

Table of Contents

1 Precautions.....	1	5.2.7 Install the Power Unit, hydraulic lines.....	13
2 Overall Structure and Working Principles...2		5.2.8 Air line connection.....	15
2.1 Structural Diagram.....	2	5.2.9 Anchoring the columns	16
2.2 Working Principle.....	4	5.2.10 Installation of wheel stop Plates and Drive on ramps.....	17
3 Tools for installation and adjustment.....	6	5.2.11 Installation of turn table and side slip plates.....	17
4 Unpacking.....	6	5.2.12 Rolling jack installation.....	17
5 Installation.....	6	6 Adjustment.....	18
5.1 Precautions for Installation.....	6	6.1 Preparation.....	18
5.2 Installation Procedures.....	6	6.2 Adjustment Procedures.....	18
5.2.1 Overall Positioning.....	6	7 Parts List.....	19
5.2.2 Base Plate Layout.....	7	Hydraulic Diagram.....	28
5.2.3 Runway and cross tube installation.....	9	Pneumatic Diagram.....	29
5.2.4 Position columns and locking latch plates...10		Electrical Diagram	30
5.2.5 Column and cross tube assembly.....	11		
5.2.6 Installation and Adjustment of cables.....	11		

1 Precautions



Warnings

- I This manual is an important part of the product. Please read and understand it thoroughly.
 - I Keep the manual for future use in inspection and maintenance.
 - I Do not use the product for any other purposes.
 - I The manufacturer is not responsible for any damage caused by improper use or uses other than the designed purpose.
- ## Precautions for Installation and Adjustment:
- I Please read this manual and operation manual in full before installation and adjustment. Any changes to the components without the consent of the manufacturer or against the use scope may lead to direct or indirect damage to the product.
 - I Personnel who perform Installation and adjustment should have electrical knowledge.
 - I Operation of the lift should be done only by trained and authorized personnel.
 - I Lifts must be installed on concrete ground.
 - I Allow sufficient space for the lift so that operation should not be hindered.
 - I Do not install the lift in an environment with extreme temperature and humidity conditions. Keep it away from heating device, faucet, humidifier or furnace.
 - I Check the components against parts list before installation. In case of any questions, please contact your dealer or Launch Tech

2 Overall Structure and Working Principle

2.1 Structural Diagram

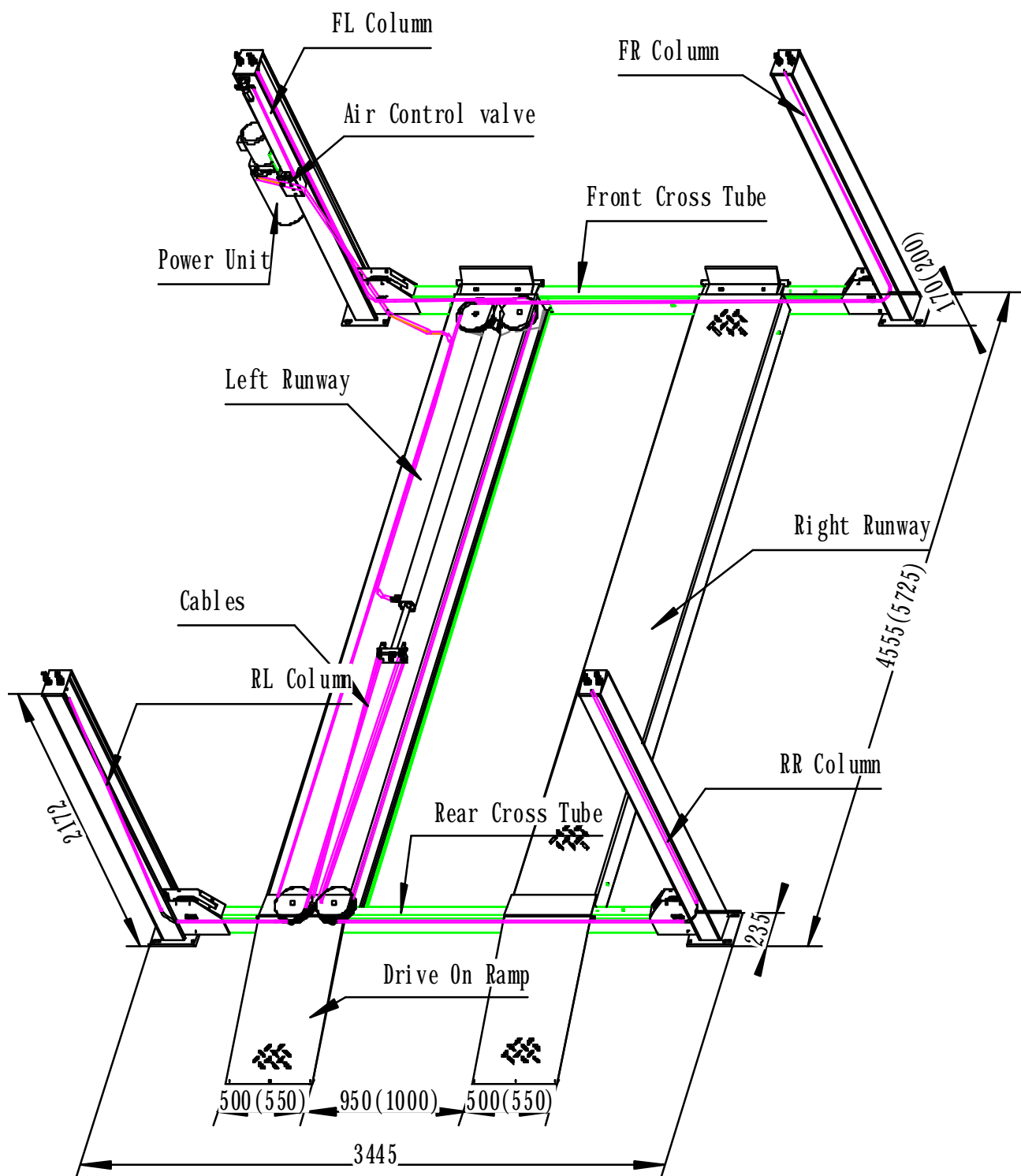


Fig.1 (TLT440,TLT455)

The structural diagram of TWA440W alignme

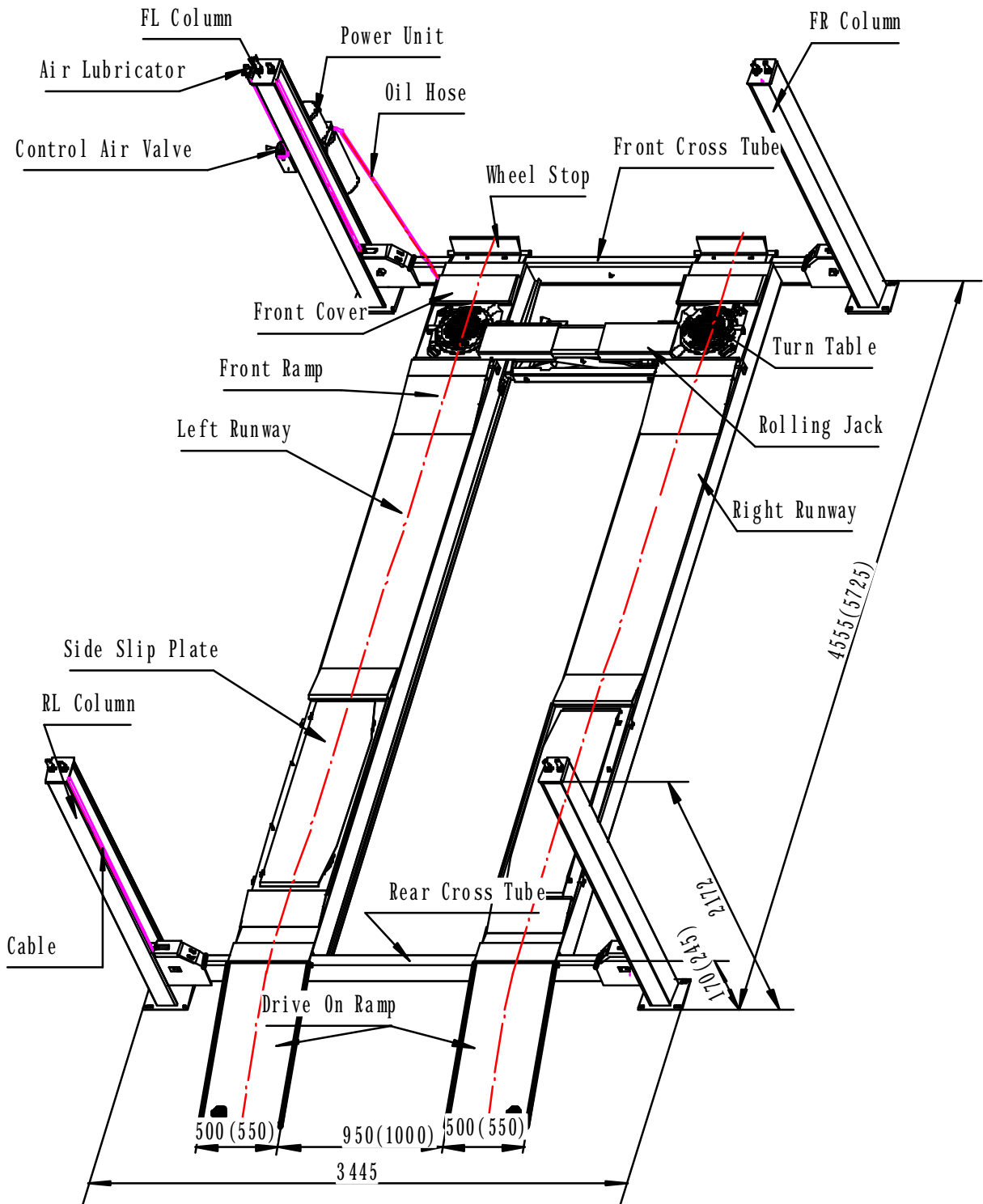


Fig.2 (TLT440W,TLT455W)

2.2 Working Principle

- I Lifting mechanism: The hydraulic cylinder is located below the cylinder runway. When the hydraulic oil enters the front cavity of the cylinder, the piston moves backward so that the left and right runways will be moved upward at the force of the cables.
- I Support Mechanism: The cylinder runway and the right runway are installed on the cross tubes as a part of the supporting platform. When the vehicle is driven onto the runways, the wheels should be positioned on the central line of the runways. The rolling jack can be placed at a suitable position between the runways. Adapters of different length can be used according to the height of the chassis.
- I Balance mechanism: 4 synchronization cables work together to keep the balance while lowering and lifting. The threaded end of the cable is fastened on top of the columns and the cables should be adjusted for same tension.
- I Safety protection mechanism: 4 locking latch plates are located in the back of columns. The safety locking latches and slack cable devices are located in the ends of cross tubes. While the runway goes up, the safety locking latch rises together against the locking latch plate at the force of the spring in the air cylinder. When the runway stops, the safety locking latch will insert into the slot of latch plate to prevent the runway from falling. For lowering the lift, when the locking latches rest on the plates, it must be raised enough for all 4 latches to clear the latch plates slots inside the columns. Actuate the air control valve to disengage all 4 locking latches and push the lowering handle on the power unit to lower the lift.
- I Cable slack or broken protection: During the raising and lowering the lift, the equal tension cables will press the slack cable roller to disengage the latches. If the cable is slack or breaks, the slack cable device will insert into the slot of locking latch plate to ensure the safety. (Fig. 3)
- I Safe travel distance: The safety locking latch is kept active from the height of 270mm to 1900mm.
- I Leveling preset: 4 adjustment nuts at top plates of the columns can be adjusted to level the runways. (Fig. 4).
- I Rolling jack mechanism (440W) : The jack cylinder is located in the scissor lift. When the hydraulic oil reaches the lower cavity of the cylinder, the piston will move forward, forcing the shaft to push the scissor table upward.
- I There is a locking latch in the rolling jack (440W) : When the jack goes up high enough, the locking latch will be engaged. To lower the rolling jack, raise jack and release locking latch by lifting release handle, and then press lowering valve.

