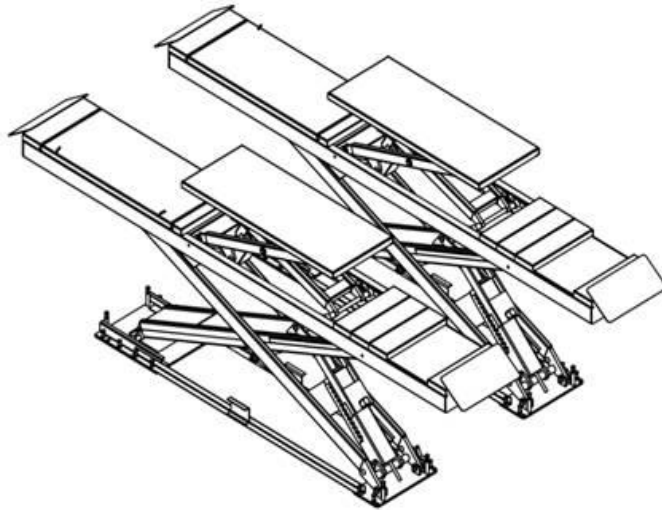




BATTLE-AXE COMPOSITE TYPE SCISSOR LIFT
(ZF-35-D/ZF-35-DL)



OPERATION MANUAL

ZHONGSHAN HAIRUIDA AUTO MAINTENANCE EQUIPMENT TECHNOLOGY CO.,LTD

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Contents

1、 Applications and Features	3
1.1 Applications:	3
1.2 Structure Features:	3
2、 Main Specifications	4
2.1 Dimension:	4
2.2 Specification Chart:	4
3、 Installation and Test	5
3.1 Foundation Preparation:	5
3.2 Hydraulic Oil Filling:	7
3.3 Connection of Power Supply and Air Supply:	7
3.4 Installation Procedures of the Oli Pipe between Lift and Control Cabinet:	8
3.5 Placing the Lift in the Pit:	9
3.6 Oil filling, Exhaust and Levelling of the Platfrom:	12
3.7 Oil filling, Exhaust and Levelling of the Secondary Lift	15
3.8 Installation and Adjustment of Limit Switch:	15
3.9 Loading Test:	156
4、 Care and Maintence	16
5、 Matters need attention during operation	16
6、 Operation Instruction	17
1、 UP:	18
2、 LOCK:	18
3、 CHOICE	18
4、 BUZZER	19
5、 DOWN	19
6、 SWTCH	19
7、 INDICATORS A-G	19
7、 Oil Refilling:	19
8、 Manual descend in case of power failure:	20
9、 Failure Recovery Operation:	21
10、 Foundation drawing:	23
11、 Oil pipe conneciton drawing:	25
12、 Control Panel:	26

All right reserved

1、 Applications and Features

1.1 Applications:

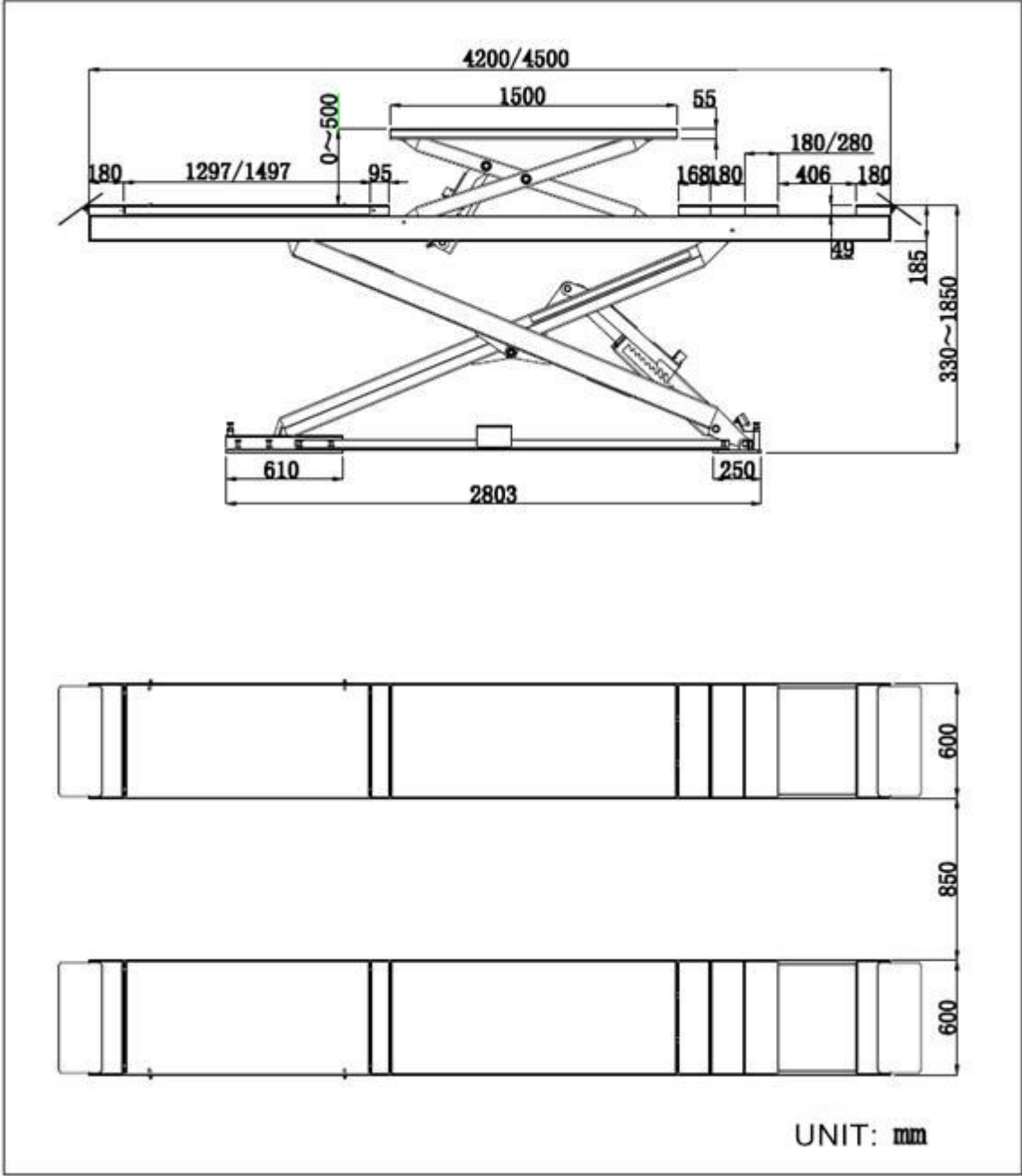
ZF-35-D/DL hydraulic scissor car lifts are applied for lifting all types of light vehicles that weight not over 3500kg. They are suitable for four wheel alignment, inspection, maintenance and caring of all levels of vehicles, in vehicle maintenance shops and tire shops.

1.2 Features:

- Hidden scissor structure. Space saving.
- Same capacity in main and sub Cylinders. Making two platform working steady and synchronously.
- Double Safety Device: Hydraulic lock and double teeth gripper. Locking guarantee whenever the descending stops.
- Safety valve in case of Hydraulic failure and overload.
- Safety device in case of pipe explosion. Making the lift descend slowly instead of falling fast in case of the oil pipe explosion.
- Slide blocks are made from super wear-resistant material, .
- Most of** electronic and Hydraulic parts are imported from Italy, Germany and Japan.
- Outstanding Levelness adjustment ability. Level degree Accuracy can be adjusted. So it is very suitable for wheel alignment.
- Manual descending device in case of power failure.

