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### **I. PRODUCT FEATURES AND SPECIFICATIONS**

#### **CLEAR-FLOOR DIRECT-DRIVE MODEL FEATURES**

#### Model PV-10P & PV-10HP (See Fig. 1)

- · Direct drive hydraulic cylinder design, minimizes the lift wear parts and breakdown ratio
- Dual hydraulic cylinders, designed and made on ANSI standards, utilizing NOK oil seal in cylinder
- $\cdot$  Self- lubricating UHMW Polyethylene sliders and bronze bush
- $\cdot$  Single-point safety release with dual safety design
- . Clear-floor design, provides non-obstructed floor use
- . Overhead safety shut-off device prevents vehicle damage
- . Standard adjustable heights accommodates variety of ceiling heights



Model	Style	Lifting Capacity	Lifting Time	Lifting Height	Overall Height	Overall Width	Width Between columns	Minimum Pad Height for stackable adapter	Motor
PV-10P	Clear-floor	4.5 T	55S	1842-2112mm	3635/3735mm	3492mm	2800mm	115 mm	3.0HP
	Direct drive	10,000 lbs		72 1/2"-83 1/8"	143 1/8"/ 147"	137 1/2″	110 1/4″	4 1/2″	
PV-10HP	Clear-floor	4.5 T	55S	1842-2112mm	3812/4245/4345mm	3492mm	2800mm	115mm	3.0 HP
	Direct drive	10,000 lbs		72 1/2"-83 1/8"	150"/167 1/8"/171"	137 1/2″	110 1/4"	4 1/2″	5.6.11

#### MODEL PV-10P/ PV-10HP SPECIFICATIONS

Arm Swings View For Model PV-10P & PV-10HP

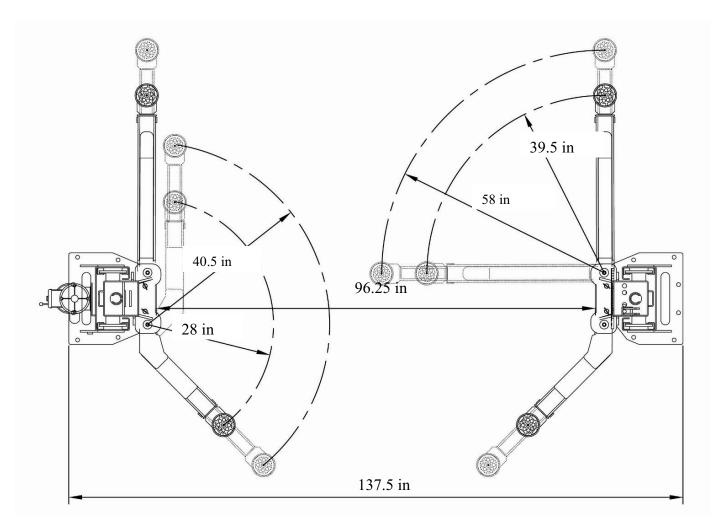


Fig. 2

## . INSTALLATION REQUIREMENT

## A. TOOLS REQUIRED

✓ Rotary Hammer Drill (3/4in)



✓ Hammer



✓ 4 Foot Level



✓ Crescent Wrench (12")



✓ Ratchet With Socket (28#)



✓ Wrench Set (10<sup>#</sup>, 13<sup>#</sup>, 14<sup>#</sup>, 15<sup>#</sup>, 17<sup>#</sup>, 19<sup>#</sup>, 24<sup>#</sup>, 27<sup>#</sup>, 30<sup>#</sup>,)



✓ Carpenter's Chalk



✓ Screw Drivers



✓ Tape Measure (7.5m)



✓ Pliers



✓ Socket Head Wrench  $(3^{#}, 5^{#}, 8^{#})$ 



✓ Vise Grips

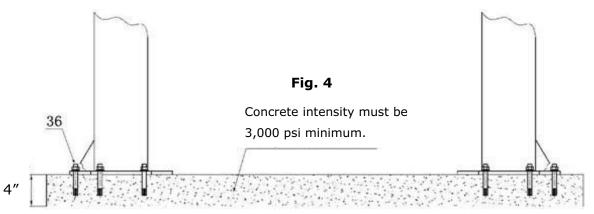


Fig. 3

### B. CONCRETE SPECIFICATIONS (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 have 4 inches minimum and must be totally cured before lift installation.
- 2. Concrete must be in good condition and must have a test strength 3,000psi minimum.
- 3. Floors must be level with no cracks or holes.



## C. POWER SUPPLY

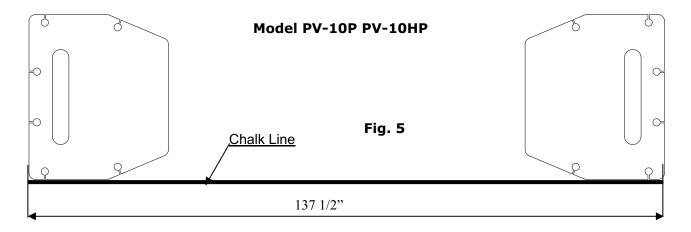
#### 220 volt single phase 30 amp breaker with minimum of 10 gauge wire

## **III.INSTALLATION STEPS**

#### A. Location of installation

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

**B.** Use a carpenter's chalk line to establish installation layout (See Fig. 5).



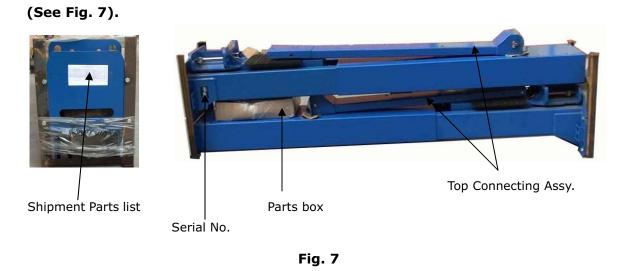
## C. Check the parts before assembly.

1. Packaged lift and hydraulic power unit (See Fig. 6).





2. Move the lift aside with a fork lift or hoist, and open the outer packing carefully



3. Remove the top connecting assembly and parts box (See Fig. 8).





4. Lift the upper column with a fork lift or hoist and loosen the bolts on the upper package stand. Remove the upper column and take out the parts in the bottom column (See Fig. 9).





5. Lift the lower column with a fork lift or hoist, remove the package stand. Remove the lower column and remove the parts in the inner column (See Fig. 10).



Fig. 10

6. Move aside the parts and check the parts according to the shipment parts list (See Fig. 11).

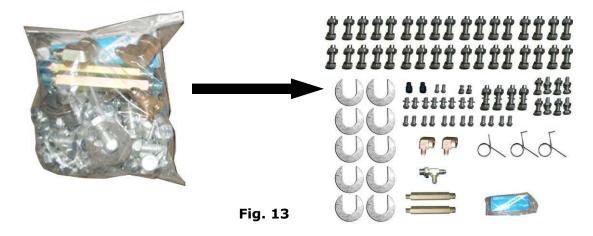


Fig. 11

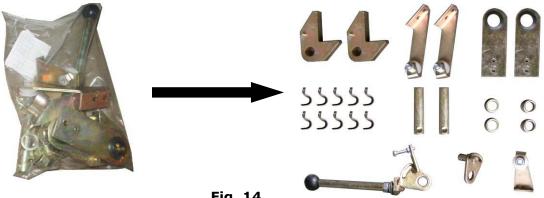
7. Open the parts box and check the parts according to parts box list (See Fig. 12).



8. Check the parts in the parts bag 1 according to parts bag list (See Fig. 13).

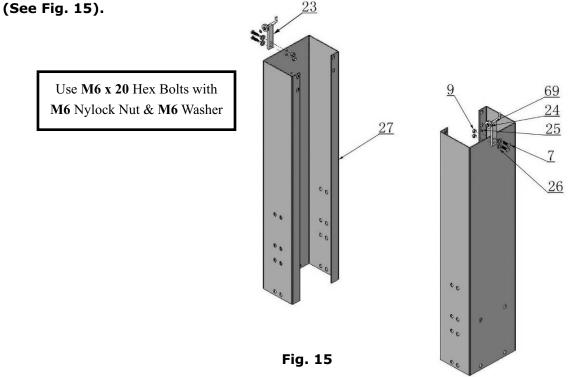


9. Check the parts in the parts bag 2 according to parts bag list (See Fig. 14).





D. Install the hydraulic hose and lock release cable brackets on the extension columns



## E. Install hydraulic cylinder

Connect the extended straight fitting and 90° fitting. Install the cylinders inside the carriages **(See Fig. 16)**.

