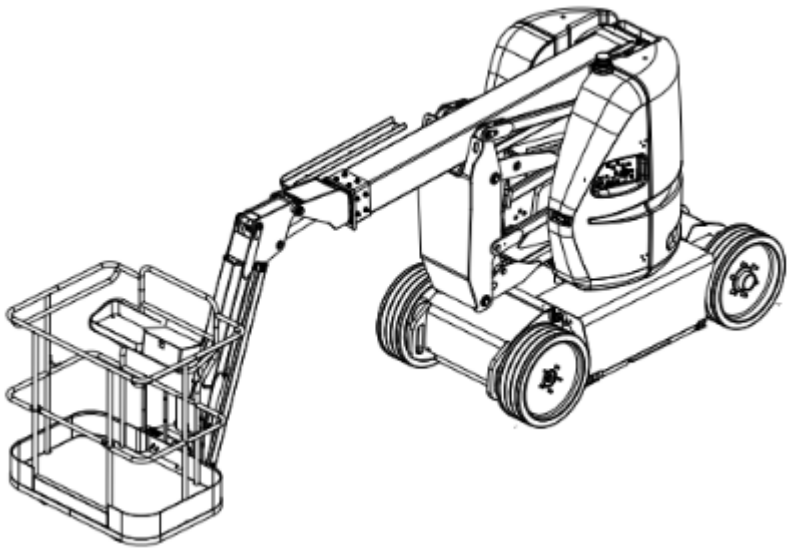
GTHZ Series

Curved arm high-altitude work platform

GTHZ120
GTHZ170
GTHZ170C

Operation mannual



HANGCHA GROUP CO., LTD

JAN 2024

Catalogue

Preface

Thank you for purchasing the machine of HANGCHA group. Before using the machine, you should master the use and operation requirements of the machine! Any operation of the machine has risks. Only when we master the safety rules and operate carefully can we effectively prevent personal injury, property loss and accidents. Your safety needs us to work together!

The machine is limited to transporting personnel and tools to the working position and working on the working platform. Human safety is related to the operation and use of the machine. It is very important to train competent and careful personnel to use the machine, and carry out the safe operation of the machine.Only trained and authorized personnel are allowed to operate the machine.

This manual is used to guide the user / operator to operate and use the machine. Before operating and using the machine, the user / operator is responsible for reading, understanding and implementing this manual and the manufacturer's instructions; Read, understand and abide by safety rules and operating instructions; The service parameters and expected environment of the equipment shall be considered; The requirements for safe use shall be strictly observed.

This manual, together with the maintenance manual and parts manual, should be regarded as part of the machine and kept with the machine at all times! The manager of the machine shall ensure that all necessary information about the operation and daily inspection / maintenance of the machine provided by the machine manufacturer is provided to each lessee. If sold, it shall be distributed randomly, and the manager of the machine shall also provide the manufacturer's maintenance information to the trained maintenance personnel responsible for the machine.

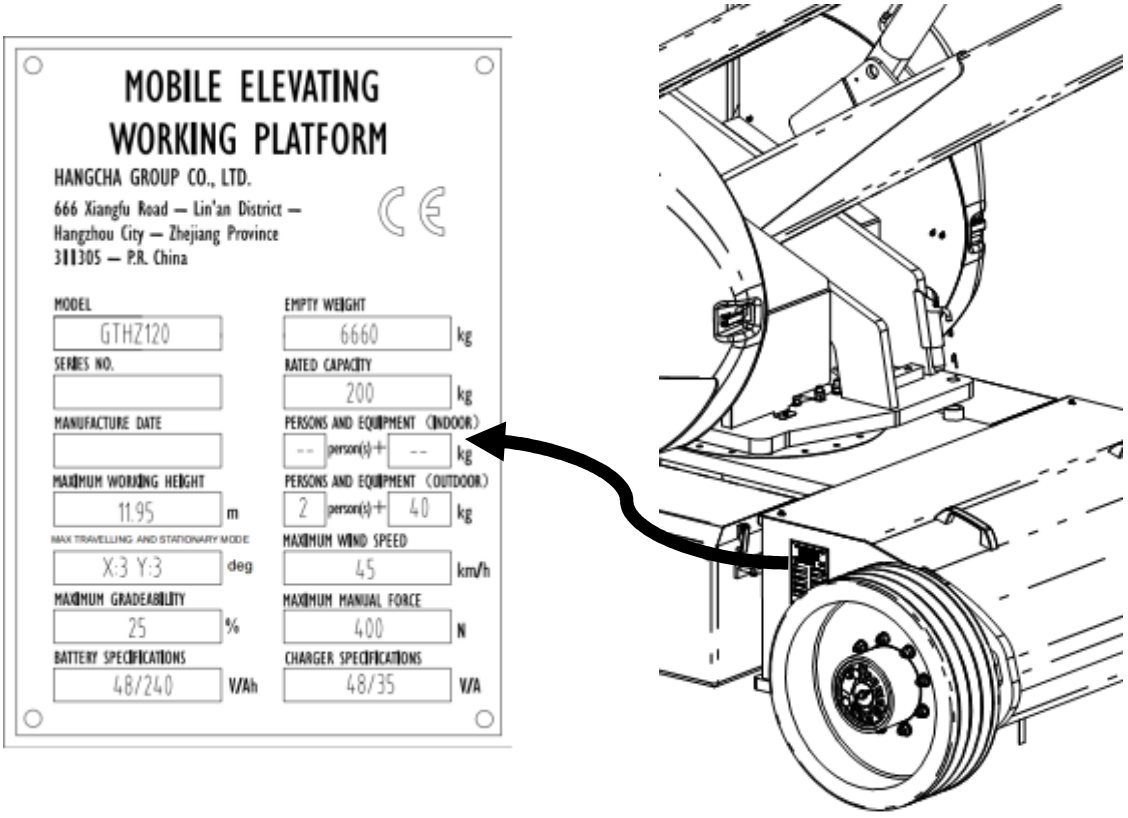
Our product design will be continuously updated and improved. The contents of this manual may be different from the equipment in your hand.

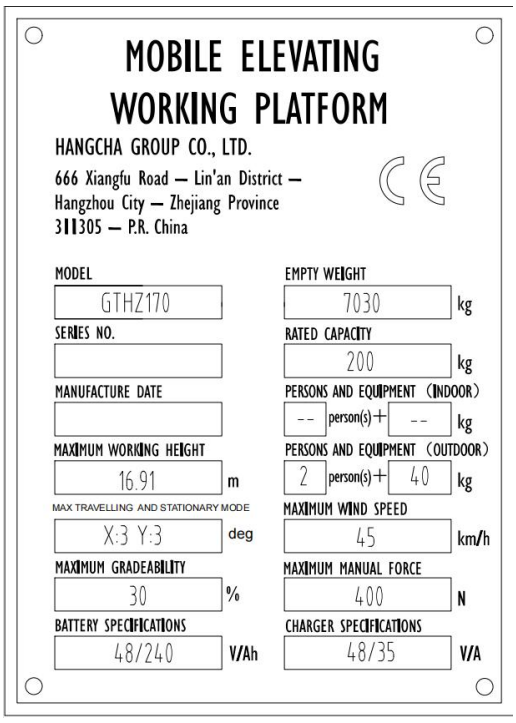
If you have any questions, please contact the sales company or agent of HANGCHA group.

How to Read Your Serial Number

Machine data plate

On the machines destined for foreign markets, the data plateis applied on the right side of the chassis.





Chapter I Product performance parameters

1.1 Product Performance Parameters

Dimension parameters			
	GTHZ120	GTHZ170	GTHZ170C
Maximum platform height	9.95m	14.75m	14.95m
Maximum working height	11.95m	16.75m	16.95m
Maximum crossing height	4.77m	7.16m	7.30m
Maximum horizontal extension	6.5m	8.93m	8.93m
Maximum horizontal working distance	7.0m	9.3m	9.3m
Length	5.48m	6.84m	6.90m
Length（Transportation status）	3.74m	5.40m	5.46m
Width	1.20m	1.75m	1.75m
Height	2.01m	2.11m	2.15m
Height（Transportation status）	2.18m	2.11m	2.15m
Wheelbase	1.65m	2.0m	2.0m
Maximum ground clearance	0.10m	0.14m	0.2m
Platform width (length × width × height)	1.20m×0.77m	1.20m×0.77m	1.80m×0.77m
Tire model	0.60m×0.19m	0.60m×0.19m	0.73m×0.225m
Performance parameter			
Rated load	200kg	200kg	230kg
Maximum number of operators	2 person	2 person	2 person
Maximum manual force	400N	400N	400N
Maximum driving speed (retracted state)	6km/h	6km/h	6km/h
Maximum driving speed (lifting state)	0.6km/h	0.6km/h	0.6km/h
Turn radius (inner)	1.55m	2.0m	2.0m
Turn radius (outer)	3.25m	4.3m	4.3m
Gradeability	25%	25%	25%
Maximum chassis tilt angle	3°	3°	3°
Body rotation	350°	355°	355°
Turntable tailswing	0	0.235m	0.235m
Maximum allowable wind speed	12.5m/s	12.5m/s	12.5m/s
Platform rotation angle	140°	140°	140°
Jib luffing angle	70°/-70°	70°/-70°	70°/-70°

