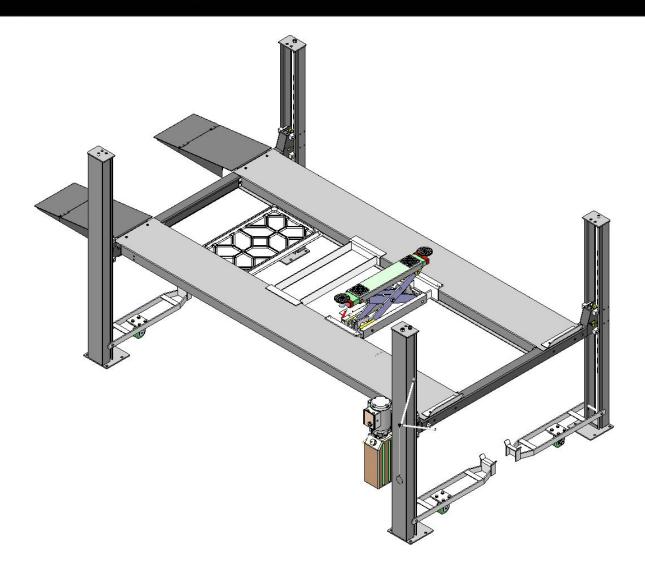


Original

# **Installation And Service Manual**



FOUR-POST LIFT Model: 407-HP

# **CONTENTS**

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#### I. PRODUCT FEATURES AND SPECIFICATIONS

#### **4-POST MODEL 407-HP FEATURES**

- · Single cylinder drive and transmission by cable
- · Single point manual safety release, more convenient and 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,oil tray.

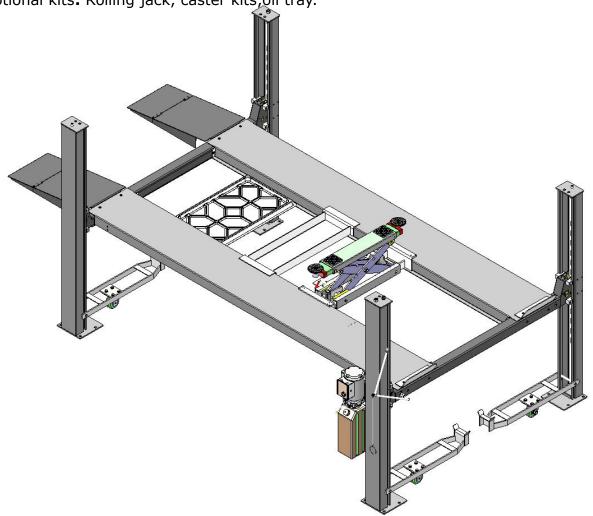


Fig. 1

#### **MODEL 407-HP SPECIFICATIONS**

Model	Lifting Capacity	Lifting Height	Lifting Time	Overall Length (Inc. Ramps)	Overall Width	Overall Height	Width Between Columns	Motor
407-HP	3200KG	2120mm	35S	5007mm	2409mm	2455mm	2167mm	220V: 3.0HP

# II. INSTALLATION REQUIREMENT

# **A. TOOLS REQUIRED**

✓ Tape Measure (7.5m)



✓ Hammer



✓ Level Bar



✓ English Spanner (12")



Wrench set
(12<sup>#</sup>, 13<sup>#</sup>, 14<sup>#</sup>, 15<sup>#</sup>, 17<sup>#</sup>, 19<sup>#</sup>, 24<sup>#</sup>, 30<sup>#</sup>)



√ 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.



#### 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/cm²) minimum.
- 3. Floors must be level and no cracks.

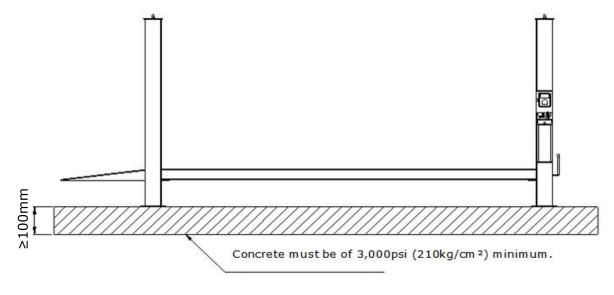


Fig. 4

#### **E. POWER SUPPLY**

The electrical source must be 2.2KW minimum. The source cable size must be 2.5mm<sup>2</sup> and in good condition of contacting with floor.

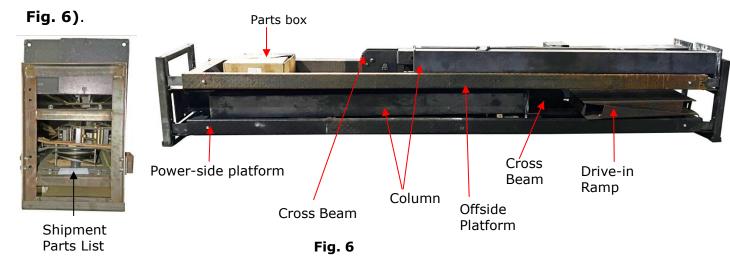
### III. STEPS OF INSTALLATION

## A. Check the parts before assembly

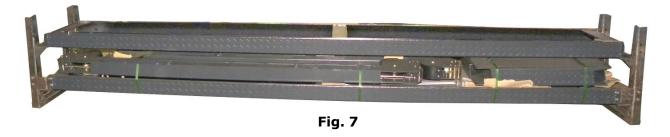
1. Packaged lift and Hydraulic Power Unit (See Fig. 5).