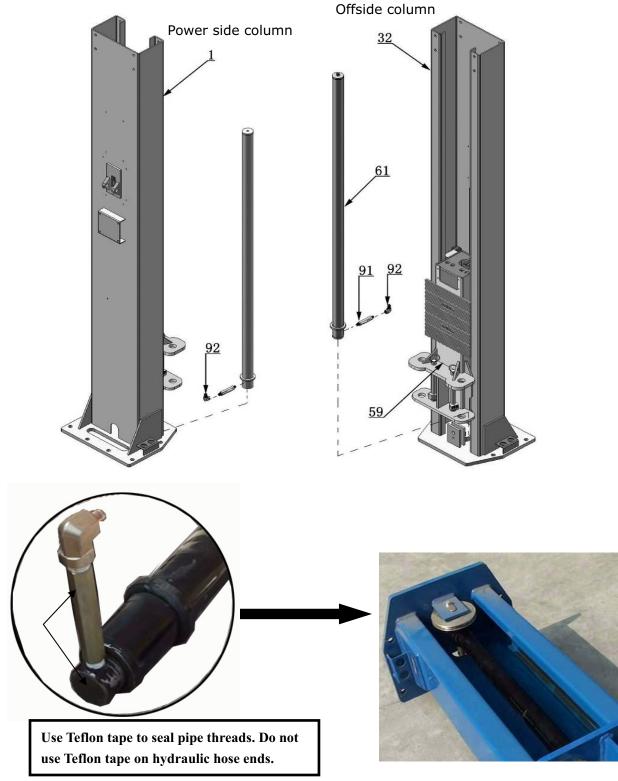


Fig. 16

#### F. Install columns

Lay down the two columns on the installation site parallel of each other. Position the power side column according to the actual installation site. This lift is designed with 2 sectional columns. Adjust the height according to your ceiling height.

#### For model PV-10P

1. When the ceiling height is over 3750mm (147 5/8"), connect the sectional columns with the lower holes (See Fig. 17).

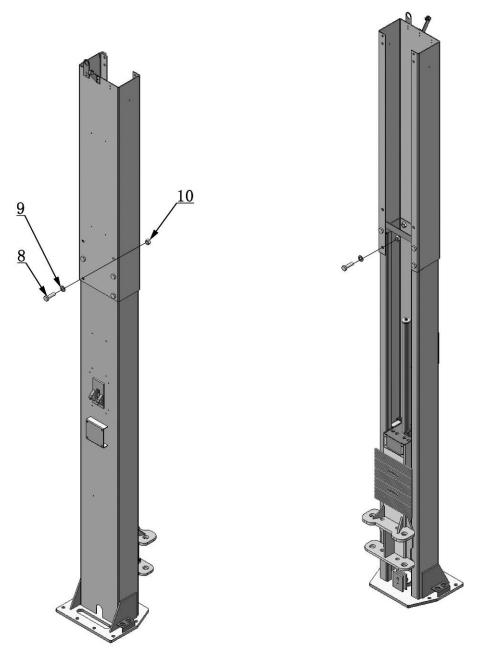
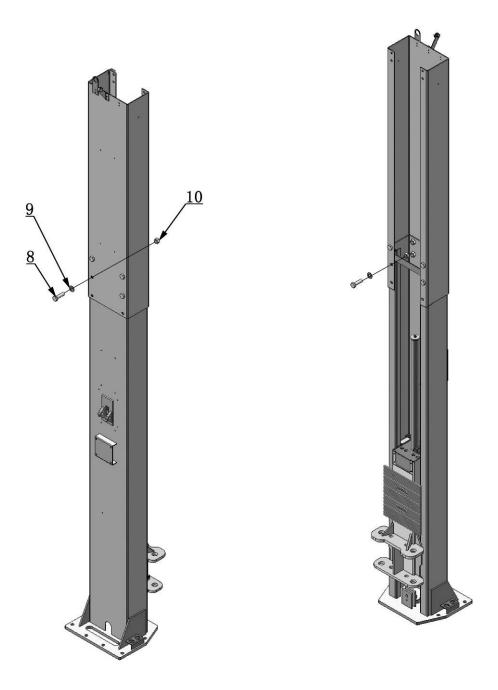


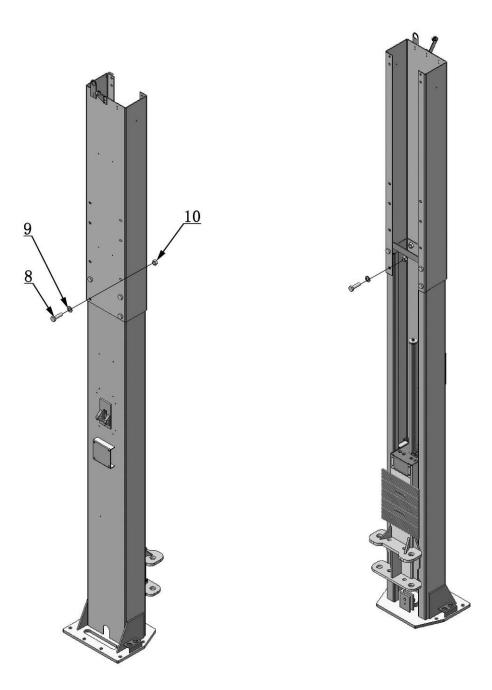
Fig. 17 High Setting

2. When the ceiling height is less than 3750mm (147 5/8"), connect the sectional columns with the upper holes (See Fig.18).



### For model PV-10HP

1. When the ceiling height is over 4350mm (171 1/4"), connect the sectional columns with the lower holes (See Fig. 19).





2. When the ceiling height is over 4250mm (167 3/8") but less than 4350mm (171 1/4"), connect the sectional columns with the middle holes **(See Fig.20)**.

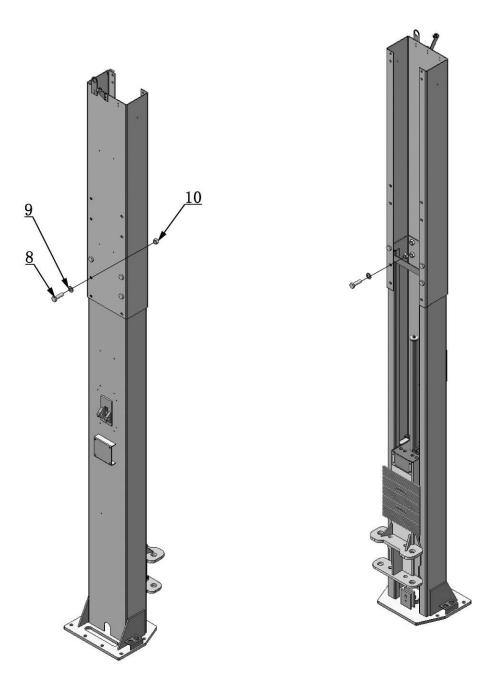


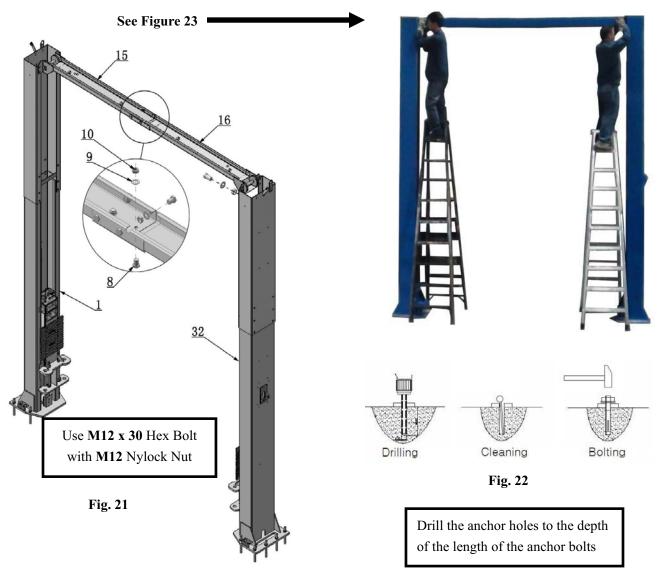
Fig. 20 Low Setting

#### G. Position posts

Position the columns on the installation layout.

## **???WANT TO WORK SMART NOT HARD???** MAKE THE INSTALLATION EASY. DO IT LIKE A PROFFESSIONAL LIFT INSTALLER

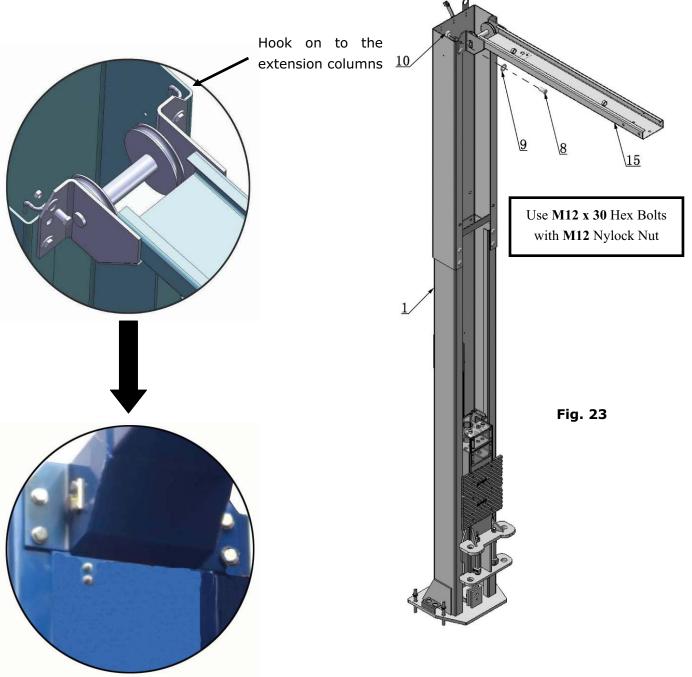
Position the columns upright on the installation layout. Position the offside column parallel to the power side column at the approximate overall width (137<sub>1/2</sub>"). Install the overhead cross beam. <u>Do not drill holes for anchor bolts until overhead cross beam has been installed.</u>



Install the anchor bolts. Check the posts for plumb with level bar, and adjust with the horseshoe shims if the columns are not plumb. Do not tighten the anchor bolts.