2、 Main Technical Parameters

2.1 Dimensions:

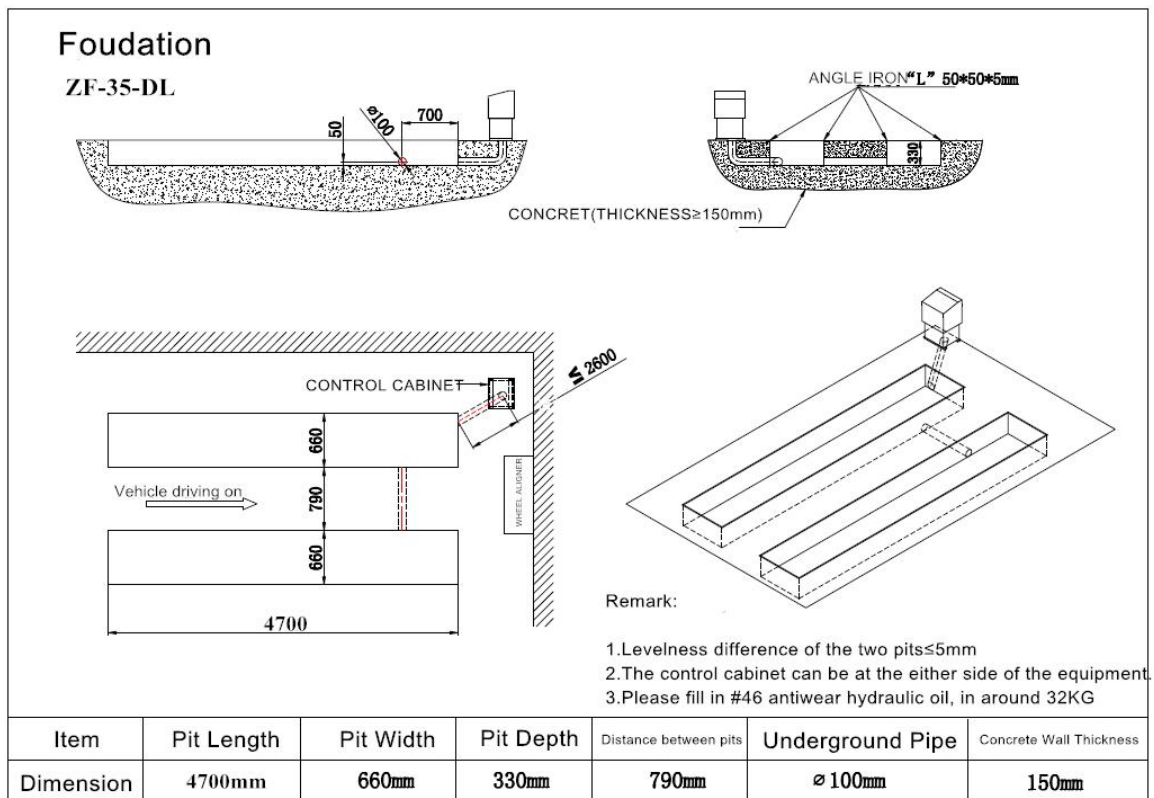
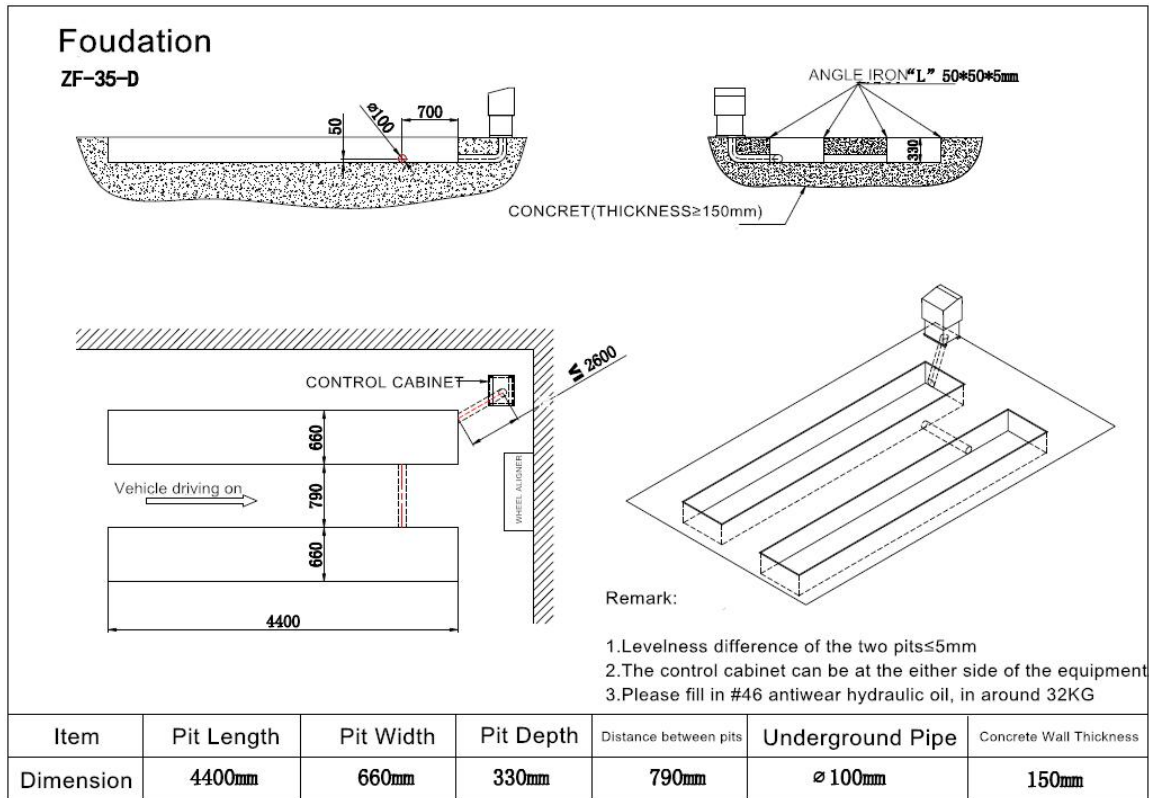


2.2 Specification Chart:

Model	ZF-35-D / ZF-35-DL
Driving method	Electricity and Hydraulic pressure
Platform Rated Lifting Capacity	3500kg
Secondary Lift Rated Lifting Capacity	3500kg
Platform Lifting Height	1850mm
Secondary Lift Lifting Height	500mm
Platform Min Height	330mm
Platform Length	4200mm / 4500mm
Secondary Lift Length	1500mm
Single Platform Width	600mm
Single Secondary Lift Width	600mm
Platform Ascending Time	≤50s
Platform Descending Time	≤60s
Secondary Lift Ascending Time	≤30s
Secondary Lift Descending Time	≤20s
Overall width	2070mm
Overall Length	4200 mm / 4500mm
Net Weight	2000kg / 2100kg
Power Supply	AC 380V ± 10% 7A or 220V ± 10% 11A 50/60Hz
Motor Power	2.2kw
Hydraulic Oil	46 # wear-resistance Hydraulic Oil (not included with shipment)
Air supply pressure	6-8kg/cm ²
Working temperature	5-40°C
Working Humidity	30-95%
Working Noise	< 50db
Installation Altitude	≤1000M
Storage temperature	-25°C~55°C

3、Installation and Test

3.1 Foundation Preparation:



The thickness and levelness of concrete foundation is crucial.

The levelness adjustment ability of the equipment is limited.

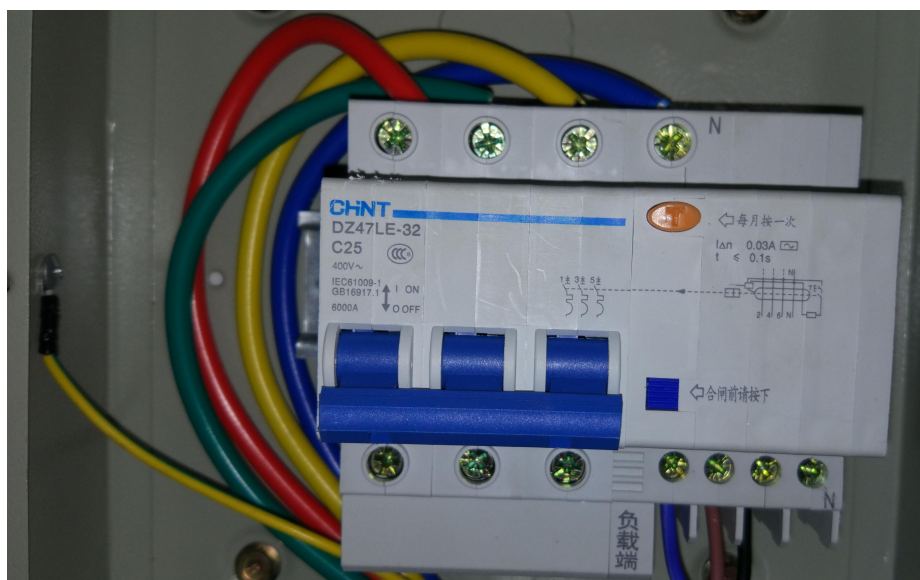
3.2 Hydraulic Oil Filling:

Fill the hydraulic oil into the oil tank. (The oil is not included in the shipment).

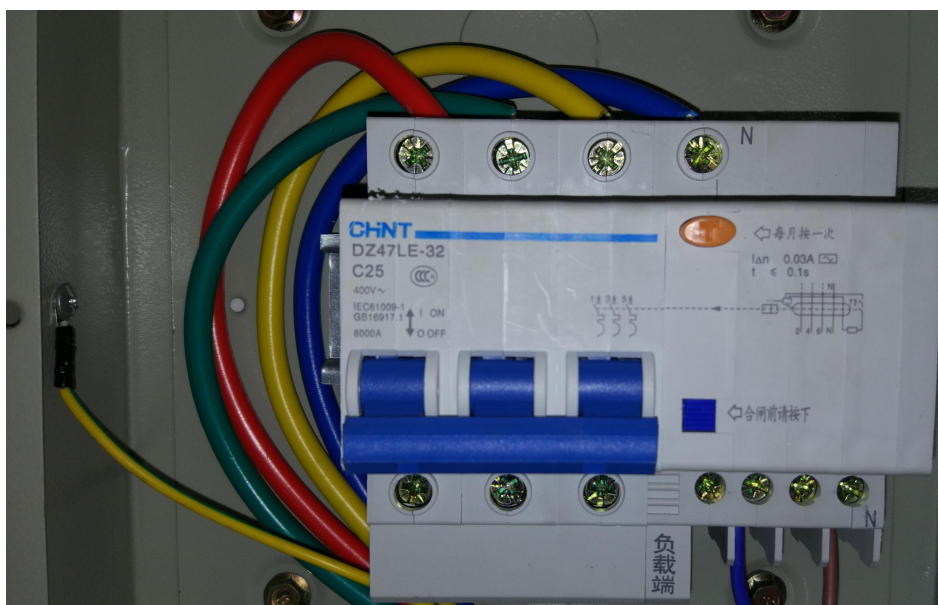
3.3 Connection of the air supply and electricity:

3.3.1 380V Power supply connection: Connect the power line to “负载端” on the earth leakage circuit breaker.

Attention: Power line specification: $\cong 2.5\text{mm}^2$.



3.3.2 220V Power supply connection: Connect the power line with “N” and any one of three phase conductor in the “负载端” on the earth leakage circuit breaker. Attention: Power line specification: $\cong 4\text{mm}^2$.



