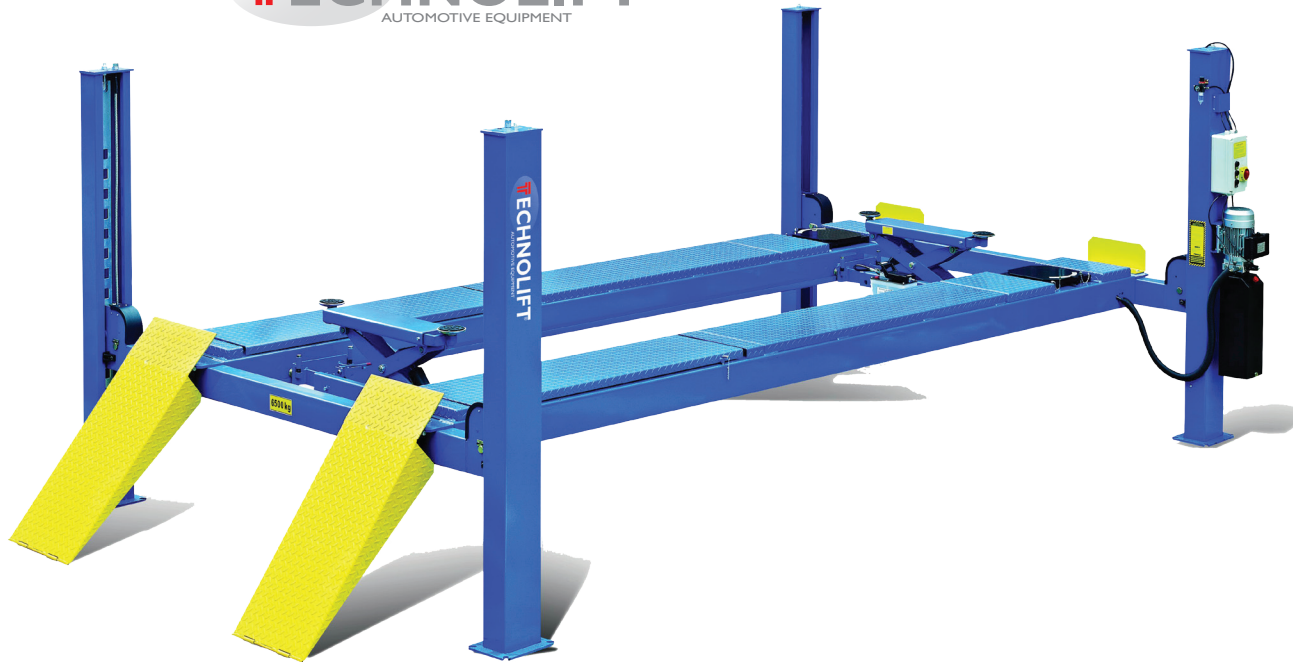


GRAND PRIX IMPORT

Installation, Operation & Maintenance Manual

FOUR COLUMN ALIGNMENT LIFT

*The specifications stated on this brochure are not binding.
We reserve the right to change the specification without notice*



SL-412A

IMPORTANT:
**Read this manual completely before
installing or operating lift**

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I. PRODUCT FEATURES AND SPECIFICATIONS

ALIGNMENT MODELS SL-412A FEATURES

- Manual control air-operated system.
- Mechanical self-lock and air-driven safety release.
- Manual hydraulic power system, cable-driven.
- Strengthen and non-skid diamond platforms.
- Multiple turnplate pockets fit with different wheel base.
- Adjustable platform and adjustable safety lock ladders.
- Optional Jack: With hand pump/Air-operated hydraulic pump/Controlled by power unit.
- Optional Turnplate

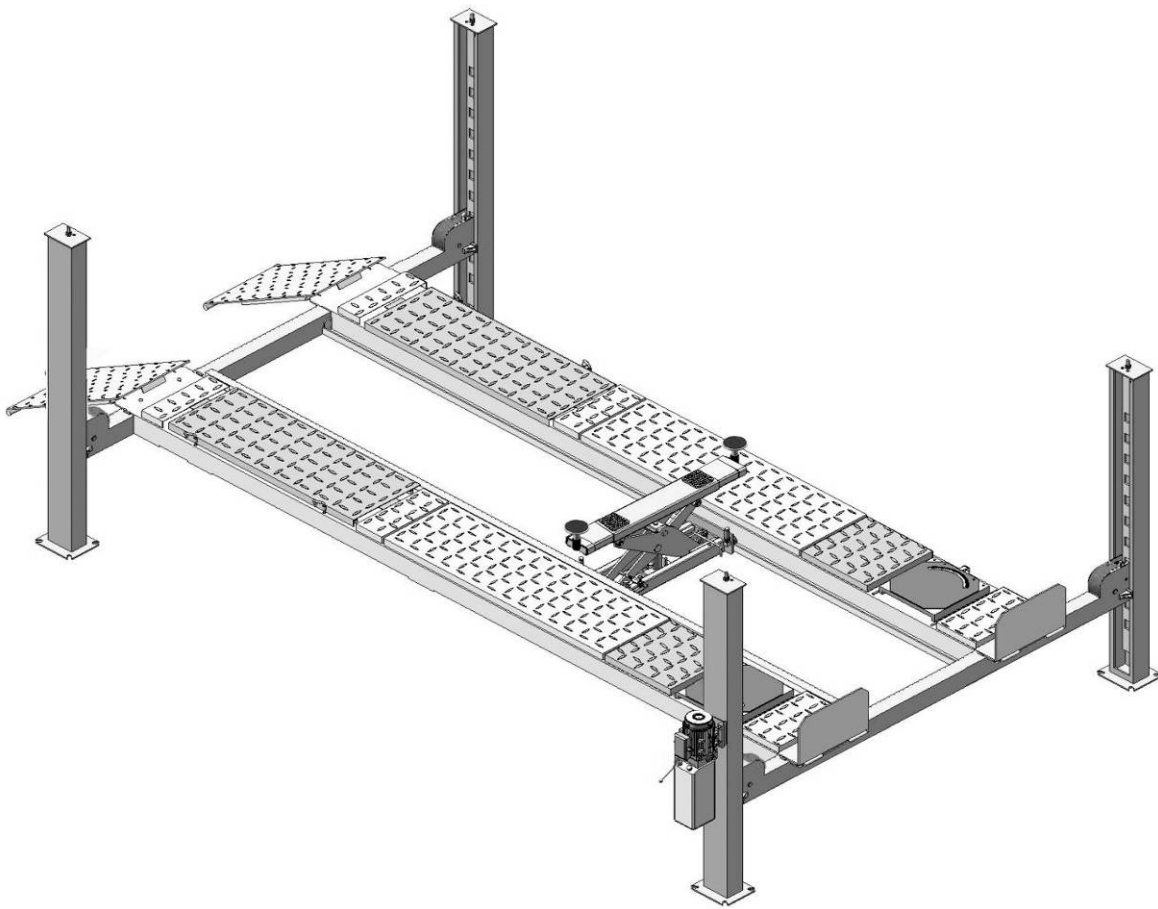


Fig. 1

MODEL SL-412A SPECIFICATIONS

Model	Lifting Capacity	Lifting Height	Lifting Time	Overall Length (Inc. Ramps)	Overall Length (No Ramps)	Overall Width	Width Between Columns	Gross Weight	Motor
SL-14A	6.5T 12,000 lbs	1915mm 75 1/2"	60S	6528mm 257"	5500mm 216 1/2"	3324mm 130 7/8"	2946mm 116"	1546kg 3350 lbs	4.0HP

II. INSTALLATION REQUIREMEN

A. TOOLS REQUIRED

- ✓ Rotary Hammer Drill ($\Phi 19$)



- ✓ Hammer



- ✓ Level Bar



- ✓ English Spanner (12")



- ✓ Wrench Set
(10#, 12#, 13#, 14#, 17#, 19#, 24#, 30#)



- ✓ Ratchet Spanner With Socket (28#)



- ✓ Carpenter's Chalk



- ✓ Screw Sets



- ✓ Tape Measure (7.5m)



- ✓ Pliers



- ✓ Lock Wrench



- ✓ Socket Head Wrench
(3#, 5#, 6#)



Fig. 2

B. SPECIFICATIONS OF CONCRETE (See Fig. 3)

Specifications of concrete must be adhered to the specification as following.
Failure to do so may result in lift and/or vehicle falling.

1. Concrete must be thickness 100 mm minimum and without reinforcing steel bars, and must be dried completely before the installation.
2. Concrete must be in good condition and must be of test strength 3,000psi (210kg/cm²) minimum.
3. Floors must be level and no cracks.

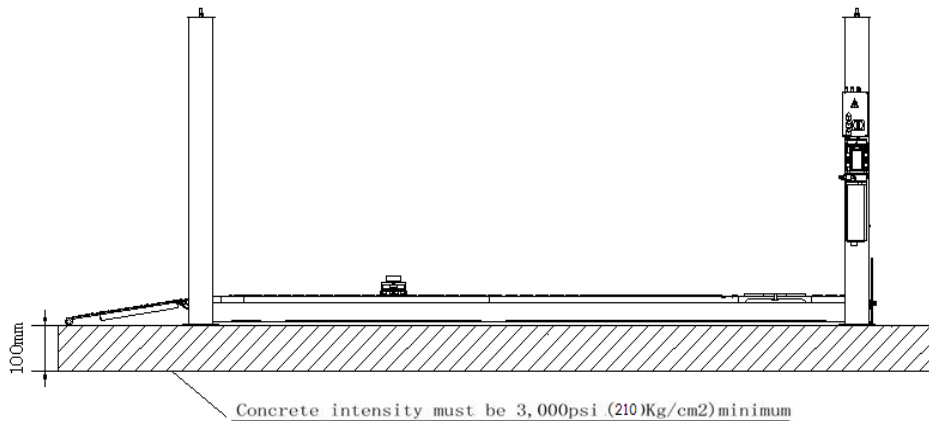


Fig. 3

C. AIR SUPPLY

Air pressure requirement: 0.5Mpa~0.8Mpa, Air line size $\phi 8 \times \phi 6$ and $\phi 6 \times \phi 4$.

D. POWER SUPPLY

The electrical source must be 3KW minimum. The source cable size must be 2.5mm² and in good condition of contacting with floor.

III. STEPS OF INSTALLATION

A. Location of Installation

Check and insure the installation location (concrete, layout, space size etc.) is suitable for lift installation.

B. Check the Parts Before Assembly

1. Packaged lift and Hydraulic Power Unit (See Fig. 4).



Fig. 4

2. Open the outer packing carefully (See Fig. 5).

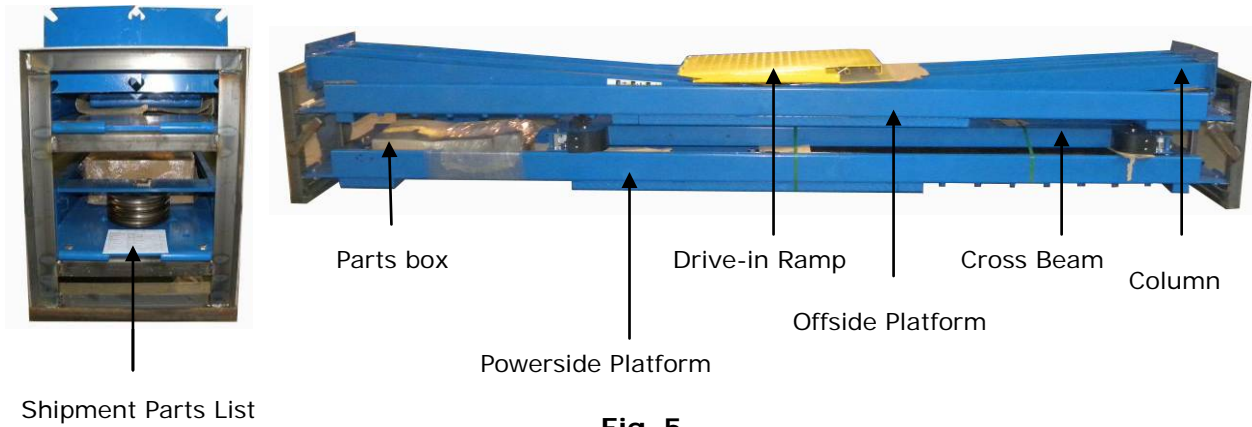


Fig. 5

3. Take off the Drive-thru Ramps and Columns (See Fig. 6).



Fig. 6

4. Loose the screws of the upper package stand, take off the offside platform, take out the parts inside the powerside platform, than remove the package stand.

5. Move aside the parts and check the parts according to the shipment parts list (See Fig. 7).



Fig. 7

81

C. Use a carpenter's chalk line to establish installation layout as per Table 1
 Make sure the size is right and base is flat (see Fig. 10).

Note: Reserve space front and behind the installation site.

