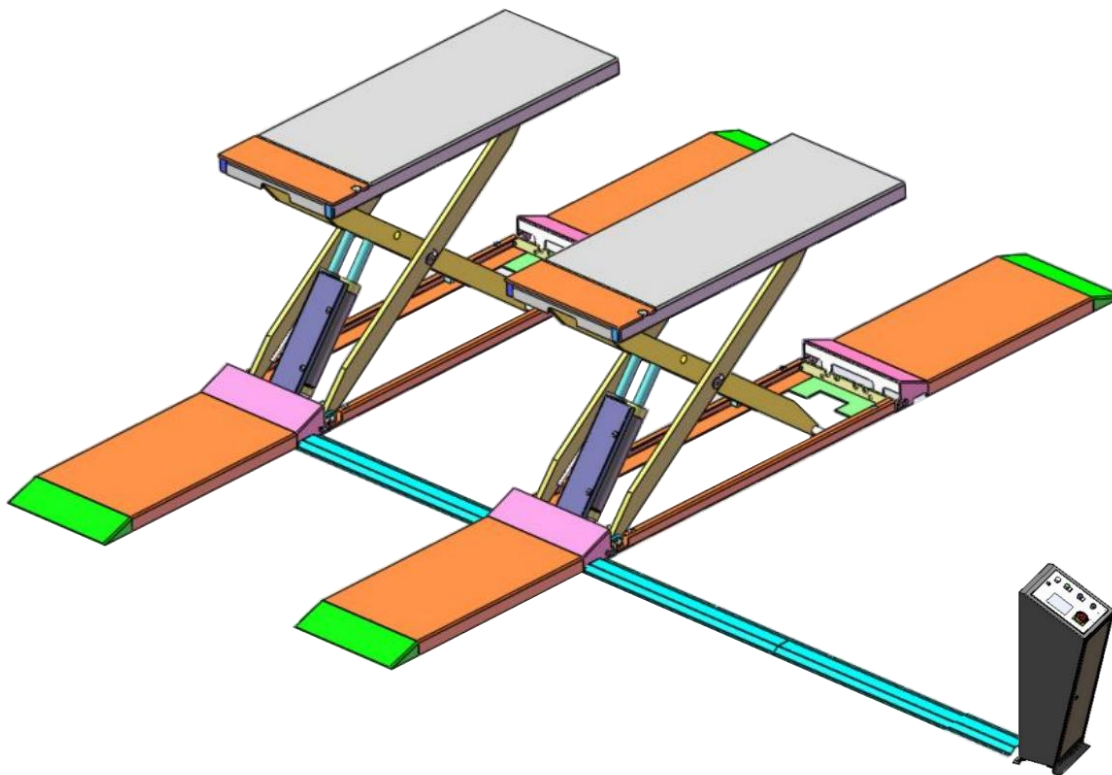




Original

Installation And Service Manual



MID-RISED SCISSORS LIFT
Model:MRL-4000

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I. PRODUCT FEATURES AND SPECIFICATIONS (See Fig.1)

MID-RISED SCISSORS LIFT: MODEL MRL-4000

- 9,000LBS(4000kg) capacity;
- Mid-rised scissor lift, 24V Safety voltage control;
- Dual hydraulic synchronization & hydraulic locking system;
- Lifting scissors made of thickened steel which are more stronger;
- Adjustable lift platform length, applicable to vehicles with different wheelbases;
- Two-stage drive in ramps, suitable for lifting ultra-low chassis vehicles;
- Flexible structure design, users can choose either flush mount or surface mount;
- Low Level Alarm, alarm tone device when coming down from 300mm to ground.;
- Standard with 2 type square rubber pads;

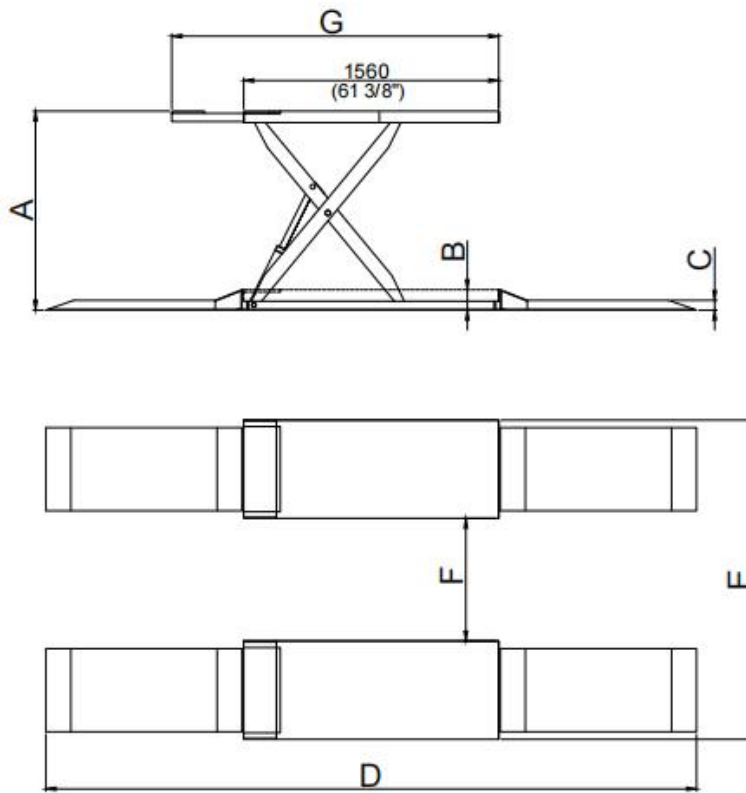


Fig.1

MODEL MRL-3000 SPECIFICATIONS

Model	Lifting Capacity	Lifting Time	A	B	C	D	E	F	G	Motor
			Max Lifting Height	Minimum Height	Rams Height	Overall Length	Overall Width	Width Between Runways	Runway Length	
MRL-4000	4000kg (9,000 lbs)	29s	1200mm (47 1/4")	135mm (5 3/8")	65mm (2 1/2")	3980mm (156 3/4")	1950mm (76 3/4")	750mm (29 1/2")	1560-1960mm (61 3/8"-77 1/8")	3.0HP

II. INSTALLATION REQUIREMENT

A. Tools requirement

✓ Screw Set



✓ Socket Head Wrench (8")



✓ Wrench sets: (13#, 15#, 17#, 19#)



✓ Grease gun



✓ Claw Wrench (for 40-42mm)



✓ Pliers



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. Power requirement

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, make sure all the parts are completed.

1. Packaged lift, Parts box, Control Cabinet (See Fig. 4).

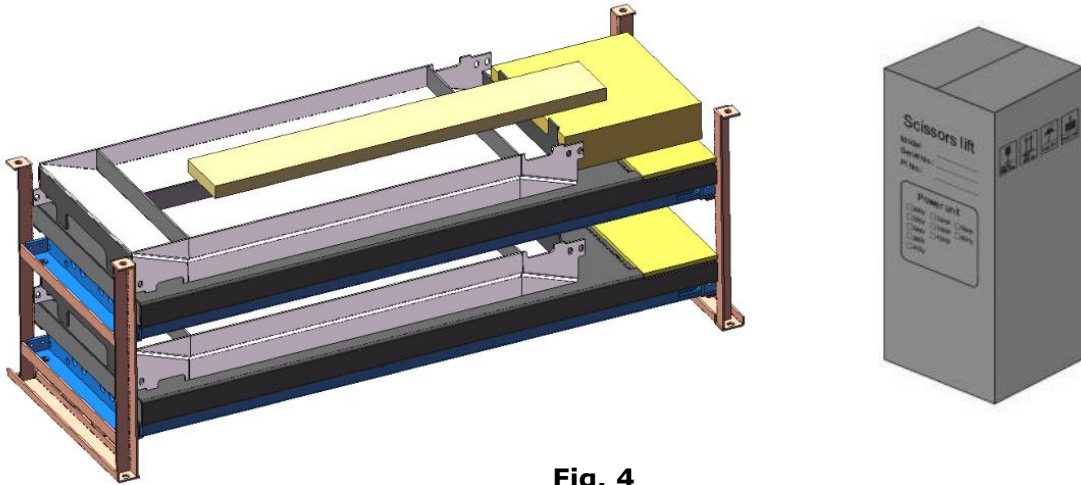


Fig. 4

2. Move aside the parts, Open the outer packing and check the parts according to the shipment parts list

(See Fig.5).

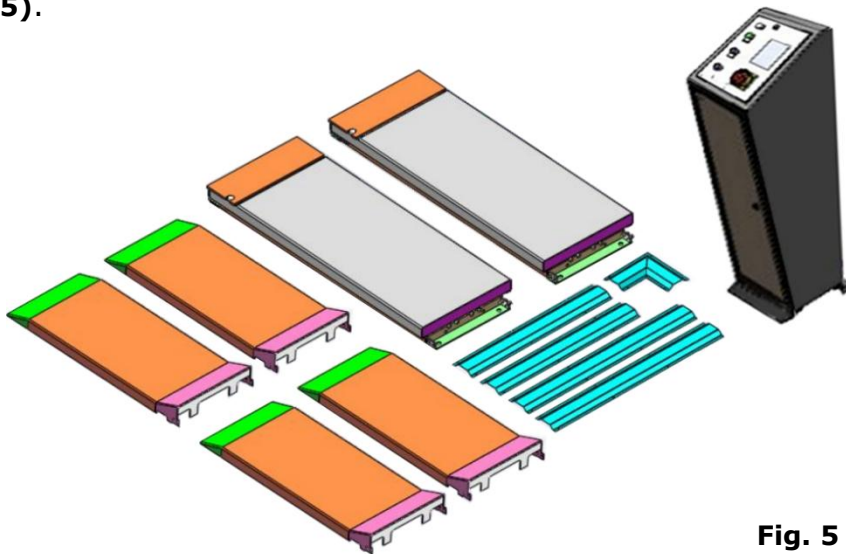


Fig. 5

3. Open the parts box, check the parts according to the part list (See Fig.6).

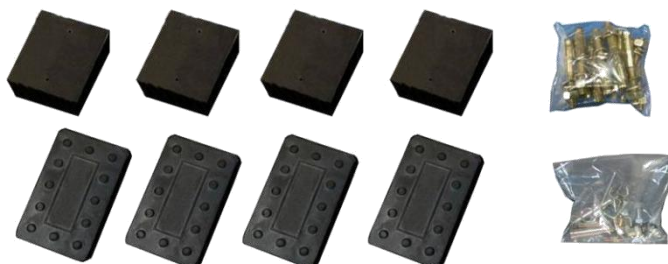


Fig. 6

4. Open the parts bag, check the parts according to the part list (See Fig.7).

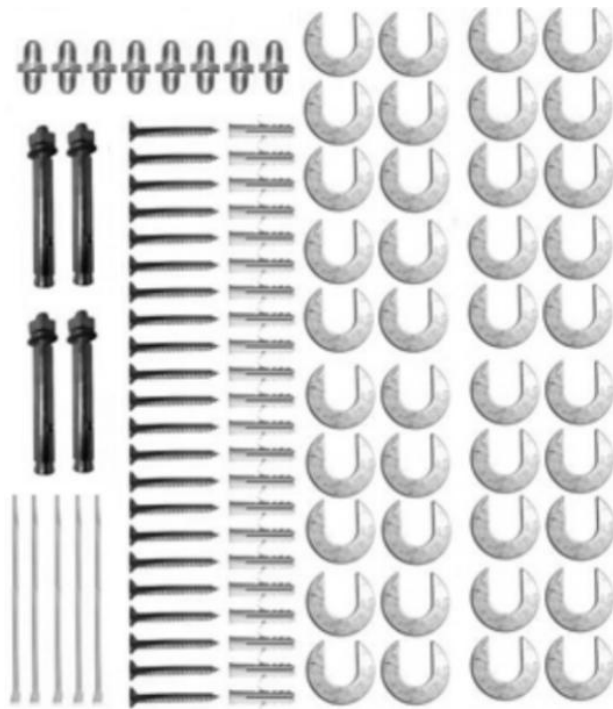


Fig. 7

B. SPECIFICATIONS OF CONCRETE

1. Concrete must be thickness 4"(100mm) minimum and test strength 210kg/cm² (3,000psi) minimum; floors must be in good condition and no cracks.
2. Install diagram

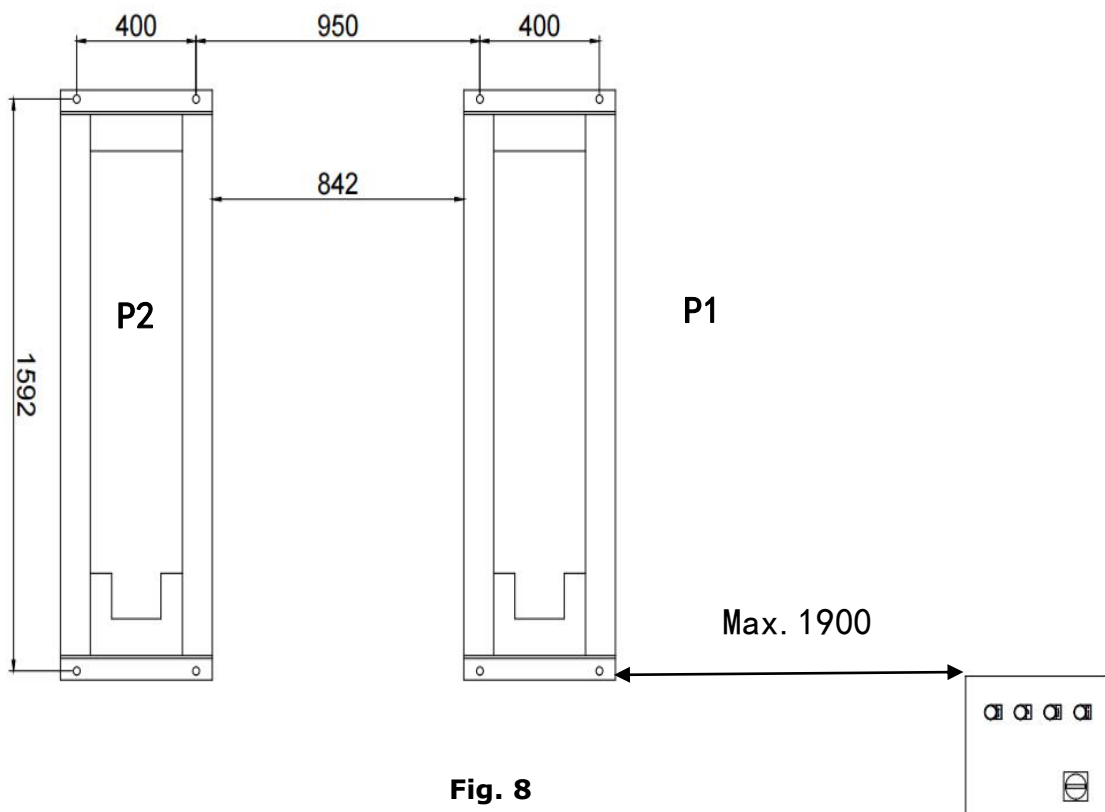


Fig. 8

3. Install according to the actual installation site.

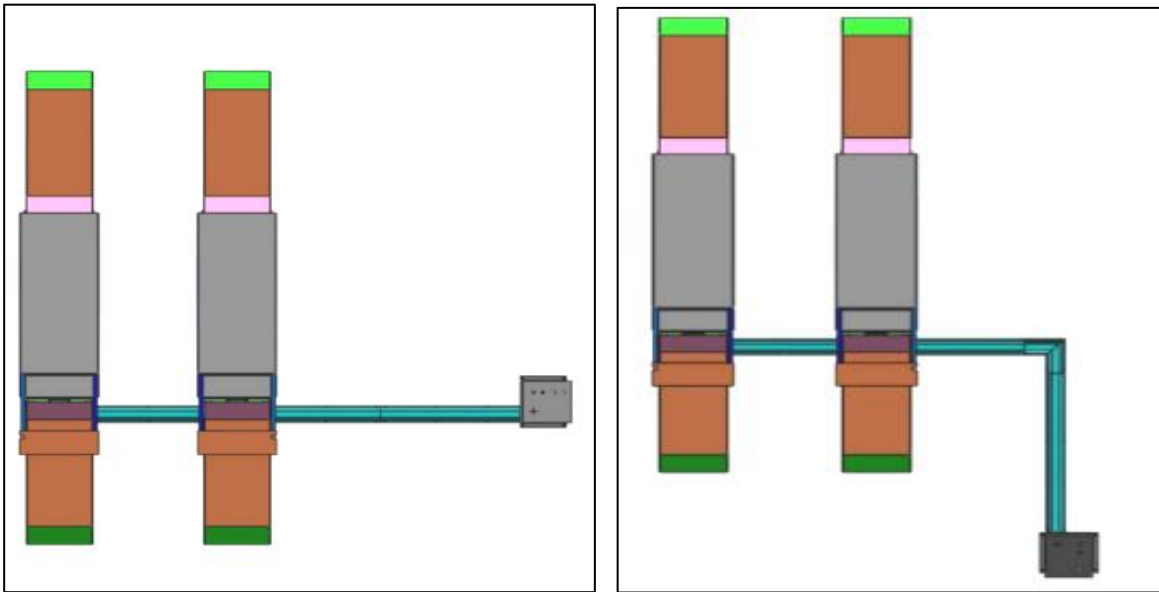


Fig.9

C. Install Oil hose

Connect oil hoses of control cabinet and lifts according to the numbers marked

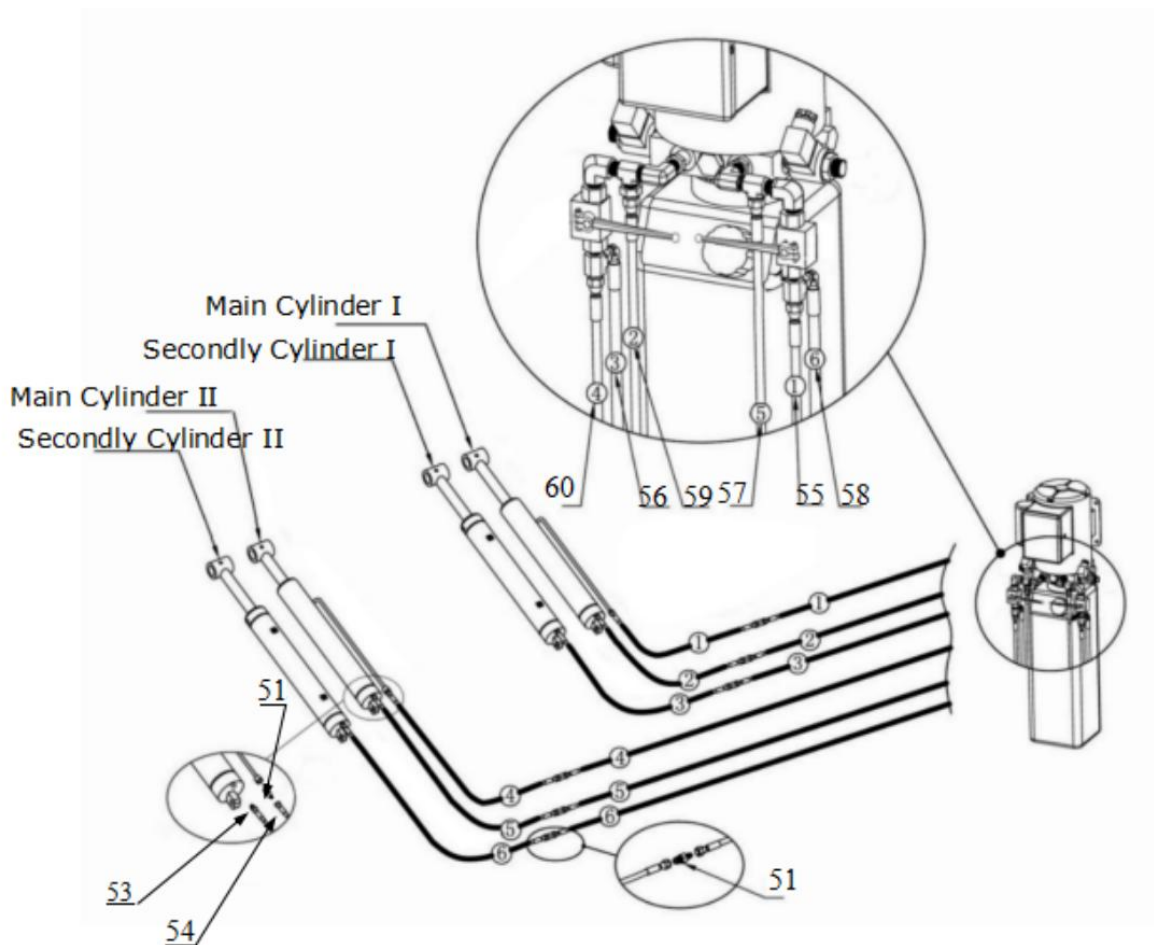


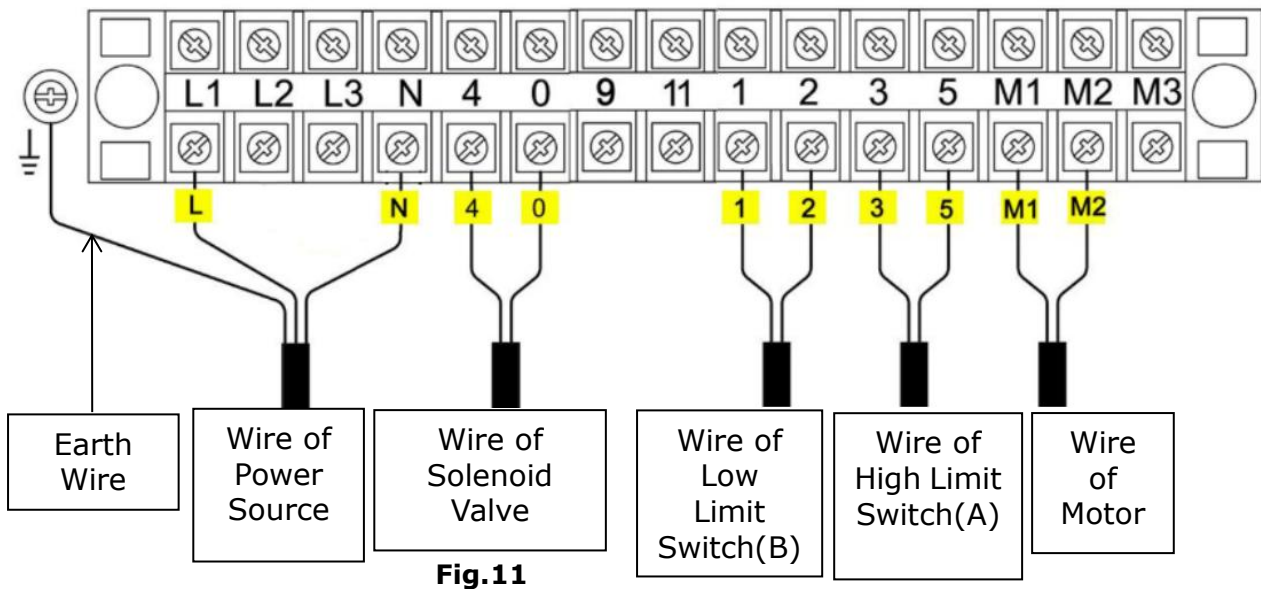
Fig. 10

No.	Part No.	Specification
53	10620072	1/4*650mm
54	1003285007	1/4*668mm
55	1003285008	No.③ 1/4*2530mm
56	1003285009	No.① 1/4*2770mm
57	1003285010	No.④ 1/4*3780mm
58	1003285011	No.⑥ 1/4*4030mm
59	1003285012	No.② 1/4*2620mm
60	1003285013	No.⑤ 1/4*3970mm