Operation manual Chapter I Product performance parameters

Power parameters			
Drive mode (drive × Steering)	2WD×2WS	2WD×2WS	2WD×2WS
Drive motor	7.6kW	7.6kW	7.6kW
Pump Motor	5.1kW	5.1kW	5.1kW
Pump	6ml/r	6ml/r	6ml/r
Oil Tank Capacity	14L	14L	14L
Hydraulic system pressure	21MPa	21MPa	21MPa
Battery specification (voltage, capacity)	80V/210Ah	80V/210Ah	80V/210Ah
System voltage	80V	80V	80V
Control voltage	24V	24V	24V
Weight			
Total weight	6670kg	6990kg	7130kg
Ground bearing information			
Maximum tire load	4200kg		
Noise			
Noise	≤80dB		

Note：

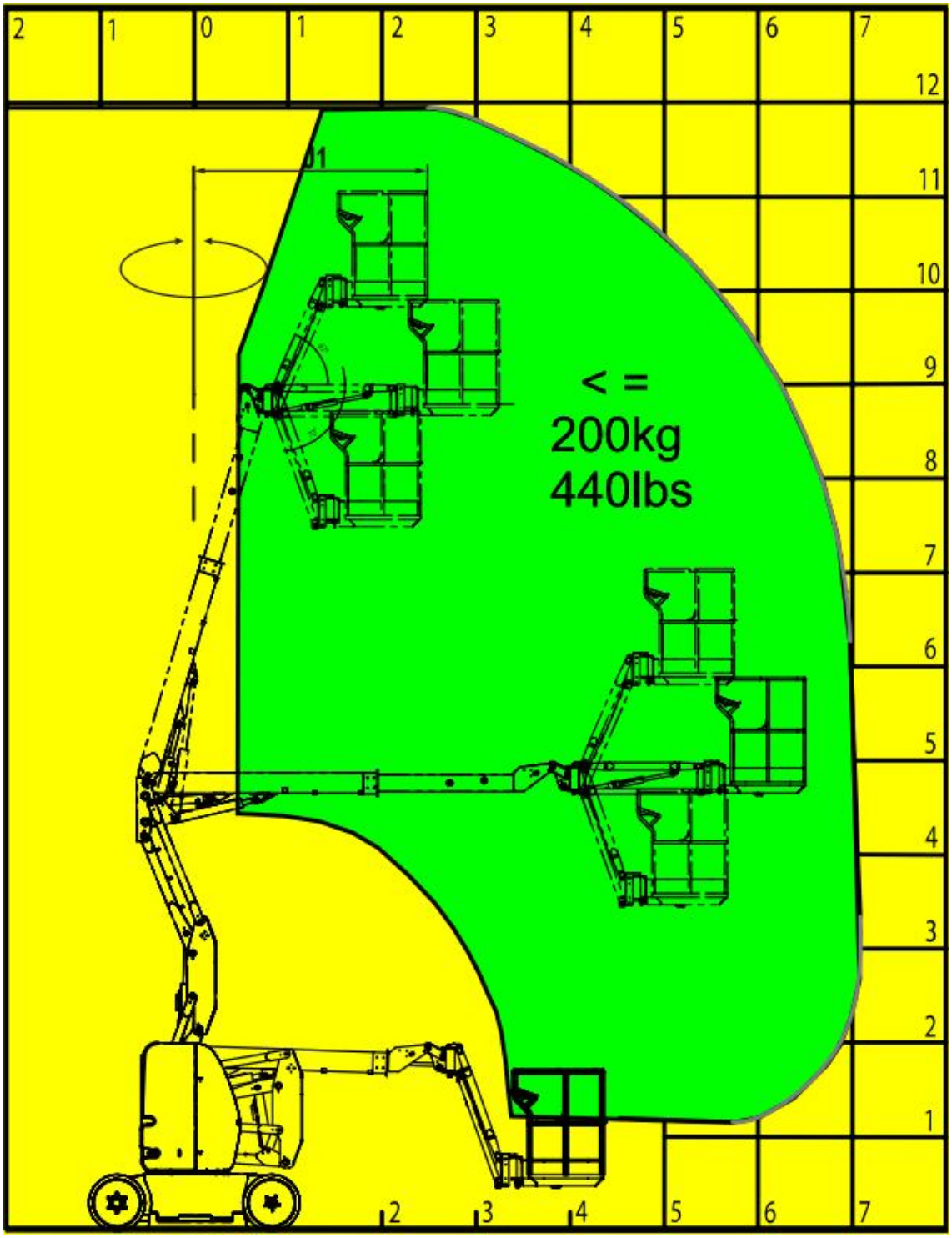
a. Calculated according to the height of personnel equal to 2m, the working height is equal to the height of working platform plus 2m.

b. The ground bearing information is myopia information, and different selection configuration factors are not included. Use this information only if you have a sufficiently high safety factor.

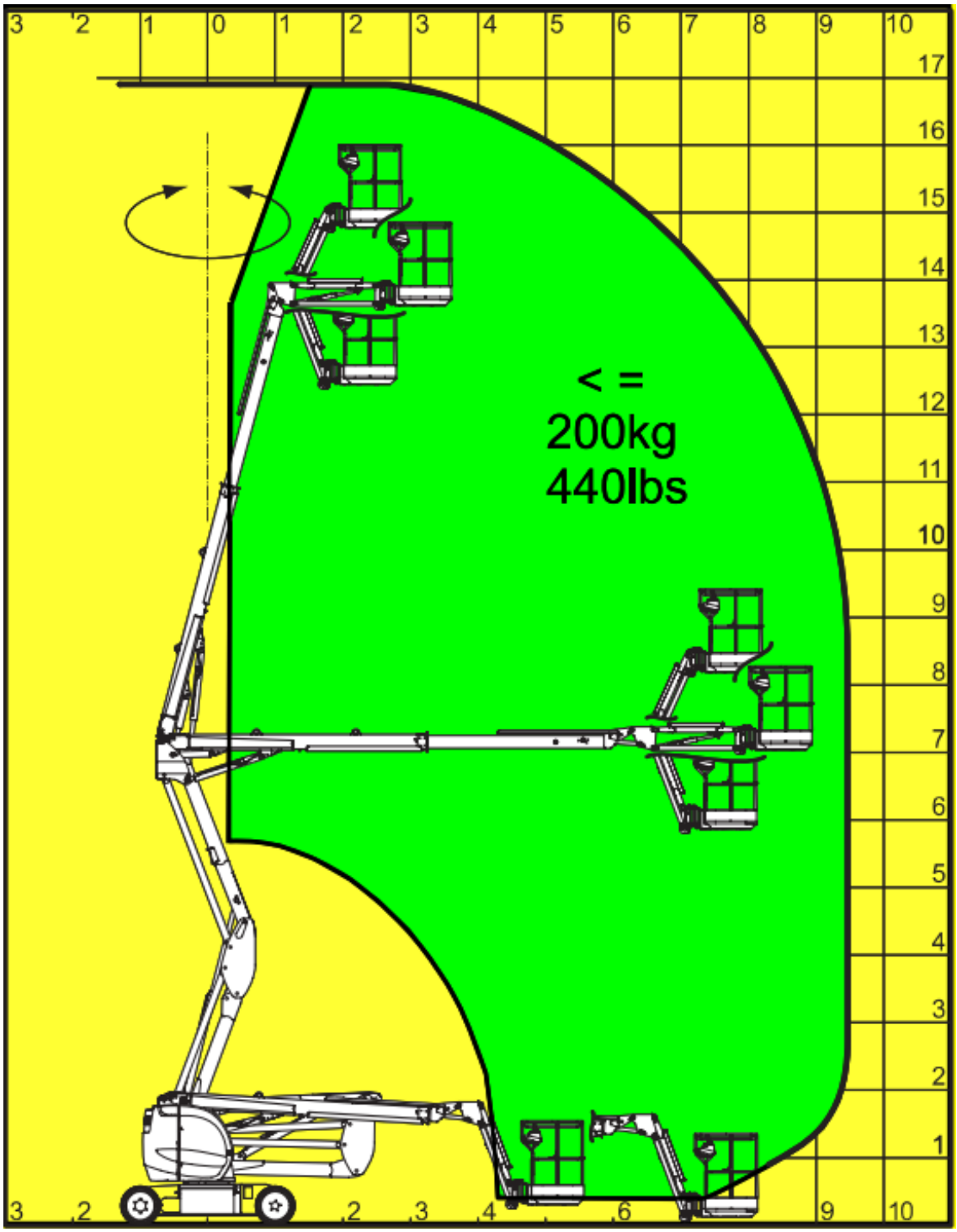
c. Add hydraulic oil and lubricating oil suitable for the environment according to the ambient temperature in different regions.

