Masterlift

68W

SUPER NARROW



MASTERLIFT.COM.AU

Contents

I. Operation Manual ..... - 4 -
1.Safety Rules ..... - 4 -
1.1 Instructions Before Operation ..... - 4 -
1.2 Designed Purpose ..... - 7 -
1.3 Maintenance of Safety Labels ..... - 7 -
1.4 Types of Danger ..... - 8 -
1.5 Safety of Work Area ..... - 10 -
1.6 Lock it After Operation ..... - 16 -
2.Components And Functions ..... - 17 -
2.1 Components ..... - 17 -
2.1.1 Ground Controller ..... - 18 -
2.1.2 Platform Controller ..... - 18 -
2.2 Pre-operation Check ..... - 20 -
2.3 Work Place Inspection ..... - 22 -
2.4 Function Test ..... - 22 -
2.4.1 Test By Ground Controller ..... - 23 -
2.4.2 Test By Platform Controller ..... - 24 -
2.5 Operation Instructions ..... - 26 -
2.5.1 Emergency Stop ..... - 27 -
2.5.2 Emergency Drop ..... - 27 -
2.5.3 Operations on The Ground ..... - 27 -
2.5.4 Operations on The Platform ..... - 27 -
2.5.5 Operation on Ground By Joystick ..... - 29 -
2.5.6 Instruction For Use Of Safety Bracket ..... - 29 -
2.5.7 Way To Fold Guardrail ..... - 30 -
2.5.8 Way To Raise Guardrail ..... - 30 -
2.5.9 Platform Extension And Retraction ..... - 30 -
3. Hydraulic Electrical Schematic ..... - 31 -
4. Specifications ..... - 35 -
5. Operating Procedures of Self-Propelled Scissor Lift ..... - 43 -
Step 1: Check The Lift ..... - 43 -
Step 2: Turn on The Main Power Switch ..... - 44 -
Step 3: Select Operation Position ..... - 46 -
Step 4: Platform Control ..... - 47 -
Step 5: Turn Off Main Power ..... - 49 -
II. Maintenance Manual ..... - 50 -
1. Maintenance ..... - 50 -
1.1 Check Batteries ..... - 50 -
1.2 Check The Hydraulic Oil Level ..... - 51 -
1.3 Report Before Delivery ..... - 51 -
1.4 Maintenance Schedule ..... - 52 -
1.5 Maintenance Inspection Report ..... - 52 -

1.6 Preparations Before Delivery ..... - 52 -
1.7 Maintenance Inspection ..... - 53 -
1.7.1 Inspecting Checklist ..... - 54 -
1.7.2 Checklist A ..... - 54 -
1.7.3 Checklist B ..... - 56 -
1.7.4 Checklist C ..... - 66 -
1.7.5 Checklist D ..... - 69 -
1.7.6 Checklist E ..... - 70 -
1.8 Common Troubleshooting ..... - 71 -
2. Maintenance Record ..... - 76 -
3. Description Of Batteries And Charger ..... - 77 -
III. Part List Of Self-Propelled Scissor Lift ..... - 82 -

I. Operation Manual

1.Safety Rules

1.1 Instructions Before Operation



Danger

Not following the instructions and safety rules in this manual will cause death or serious injury to the event.

Operations should not be started unless:

☑You have understood and practiced the rules for safe operation of the machine in this operating manual.

1 Avoid dangerous situations.

Know and understand the safety rules before proceeding to the next step

2 Always perform pre-operation checks.

3 Always perform pre-use functional tests.

4 Check the workplace.

5 Only use the machine according to the design intent of the machine.

☑ Read, understand and follow the manufacturer's instructions and safety rules - Safety manuals and machine labels.

☑ Read, understand and comply with user safety rules and work site regulations.

☑ Read, understand and comply with all applicable government laws and regulations.

☑ You are properly trained of safe operation of the machine.

Dangers

Symbols, color code and symbolic text used in CFMG products have the following meanings:

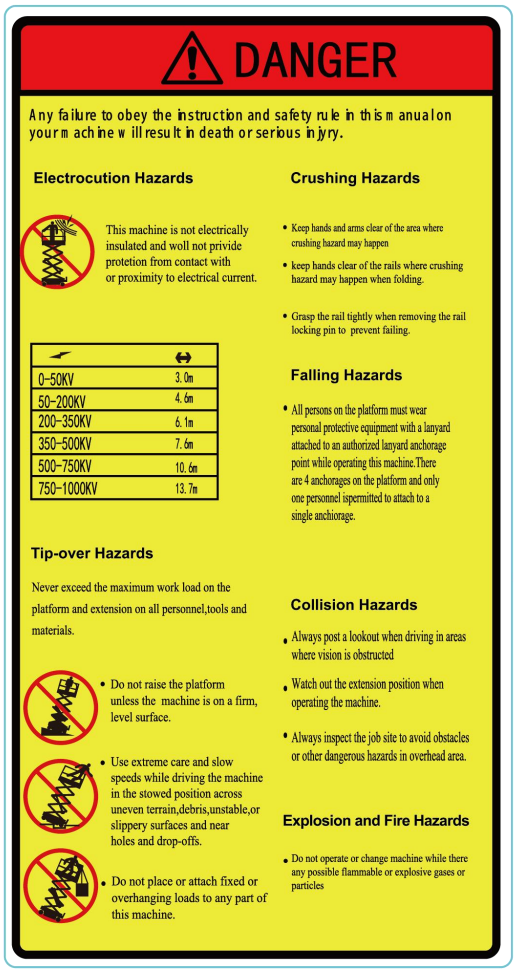
Safety warning sign - used to warn of personal injury. Follow all safety information after this sign to avoid possible personal injury or death.

Red, Indicates a dangerous situation. Failure to do so may result in death or serious injury.

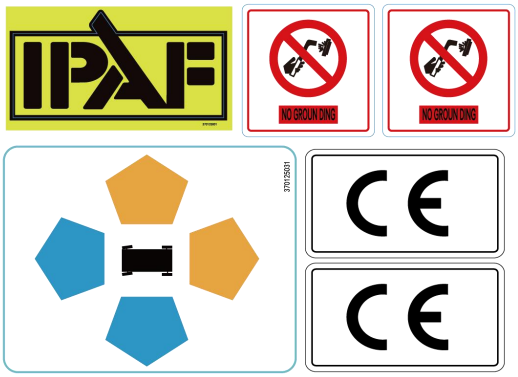
WARNING Orange, Indicates a dangerous situation. If avoided, it may result in death or serious personal injury.

Careful Yellow, Indicates a dangerous situation. If not avoided, it may cause minor or moderate personal injury.

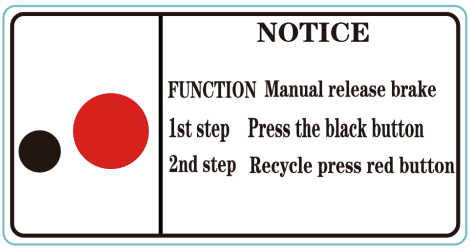
ATTENTION Blue, Indicates a dangerous situation. Failure to do so may result in property damage.

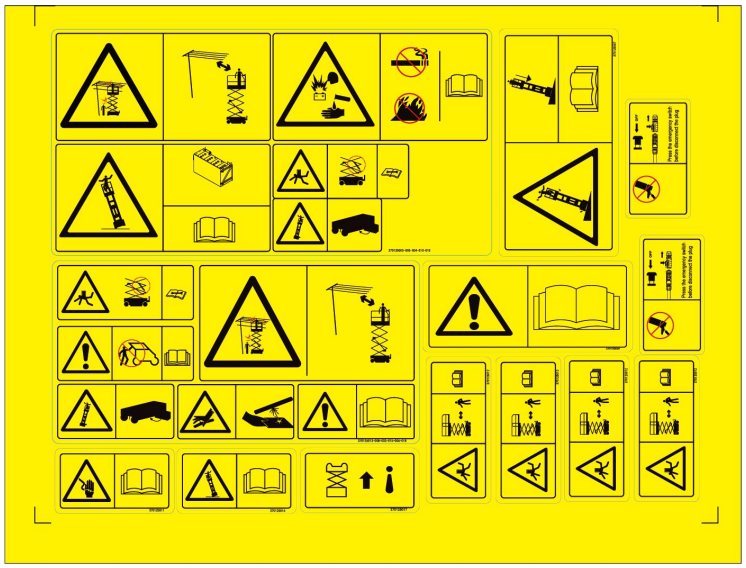


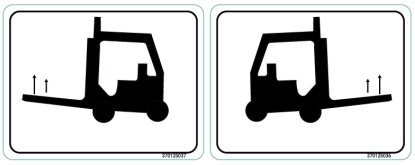


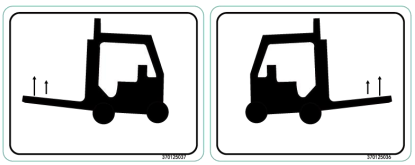


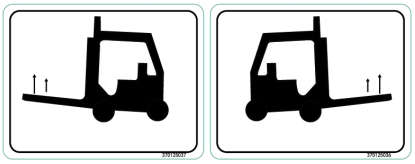




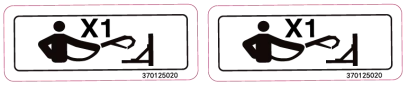


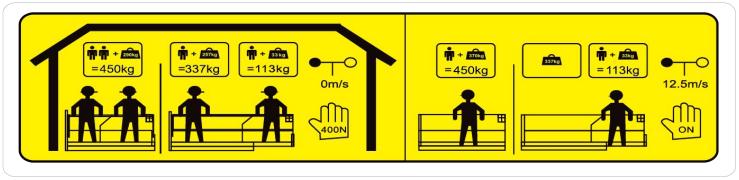


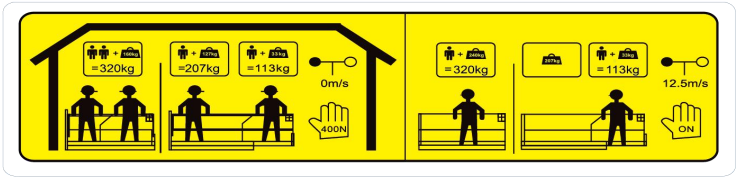


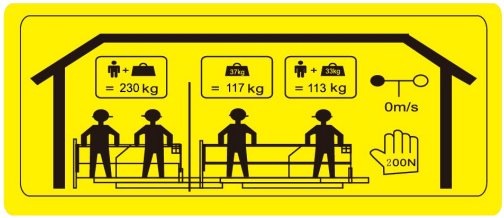


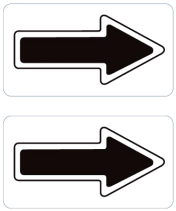


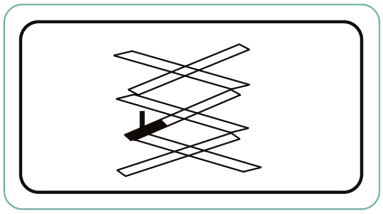


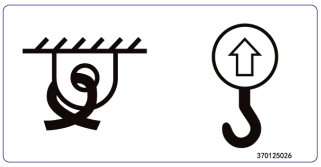


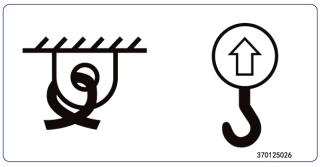




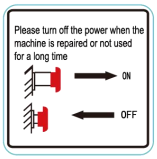


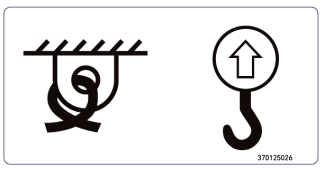


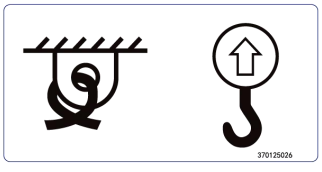


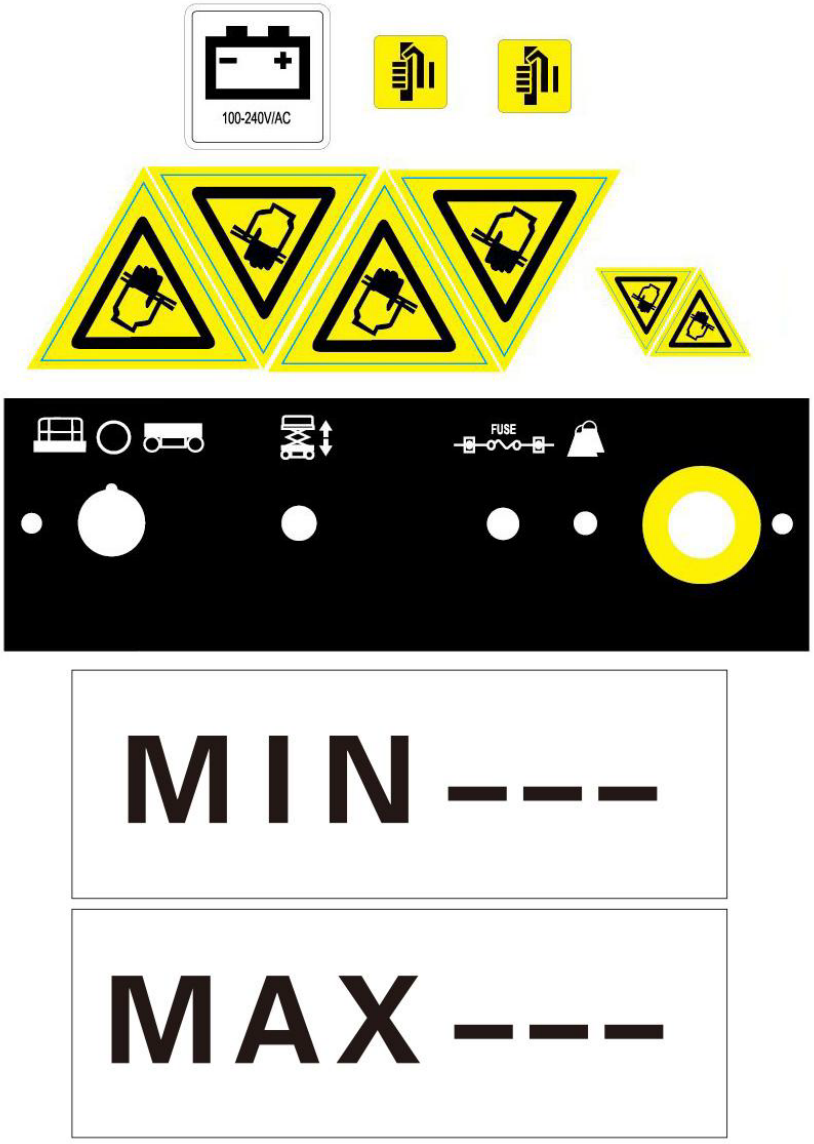


Wind Rating Table			
Scale	Windspeed (m/s)	Land conditions	Sea conditions
0	0-0.2	Quiet, smoke straightened upwards	Calm as a mirror
1	0.3-1.5	Leaves vibrate gently, smoke can represents direction.	No droplet in microwave peak
2	1.6-3.3	Leaves vibrate with gentle noise, wind can be felt	Breakup at the end of wavelet peak
3	3.4-5.4	Leaves and branches vibrate incessantly, flag can be unfolded	Wavelet crest rupture
4	5.5-7.9	Blow up tiny dirts, paper scraps, small branches vibrate	Small wave and foam crest
5	8.0-10.7	Treelets vibrate sometimes, ribbles can be seen on the lake's surface	Middle waves break foam peaks
6	10.8-13.8	Trees vibrate vigorously, wires whirring, difficult in holding up umbrella	Big waves leave foam peaks









1.2 Designed Purpose

Sole purpose of the machine is to lift people, tools and materials to aerial work place.

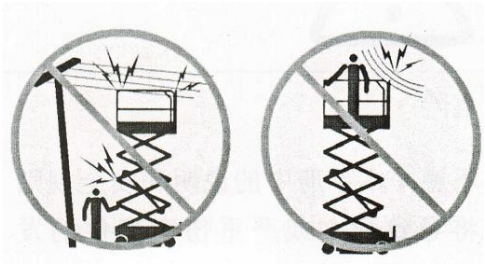
1.3 Maintenance of Safety Labels

Replace any missing or damaged safety signs so that safety is kept in the mind of operators.
Use neutral soap and clean water to clean the safety label.
Do not use solvent-based cleaners, as such cleaners may damage the safety labels material.

1.4 Types of Danger

Shock Hazard

The lift is not insulated; and no electrical shock protection will be provided when people touch or get close to wires.



Please keep sufficient safe distance away from power lines and electrical equipment room in accordance with applicable government laws and regulations and instructions in following chart.

Voltage	Space Required
0～300V	No touch
300V～50KV	3.05m
50KV～200KV	4.60m
200KV～350KV	6.10m
350KV～500KV	7.62m
500KV～750KV	10.67m
750KV～1000KV	13.72m

Please consider influence of strong breeze or gust on movement of the platform as well as on swinging and loosing of wires.

Please keep away from the lift if it touches live wires. Before power cut, operators on the ground or platform are prohibited to touch or operate the lift.

Please don't operate the lift under lightning or stormy weather.

Please take the lift as ground wire in welding.

Overturn Danger

Total load of people, equipment and materials on the platform shall not go beyond the max. loading capacity of the platform and the extendable one.

