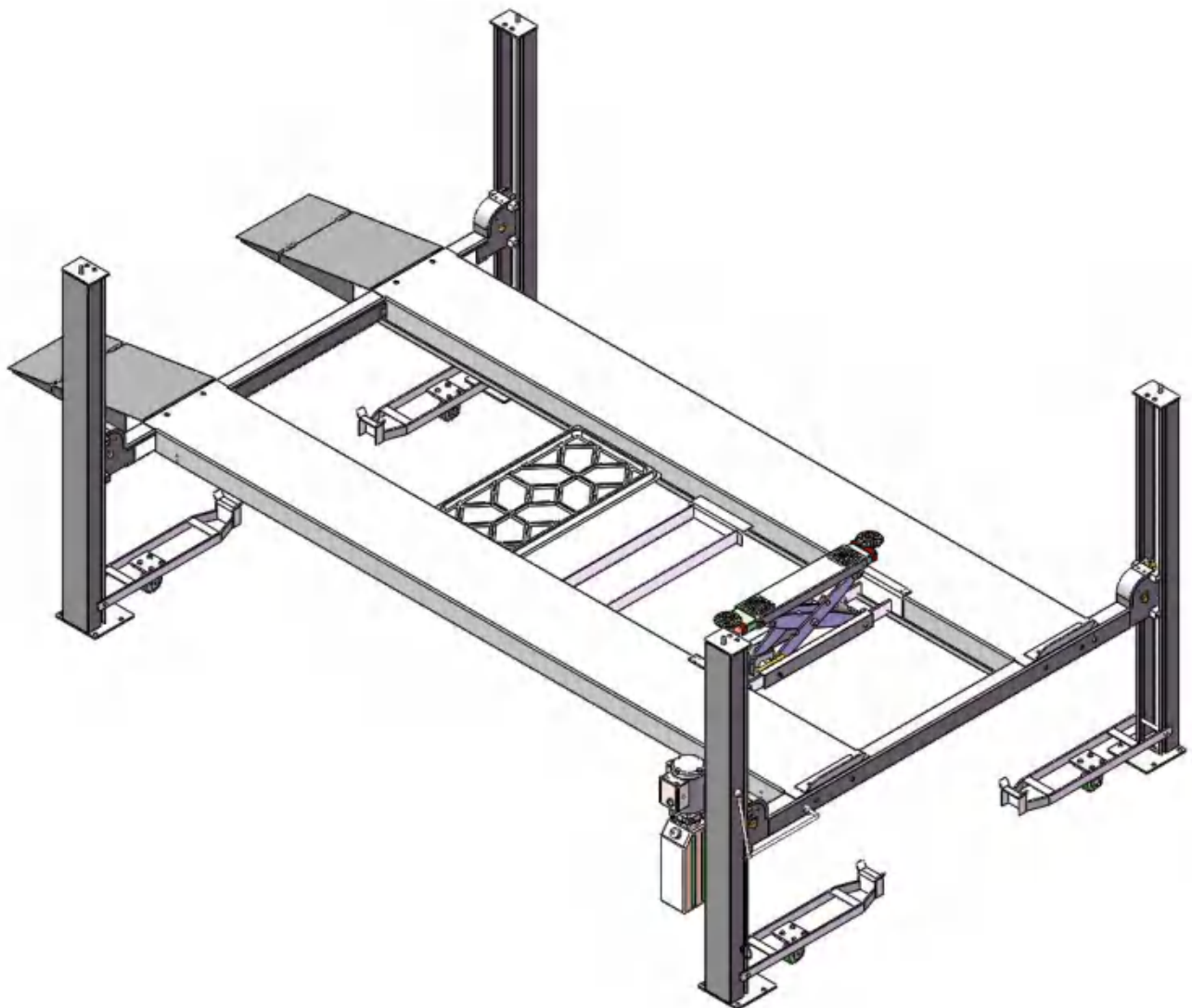


**AMGO**  **Hydraulics**

Original

## Installation And Service Manual



**Four Post Parking Lift  
Model: 409-HP**

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# I. PRODUCT FEATURES AND SPECIFICATIONS

## 4-POST MODEL 409-HP FEATURES

- Single point manual safety release, more convenient and more reliable for decent operation.
- Four mechanical locking devices, each equipped with both primary and secondly safety locks.
- Power-side column can be installed at both side, front or rear.
- Non-skid diamond platforms and adjustable safety lock ladders.
- Optional kits: Rolling jack, caster kits.

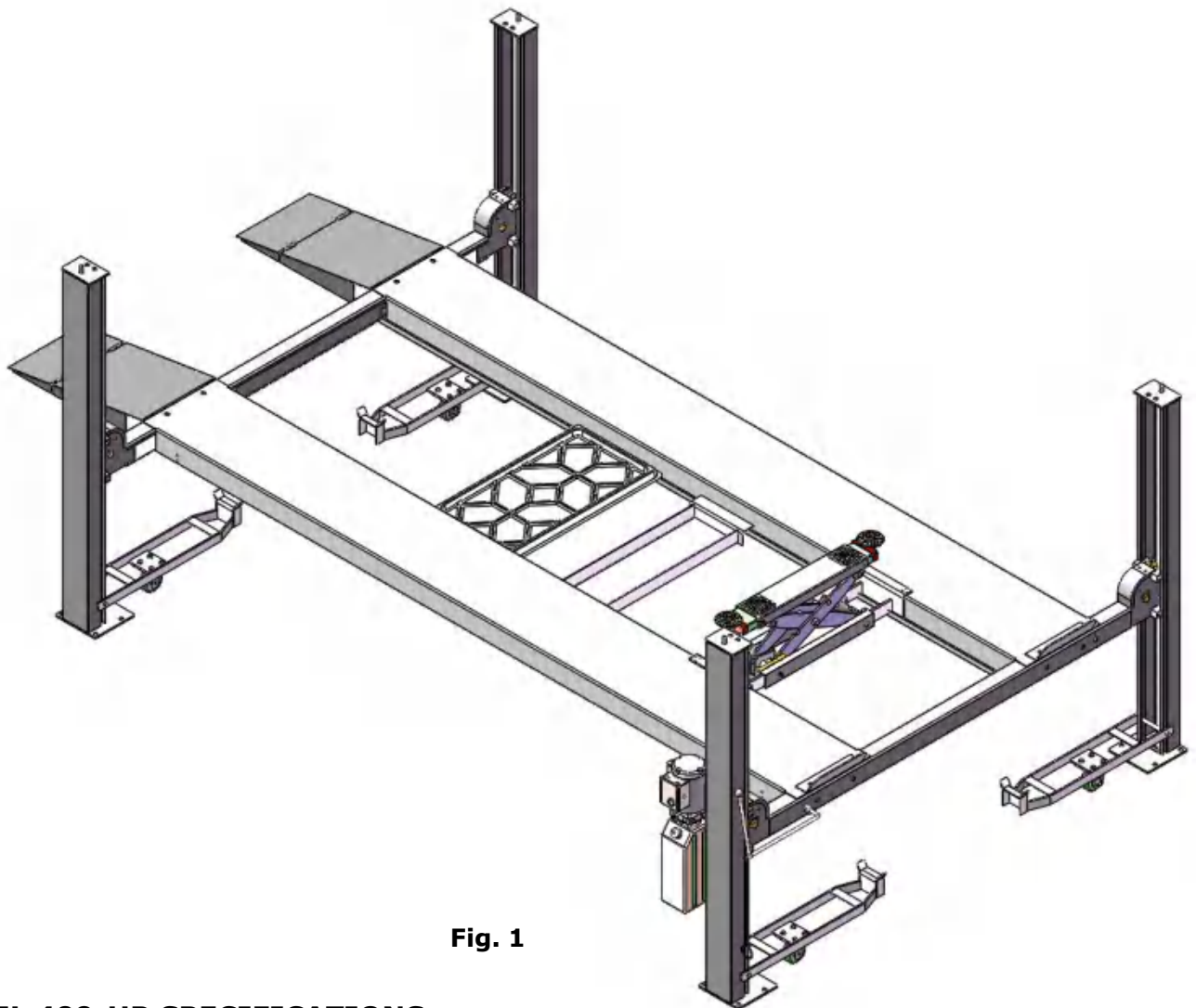


Fig. 1

## MODEL 409-HP SPECIFICATIONS

Model	Lifting Capacity	Lifting Height	Lifting Time	Overall Length (Inc. Ramps)	Overall Width	Width Between Columns	Motor
409-HP	9,000 lbs	87 1/2" 2222mm	54S	234 7/8" 5965mm	122 1/4" 3106mm	112 5/8" 2860mm	1.5HP

## II. INSTALLATION REQUIREMENT

### A. TOOLS REQUIRED

- ✓ Tape Measure (7.5m)



- ✓ Hammer



- ✓ Level Bar



- ✓ English Spanner (12")



- ✓ Wrench set  
(12#, 13#, 14#, 15#, 17#, 19#, 24#, 30#)



- ✓ Carpenter's Chalk



- ✓ Screw Sets



- ✓ Pliers



- ✓ Lock Wrench



- ✓ Socket Head Wrench  
(3#, 5#, 6#, 8#)



Fig. 2

**B. Equipment storage and installation requirements.**

The equipment should be stored or installed in a shady, normal temperature, ventilated and dry place.

**C. The equipment should be unload and transfer by forklift.**



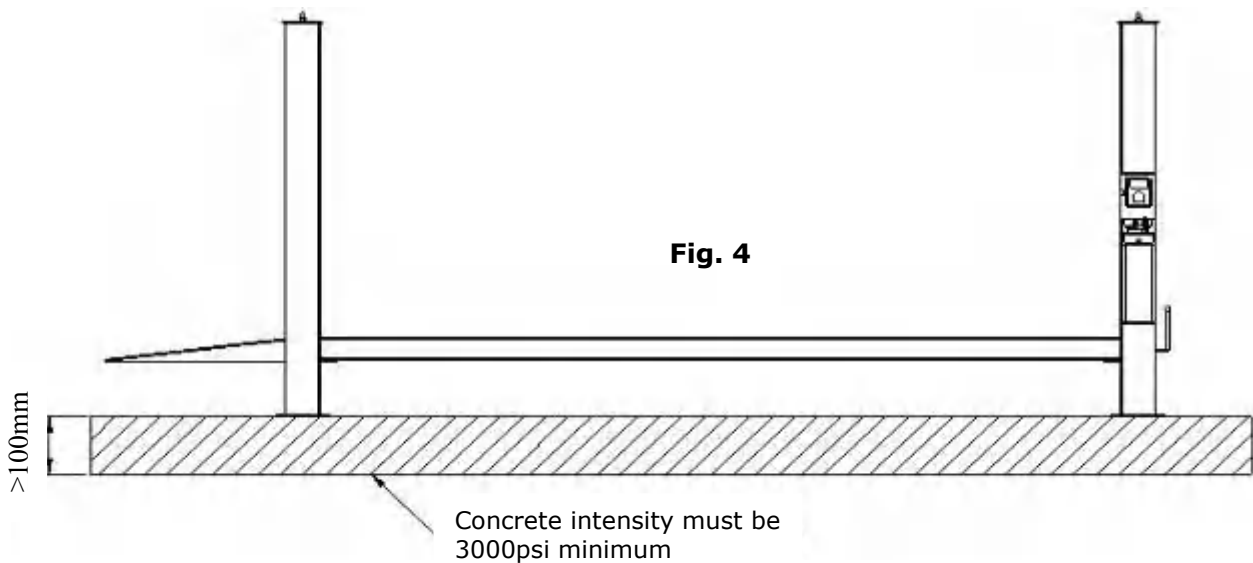
**Fig.3**

**D. SPECIFICATIONS OF CONCRETE (See Fig. 4)**

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 100mm 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/cm<sup>2</sup>) minimum.
3. Floors must be level and no cracks.



**Fig. 4**

**E. POWER SUPPLY**

The electrical source must be 2.0HP minimum. The source cable size must be 2.5mm<sup>2</sup> and in good condition of contacting with floor.