Safety mechanism

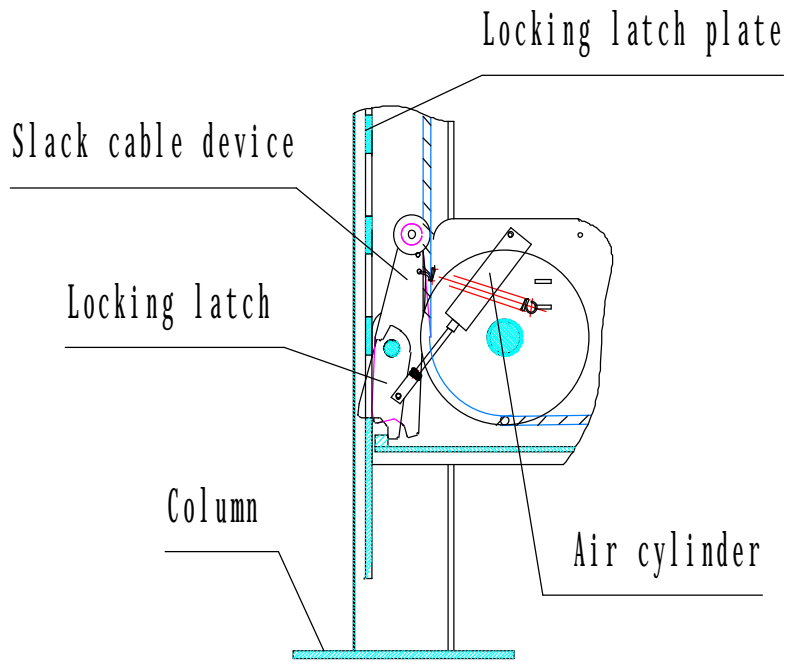


Fig.3

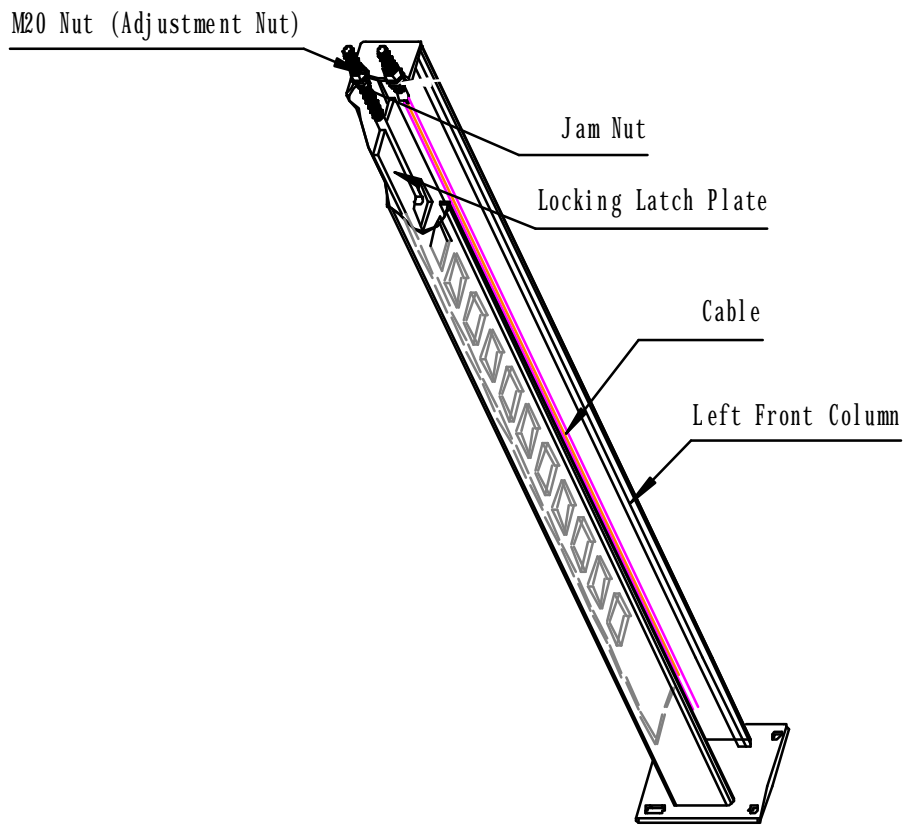


Fig.4

3 Tools for installation and adjustment

To perform the installation and adjustment, please get the following tools ready:

Tools	Model
Leveling Meter	For carpentry
Chalk	Min. 4.5m
Hammer	1.5kg
Adjustable Wrench	40mm
Open Spanner Set	11mm-23mm
Ratchet Socket Set	
Flat Screw Driver	150mm
Rotary hammer Drill	16mm
Alloy Drill-bit	∅ 16mm

4 Unpacking

- I Unpack and remove the packing materials. Inspect the lift for possible damage or loss of accessories during transportation.
- I Keep the packing materials out of the reach of children to avoid accident. Packing materials should be disposed of in a proper way.

5 Installation

5.1 Precautions for installation

- I 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.
- I The correct installation location shall be on "horizontal" floor to ensure the horizontal lifting. The slightly slope floor can be corrected by proper shimming. Any big slope will affect the level of the lifting. If the floor is of questionable slope, consider a visual inspection, or pour a new horizontal concrete slab if possible. Don't expect to compensate for the serious slope by shimming.
- I 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.
- I Without the written approval of the architect, don't install the lift on a second floor with basement.
- I Overhead obstruction: The lift installation area can't have any overhead obstruction, such as heater, building support, electrical pipe, etc.
- I 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.
- I Power supply: Get ready the power supply before the installation. All the electric wiring and connecting should be performed by a certified electrician.

5.2 Installation procedures

5.2.1 Overall Positioning

Selecting installation site based on the following conditions:

- I If the thickness of the whole ground concrete is greater than 200mm, the lift can be installed directly.
- I If the thickness of the whole ground concrete is less than 200mm, the concrete slab must be made. The minimum thickness of the concrete slab is 200mm, with 7 days of minimum curing time.
- I The concrete slab shall have steel bar reinforcement and must be leveled.
- I Check the possible obstruction, e.g. low ceiling, top pipeline, working area, passage, exit, etc.
- I Allow enough space around the lift for accessing the vehicle. (as in Fig. 5)

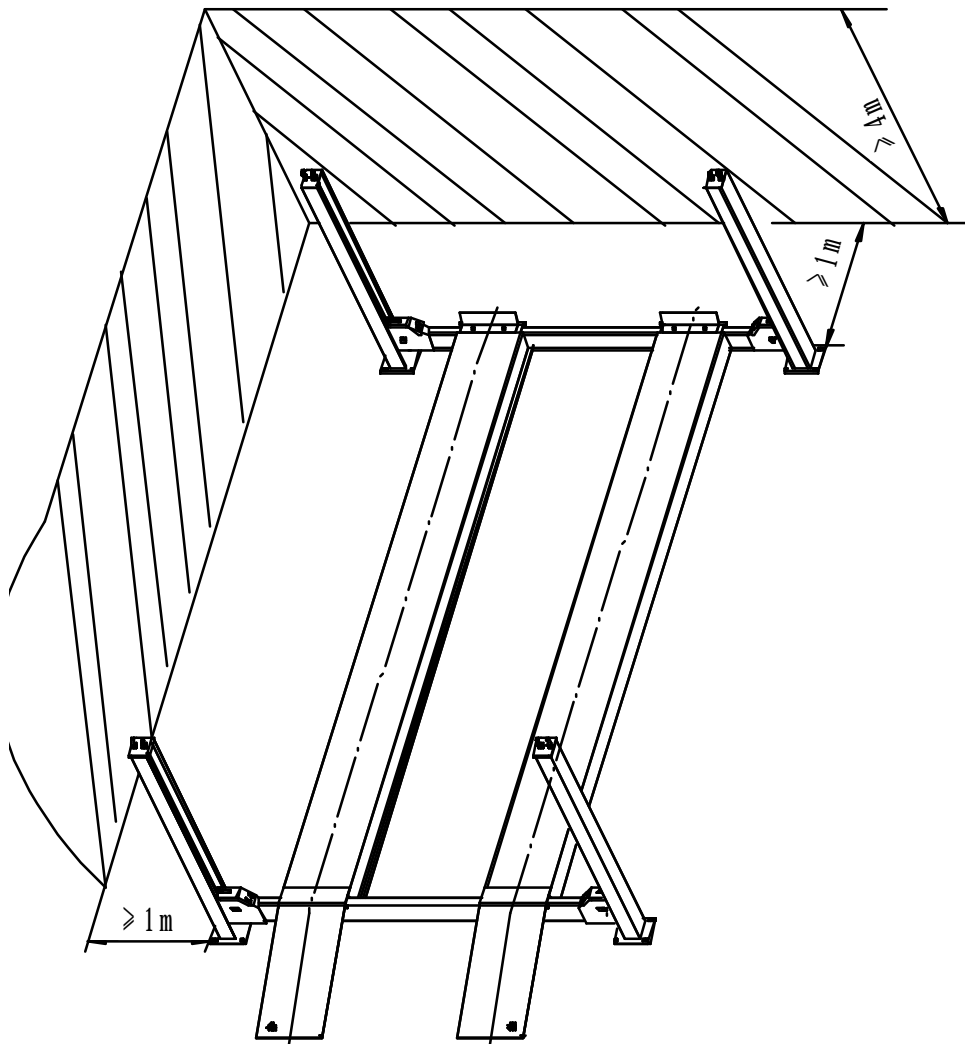


Fig.5

5.2.2 Base Plate layout

The bay layout is shown in Fig. 6.

- I With total width as the basis, draw two parallel lines (#1 and #2) on the concrete slab, with the error within 3mm.
- I Confirm the position of the power column near the power source and mark the overall width and length so that the position of 3 other columns can be confirmed.
- I Draw a diagonal line to show a triangle. The location of the columns can be set with reference.



Note:

- I All the dimensions are based on the external border of the base plate.
- I 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 lift can be eliminated.
- I The marking and layout is very important. If it is inaccurate, there will be problems during the final assembly and operation.