1.2 Operation Scope Diagram

GTHZ120



GTHZ170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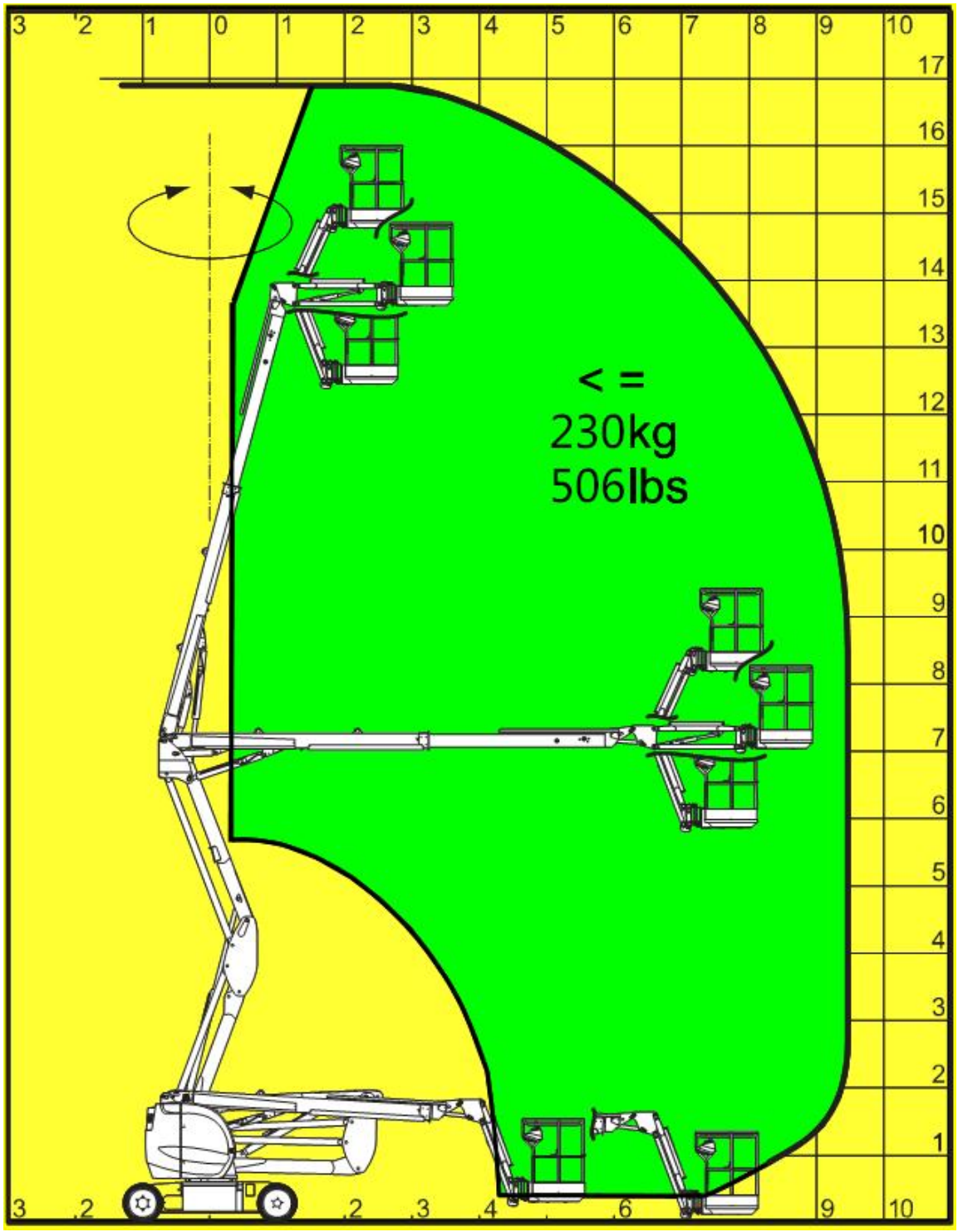
GTHZ170C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Chapter 2 Important safety rules

2.1 Summary

This chapter covers how to use your machine correctly and safely in most applications.In order to achieve this goal, we have established a set of daily checklist, which is mandatory for qualified quality inspectors to carry out daily maintenance in strict accordance with this checklist, so as to ensure that the machine can operate without fault and ensure safe operation.

Read, understand and comply with safety rules, job site requirements and government regulations.

Whether you are the owner, user or operator of the machine， Before operating the machine for the first time， You must read and correctly understand the contents of this manual， The machine can only be operated independently after the whole process is operated from beginning to end under the supervision of qualified personnel with practical operation experience. If you have any questions about the use or operation of the machine, please call HANGCHA group in time for consultation.

Before operating the machine, ensure that the personal protective devices listed in the following table are worn correctly and in good condition：

- Fall safety rope
- Protective gloves
- Safety helmet
- Safety shoes

Most of the accidents involved in the operation, maintenance and repair process are caused by the failure to follow the basic safety operation procedures and precautions in the actual operation.In fact, if we can analyze the applied construction safety hazards and take corresponding safety measures before each construction operation, most accidents in practice can be completely avoided.Therefore, before each use and operation, it should be evaluated by the safety officer who has been trained and has the experience and ability of safety hazard analysis, and remind the personnel operating the machine to take necessary countermeasures to avoid the occurrence of danger.

Incorrect operation, lubrication, maintenance and repair are very dangerous, which may cause personal injury or casualties. Therefore, only after you read the manual thoroughly and fully understand the knowledge and information about operation, lubrication, maintenance and repair, can you take maintenance for the equipment.

2.2 Symbol description

This safety symbol appears in most safety statements. This means that you need to pay attention and be vigilant at all times, and your safety will be affected! Please read and observe the relevant information of safety warning symbols.

It is used to indicate that there is an emergency and dangerous situation. If it is not avoided, it will cause death or serious injury.

It is used to indicate that there is an emergency and dangerous situation.If it is not avoided, it will cause death or serious injury.

It is used to indicate that there is a potentially dangerous situation, which, if not avoided, may cause slight or moderate injury to personnel.

Notice

Conditions that may cause damage to the power plant, loss of personal property or harm to the environment, or lead to improper operation of the equipment.

Note: these steps, instructions or conditions should be followed in order to make the power unit or component work in the expected way.

2.3 Accident notification

In case of any accident involving the machinery of HANGCHA Group Co., Ltd., HANGCHA Group Co., Ltd. must be notified immediately. Even if there is no personal injury or property damage in the accident, HANGCHA Group Co., Ltd. must be contacted by telephone and all necessary details must be provided.If the manufacturer is not notified within 48 hours after the accident involving the machinery of HANGCHA Group Co., Ltd., the warranty of the product may be invalidated.

Notice

After any accident, thoroughly check the machine and its function.First test all functions from the ground controller, and then test from the platform controller. Before all damages are repaired and all controllers can be operated correctly, the lifting height must not exceed 3m.

2.4 Electric shock danger

Notice

This machine is not insulated and does not have the function of electric shock protection.

All operators and managers shall comply with the relevant national or local regulations on the minimum safety distance of live conductors above the ground. If there is no such requirement, the operators and managers shall comply with the requirements of the minimum safety distance in.

Electric shock danger

- Follow relevant government rules and always keep a safe distance from power lines and electrical equipment. See 2-1 for details.
- Platform movement, wire swinging or sagging shall be considered, and strong wind or gust shall be avoided. Do not operate the machine in case of lightning or rainstorm.
- If the machine contact with live wires, stay away from the machine. Personnel on the ground or on the platform are not allowed to touch or operate the machine until the power is cut off.
- Do not use the machine as ground wire during welding, grinding and other operations.

Chart 2-1 Minimum safety distance of electrified body

Voltage range（Phase to phase，kV）	Minimum approach distance m（ft）
0～50	3（10）
50～200	5（15）
200～350	6（20）
350～500	8（25）
500～750	11（35）
750～1000	14（45）

2. 5 Tipping danger

Chart 2-2 Maximum rated load of platform

Rated load	GTHZ120	GTHZ170	GTHZ170C
Rated load	200kg	200kg	230kg
Maximum number of people allowed	2persons	2persons	2persons
Maximum manual operating force	400N	400N	400N

Overturn danger

- Personnel, equipment and materials on the platform shall not exceed the maximum load capacity.
- The platform can only be lifted or extended when the machine is on solid and flat ground.
- Do not use the tilt alarm as a level indicator.The tilt alarm on the platform will sound only when the machine is heavily tilted.If the tilt alarm sounds: be very careful to lower the platform and transfer the machine to a solid and level ground. Do not change the level or limit switch.
- Do not drive faster than 0.6 km / h when the platform is raised.
- When the platform is raised, the machine cannot travel on uneven, unstable surfaces or other dangerous conditions.
- Do not operate the machine during strong wind or gust, and do not increase the surface area of the platform or load.Increasing the area exposed to the wind will reduce the stability of the machine.
- Be careful and reduce the speed when the machine is driving in uneven areas, gravel, or other uneven surfaces, or near holes and steep slopes.
- Do not push or pull any object outside the platform. The maximum allowable lateral force is 400N（90 lbf）
- Do not change any machine parts that may affect safety and stability.
- Do not replace key parts that affect the stability of the machine with parts of different weights or specifications.
- Do not modify or change the aerial work platform without the written permission of the manufacturer.
- Do not install additional devices for placing tools or other materials on the platform or guardrail, which will increase the weight and surface area of the platform or increase the load.
- Do not place or fix any suspended load on any part of this machine.
- Do not place ladders or scaffolds in the platform or lean against any part of the machine.

Overturn danger

- Do not use the machine on moving or moving surfaces or on vehicles.Ensure that all tires are in good condition and that the tire nuts are tightened.
- Do not use the platform to push the machine or other objects.
- Do not allow the platform to contact adjacent components.
- Do not tie the platform to adjacent components with ropes or other binding materials.
- Do not place loads outside the perimeter of the platform.
- Do not use the platform controller to lower the platform when the platform is tripped, stuck, or other nearby objects hinder its normal movement.If it is intended to lower the platform using the ground controller, it must be operated after all personnel leave the platform.

2.6 Work environment danger

Unsafe workplace danger

- Do not operate the machine, on surfaces、 edges or potholes that cannot bear the weight of the machine.The platform can only be raised or extended when the machine is on solid and flat ground.
- Do not use the tilt alarm as a level indicator. The tilt alarm on the platform will sound only when the machine is tilted seriously.
- When the platform is raised, if the tilt alarm sounds, carefully lower the platform and do not change the level or limit switch.
- Do not exceed 0.8 km / h when the platform is raised.
- If the machine can be used outdoors, do not operate the machine in strong winds or gusts.When the wind speed exceeds 12.5m/s (28mph)， Do not lift the platform； If the wind speed exceeds 12.5m/s (28mph) after lifting the platform,lower the platform immediately and do not continue to operate the machine.
- When the platform is raised, the machine cannot travel in uneven areas, unstable surfaces or other dangerous conditions.
- When the machine is stowed, be careful and reduce the speed when the machine is driving in uneven areas, gravel, unstable or smooth surfaces, steep and near holes.
- Do not drive or lift the machine on a slope, step or arched ground that exceeds the maximum climbing capacity of the machine.