### III. STEPS OF INSTALLATION

#### A. Check the parts before assembly

1. Packaged lift and Hydraulic Power Unit (See Fig. 5).



Fig. 5

2. Open the outer packing carefully, check the parts according to the shipment list. (See Fig. 6).

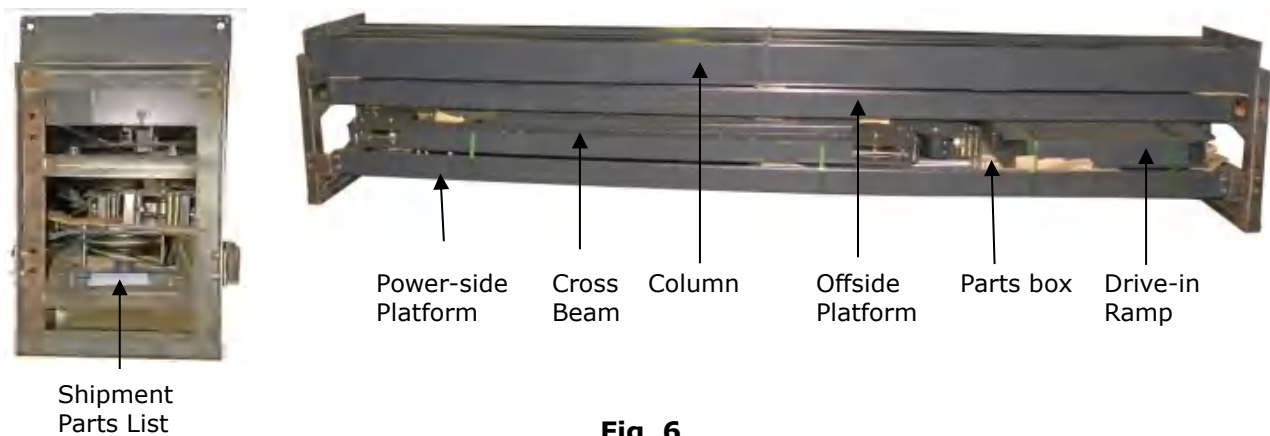


Fig. 6

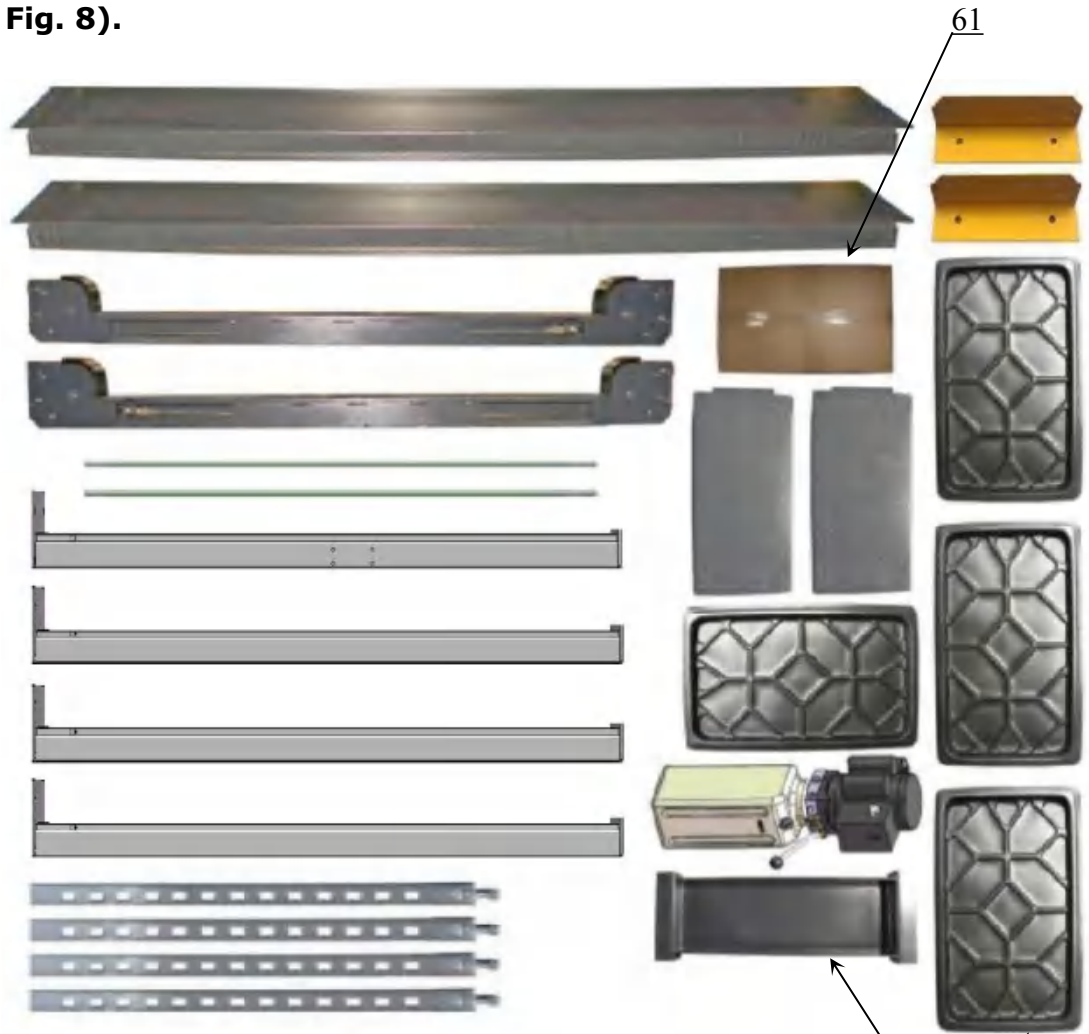
3. Take off the drive-in ramps and columns (See Fig.7 ).



Fig. 7

4. Loosen the screws of the upper package stand, take off the offside platform, take out the parts inside the power-side platform, then remove the package stand.

5. Move aside the parts and check the parts according to the shipment parts list  
(See Fig. 8).



**Fig.8**

Optional kit

6. Open the carton of parts and check the parts according to the parts box list(See Fig. 9).



**Fig. 9**

7. Check the parts of the parts bag according to the parts bag list (See Fig. 10).



Fig. 10

**B. 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. 11).

**Note: Reserve space front and behind the installation site.**

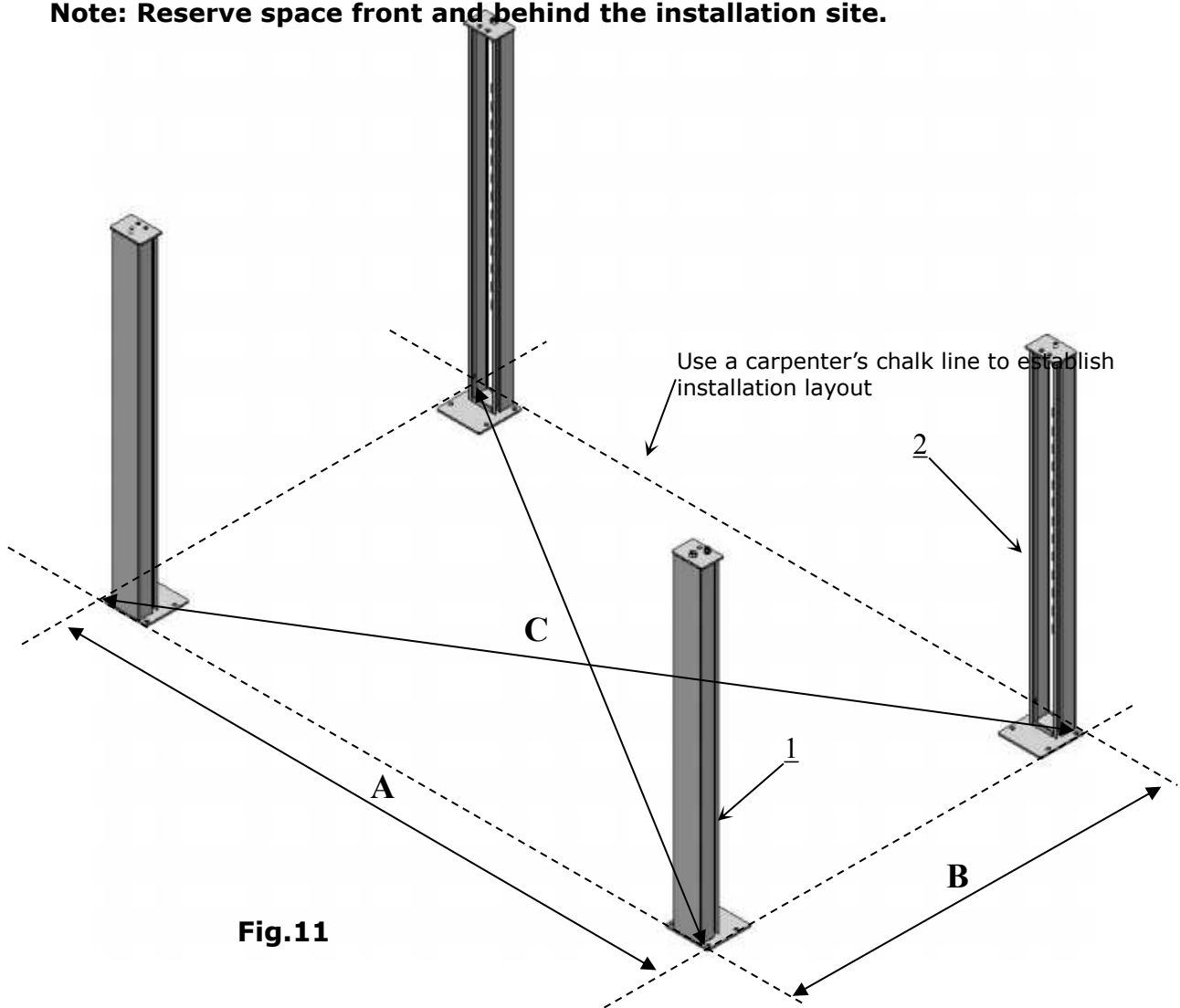


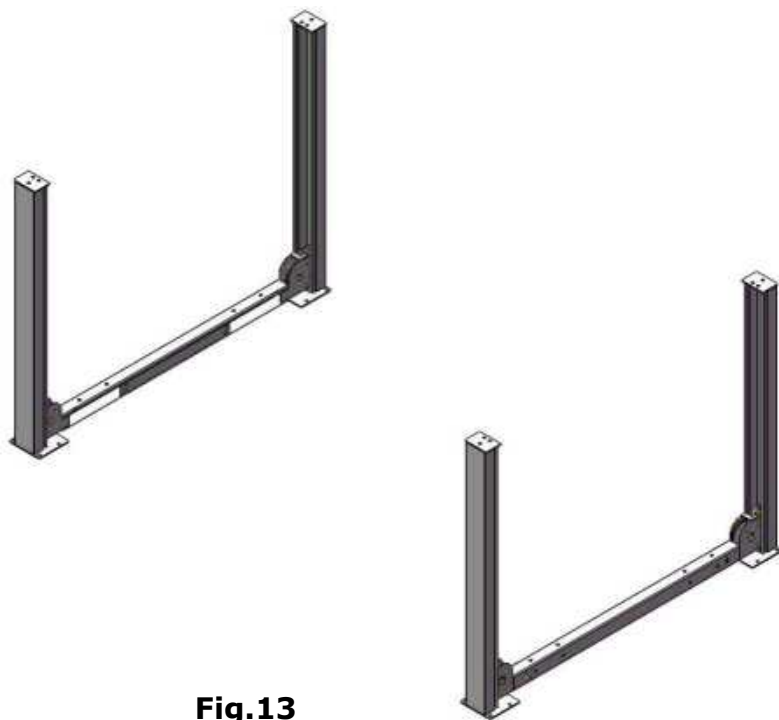
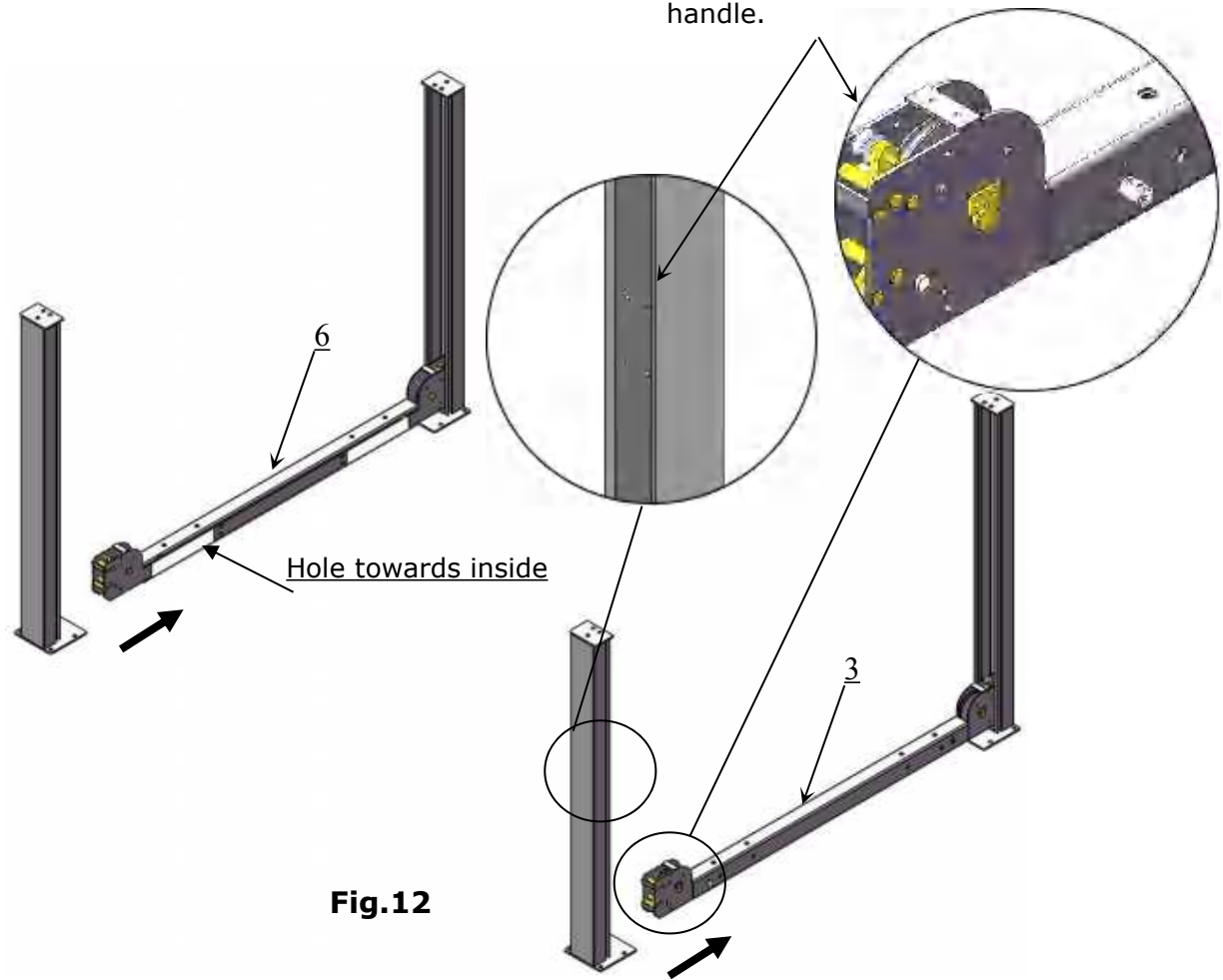
Fig.11

MODEL	A	B	C
409-HP	201 3/8" 5115mm	122 1/4" 3106mm	235 5/8" 5984mm



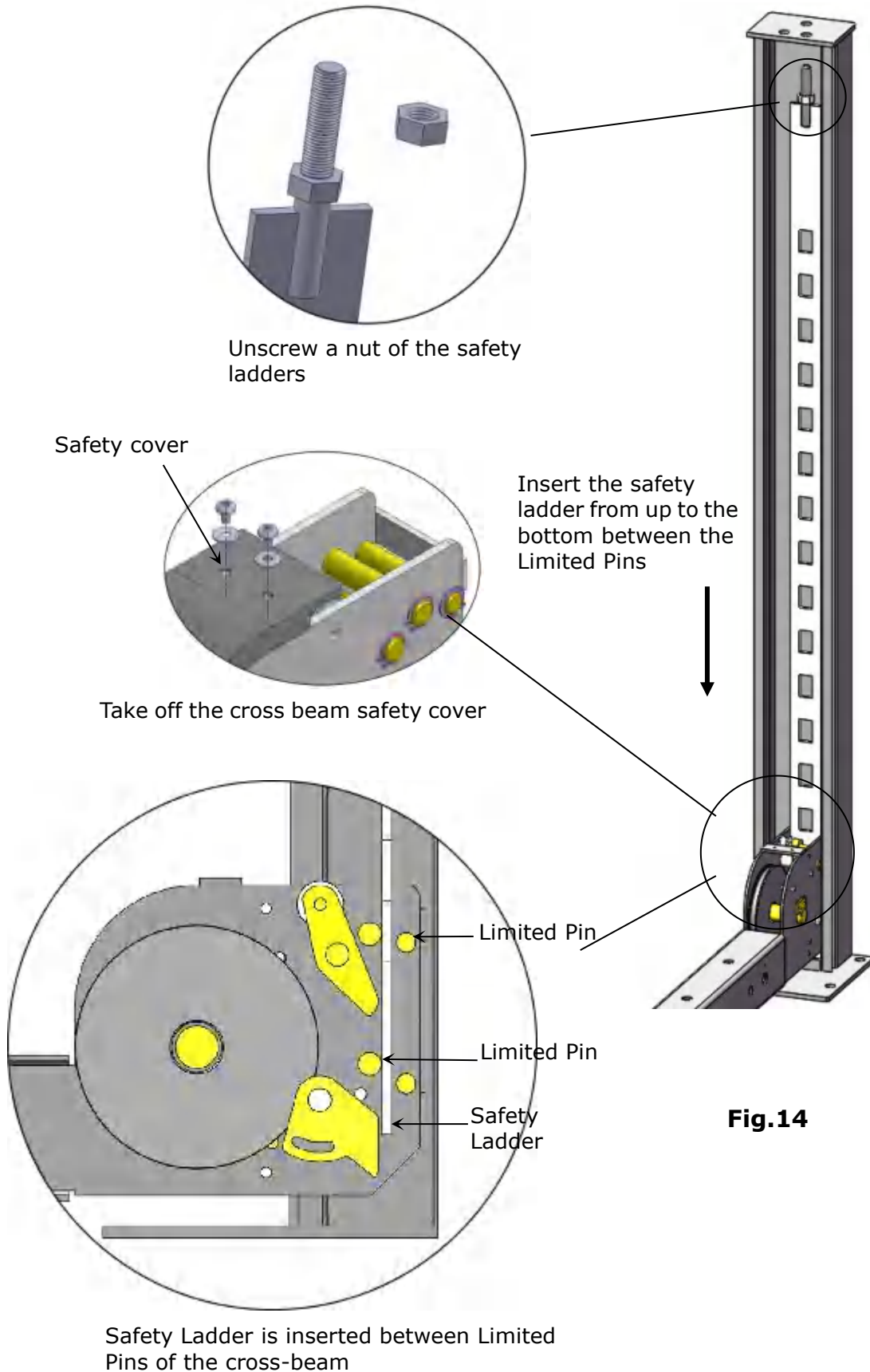
**C. Install cross beams (See Fig.12, Fig.13).**

The power-side column need to be installed according to the installed position of the safety lock release handle.