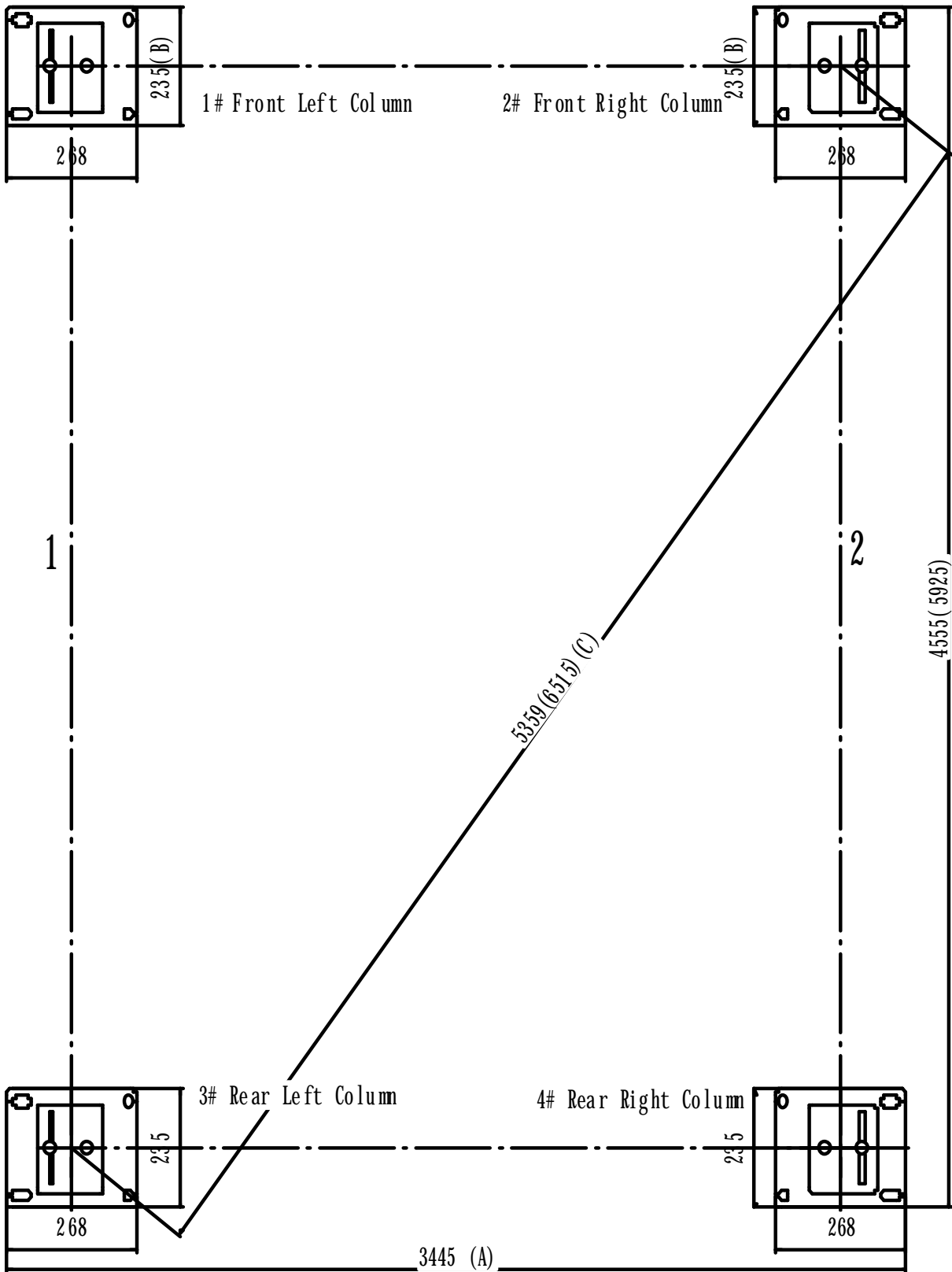


Fig. 6

5.2.3 Runway and cross tube installation

- I Position left runway in bay with hydraulic cylinder connection to front of bay. Cable and sheaves are pre-assembled in runway. Runway needs to be up off floor so cable ends, air and hydraulic lines can be moved out for assembly. Make sure cables are in proper sheave grooves.
- I Position front and rear cross tubes at respective ends of runway (see Fig.7 and Fig.8). The opening in the side of the tubes should be lined up with the cable sheaves in the runway ends. Feed cable ends through tube opening and do

not assemble the sheaves in the cross tube ends at this time. Be sure cables are not crossed inside tube.

- I With the openings in the cross tube side lined up with the left runway ends, align the 2 holes in the top of the front tube with holes in the runway end plates and the holes in the front wheel stop. Bolt runway to the cross tube. The right runway may be located in 2 positions on tubes, allowing for 2 distances between runways to accommodate different vehicles.
- I Bolt the right runway with cross tubes.

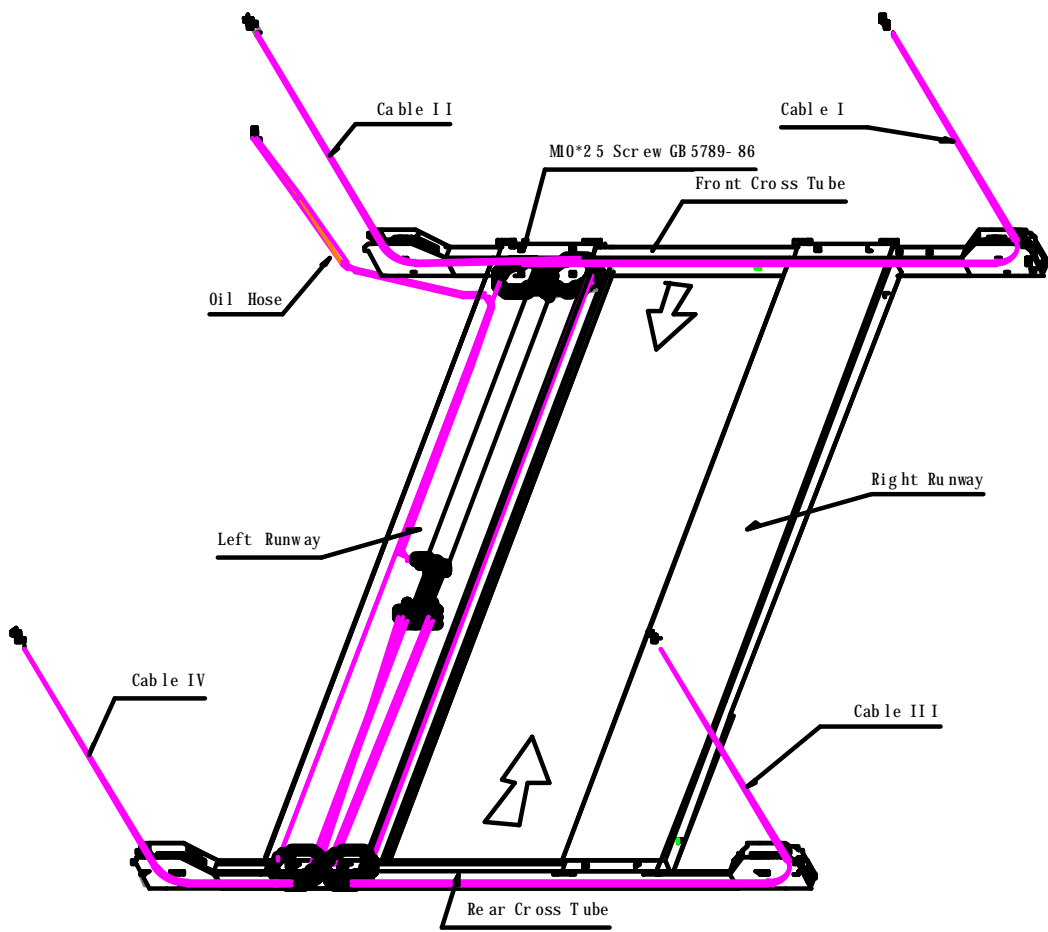


Fig.7

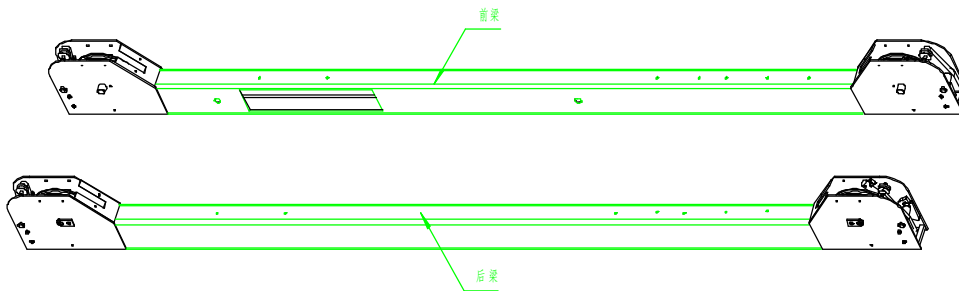


Fig.8

5.2.4 Position columns and locking latch plates

- I Place the power unit column at the FL (front left) corner of the lift. The hydraulic cylinder connection in the left runway should be visible from this corner. Position other three columns.(Fig.9)
- I Thread the jam nut down the threaded stud of locking latch plate as far as possible. Place the latch plate in the

back of the column (Fig.4). The latch plate should be oriented toward the back of the column from the centre line of the threaded stud.

- I Place the FRL (filter, regulator and lubricator) bracket on the power unit column.
- I Threaded the adjustment nut down the threaded stud until the nut and the top plate are flush, repeat for other columns.

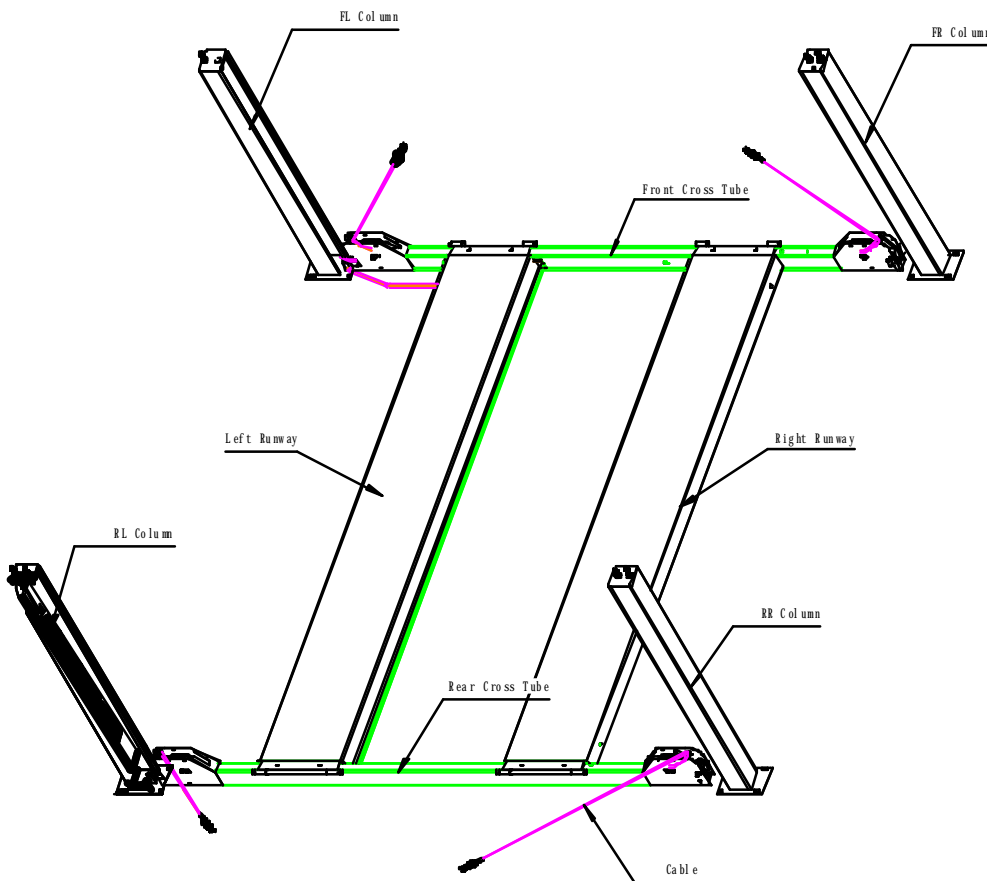


Fig.9

5.2.5 Column and cross tube assembly

- I Bolt sliders onto each side of the cross tube ends. When both sliders are attached, push column toward cross tube end until sliders touch latch plate.(Fig.10 A,B,C)
- I Raise latch plate above sliders and move column toward cross tube end until sliders contact the back of the column. Lower the latch plate into the sliders. Tighten latch plate jam nut against the top plate. Run latch plate adjustment nut down and tighten. The latch plate should engage the sliders for at least 1" when the lift is completely lowered. Repeat this procedure for each cross tube and column.
- I Install sheaves in cross tube ends and plastic spacers. The plastic spacer is placed on each side of the sheave.
- I Install the sheave pins with the bolts and attach each cable to column top plate with spacer, nut and jam nut.

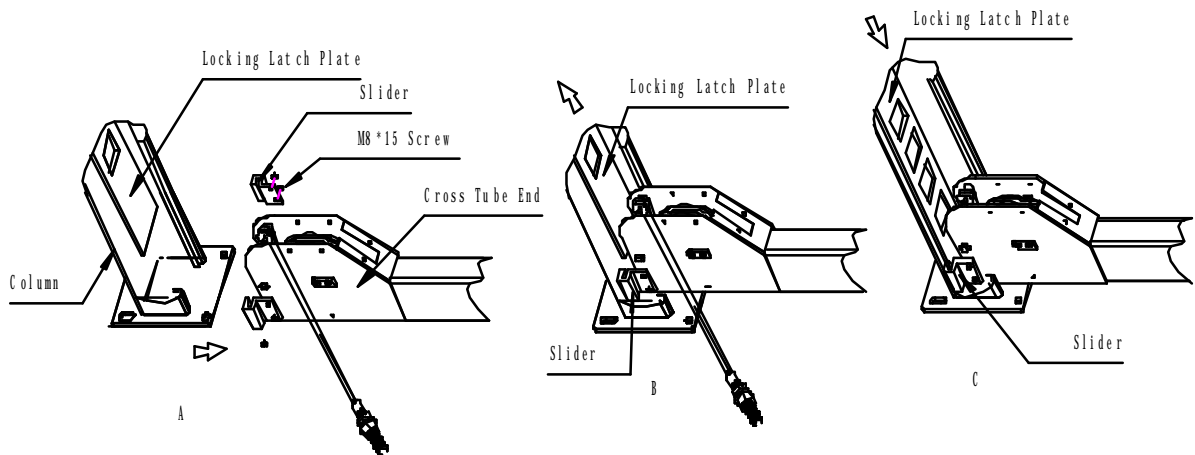


Fig.10

5.2.6 Installation and Adjustment of cables

- I Install 4 cables as shown in Fig. 11,12
- I Adjust cable with lift fully lowered. Loosen jam nut and tighten nut on cable stud on top of the column until cross tube end raise 1/4". Back off nut one turn. Retighten jam nut. Repeat for all 4 cables.

