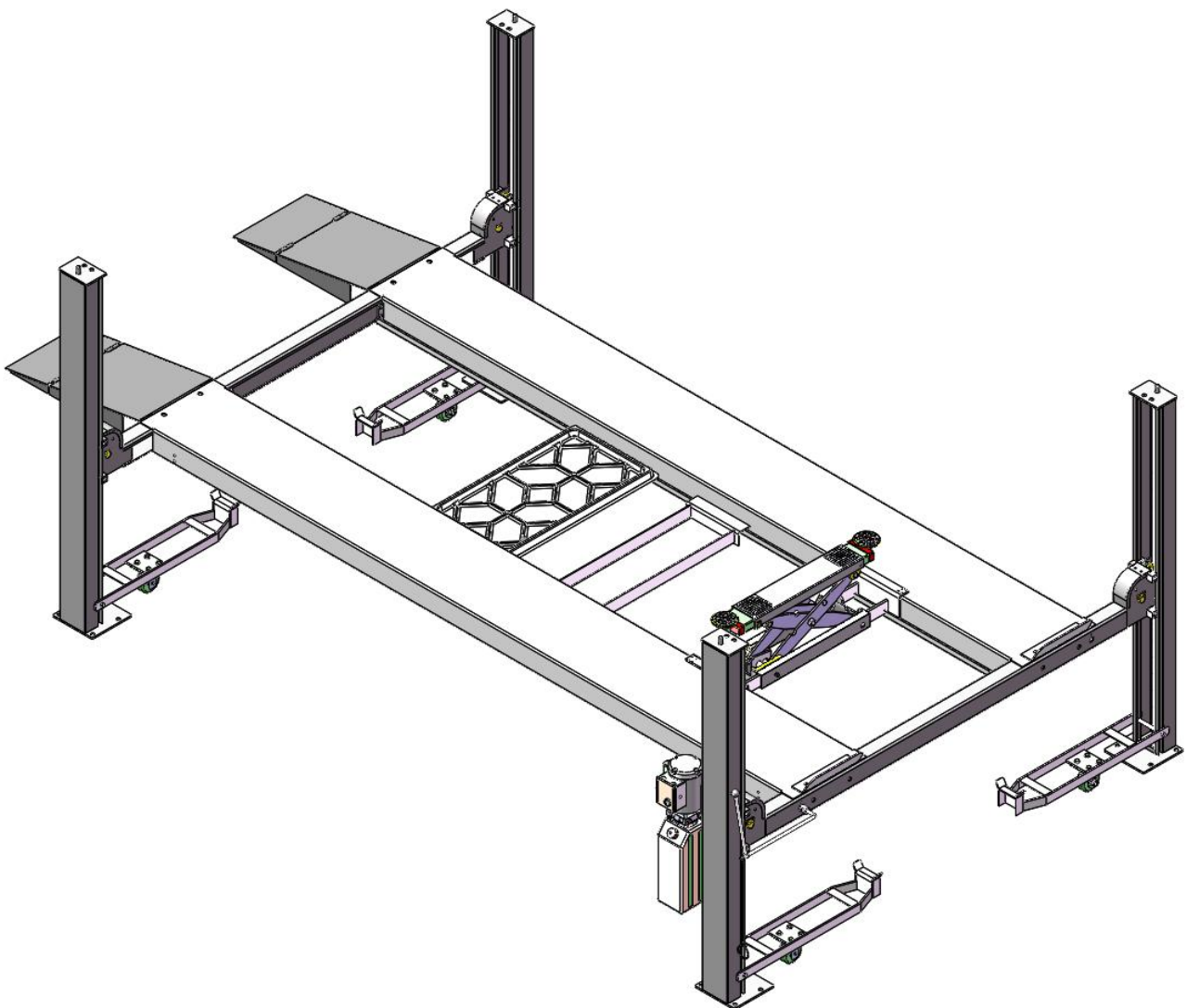




Original

Installation And Service Manual



FOUR POST PARKING LIFT

Model: 409-P 409-HP

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I. PRODUCT FEATURES AND SPECIFICATIONS

4-POST MODEL 409-HP FEATURES

- Single-point manual safety release enhances the convenience and reliability of descent operations.
- Each of the four mechanical locking devices is equipped with both primary and secondary safety locks for enhanced security.
- 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.

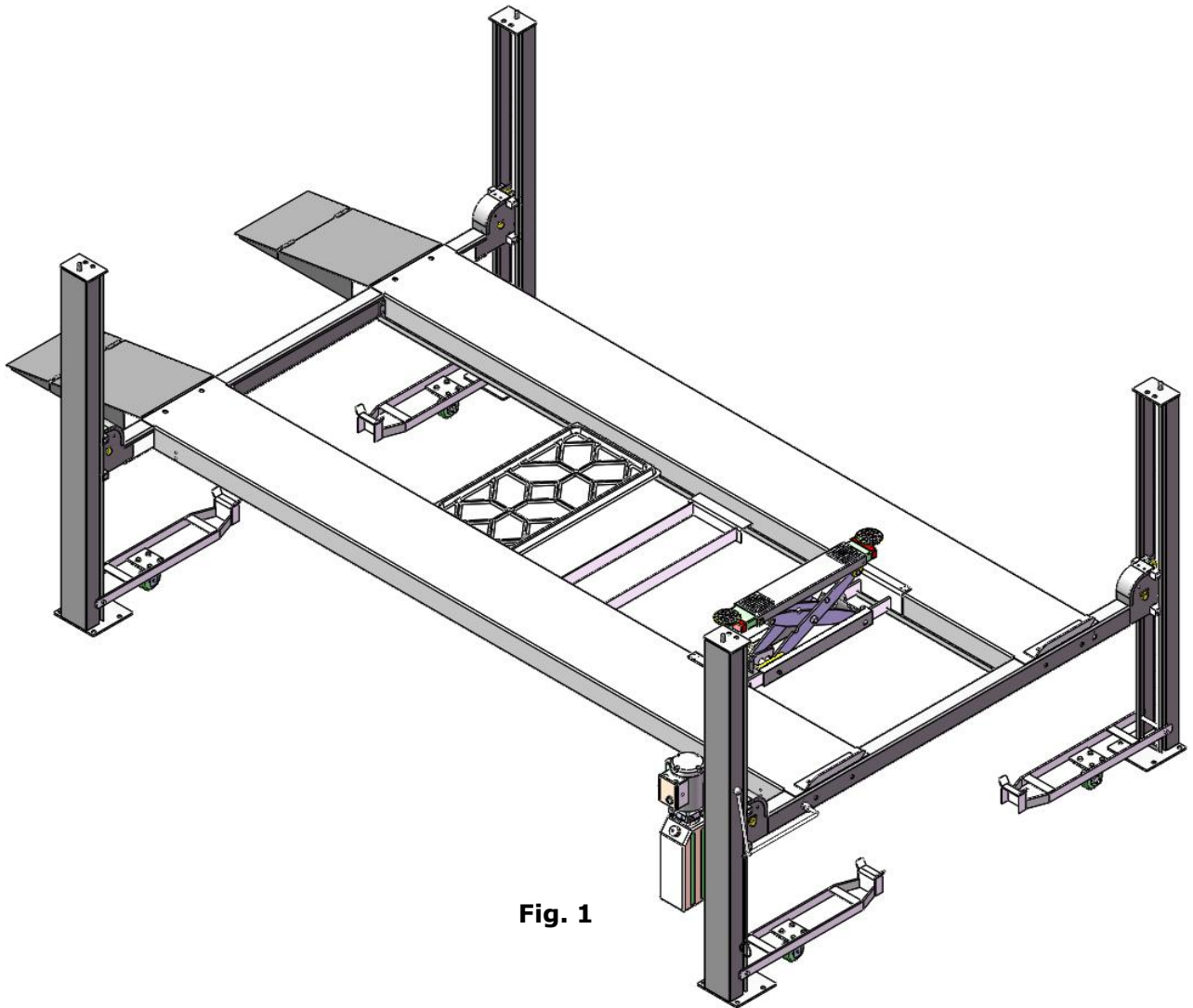


Fig. 1

MODEL 409-P 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)	2222mm (87 1/2")	54S	5965mm (234 7/8")	3106mm (122 1/4")	2860mm (112 5/8")	3.0HP

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

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 3000psi (210kg/cm²) minimum.
3. Floors must be level and no cracks.

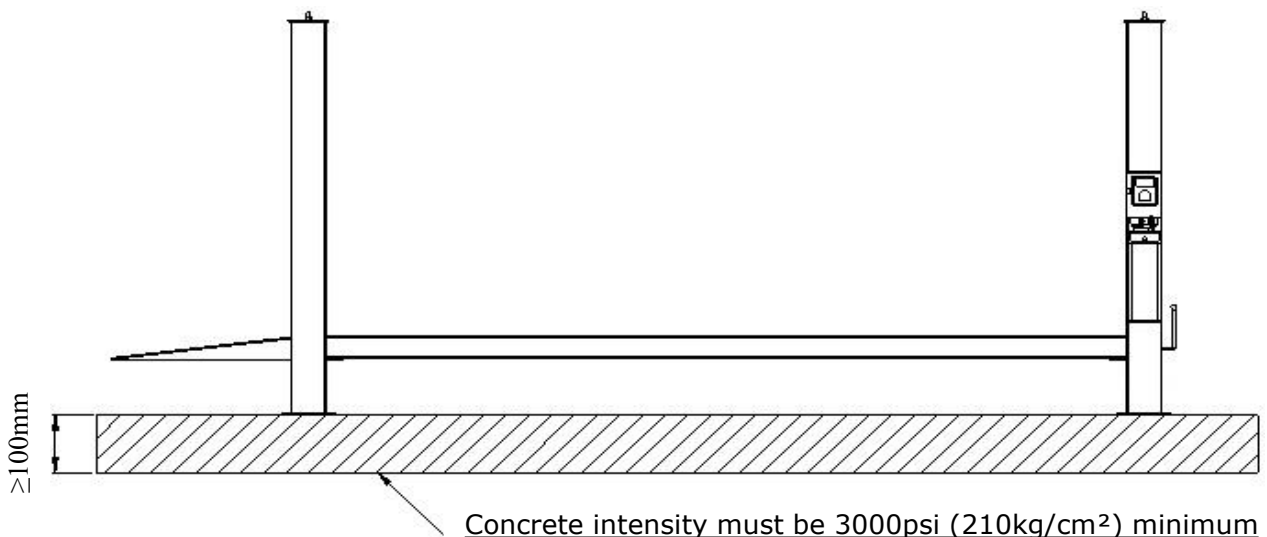


Fig. 4

E. POWER SUPPLY

The electrical source must be 2.2KW minimum. The source cable size must be 2.5mm² 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).

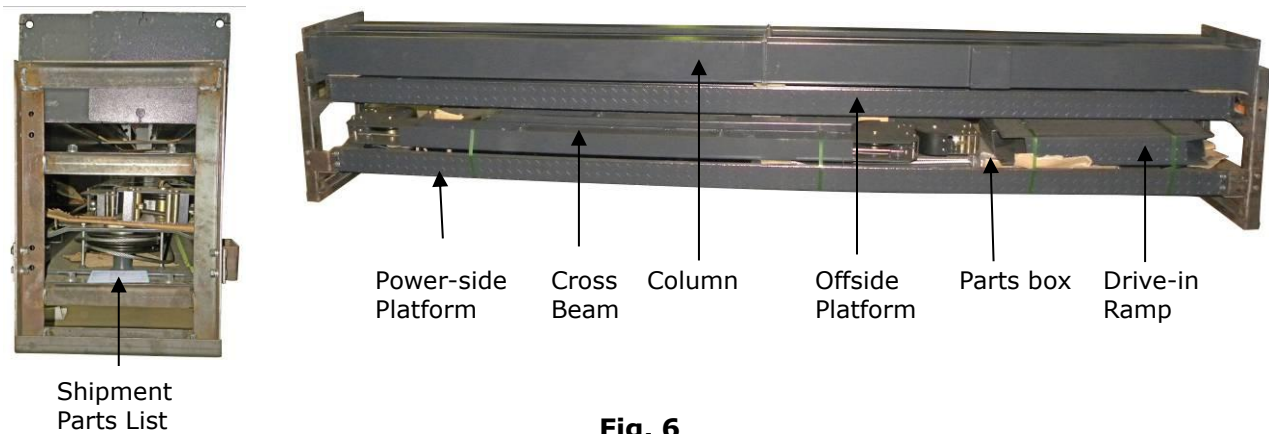


Fig. 6

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

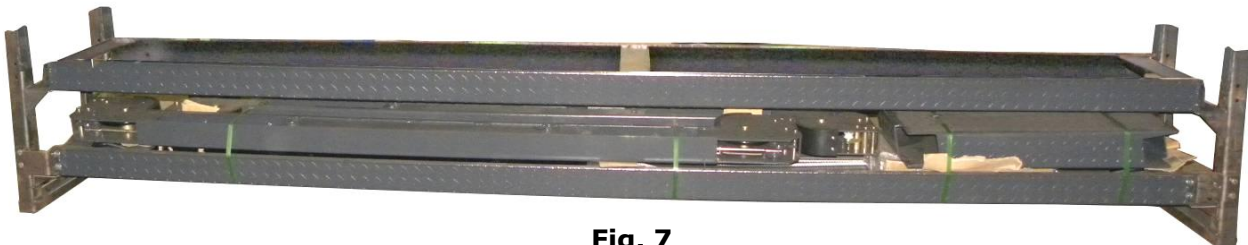


Fig. 7

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).