Max. loading capacity-68W			
Max. Allowable workers（indoor）	**2**	Max. Allowable worker（outdoor）	**1**
max. loading capacity	**450kg**	max. loading capacity of extendable platform	**113 kg**
Max. loading capacity- 810W			
Max. Allowable workers quantity（indoor only）	**2**	Max. Allowable worker（outdoor）	**2**
max. loading capacity	**450kg**	max. loading capacity of extendable platform	**113 kg**
Max. loading capacity- 1012W			
Max. Allowable workers quantity（indoor only）	**2**	Max. Allowable worker（outdoor）	**1**
max. loading capacity	**320kg**	max. loading capacity of extendable platform	**113 kg**
Max. loading capacity- 1214W			
Max. Allowable workers quantity（indoor only）	**2**	Max. Allowable worker（outdoor）	**0**
max. loading capacity	**320kg**	max. loading capacity of extendable platform	**113 kg**
Max. loading capacity- 1416W			
max. allowable workers（indoor）	**2**	max. allowable worker（outdoor）	**0**
max. loading capacity	**230kg**	max. loading capacity of extendable platform	**113kg**
Max. loading capacity- 68SP			
Max. Allowable workers quantity（indoor only）	**2**	Max. Allowable worker（outdoor）	**0**
max. loading capacity	**230kg**	max. loading capacity of extendable platform	**113 kg**
Max. loading capacity- 68NP			
Max. Allowable workers quantity（indoor only）	**2**	Max. Allowable worker（outdoor）	**0**
max. loading capacity	**230kg**	max. loading capacity of extendable platform	**113kg**
Max. loading capacity- 810NP			
Max. Allowable workers quantity（indoor only）	**2**	Max. Allowable worker（outdoor）	**0**
max. loading capacity	**230kg**	max. loading capacity of extendable platform	**113 kg**

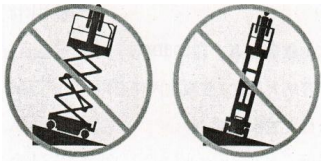
Platform stowed Platform extended



1.5 Safety of Work Area

The platform can only be raised on solid and flat ground, with travel speed not more than **0.8km/h**

Safety regulations

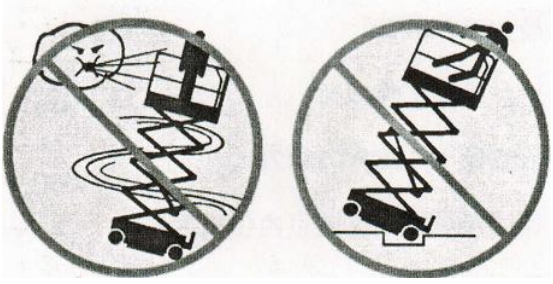


Please don't regard inclination alarm as level indicator. The alarm in chassis and platform will not blow unless the lift is serious inclined.

If such inclination alarm sounds:
Lower the platform, and move the lift to solid and flat ground. If the alarm blows during lift rising, please let the platform lowered carefully.

For outdoor use, please don't raise the platform when wind speed is faster than 12.5m/s; in such circumstance, immediately lower the platform and stop the operation.

Stop the operation in strong wind or gust conditions. Please don't enlarge surface area of the platform or loads to increase total area exposed to the wind, and consequently reduce stability of the lift.



If the lift is hindered, gets stuck, or cannot normally travel because of obstruction from objects nearby, please don't raise the platform with platform controller. All people must keep away from the platform before raising it with ground controller.

When the lift is folded, please travel slowly on bumpy road , unstable surface, slopes or other dangerous situations.

When the lift is raised, please don't let it travel on bumpy road , unstable surface, or other dangerous situations.

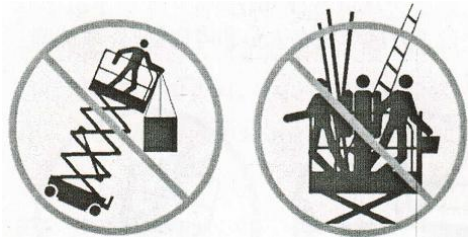
Please don't draw or pull any objects outside the platform.



Model	Work place	Max. Manual operation force	Max. workers		Model	Work place	Max. Manual operation force	Max. workers
68W	Outdoor	400N	1		1214W	Outdoor	0	0
	Indoor	400N	2			Indoor	400N	2
810W	Outdoor	400N	2		1416W	Outdoor	0	0
	Indoor	400N	2			Indoor	400N	2
1012W	Outdoor	400N	1		68SP	Outdoor	0	0
	Indoor	400N	2			Indoor	400N	2
810NP	Outdoor	400N	1		68NP	Outdoor	0	0
	Indoor	400N	2			Indoor	400N	2

Please don't use the lift as a crane. Don't place, tie or hang any objects on any part of the machine. Don't use the machine to push other objects.

Please don't operate it when the chassis tray is opened. Please don't lean it on its adjacent building. Please don't modify or disable the limit switch. Please don't add any loads outside guardrails.



Please don't modify or change the aerial work platform without authorization of its manufacturer. Additional devices installed on the lift, skirtboard or guardrail for tools or other materials will increase the lift weight, surface area and load. Please don't modify or damage any parts which may affect security and stability of the lift.

Please don't replace critical parts which may affect lift stability with alternative ones under different weight or specifications.

Don't use a battery weighs less than the original battery. The battery is not only counterweight in the chassis, but also vital to maintaining the stability of the machine. Each battery must weigh up to 28kg. The minimum weight of the chassis battery tray (containing battery must reach 175kg.

Please don't place a ladder or scaffold in the platform, or lean on any part of the machine.

Only tools and materials which are evenly spread and could be easily moved by workers on platform are permitted to be loaded.

Do not use the machine on moving or moving surfaces and vehicles. Make sure that all tyres are in good condition and the nut is properly tightened.

Danger of Crush

Please keep your hand or arm away from any dangerously sharp parts.

Please make correct judgment and planning when controlling or operating the lift on the ground; and keep safe distance between the operator, lift or any fixed objects.

When folding the railing, do not place the hands where it may be caught.

When unplugging the guardrail lock pin, always grasp the guardrail to prevent the platform barrier from falling down.

When using the joystick to operate the machine on the ground, keep normal judgment and plan. Maintain a safe distance between the operator, the machine and the stationary object.

Danger of Operation On Slopes

Do not drive the machine on slopes that exceed the rated slope and rated side slope. The rated slope applies to machines that are in a folded state.

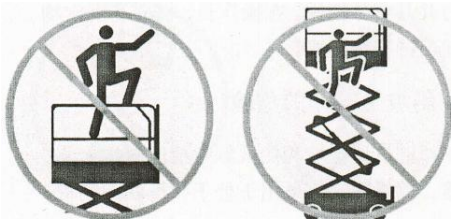
model	folded	folded	model	folded	folded
	Max. Rated slope	Max. Rated side slope		Max. Rated slope	Max. Rated side slope
68W	**25%(14°)**	**25%(14°)**	**1416W**	**25%(14°)**	**25%(14°)**
810W	**25%(14°)**	**25%(14°)**	**68SP**	**25%(14°)**	**25%(14°)**
1012W	**25%(14°)**	**25%(14°)**	**68NP**	**25%(14°)**	**25%(14°)**
1214W	**25%(14°)**	**25%(14°)**	**810NP**	**25%(14°)**	**25%(14°)**

Note: slope ratings are limited by ground conditions and traction.

Danger of Falling

Safety equipment should be worn by all operators on the platform, and their safety belt hooks should be fastened to approved rope securing points. Each rope fixed point can only clasp one hook.

Don’t climb or sit on the platform's guardrail. At any time please keep yourself standing stably on platform baseboard.



Please don’t climb down the platform when the lift is raised.

Please keep the platform baseboard free from any debris.

Please close the entrance door before operation.

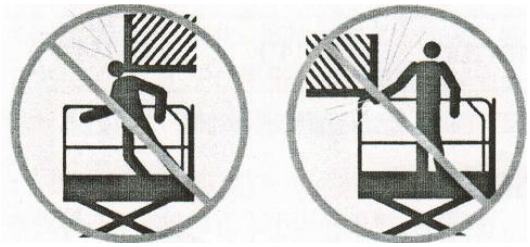
Please don’t go in or come out of the lift unless otherwise it is at its stowed state.

Do not operate the machine if the fence is not installed correctly or the entrance door does not guarantee safe operation.

Danger of Collision



When you start or operate the machine, you should pay attention to the scope of sight and the existence of blind spots.
When moving the machine, please note the location of the extension platform.
Check the work area to avoid obstructions on the head or other possible hazards.



When you grasp the platform fence, beware of the risk of collision .

Users must follow the rules of use of personal protective equipment by employers, workplaces and government laws and regulations.

The driving and steering directions on the nameplate and platform label should be observed and used.

The machine can not be operated on any crane or mobile aerial machinery route unless the crane controller is locked and / or has taken precautions to prevent any potential collision.

Don't dangerously drive or play when operating.

Only lower the platform when without personnel and obstacles below the platform.



Depending on the ground condition, the degree of congestion, the slope, the location of personnel, and any other factors that may cause a collision, limit the speed of travel.

Danger of Damaged Parts

Please don't charge batteries with any charger above 24V. Please don't take the lift as ground wire in welding.

Danger of Explosion and Fire

Please don't charge batteries with any charger above 24V. Please don't take the lift as ground wire in welding.

Danger of Damaged Machine

Do not use a damaged or faulty machine.

Before each work shift, the machine should be thoroughly checked and tested for all functions.

Damaged or malfunctioning machines should be marked immediately and stop operation.

Ensure that all maintenance operations have been performed as specified in this manual.

Make sure that all labels are properly and easily identified.

Make sure this manual is stored in the manual box in the platform.

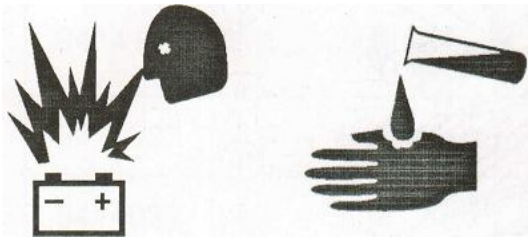
Danger of Physical Injury

Do not operate the machine when hydraulic oil or air leaks. Hydraulic oil or air leakage may penetrate or burn the skin.

Incorrectly contact any of the components below the cover will cause serious injury. Only trained service personnel can check the compartments. Only the inspection before running should be carried out by operators. During operation, all compartments must remain closed and locked.

Battery Safety

Danger of Buring



Batteries contain acidic substances. Wear protective clothing and protective glasses when using batteries.
Avoid overflow or contact with acidic substances in the battery. With soda and water to neutralize the overflow of the battery acid.

Danger of Explosion



Spark, flames and lit cigarettes are prohibited near the battery. The battery can release explosive gases.

The battery tray should remain open during the entire charge.
Spark, flames and lit cigarettes are prohibited near the battery. The battery can release explosive gases.

The battery tray should remain open during the entire charge.

Danger of Damaged Parts

Please don’t charge batteries with any charger above 24V.

Danger of Electric Shock / Burning



Only connect the battery charger to a grounded AC three-hole power outlet.

Check the cables and wiring for damage every day. Replace damaged objects before operation.

Avoid electric shock due to contact with the battery terminals. Remove all rings, watches and other accessories.

Danger of Overturn

Only connect the battery charger to a grounded AC three-hole power outlet.
Check the cables and wiring for damage every day. Replace damaged objects before operation.
Avoid electric shock due to contact with the battery terminals. Remove all rings, watches and other accessories.

Danger During Lifting

Please use the proper number of staff and correct method to lift the battery.

1.6 Lock it After Operation

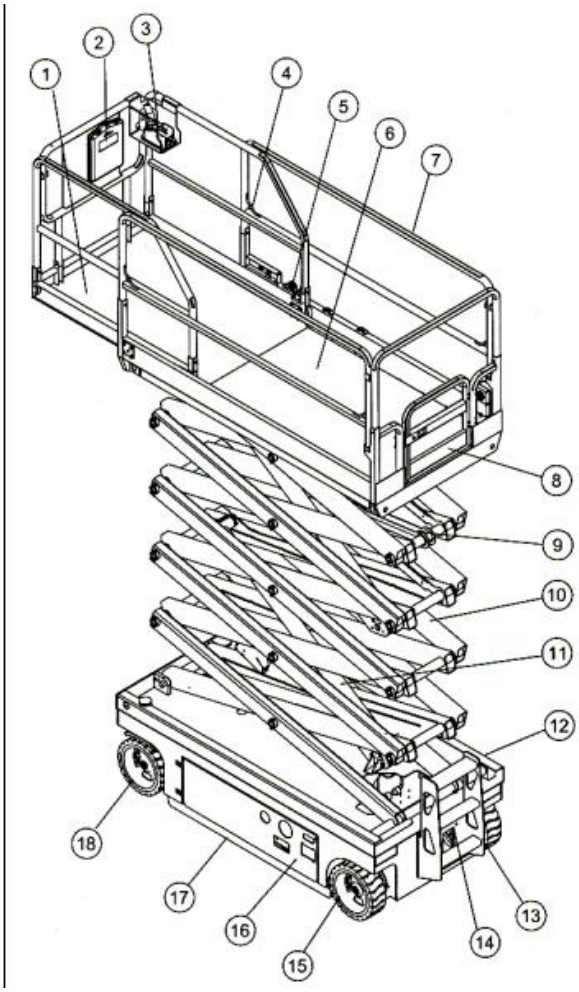
1 Choose a safe parking location, which can be a solid horizontal ground, no obstacles and avoid transporting busy places.
2 lower platform.
3 Turn the key switch to the "OFF" position and unplug the key to avoid unauthorized use.
4 Stop the wheel with wedge.
5 Charge the battery.

2.Components And Functions

2.1 Components

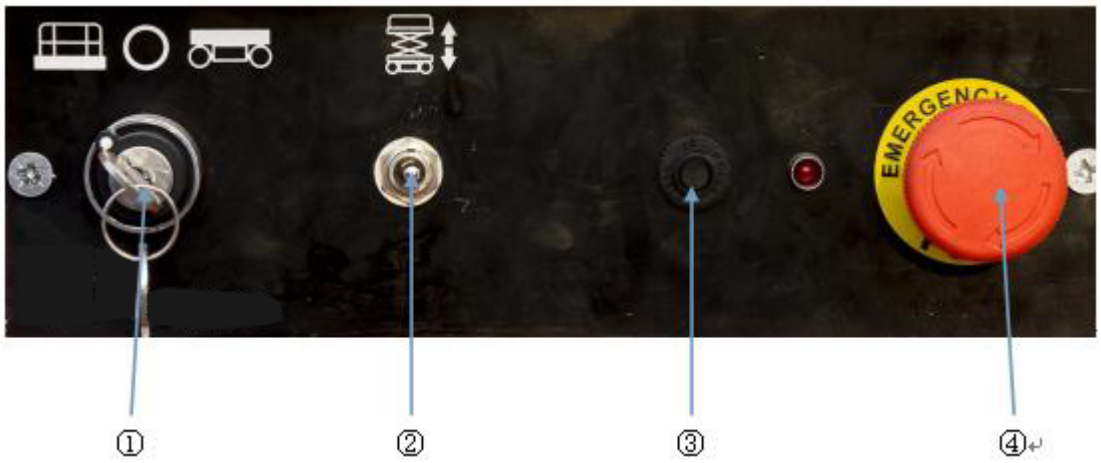
The machine is divided into five parts: chassis, scissor, platform, electrical and hydraulic. The main components are shown below.

The machine controls two modes: ground control and platform control. Ground control is to start and stop and lift the machine through the ground controller. The platform control is to start, stop, lift, walk and turn the machine through the platform controller, and observe the operation information such as the power and fault code through the LED screen.



1 Extendable Platform
2 Manual Box
3 Platform Controller
4 Fastening Point
5 Pedal Lock
6 Fixed Platform
7 Guardrail
8 Entrance Door
9 Safety bracket
10 Scissor boom
11 Hoisting Cylinder
12 Ground Controller (opposite to batteries)
13 Ladder
14 Brake Release Pump
15 Non-Steering Wheel
16 Charger
17 Pit Protection Device
18 Steering Wheel

2.1.1 Ground Controller



Ground Controller

1 Key Switch

Turn the key switch to the “platform” position, the upper controller will be enabled. Turn the switch to “off” position, the lift is shut down. And turn the switch to “ground” position, the ground controller is enabled.

2 Platform Up and Down Switch

Dip up the switch to raise platform, and dip down the switch to descend it.

3 Reset

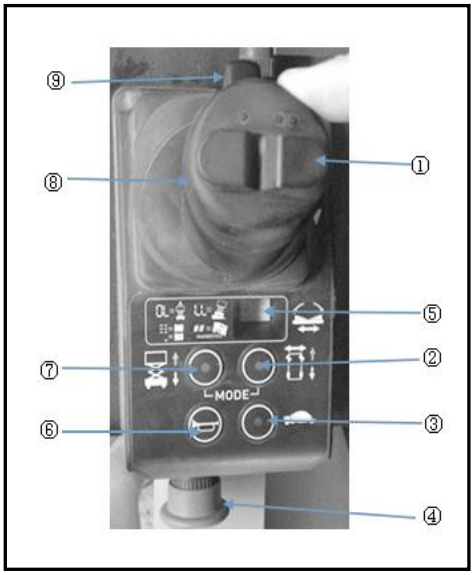
4 Red Emergency Stop Button

Screw the emergency stop button down to its “off” position to stop all functions. And pull it up to “on” position for lift operation.

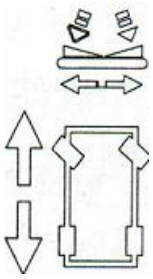
2.1.2 Platform Controller

Platform Controller

1. Thumb rocker switch
2. drive function button
3. Travel speed button
4. Red emergency stop button
5. LED
6. Horn button
7. Lifting function button
8. Joystick
9. Function start button



Platform Controller



1 Thumb rocker switch: Press the thumb rocker switch in either direction to activate t function.

2 Drive function button: Press this button to activate the drive function.

3 Travel speed button: Press this button to activate the slow or fast drive function.

4 Red emergency stop button: Push the red emergency stop button to the "OFF" position to stop all functions. Pull the red emergency stop button to the "open" position, you can operate the machine.

5 LED: diagnostic reading device and battery charge indicator.

6 Horn button: Press the speaker button, the horn will sound. Release the horn button, the horn stops ringing.

7 Lift function button: Press this button to activate the lifting function.

8 Joystick

9 Function start button
Lifting function: Press the function start button on the platform joystick to enable the lifting function. Move the joystick in the direction indicated by the blue arrow and the platform will rise. Move the joystick in the direction indicated by the yellow arrow, the platform will descend. When the platform falls, the drop alarm should sound.