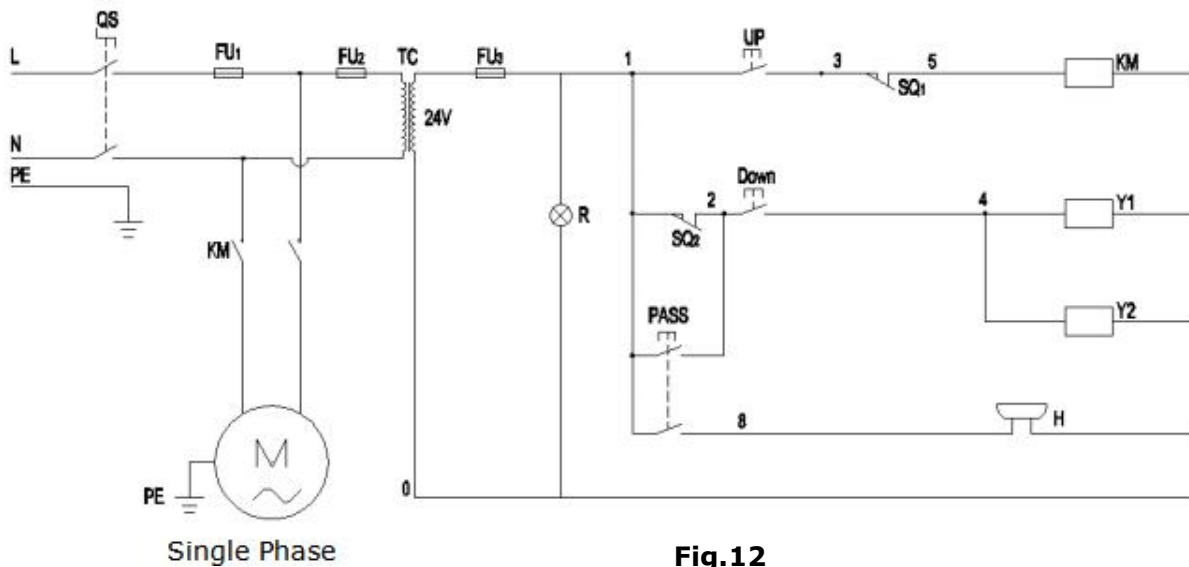
D. Install electrical system

1. Single phase circuit connection

1.1 Connecting the power supply wires and limit switch wires. (Fig.8)



1.2 Circuit diagram (Fig.12)



1.3 Part list

No.	Description	Code	Specification
1	Power Switch	QS	380V AC
2	Breaker	FU ₁	2P
3	Breaker	FU ₂	1P
4	Breaker	FU ₃	1P
5	AC Contactor	KM	24V AC
6	High Limit Switch	SQ ₁	10A
7	Low Limit Switch	SQ ₂	10A
8	Hydraulic Solenoid Valve	Y	AC 24V
9	Push Button	UP	Single
10	Push Button	Down	Single
11	Push Button	Pass	Double
12	Motor	M	Single Phase
13	Control Transformer	TC	24V AC
14	Indicator	R	24V AC

2. Three phase circuit connection

2.1 Connecting the power supply wires and limit switch wires. (Fig.10)

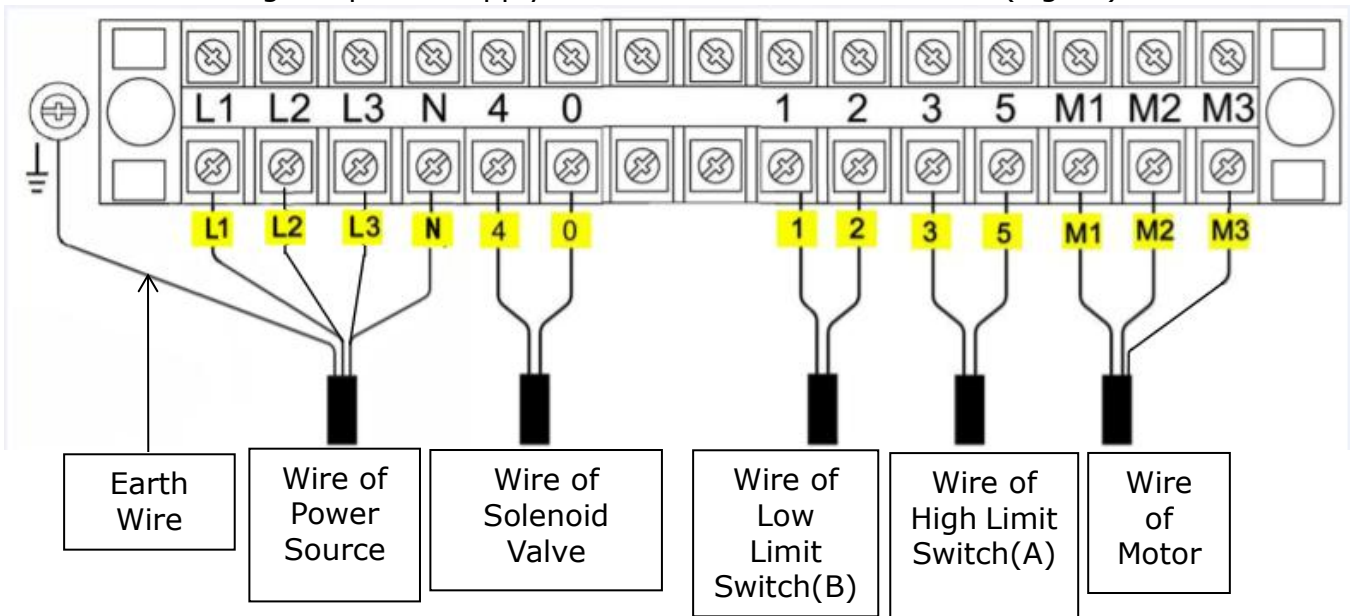


Fig.13

2.2 Circuit Diagram (see Fig.14)

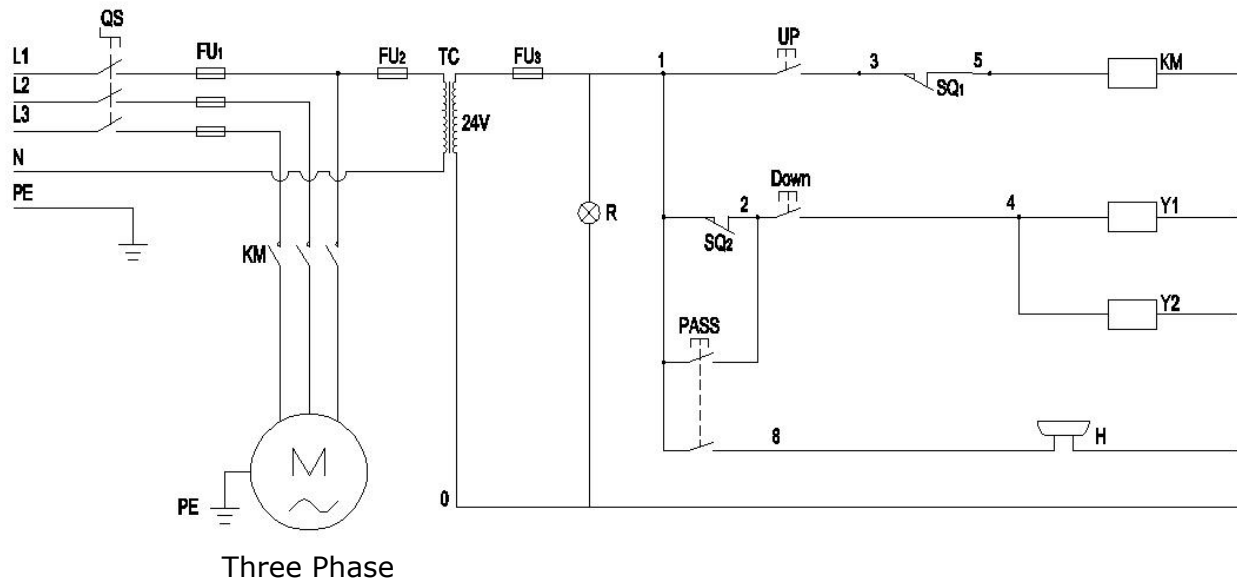


Fig.14

2.3 Part List

No.	Description	Code	Specification
1	Power Switch	QS	380V AC
2	Breaker	FU ₁	3P
3	Breaker	FU ₂	1P
4	Breaker	FU ₃	1P
5	AC Contactor	KM	24V AC
6	High Limit Switch	SQ ₁	10A
7	Low Limit Switch	SQ ₂	10A
8	Hydraulic Solenoid Valve	Y	AC 24V
9	Push Button	UP	Single
10	Push Button	Down	Single
11	Push Button	Pass	Double
12	Motor	M	Three Phase
13	Control Transformer	TC	24V AC
14	Indicator	R	24V AC

E. Limit Device Illustration

1. High Limit Device

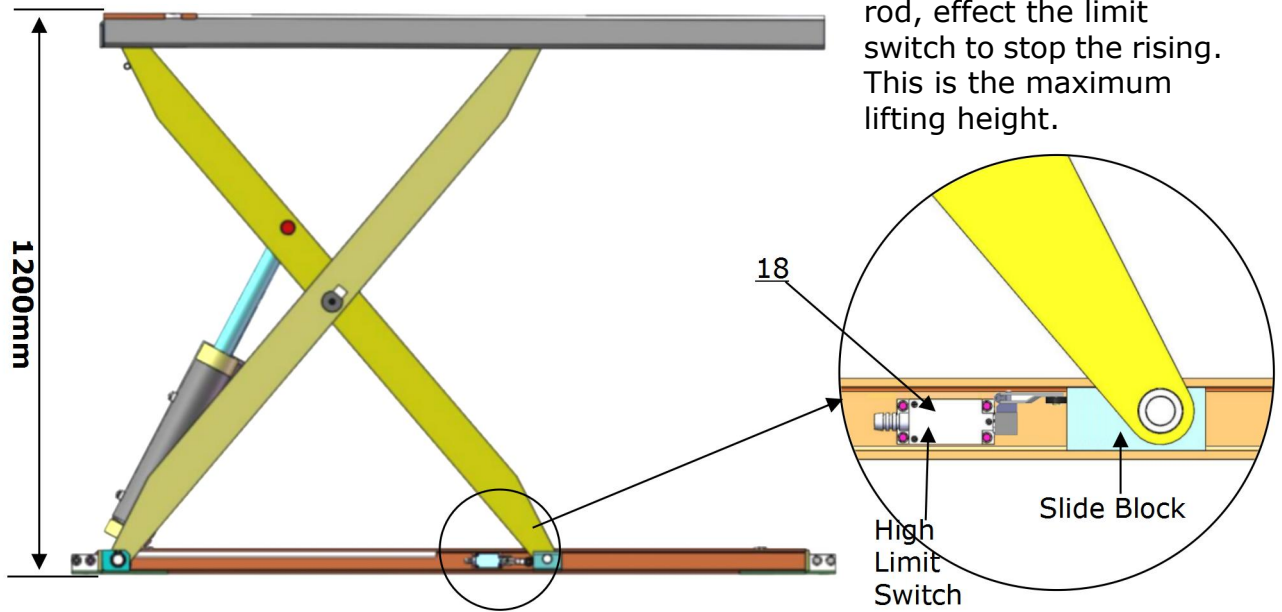
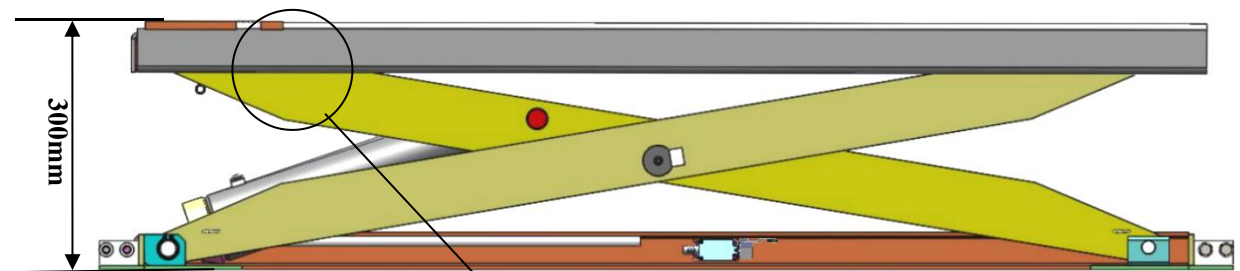


Fig 15

2. Low Limit Device



When the lift lowers to 300mm from ground, the platform touch limit switch road, effect the limit switch to stop lowering. This time press both button DOWN and PASS to lower the lift, along with alarm tone.

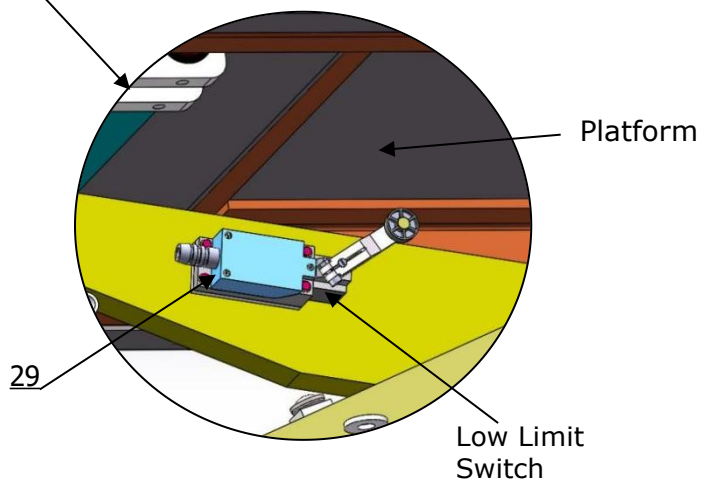


Fig 16

F. Level two platforms and install anchor bolts

1. Check by level bar and use the shim to adjust the platforms until two platforms are in the same level.

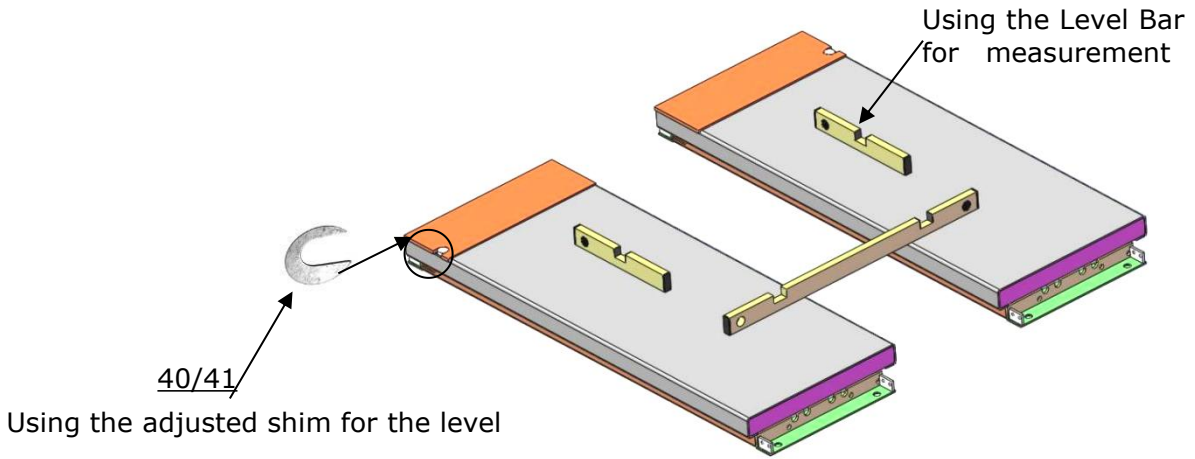


Fig 17

2. Anchor bolts installation

- 2.1 Lift the machine to 1000mm for the anchor bolt installation.

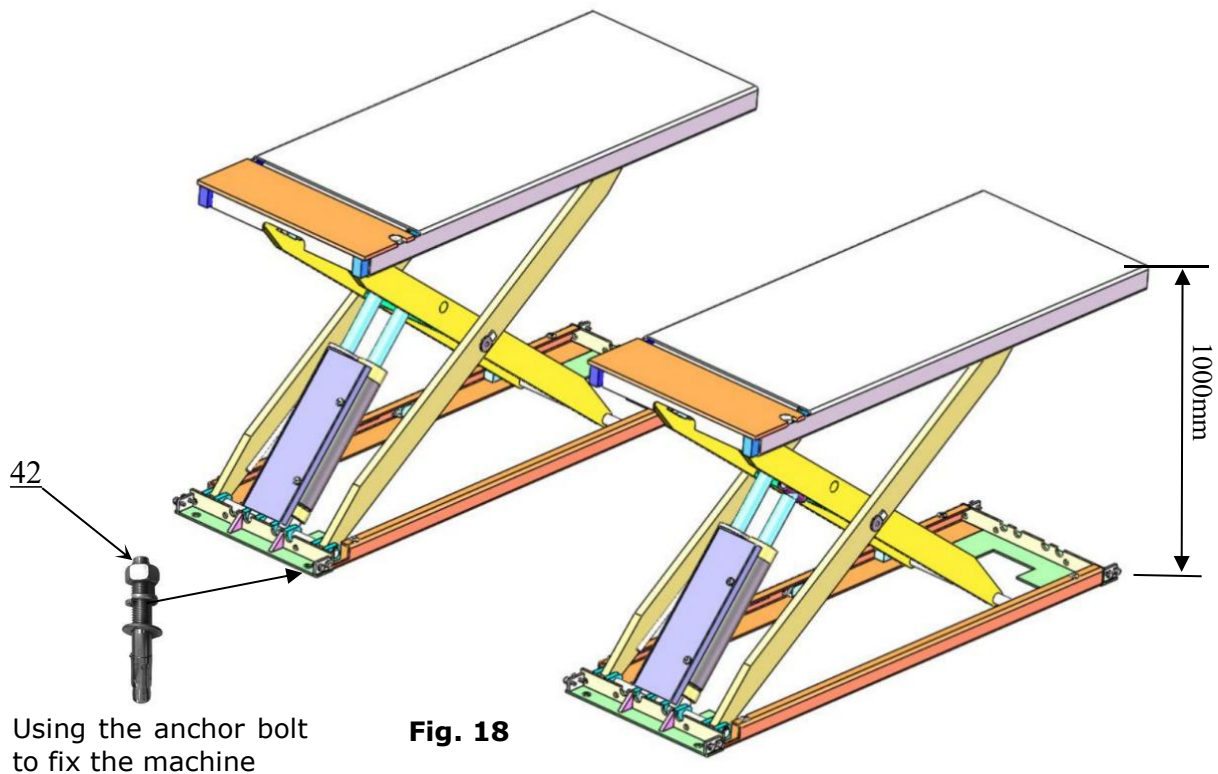


Fig. 18

2.2 Drilling the hole for the anchor bolt with the rotary hammer drill, type the anchor bolt into the ground, and then fasten it with Ratchet spanner.

Note: The Torque of anchor bolt is 150 N.m, the length inside ground of anchor bolt must be over 90mm.

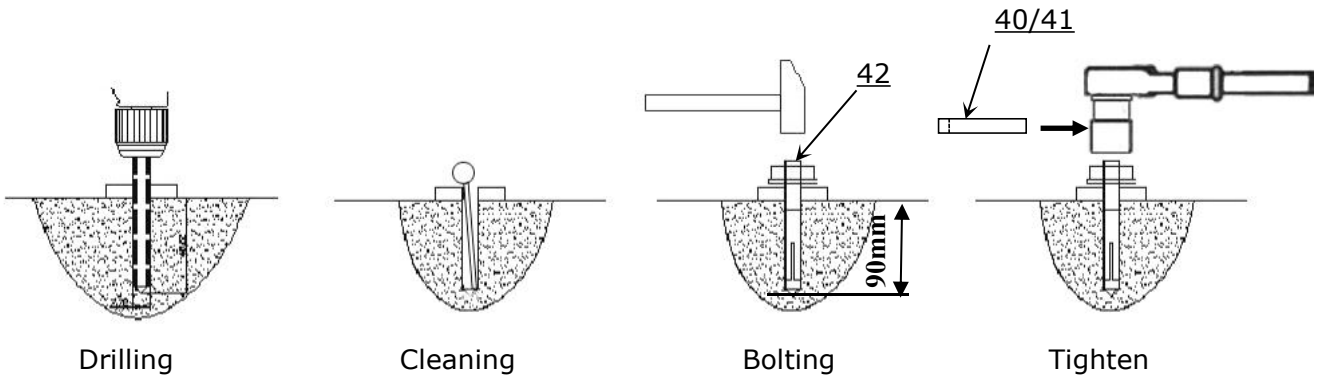


Fig. 19

G. Install drive-in ramps

Install the 4pcs drive-in ramps to base with bolts.