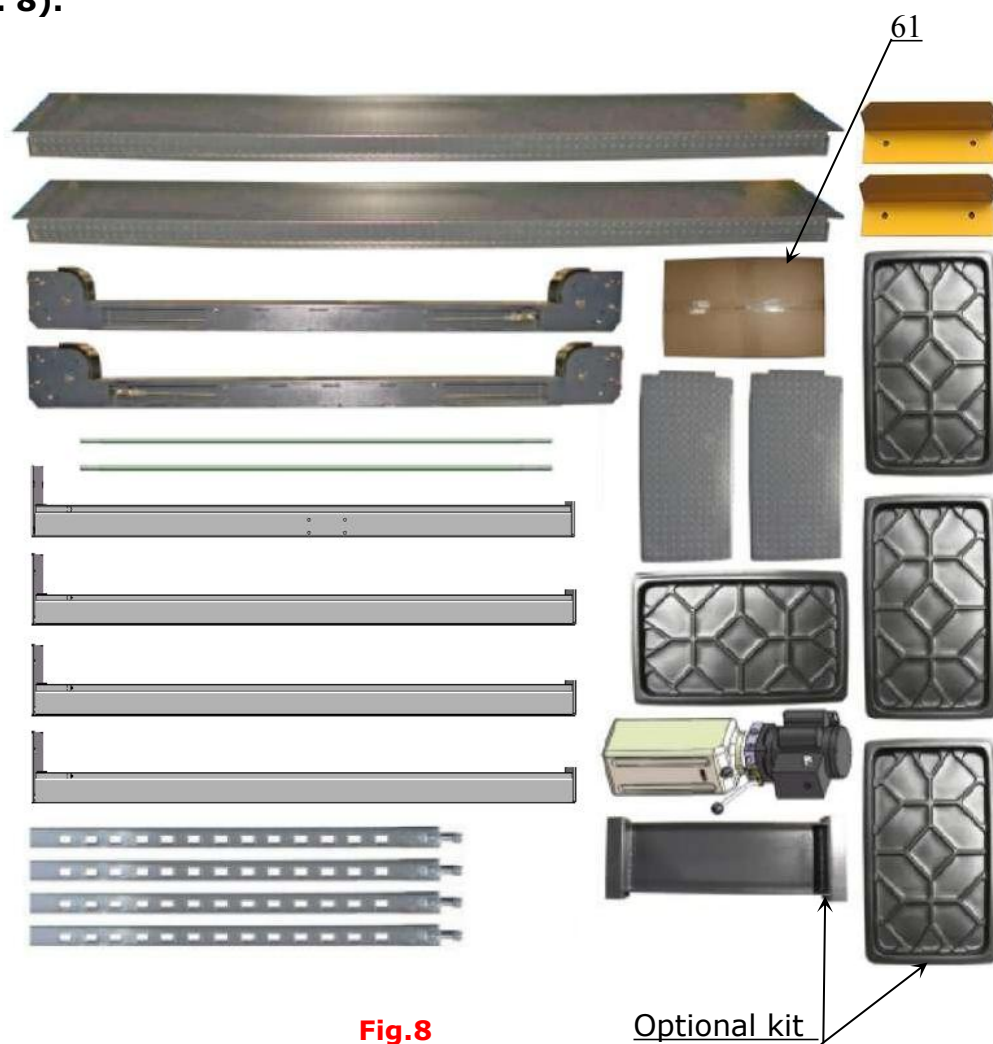


Fig.8

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



Fig. 9

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.

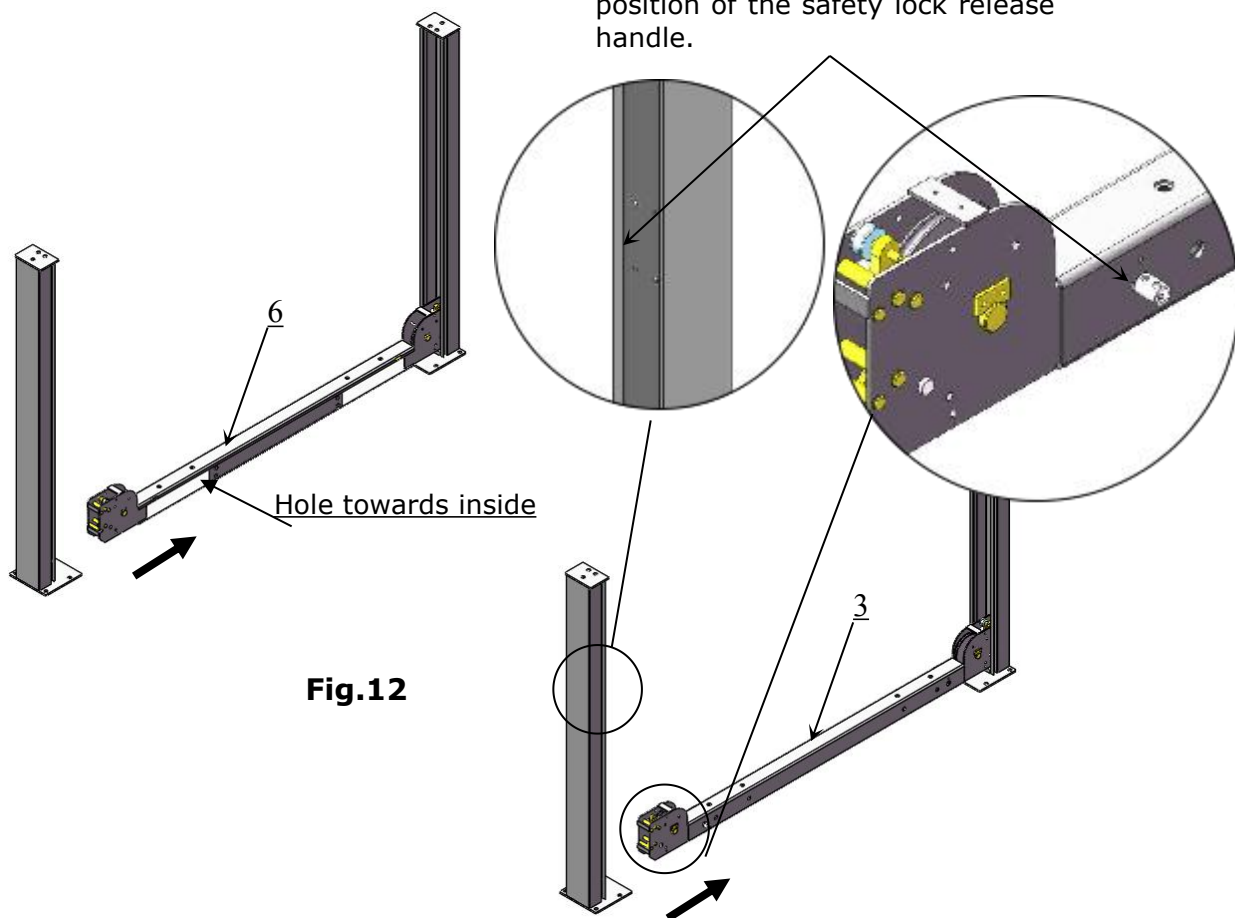


Fig.12

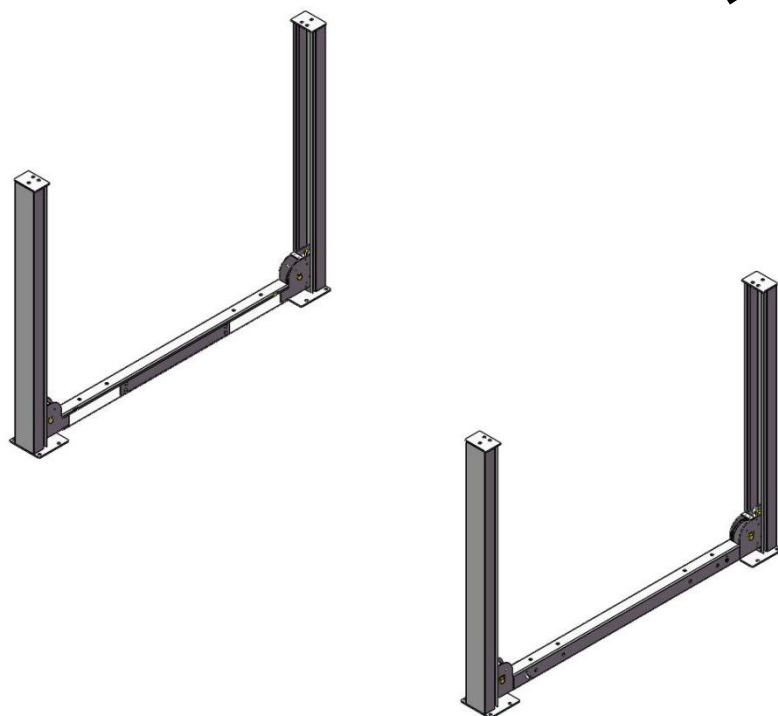


Fig.13

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**).

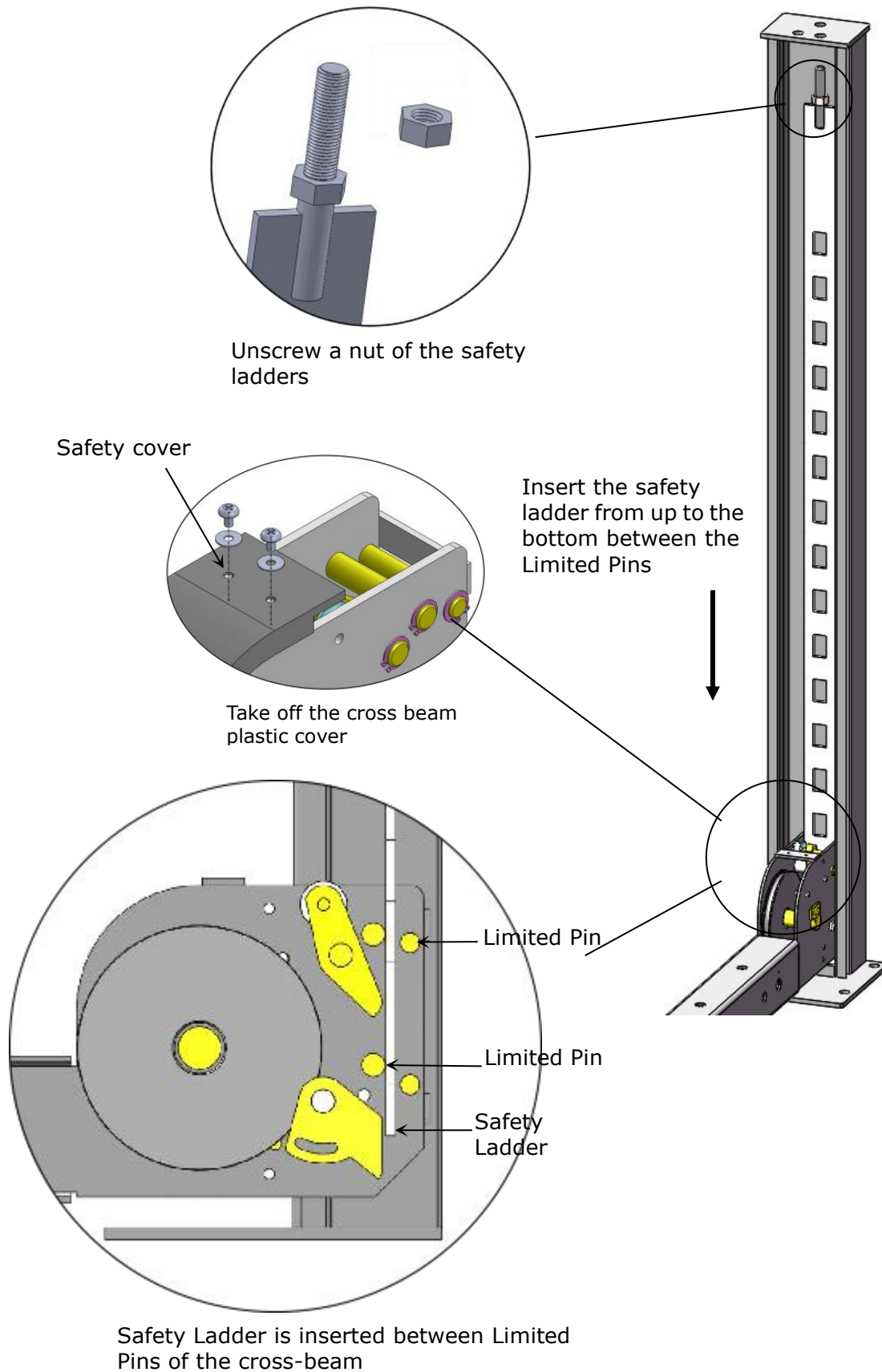
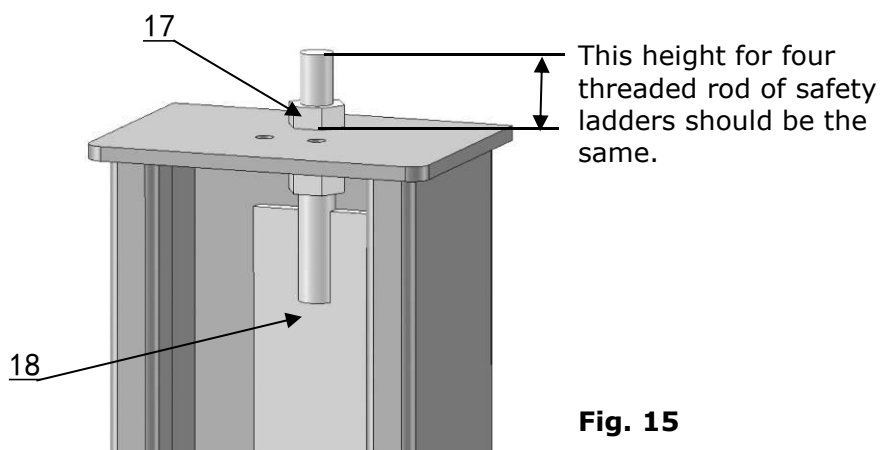


Fig.14

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



Safety ladder across 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).