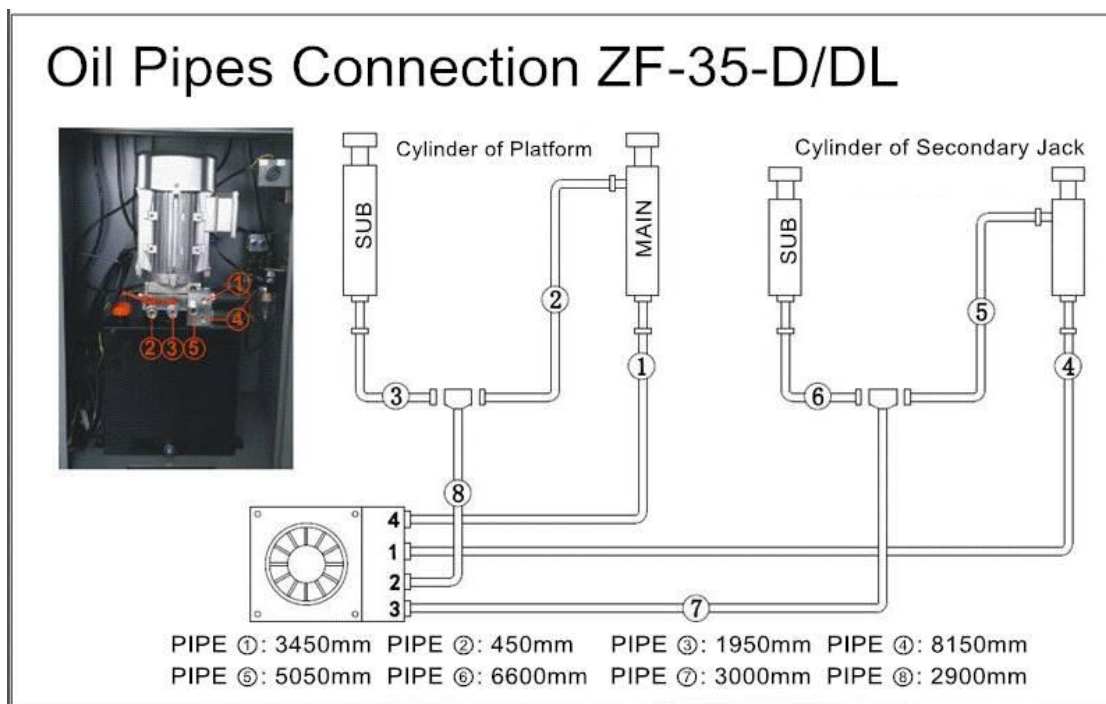
3.3.2 Air supply connection: Connect the air pipe with quick coupling in the

control cabinet.

3.3.3 Air Pressure: 4~6kg/cm²

3.4 Installation Procedures of the Oil Pipe between Lift and Control Cabinet:

Attention: Connector protection is the most crucial during oil poling. DO NOT let any dirt or sundries get in to the hydraulic system, blocking the oil pipe.



3.4.1 Firstly turn the switch of “**Level/Working**” to “**Working**” condition. Turn the “**CHOICE**” switch to “**BIG**”. Connect a bottle with the connector “④” of the pump station, and then push “**UP**” on the control panel. If the hydraulic oil burst from “④” connector in 5 seconds, Then it proves that the motor is rotating in right turn. If there is no oil, or no sign of pressure when the oil comes out, then it proves that the motor is rotating in the wrong turn. To solve this problem, please exchange the position of the any 2 of 3 power lines in Red, Green and Blue in the Distribution Box.

3.4.2 Firstly connect the oil pipe No.1 with the connector “④” of the pump station。 And then push “**UP**” on the control panel, lift the platform to a appropriate height at which the other pipes can be connected conveniently.

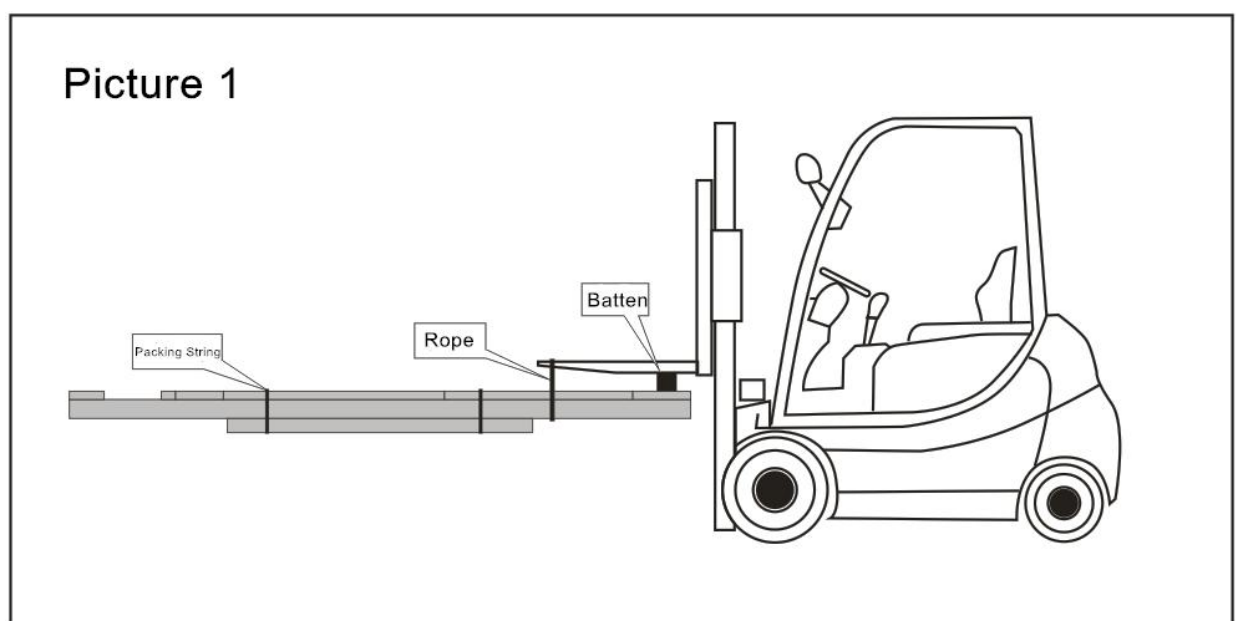
(Attention : Make sure the “**Working/Level**” is at “**Working**” position

before you push “UP”)

- 3.4.3 Pull out the No.8 oil pipe from the control cabinet, connect the No.2 and No.3 oil pipe under the equipment to the 3-way connector of the No.8 oil pipe.
- 3.4.4 Connect the No.4 oil pipe under the machine with connector “①” of the pump station.
- 3.4.5 Pull out the oil pipe No.7 from the control cabinet, connect the No.5 and No.6 oil pipe under the equipment to the 3-way-connector of the No.7 oil pipe.

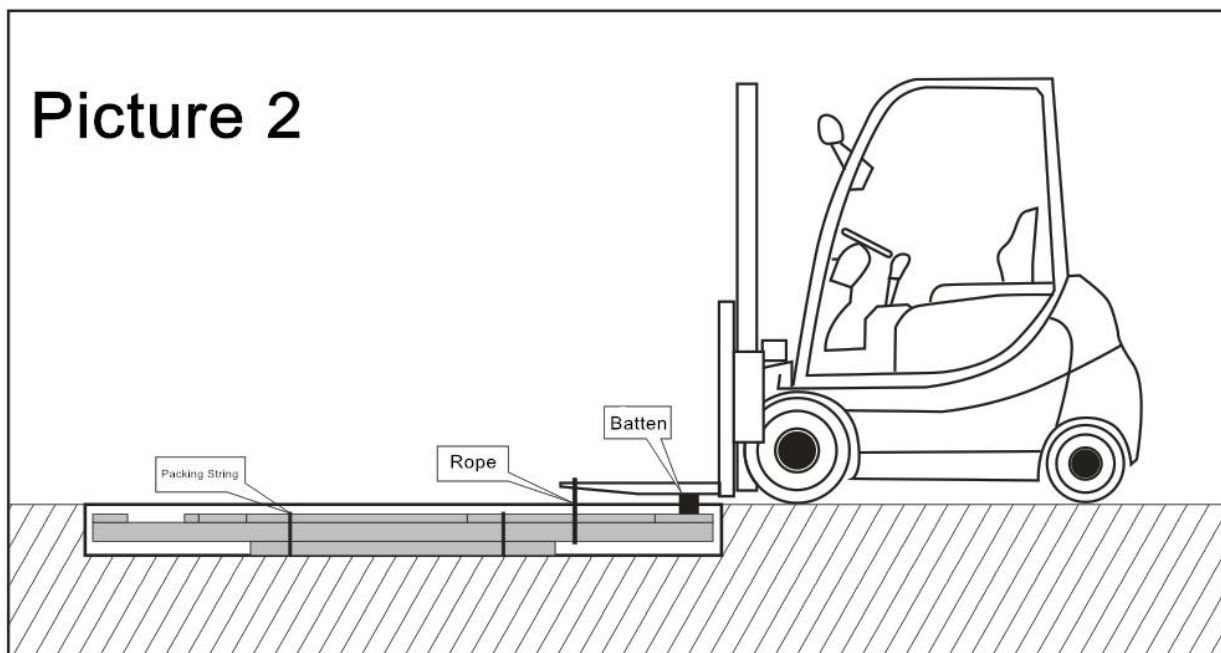
3.5 Placing the lift in the pit:

- 3.5.1 The main lift must be placed in the pit closer to the control cabinet. There are 4 oil pipes under the main lift, 2 oil pipes under the sub lift. The end with turn plate groove should be opposite to the side on which the vehicle drives. The side with logo and mark should be facing outwards. After confirmation on installation position, tie the main lift to the forklift, as the picture1 shows(Do not unfold the packing string):