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



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

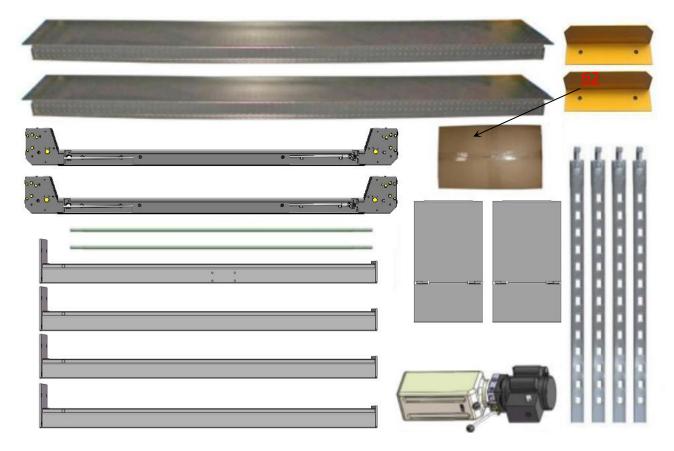


Fig.8

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

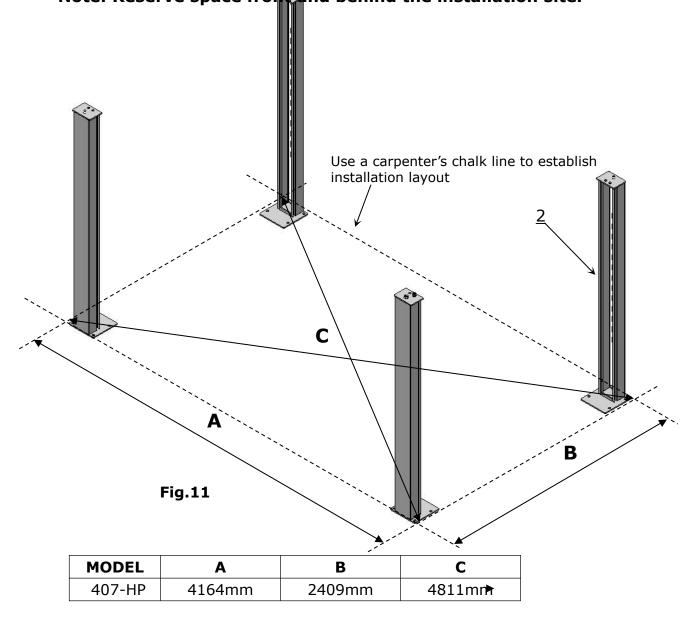


Fig. 9

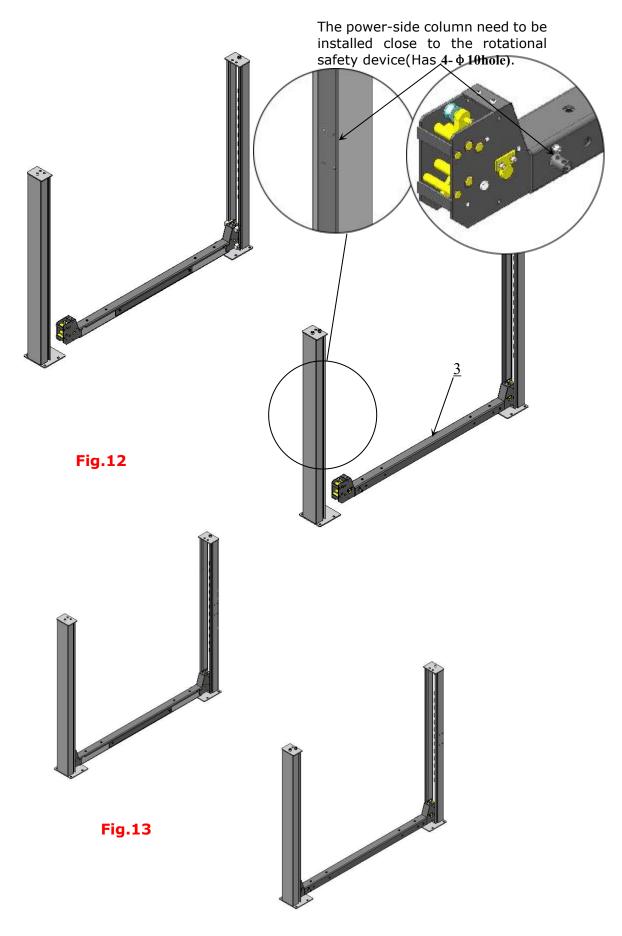
7. Check the parts of the parts bag according to the parts bag list (See Fig. 10).



B. Use a carpenter's chalk line to establish installation layout as per Fig.11. Make sure the size is right and base is flat (see Fig. 11). Note: Reserve space from and behind the installation site.

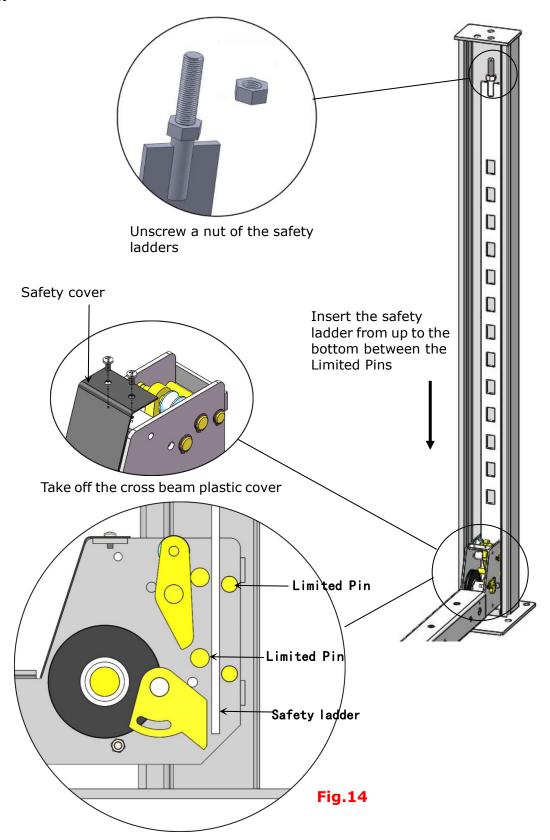


C. Install cross beams. The cross beam opening towards inside, the power-side column need to be installed close to the rotational safety device. (See Fig.12, Fig.13).



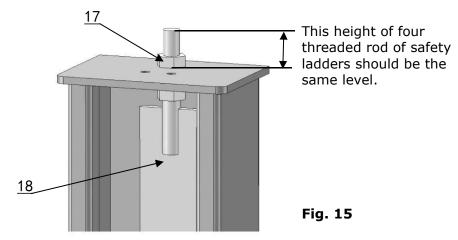
# D. Install the Safety Ladders.

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).



Safety Ladder is inserted between Limited Pins of the cross-beam

## 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 to the same height and lock at the safety ladder (See Fig. 16).

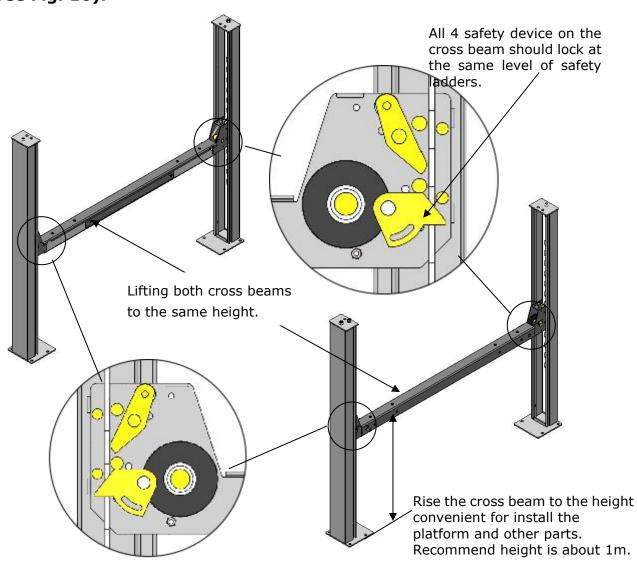


Fig. 16

# F. Install power-side platform.

Install the power-side platform on the cross beams by a fork lift or manual, offset the
cross beams to outside a little until the pulleys of both platforms enter into the cross
beams opening (See Fig.17). Aligning holes on the power-side platform and cross beam,

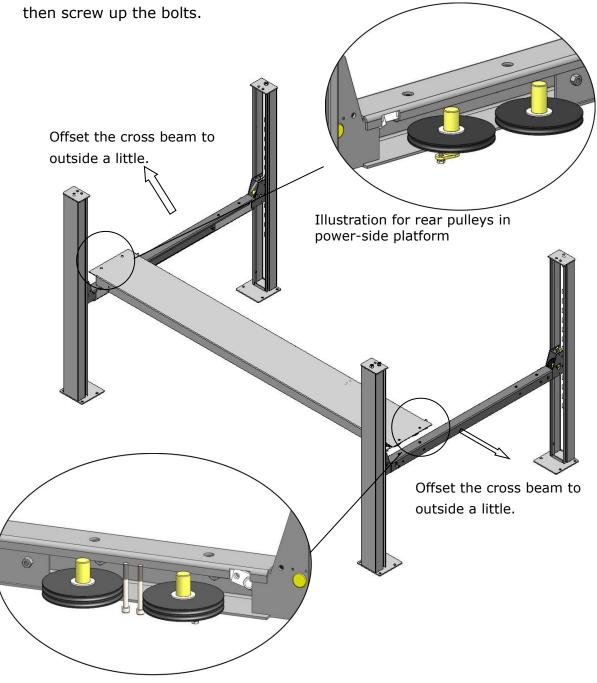
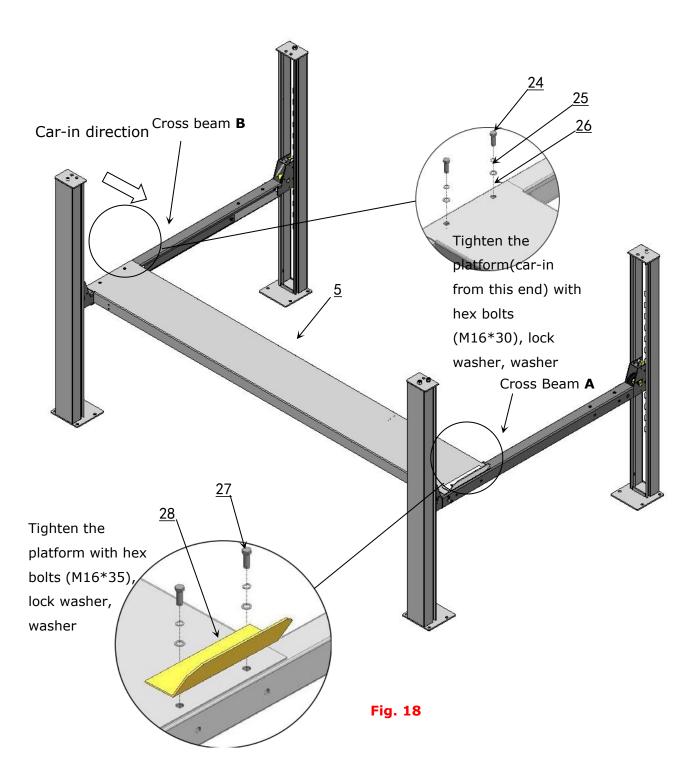


Illustration for front pulleys in power-side platform

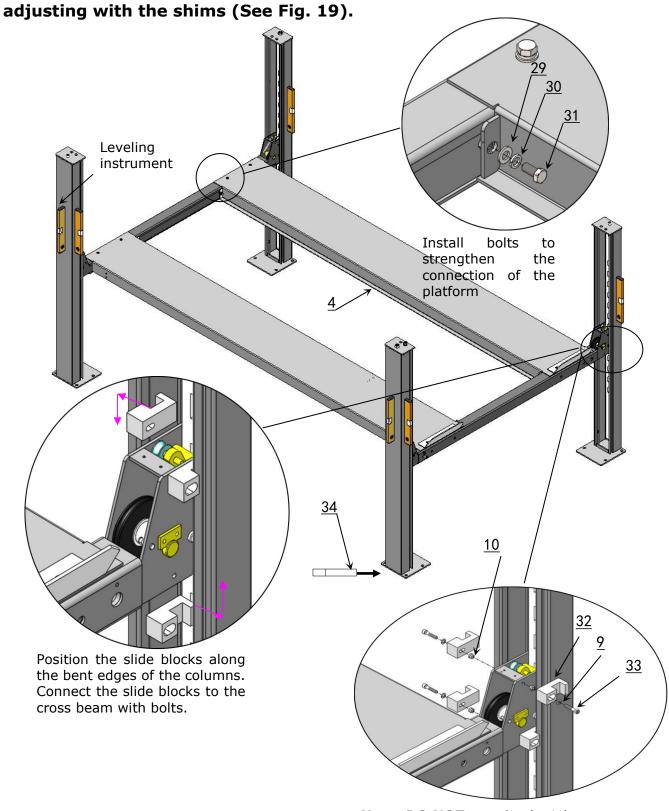
Fig. 17

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 bolt.

**Note:** The bolts for the side with tire stop plate are longer than the side without tire stop plate, pay attention when choosing the bolts (See Fig.18)



G. Install offside platform and limit block, then install the bolts for the platform strengthen plate, check the plumbness of columns with level and

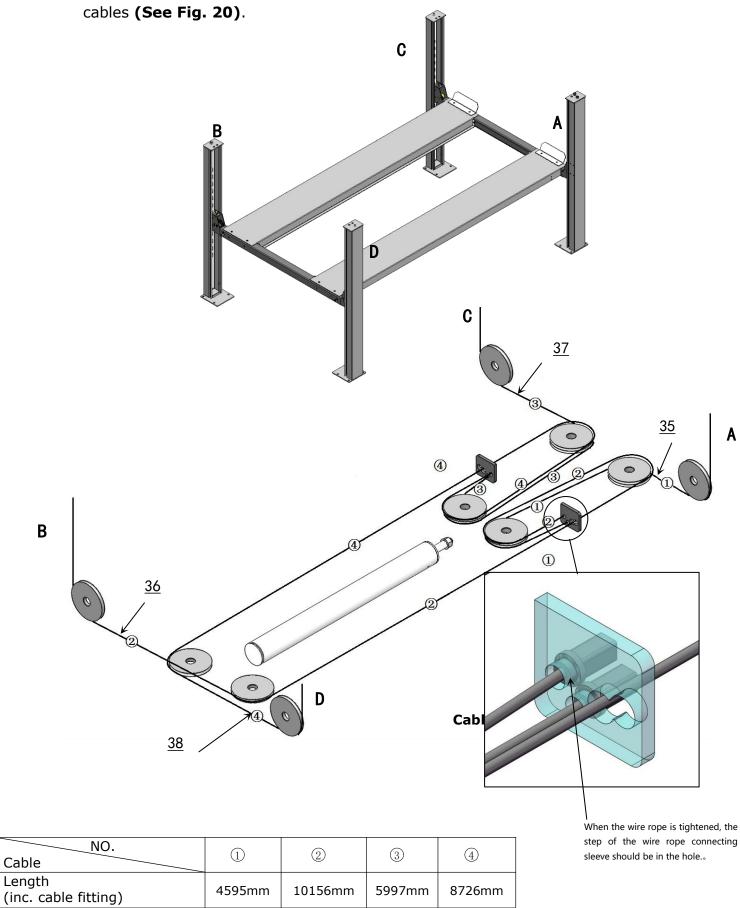


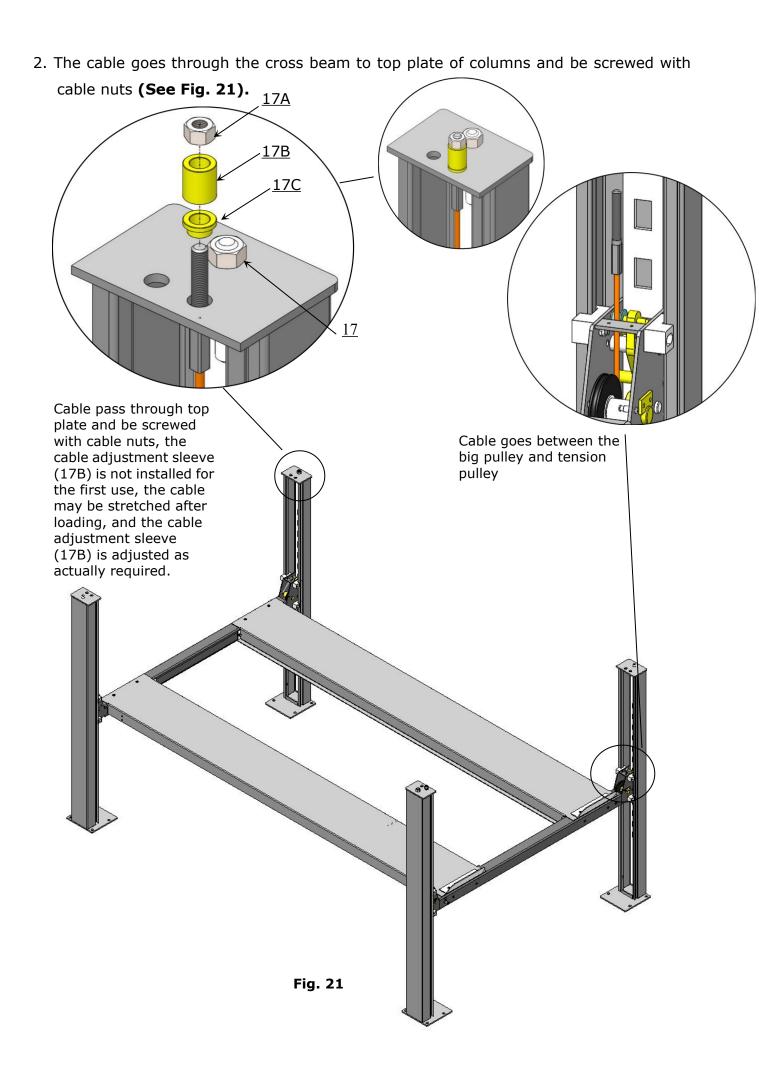
**Note: DO NOT** completely tighten the limit slide blocks. Loosen 1/4 lap after tightening.

Fig. 19

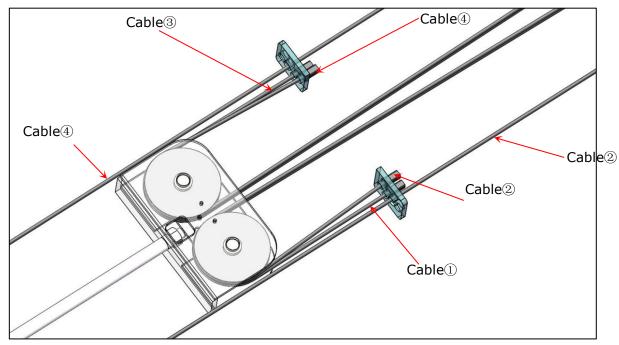
# H. Illustration for cable installation

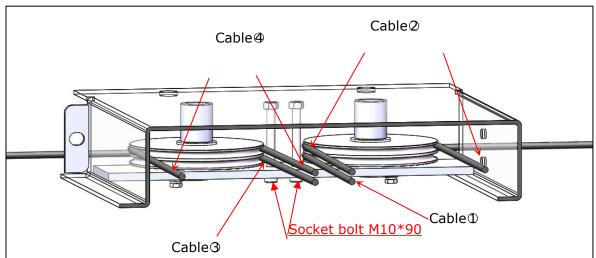
1. The cables pass through the platform to the columns according to the number of the





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





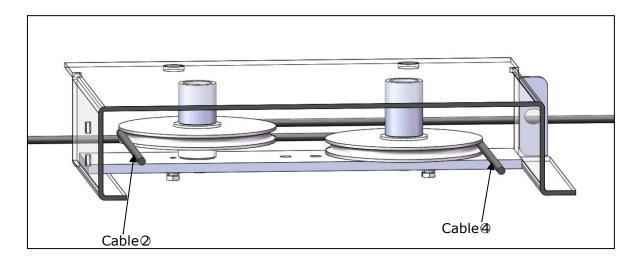
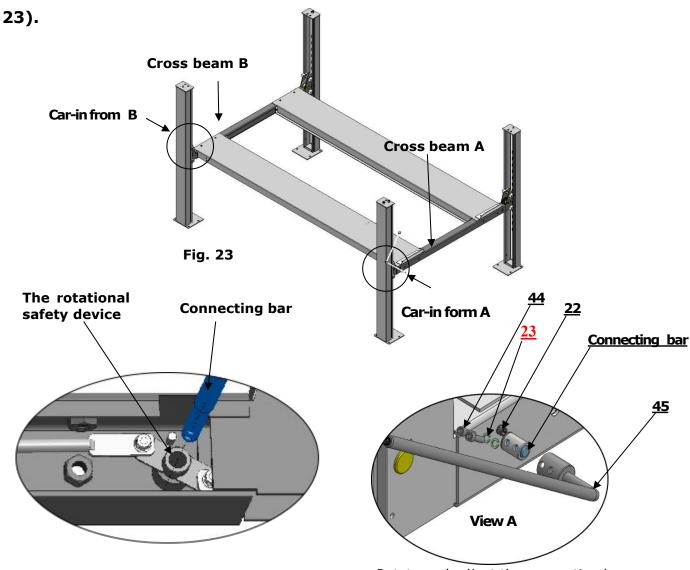


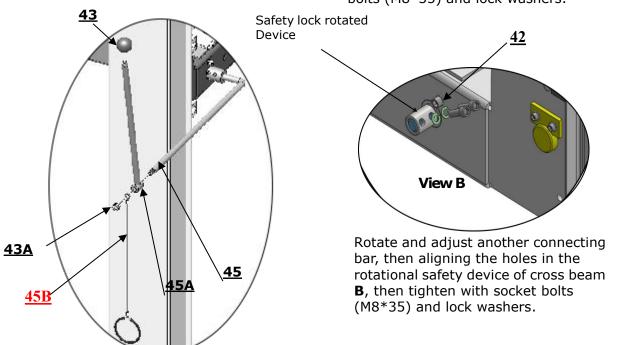
Fig. 22

# I. Install connecting bar for safety device and release handle (See Fig.



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

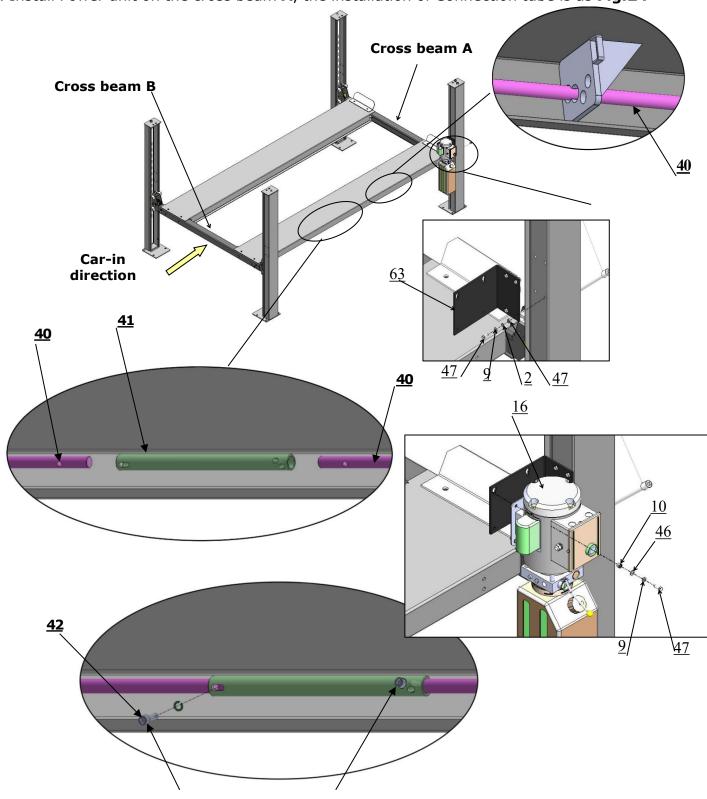
Rotate and adjust the connecting bar, aligning the connecting holes in the rotational safety device and release handle on cross beam **A**, then tighten with socket bolts (M8\*35) and lock washers.



# J. Install power unit, articulated casing tube

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

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



Install socket bolt (M8\*25) with lock washer to these two holes. (Connect the connecting bar and articulated casing tube)

Fig. 24

# K. Install Hydraulic System

For power unit install to the column at the side of cross beam A (See Fig. 25)
 Note: Oil hoses connected to oil cylinder must be passed above the cable to avoid the

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

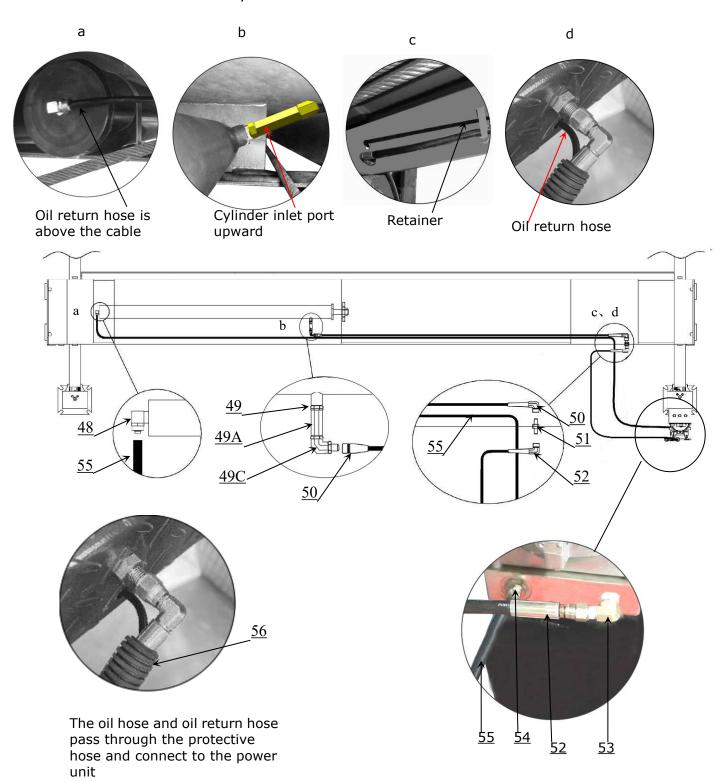


Fig. 25

## 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

- Connecting the two power supply wire (fire wire L and zero wire N) to terminals of AC contactor marked L1, L3 respectively.
- 2. Connecting the two motor wires to terminals of AC contactor marked **T1**, **T3**.
- 3. Connecting **A1** to **L3** of AC contactor.
- 4. Connecting the two wires of the button switch to the terminals of AC contactor marked **A2, L1.**

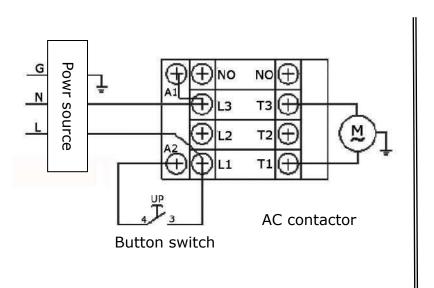
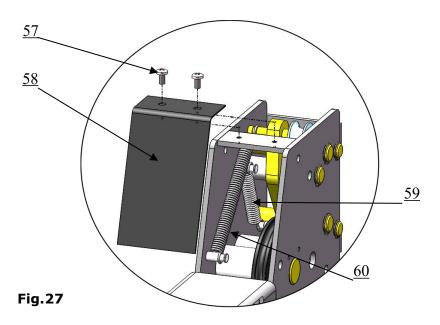




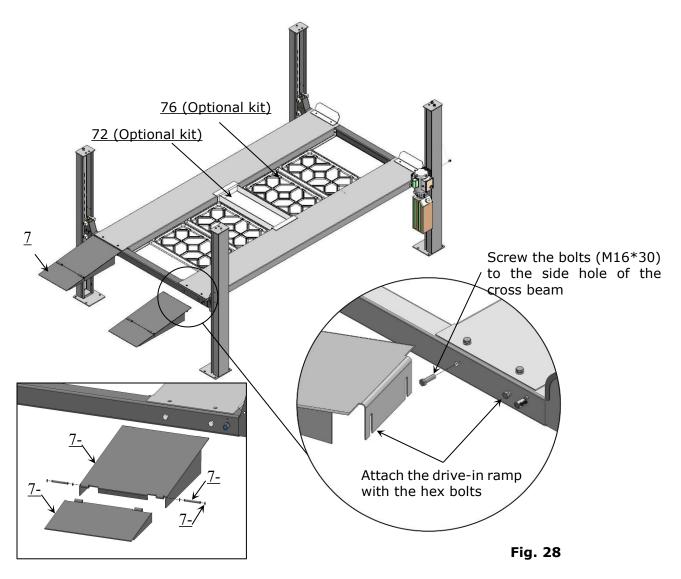
Fig. 26

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



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

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



Item	Part#	Description	QTY.
7-1	1104543020A	Folding drive-up ramp Assy.①	2
7-2	1104543021A	Folding drive-up ramp Assy.2	2
7-3	1104543021	Connecting Pin	4
7-4	10209010	Hair Pin φ10	8

# O.Fold up the blocker after the installation.Fig.29

After the car is parked on the hoist, fold the front half of the board up.

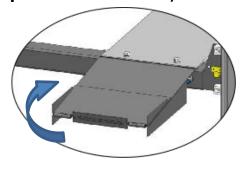
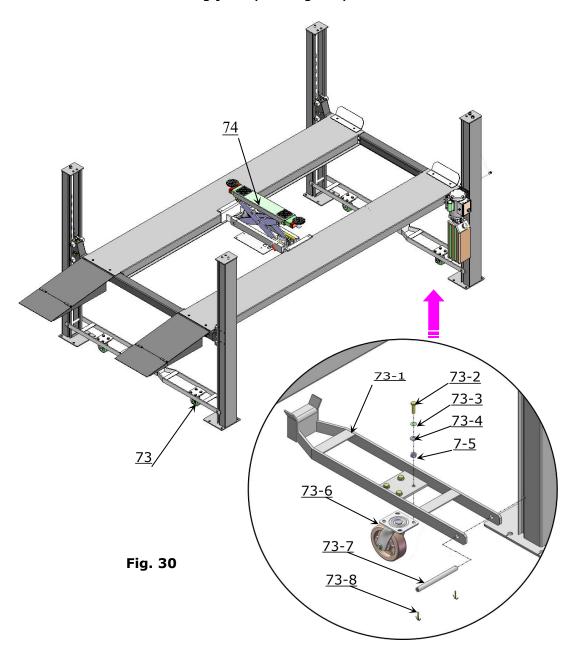


Fig.29

# P. Installation of optional kits.

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



Item	Part#	Description	QTY.
73-1	11410042A	Support bracket	4
73-2	10209125	Hex bolt M10*30	16
73-3	10209039	φ10 Lock washer	16
73-4	10209022	φ10 Washer	16
73-5	10209021	Hex nut M10	16
73-6	10410035	Universal wheel(6")	4
73-7	11410034	Connecting pin φ19*216	4
73-8	10209012	Hair Pin φ3.2	8

## Q. Install the anchor bolts.

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

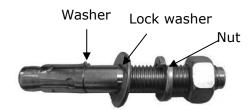
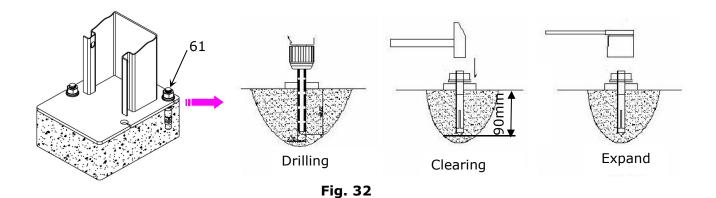


Fig. 31

2. Check the plumbness of columns with leveling instrument and adjusting with the shims. 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.



# **IV. EXPLODED VIEW**

# Model 407-HP

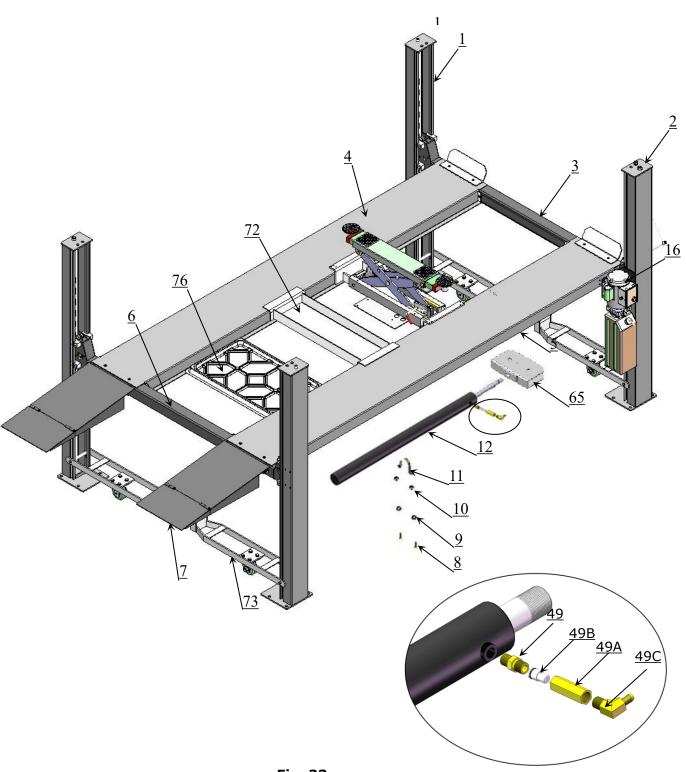


Fig. 33

# **EXPLODED VIEW of Power-side platform**

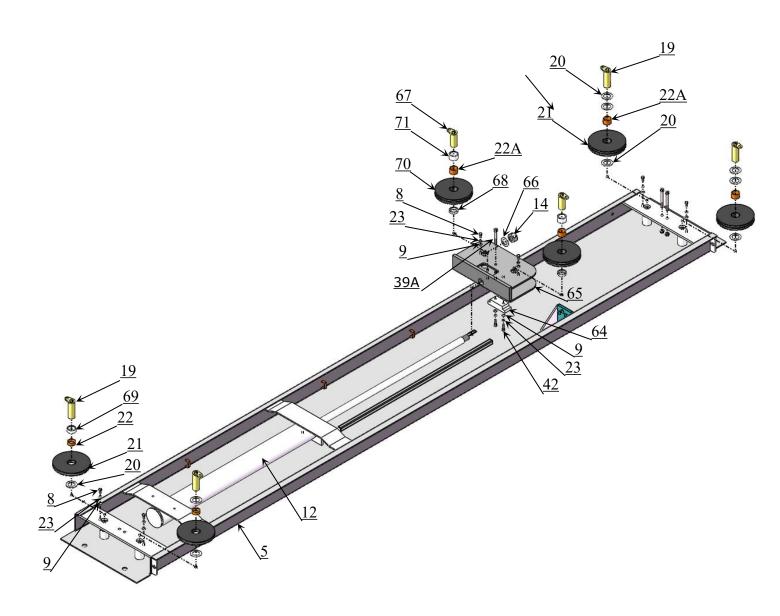


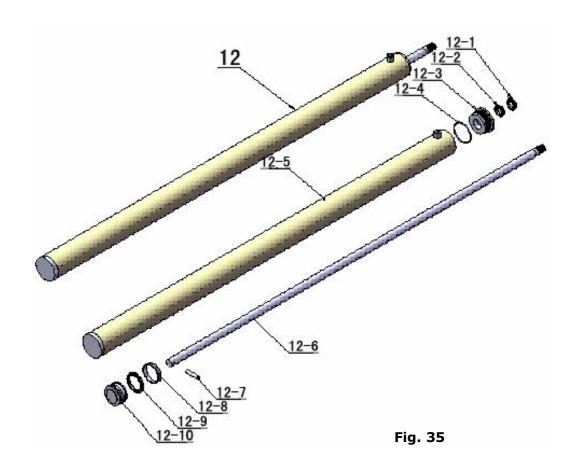
Fig. 34

# **PARTS LIST FOR MODEL 407-HP**

Item	Part#	Description	407-HP	NOTE
1	11410075	Offside Column	3	
2	11410074	Power-side Column	1	
3	1104542001B	Cross Beam A	1	
4	1104553001B	Offside Platform	1	
5	1104553001A	Power-side Platform	1	
6	1104542001B	Cross Beam B	1	
7	1104543020C	Folding Drive-in ramp	2	
8	10201002	Hex Bolt M8*16	6	
9	10209033	Washer φ8	44	
10	10209005	Self locking Nut M8	28	
11	11423004	Cylinder fixed ring	1	
12	1004536000	Cylinder φ80*1041	1	
13	1104533013A-01	Cable connecting plate	1	
14	10410012	Hex Nut M24	1	
15	10201005	Split Pin φ4*50	1	
16	81513006	Manual power unit	1	
17	10420175A	Hex nut M20	8	
17A	10209066	Hex Nut M16	8	
17B	1104541002	Cable adjustment sleeve	4	
17C	1104541001	Cable cushion tube	4	
18	11410073-01	Safety ladder L=2324	4	
19	1104543009A	Pulley pin $\phi$ 30*86.5	4	
20	10481005	Wash φ30	21	
21	1104543011	Pulley φ167*16	2	
22	1004542002	Bronze Bush Φ36*Φ30.1*15	6	
22A	10620141	Bronze Bush φ36*φ30.1*24	4	
22A 23	10209034	Washer φ8	22	
24	10410013	Hex Bolt M16*30	8	
25	10420137	Lock washer φ16	8	
26	10420137	Washer $\phi$ 16	8	
27	10410014	Hex Bolt M16*35	4	
28	11410015-1	Tire stop plate	2	
29	10206006	Washer $\phi$ 12	8	
30	10420026	Lock washer φ12	4	
31	10410105	Hex Bolt M12*20	4	
32	10410103 10410016A	Slide block 81*38*38mm	16	
33	10410010A 10410017	Socket bolt M8*40	16	
33	10201090		20	
34	10620065	Shim(1mm)	20	
25		Shim(2mm)	1	
35	1004553003	Cable 8*4595mm	1	
36	1004553004	Cable 8*10156mm		
37	1004553002	Cable 8*5997mm	1	
38	1004553001	Cable 8*8726mm	1	
39	85090099	Socket Bolt M10*90	2	
39A	85090332	Socket BoltM10*70	1	

Item	Part#	Description	407-HP	NOTE
40	1104552001	Connecting bar $\phi$ 19*1934.5mm	2	
41	11410024	Articulated casing tube	1	
42	10209032	Socket bolt M8*25	6	
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	1	
45B	1004554006	Handle rope	1	
46	10209004	Rubber ring φ8*φ20*3	4	
47	10209003	Hex Bolt M8*25	8	
47A	10209043	Hex Bolt M8*20	4	
47B	10217002	Hex Nut M8	4	
48	10420166	90° Fitting	1	
49	11420243	Straight Fitting for cylinder	1	
		1/4JIC(M)*3/8NPT(M)		
49A	11420245	Straight Fitting G3/8(F)*3/8NPT(F)	1	
49C	11209119	Compensation Valve	1	
49C	10201020	90 degree fitting 1/4JIC(M)*3/8NPT(M)	1	
50	1004553005	Oil hose (1 straight 1 bend)1/4*2318mm	1	
51	10420120	Extended straight fitting with nut	1	
52	1004543008-01	Oil hose (1 straight 1 bend)1/4*1420mm	1	
53	10209060	90° Fitting for power unit	1	
54	10420095	Straight fitting	1	
55	1004553006	Oil return hose L=5249mm	1	
56	1004533008	Protective hose φ20*1*1400mm	1	
57	10209145A	Cup head bolt with washer M6*12	8	
58	1104542012	Plastic cover for cross beam	4	
59	1004542001	Spring φ14*2.0*50	4	
60	10410146	Spring φ14*2.0*75	4	
61	10209059	Anchor bolt 3/4*5-1/2	16	
62		Parts box	1	
63	114551003	90° installing plate	1	
64	1004543006	Slider 106*40*29	1	
65	1104533013A-01	Piston rod coupling	1	
66	10640109	Wash φ2535*44*2	1	
67	1104533017A-01	Pulley pin φ25*77.5	2	
68	1104543019	Pulley adjustment sleeve φ40*4*9	2	
69	1104543016	Pulley adjustment sleeve φ40*4*18	1	
70	1104543017	Pulley φ167*25	4	
71	1104533024	Cushion tube φ40*4*23	2	
		Optional Parts		
72	11410040	Jack tray	1	
73	1040801	Caster kit	4	
74	96600002	Rolling Jack J5H 1		
76	10410039	Oil tray	4	

# 4.1 CYLINDERS EXPLODED VIEW (1004536000)



Item	Part#	Description	407-HP	Note
12-1	10420059	Dust Ring Ф 30* Ф 38* (5∼6. 5)	1	
12-2	10420060	Y- Ring Φ30*Φ40*8	1	
12-3	11420061	Head Cap	1	
12-4	10420062	O- Ring Φ81. 5*3. 55	1	
12-5	1004536001A	Bore Weldment	1	
12-6	1104536002	Piston Rod	1	
12-7	11420065	Pin	1	
12-8	10420066	Support Ring Ф74*Ф80*15*3	1	
12-9	10420067	Y- Ring 0SI Φ70*Φ80*6	1	
12-10	11420068	Piston	1	

# 4.2 CROSS BEAM EXPLODED VIEW (10410003/10410006)

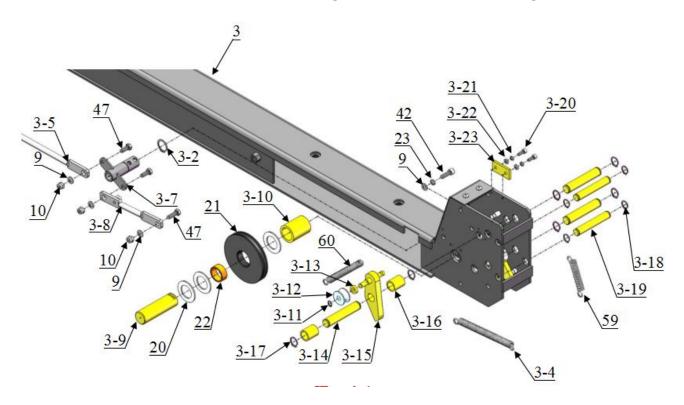


Fig.36

Item	Part#	Description	407-HP	Note
3-2	10206032	Snap ring φ25	2	
3-4	10410099	Spring φ14*φ2.5*100	2	
3-5	1104542008-01	Connecting bar for safety lock	2	
3-7	1104572003A	Self locking Nut M12	4	
3-8	1104542011A-01	Rotational safety lock device	2	
3-9	1104542006-01	Pulley Pin φ30*100	4	
3-10	1104542007	Pulley pin sleeve φ40*φ4*51.5	4	
3-11	10209010	Snap ring φ10	4	
3-12	10420035	Tension pulley	4	
3-13	11420174	Spacer φ18*4*5.5	4	
3-14	11420171	Pin φ19*98	12	
3-15	11420175	Slack-cable safety lock (Left & Right)	2/ea.	
3-16	11420172	Pin Bush φ25*3*31	8	
3-17	10206019	Snap ring φ19	24	
3-18	10420037	Snap ring φ16	16	
3-19	11420038	Pin φ16*98	8	
3-20	10420138	Socket Bolt M6*16	8	
3-21	10209149	Lock washer φ6	8	
3-22	10420045	Washer φ6	8	
3-23	11420044	Limit block	4	

# 4.3 Power unit (81513006) exploded view:

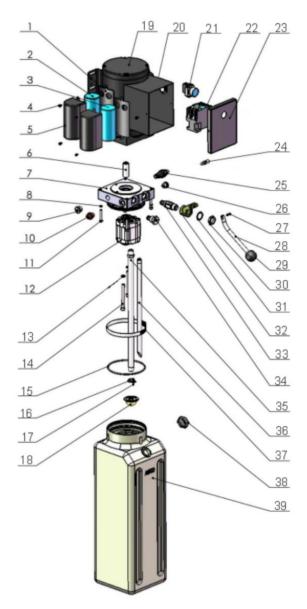
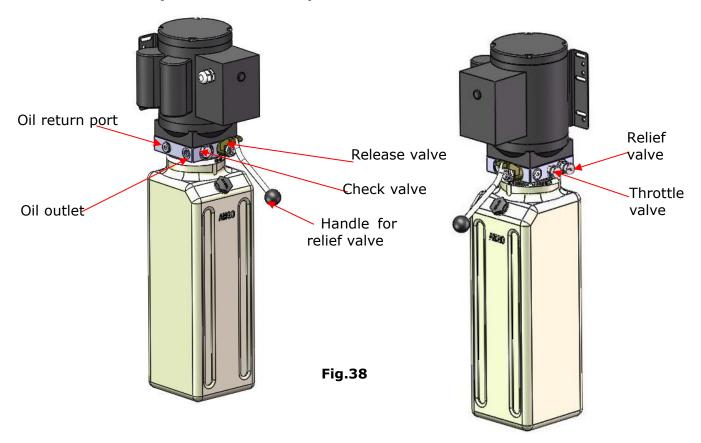


Fig.37

Parts list for 220V/50Hz, Single Phase

Item	Part No.	Description	Qty
1	81400180	Rubber Pad	2
2	81400250	Starting capacitor	1
3	81400200	Running capacitor	1
4	1061K052	Cup Head Bolt with washer	6
5	81400527	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	Ties	1
17	85090167	Magnet	1
18	81400290	Filter	1
19	81400413	Steel Motor	1
20	80101036	Push button	1
21	10420070	Switch button	1
22	41030055	AMGO power unit label	1
23	80101037	Motor terminal box cover	1
24	81400560	Throttle valve	1
25	81400266	Relief valve	1
26	81400284	Inner hex iron plug	1
27	81400452	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	80203001	Check Valve	1
35	81400375	Oil suction pipe	1
36	81400376	Oil return pipe	1
37	81400364	Clamp	1
38	81400263	Oil tank cap	1
39	81400320	Oil tank	1

#### Illustration of hydraulic valve for power unit



#### V. TEST RUN

- Fill the reservoir with Hydraulic Oil about 6L (Note: In consideration of Power Unit's durability, please use <u>Hydraulic Oil 46#</u>).
- 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**

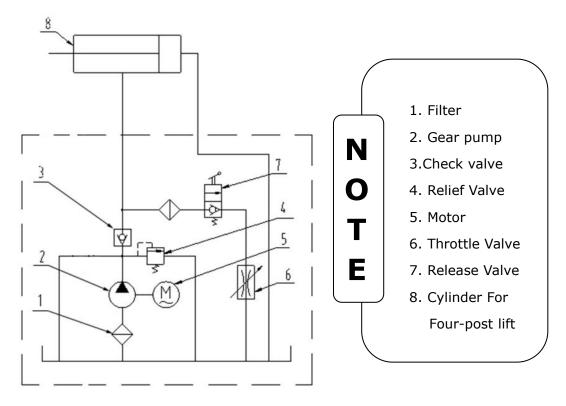


Fig.39

#### 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, then pull down the cable from 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.
- 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
	1. Start Button does not work	1.Replace start button
	2.Wiring connections are not in good	2.Repair all wiring connections
Motor does	condition	
not run	3. Motor burned out	3.Repair or replace motor
	4. AC contactor burned out	4.Replace AC contactor
	1.Motor runs in reverse rotation	1.Reverse two power wire
Motor runs	2. Release valve in damage	2.Repair or replace
but the lift is	3. Gear pump in damage	3.Repair or replace
not raised	4.Relief valve or check valve in damage	4.Repair or replace
not raised	5.Low oil level	5.Fill tank
	1. Release valve out of work	
Lift does not	2 Relief valve or check valve leakage.	Repair or replace
stay up	3.Cylinder or fittings leaks	
	1.0il line is jammed	1.Clean the oil line
	2.Motor running on low voltage	2.Check electrical system
Lift raises	3. Oil mixed with Air	3. Fill tank
too slow	4.Pump leaks	4. Repair or replace pump
	5.Overload lifting	5.Check load
Lift cannot	1. Safety device are not in activated	1. Operate again
lower	2. Release valve damaged	2. Repair or replace

# **IX. LIFT DISPOSAL:**

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



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