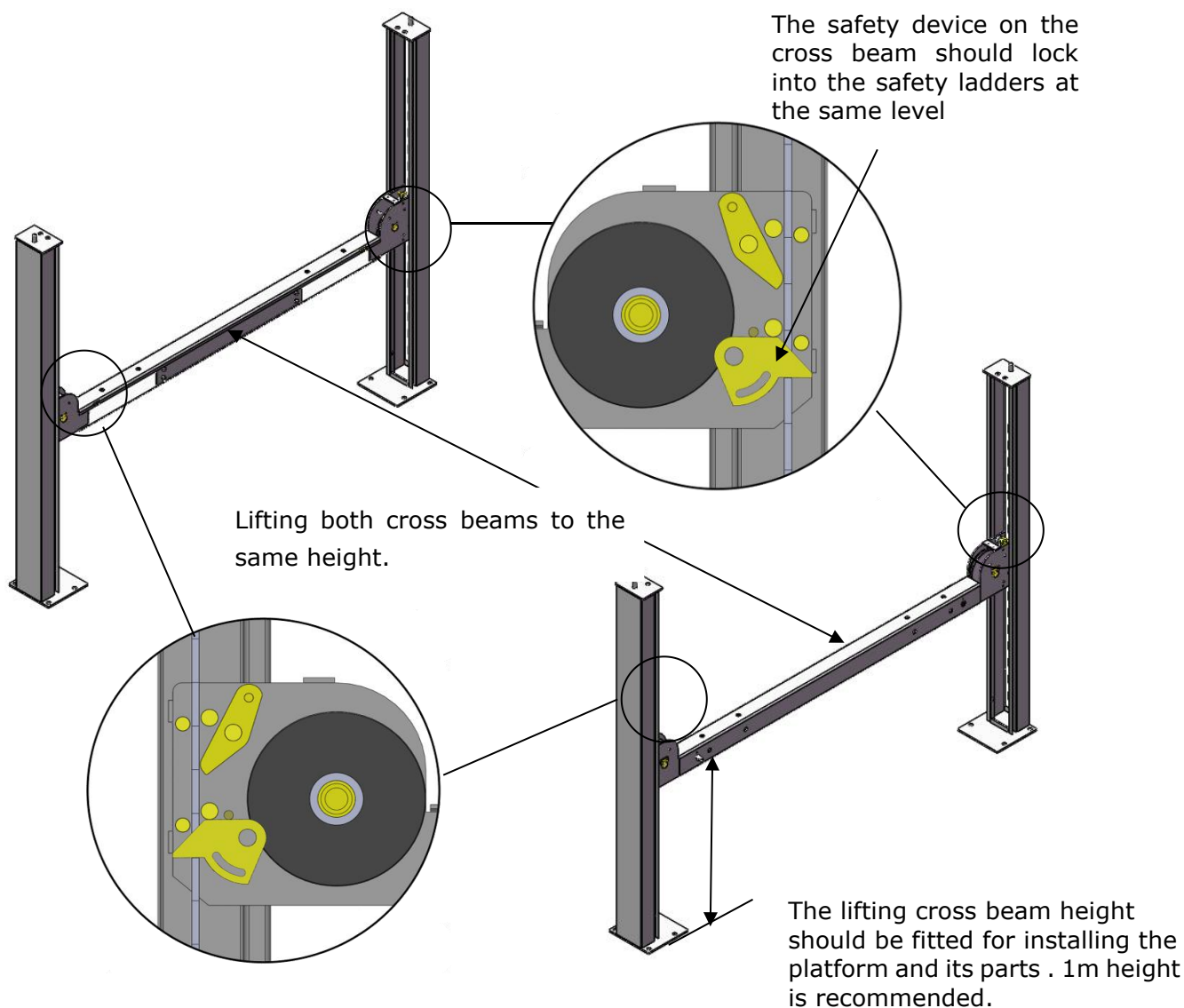


Fig. 16

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.

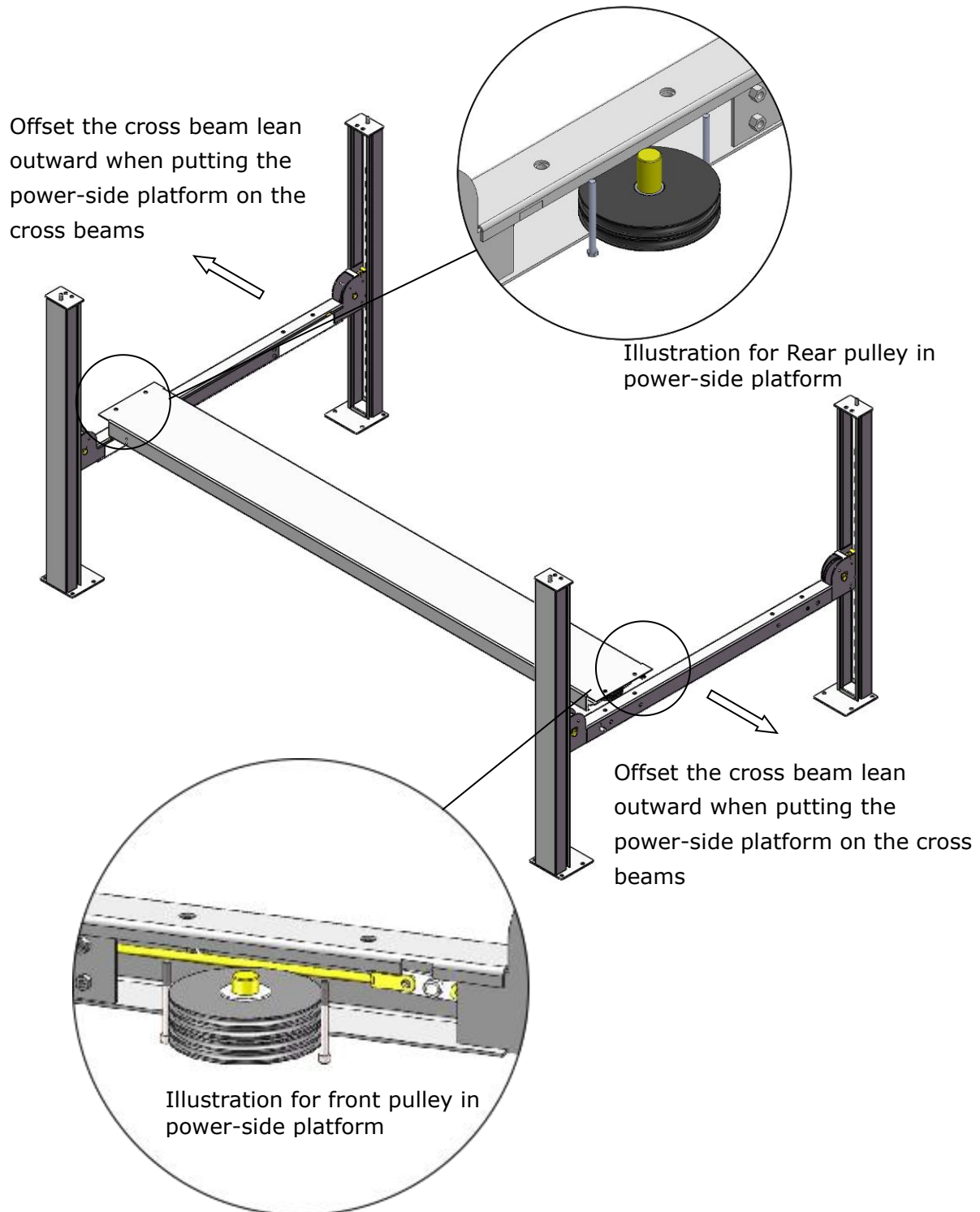


Fig. 17

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)**

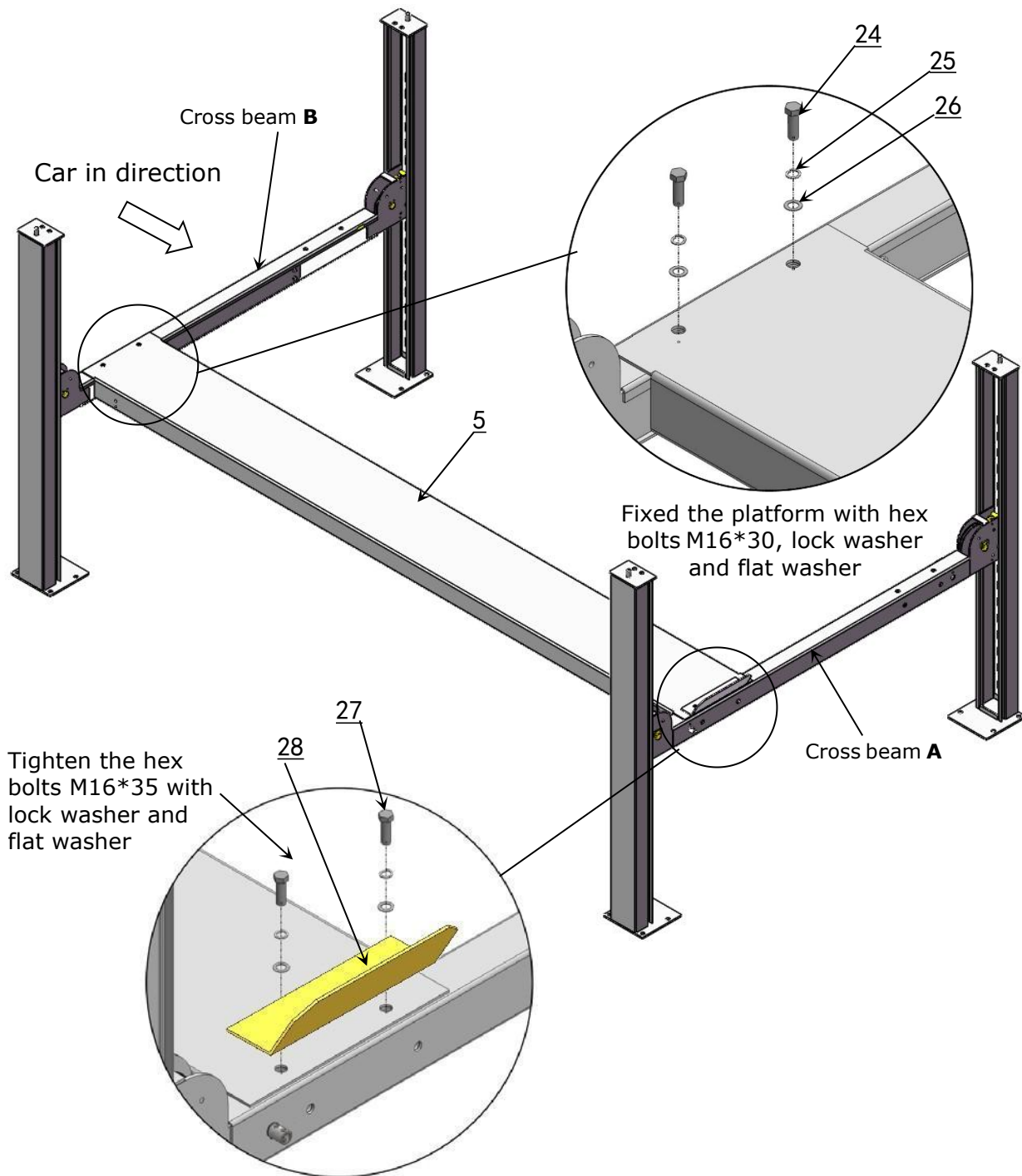


Fig. 18

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).