Before or during the use of the machine, check the possible hazards in the workplace and pay attention to environmental restrictions, including flammable and explosive gases or dust.

Chart 2-3 The Beaufort Scale

Beaufort scale	m/s	Instruction	Ground condition
0	0～0.2	No wind	No wind, smoke vertical upward.
1	0.3～1.5	Soft wind	Smoke can indicate the wind direction.
2	1.6～3.3	Soft wind	The skin feels bare. The leaves make a slight noise.
3	3.4～5.4	Breeze	The twigs began to shake.
4	5.5～7.9	Gentle wind	Dust and scraps of paper rose and twigs began to shake.
5	8.0～10.7	Cool breeze	The tree shook.
6	10.8～13.8	Fierce wind	Tree branches shake, overhead wires whir and sound, and it is difficult to carry an umbrella.
7	13.9～17.1	strong wind	The whole tree shook. It is difficult to walk against the wind.
8	17.2～20.7	Gale	The branch broke. Vehicles on the road were blown off course by the wind.
9	20.8～24.4	Strong wind	Minor damage to buildings.

Notice

Maximum slope angle 40% . The maximum climbing capacity shall be applied to the machine with the platform in the retracted state.
The climbing capacity is the maximum allowable inclination angle when the machine is on solid ground and the platform carries only one person.When the platform increases weight, the rating of the slope will be reduced.

2.7 Unsafe operation danger

The operation of the machine shall strictly comply with the requirements of this manual and maintenance manual. If there are more stringent regulations in the industry or place, the latter shall be followed.

Unsafe operation danger

- Do not push or pull any object outside the platform. Maximum allowable lateral force： 400 N(90 lbf)
- Do not change any machine parts that may affect safety and stability.
- Do not replace key parts that affect the stability of the machine with parts of different weights or specifications.

Unsafe operation danger

- Do not modify or alter the aerial work platform without the written permission of the manufacturer.
- Do not install additional devices for placing tools or other materials on the platform or guardrail, which will increase the weight and surface area of the platform or increase the load.
- Do not place ladders or scaffolds in the platform or lean against any part of the machine.
- Do not use the machine on moving or moving surfaces or on vehicles. Ensure that all tires are in good condition and that the tire nuts are tightened.
- Do not place or attach any suspended loads on any part of the machine.
- Do not use the machine as a crane.
- Do not use the platform to push the machine or other objects.
- Do not allow the platform to contact adjacent components.
- Do not tie the platform to adjacent components.
- Do not place the load outside the platform.
- Do not use the platform controller to lower the platform when the platform is tripped, stuck, or other nearby objects hinder its normal movement.If it is intended to lower the platform using the ground controller, it must be operated after all personnel leave the platform.

When one or more tires are off the ground, evacuate all personnel before stabilizing the machine and use cranes, forklifts or other suitable equipment to stabilize the machine.

2.8 Fall danger

The operation of the machine shall strictly comply with the requirements of the operation manual and maintenance manual. If there are more stringent regulations in the industry or place, the latter shall be followed.

Fall danger

- Personnel on the platform must wear safety belts or use safety device in accordance with government regulations.Tie the anchor to the fixed points of the platform, and only one person can tie the anchor at each fixed point.
- It is forbidden to sit, stand or climb on the protective guardrail of the platform.Stand steadily on the platform floor at all times.
- When the platform is lifted, do not climb down from the platform.
- Keep the platform floor clear of obstacles.
- Do not enter or exit the platform unless the machine is in the fully stowed position.
- Close the entrance door before operation.
- Do not operate the machine if the guardrail is not installed correctly and the entrance door is not closed.

2.9 Collision danger

The operation of the machine shall strictly comply with the requirements of the operation manual and maintenance manual. If there are more stringent regulations in the industry or place, the latter shall be followed.

Collision danger

- When moving or operating the machine, pay attention to the sight range and the existence of blind spots.
- heck the work area to avoid overhead obstacles or other possible hazards.
- Be careful when using the platform controller and ground controller.The color marked direction arrows show the driving, lifting and steering functions.
- Users must comply with user, workplace and government regulations on "use of personal protective equipment" （Safety helmet, safety belt and gloves, etc）.
- Before releasing the brakes, the machine must be level or fastened.
- Lower the platform only when there are no people and obstacles in the bottom area.
- Limit travel speed based on ground conditions, congestion, ground slope, personnel location and any other factors that may cause a collision.

Collision danger

- Do not operate the machine in the range of any crane or mobile overhead unless the crane controller is locked or precautions have been taken to prevent any potential collision.
- Keep your hands and arms away from places where they may be squeezed.
- Do not work under the platform or near the telescopic boom.
- When using the controller to operate the machine on the ground, please maintain correct judgment.Keep proper distance between the operator, the machine and fixed objects.
- When operating the machine, do not drive or play with danger.

2.10 Squeeze danger

There is a potential danger of squeeze during machine movement. During the operation of the machine, body and clothes should always keep a safe distance from the machine.

Squeeze danger

- Keep your hands and arms away from places where they may be squeezed.
- Do not work under the platform or near the telescopic boom.
- When using the controller to operate the machine on the ground, please maintain correct judgment and keep an appropriate distance between the operator, the machine and fixed objects.

2.11 Danger of explosion and fire

Danger of explosion and fire

- Do not use the machine, charge the battery or refuel the machine in dangerous or flammable and explosive places.

2.12 Danger of machine damage

Notice

Follow the use and maintenance requirements of parts in this manual and maintenance manual, otherwise the machine will be damaged.

Danger of machine damage

- Unsafe operation hazard.
- Do not use damaged or faulty machines.
- Before every startup,the machine shall be checked before operation and all functions shall be tested.Damaged or faulty machines shall be marked immediately and stop operation.
- Ensure that all maintenance operations have been carried out in accordance with the provisions of the manual and the corresponding maintenance manual.
- Ensure that all labels are properly positioned and easy to identify.
- Ensure that the operation manual and maintenance manual are intact and easy to read, and stored in the document box on the platform.

2.13 Danger of physical injury

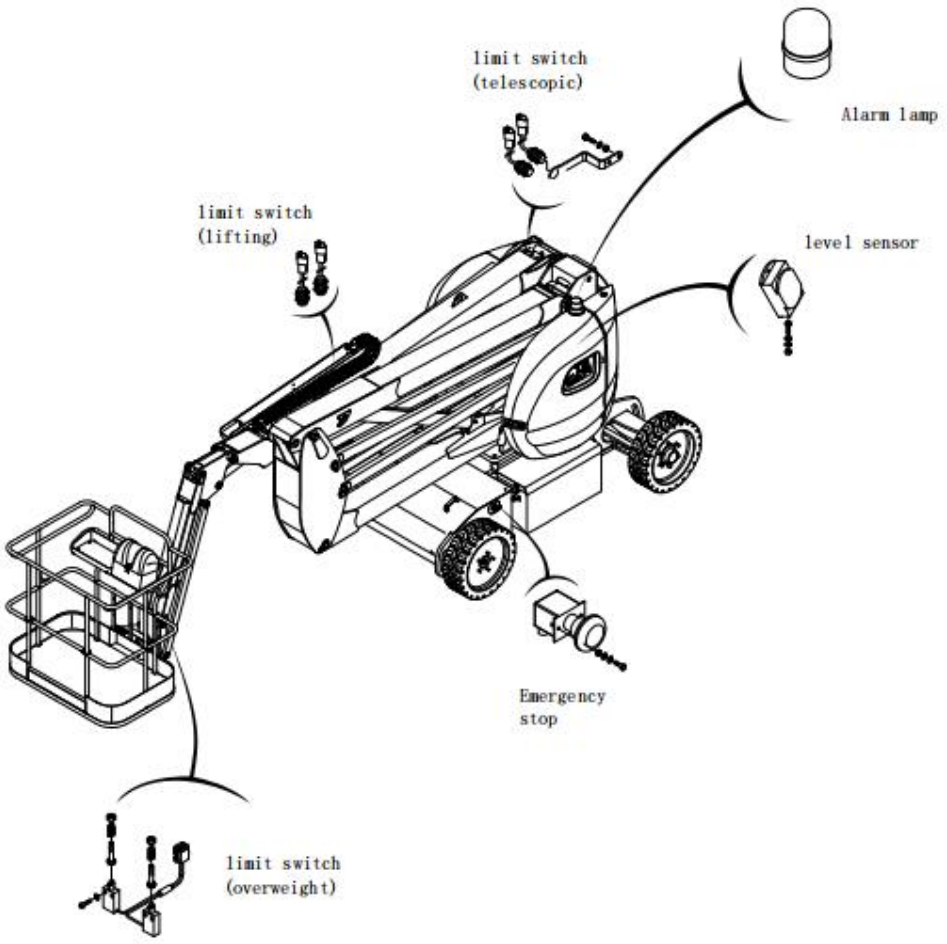
All operation and maintenance requirements in the manual and maintenance manual shall be observed.