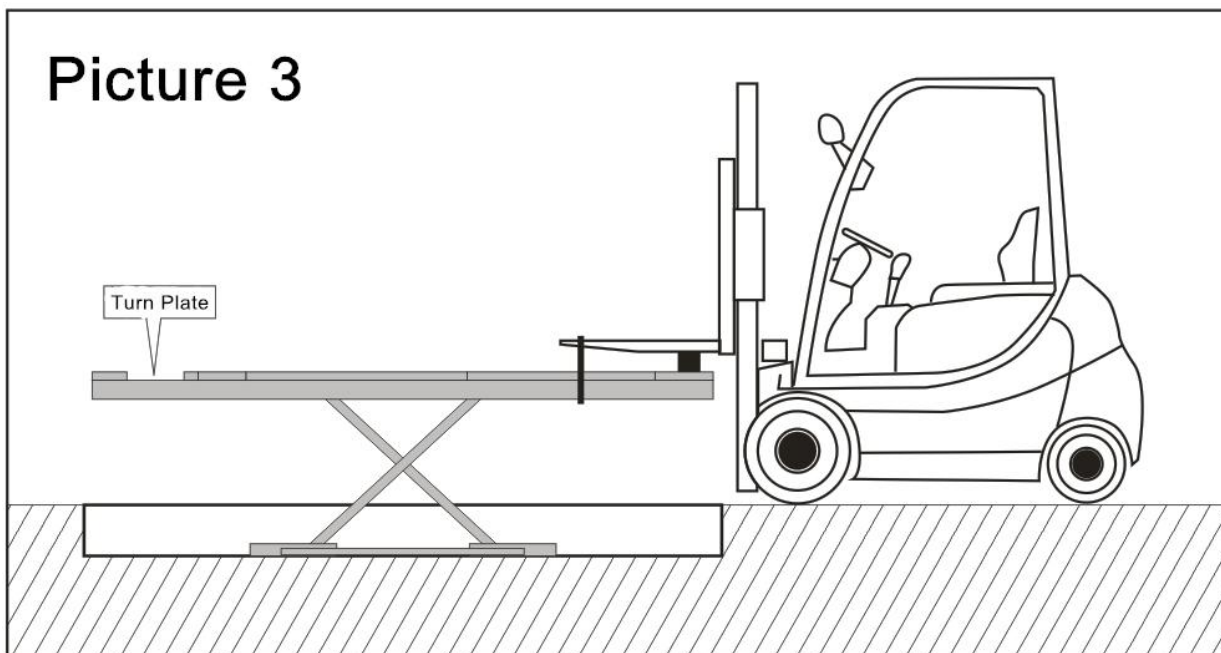


- 3.5.2 Place it in the pit and confirm its horizontal position. Cut off the packing

strings like it shows in Picture2.



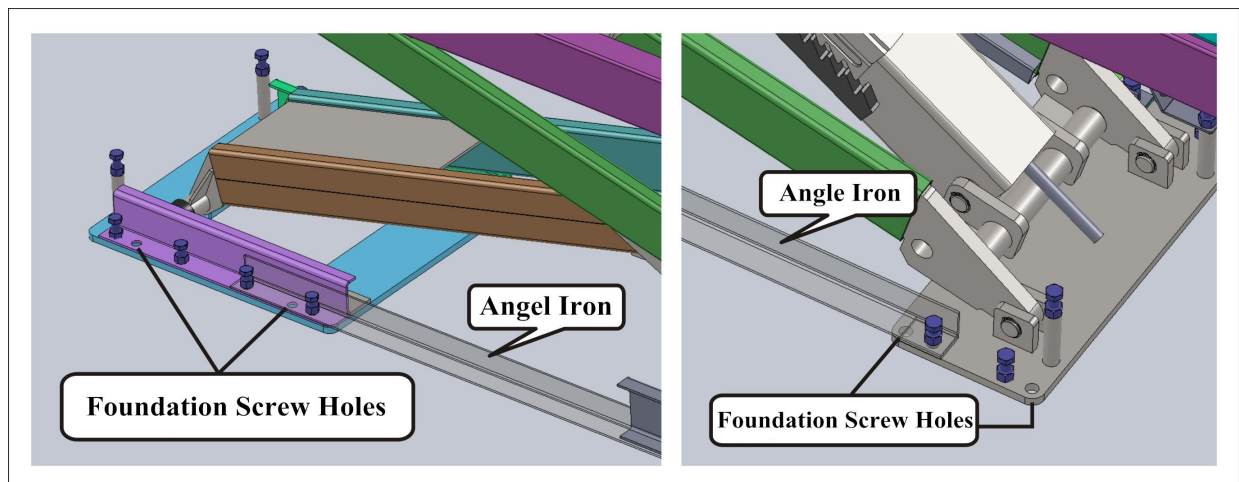
- 3.5.3 Lift the equipment at an appropriate height and confirm if the safety teeth are locked, untie the rope and drive away the forklift referring to picture 3.



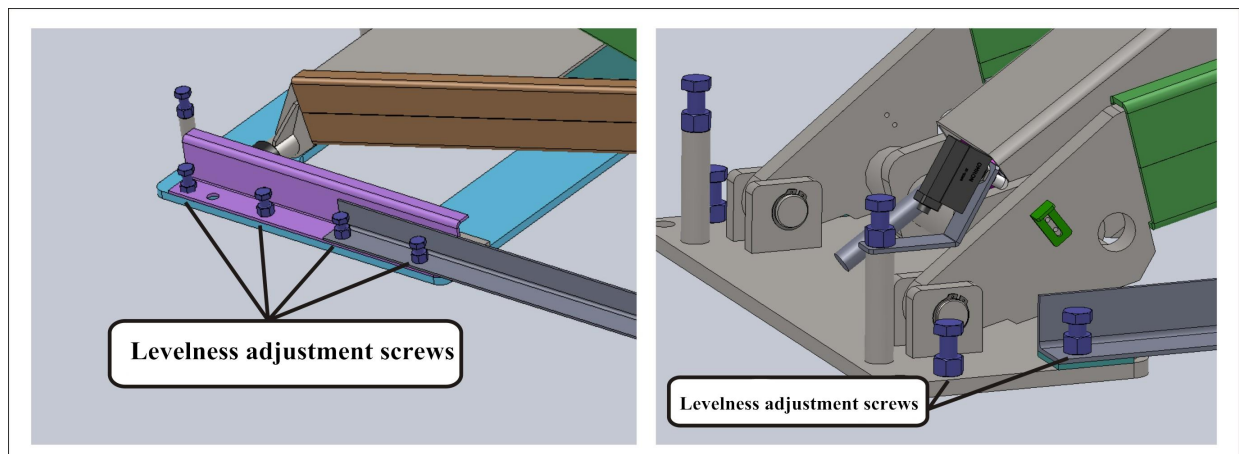
- 3.5.4 Connect the air pipe according to the instruction 3.4
- 3.5.5 Descend the lift to a height a little higher than the pit, pry and move the lift in the pit to make sure the position of main and sub lift are suitable for

installation.

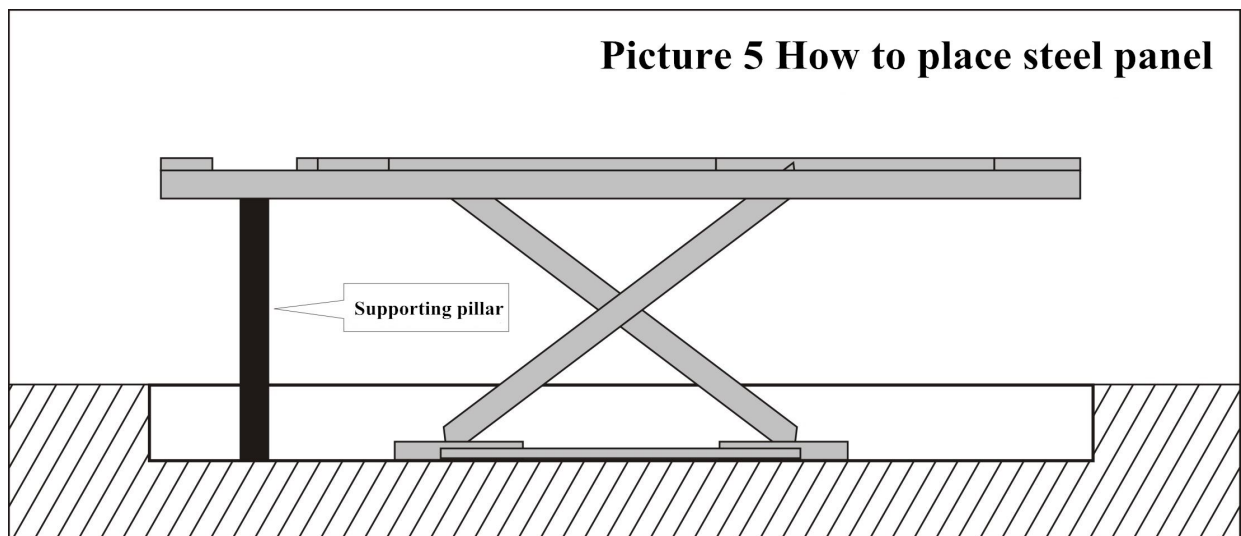
- 3.5.6 Reconfirm that: if the lift is in the central position of the pit, if the main lift and sub lift is parallel, if the front side and back side is aligned, if the length of the diagonal lines are equal and so on. After above confirmation, the main lift and the sub lift should be locked at the forth Safety tooth. And then drill a hole at the depth of 120mm with a electric impact drill ($\Phi 16$ drill bit) and install foundation bolt(16 pcs) Attention: DO NOT install expansion screw firstly. The holes' position of the foundation screws are shown in below pictures. Some of the holes are covered by angle iron which is used only as packaging protection. So the angle iron can be dissembled before screws installation.



