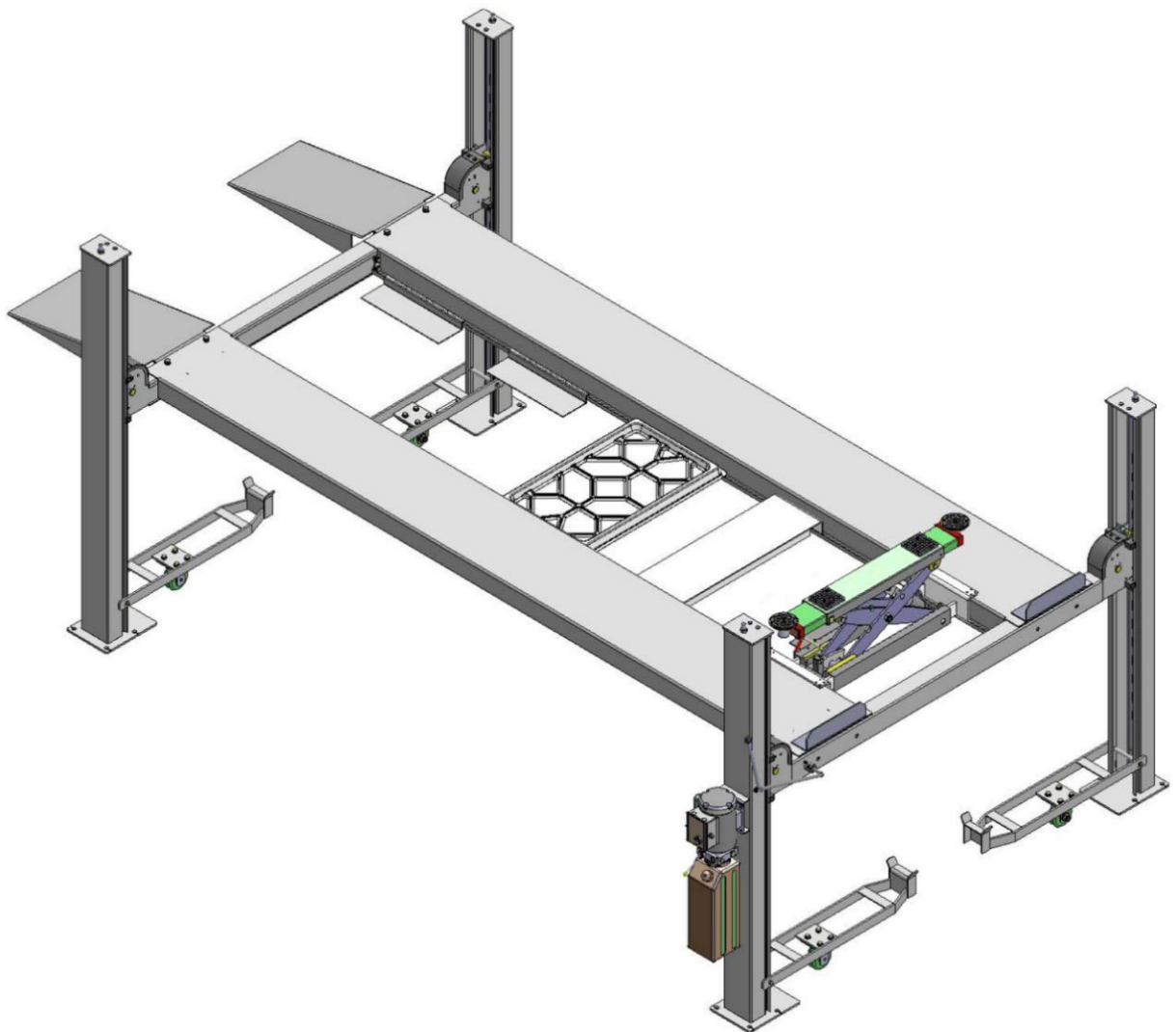


# AMGO® Hydraulics

Original

## Installation And Service Manual



**Four-Post 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.

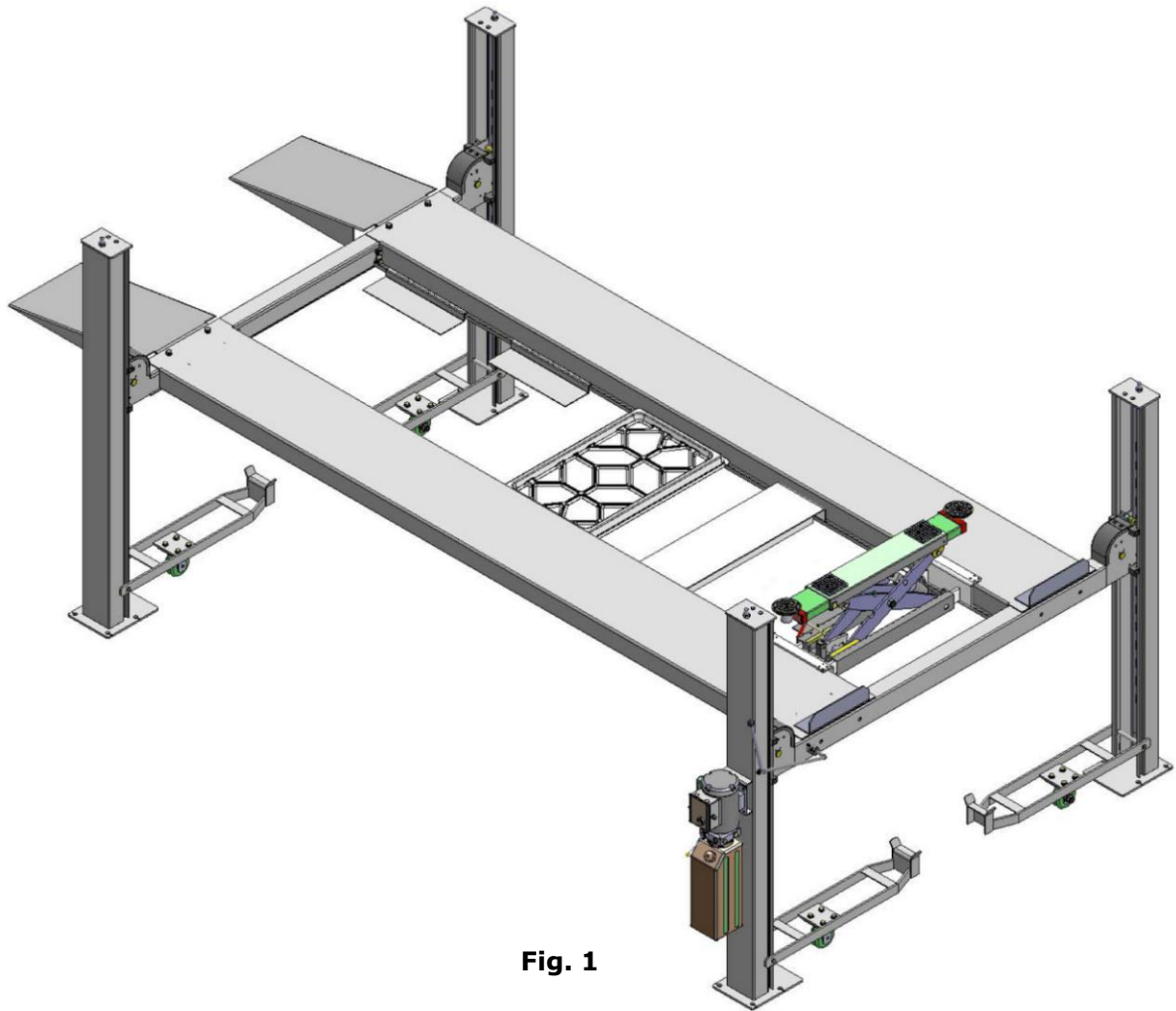


Fig. 1

### MODEL 409-HP SPECIFICATIONS

Model	Lifting Capacity	Lifting Height	Lifting Time	Overall Length (Inc. Ramps)	Overall Width	Width Between Columns	Motor
409-HP	4.0T (9,000 lbs)	2172mm (85 1/2")	122S	5857mm (230 5/8")	3206mm (126 1/4")	2860mm (112 5/8")	110V/1.0HP

## 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.**



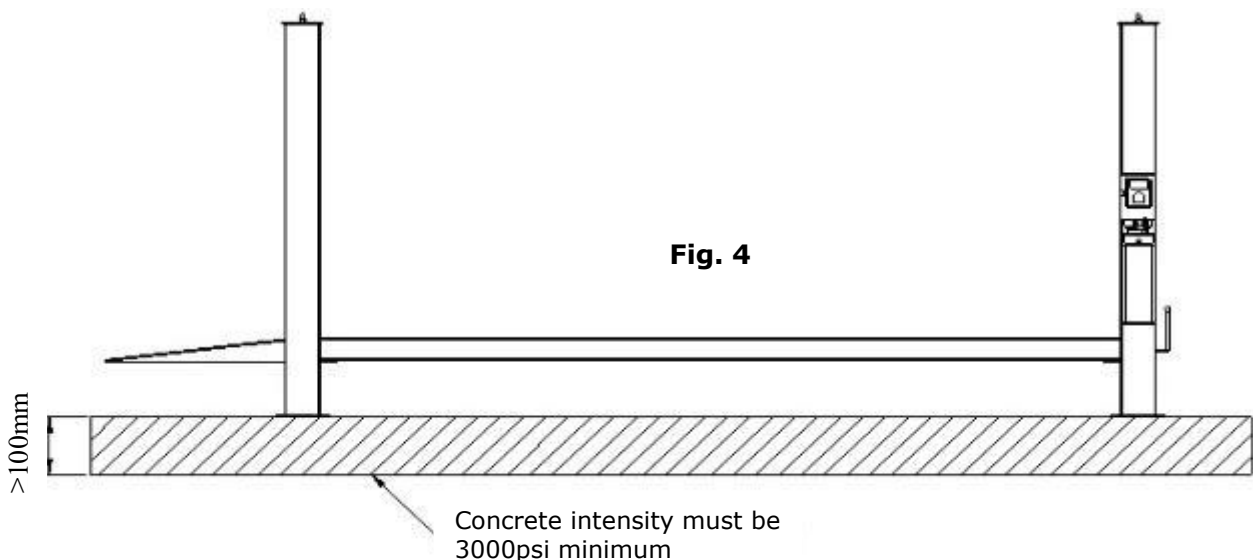
**Fig.3**

**E. 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.



**F. 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).

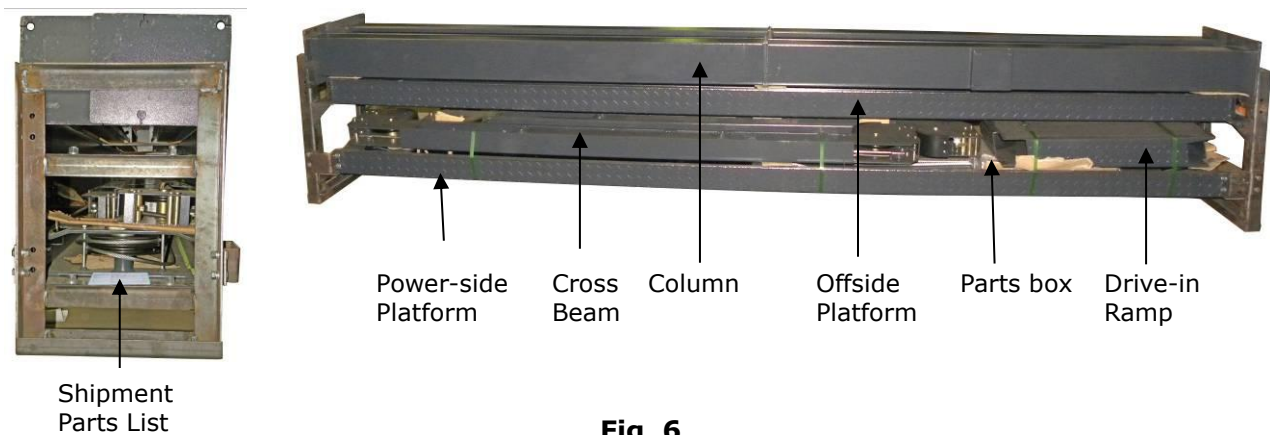


Fig. 6

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

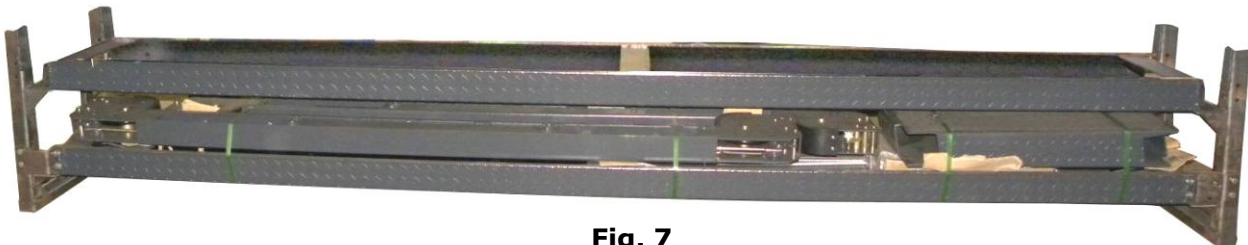
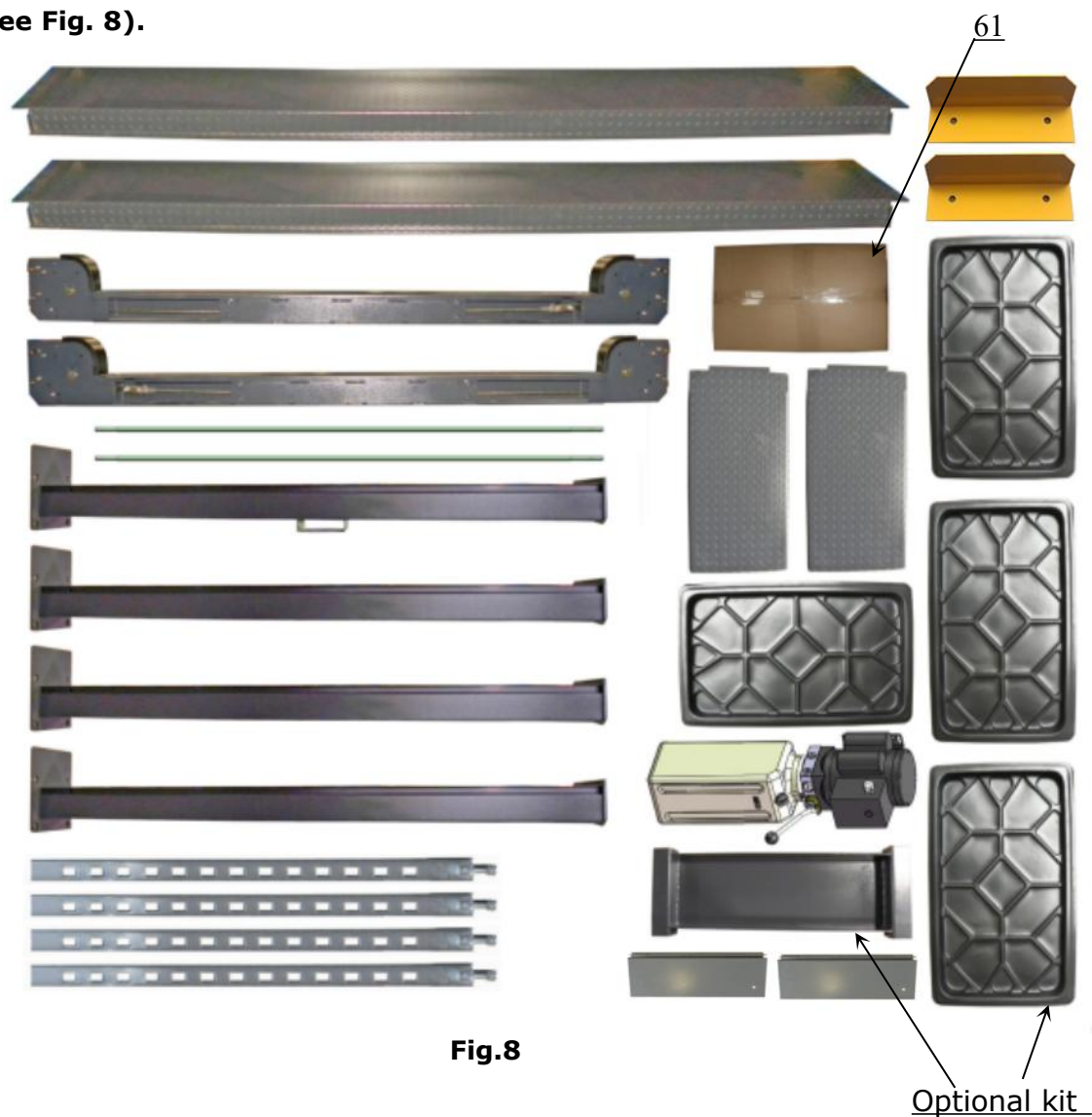


Fig. 7

4. Loose 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).

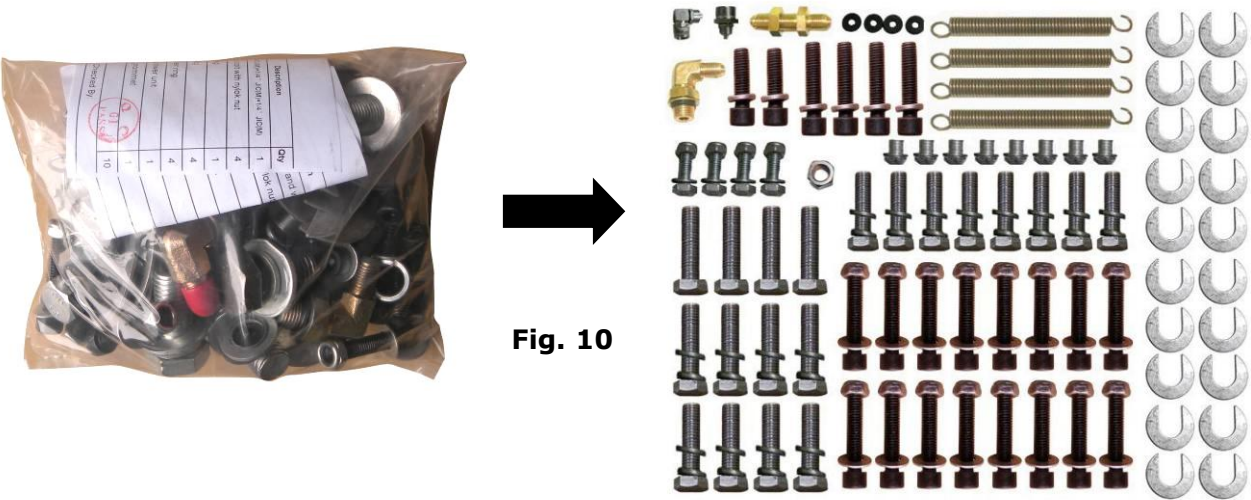


6. Open the carton of parts and check the parts according to the parts box list  
(See Fig. 9).



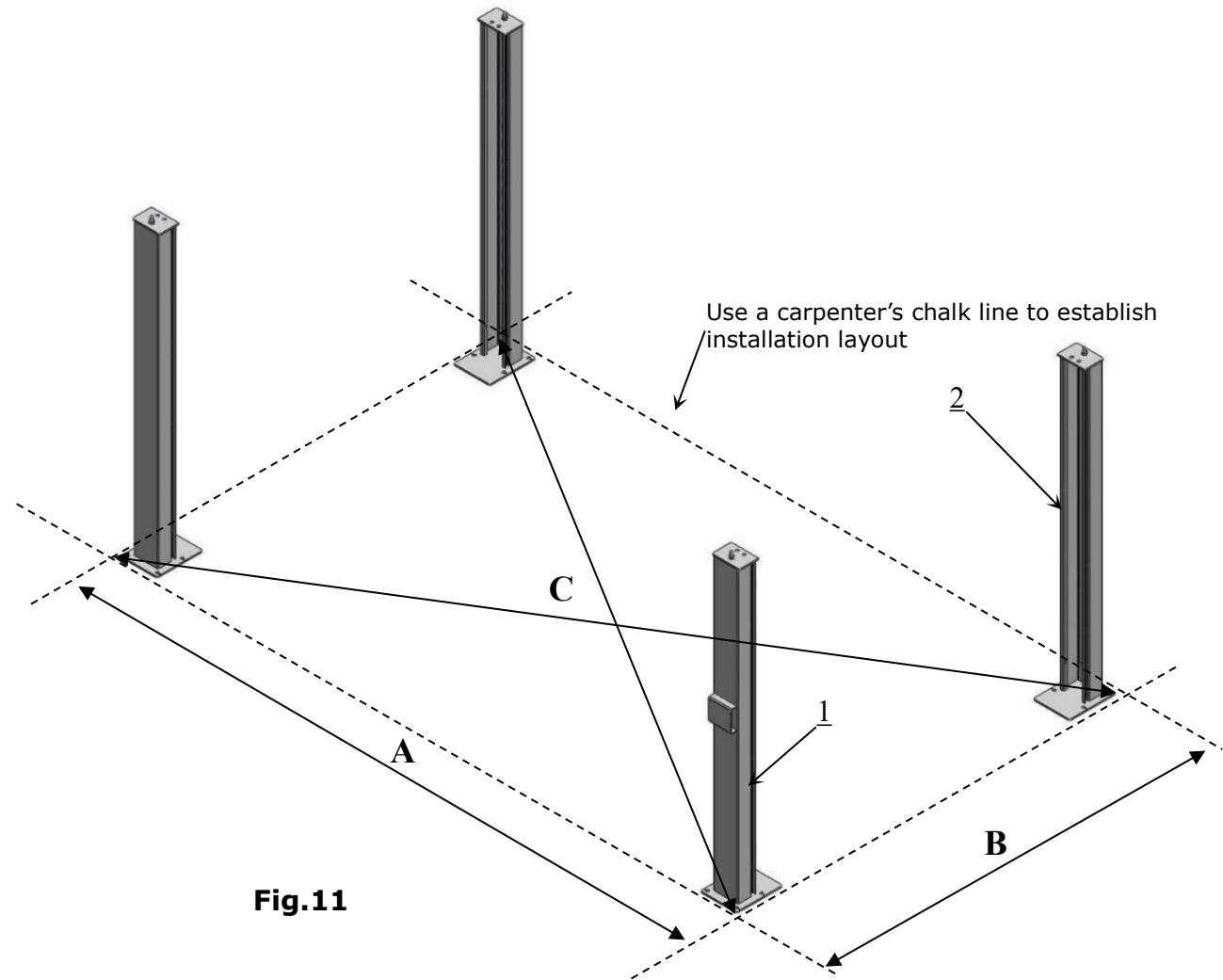
Fig. 9

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



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).

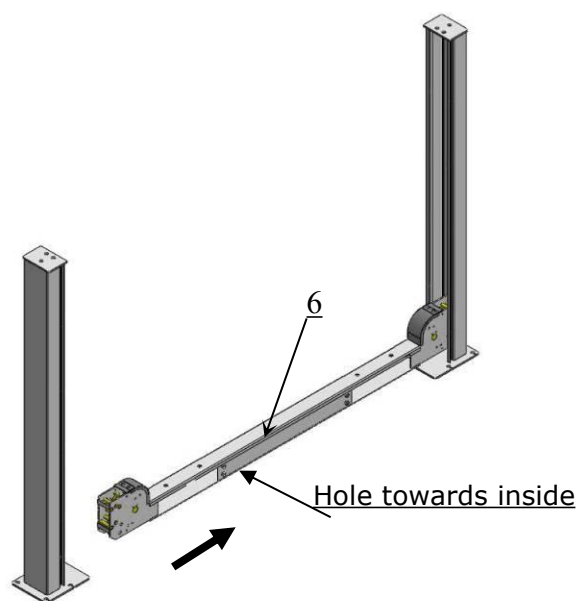
**Note: Reserve space front and behind the installation site.**



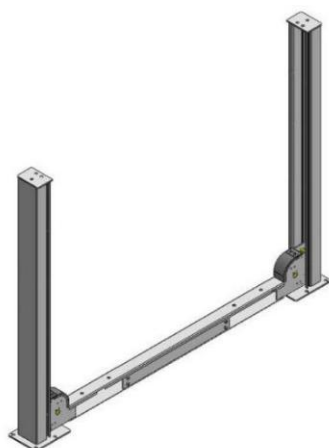
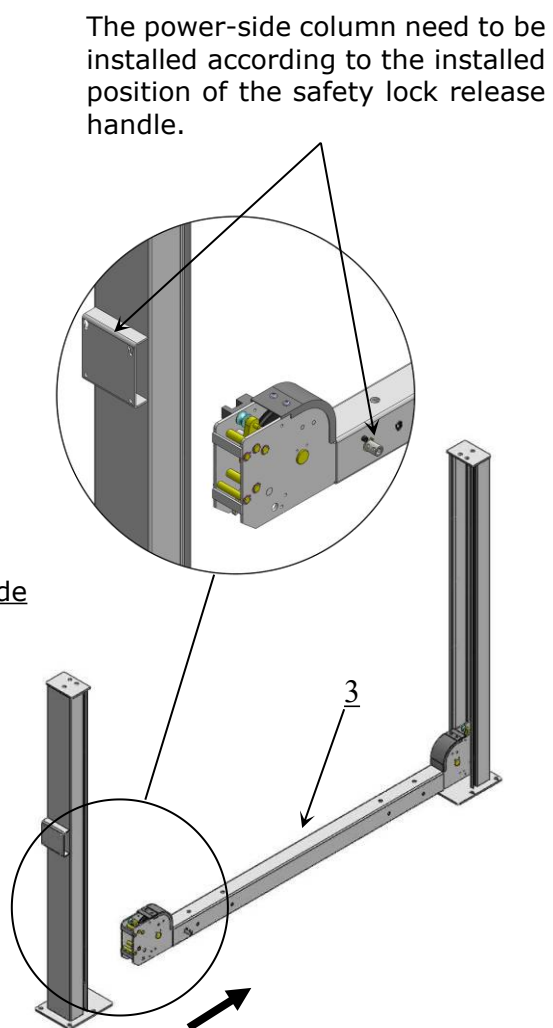
MODEL	A	B	C	REMARK
409-HP	5000mm 196 7/8"	3206mm 126 1/4"	5940mm 233 8"	



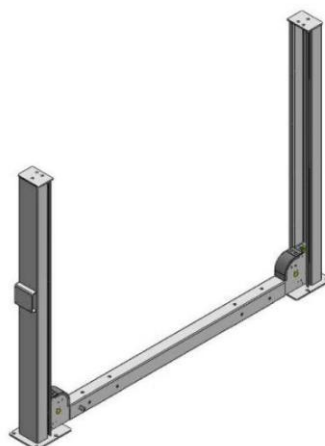
**C. Install cross beams (See Fig.12, Fig.13).**



**Fig.12**

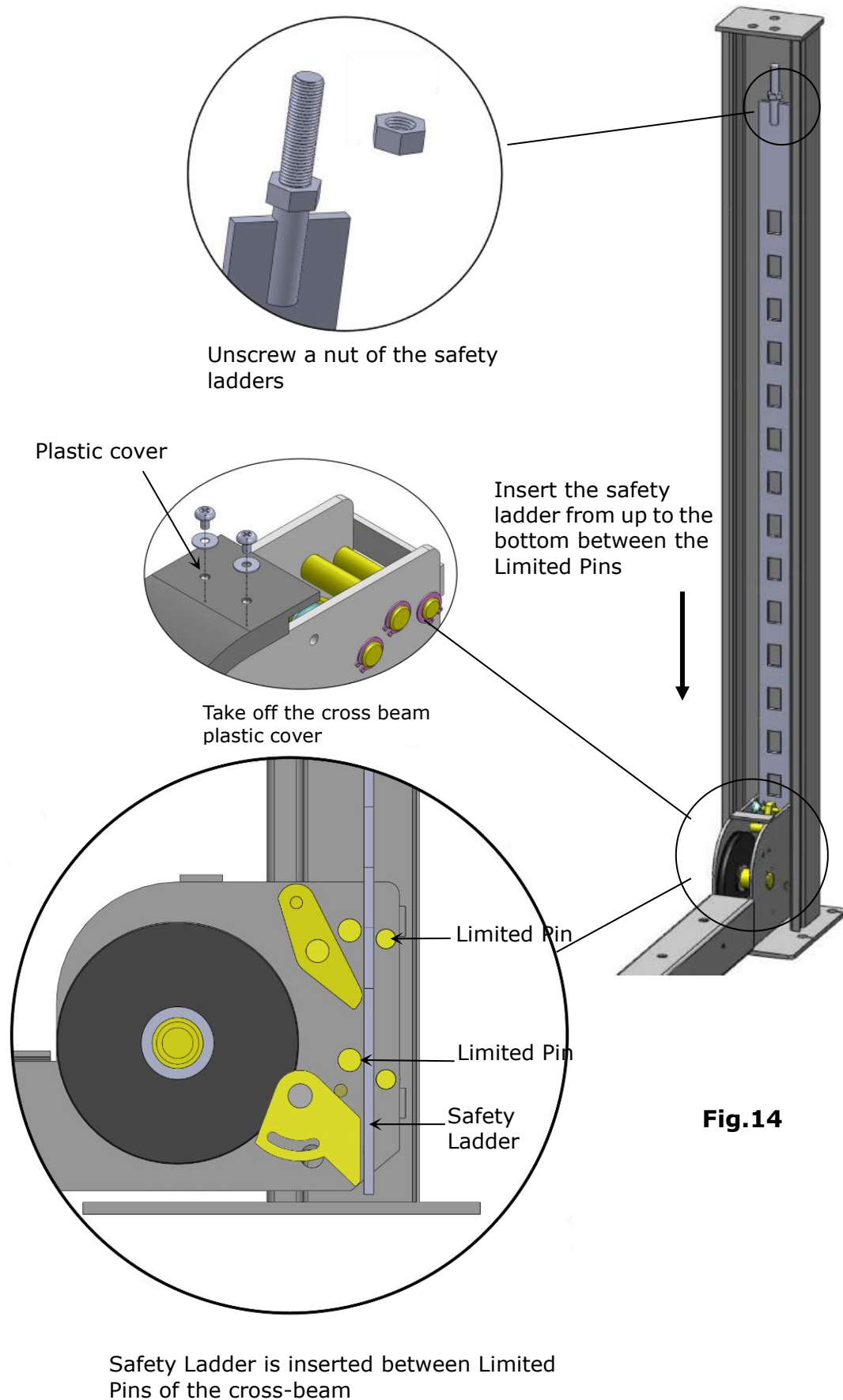


**Fig.13**

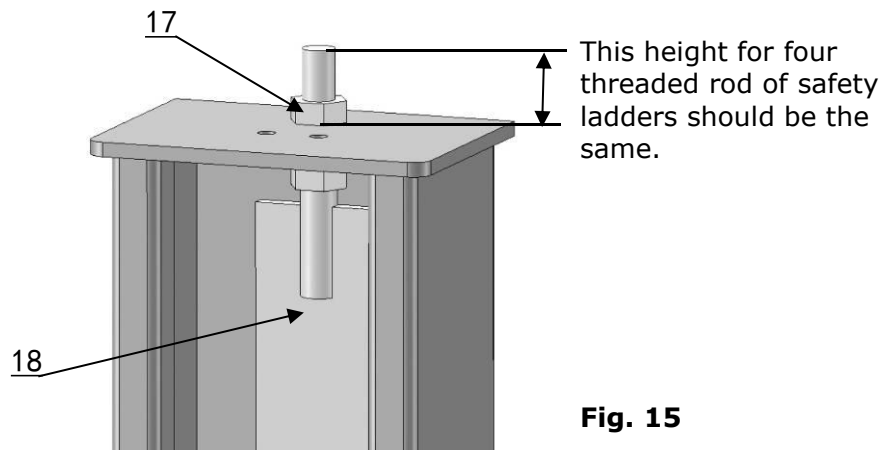


#### D. Install the Safety Ladders.

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**).



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



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

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

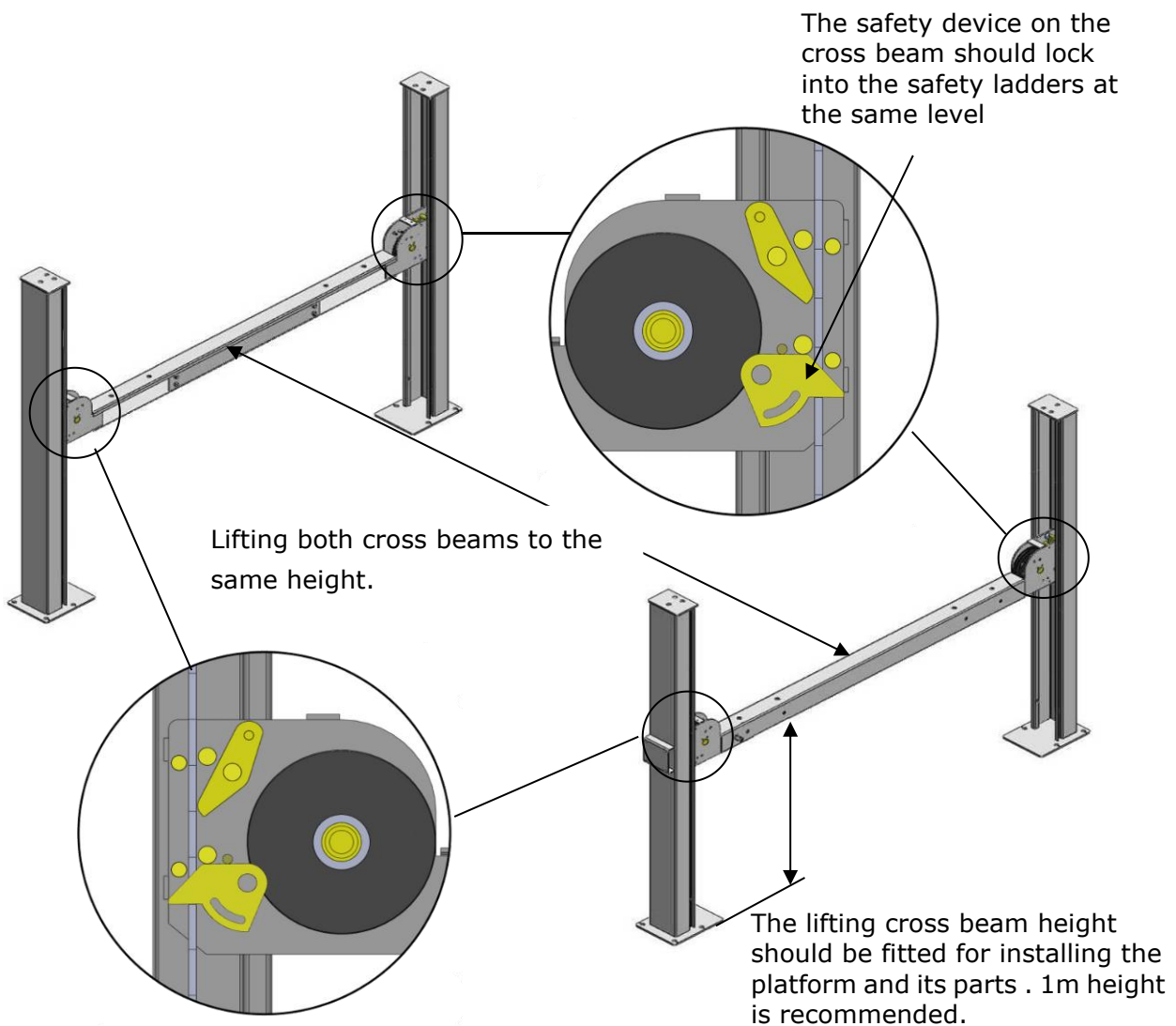
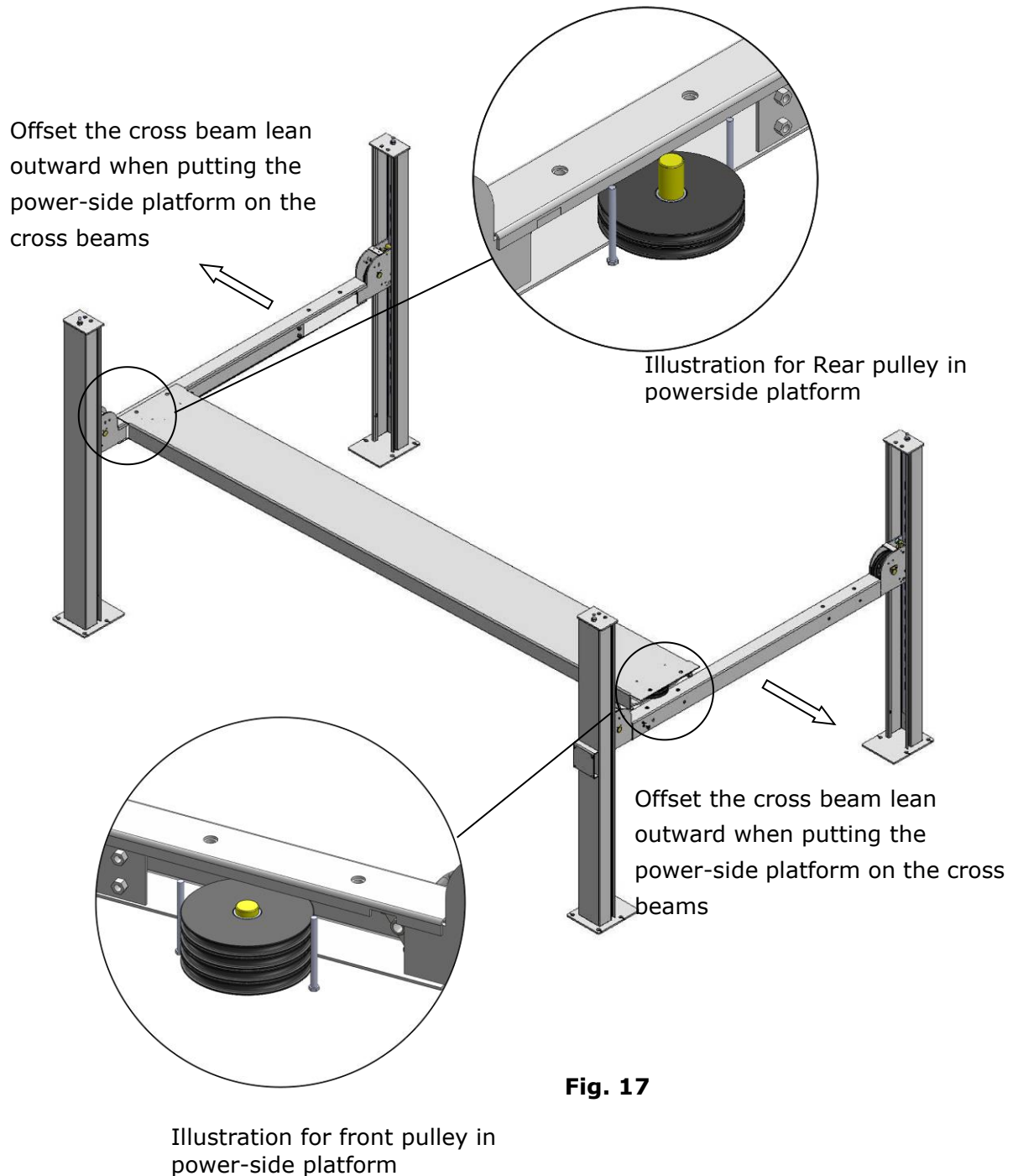


Fig. 16

## 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.



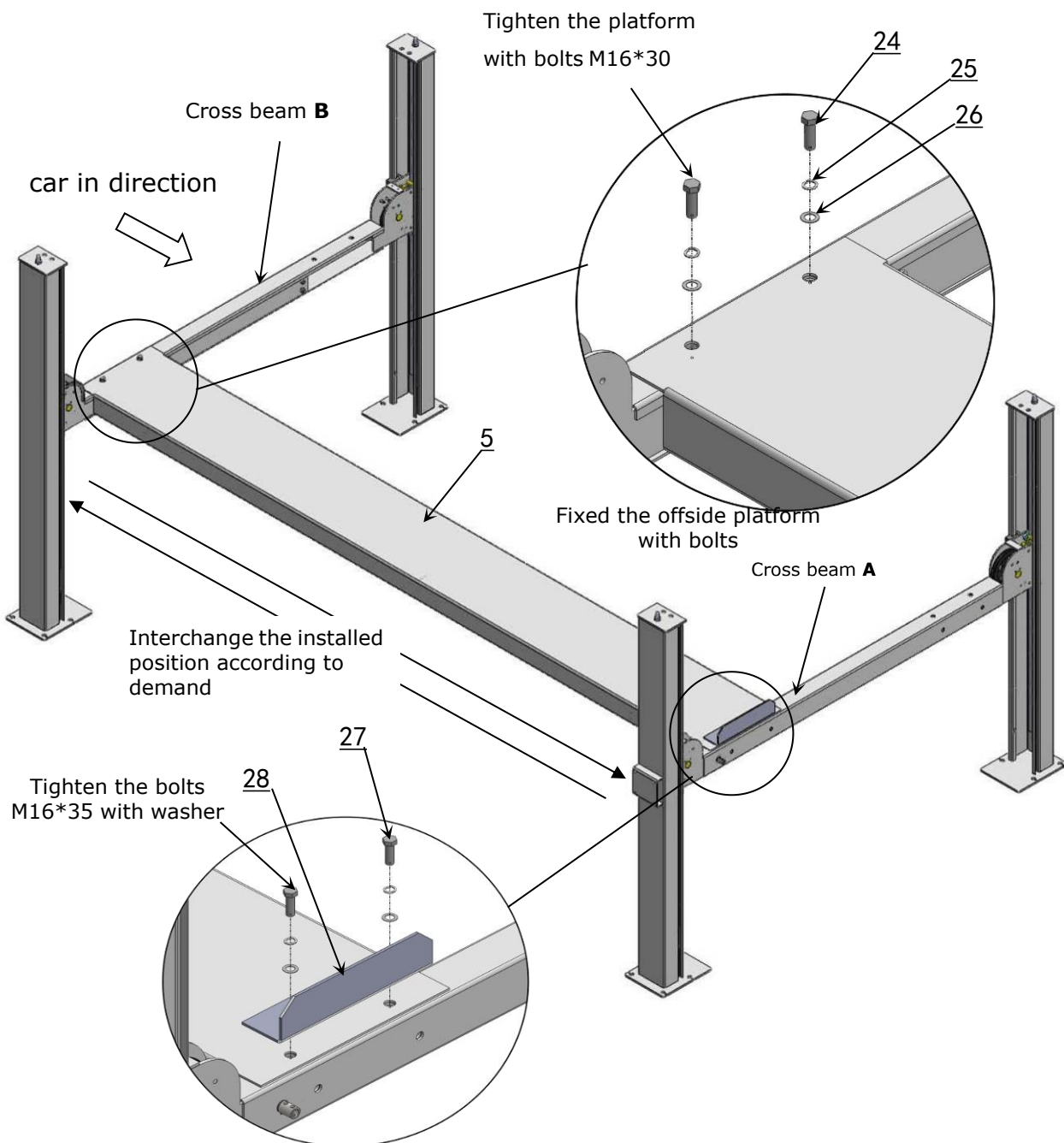
**Fig. 17**

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**)

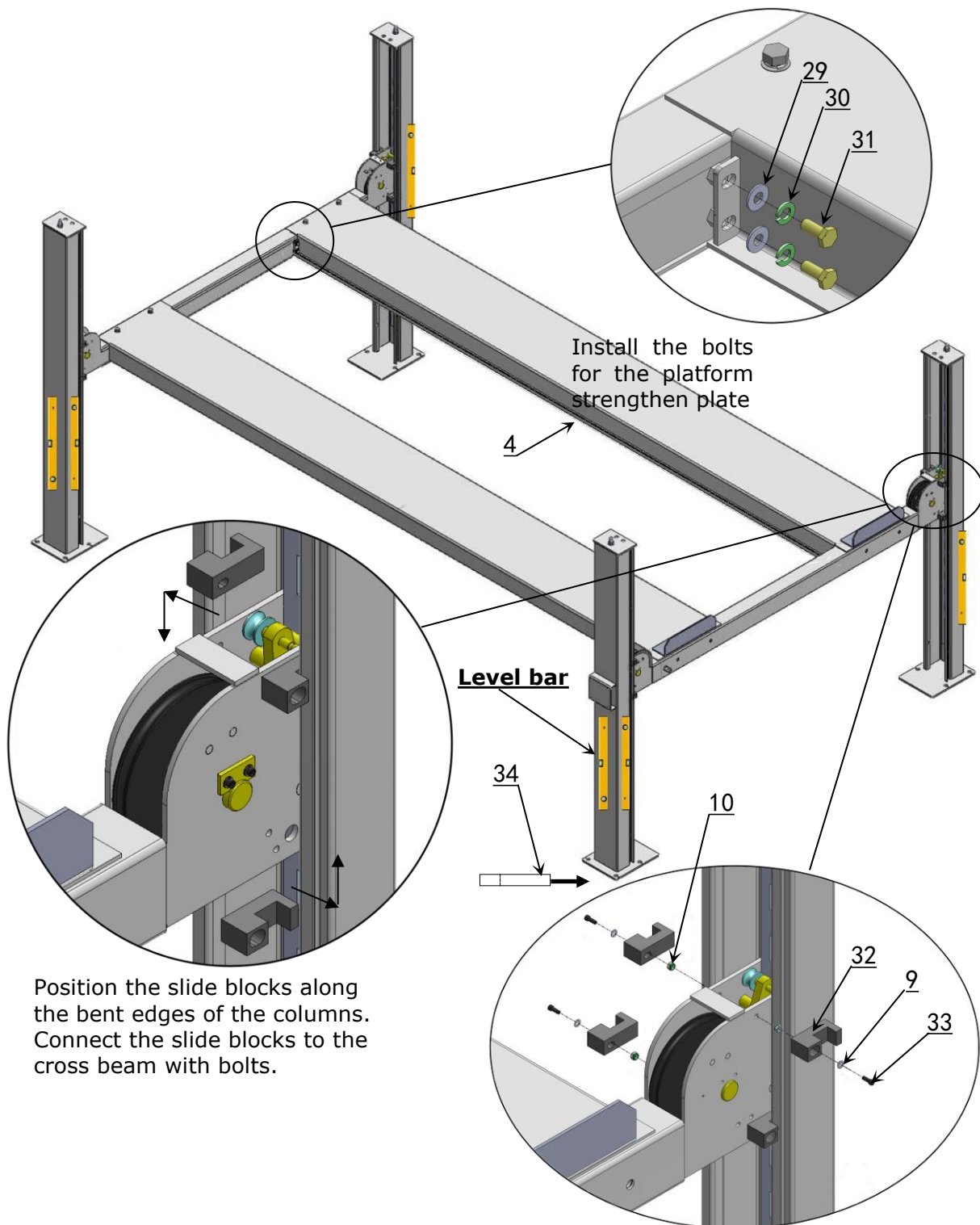
**Instruction:** 1). This lift is designed in both side (cross beam **A** and cross beam **B**) car in direction, user can install the lift according to the location. Below is the installation for the side of cross beam **B** car in direction. If choosing the side of cross beam **A** car in direction, then install the tire stop plate to the other side.

2). Powerside column can be installed at any position on customers' requirement, but the power unit must be installed near the side with the safety lock release handle.



**Fig. 18**

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



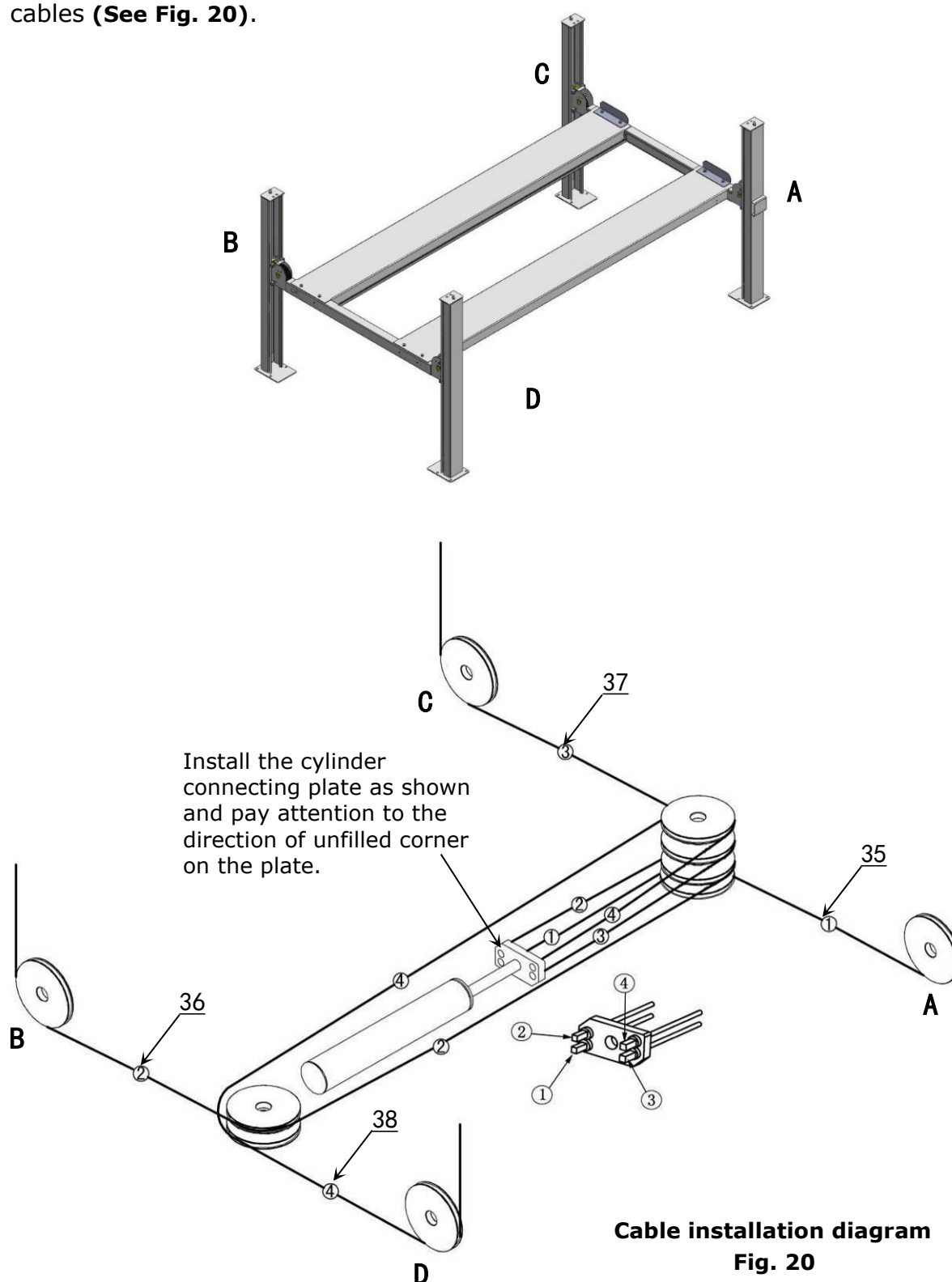
**Note: DO NOT** completely tighten the limit slide blocks. Loosen 1/4 lap after tightening.

**Fig. 19**



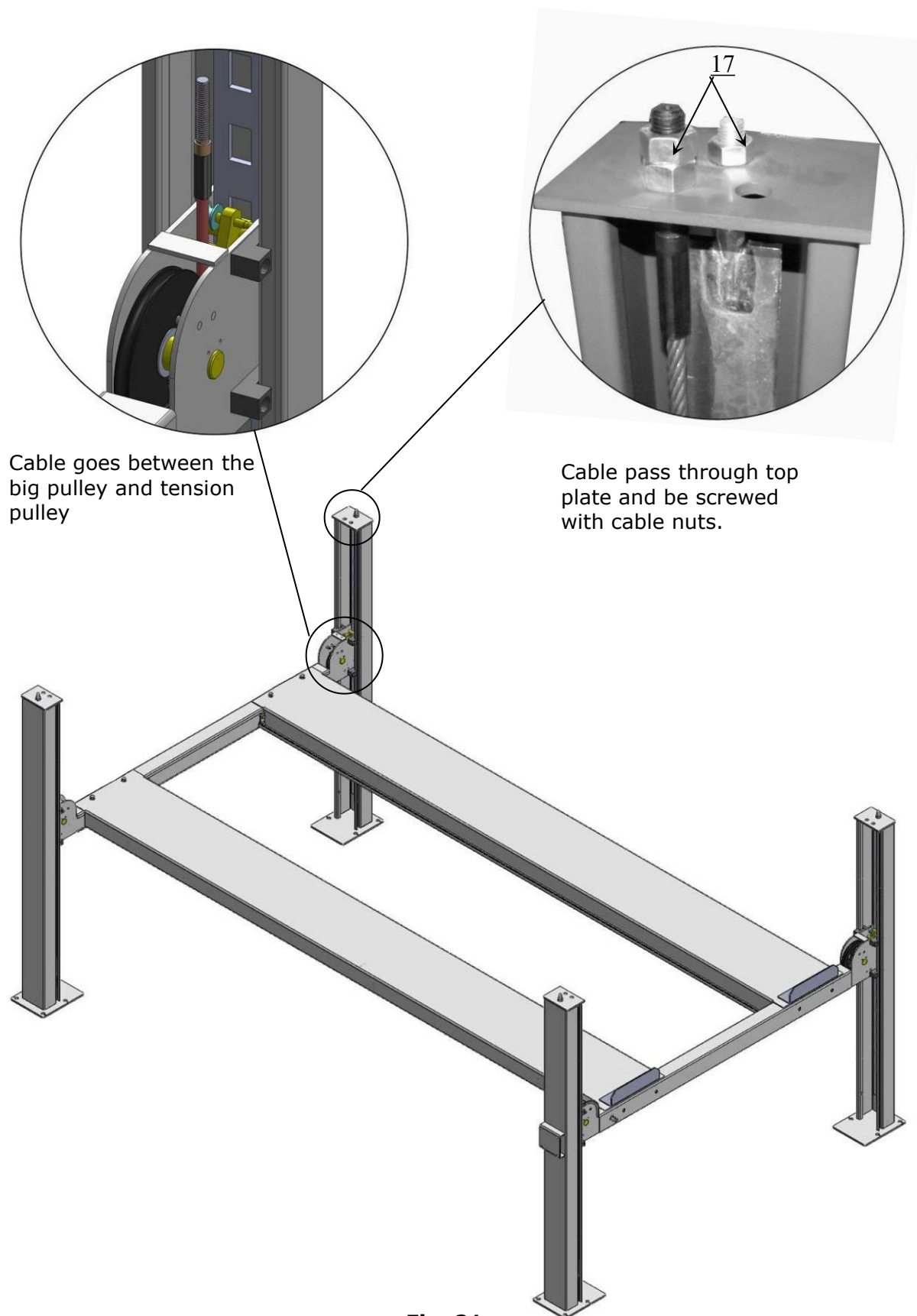
## H. Illustration for cable installation

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



NO.	①	②	③	④
Cable				
Length for 409-HP (inc. connecting fitting)	3370mm 132 3/4"	9725mm 382 7/8"	4945mm 194 3/4"	8160mm 321 1/4"

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



**Fig. 21**

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

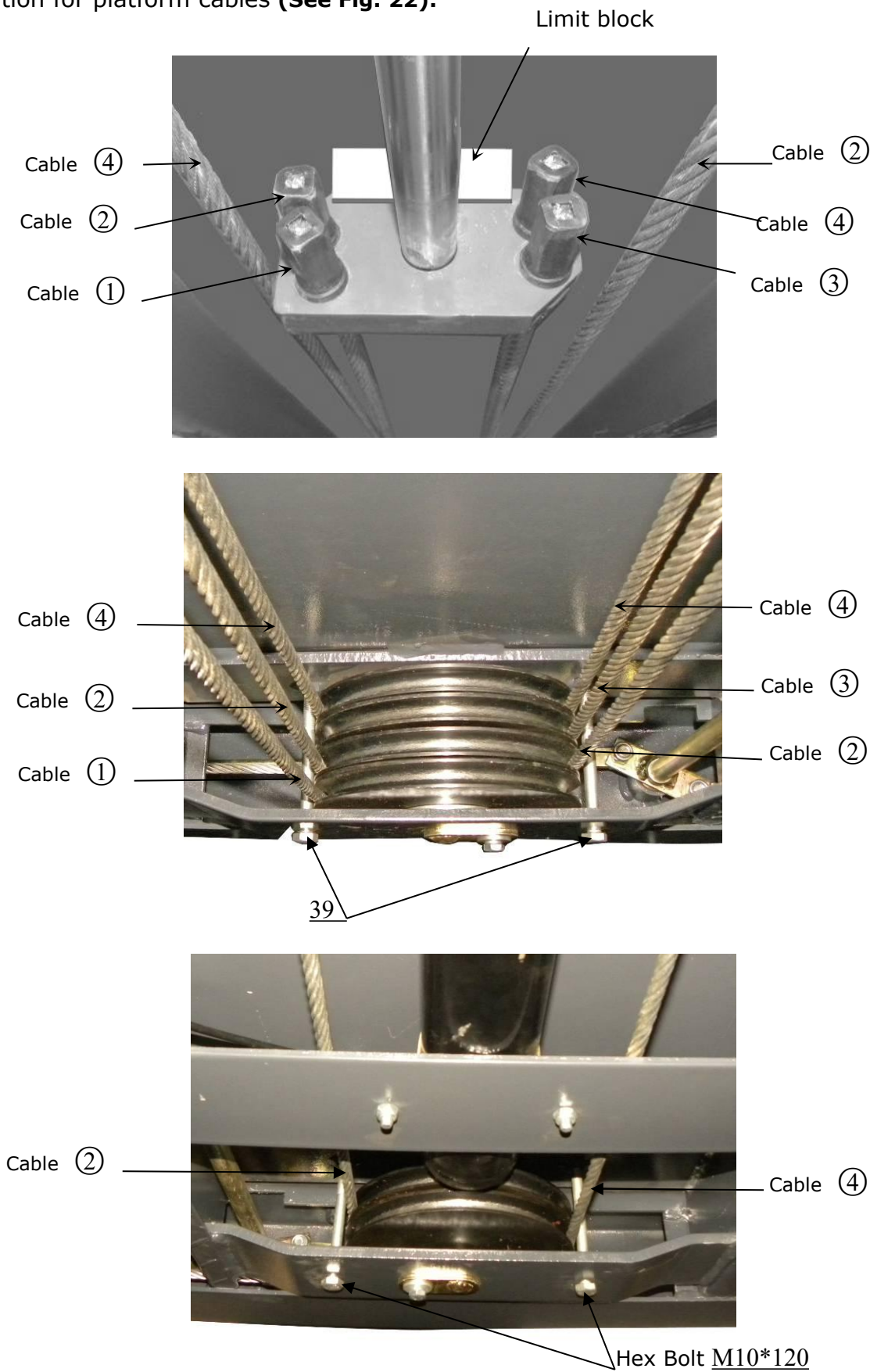
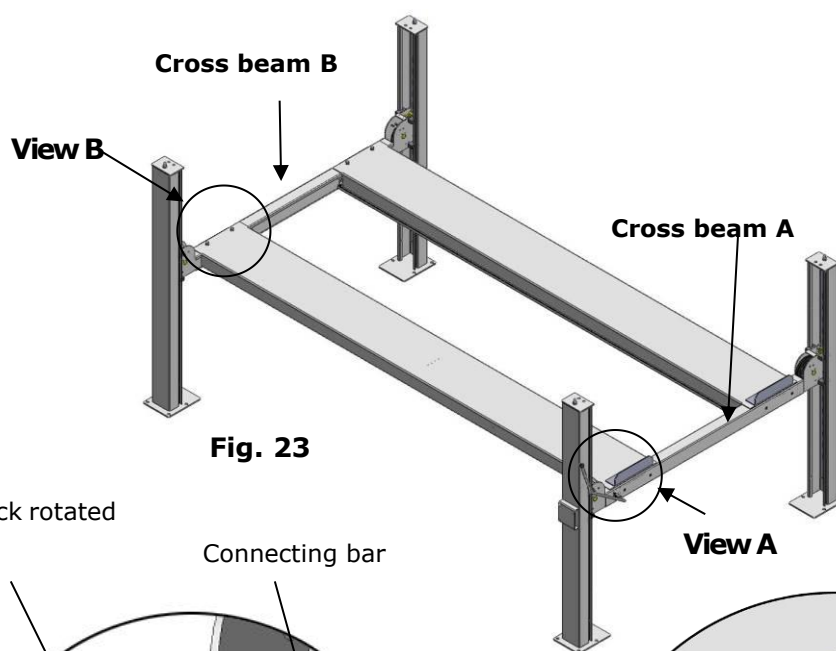


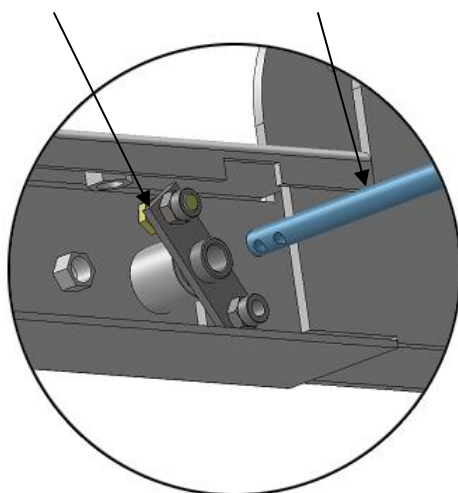
Fig. 22

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

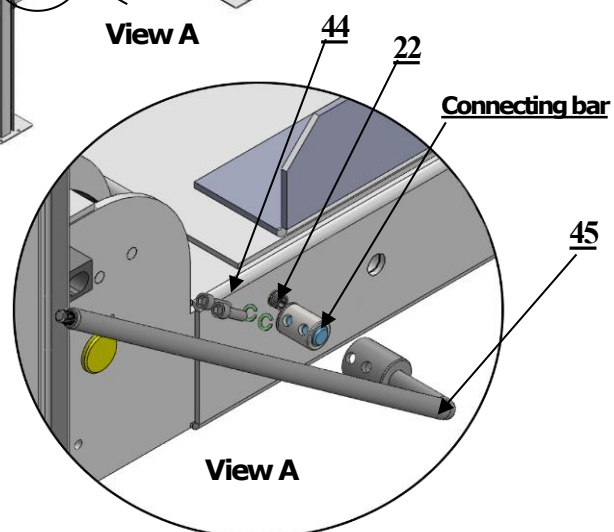


Safety lock rotated Device

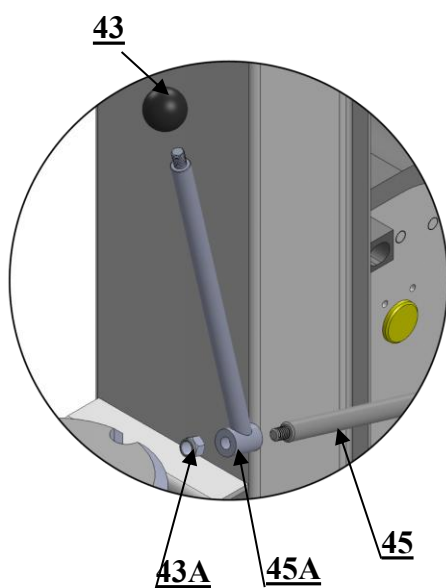
Connecting bar



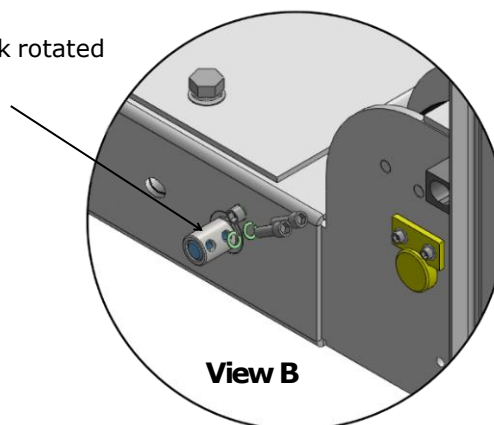
Pass through the connecting bar from the safety lock rotated device of cross beam A/B



According to the above diagram, Install lock release handle to the connecting bar with M8\*35 bolts and washers on cross beam A.



Safety lock rotated Device

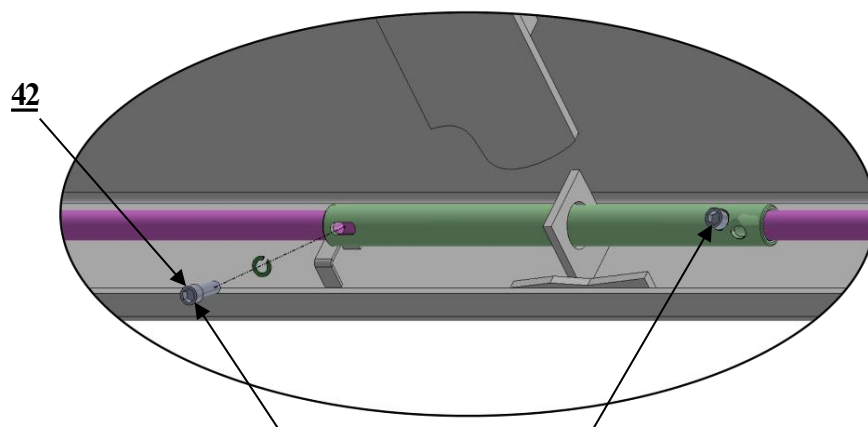
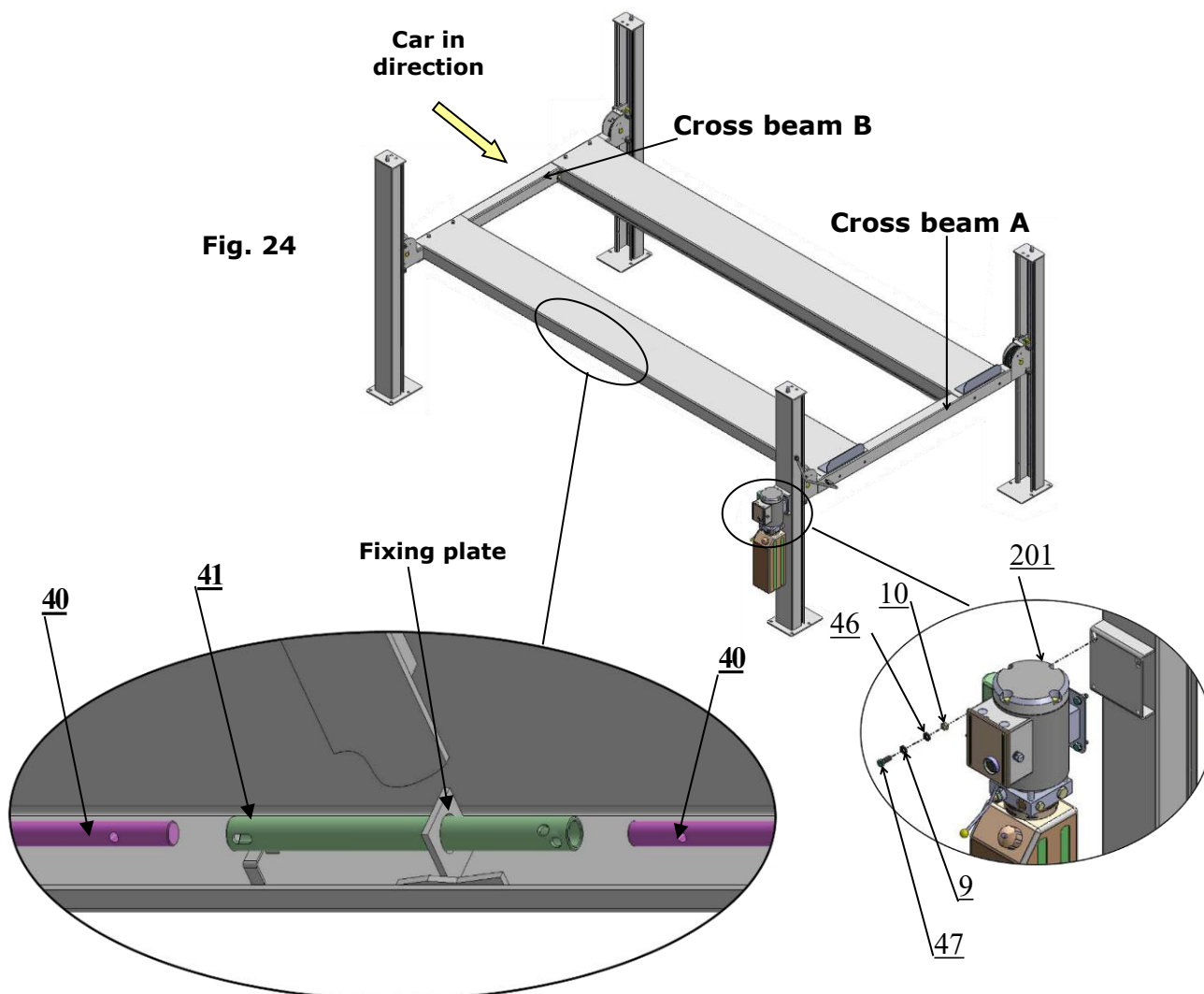


According to the above diagram, fix safety lock connecting bar and safety lock connecting assy. by M8\*35 bolts and washers on cross beam B.

## J. Install power unit

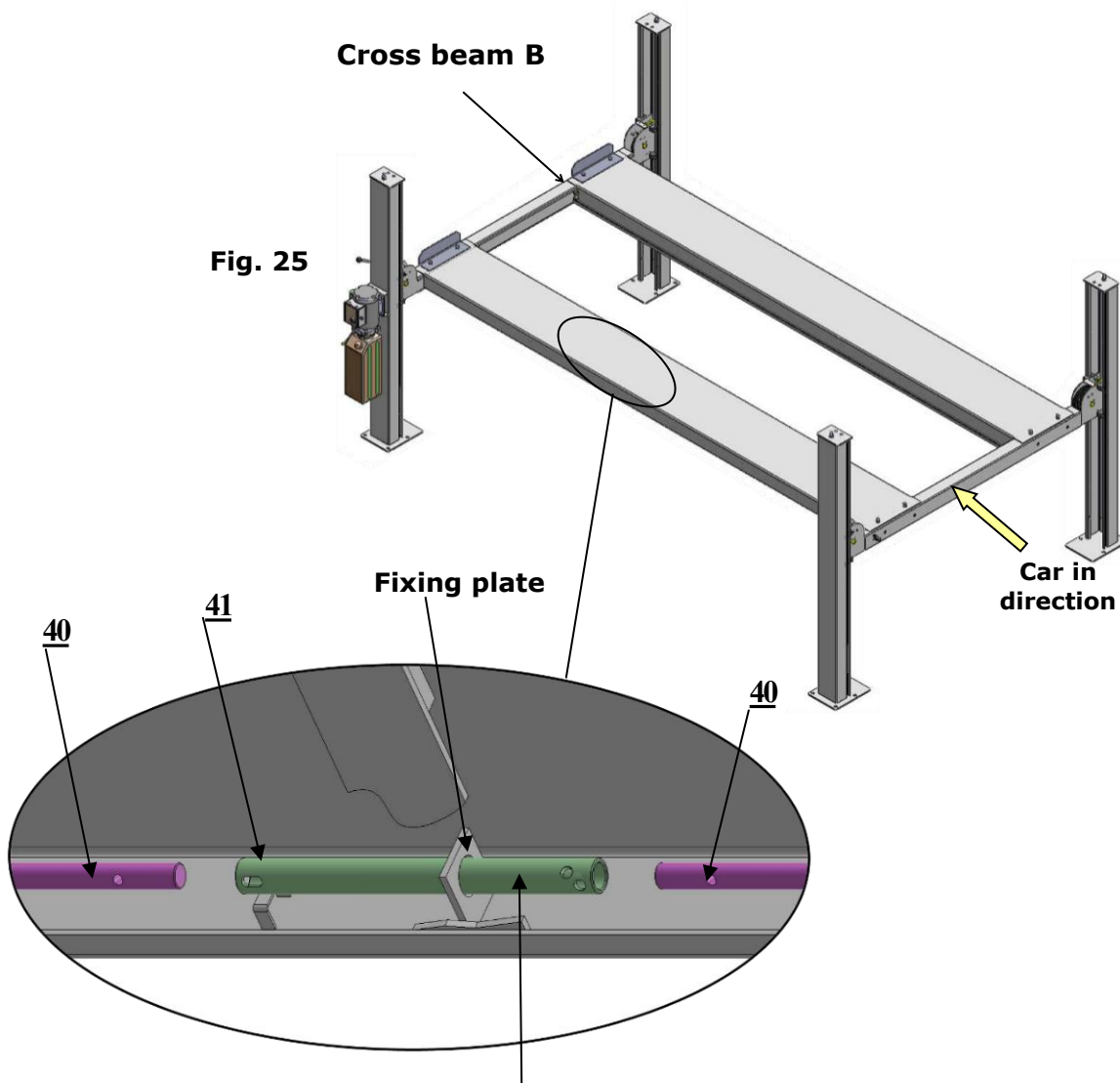
**Note:** Power unit must be installed near the safety release handle

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

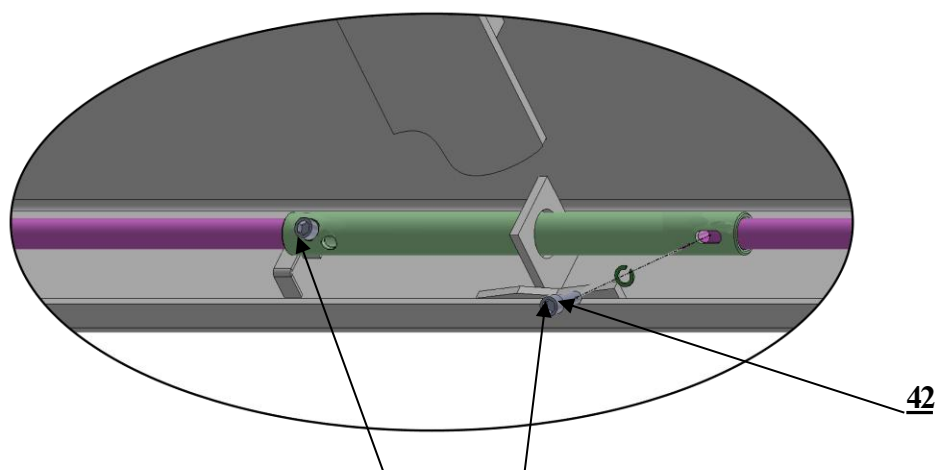


Install M8\*25 Socket bolt with washer to these two holes.

2. Install Power unit on the cross beam **B** (See Fig.25.)



Connection tube passes through fixing plate



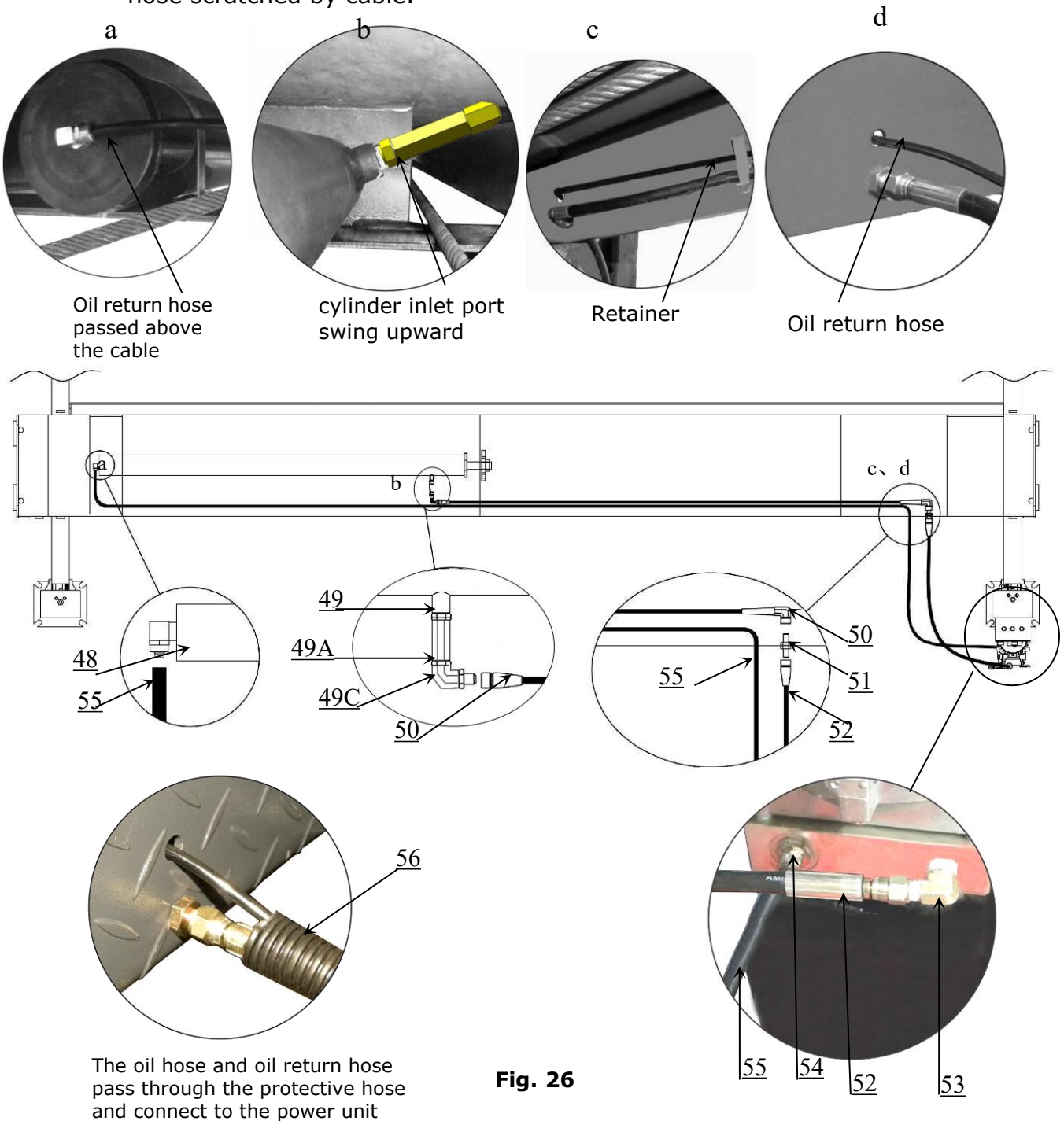
Install M8\*25 Socket bolt with washer to these two holes.



## K. Install Hydraulic System

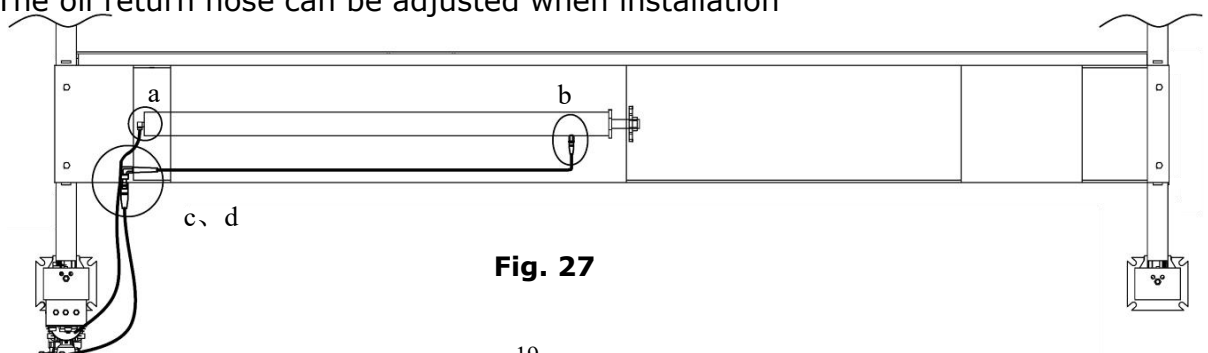
### 1. For power unit attached to the column of cross beam **A** (See Fig. 26)

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



### 2. For power unit attached to the column of cross beam **B** (See Fig. 27).

**Note:** The oil return hose can be adjusted when installation



## 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

#### 1. Circuit diagram (See Fig. 28)

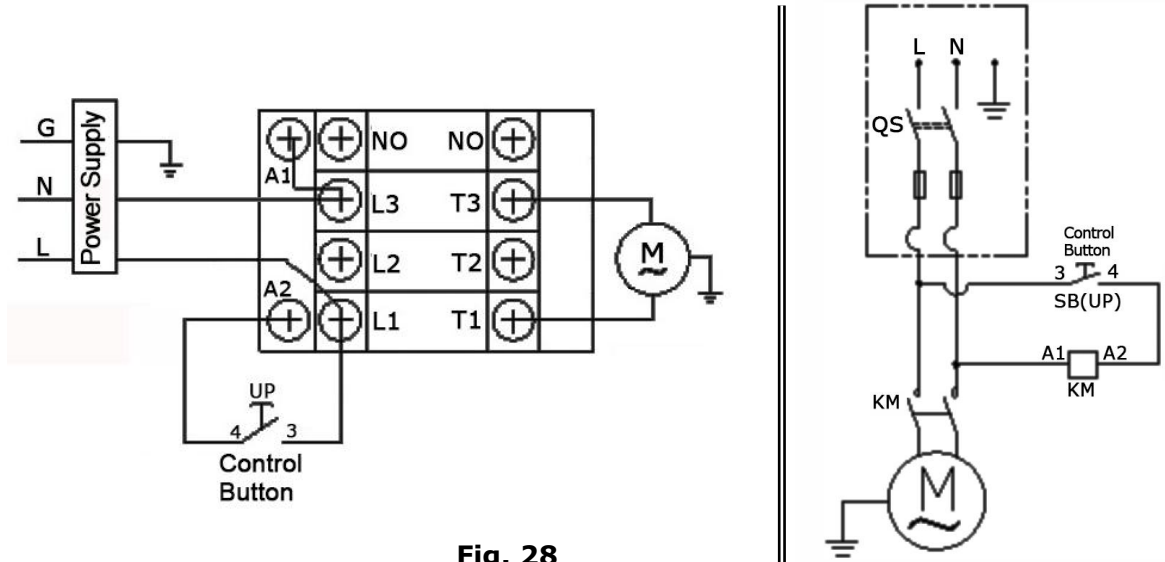


Fig. 28

#### 2. Connection step (See Fig. 29)

Connecting the two power supply wires to terminals of AC contactor marked L1, L3 respectively.

Earth wire (yellow and green wire) is connected with the earth wire terminal of the motor

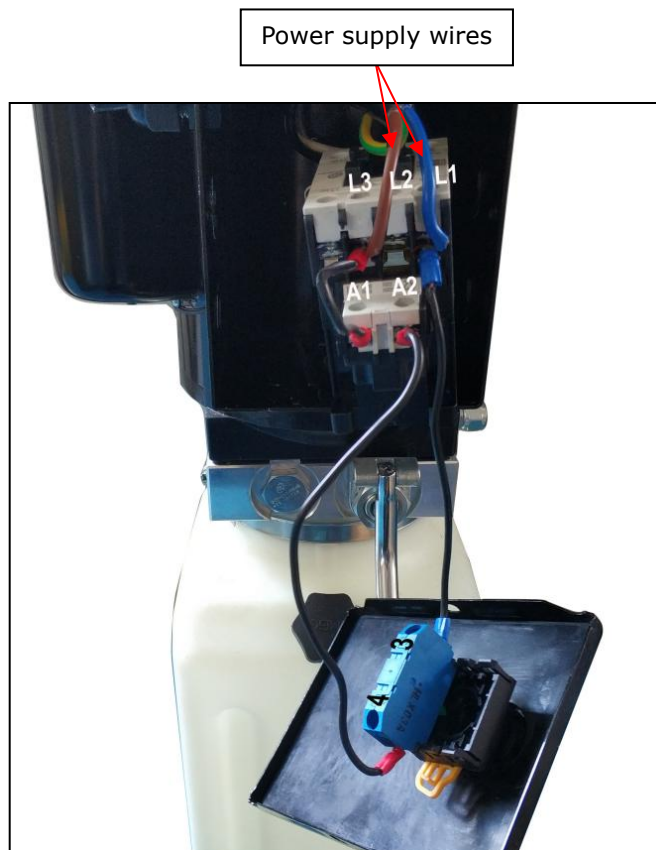
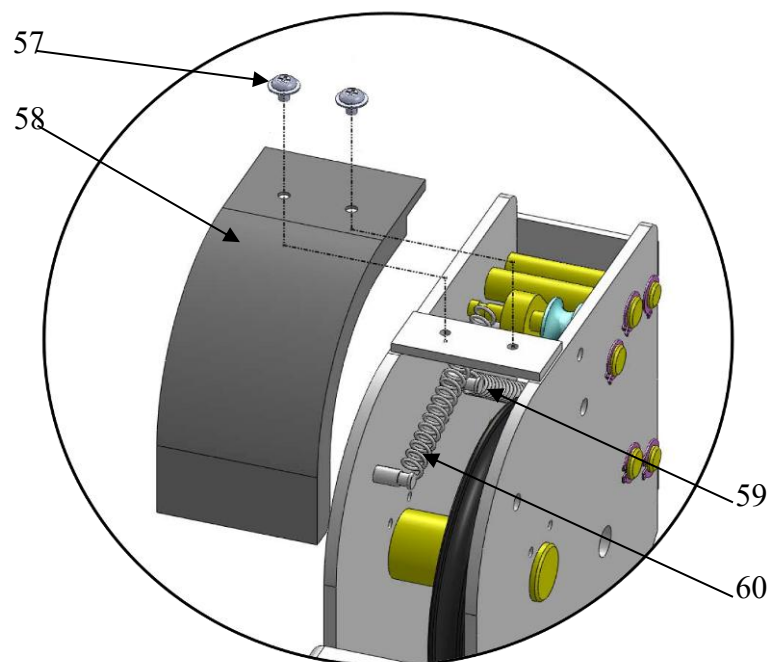


Fig. 29

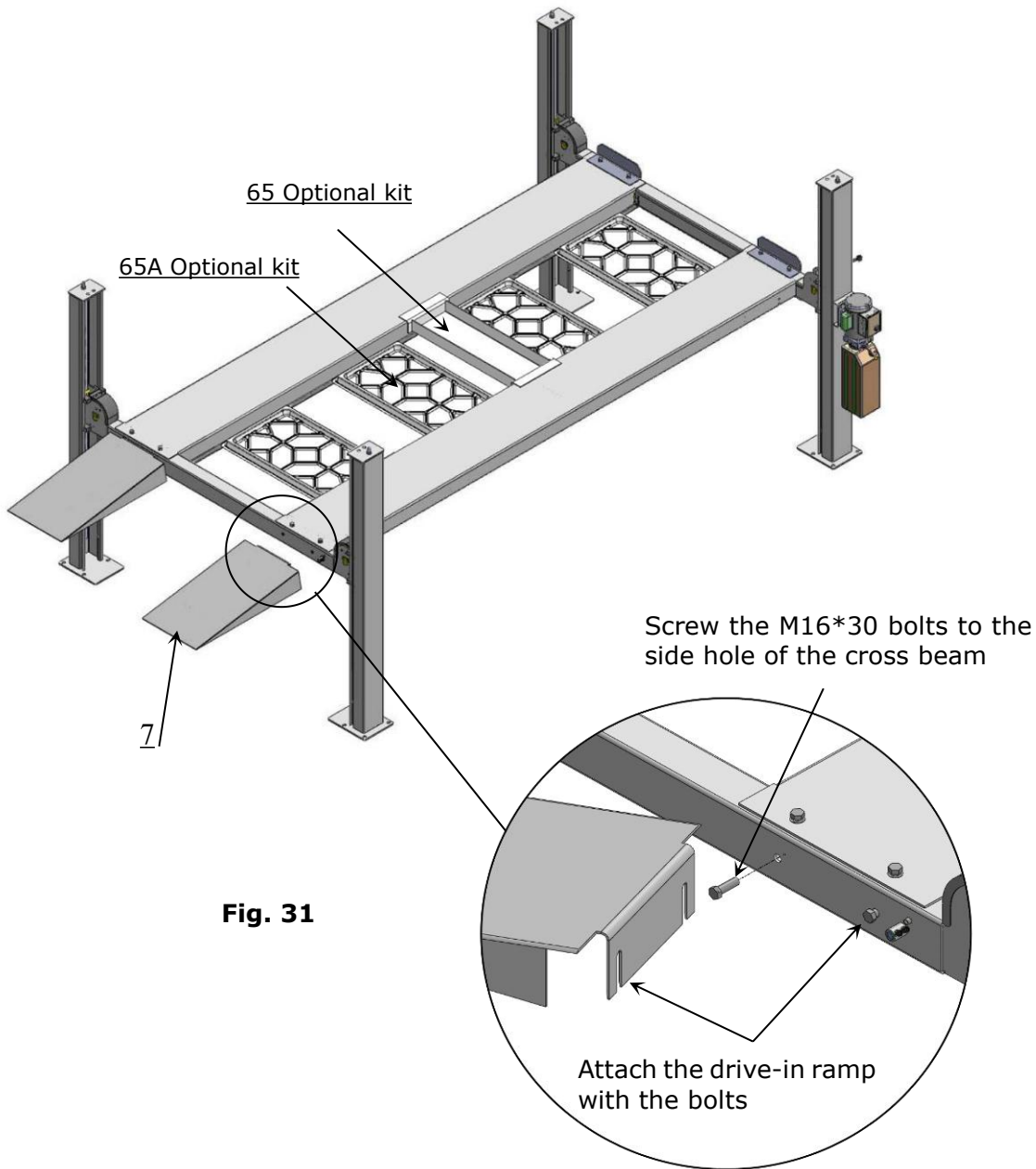
**M. Install spring and safety cover of cross beam (See Fig. 30).**



**Fig. 30**

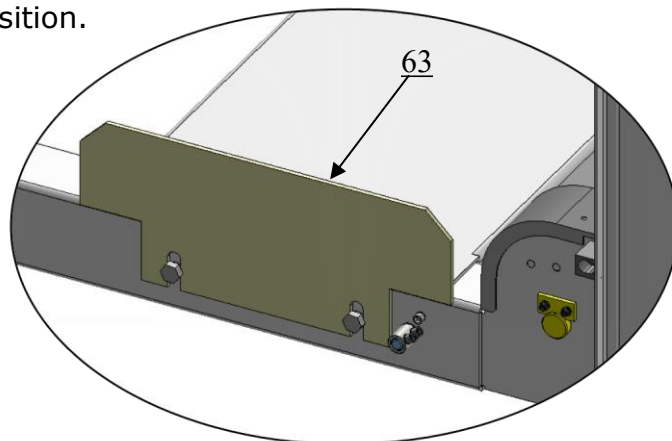
**N. Install drive-in ramp, jack tray and plastic oil pans (See Fig. 31).**

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



**O. Install Rear wheel stop plates (See Fig. 32)**

After driving the vehicle on the lift, take off the drive-in ramp, install rear wheel stop plates to the drive-in ramp position.



## P. Install Layer Board for Drive in Ramp

Take down the Drive in Ramp, and put it in the platform and layer board. (See Fig. 33)

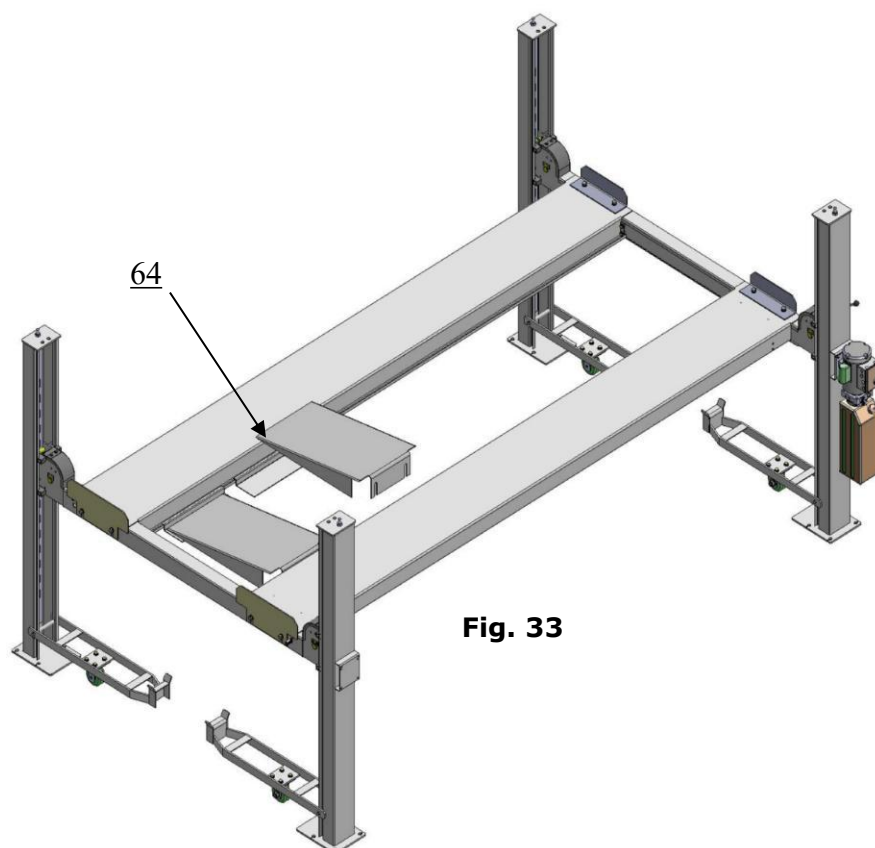


Fig. 33

## For optional kits installation.

1. Install optional caster kits or Rolling jack (See Fig. 34)

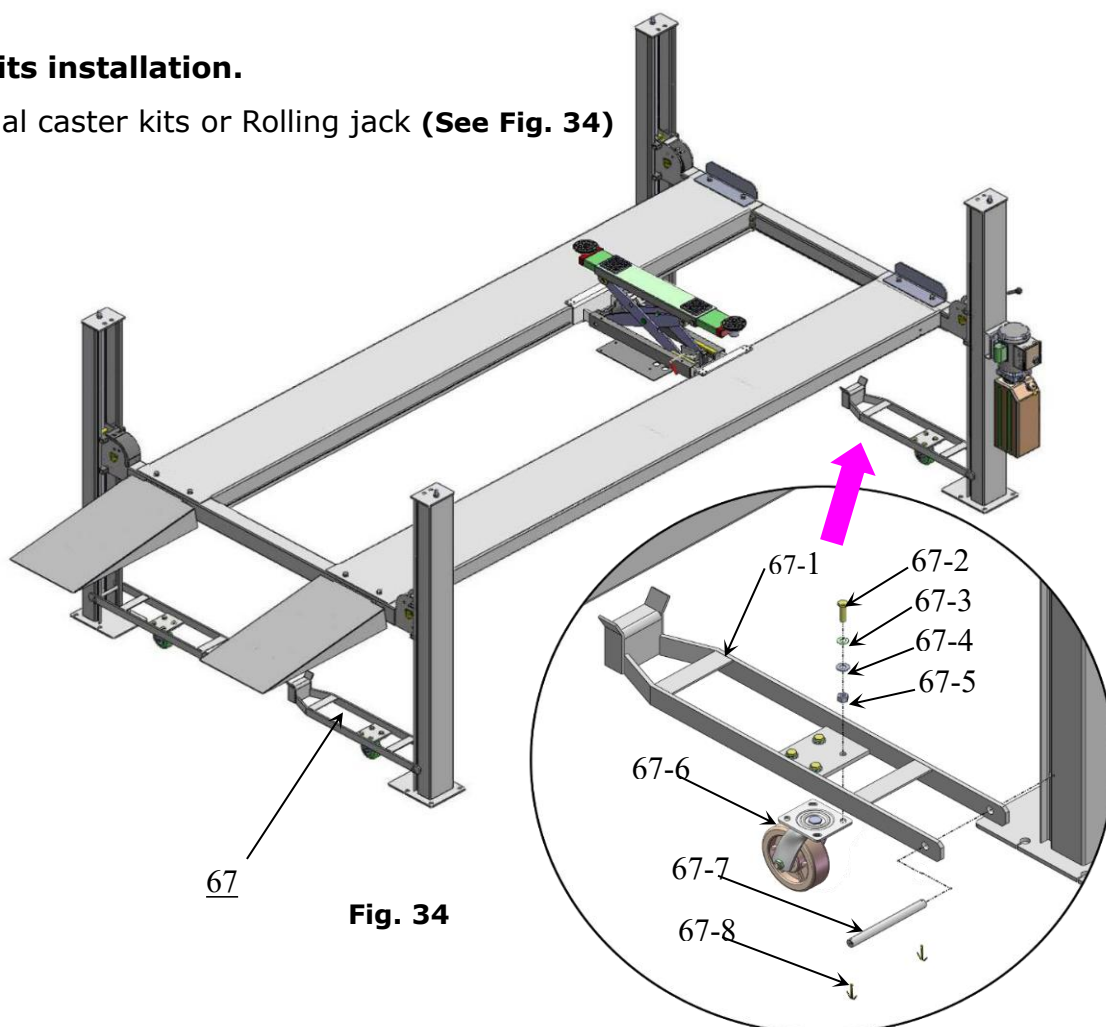
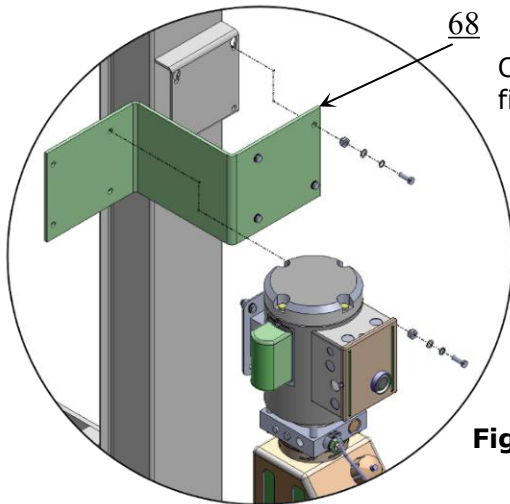


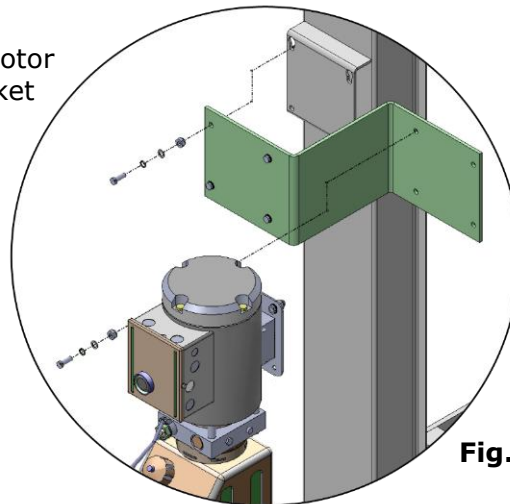
Fig. 34

2. Install optional motor fixing bracket (See Fig. 35, 36).



**Fig. 35**

Motor fixing bracket on cross beam **A**

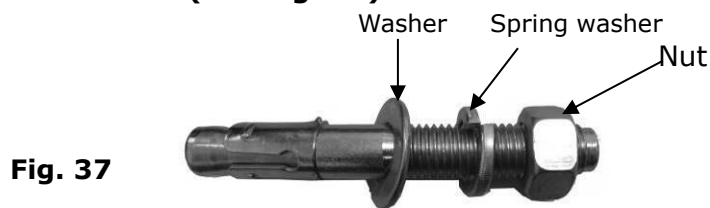


**Fig. 36**

Motor fixing bracket on cross beam **B**

## Q. Fix the anchor bolts

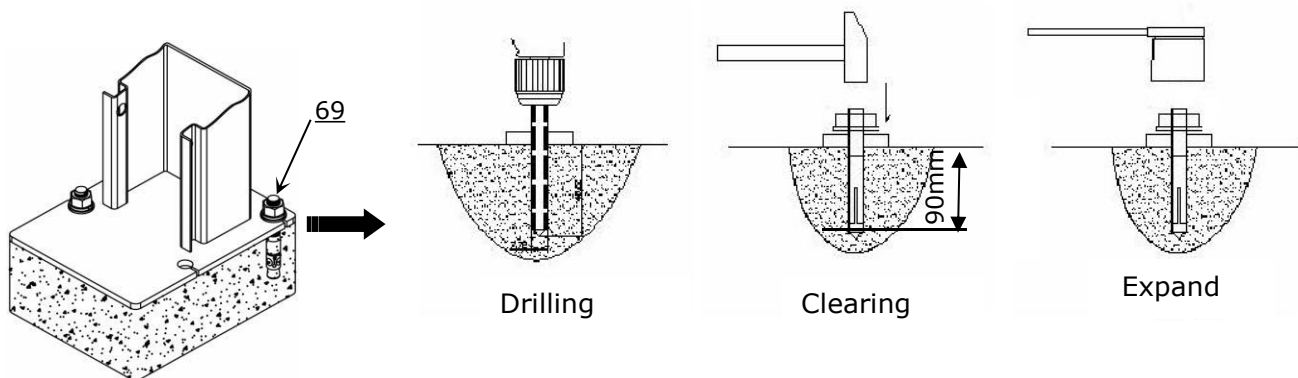
1. Prepare the anchor bolts (See Fig. 37).



**Fig. 37**

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. 38).

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



**Fig. 38**



## IV. EXPLODED VIEW

Model 409-HP

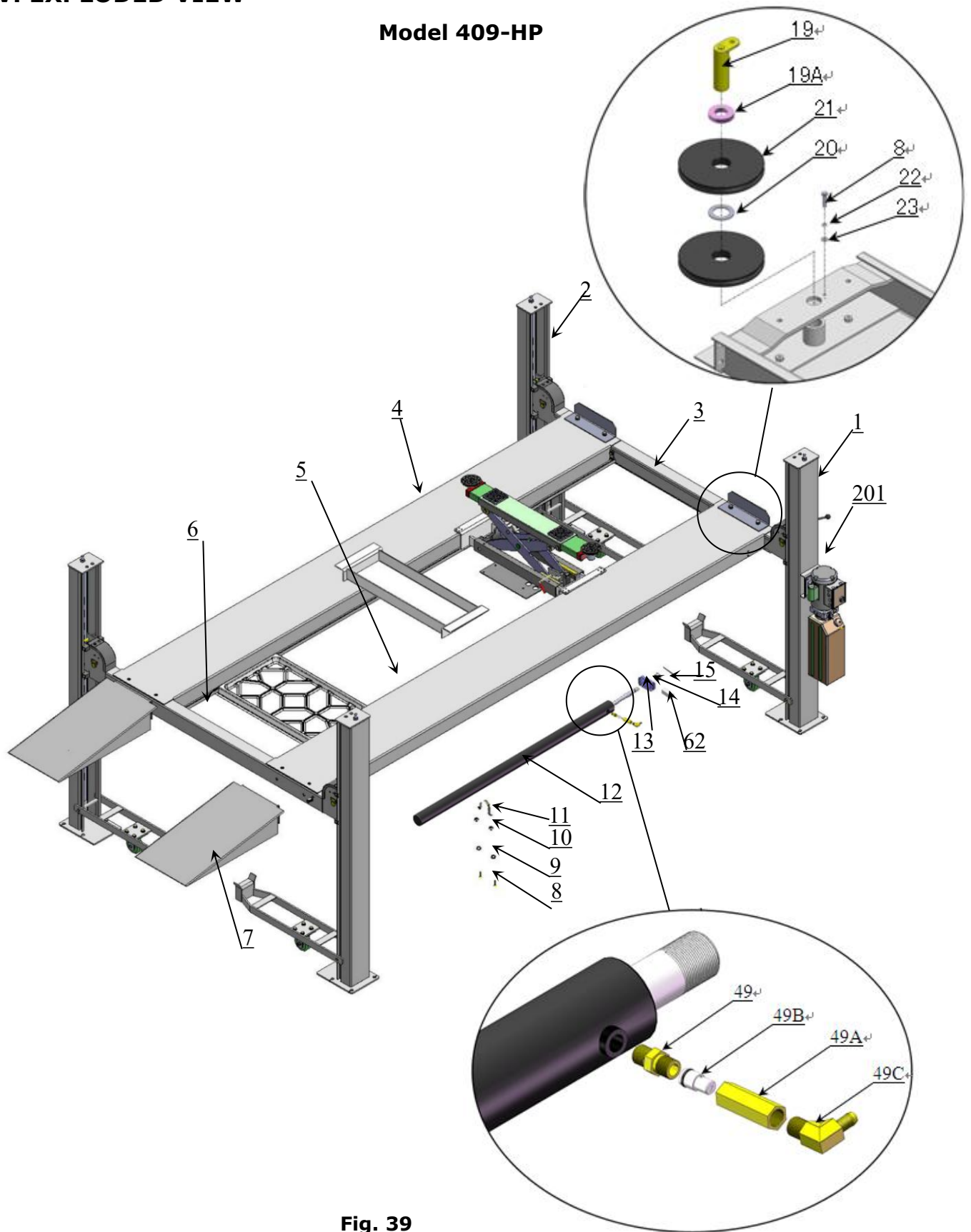


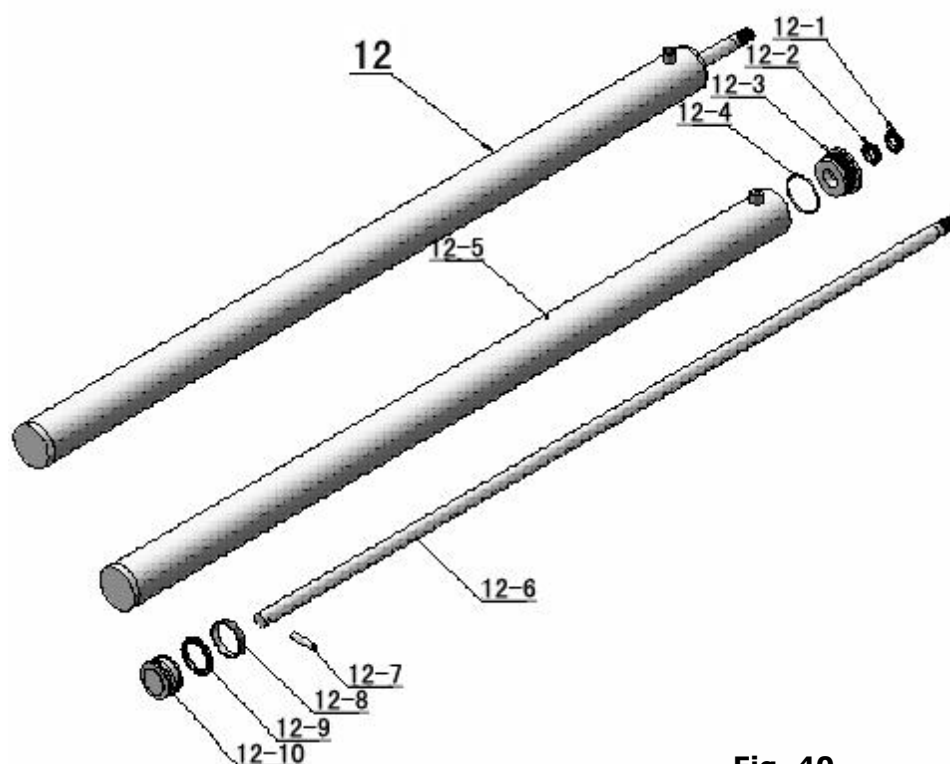
Fig. 39

## PARTS LIST FOR MODEL 409-HP

Item	Part#	Description	Qty.	Note
1	11410074	Power-side Column	1	
2	11410075	Offside Column	3	
3	11410050	Cross Beam A	1	
4	11410076	Offside Platform	1	
5	11410077A	Power-side Platform	1	
6	11410053	Cross Beam B	1	
7	1104233002	Drive-in ramp	2	
8	10209043	Hex Bolt M8*20	4	
9	10209033	Washer $\phi 8$	28	
10	10209005	Self locking Nut M8	26	
11	11410090	Cylinder fixed ring	1	
12	10410070	Cylinder	1	
13	11420626	Cable connecting plate	1	
14	10420014	Hex Nut M27	1	
15	10201005	Split Pin $\phi 4 \times 50$	1	
201	071101	Manual power unit 220V	1or1	
	071109	Manual power unit 110V		
17	10420175A	Hex nut M20	16	
18	11410073	Safety ladder	4	
19	11420022A	Pulley pin	2	
19A	10410106	Cushion tube $\phi 60 \times 12 \times 13$	1	
20	10420023A	Washer $\phi 36 \times \phi 65 \times 3$	13	
21	11420024B	Pulley	10	
22	10209034	Lock washer $\phi 8$	10	
23	10420144	Washer $\phi 8 \times \phi 25 \times 3$	2	
24	10410013	Hex Bolt M16*30	8	
25	10420137	Lock washer $\phi 16$	8	
26	10420029	Washer $\phi 16$	8	
27	10410014	Hex Bolt M16*35	4	
28	11410015	Tire stop plate	2	
29	10206006	Washer $\phi 12$	12	
30	10420026	Lock washer $\phi 12$	8	
31	10410105	Hex Bolt M12*20 (grade 8.8)	8	
32	10410016A	Slide block $81 \times 38 \times 38$	16	
33	10410017	Socket bolt M8*40	16	
34	10201090	Shim(2mm)	20	
	10620065	Shim(1mm)	20	
35	10410171	① Cable $\phi 9.52 \times 3370 \text{mm}$	1	
36	10410172	② Cable $\phi 9.52 \times 9725 \text{mm}$	1	
37	10410170	③ Cable $\phi 9.52 \times 4945 \text{mm}$	1	
38	10410169	④ Cable $\phi 9.52 \times 8160 \text{mm}$	1	
39	10410167	Hex Bolt M10*120	4	
40	11410069	Connecting bar for safety device $\phi 19 \times 2360 \text{mm}$	2	
41	11410024	Connecting tube	1	