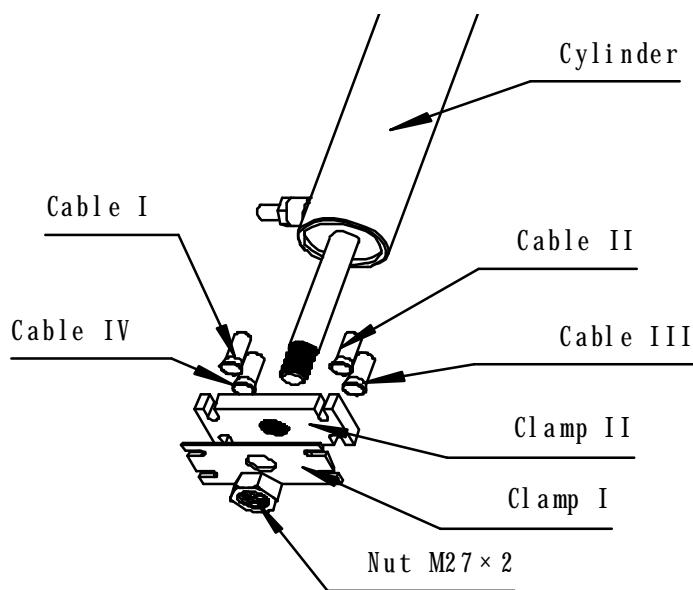


Fig.11

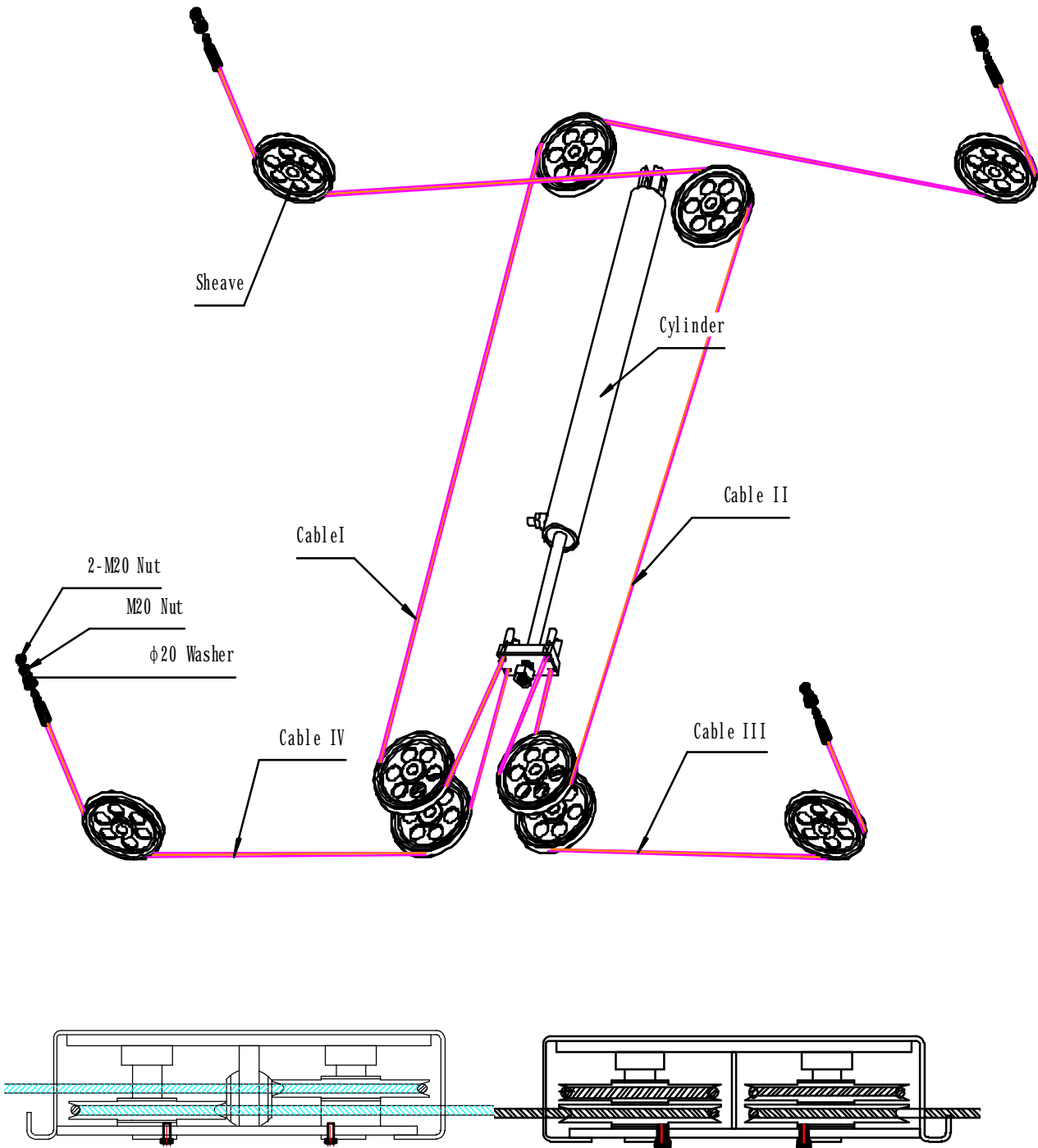


Fig.12



Cautions:

- ** Adjust the 4 cables for equal tension.
- ** Inspect the cables again to ensure there is no

crossing or improper installation before running the lift. Make sure the cables are placed in the sheaves.

5.2.7 Install the Power Unit, hydraulic lines

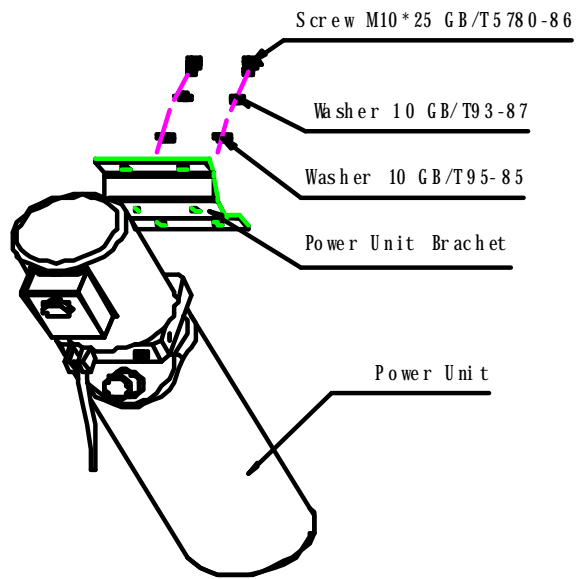
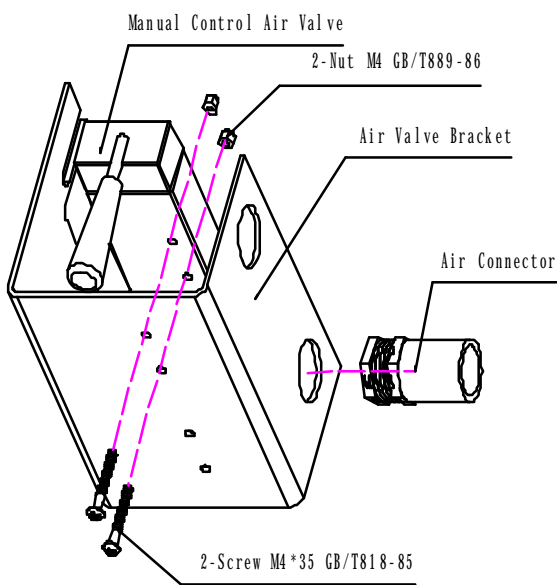
- I Install the hydraulic unit on the bracket with 2 M10X25 bolts and washers (Fig.13B). Using 2 M4X35 screws to install the control air valve on the bracket (Fig.13A).
- I Install the power unit with its bracket on the FL column (Fig.13C).
- I Install the control air valve with its bracket on the FL column. (Fig.13C)
- I Install the hydraulic lines and fasten all the fittings so

that no leakage will occur.(Fig.14)

- I Fill the tank with enough hydraulic oil (10L). Keep dust and other pollutants away from the oil tank
- I Fix the pipes with clips as illustrated.

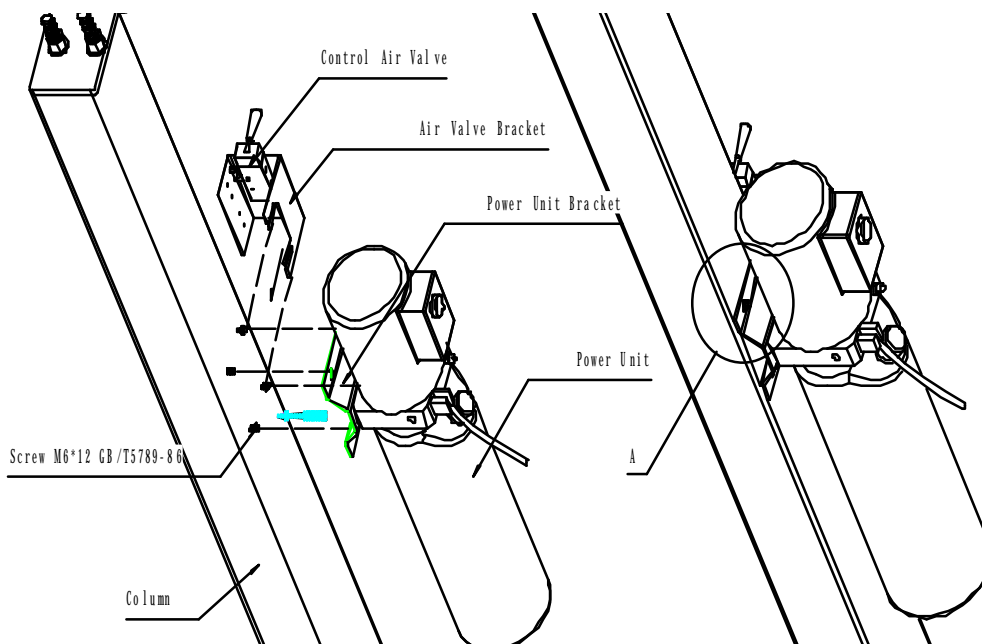
⚠ Cautions:

- ** Get rid off the foreign substance in the hoses and uncover the plug of cylinder.
- ** If the hose need to go through the columns, make sure that they do not come into contact with any moving parts