- 3.5.7 As it shows in below picture, place a steel plate beneath each horizontal adjustment screw, making sure they have no directly contact with the ground.



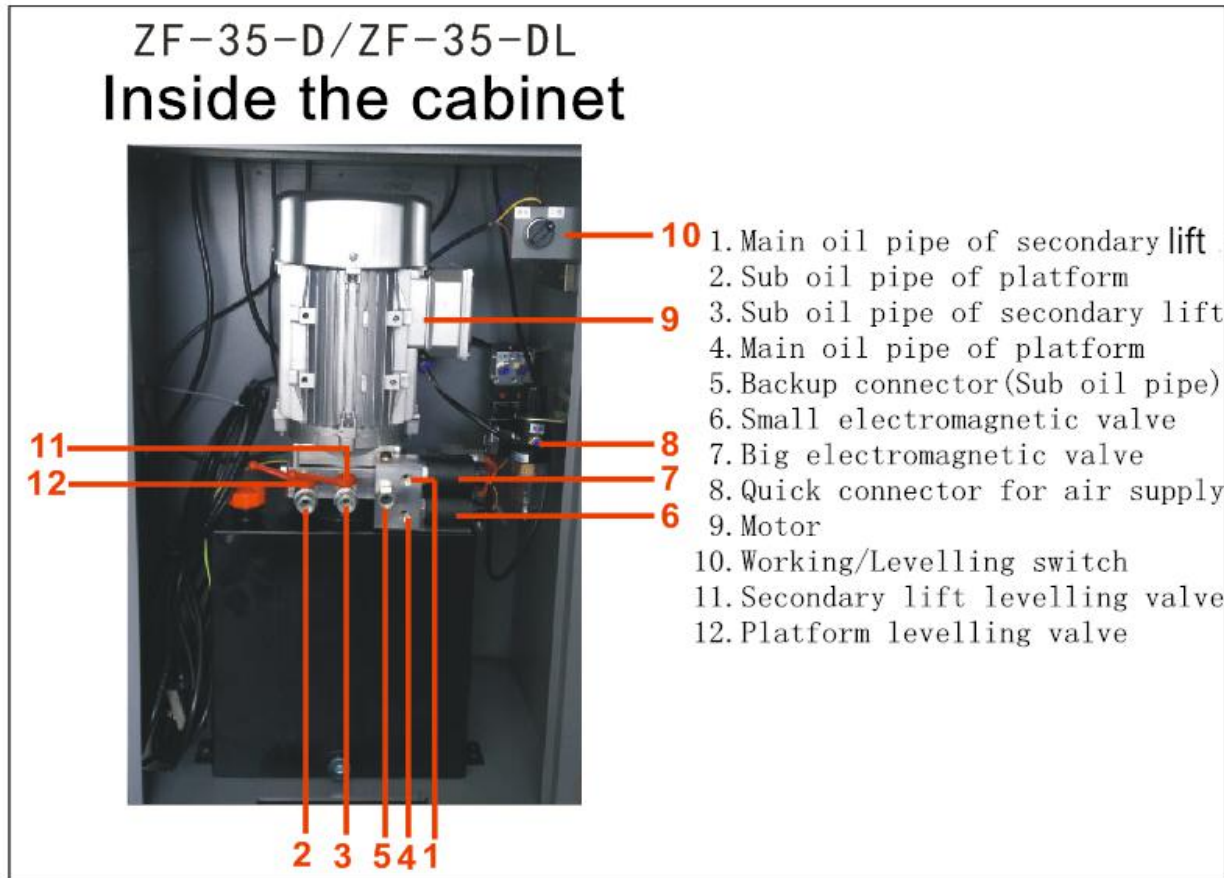
How to place steel panel beneath the levelness adjustment screws: Lift up the platform to an appropriate height. Support the platform with a wooden pillar as the below picture shows. Then push “DOWN”. At this moment, the platform on the supporting pillar will go up a little bit. Keep pushing “DOWN” little by little, until the steel panel can be insert beneath the levelness adjustment screws. And then insert it. With the same methods, insert steel plates beneath all the levelness adjustment screws.



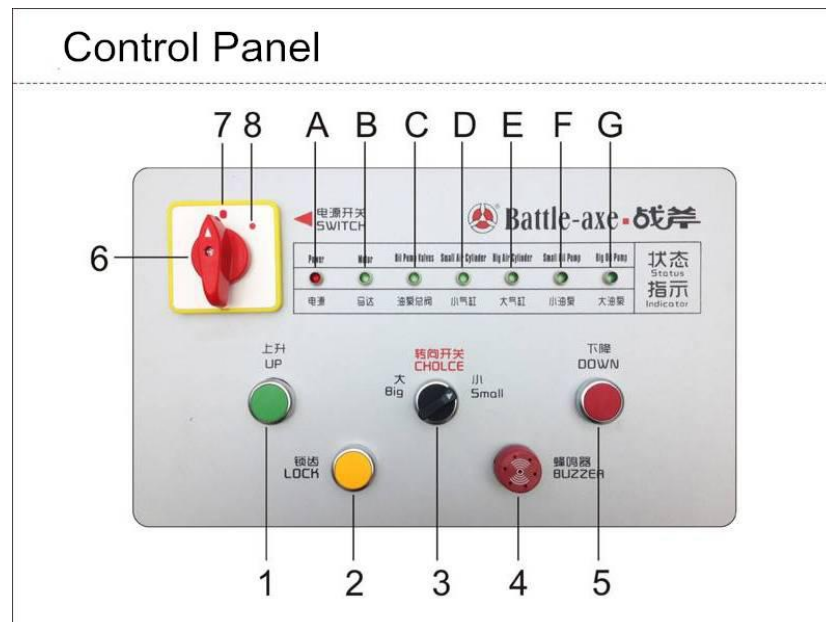
3.5.8 Levelness Adjustment : By observing the spirit levels or transparent levelness pipelines and adjust the levelness adjustment screws at the two side of the base panel at the same time, the position of two drawer boards and the level degree at the front side can be adjusted. Confirm that the tolerance of height difference between two platforms $\leq 3\text{mm}$; The levelness lengths difference, of the two runways at minimum height with the ones at maximum height $\leq 10\text{mm}$. And then install the central expansion screw to tighten the foundation screws. The space between the ground and the base must be fully stuffed with iron discs or cement mortar after the adjustment.

3.6 Oil filling, exhaustion and leveling of the platform:

Step 1: Turn the “Working/Leveling” switch to “Working”. The switch is the item No.10 in the below picture.



Step 2: Then Turn the “CHOICE” to “Big”. The switch is the item No.3 in below picture.



Step 3: And then push “UP” on the control panel, make the platform ascend to the maximum height.

Step 4: Turn the “Working/Leveling” switch to “Leveling”. The switch is the item No.10 in the right picture.

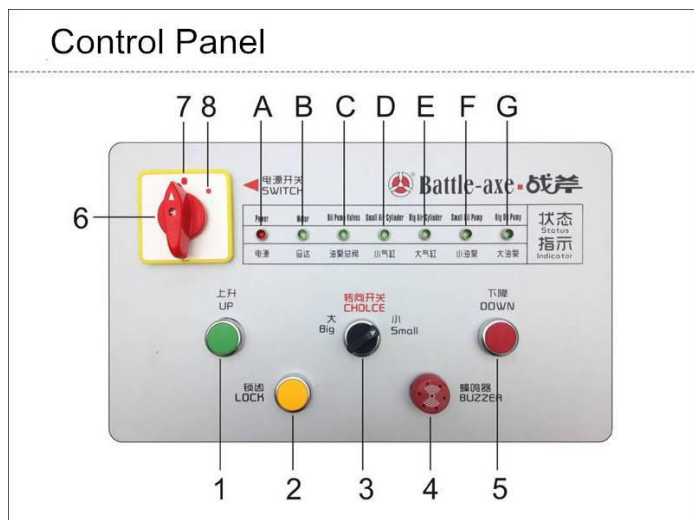
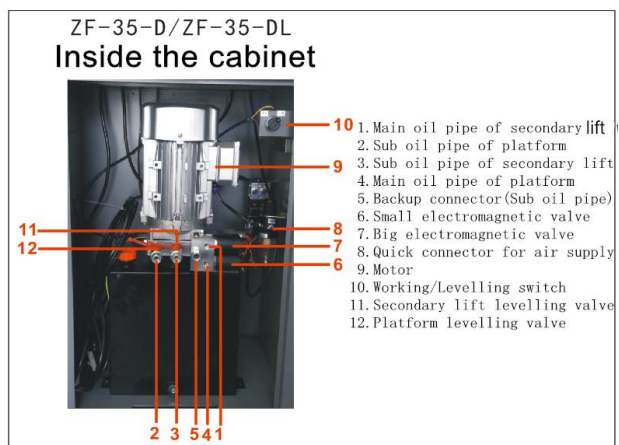
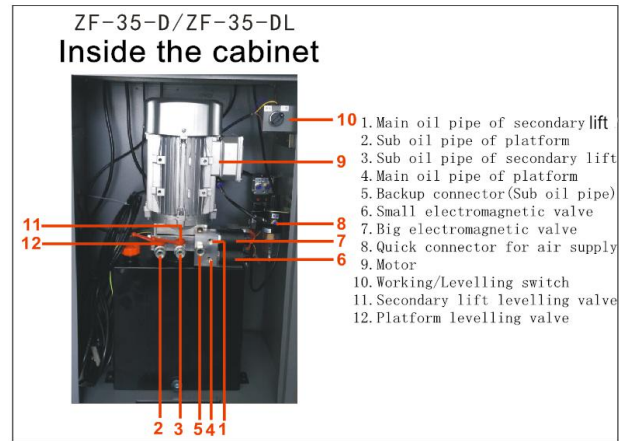
Step 5: Turn anticlockwise and loose the No.12 Platform leveling valve.