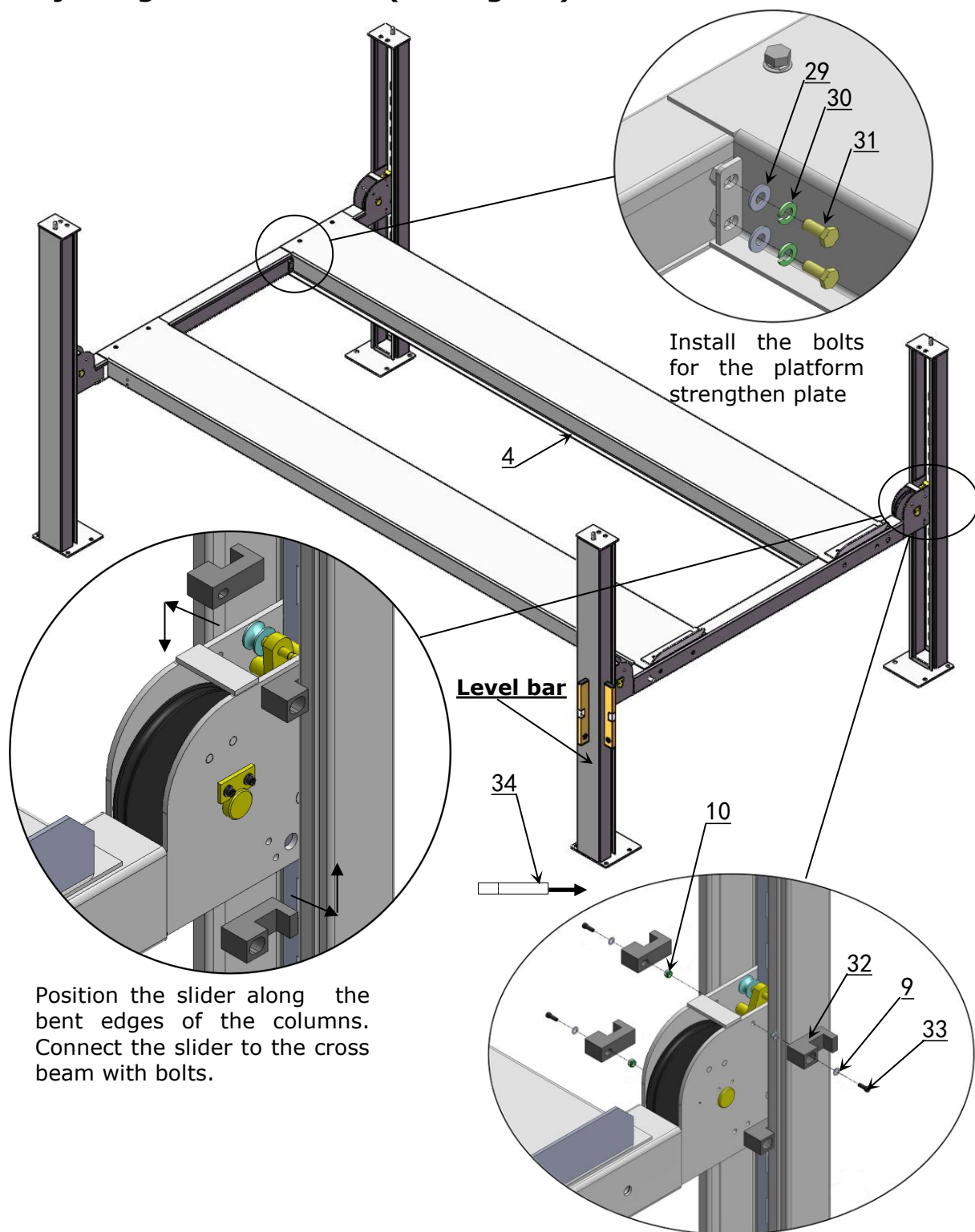
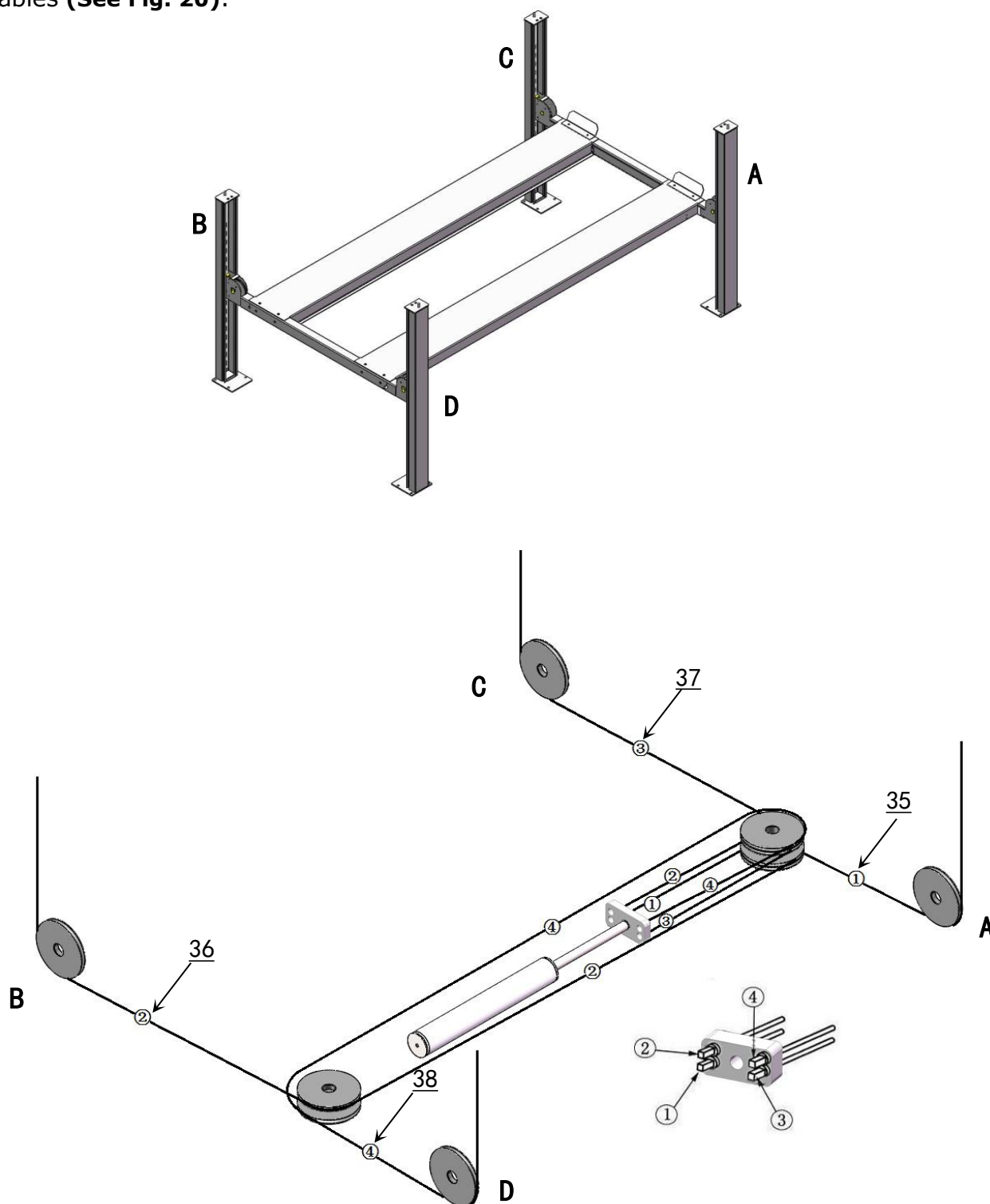


Fig. 19

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**).



Cable installation diagram
Fig. 20

NO.	①	②	③	④
Cable				
Length for 409-HP (inc. connecting fitting)	3400mm 133 7/4"	9875mm 388 3/4"	4980mm 196"	8250mm 324 3/4"

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

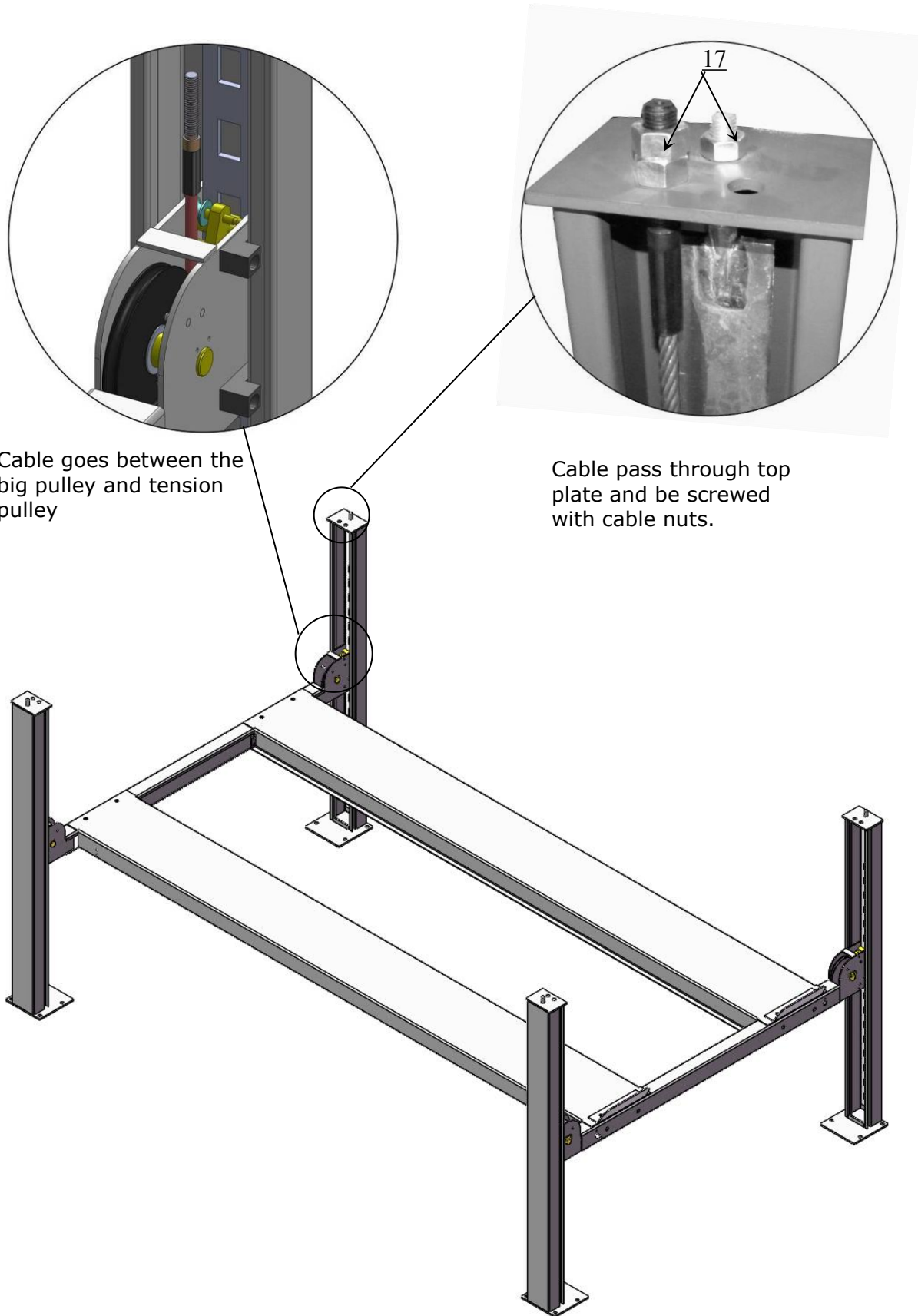


Fig. 21

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

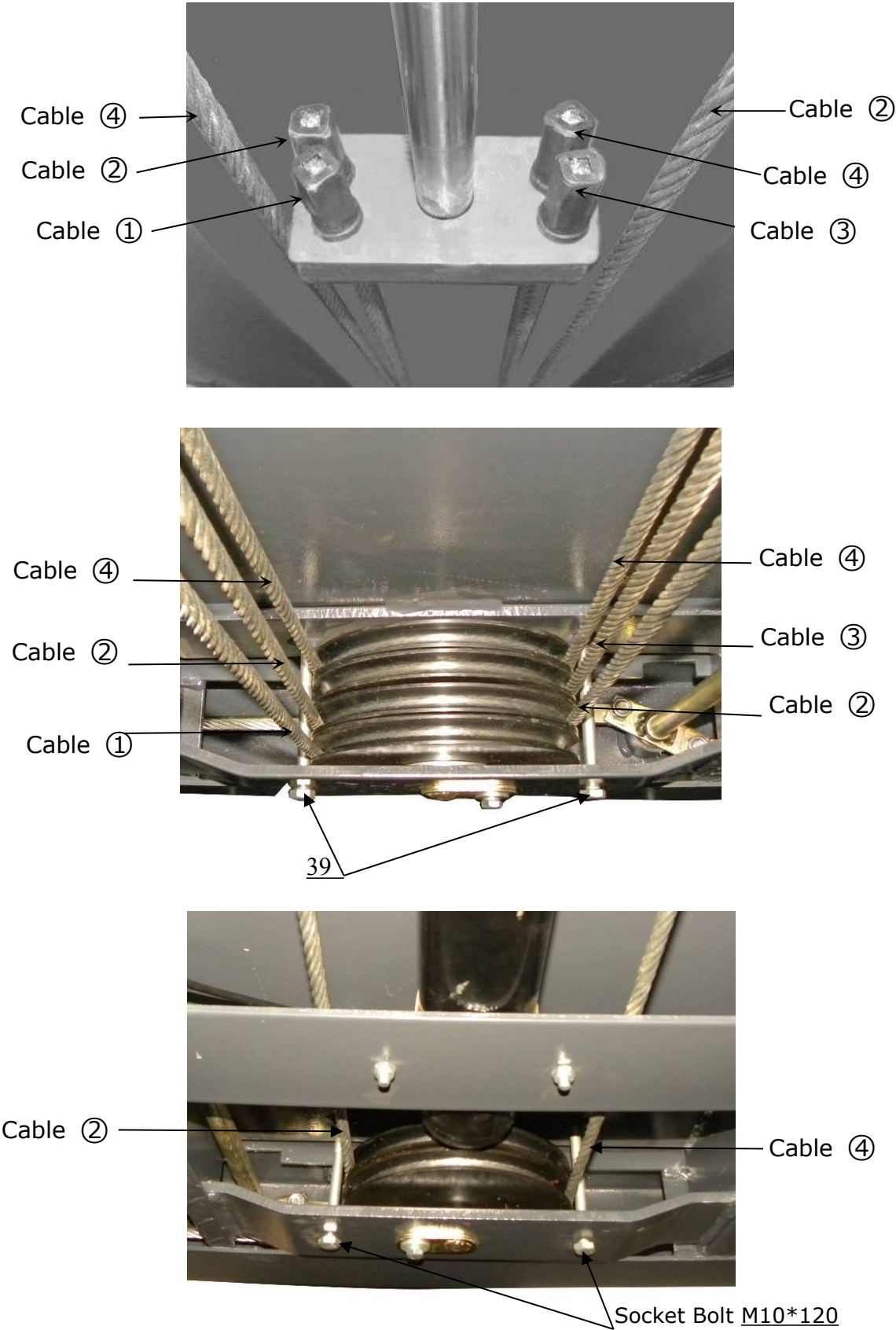


Fig. 22

I. Install safety release handle (See Fig. 23).

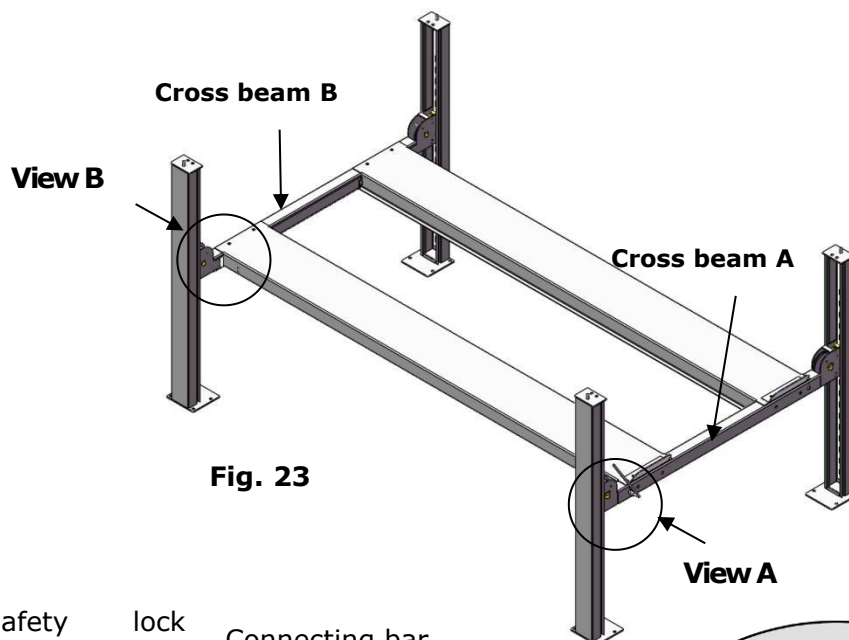
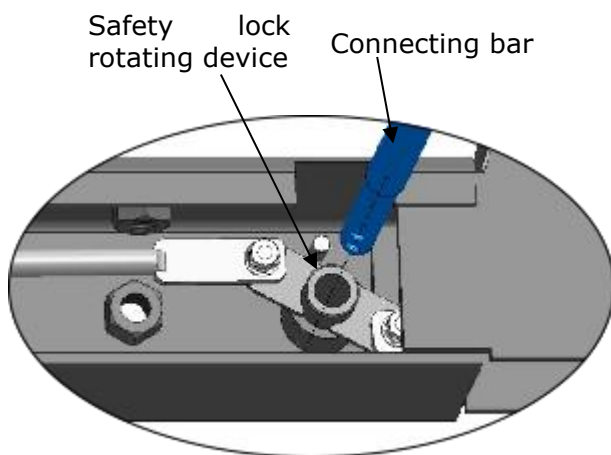
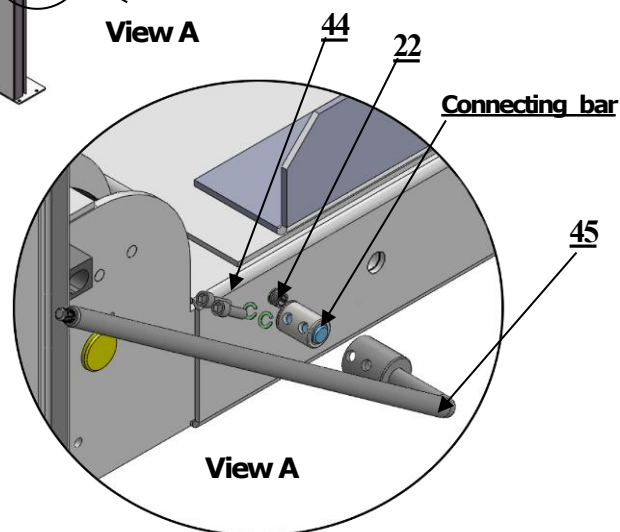


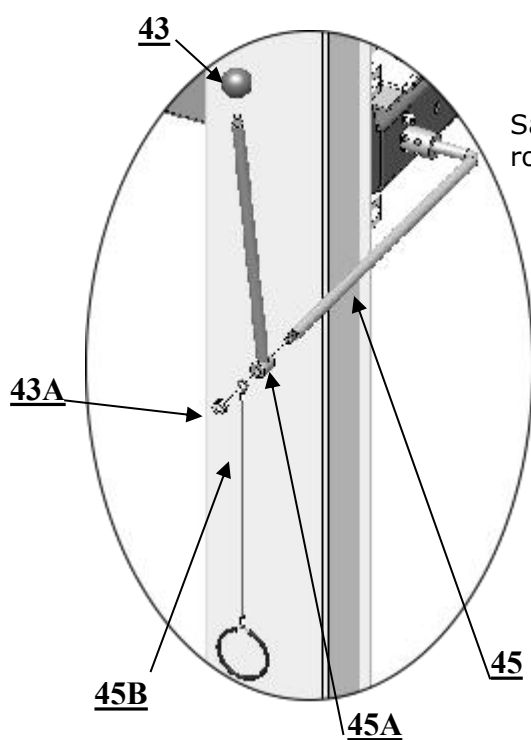
Fig. 23



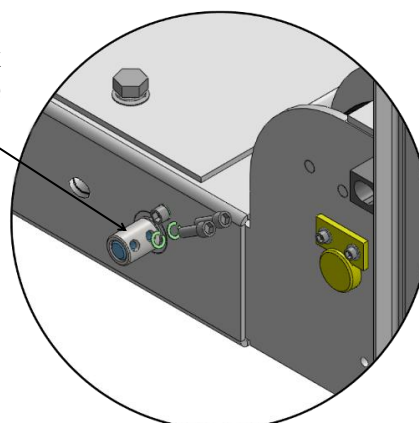
Pass the connecting bar through middle of safety lock rotating device of cross beam **A/B**



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**.



Safety lock rotating device



View B

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 Connecting tube is as Fig.24

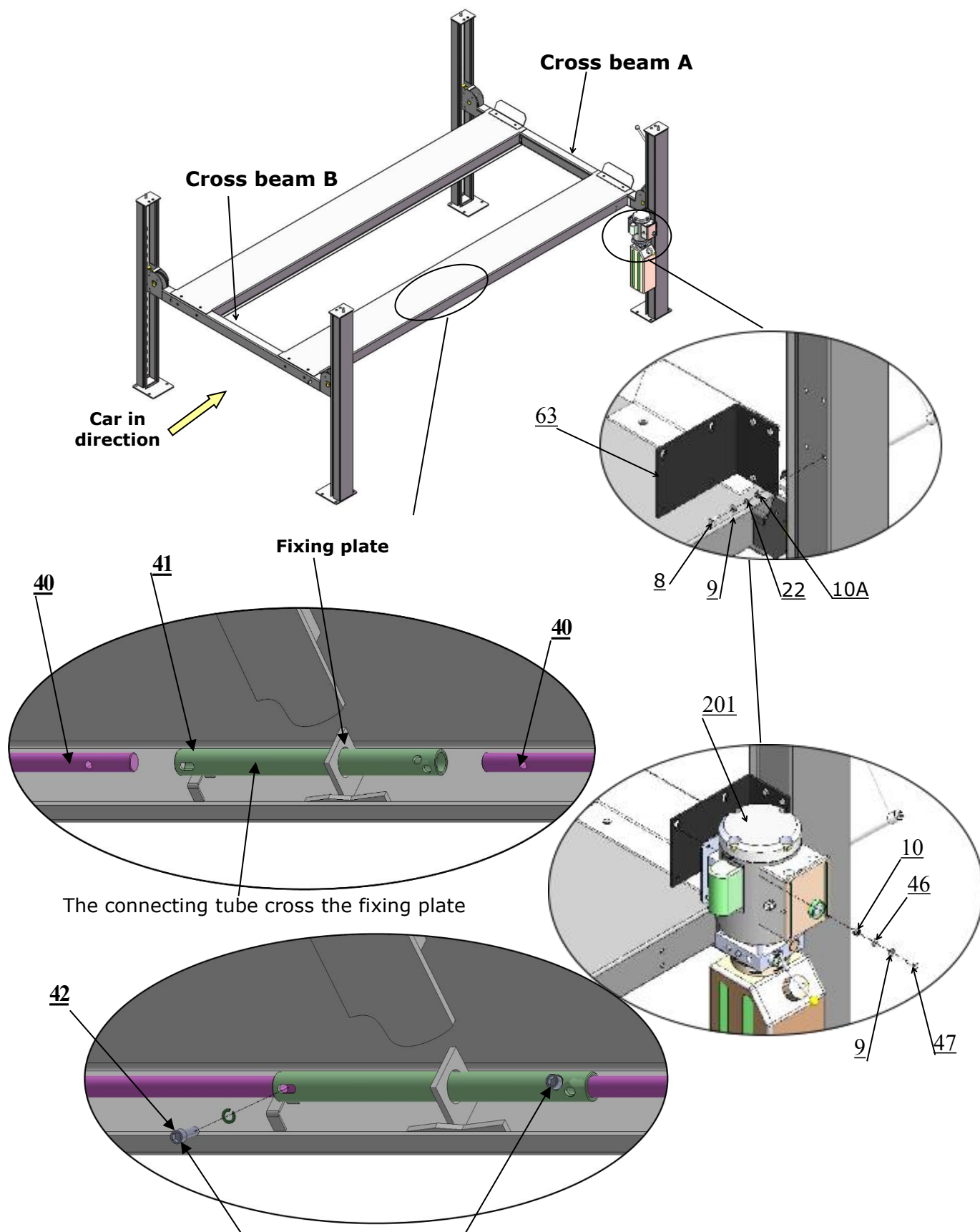


Fig. 24

Install M8*25 Socket bolt with lock washer to these two holes. (Connecting bar is connected with connecting tube)

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.

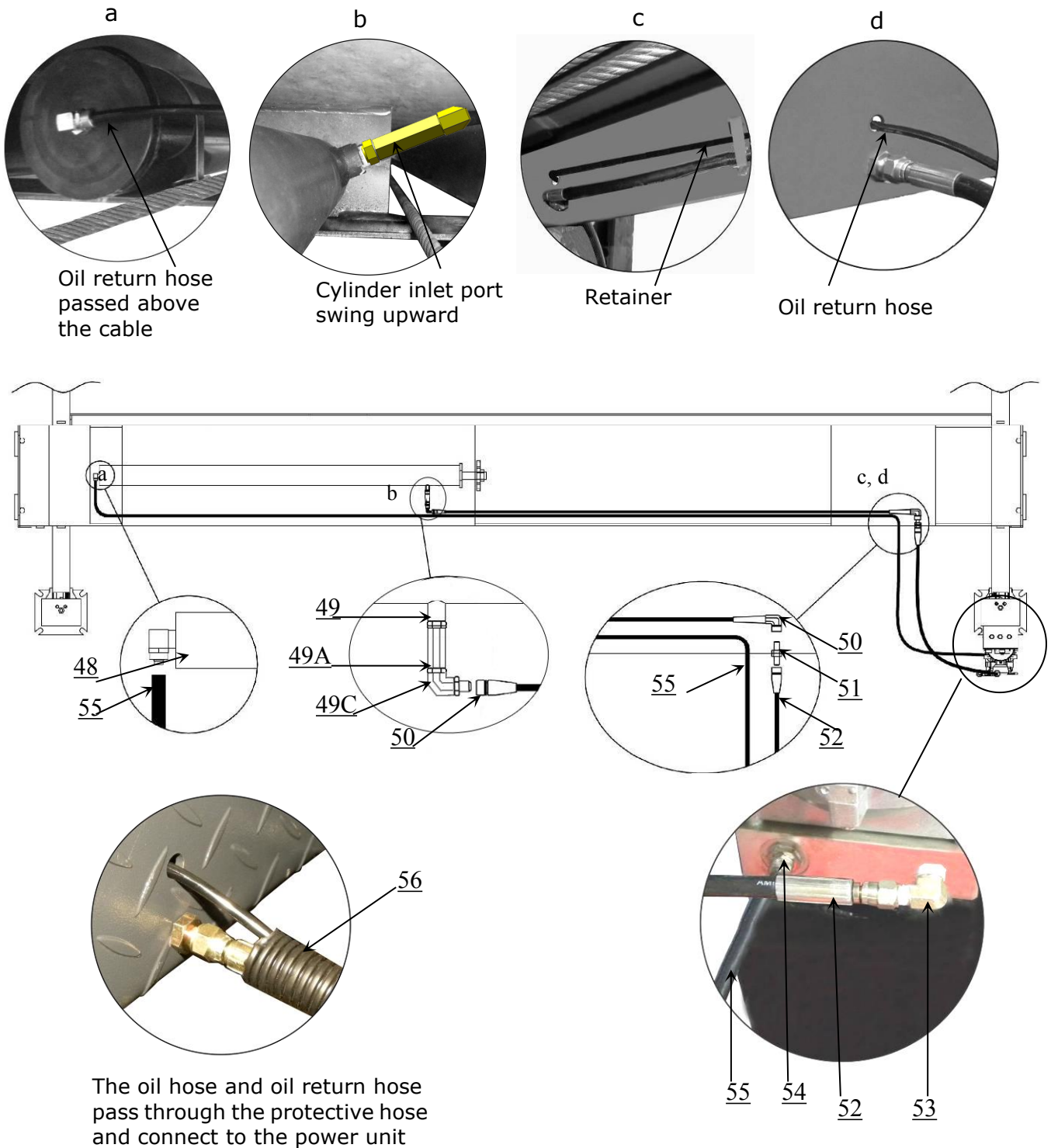


Fig. 25

L.Install Electrical System

Connect the power source on the data plate of 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.