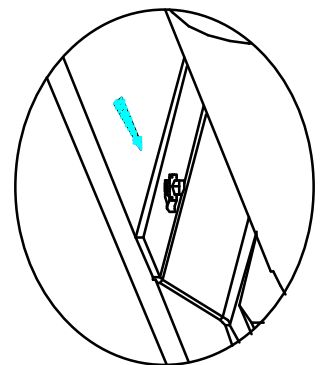
A

B



C

A
3 : 1



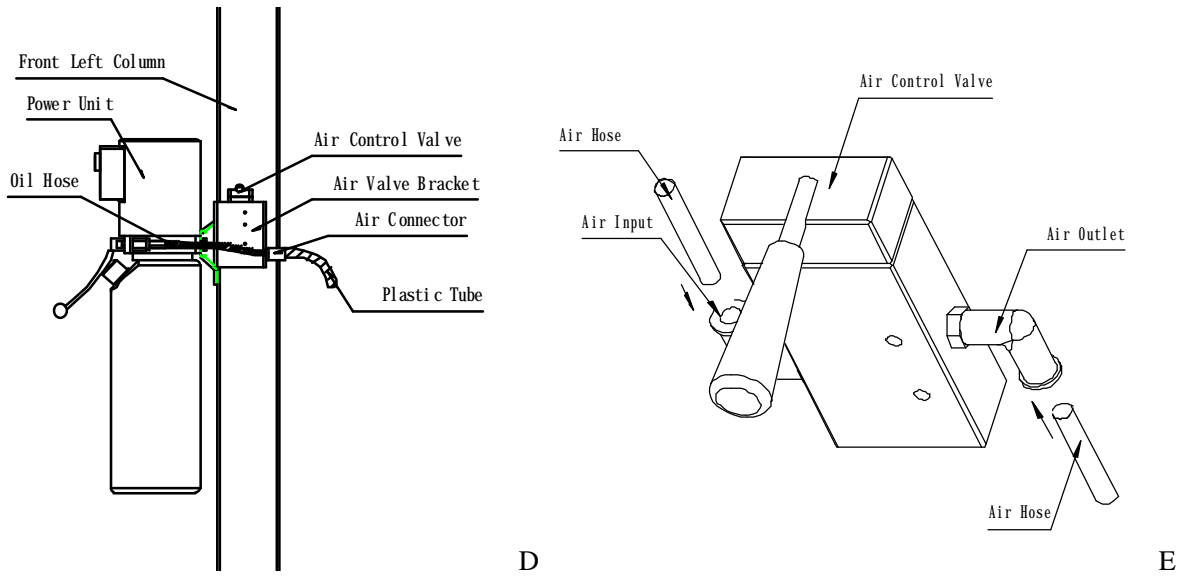


Fig.13

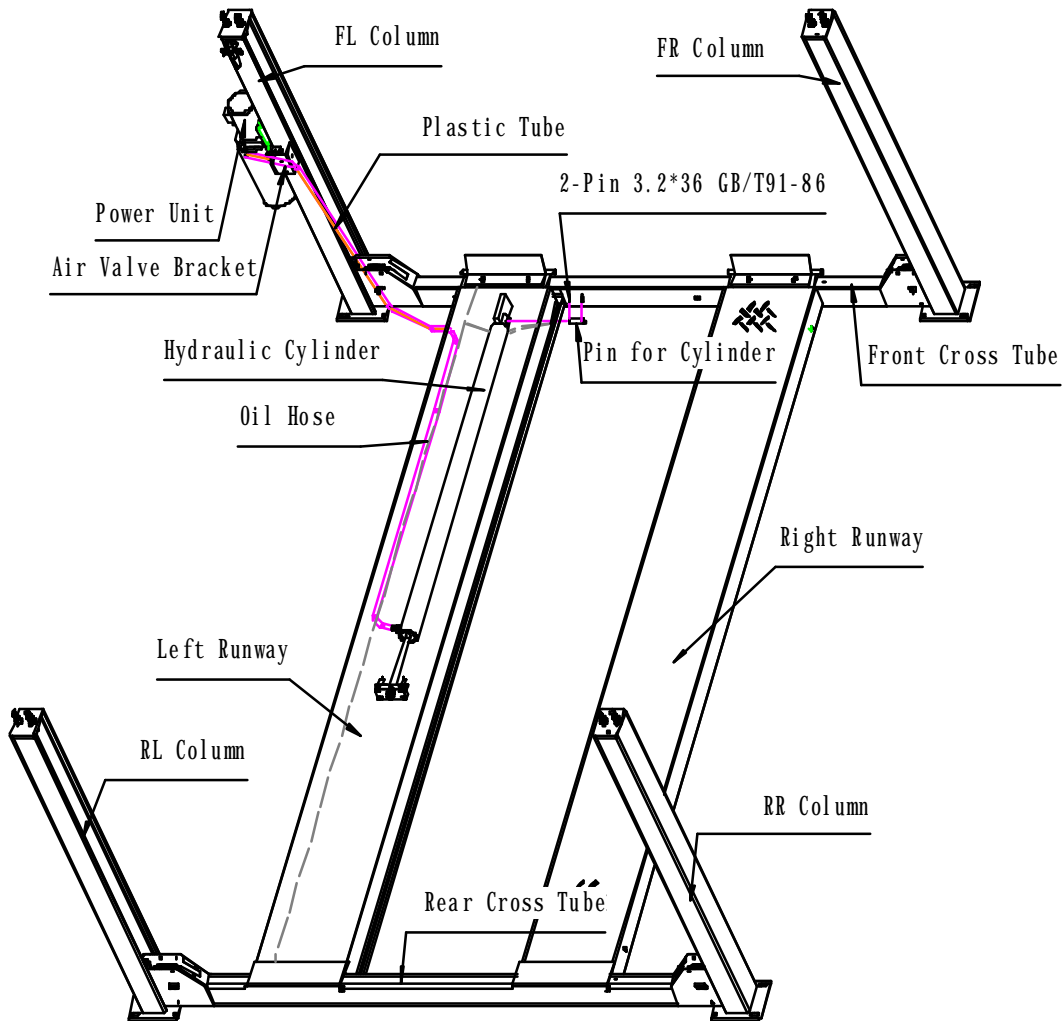


Fig.14

5.2.8 Air line connection

- I Locking latches require 100 psi. min to 120 psi. max air pressure. A filter/regulator/lubricator must be installed on air supply at lift. Failure to do so will void the warranty.
- I Route the air lines based on Fig.15 and check for air

leaks by depressing air valve. Actuate air control valve and check latch operation on all four corners. The locking latches should pull in beyond cross tube ends to clear the latch plate.

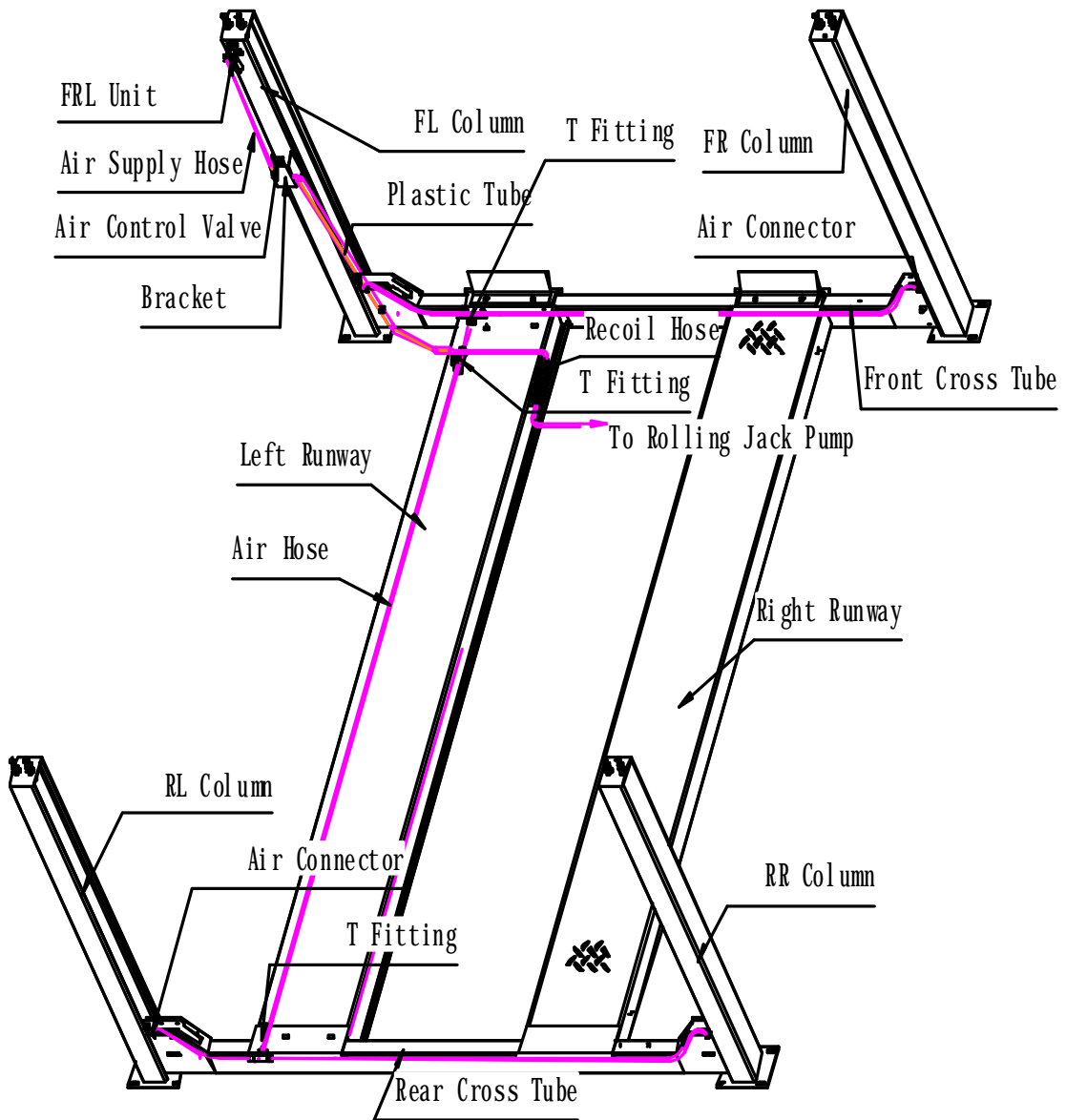


Fig.15

5.2.9 Anchoring the columns

- I Align the columns with the base and keep it upright on the floor. Fix the columns with anchor bolts on base. In the process of drilling

and fastening the bolts, make sure the column is not moved. (Fig. 16)

- I Adjust the bolt M20 of on top plate of the column to level the two runways, and then lock the bolt.

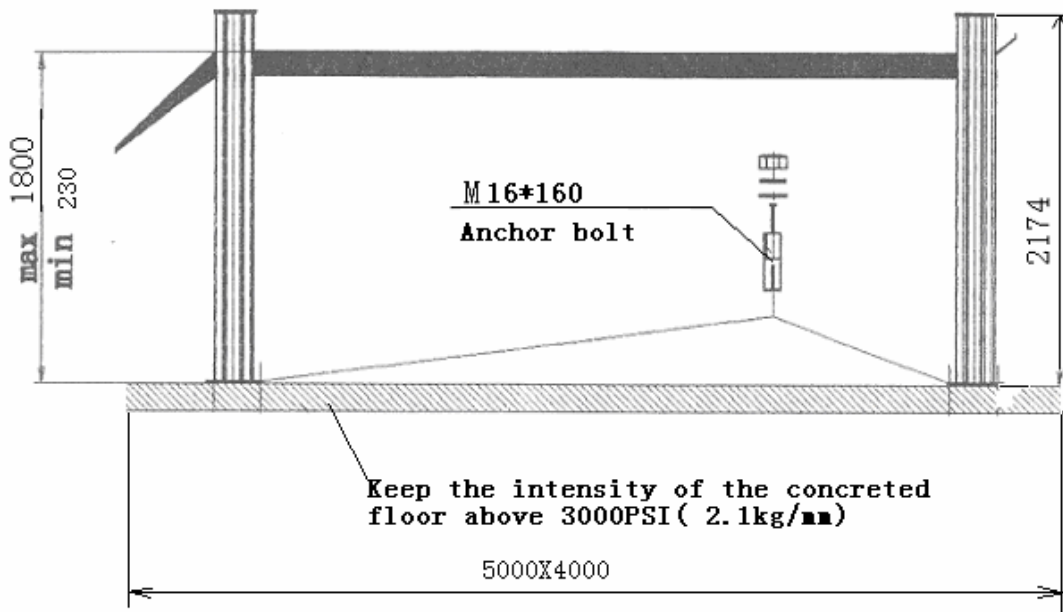
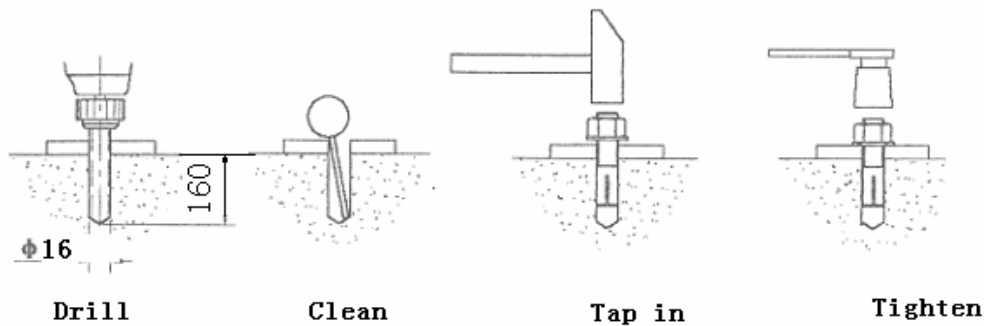


Fig.16



⚠ Note:

- 2 Use sharp F16mm concrete drill-bit to drill the holes. Don't ream the hole or allow the drill to wobble. Use proper 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. If shimming is required, enough thread must be left.
- I When fastening the anchor bolt, only use the (torque) wrench, and don't use impact tool for fastening.

making the column vertical.