Step 6: Then push “UP” on the control panel. At this moment only the sub platform ascends. Lift it up the 3rd locking tooth. After that push “DOWN”, making the sub platform descend to the minimum height. Repeat above procedure for 3~4 times, in order to exhaust the air in the main cylinder upper part and sub cylinder. Then lift the sub platform to the maximum height, and turn clockwise to tighten the “Platform leveling valve” to finish the exhaustion.

Step 7: At this moment the main/sub lift are almost level. The leveling adjustment finish after the “Working/Leveling” Switch is turned to “Working”. [If the equipment is still no

level, push “DOWN” when the “Working/Leveling” points to “Working”. Making the platform at the height of 1 meter. Then turn the “Working/Leveling” to Leveling, and turn anticlockwise

to loosen the “Platform Leveling valve”
After that, push “UP” on the control panel. Remark: Normally, the sub platform can be lifted a little higher than main platform, and then push “LOCK” to make the sub platform descend a little. By this method, the equipment can be level in high accuracy. The operator can judge if the two runways



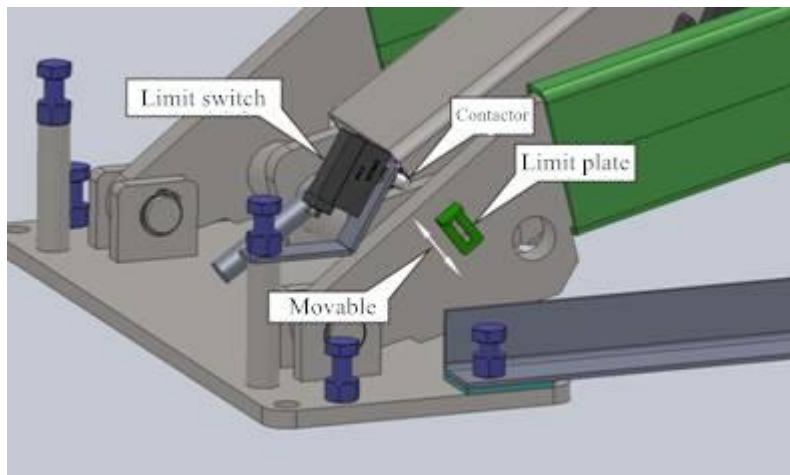
are level by observing the “locking teeth” position. After the two runways are in ideal levelness condition. Turn clockwise the “Platform leveling valve” to loosen it. And turn the “Working/Leveling” switch to “Working” in the control cabinet.] After above operation and confirmation, the oil filling, exhaustion and levelness adjustment finish

3.7 Oil filling, exhaustion and leveling of the secondary lift

The procedures of the oil filling, exhaustion and leveling of the secondary lift are almost the same with the ones for Platform. The only differences are: In step 2, turn the CHOICE to “small” instead of “Big”; In step 5, Turn anticlockwise to loosen the “Secondary lift leveling valve” instead of “Platform leveling valve”; In step 6, Turn clock wise to tighten the “Secondary lift leveling valve” instead of “Platform leveling valve”.

3.8 Installation and Adjustment of the limit switch:

Pull out the limit switch from the control cabinet. Place it on the front base through reserved pipe channel. Finish installation as it shows in the right picture.



Adjust the retainer after

rising the lift to 2100mm. Make it contact with the angular point of the “limit switch”. And then push the “UP” button on the control panel. Now if the lifts do not rise up, it means that the retainer is in proper position. Attention: The contact of the retainer and the limit switch cannot be too tight. The contact should be as tight as to just let the limit switch works.

3.9 Loading Test:

Loading test can be proceeded after above issues are confirmed OK. Check if there is any leakage on the oil pipe and air pipe. If the loading test is OK, the machine is qualified for

normal working.

4、 Care and Maintenance

- 1、 There cannot be any sundries at the place for higher and lower slider moving. Keep it clean. Add lubricating grease from time to time.
- 2、 Add machine oil to all connection shaft every week.。
- 3、 Add lubricating grease to Safety teeth every month.
- 4、 Disassemble side slipping boards every year and adding lubricating grease to them.
- 5、 Exchange hydraulic oil every year. The oil tank should be cleaned before oil exchange. The oil tank should be almost full.
- 6、 The compressed air in the pneumatic Safety device should be filtered by oil /water separator. (The separator is not included in the shipment), to make sure the opening cylinder of the Safety gripper and the electromagnetic gas valve stay in good performance in long term.
- 7、 The reliability and performance of the Safety gripper lifting valve and limit switch should be checked every shift.

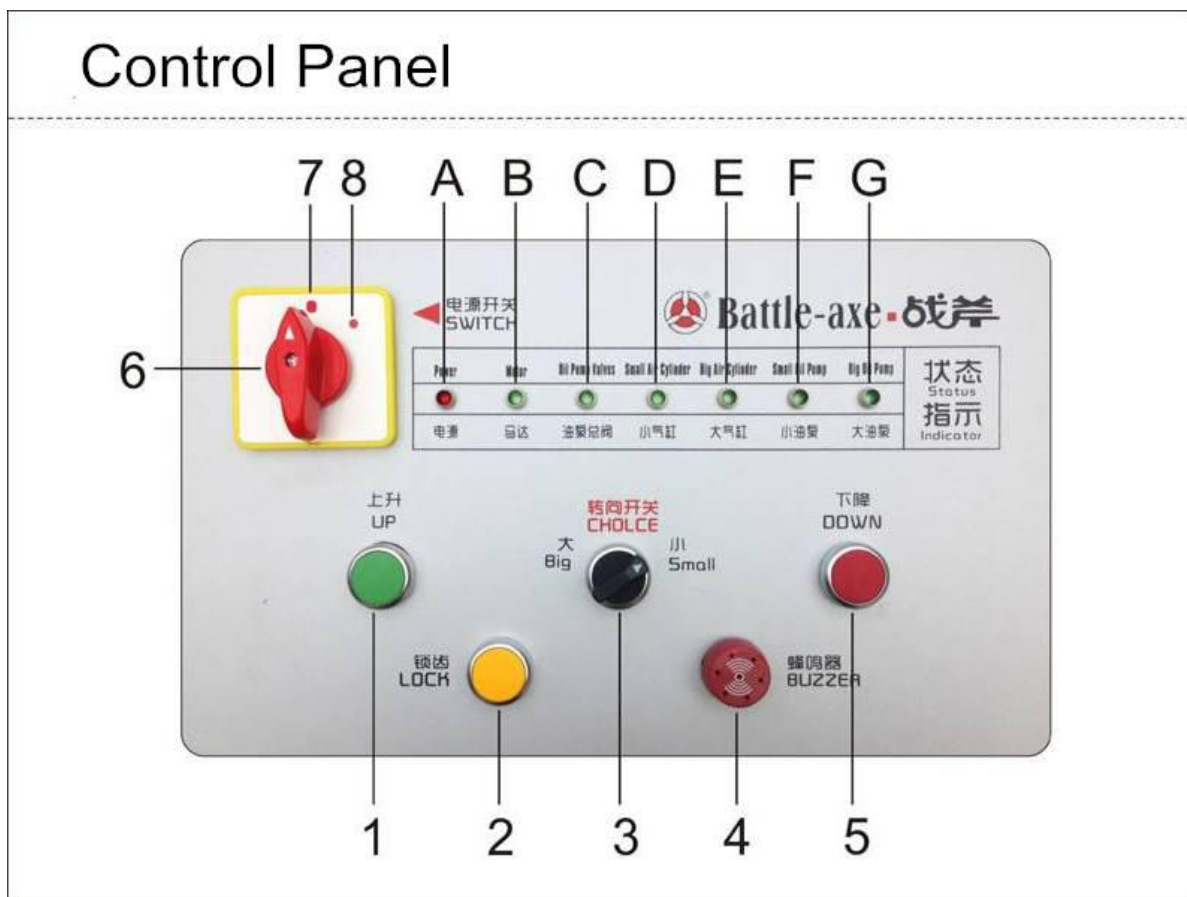
5、 Matters need attention during operation.

- 1、 Remove all the obstruction around the equipment before working.
- 2、 During lifting and descending, humans and pets are forbidden to stay beside, under and on the platform.
- 3、 Overloading is prohibited.
- 4、 During lifting, the hand brake should be pulled up. The brake scotch should be in place.
- 5、 Be aware of the synchronization of the rising and the descending. If abnormal condition appears, the machine should be shut down in time, and checked for failures elimination.
- 6、 When the main lift is locked, the two platforms should be at the same levelness height.
- 7、 Push the “DOWN” button if the lift needs to be descended. And then the lift will rise

for 1~2 seconds (in order to separate Safety gripper and tooth completely), after that the lift start to descend. The complete separation of the Safety gripper from Safety tooth should be confirmed, otherwise stop descending.

- 8、 When the lift rise to the height to turn the limit switch on. The lift will stay still for 1~2 seconds and start to descend, instead of rising firstly and then descend, after the “DOWN” button is pushed.
- 9、 During the maintenance and wheel alignment, the lift should be locked at Safety teeth at the same levelness height. (Remark: The levelness of the platform is very crucial at this moment)
- 10、 If the equipment is going to stop working for more than 1 night. It should be descended to the minimum height. The vehicles should be driven away from the platform. And the power should be shut down.