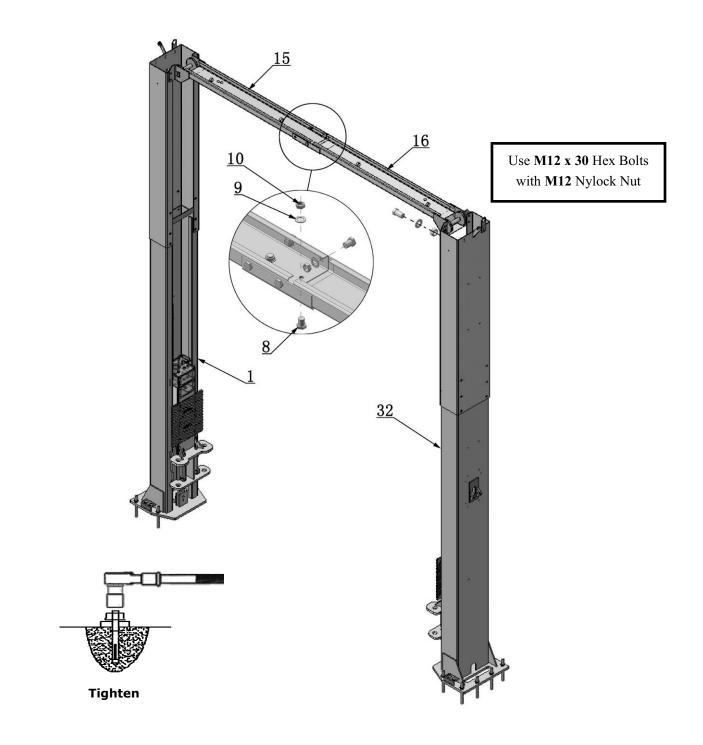
### H. Install overhead top beam

 With help of the hook of top beam, put one side of top beam on top of the extension column and connect the top beam to extension column by bolts, tighten the bolts. Then assemble the connecting bracket (See Fig. 23).

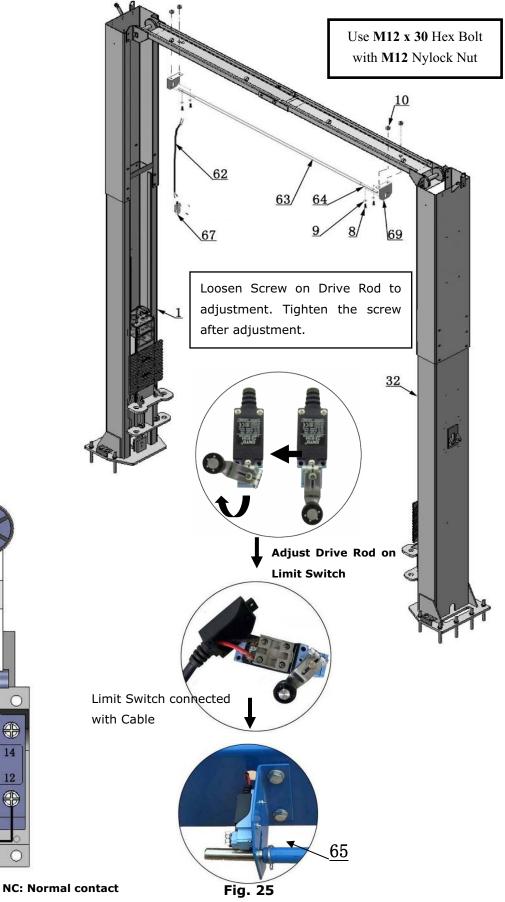


Tighten the bolts

2. Assemble overhead top beam and tighten the anchor bolts between 60 and 86 foot pounds. **(See Fig. 24)**.



I. Installing the limit switch control bar and limit switch (See Fig. 25).



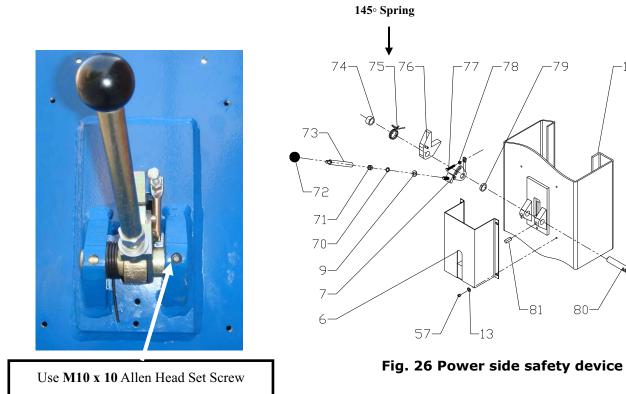
NO

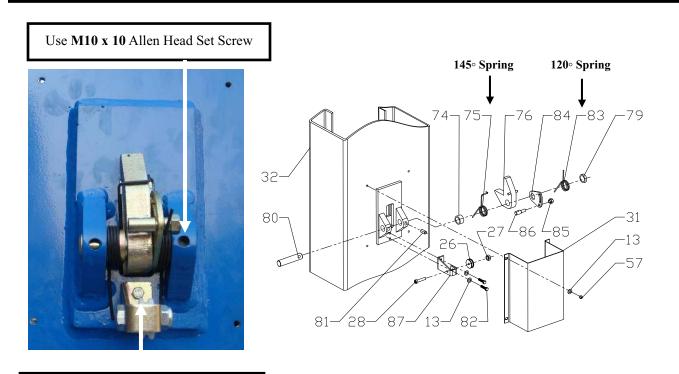
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#### J. Install safety device (See Fig. 26 & Fig. 27).