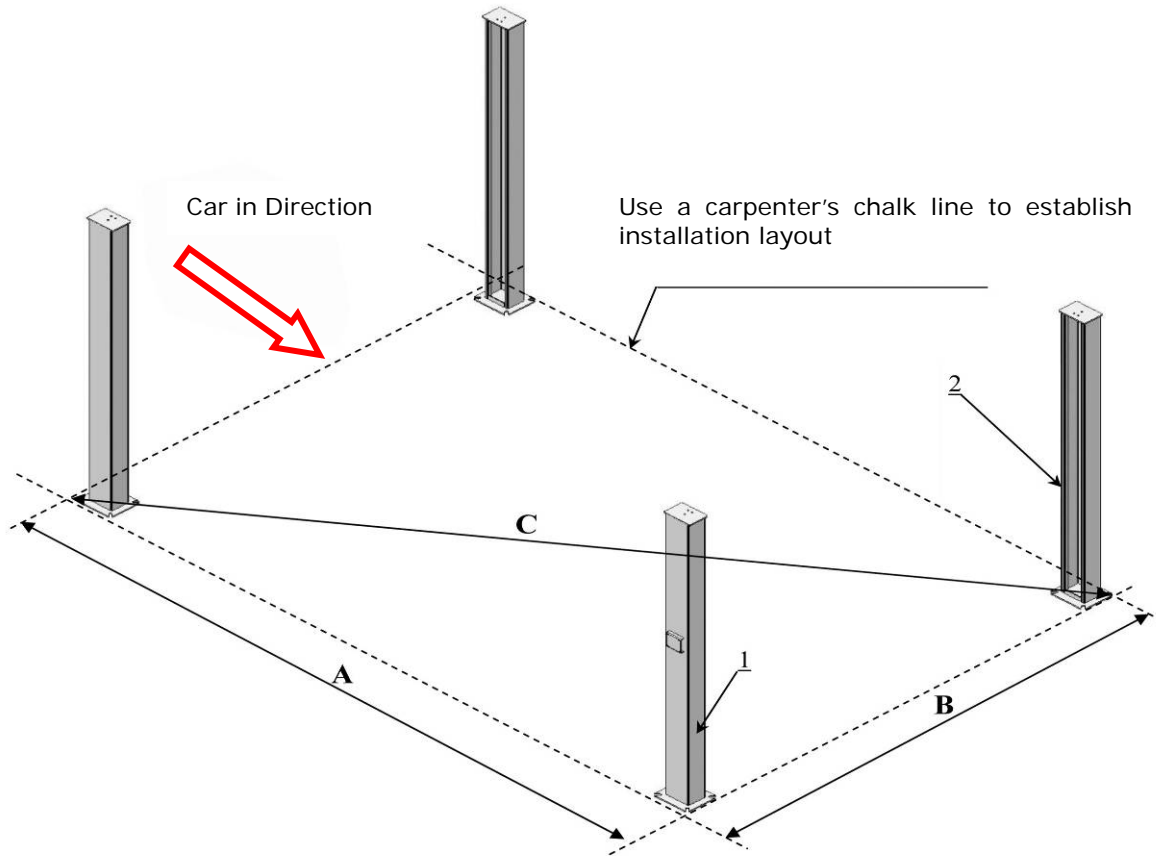
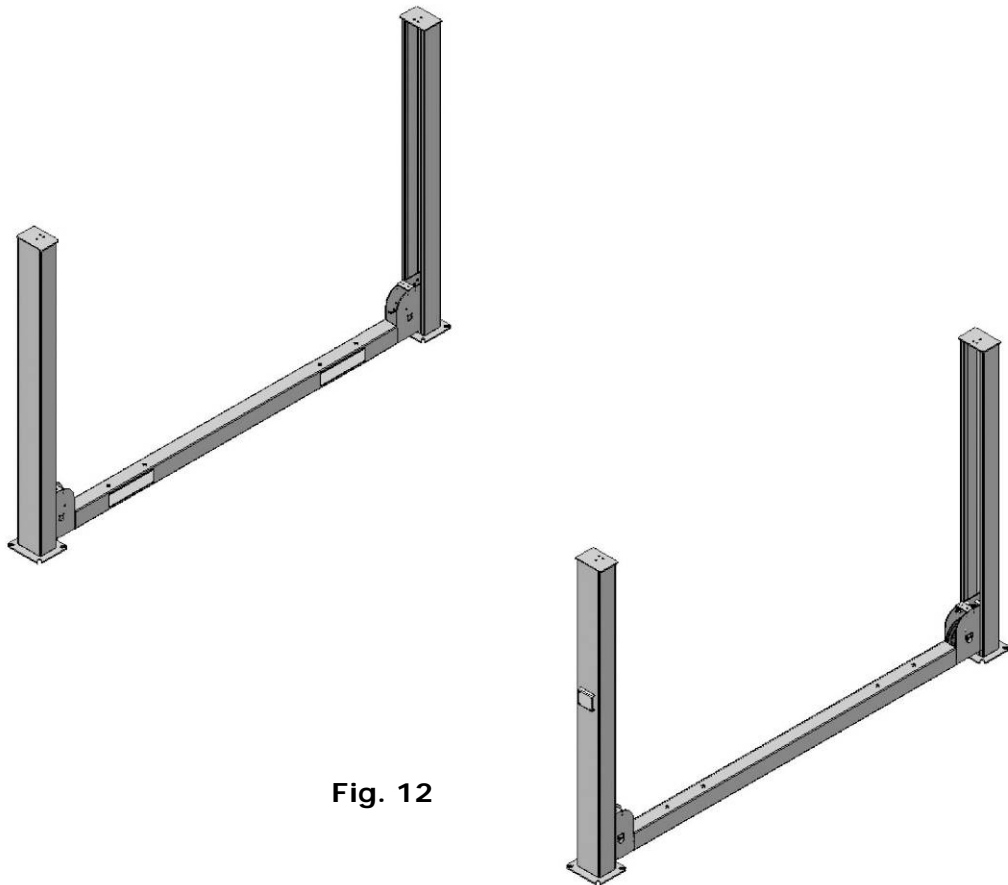
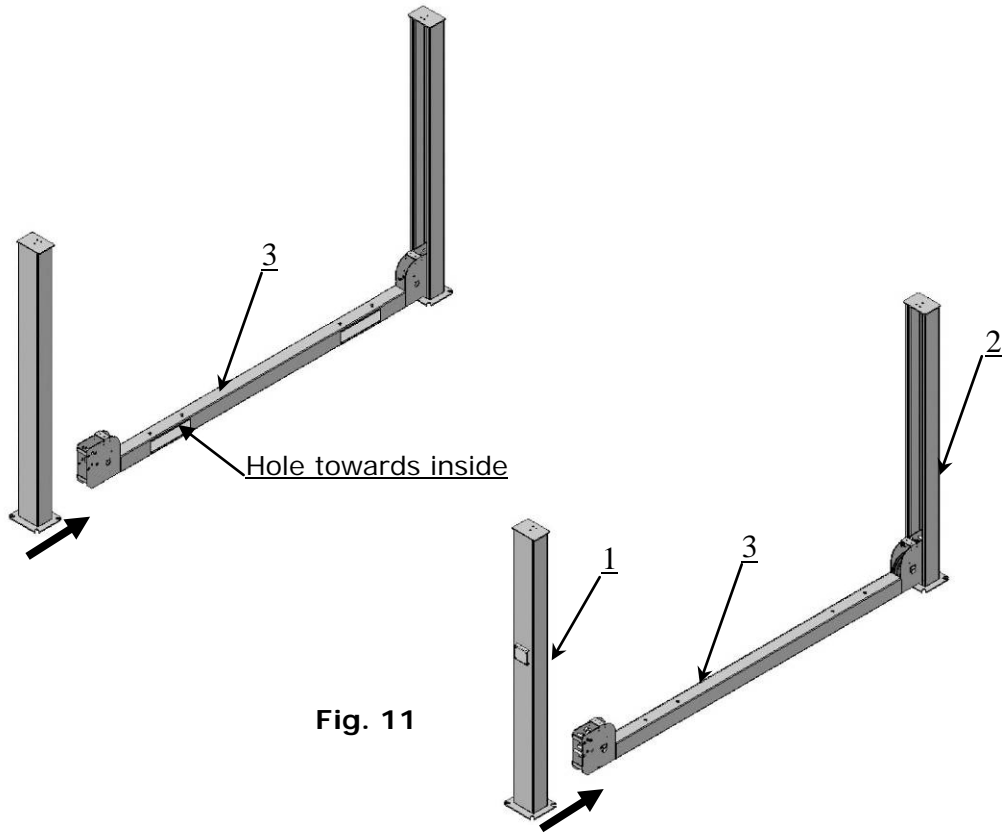


Fig. 10

Model	A	B	C
SL-412A	5500mm 216 1/2"	3324mm 130 7/8"	6426mm 253"

Table 1

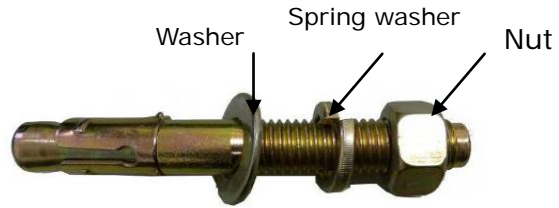
D. Install Cross Beams (See Fig. 11, Fig. 12).



E. Fix the Anchor Bolts

1. Prepare the Anchor Bolts (See Fig. 13).

Fig. 13



2. Using the prescribed rotary hammer drill, and drill all the anchor holes and install the anchor bolts, do not tighten the anchor bolts first (See Fig. 14).

Note: Anchor bolts driven into the ground at least 90mm

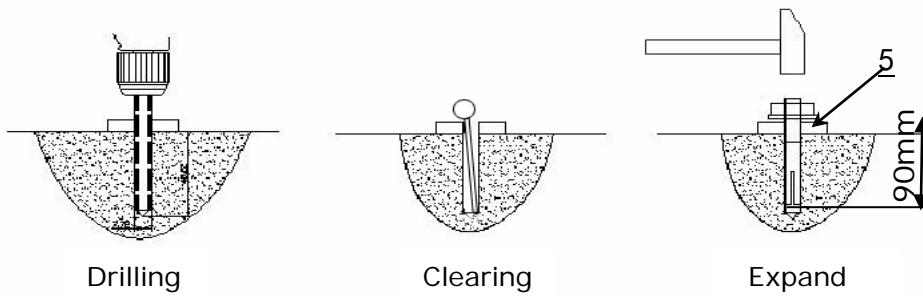


Fig. 14

F. Install the Safety Ladders

1. Take off the pulley safety cover and unscrew the four upper nuts of the Safety Ladders, and then adjust the four lower nuts to be at the same position. Withdraw the Slack-cable safety lock of the Cross-beam to insert the Safety Ladder in, raise the Safety Ladder, and screw the upper nuts (See Fig. 15).

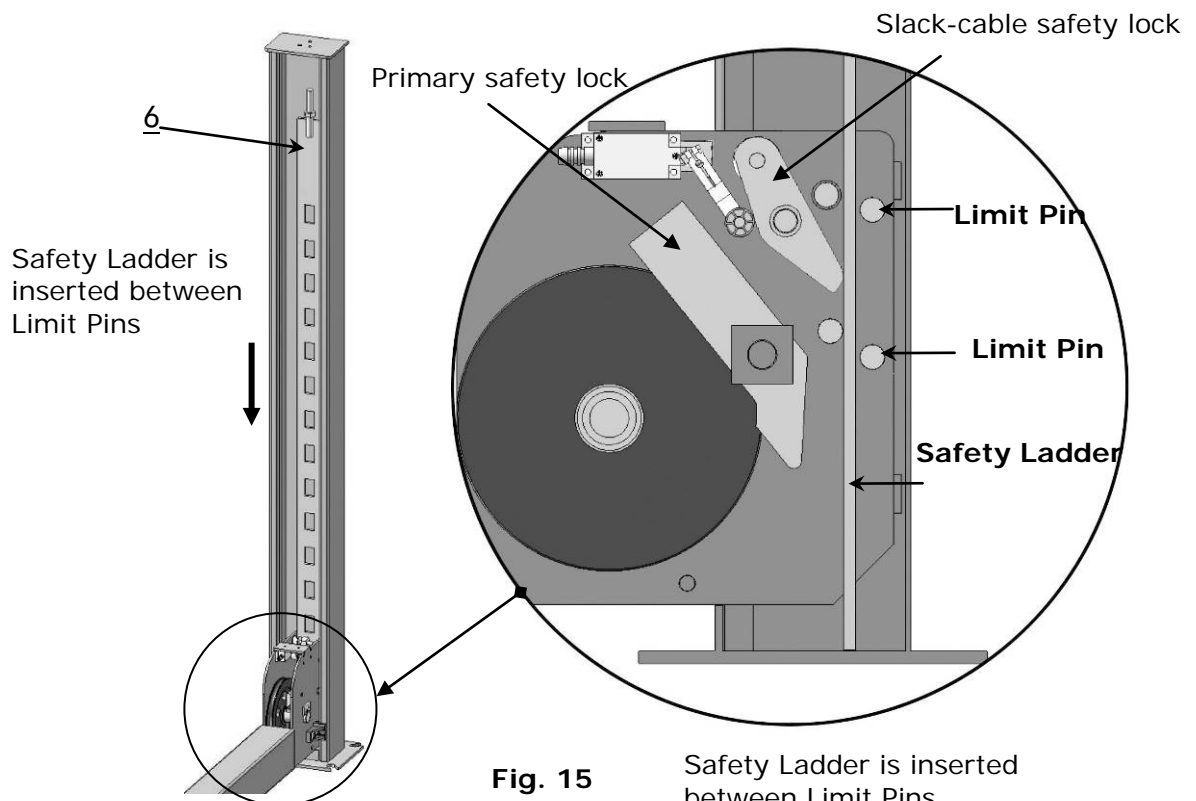
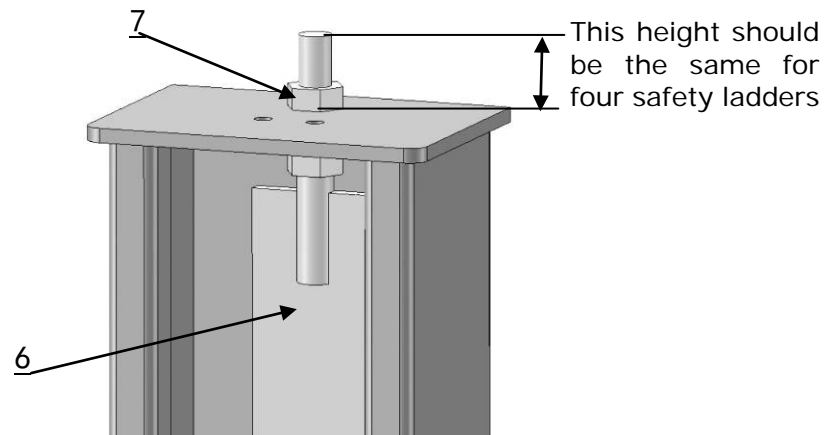


Fig. 15

2. Install Safety Ladders (See Fig. 16).



Safety ladder pass through the hole of the top plate, then tighten the two nuts.

Fig. 16

G. Put the Cross Beams at the same height (See Fig. 17).

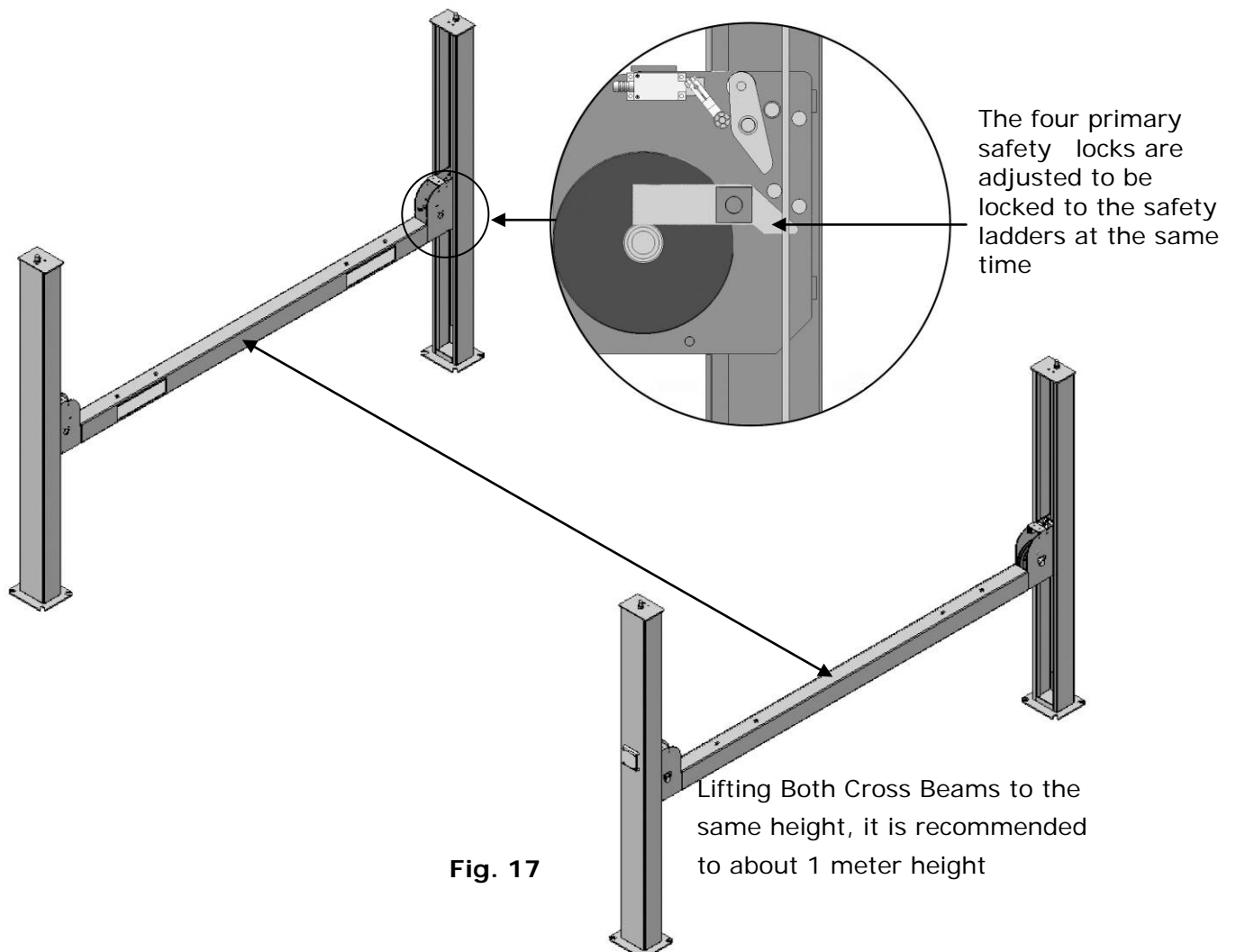
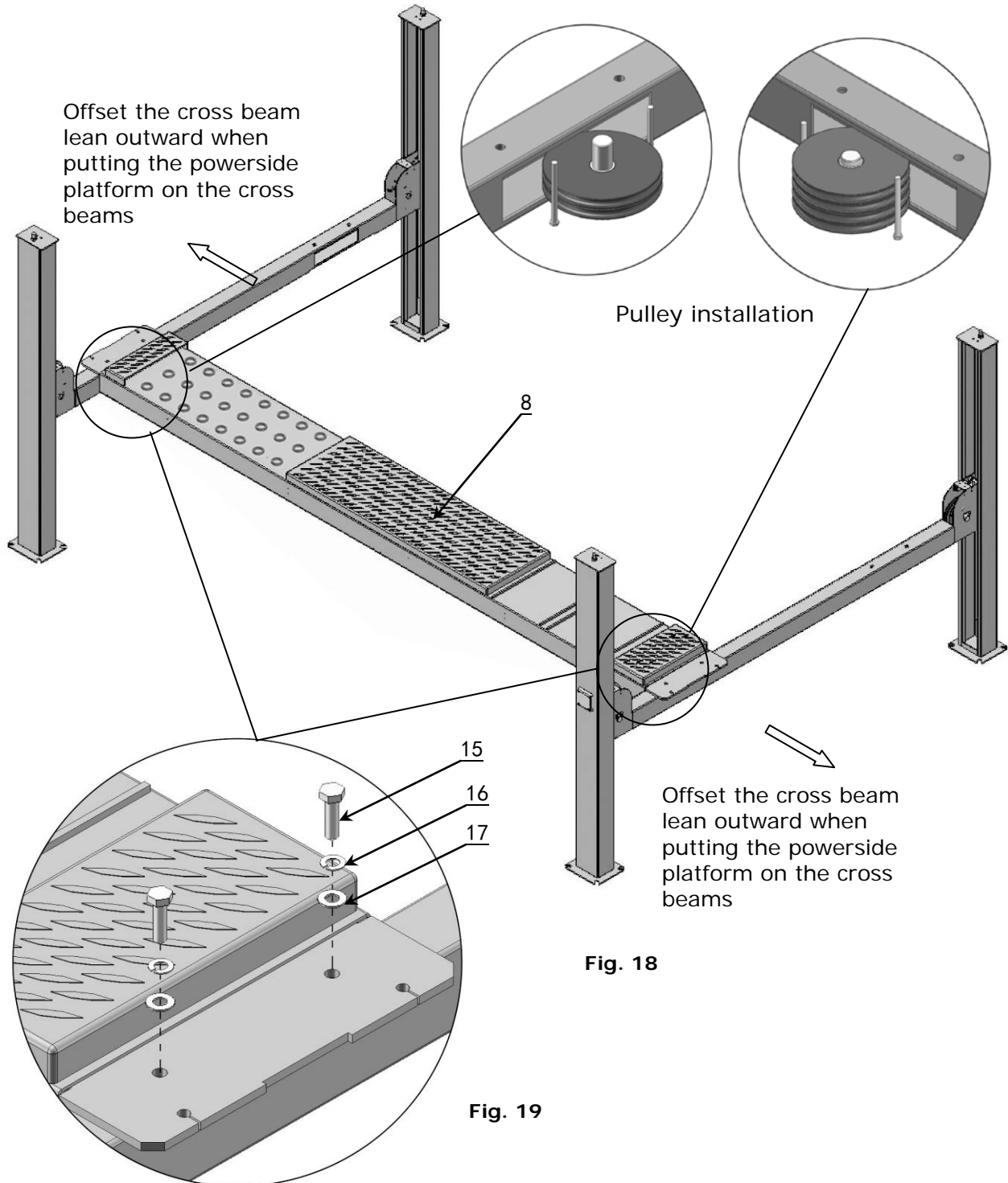