Drive function: Press and hold the function start button on the platform joystick to enable the drive function. Move the joystick in the direction indicated by the blue arrow on the control panel and the machine will move in the direction indicated by the blue arrow. Move the joystick in the direction indicated by the yellow arrow on the control panel and the machine will move in the direction indicated by the yellow arrow.

2.2 Pre-operation Check



Please don’t operate the lift, unless:

You have understood and practiced the rules for safe operation of the machine in this operating manual.

1 Avoid dangerous situations.

2 Always perform pre-operation checks.

Know and understand the safety rules before proceeding to the next step

3 Check the workplace.

4 Always perform pre-use functional tests.

5 Only use the machine according to the design intent of the machine.

Basic Principle

The lift can only be operated by well-trained people who get formal authorization.In case that the lift is operated by more than one persons in different time of the same shift, they should be admitted as qualified operators and observe all safety rules and instructions specified in the Operating and Maintenance Manual.

Unless otherwise for the purpose of lifting people, tools and materials to aerial workplace, it is unsafe and even dangerous to use it for other purposes.

Please check the list on the next page and check each item.

If any damage or any unauthorized changes are found from the factory status, the machine should be marked and stopped.

Only qualified service technicians are required to maintain the machine according to the manufacturer's regulations. After the maintenance is completed, the operator must perform the pre-operation check again before continuing the functional test.

The periodic maintenance check shall be carried out by qualified service technician in accordance with the specifications and manual requirements provided by the manufacturer.

Check the entire machine to find:

□ cracks in welds or structural parts
□ Dents or damage to the machine
□ Ensure that all structural parts and other key components are complete, and that all relevant fasteners and pins are in the correct position and are tightened.
□ The guardrail is installed, the guard rail pin is installed in place and the bolts are properly tightened.
□ Make sure that the chassis battery tray and the oil pump tray are closed and locked, and the battery is connected correctly.

Pre-operation Check

□ Ensure that the manual is complete, clear to read and stored in the manual box in the platform.
□ Make sure all labels are clear, easy to read and in proper position. See the "Labels" section.
□ Check the hydraulic oil is leaking and whether the oil level is sufficient. Refuel as needed. See the "Maintenance" section.
□ Check whether the battery fluid leaks and whether the level is sufficient. Add distilled water as needed. See the "Maintenance" section.
Check the following parts or areas for damage, improper installation, missing parts or unauthorized changes:
□ Electrical components, wiring and cables
□ Hydraulic hoses, fittings, hydraulic cylinders and hydraulic valves
□ Battery pack and its connection
□ Drive motor
□ Wearable sliders and pads
□ Tyres and wheels
□ Ground wire
□ Limit switches, alarms and horns
□ Nuts, bolts and other fasteners
□ Platform overload parts
□ Platform entrance door
□ Indicator and alarm (if equipped)
□ safety bracket
□ Extended platform
□ scissor arm pins and fasteners
□ Platform joystick
□ Brake release parts
□ Pit protection device
NOTE: If the platform must be raised to check the machine, make sure that the safety bracket is in the correct position.

2.3 Work Place Inspection



Basic principle

Workplace inspections help the operator decide whether the workplace will ensure safe operation of the machine. The operator should do this first before moving the machine to the workplace.

Knowing and keeping in mind the dangers of workplaces are the responsibility of the operator and can be observed and avoided when moving, installing and operating the machine.

Workplace Inspection

Be careful and avoid the following dangerous situations:

- Steep or cave
- Protrusions, ground obstacles or debris
- Tilted surface
- Not strong or smooth surface
- Aerial obstructions and high voltage wires
- Dangerous places
- Surface that is insufficient to withstand the full load force applied by the machine
- Wind and weather conditions
- Unauthorized person appears
- Other possible unsafe conditions

2.4 Function Test

Basic principle

Functional tests are used to detect faults before starting to use the machine.

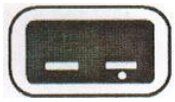
The operator must test all the functions of the machine in step-by-step instructions.

Prohibit the use of faulty machines. If malfunction occurs, the machine must be marked and stopped. Only qualified service technicians are required to service the machine according to the manufacturer's regulations.

After the repair, the operator must perform pre-operation and functional tests again before starting the machine.

2.4.1 Test by Ground Controller

1 Select a test area that is solid, horizontal and free of obstructions.
2 Make sure the battery pack is connected.
3 Pull the red emergency stop button on the platform and ground to the "on" position.
4 Turn the key switch to the ground controller.
5 Observe the LEDs on the platform controller
Diagnostic reading device.
○ Result: LED should be as shown on the right.



Emergency Stop Test

1 Push the ground red emergency stop button to the "OFF" position.
○ Result: No function can run.
2 Pull the red emergency stop button to the "ON" position.

Up / Down Function and Function Start Test

The central alarm system controls the buzzer to release different frequencies sound. The drop alarm rings 60 times per minute. The alarm sounded 150 times per minute when the pit protection device is not in place or the machine is tilted. It can also provide an optional car-type horn.
1 Turn the key switch to the platform control or “off” position.
2 Lift it up and hold the platform lift switch.
○ Result: The platform does not raise.
3 Turn the key switch to the ground control position.
4 Lift it up and hold the platform lift switch.
○ Results: The platform should rise.
5 Lift it down and hold the platform lift switch.
○ Results: The platform should drop. When the platform falls, the drop alarm should sound. When the platform falls to 2m, it stops falling.
6 Lift it down and hold the platform lift switch again.
○ Result: The platform should drop to the lowest position. When the platform falls, the drop alarm should sound.

Auxiliary Stop Test
1 Push the platform red emergency stop button to the "OFF" position.
○ Result: All functions will not run.
2 Pull the red emergency stop button to the "ON" position.
○ Result: LED diagnostic indicator will light up.

2.4.2 Test by Platform Controller

Emergency Stop Test

1 Push the platform red emergency stop button to the "OFF" position.
○ Result: All functions will not run.
2 Pull the red emergency stop button to the "ON" position.
○ Result: LED diagnostic indicator will light up.

Test horn

1 Press the horn button.
○ Result: The horn will sound.

Up / Down Function and Function Start Test

1 Do not press the function start button on the joystick
2 Move the joystick slowly in the direction indicated by the blue arrow, and then move in the direction indicated by the yellow arrow.
○ Result: All functions will not run.
3 Press the lift function selection button.
4 Press and hold the function start button on the joystick.
5 Slowly move the joystick in the direction indicated by the blue arrow.
○ Results: The platform should rise. Pit protection device should be unfolded.
6 Release the joystick.
○ Results: The platform should stop rising.
7 Press and hold the function start button. Move the joystick slowly as indicated by the yellow arrow.
○ Results: The platform should drop. When the platform falls, the drop alarm should sound.

Steering Test

Note: When performing a steering and drive function test, stand on the platform, facing the machine's steering end.
1 Press the drive function selection button, the indicator light is on.
2 Press and hold the function start button on the joystick.
3 Press the thumb rocker switch on the top of the joystick as indicated by the left arrow on the control panel.
○ Result: The steering wheel should be rotated in the direction indicated by the left arrow on the control panel.
4 Press the thumb rocker switch in the direction indicated by the right arrow on the control

panel.
○ Result: The steering wheel should be rotated in the direction indicated by the rightward arrow on the drive chassis.

Drive and Brake Function Test

1 Press and hold the function start button on the joystick.
2 Follow the up arrow on the control panel to move the joystick slowly until the machine starts to move and then return the handle to the center.
○ Result: The machine should be moved in the direction indicated by the up arrow on the control panel and then suddenly stop.
3 Press and hold the function start button on the joystick.
4 Move the joystick slowly until the machine starts to move in the direction indicated by the down arrow on the control panel, and then return the handle to the center.
○ Result: The machine should be moved in the direction indicated by the down arrow on the control panel and then suddenly stopped.
Note: The brakes must be able to stop the machine smoothly on any slope that the machine can climb.

Limited Driving Speed Test
1 Press the lift function selection button and the indicator light is on. Hold the function start button on the joystick, raise the platform to about 2m from the ground.
○ Results: Pit protection device is unfolded.
2 Press the drive function selection button, the indicator light is on.
3 Press and hold the function start button on the joystick to slowly move the joystick to the fully driven position.
○ Result: The maximum drive speed should not exceed 20cm / s when the platform is raised.
○ Result: If the maximum travel speed exceeds 20cm / s when the platform is raised. please mark the machine immediately and stop running.

Tilt Sensor Operation Test

Note: Perform this test on the ground with a platform controller. Do not stand on the platform.
1 completely down the platform.
2 drive the two wheels on one side onto a 3.5 x 20 cm pad.
3 lift the platform at least 2m.
○ Result: The platform should stop moving, and the tilt alarm should sound 150 times per minute.
4 Move the joystick in the direction indicated by the up arrow and then move in the direction indicated by the down arrow.
○Result: The drive function should not work in either direction.
5 Lower the platform and leave the machine off the obstacle.

Pit Protection Device Test

Note: When the platform rises, the pit protection device should be automatically unfolded. Pit protection device will start another limit switch to allow the machine to continue running. If the Pit protection device is failed to unfold, the alarm will sound and the machine will stop.

1 raised platform.

○ Result: When the platform rises to 2m from the ground, the pit protection device should be unfolded.

2 Press and hold the side of the pit protection device first, then press the other side.

○ Result: The pit protection device will not move.

3 Lower the platform.

○ Result: The pit protection device should be returned to the stowed position.

4 Place a 3.5x20cm or similar piece of wood under the pit protection device. Raise the platform.

○ Result: When the platform rises to 2 m from the ground, the alarm will sound and the drive function can not be run at this time.

5 Lower the platform and remove the 3.5x20cm block.

2.5 Operation Instructions

Basic Principle

This machine is a self-propelled hydraulic lifting device with a working platform on the scissor mechanism. The vibration generated when the machine is working is not dangerous to the operator standing on the work platform. This machine can be used to load workers and their portable tools to a certain height from the ground, or to reach a certain working area above the machine or equipment.

Only trained and authorized personnel can operate the machine. If more than one operator uses the same machine at different times during the same work shift, they must be qualified operators and follow all safety rules and instructions in the Operation and Maintenance Manual. This means that every new operator should perform pre-operational inspections, functional tests, and workplace inspections before using the machine.

SISTEMA is a software that determines whether the safety level (PL rating) of the entire machine meets the requirements for machine safety in 5.11 of EN280 by analyzing and diagnosing the reliability of the subsystems that make up the machine. The SISTEMA software was used to evaluate and analyze the MEWP series products produced by our company. The safety level fully meets the requirements of EN280 standard 5.11 and meets the requirements of ENIS0 13849-1/2 safety standards.

The Operating Instructions section provides specific instructions for all aspects of machine operation. It is the responsibility of the operator to follow all safety rules and instructions in the Operation and Maintenance Manual.

In addition to lifting personnel and their tools and materials into the airborne workplace, it is unsafe or even dangerous to use this machine for other purposes.

2.5.1 Emergency Stop

Screw the red emergency stop button of the ground controller or upper controller down to its ‘‘Off’’ position to stop all functions.
Any restoration of operating functions cannot be conducted before such emergency stop is pressed.

2.5.2 Emergency Drop

1. Pull out the emergency drop button to force the lift go down.

2.5.3 Operations on the Ground

1 Turn the key switch to the ground controller.
2 The red emergency stop button of the ground and the platform are pulled to the "on" position.
3 Make sure the battery is connected before operating the machine.

Adjust the platform location

Move the platform lift switch according to the mark on the control panel. The drive and steering functions are not available via the ground controller

2.5.4 Operations on the Platform

1 Turn the key switch to the platform controller.
2 The red emergency stop button of the ground and the platform are pulled to the "on" position.
3 Make sure the battery is connected before operating the machine.

Adjust the Platform Position

1 Press the lift function selection button.
2 Press the function start button on the joystick.
3 Move the handle according to the mark on the control panel.

Steering

1 Press the drive function selection button.
2 Press and hold the function start button on the joystick.
3 Turn the steering wheel with the thumb rocker switch at the top of the joystick.

Driving

1 Press the drive function selection button.
2 Press and hold the function start button on the joystick.
3 Increase the speed: slowly move the joystick, so that it deviates from the center position.
Decrease the speed: Move the joystick slowly to move towards the center.
Stop: Return the joystick to the center position or release the function start button.
Use the platform controller and the arrows on the platform to determine the direction of the machine.
The travel speed of the machine is limited when the platform rises. The state of the battery will affect the performance of the machine. When the battery level indicator flashes, the machine's drive speed and function speed will drop.

Driving Speed Selection

The drive controller can operate in two different drive speed modes. When the drive speed selection button light is on, the slow drive speed mode is active. When the drive speed selection button lamp is off, the fast drive speed mode is active. Press the drive speed selection button to select the desired drive speed.

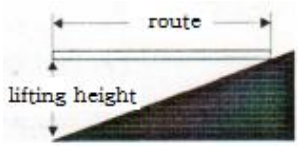
Driving on a slope

Determine the slope and side slope ratings.
68SP, 68NP, 68W, 810NP, 810W, 1012W, 1214W, 1416W Maximum slope rating, stowed position 25%
Maximum side slope rating, stowed position 25%
Note: Slope ratings are limited by ground conditions and traction.
Press the drive speed selector button to select the fast drive speed mode.

Determine the gradient:

Measure the slope with a digital inclinometer or follow the steps below.
You need the following tools:
Carpenter's rule
Straight wood block, the length of at least 1m
The measuring tape
Place the wood on the slope.

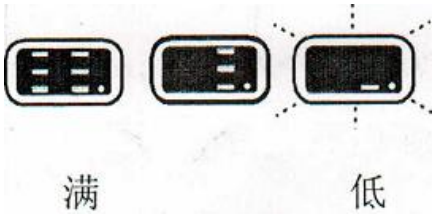
At the end of the slope, place the carpenter's rule on the upper edge of the block and lift the end of the block until it is level.
Keep the block horizontal and measure the distance from the bottom of the wood to the ground.
Use the tape to measure the lifting height and divided by the length of the block (route) and then multiply by 100.
For example：
Route=3.6m
Lifting height=0.3m
0.3m÷3.6m=0.083×100=8.3%



If the slope exceeds the maximum slope or side slope rating, the machine must be lifted or transported up and down along the ramp. Please refer to the "Transport and Hoist" section.

2.5.5 Operation on Ground By Joystick

Maintain a safe distance between the operator, the machine and the stationary object.
Pay attention to the direction of travel of the machine when using the controller.
Battery level indicator
The battery level is determined using an LED diagnostic reading device.



Full Low

2.5.6 Instruction For Use of Safety Bracket

Use of safety bracket

1 Raise the platform to about 2.5m above the ground.
2 Raise the safety bracket, move the safety bracket to the middle of the scissor shaft, and rotate it up to the vertical state.
3 Lower the platform height until the safety bracket is in full contact with the shaft sleeve. When

you lower the platform, stay away from the moving parts.

DANGER There should be no load on the platform when using a safety bracket.

2.5.7 Way To Fold Guardrail

The platform guardrail contains the main platform and the extendable platform rail. All parts are secured in place by four wire locking pins.

1 Completely reduce the platform and retract the extension platform.

2 Remove the platform controller.

3 Remove the two wire locking pins from the front of the platform.

4 Inward fold the front rail assembly of the platform. Do not place the hand where it may be caught.

5 Install the two removed pins back on each side of the guardrail bracket.

6 Inward fold the right extension platform rail, do not place the hand where it may be caught.

7 Inward fold the left side of the platform rail, do not place the hand where it may be caught.

8 Carefully open the door and move to the ladder or on the ground.

9 Remove the steel wire latch from the rear of the main platform right guardrail.

10 From the ladder or on the ground, fold the main platform right rail assembly. Do not place the hand where it may be caught.

11 Install the removed pin back into the rail bracket.

12 Remove the steel wire latch from the rear of the left side of the main platform.

13 Fold the main platform left rail section. Do not place the hand where it may be caught.

14 Install the removed pin back into the rail bracket.

15 Move forward the rear rail, do not put the hand where it may be caught.

2.5.8 Way To Raise Guardrail

In accordance with the guardrail folding instructions, but to take the opposite order.