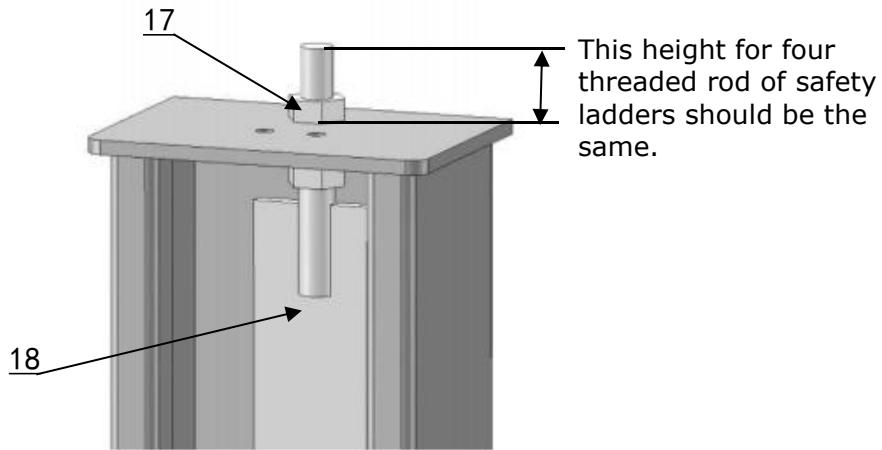
### D. Install the Safety Ladders.

1. Take off the pulley safety cover and unscrew a nut of the safety ladders, and then adjust the four lower nuts to be at the same position. Then install the safety ladder (**See Fig. 14**).



**Fig.14**

2. Install Safety Ladders (See Fig. 15).



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

Fig. 15

E. Put the cross beams at the same height and lock on the safety ladder (See Fig. 16).

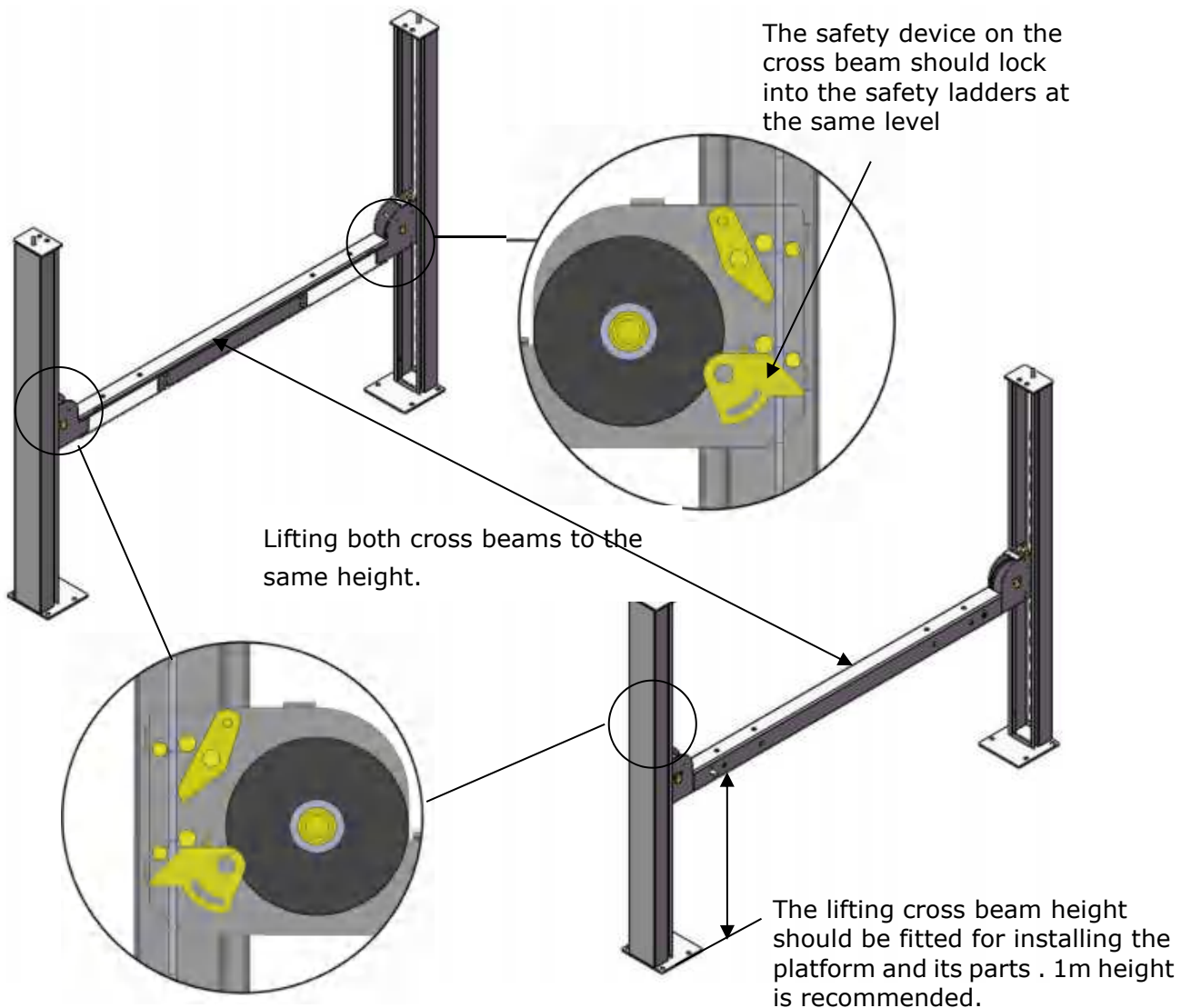
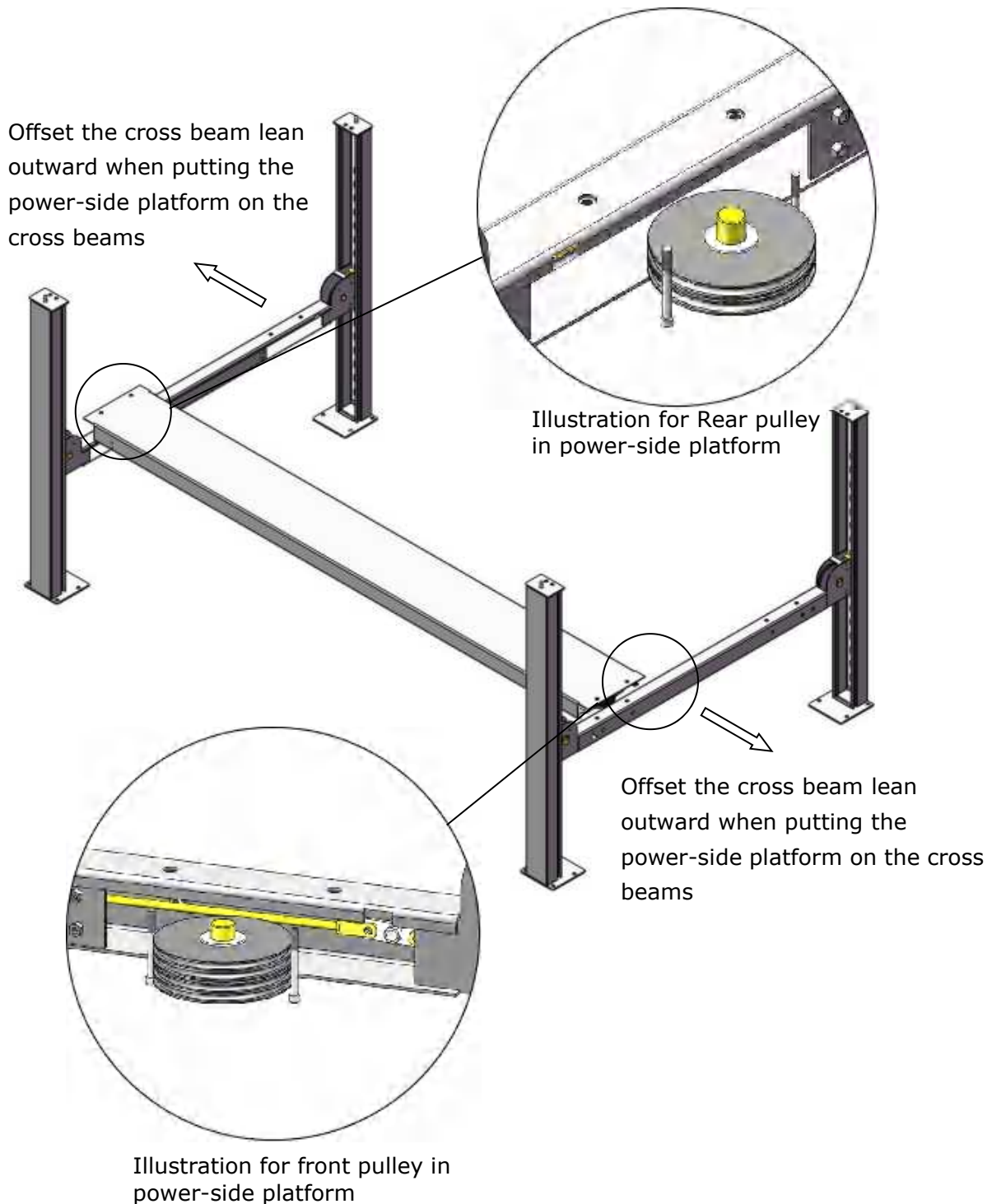


Fig. 16

## F. Install power side platform.

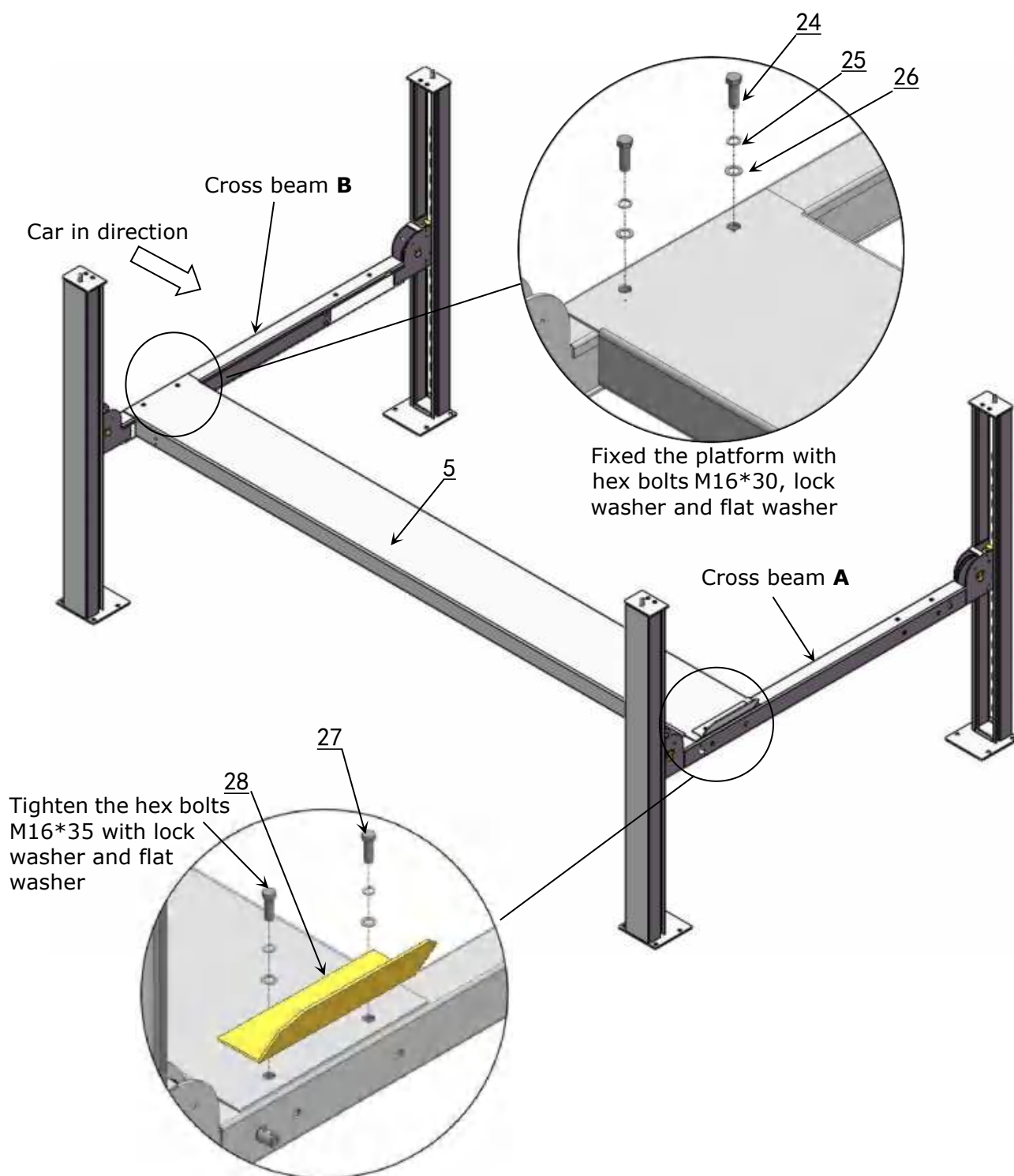
1. Install the power side platform on the cross beams by a fork lift or manual, offset the cross beams to the outside till the pulleys of both platforms can rest into the cross beams' slots (See Fig.17), Install the power side platform and screw up the bolts.