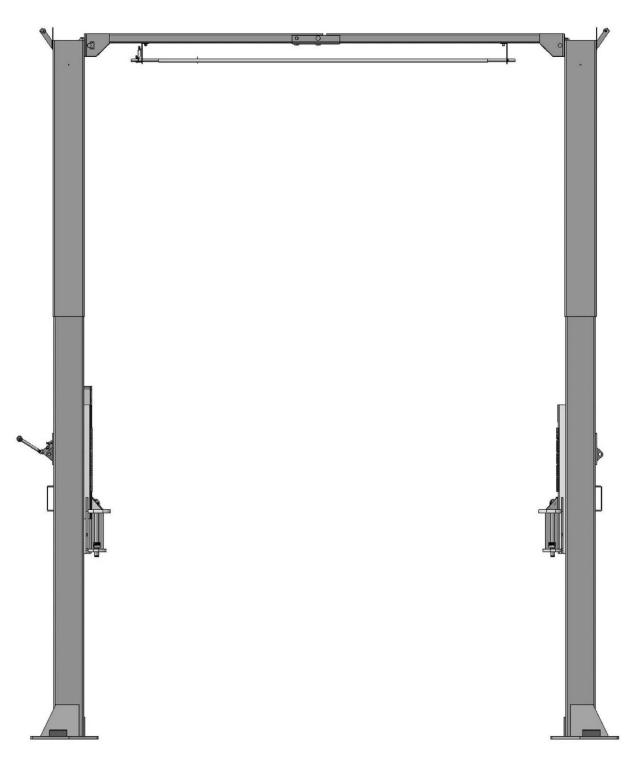




Use **M10 x 10** Hex Head Bolts to secure the pulley bracket

Fig. 27 Offside safety device

**K.** Lift the carriages up manually and lock them on the 1<sup>st</sup> set of locks (See Fig. 28).

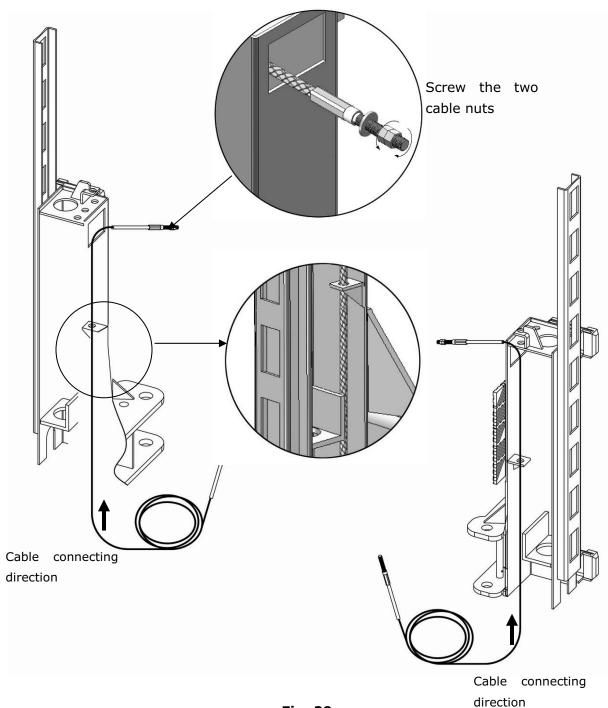


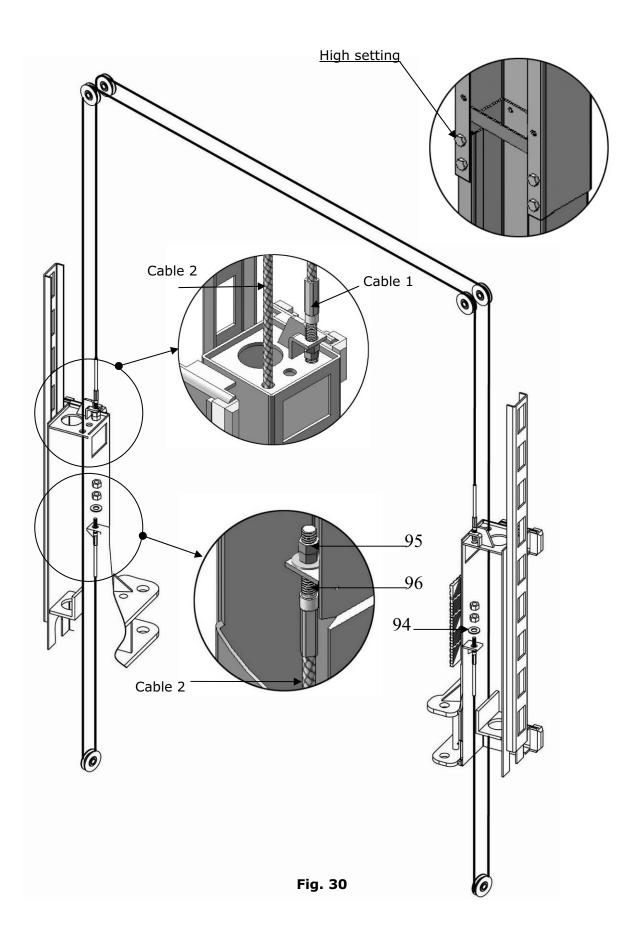


## L. Install cables

## For model PV-10P

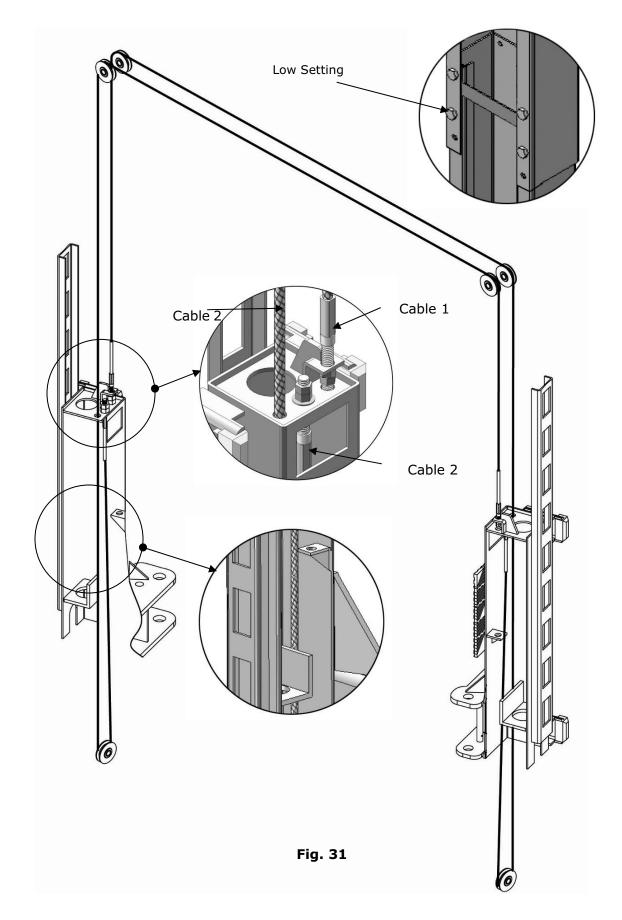
- 1. High setting cable connection. For a ceiling height over 3750mm (147 5/8")
- 1.1 Remove the carriages' plastic covers, the cable passes through from the bottom of the carriages and is pulled out from the opening of carriages, then install the two cable nuts (See Fig. 29).





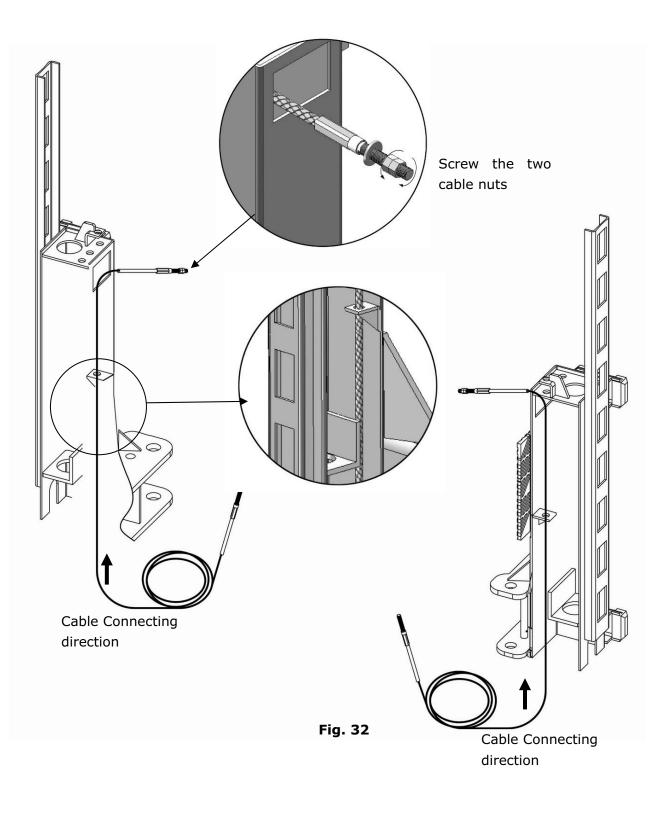
1.2 Connecting the cable for the high setting (See Fig. 30)

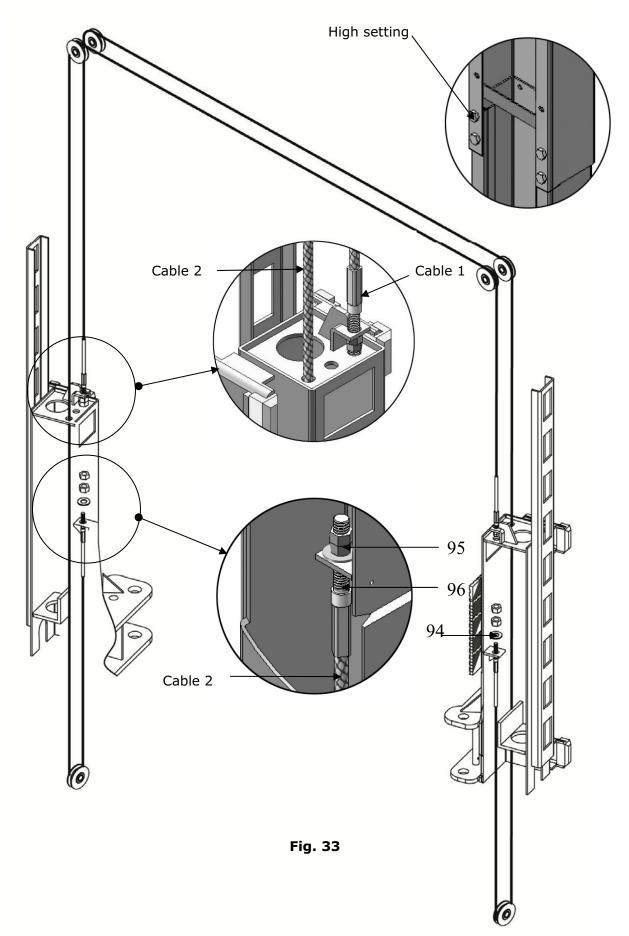
2. Low setting cable connection. For a ceiling height less than 3750mm (147 5/8") (See Fig.31)



#### For model PV-10HP

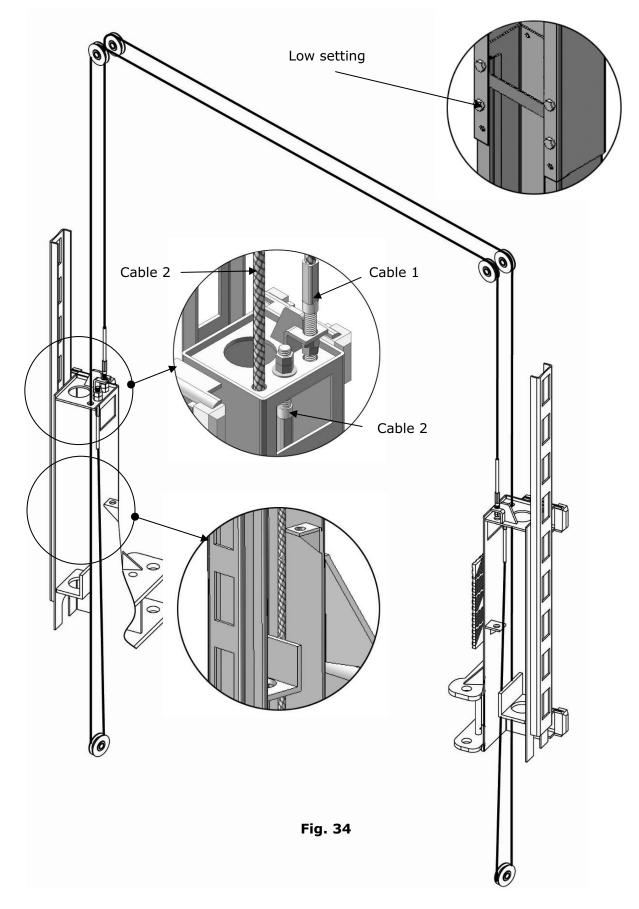
- 1. High setting cable connection. For a ceiling height over 4350mm (171 1/4")
- 1.1 Remove the carriages' plastic covers, the cable passes through from the bottom of the carriage and is pull out from the opening of the carriages, then install the two cable nuts **(See Fig. 32)**.