2.5.9 Platform Extension And Retraction

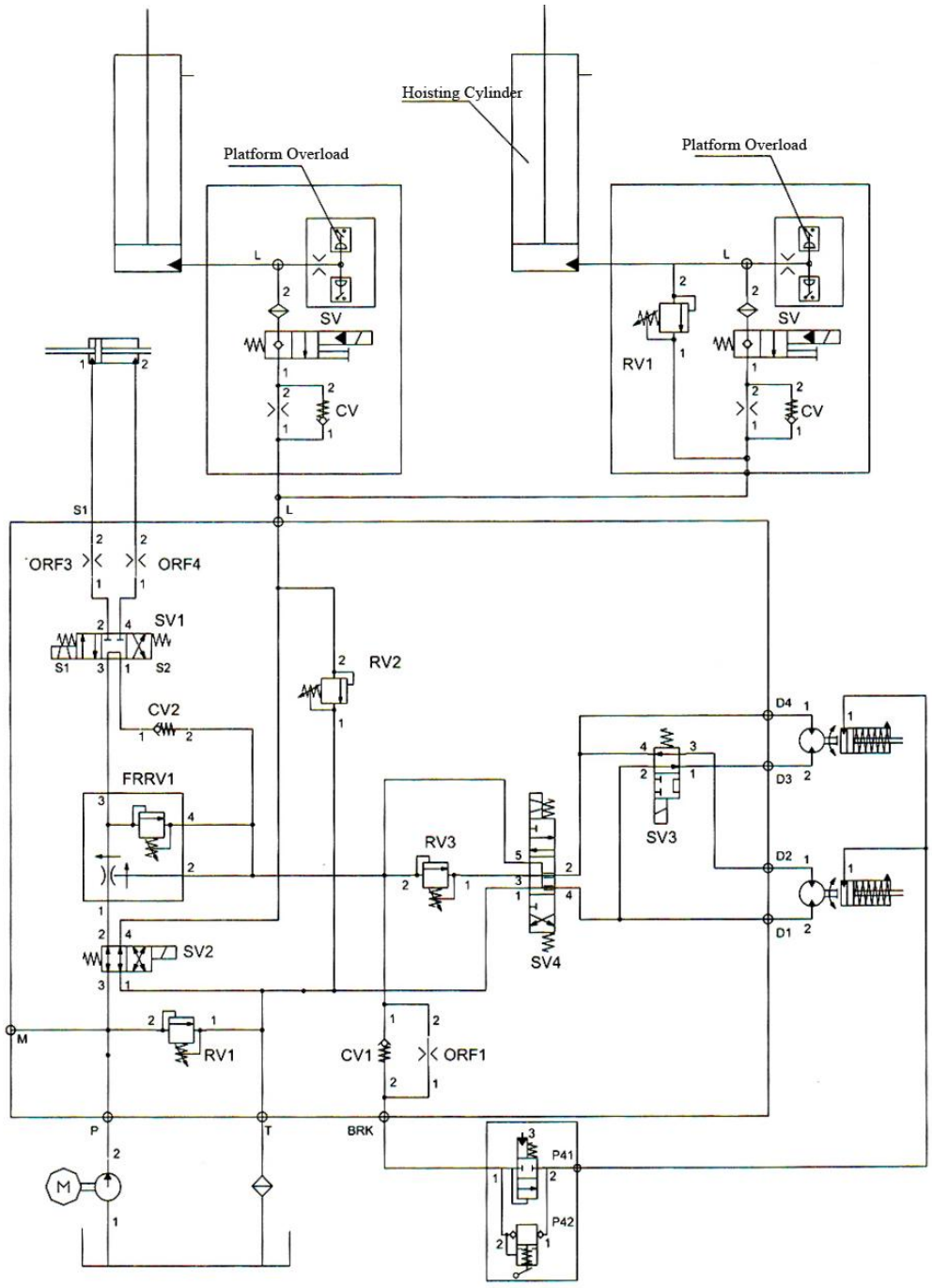
1 Step on the positioning pedal on the extendable platform.

2 Push guardrail of the extendable platform to a desired position.

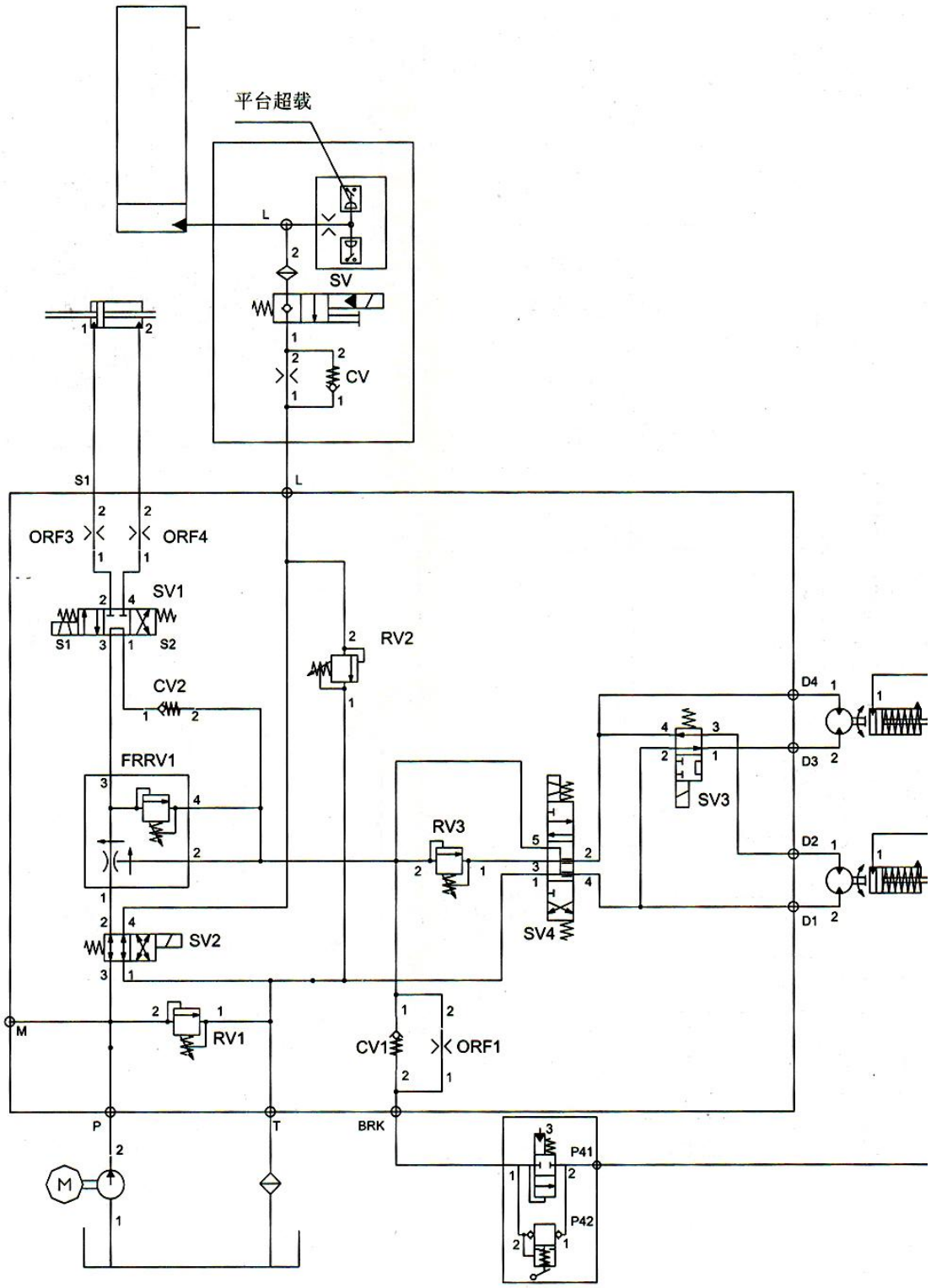
Note: Don't stand on the extendable platform during its extension process

3. Hydraulic Electrical Schematic

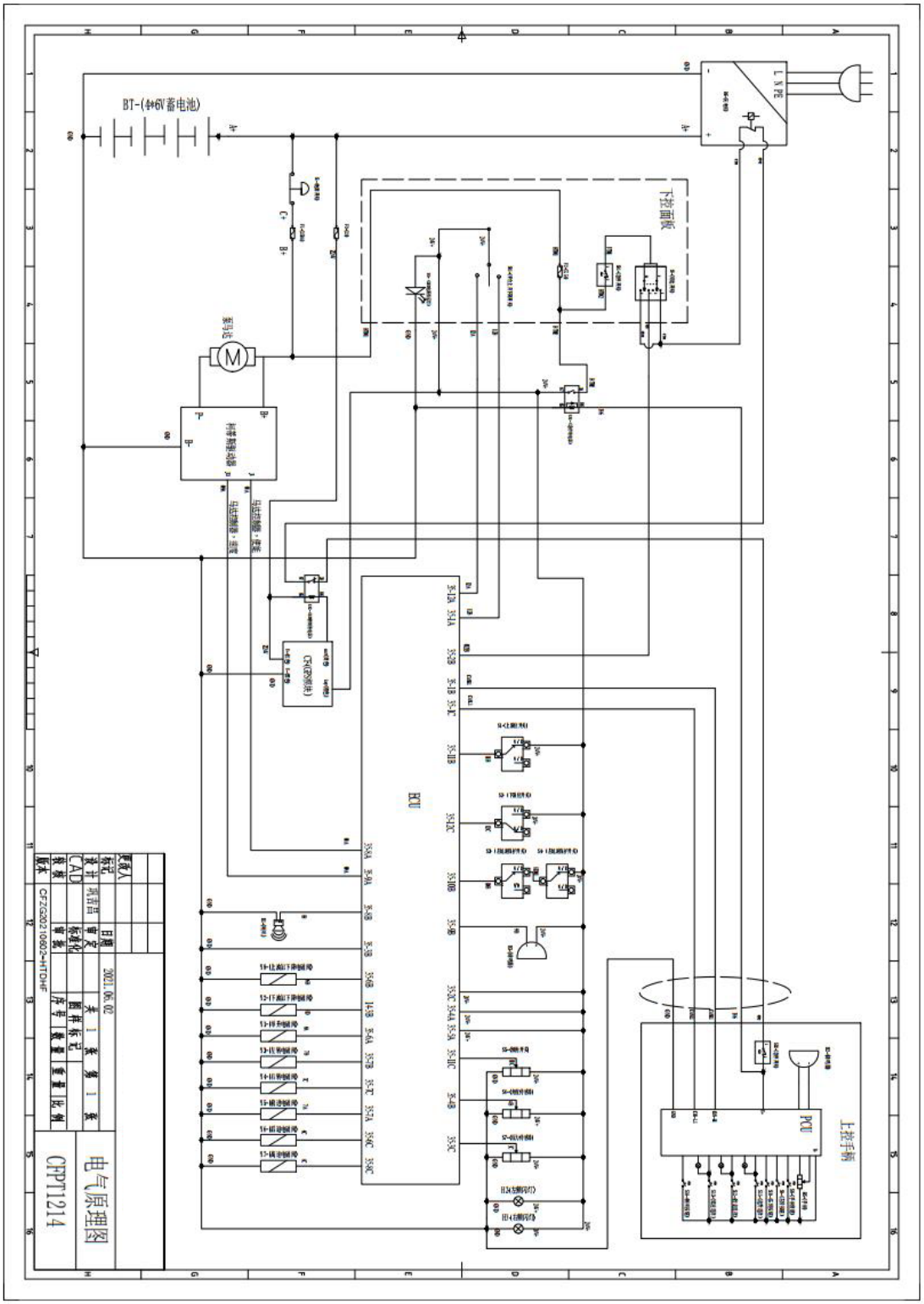
1012W 1214W 1416W



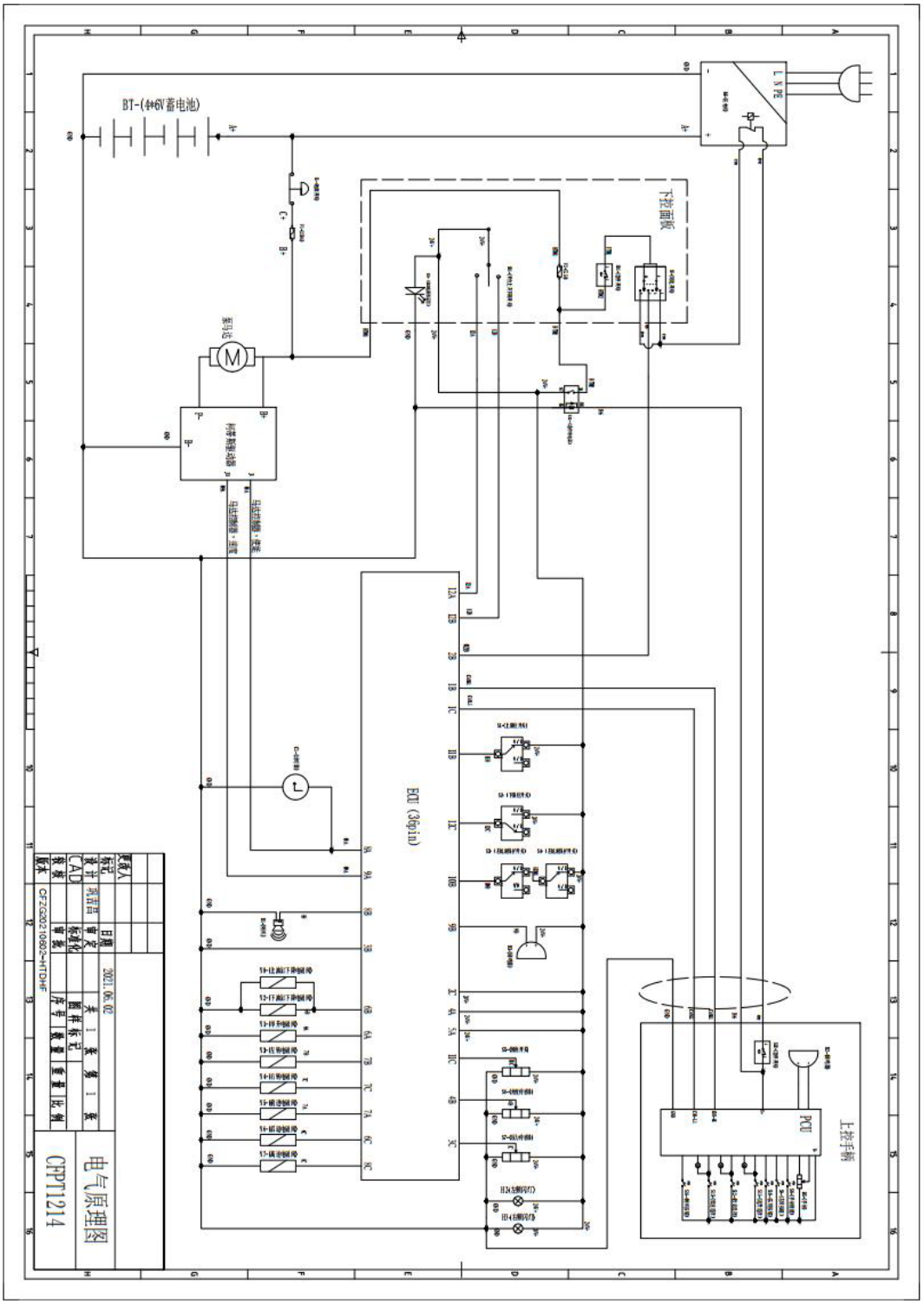
68SP 68NP 810NP 68W 810W



1214W-k500 Schematic diagram



1214W-k300 Schematic Diagram



4. Specifications

Model 68W

Maximum working height	8m
Maximum platform height	6m
Maximum height of stowed state (railing up)	2.235m
Maximum height of stowed state (railing down)	1.68m
Overall length(with ladder)	2.485m
Overall length(without ladder)	2.28m
Platform size （（Length × width)）	2.27×1.11m
Platform extension length	0.9m
Rated load	450kg
Maximum allowable wind speed	12.5m/s
Wheelbase	1.865m
Mini turning radius （outer wheel）	2.2m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	100mm
Mini ground clearance （raised）	19mm
Weight (varies according to selection)	（2070kg）

Power supply	4×6V 230AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ381×127mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	682kPa
Possession pressure	9.4kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.
The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated information.

Model 810W

Maximum working height	10m
Maximum platform height	8m
Maximum height of stowed state (railing up)	2.355m
Maximum height of stowed state (railing down)	1.8m
Overall length(with ladder)	2.485m
Overall length(without ladder)	2.28m
Platform size （（Length × width)）	2.27×1.11m
Platform extension length	0.9m
Rated load	450kg
Maximum allowable wind speed	12.5m/s
Wheelbase	1.865m
Mini turning radius （outer wheel）	2.2m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	100mm
Mini ground clearance （raised）	19mm
Weight (varies according to selection)	（2220kg）

Power supply	4×6V 248AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ381×127mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	682kPa
Possession pressure	9.4kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.
The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated information.

Model 1012W

Maximum working height	12m
Maximum platform height	10m
Maximum height of stowed state (railing up)	2.48m
Maximum height of stowed state (railing down)	1.93m
Overall length(with ladder)	2.485m
Overall length(without ladder)	2.28m
Platform size （（Length × width)）	2.27×1.11m
Platform extension length	0.9m
Rated load	320kg
Maximum allowable wind speed	12.5m/s
Wheelbase	1.865m
Mini turning radius （outer wheel）	2.2m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	100mm
Mini ground clearance （raised）	19mm
Weight (varies according to selection)	（2932kg）

Power supply	4×6V 248AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ381×127mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	682kPa
Possession pressure	9.4kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.
The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated information.

Model 1214W

Maximum working height	14m
Maximum platform height	12m
Maximum height of stowed state (railing up)	2.613m
Maximum height of stowed state (railing down)	2.06m
Overall length(with ladder)	2.485m
Overall length(without ladder)	2.28m
Platform size （（Length × width)）	2.27×1.11m
Platform extension length	0.9m
Rated load	320kg
Maximum allowable wind speed	12.5m/s
Wheelbase	1.865m
Mini turning radius （outer wheel）	2.2m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	100mm
Mini ground clearance （raised）	19mm
Weight (varies according to selection)	（2990kg）

Power supply	4×12V 290AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ381×127mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	682kPa
Possession pressure	9.4kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.
The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated information.

Model 1416W

Maximum working height	16m
Maximum platform height	13.75m
Maximum height of stowed state (railing up)	2.66m
Maximum height of stowed state (railing down)	2.1m
Overall length(with ladder)	2.86m
Overall length(without ladder)	2.64m
Platform size （（Length × width)）	2.64×1.125m
Platform extension length	0.9m
Rated load	230kg
Maximum allowable wind speed	12.5m/s
Wheelbase	2.235m
Mini turning radius （outer wheel）	2.70m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	100mm
Mini ground clearance （raised）	19mm
Weight (varies according to selection)	（3730kg）

Power supply	4×12V 290AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ381×127mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	682kPa
Possession pressure	9.4kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.
The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated information.

Model 68SP

Maximum working height	7.8m
Maximum platform height	5.8m
Maximum height of stowed state (railing up)	2.165m
Maximum height of stowed state (railing down)	1.81m
Overall length(with ladder)	1.86m
Overall length(without ladder)	1.687m
Platform size （（Length × width)）	1.67×0.755m
Platform extension length	0.9m
Rated load	230kg
Maximum allowable wind speed	12.5m/s
Wheelbase	1.355m
Mini turning radius （outer wheel）	1.64m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	68mm
Mini ground clearance （raised）	20mm
Weight (varies according to selection)	（1540kg）

Power supply	4×6V 210AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ305×100mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	682kPa
Possession pressure	9.4kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.
The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated information.