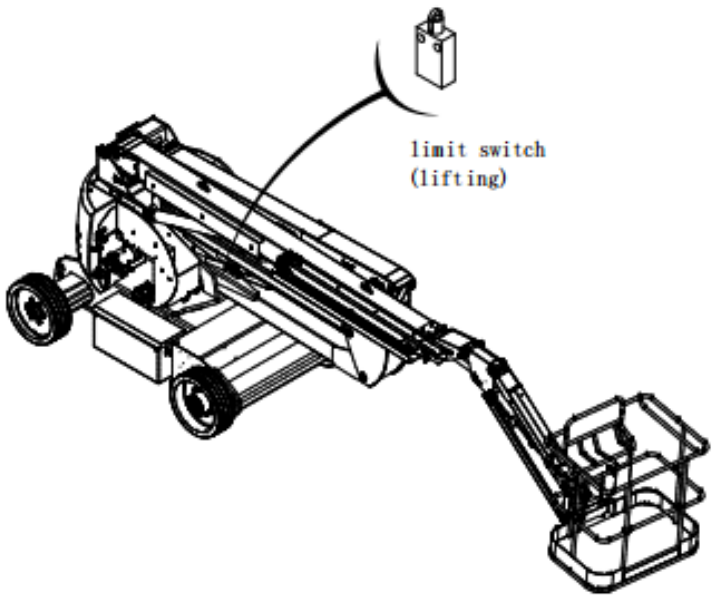
- Hazards of unsafe operation.
- Do not operate the machine when there is hydraulic oil leakage.Hydraulic oil leakage may penetrate and burn the skin.

2.14 Battery danger

- The battery contains sulfuric acid and can produce an explosive mixture of hydrogen and oxygen.Any equipment that can cause sparks or flames (including cigarette / smoke materials) should be kept away from the battery to prevent explosion.
- Do not touch the battery terminals or cable clamps with spark generating tools.

2.15 Description of the layout of the safety devices





Chapter 3 Operator responsibilities, equipment preparation and inspection

3.1 Personnel training

The equipment of aerial work platform is controlled by the operator. Only the trained and qualified personnel can operate and maintain the equipment.

It is strictly forbidden for people who cannot control themselves after drinking or taking medicine, dizziness and other people, as well as people with acrophobia, to operate and use the equipment.

Before operating the machine,it must be confirmed that the personal guards listed in the following table are properly worn and intact.

Fall proof safety rope	protective glove	safety helmet	safety shoe

3.1.1 Operator training

Operator training includes but is not limited to the following contents:

- Use and function restrictions of various control handles and switches on the upper and lower control panels, emergency operation and safety devices, etc.
- Various control knowledge labels, operation instructions, warning signs, etc. on the equipment.
- Regulatory requirements of the employer and local government.
- How to use the allowed fall prevention facilities.
- Master the relevant knowledge of equipment operation to understand and judge the faults and potential faults of the machine.
- Master how to operate in the safest way in various narrow spaces, mobile equipment, various obstacles, pits and other environmental conditions.
- How to avoid conductive or charged objects and avoid electric shock.
- Operation methods under special operation and application conditions.

3.1.2 Training supervision

The training shall be conducted in an open place without obstacles and under the supervision of authorized personnel with training qualification. Novices should not operate machines and equipment independently until they are approved by the training supervisor.

3.1.3 Operator responsibilities

The operator must be instructed and authorized. Once the machine or site fails or there is a possibility of insecurity, the operator immediately stop the machine.

3.2 Preparation, inspection and maintenance of the machine before use

3.2.1 Summary

The contents of this chapter include the inspection items that must be done before the equipment is put into use.The contents of this part must be carefully read and understood, and the equipment can be put into use only after it is carefully inspected and passed in strict accordance with the inspection items.This will help to ensure the safe operation of the equipment and prolong the service life of the equipment and machine.

The following table contains the regular maintenance items of the equipment in the normal working environment. Please refer to them when carrying out maintenance according to your actual working conditions.Note: if the equipment works under very bad working conditions, the utilization rate of the machine is very high, and the maintenance interval should be shortened appropriately.

3-1 Check the maintenance list

Type	Maintenance interval	Responsible	Reference
Startup inspection	Every day before the device is enabled	User or operator	Operation manual
Delivery inspection	Before sale or before each lease	Owner, delivery person or user	Operation manual
Regular inspection	Before sale or before each lease	Owner, delivery person or user	Operation manual
Annual inspection	One year, no more than 13 months at most	Owner, delivery person or user	Operation manual
Preventive inspection	Follow the maintenance intervals specified in the service manual	Owner, delivery person or user	Operation manual

3.2.2 Preparation before use

A new equipment must be inspected before use, including:

(1) Inspect the appearance carefully and find out if there is any damage during transportation.In case of any damage, contact the freight in time.

(2) Then, the inspection shall be carried out item by item according to the items listed in item 3.2.3.

(3) After starting the equipment for the first time, during the whole operation process, carefully check whether each functional action operates smoothly; Whether there is oil leakage in the hydraulic system and fitting; Whether all parts are fixed reliably, etc.

(4) Before the machine is put into use, the management department is responsible for making necessary preparations.During preparation, the machine shall have good operation experience and conduct appearance inspection.The items to be inspected are listed in the daily inspection module (see 3.2.4 for details)

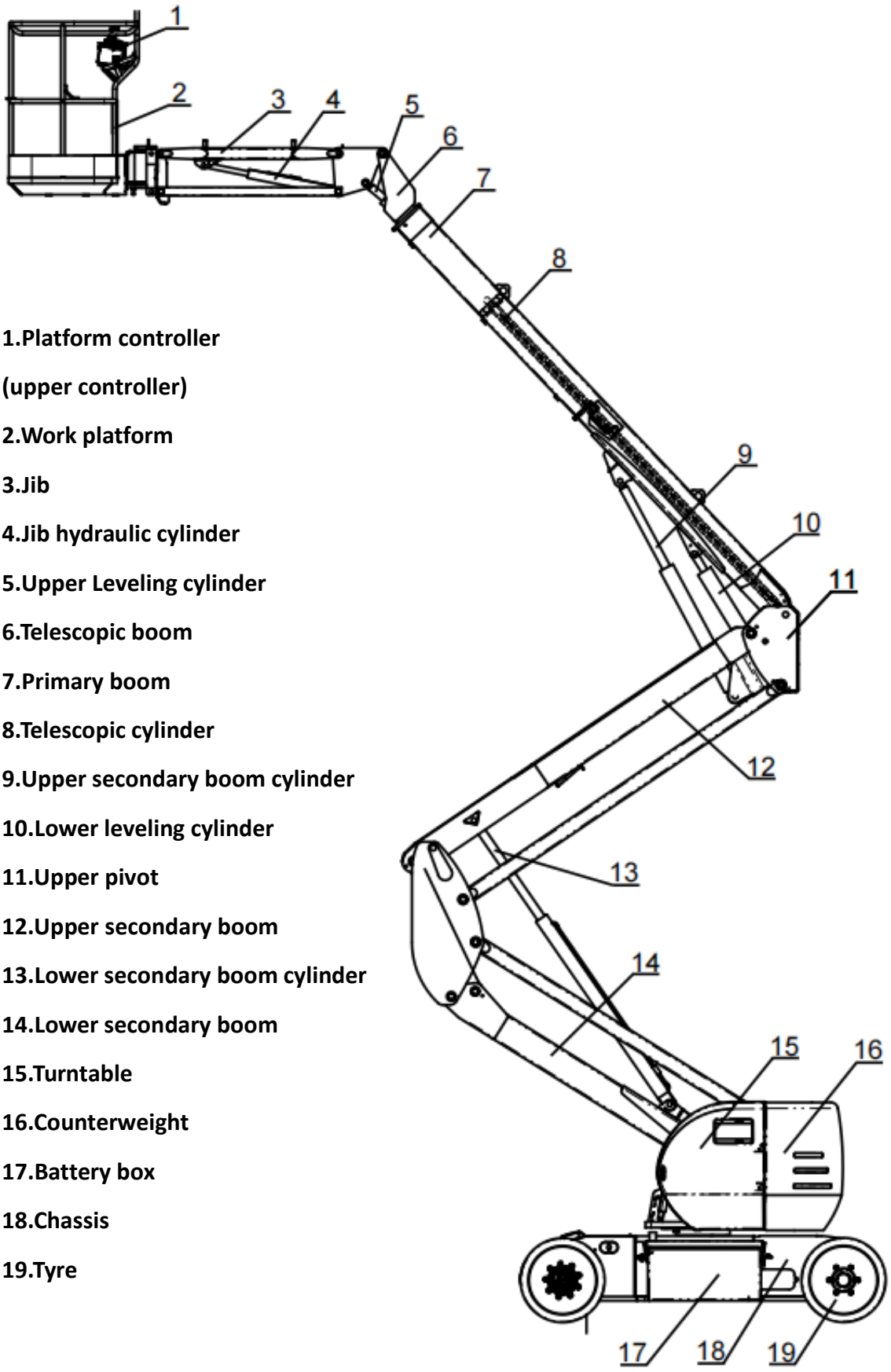
(5) Before using the machine, it should be ensured that the items listed in the delivery, circle inspection and functional inspection have been checked and passed.

3.2.3 Delivery inspection and periodic inspection

Notice
The aerial work platform shall be subject to annual inspection, and the annual inspection interval shall not exceed 13 months. The annual inspection shall be conducted by qualified full-time inspectors.

The following inspection item list provides a process for inspecting the system item by item according to the inspection item list, so as to accurately find out whether the equipment has deformation, damage, assembly error and other defects; Under normal operating conditions, the inspection shall be conducted every 3 months or 150 working hours (whichever comes first). If the equipment is used in areas with harsh environment, or the equipment is used more frequently than normal, the maintenance interval shall be appropriately reduced.

The inspection items of this part shall also be implemented for machines in stock or placed in harsh and changeable environment. The same applies to the machine after maintenance.