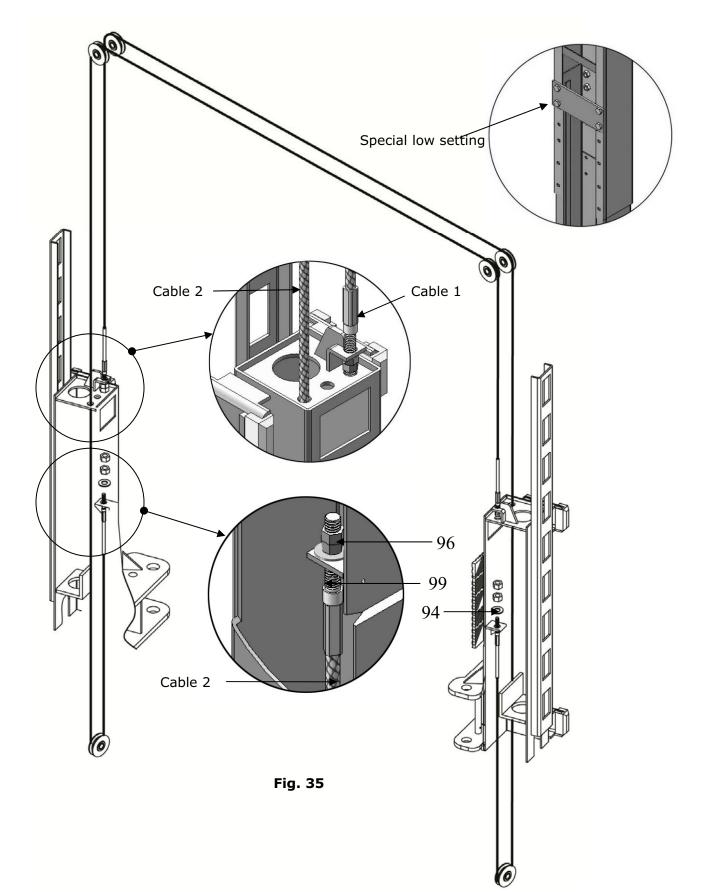


1.2 Connecting cable for high setting (See Fig. 33).

Low setting cable connection. For a ceiling height between 4250mm (167 3/8") to 4350mm (171 1/4") (See Fig. 34)



**3**. **Special low setting cable connection PV10P.** For a ceiling height between 3820mm (150 3/8") to 4250mm (167 3/8") (See Fig. 35) this setting requires the optional short cables.



## M. Install power unit (See Fig. 36)

Use **M8 x 25** Hex Bolt with **M8** Nylock Nut

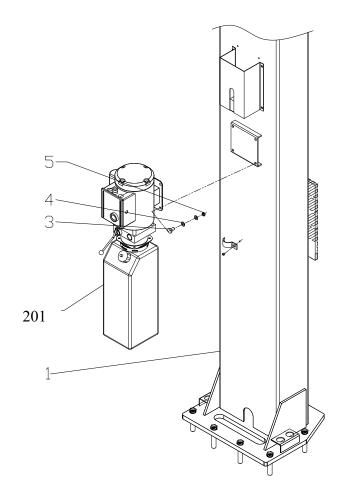
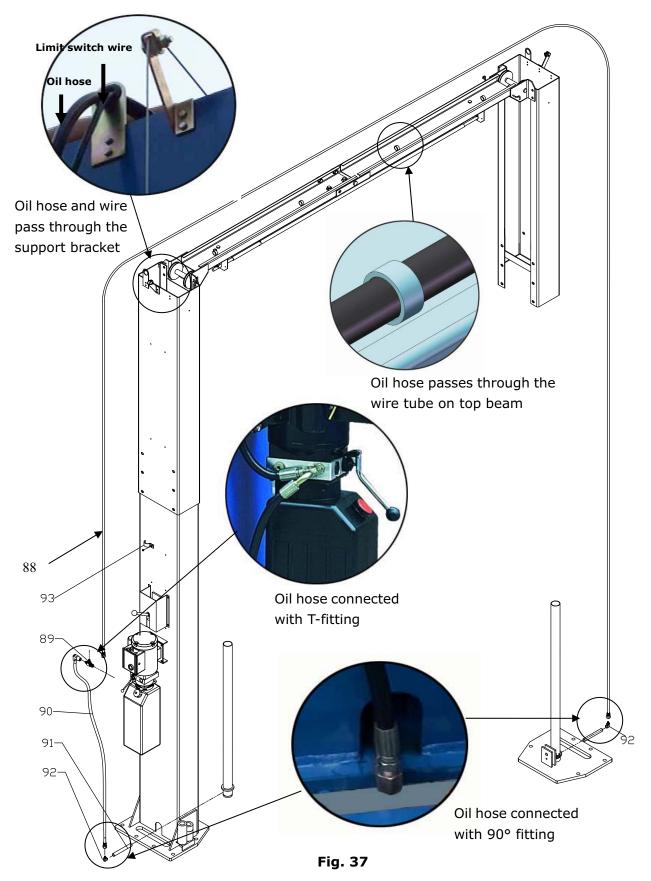




Fig. 36

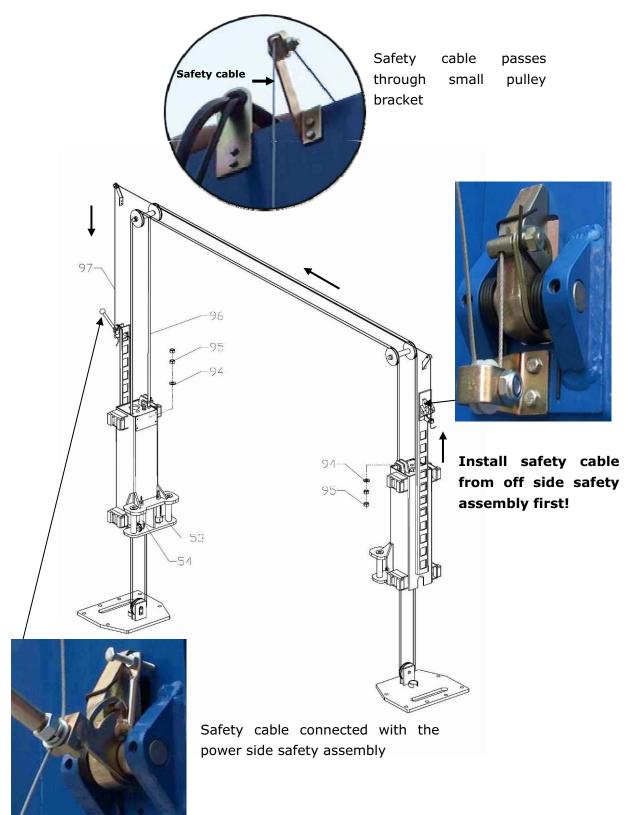
#### N. Install oil hose

At high setting and low setting oil hose connection (See Fig. 37).