**Fig. 17**

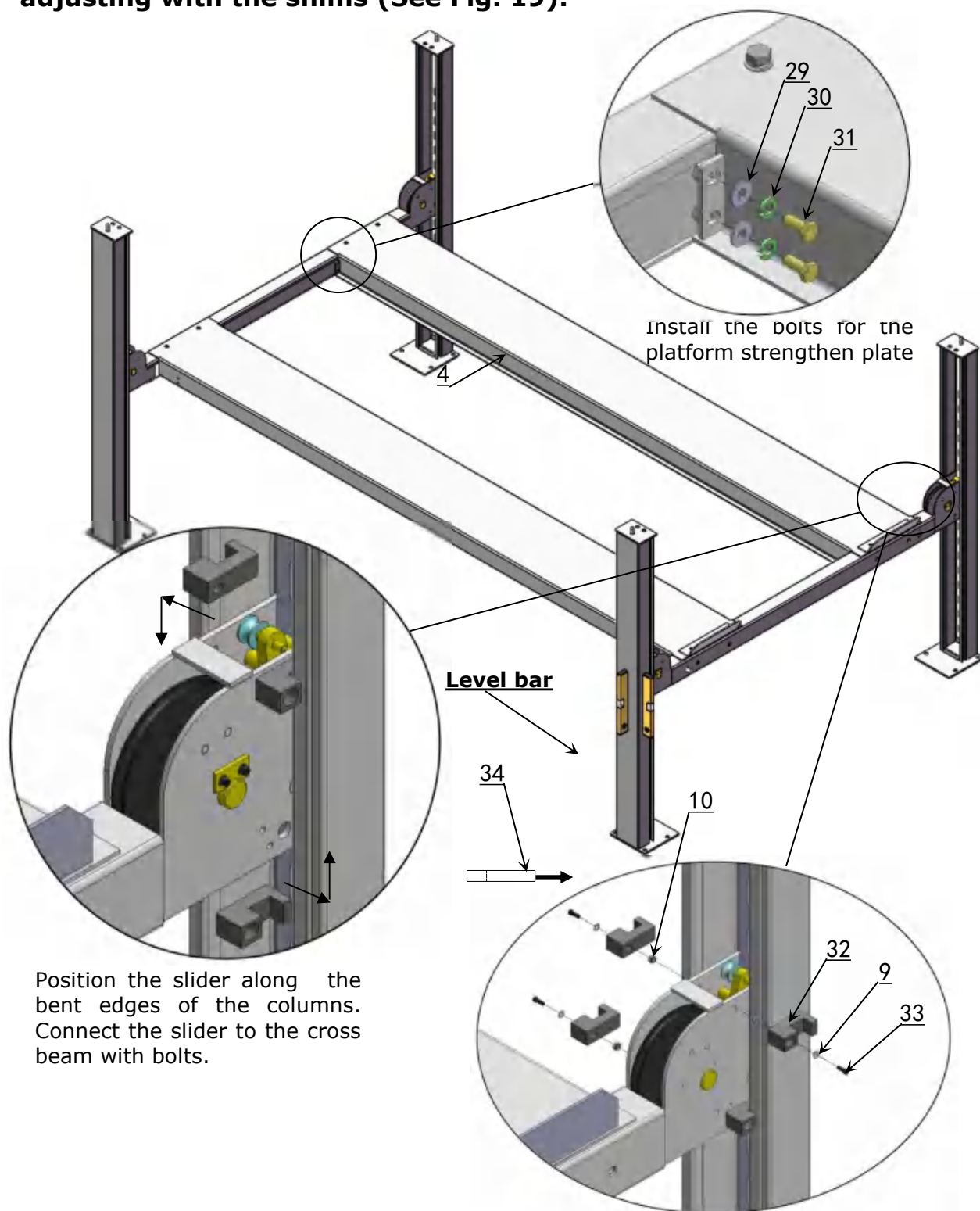
**2. Install tire stop plate with bolts and washer on the platform:** Tighten the platform on cross beam **B** with bolts, tighten the tire stop plate on cross beam **A** with bolts

**Note:** The bolts for the side with tire stop plate is longer, pay attention when choosing the bolts (**See Fig.18**)



**Fig. 18**

**G. Install offside platform and limit slider, then install the bolts for the platform strengthen plate, check the plumbness of columns with level and adjusting with the shims (See Fig. 19).**



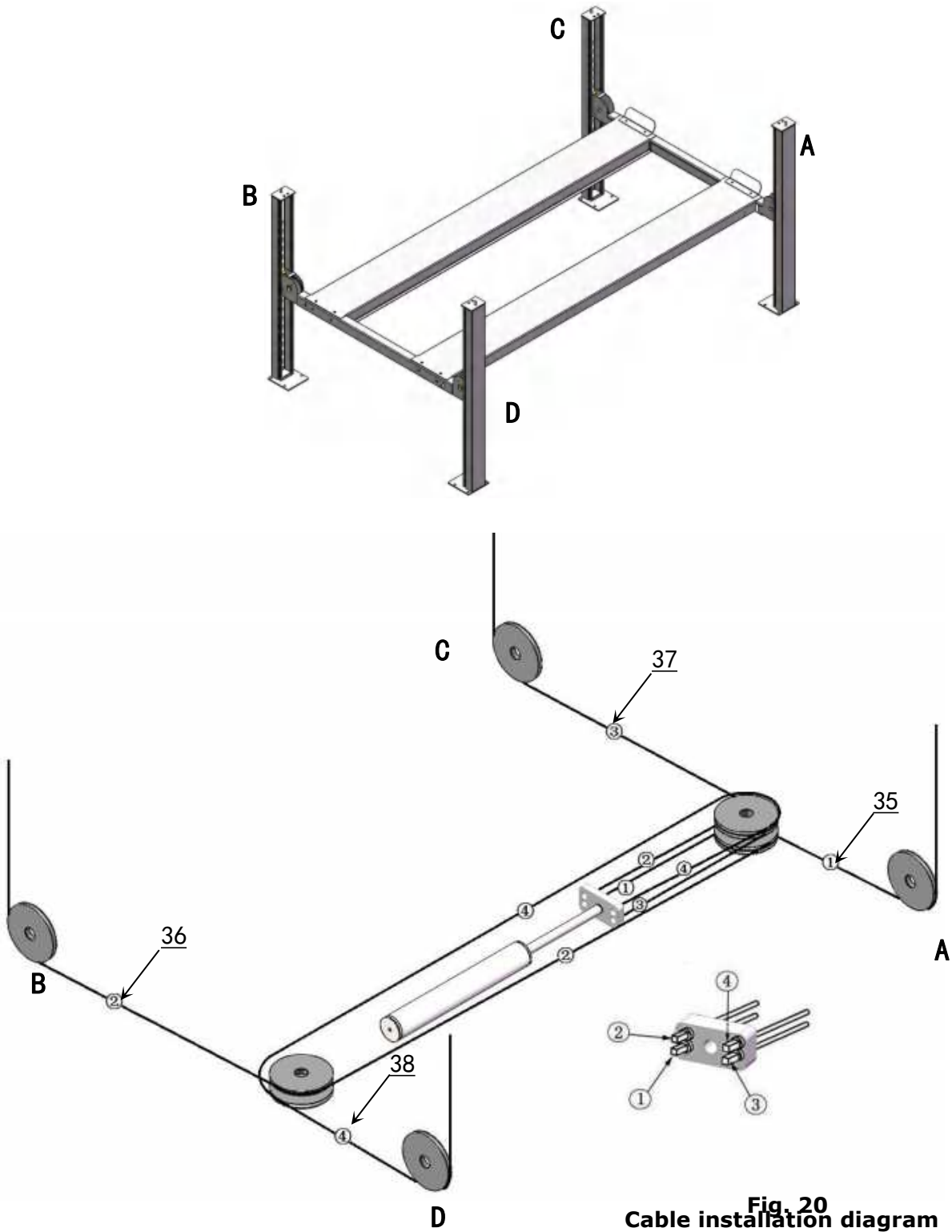
Position the slider along the bent edges of the columns. Connect the slider to the cross beam with bolts.

**Note: DO NOT** completely tighten the limit sliders. Loosen 1/4 lap after tightening.

**Fig. 19**

### H. Illustration for cable installation

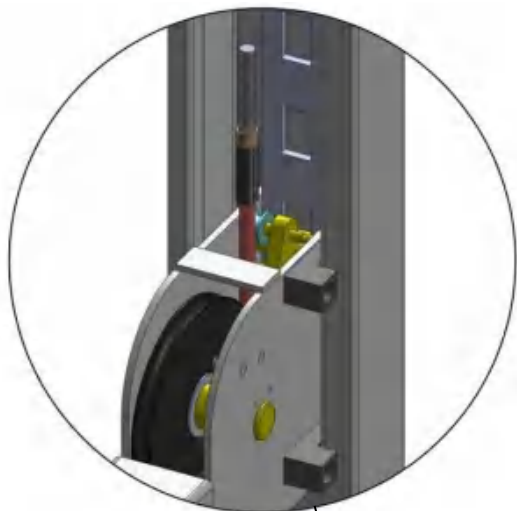
1. Pass through the cables from the platform to the columns according to the number of the cables (See Fig. 20).



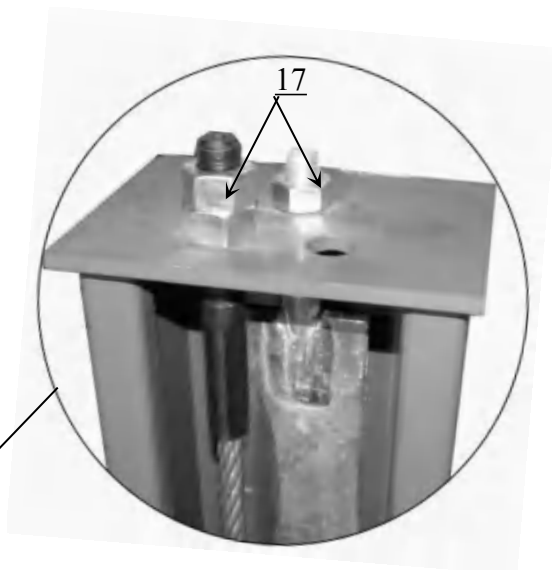
**Fig. 20**  
Cable installation diagram

NO.	①	②	③	④
Cable				
Length for 409-HP (inc. connecting fitting)	133 7/4" 3400mm	388 3/4" 9875mm	196" 4980mm	326 1/8" 8250mm

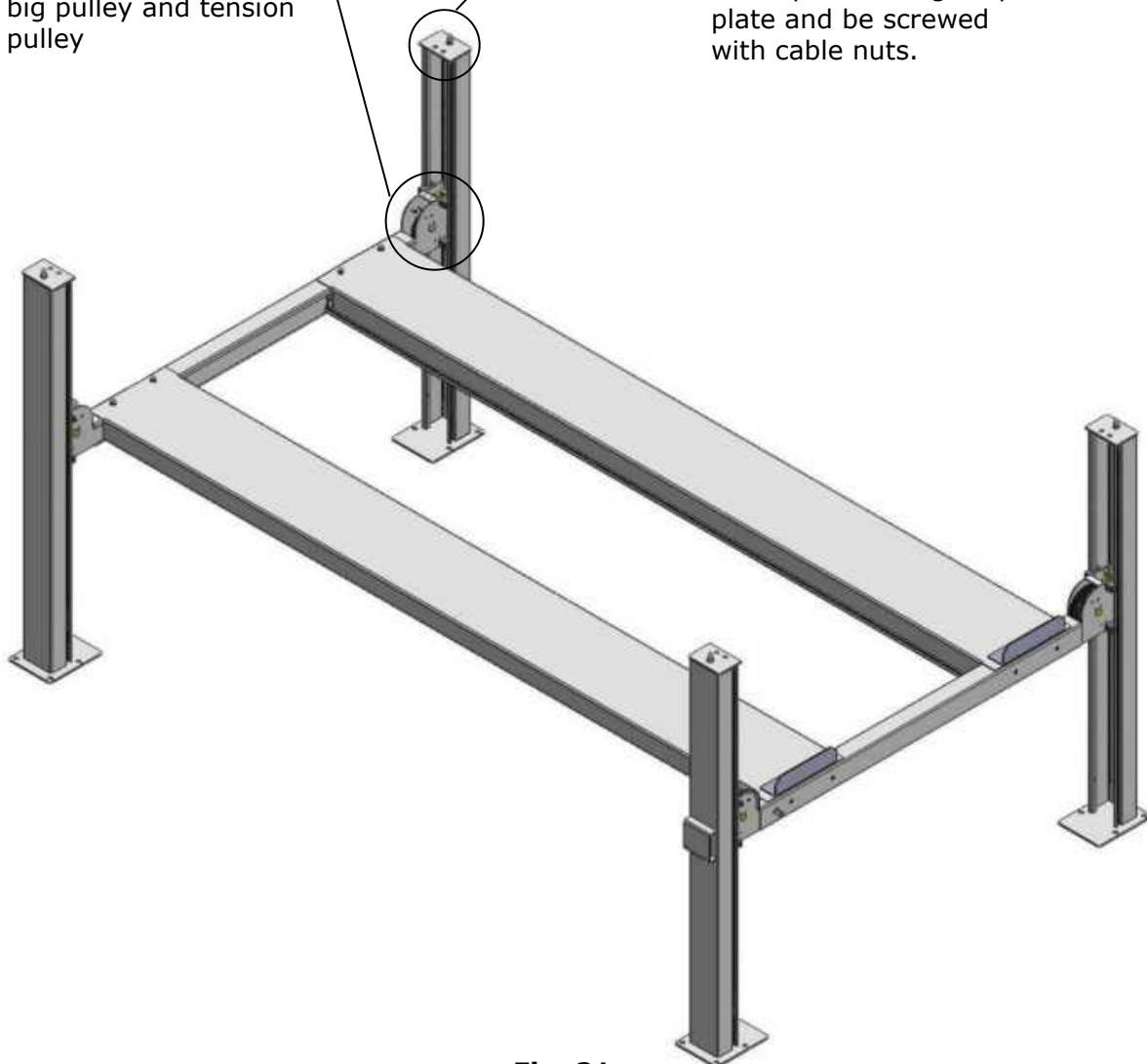
2. The cable goes through the cross beam to top plate of columns and be screwed with cable nuts (See Fig. 21).



Cable goes between the big pulley and tension pulley



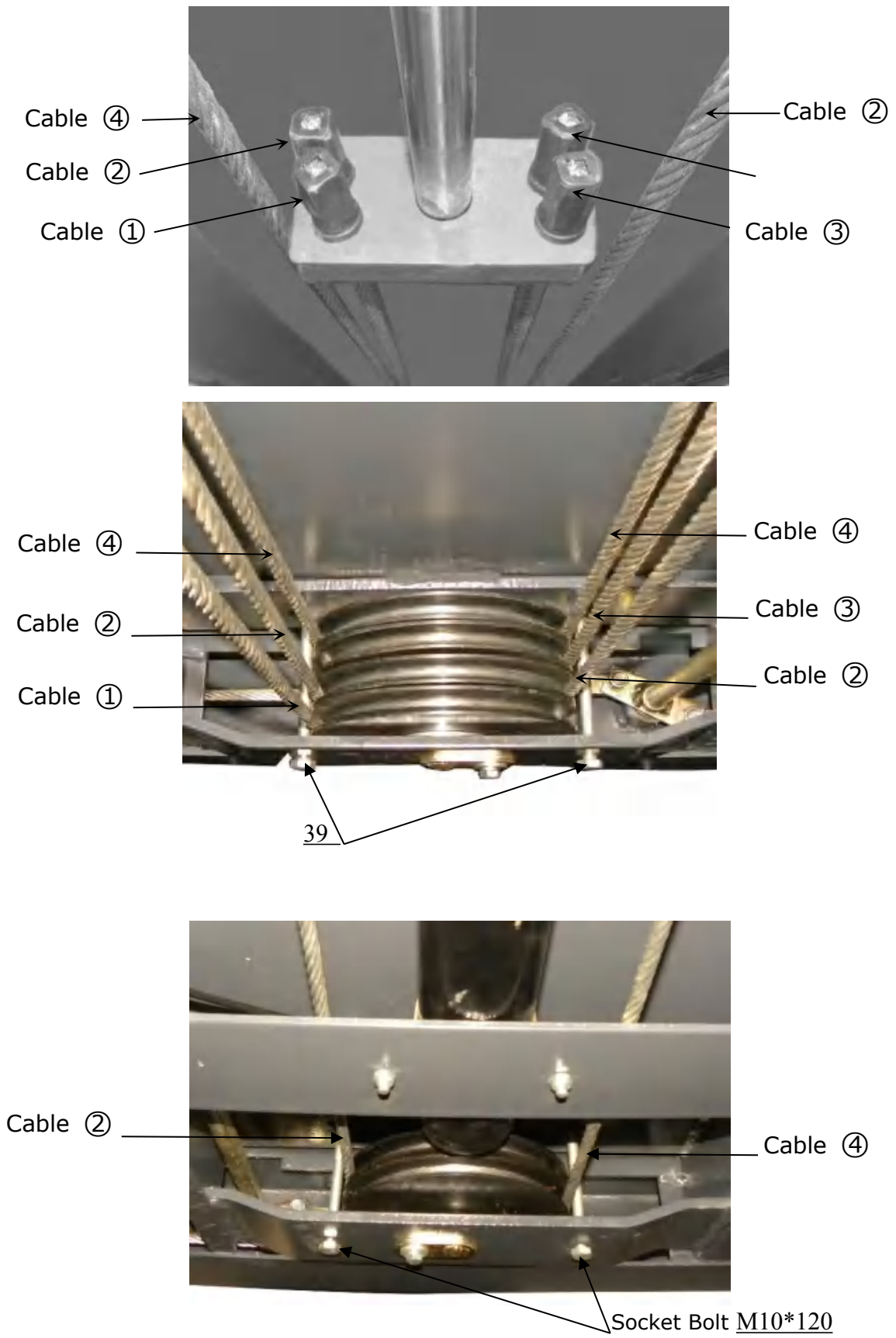
Cable pass through top plate and be screwed with cable nuts.



**Fig. 21**

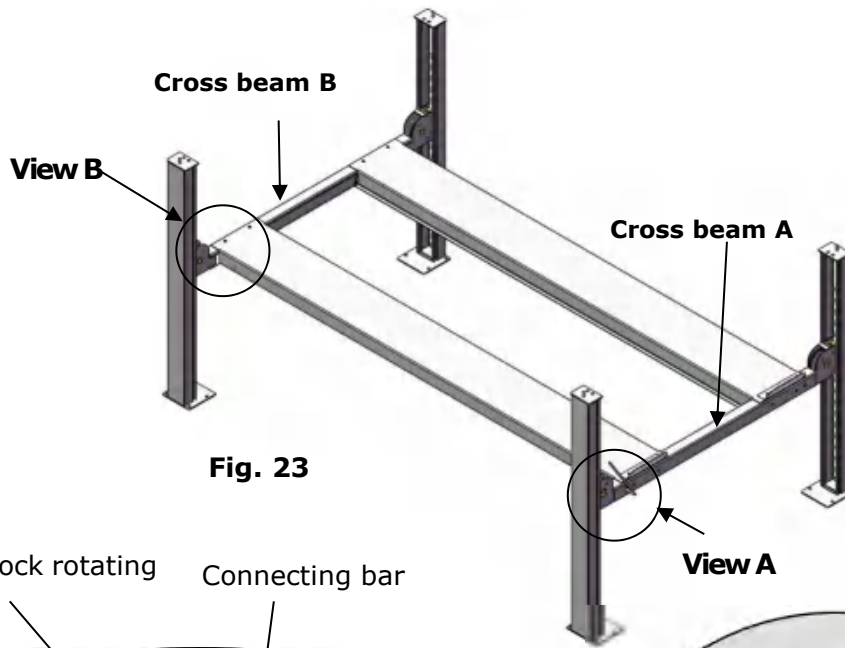


3. Illustration for platform cables (See Fig. 22).

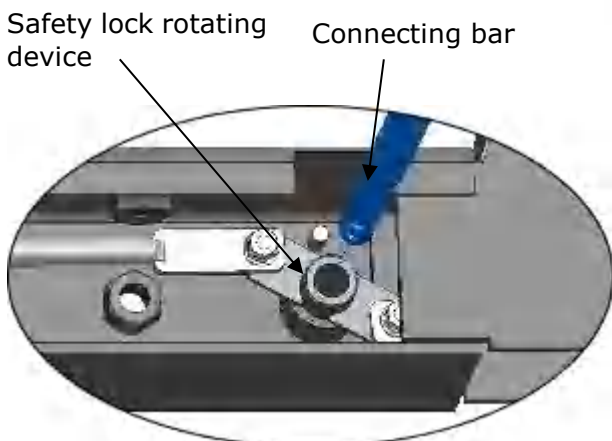


**Fig. 22**

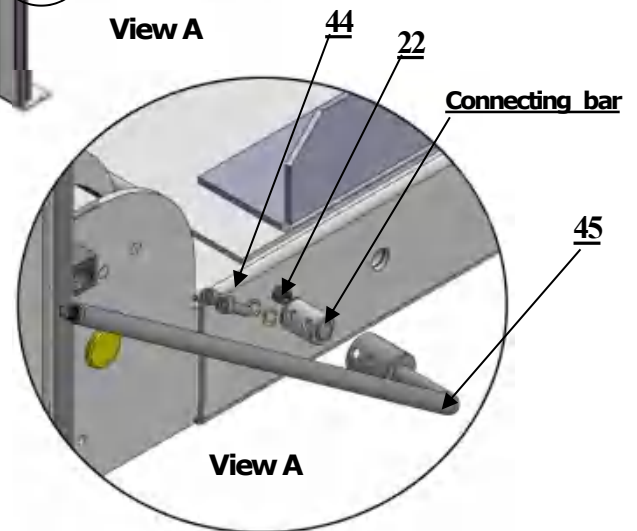
**I. Install connecting bar for safety device and release handle (See Fig. 23).**



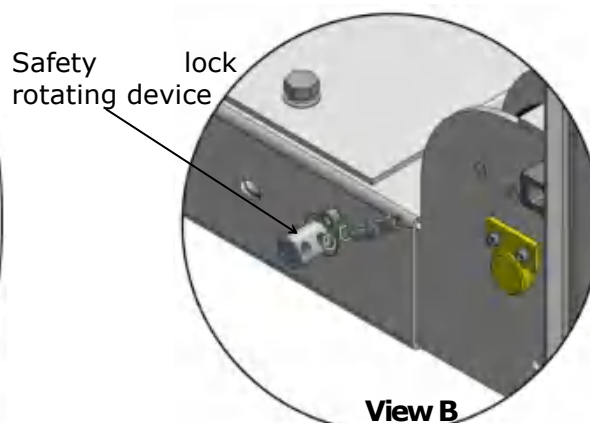
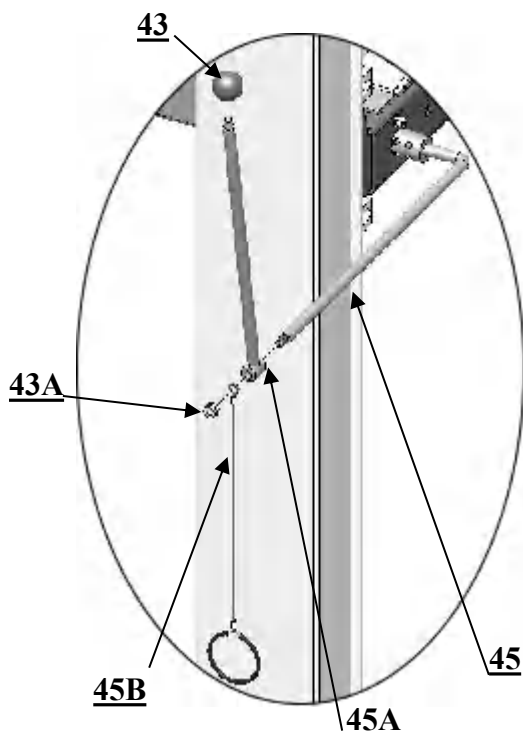
**Fig. 23**



Pass the connecting bar through middle of safety lock rotating device of cross beam **A/B**



Align the two connection holes of connecting bar, safety lock rotating device **A** and control handle, then tighten them with M8\*35 socket bolts, lock washers on cross beam **A**.



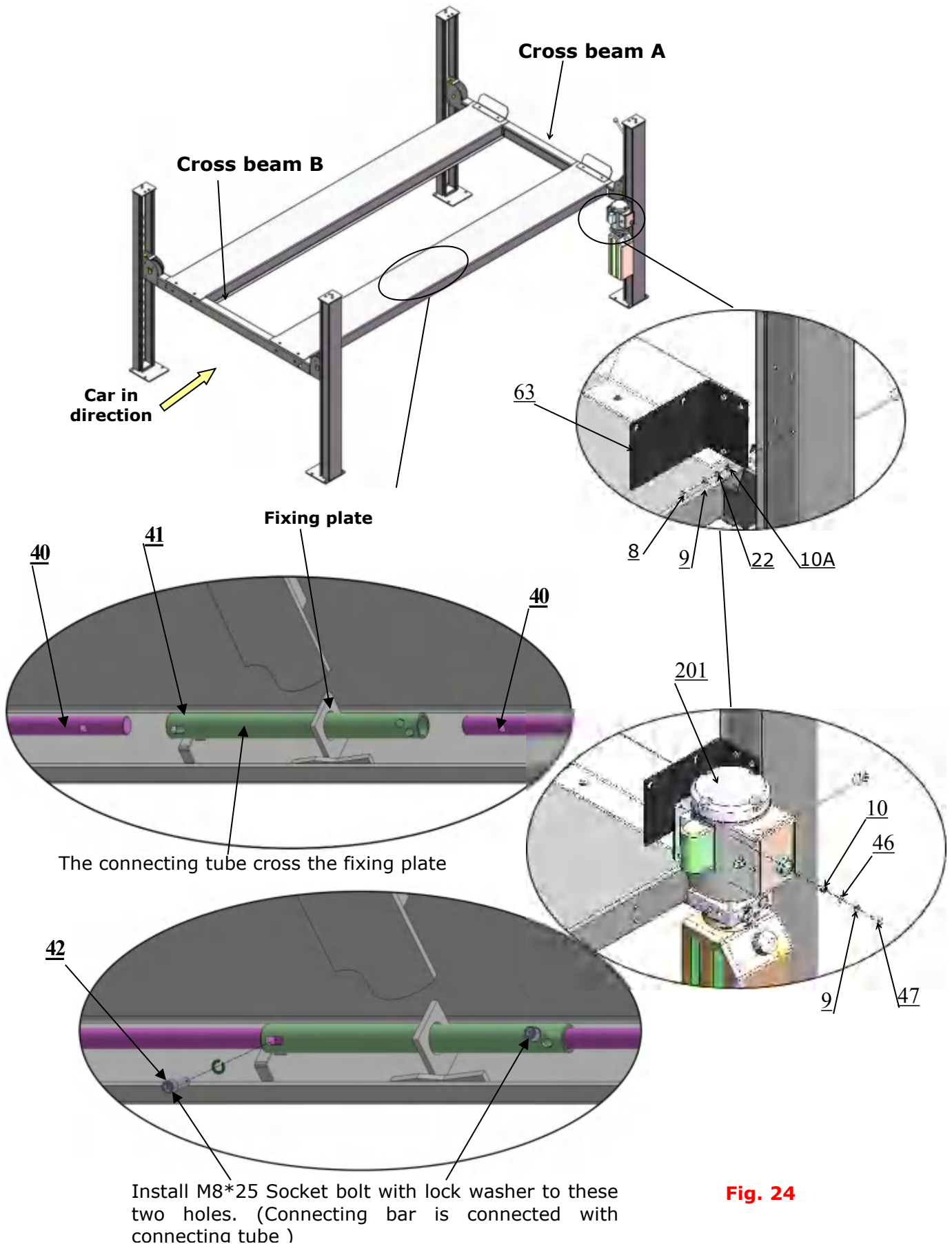
Align the two connection holes of connecting bar and safety lock rotating device **B**, then tighten them with M8\*35 socket bolts, lock washers on cross beam **B**.

Assemble extended handle, pull cable and plastic ball.

## J. Install power unit and connecting tube

**Note:** Power unit must be installed at the same side of the safety release handle.

1. Install Power unit on the cross beam **A**, the installation of Connection tube is as Fig.24

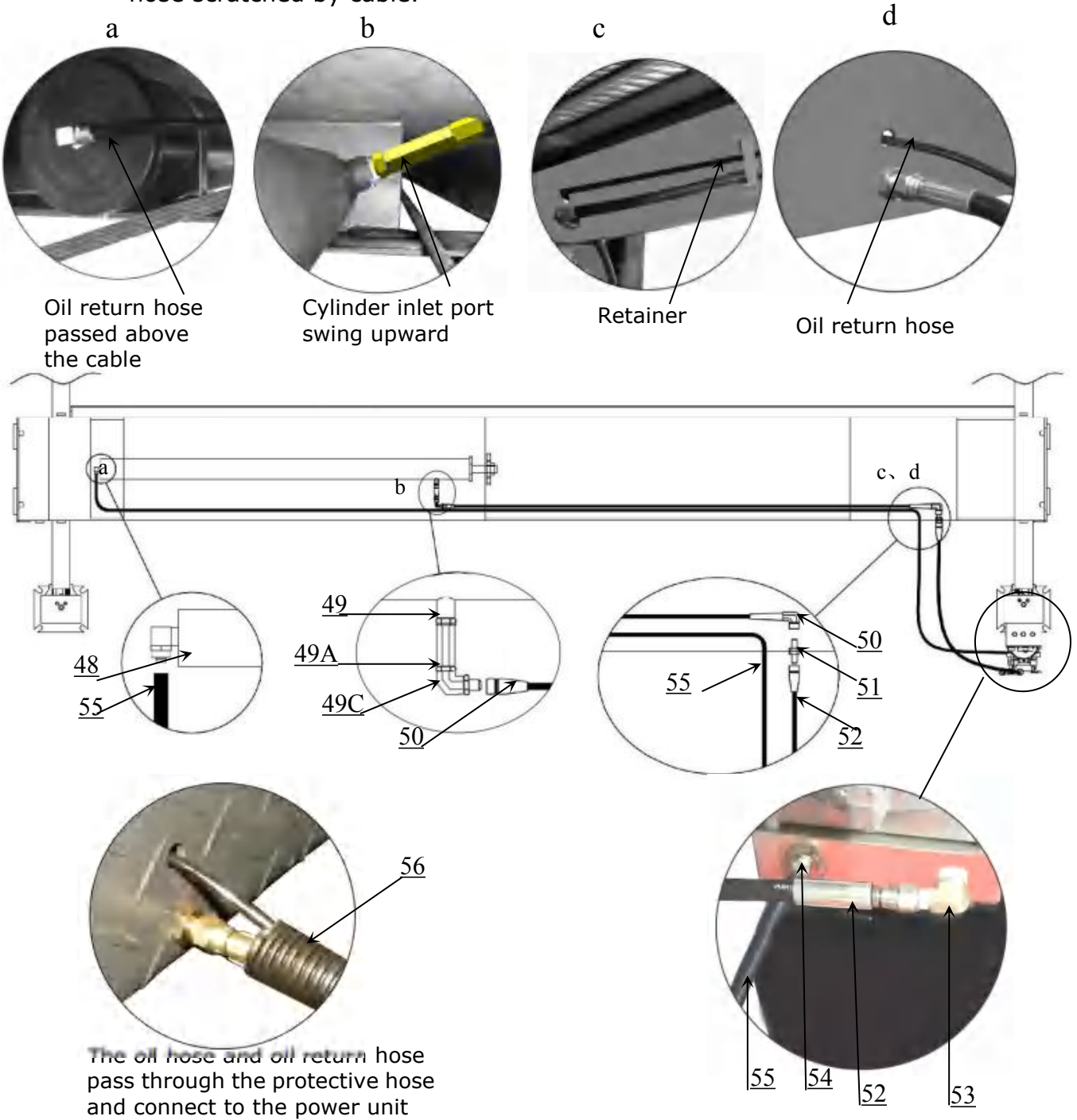


**Fig. 24**

## K. Install Hydraulic System

1. For power unit attached to the column of cross beam **A** (See Fig. 25)

**Note:** Oil hoses connected to oil cylinder must be passed above the cable to avoid the oil hose scratched by cable.



**Fig. 25**

## L. Install Electrical System

Connect the power source on the data plate of power unit.

**Note: For the safety of operators, the power wiring must contact the earth well.**

### Single phase motor (See Fig. 26)

Connecting the two power supply live wires to terminals of AC contactor marked L1, L3 respectively. Earth wire is connected with the earth wire terminal of the motor.

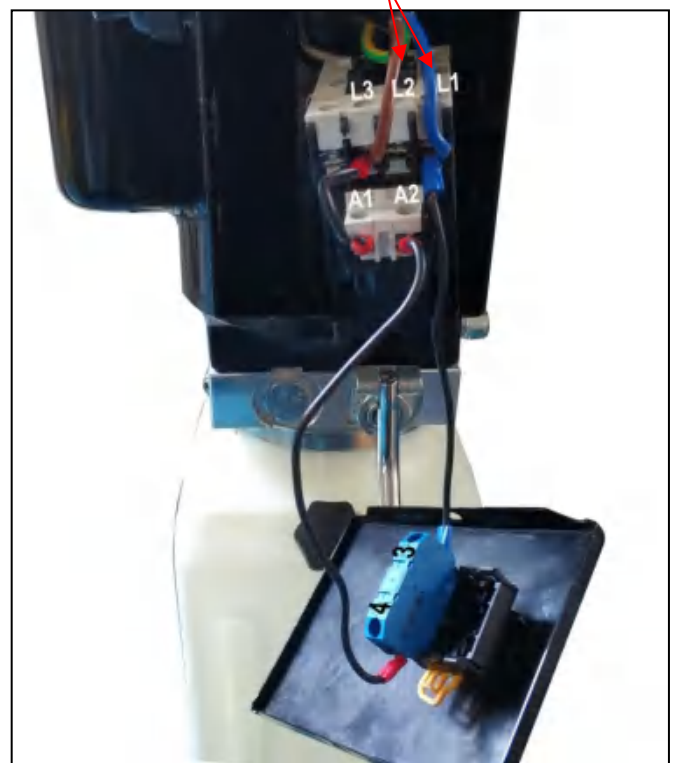
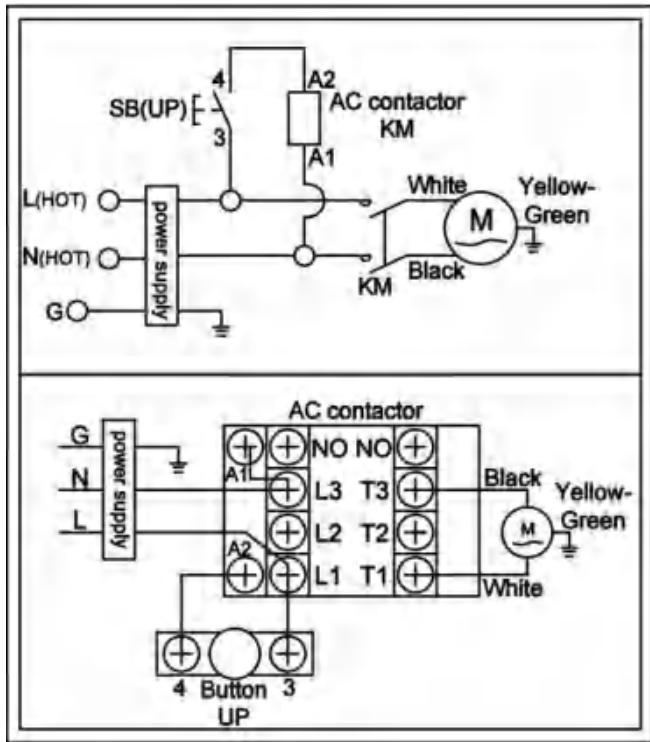


Fig. 26

## M. Install spring and safety cover of cross beam (See Fig. 27).

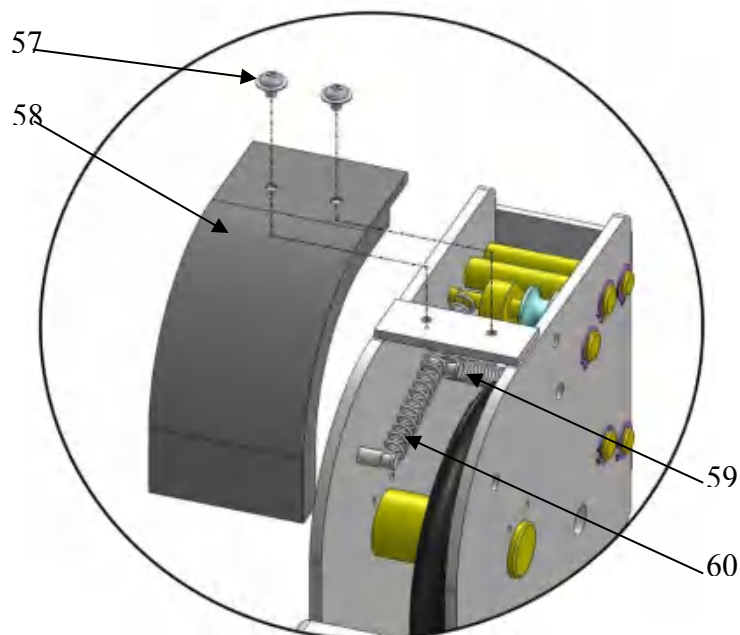
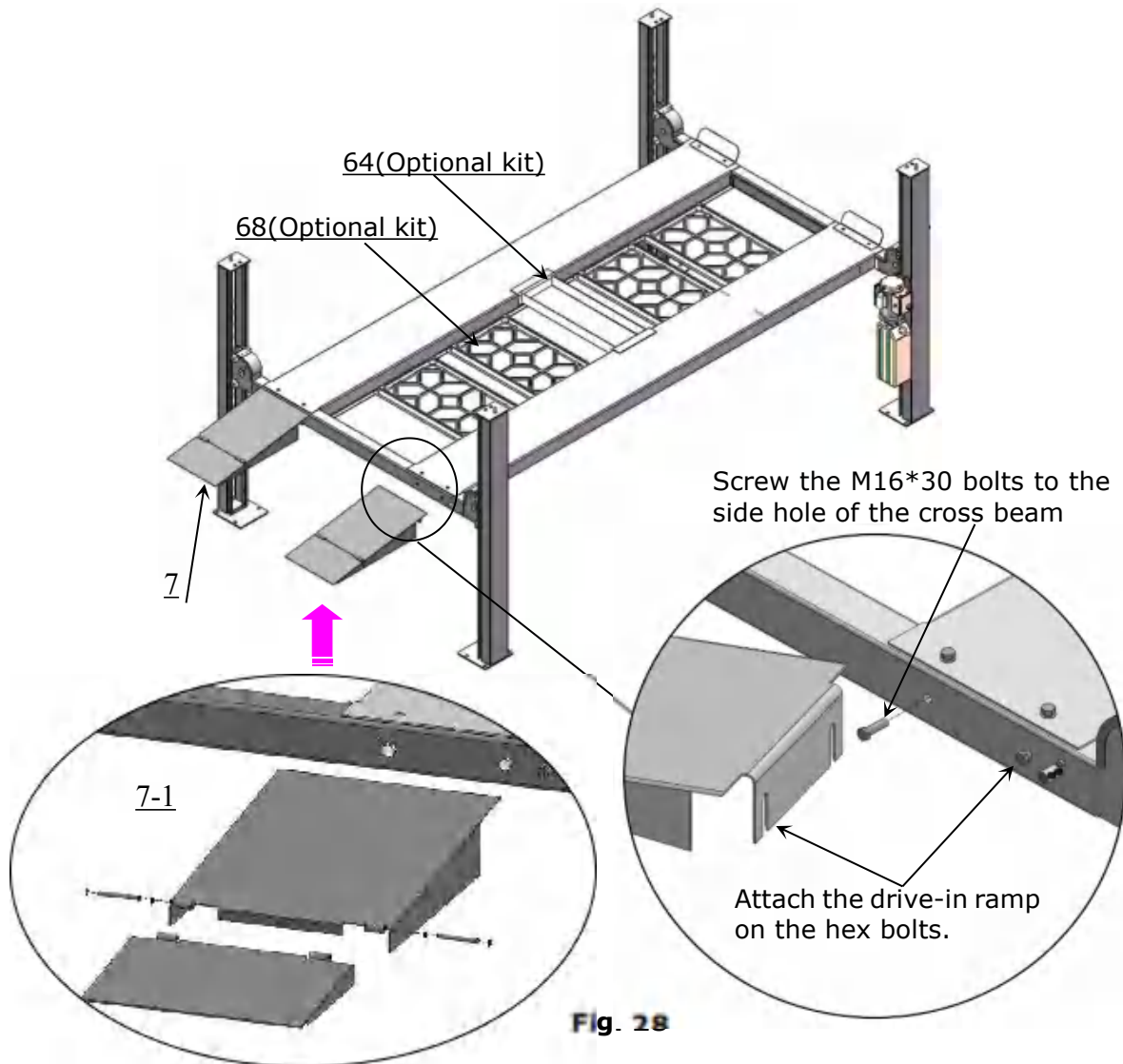


Fig. 27

**N. Install drive-in ramp, jack tray and plastic oil pans (See Fig. 28).**

According to the below diagram screw up the M16\*30 bolts, then attach the drive-in ramp.

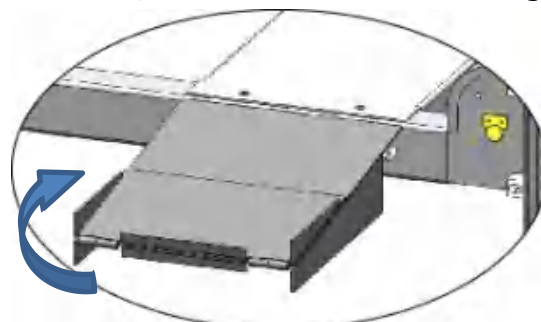


**Fig. 28**

<b>Parts list of folding drive-in ramp</b>				
<b>Item</b>	<b>Part#</b>	<b>Description</b>	<b>QTY.</b>	<b>Note</b>
7-1	1104233003A	Folding drive-in ramp 1	2	
7-2	1104233004A	Folding drive-in ramp 2	2	
7-3	1104543021	Connecting shaft of drive-in ramp	4	
7-4	10209010	Snap ring $\phi$ 10	8	

**O. Install Rear folding drive-in ramp (See Fig. 29)**

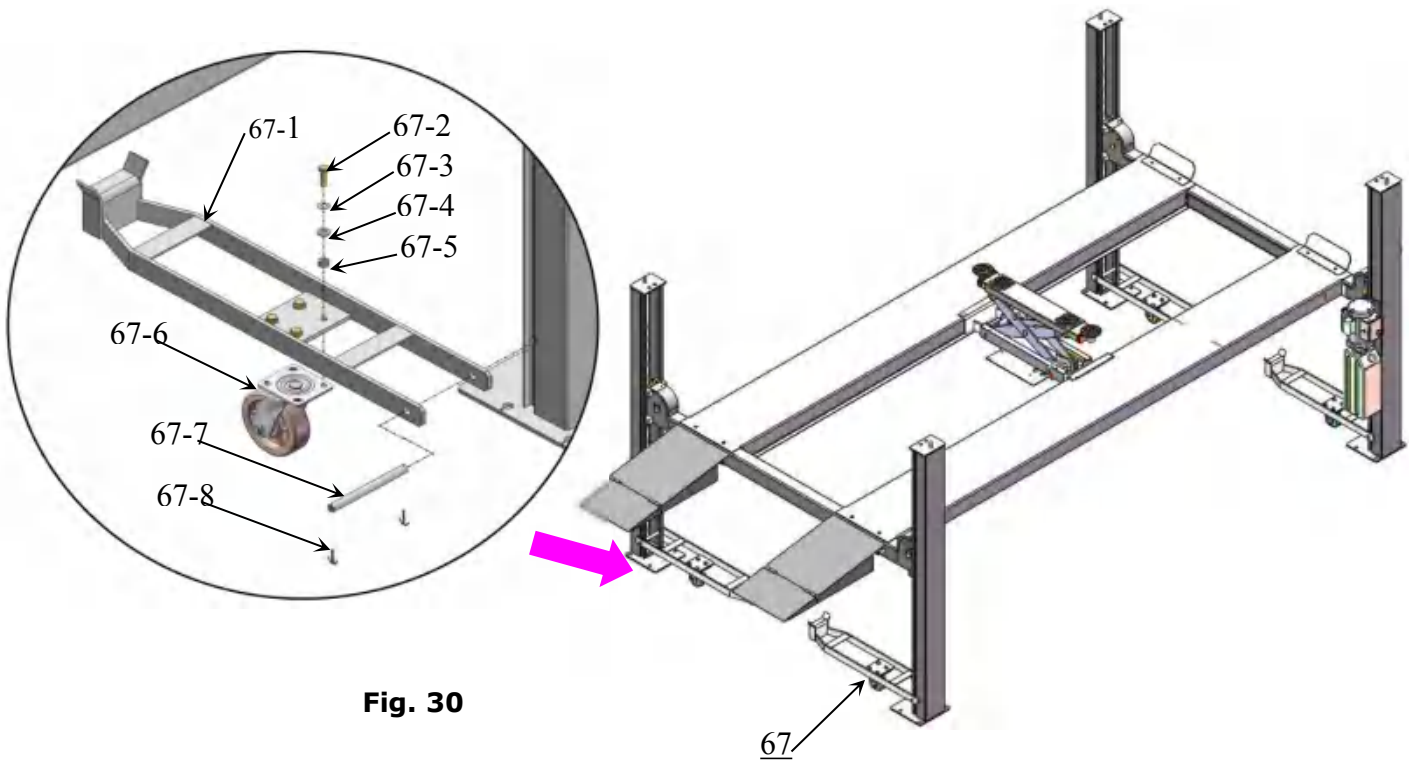
After the car is parked on the lift, the first half of the folding drive-in ramp will be folded up.



**Fig. 29**

**P. For optional kits installation.**

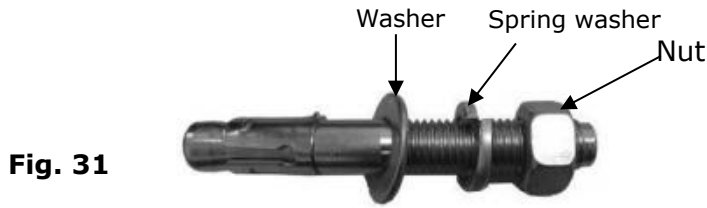
1. Install optional caster kits or Rolling jack (See Fig. 30)



**Fig. 30**

**Q. Fix the anchor bolts**

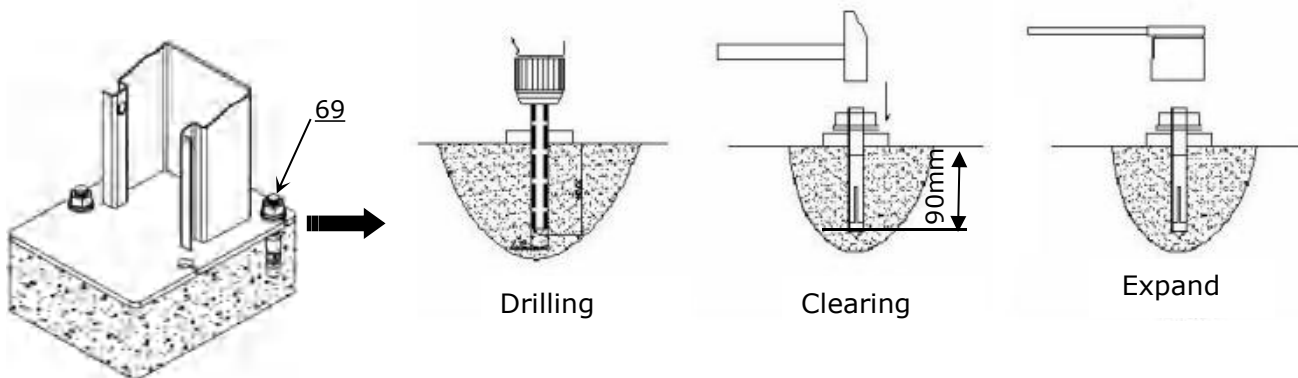
1. Prepare the anchor bolts (See Fig. 31).



**Fig. 31**

2. Using the prescribed rotary hammer drill, and drill all the anchor holes and install the anchor bolts. Do not tighten the anchor bolts (See Fig. 32).

**Note: The tightening torque for the anchor bolt is 150N.m ,Anchor bolts driven into the ground at least 90mm**



**Fig. 32**

# IV. EXPLODED VIEW

Model 409-HP

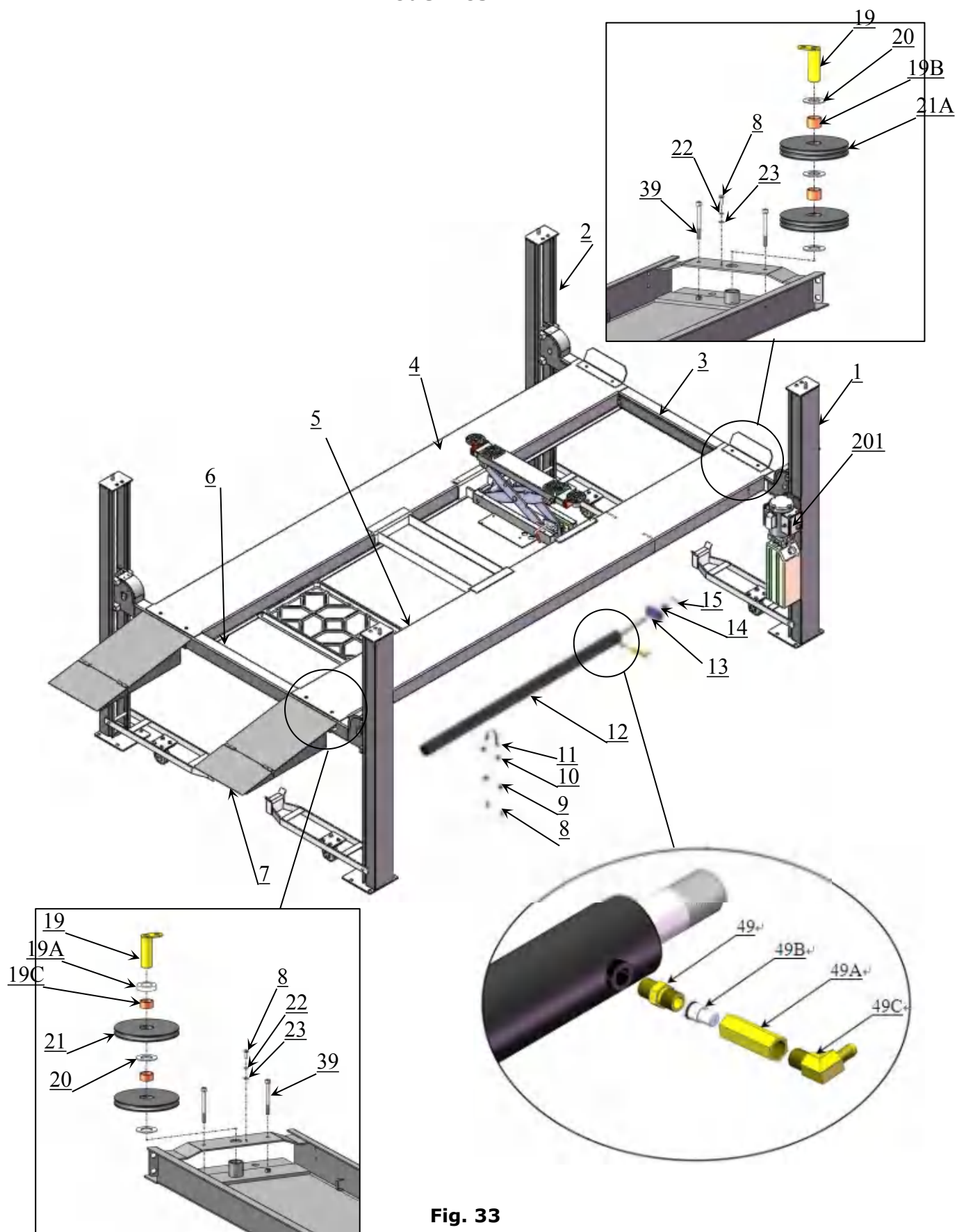


Fig. 33



## PARTS LIST FOR MODEL 409-HP

Item	Part#	Description	Qty.	Note
1	11410074-01	Power-side Column	1	
2	11410075-01	Offside Column	3	
3	11410050	Cross Beam A	1	
4	11410076-01	Offside Platform	1	
5	11410077A-01	Power-side Platform	1	
6	11410053	Cross Beam B	1	
7	1104233003C	Folding drive-in ramp	2	
8	10209043	Hex Bolt M8*20	8	
9	10209033	Washer φ8	36	
10	10209005	Nylok Nut M8	28	
10A	10217002	Hex nut M8	4	
11	11410090	Cylinder fixed ring	1	
12	10410070-01	Cylinder	1	
13	11413038	Cable connecting plate	1	
14	10420014	Hex Nut M27	1	
15	10201005	Cotter Pin φ4*50	1	
201	81513001	Manual power unit Single Phase	1	
	81513014	Manual power unit Three Phase		
17	10420175A	Hex nut M20	16	
18	11410073-01	Safety ladder	4	
19	11420022A	Pulley pin	2	
19A	10410106	Cushion tube φ60*12*13	1	
19B	10530042	Bronze bush φ41.3*φ35.1*28	2	
19C	10420132A	Bronze bush φ41.3*φ35.1*20	2	
20	10420023A	Washer φ36*φ65*3	13	
21	11420024B	Pulley	6	
21A	1104533023	Dual groove pulley	2	
22	10209034	Lock washer φ8	10	
23	10420144	Washer φ8*φ25*3	2	
24	10410013	Hex Bolt M16*30	8	
25	10420137	Lock washer φ16	8	
26	10420029	Washer φ16	8	
27	10410014	Hex Bolt M16*35	4	
28	11410015	Tire stop plate	2	
29	10206006	Washer φ12	12	
30	10420026	Lock washer φ12	8	
31	10410105	Hex Bolt M12*20 (grade 8.8)	8	
32	10410016A	Slider 81*38*38	16	
33	10410017	Socket bolt M8*40	16	
34	10201090	Shim(2mm)	20	
	10620065	Shim(1mm)	20	
35	10410171-01	① Cable φ9.52*3400mm	1	
36	10410172-01	② Cable φ9.52*9875mm	1	
37	10410170-01	③ Cable φ9.52*4980mm	1	
38	10410169-01	④ Cable φ9.52*8285mm	1	

Item	Part#	Description	Qty.	Note
39	10600015	Socket Bolt M10*120	4	
40	11410069-01	Connecting bar for safety device	2	
41	11410024	Connecting tube	1	
42	10209032	Socket bolt M8*25	4	
43	10217005	Plastic ball M10	1	
43A	10209056	Nylok Nut M10	1	
44	10410025	Socket bolt M8*35	4	
45	11410026	Safety release handle	1	
45A	11410100	Extended release handle	1	
46	10209004	Rubber ring φ8*φ20*3	4	
47	10209003	Hex Bolt M8*25	8	
48	10420166	90° Screw Fitting 6*8	1	
49	11420243	Straight Fitting for cylinder	1	
49A	10420245	Straight Fitting	1	
49B	10209119	Compensation valve	1	
49C	10201020	90° fitting	1	
50	10410137-01	Oil hose assy. 1/4*2250mm	1	
51	10420120	Extended straight fitting with nut	1	
52	1004533007	Oil hose assy. 1/4*1420mm	1	
53	10209060	90° Fitting of power unit	1	
54	10420095	Straight screw fitting 6*4	1	
55	10410072-01	Oil return hose L=6200mm	1	
56	1004533008	Bellows pipe φ20*1*1400mm	1	
57	10209145A	Round head bolt with washer M6*12	8	
58	10410029	Plastic cover of cross beam	4	
59	10410146	Spring φ14*2.0*75	4	
60	10420033	Spring φ14*1.8*100	4	
61	10410502	Parts box	1	
63	1104551003	Motor fixing plate	1	
69	10209059	Anchor bolt 3/4*5-1/2	16	
65	40809	Jack tray	1	
65A	40807	Oil tray	4	
66	96600005	Rolling Jack J6H	1	
67	40801	Caster kits	4	
<b>Optional Caster Kits</b>				
67-1	11410042A	Support bracket	4	
67-2	10209125	Hex bolt M10*30	16	
67-3	10209039	Lock washer φ10	16	
67-4	10209022	Washer φ10	16	
67-5	10209021	Hex nut M10	16	
67-6	10410035	Plastic wheel 6 inch	4	
67-7	11410034	Connecting pin φ19*216	4	
67-8	10209012	Hair Pin φ3.2	8	

## 4.1 CYLINDERS EXPLODED VIEW

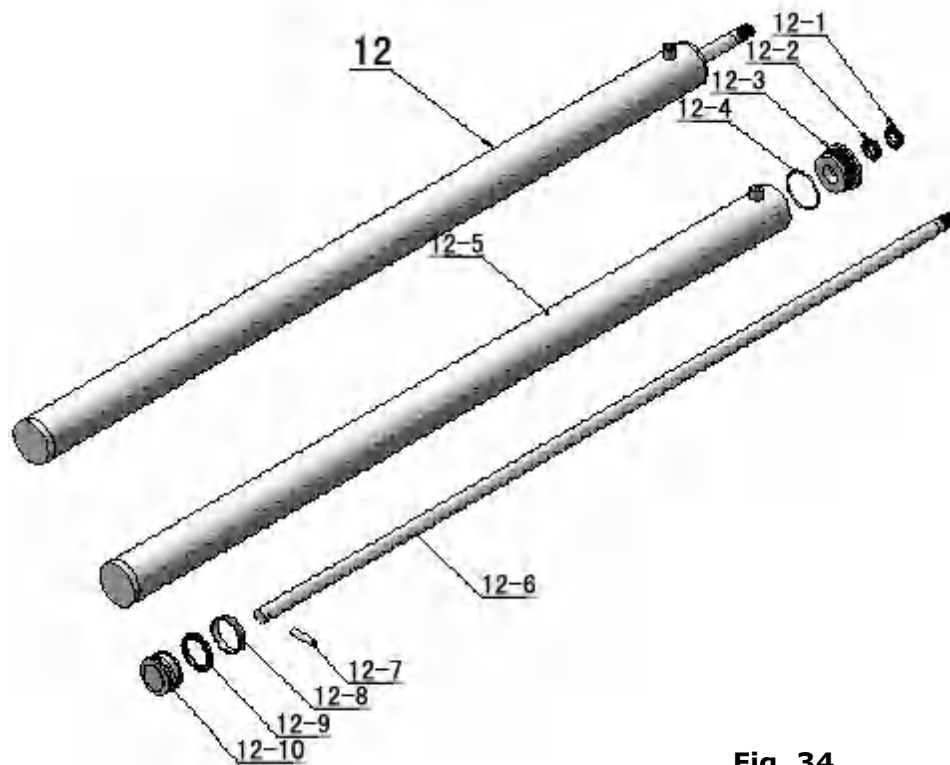
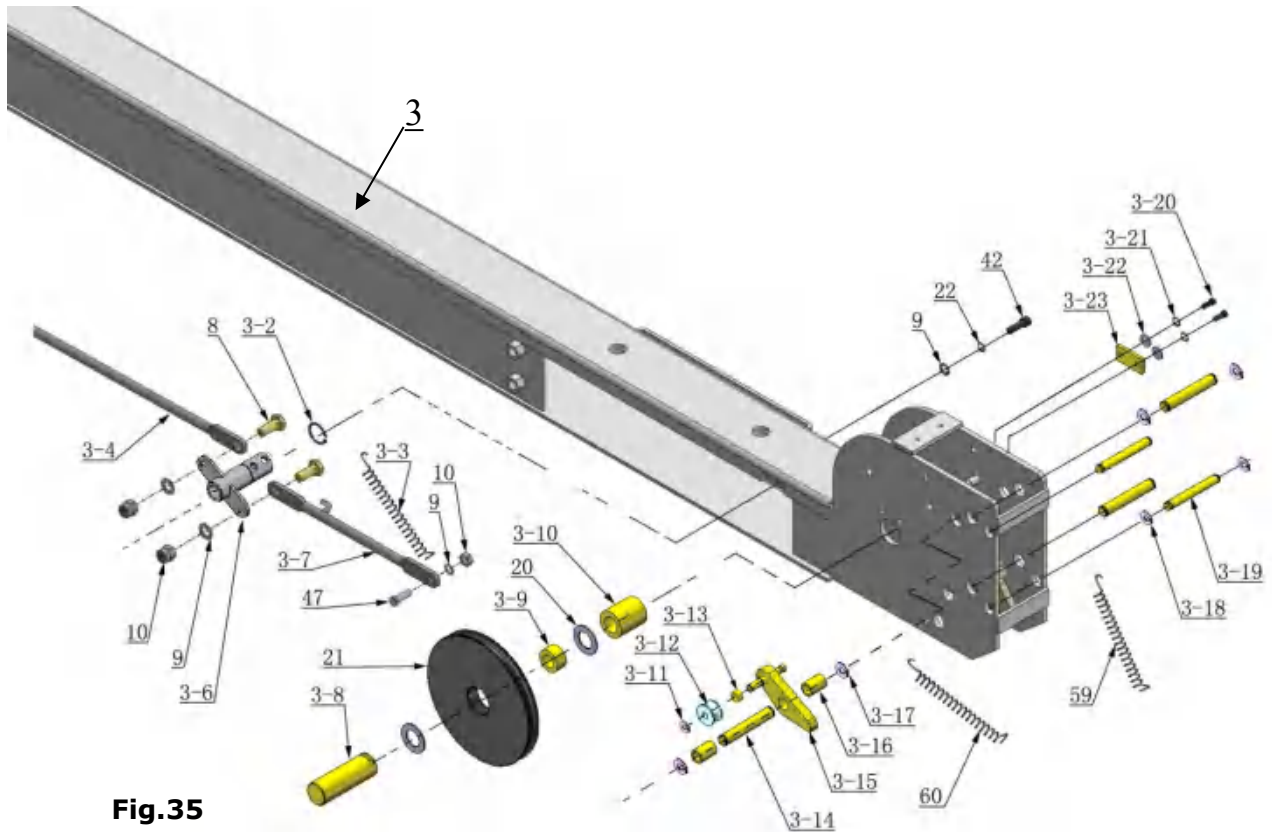


Fig. 34

Item	Part#	Description	Qty.	Note
12-1	10420059	Dust Ring	1	
12-2	10420060	Y- Ring ISI	1	
12-3	11410082	Head Cap	1	
12-4	10410083	O- Ring	1	
12-5	11410078-01	Bore Weldment	1	
12-6	11410079-01	Piston Rod	1	
12-7	11410085	Pin	1	
12-8	10410086	Support Ring	1	
12-9	10410087	Y- Ring OSI	1	
12-10	11410088	Piston	1	

## 4.2 CROSS BEAM EXPLODED VIEW



**Fig.35**

Item	Part#	Description	QTY.	Note
3-2	10206032	Snap ring $\phi 25$	2	
3-3	10410099	Spring $\phi 14 * \phi 2.5 * 100$	2	
3-4	11410063-01	Connecting bar of safety lock	2	
3-6	1104572003A	Safety lock rotating device	2	
3-7	11410064-01	Connecting bar of safety lock	2	
3-8	11420041A	Pulley Pin	4	
3-9	10420132A	Pulley Bush $\phi 41.3 * \phi 35.1 * 20$	10	
3-10	11420040A	Pulley pin sleeve	4	
3-11	10209010	Snap ring $\phi 10$	4	
3-12	10420035	Tension pulley(white)	4	
3-13	11420174	Spacer	4	
3-14	11420171	Pin	12	
3-15	11420175	Safety lock (Left & Right)	2/ea.	
3-16	11420172	Pin bush	8	
3-17	10206019	Clip ring $\phi 19$	24	
3-18	10420037	Clip ring $\phi 16$	16	
3-19	11420038	Pin	8	
3-20	10420138	Socket Bolt M6*16	8	
3-21	10209149	Lock washer $\phi 6$	8	
3-22	10420045	Washer $\phi 6$	8	
3-23	11420044	Limit block	4	

### 4.3 Manual power unit 110V/60Hz (071109)

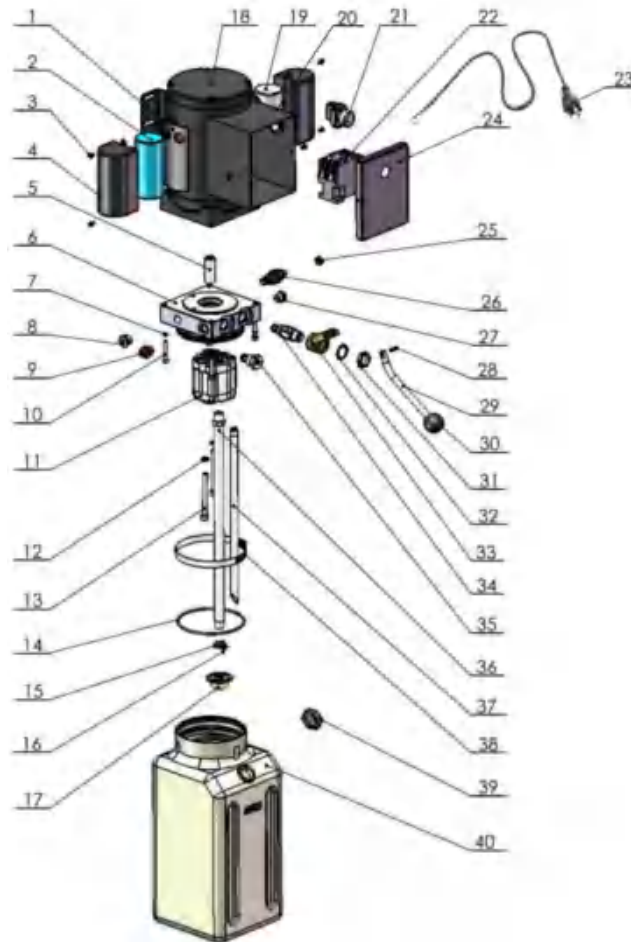


Fig.36

Item	Part#	Description	Qty.	Item	Part#	Description	Qty.
1	81400180	Rubber Pad	2	21	10420070	Push button	1
2	80101034	Starting capacitor	1	22	81400559	AC connector	1
3	10420148	Round Head Bolt with washer	6	23	80101039	Wire plug	1
4	81400527	Cover of capacitor	2	24	81400528	Cover of Motor Terminal Box	1
5	81400363	Motor Connecting Shaft	1	25	81400560	Throttle valve	1
6	80101013	Manifold block	1	26	81400266	Relief valve	1
7	10209149	Lock Washer	4	27	81400284	Inner hex iron plug	1
8	81400276	Iron plug	1	28	81400452	Snap pin	1
9	81400259	Red rubber plug	1	29	81400451	Release valve handle	1
10	85090142	Socket bolt	4	30	10209020	Plastic ball for handle	1
11	81400312	Gear pump	1	31	81400421	Release valve nut	1
12	10209034	Lock Washer	2	32	81400422	Nylok washer	1
13	81400295	Socket bolt	2	33	81400449	Valve Seat(Low)	1
14	81400365	O ring	1	34	81400567	Release Valve	1
15	10209152	Zip Tie	1	35	80203001	Check Valve	1
16	85090167	Magnet	1	36	81400288	Oil suction pipe	1
17	81400290	Filter net	1	37	81400289	Oil return pipe	1
18	81400412	Steel Motor	1	38	81400364	Clamp(stainless steel)	1
19	80101035	Run capacitor	1	39	81400263	Oil tank cap	1
20	81400530	Motor Terminal Box	1	40	81400275	Oil tank	1

## Illustration of hydraulic valve for power unit

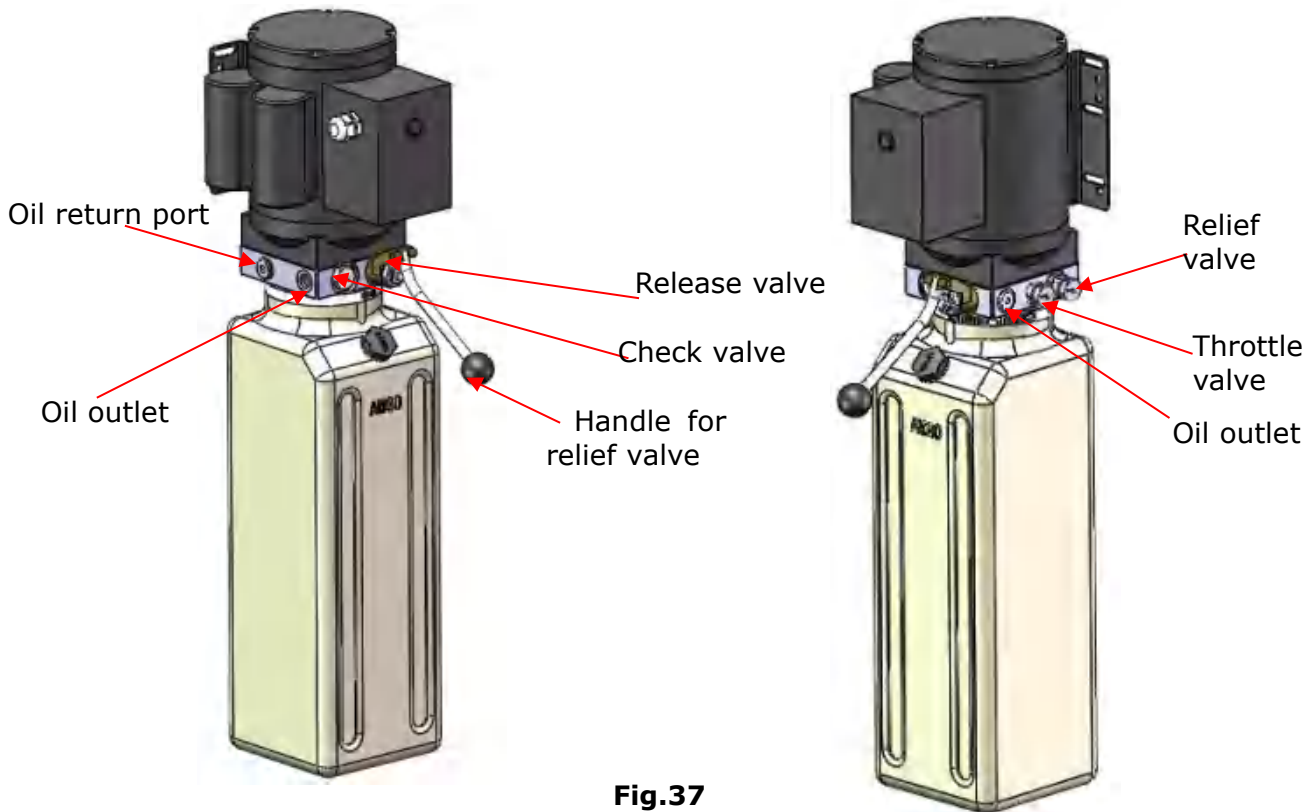
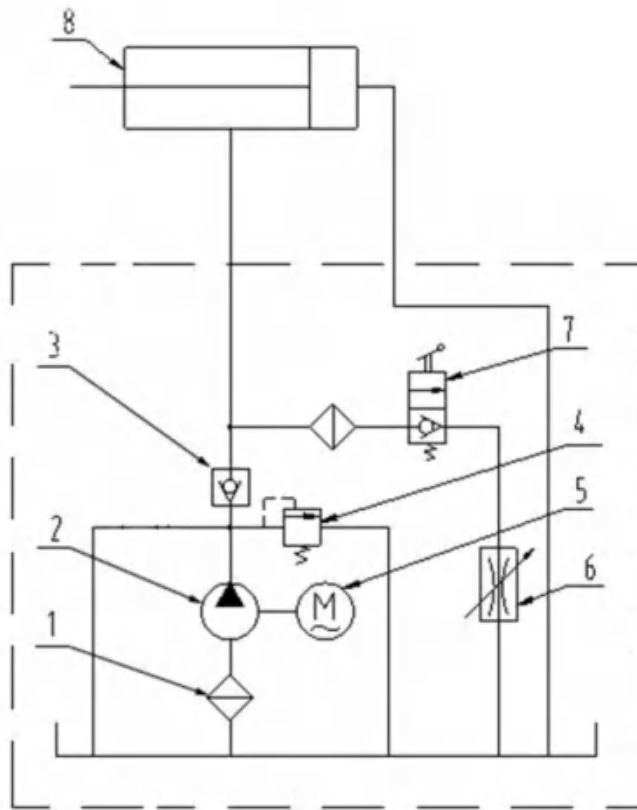


Fig.37

## V. TEST RUN

1. Fill the reservoir with approximately 11L Hydraulic Oil (**Note:** In consideration of Power Unit's durability, please use **Hydraulic Oil 46#**).
2. Press the button **UP**, till the cables are strained. Check the match between cables and pulleys, cables should not cross or out of pulleys.
3. Press button **DOWN**, lock the cross-beam to the safety ladders, and level the platforms by adjusting the nuts on the safety ladders. Tighten the upper and lower nuts of safety ladders after leveling.
4. Adjust the tension of cables by cable adjusting nuts. For synchronous adjustment, it is necessary to operate the lift up and down several times. After the cable is adjusted, keep in mind that the two nuts of the cable should be fastened to each other until the four safety locks can be locked or released at the same time.
5. Adjust the clearance between the column and slider of cross-beam to ensure that slider can slide smoothly with the column. Do not tighten the slider.
6. After the above adjustment is completed, 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.

## Circuit Diagram of Hydraulic System



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1. Filter
2. Gear pump
3. Check valve
4. Relief Valve
5. Motor
6. Throttle Valve
7. Release Valve
8. Cylinder For Four-post lift

**Fig.38**

## 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. Take off the drive-in ramp, install rear wheel stop plates to the drive-in ramp position.
4. Turn on the power and press the control button, raise the lift to the working position.

**Note: make sure the vehicle is steady when the lift is raised.**

5. Press the release valve handle 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 control button, the lift will be raised for 3-5 seconds, and then press the safety release handle, make sure the safety device released, press the release valve handle 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. Take off the rear wheel stop plates and install drive-in ramp, then left the lift.
4. Turn off the power.

## **VII. MAINTENANCE SCHEDULE**

### **Monthly:**

1. Lubricate cable with lubricant;
2. Check all cable connection, bolts and pins to insure proper mounting;
3. Make a visual inspection of all hydraulic hoses/lines for possible wear or leakage;
4. Lubricate all rollers, safety devices with 90wt. gear oil or equivalent.

### **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.

### **Oil cylinder maintenance:**

In order to extend the service life of the oil cylinder, please operate according to the following requirements.

1. Recommend to use N46 anti-wear hydraulic oil.
2. The hydraulic oil of the lifts should be replaced regularly during using. Replace the hydraulic oil 3 months after the first installation, Replace the hydraulic oil once a year afterwards.
3. Make at least one full trip raising and lowering per day. For exhausting the air from the system, which could effectively avoid the corrosion of the cylinder and damage to the seals caused by presence of air or water in the system.
4. Protect the outer surface of the oil cylinder's piston rod from bumping and scratching, and timely clean up the debris on the oil cylinder dust-ring and the piston rod.



## VIII. TROUBLE SHOOTING

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

## IX. LIFT DISPOSAL:

When the car lift cannot meet the requirements for normal use and needs to be disposed, it should follow local laws and regulations.



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