1.Platform controller

(upper controller)

2.Work platform

3.Jib

4.Jib hydraulic cylinder

5.Upper Leveling cylinder

6.Telescopic boom

7.Primary boom

8.Telescopic cylinder

9.Upper secondary boom cylinder

10.Lower leveling cylinder

11.Upper pivot

12.Upper secondary boom

13.Lower secondary boom cylinder

14.Lower secondary boom

15.Turntable

16.Counterweight

17.Battery box

18.Chassis

19.Tyre

Operation manual Chapter 3 Operator responsibilities, equipment preparation and inspection

Chassis

（1）Check the front axle tire and wheel assembly to see if there are loose tire bolts, missing parts, scratches, wear, etc.

（2）Check the steering device assembly to see if any parts are lost and if the steering rod is bent and deformed; Whether the steering cylinder, hydraulic hose and fitting are loose, leaking, etc; Whether the installation angle is appropriate; Whether the pipeline is worn, etc.

（3）Please check whether the drive hub, drive motor, brake, cable and connector are worn and loose. If necessary, please contact professional technicians.

（4）Check the rear axle tire and wheel assembly to see if there are loose tire bolts, missing parts, scratches, wear, etc.

（5）Please check whether the hydraulic oil tank and components on the oil tank are worn and damaged.

（6）Check the lubricating oil level of the drive reducer. (if you need help, please contact the service personnel)

Notice
The lubricating oil level should be maintained at half the height of the drive reducer housing.

（7）Check the floating oil cylinder and observe whether the oil cylinder joint and pipeline have leakage.

Check hydraulic and electrical components for wear and damage.

Turntable

（1）Check the turntable to see if there are parts missing, loose, etc; Check the rotary reducer; Check the hydraulic hose and fitting for looseness and leakage.

（2）Check the rotary reducer and observe whether there are broken teeth and other damage; Whether the lubrication is good and whether the fixing bolts are Looseness, etc; If damaged, please replace with new parts.

（3）Check the hydraulic valve and pipeline to see whether they are firmly fixed and whether there are looseness, leakage, corrosion and other phenomena.

（4）Check the control box and observe whether there is damage, looseness, loss of parts, loose electrical connectors, corrosion, damage of wire insulation, etc.Whether each function button switch is normal. If there is any problem, it should be repaired immediately.

（5）Check the battery, observe whether there is damage, whether the wiring terminal is loose, whether the protective cap is complete, whether the battery is fixed firmly, whether it is rusted, and whether the liquid level of electrolyte is appropriate.If the liquid level is insufficient, add distilled water in time.

（6）Check the machine cover, observe whether there is damage, whether the hinge, gas spring and other switches are stuck, and whether the connection is firm.

（7）Check the function valve, observe whether the hydraulic hose and fitting are deformed and leaking, and whether the fixing is firm.

（8） Check all connecting shafts and locking pins and observe whether there are looseness, missing parts, etc. If yes, please supplement it in time.

（9）Check all wires and cables for wear, damage, looseness, erosion, etc.

Lifting boom

（1）Check each boom and rod, and observe whether there is deformation, damage, loss of parts, reliable connection, etc.

（2） Check all connecting shafts and locking pins and observe whether there are looseness, missing parts, etc. If yes, please supplement it in time.

（3） Check all hydraulic hoses, wires and cables for wear, looseness, erosion and leakage, and replace new parts if necessary.

（4）Check the limit switch and observe whether it is rusted and firm, and whether the limit switch is flexible, etc.

（5）Check the lower connecting seat, luffing cylinder and hydraulic hose for damage, leakage and wear, sufficient lubrication and loose pin shaft locking.

（6）Check the lifting boom shaft busing for damage.

（7） Check whether the upper joint, upper luffing cylinder, shaft and hydraulic hose are worn and leaked, whether the shaft is loose and whether the lubrication is sufficient.

（8） Check the telescopic boom for deformation, missing parts and reliable connection.

（9）Check whether the sliding block of the telescopic boom is damaged or lost, and whether the fixing bolt is loose.

（10） Check the telescopic cylinder and observe whether the fixed shaft of the telescopic cylinder is complete and firmly connected; Whether the hydraulic hose and fitting are loose, leaking, etc. Replace with new parts if necessary.

（11）Check the leveling cylinder and observe whether the fixed shaft of the leveling cylinder is complete and firmly connected; Whether the hydraulic hose and fitting are loose, leaking, etc. Replace with new parts if necessary.

（12）Check the jib cylinder and observe whether the fixed shaft of the jib cylinder is complete and firmly connected; Whether the hydraulic pipelines and joints are loose, leaking, etc. Replace with new parts if necessary.

（13）Check whether the connectors of the rotation of the working platform and the electromagnetic coil of the jib are loose or missing, whether the wiring is firm, and whether the insulation layer of the wire is damaged.Replace if necessary.

Working platform

（1） Check the working platform and upper controller, observe whether there is damage, looseness or missing parts, and whether the fastening is firm.

（2） Check the control switch and control handle, observe whether they are loose or missing, and whether they are fixed firmly to ensure that the control handle functions normally.

（3）Check whether the control switch, control handle and electrical connector are connected reliably, whether the connector is rusted, and whether the insulating layer is damaged; Ensure that all control switches function normally.

（4） Check whether the guardrail at the entrance of the working platform is damaged and whether the switch is smooth. Repair as needed.

（5） Check whether the rotation operation of the working platform is normal, whether it is damaged and whether it is fixed firmly; Check whether the hydraulic pipelines and fitting are loose, worn and leaking, and repair or replace them in time if necessary.

Notice

Check all "safety warning", "operating instructions" and other labels to ensure that the handwriting is clear and firmly pasted.

Torque check

Refer to table 3-2. The values in the table are the reference torques of metric bolts and nuts with different strength levels and diameter specifications. According to different use experience, dry or wet torque values are sometimes given for the reference of the operator during daily inspection or operation.In the repair and maintenance manual, some important parts will give the tightening torque and maintenance inspection interval separately.Tightening according to the values in the tightening torque table during inspection and maintenance can strengthen the safety and reliability of the equipment and improve the performance of the machine.

3-2 Bolt tightening torque

Bolt specification	Metric grade 8.8 bolts and nuts（N.m）	Metric grade 10.9 bolts and nuts（N.m）	Metric grade 12.9 bolts and nuts（N.m）
M4	3	4.4	5.1
M5	5.9	8.7	10
M6	10	16	18
M8	25	36	43
M10	49	72	84
M12×1.25	93	135	160
M12×1.5	89	130	155
M12	86	126	145
M14×1.5	145	215	255
M14	135	200	236
M16×1.5	226	330	390
M16	210	310	365
M18×1.5	340	485	570
M18	300	430	600
M20×1.5	475	680	790
M20	425	610	710
M22×1.5	630	900	1050
M22	580	820	960
M24×2	800	1150	1350
M24	730	1050	1220
M27×2	1150	1650	1950
M27	1100	1550	1800
M30×2	1650	2350	2750
M30	1450	2100	2450

Chapter 4 operation and instruction of the machine

4.1 Summary

This section provides information on machine operation and control.

Notice
The manufacturer cannot directly control the application and operation of the equipment.Users and operators are responsible for observing correct safety specifications.

4.2 Control and indication description

4.2.1 Lower controller (ground control box)

NOTICE:All vehicles have function control buttons. When doing relevant actions, you need to press the function button and corresponding action button at the same time to operate the machine actions, such as luffing, telescopic rotation, jib luffing, manual leveling, platform rotation, etc.

- It is forbidden to use the ground controller to operate the machine when there are people in the working platform unless in the emergency treatment state.
- When carrying out the machine function test, first operate the machine with the lower controller for test.