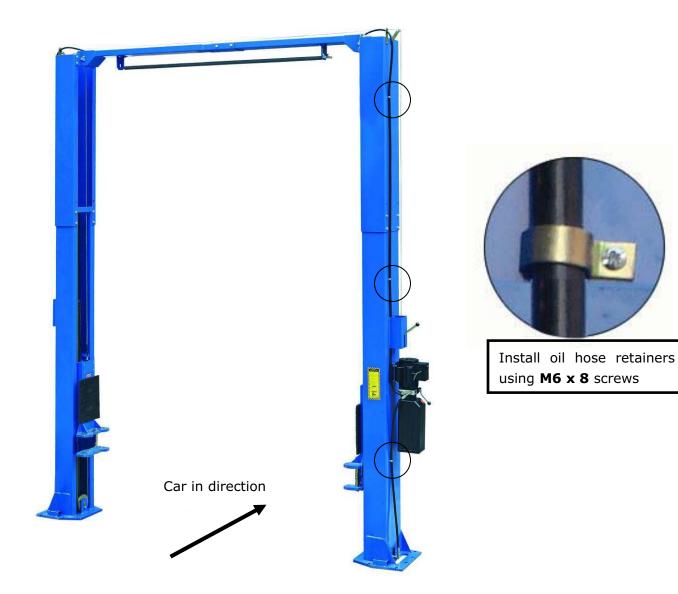


## O. Install safety cable.

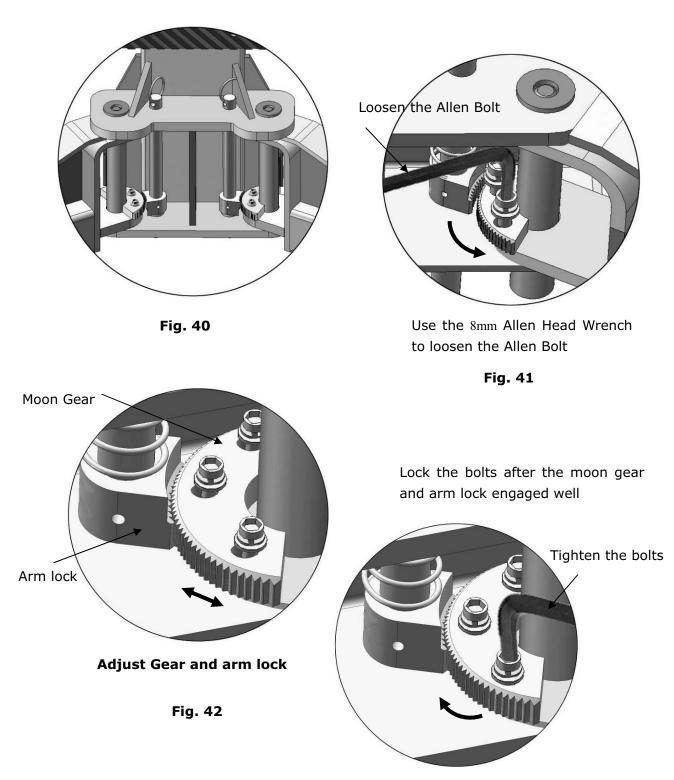
Install the safety cable from the off side safety assembly to the power side safety assembly and through the top beam (See Fig. 38).



P. Install hose retainers on both columns (See Fig. 39).



Q. Install lifting arms (See Fig. 40); Lower the carriages down to the lowest position. Use an 8mm
Allen wrench to loosen the bolt (See Fig.41). Adjust arm lock in direction of arrow (See Fig.42).
Adjust moon gear and arm lock until they mesh, then tighten the Allen bolts on the arm lock (See Fig.43).





#### Install Electrical System

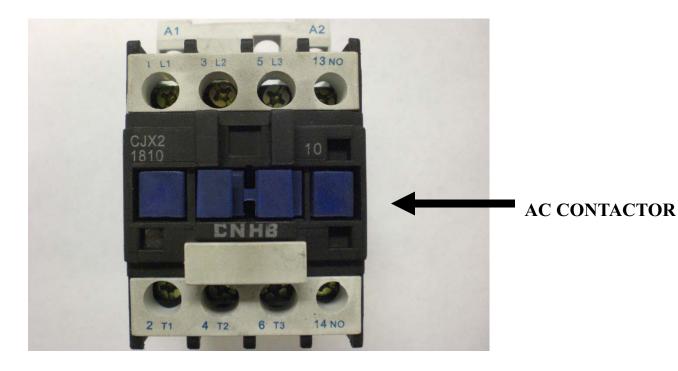
Connect the power source according to the data plate on the Power Unit.

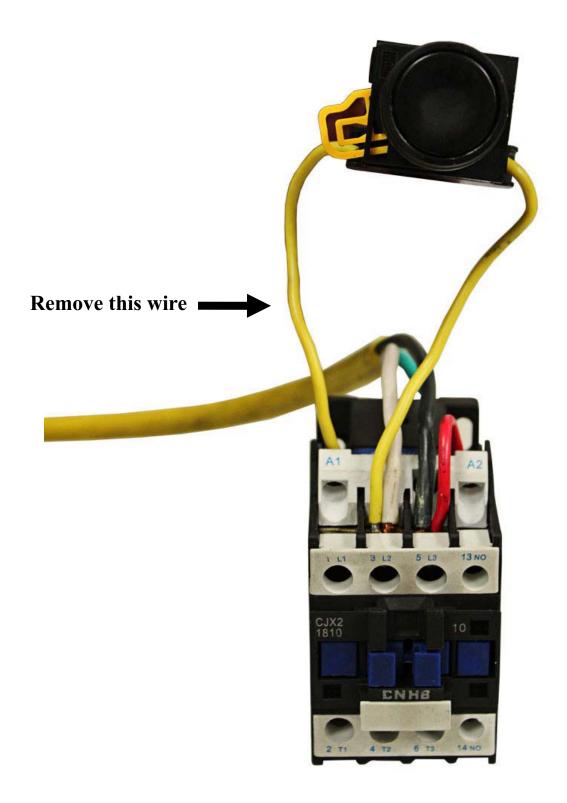
Remove the short "Pig Tail" wire connected to the AC contactor terminals. This wire was used to test the motor after production.

#### **ATLAS Single phase motor**

Please Note: This motor is powered by Alternating Current and the terminals on the AC contactor are not wire color specific. There are no positive or negative terminals.

- Connect the two power supply (incoming) wires (black & white) to terminals on the AC contactor marked L2 & L3.
- Connect the two motor wires to terminals on the AC contactor marked T2, T3. These wires are already connected from the factory.
- 3. Connect the short wire A2 to L3 on the AC contactor. This wire is already connected from the factory.
- 4. Remove the **entire** wire that connects from the "UP" button to A1 on the AC contactor.
- 5. Connect one of the wires (**does not matter which one**) on the Limit Switch to the **"UP" button** and connect the remaining Limit Switch wire to terminal **A1** on the AC contactor.





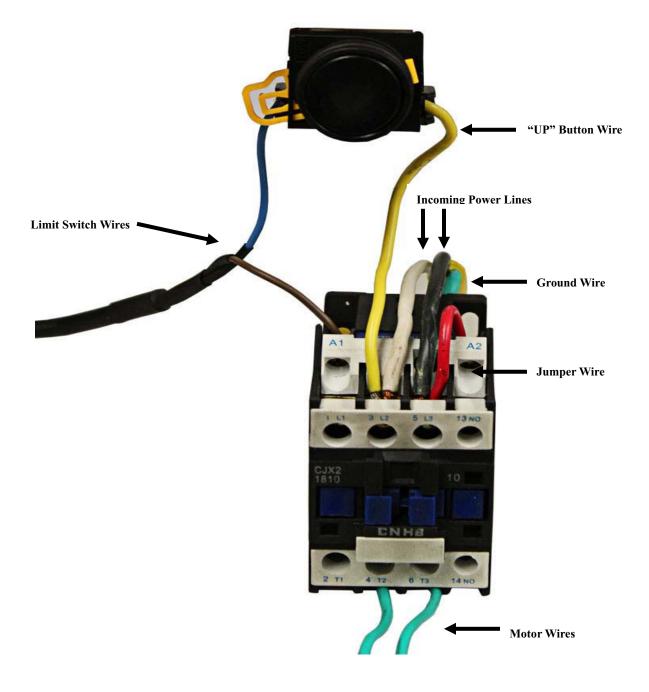
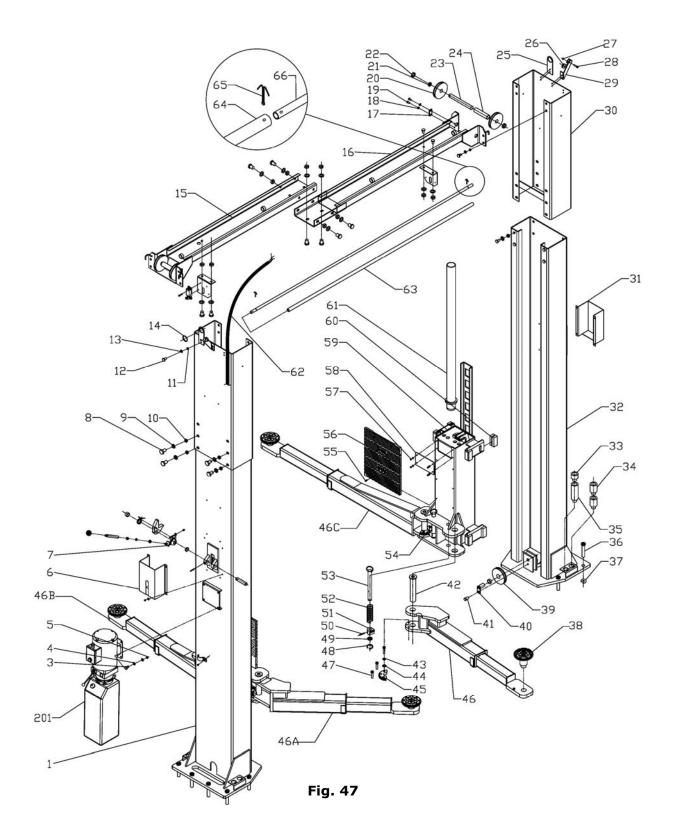
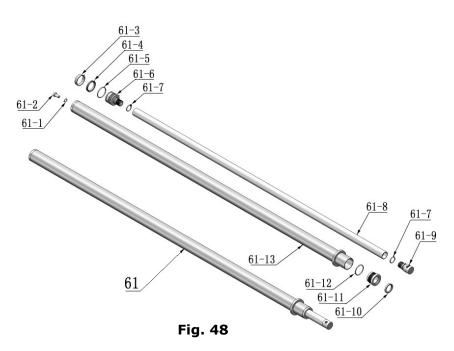