6、 Operation Instruction



1、UP:

Push this button, the platform or secondary lift ascends up immediately, depending on where the “CHOICE” points at. Release “UP”, the platform or secondary lifts stops ascending immediately.

2、LOCK:

When the lift is raised to the height of one Safety teeth, if this button is pushed, the lift will descend if the Safety gripper is not lifted up. And then this will result the pushing of the Safety gripper against the inner part of the Safety teeth, working as a teeth locking Safety. Only after above operation, the maintenance, alignment or the repair work can be preceded.

3、CHOICE

This switch determines whether to operate the platform or secondary lifts. When the switch points at “BIG”, all the operation is to control platform. When the switch points at “SMALL”, all the operation is to control secondary lifts.

4、BUZZER

The buzzer will buzz when the lift is rising or descending, to warn the people around be aware of their safety.

5、DOWN

When this button is pushed, the platform or secondary will ascend for 1~2 seconds to make sure the safety teeth are bounced up and unlocked by air locks. And then they start to descend. Whether to make platform or secondary lifts descend, it depends on where the “CHOICE” switch points at. Release “DOWN”, the platform or secondary lift stop descending immediately.

6、SWTCH

This button is a switch for selection. The cabinet’s power is off when the switch points to the smaller red spot. The cabinet’s power is on when the switch points to the bigger red spot.

7、INDICATORS A-G

The indicators shows real-time working conditions of: power, motor, Main valve of the oil pump, small cylinder, big cylinder, small oil pump and big oil pump. When the lights are on, it means the corresponding device is working. When the lights are out, it means the corresponding device stops working. The indicators help the operator know the working condition and failure cause.

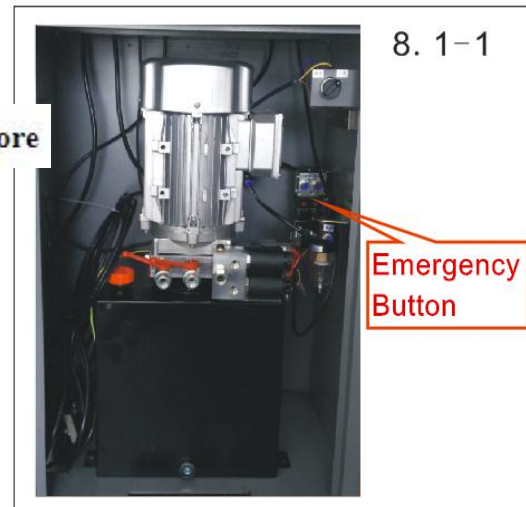
7、Oil Refilling and Leveling:

During normal working of the equipment after it is well installed and adjusted. There may be natural consuming and leakage of hydraulic oil, causing the right platform be lower than the left platform. (They are watched from the headlight side) Under this situation, the operator can adjust the levelness by applying the methods introduced previously in “3.6 Oil filling, exhaustion and levelness adjustment of the platform” and “3.7 Oil filling, exhaustion and levelness adjustment of the secondary lifts”

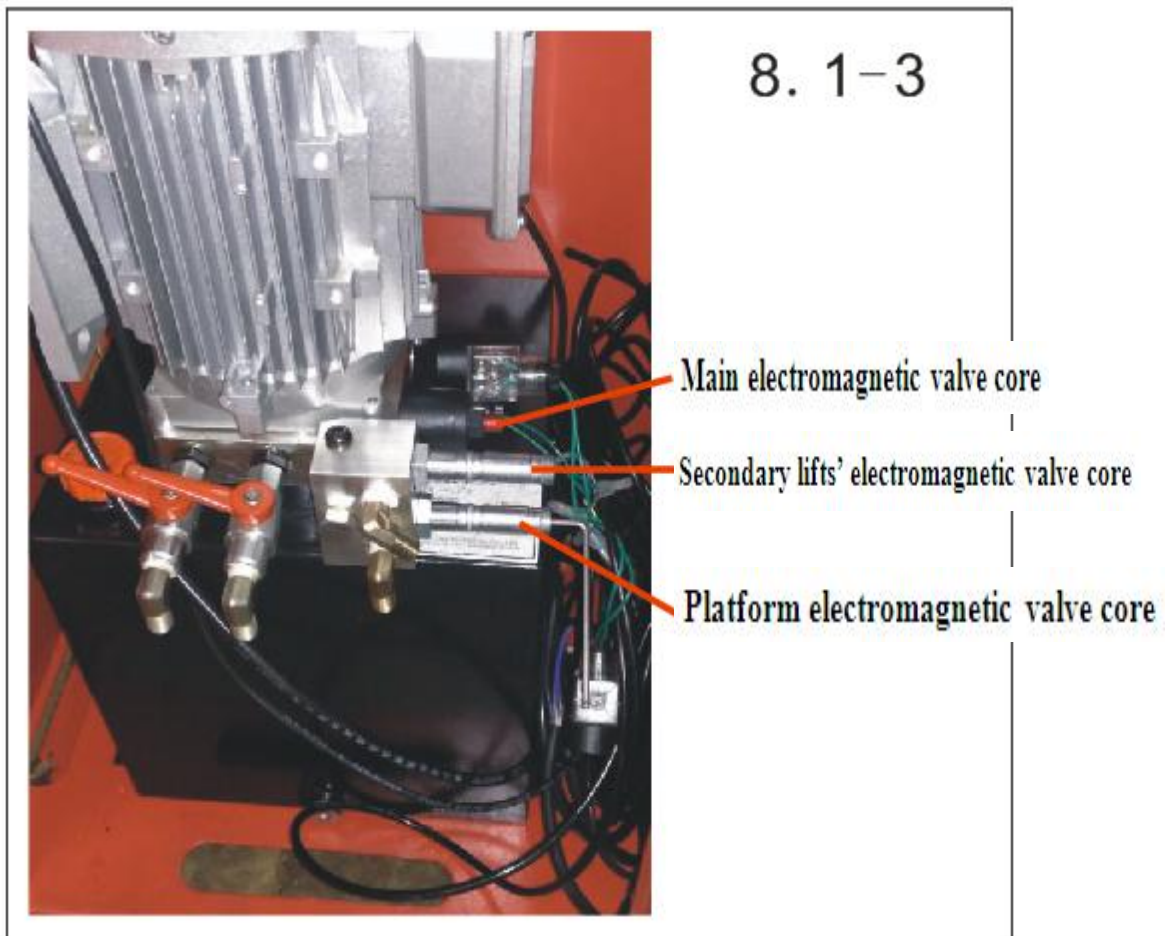
8、Manual descending in case of power failure

Secondary lifts' electromagnetic valve core

down the power supply in case of sudden power recovery) . Open the cabinet front door and find the “little cylinder emergency buttons” showed in the right-side-picture 8.1-1 and 8.1-2. Push platform cylinder emergency button or secondary lifts emergency button with a flathead screw driver and turn it clockwise by 90 degree. In order to make the locking teeth on the platform cylinder or the secondary lifts cylinder be bounced up and unlocked. If the locking teeth are too tight that the cylinder cannot bounce up, the lift should be raised a little by tools like jacks. Then the



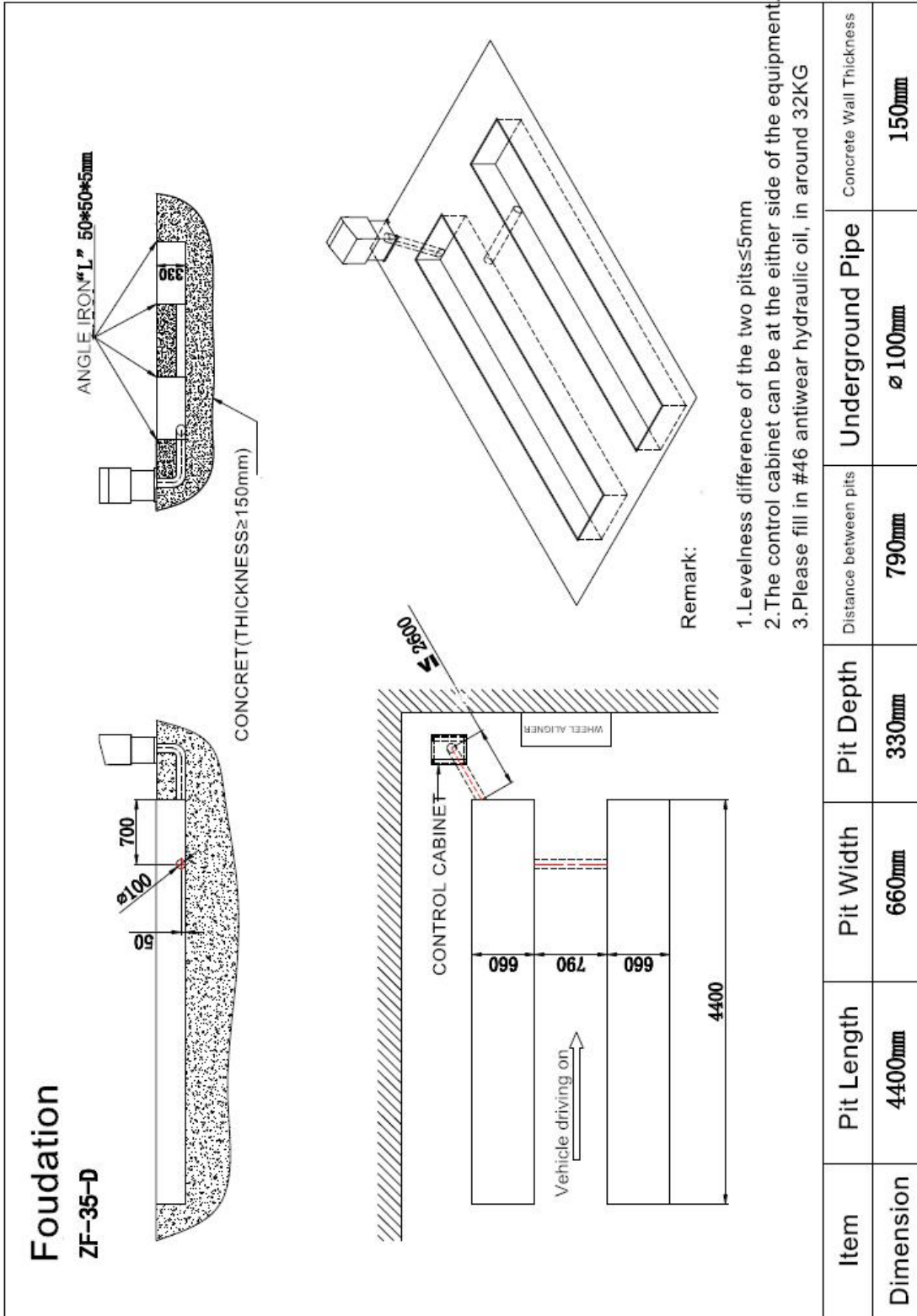
locking teeth can be bounced up well. Referring to picture 8.1-3, after the locking teeth are bounced up, the electromagnetic valve blocks of the platform and secondary lift should be disassembled. (For the sake of convenient operation.) After that, push the red main electromagnetic valve core (For part of machines the valve core is a knob in yellow color, please turn it loose). At the same time push the electromagnetic valve core with a hex wrench using the right hand, to descend the platform. And then push the main electromagnetic valve core and secondary lifts' electromagnetic valve core at the same time to make the secondary lift descend. After descending, set every part in its original status to avoid unnecessary problem.