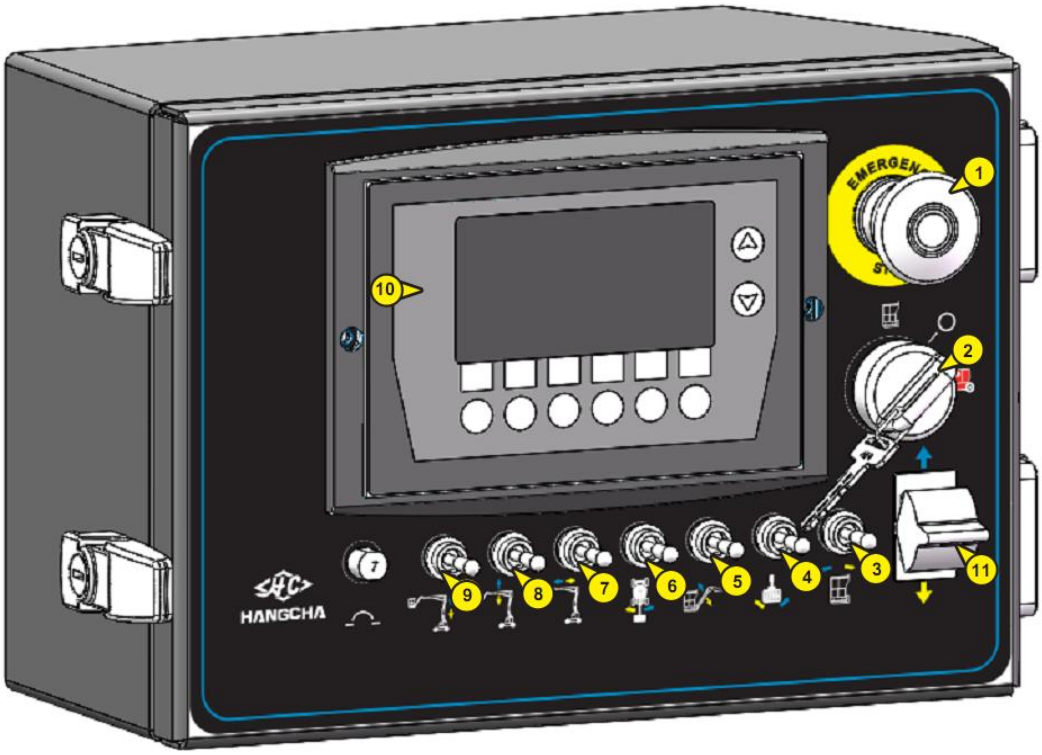
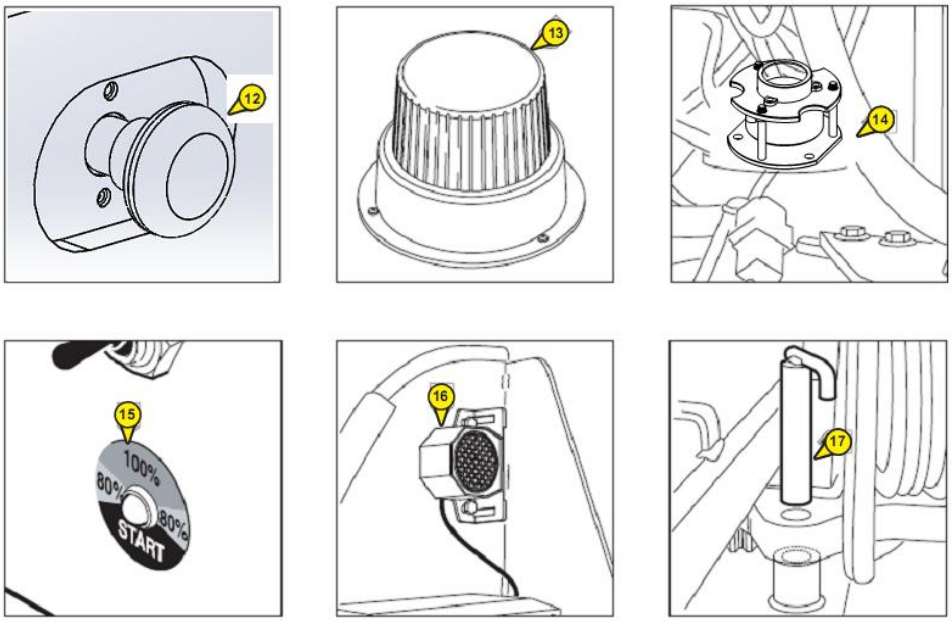
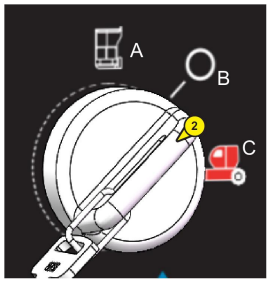
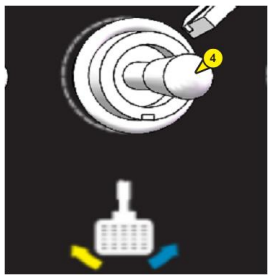
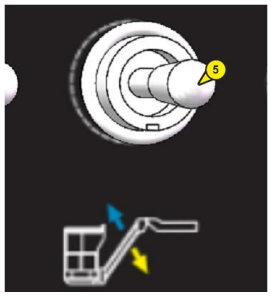
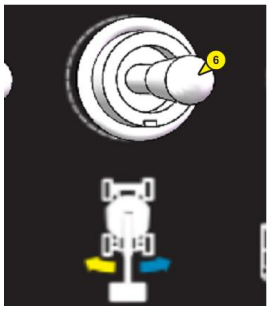
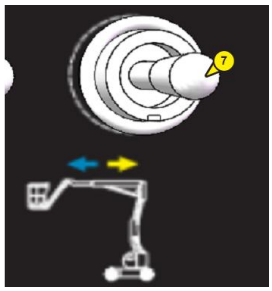
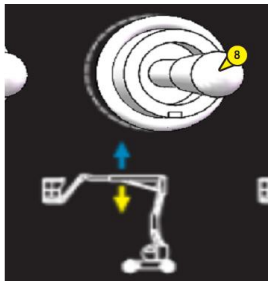
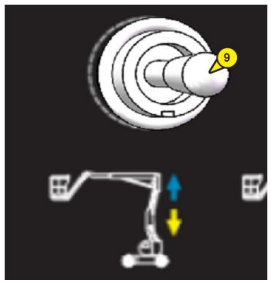


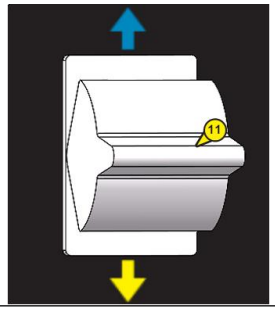
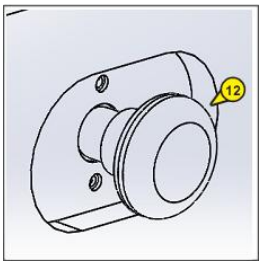
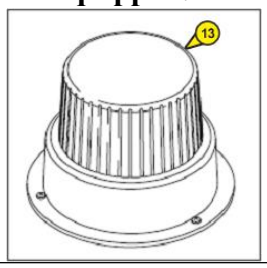
Fig.4-1 Base control panel

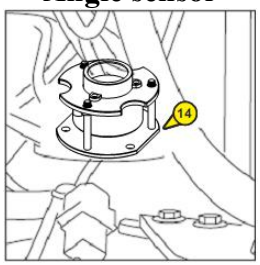
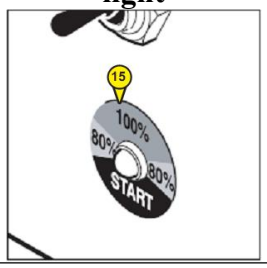
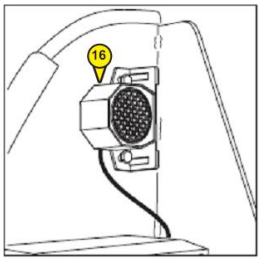
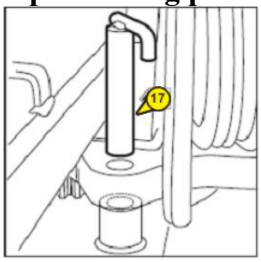


NO.	NAME	DESCRIPTION
1	**Emergency stop switch** 	Red two position control switch , used to stop the machine in an emergency: (1)In case of emergency, press the button down to cut off the power supply of the system; (2) Before starting the system, the emergency stop buttons on the lower and upper control panels must be in the pop-up position. Otherwise, the system cannot start. Turn the mushroom head clockwise to release the emergency stop switch.
2	**Up / down control switch** 	The up / down control switch is a three position key control switch, used to select whether to operate with the lower controller or the upper controller: ■ When the key switch is in the middle position, cut off the power supply of the upper / lower controller. ■ Rotate the key switch counterclockwise to the left, select the upper control to operate the machine. The lower control does not work. ■ Turn the key switch clockwise to the right and select the lower control operation. The upper control of the machine does not work. **Attention:** (1) after operating the machine, press the emergency stop button on the upper / lower controller to turn the machine off; (2) After the machine is used, turn the key to the middle position, and then pull out the key to cut off the power supply of the machine to prevent unauthorized personnel from disoperation.

NO.	NAME	DESCRIPTION
3	Fence tilt button 	The fence tilt button is a self-resetting two - position handle switch. After automatic leveling, if the working platform is tilted, the operator can correct the working platform with this handle switch. When the working platform slopes down, toggle button 3 up and hold, push the direction selection button 11 down, release the button until the platform is in a horizontal position, and the button automatically resets to the median. When the working platform tilts upward, toggle button 3 up and hold, push the direction selection button 11 up, release the button until the platform is in a horizontal position, and the button automatically resets to the middle. Note: When the platform is tilted, it needs to be carefully corrected with manual leveling. However, incorrect use of hand leveling may cause the personnel or cargo inside the platform to flip or even fall off the platform. The failure of manual leveling of the working platform can cause serious accidents and even casualties.
4	Fence turning button 	The fence tilt button is a self-resetting two-position handle switch that controls the working fence to turn left or right. Toggle button 4 up and hold, push down the direction selection button 11, turn the working platform to the left, and the button automatically resets to the median. Toggle button 4 up and hold, push the direction selection button 11 up, turn the working platform to the right, and the button automatically resets to the middle.
5	Swing arm luffing button 	The swing arm luffing button is a self-resetting two-position handle switch that controls the lifting or lowering of the forearm. Toggle button 5 up and hold, push the direction selection button 11 up , the swing arm is lifted, and the button automatically returns to the middle. Toggle button 5 up and hold, push the direction selection button 11 down , the swing arm drops, and the button automatically resets to the median.

NO	NAME	Description
6	**Body rotation button** 	The body rotation button is a self-resetting two-position handle switch that controls the body to turn left or right. Toggle button 6 up and hold, push the direction selection button 11 up, turn the body to the right, and the button automatically resets to the middle. Toggle button 6 up and hold, push the direction selection button 11 down, turn the body to the left, and the button automatically returns to the median.
7	**Telescopic boom telescopic control switch** 	The telescopic boom telescopic control switch is a self resetting two position toggle switch, which is used to control the telescopic function of the telescopic boom. ➢ Toggle button 7 up and hold, push the direction selection button 11 up, the telescopic arm extends, and the button automatically resets to the median. ➢ Toggle button 7 up and hold, push the direction selection button 11 down , telescopic arm contraction, the button automatically reset to the middle.
8	**Upper arm luffing button** 	The upper arm luffing button is a self-resetting two-position handle switch that controls the upper arm lift or lower. Toggle button 8 up and hold, push the direction selection button 11 up, the upper arm is lifted, and the button automatically returns to the middle. Toggle button 8 up and hold, push the direction selection button 11 down, the upper arm drops, and the button automatically resets to the median.
9	**Lower arm luffing button** 	The lower arm luffing button is a self-resetting two-position handle switch that controls the lower arm lifting or lowering. Toggle button 9 up and hold, push the direction selection button 11 up, the lower arm is lifted, and the button automatically returns to the median. Toggle button 9 up and hold, push the direction selection button 11 down, the lower arm drops, the button automatically reset to the middle position.