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

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

- I Wear the safety goggles.
- I Use hard alloy drill-bit.
- I Don't use the drill-bit with wearing exceeding the tolerance.
- I The drill and concrete surface should be kept


Insert proper shims under the base of column if necessary,

perpendicular.

- I Let the drill work itself. Don't apply the extra force, and don't ream the hole or allow the drill to wobble.
- I 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.
- I Remove the dust from the hole.
- I Gently tap the bolt into the hole till the washer rests against the base plate of column.
- I Tighten the bolt.

5.2.10 Installation of wheel stop Plates and Drive-on Ramps

Install wheel stop plates and drive-on ramp (Fig. 2).

 *Cautions: The drive-on ramps should be able to turn freely after installation.*

5.2.11 Installation of turn table and side slip plates (440W)

See Fig.17

5.2.12 Rolling Jack Installation (440W)

Locate the rolling jack on the track rail between the runways. Move the rolling jack back and forth to make

sure it is not blocked. Connect the recoil air hose to the rolling jack pneumatic pump.

The long and short adapters for lifting pad can be used to meet the different chassis of vehicles (Fig.17)

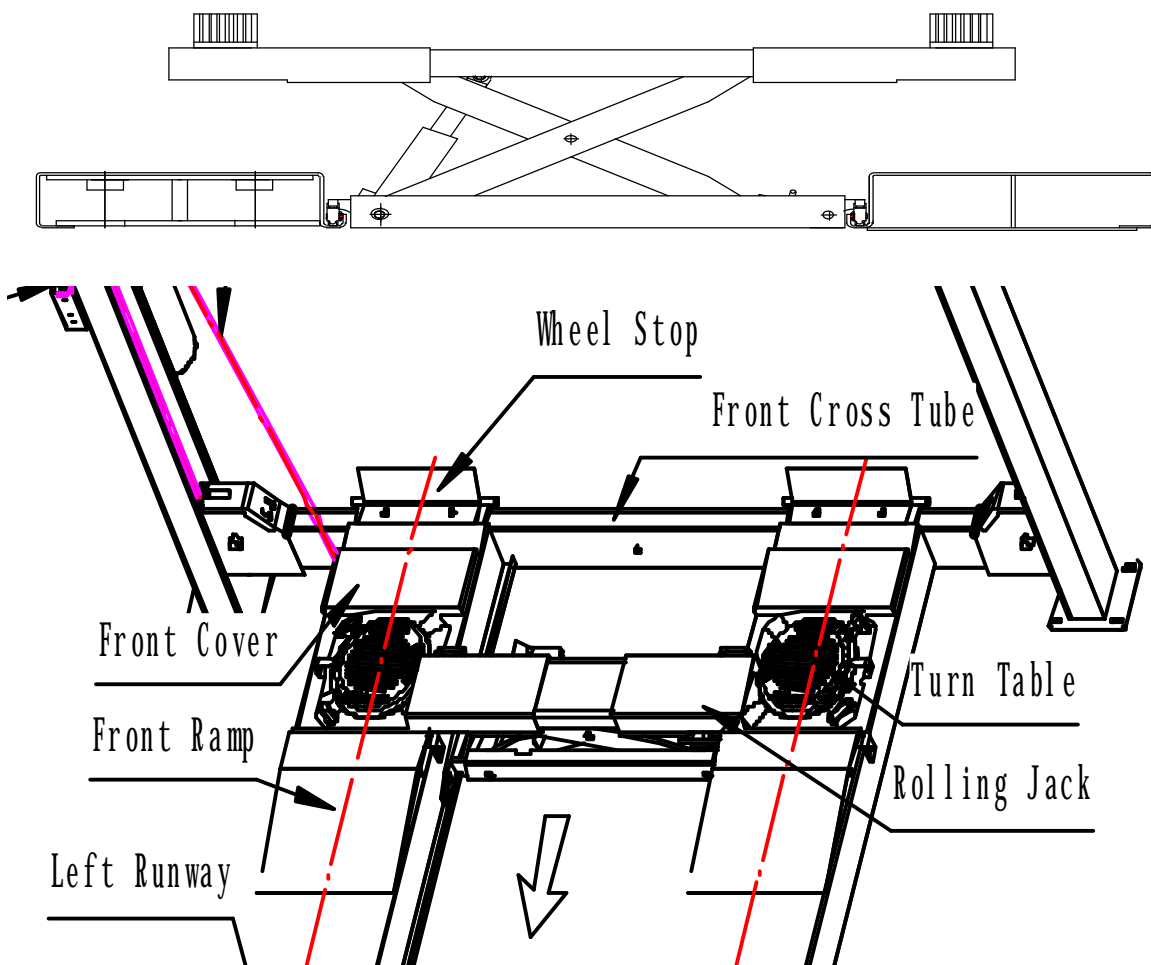


Fig. 17(440W)

6. Adjustment

6.1 Preparation

- I Lubricate all moving parts of the lift.
- I Fill the N32 or N46 hydraulic oil into the tank of power unit.

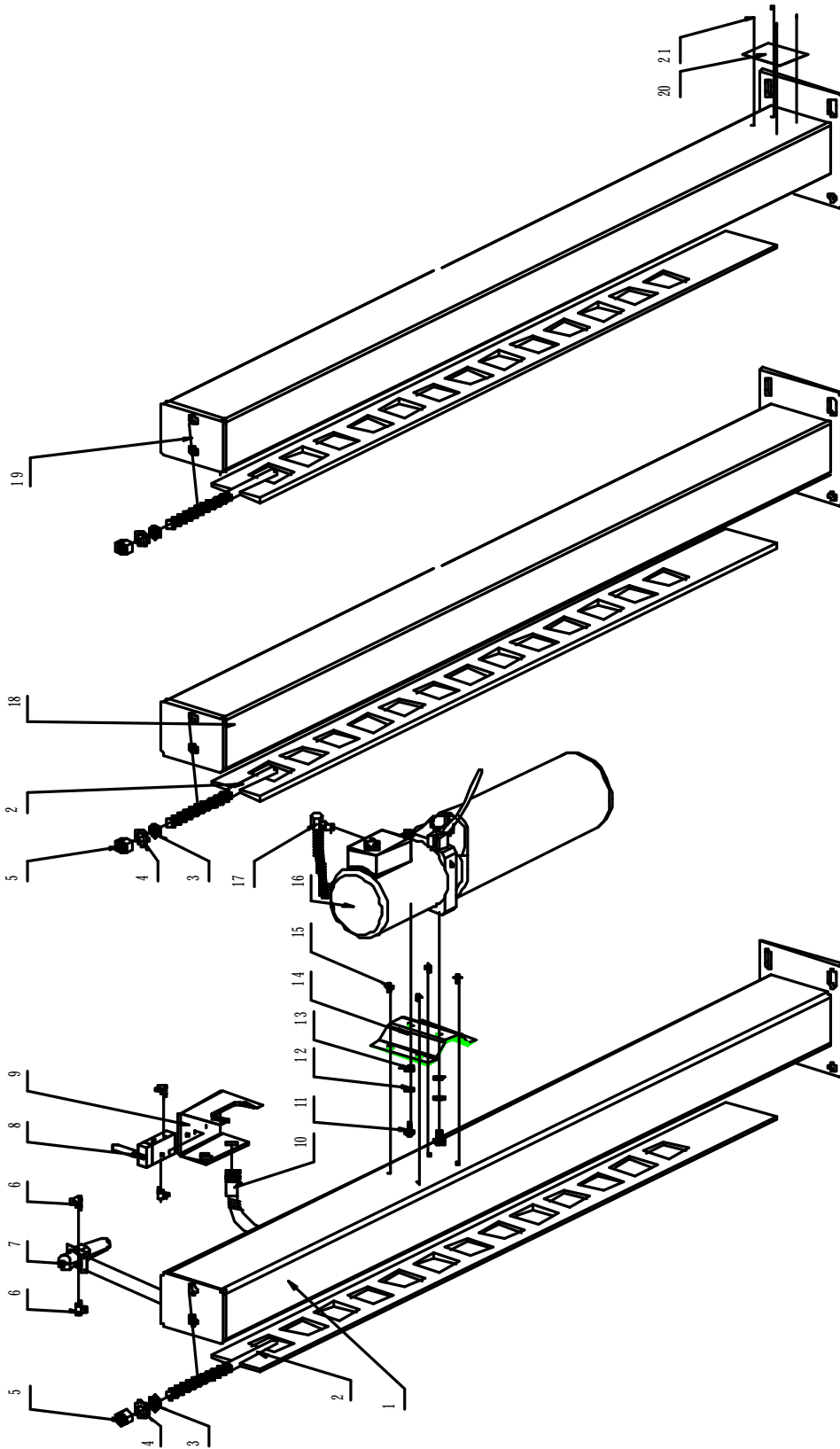
6.2 Adjustment procedure

- I Check the power supply for motor.
- I Check the compressed air supply.
- I Check for the tightness of all the connecting bolts.
- I Press the start button on the power unit, and the runway will go up; stop pressing the button, then the lift will stop. For lowering the lift, if the locking latches are engaged, lift must be raised enough for all 4 latches to clear the latch plate slots inside the columns. Actuate the air control valve to disengage all the 4 locking plates and push the lowering handle on the power unit to lower the lift.
- I When the vehicle is lifted up to the required height, first press the lowering handle to actuate the safety latches in order to ensure the safety service of vehicle.
- I Adjust the horizontal position of the two runways; use the wrench to unscrew the locking nuts of the adjusting bolts on the top of four columns; the up and down positions of the locking latch plate can be adjusted via the adjusting bolts so as to make the runways level.
- I There might air in the hydraulic system due to the new installation. Air bleeding operation can be performed by lifting and lowering the runways several times.
- I The adjustment is completed.