Item	Part#	Description	Qty.	Note
42	10209032	Socket bolt M8*25	4	
43	10217005	Plastic ball M10	1	
43A	10209056	Self locking Nut M10	1	
44	10410025	Socket bolt M8*35	4	
45	11410026	Safety release handle	1	
45A	11410100	Extension release handle assy	1	
46	10209004	Rubber ring $\phi 8 \times \phi 20 \times 3$	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	Oil hose L=2230mm straight+90°	1	
51	10420120	Extend straight fitting with nut	1	
52	10207026	Oil hose L=1520mm double straight	1	
53	10209060	90° Fitting for power unit	1	
54	10420095	Straight screw fitting 6*4	1	
55	10410072	Oil return hose L=6100mm	1	
56	10410036	Protective hose $\phi 20 \times 1 \times 1500$ mm	1	
57	10209145A	Cap head bolt with washer M6*12	8	
58	10410029	Plastic cover for cross beam	4	
59	10410146	Spring $\phi 14 \times 2.0 \times 75$	4	
60	10420033	Spring $\phi 14 \times 1.8 \times 100$	4	
61	10410502	Parts box	1	
62	10420239	Limit block	1	
63	11410094	Rear wheel stop plate	2	
64	11410101	Layer board for drive in ramp	2	
69	10209059	Anchor bolt 3/4*5-1/2	16	
65	40809	Jack tray	1	
65A	40807	Oil tray	1 set (4 pcs)	
66	96600005	Rolling Jack J6H	1	
67	40801	Mobile bracket assy.	1 set (4 pcs)	
68	40802	Fixing plate for motor	1	
67-1	11410042A	Support bracket	4	
67-2	10209125	Hex bolt M10*30	16	
67-3	10209039	Lock washer $\phi 10$	16	
67-4	10209022	Washer $\phi 10$	16	
67-5	10209021	Hex nut M10	16	
67-6	10410035	Plastic wheel 6 inch	4	
67-7	11410034	Connecting pin $\phi 19 \times 216$	4	
67-8	10209012	Hair Pin $\phi 3.2$	8	

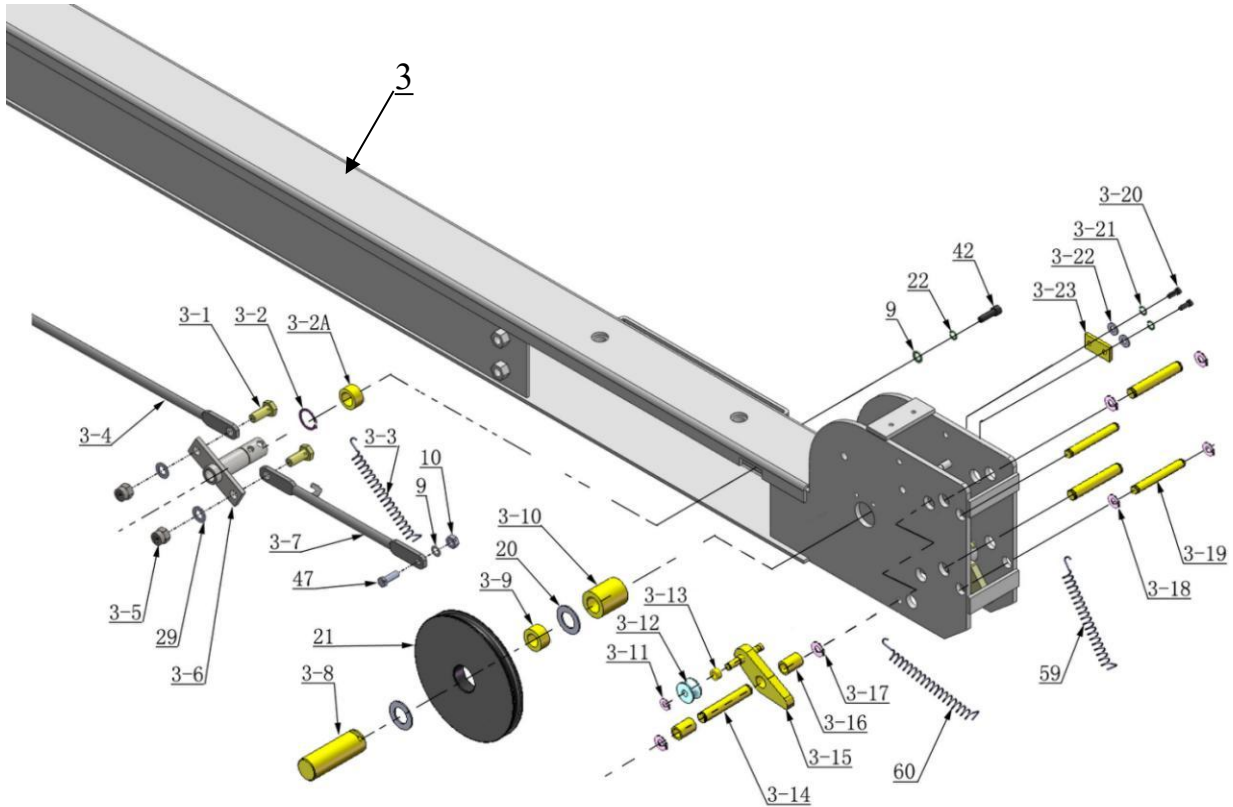
## 4.1 CYLINDERS EXPLODED VIEW



**Fig. 40**

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	Bore Weldment	1	
12-6	11410079	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	

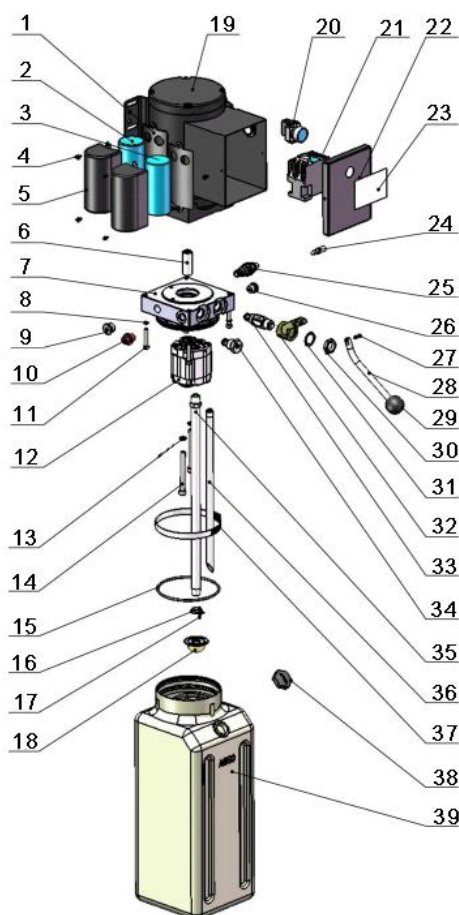
## 4.2 CROSS BEAM EXPLODED VIEW



**Fig.41**

Item	Part#	Description	QTY.	Note
3-1	10206024	Hex bolt M12*25	4	
3-2	10206032	Snap ring $\phi 25$	2	
3-2A	10217020	Bronze bush $\phi 31 * \phi 25.1 * 16$	2	
3-3	10410099	Spring $\phi 14 * \phi 2.5 * 100$	2	
3-4	11410063	Connecting bar for safety lock	2	
3-5	10206023	Self locking Nut M12	4	
3-6	11410032	Safety lock rotated device	2	
3-7	11410064	Connecting bar for 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	Slack-cable safety lock (Left & Right)	2/ea.	
3-16	11420172	Pin Bush For Slack-cable safety lock	8	
3-17	10206019	Snap ring $\phi 19$	24	
3-18	10420037	Snap 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	Stop block	4	

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



**Fig.42**

#### Parts list

Item	Part#	Description	Qty.	Item	Part#	Description	Qty.
1	81400180	Rubber Pad	2	21	81400559	AC connector	1
2	81400250	Starting capacitor	1	22	81400287	Motor terminal box cover	1
3	81400200	Running capacitor	1	23	71111216	AMGO power unit label	1
4	10420148	Cap Head Bolt with washer	4	24	81400560	Throttle valve	1
5	81400066	Cover of Motor Terminal Box	2	25	81400266	Relief valve	1
6	81400363	Motor Connecting Shaft	1	26	81400284	Inner hex iron plug	1
7	80101013	Manifold block	1	27	10720118	Elastic pin	1
8	10209149	Washer	4	28	81400451	Release valve handle	1
9	81400276	Iron plug	1	29	10209020	Plastic ball for handle	1
10	81400259	Red rubber plug	1	30	81400421	Release valve nut	1
11	85090142	Socket bolt	4	31	81400422	Self lock washer	1
12	81400312	Gear pump	1	32	81400449	Valve Seat(Low)	1
13	10209034	Washer	2	33	81400567	Release Valve	1
14	81400295	Socket bolt	2	34	81400566	Check Valve	1
15	81400365	O ring	1	35	81400288	Oil suction pipe	1
16	10209152	Ties	1	36	81400289	Oil return pipe	1
17	85090167	Magnet	1	37	81400364	Clamp(stainless steel)	1
18	81400290	Filter net	1	38	81400319	Oil tank cap	1
19	81400412	Steel Motor	1	39	81400275	Oil tank	1
20	10420070	Push button	1				



## Illustration of hydraulic valve for power unit

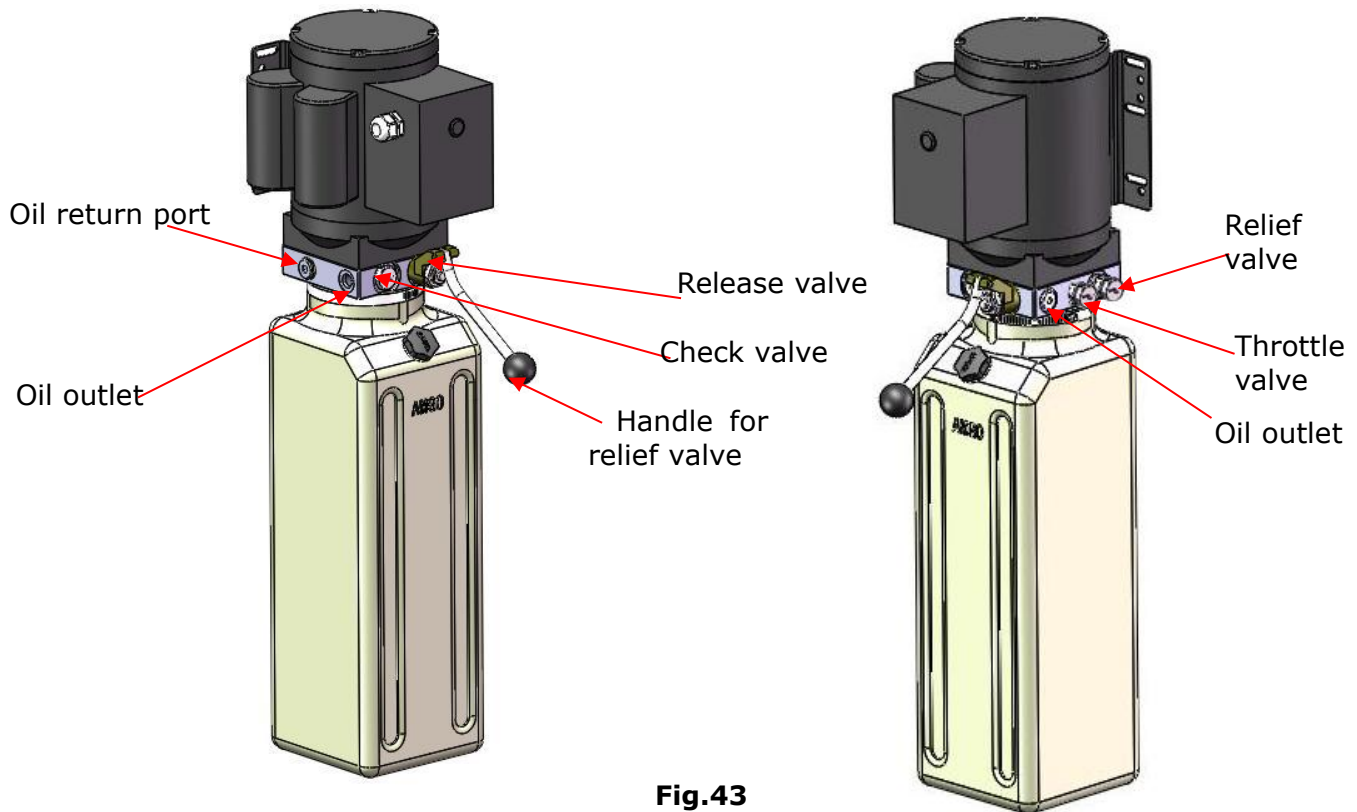
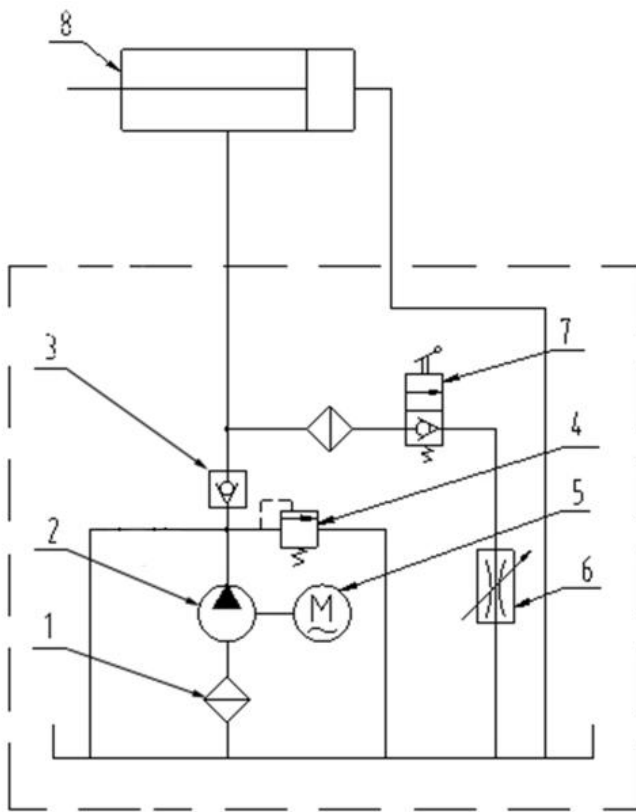


Fig.43

## V. TEST RUN

1. Fill the reservoir with Hydraulic Oil (**Note:** In consideration of Power Unit's durability, please use **Hydraulic Oil 46#**).
2. Press the control button, the cables will be strained. Check whether the cables match the pulley. Make sure the cables are not across.
3. Press the release valve handle 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 column and the plastic slider of cross-beam to about 2mm, Do not tighten the bolts of the sliding block, let the sliding block can be turned after installing the bolts
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.

## Circuit Diagram of Hydraulic System



## NOTE

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.44**

## 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	1. Start Button does not work 2. Wiring connections are not in good condition 3. Motor burned out 4. AC contactor burned out	1. Replace start button 2. Repair all wiring connections  3. Repair or replace motor 4. Replace AC contactor
Motor runs but the lift is not raised	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	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	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	1. Oil line is jammed 2. Motor running on low voltage 3. Oil mixed with Air 4. Pump leaks 5. Overload lifting	1. Clean the oil line 2. Check electrical system 3. Fill tank 4. Repair or replace pump 5. Check load
Lift cannot lower	1. Safety device are not in activated 2. Release valve damaged	1. Operate again 2. Repair or replace

## 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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