Model 68NP

Maximum working height	8m
Maximum platform height	6m
Maximum height of stowed state (railing up)	2.22m
Maximum height of stowed state (railing down)	1.86m
Overall length(with ladder)	2.485m
Overall length(without ladder)	2.28m
Platform size （（Length × width)）	2.27×0.81m
Platform extension length	0.9m
Rated load	380kg
Maximum allowable wind speed	0m/s
Wheelbase	1.865m
Mini turning radius （outer wheel）	2.2m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	100mm
Mini ground clearance （raised）	19mm
Weight (varies according to selection)	（1820kg）

Power supply	4×6V 210AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ381×127mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	700kPa
Possession pressure	8.8kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.

The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated information.

Model 810NP

Maximum working height	10m
Maximum platform height	8m
Maximum height of stowed state (railing up)	2.357m
Maximum height of stowed state (railing down)	1.985m
Overall length(with ladder)	2.492m
Overall length(without ladder)	2.28m
Platform size （（Length × width)）	2.27×0.81m
Platform extension length	0.9m
Rated load	230kg
Maximum allowable wind speed	0m/s
Wheelbase	1.865m
Mini turning radius （outer wheel）	2.2m
Mini turning radius （inner wheel）	0m
Mini ground clearance （stowed）	100mm
Mini ground clearance （raised）	19mm
Weight (varies according to selection)	（1970kg）

Power supply	4×6V 230AH
controller	Proportional control
Platform AC socket (optional)	standard
Max working pressure	240Bar
Power supply voltage	24V
Wheel size	Φ381×127mm
Air noise radiation Workspace operating normally Maximum noise level	＜80dB （A level）
Vibration value not exceeding	2.5m/s²
Maximum ramp rating (stowed state)	25%
Maximum slope rating (stowed state)	25%
Note: Slope ratings are limited by ground conditions and traction	
Maximum allowable tilt angle	X-1.5°，Y-3°
Drive speed	
Machine running speed （stowed max）	3km/h
Machine running speed （rising max）	0.8km/h
Ground carrying information	
Max wheel load	830kg
Local tyre pressure	720kPa
Possession pressure	8.8kPa

Note: Ground bearer information is approximate information and different options configuration factors are not included. this information can be used only with a sufficiently high safety factor.
The information contained in the manual, technical parameters, legend and so on are the latest valid information when the manual is published. Due to the technological progress, product renewal and the improvement of the requirements of laws and regulations, our company. will reserve the right to update the technical parameters and related information without prior notice. if the technical parameters and information of this manual and your actual machine status can not be matched, please contact the regional distributor and agent of our company in time for updated informatio.

5. Operating Procedures of Self-Propelled Scissor Lift

Precautions:

- Ensure that the operator does not experience dizziness and other high phenomena in the sky
- Ensure that other personnel do not interfere with the equipment and then operate

Step 1: Check the Lift



1. Check if the square tube is broken



2. Check if there is oil leakage or circuit damage in the electrical system.

Step 2: Turn On The Main Power Switch

- Find the Main Power Switch



1. Turn on the red switch and pull it out

- Find the Ground Power Switch



2. Hold the red switch and turn it clockwise about half a turn. The switch pops up to open the switch.

◆ Find the Platform Power Switch



1. Find the red button at the joystick

◆ Turn on the Red Switch



2.Hold the red switch and turn it clockwise about half a turn. The switch pops up to open the lower switch.

Step 3: Select Operation Position

- Find the key switch next to the red ground switch





Turn left the key for selecting platform operation

Turn right the key for selecting ground operation

- Select Ground Operation



When the key hits the ground position (as shown), lift up the right button for lifting the equipment; and press down the button for lowering the lift

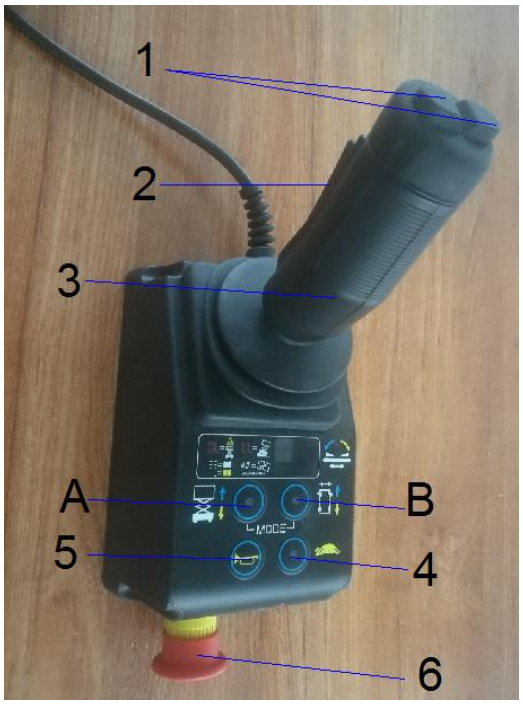
- Select Platform Operation



When the key hits the platform position (as shown), the operator can climb to the platform for operation.

Step 4: Platform Control





◆ Use the joystick for operation

◆ Walking:

1. Press button **B** to perform the walking function.
2. Hold the handle (Position **3**), press the position **2** at the handle, push the handle forward to go ahead, pull it back to go back, press position **1** to turn.

◆ Up and Down:

1. Press button **A** for going up and down.
2. Hold the handle (Position **3**), press the button **2** at the handle, push the handle forward for going up, and pull it back for going down.

◆ Horn:

1. Press 5, the horn sounds to remind the surrounding people to pay attention to safety.

◆ Turtle speed:

1. Press **4** , the vehicle speed is reduced.

Emergency processing function

◆ Manual lowering (for vehicle down fault)



Pull the plug out in the picture to release the device manually (pull it by hand), the platform is lowered

◆ Travel brake release (for non-movement of the lift)



Press the black button in the picture, and press the red button repeatedly until the button cannot be pressed. The brake is released and the lift can be pushed by the person.

Step 5: Turn off Main Power

1. Turn off the ground power



After use, turn the key switch to the vertical position and pull it out. Press the red switch at the bottom to turn off the power (Turn off the power supply is ok)

2. Turn off the Main Power



Turn off the main power as shown

II. Maintenance Manual

1. Maintenance



Obey below rules :

□The operator can only execute prescribed routine maintenance projects in this manual.

□According to the requirements of the manufacturers, regular maintenance inspection is performed by qualified maintenance personnel.

Maintenance symbols

Note:Use the following symbols in this manual to help express meaning of the description. If one or more symbols turn up in maintenance process, the meaning is as below:

It means tools are required to execute the operation.

It means new parts are required to execute the operation.

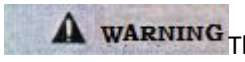
Dealers are required to execute the operation。

1.1 Check Batteries



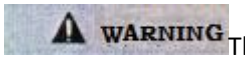
Battery status is essential to the performance and safety operation. Inappropriate electrolyte level ,damaged cable or wiring may cause the parts damaged or dangerous situation.

Notice : The machines with the sealed battery or maintenance-free battery do not need to check on this matter. Use the soda water to neutralize the battery acid.



The risk of electric shock

Charging operation may result in serious personal injury or death. Remove all rings, watches and other accessories during operation.



The risk of physical injury

The battery electrolyte is corrosive. Avoid hand or other parts of the body to contact the overflow of the electrolyte, so as not to cause harm. Use a small soda water to neutralize the overflow of the electrolyte.

Notice : The following checking procedures need to be executed when the battery is full.

1 Wear protective clothing and wear safety glasses

2 Make sure the battery cable connection is firm and not affected by corrosion.

3 Ensure the battery lock lever stable.

4 Remove the battery ventilation cover.

5 Check the battery electrolyte level. If necessary,add the distilled water into the liquid pipe bottom. Do not add to much.

6 Put the ventilation cover back.

Notice : Adding a terminal protector and preservative sealant will help eliminate corrosion of the battery terminals and cables.

1.2 Check the Hydraulic Oil Level



It is very important to keep the hydraulic oil level in the appropriate position. If the hydraulic oil is in the inappropriate level,it will damage the hydraulic parts.

Through the daily inspection, the inspector can determine the change of the hydraulic fluid levels which can indicate the problems of the hydraulic system.



Execute the procedure when the platform is stowed.

1 Use visual inspection to check the liquid level on the oil tank side.

○Result : The hydraulic oil level need to on the the mark position.

2 Refuel according to the need. No not add too much.

Hydraulic oil standard : L-HV46

1.3 Report before Delivery

The report before delivery need to include all kinds of checking items. Save the report after filling out as required.

1.4 Maintenance Schedule

Daily, quarterly, semiannually, annually and biennially checking must be executed according to the schedule. Product maintenance plan and report before delivery is divide into ABCDE five items. The inspection steps is as below:

Inspect period	Inspect items
Every day or every 8 hours	A
Every quarter or every 250 hours	A+B
Every half year or every 500 hours	A+B+C
Every year or every 1000hours	A+B+C+D
Every two years or every 2000hours	A+B+C+D+E

1.5 Maintenance Inspection Report

Maintenance inspection report includes all types of inspection items.

Every time we inspect, the maintenance inspection report is required. Keep at least 4 years after finish inspecting, or dispose according to the employer, the workplace, and government laws and regulations.

1.6 Preparations before Delivery

Basic Principle

The dealer is obliged to complete the preparation before delivery.

Preparation before delivery is a priority before each product is delivered. This check is to find out if there is a significant problem with the device before it is used.

Damaged and modified equipment is never allowed. Once the damage is found or is inconsistent with the delivery of the equipment, the machine must be marked and stopped immediately.

Equipment repairs must be performed by a certified technician, according to the manufacturer's specifications.

Maintenance inspections must be performed by a certified technician, according to the manufacturer's specifications and the requirements in this manual.

Instruction

Use the operation manual of the equipment.

Use table to record the results. According to the operation manual, after inspection of each item, fill the results in the corresponding table.

If all the results are N, stop the equipment working. Repair and double again.When finished, Mark on the R position.

Y=Yes, finished
N=No.not finished
R=Has been repaired

Evaluate

Prepare before delivery	Y	N	R
Operation check finished			
Maintenance items finished			
Function test finished			
Model Number			
Series number			
Date			
Owner			
Inspecting department			
Inspectors signature			
Inspector job title			
Inspecting company name			

1.7 Maintenance Inspection

Maintenance inspection report

Model Number
Serial number
Date
Cumulative time
Owner
Inspecting department
Inspectors signature
Inspector job title
Inspecting company name

Instruction

·Use the same report every inspecting

·Choose the appropriate checklist according to the inspecting items.

Inspect period	Inspect items
Every day or every 8 hours	A
Every quarter or every 250 hours	A+B
Every half year or every 500 hours	A+B+C
Every year or every 1000hours	A+B+C+D
Every two years or every 2000hours	A+B+C+D+E

1.7.1 Inspecting Checklist

Inspecting Checklist

Checklist A	B-9 Driving speed of the lifting state
A-1 Check the manual and label	B-10 Driving in a slow speed
A-2 Inspection before operation	B-11 Hydraulic oil analysis
A-3 Function Test	B-12 Exhaust system
After 40 hours	B-13Chassis tray parts
A-4 30 days maintenance	B-14 Test lower limit and pit protection switch
After 100 hours	B-15 Test the upper limit switch
Checklist B	**Checklist C**
B-1Battery	C-1 Test platform overload system
B-2 Cable	C-2 Replace the hydraulic tank drain cover
B-3Tire and Rim	**Checklist D**
B-4 Emergency stop	D-1Check the wear-resisting slider on shear fork arm
B-5 key switch	D-2 Hydraulic oil filter replacement
B-6 Loudspeaker	
B-7 Brake	**Checklist E**
B-8 Driving speed while closed	E-1Hydraulic oil

1.7.2 Checklist A

A-1 Check Manuals and Labels

Keeping the operation and maintenance manual intact is the key for safe operation. Each lift has a manual that is stored in the box on the platform. Manuals with illegible or missing pages do not provide sufficient information to ensure safe operation.

Also, be sure to ensure that all safety labels are good. The label alerts the operator to the safety hazard of using the machine. It also provides operational and maintenance information to the user. Blurred labels will not serve as a warning and may result in a dangerous operating

environment.

1 Check and ensure the operation and maintenance manuals are in the manual box of platform
2 Check the manual,make sure the handwriting is clear and there is no page missing.
¤ Result: The manual matches the model, handwriting is clear and no pages missing.
¤ Result: The manual does not matches the model, the handwriting is blur or there are pages missing. Stop the machine until the manual is replaced.
3 Open the label check figure , check the labels blur or damaged
¤ Result : All the labels are complete,clear.
¤ Result : Missing labels, blur or damaged. Stop the machine until the labels replaced
4 Put the manual in the original place when finish using.
Tip：If need to replace manual or labels, please contact Chufeng or our dealer.。

A-2 Pre-operation Check

Complete the inspection before operation is very important for the safe operation of the machine.
Execute the inspection before operation visually.
This checking item is used to find if there are notable problems on the machine before function test. Also can be used to determine if we need to execute the routine maintenance.

A-3 Function Test

Complete function test is very important for the safe operation of the machine. The function test is used to find if there are function problems on the machine before work. Defective machine can't be used.
Once the functional defect is found, mark the machine and stop working.
Complete inspection procedure refers to the "function test " part of the reference manual

A-4 30-day Maintenance



30-day Maintenance means the first maintenance after the machine runs 30days or 40 hours.
After this step, continue to inspect other items on the checklist.
Execute the following maintenance:
·B-3 Tyre and Rim
·D-2 Hydraulic oil filter replacement

A-5 Lubrication of the Knuckle



This operation is done every 100 hours.
Regular lubrication of the knuckle, the machine performance and service life is essential. Long-term use of non-effective lubrication of the knuckle will cause damage to parts.

1 Open the cover on the knuckle.

2 At the top of the knuckle, find the hole to fill the grease.

3 Fill the inside of the knuckle with enough grease until the grease is full of bearings.

4 Replace the lid.

5 Repeat the above procedure for the other knuckles.

Grease Specifications:
Monarch 3 # common lithium grease

1.7.3 Checklist B

B-1 Battery Check

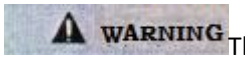


This check is made every 250 hours or a quarter whichever comes first.
Good battery condition is very important for the performance of the machine and operation safety . Incorrect electrolyte level and the damages of cable or connector will cause the machine parts damaged or dangerous situation.



The risk of electric shock

Charging operation may result in serious personal injury or death. Remove all rings, watches and other accessories during operation.



The risk of physical injury

The battery electrolyte is corrosive. Avoid hand or other parts of the body to contact the overflow of the electrolyte, so as not to cause harm. Use a small soda water to neutralize the overflow of the electrolyte.

1 Wear protective clothing and goggles
2 Loosen the lock in the tray on the side of the chassis and turn the chassis battery tray outwards.
3 Ensure the battery cable connectors are not corroded.
4 Ensure the battery and cable are fixed tightly
5 Fully charged the battery and make it standing for at least 24 hours
Battery maintenance (for non- maintenance-free battery and sealed battery)
1 Open the battery cover, Check the proportion the with the hydrometer weight and record.
2 Check the surroundings temperature, Adjust the proportion of each battery liquid according to

the following instructions

Higher than 26.7 ℃,add 0.004 every 5.5℃

Lower than 26.7 ℃,reduce 0.004 every 5.5℃

¤ Result : Adjust all the proportion of the batteries more than 1.277.When the battery is full, execute step 12.

¤ Result : If one or more battery proportion is less than 1.217,execute step 9.

3 Conduct equalizing charging or fully charged,make it stand at least 6 hours.

4 Open the battery cover, Check the proportion the with the hydrometer weight and record.

5 Check the surroundings temperature, Adjust the proportion of each battery liquid according to the following instructions

Higher than 26.7 ℃,add 0.004 every 5.5℃

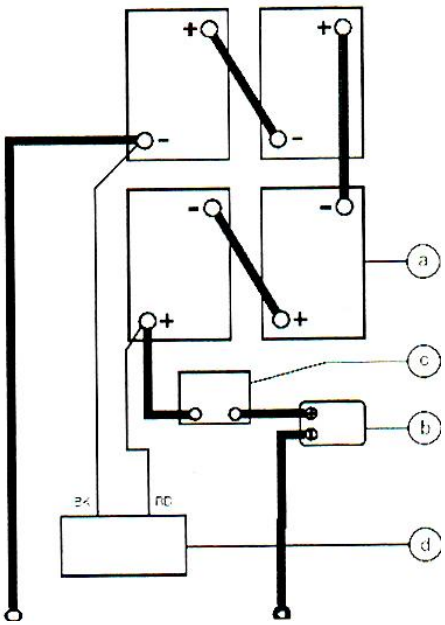
Lower than 26.7 ℃,reduce 0.004 every 5.5℃

¤ Result : Adjust all the proportion of the batteries more than 1.277.When the battery is full, execute step 12.

¤ Result :If the liquid proportion difference is more than 0.1 or the proportion of one than one batteries is less than 1.217,replace the batteries.

6 Check the battery electrolyte level, If necessary, add 3 mm distilled water. Do not add too much.

7 Put the battery cover back, neutralize the electrolyte with soda water.



A. battery b. 250A fuse wire c. fast chopper d. battery charger

for all batteries

1 Check if each battery is connected correctly in the battery pack.

2 Check if the battery charger plug and wire insulation is overweared and damaged, if so, replace in time.

3 Connect the battery charger correctly to v50, 110-230/60 hz ac power.

Result : The charger is working and charging the battery.

Result : If the charger alert is ringing and the indicator light is flashing, check and correct the connection between fuse and the charger. Ensure the charger is working and began to the charge.