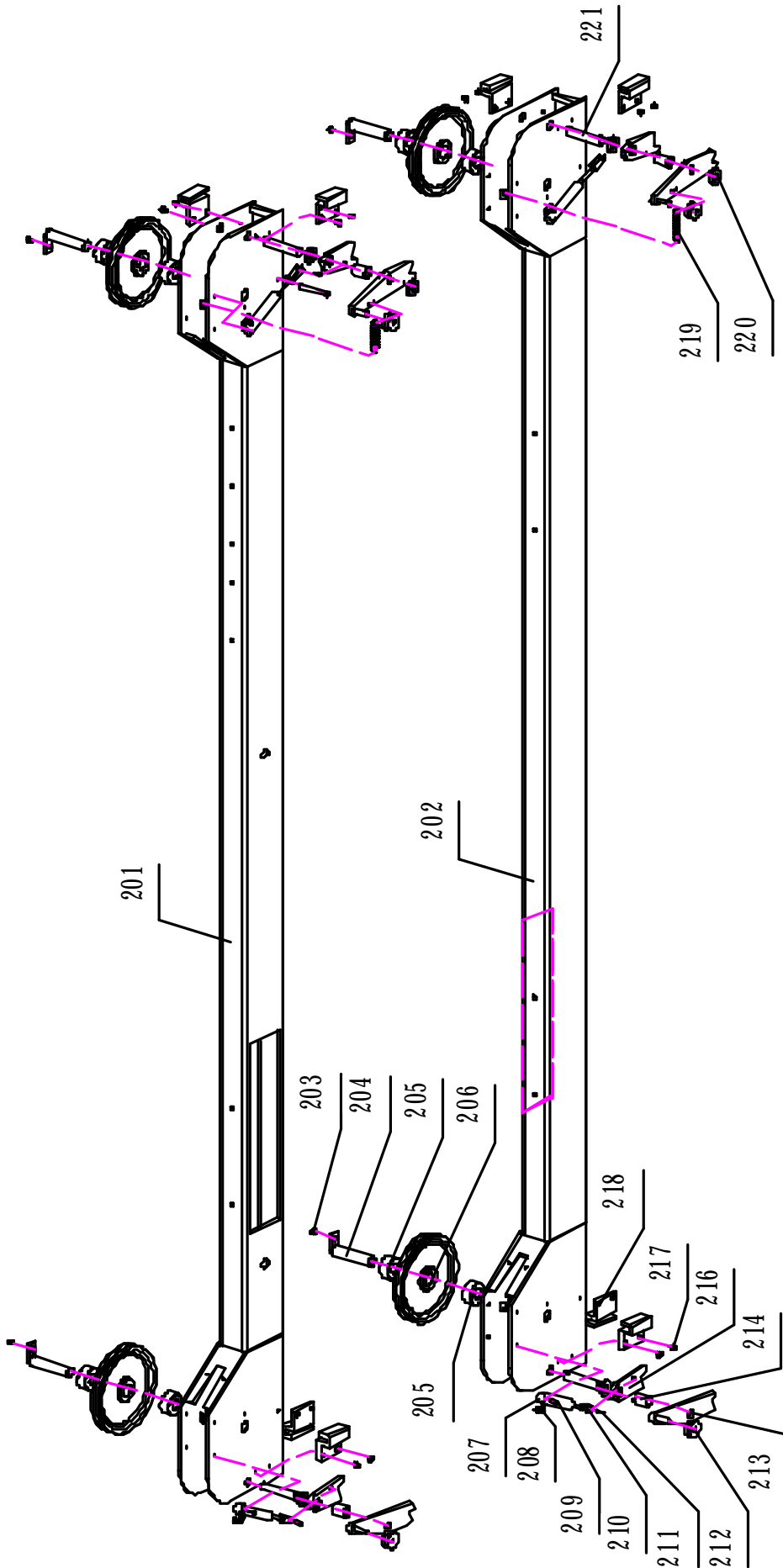
7 Parts List

You may order new spare parts to replace damaged ones according to their material codes in the list.

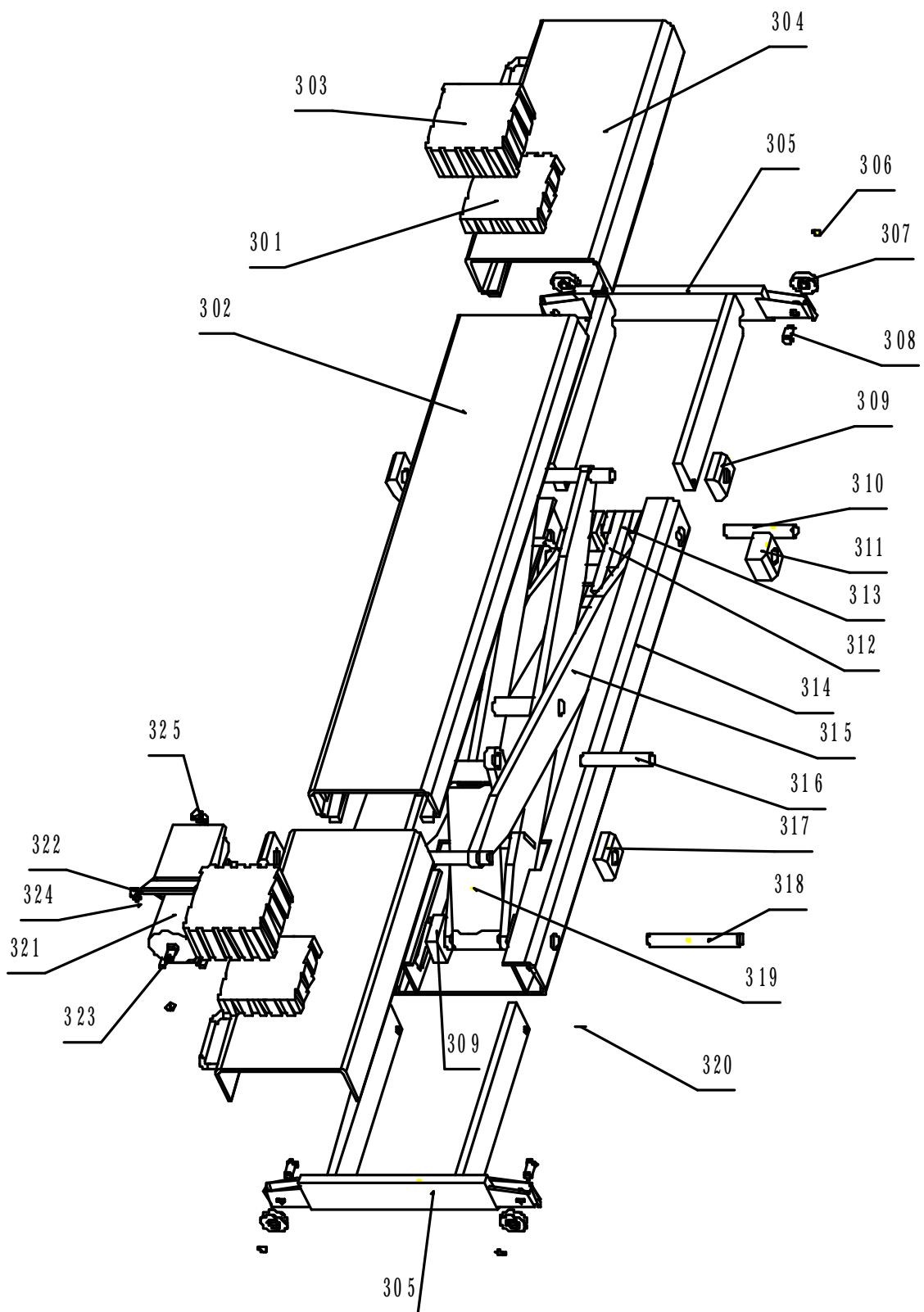
This parts list is only for the service and maintenance.



No	Material code	Name
1	201020712	FL column
2	201020698	Locking latch plate assembly
3	103030114	Hexagon nut C class M20 GB41-86
4	103040138	Washer C class 20 GB95-85
5	103030143	Thin nut A,B class M20 GB6172-86
6	103100080	Quick L type air fitting APL8-02 (for FRL UNIT)
	103100215	Quick T type fitting APE6 (440W、455W)
7	102160383	FRL UNIT WAW2000-02
8	103201926	Manual solenoid valve (auto reset) TSV98322S
	103100214	Quick L type air fitting APL6-02 (solenoid valve)
9	103201504	Bracket of air valve
10	104090094	Quick hose fitting AD34.5 ZD-SM
11	103020133	Screw M10*25 GB/T5780-86
12	103040122	Flat washer 10 GB/T93-87
13	103040123	Spring washer 10 GB/T95-85
14	201011363	Bracket of power unit
15	103020134	Screw M6*15 GB/T5789-86
16	103990154	Power unit (220/380V 50/60HZ)
17	103201512	Turn around fitting
18	201020708	Right column
19	201020711	Rear column
20	103250169	Name plate
21	103010481	Rivet 3*6 GB/T867-86

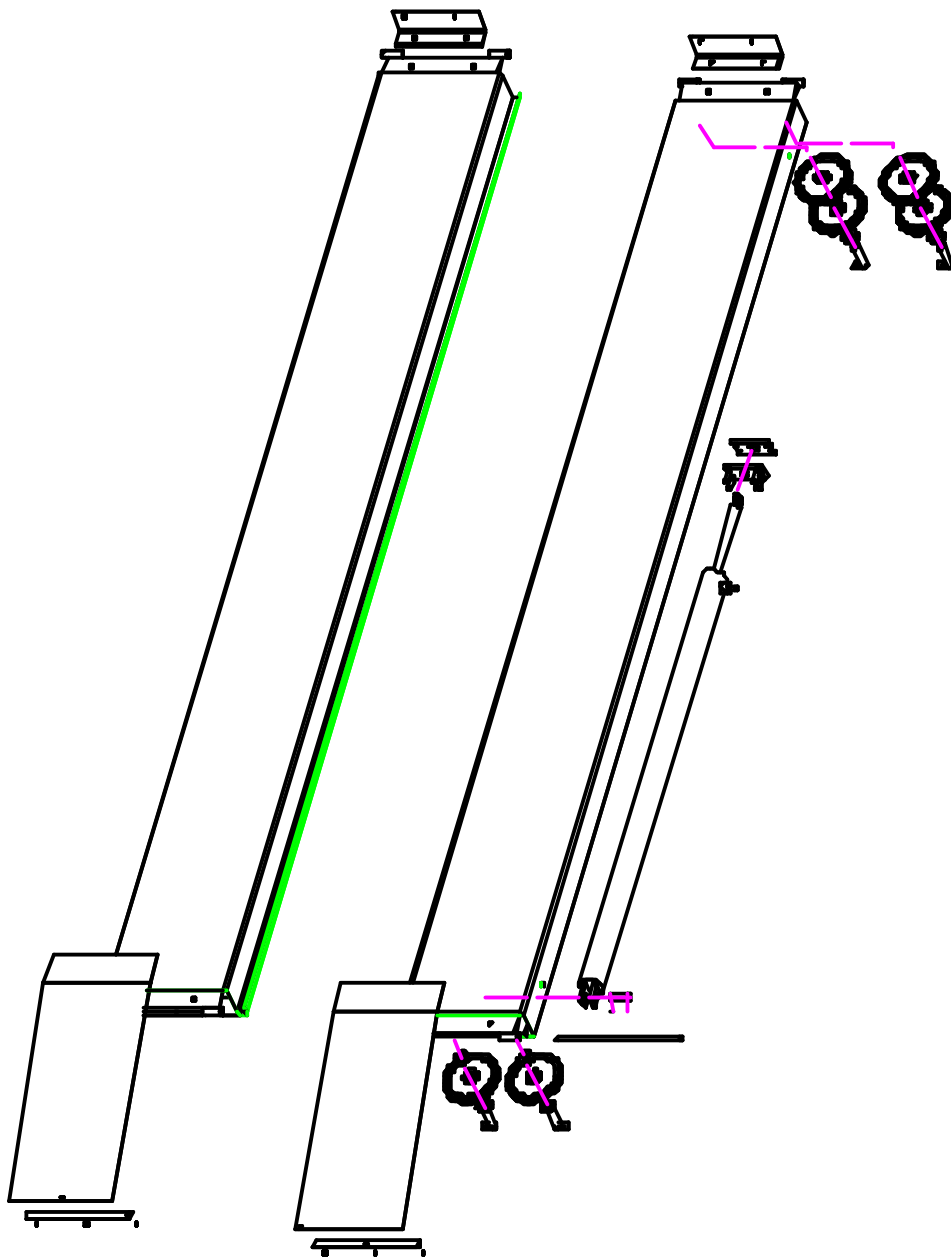


No	Material code	Name
201	201020703	440 Front cross tube assembly
	201021126	455 Front cross tube assembly
202	201020697	440 Rear cross tube assembly
	201021126	455 Rear cross tube assembly
203	103020132	Screw M8*15 GB/T5789-86
204	201020696	440 Sheave pin assembly
	201021132	455 Sheave pin assembly
205	104990120	440 Sheave bearing
	202010073	455 Sheave bearing
206	103220066	440 Sheave
	104990137	455 Sheave
207	103201514	Air cylinder assembly
208	103100183	L air connector APL6-M5
209	103060358	Pin B6X35 GB882-86
210	103201505	Air cylinder connector
211	103060357	Pin B type 6X20 GB882-86
212	104990117	440 Slack cable roller
	104990136	455 Slack cable roller
213	201020707	Slack cable device
214	104990122	Latch bushing
215	103201500	Locking latch
216	103020132	Screw M8*15 GB/T5789-86
217	104990118	Slider
218	103201497	Spring
219	103040138	Flat washer 20 GB/T95-85
220	103201499	Latch pin