9、 Failures and solutions:

Failures	Possible reasons	Solutions
1.The motor do not rotate when the UP button is pushed.	①Failures in power supply or null line.	Check and eliminate failure, recover the connection.
	②Failure of contactor in Pump motor.	Check circuit if the motor works after pushed down by insulator; Change contactor if the voltage on the two ends of the contactor is normal.
	③Circuit failure of the limit switch	If motor works after the limit switch terminals is shorted. Adjust or replace the limit switch.
	④UP button failure	Check and fix the contact or the wires.
2. The motor rotates when the UP button is pushed, but the lift does not rise.	①The motor rotates in the wrong way	Switch the power lines connection.
	②Normal working with light loading; rise failure with heavy loading.	Turn the overflow valve pressure safety device clockwise a little; clean the descending electromagnetic valve core.
	③Insufficient hydraulic oil	Refill Hydraulic oil
	④Manual oil returning bolt in electromagnetic valve is on.	Tighten oil outlet bolt in the main or sub lift.
	⑤burnout electromagnetic valve plug.	Change the electromagnetic plug in main or sub lift.
3. The lift do not descend after the “DOWN” button is pushed.	①Safety grippers are not separated from safety tooth.	Set the delay time of time relay a little longer.
	②Safety gripper do not rise.	Not enough air pressure, safety grippers get stuck, or break of air pipe. Check and fix air pipe after air pressure adjustment in compressor.
	③electromagnetic air valve failure	Check, change or replace the electromagnetic air valve.
	④ electromagnetic descending valve failure	Check and fix the plug and coil of the descending electromagnetic valve. Tighten the nut on the valve.
	① Safety grippers are not separated from safety tooth.	Set the delay time of time relay a little longer.
4. The lift is descending too slowly when it is loading below rated capacity.	①The rising and descending speed is not adjusted properly.	Disassemble the pump from the cabinet and adjust the lift moving speed by a socket head wrench, after open the hex nut behind the pump valve block, at the right side.
	②Freeze, spoilage or high viscosity of the hydraulic oil (in winter)	Change hydraulic oil under the manual instruction or enhance room temperature.
	③clogged explosion proof valve	Disassemble or shut the air inlet pipe to lock the safety gripper without rising. Disassemble and clean the safety device at the cylinder bottom.
5. Asynchronisms and height difference between two lifts.	①Air remains in the oil cylinder.	Refer to 3.3.6
	② Leakage in oil pipe or pipe connectors.	Tighten the connector or change the oil seal, then refill the oil and adjust levelness.
	③ “Oil returning valve G and H” cannot be shut completely, causing long term oil returning.	Replace the valve and adjust the levelness.
6.Noise during rising and descending	①Lack of Lubrication oil	Inject more lubrication oil to all the joint shaft
	② Twist of foundation or equipment	Readjust the levelness, stuff the foundation.
7. Rising when UP is pushed.	Looseness or failure of time relay	Reinsertion or Replacement of the time relay.
8.Platform&secondary lift ascending synchronously	There are foreign matters in electromagnetic valve core making it stay stuck	Turn the “working/Leveling” to “Leveling” Try pushing “UP” little by little or disassemble the valve core to clean it
9.Only platform ascends.	“ UP ” button fails or intermediate relay is broken or loose.	Check contacts and wires of “UP”, reinsert or replace the intermediate relay.

10、 Foundation drawing: ZF-35-D:



ZF-35-DL:

Foudation

ZF-35-DL

ANGLE IRON "L" 50*50*5mm

330

CONCRETE (THICKNESS ≥ 150mm)

700

50

ø100

5.250%

CONTROL CABINET

WHEEL ALIGNER

Vehicle driving on →

660

790

660

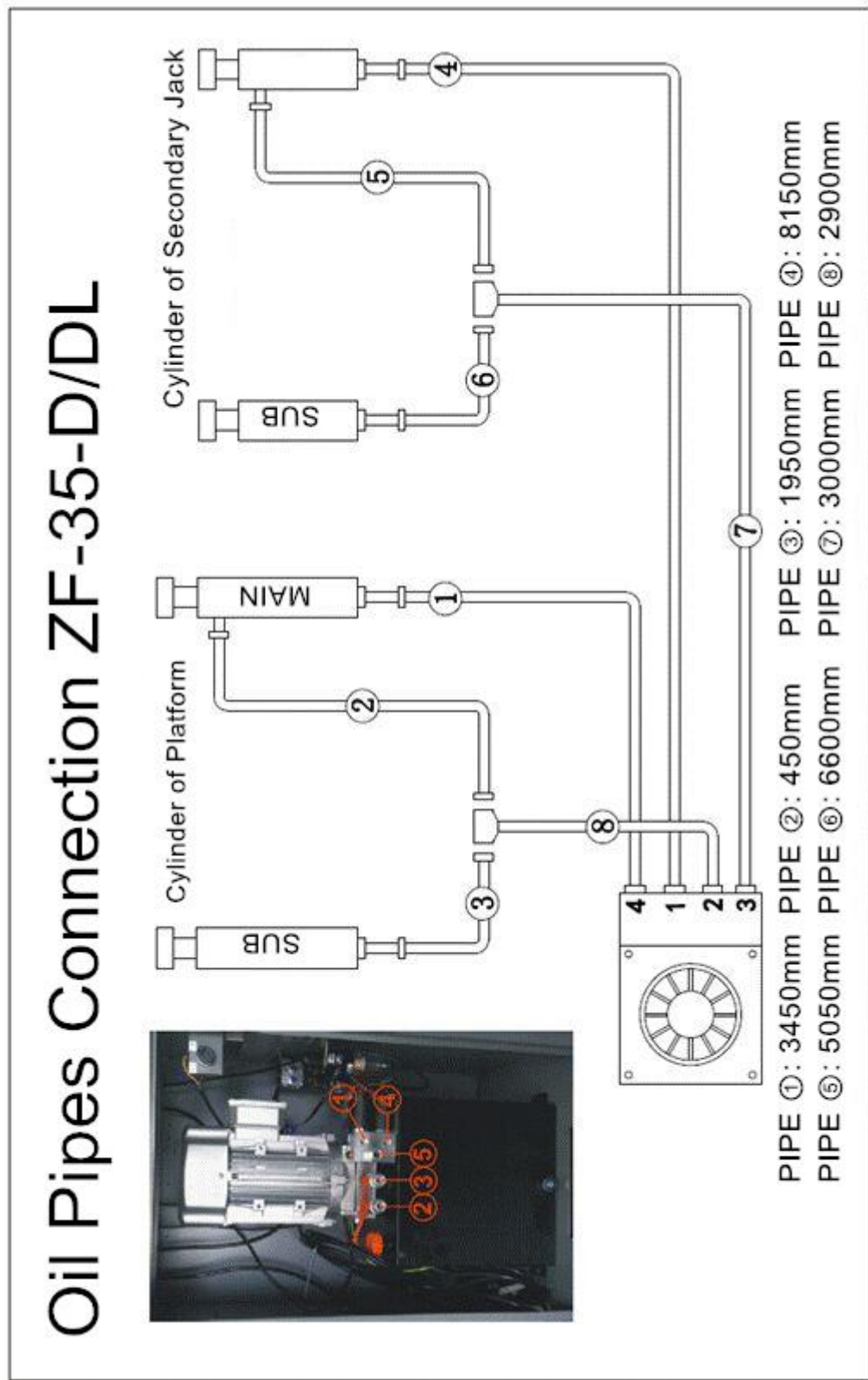
4700

Remark:

1. Levelness difference of the two pits ≤ 5mm
2. The control cabinet can be at the either side of the equipment
3. Please fill in #46 antiwear hydraulic oil, in around 32KG

Item	Pit Length	Pit Width	Pit Depth	Distance between pits	Underground Pipe	Concrete Wall Thickness
Dimension	4700mm	660mm	330mm	790mm	ø 100mm	150mm

11、 Oil connection drawing:



12、Control Panel:

