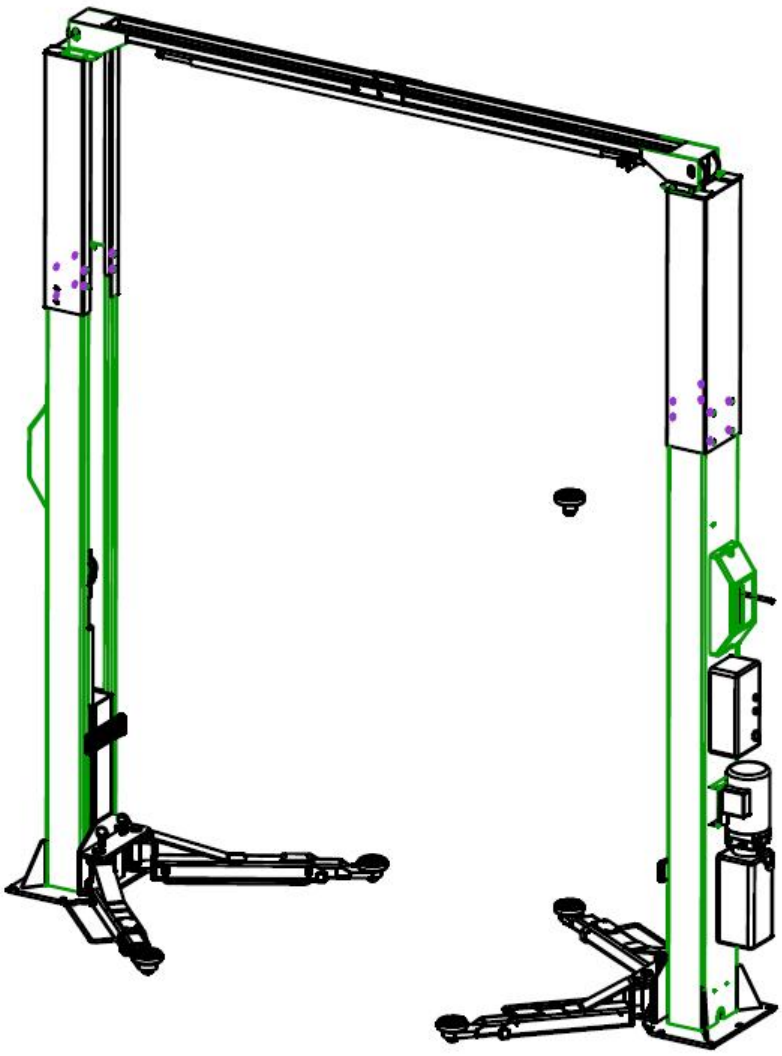
Model No. FL-8214D

Clear Floor Two Post Lift ,

Manual Release

Lifting Capacity 9200LB

Installation, Operation and Parts Manual



FRIEND

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Read this entire manual carefully and completely before installation or operation of the lift.

INDEX

IMPORTANT SAFETY INSTRUCTIONS

1.1 Important notices

FRIEND will offer one-year's quality warranty for the whole machine，during which any quality problem will be properly solved to the user's satisfaction. However, we will not take any responsibility for whatever bad consequence resulted from improper installation and operation, overload running or unqualified ground condition.

This 2-posts lift is specially designed for lifting motor vehicles that weighs within its outmost lifting capacity. Users are not allowed to use it for any other purposes. Otherwise, we, as well as our sales agency, will not bear any responsibility for accidents or damages of the lift. Make sure to pay careful attention to the label of the lifting capacity attached on the lift and never try to lift cars with its weight beyond.

Read this manual carefully before operating the machine so as to avoid economic loss or personnel casualty incurred by wrong operation.

Without our professional advice, users are not permitted to make any modification to the control unit or whatever mechanical unit.

1.2 Qualified personnel

1.2.1 Only these qualified staff, who have been properly trained, can operate the lift.

1.2.2 Electrical connection must be done by a competent electrician.

1.2.3 People who are not concerned are not allowed in the lifting area.

1.3 Danger notices

1.3.1 Do not install the lift on any asphalt surface.

1.3.2 Read and understand all safety warnings before operating the lift.

1.3.3 The lift, if is not specially designed upon customer’s request, is not fit for outdoor use.

1.3.4 Keep hands and feet away from any moving parts. Keep feet clear of the lift when lowering.

1.3.5 Only these qualified people, who have been properly trained, can operate the lift.

1.3.6 Do not wear unfit clothes such as large clothes with flounces, tires, etc, which could be caught by moving parts of the lift.

1.3.7 To prevent evitable incidents, surrounding areas of the lift must be tidy and with nothing unconcerned.

1.3.8 The lift is simply designed to lift the entire body of vehicles, with its maximum weight within the lifting capacity.

1.3.9 Always insure the safety latches are engaged before any attempt to work near or under the vehicle.

1.3.10 Make sure to place the lifting pads to the positions as suggested by vehicle makers and when gradually lift the vehicle to the desired height, operators should be certain that the vehicle will not slant, roll-over or slide in lifting process.

1.3.11 Check at any time the parts of the lift to ensure the agility of moving parts and the performance of synchronization. Ensure regular maintenance and if anything abnormal occurs, stop using the lift immediately and contact our dealers for help.

1.3.12 Lower the lift to its lowest position and do remember to cut off the power source when service finishes.

1.3.13 Do not modify any parts of the lift without manufacturer’s advice.

1.3.14 If the lift is going to be left unused for a long time, users are required to:

a. Disconnect the power source;

b. Empty the oil tank;

c. Lubricate the moving parts with hydraulic oil.

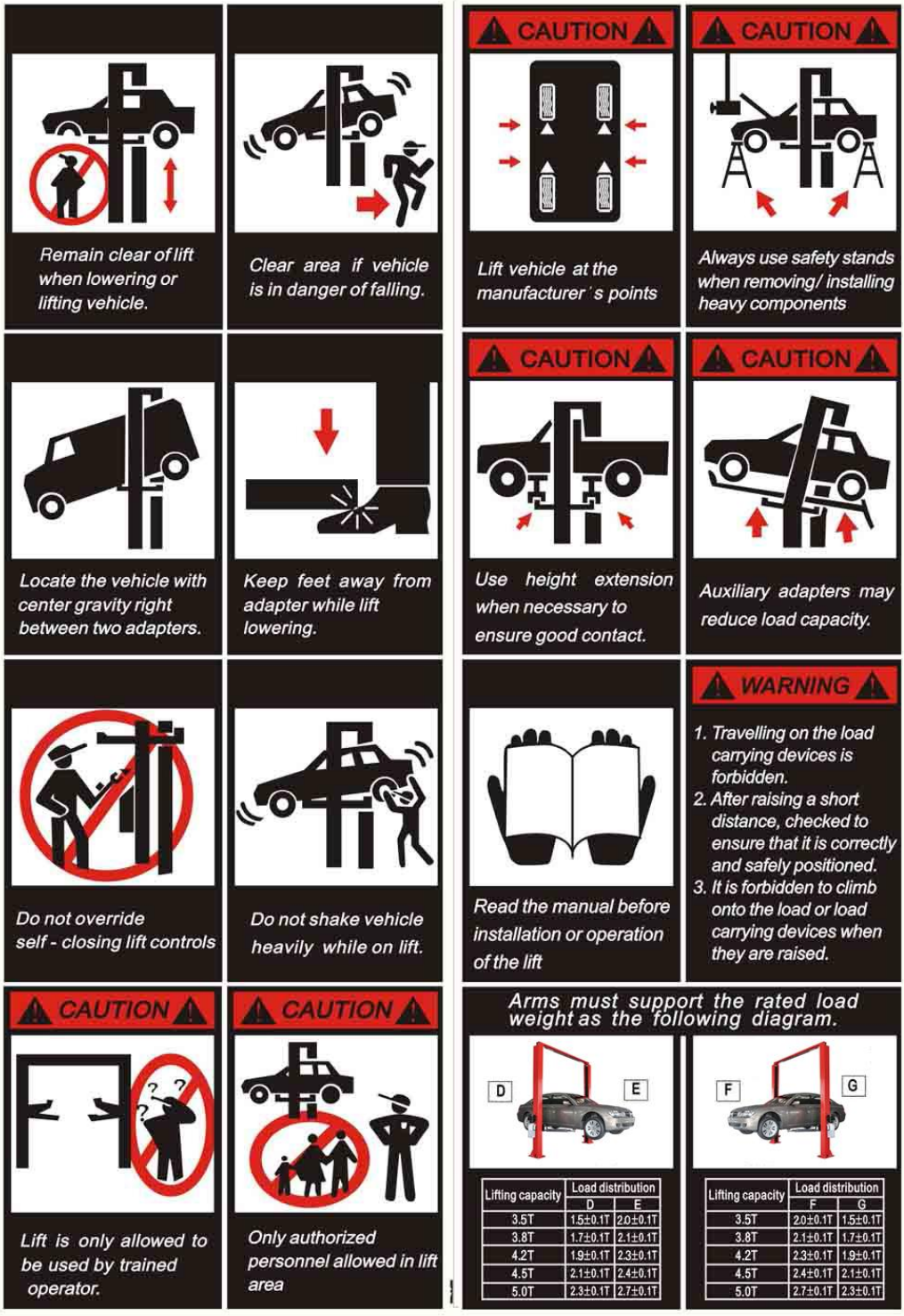
1.4 Training

Only these qualified people, who have been properly trained, can operate the lift. We are quite willing to provide professional training for the users when necessary.

Attention: For environment protection, please dispose the disused oil in a proper way.

1.5 Warning signs

All safety warning signs attached on the machine are for the purpose of drawing the user's attention to safety operation. The labels must be kept clean and need to be replaced when they are worn-out or have dropped. Read the explanations of the labels carefully and try to memorize them.



OVERVIER OF THE LIFT

2.1 General descriptions

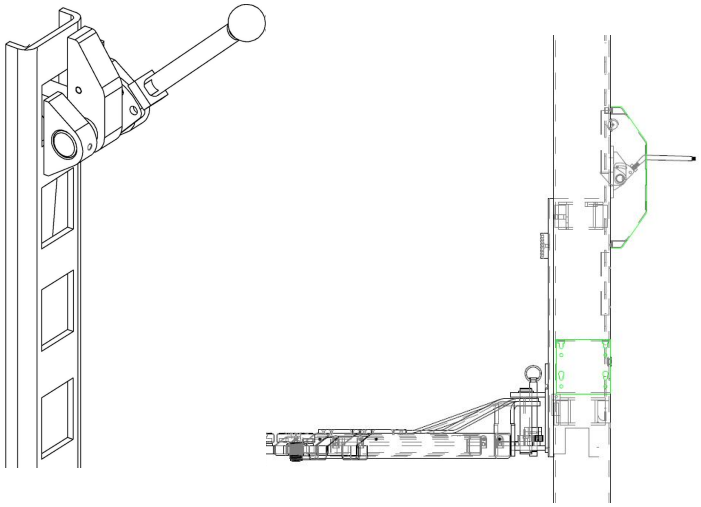
This two- post lift is composed of posts, carriages, lifting arms, cylinders and motor unit, etc.

The lift is driven by an electro-hydraulic system. The gear pump delivers hydraulic oil to oil cylinders and pushes upwards its piston.

The piston drives the chain to raise the carriage and the lifting arms. During lifting process,

the safety teeth will automatically and firmly bite with the safety rod in the posts. Therefore, no slipping will happen in case the hydraulic system beaks down.

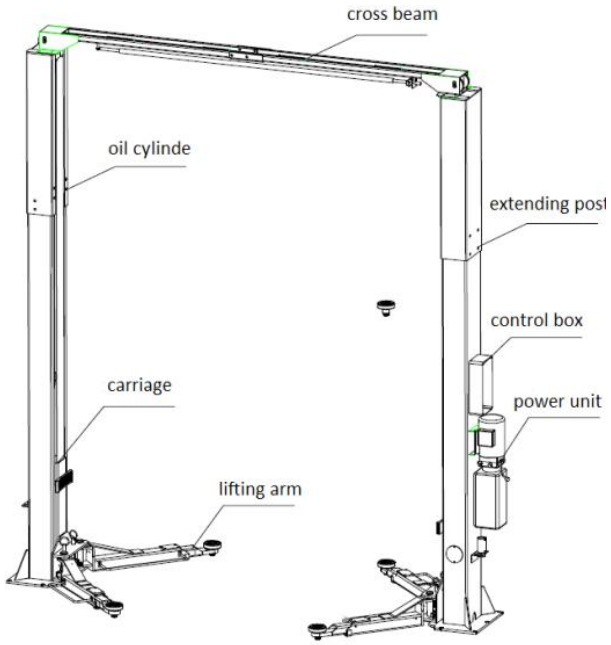
Safety structure



2.2 Technical data

Model	Lifting capacity	Lifting time	Lifting height	Height	Width	Width between posts
FL-8214D	9200LB	50 Sec	1930mm	3892mm	3436mm	2850mm

2.3 Construction of the lift



INSTALLATION INSTRUCTIONS

3.1 Preparations before installation

3.1.1 Tools and equipments needed

- ✓ Appropriate lifting equipment
- ✓ Anti-abrasion hydraulic oil.
- ✓ Rotary Hammer Drill with 3/4'' drill bit.
- ✓ Chalk and tape measure, magnetic plump, 8 metersΦ15 level pipe.
- ✓ Sockets and open wrenches, a set of inside hex wrenches, cross and straight screw drivers.
- ✓ Hammer, 4pounds, sharp nose pliers, Φ17,Φ19,Φ22 socket spanners。

3.1.2 List for parts checking ---Annex 1（ Packing list ）

Unfold the package and check if any parts missed as per Annex 1. Do not hesitate to contact us in case any parts missed, but if you do not contact us and insist installing upon the lack of some parts, FRIEND as well as our dealers will not bear any responsibility for this and will charge for any parts subsequently demanded by the buyer.

3.1.3 Ground conditions

The lift should be fixed on a smooth and solid concrete ground with its strength more than 3000psi, tolerance of flatness less than 5mm and minimum thickness of 200mm. In addition, newly built concrete ground must undergo more than 28days' cure and reinforcement.

3.2 Precautions for installation

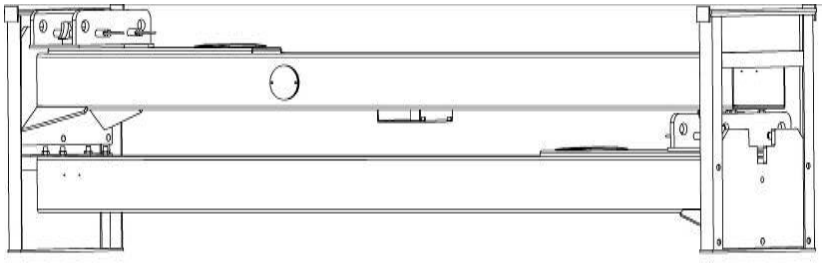
3.2.1 Make sure the two posts stand paralleled and are vertical to the ground. No slanting.

3.2.2 Joints of oil hose and steel cable must be firmly connected in order to avoid the looseness of steel cable and leakage of oil hose.

3.2.3 All bolts should be firmly screwed up.

3.2.4 Do not place any vehicle on the lift in the case of trial running.

3.3 Installation



Step 1: Remove the packaging, take out the carton for accessories.

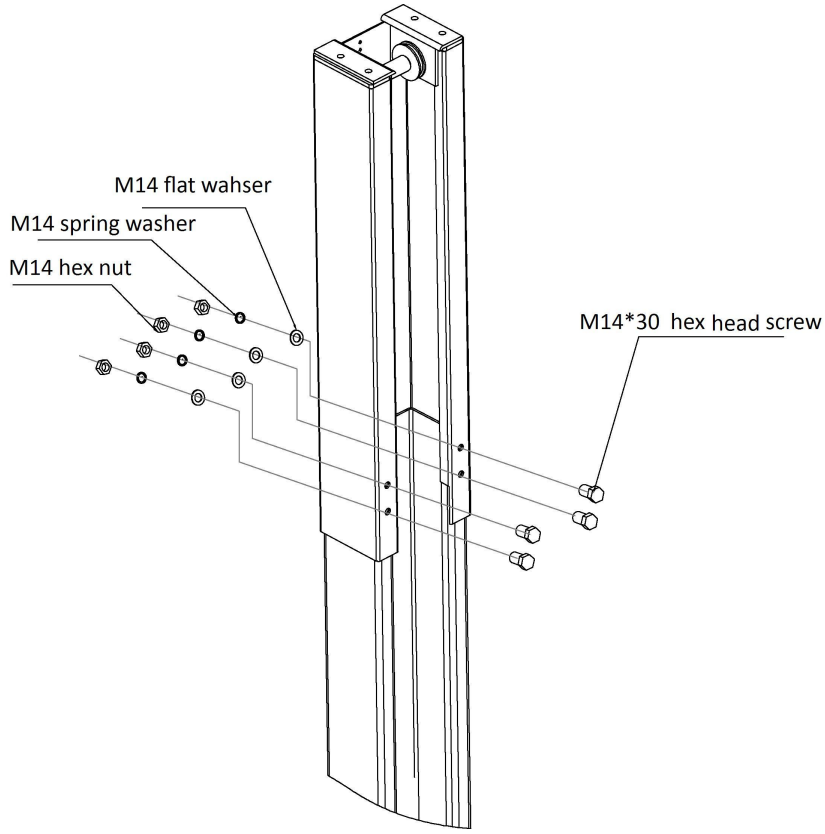
Step 2: Firstly, put something supporting between the two posts or suspend one of the posts by a crane and then remove the bolts from the packing frame.