Notice : In order to obtain good effect, please select a suitable length of wire, total length can not be more than 15 m

Note: If you would like to know more about the operation of the charger, please contact Masterlift after-sales service department.

B-2 Wiring Check



This check is made every 250 hours or a quarter whichever comes first.

Keep wires in good condition, is very important for the safe operation and good machine performance.If he wires which are burned,scratched,corroded or bend are not found and repaired, they will cause the operation environment unsafe or damages the machine parts.



Electric shock/explosion hazard

Thermal contact or electric conductor may cause serious casualty accidents. Don't wear rings, watches and other jewelry.

1 Check if the chassis grounding line is missing or not.

2 Check if there are burned, scratched, corroded, bend or loosen wires in following areas:

Inside the ground controller box

The hydraulic valve group wires in the oil pump tray

The wires of the batteries pack in the battery tray

Inside the platform controller box

3 Turn the key switch to the platform controller, pull the red emergency stop button on the ground and platform controller.

4 Lift platform about 2.5 m height from the ground.

5 Lift up the security arm, move it to the middle of the fork shaft sleeve. Rotate upwards to vertical-state.

6 Lower the platform until the shaft sleeve tube contacts with security arm completely .



Crush danger

When the platform is lowering , make sure the hands are in the right position of security bracket.

1 Check if there are burned, scratched, corroded, bended and loosen wires in the chassis areas and scissor areas.

2 Check if there are burned, scratched, corroded, bended or loosen wires in following areas:

Wires on the scissor boom

ECU to the platform

The end conductor connected to the platform

3 Check the insulating oil free coating in following areas：

The end conductor connecting the ECU to the platform sensor

All the end conductor connecting the level sensors

4 Lifting the platform, make the security arms back to the installation position.

5 Lowering the platform to the tucked position, then turn off the machine.

B-3 Tyre and Wheel Check



The inspection is needed once every 250 hours or a quarter whichever comes first.

It's important to keep the tyre & wheel hub in good condition. The malfunction of tyre & hub may cause the turnover

1 Check tyre tread and side for scratches, cracks, punches and other abnormal wear

2 Check the hub for damage, bending and cracking.

3 Remove the cotter pin to check the torque of the nut.

Note: You must use a new cotter when reinstalling.

4 Install and lock the new cotter pin.

No lubrication nut torque	406.7Nm
Lubricant nut torque	305Nm

B-4 Emergency Stop Function Check

This check is made every 250 hours or a quarter whichever comes first.

The normal emergency stop function is essential for safe operation of the machine. Abnormal red emergency stop button will not be able to cut off the power supply, can not stop all the functions of the machine, resulting in dangerous situations.

As a safety function, in addition to the platform's red emergency stop button function, the selection and operation of the ground controller are prior to the platform controller.

1 Turn the key switch to ground control and pull out the red emergency stop button on the ground and platform controller.

2 Press the ground controller red emergency stop button to the closed position

○Result: The machine has no action

3 Turn the key switch to the platform control and pull out the red emergency stop button on the ground and platform controller.

4 Press the platform controller red emergency stop button to the closed position.

○Result: The machine has no action.

Note: The red emergency stop button of the ground controller can be used for all operation of the machine even if the key switch is switched to platform control.

B-5 Key Switch Test

This check is made every 250 hours or a quarter whichever comes first.

Proper key switch action and response are critical to safe operation of the equipment. The machine can be operated by a ground controller or a platform controller, and this control is switched by a key switch. Failure of the switch may cause dangerous operation.

This step requires the use of a platform controller on the ground, so people do not stand on the platform.

1 Pull out the red emergency stop button on the ground and platform controller.

2 Turn the key switch to platform control.

3 Check the rising and falling functions of the ground controller.

○ Result: The machine has no action.

4 Turn the key switch to ground control.

5 Check the rising and falling functions of the ground controller.

○ Result: The machine has no action.

6 Turn the key switch to the closed position.

○ Result: The machine has no action.

B-6 Horn Test

This check is made every 250 hours or a quarter whichever comes first.

The horn is for the person on the platform to alert the people the ground. Abnormal horn can not alert the ground of dangerous or unsafe conditions.

1 Turn the key switch to the platform control and pull out the red emergency stop button on the ground and platform controller.

2 Press the horn button in the platform controller.

○ Results: The horn sounds.

B-7 Drive Brake Function Test



This check is made every 250 hours or a quarter whichever comes first.

The correct braking action is critical to operational safety. Brakes require smooth, no delay, bumps and abnormal sound. The hydraulic release brake system should also behave normally.

To complete the brake test, the machine must be on a solid, horizontal and no obstacle ground and make sure that the machine is in a state of folded and extension of the platform to be fully recovered.

1 Draw a reference line on the ground.

2 Turn the key switch to the platform control and pull out the red emergency stop button on the ground and platform controller.

3 Lower the platform to folded position.

4 Press the drive function button

5 Select a point on the machine (for example, the touch point on the wheel) as a mark that crosses the reference test line

6 The machine is driven to the highest speed and the handle is released at the reference point over the ground test line.

7 Measure the distance between the reference point and the test line.

- Result: The machine stops within the specified braking distance. Do not need any action.
- Result: The machine does not stop within the specified braking distance.

Note: The brakes must be available in the range of allowable gradeability of the machine.

8 Replace the brakes and repeat the above procedure from step 1.

Maximum braking distance	**61cm±30cm**

B-8 Travel Speed Test- Stowed



This check is made every 250 hours or a quarter whichever comes first.

Normal travel function is critical to operational safety. The driving function should respond quickly and smoothly to the operator. Normal travel requires smooth, no delay, bumps and abnormal sound.

To complete the travel speed test, the machine must be on a solid, horizontal and no obstacle ground

1 Draw two lines separated by 12.2 meters as the starting line and the end line on the ground.

2 Turn the key switch to the platform control and pull out the red emergency stop button on the ground and platform controller.

3 Lower the platform to folded position.

4 Press the drive function button

5 Select a point on the machine (for example, the touch point on the wheel) as a mark that crosses the reference test line

6 Drive the machine to the highest speed and the timer starts at the reference point over the ground test line.

7 Keep at full speed and record the time to cross the end line

B-9 Travel Speed Test- Raised



This check is made every 250 hours or a quarter whichever comes first.

Normal travel function is critical to operational safety. The travel function should respond quickly and smoothly to the operator. Normal travel requires smooth, no delay, bumps and abnormal sound.

To complete the travel speed test, the machine must be on a solid, horizontal and no obstacle ground

1 Draw two lines separated by 12.2 meters as the starting line and the end line on the ground.

2 Turn the key switch to the platform control and pull out the red emergency stop button on the ground and platform controller.

3 Press the lift function button.

4 Lift the platform to the height of about 2 meters

5 Press the drive function button
6 Select a point on the machine (for example, the touch point on the wheel) as a mark that crosses the reference test line.
7 Drive the machine to the highest speed and the timer starts at the reference point over the ground test line.
8 Keep at full speed and record the time to cross the end line

B-10 Travel Speed Test- Low



This check is made every 250 hours or a quarter whichever comes first.
Normal travel function is critical to operational safety. The travel function should respond quickly and smoothly to the operator. Normal travel requires smooth, no delay, bumps and abnormal sound.
To complete the travel speed test, the machine must be on a solid, horizontal and no obstacle ground
1 Draw two lines separated by 12.2 meters as the starting line and the end line on the ground.
2 Turn the key switch to the platform control and pull out the red emergency stop button on the ground and platform controller.
3 Lower the platform to folded position.
4 Press the speed selection button
5 Select a point on the machine (for example, the touch point on the wheel) as a mark that crosses the reference test line
6 Drive the machine to the highest speed and the timer starts at the reference point over the ground test line.
7 Keep at full speed and record the time to cross the end line. The time should be no less than 25 seconds.

B-11 Hydraulic Oil Analysis



This check is made every 250 hours or a quarter whichever comes first.
Replacement or testing of hydraulic oil is critical to the performance and service life of the equipment. Contaminated hydraulic oil may affect the equipment performance. Continuous use will cause damage to equipment. Check should be frequently done in the harsh working environment.
Before replacing the hydraulic oil, it is possible to find it necessary or not through the oil separator.
If the hydraulic oil is not replaced for two years, it should be tested once a quarter. If the test is failed, then replace the hydraulic oil.
Please check E-1, test or replace the hydraulic oil.

B-12 Check of Hydraulic Tank Cover’ s Ventilation System



This check is made every 250 hours or a quarter whichever comes first.

Exhausted hydraulic tank covers are critical to achieving good mechanical performance and service life. Dirty or clogged rows

The air cover may cause the machine to deteriorate. The harsh working environment should be checked frequently.

1. Remove the exhaust cover from the hydraulic tank.

2. Ventilation check.

Results: Air can pass through the exhaust cover.

Result: If air can not pass through the exhaust cover, clean or replace the exhaust cover. Proceed to step 3.

Note: Check the tank cover ventilation exhaust, the air should be free to pass.

3. Carefully clean the tank drain with a mild solvent and dry with low pressure compressed air. Repeat step 2.

4. Install the hydraulic tank drain cover.

B-13 Check of Chassis Lock Assembly



This check is made every 250 hours or a quarter whichever comes first.

The normal chassis lock is critical to the performance and service life of the equipment. Damaged chassis lock parts may cause the tray to open unexpectedly, resulting in security risk.

1 Check the wear and damage of each chassis lock assembly.

2 Lubricate the spring and rotating latch structure of each chassis lock with light oil.

B-14 Check of the Lower Limit Switch and Pit Protection Switch



This check is made every 250 hours or a quarter whichever comes first.

A good limit switch is critical to the performance and safety of the machine. Operation of a defective limit switch of the machine will degrade machine performance and lead to a potentially unsafe working performance.

To complete the test, the machine must be on a solid, horizontal and no obstacle ground

1 Lower the equipment to folded status and move to the solid and horizontal ground.

2 Place a wooden block of about 5 cm below the right pit protection device.

3 Press the lift button and try to lift the machine to about 2m.

¤ Result: pit protection device touches the wood block and can't be fully unfold with digital code 18.The alarm sounds. The machine can rise to 2m or so. The function is normal.

¤ Result: pit protection device touches the wood block and can't be fully unfold without digital code 18.The alarm doesn't sound. The machine can continuously rise. The pit protection function or lower limit switch is abnormal.

4 Press the travel button and try to drive and turn the machine

¤ Result: The diagnostic display shows code 18, the alarm sounds, and the steering and driving functions are not available. The function is normal.

¤ Result: The diagnostic display doesn't show code 18, the alarm doesn't sound, and the steering and driving functions are available. The pit protection function or lower limit switch is abnormal.

5 Lower the platform to the folded status. Remove the block from the right pit protection device.

6 Repeat steps 1-4 under the left side of the pit protection device. If it alarms when operate the right side while it doesn't alarm in the left side repeating steps 1-4, the right side of the pit protection function or lower limit switch is abnormal, and vice versa.

7 Lower the platform to the folded status. Remove the block from the left pit protection device.

When the above function is normal, the pit protection switch or lower limit switch is in good condition.

If there is a problem, continue with the following troubleshooting.

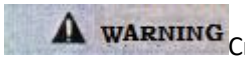
Pit protection switch

1 Remove the platform controller.

2 Raise the platform to about 2.5m.

3 Lift the safety bracket, move the safety bracket to the middle of the scissor shaft sleeve, and rotate it up to the vertical state.

4 Lower the platform until the safety bracket fully touches the shaft sleeve.



Crush danger

When the platform is lowering , make sure the hands are in the right position of security bracket.

5 Turn the key switch to the turn-off position.

6 Mark and separate the connector of the platform controller.

7 or that connects the platform.

8 Plug the platform controller connector into the ECU connector.

9 Open the lower limit switch cover. Mark and remove the two wires of the lower limit switch.

10 Turn the key switch to the platform control

11 Slightly raise the platform and restore the safety bracket.

12 Use the platform controller on the ground, press the lift function button, lower the platform to folded status and fold pit protection.

¤ Result: The diagnostic display will show code 18, the alarm will sound and the lowering function should be operational. Machine function is normal.

¤ Result: The diagnostic display does not display code 18 and no alarm sounds. It needs to replace the pit protection switch.

20 Press the drive function button and try to drive the machine.

¤ Result: The diagnostic display will show code 18, the alarm sounds, and the steering and driving functions can not be operated. Machine function is normal.

¤ Result: The diagnostic display does not display code 18, no alarm sounds, and the steering and driving functions can be operated. It needs to replace the pit protection switch.

21 Press the lift function button.

¤ Result: The diagnostic display will show code 18, the alarm sounds and the machine will only be allowed to drop. Machine function is normal.

¤ Result: The diagnostic display does not display code 18 and no alarm sounds. It needs to replace the pit protection switch.

22 Raise the platform until the pile protection device unfolds.

¤ Result: The diagnostic display does not display code 18 and no alarm sounds. Machine function is normal.

¤ Result: The diagnostic display will show code 18, and the alarm sounds. It needs to replace the pit protection switch.

23 Raise the platform to a height of about 2.5 m.

24 Lift the safety bracket, move the safety bracket to the middle of the scissor shaft sleeve, and rotate it up to the vertical state.

25 Lower the platform until the safety bracket fully touches the shaft sleeve.



Crush danger

When the platform is lowering , make sure the hands are in the right position of security arms.

26 Turn the key switch to the turn-off position.

27 Disconnect the platform control line from the chassis ECU.

28 Reconnect the platform control connector and the chassis ECU.

29 Connect the platform control connector.

30 Securely connect the two wires of the lower limit switch.

31 Install the lower limit switch box.

32 Turn the key switch to the platform control.

33 Slightly raise the platform and restore the safety bracket.

Lower Limit Switch

34 Move the machine to be beyond the maximum allowable inclination angle. The maximum allowable inclination angle showed on the nameplate.

35 Press the lift function button to lift the machine to a height of about 2 meters on the sloping ground.

¤ Result: The diagnostic display shows the code LL, the alarm sounds, and the pit protection device is unfolded. Machine function is normal.

¤ Result: The diagnostic display does not display the code LL, no alarm sounds, and the pit protection device is unfolded. Adjust or replace the lower limit switch.

36 Press the drive function button and try to drive the machine on a slope.

¤ Result: The diagnostic display shows code LL, the alarm sounds, and the steering and driving functions are not operational. Machine function is normal.

¤ Result: The diagnostic display does not display code LL, no alarm sounds, and the steering and driving functions are working properly. Adjust or replace the lower limit switch.

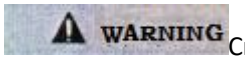
37 Turn off the machine.

B-15 Check of the Upper Limit Switch



This check is made every 250 hours or a quarter whichever comes first.
A good limit switch is critical to the performance and safety of the machine. Operation of a defective limit switch of the machine will degrade machine performance and lead to a potentially unsafe working performance.
To complete the test, the machine must be on a solid, horizontal and no obstacle ground

1 Turn the key switch to ground control, raise the platform to about 2.5m above the ground.
2 Lift the safety bracket, move the safety bracket to the middle of the scissor shaft sleeve, and rotate it up to the vertical state.
3 Lower the platform until the safety bracket fully touches the shaft sleeve.



Crush danger

When the platform is lowering , make sure the hands are in the right position of security bracket.

4 Open the limit switch cover mounted on the chassis.
5 Slightly raise the platform and restore the safety bracket.
6 Use the ground controller to lift the platform while pressing the upper limit switch arm to activate the upper limit switch.

- Result: The platform stops rising and the machine functions properly.
- Result: The platform continues to rise, adjust or replace the upper limit switch.

1.7.4 Checklist C

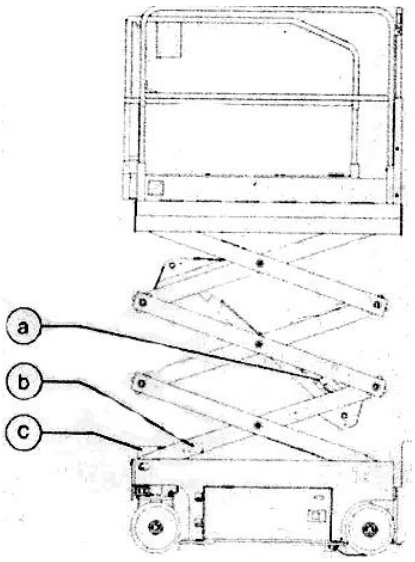
C-1 Test Platform Overload System



This step is performed every 500 hours or 6 months, whichever comes first, or when the machine is overloaded.
Often test platform overload mechanisms are critical to the safe operation of the machine. Continued operation of the platform, will lead to the system can not sense the platform overload information. The stability of the machine will be affected by the equipment tipping.
The platform overload system is designed to prevent overloading of the machine. It consists of two electrical components: an overload pressure switch and a tilt sensor.
The overload pressure switch is adjustable and is used to determine the pressure of the cylinder to feed back to the platform overload system. When the pressure is too large, the pressure switch

will send a signal to the ECU, the machine all the features to stop, until the excess load removed from the platform.

A tilt sensor located in the inner scissor arm 1 for measuring the inclination angle of the scissors to determine the height of the platform.



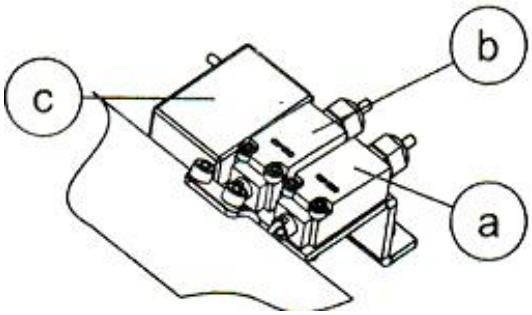
a. overload pressure switch b. tilt sensor c. limit switch cover

1. Turn the key switch to ground control, raise the platform to about 2.5m above the ground.
2. Raise the safety bracket, move the safety bracket to the middle of the scissor shaft, and rotate it up to the vertical state.
3. Lower the platform height until the safety bracket is in complete contact with the shaft sleeve.