Fig. 17

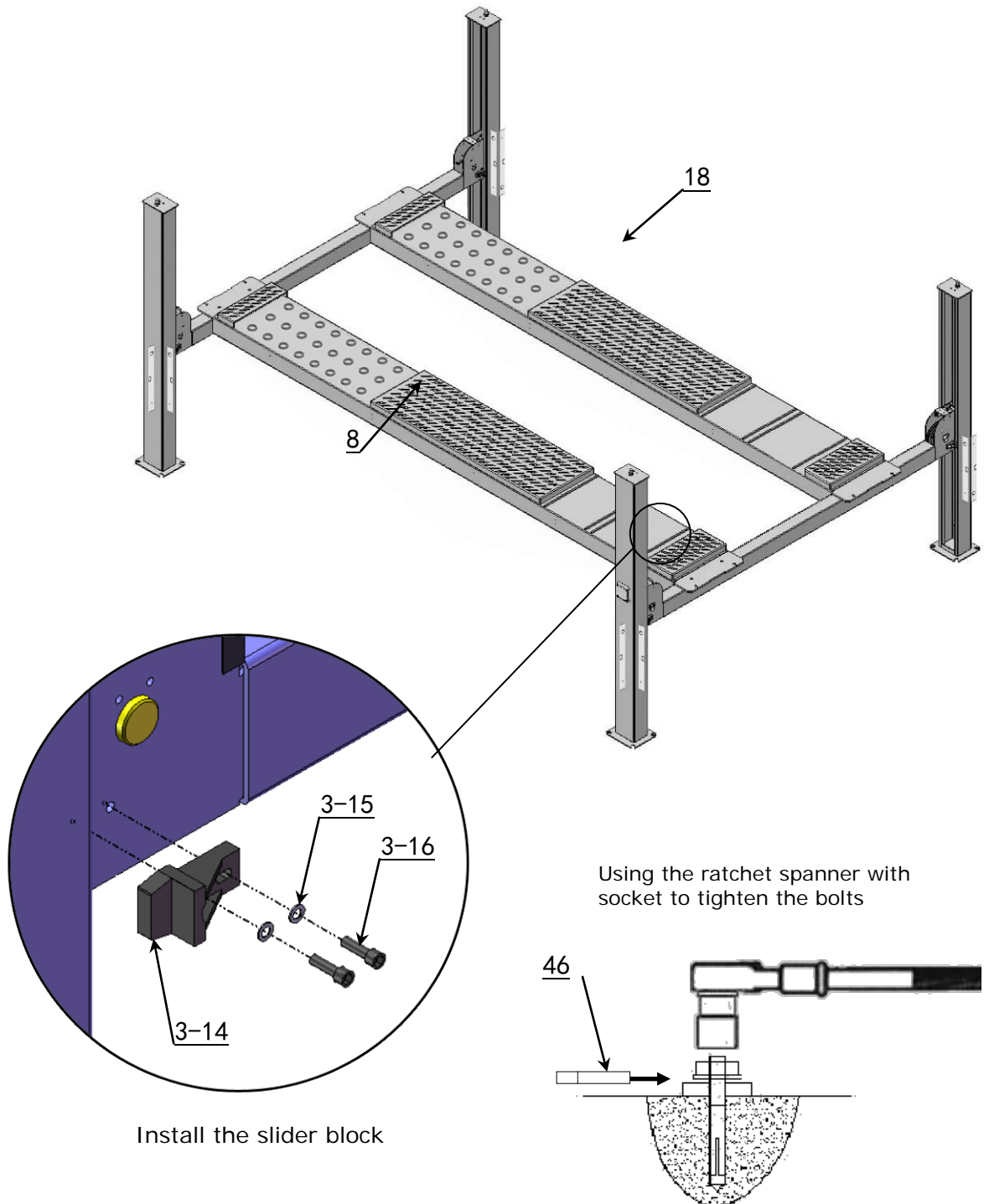
H. Install powerside platform.

1. Put the powerside platform upon the cross beams by fork lift or manual, offset the cross beams to the outside till the pulleys of both platforms can set up into the cross beam (See Fig.18), Install the powerside platform and screw up the bolts (See Fig.19).



Install the powerside platform and screw up the bolts

I. Assembly offside platform and slider block, check the plumbness of columns with level, adjusting with the shims if not, and then tighten the anchor bolts (See Fig. 20).



Note: The tightening torque for the anchor bolt is 150N.m

Fig. 20

J. Install cables (See Fig. 21).

1. Pass through the cables from the platform to the columns according to the number of the cables.

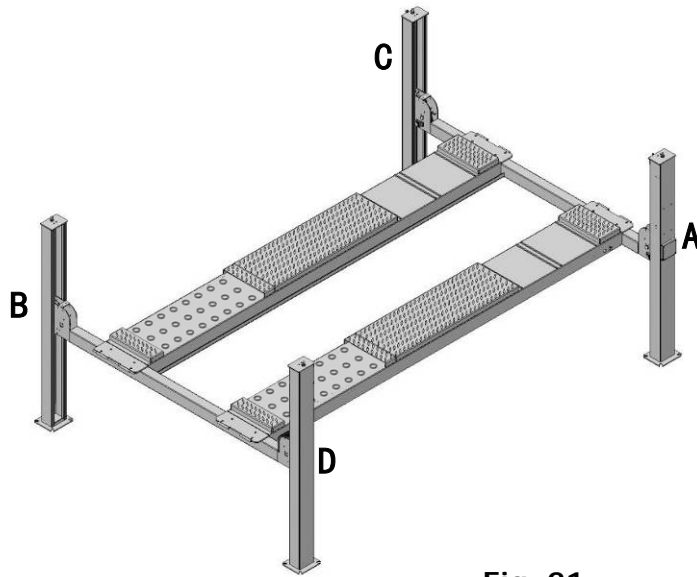
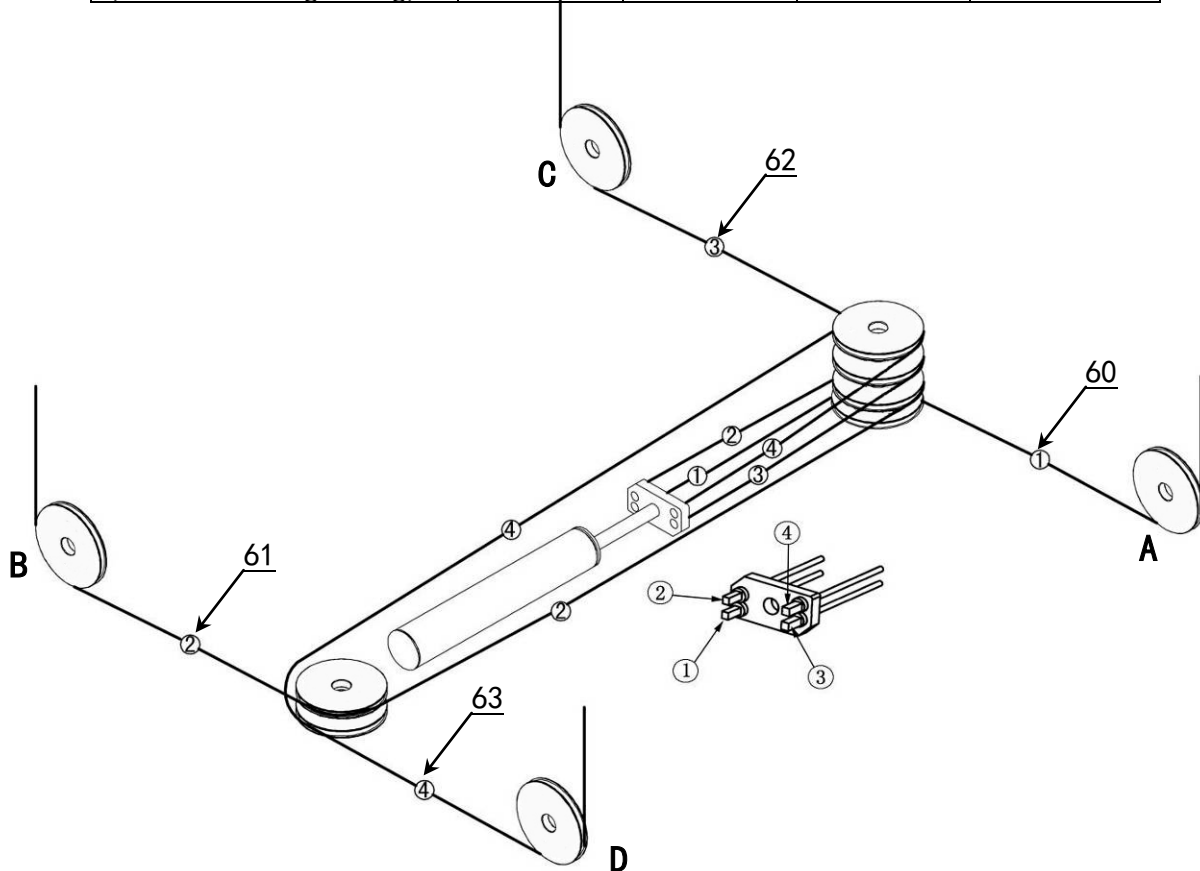


Fig. 21

Cable \ No.	①	②	③	④
Length (inc. connecting fitting)	4104mm 161 5/8"	11058mm 435 3/8"	5810mm 228 3/4"	9354mm 368 1/4"