Attention：Please pay special attention not to let the post fall down for it may cause casualty or bring damages to the accessories fixed in the post.

Step 3: When the first post has been taken away, place something supporter under the second post and then remove the bolts from the packing frame.

Step 4: Connect extending posts and cross beams.

1. Firstly have the extending post firmly secured on to the body posts. This is only necessary when your lift is ordered with extending posts.



2. Unfold the package and decide on which post the power unit will be mounted.

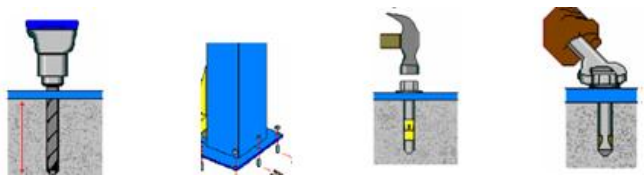
3. Refer to **Annex 2** and **Annex 3** to ascertain the position for the two posts with chalk and tape measure and draw an outline of the two base plates on the ground.

Step 5: Erect and secure the post, power side post (the post on which the control box and pump assembly will be mounted) first and then the other post.

1. Drill anchor holes for expansion bolts on the ground with an electrical drill. Make sure to drill vertically.

2. Remove thoroughly the debris and dust in holes and ascertain that the posts stay right upon the circle previously marked by chalk.

3. Erect and secure the other post similarly as per step, 1, 2.



Step6: Install cross beam and hang on the top roof protection bumper.

Step7: Connect steel cables.

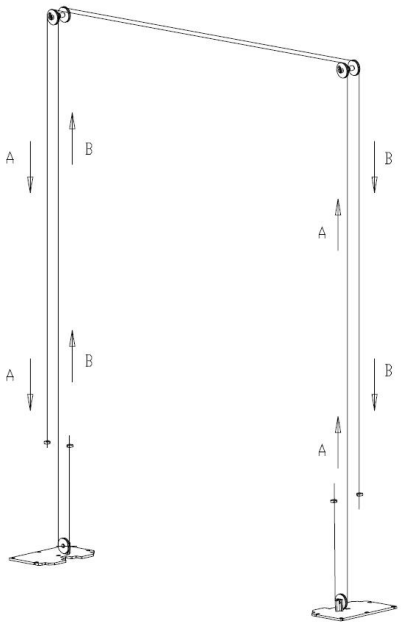
1. Route and fix according to the following diagram of steel cable connection.

2. Raise carriages on both sides approximately 800mm above the ground. Carriages must be on the same height from the floor.

3. Make sure that the mechanical safety locks in each post are fully engaged before attempting to route cables.

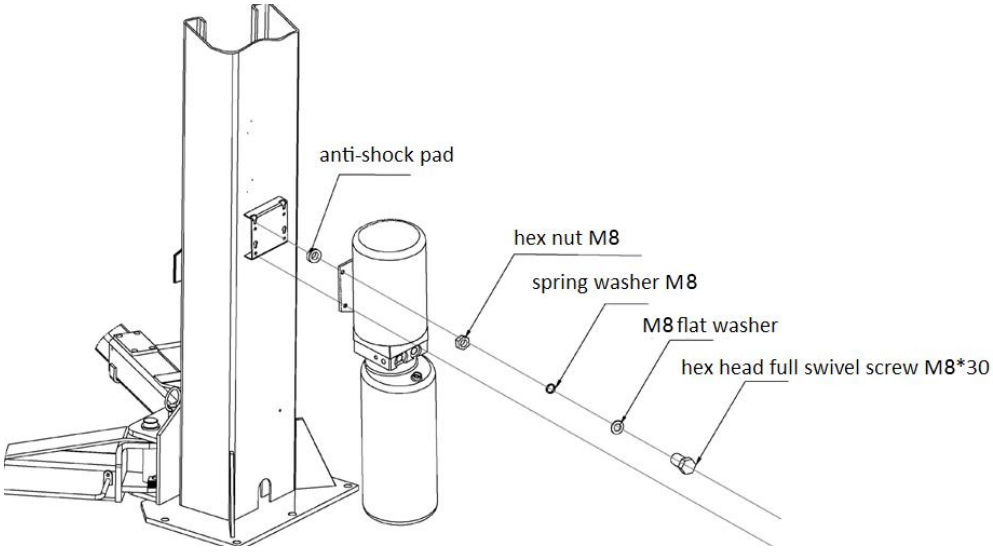
4. After the cable being fixed, adjust and make the cable at both sides be with the same tightness which could be judged by the sound emitted during lifting process. Make judge and adjustment after trial running.

5. Grease after being fixed. (It is a must.)



Step8: Connect oil hoses.

1. Mount the power unit onto the power side post.



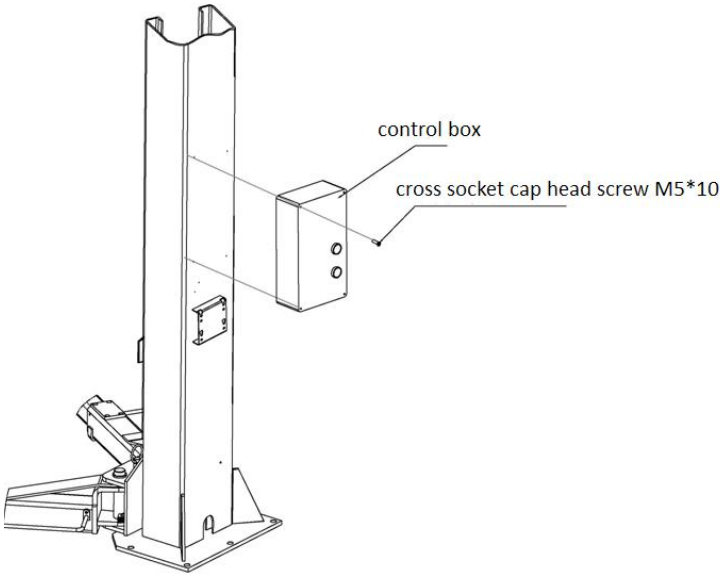
Step9. Connect oil hoses

NOTE: make sure the connectors and hose are clean.

Step10: Connect wires.

Attention: Only licensed electricians are allowed to carry out electrical connection.

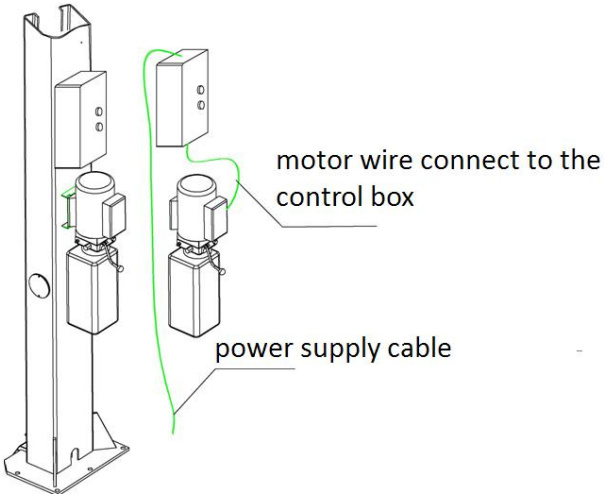
1. Mount the control box on to the power side post.



2. Connect the limit switch fixed inside the power-side post.

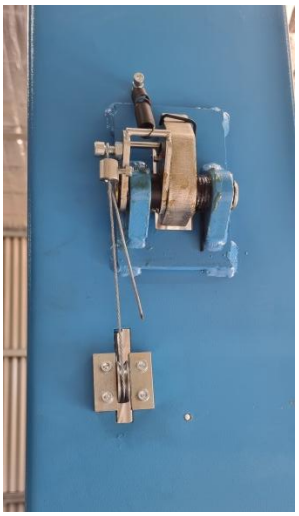
3. Connect the limit switch fixed at the cross beam.

4. Connect motor wire and power suppply cable .



POWER SIDE POST

OTHER POST



Step11: Install lifting arms.

Connect the lifting arms and the carriage by shafts.

Step12: Put oil inside.

Oil tank volumn is 10L. Normal work should have 80% oil inside the tank.

Step13: Connect power supply and do trial running.

Do refer to the operation instructions in advance and keep in mind that no vehicle left on the lift in the process of trial running.

1. Assure all the connections are in good condition and connect the power supply.

2. Usually it needs 13 liters of hydraulic oil. Firstly, fill about 10Ls into the oil tank to run the lift up and down for 2 or 3 times and then fill into the rest 3Ls. It is suggested to use 32#anti-abrasion hydraulic oil for winter, 46# for summer.

3.Check if mechanical locks can be well engaged or released in the running process. Adjust by screwing the hex head screw as showed in the following drawing in case the locks do not work well. (Screw clockwise in case the lock can not release and screw counterclockwise in case the lock can't be engaged.)

Step13: Fix feet protection fenders, chain protection clothes, door-opening protections and lifting trays.

3.4 Items to be checked after installation.

S/N	Check items	YES	NO
1	Are the posts vertical to the floor?		
2	Are the two posts paralleled?		
3	Is the oil hose well connected?		
4	Is the steel cable well connected?		
5	Are all lifting arms well fixed?		
6	Are electrical connections right?		
7	Are the rest joints firmly screwed?		
8	Are all items need lubricating added with grease?		

OPERATION INSTRUCTIONS

4.1 Precautions

4.1.1 Check all the joints of oil hose. Only when there is no leakage, the lift can start work.

4.1.2 The lift, if its safety device malfunctions, shall not be used.

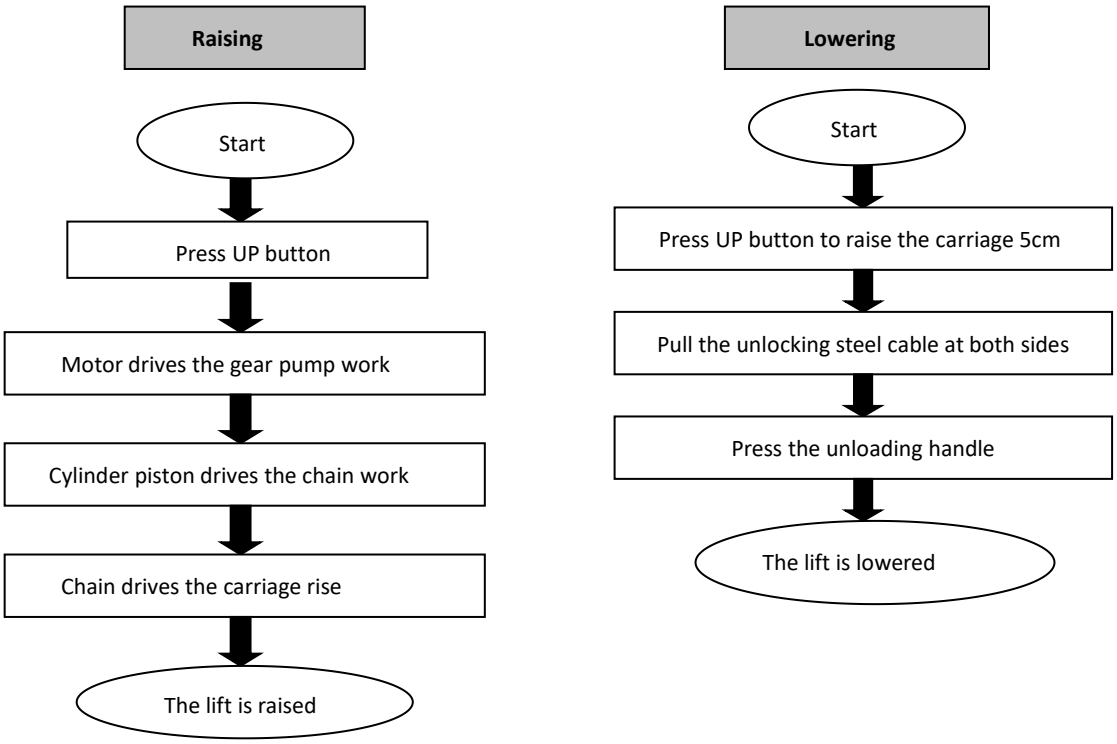
4.1.3 The machine shall not lift or lower an automobile if its center of gravity is not positioned midway of the lifting arms. Otherwise, the FRIEND as well as our dealers will not bear any responsibility for any consequence resulted thereby.

4.1.4 Operators and other personnel concerned should stand in a safety area during lifting and lowering process.

4.1.5 When lifting arms rise to the desired height, switch off the power at once to prevent any mal-operation done by unconcerned people.

4.1.6. Make sure the safety lock of the lift is engaged before start working under the vehicle and no people under the vehicle during lifting and lowering process.

4.2 Flow chart for operation



Raise the lift

1. Make sure that you have read and understood the operation manual before operation.
2. Park the vehicle between two posts.
3. Adjust the lifting arms until they reach the supporting positions of the vehicle and make sure the gravity of vehicle located in the center of four lifting arms.

4. Connect the power supply as per requirements on the nameplate attached, and switch on.
5. Press the"UP"button on the control box until pads of lifting arms touched the prop-position of vehicle.
6. Keep on raising the vehicle to let it have a bit clearance from the ground and check again its stability.
7. Raise the vehicle to the desired height, check it is safe or not, press the "unlocking handle" button to have the safety locks engaged, and then perform maintenance or repair work underneath.

Lower the lift

1. Press the "UP" button on the control box to raise the lifting arms about 5CM which looses the safety lock.
2. Pull the unlocking steel cable at both sides to release the safety locks.
3. Press the unloading handle to lower the arms.
4. After the lifting arms lower to the lowest position, pull them out from under the vehicle and clear up all the obstacles.
5. Drive the vehicle away.

TROUBLE SHOOTING

ATTENTION: If the trouble could not be fixed by yourself, please do not hesitate to contact us for help .We will offer our service at the earliest time we can. By the way, troubles could be judged and solved much faster if more details or pictures could be provided.

TROUBLES	CAUSE	SOLUTION
Abnormal noise	Abrasion exists on insider surface of the posts.	Grease the inside of the post.
	Trash in the post.	Clear the trash
Motor does not run and will not rise	The wire connection is loose.	Check and make a good connection.
	The motor is blown.	Replace it.
	The limit switch is damaged or the wire connection is loose.	Connect it or adjust or replace the limit switch.
Motor runs but will not raise	The motor run reversely.	Check the wire connection.
	Overflow valve is loose or jammed.	Clean or adjust it.
	The gear pump is damaged.	Replace it.
	Oil level is too low.	Add oil.
	The oil hose became loose or dropped off.	Tighten it.
	The cushion valve became loose or jammed.	Clean or adjusts it.
Carriages go down slowly after being raised	The oil hose leaks.	Check or replace it.
	The oil cylinder is not tightened.	Replace the seal.
	The single valve leaks.	Clean or replace it.
	E-magnetic valve fails to work well.	Clean or replace it.
	Steel cable is loose or not with same tightness	Check and adjust the tightness.
Raising too slow	The oil filter is jammed.	Clean or replace it.
	Oil level is too low.	Add oil.

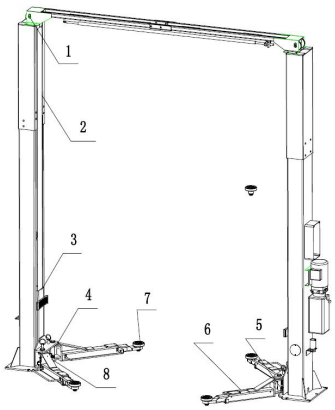
	The overflow valve is not adjusted to the right position.	Adjust it.
	The hydraulic oil is too hot (above 45°） .	Change the oil.
	The seal of the cylinder is abraded.	Replace the seal.
	Inside surface of the posts is not well greased.	Add grease.
Lowering too slow	The throttle valve jammed.	Clean or replace.
	The hydraulic oil is dirty.	Change the oil.
	The anti-surge valve jammed.	Clean it.
	The oil hose jammed.	Replace it.
The steel cable is abraded	No grease when installation or out of lifetime	Replace it.

MAINTENANCE

Easy and low cost routine maintenance can ensure the lift work normally and safely. Following are requirements for routine maintenance. Frequency of routine maintenance is determined by working condition and frequency.

The following parts need lubrication.

S/N	Name
1	UP pulley
2	Steel cable
3	Slider
4	Shaft
5	Arm lock
6	Lifting arm
7	Lifting tray
8	DOWN pulley



6.1 Daily checking items before operation

The user must perform daily check. Daily check of safety lock system in very important – the discovery of device failure before action could save time and prevent great loss, injury or casualty.

·Before operation, judge whether the safety locks are engaged by sound.

·Check whether oil hose well connected and whether it leaks or not.

·Check the connections of chain and steel cable and check the power unit.

·Check whether expansion bolts are firmly screwed.

·Check if arm lock works well or not.

6.2 Weekly checking items

·Check the flexibility of moving parts.

·Check the working conditions of safety parts.

·Check the amount of oil left in the oil tank. Oil is enough if the carriage can be raised to highest position. Otherwise, oil is insufficient.

·Check whether expansion bolt s firmly screwed.

6.3 Monthly checking items

·Check whether expansion bolts are firmly screwed.

·Check the tightness of the hydraulic system and screw firm the joints if it leaks.

·Check the lubrication and abrasion circumstance of axial pins, carriages, lifting arms and other related parts and replace in time with new ones if they failed to work well.

·Check the lubrication and abrasion circumstance of steel cable.

6.4 Yearly checking items

·Empty the oil tank and check the quality of hydraulic oil.

·Wash and clean the oil filter.

If the above maintenance suggestions are strictly followed, the lift will always keep in a good working condition and meanwhile accidents could be avoided to a large extent.

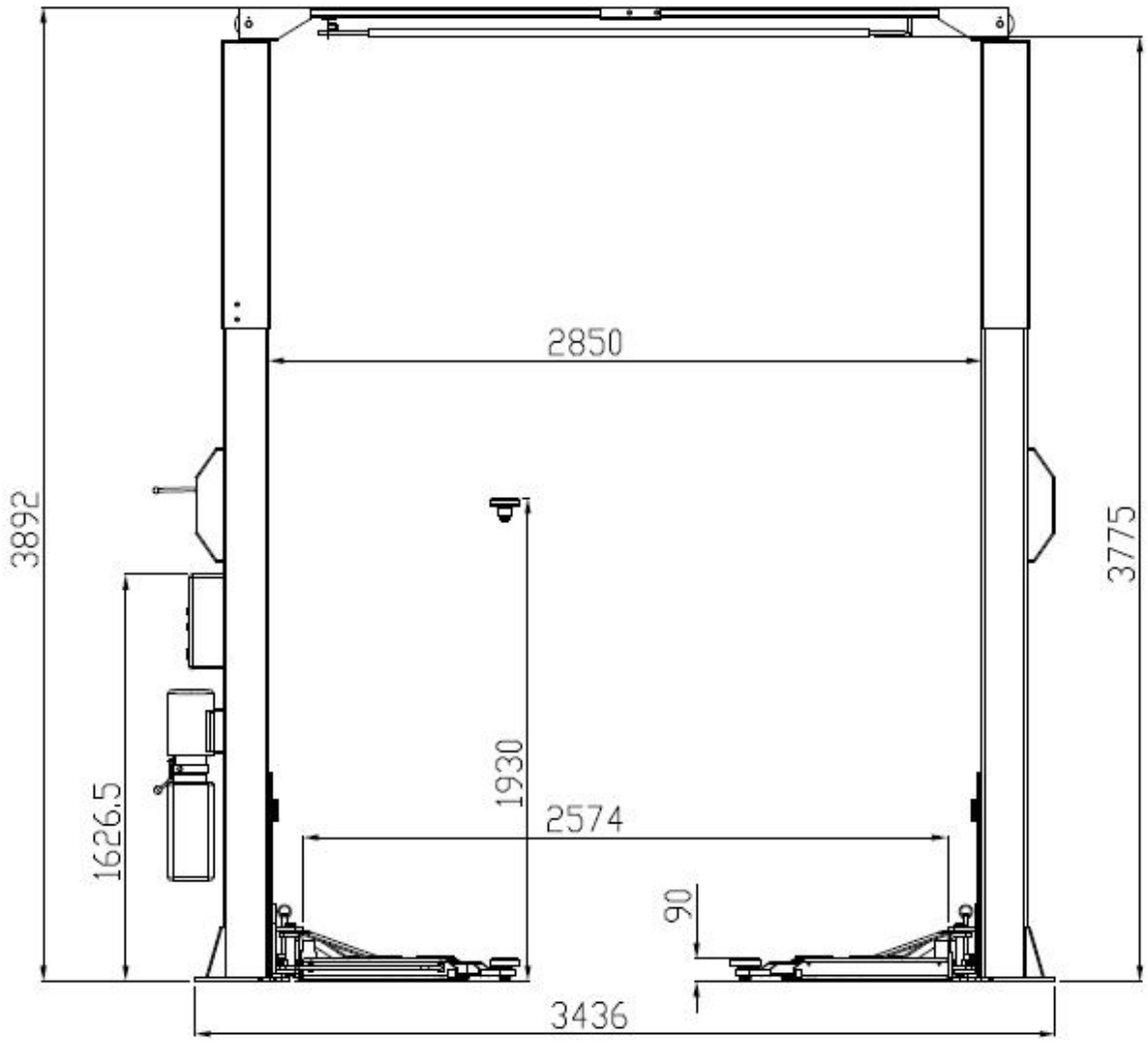
ANNEX

Annex 1, Packing List of the whole lift

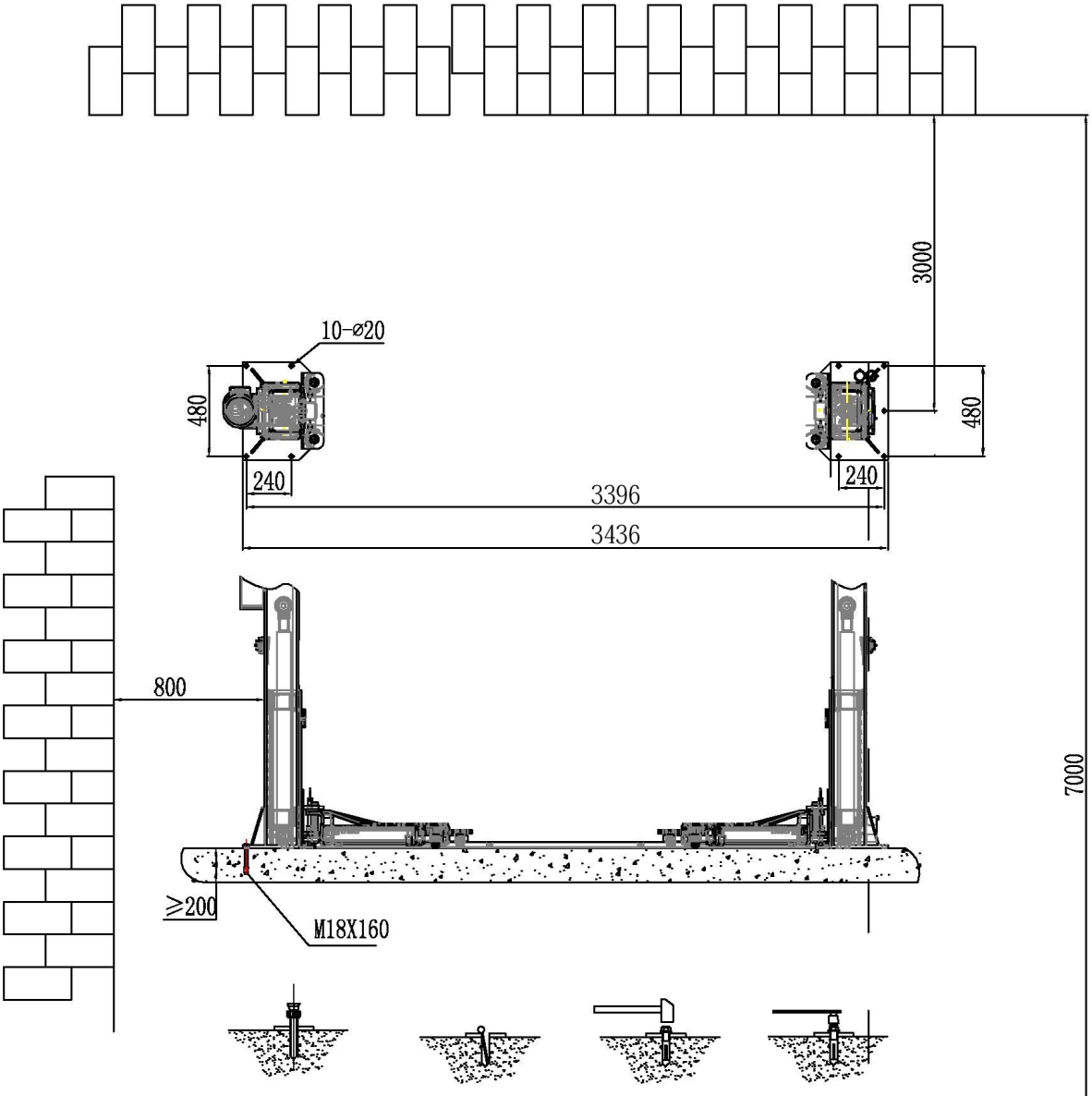
S/N	Name	Drawing#/Spec.	Qty	Property
1	Power-side post	FL-8214-A1	1	Assembly
2	Post	FL-8214-A2	1	Assembly
3	Long arm	FL-8214-A7	2	Assembly
4	Short arm	FL-8214-A8	2	Assembly
8	Power unit		1	Assembly
9	Control box		1	Assembly
10	Cross beam (in)	FL-8214-A3-B1	1	Powder-coating
11	Cross beam (out)	FL-8214-A3-B2	1	Powder-coating
12	Roof protection bar	FL-8214E-A21-B5	1	Powder-coating
14	Extending post	FL-8214E-A20	2	Powder-coating
15	Inside Box			
16	Protection rubber pad	FL-8224-A3-B7	2	Rubber
17	Rubber oil hose L=500	FL-8214-A4-B1	1	Assembly
18	Chain protection cloth L=3655	FL-8214-A7	2	Assembly
19	Rod of chain protection cloth	FL-8224-A13	4	Zinc-plating
20	Lifting tray	FL-8224-A7-B3	4	Assembly
21	Long fender	FL-8224-A7-B4	2	Powder-coating
22	Short fender	FL-8224-A8-B3	2	Powder-coating
23	Height adapter	FL-8224-A15	4	Zinc-plating
24	Shaft	FL-8224-A12	4	Zinc-plating
25	Hex head full swivel screw	M8*35	4	Standard
26	Hex socket button head screw	M8*12	8	Standard
27	Cross socket flat head screw	M8*16	4	Standard
28	Cross socket cap head screw	M6*8	23	Standard
29	Flat washer	M6	23	Standard
30	Flat washer	M8	4	Standard

S/N	Name	Drawing#/Spec.	Qty	Property
31	Spring washer	M8	4	Standard
32	Nut	M8	4	Standard
33	Nut	M6	8	Standard
34	Circlip	Φ38	9	Standard
35	Expansion bolt	M18*180	10	Standard
36	Hex head full swivel screw	M14*25	5	Standard
37	Hex head full swivel screw	M14*30	16	Standard
38	Spring washer	M14	21	Standard
39	Flat washer	M14	21	Standard
40	Nut	M14	21	Standard

Annex2, Overall diagram



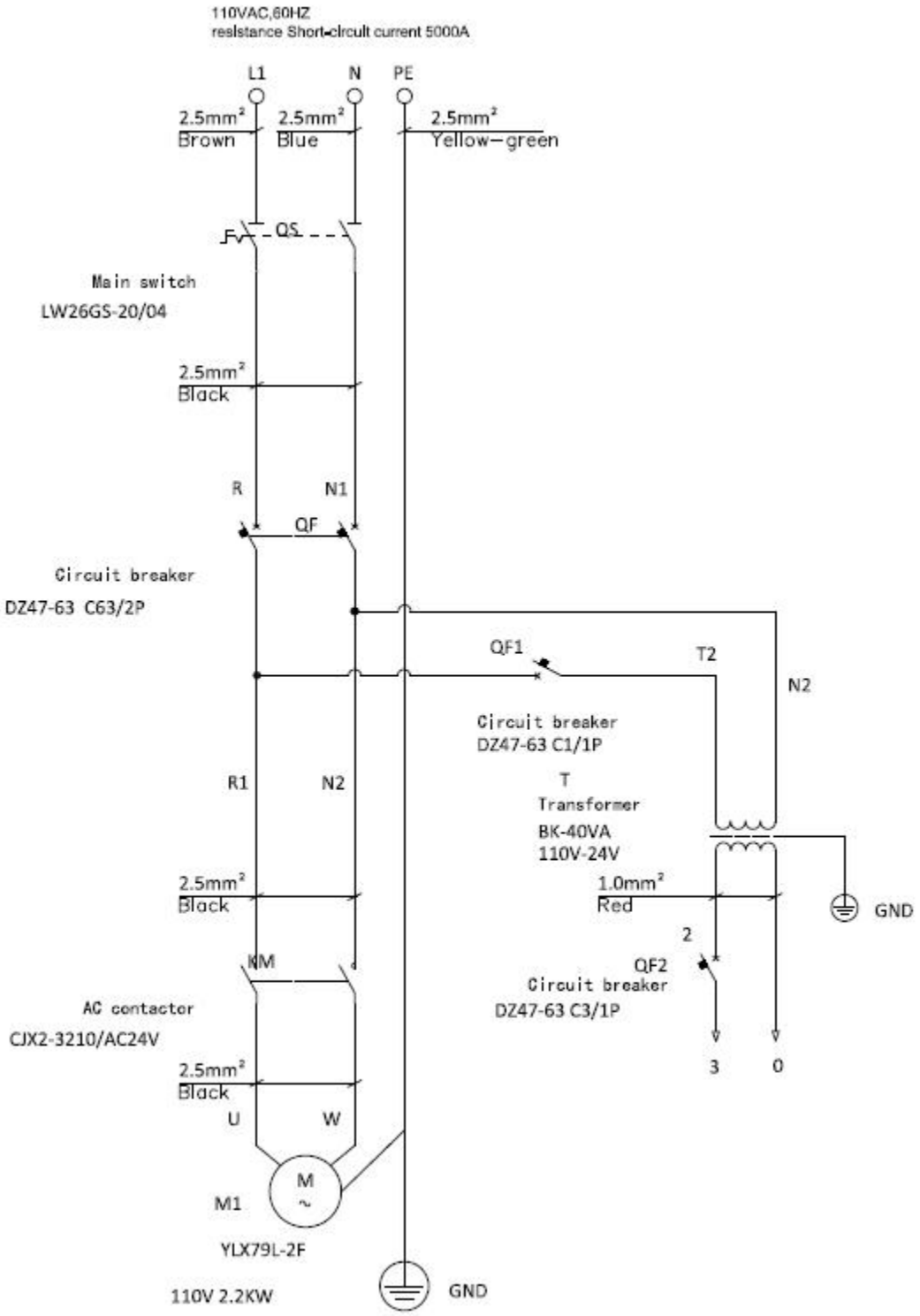
Annex3, Floor plan



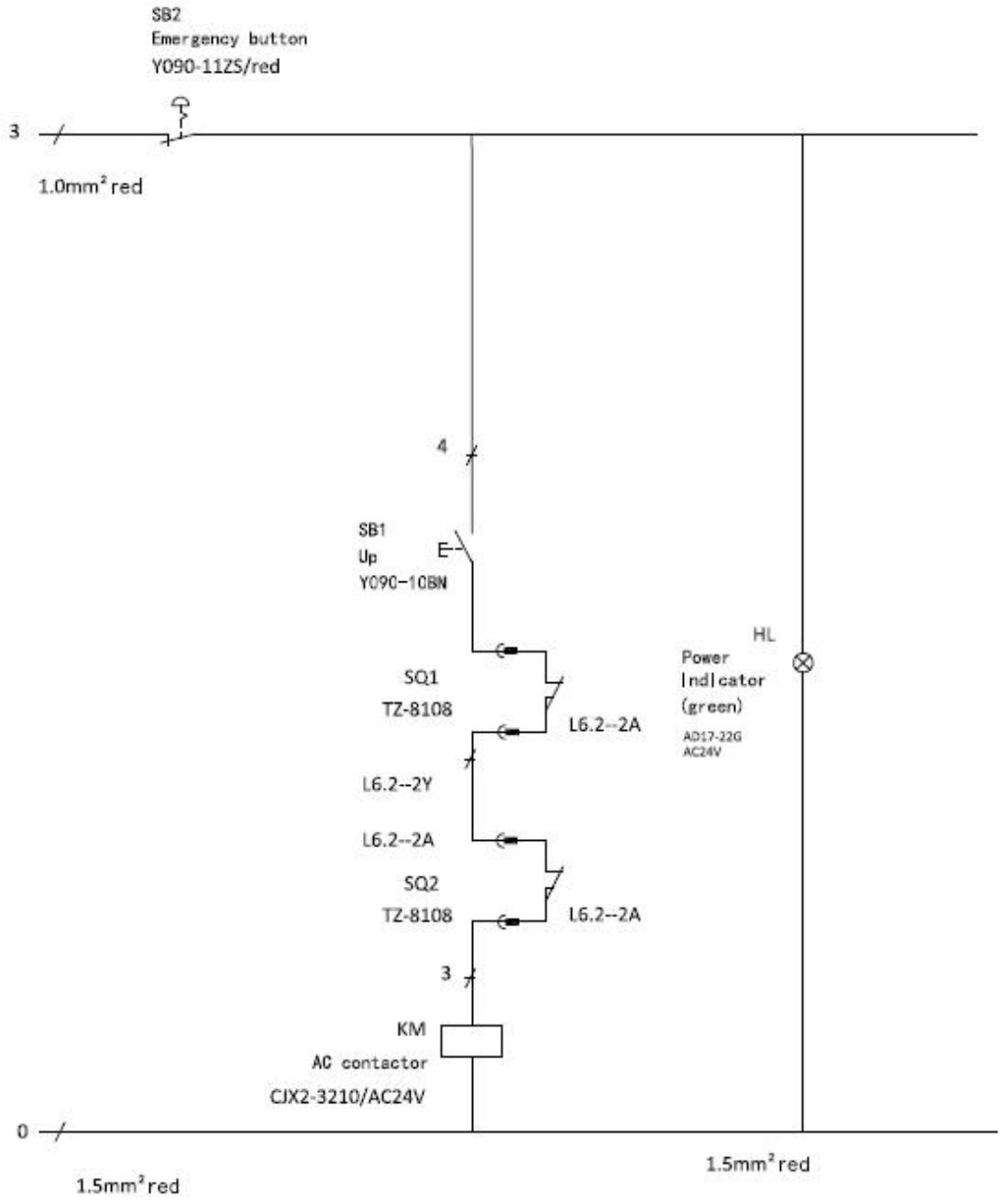
Technical requirements:
1.concrete class: 425#, 20 days cure and reninforcement for newly built ground.
2.concrete thickness>200mm
3.evenness<5mm
4. thickness and evenness of the concrete is very important.
You may not expect too much of the levelling ability of the lift itself.

Annex4, Wiring diagram

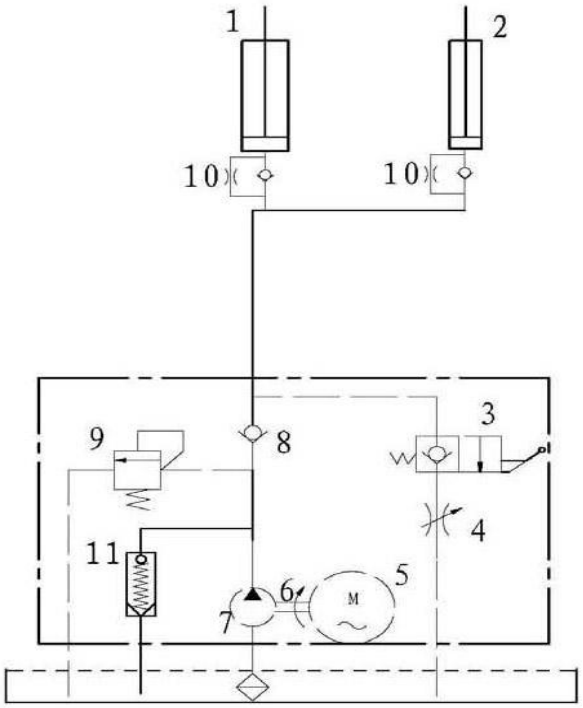
Single phase



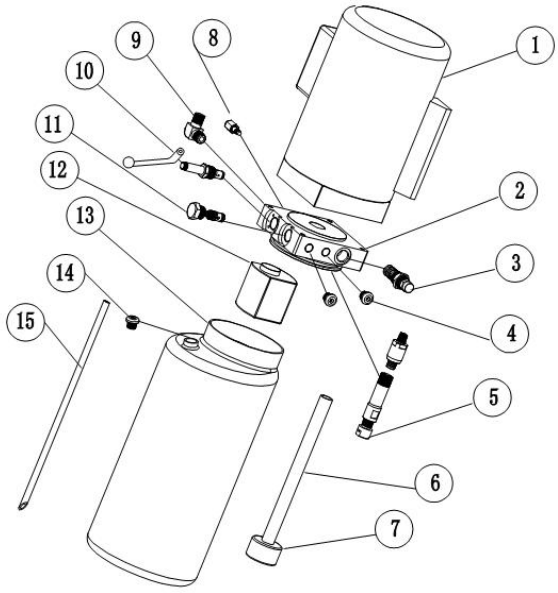
Three phase



Annex5, Hydraulic working system

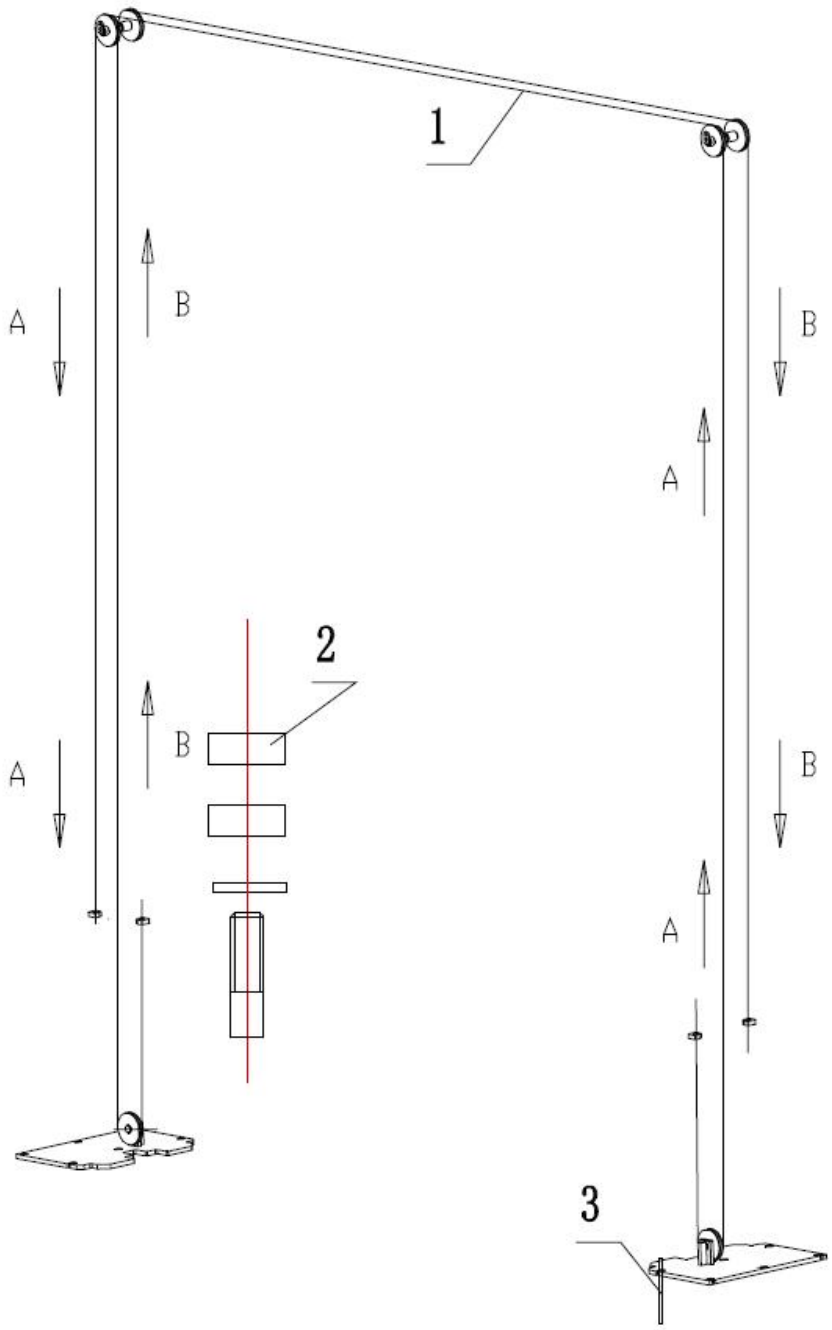


1. Drive cylinder
2. Assistant cylinder
3. Manual unloading valve
4. Throttle valve
5. Motor
6. Coupling
7. Gear pump
8. Single-way valve
9. Overflow valve
10. Anti-surge valve
11. Cushion valve



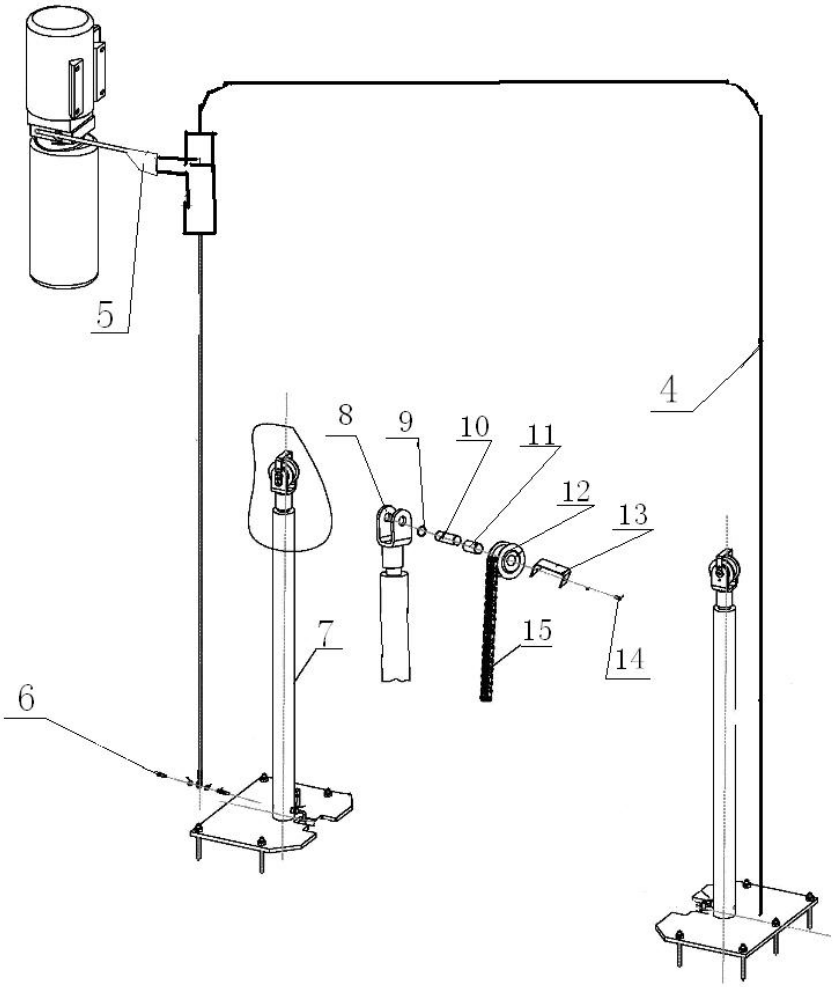
S/N	Description	Qty
1	Motor	1
2	Hydraulic block	1
3	Overflow valve	1
4	Fitting	2
5	Cushion valve	1
6	Absorbing oil pipe	1
7	Oil filter	1
8	Throttle valve	1
9	Oil hose tie-in	1
10	Manual unloading valve	1
11	One way valve	1
12	Gear pump	1
13	Oil tank	1
14	Oil tank cover	1
15	Oil back pipe	1

Annex 6，Separate diagrams for the lift

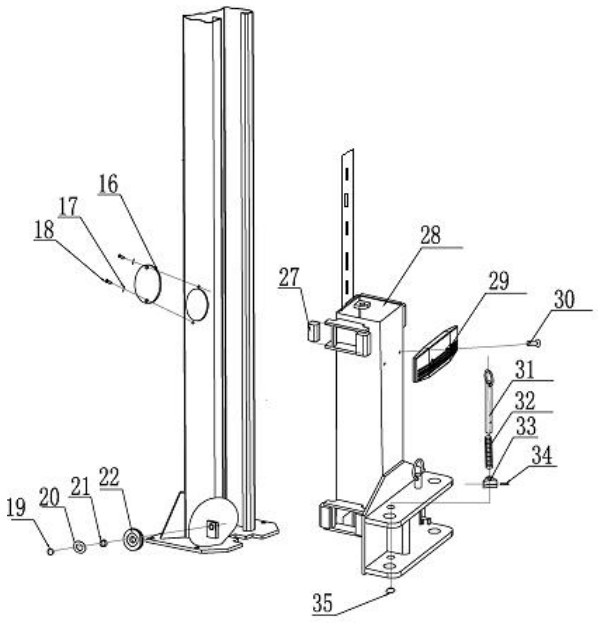


Annex6, Separated drawings for the lift

S/N	Name	Drawing#/Spec.	Qty	Property	Note
1	Steel cable L=10870mm	FL-8214-A6	2	Assembly	
2	Hex nut M16	GB/T610-2000	8	Standard	
3	Expansion bolt M18*180		10	Standard	



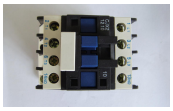
S/N	Name	Drawing#/Spec.	Qty	Property	Note
4	rubber oil hose	L=9960（mm）	1	Assembly	
5	rubber oil hose	L=500	1	Q235A	
6	Composite Connector		1	Standard	
7	Assistant Cylinder	FL-8224-A4-B2	1	Q235A	
8	Composite Chain Wheel Part	FL-8224-A4-B9	2	Assembly	
9	Spring Washer B type 25	GB/T894.2-1986	4	Assembly	
10	Chain Shaft	FL-8224-A4-B11	2	Assembly	
11	Lubricate Shaft	SF-1	2	Assembly	
12	Chain Wheel	FL-8224-A4-B10	2		
13	U Shape Plate	FL-8224-A4-B12	2		
14	Hex head full swivel screw	GB/T70.1-2000	4		
15	Plate Chain	LH1234-127LGB/6074-1995	2	Assembly	



S/N	Name	Drawing#/Spec.	Qty	Property	Note
16	Cover plate	FL-8224-A1-B5	2	Q235A	
17	Flat washer M6	GB/T95-1985	4	Standard	
18	Cross socket cap head screw M6*10	GB/T818-2000	4	Standard	
19	Circlip 25	GB/T894.2-1986	2	Standard	
21	Bearing 2512	SF-1	2	Standard	
22	Down pulley	FL-8224-A1-B2	2	Q235A	
27	Slider	FL-8224-A3-B6	16	Nylon 1010	
28	Carriage	FL-8224D-A3-B1	2	Welded	
29	Protection rubber pad	FL-8224-A3-B7	2	Rubber	
30	Cross scocket flat head screw M8*16	GB/T819.1-2000	4	Standard	
31	Pulling rod	FL-8224-A3-B2	4	Welded	
32	Pressure spring	FL-8224-A3-B5	4	Zinc -plating	
33	Teeth block	FL-8224-A3-B4	4	Q235A	
34	Elastic cyndrical pin 5*35	GB/T879.1-2000	4	Standard	
35	Circlip 25	GB/T894.2-1986	2	Standard	

Annex 7, Spare parts list

Spare parts list -for the electrical system

S/N	Item	Spec.	Qty	Pic	Note
1	Power switch	LW26GS-20/04	1		
2	Button	AR22FOR-11W	3		
3	Power indicator	AD16-22G AC/DC 24V	1		
4	Transformer	JBK-40VA220V-24V	1	Same look as item 7	
5	Transformer	JBK-40VA230V-24V	1	Same look as item 7	
6	Transformer	JBK-40VA240V-24V	1	Same look as item 7	
7	Transformer	JBK-40VA380V-24V	1		
8	Transformer	JBK-40VA400V-24V	1	Same look as item 7	
9	Transformer	JBK-40VA415V-24V	1	Same look as item 7	
10	AC contactor	CJX2-1210/AC24	1		
11	Circuit breaker	DZ47-63 C16 /3P	1		
12	Circuit breaker	DZ47-63 C32 /2P	1		
13	Circuit breaker	DZ47-63 C1 /1P	1		
14	Circuit breaker	DZ47-63 C3 /1P	1	Same look as item 13	
15	Limit switch	TZ8108	2		
16	Control box	big	1		

Spare parts list – for the mechanical system

S/N	Name	Drawing#/Spec.	Qty	Property	Note
1	Slider	FL-8224-A3-B6	16	Nylon 1010	
2	Rubber lifting pad	FL-8224-A7-B3-C4	4	Rubber	
3	O-seal ring	(Inside)23.6*3.55	1		
4	Y- seal ring	KD 63*48*10	1		
5	Anti–dust ring	DHS 40*48*5/6.5	1		