⚠ WARNING Crush danger

4 When the platform is lowering , make sure the hands are in the right position of security bracket.

5 Open the limit switch cover mounted on the chassis. Open the cover of the limit switch.



a .upper limit switch b. lower limit switch c. tilt sensor

6 Mark and open the two wires of the upper limit switch.

7 Short the two wires that are disassembled.

8 Turn the key switch to ground control, pull out two red emergency stop buttons on the ground and platform control.

9 Slightly up the platform to restore the safety bracket.

10 Lift the platform to the highest position and continue pressing the lift function selection button.

- Result: The alarm sounded
- Result: No alarm sound, calibration platform overload system.

11 Use the manual drop function to reduce the platform to Shoulong state.

12 Carefully disconnect the upper limit switch.

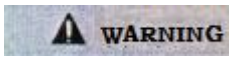
13 Lift the platform to the highest position and continue pressing the lift function selection button.

- Result: The alarm sound does not ring. System function is normal.
- Result: The alarm sounded, the platform overload system function is not normal. Elimination of limit switches, limit switches, wires and mounting brackets, etc. Faults or overload systems require calibration.

14 Decline the platform to a height of about 2.5 m from the ground.

15 Lift the safety bracket, move the safety bracket to the middle of the scissor shaft, and rotate it up to the vertical position.

16 Lower the platform height until the safety bracket is in complete contact with the shaft sleeve.



Crush danger

When the platform is lowering , make sure the hands are in the right position of security bracket.

17 Connect the limit switch as it is and replace the limit switch cover.

18 Replace the limit switch seat cover.

19 Install the cover of the platform limit switch seat.

20 A slight rise in the platform to restore the safety bracket.

21 Decrease the platform to stowed position.

C-2 Replace the Hydraulic Tank Drain Cover



This step is performed every 500 hours or every six months, whichever comes first.

The hydraulic tank is a ventilated tank. There is an air filter inside the vent, which may become clogged with time. If the exhaust cover is faulty or improperly installed, the impurity may enter the hydraulic system and may cause damage to the component. In the harsh working environment should always check the exhaust cover.

1 Remove the hydraulic tank drain cover.

2 Replace the new hydraulic tank drain cover.

1.7.5 Checklist D

D-1 Check Wearable Sliders of the Scissor Arm

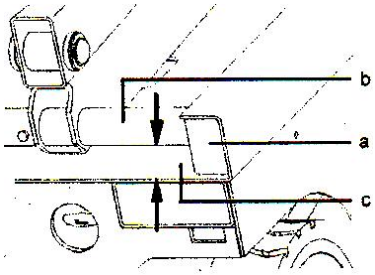


This check is made every 1000 hours or one year whichever comes first.

Good wearable sliders of the scissor arm are critical to the performance and safety of the machine. Using worn sliders will degrade machine performance and lead to a potentially unsafe working performance.

Check the wearable sliders in the platform folded state.

1 Measure the distance from the chassis plate to the inner connecting rod of the non-steering end on the ground controller side.



a wearable slider b inner connecting rod c chassis plate

Result: The measurement result is greater than or equal to 34mm. Do step 2.

Result: The measurement result is less than 34 mm. Replace the wearable slider.

2 Measure the distance from the chassis plate to the inner connecting rod of the non-steering end on the battery assy side.

Result: The measurement result is greater than or equal to 34mm. Do step 3.

Result: The measurement result is less than 34 mm. Replace the wearable slider.

3 Apply lubricant between the chassis slide and the wearable slider.

D-2 Replace Hydraulic Tank Return Oil Filter assembly



This check is made every 1000 hours or one year whichever comes first.

Replacement of the return oil filter is critical to the good performance and service life of the machine. Dirty or clogged filters may affect machine performance and continued use will result in damage to the parts. Harsh working condition requires more frequent replacement of the filter.



Scalding danger

Beware of hot oil. Contact with hot oil may cause severe burns



Oil return of the hydraulic oil tank

The filter is installed in the middle of the functional valve block and the hydraulic power unit.

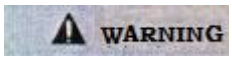
1 Clean the spilled oil of around the filter. Remove the filter with a wrench.
2 Apply a layer of hydraulic oil to the seal of the new filter
3 Install a new filter and tighten it by hand.
4 Use the marker to note the replacement time and date on the filter replacement table
5 Turn the key switch to ground control. Pull out the red emergency stop button on the ground and platform controller.
6 Press and hold the down function button.
7 Check the oil leak of the filter assembly.
8 Clean the spilled hydraulic oil.

1.7.6 Checklist E

E-1 Test or Replace hydraulic oil



This check is made every 2000 hours or two years whichever comes first.
Replacement or test of hydraulic oil is critical to the good performance and service life of the machine. Dirty or clogged hydraulic oil may and oil filter will affect machine performance and continued use will result in damage to the parts. Harsh working condition requires more frequent operation of this test.
Before replacing the hydraulic oil, use an oil separator to verify the necessity of replacement.
If the hydraulic oil hasn't been replaced for two years, it should be tested once every quarter. Replace the hydraulic oil if test failed.
Note: This operation should be carried out in the folded status.
1 Cut off from the battery pack of the machine.



Electric shock / burn danger

1 Operation in live circuits may result in serious injury or death. Remove the rings, watches and other accessories during operation.
2 Open the hydraulic power unit mounting tray.
3 Mark and disconnect the hydraulic filter from the oil return to the hydraulic tank and remove the tubing from the tank. The pipe fittings are covered with dust.
4 Mark and disconnect the suction pump of the hydraulic pump and the tank and remove the tubing. The pipe fittings are covered for dust proof.
5 Release the hydraulic tank fasteners and remove the hydraulic tank.

6 Remove the drain plug at the bottom of the hydraulic tank.

7 Place the oil in a suitable container.



The risk of physical injury

Spray out the hydraulic oil can penetrate the skin. When the hydraulic connector is released, the speed is very slow, so that the oil pressure gradually weakened. Do not let the oil jet out.

8. Clean the overflow of the hydraulic oil, the correct use of the hydraulic oil released.

9. Clean the hydraulic tank with a mild solvent and dry thoroughly.

10. Tighten the drain plug. Torque according to the following requirements:

Torque requirement	
drain plug of no lubrication hydraulic fuel tank	4.5Nm
drain plug of lubricated hydraulic fuel tank	3.4Nm

11. Replace the hydraulic tank and install the fasteners that tighten the hydraulic tank. Torque according to the following requirements:

Torque requirement	
Fastener of no lubrication hydraulic fuel tank	4Nm
Fastener of lubricated hydraulic fuel tank	2.9Nm

12. Connect the hydraulic pump into the tubing and the tank.

13. Connect the hydraulic pump return line and the return oil filter.

14. Fill the tank with hydraulic oil, be careful not to overflow.

15. Start the oil pump to fill the hydraulic system with the entire hydraulic system to remove the air from the hydraulic system.



Damage risk

Operation in the absence of oil may cause damage to the hydraulic pump. When filling the hydraulic system with oil, carefully evacuated the tank. Do not let the hydraulic pump cavitation.

1.8 Common troubleshooting

Malfunction Code

If the LED diagnostic reading device displays an error code (such as LL), pull the red emergency stop button back and forth to reset the system.

Malfunction Code		
Code	**Description**	**Machine response**
01	System initialization error	All functions disabled
02	System communication error	All functions disabled
03	Invalid option setting error	All functions disabled
12	Start ground control platform lift switch error	Ground control function disabled

18	Pit protection device error	Rising and travel function disabled
31	Pressure sensor error	All functions disabled
32	Angle sensor error	All functions disabled
34	spare	
42	Platform thumb rocker switch (left) start-up error	Signal only
43	Platform thumb rocker switch (right) start-up error	Signal only
46	The platform start button start-up error	Signal only
47	Platform joystick is not in zero position start-up error	Signal only
52	Forward coil error	Rising and travel function disabled
53	Backwards coil error	Rising and travel function disabled
54	Lifting coil error	Rising and travel function disabled
55	Descent coil error	Rising and travel function disabled
56	Turning right coil error	Rising and travel function disabled
57	Turning left coil error	Rising and travel function disabled
58	Braking coil error	Rising and travel function disabled
59	Parallel valve coil error	Rising and travel function disabled
61	Motor controller current sensor error	Depending on controller
62	Motor controller hardware damage	Depending on controller
63	Motor controller motor output error	Depending on controller
64	Motor controller SRO error	Depending on controller
65	Motor controller throttle error	Depending on controller
66	Motor controller emergency reverse error	Depending on controller
67	Motor controller HPD error	Depending on controller
68	Low voltage error	All functions disabled
69	High zero current error (ZAPI only)	All functions disabled
70	Steering input out of range (ZAPI only)	All functions disabled
71	Motor controller main contactor error	Rising and travel function disabled
72	Motor controller overvoltage error	Depending on controller
73	Motor controller heat reduction error	Depending on controller
74	Motor controller motor error	Depending on controller
75	Motor controller pump station motor error	Depending on controller
76	Motor controller left drive motor error	Depending on controller
77	Motor controller right drive motor error	Depending on controller
78	Pump station motor short circuit error	Rising and travel function disabled
79	Left drive motor short circuit error	Rising and travel function disabled
80	More than 80% load	Alarm only
81	Right drive motor short circuit error	Rising and travel function disabled
82	Right brake coil error	Rising and travel function disabled
83	Left brake coil error	Rising and travel function disabled
90	More than 90% load	Alarm only

99	More than 99% load	Alarm only
0L	Platform overload error	All functions disabled
LL	Machine tilted beyond safety limits	Rising and travel function disabled

ECM	**Troubleshooting**
Code	**Check the situation**
01	System initialization error: ECU may be faulty, replace ECU.
02	System communication error: Check the communication line connection and other lines. If you still can not solve the problem, try changing the PCU or ECU.
03	Invalid option setting error: Set the appropriate option for the machine.
12	Ground control platform lift switch startup error: check the wiring of the switch, or check whether the card is jammed.
18	Pit protection device error: Check the hole protection device is extended, check the hole protection limit switch, check the limit switch wiring, check the lower limit switch and wiring.
31	Pressure sensor error: Check the sensor wiring and sensor. Also the options are selected correctly for the weight sensor .
32	Angle sensor error: Check the sensor wiring and sensor.
42	Platform thumb Rocker switch (left) start-up error: Make sure the thumb on the control handle (left) is in the released state. If it is normal
43	Consider replacing the control handle or PCU. Platform thumb Rocker switch (right) start-up error: Make sure the thumb on the control handle (right) is in the released state. If it is normal, consider replacing the control handle or PCU.
46	The platform start button start-up error ： Make sure that the function enable button on the control handle is in the release state while checking the zero parameter. If it is normal, consider replacing the control handle or PCU.
47	Platform joystick is not in zero position start-up error ： Make sure the control handle is in zero (vertical position) and check the zero parameter setting in the scissor program. If OK, consider replacing the control handle or PCU.
52	Forward coil error: check the coil connection is reliable, if normal, check the coil is open or short circuit.
53	Backwards coil error: check the coil connection is reliable, if normal, check the coil is open or short circuit.
54	Lifting coil error: check the coil connection is reliable, if normal, check the coil is open or short circuit.
55	Descent coil error: check the coil connection is reliable, if normal, check the coil is open or short circuit.
56	Turning right coil error: check the coil connection is reliable, if normal, check the coil is open or short circuit.
57	Turning left coil error: check the coil connection is reliable, if normal, check the coil is open or short circuit.
58	Brake coil error: check the coil connection is reliable, if normal, check the coil is open

	or short circuit.
59	Parallel valve coil error: check the coil connection is reliable, if normal
60	Motor controller current sensor error: drive or lift motor may overheat, stop operation, make it cool; if there is no effect, restart the machine to reset the motor controller; if the problem persists, check the wiring, if the wiring is correct, replace Motor controller.
62	Motor controller hardware damage error: cut off and restart the system; if there is no effect, check the noise source;If the problem persists, replace the motor controller.
63	Motor controller motor output error: first check the wiring, then power off the system; if necessary, replace the motor controller.
64	Motor controller SRO error: Check the motor with Chufeng Scissor Lift Inspection program to check the ENABLE DELAY parameter. It may be too short. Make sure that the other motor controller parameters are correct.
65	Motor controller throttle error: Check wiring to ensure that the correct type of throttle valve is selected in the motor controller.
66	Motor controller emergency reverse error: Make sure that the emergency reverse check parameter in the motor controller is set to off.
67	Motor controller HPD error： Check the motor with Chufeng Scissor Lift Inspection program to check the ENABLE DELAY parameter. It may be too short. Make sure that the other motor controller parameters are correct.
68	Low voltage error: Check the battery voltage and, if necessary, charge the battery. Check if the battery connection is tight and clean.
69	High zero current error: MC is detecting the current inside the motor, and this time should not have any. MC thinks the controller is turned on and the motor rotates when this can happen at any time. This information is sometimes just before the other errors, this time can be ignored.
70	Steering Input Out of Range: The steering input voltage of the ZAPI motor controller is not appropriate, recalibrate the ZAPI, or check if the wiring is loose to cause voltage fluctuations.
71	Motor controller main contactor error: Check the main contactor wiring; if needed,replace the main contactor; if needed, replace the motor controller.
72	Motor controller overvoltage error: Check the battery voltage and make sure the battery is not in charge. If the problem is not resolved, try replacing the motor controller.
73	Motor controller heat reduction error: Drive or lift motor may overheat, stop operation, cool it; if it does not work, restart the machine to reset the motor controller; if the problem persists, replace the motor controller.
74	Motor controller motor error: Check the motor wiring, if the problem is not resolved, replace the motor controller.
75	Motor controller pump motor error: Check pump station motor wiring. Restart the machine, if the problem is not resolved, then replace the motor controller.
76	Motor controller left drive motor error: Check motor wiring. Restart the machine, if the problem is not resolved, then replace the motor controller.
77	Motor controller right drive motor error: Check motor wiring. Restart the machine, if

	the problem is not resolved, then replace the motor controller.
78	Pump station motor short circuit error: Check pump station motor wiring. Restart the machine, if the problem is not resolved, then replace the motor controller.
79	Left drive motor short circuit error: Check the motor wiring and make sure its connection is reliable. Check the motor for short circuit.
80	More than 80% load alarm: platform load is close to the rated load, it is recommended not to increase the load.
81	Right drive motor short circuit error: Check the motor wiring and make sure its connection is reliable. Check the motor short circuit.
82	Right brake coil error: Check the wiring of the coil terminals to ensure reliable connection. If the connection is normal, check that the coil itself is open or shorted.
83	Left brake coil error: Check the wiring of the coil terminals to ensure reliable connection. If the connection is normal, check that the coil itself is open or shorted.
90	More than 90% load alarm: platform load is close to the rated load, it is recommended not to increase the load.
99	More than 99% load alarm: platform load has reached the rated load, do not increase the load.
0L	Platform overload error: Remove excess load immediately.
LL	Machine tilted beyond safety limits : If the machine is tilted, adjust the machine to the horizontal position; if the machine is not tilted, check the level sensor wiring and the sensor itself.

For more information, please contact our company. after-sales service department.

2. Maintenance Record

Maintenance Record

Date	Notes

3. Description of batteries and charger



Description of batteries and charger

Compliance and obedience:

Do not use external charger or boost battery.
Charge the battery in a well ventilated place.
Charge using the correct AC input voltage indicated on the charger.
Use only the batteries and chargers approved by our company.

Charging the battery

1.Make sure the battery is connected before charging.
2.Open the chassis battery tray. The battery tray should remain open throughout the charging process.

Maintenance-free batteries

3.Connect the battery charger to the grounded AC circuit.
4.The charger will give instructions when the battery is full.

Standard Battery

5.Remove the battery hood and check the battery electrolyte level. If necessary, add only distilled water sufficient to pass the plate. Do not add excessive liquid before charging.
6.Put back the battery hood.
7.Connect the battery charger to the grounded AC circuit.
8.The charger will give instructions when the battery is full.
9.Check battery electrolyte level at the end of charging cycle. Add distilled water to the bottom of the adding tube. Do not add too much.

Adding water to dry battery and charging it

1.Remove the plastic seal from the battery vent by removing the battery cover well.
2.Add the battery electrolyte (electrolyte) to each battery until the liquid level can not pass the electrode plate.
Do not add to the highest level until the battery charging process is over. Excessive liquid addition

can lead to battery electrolyte overflow during charging. Use soda and water to neutralize spilled battery acidity.

3. Put back the battery cover.

4.Charge the battery.

5. Check battery electrolyte level when the charging cycle ends. Add distilled water to the bottom of the adding tube. Do not add too excessive



Compliance and obedience:

When using the crane to lift the machine, please maintain normal judgment and planning to control the movement of the machine. Only personnel with high-altitude lifting operation qualification can load and unload the machine. Transport vehicles must be parked on horizontal ground. When loading the machine, the transport vehicle must be fixed to prevent movement. Ensure that the vehicle capacity, loading surface, chain or belt is sufficient to support the weight of the machine. Please see the nameplate to understand the machine weight. Before releasing the brake, the machine must be on the horizontal plane or fixed. When removing the pins, prevent the guardrail from falling. Always hold onto the guardrail when folding it. Do not drive the machine on slopes that exceed the machine uphill, downhill or slope rating. Please refer to "driving on the ramp" in the operation instructions section. If the slope of the transport vehicle exceeds the maximum slope rating, the machine must be loaded and unloaded using a winch as described in the brake release operation.

For E- driven products

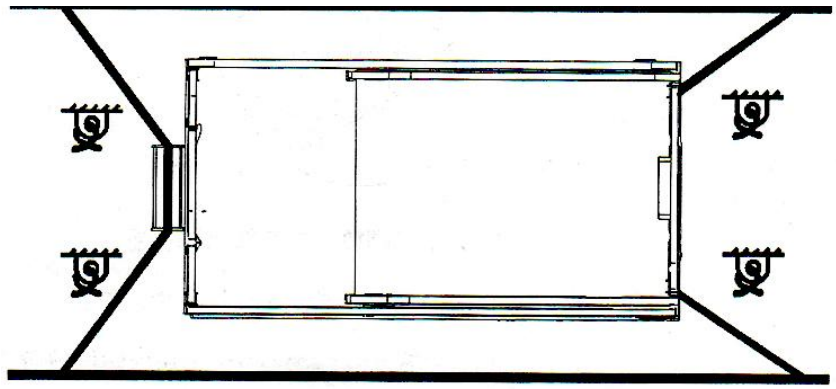
1. Wedge the wheel to prevent the machine from rolling
2. Pull out the red emergency stop buttons on both the ground and platform controls to the "ON" position.
3. Pull down the platform lift switch on the ground controller, and at the same time turn the key switch to the ground control side to release the brake.
4. If you need to reset the brakes, just turn off the key switch on the ground controller.

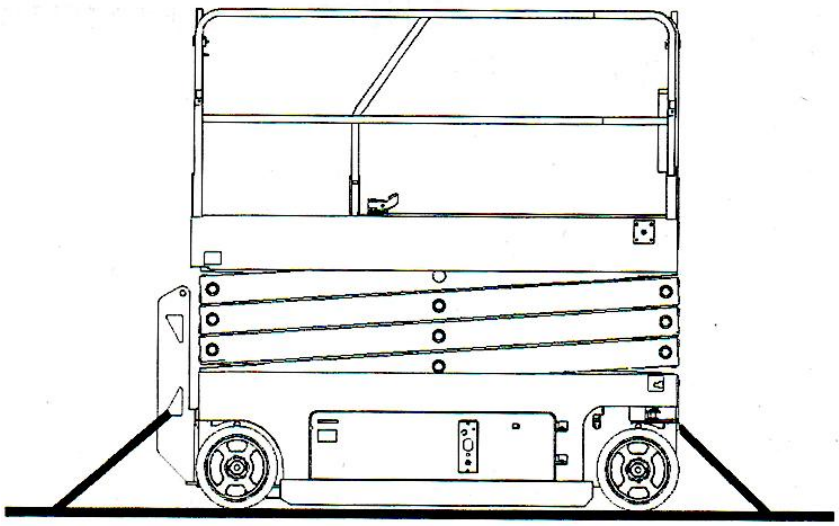
Traction of hydraulically driven machines is not recommended, and if traction is required, the speed should not exceed 3.5km/h. Traction motor driven machines are not recommended, and if traction is indeed required, the traction speed should not exceed 4.1km/h.

Brake release operation

For hydraulically driven products

1. Wedge the wheel to prevent the machine from rolling
2. It must be ensured that the winch rope is properly secured to the tie-down point of the chassis and that there are no obstacles in the way.
3. Push in the black brake release knob to open the brake valve.
4. Push and pull the red brake release pump knob.





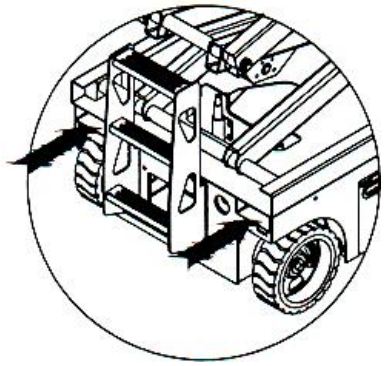


Compliance and obedience:

Only qualified hookers can assemble rigging and lift the machine. Only personnel with forklift operation qualification can use forklift for loading and unloading the machine. Ensure that the lifting capacity, loading surface, belt or rope of the crane is sufficient to bear the weight of the machine. Please refer to the nameplate.

Use forklift to lift machine

Ensure that the extension platform, controller and chassis tray are secured safely and reliably. Remove all movable parts on the machine. Completely descend the platform. The platform must remain closed during all shipments. Use the fork lift slots on both sides of the ladder.



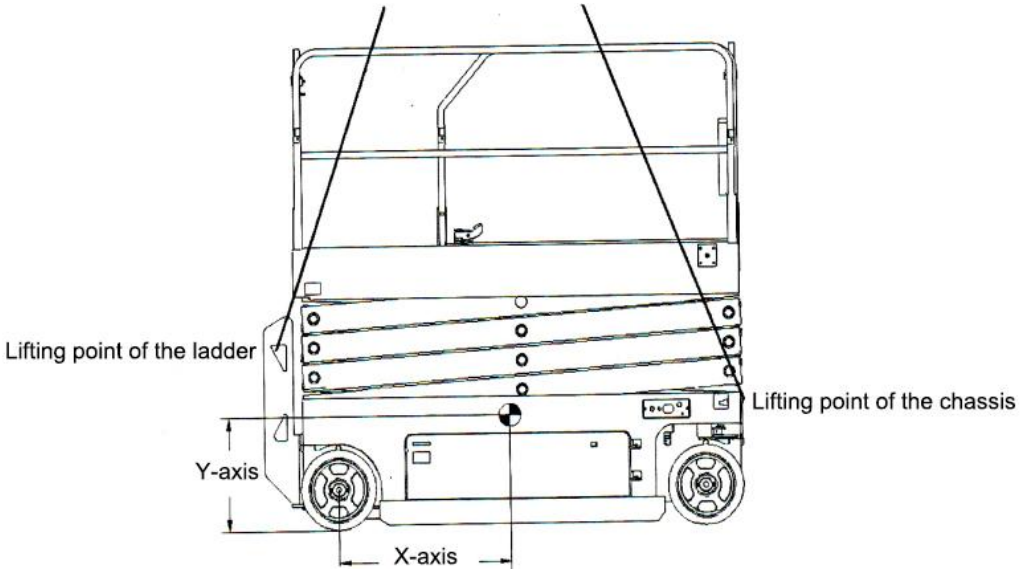
Place forklift fork foot in the position of forklift slots. Drive forward and insert the fork completely into the slots. Lift the machine 15 cm up, and then tilt the fork slightly backward to keep the machine stable. Ensure machine level when descend fork. Note lifting the machine from the front side will cause component damage

Promotion guidance

Lower the platform completely. Ensure that the extension platform, controller and chassis tray are securely fixed. Remove all moving parts from the machine. Use the diagram on this page to determine the center of gravity of the machine. Rigging can only be connected to a specified lift point on the machine. There are two lifting points at each end of the machine. Adjust rigging to avoid damage to machine and keep machine level.

Center of gravity of machine

Model	X-axis	Y-axis
68SP	66cm	55.6cm
68NP	83cm	59.5cm
810NP	83cm	65.7cm
68W	83cm	57.6cm
810W	83cm	64.4cm
1012W	83cm	68.2cm
1214W	83cm	72.1cm
1416W	98cm	70.5cm



III. Part List of Self-Propelled Scissor Lift

No.	Item	Specifications	Position	Unit	Qty
1	ϕ13-410	M22*1.5 — 90°	Fuel tank outlet to gear pump suction port	pcs	1
2	ϕ13-560	M22*1.5 — 45°	Gear pump outlet to main valve interface P	pcs	1
3	ϕ6-1320/1350	M14*1.5 — 90°	Main valve interface AS/BS to steering cylinder interface	pcs	2
4	ϕ10-1700/1730	M18*1.5 — 90°	Main valve interface C1/B1/C2/B2 to travel motor interface	pcs	4
5	ϕ6-2250	M14*1.5 — 90°	Main valve interface BR to release pump interface	pcs	1
6	ϕ6-610	M14*1.5 — 90°	Release pump interface to brake interface	pcs	1
7	ϕ6-630	M14*1.5 — 90°	Release pump interface to brake interface	pcs	1
8	ϕ8-4500	M16*1.5	Main valve interface CSE to lower lift cylinder lock valve interface	pcs	1
9	ϕ8-8500	M16*1.5	Lift the cylinder lock valve to the lift cylinder block	pcs	1
10	ϕ13-365	M22*1.5 — 45°	Main valve interface T3 to oil filter	pcs	1
11	ϕ13-420	M22*1.5 — 45°	Oil filter to tank return port	pcs	1
12	Connector	M27×2/M22×1.5H	Fuel tank connector oil outlet	pcs	1
13	Connector	7/8（O ring）/M22×1.5H	Pump port connector	pcs	2
14	Connector	M22×1.5H/M22×1.5H	Pump port change direction	pcs	2
15	Connector	G3/8/M22×1.5H	Main valve P port connector	pcs	1
16	Connector	M22×1.5H/M22×1.5H	Main valve P port change direction	pcs	1
17	Connector	G1/4/M14×1.5H	Main valve AS, BS, BR interface	pcs	3
18	Connector	G3/8/M18×1.5H	Main valve C1, B1, C2, B2 port connector	pcs	4
19	Connector	G3/8/M16×1.5H	Main valve CSE port connector	pcs	1
20	Connector	G3/8/M22×1.5H	Main valve T port connector	pcs	1
21	Connector	M22×1.5H/M22×1.5H（90°	Main valve T port change direction	pcs	1
22	Connector	M14×1.5H/M14×1.5H	Steering cylinder port joint	pcs	2
23	Connector	9/16（O ring）	Motor port connector	pcs	4

		/M18×1.5H			
24	Connector	7/16（O ring） /M14×1.5H	Brake port fitting	pcs	2
25	Connector	7/16（O ring） /M14×1.5H	Manual release pump port connector	pcs	3
26	Connector	G3/8/M16×1.5H	Lower cylinder lock valve port joint	pcs	2
27	Three-way connector	M16X1.5H（with one nut）	Lower cylinder lock valve port joint	pcs	1
28	Three-way joint orientation	M16X1.5H/M16X1.5H（90 ° with nut）	Lower cylinder lock valve port joint	pcs	1
29	Connector	G3/8/M16X1.5H	Lifting cylinder block port joint	pcs	2
30	Connector	1/4-27 Hollow screw	Cylinder exhaust port connector	pcs	2
31	Connector	RC3/4/M22X1.5	Oil filter connector	pcs	2
32	Connector	M22X1.5/M22X1.5（90 °）	Fuel tank return port connector	pcs	1
33	Connector	M27X2/M27X2	Fuel tank connector	pcs	1
34	Foot switch assembly		Telescopic platform	set	1
35	Hinge, torsion spring, pin		Platform door	set	2
36	D-pin		Guardrail	pcs	4
37	Bearing	6204	Platform wheel	pcs	4
38	Inner circlip	47	Platform wheel	pcs	4
39	Nylon roller	ϕ125	Telescopic platform	pcs	2
40	Nylon small roller	ϕ120	Fixed platform	pcs	2
41	Small slider		Upper platform	pcs	4
42	Rubber septum		Fixed platform guardrail	pcs	4
43	bolt		Platform door	pcs	1
44	Door spring		bolt	pcs	2
45	Small cotter pin	2	Platform door hinge	pcs	2
46	Bolt flat spring pad	M10*25	Foot lock	set	2
47	bolt	M8*50	Platform door hinge	set	8
48	Flat pad	M8*60	Folding fence	set	12
49	Self-locking nuts	M10*50	Door lock	set	1
50	Countersunk bolt	M8*60	Platform roller mount	pcs	16
51	Self-tapping screw	M4*30	Rubber septum	pcs	4
52	Cylinder pin 1	ϕ38*240	Black shaft pin	pcs	2
53	Pole pin 1	ϕ38*660	Scissor assembly	pcs	11
54	Strut pin 2	ϕ38*220		pcs	10
55	Lower slider pin	ϕ38*370		pcs	2

56	Upper slider pin	ϕ38*150	1 set	pcs	2
57	Cylinder pin 3	ϕ38*160		pcs	4
58	Strut pin 2	ϕ38*230		pcs	2
59	Bracket cushion		Strut	pcs	20
60	C-type retaining ring		Pole shaft fixed wire frame	pcs	5
61	U-ring		Safety support	pcs	2
62	Fiber sleeve	ϕ44*ϕ38*50	Strut	pcs	6
63	Fiber sleeve	ϕ44*ϕ38*30	Strut	pcs	42
64	Upper cylinder	ϕ70	Scissor assembly	pcs	1
65	Lower cylinder	ϕ80	Scissor assembly	pcs	1
66	Upper cylinder valve block	ST3721-AC00	Upper cylinder	pcs	1
67	Lower cylinder valve block	ST3720-AC00	Lower cylinder	pcs	1
68	Soft shaft cable	12K （4.5m）	Lower cylinder lock valve	pcs	1
69	bolt Flat pad Self-locking nuts	M10*100	Slider	set	4
70		M10*75	Fixed strut pin	set	21
71		M10*40	Flap pressure seat	set	12
72		M6*20	Cylinder valve block and cable holder	set	6
73	Countersunk bolt	M6*15	C-type retaining ring	set	5
74	Hex bolts	M10*40	Scissor support	set	2
75	Outer circlip	38*2.5	Pole pin	pcs	11
76	Flat pad	ϕ38*ϕ60-4mm	Pole pin	pcs	11
77	Anti-reduction	ϕ10-80	Cylinder pin	pcs	4
78	Large slider		Outsole scissor	pcs	2
79	Plastic tee	ϕ8	Oil return pipe	pcs	1
80	Motor	4.5Kw	Pump station box	pcs	1
81	Valve block	ST4456-AE00	Pump station box	pcs	1
82	tank	25L	Pump station box	pcs	1
83	Pipeline filter	SP-06/08X25	Pump station box	pcs	1
84	Gear pump	45cc/r	Pump station box	pcs	1
85	battery	T1275	battery box	pcs	4
86	charger	30A/24V	battery box	pcs	1
87	switch		battery box	pcs	1
88	Big insurance	300A	battery box	pcs	1
89	counter	SH-768	battery box	pcs	1
90	horn	DL225	battery box	pcs	1
91	buzzer	BJ-1I	battery box	pcs	1
92	Battery cap	Red + black	battery box	pcs	12

93	Manual pump	960020a10aaaa	Chassis	pcs	1
94	Brake	913000K3031AAAAA	rear wheel	pcs	2
95	motor	375cc	Front wheel	pcs	2
96	Steering cylinder	ϕ40	Front wheel steering	pcs	1
97	Key switch	Contact + green dot 3 / set	Ground control panel	set	1
98	Emergency stop switch	Contact + red dot 1 / set	Ground control panel	set	1
99	Toggle switch	Waterproof cap 1/set	Ground control panel	set	1
100	Self-resetting insurance	7A	Ground control panel	pcs	1
101	Relay		Ground control panel	pcs	1
102	Emergency stop		Ground control panel	pcs	1
103	Lower control panel		Chassis	pcs	1
104	LED small light		Ground control panel	pcs	1
105	Limit switch		Flap	set	4
106	Waterproof connector		Limit switch	pcs	4
107	Strobe light		Chassis	pcs	1
108	Door lock	Handle type	Battery box pump station box	pcs	2
109	Anti-collision block		Battery box pump station box	pcs	2
110	Plastic pallet		Battery box pump station box	pcs	2
111	Ground wire			pcs	1
112	Gas Spring	Installation distance 250 (260) - stroke 80-300N	Flap mechanism	pcs	2
113	Vertical shaft cover		Front wheel vertical axis	pcs	2
114	Tubing clip			pcs	1
115	Composite sleeve	ϕ36*ϕ32*45	Flap presser seat	pcs	4
116		ϕ28*ϕ25*20	Box	pcs	8
117		ϕ23*ϕ20*10	Connecting rod in the flap	pcs	4
118		ϕ23*ϕ20*20	Flap	pcs	8
119		ϕ28*ϕ25*40	Steering lever	pcs	2
120		ϕ23*ϕ20*20	Steering cylinder	pcs	1
121	Seamless tyre	ϕ381*127	Motor brake	pcs	4
122	Fiber sleeve	ϕ65*ϕ55*50	Front wheel vertical axis	pcs	4
123	Big spring		Flap finale	pcs	2
124	Travel limit block		Limit switch	pcs	1
125	Round head Phillips screw	M6*15	Ground control panel	set	2
126	Hexagon socket bolt	M6*20	Vertical bushing cover	pcs	2
127	Hexagon socket bolt	M5*15	Limit switch cover	set	4

128	Hexagon socket bolt	M10*30	Vertical bushing	pcs	2
129	Hexagon socket bolt	M8*25	Valve group installation	set	2
130	Hexagon socket bolt	M8*25	Motor installation	set	4
131	Round head Phillips screw	M4*20	ECU	set	4
132	Hexagon socket bolt	M6*20	Pipeline filter	set	4
133	Semi-round head bolt	M4*15	charging port	set	2
134	Semi-round head bolt	M6*15	switch	set	2
135	Countersunk head hex bolt	M8*25	tank	set	4
136	Countersunk head hex bolt	M8*25	Motor base	set	4
137	Hexagon socket bolt	M6*15	Motor Controller	set	4
138	Hexagon socket bolt	M6*15	horn	set	2
139	Hexagon socket bolt	M6*15	Big insurance	set	2
140	Hexagon socket bolt	M6*10	buzzer	set	2
141	Hexagon flange bolt	M6*15	Door lock	set	10
142	Hexagon socket bolt	M5*15	Flap limit switch	pcs	8
143	Hexagon socket bolt	M8*50	Anti-collision block	set	2
144	Countersunk head hex bolt	M8*15	Plastic pallet	set	4
145	Hexagon socket bolt	M8*70	Manual release pump	set	2
146	Bolt Flat pad Self-locking nuts	M12*70	Steering cylinder	set	4
147		M12*90	Travel motor brake	set	16
148		M12*40	Flip mount	set	8
149		M6*10	charger	set	4
150		M12*30	Charger holder	set	2
151		M12*40	Back ladder	set	2
152	Self-locking mother and flat pad	M14	Flip pin	set	10
153		M20	Link pin in the flap	set	2
154	Axis card	25*1.2	Box pin	pcs	4
155	Hexagon flange bolt	M6*20	Oil filter	pcs	2
156	Hexagon socket bolt	M6*10	Motor governor	pcs	4
157	Axis card	20*1.2	Steering cylinder pin	pcs	2
158	Control System	DTC	Harness. Dip. Pair. Pin	set	1