2. The cable pass through the cross beam to top plate of columns and be screwed with cable nuts (See Fig. 22).

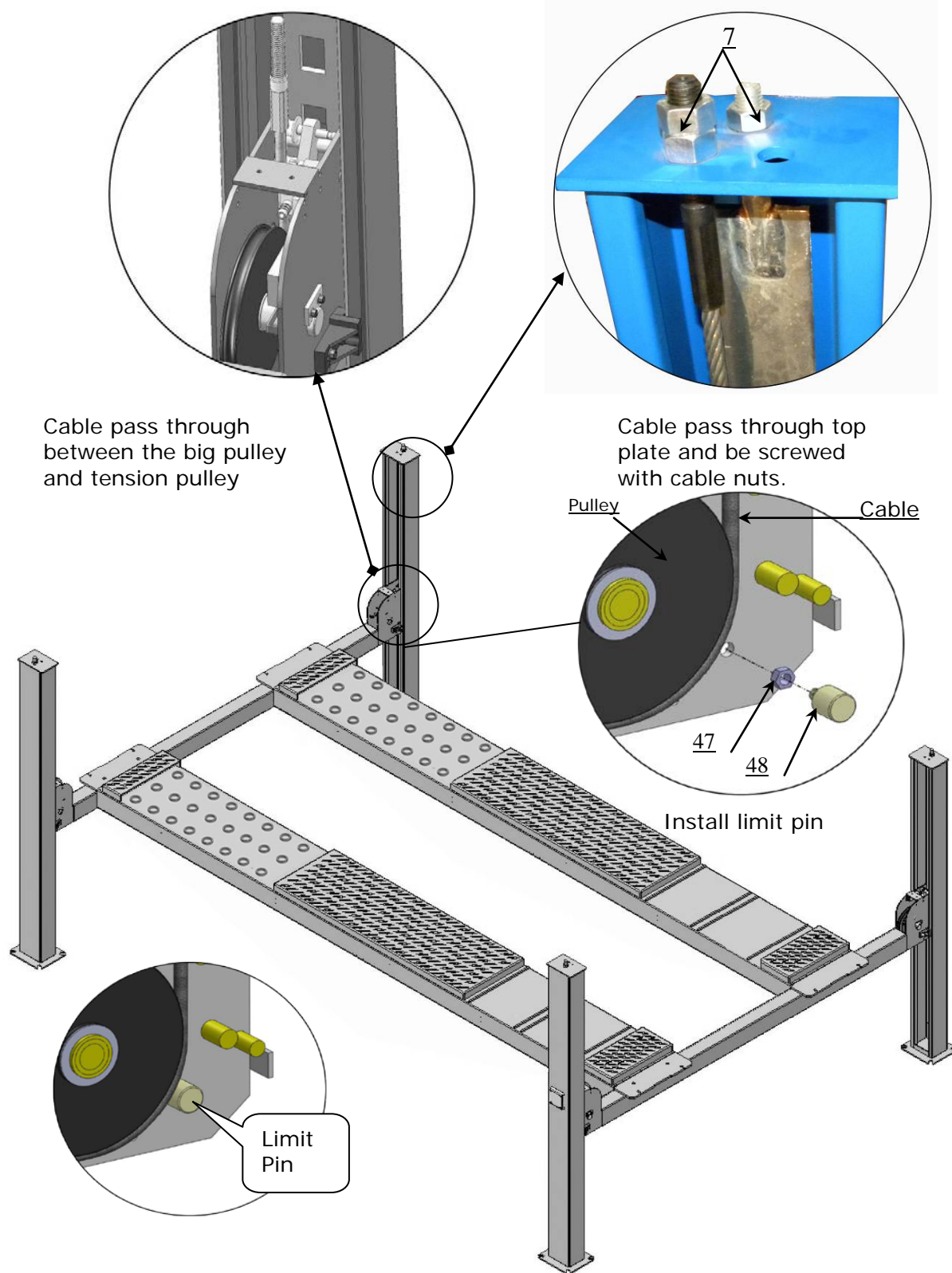


Fig. 22

3. Illustration for platform cables (See Fig. 23).

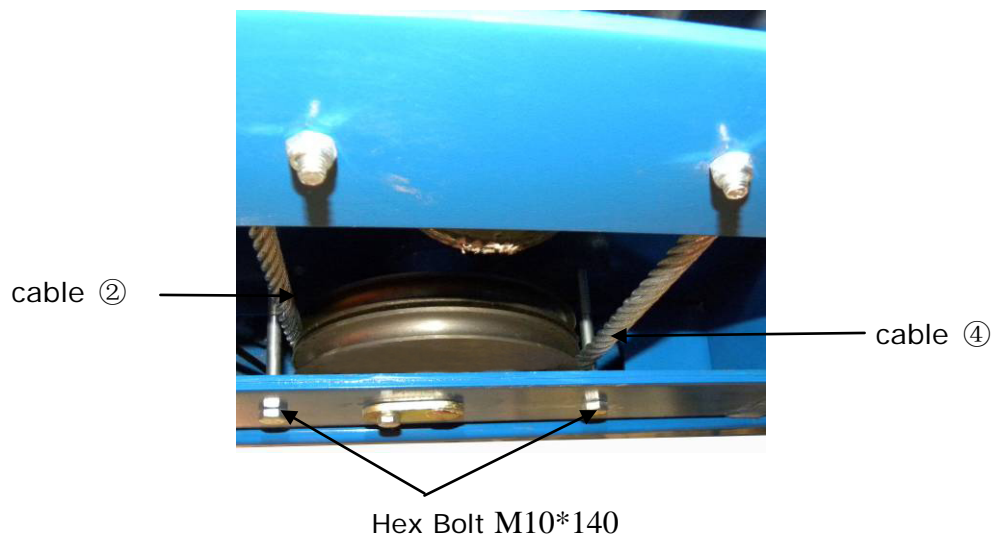
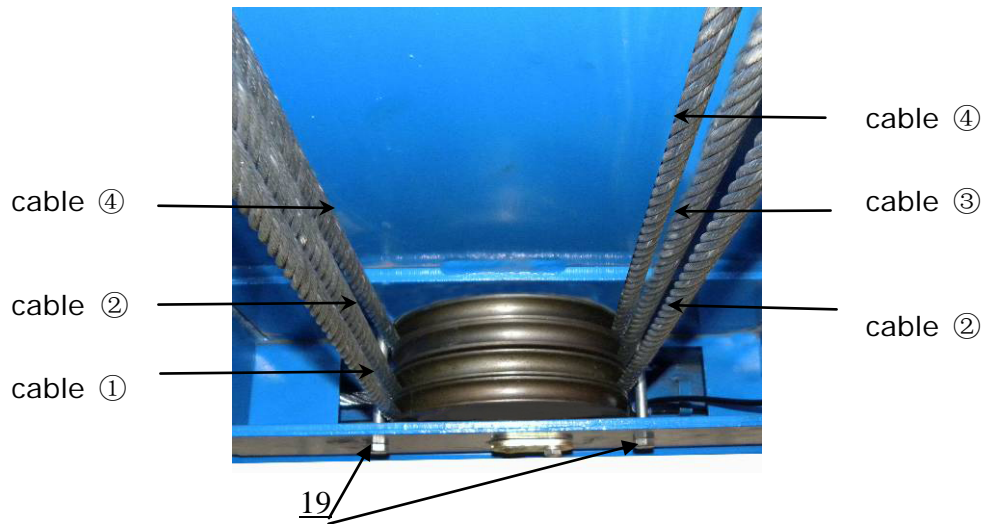
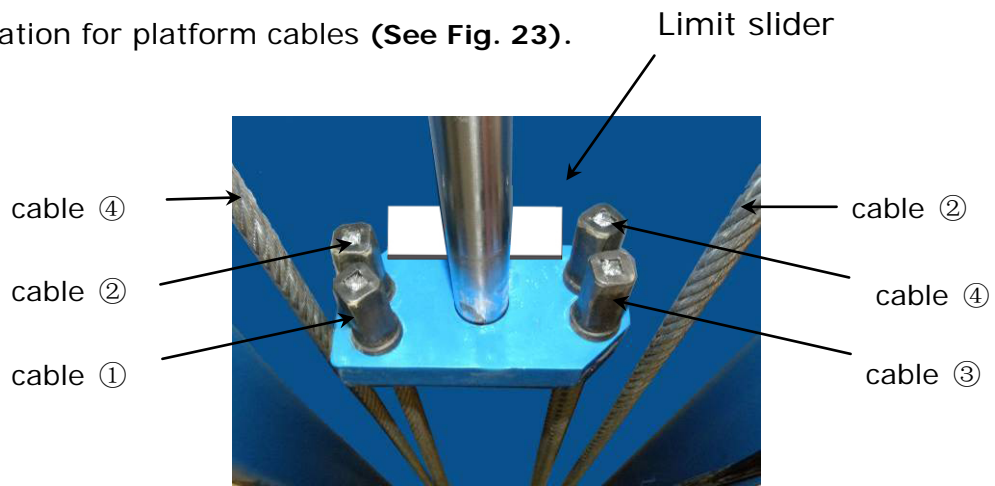


Fig. 23

K. Install Oil-water separator, Manual control air valve and Power unit
 (See Fig. 24).

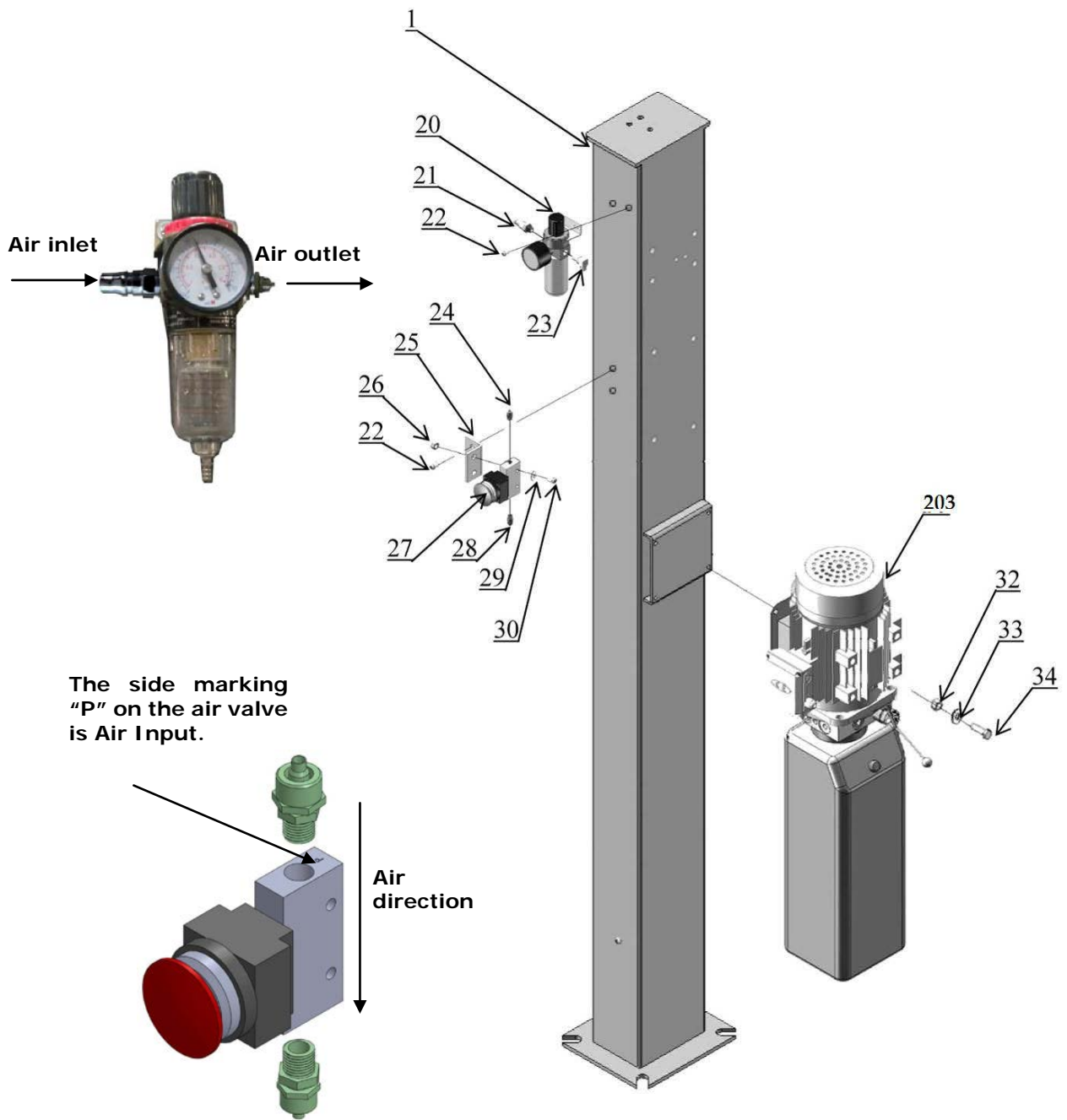


Fig. 24

L. Install Hydraulic System (See Fig. 25).

Note: Oil hoses connected to oil cylinder must be passed above the cable, cylinder inlet port must swing upward to avoid the oil hose and oil return pipe scratched by cable.

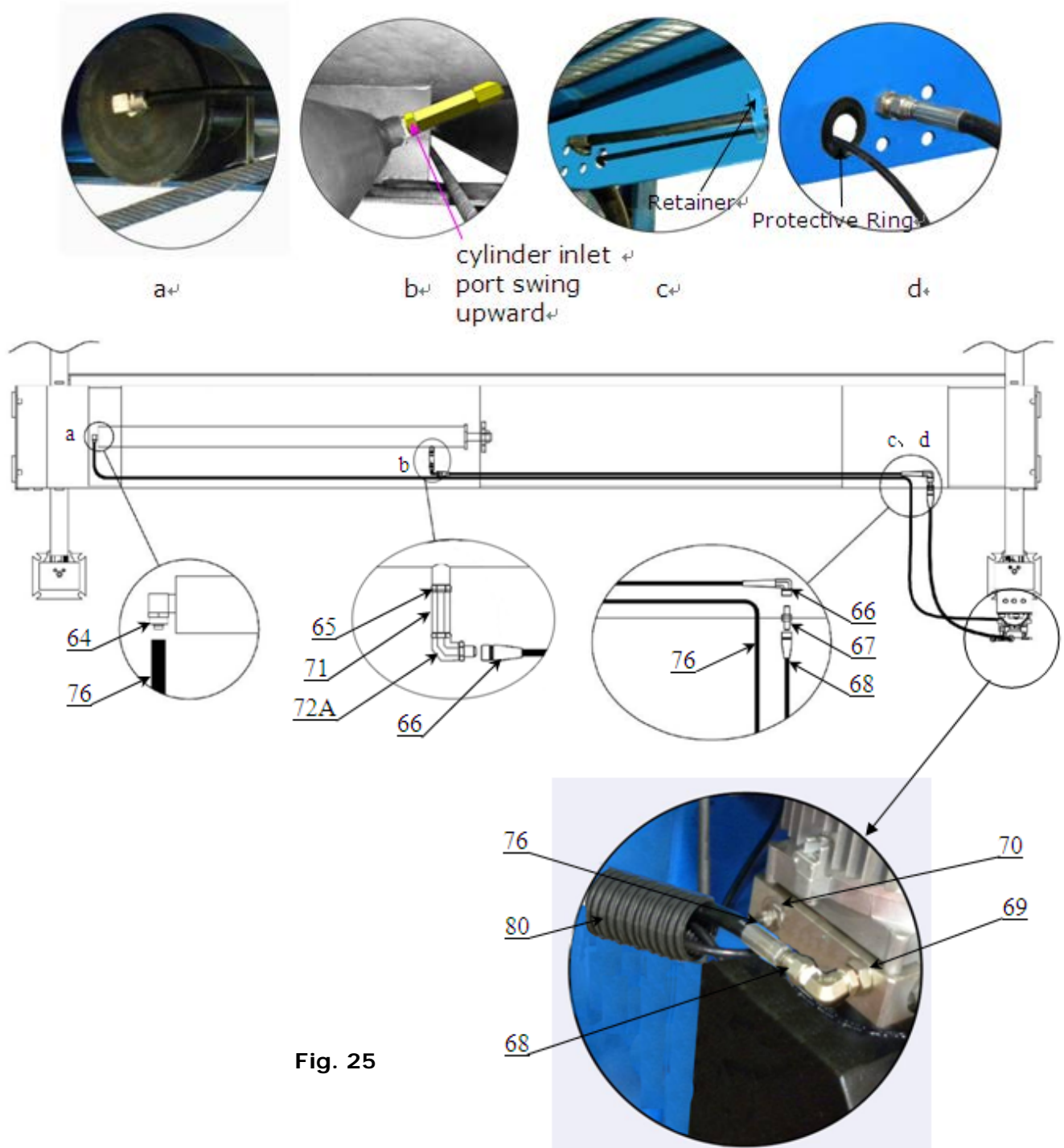


Fig. 25

M. Install air-line system

1. Shear the $\phi 6 \times \phi 4$ black air lines of cross beams between the two retainers, and then connect with T-Fitting (See Fig. 26).
2. Connecting front and rear cross beam air system by using $\phi 6 \times \phi 4$ black air line

(See Fig. 27).

3. Connecting manual control air valve by using $\phi 6 \times \phi 4$ black air line (See Fig. 27)

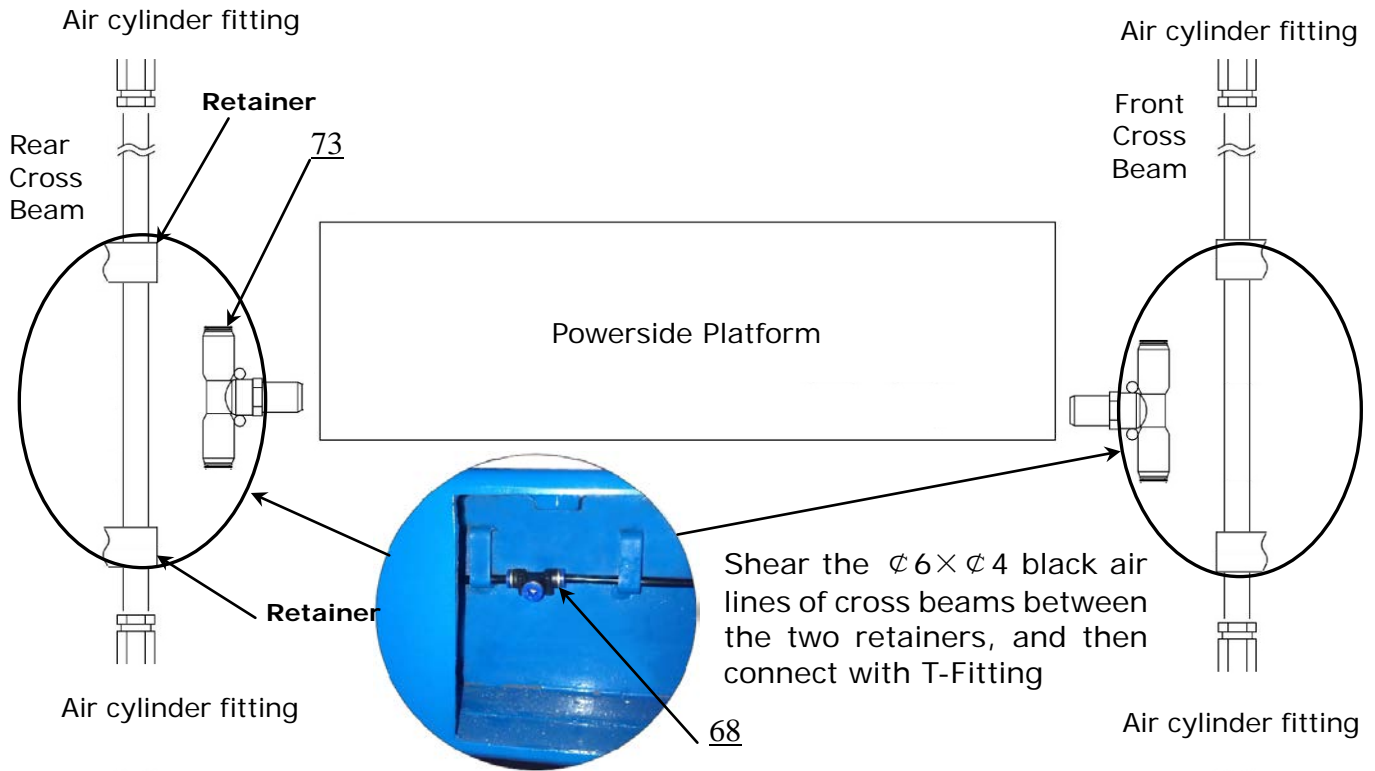


Fig. 26

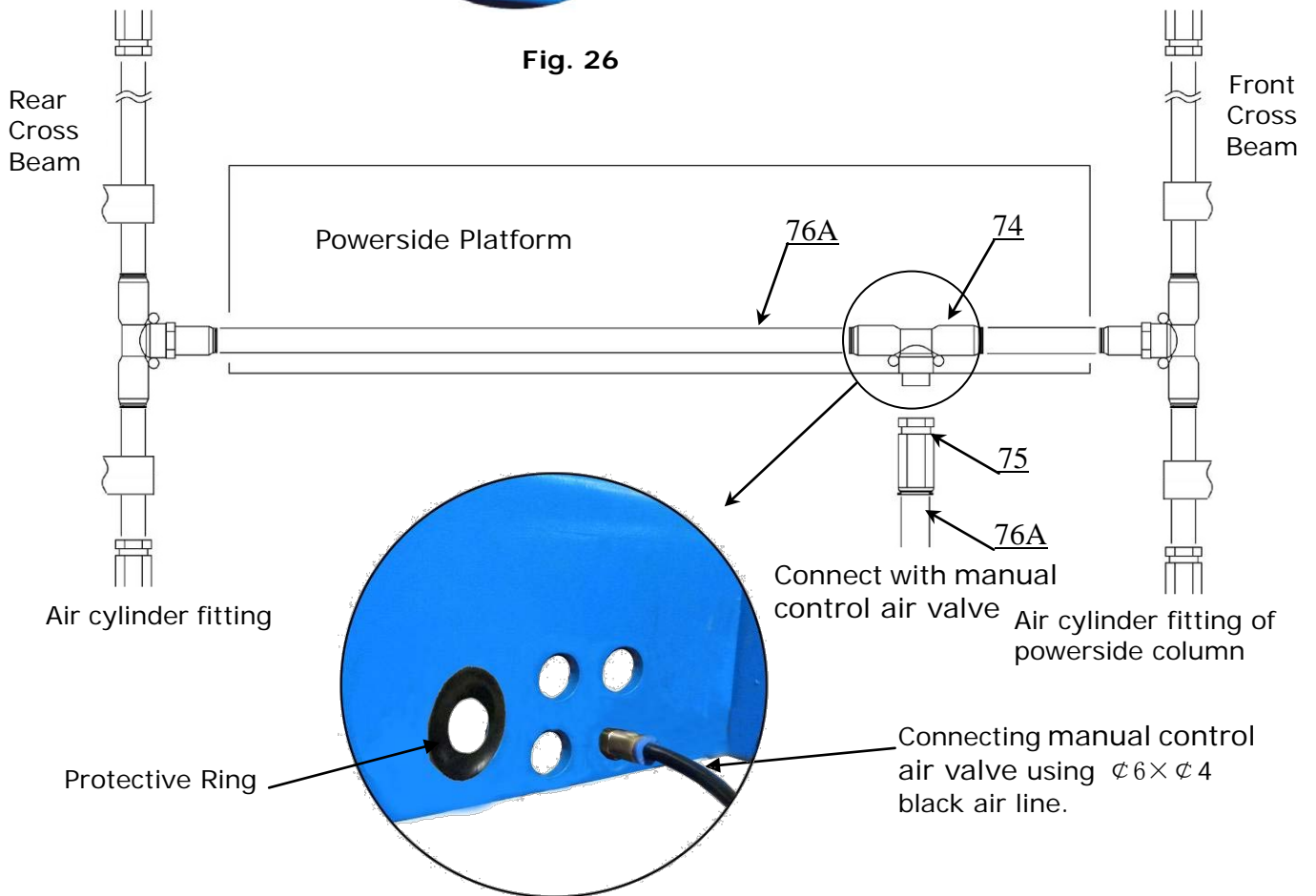


Fig. 27

4. Finish oil hose and air line connecting (See Fig. 28).

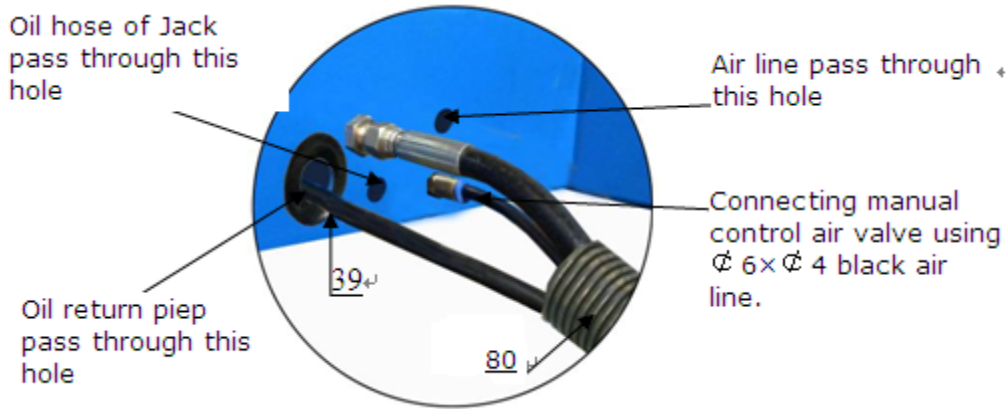


Fig. 28

5. Install oil-water separator and manual control air valve.

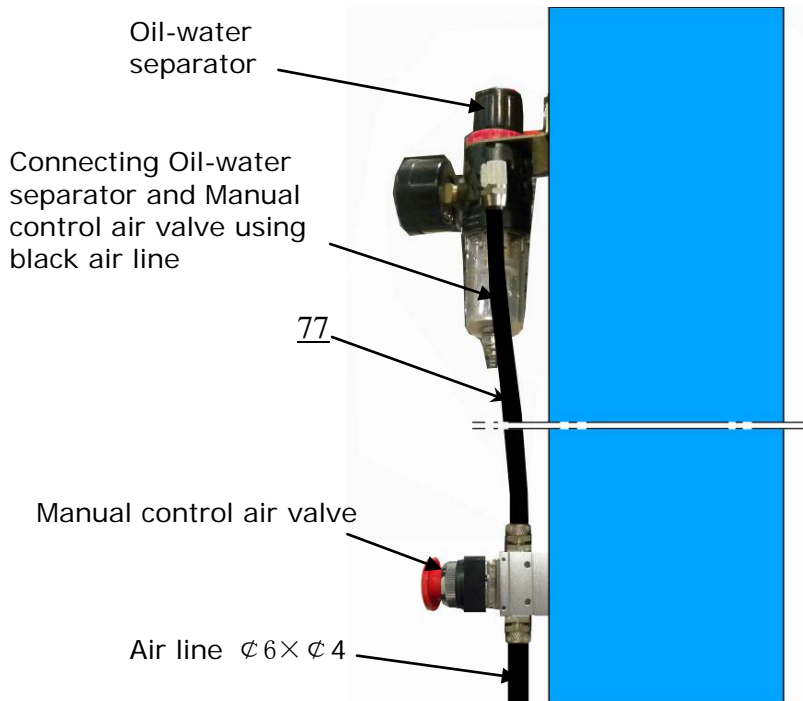


Fig. 29

5. Connecting air inlet (Air supply pressure $5\text{kg}/\text{cm}^2 - 8\text{kg}/\text{cm}^2$), adjusting the air pressure of Oil-water separator to $0.4 - 0.6\text{MPa}$ (See Fig. 30).

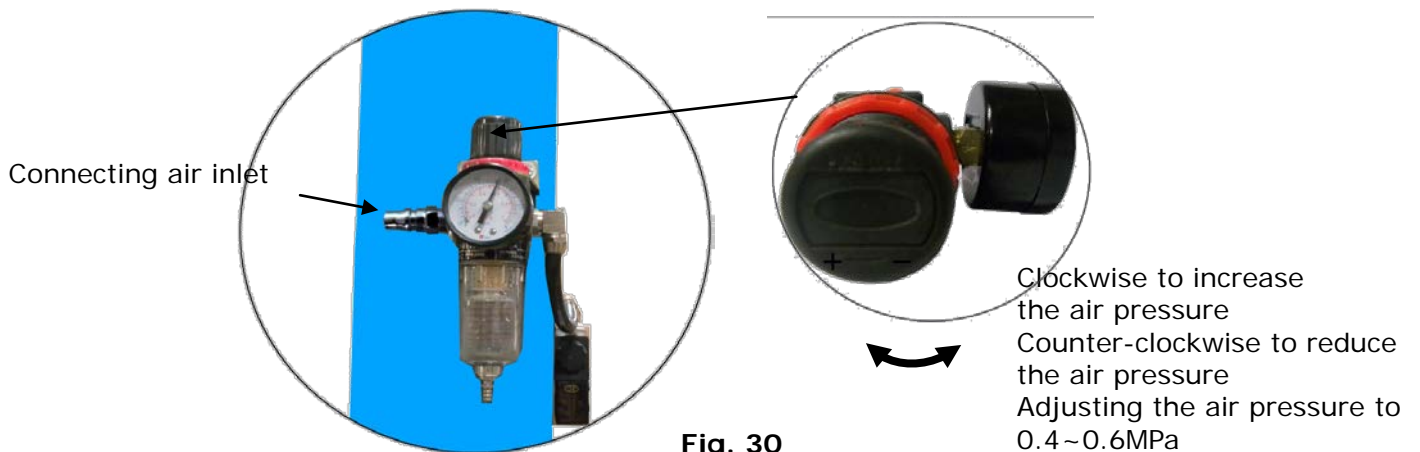


Fig. 30

N. Install limit switch

1. Adjust the angle of drive shaft of limit switch on the powerside column (See Fig. 31).

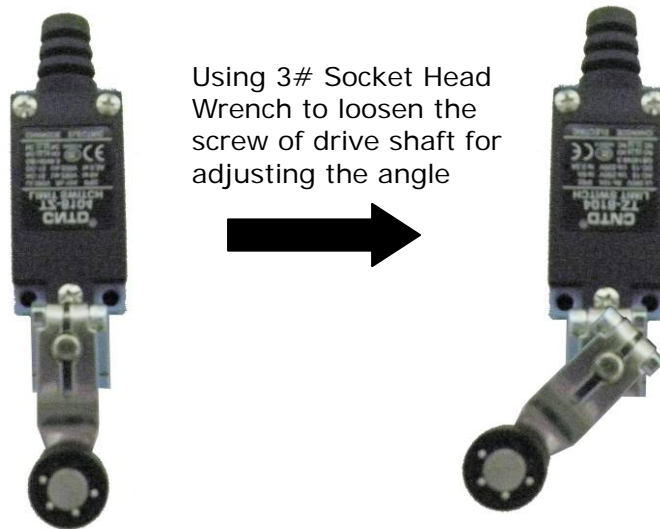


Fig. 31

2. Connecting the limit switch and cable wire (See Fig. 32).

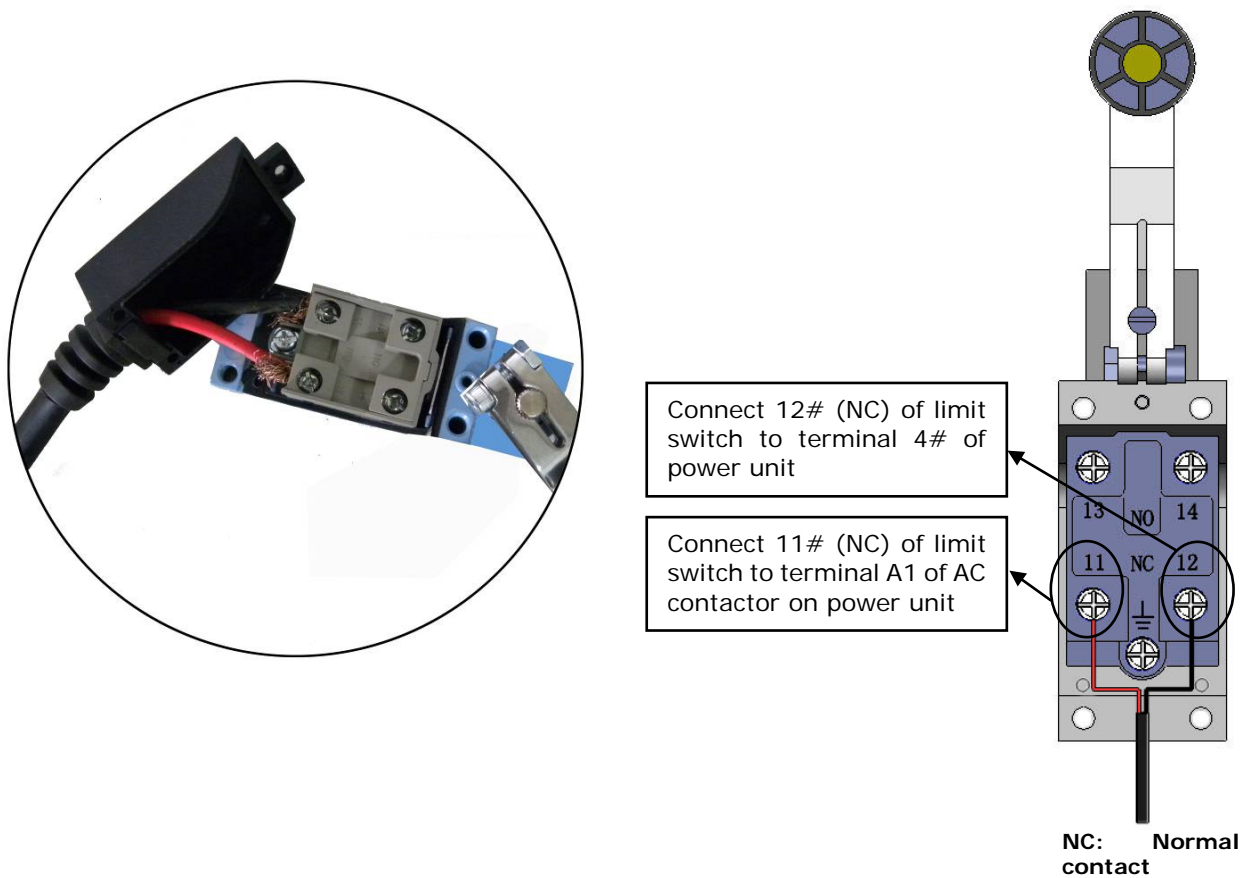


Fig. 32

3. Install limit switch (See Fig. 33).

4. To introduce the wire of limit switch into the protecting plastic hose then connect to Air solenoid valve (See Fig. 34).

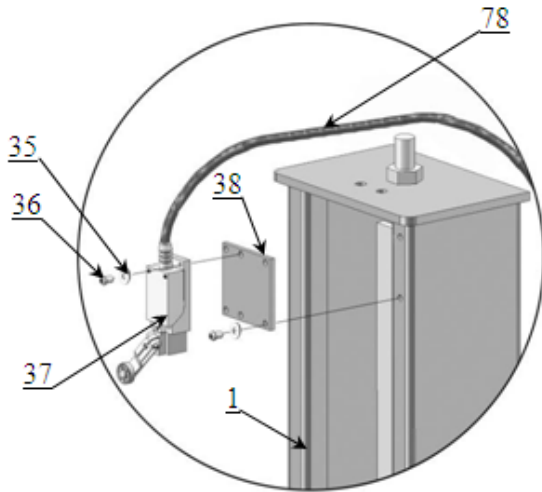


Fig. 33



Fig. 34

O. Install Electrical System

Connect the power source on the data plate of Motor.

Note: 1. For the safety of operators, the power wiring must contact the floor well.

2. Pay attention to the direction of rotations when using 380V, three phase motors.

PEAK Single phase motor (See Fig. 35).

1. Connecting the two power supply lines (fire wire **L** and zero wire **N**) to terminals of AC contactor marked **L1, L2** respectively.
2. Connecting the two motor wires to terminals of AC contactor marked **T1, T2**.
3. Connecting **A2** to **L2** of AC contactor.
4. Connect the Limit Switch: Remove the line of Connecting Terminal **4#** of control button and **A1** of AC contactor firstly (See Fig. 35), then connect wire **12#** of Limit Switch with Terminal **4#** of control button and connect wire **11#** with terminals **A1** of AC contactor respectively (See Fig. 36).

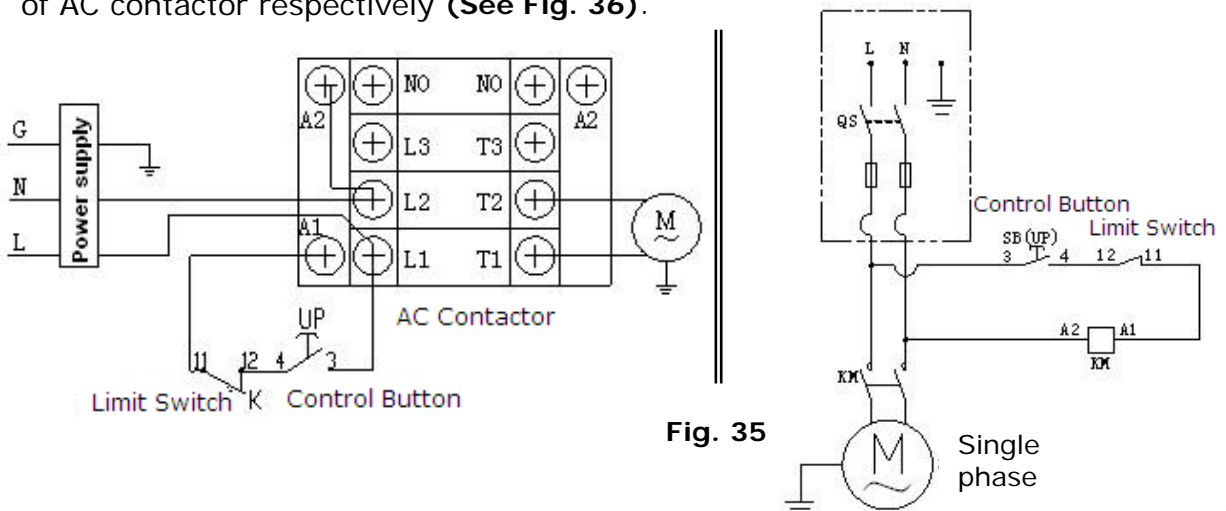
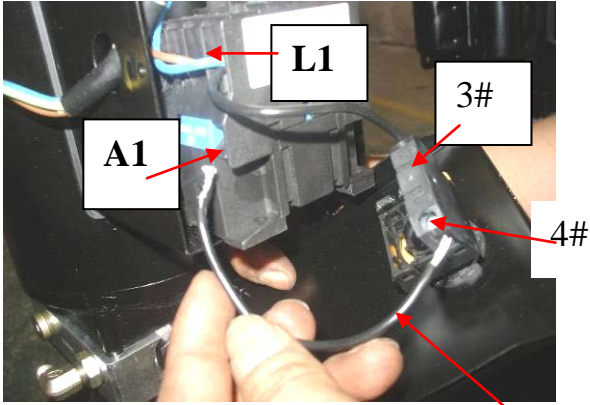


Fig. 35



Remove this line before connecting the Limit Switch

Fig. 36

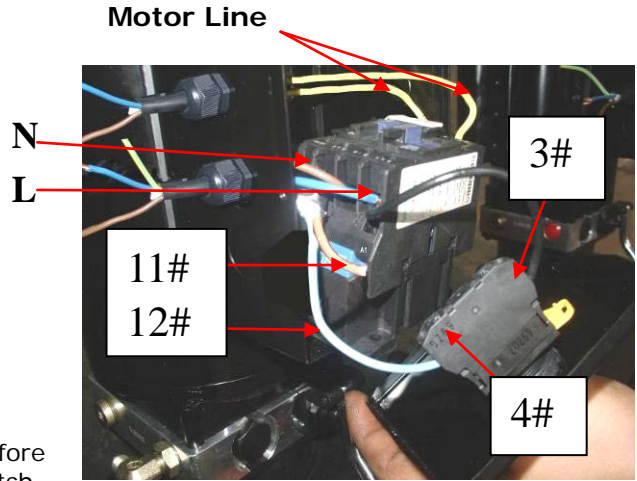


Fig. 37

SPX single phase motor (See Fig. 38)

1. Power supply line (zero wire **N**) connected with wire **5#** of motor.
2. Wire **11#** of limit switch connected with wire **6#** of motor.
3. Wire **12#** of limit switch connected with wire **4#** of control button.
4. Power supply line (fire wire **L**) connected with wire **3#** of control button.

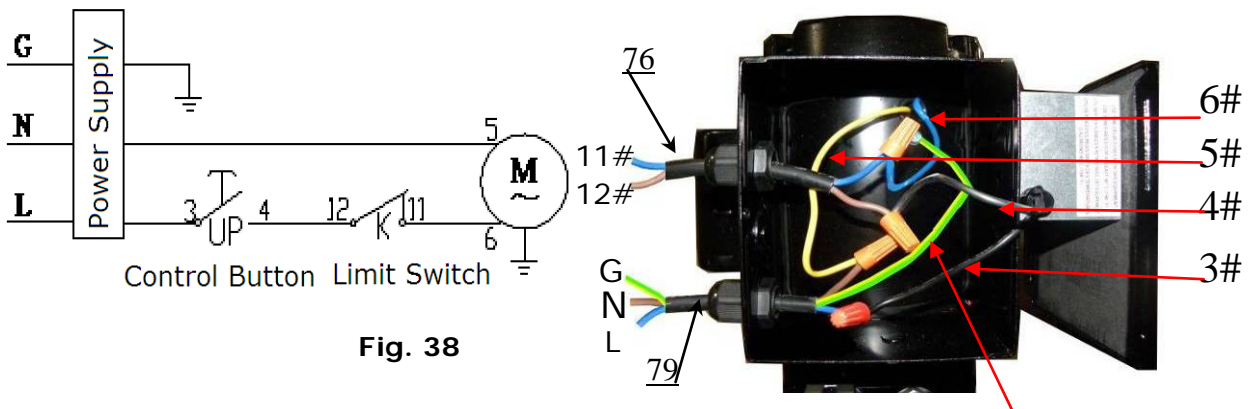


Fig. 38

Three phase motor

1. Circuit Diagram (See Fig. 39).

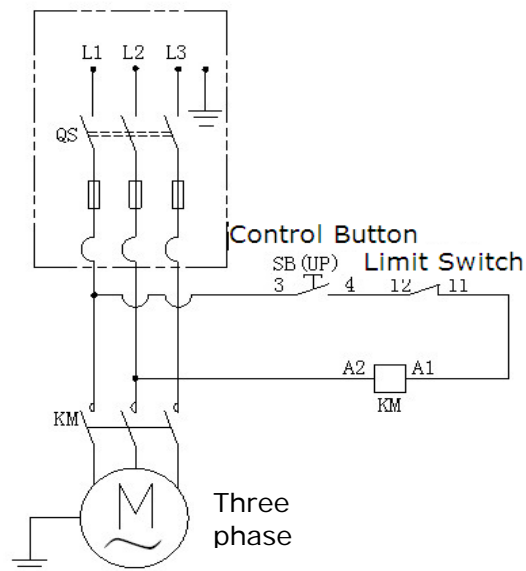


Fig. 39

2. Connection step (See Fig. 40)

- a. The source wires (**L1, L2, L3**) connected with terminals of AC contactor marked **L1, L2, L3** respectively.
- b. Terminals **4#** of control button connected with wire **12#** of limit switch; wire **11#** connected with **A1** terminals of AC contactor.
- c. Terminals **3#** of control button connected with **L1** terminals of AC contactor.

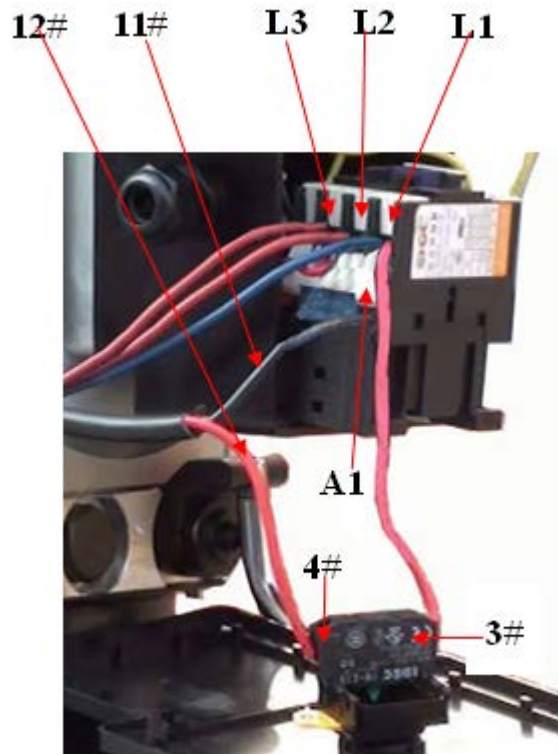
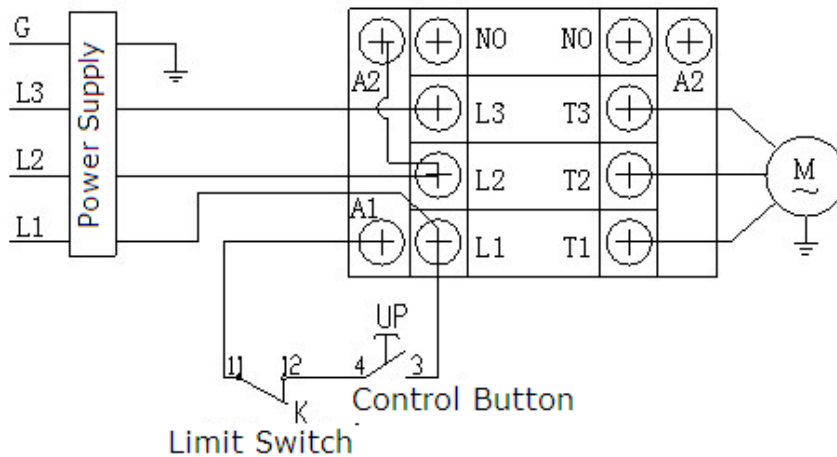


Fig. 40

P. Install Spring and Safety Cover of Cross Beam (See Fig. 41).

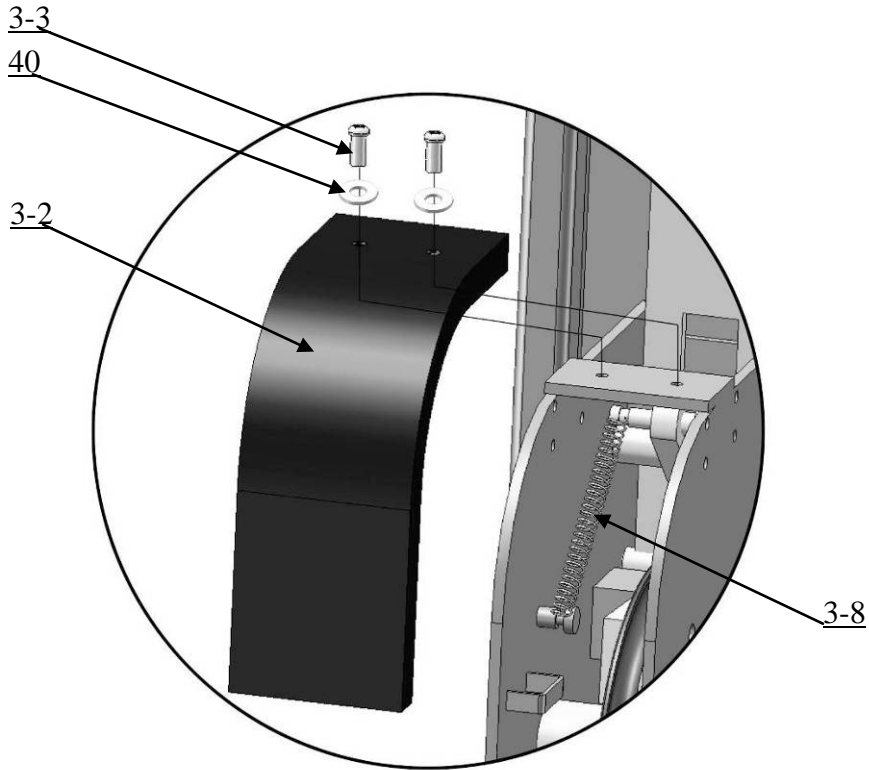
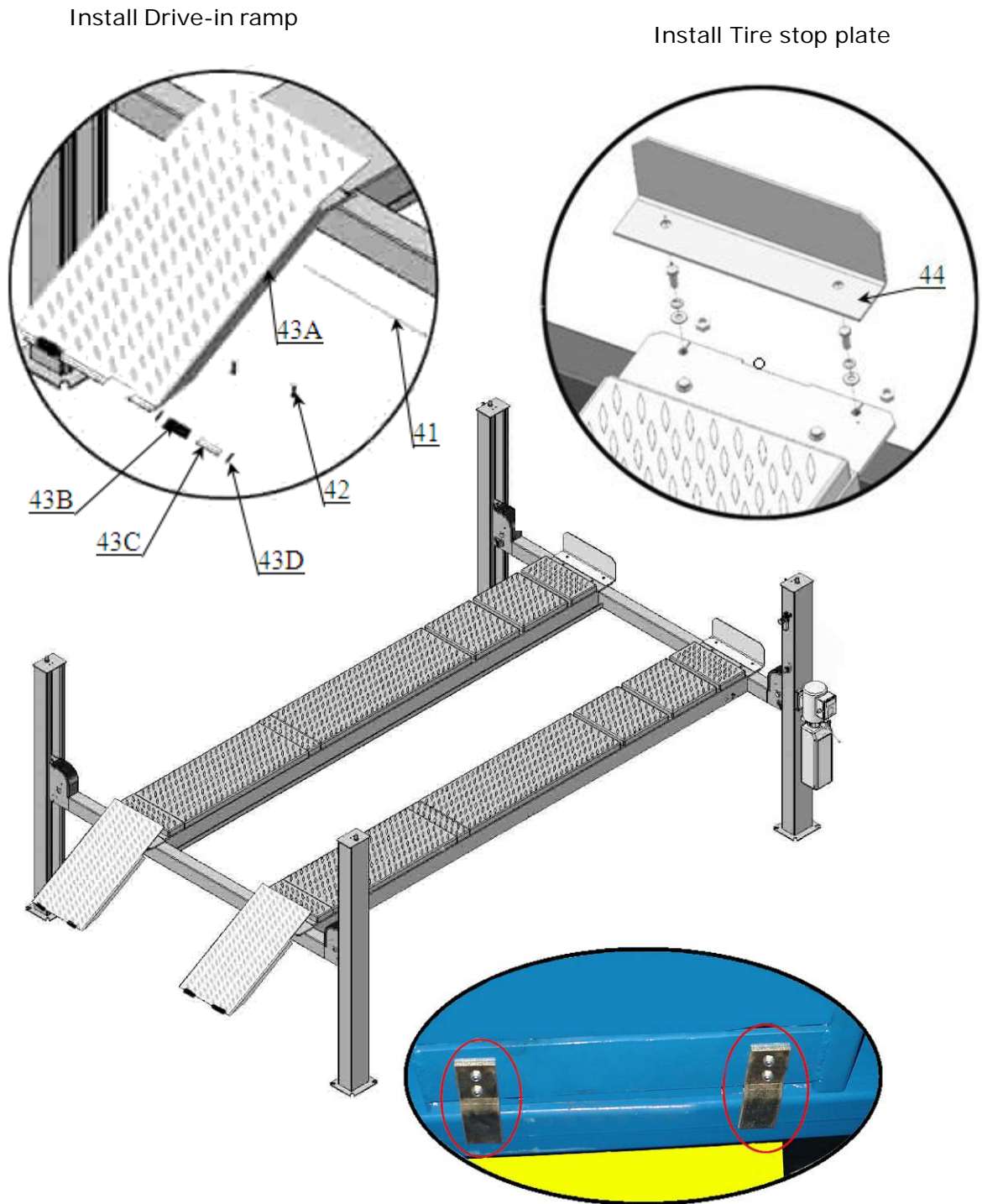


Fig. 41

Q. Install Drive-in ramp, Tire stop plate, Platform locking plates, Steel ball set
(See Fig. 42).



The locking plates are used to prevent the turning & slipping of offside platform, Using Hex bolt M8×20 for the connection.

Fig. 42

IV. EXPLODED VIEW

Model SL-412A

Optional turnplate

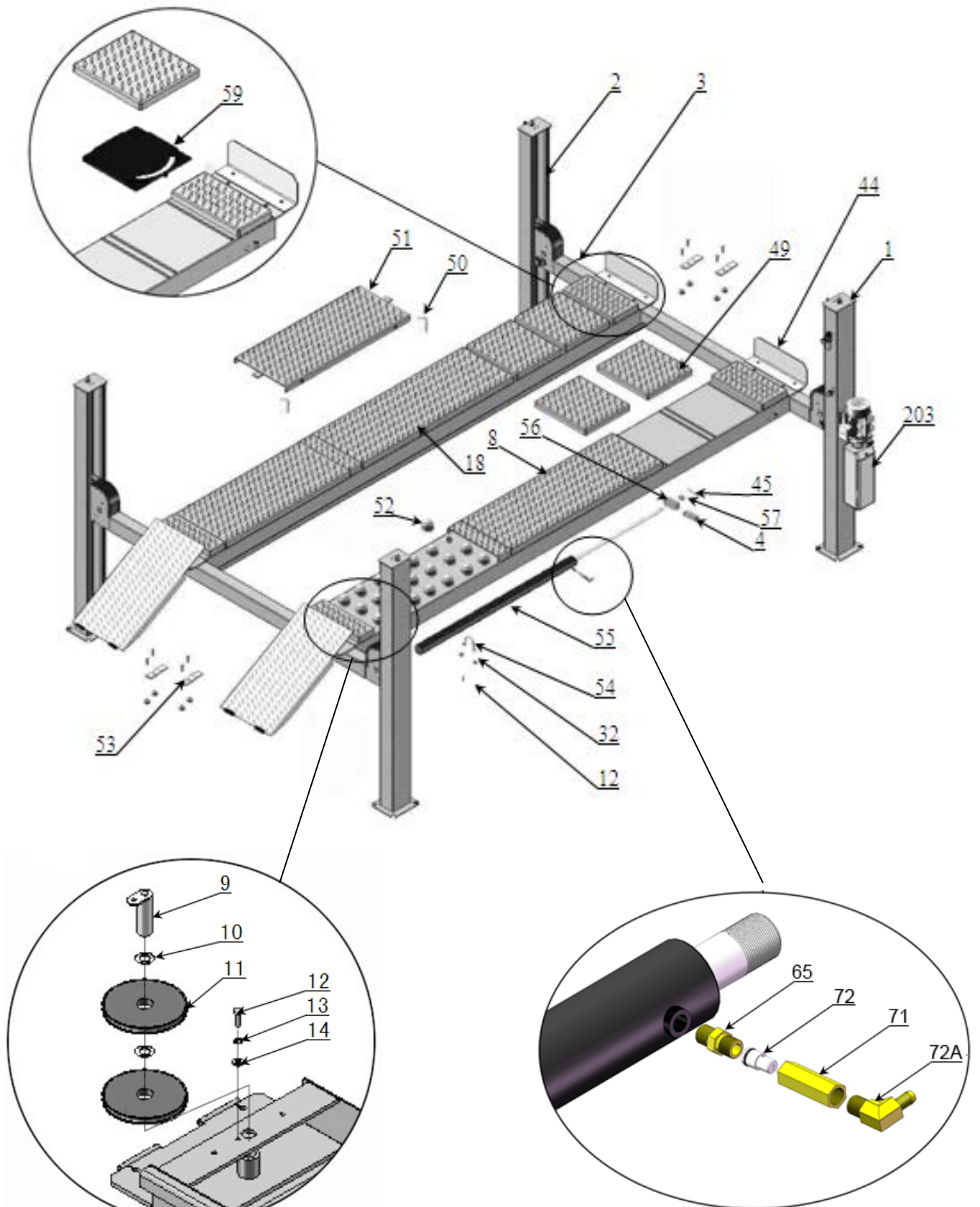


Fig. 43

CROSS BEAM

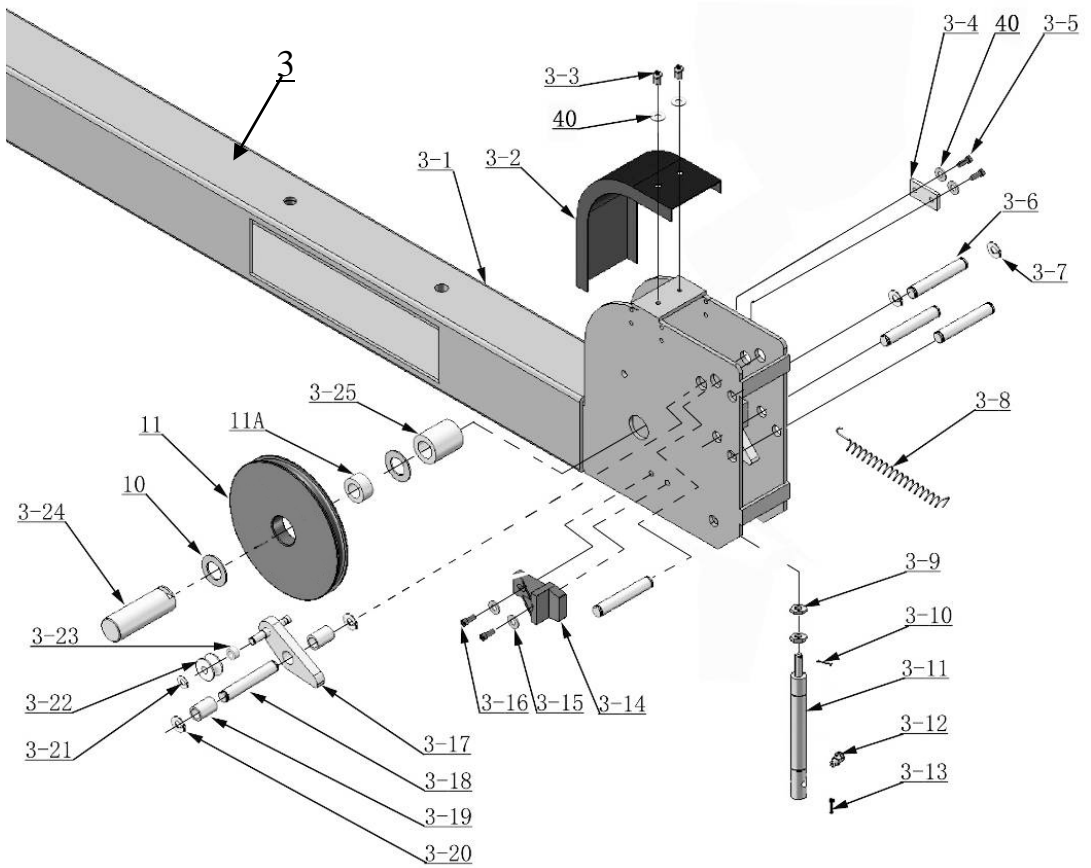


Fig. 44

CYLINDERS

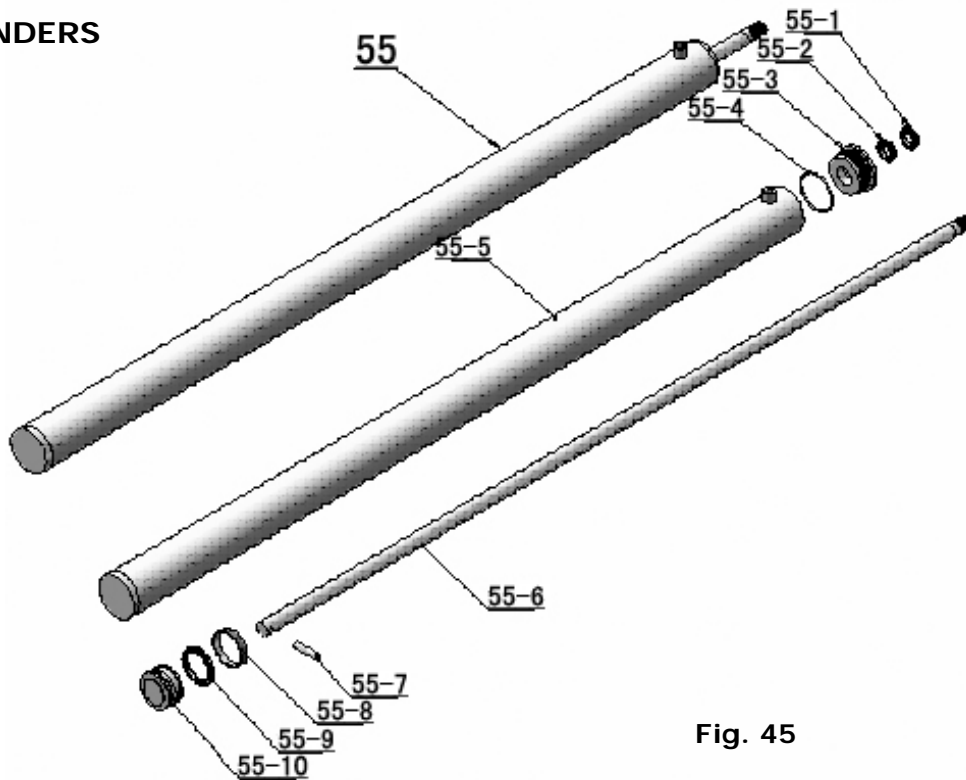


Fig. 45

MANUAL POWER UNIT

220V/60HZ/1 phase

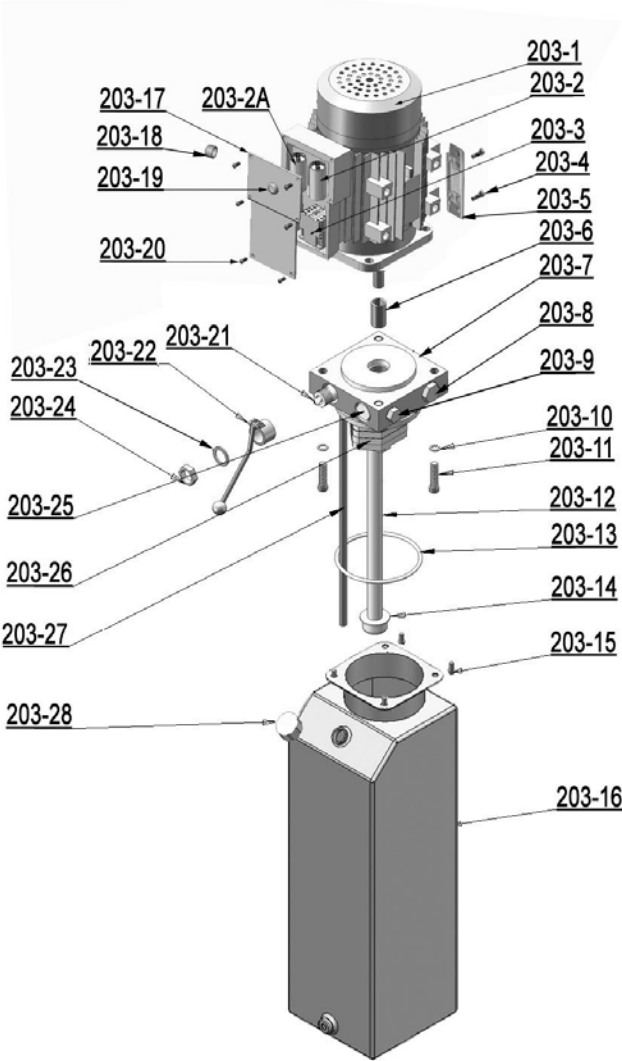


Fig. 46

Illustration of hydraulic valve for power unit

a. Manual power unit, 220V/60HZ, Single phase (See Fig. 47)

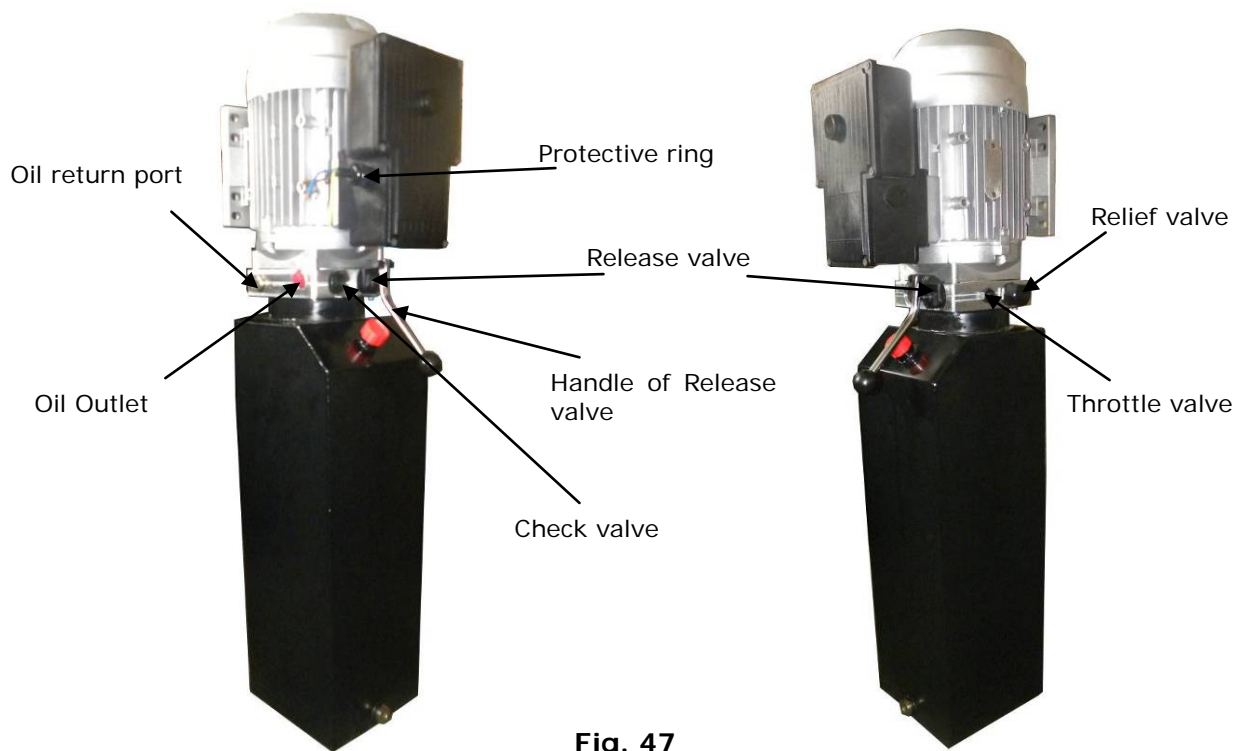


Fig. 47

V. TEST RUN

1. Fill the reservoir with approximately 14L Hydraulic Oil (**Note:** In consideration of Power Unit's durability, please use **Hydraulic Oil 46#**).
2. Press the push button , the Cables will be strained. Check whether the Cables match the Pulley. Make sure the Cables are not across.
3. Press the Handle of release valve to lock the Cross-beam to the safety ladders, and then adjust the platforms to be level by adjusting the nuts of Safety Ladders.
4. Adjust the cable fitting Hex nuts to make platforms and four safety locks work synchronously. You need to run the lift up and down for several times, meanwhile do the synchronous adjustment till the four Safety Devices can lock and release at the same time.
5. Adjust the clearance between the post and the plastic slider of Cross-beam to about 2mm, and then tighten the fixing nut of slider.
6. After finishing the above adjustment, test running the lift with load. Run the lift with Platforms in low position first, make sure the Platforms can rise and lower synchronously and the Safety Device can lock and release synchronously. And then test run the lift to the top completely. If there are anything improper, repeat the above adjustment.

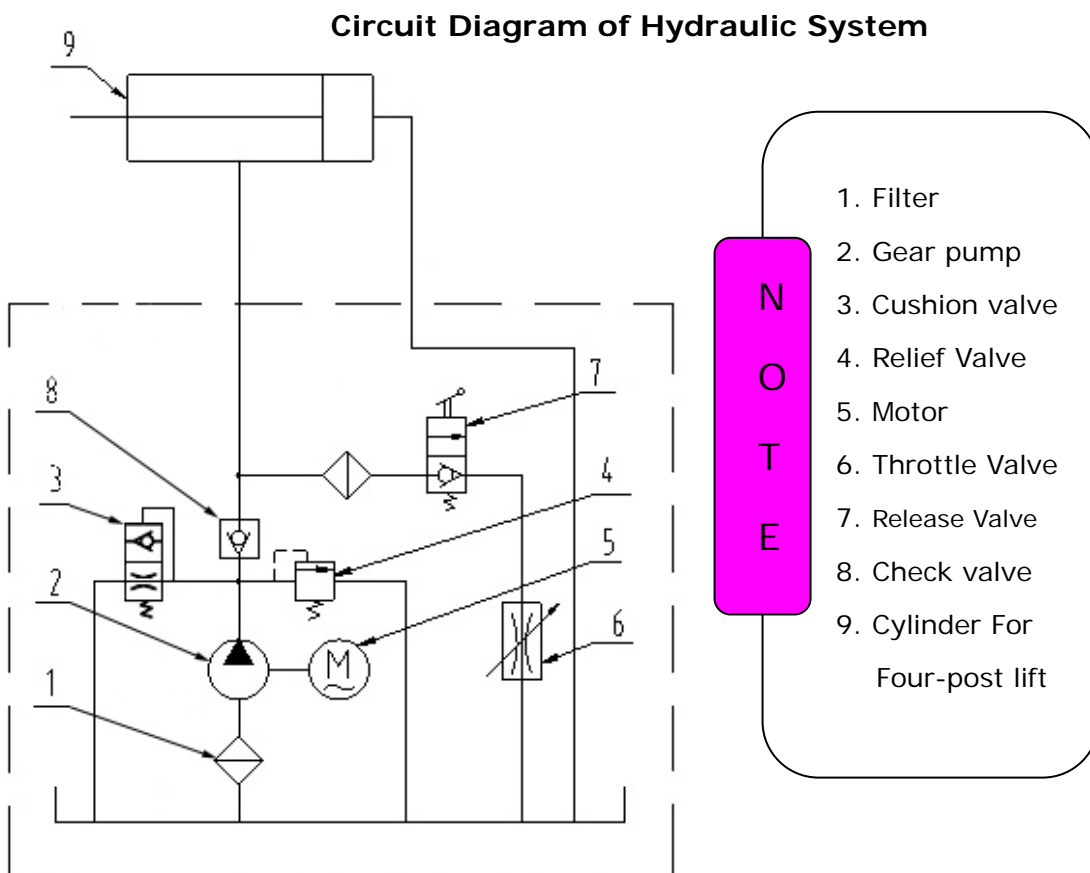


Fig. 48

VI. OPERATION INSTRUCTIONS

To lift vehicle

1. Keep clean of environment near the lift;
2. Drive vehicle to the Platform and put on the brake;
3. Turn on the power and press the push button, raise the lift to the working position;
Note: make sure the vehicle is steady when the lift is raised.
4. Press the Handle of release valve to lock the lift in the safety position. Make sure the Safety device is locked at the same height.

To lower vehicle

1. Be sure the clearance of around and under the lift, only leaving operator in lift area;
2. Press the push button , the lift will be raised for 3-5 seconds, and then press the button of Manual-controlled air valve by hand to make sure the safety device released, press the handle of release valve by the other hand then the lift starts being lowered automatically;
3. Drive away the vehicle when the lift is lowered to the lowest position.
4. Turn off the power.

VII. MAINTENANCE SCHEDULE

Monthly:

1. Re-torque the anchor bolts to 150 Nm;
2. Lubricate cable with lubricant;
3. Check all cable connection, bolts and pins to insure proper mounting;
4. Make a visual inspection of all hydraulic hoses/lines for possible wear or leakage;
5. Lubricate all Rollers, Safety devices with 90wt. gear oil or equivalent.

Note: All anchor bolts should take full torque. If any of the bolts does not function for any reason, DO NOT use the lift until the bolt has been replaced.

Every six months:

1. Make a visual inspection of all moving parts for possible wear, interference or damage.
2. Check and adjust as necessary, equalizer tension to insure level lifting.
3. Check columns for plumbness.

VIII. TROUBLE SHOOTING

TROUBLE	CAUSE	REMEDY
Motor does not run	<ol style="list-style-type: none"> 1. Button does not work 2. Wiring connections are not in good condition 3. Motor burned out 4. AC contactor burned out 5. Height limit switch is damaged 	<ol style="list-style-type: none"> 1. Replace button 2. Repair all wiring connections 3. Repair or replace motor 4. Replace AC contactor 5. Replace
Motor runs but the lift is not raised	<ol style="list-style-type: none"> 1. Motor runs in reverse rotation 2. Release valve in damage 3. Gear pump in damage 4. Relief valve or check valve in damage 5. Low oil level 	<ol style="list-style-type: none"> 1. Reverse two power wire 2. Repair or replace 3. Repair or replace 4. Repair or replace 5. Fill tank
Lift does not stay up	<ol style="list-style-type: none"> 1. Release valve out of work 2. Relief valve or check valve leakage. 3. Cylinder or fittings leaks 	Repair or replace
Lift raises too slow	<ol style="list-style-type: none"> 1. Oil line is jammed 2. Motor running on low voltage 3. Oil mixed with Air 4. Pump leaks 5. Overload lifting 	<ol style="list-style-type: none"> 1. Clean the oil line 2. Check electrical system 3. Fill tank 4. Replace Pump 5. Check load
Lift cannot lower	<ol style="list-style-type: none"> 1. Safety device are in activated 2. Release valve damaged 3. Air Cylinder damaged 4. Oil system is jammed 	<ol style="list-style-type: none"> 1. Release the safeties 2. Replace or repair 3. Replace the cylinder 4. Clean the oil system

IX. PARTS LIST FOR SL-412A

Item	Part#	Description	QTY	Note
(See Fig.43, Fig.11, 16, Fig.18-Fig.20, Fig.22, Fig.24, Fig.27, Fig.33, Fig.41-42)				
1	460020	Powerside Column	1	
2	460021	Offside Column	3	
3	460063	Cross Beam	2	
4	460059	Rear Cross Beam	1	
5	209059	Anchor Bolt	16	
6	410022	Safety Ladder	4	
7	420175A	Hex Nut	16	
8	470001	Powerside Platform	1	
9	460025	Pulley Shaft Weldment	2	
10	420023A	Washer	12	
11	420024B	Pulley	10	
11A	420132A	Bronze Bush for Pulley	10	
12	209043	Hex Bolt	12	
13	209034	Lock Washer	2	
14	420144	Washer	2	
15	420030	Hex Bolt	12	
16	420137	Lock Washer	12	
17	420029	Washer	12	
18	470002	Offside Platform	1	
19	460027	Hex Bolt	4	
20	420145	Oil-water Separator	1	
21	420146	Straight Fitting for Air Line	1	
22	209009	Cup Head Bolt	8	
23	420076	90° Fitting for Air Line	1	
24	420159	Straight Fitting For Air Line	1	
25	420160	Fixing plate of Manual Control Valve	1	
26	420161	Self locking nut	2	
27	420162	Manual Control Air Valve	1	
28	420163	Straight Fitting For Air Line	1	
29	420148	Washer	4	
30	420164	Cup Head Bolt	2	
203	440035	Manual Hydraulic Power Unit	1	
32	209005	Self locking nut	14	
33	209004	Rubber Ring	4	
34	209003	Hex Bolt	4	
35	420152	Washer	6	
36	206011	Cup Head Bolt	6	
37	206013	Limit Switch	1	
38	420010A	Fixing Plate For Limit Switch	1	
39	420156	Protecting Rubber Ring	1	
40	420045	Washer	20	
41	420004	Pin for Drive-in Ramp	2	
42	420005	Fixing Bolt	4	
43A	470003	Drive-in Ramp	2	
43B	620063	Roller for Drive in Ramp	4	
43C	620043	Pin for Roller	4	

Item	Part#	Description	QTY	Note
43D	209010	Snap Ring	8	
44	420031	Tire Stop Plate	2	
45	420136	Hex Bolt	4	
46	620065/ 201090	Shim(2mm/1mm)	20 ea.	
47	209056	Self locking nut	4	
48	420217	Cable Limit Pin	4	
49	430004	Plate for Adjustable Turnplate	4	
50	430006	Pin For Slip Plate	4	
51	450003	Slip Plate	2	
52	420157	Steel Ball Set	60	
53	420007	Platform Lock Plate	4	
54	460029	Fixing Ring For Oil Cylinder	1	
55	460030	Hydraulic Cylinder	1	
56	420013	Cylinder Connecting Plate	1	
57	420014	Hex Nut	1	
Optional Parts (See Fig.42)				
59	420158	Turnplate	2	
Parts For Cable (See Fig.21)				
60	460031	No.① Cable	1	
61	460032	No.② Cable	1	
62	460033	No.③ Cable	1	
63	460034	No.④ Cable	1	
Parts For Hydraulic System (See Fig.25)				
64	420166	90° Fitting	1	
65	420243	Straight Fitting For Cylinder	1	
66	460060	Oil Hose	1	
67	420120	Extended Straight Fitting (with Nut)	1	
68	460038	Oil Hose	1	
69	209060	Straight Fitting For Power Unit	1	
70	420095	Straight Fitting	1	
71	420245	Fitting	1	
72	420247	Compensation Valve	1	
72A	201020	90° Fitting	1	
Parts For Air Line System (See Fig.26-28)				
73	420124	T-Fitting For Air Line	2	
74	420242	T-Fitting For Air Line	1	
75	420241	Straight Fitting For Air Line	1	
76	420206	Oil return hose	1	
76A	460013	Black Air Line	1	
77	420167A	Black Air Line	1	
Parts for Circuit System (See Fig.27, Fig.32-33)				
78	420177	Wire Cable	1	
79	420178	Protecting Plastic Hose	1	
80	420016B	Protecting Plastic Hose	1	
81	470501	Parts box	1	

Parts For Cross Beam (See Fig.44)				
Item	Part#	Description	QTY	Note
3-1	460064	Cross Beam	2	
3-2	460043	Pulley Safety Cover	4	
3-3	209009	Cup Head Bolt	8	
3-4	420044	Limit Plate	4	
3-5	420138	Socket Bolt	8	
3-6	420038	Pin	12	
3-7	420037	Snap Ring	24	
3-8	420033	Spring	4	
3-9	209021	Hex Nut	8	
3-10	420049	Split Pin	4	
3-11	420048	Air Cylinder	4	
3-12	420047	Fitting for Air Cylinder	4	
3-13	420046	Split Pin	8	
3-14	420042	Slider	8	
3-15	209033	Washer	24	
3-16	420043	Socket Bolt	16	
3-17	420175	Slack-cable safety lock (left & right)	2/ea.	
3-18	420171	Pin	8	
3-19	420172	Pin Bush For Slack-cable Safety Lock	8	
3-20	206019	Snap Ring	16	
3-21	209010	Snap Ring	4	
3-22	420035	Tension Pulley	4	
3-23	420174	Spacer	4	
3-24	420041A	Pulley Pin	4	
3-25	420040A	Pulley Bush	4	
Parts For Cylinder (See Fig.45)				
55-1	420059	Dust Ring	1	
55-2	420060	Y- Ring	1	
55-3	460046	Head Cap	1	
55-4	460047	O- Ring	1	
55-5	460048	Bore Weldment	1	
55-6	420064	Piston Rod	1	
55-7	460050	Pin	1	
55-8	460051	Support Ring	1	
55-9	460052	Y- Ring	1	
55-10	460053	Piston	1	
Parts For PEAK Manual Power Unit, 220V/60Hz/1 phase (See Fig.46)				
203-1	81400078	Motor	1	
203-2	81400074	Start capacitor	1	
203-2A	81400207	Run capacitor	1	
203-3	81400173	AC contactor	1	
203-4	420043	Socket bolt	4	
203-5	81400174	Motor fix frame	2	
203-6	81400127	Motor connecting shaft	1	
203-7	81400067	Valve body	1	
203-8	81400106	Relief valve	1	
203-9	81400107	Throttle valve	1	
203-10	209149	Lock washer	4	

Item	Part#	Description	QTY	Note
203-11	81400148	Socket bolt	4	
203-12	81400156	Oil Inlet Pipe	1	
203-13	81400144	O-Ring	1	
203-14	81400150	Filter	1	
203-15	81400145	Socket bolt	4	
203-16	81400027	Reservoir	1	
203-17	81400208	Cover of motor terminal box	1	
203-18	81400178	Protective ring	1	
203-19	81400045	Push button	1	
203-20	61K088	Screw	6	
203-21	81400075	Release valve	1	
203-22	81400117	Handle for release valve	1	
203-23	81400181	Washer	1	
203-24	81400182	Hex Nut	1	
203-25	81400044	Check valve	1	
203-26	81400158	Gear pump	1	
203-27	81400157	Oil return pipe	1	
203-28	81400113	Filler cap	1	

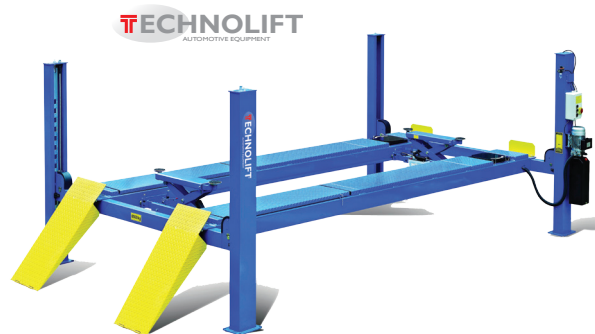
Order original parts when required from
GRAND PRIX IMPORT at 1-800-361-4095

GRAND PRIX IMPORT

Installation, Operation & Maintenance Manual

FOUR COLUMN ALIGNMENT LIFT

*The specifications stated on this brochure are not binding.
We reserve the right to change the specification without notice*



SL-412A

IMPORTANT:
**Read this manual completely before
installing or operating lift**