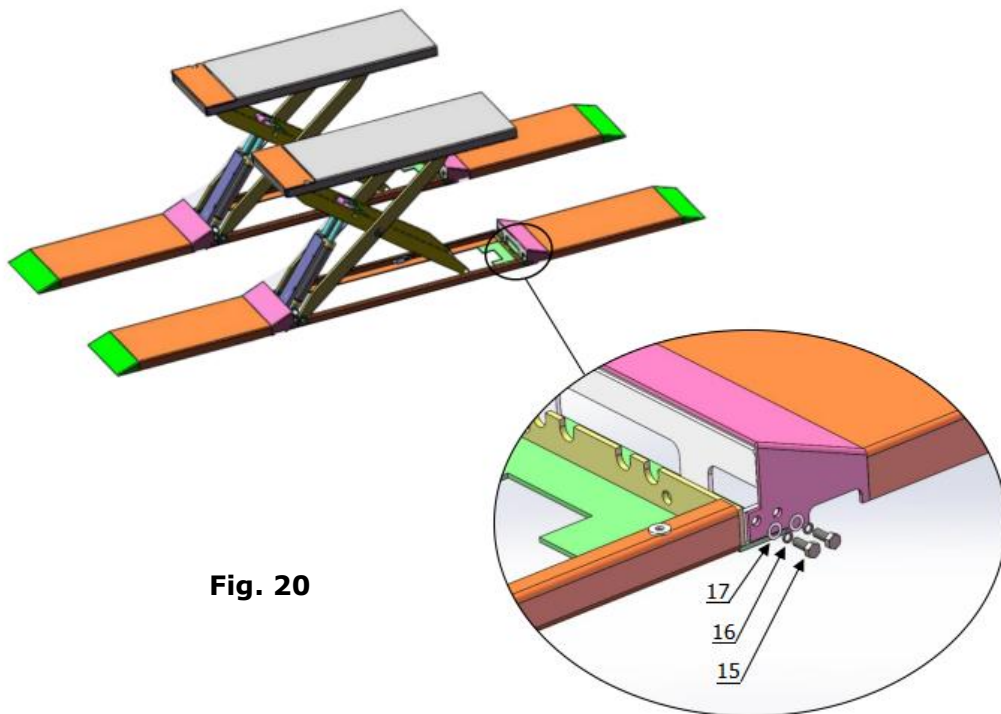
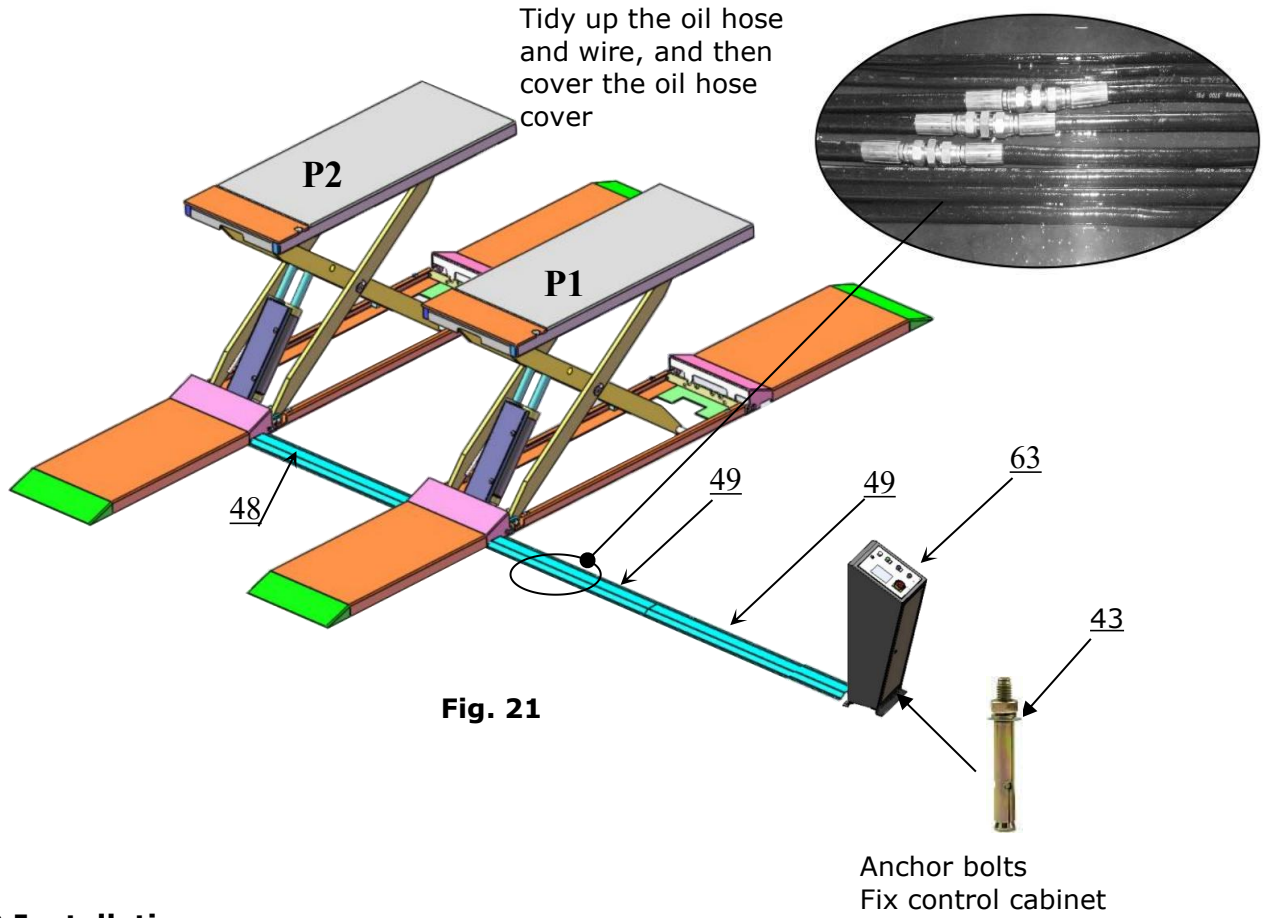


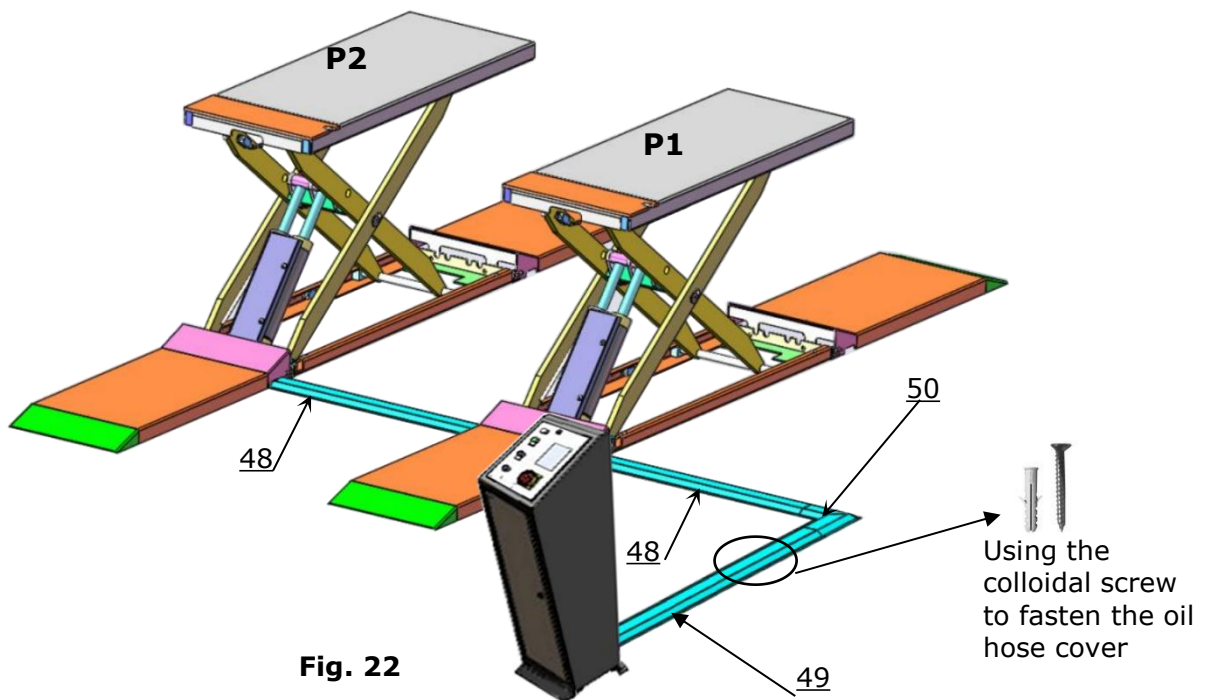
Fig. 20

H. Install oil hose cover and anchor the control cabinet

1. Tidy up the oil hose and wire, cover the oil hose cover and layout the control cabinet.



View B Installation



2. Install the colloidal screw of oil hose cover

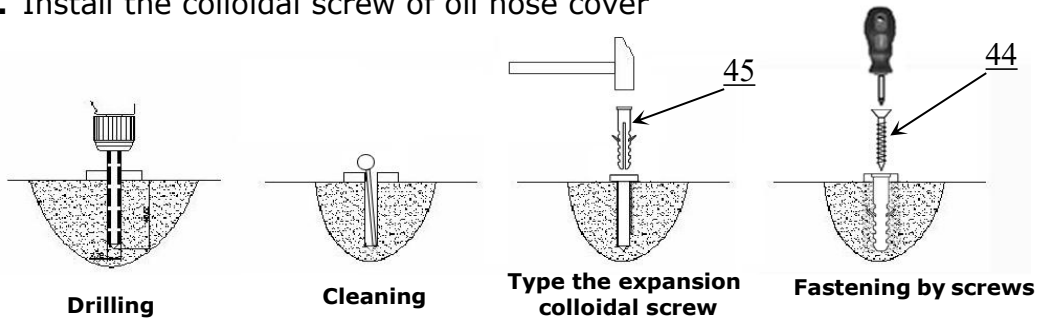


Fig. 23

3. Install the control cabinet anchor bolt

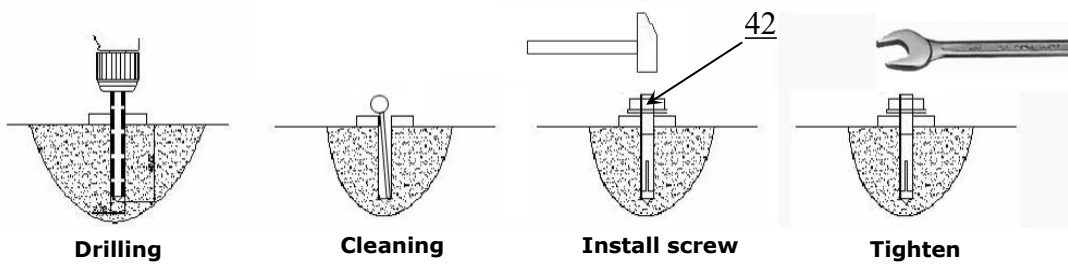


Fig. 24

IV. EXPLODED VIEW

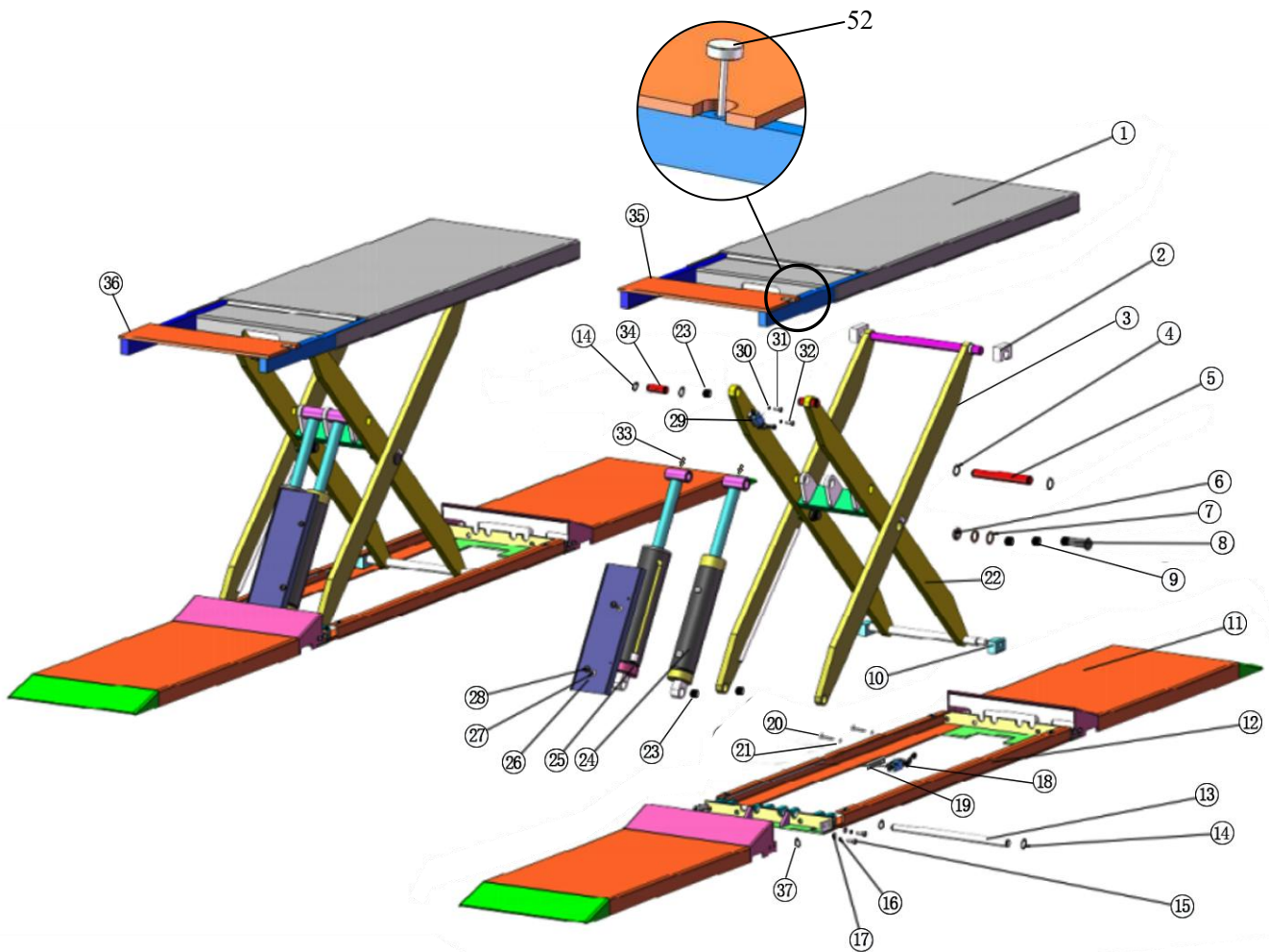


Fig.25

PARTS LIST FOR MODEL MRL-4000

Item	Part#	Description	QTY.	Note
1	1103283001A	Platform	2	
2	1003105001	Upper Slide Block HK023 60*42*33	4	
3	1103282001A	Outer Scissors	2	
4	10610008	Snap Ring Φ 30	4	
5	1103282008	Piston Rod Connecting shaft ϕ 30*226	2	
6	10610123	Self Locking Nut M30*3.5	4	
7	10610108	Washer Φ 44* Φ 30.5*2	8	
8	1106582010	Connecting Pin for inner scissors ϕ 45*103	4	
9	10620141	Bronze Bush Φ 36* Φ 30.1*24		
10	10620061	Lower Slide Block 80*42*33	4	
11	1103283007A	Drive-in Ramps	4	
12	1103281000A	Base	2	
13	1103282007	Connecting shaft of cylinder end cap ϕ 25*461	12	
14	10206032	Snap Ring Φ 25	12	
15	10209126	Hex Bolt M10*25	16	
16	10209039	Lock Washer Φ 10	16	
17	10209022	Washer Φ 10	16	
18	1003285014	High Limit Switch assy. (Include wire 6300mm)	1	
19	11620060	Limit switch support plate 3.5*15*70	1	
20	10203018	Socket Bolt M5*15	2	
21	10420152	Washer Φ 5	2	
22	1103282003A	Inner Scissors	2	
23	10203004A	Bronze Bush Φ 31* Φ 25.1*21	12	
24	1003286002	Secondly Cylinder Φ 75*270	2	
25	1003286001	Main Cylinder Φ 85*270	2	
26	1103282009	Cylinder Cover L=480mm	2	
27	10420045	Washer Φ 6	4	
28	10209009	Cup Head Bolt M6*8	4	
29	1003285006	Low Limit Switch assy.(Include wire 6900mm)	1	
30	10620095	Hex Nut M4	4	
31	10420149	Cup Head Bolt M4*25	2	
32	10420164	Cup Head Bolt M4*30	2	
33	10620064	Greasing Fitting M6	4	
34	11620028A	Pin Φ 25*72	4	
35	1103283006A	Support Plate 1	1	
36	1103283006B	Support Plate 2	1	
37	10620059	Wire protection ring Φ 12	2	
38	1103283013C	Connecting Handle	2	
39	1003285004	Socket Bolt M8*50	2	
40	10201090	Shim (1mm)	20	
41	10620065	Shim (2mm)	20	
42	10209059	Anchor Bolts 3/4*5-1/2	8	
43	10620071	Anchor Bolts M10*100	4	

Item	Part#	Description	QTY.	Note
44	10620069	Wood Screw M4*30	22	
45	10620070	Colloidal Φ6	22	
46	10620034	Rubber Pads (120*100*38)	4	
47	10610070	Rubber Pads (100*70*120)	4	
48	1103281006	Oil Hose Cover L=840mm	2	
49	11620036A	Oil Hose Cover L=1060mm	2	
50	11620161	Oil Hose Cover	1	
51	10620079	Fitting 1/4JIC(M)*1/4JIC(M)	8	
52	1103283013	Pin	2	
53	10620072	Oil Hose 1/4*650mm	4	
54	1003285007	Oil Hose 1/4*668mm	2	
55	1003285008	No.③ Oil Hose 1/4*2530mm	1	
56	1003285009	No.① Oil Hose 1/4*2770mm	1	
57	1003285010	No.④ Oil Hose 1/4*3780mm	1	
58	1003285011	No.⑥ Oil Hose 1/4*4030mm	1	
59	1003285012	No.② Oil Hose 1/4*2620mm	1	
60	1003285013	No.⑤ Oil Hose 1/4*3970mm	1	
61	10209138	Tie 5*350	4	
63	1003287001	Control Cabinet (Single phase)	1/1	
	1003287002	Control Cabinet (Three phase)		
64	81523007	Power Unit (Single phase)	1/1	
	81523008	Power Unit (Three phase)		
65		Parts Box	1	

1. Control Cabinet

Part No.: 1003287001 (Single Phase)

1003287002 (Three phase)

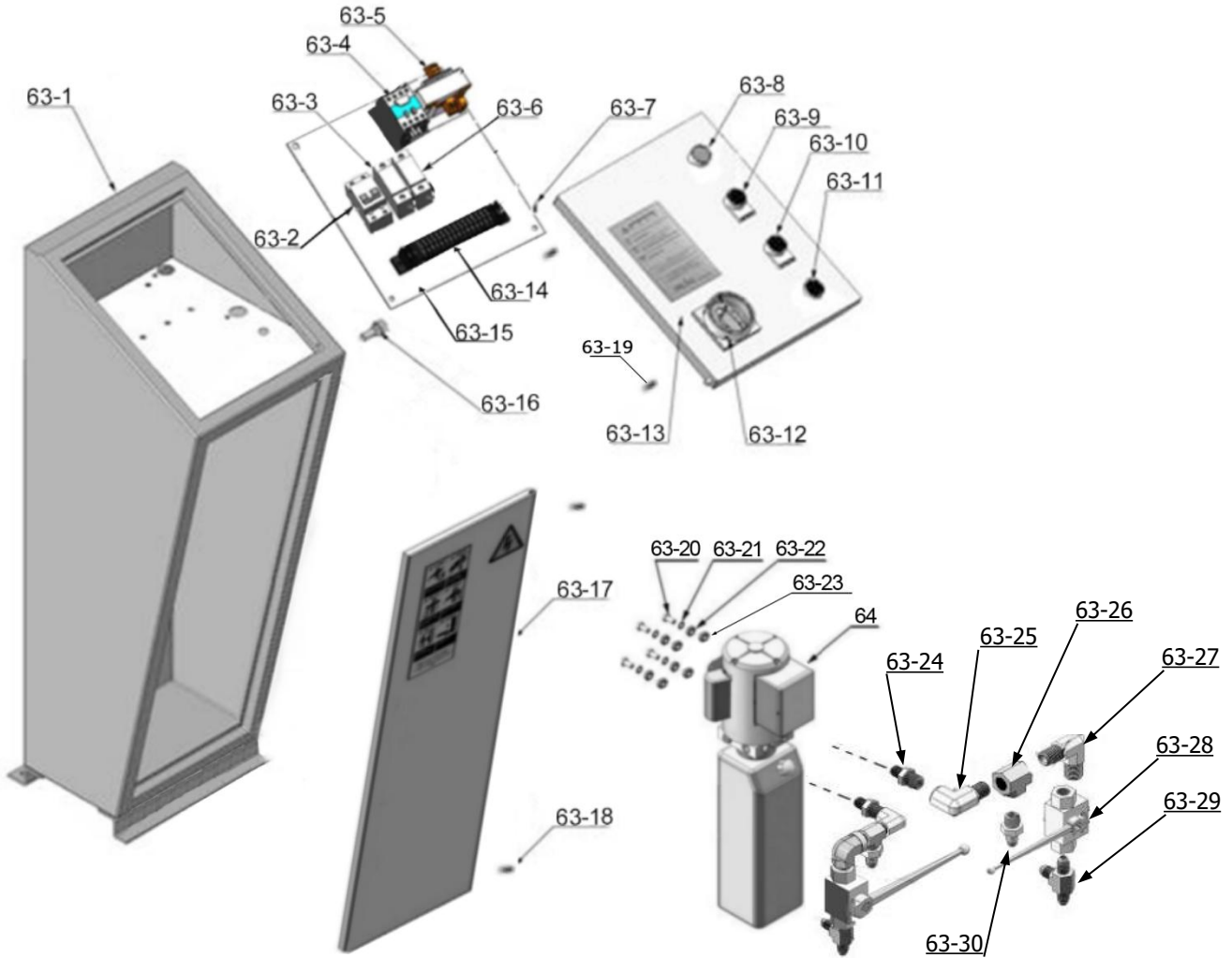


Fig.26

Parts list for control cabinet

Item	Part#	Description	QTY.	Note
63-1	1162K001A	Cabinet	1	
63-2	10620150	Breaker DZ47-60/3P 25A	1	
	10202046	Breaker 2P 220V	1	
63-3	10202049	Breaker TGB1V-63/1P 6A	1	
63-4	10420084A	24V AC Contactor (KM)	1	
63-5	10420134	24V Transformer (TC)	1	
63-6	10202049	Breaker 1P 6A	1	
63-7	1061K052	Cup Head Bolt	4	
63-8	10201094	Indicator	1	
63-9	10209099A	UP Button	1	
63-10	10209099A	Down Button	1	
63-11	10420142	PASS Button	1	

63-12	41010217	Power Switch	1	
63-13	1162K007	Control Panel	1	
63-14	10620082	15-bit connection terminal	1	
63-15	10620099	Connection board	1	
63-16	10420143	Buzzer (H)	1	
63-17	1162K012	Cabinet Door	1	
63-18	10720038	Cup Head Bolt M6*30	4	
63-19	10209145	Cup Head Bolt M6*12	4	
63-20	10201122	Hex Bolt M8*35	4	
63-21	10209033	Washer Φ 8	4	
63-22	10209004	Rubber Ring 8*20*3	4	
63-23	10217002	Hex Nut M8	4	
63-24	10440009	Straight Fitting 3/8SAEO/R(M)*1/4NPT(M)	2	
63-25	1052K027	90° fitting 1/4NPT(M)*1/4NPT(F)	2	
63-26	1061K107	T Fitting 1/4NPT(F)*1/4NPT(F)*1/4NPT(F)	2	
63-27	10680072	90° fitting 1/4NPT(M)*1/4NPT(M)	2	
63-28	1061K101	High pressure ball valve KHB-1/4NPT(F)	2	
63-29	10209062	T Fitting 1/4NPT(M)*1/4JIC(M)*1/4JIC(M)	2	
63-30	10209064	Straight Fitting 1/4NPT(M)*1/4JIC(M)	2	

2. Main Cylinder (1003286001)

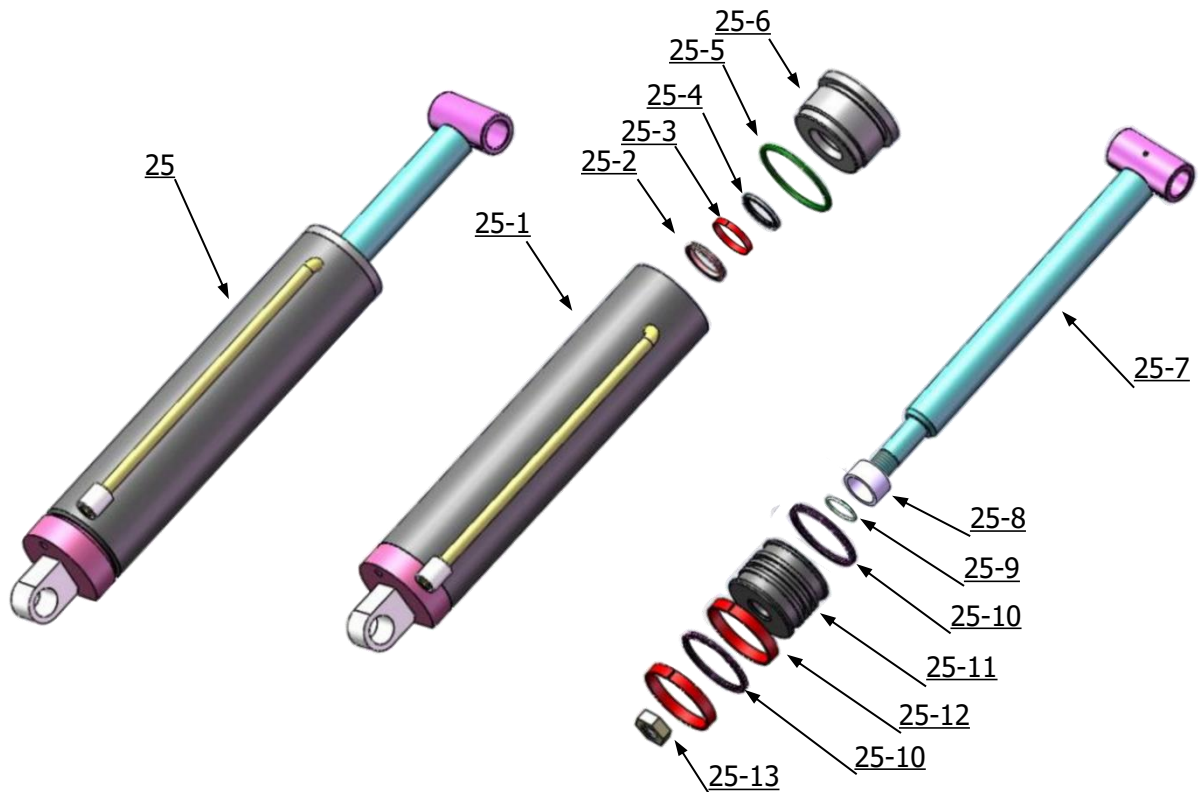


Fig.27

Item	Part#	Description	QTY.	Note
25-1	1103286003	Bore Weldment	1	
25-2	10620046	Y Ring OSI $\Phi 40 \times \Phi 50 \times 6$	1	
25-3	10620047	Support Ring $\Phi 40 \times \Phi 46 \times 12.5 \times 3$	1	
25-4	10209078A	Dust Ring $\Phi 40 \times \Phi 48 \times (5 \sim 6.5)$	1	
25-5	10510059	O Ring $\Phi 84 \times 5.3$	1	
25-6	1103286014	End Cover	1	
25-7	1103286004	Piston Rod	1	
25-8	11620193	Adjusting Ring $\Phi 60 \times 10.5 \times 16$	1	
25-9	10620197	O Ring $\Phi 25 \times 3.1$	1	
25-10	10510057	Y Ring OSI $\Phi 75 \times \Phi 85 \times 6$	2	
25-11	1103286013	Piston	1	
25-12	10510058	Support Ring $\Phi 40 \times \Phi 46 \times 3 \times 12.5$	2	
25-13	85090239	Nut M24*3	1	
25-14	10209064	Straight Fitting 1/4NPT(M)*1/4JIC(M)	1	
25-15	1103286009A	Oil Hose Assy.	1	

3. Secondly Cylinder (1003286001)

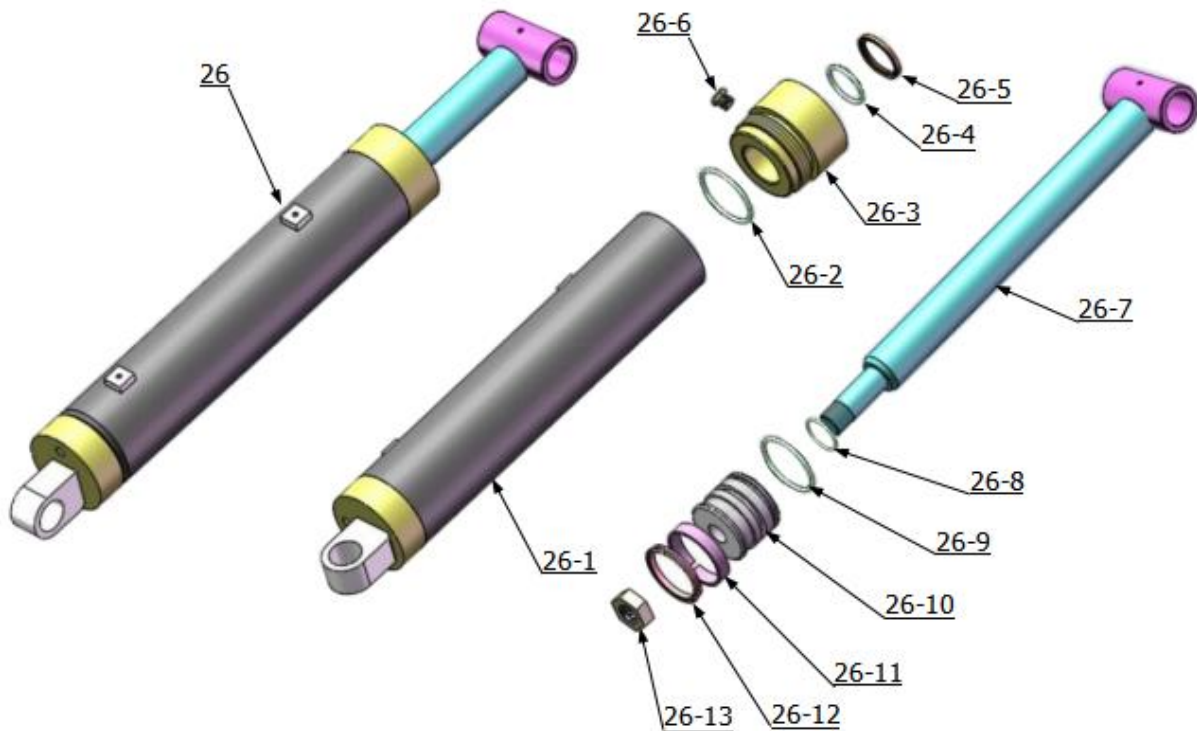


Fig.28

Item	Part#	Description	QTY.	Note
26-1	1103286005	Bore Weldment	1	
26-2	10620049	O ring $\Phi 69 \times 5.3$	1	
26-3	1103286016	End Cap	1	
26-4	10620058	O Ring $\Phi 40 \times 3.55$	1	
26-5	10209078A	Dust Ring $\Phi 40 \times \Phi 48 \times (5 \sim 6.5)$	1	
26-6	10201034	Buzzer	1	
26-7	1103286004	Piston Rod	1	
26-8	10620197	O Ring $\Phi 25 \times 3.1$ (进口 70°)	1	
26-9	10630027	O Ring $\Phi 68 \times 3.55$ (进口 90°)	1	
26-10	1103286017	Piston	1	
26-11	10620053	Support Ring $\Phi 69 \times \Phi 75 \times 12.5 \times 3$	1	
26-12	10620054	Y Ring $\Phi 65 \times \Phi 75 \times 6$	1	
26-13	85090239	Hex Bolt M24*3	1	

4. Power Unit

220V/50HZ/Single Phase

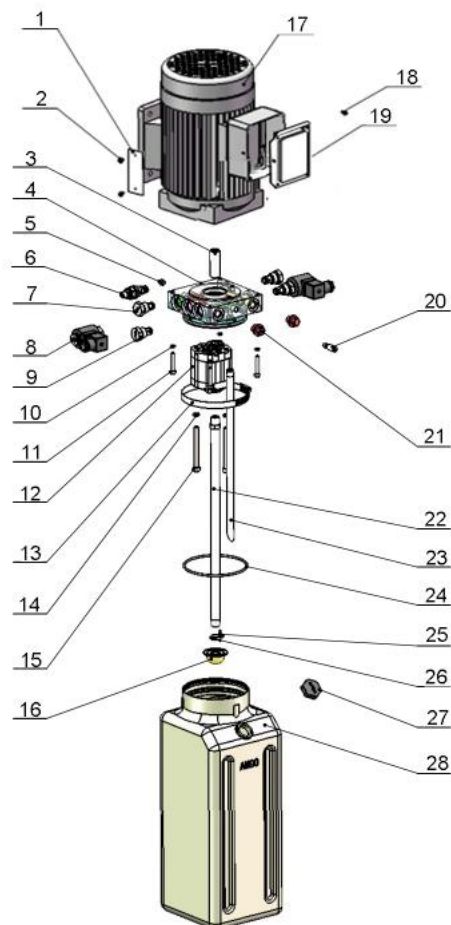
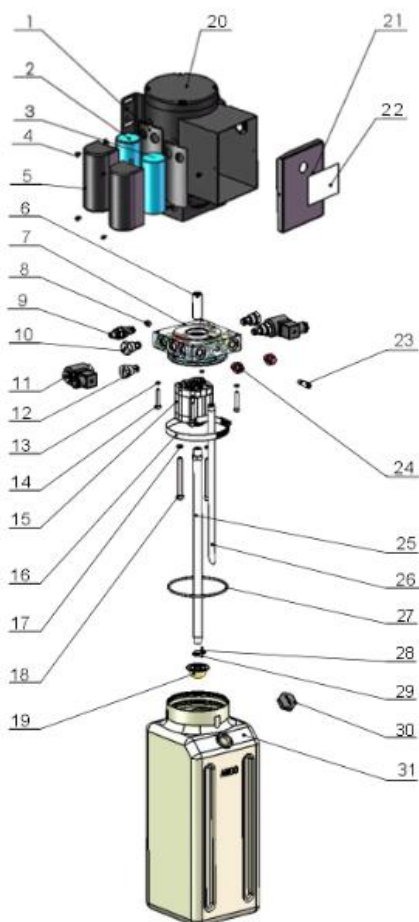