Fig. 46

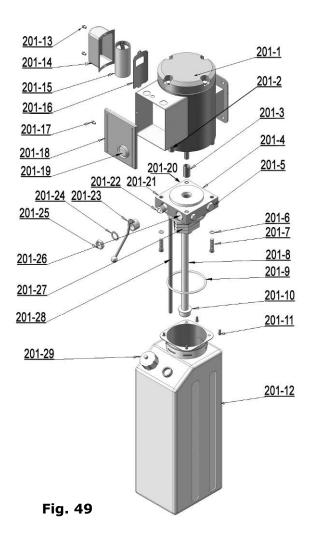


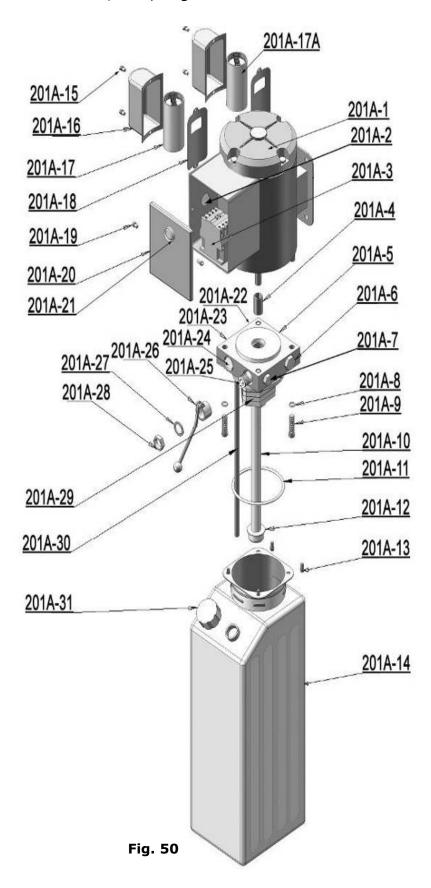


### Cylinders



## SPX Manual power unit 220V/60HZ, Single phase



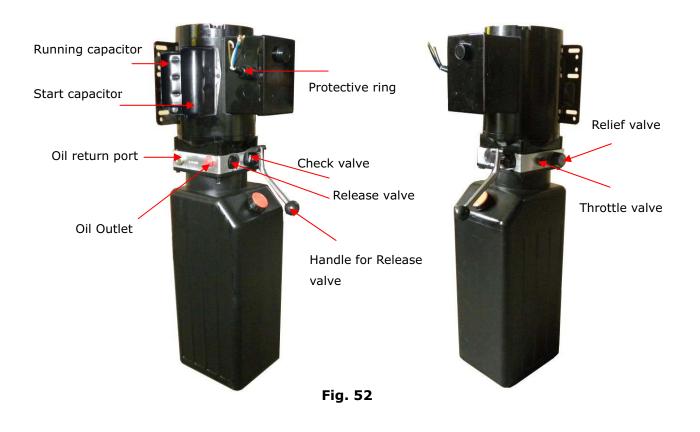


220V/60HZ, Single Phase

# Illustration of hydraulic valve for SPX & ATLAS hydraulic power unit a. SPX manual power unit, 220V/60HZ, Single phase (See Fig. 51)



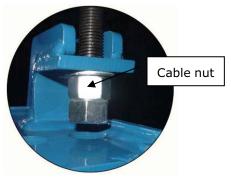
b. ATLAS manual power unit, 220V/60HZ, Single phase (See Fig. 52)



# V. TEST RUN

#### 1. Adjust the equalizing cables (See Fig. 53)

Use wrench to hold the cable fitting, meanwhile Use a ratchet to tighten the cable nut. Make sure the cables have the same tension so the two carriages lift at the same time. Replace the covers on the carriages. If the carriages do not lift at the same time, tighten the cable nut on the lower of the two carriages.



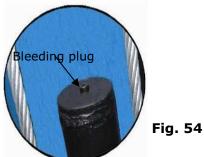


#### 2. Adjust safety cable

Lift the carriages and lock at the same height, pull the safety cable and then release a little, and then tighten the cable nuts. Make sure the safety locks click at the same time.

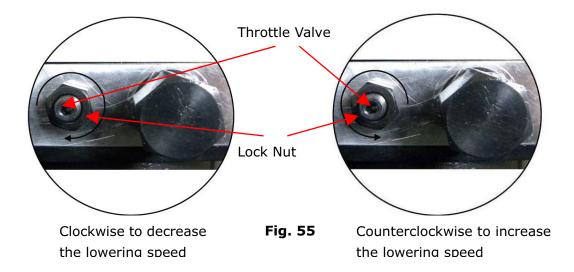
#### 3. Bleeding air

This hydraulic system is designed to bleed air by loosening the bleeding screw. Lift the carriages to about 12 inches and loosen the bleeding plug, lower the lift until fluid comes out. Tighten the screws after bleeding, **(See Fig. 54)**.



#### 4. Adjust the lowering speed (Only for ATLAS power unit) (Adjust with a load on the lift)

You can adjust the lowering speed of the lift if necessary: Loosen the locking nut on the throttle valve, and then turn the throttle valve clockwise to decrease the lowering speed, or counterclockwise to increase the lowering speed. Do not forget to tighten the locking nut after the lower speed adjustment has been completed.



#### 5. Test with load

After finishing the above adjustment test run the lift with a load. Run the lift in the low position several times. Run the lift to the top completely.

NOTE: If the lift vibrates on the way up with a load, lubricate all pulley shafts and wear blocks. If the lift vibrates on the way down, the cylinders need to be bled.

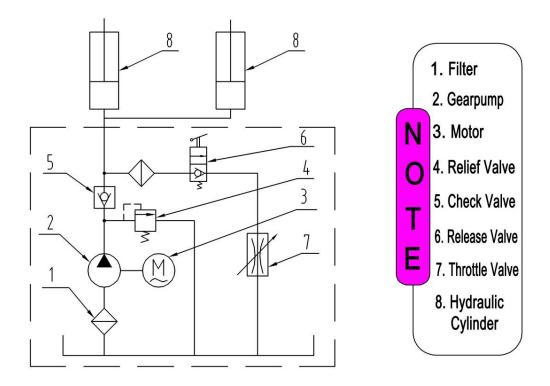


Fig. 56 Hydraulic System

#### **W. OPERATION INSTRUCTIONS**

#### Please read the safety tips carefully before operating the lift

#### To lift vehicle

- 1. Keep the lift area free of clutter;
- 2. Position lift arms to the lowest position;
- 3. Open lift arms;
- 4. Position vehicle between columns;
- 5. Move arms to the vehicle's lifting points;

Note: The four lift arms must make contact at the same with the vehicle's lifting points and both axles must rise off of the ground at the same time.

- 6. Press the **UP** button until the lift pads contact underside of vehicle. Check to make sure vehicle is secure;
- 7. Continue to raise the lift slowly to the desired working height, ensuring the balance of vehicle;
- 8. Push lowering handle to lower lift onto the nearest locks. The vehicle is ready to repair. Note:The lift must always be on the safety locks!!!!!

#### To lower vehicle

- 1. Keep the lift area free of clutter;
- Press the button of UP to raise the vehicle slightly, and then release the safety device, lower vehicle by pushing lowering handle.
- 3. Open the arms and position them to the shortest length.
- 4. Drive away the vehicle.

#### . MAINTENANCE SCHEDULE

#### Monthly:

- 1. Re-torque the anchor bolts to 85 Ft Lbs.
- 2. Check all connectors, bolts and pins to insure proper mounting.
- 3. Lubricate cable with lubricant.
- 4. Make a visual inspection of all hydraulic hoses/lines for possible wear or leakage.
- 5. Check the condition of the safety lock device.
- 6. Lubricate all rollers and pins with 90wt. Gear oil or equivalent.

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

#### **Every six months:**

- 1. Make a visual inspection of all moving parts for possible wear, interference or damage.
- 2. Check and adjust as necessary, equalizer tension of the cables to ensure level lifting.
- 3. Check columns for plumb.
- 4. Check rubber pads and replace as necessary.
- 5. Check safety lock device and make sure the condition is suitable.

#### . TROUBLE SHOOTING

TROUBLE	CAUSE	REMEDY	
	1. Button does not work	1. Replace button	
	2. Wiring connections are not in good	2.Repair all wiring connections	
	condition		
Motor does not run	3. Motor burned out	3. Repair or replace motor	
	4. Height limit switch is damaged	4.Replace the limit switch	
	5. AC contactor burned out	5. Replace AC contactor	
	1. Motor runs in reverse rotation	1.Reverse two power wire	
	2. Gear pump out of operation	2.Repair or replace	
Motor runs but the lift is	3. Release valve in damage	3. Repair or replace	
not raised	4. Relief valve or check valve in damage	4.Repair or replace	
	5. Low oil level	5.Fill tank	
	1. Release valve out of work		
Lift does not stay up	2. Relief valve or check valve leakage	Repair or replace	
	3. Cylinder or fittings leaks		
	1. Oil line is jammed	1. Clean the oil line	
	2. Motor running on low voltage	2. Check electrical system	
Lift raises slowly	3. Oil mixed with air	3. Fill tank	
	4. Gear pump leaks	4. Replace pump	
	5. Overload lifting	5. Check load	
	1. Safety device are in activated	1. Release the safeties	
	2. Release valve in damage	2. Repair or replace	
Lift can not lower	3. Safety cable broken	3. Replace	
	4. Oil system is jammed	4. Clean the oil system	

For more detail on motor troubleshooting visit our web site at gregsmithequipment.com. Go to "Knowledge Base" and click on "Troubleshooting and repair <u>http://www.gregsmithequipment.com/Lift-Motor-Troubleshooting</u>

### **IX.** Parts list for model PV-10P and PV-10HP

Thomas	Part#	Description	Ç	Qty.	
Item			PV-10P	PV-10HP	Note
1	217001	Power side column	1	1	
201	209002	Power unit	1	1	
3	209003	Bolt	4	4	
4	209034	Lock washer	4	4	
5	217002	Nut	4	4	
6	217003	Power side lock cover	1	1	
7	217004	Main cam lock	1	1	
8	217069	Bolt	34	34	
9	206006	Washer	35	35	
10	206023	Self locking nut	34	34	
11	420018	Self locking nut	8	8	
12	217013	Bolt	8	8	
13	420045	Washer	26	26	
14	217025	Protective ring	2	2	
15	217015	Right overhead bar	1	1	
16	217016	Left overhead bar	1	1	
17	217017	Pin stop	2	2	
18	209033	Washer	8	8	
19	209055	Bolt	4	4	
20	217019	Top pulley	4	4	
21	217020	Bronze bush for pulley	6	6	
22	217021	Top pulley spacer	4	4	
23	217022	Pin	2	2	
24	217023	Pin spacer	2	2	
25	217024	Hose support	2	2	
26	206009	Plastic small pulley	3	3	
27	209056	Self locking nut	3	3	
28	209046	Bolt	3	3	
29	217026	Safety cable bracket	2	2	
<b>.</b> -	217027A		2	0	
30	217027B	Extension column	0	2	
31	217028	Offside lock cover	1	1	
32	217034	Offside column	1	1	
33	209051	Adapter 1.5"	4	4	
34	209052	Adapter 3"	4	4	

Item	Part#	Description		Qty.	
	1 41 (#		PV-10P	PV-10HP	Note
35	209053	Adapter 6"	4	4	
36	209059	Anchor bolt	12	12	
37	620065	Shim	10	10	
38	680030	Rubber pad frame support	4	4	
39	217036	Bottom pulley	2	2	
40	217037	Bottom pin	2	2	
41	209038	Bolt	6	6	
42	217047	Arm pin	4	4	
43	209039	Lock washer	18	18	
44	209022	Washer	18	18	
45	206049	Moon gear	4	4	
46	217041	Left front arm	1	1	
46A	217042	Right front arm	1	1	
46B	217040	Right rear arm	1	1	
46C	217049	Left rear arm	1	1	
47	206048	Allen bolt	12	12	
48	206032	C-clip	4	4	
49	217043	Limit ring	4	4	
50	206036	Roll pin	4	4	
51	217044	Arm lock	4	4	
52	217045	Spring	4	4	
53	217046A	Left arm lock bar	2	2	
54	217046	Right arm lock bar	2	2	
55	209019	Flat head screw	12	12	
56	217053	Rubber pad	2	2	
57	209009	Cup head bolt	26	26	
58	217054	Carriage plastic cover	2	2	
59	217055	Carriage	2	2	
60	209015	Slider block	16	16	
61	217056	Cylinder	2	2	
62	217065A	Wire cable	1	1	
63	206025A	Foam Cushion	1	1	
64	206025	Limit bar	1	1	
65	201005	Split Pin	2	2	
66	206025C	Limit bar link	2	2	
67	206013	Limit switch	1	1	
68	206011	Cup head bolt (not used)	2	2	
69	206042	Limit bar bracket	2	2	
70	420026	Lock washer	1	1	

Item	Part#	Description	Qty.		Nata
			PV-10P	PV-10HP	Note
71	206023A	Nut	1	1	
72	217005	Plastic ball	1	1	
73	217006	Lock handle	1	1	
74	217007	Large spacer	2	2	
75	217008	Main spring	2	2	
76	217009	Main lock	2	2	
77	217010	Bolt	1	1	
78	217011	Nut	1	1	
79	217012	Small spacer	2	2	
80	217050	Main lock pin	2	2	
81	217051	Screw	2	2	
82	217066	Bolt	2	2	
83	217030	Torsion spring	1	1	
84	217030	Cam lock	1	1	
85	217031	Self locking nut	1	1	
86	217033	Cable lock hold	1	1	
87	217029	Small pulley bracket	1	1	
88	217057	Overhead hose	1	1	
89	217058	T-fitting for power unit	1	1	
90	217059	Short hose	1	1	
91	217060	Cylinder pipe	2	2	
92	217061A	90 Fitting	2	2	
93	217048	Hose clamp	10	10	
94	420029	Cable nut washer	4	4	
95	209066	Cable nut	8	8	
96	217063A	Cable	2	2	
97	217064A	Safety cable	1	1	
Parts For H	ydraulic Cylinde	r			
61-1	209069	O-Ring	2	2	
61-2	209070	Bleeding Plug	2	2	
61-3	209071	Support Ring	2	2	
61-4	209072	Y-Ring	2	2	
61-5	209073	O-Ring	2	2	
61-6	209074	Piston	2	2	
61-7	209075	O-Ring	4	4	
61-8	217076	Piston rod	2	2	
61-9	209077	Piston rod fitting	2	2	
61-10	209078	Dust ring	2	2	
61-11	209079	Head cap	2	2	
61-12 61-13	209080 209081A	O-Ring Bore weldment	2	2	

#### Parts for SPX Manual Power Unit, 220V/60Hz, 1 phase

Item Par	Devit #	Part# Description	Ç	Qty.	
	Part#		PV-10P	PV-10HP	
201-1	209082	Motor	1	1	
201-2	209109	Protective ring	1	1	
201-3	209083	Motor connecting shaft	1	1	
201-4	209084	Valve body	1	1	
201-5	209085	Relief valve	1	1	
201-6	209086	Lock washer	4	4	
201-7	209087	Allen bolt	4	4	
201-8	209088	Inlet pipe	1	1	
201-9	209089	O-Ring	1	1	
201-10	209090	Filter	1	1	
201-11	209091	Bolt	4	4	
201-12	209092	Reservoir	1	1	
201-13	209093	Bolt	2	2	
201-14	209094	Cover of capacitor	1	1	
201-15	209095	Capacitor	1	1	
201-16	209096	Rubber gasket	1	1	
201-17	209097	Bolt	1	1	
201-18	209098	Cover of motor terminal box	1	1	
201-19	209099	Push button	1	1	
201-20	209110	Oil return port	1	1	
201-21	209100	Oil outlet	1	1	
201-22	209101	Release valve	1	1	
201-23	209102	Release valve handle	1	1	
201-24	209103	Washer	1	1	
201-25	209104	Nut	1	1	
201-26	209105	Check valve	1	1	
201-27	209106	Gear pump	1	1	
201-28	209107	Oil return pipe	1	1	
201-29	209108	Filler cap	1	1	

#### Parts For ATLAS Manual Power Unit, 220V/60Hz, 1 phase

Item	Part#	Description	Ç	Qty.	
			PV-10P	PV-10HP	
201A-1	209082A	Motor	1	1	
201A-2	209109	Protective ring	1	1	
201A-3	209112	AC contactor	1	1	
201A-4	209083A	Motor connecting shaft	1	1	
201A-5	209084A	Valve body	1	1	
201A-6	209085A	Relief valve	1	1	
201A-7	209113	Throttle valve	1	1	
201A-8	209086A	Lock washer	4	4	
201A-9	209087A	Allen bolt	4	4	
201A-10	209088A	Inlet pipe	1	1	
201A-11	209089A	O-Ring	1	1	
201A-12	209090A	Filter	1	1	
201A-13	209091A	Allen bolt	4	4	
201A-14	209092A	Reservoir	1	1	
201A-15	209093A	Cup head bolt with washer	4	4	
201A-16	209094A	Cover of capacitor	2	2	
201A-17	209095A	Start capacitor	1	1	
201A-17A	209095B	Run capacitor	1	1	
201A-18	209096A	Rubber gasket	2	2	
201A-19	209097A	Cup head bolt with washer	2	2	
201A-20	209098A	Cover of motor terminal box	1	1	
201A-21	209099A	Push button	1	1	
201A-22	209110A	Oil return port	1	1	
201A-23	209100A	Oil outlet	1	1	
201A-24	209105A	Check valve	1	1	
201A-25	209101A	Release valve	1	1	
201A-26	209102A	Handle of release valve	1	1	
201A-27	209103A	Washer	1	1	
201A-28	209104A	Nut	1	1	
201A-29	209106A	Gear pump	1	1	
201A-30	209107A	Oil return pipe	1	1	
201A-31	209108A	Filler cap	1	1	