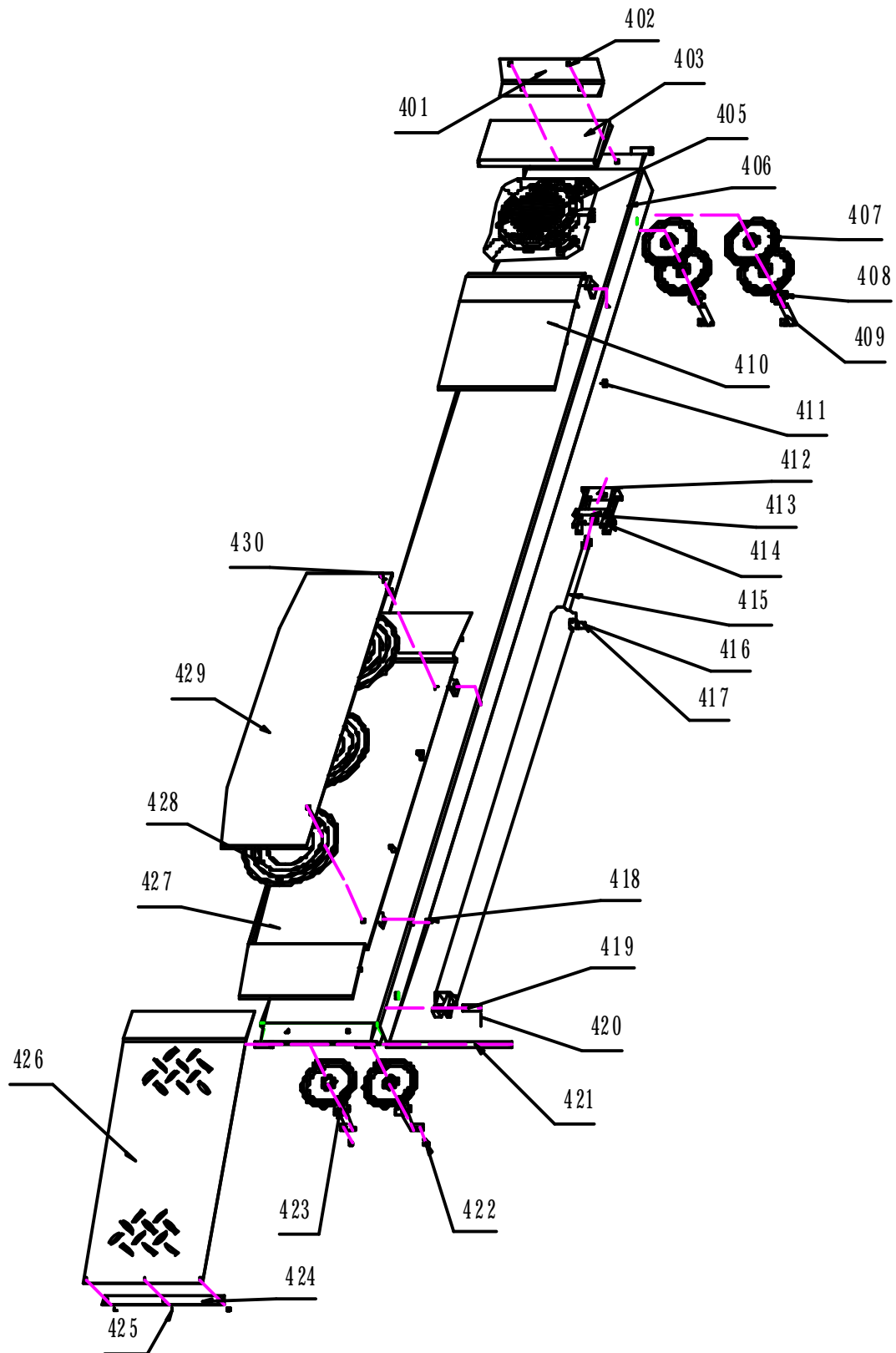


TLT440W, TLT455W

No	Material code	Name
301	104130231	Thin rubber pad
302	103201482	Cover assembly
303	104130232	Thick rubber pad
304	103201486	Left hand sliding adapter
305	103201488	Telescoping end welding seat
306	103050002	Returning ring 12
307	104990116	roller
308	103201495	axle
309	104990115	Outer arm slider
310	103201490	Safety pin
311	104990114	Inner arm slider
312	103201484	Safety rack I
313	103201485	Safety rack II
314	103201481	Seat assembly
315	104990115	Scissor arms
316	103201493	Cylinder pushing axle
317	104990114	Inner arm slider
318	103201494	Cylinder fixing axle
319	103260149	Cylinder
320	103060354	Pin 6X24 GB879-86
321	103990153	Air / hydraulic pump JIAKE65480
322	103020134	Allen bolt M6X15, GB/T5780-1986
323	103100187	Oil hose connector
324	103030098	Locking nut M8 GB/T889-1986
325	102990093	L type air hose connector APL8-02



TLT440,TLT455

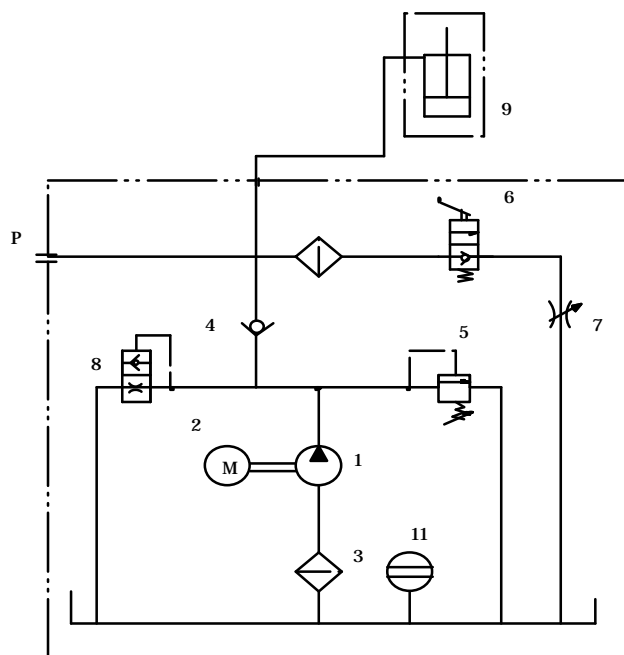


TLT440W.TLT455W

No	Material code	Name
401	201011348	Front wheel stop
402	103020073	Screw M10*20 GB/T5789-86
403	201020692	Short up cover
405	103201518	Turn table
406	201020713	440 Left runway
	201021127	455 left runway
407	103201981	440 left Sheave
	104990137	455 sheave
408	104990121	440 Spacer
	104990138	455 spacer
409	201020696	440 Sheave pin assembly
	201021132	455 Sheave pin assembly
410	201020695	Front ramp
411	103020073	Screw M10*20 GB/T5789-86
412	201011365	440 Clamp I
	201012241	455 clamp plate
413	201011366	Clamp II
	201012242	455 clamp
414	103201519	Cable I
	103201929	455 cable I
	103201520	Cable II
	103201930	455 Cable II
	103201521	Cable III
	103201931	455 Cable III
	103201522	Cable VI
	103201932	455 Cable VI
415	103201513	440 Hydraulic cylinder
	103260177	455 Hydraulic cylinder
416	103201502	Burst protection valve
417	103250168	Core of protection valve
418	103020073	Screw M10*20 GB/T5789-86
419	103201508	Pin of cylinder
420	103060356	Cotter pin 3.2*36 GB/T91-86
421	103201506	440 Axle of drive on ramp
	201012246	455 Axle of drive on ramp
422	103020132	Screw M8*15 GB/T5789-86
423	104990120	Sheave bearing
	103201982	440 left sheave non-oil bushing
	103060356	455 non-oil bushing
425	103010498	Screw M5X8 GB/T 819-85

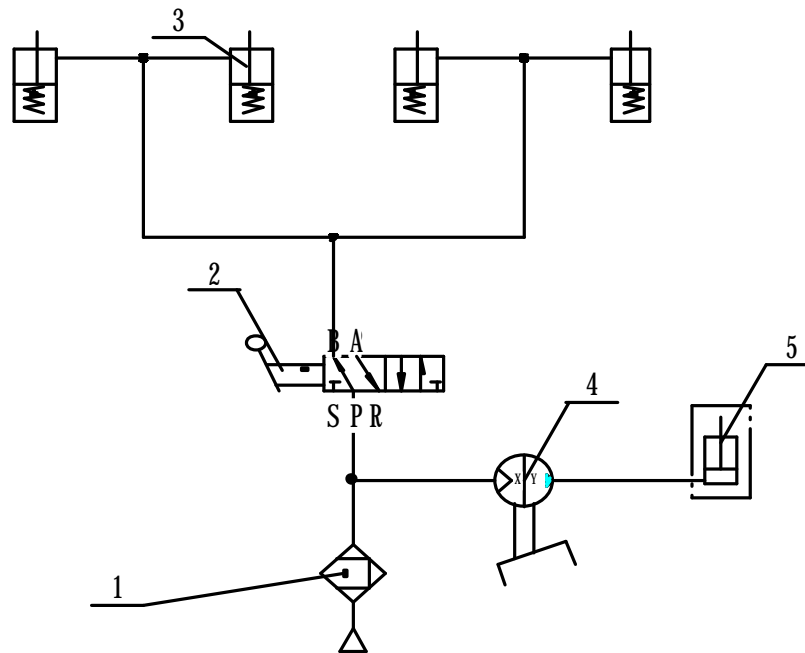
424	103201507	Drive on ramp bar
426	201020706	Drive ramp
427	201020691	Side slip plate assembly
428	104080008	Ball seat
431	104080007	Ball
429	201020694	Cover of side slip plate
430	201020690	Fixing pin

Diagram of hydraulic system:



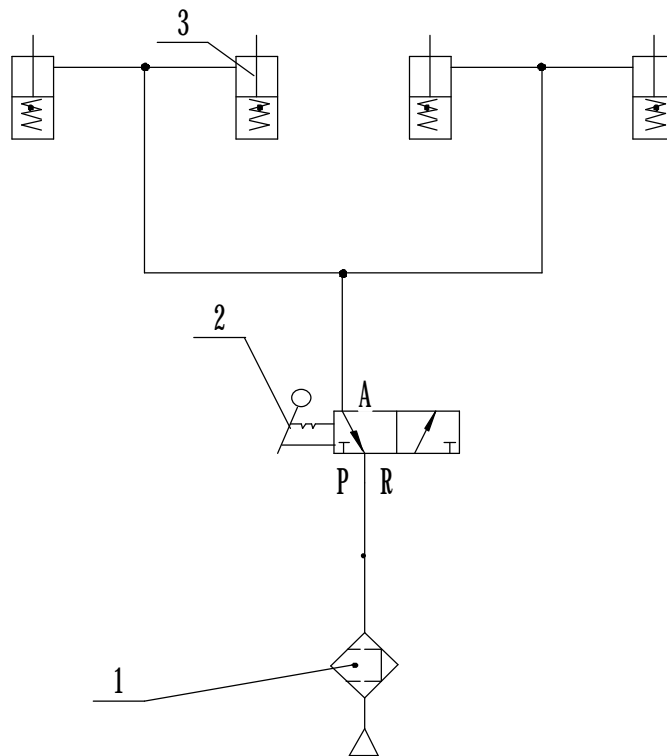
- 1. Gear Pump 2. Motor 3. Filter 4. Check-Valve
- 5. Safety Valve 6. Release Valve 7. Flow Control Valve
- 9. Cylinder 10. Oil Level Gauge

TLT440W, TLT455W Diagram of Pneumatic system:



- 1. Air Source
- 2. Air Control Valve
- 3. Air Cylinder
- 4. Pneumatic Pump
- 5. Cylinder

TLT440, TLT455 Diagram of Pneumatic system:



- 1. Air Source
- 2. Air Control Valve
- 3. Air Cylinder

Diagram of electrical system:

