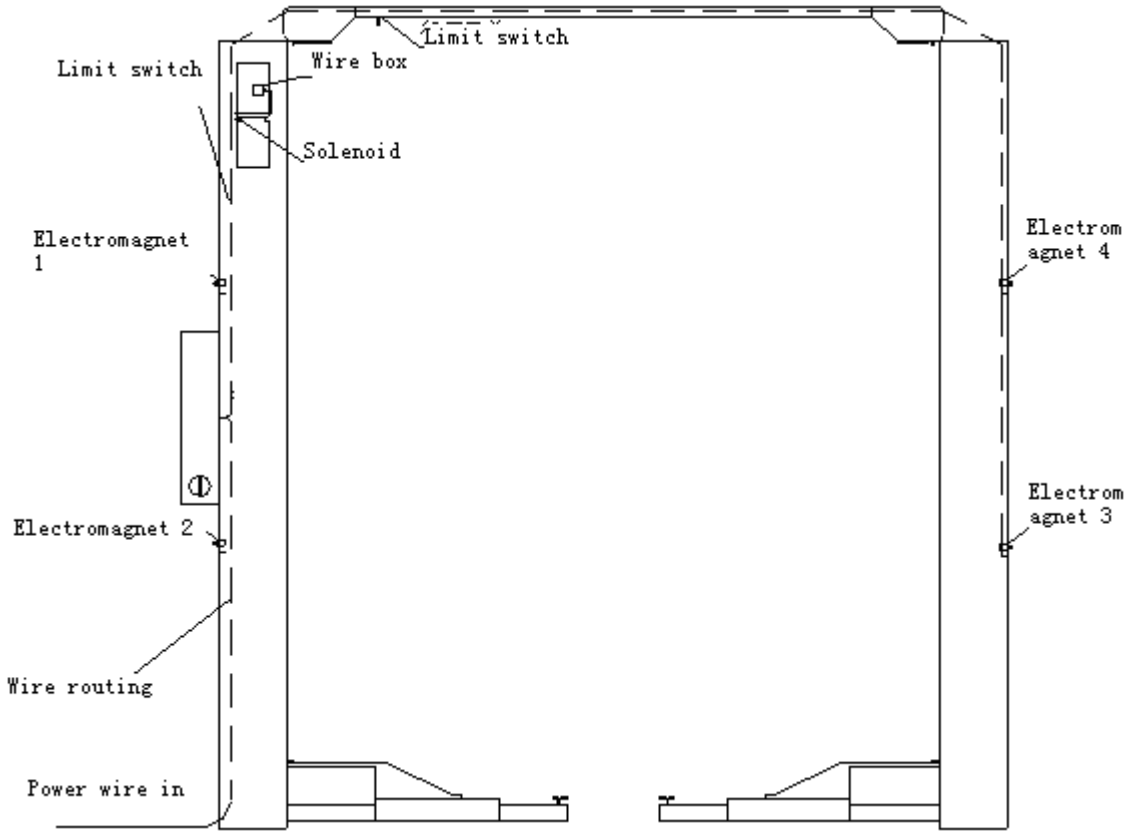


Fig 13b

10.2.10 Adjust the Steel chain

The steel chain has been adjusted properly by the manufacture (Fig. 14), making the swing arm move freely at the lowest height without scratching the ground. The customer can make fine adjustment for chains after the electrical and hydraulic installation. Before adjustment, lift the carriage to a high position and lower for 2 sec to engage safety lock, and then adjust the nut on the threaded end of the chain to the required position. Raise carriage to disengage safety lock and operate as required.

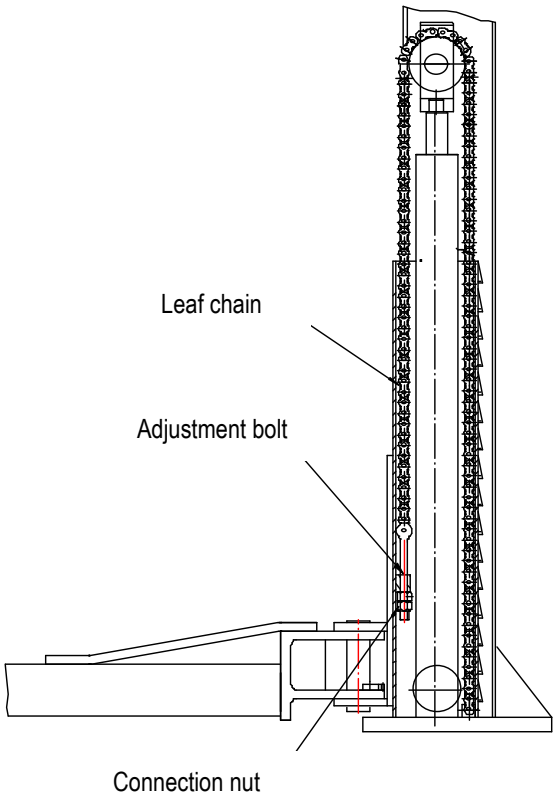


Fig 14

10.2.11 Install and adjust the electromagnet safety mechanism

- Use Bolt s M5x12 and flat washer 5 to fix the electromagnet, and use Bolt s M6×20 to fix safety plate by supporting block(as shown in Fig. 3)
- Adjust the electromagnet rear end nut. When the safety plate is under the safety status, the plate should contact the carriage; meanwhile, there is 1-2mm gap between the nut and the end of electromagnet. When the carriage rises, the safety orifice utilizes its inclined angle to push away the safety plate and rises progressively. The rattling sound can be heard clearly in the two columns. (See Fig.2e and 2f)
- Press UNLOCK button to actuate the electromagnet, and see if two safety plates can completely separate from the carriage safety orifice.
  (See Fig. 2f)

Note:

✧***The electromagnet installation shall ensure free pulling and release. It is not allowed to have any jammed resistance caused by back cover or others.***

10.2.12 Install the cover, floor plate cover

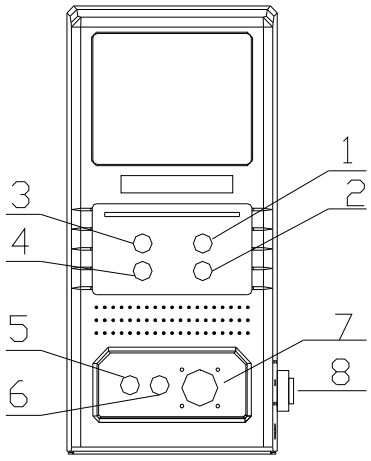
Fix the electromagnet cover. Install the floor plate cover onto the guide plate to cover the oil hose and steel cables.

11. Lift Adjustment

11.1 Preparation before the adjustment

- Lubricate contact surface of the carriage and corners of column with general-purpose lithium grease. All sliding surface should be coated evenly from top to bottom.
- Fill hydraulic oil N32 or N46 to the oil reservoir of the power unit.

11.2 Adjustment procedure



1. DOWN button 2. Safety lock button 3. UP button 4. Automatic/Manual switch button
5. Buzzer 6.Maintenance alarm 7、220V waterproof socket 8. Power switch

✧***Note： This equipment needs NFB (non-fuse breaker) upon installation. This equipment does not include it. It should be bought and installed by users. 16A NFB is suggested.***

- Check if the motor power is installed correctly.
- Check if all connecting Bolt s are fastened.
- Operation procedures as follow:

1.Automatic/Manual（AC/MC）when change-over switch is in automatic position , the operation is as below:

UP button ： Press UP button to rise, release button to stop rising. The maximum lifting height can reach to the upper limit switch position.

Safety lock button ： Press this button to let carriage fall on the safety lock .This button is merely a lowering button.

Down button ： Keep pressing DOWN button, first it rises about 2 seconds and disengage the safety lock simultaneously. Then it lowers ,until to the lower limit switch（CE-STOP）.Then restart to keep pressing the DOWN button to let it fall down the bottom gradually.

Buzzer alarm ：When lowering to the lower limit switch position（CE-STOP）,the lowering motion would be stopped. Repress the DOWN button, it begins to lower again with alarm buzzer, release the DOWN button, the alarm buzzer would stop.

2. Automatic/Manual（AC/MC）when change-over switch is in manual position , the operation is as below:

UP button（UP）： Press UP button to rise, release button to stop rising. When it reaches to the limit switch position, the rise would stop even the button is being pressed.

Down button：Press this button to lower, release this button to stop lowering

Safety lock button：Press this button to lock, release this button to release the lock

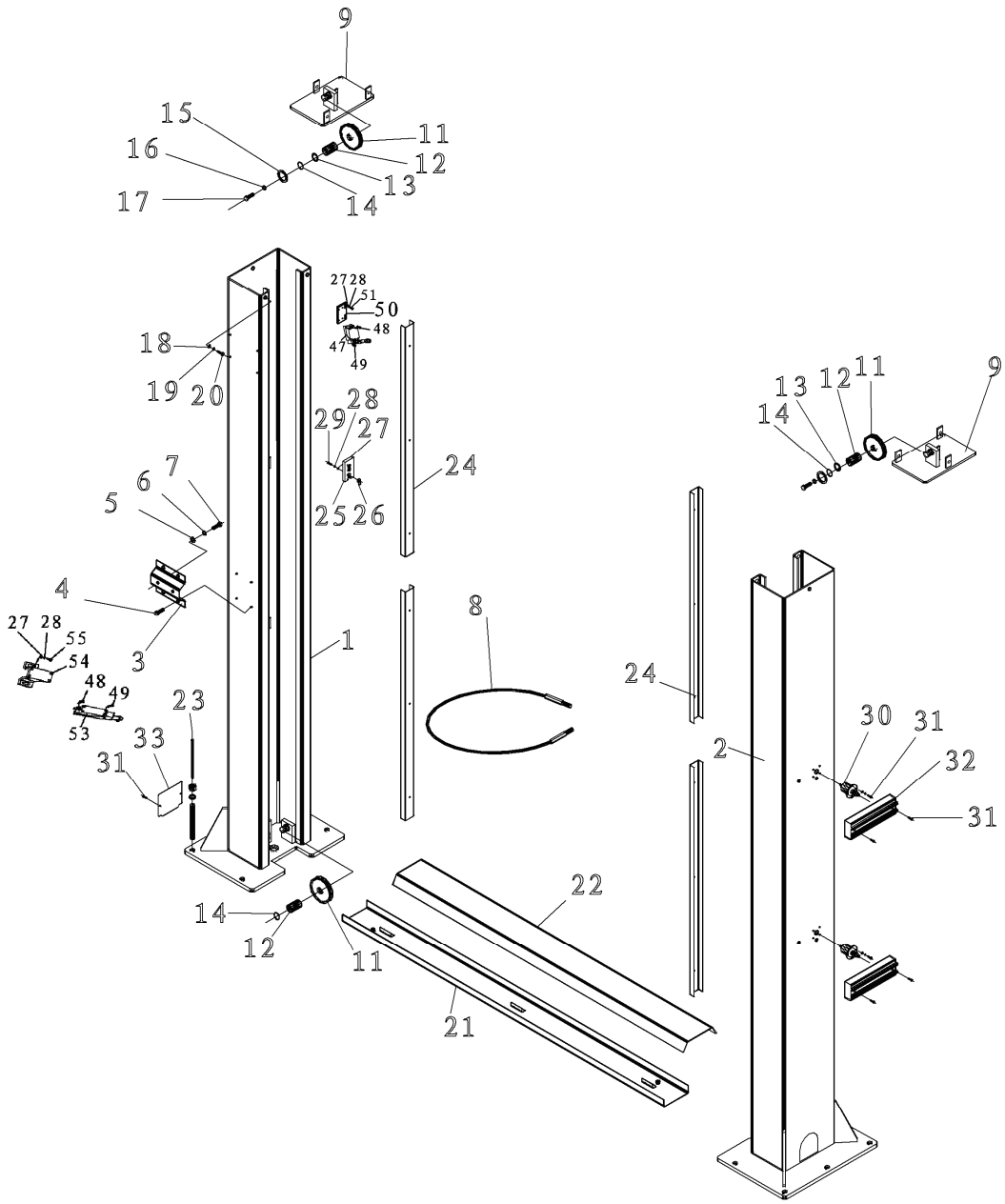
When the number of lifting times is reaching 3000, there will be acoustic and optical alarm warning, to suggest that the lift should be taken maintenance.

- Bleeding is required for newly installed hydraulic system .When connection pipes ,the hydraulic cylinder should be at its lowest position for minimum air cavity ,then raise and lower for several times .
- The adjustment is finished.

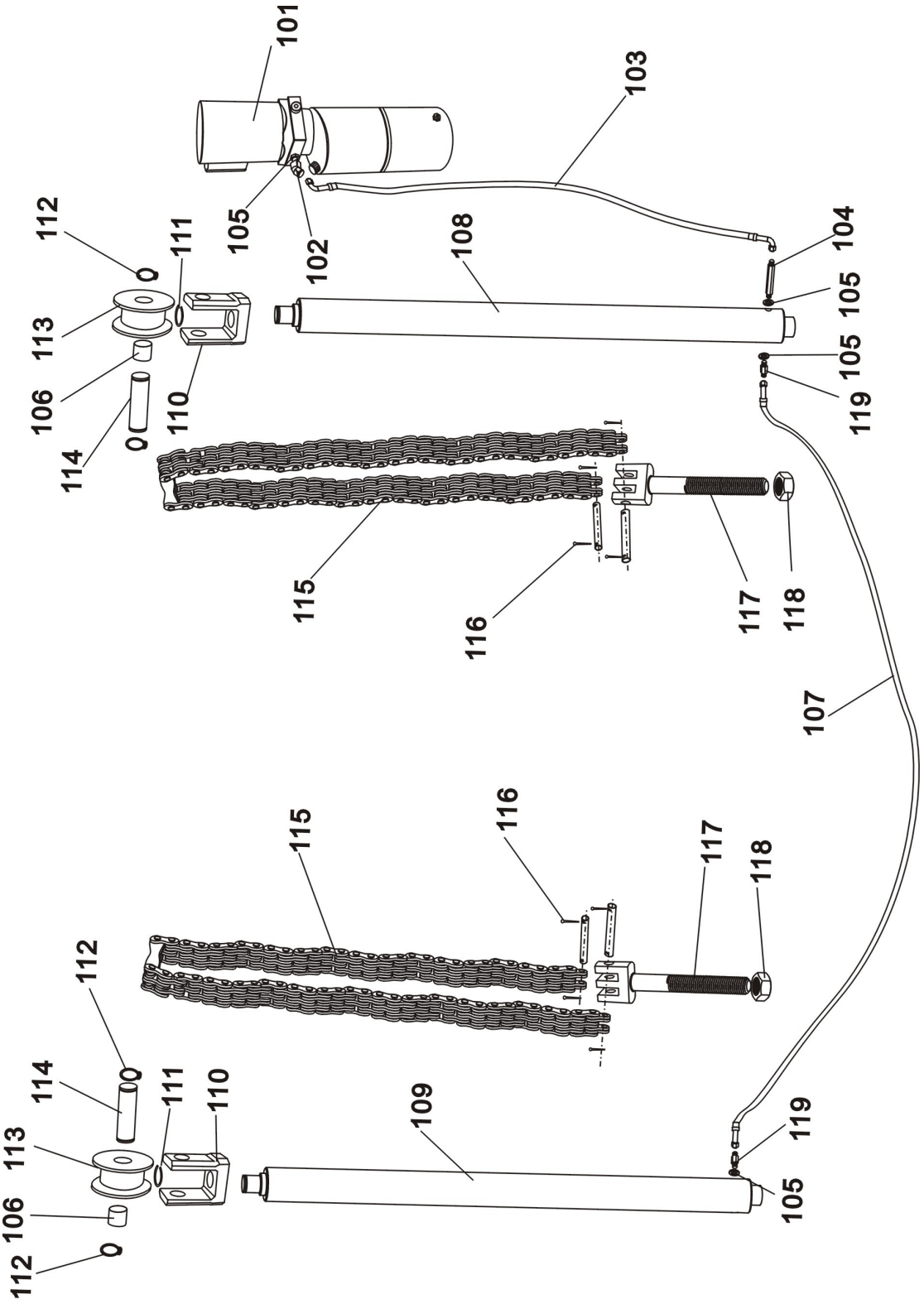
12 List of the Lift components

This list is only used as the information for the maintenance and repair. Our company will not be liable for other uses. In case of damages to the components, purchase can be made from the LAUNCH and its sales agents based on the corresponding material code No in the list.

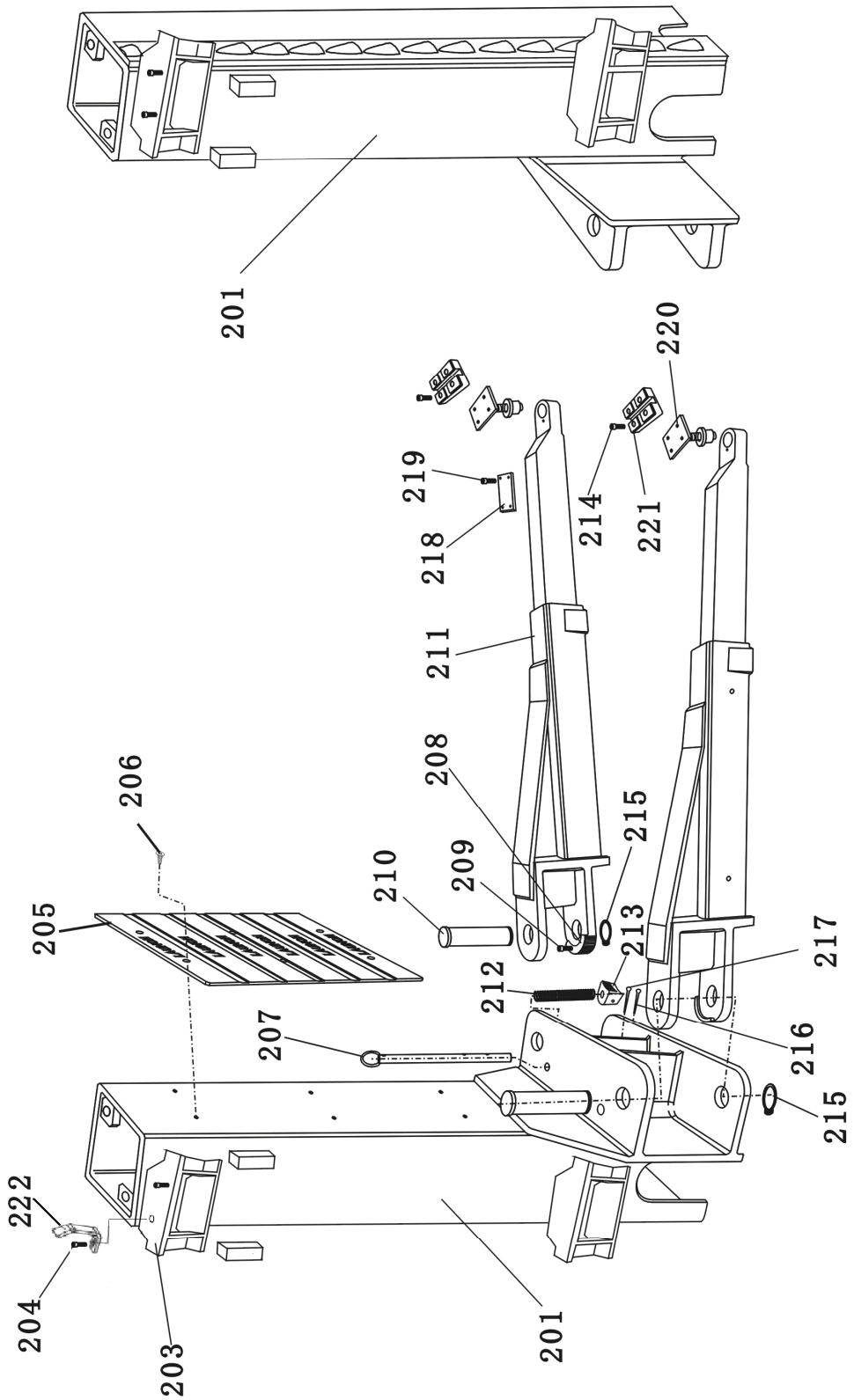
Applicable to TLT235SBA/TLT240SBA;



Applicable to TLT235SBA/TLT240SBA(E)/ TLT240SBA：

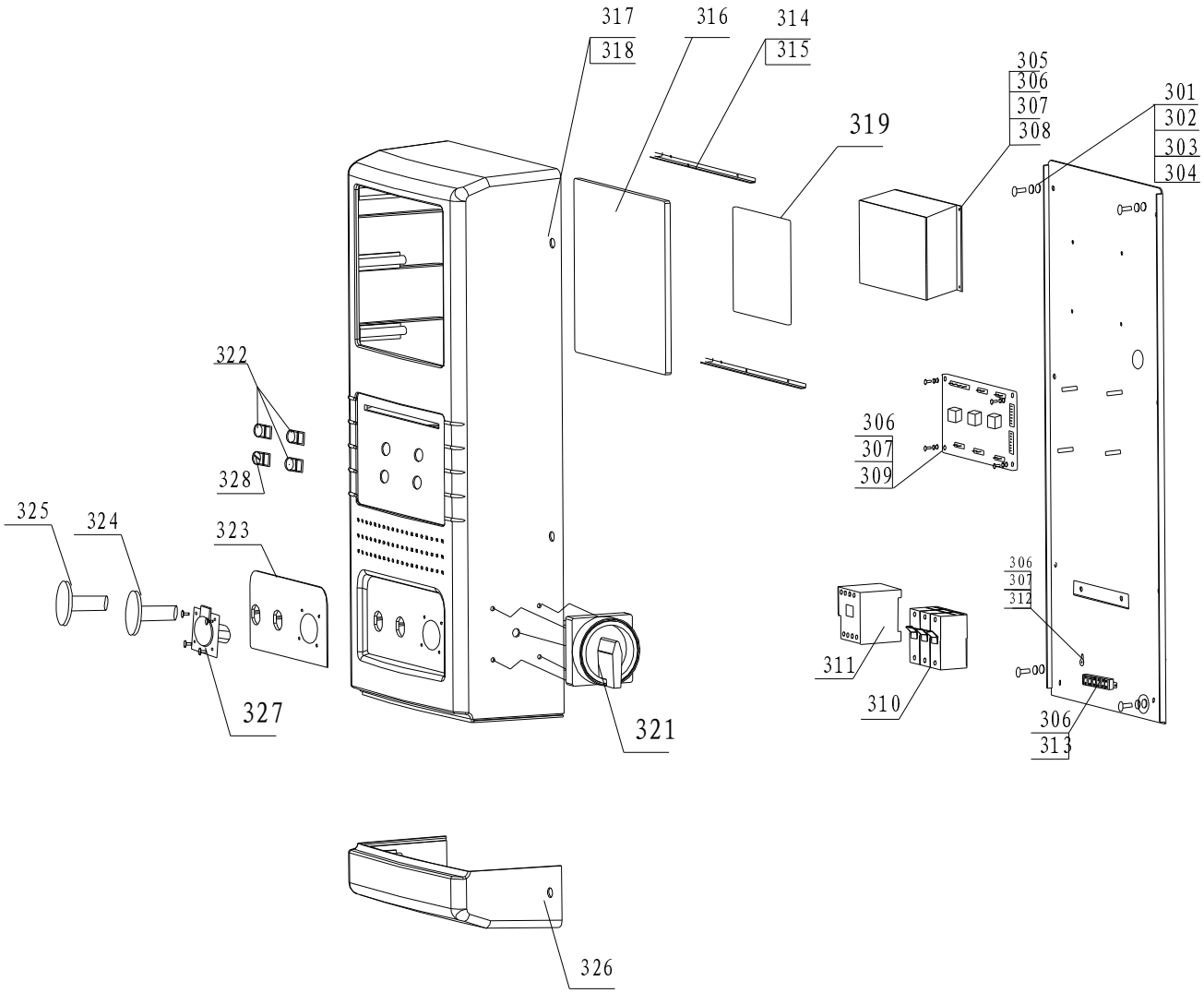


Applicable to TLT235SBA/ TLT240SBA/ TLT240SCA/TLT235SCA(U)

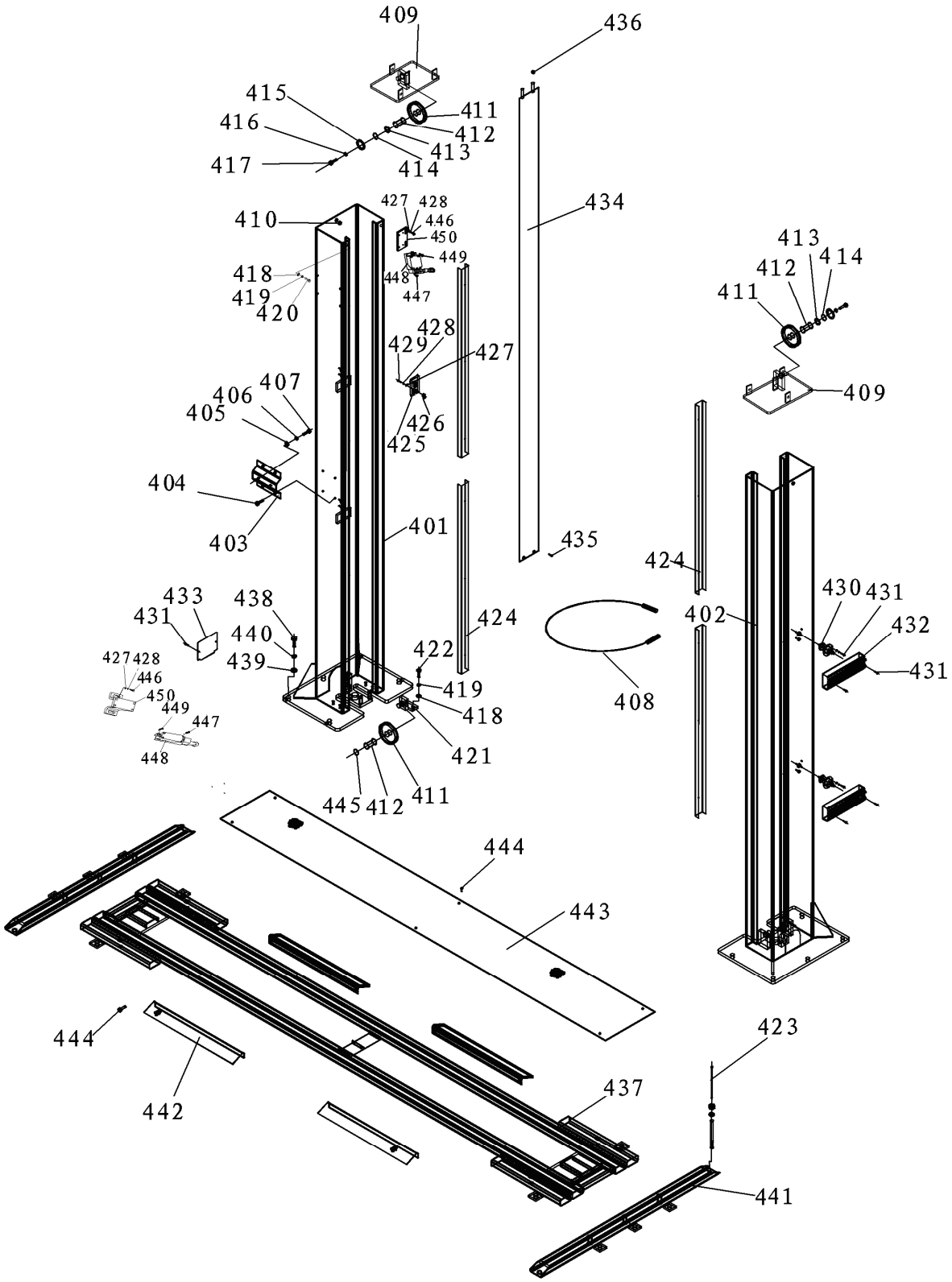


Applicable to TLT235SBA/TLT235SBA(E)/TLT240SBA/ TLT240SCA/TLT235SCA(U)

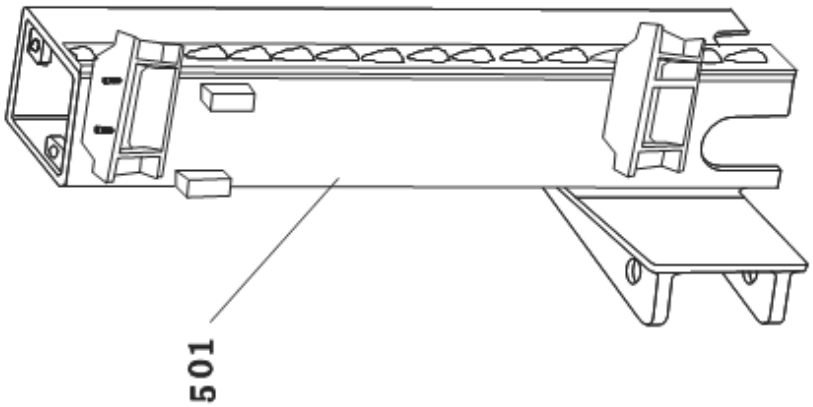
\

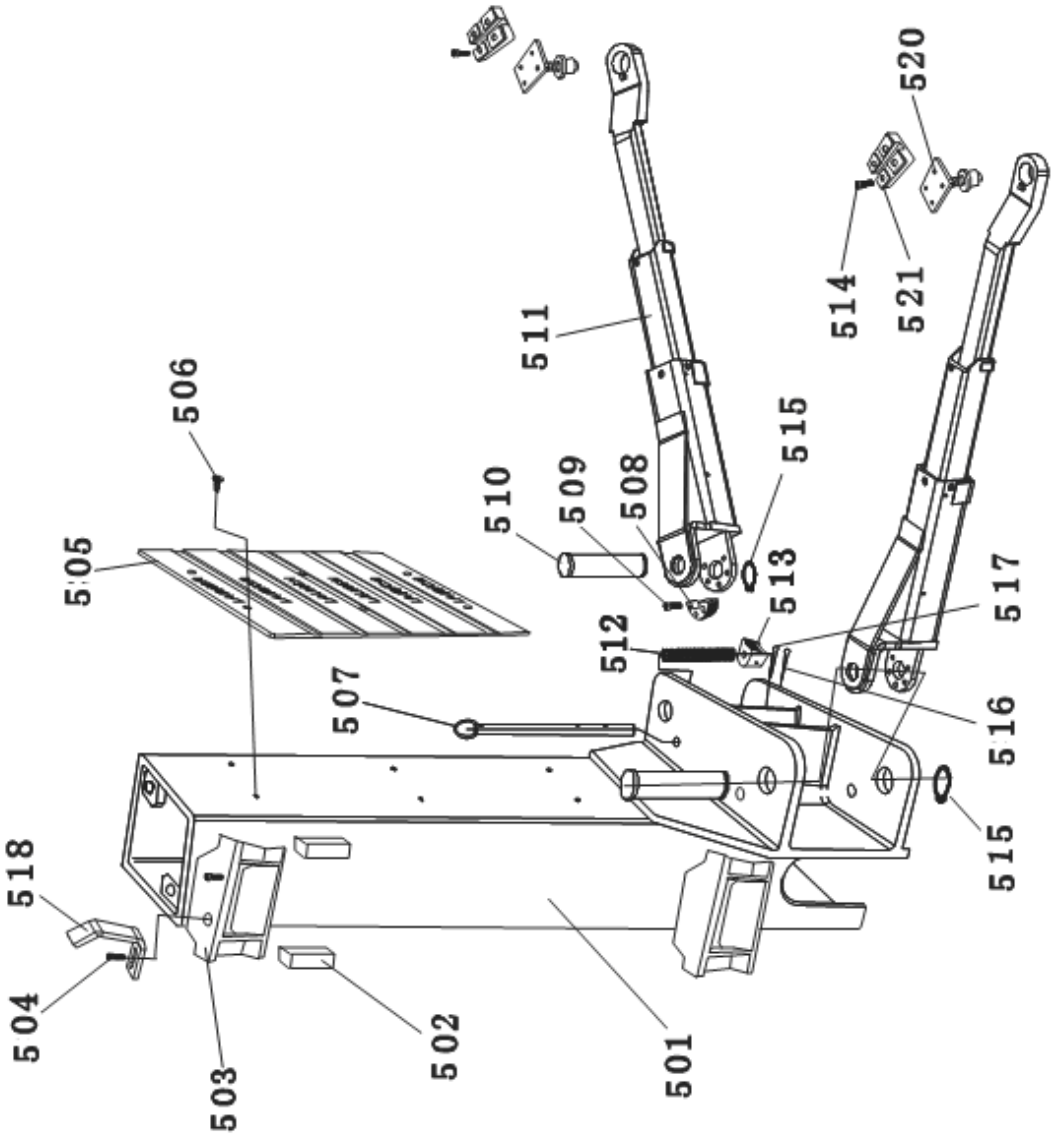


Applicable to TLT235SBA(E)

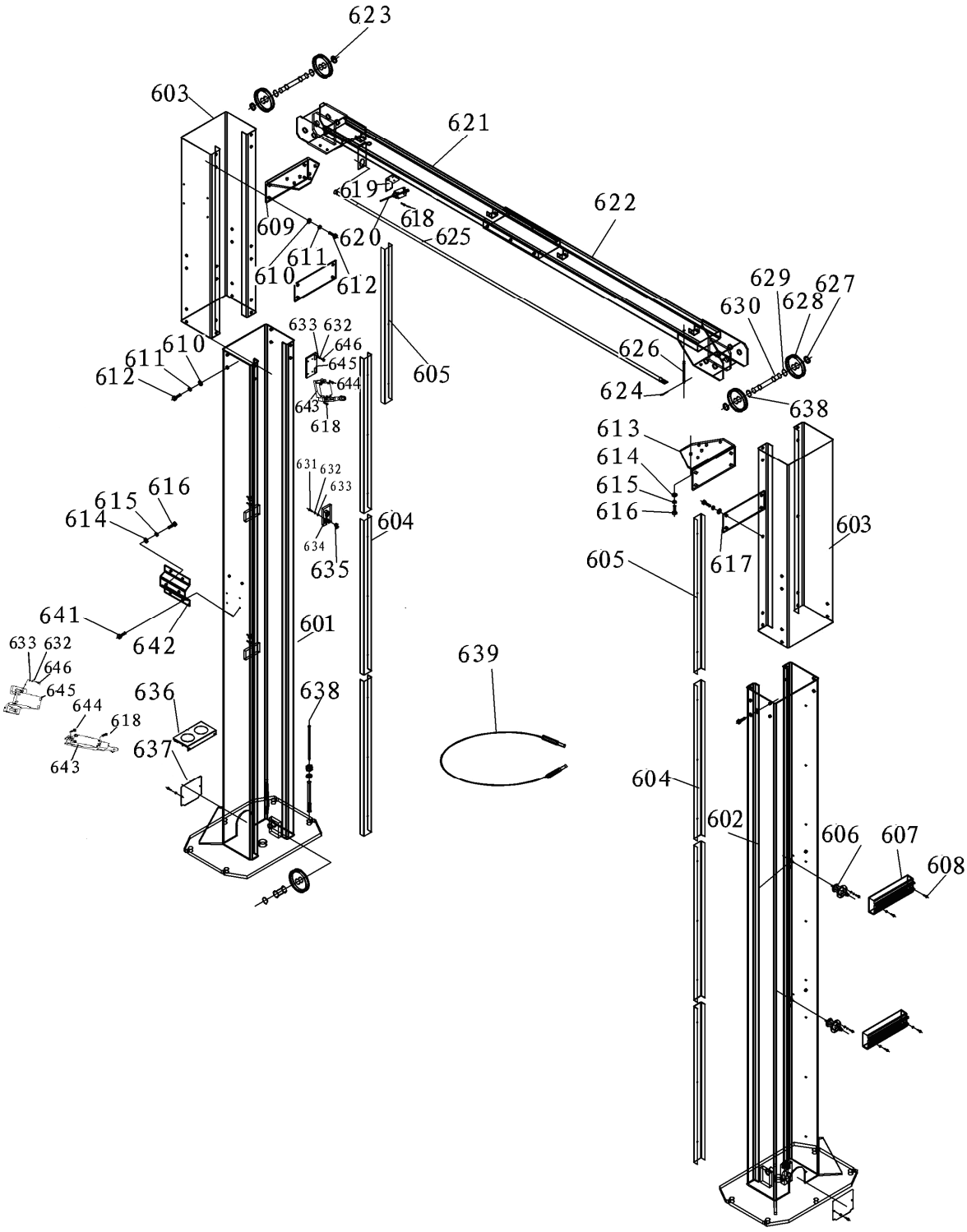


Applicable to TLT235SBA(E)

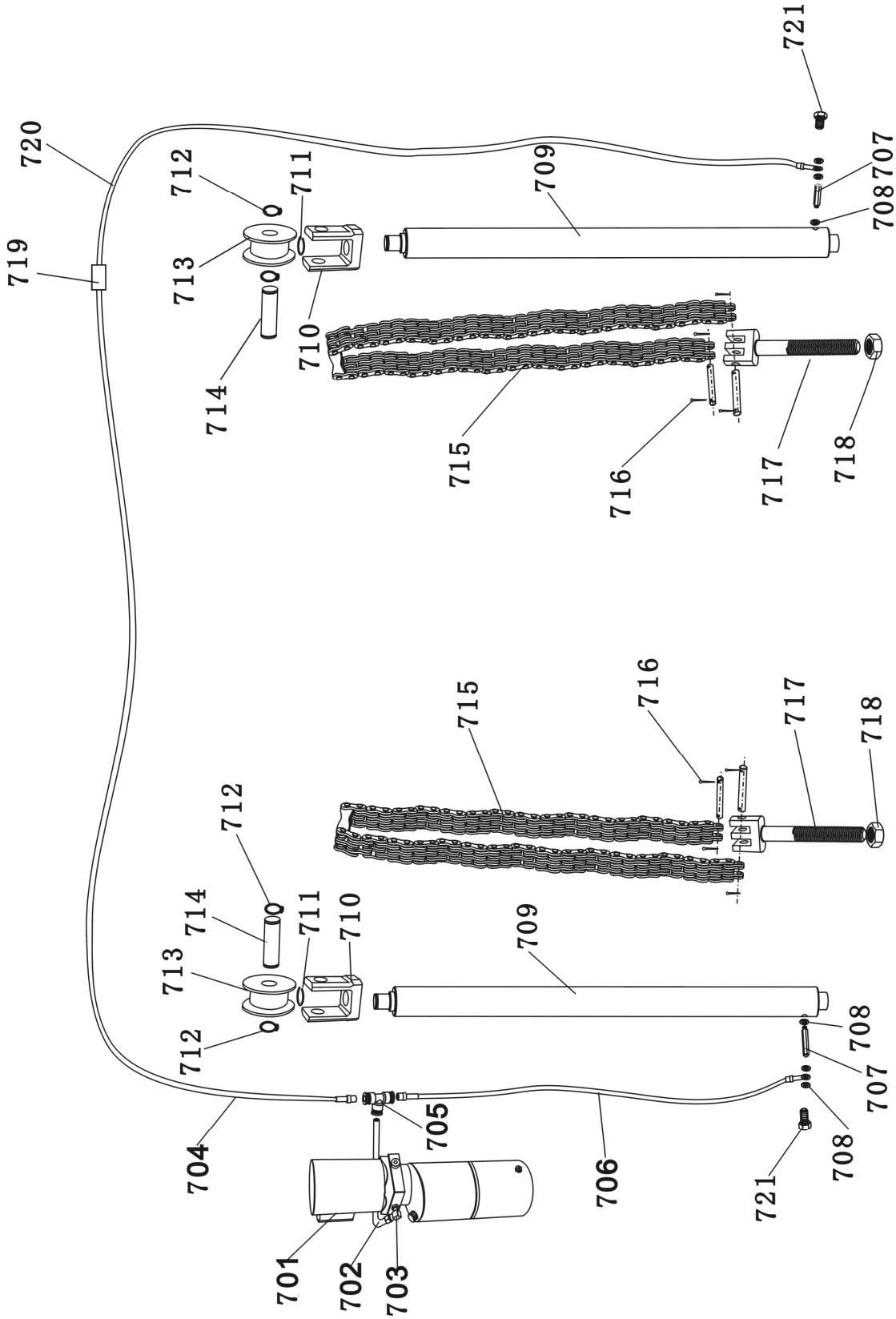




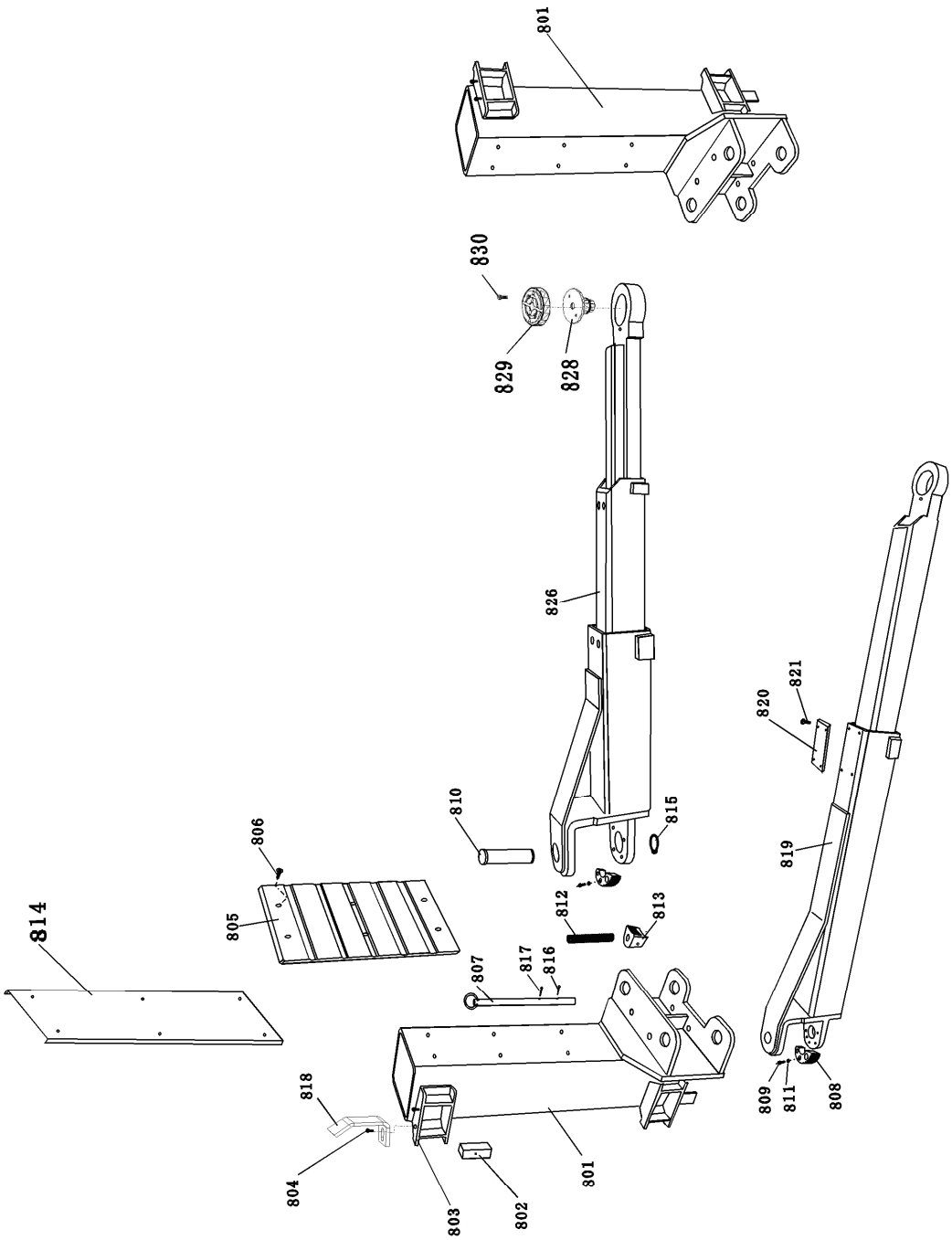
Applicable to TLT240SCA



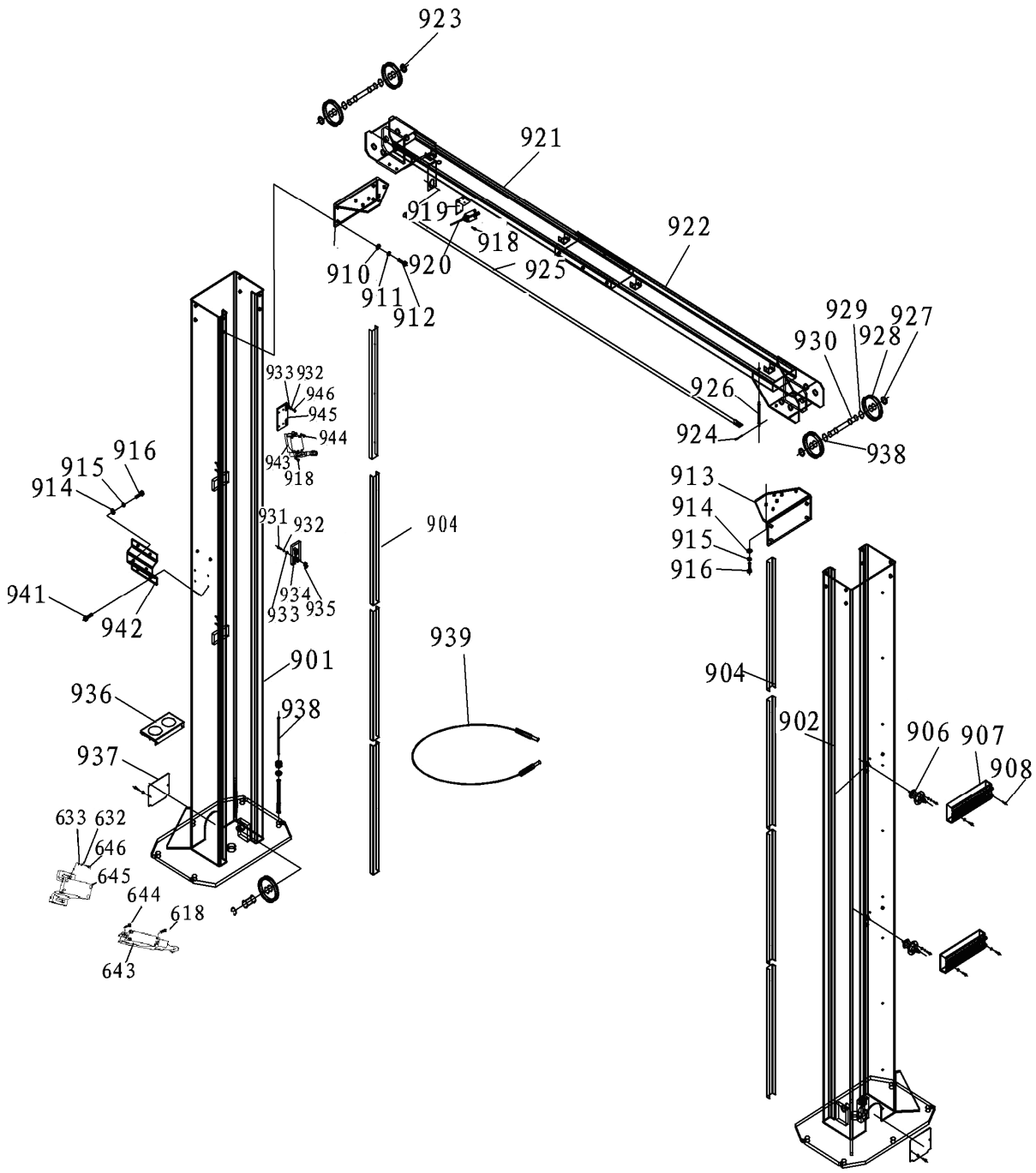
Applicable to TLT240SCA/TLT235SCA(U)



Applicable to TLT235SBA/ TLT240SBA/ TLT240SCA/TLT235SCA(U)



Applicable to TLT235SCA(U)



No.	Code	Name
1	201024756	TLT235SBA power side column
	201024757	TLT240SBA power side column
2	201024755	TLT235SBA offside column
	201024758	TLT240SBA offside column
3	103202906	Installation plate of power unit
4	103020190	Screw M6×10
5	103040123	Flat washer 10
6	103040122	Spring washer10
7	103020038	Bolt M10×25
8	103260337	Steel cable
9	201020381	Top cover assembly
11	103203017	Pulley
12	103200699	Bushing 2520
13	103040176	Washer
14	103050031	Returning ring 25
15	103050037	Returning ring
16	103040177	Spring washer8
17	103020116	Bolt M8×16
18	103040110	Flat washer12
19	103040044	Spring washer12
20	103020104	Bolt M12×35
21	103202821	Floor plate
22	103202819	Floor plate cover
23	103020123	Anchor Bolt M18×160
24	103202860	Protective cover inside the column
25	103200942	Safety block
26	103202520	Supporting block
27	103040133	Flat washer6
28	103040027	Spring washer6
29	103020099	Screw M6×20
30	103200960	Electromagnet
31	103010432	Screw M5X12
32	104120078	Electromagnet cover
33	201011236	Bottom cover of column
48	103010426	Screw M4×12
49	103010429	Screw M4×25
53	102100197	Roller type limit switch(turn 180)
54	103202981	Limit bottom plate
55	103020156	Bolt M6*12
101		Power unit
102	103100170	Fitting M14×1.5（for domestic pump）

	103100171	Fitting G1/4"（for imported pump）
103	104120066	Oil hose
104	103202197	Long fitting
105	103040157	Seal gasket 14
106	103260098	Bush 3052
107	104120079	Oil hose
108	103260123	Main cylinder
109	103260129	Sub cylinder
110	103220054	Sheave seat
111	104060016	Returning ring 32
112	103050014	Returning ring 30
113	103201950	Sheave
114	103200973	Sheave axle
115	103200939	Steel chain
116	X103060340	Pin 2×26
117	103200938	Chain threaded end
118	103030131	Nut M16
119	103100170	Fitting
201	201021324	TLT235SBA/TLT240SBACarriage
	201021793	TLT235SCA(U) Carriage
	201021323	TLT235SCACarriage
202	104990132	Sliding block
203	103202766	TLT235SBA/TLT240SBA/TLT235SCATop board
	103202765	TLT235SCA(U)
204	103010473	Screw M10×30
205	104130191	Door rubber pad
206	103010452	Screw M8×16
207	103202184	Top rod assembly
208	103202032	Semi-gear
209	103010443	Screw M10×25
210	201010982	Pin axle
211	201020501	Swing arm
212	103201914	Spring
213	103201744	Gear block
214	103020093	Screw M8×16
215	103050030	Returning ring 40
216	103060355	Pin 3.2X30
217	103060376	Pin 5X32
218	104130186	Rubber pad on swing arm
219	103010414	Screw M5X8
220	103202130	Lifting pad assembly
221	104130189	Rubber pad

222	201014617	The limiting plate
301	103200932	Base plate of control box
302	103010432	Screw M5×12
303	103040166	Spring washer 5
304	103040132	Flat washer 5
305	102130036	Transformer
306	103010423	Screw M4×6
307	103040109	Flat washer 4
308	103040048	Spring washer 4
309		Control board
310	102150053	Fuse RT18-32/3P(10 A core) （380V three-phase control box）
	102150054	Fuse RT18-32/3P(20A core) （220V three-phase control box）
	102150055	Fuse RT18-32/2P(32A core) （220V single-phase control box）
311	102110059	Contactor S-P11,AC,24V
312	102990067	Ground plate ∅5
313	102160440	Terminal
314	103200933	Display panel plate
315	103010421	Screw ST2.9X10
316	104090050	Display board
317	104090055	Control box shell(three buttons)
318	103010413	Screw M4×6
319		The single phase electrical wiring label for two-post lift
		The three phase electrical wiring label for two-post lift
321	102100087	Power switch
322	102100199	Three buttons（UP，DOWN，SAFETY LOCK）
323		ALARM，WARNING，AC 220V label
324		Buzzer alarm with indicator light
325	102140018	Buzzer
326	104091175	Base shell of control box
327	102160392	Waterproof socket
328		Rotary switch（manual & automatic changeover switch）
401	201024781	TLT235SBA（E）power side column
402	201024762	TLT235SBA（E）off side column
403	103202906	Installation plate of power unit
404	103020190	Screw M6×12
405	103040123	Flat washer 10
406	103040122	Spring washer10
407	103020120	Bolt M10×20
408	103260339	Steel cable

409	201024766	TLT235SBA(E)Top cover
411	103203017	Pulley
412	103200699	Bush 2520
413	103040176	Washer
414	103050031	Steel cable returning ring 25
415	103050037	Returning ring
416	103040141	Spring washer8
417	103020116	Bolt M8×16
418	103040110	Flat washer12
419	103040044	Spring washer12
420	103020104	Bolt M12×35
421	103202862	Pulley seat
	103202863	Pulley seat Ⅱ
422	103010607	Zinc Screw M12×30
423	103020123	Anchor Bolt M18×160
424	103202860	Protective cover inside the column
425	103200942	Safety block
426	201011198	Supporting block
427	103040133	Flat washer6
428	103040027	Spring washer6
429	103020099	Screw M6×20
430	103200960	Electromagnet
431	103010432	Screw M5X12
432	104120078	Electromagnet cover
433	201011236	Bottom cover of column
434	201021451	Protective cover
435	103010608	Screw M6×10
436	103030127	Nut M8
437	201021455	Base seat bracket
438	103020187	Bolt M18×50
439	103040169	Flat washer18
440	103040142	Spring washer18
441	201021459	Bracket
	201021460	Bracket Ⅱ
442	201013136	Ramp
443	X201013127	Cover plate
444	103010539	Screw M8×12
445	103050035	Returning ring 25
446	103020156	Bolt M6×12
447	103010429	Screw M4×25
448	102100197	Roller type limit switch(turn 180)
449	103010426	Screw M4×12

450	103202981	Limit bottom plate
501	201021454	TLT235SBA(E) carriage
502	104990132	Sliding block
503	103202766	Top board
504	103010473	Screw M10×30
505	104130191	Door rubber pad
506	103010539	Screw M8×12
507	103202184	Top rod assembly
508	103202032	Semi-gear
509	103011102	Screw M10×25 12.9 class
510	103202280	Pin axle
511	201021738	Swing arm
512	103201914	Spring
513	103201744	Gear block
514	103010260	Screw M8×20
515	103050030	Returning ring 40
516	103060355	Pin 3.2×30
517	103060376	Pin 5×32
518	201014617	Actuator plate
520	103202130	Lifting pad assembly
521	104130189	Rubber pad
601	201025027	TLT240SCA(U)power side column
	201020620	TLT240SCA power side column
602	201021792	TLT240SCA(U) offside column
	201020618	TLT240SCA offside column
603	201020928	Extension column
604	103202860	Inner cover of power side column
605	103202859	Cover of extension column
606	103200960	Electromagnet
607	104120078	Electromagnet cover
608	103010498	Screw M5×8
609	103202811	Connecting bracket Ⅰ
610	103040110	Flat washer12
611	103040044	Spring washer12
612	103020104	Bolt M12×35
613	103202812	Connecting bracket Ⅱ
614	103040123	Flat washer10
615	103040122	Spring washer10
616	103020120	Bolt M10×20
617	201011176	Reinforced plate

618	103010429	Screw M4×25
619	103201545	Bracket
620	105990008	Limit switch
621	103202816	Inner top beam
622	103202818	Outer top beam
623	201011258	Bushing Ⅰ
624	103060342	Pin 3x26
625	201011170	Long bar
626	201011172	Supporting pin of long bar
627	201012602	Bushing Ⅱ
628	104090045	Pulley
629	103050035	Returning ring 25
630	103200967	Symmetric axle
	103200966	Asymmetric axle
631	103020099	Bolt M6×20
632	103040027	Spring washer6
633	103040133	Flat washer6
634	103200942	Safety plate
635	103202520	Supporting block
636	103201073	Bracket for extension sleeve
637	103201070	Bottom cover of column
638	103010582	Anchor bolt M18×160
	103020123	Anchor bolt M18×160
639	103260257	Steel cable
641	103020090	Screw M6×10
642	103202906	Fixing plate of power unit
643	102100197	Roller type limit switch(turn 180)
644	103010426	Screw M4×12
645	103202981	Limit bottom plate
646	103020156	Bolt M6×12
701		Power unit
702	104120136	Oil hose L=880
703	103100170	Fitting M14×1.5（for domestic power unit）
	103100171	Fitting G1/4″ （for imported power unit）
704	104120096	Oil hose L=5370
705	103100172	T fitting
706	104120116	Oil hose L=930
707	103202198	Long fitting
708	103040157	Seal gasket 14
709	103260129	Sub cylinder
710	103220054	Sheave seat

711	104060016	Returning ring 32
712	103050014	Returning ring 30
713	X201021275	Sheave assembly
714	103200973	Sheave axle
715	103200939	Steel chain
716	X103060340	Pin 2×26
717	103200938	Chain threaded end
718	103030131	Nut M16
719	103100198	Fitting
720	104120095	Oil hose of sub-cylinder
721	103020166	Connecting Bolt
801	201021324	TLT235SBA/TLT240SBACarriage
	201021793	TLT235SCA(U) Carriage
	201021323	TLT235SCACarriage
802	104990132	Sliding block
803	103202766	Top plate
804	103010473	Screw M10×30
805	104130191	Door rubber pad
806	103010539	Screw M8×12
807	103202184	Top rod assembly
808	103202032	Semi-gear
809	103011102	Screw M10×25
810	103202280	Pin axle
811	103040122	Spring washer 10
812	103201914	Spring
813	103201744	Gear block
814	201010986	Protective plate
815	103050030	Returning ring 40
816	103060355	Pin 3.2×30
817	103060376	Pin 5×32
818	201014617	Actuator plate
819	103202278	Swing arm
820	104130186	Rubber pad on arm
821	103010608	Screw M6×10
825	201020732	Long guardrail
826	201020680	Three-section arm
828	103201444	Round lifting pad assembly
829	104130189	Round rubber pad
830	103010260	Screw M8×20
901	201025027	TLT235SCA(U) power side column

902	201021792	TLT235SCA(U) offside column
904	103202891	Protective cover inside the column
906	103200960	Electromagnet
907	104120078	Electromagnet cover
908	103010498	Screw M5×8
909	103202811	Connecting bracket Ⅰ
910	103040110	Flat washer12
911	103040044	Spring washer12
912	103020104	Bolt M12×35
913	103202812	Connecting bracket Ⅱ
914	103040123	Flat washer10
915	103040122	Spring washer10
916	103020120	Bolt M10×20
918	103010429	Screw M4×25
919	103201545	Bracket
920	105990008	Limit switch
921	103202817	Inner top beam
922	103202818	Outer top beam
923	201011258	Bush Ⅰ
924	103060342	Pin 3×26
925	201011170	Long bar
926	201011172	Supporting pin of long bar
927	201012602	Bush Ⅱ
928	104090045	Pulley
929	103050035	Returning ring 25
930	103200967	Symmetric axle
	103200966	Asymmetric axle
931	103020099	Bolt M6×20
932	103040027	Spring washer6
933	103040133	Flat washer6
934	103200942	Safety plate
935	103202520	Supporting block
936	103201073	Bracket for extension sleeve
937	103201070	Bottom cover of column
938	103010582	Anchor bolt M18×160
	103020123	Anchor bolt M18×160
939	103260257	Steel cable
941	103020090	Screw M6×10
942	103202810	Fixing plate of power unit
943	102100185	Roller type limit switch
944	103010426	Screw M4×12
945	201014616	Limit bottom plate

946	103020156	Bolt M6×12

13. Safety rules of electrical system

1. ONLY can the personnel who is trained or has professional knowledge do electrical repairing and maintenance .
2. DON'T modify or omit the safety interlocking devices.
3. Reading the warning signs before operation.
4. Turning off the power and locking the main switch before eliminating the trouble.
5. If the air is too moist, watching out for getting an electric shock.
6. The room should be cleared, before the lift got power.
7. The control box can be opened ONLY when the electrical inspection need to be carried out.
8. Without the authorization of manufacturer, CAN'T modify the circuit.
9. Confirming that the electrical accessories are in accordance with the specifications (including the colour code of wires), before changing them.
10. DON'T wear glasses with metal frame, necklace, ring, watch or bangle during the operation.

Notice for onsite installation and adjustment of electrical equipment

1. The external power cord must be copper core which can't be under 4 mm^2 and can not be replaced by aluminum core. Some external power cords were found on site only 1.5mm^2, which can only take the current of 10A. Comparing to the operating current of 15.9 A when the lift is fully loaded, this severely contravenes the requirements. Personnel for installation and adjustment must clarify this to customer.

2. The external power cord (4 mm^2) normally can't be longer than 10m , which means the length from main switch to power unit can't be above 10m, if above ,the installation personnel should require customer to provide power cable with larger diameter.

3. Power cord and air switch must connect correctly and firmly. It's found on site that when lift was being used by customer ,the lock screw of air switch had slipped and didn't lock the power cords at all ,which led to the continuous power's on-and-off and result in the breakdown of power unit. If the air switch can't be locked, the installation and adjustment personnel must inform customer that a sound air switch must be provided.

4. The power cords of lift must be separated from home appliance and the air switch for lift power wire can't be shared using by home appliance. For the reason that the use of home appliance would cause voltage drop, with the inadequate voltage the current will increase and can easily make the motor coil burn out.

5. During installation and adjustment, the button box would be opened to put in the power wire and signal wire. As a must, these wires should be ordered and clear to avoid interference with the use of other electrical equipment. Also the wire connection must be firm.

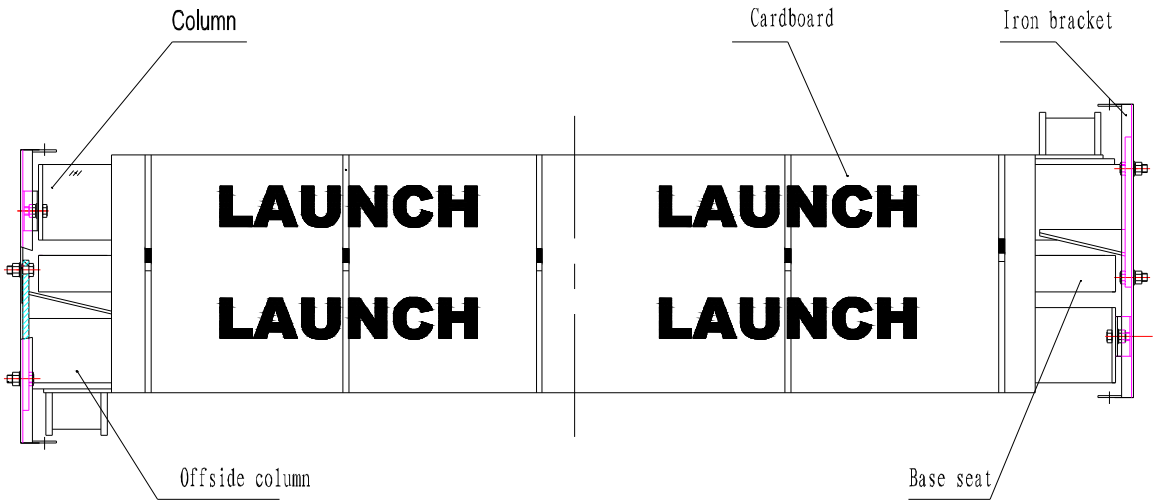
6. The power wire of lift can not be directly inserted in wire board with plug. It must connect with air switch. The wire of wire board for civil use is normally very thin and some of which are only 1.5 mm^2. So it can't take the current of lift, and would also cause severe voltage drop to burn out the motor.

14 Packing

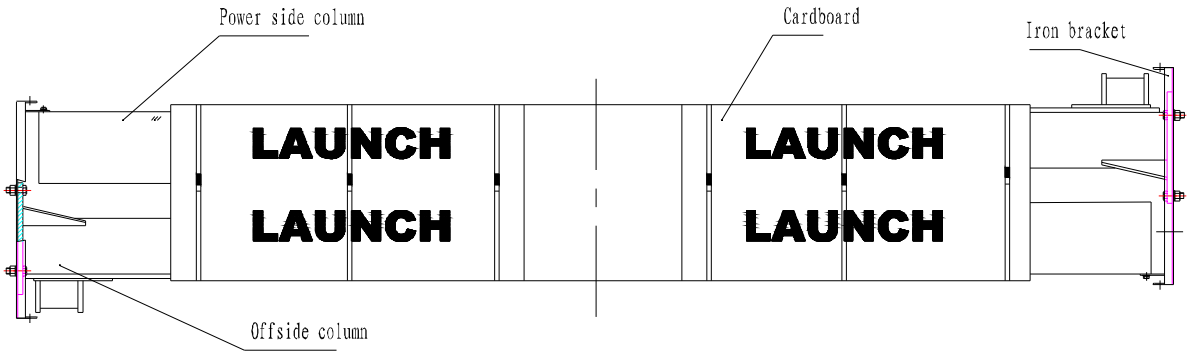
Appendix：Transportation Guide

- The packing of each model would include: 1# Angle iron bracket packing and 2# cardboard box packing. 3# top beam packing, 4# extension column packing, 5# floor plate ,long protective plate packing Each packing and size are listed as below. Transportation guide was printed on packing (See Figures below)
- While using forklift to lift the 1# packing, the distance between two forks should be at least 700mm and to the center of the packing. While using a forklift to pick up goods, the forks should get as deep as possible into the area below them. The goods should not be touched by fork tips or pushed by them. Product damages caused by collision or high piling should be avoided.

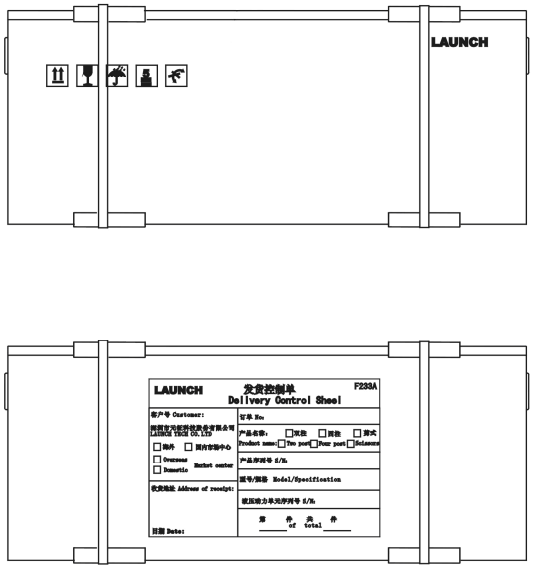
	Model	Name	1# Angle iron bracket packing	2# cardboard box packing	3# top beam packing	4# extension column packing	5# floor plate ,long protective plate packing
			Size Length ×Width ×Height	Size Length ×Width ×Height	Size Length ×Width ×Height	Size Length ×Width ×Height	Size
1	TLT235SBA	3.5t floor-plate two post lift	2900×540×660	870×530×375			
2	TLT235SCA(U)	3.5t clear-floor two post lift	3920×600×650	860×520×390	2900×180×150		
3	TLT235SBA(E)	3.5t wide floor-plate two post lift	2900×540×800	870×530×375			3235×634×50
4	TLT240SBA	4.0t floor-plate two post lift	2900×540×660	870×530×375			
5	TLT240SCA	4.0t clear-floor two post lift	2900×600×650	870×530×375	2900×180×150	1180×230×390	
	TLT240SCA （for domestic）	4.0t clear-floor two post lift	3920×600×650	870×530×375			



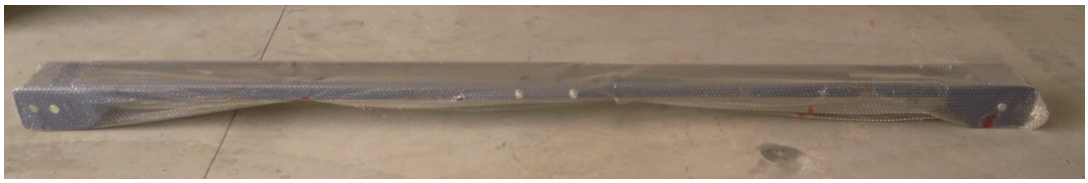
1# packing



1# packing （Domestic）

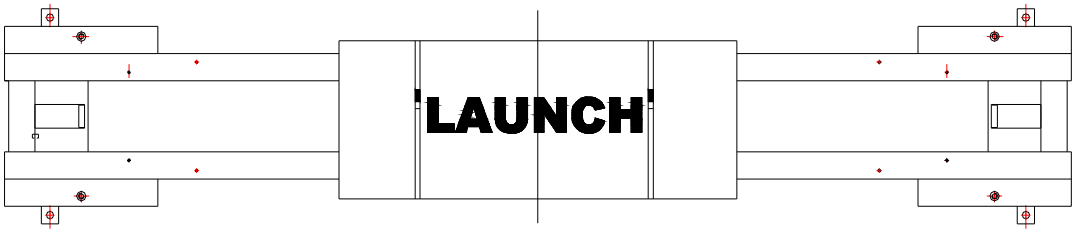


2# packing



3# packing

4# packing（Extension column）



5# packing

Grease and hydraulic oil for lift

2# lithium based lubrication grease

Item	Quality Index
Conical degree（1/10mm）	278
Dripping point℃	185
Corrosion（T2 copper sheet，100 ℃，24h）	No change for copper sheet
Copper mesh oil split（100℃，22h）%	4
Evaporation（100℃，22h）%	2
Oxidation stability（99℃，100 h）	0.2
Anti-corrosion（52℃，48）	Class 1
Impurity (microscope) /（pcs/cm³） Above 10μm no more than Above 25μm no more than Above 75μm no more than Above 125μm no more than	 5000 3000 500 0
Similar viscosity（-15℃，10s^{-1} ）,/(Pa·s) no more than	800
Water spray loss（38℃，1h）(%) no more than	8

N32 hydraulic oil (used for low ambient temperature)

Item	Quality Index
Kinematic viscosity 40℃	28.8～35
Pour point /℃ no higher than	-15
Flash point /℃ no lower than	175

N46 hydraulic oil (used for high ambient temperature)

Item	Quality Index
Kinematic viscosity 40℃	41.4～50.6
Pour point /℃ no higher than	-9
Flash point /℃ no lower than	185

Warranty

This warranty clause is only applicable for the users and distributors who purchase LAUNCH products through normal sales procedure.
Within 12 months from the date of goods delivery, Launch will make warranty on its mechanical and electrical components due to material or process defects. This warranty does not extend to defects or damage caused by ordinary wear, abuse, unauthorized change, misuse, shipping damage, or lack of required maintenance. The compensation for the automobile damage caused by our equipment defect is only restricted to repair, and Launch doesn't undertake any indirect or incidental loss. Launch will judge the equipment damage attribute based on its stipulated inspection method. None of Launch's distributors, staffs or commercial representatives has the right to make any confirmation, prompting or commitment related to Launch's products.

Disclaimer

The above warranty clause can replace any other forms of warranty clauses.

Order notice

The parts and optional accessories that can be replaced can be directly ordered with suppliers authorized by Launch. When placing the order, please indicate:
Order quantity
Parts number
Parts name

Customer service

In case of any problems during the operation of the equipment, please call: 86-21-69573179 or toll free number 8008206369.

Please send the equipment that needs repair to manufacturer attached with warranty card, manufacturer's certificate, purchase invoice and problem description. Repair would be free of charge and freight fee would be returned if the equipment is under warranty, if not, repair would be charged and we don't bear freight cost. The following is the address of the lift production base of Launch Shanghai:
No. 661 Baian Road, International Automobile City Auxiliary Parts Park, Anting Town, Jiading District, Shanghai City
Launch Shanghai Machinery Co., Ltd.
Postcode: 201805