Fig.29
Power Unit 380V/50Hz Three Phase

Item	Part No.	Description	QTY.	Note
1	71150055	AMGO Plate	1	
2	81400300	Cup Head Bolt	2	
3	81400363	Motor Connecting Shaft	1	
4	80101015	Manifold Block	1	
5	81400333	Socket Plug	4	
6	81400266	Relief Valve	1	
7	81400566	Check Valve	2	
8	81400420	Solenoid valve coil	2	
9	81400423	Electric Release Valve	2	
10	10209149	Lock Washer φ6	4	
11	85090142	Socket Bolt	4	
12	81400280	Gear Pump	1	
13	81400364	Clamp	1	
14	10209034	Lock Washer φ8	2	
15	81400295	Socket Bolt	2	
16	81400290	Filter	1	
17	81400286	Motor	1	
18	10420148	Cup Head Bolt with washer	2	
19	81400208	Terminal Box Cover	1	
20	81400560	Throttle Valve	1	
21	81400259	Red plastic plug	2	
22	81400288	Oil Suction Pipe	1	
23	81400289	Oil Return Pipe	1	
24	81400365	O Ring	1	
25	85090167	Magnet	1	
26	10209152	Tie	1	
27	81400263	Oil Tank Cap	1	
28	81400275	Oil tank	1	

Power Unit 220V/50Hz Single Phase

Item	Part No.	Description	QTY.	Note
1	81400180	Rubber Pad	2	
2	81400250	Start Capacitor	1	
3	81400200	Run Capacitor	1	
4	10420148	Cup Head Bolt with Washer	6	
5	81400066	Capacitor Cover	2	
6	81400363	Motor Connecting Shaft	1	
7	80101015	Manifold Block	1	
8	81400333	Socket Plug	4	
9	81400266	Relief Valve	1	
10	81400566	Check Valve	2	

11	81400420	Solenoid valve coil	2	
12	81400423	Electric Release Valve	2	
13	10209149	Lock Washer $\phi 6$	4	
14	85090142	Socket Bolt	4	
15	81400280	Gear Pump	1	
16	81400364	Clamp	1	
17	10209034	Lock Washer $\phi 8$	2	
18	81400295	Socket Bolt	2	
19	81400290	Filter	1	
20	81400590	Motor	1	
21	81400287	Terminal Box Cover	1	
22	71111231	AMGO name Plate	1	
23	81400560	Throttle Valve	1	
24	81400259	Red Plastic Plug	2	
25	81400288	Oil Suction Pipe	1	
26	81400289	Oil Return Pipe	1	
27	81400365	O Ring	1	
28	10209152	Tie	1	
29	85090167	Magnet	1	
30	81400263	Oil Tank Cap	1	
31	81400275	Oil Tank	1	

Illustration of hydraulic valve for power unit

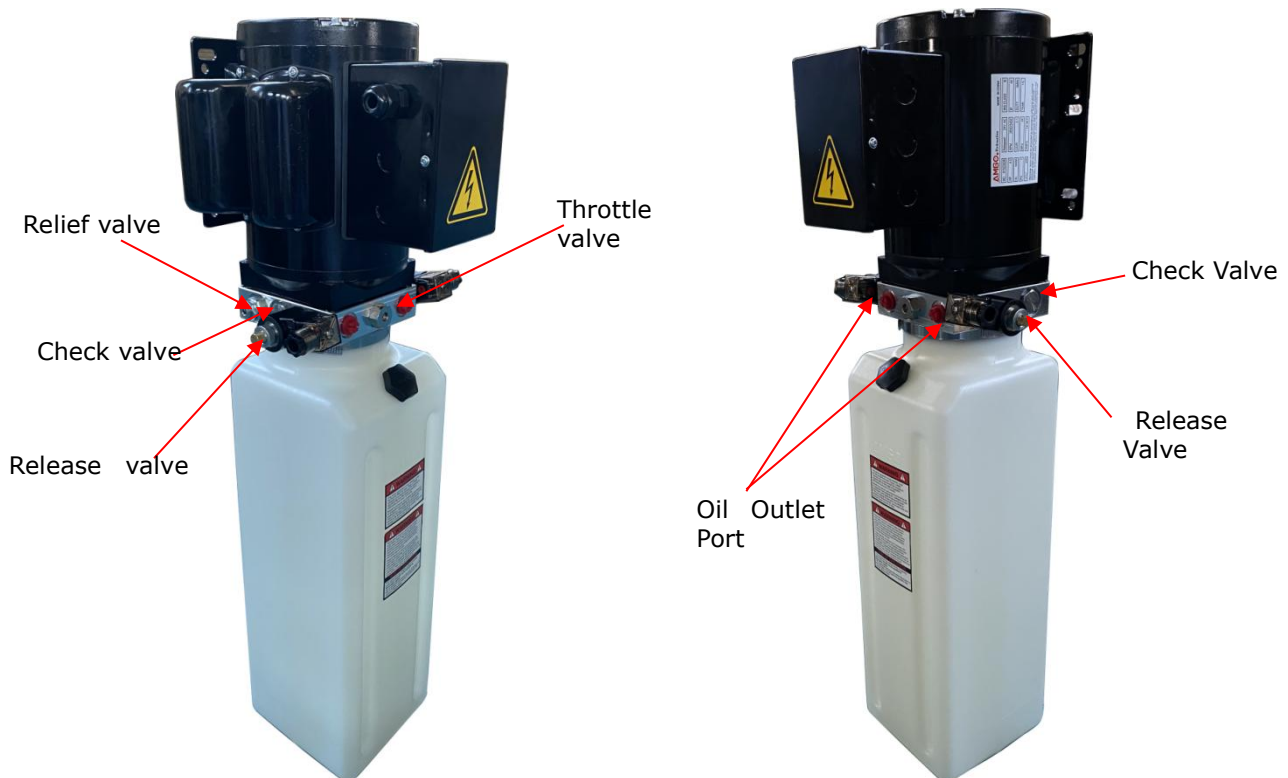


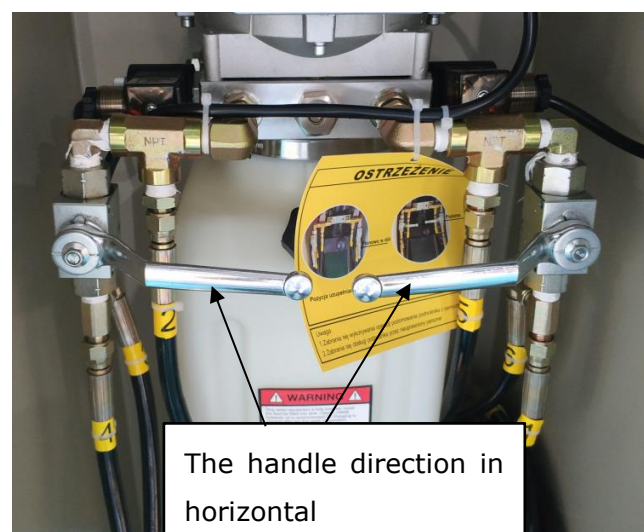
Fig.30

V. TEST RUN

1. Turn on the power after connecting oil system correctly. Push the **UP** button, and check the rotated direction of the Motor (This is right if lift is upward, otherwise, it is wrong direction of the Motor). Shut off power and exchange the phase connection if the direction is wrong.
2. Fill the reservoir with hydraulic oil. In consideration of hydraulic power unit's durability and keep the equipment running in the perfect condition, **please use Hydraulic Oil 46#**.
3. Synchronous adjustment (**Low down the lift at the lowest position**)
 - a. Turning the handles of shutoff valves to the position as **Fig.31**. Push the button **UP** fill oil to the cylinders until both platforms just start to lift up, simultaneously push button **DOWN** and **PASS** for 5 seconds with buzzer sounds, the buzzer rings and the sound of bubbles can be heard. This operation is to exhaust the air from cylinders. Repeat this operation for 2-3 times until no sound of bubbles are heard.
 - b. Quickly click the button **UP** until the platforms just to be lifted up.
 - c. Turn the handles of shutoff valves to the positions as **Fig.32**. Push the button **UP** to check if the platform P1 and P2 can lift up synchronously. If not, repeat the step **a** and **b** until the platform P1 and P2 can lift up synchronously.



Oil Filling Position
Fig. 31



Normal Working Position
Fig.32

- d. After the platform P1 and P2 were confirmed of acting synchronously, idling test should be done for a complete route of lifting and lowering, and then test with car.
- e. Once the lift cannot be lowered from the highest position while press **DOWN** during idling test , turn the 2pcs shutoff valves quickly into oil filling position (Fig.31), then quickly to normal working position (Fig.32).

Note: This operation of turning the handles should be finished quickly, non-stop.



Fig.33

VI. OPERATION INSTRUCTIONS

To lift vehicle

1. Keep clean of site near the lift, and down the lift to the lowest position;
2. Drive vehicle to the platform and put on the brake;
3. Turn on the power and push the button **UP**, raise the lift to the working position;
Note: make sure the vehicle is steady when the lift is raised
4. Make sure the platforms are in the same level before working then turn off the power switch

To lower vehicle

1. Clearing the obstacles around or under the lift, and make sure no people around under the lift.

2. Turn on the power switch, push the down button **Down** to lower the lift, the lift is lowered continually and stopped at the height 300mm from ground. Keep feet clear off lift, push button **DOWN** while push the **Lowering Alarm Button(black)** at the side of control cabinet, the lift will be lowered to ground with alarm tone;
3. Driving away the car.
4. Turn off the power switch.

VII. MAINTENANCE SCHEDULE

Monthly:

1. Re-torque the anchor bolts to 150Nm.
2. Lubricate all moving parts with lubricant.
3. Check all fittings, bolts and pins to insure proper mounting.
4. Make a visual inspection of all hydraulic hoses for possible wear or leakage.
Adjusting the lifting level on both platforms.
5. Adjusting the lifting level on both platforms.

Every six months:

1. Make a visual inspection of all moving parts for possible wear, interference or damage.
2. Checking the lifting level on both platforms
3. Check all fastener and re-torque.

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	<ol style="list-style-type: none"> 1. Start Button does not work 2. AC contactor burned out 3. Motor burned out 	<ol style="list-style-type: none"> 1. Replace start button 2. Replace AC Contactor 3. Repair or replace motor
Motor sound but not working	<ol style="list-style-type: none"> 1. Lack of phase (Only for three phase) 2. AC contactor connection poor 	<ol style="list-style-type: none"> 1. Check the wire of connection if good or not. 2. Replace AC contactor
Motor runs but the lift is not raised	<ol style="list-style-type: none"> 1. Motor runs in reverse rotation (Only for 3 phase) 2. Not enough hydraulic oil 3. Gear Pump out of operation 4. Relief Valve or Check Valve in damage 5. Coupling damage 	<ol style="list-style-type: none"> 1. Reverse two power wire 2. Fill the oil 3. Repair or replace 4. Repair or replace 5. Repair or replace
Lift raises slowly	<ol style="list-style-type: none"> 1. Oil line is jammed 2. Motor running on low voltage 3. Oil mixed with air 4. Gear Pump leaks 5. Overload lifting 	<ol style="list-style-type: none"> 1. Clean the oil line 2. Check electrical system 3. Fill tank 4. Repair or replace pump 5. Check load
Lift can not lower	<ol style="list-style-type: none"> 1. Solenoid valve not working 	<ol style="list-style-type: none"> 1. Check the solenoid valve

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.



PEAK CORPORATION

No. 3 Luomu Road, Shishan Town, Nanhai District, Foshan(528225), Guangdong, China

Tel: 86-757-81102815 81102805

Fax: 86-757-81102809

Email: customer@peaklift.cn

<http://www.peaklift.cn>

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