Single phase motor (See Fig. 26)

Connecting the two power supply wires (active wire **L** and neutral wire **N**) 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

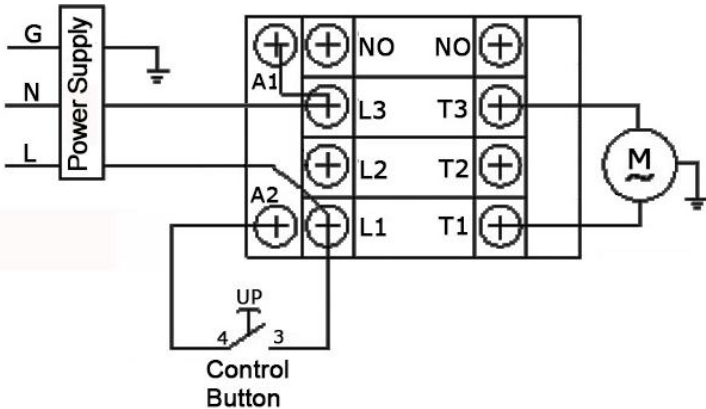
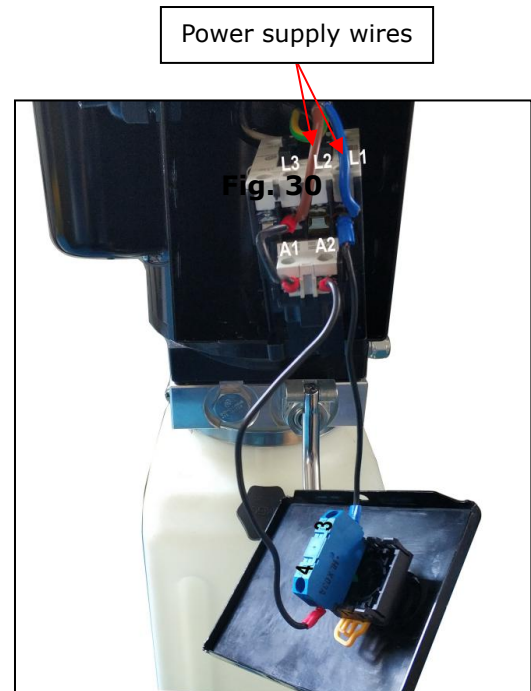


Fig. 26



Three phase motor

The power supply wires **L1**, **L2**, **L3** are connected with terminals of AC contactor marked **L1**, **L2**, **L3** respectively. Earth wire(yellow and green wire) is connected with the earth wire terminal of the motor.(See Fig. 27)

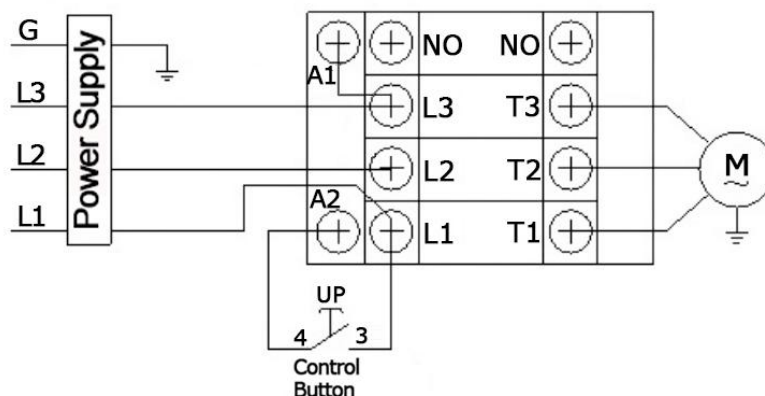
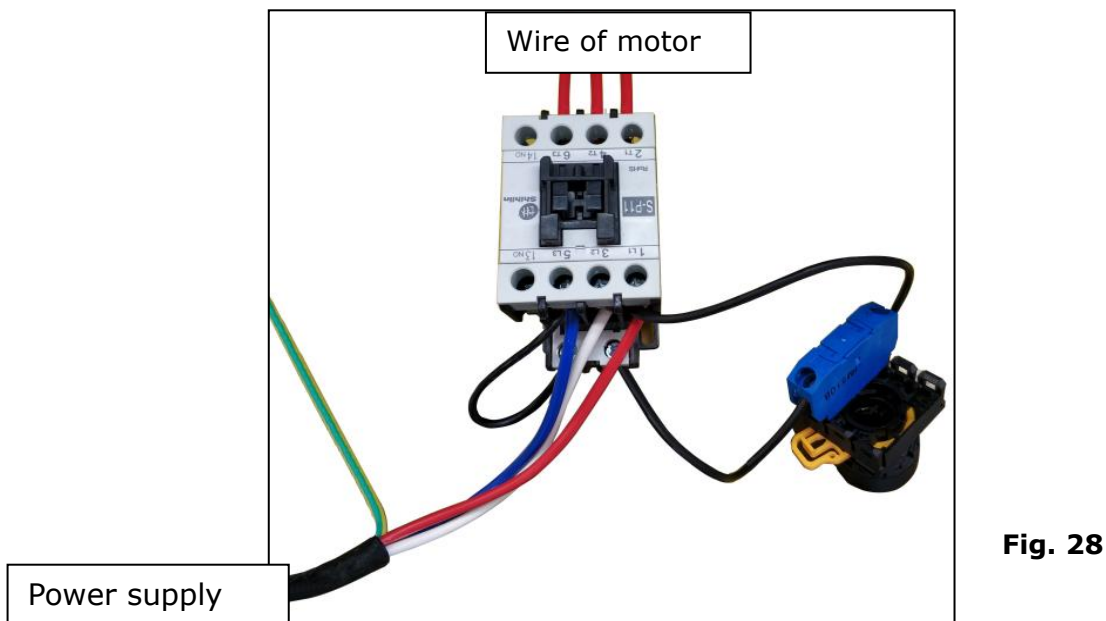


Fig. 27



M. Install spring and safety cover of cross beam (See Fig. 29).

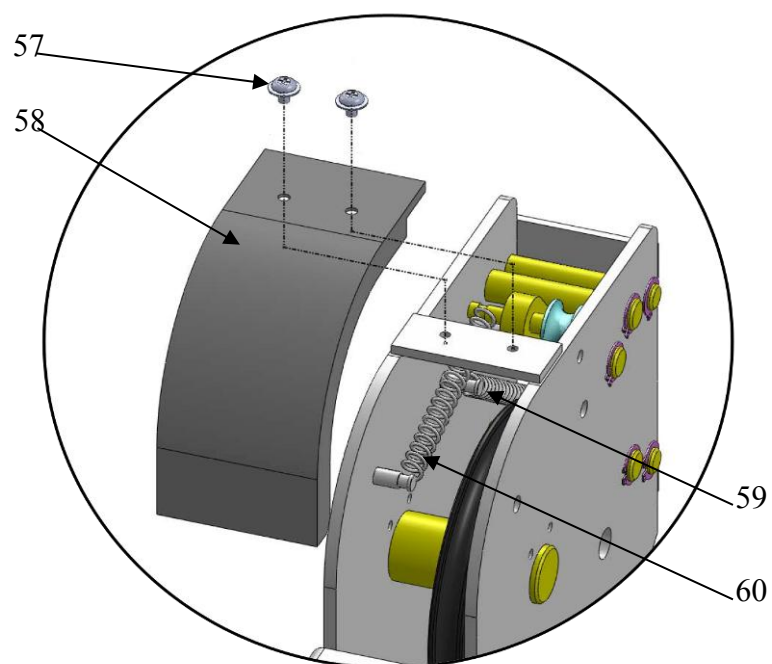


Fig. 29

N. Install drive-in ramp, jack tray and plastic oil pans (See Fig. 30).

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

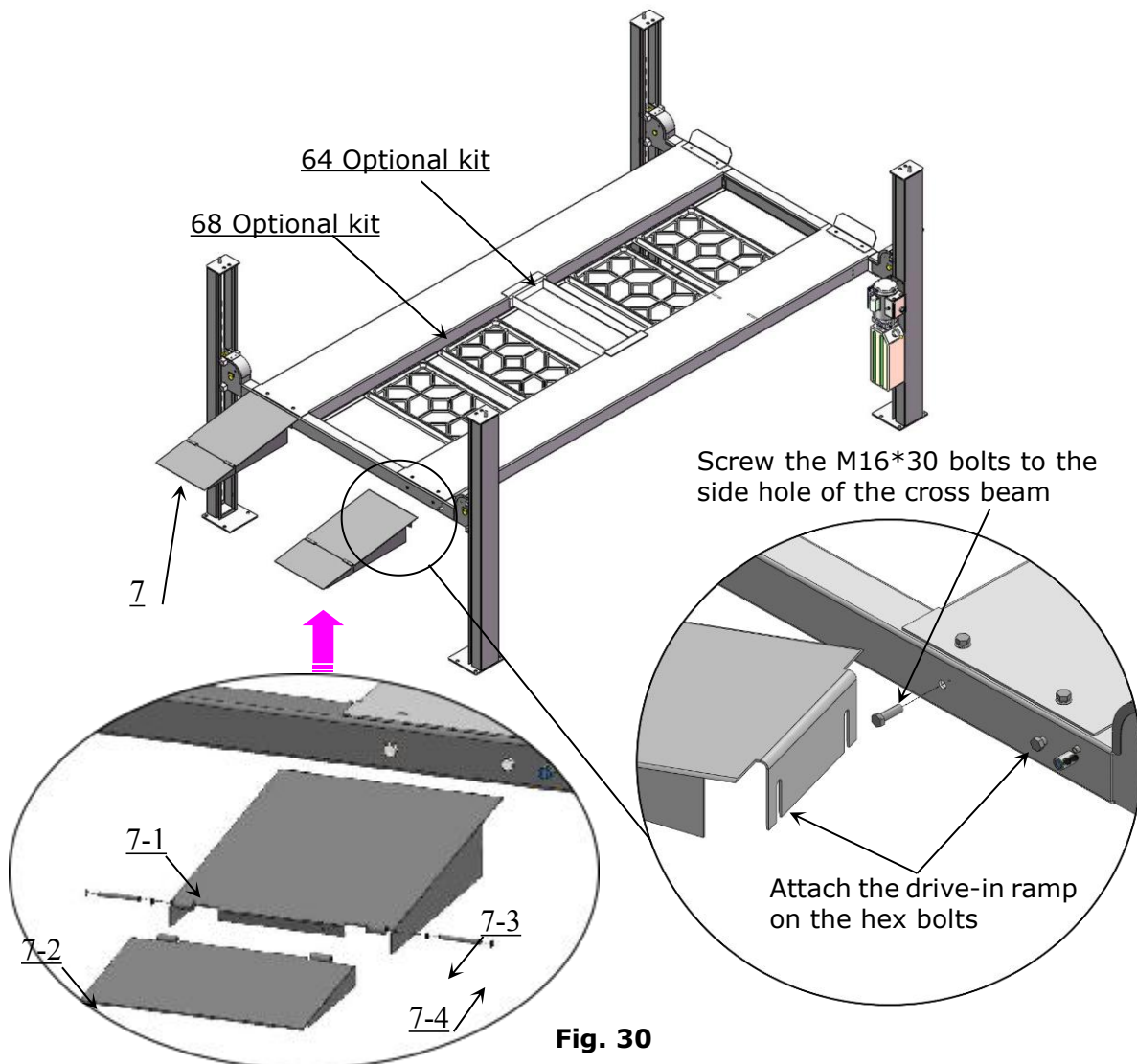


Fig. 30

Parts list of folding drive-in ramp				
Item	Part#	Description	QTY.	Note
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. 31)

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

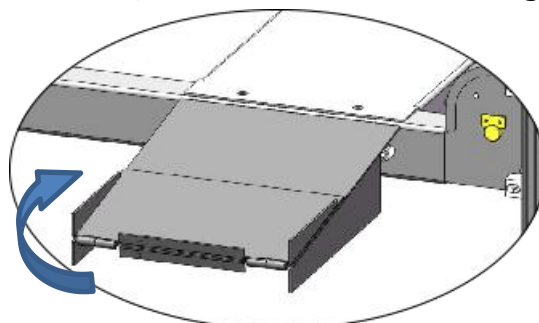


Fig. 31

P. For optional kits installation.

Install optional caster kits or Rolling jack (See Fig. 32)

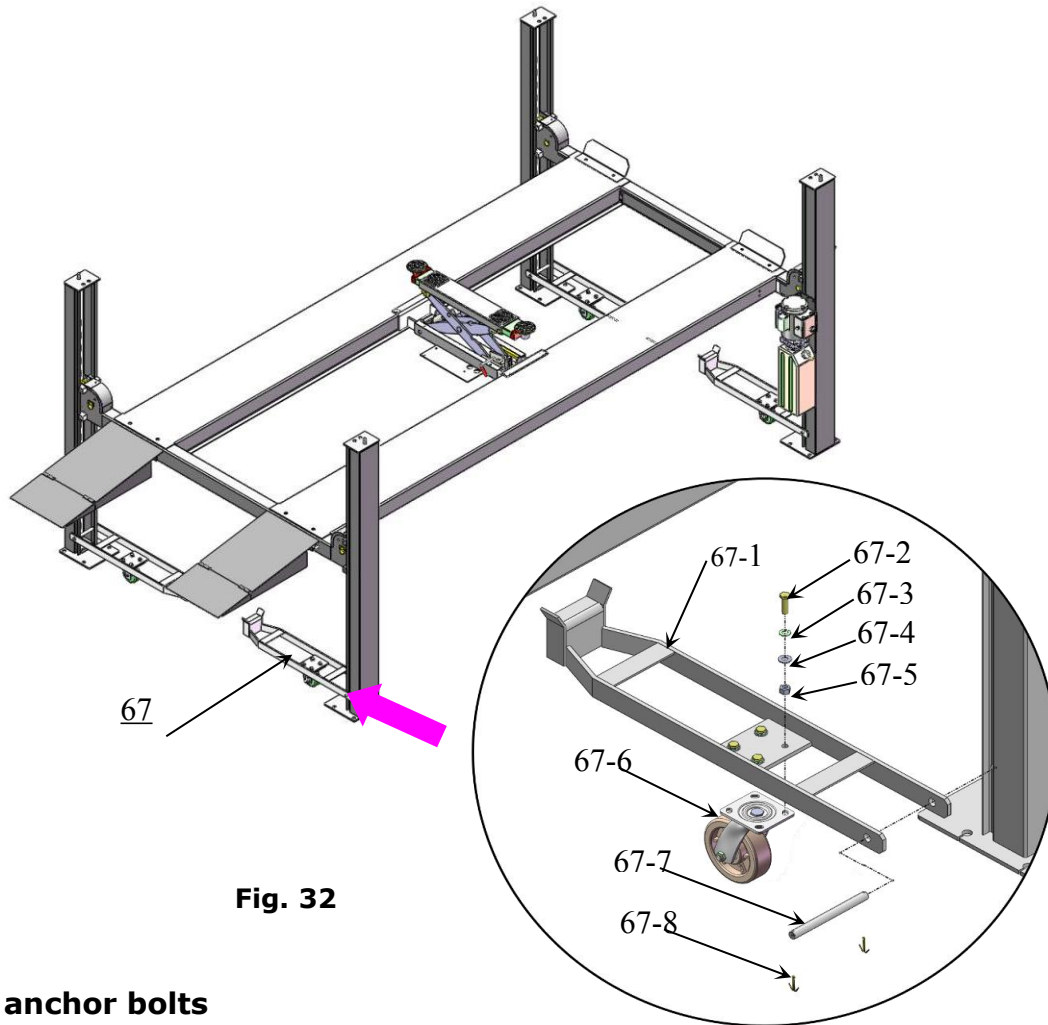


Fig. 32

Q. Fix the anchor bolts

1. Prepare the anchor bolts (See Fig. 33).

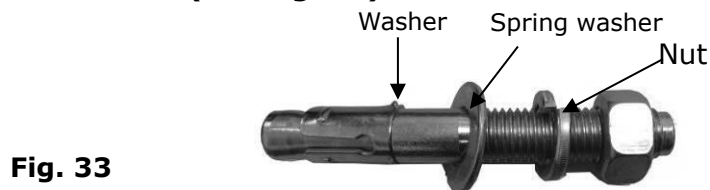


Fig. 33

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. 34).

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

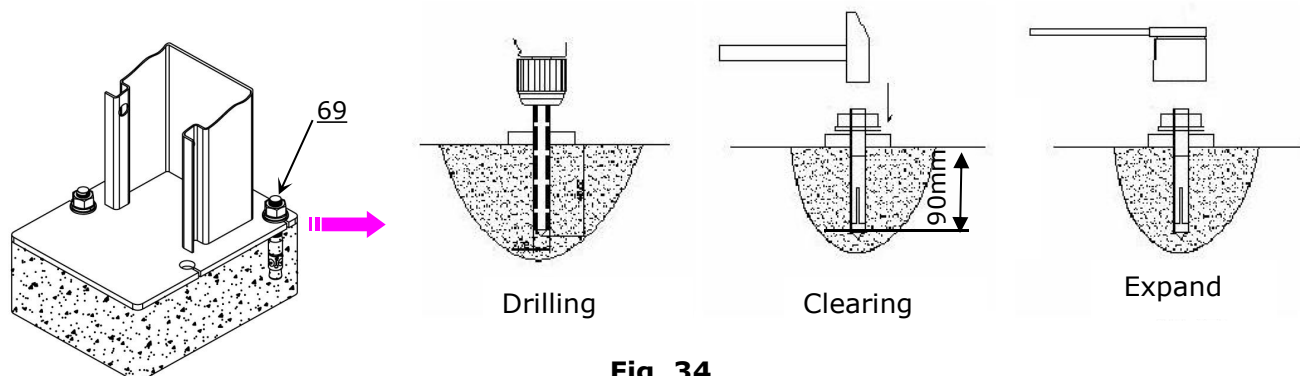
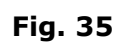


Fig. 34

Model 409-P/409-HP



PARTS LIST FOR MODEL 409-P 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 $\phi 8$	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 $\phi 4 \times 50$	1	
201	81513001/81513014	Manual power unit	1	
17	10420175A	Hex nut	16	
18	11410073-01	Safety ladder	4	
19	11420022A	Pulley pin	2	
19A	10410106	Cushion tube $\phi 60 \times 12 \times 13$	1	
19B	10530042	Bronze bush $\phi 41.3 \times \phi 35.1 \times 28$	2	
19C	10420132A	Bronze bush $\phi 41.3 \times \phi 35.1 \times 20$	2	
20	10420023A	Washer $\phi 36 \times \phi 65 \times 3$	13	
21	11420024B	Pulley	6	
21A	1104533023	Dual groove pulley	2	
22	10209034	Lock washer $\phi 8$	16	
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*2	8	
32	10410016A	Slider 81*38*38	16	
33	10410017	Socket bolt M18*40	16	
34	10201090	Shim(2mm)	20	
	10620065	Shim(1mm)	20	
35	10410171-01	Cable 1 $\phi 9.52 \times 3400\text{mm}$	1	
36	10410172-01	Cable 2 $\phi 9.52 \times 9875\text{mm}$	1	
37	10410170-01	Cable 3 $\phi 9.52 \times 4980\text{mm}$	1	
38	10410169-01	Cable 4 $\phi 9.52 \times 8285\text{mm}$	1	
39	10600015	Socket Bolt M10*20	4	
40	11410069-01	Connecting bar $\phi 19 \times 2410\text{mm}$	2	

Item	Part#	Description	Qty.	Note
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 $\phi 8 \times \phi 20 \times 3$	4	
47	10209003	Hex nut M8*25	8	
48	10420166	90° Screw Fitting	1	
49	10420243	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	
51	10420120	Extend straight fitting with nut	1	
52	10207026	Oil hose assy.	1	
53	10209060	90° Fitting for power unit	1	
54	10420095	Straight fitting	1	
55	10410072-01	Oil return hose L=6200mm	1	
56	1004533008	Bellows pipe $\phi 20 \times 1 \times 1400$ mm	1	
57	10209145A	Round head bolt with washer M6*12	8	
58	10410029	Plastic cover of 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	
63	1104551003	Motor fixing plate	1	
69	10209059	Anchor bolt 3/4*5-1/2	16	
Optional kits				
65	11410062	Jack tray	1	
65A	10410095	Oil tray	4	
66	96600005	Optional Rolling Jack J6H	1	
67	1040801	Mobile bracket assy.	4	
Parts for optional caster kits				
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	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

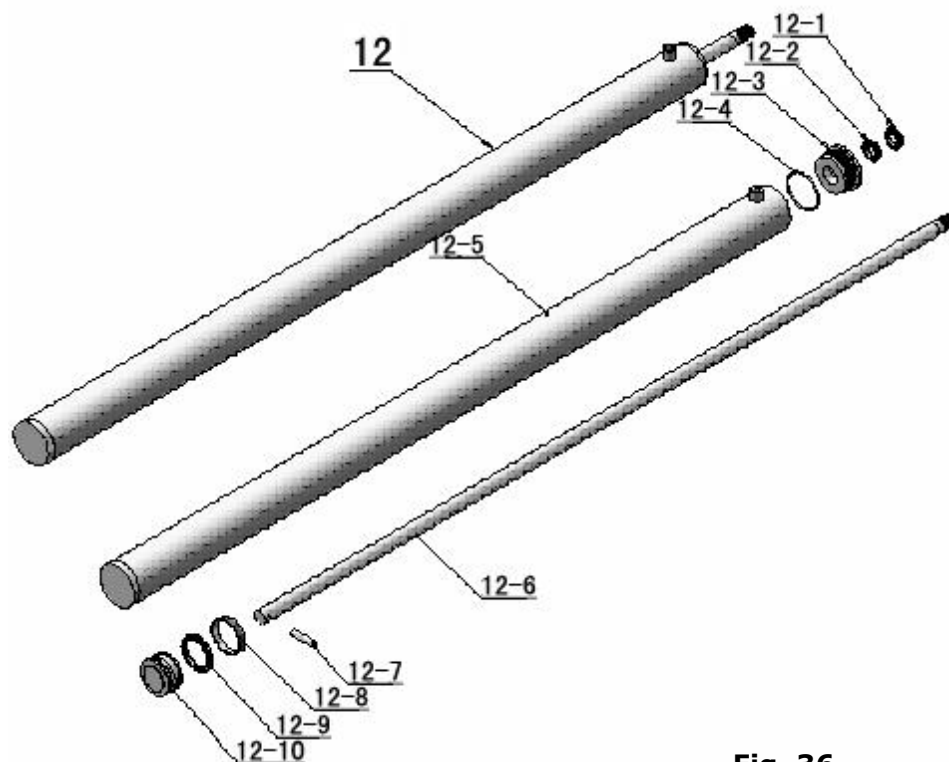


Fig. 36

Item	Part#	Description	Qty.	Note
12-1	10420059	Dust Ring	1	
12-2	10420060	Y- Ring	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		
12-7	11410085	Pin	1	
12-8	10410086	Support Ring	1	
12-9	10410087	Y- Ring	1	
12-10	11410088	Piston	1	

4.2 CROSS BEAM EXPLODED VIEW

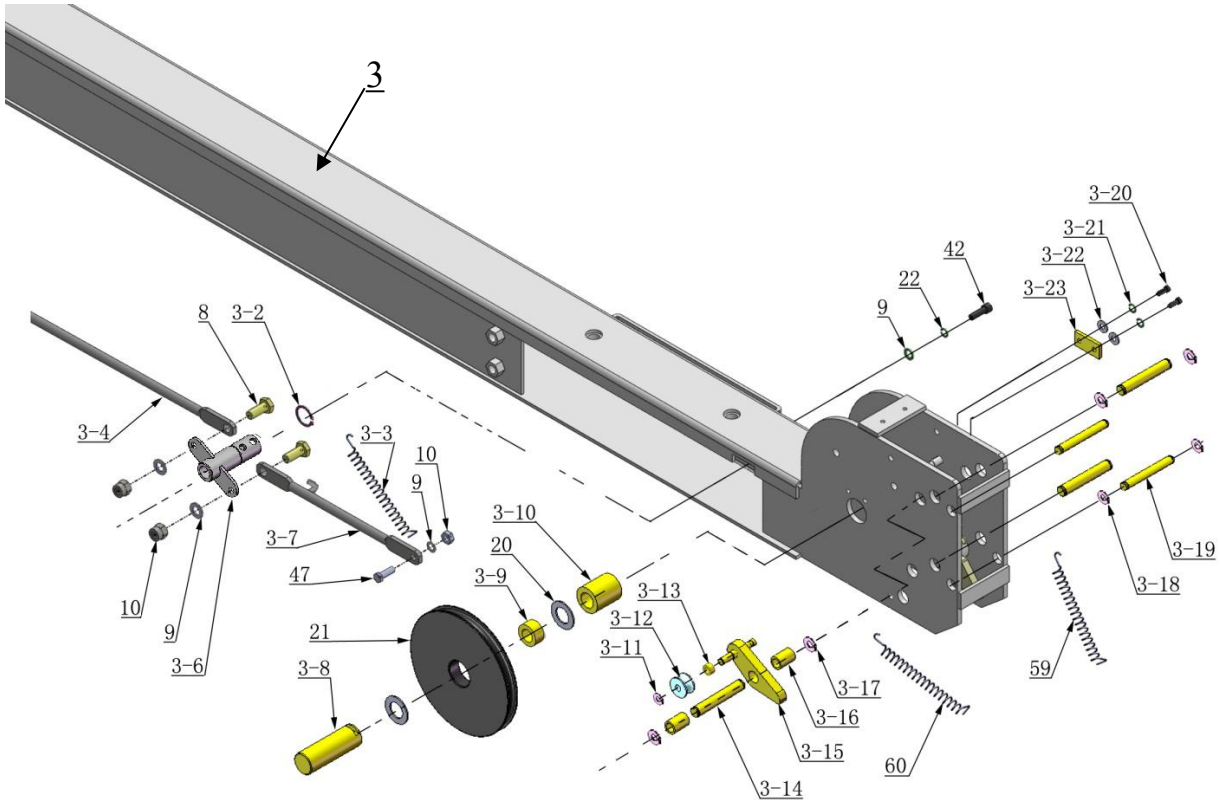


Fig.37

Item	Part#	Description	Qty.	Note
3-2	10206032	Clip ring $\phi 25$	2	
3-3	10410099	Spring $\phi 14 * \phi 2.5 * 100$	2	
3-4	11410063-01	Connecting bar	2	
3-6	1104572003A	Safety lock rotating device	2	
3-7	11410064-01	Connecting bar	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	Clip ring $\phi 10$	4	
3-12	10420035	Tension pulley	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 Power unit (81513001/81513002) exploded view:

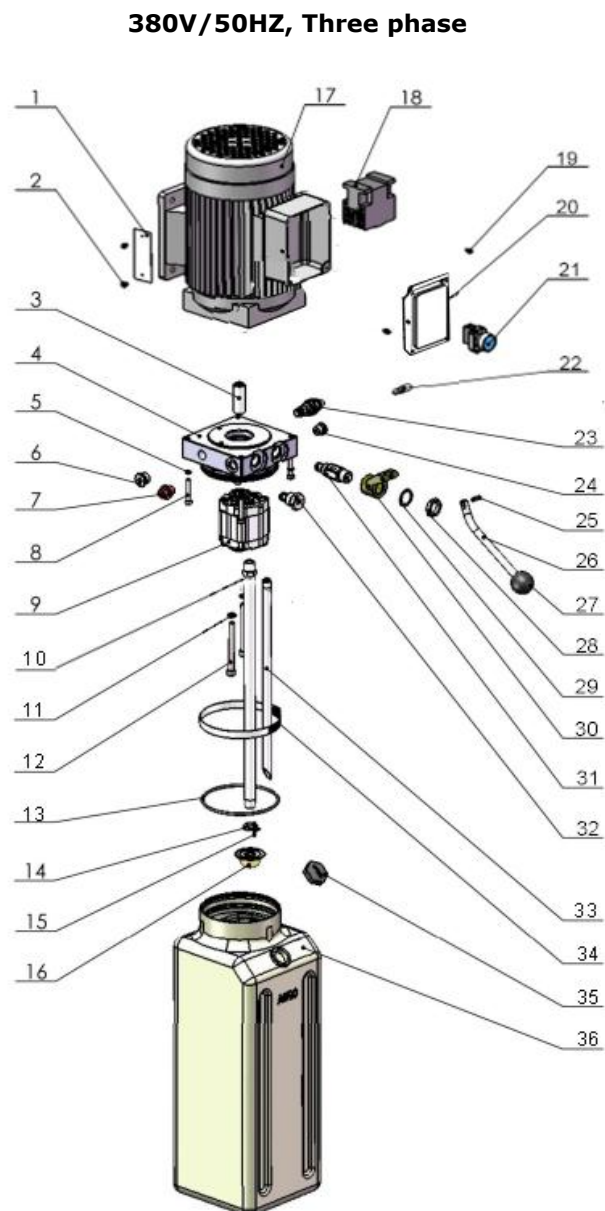
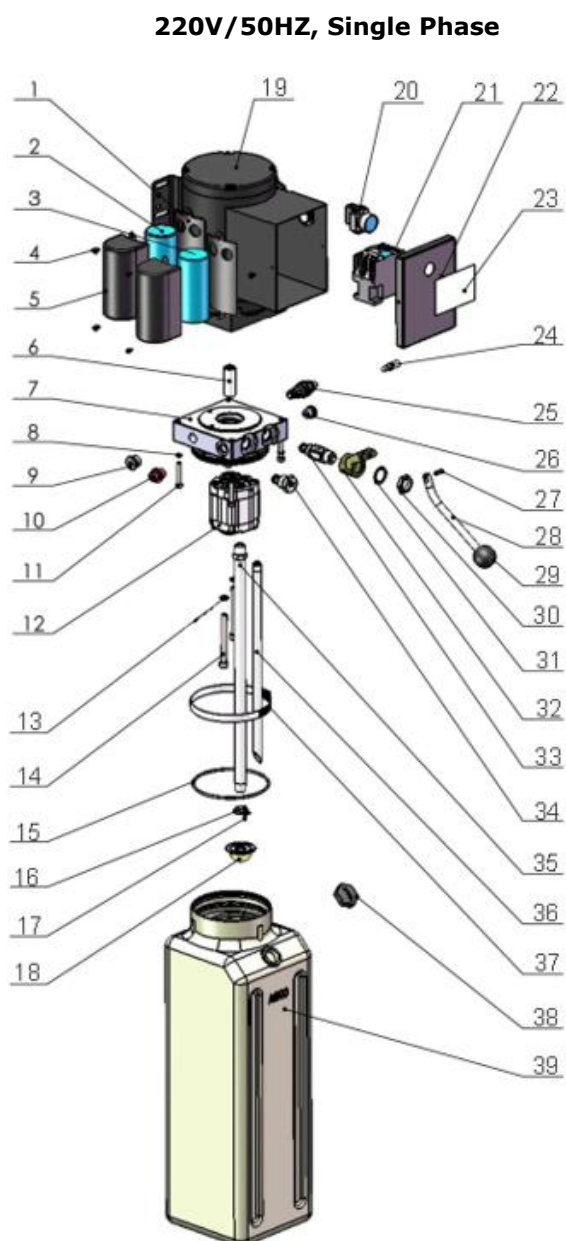


Fig.38

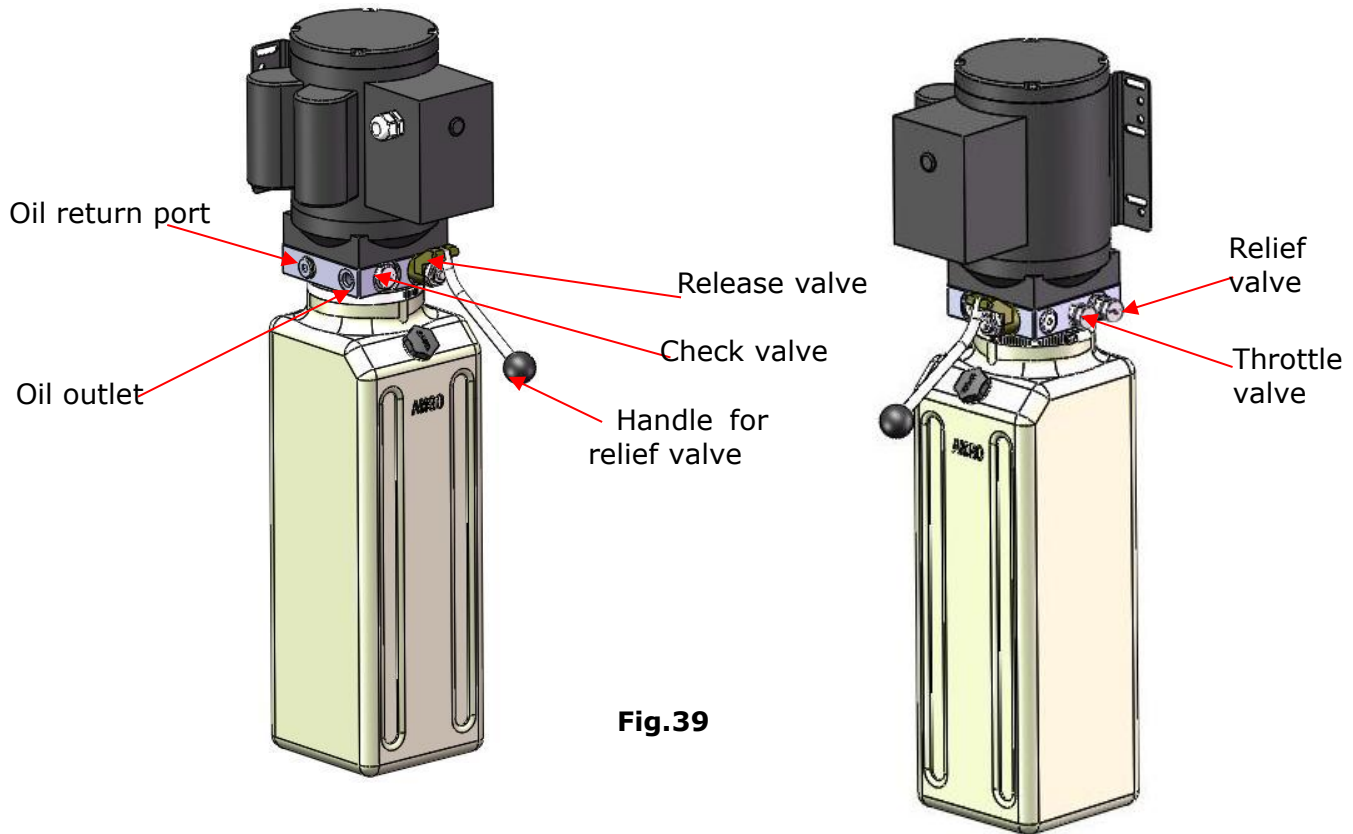
Parts list for 220V/50Hz, Single Phase

Item	Part#	Description	Qty
1	81400180	Rubber Pad	2
2	81400250	Starting capacitor	1
3	81400200	Running capacitor	1
4	10420148	Cup Head Bolt with washer	6
5	81400066	Cover of Motor Terminal Box	2
6	81400363	Motor Connecting Shaft	1
7	80101013	Manifold block	1
8	10209149	Washer	4
9	81400276	Iron plug	1
10	81400259	Red rubber plug	1
11	85090142	Socket bolt	4
12	81400280	Gear pump	1
13	10209034	Washer	2
14	81400295	Socket bolt	2
15	81400365	O ring	1
16	10209152	Zip Tie	1
17	85090167	Magnet	1
18	81400290	Filter	1
19	81400413	Steel Motor	1
20	10420070	Push button	1
21	41030055	AC connector	1
22	81400287	Motor terminal box cover	1
23	71111170	AMGO power unit label	1
24	81400560	Throttle valve	1
25	81400266	Relief valve	1
26	81400284	Inner hex iron plug	1
27	10720118	Hair pin	1
28	81400451	Release valve handle	1
29	10209020	Plastic ball	1
30	81400421	Release valve nut	1
31	81400422	Shim	1
32	81400449	Valve Seat	1
33	81400567	Release Valve	1
34	81400566	Check Valve	1
35	81400288	Oil suction pipe	1
36	81400289	Oil return pipe	1
37	81400364	Clamp	1
38	81400263	Oil tank cap	1
39	81400275	Oil tank	1

Parts list for 380V/50Hz, Three phase

Item	Part#	Description	Qty
1	71150055	AMGO Nameplate	1
2	81400300	Cup Head Bolt	2
3	81400363	Motor Connecting Shaft	1
4	81400362	Manifold block	1
5	10209149	Washer	4
6	81400276	Iron plug	1
7	81400259	Red rubber plug	1
8	85090142	Socket Bolt	4
9	81400292	Gear pump	1
10	81400288	Oil suction hose	1
11	10209034	Washer	2
12	81400295	Socket bolt	2
13	81400365	O ring	1
14	10209152	Ties	1
15	85090167	Magnet	1
16	81400290	Filter	1
17	81400439	Steel Motor	1
18	81400348	AC connector	1
19	10420148	Cup head bolt	2
20	80101022	Terminal Box For Motor	1
21	10420070	Push Button	1
22	81400560	Throttle valve	1
23	81400266	Relief Valve	1
24	81400284	Iron plug	1
25	81400452	Pin	1
26	81400451	Release Valve Handle	1
27	10209020	Plastic Ball	1
28	81400421	Release Valve Nut	1
29	81400422	Self Lock washer	1
30	81400449	Valve Seat	1
31	81400567	Release Valve	1
32	81400566	Check Valve	1
33	81400289	Oil Return Hose	1
34	81400364	Clamp	1
35	81400263	Oil tank cover	1
36	81400275	Oil tank	1

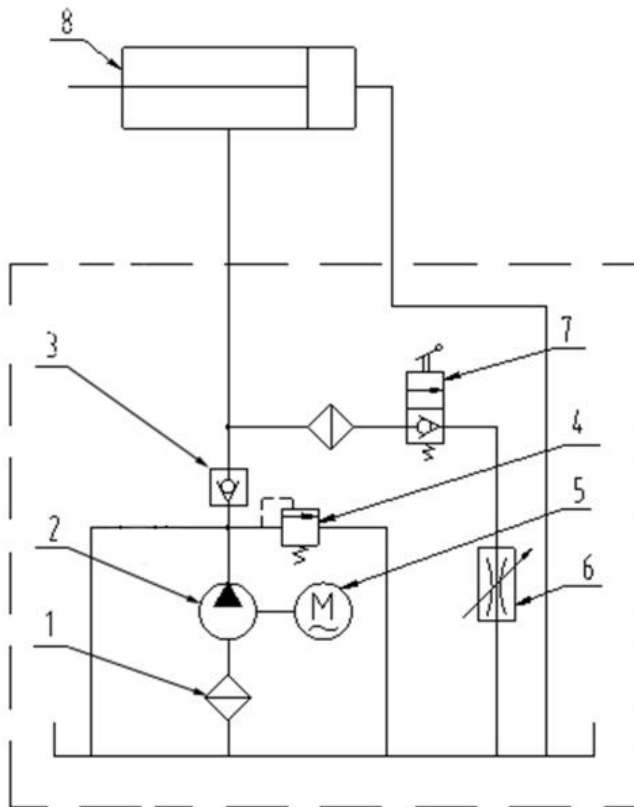
Illustration of hydraulic valve for power unit



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.40

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

TROUBLE	CAUSE	REMEDY
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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