NO	NAME	DESCRIPTION
10	**Display table** 	Multi-function display table for displaying： ● Cumulative working time ● Battery capacity ● Fault code
11	**Direction control button** 	The Direction control button is a self- resetting three position handle switch, used together with the function action switch, without action when used alone.
12	**Power switch** 	The power switch is on the side of the rear cover Outward switch: the power is on. Inward switch: Power is cut off.
13	**Flash（if equipped）** 	When the aerial work platform walking or doing action, the flash automatically flashes.

NO	NAME	DESCRIPION
14	**Angle sensor** 	This sensor monitors the angle of the aerial working platform. When the slope angle of the aerial operation platform is greater than the allowable angle, the alarm device will give a discontinuous beeping alarm. The indicator on the platform will light up.
15	**Battery charge indicator light** 	Indicator light shows different colors according to the battery state: Red light: - The battery must be charged. Yellow light: - The battery is 80% charged. A green light: - Battery charge completed.
16	**Buzzer** 	When we press the horn button 29, the buzzer 16 alarms.
17	**Body rotation positioning pin** 	The body rotation positioning pin is used to lock the body steering of the aerial working platform fixed in place. Insert the pin into the hole for locking. This function must be used when a vehicle such as a truck or a train is used to transport an aerial work platform. Note: Do not forget to remove the body rotation positioning pin before mounting the fence.

4.2.2 controller (ground control box)

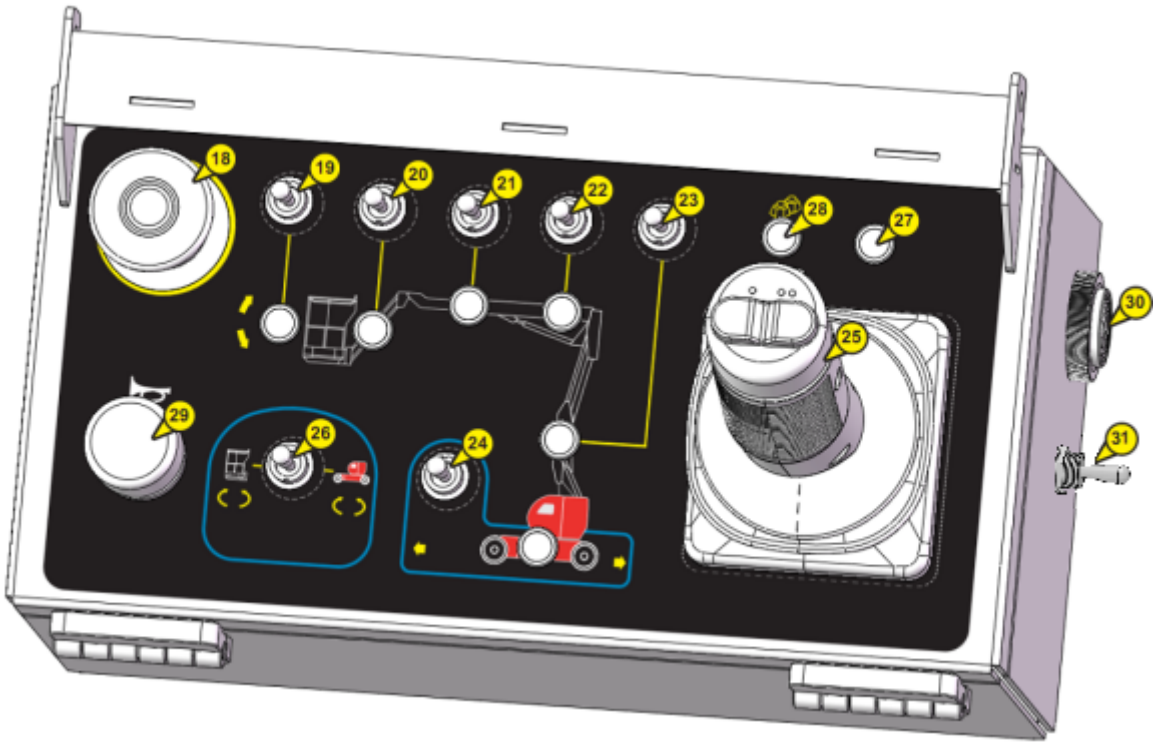
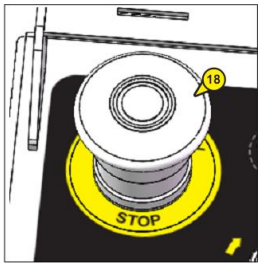
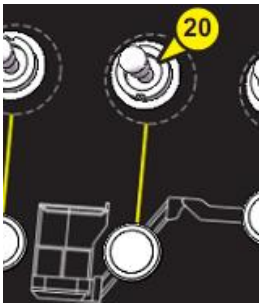
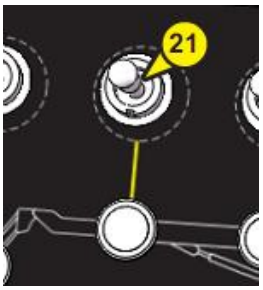
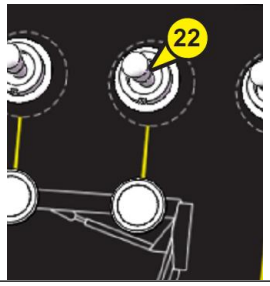
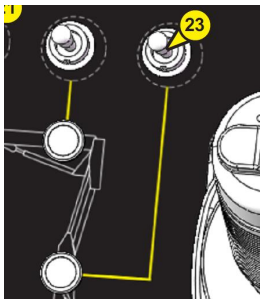
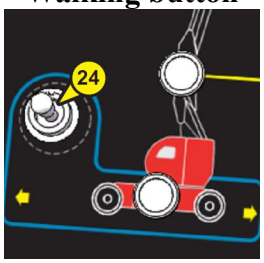
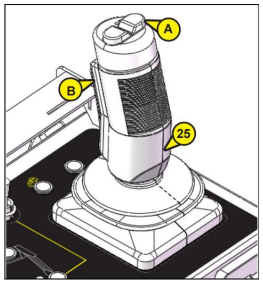
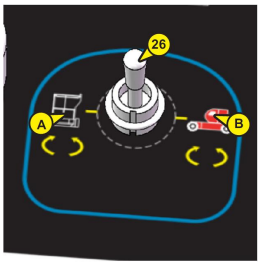
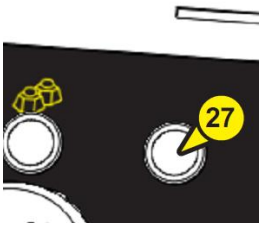
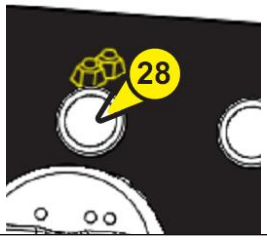


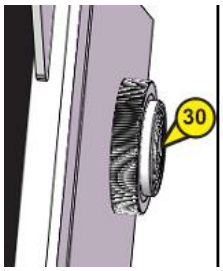
Figure 5-2 Upper control panel

NO	NAME	DESCRIPTION
18	**Emergency stop switch** 	Two-position button control switch in the shape of red mushroom head is used to stop the machine in case of emergency. (1) Directly press the button to cut off the system power supply in case of emergency. (2) Before starting the system, the emergency stop button of the lower /upper control panel must be in the unpressed position; otherwise, the system cannot start. Turn the mushroom head clockwise to release the emergency stop button.

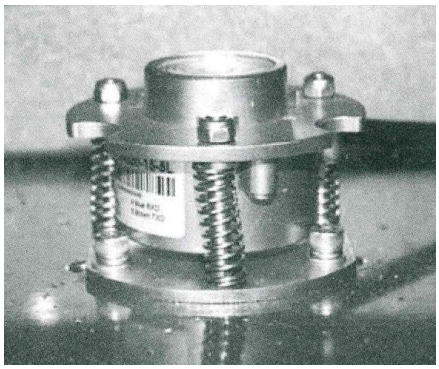
NO	NAME	DESCRIPTION
19	**Platform leveling control switch** 	Platform leveling control switch is a self–resetting handle switch. After automatic leveling, if the working platform is tilted, the operator can use this handle switch to correct the working platform ■ When the working platform is tilted down, toggle the handle in the direction of the upward arrow and hold until the platform is in a horizontal position. Then release the handle, it automatically reset to the middle. ■ When the working platform is tilted upwards, toggle the handle in the direction of the downward arrow and hold until the platform is in a horizontal position. Then release the handle, the it automatically reset to the middle. Note: Platform leveling can be performed only in the retracted state.
20	**Forearm luffing control switch** 	Forearm luffing control switch is a self-resetting handle switch used to control the forearm luffing. ■ Pull the handle and hold along the upward arrow direction, and the forearm is luffing until it reaches the maximum angle. After releasing the handle, it automatically resets to the middle. ■ Pull the handle and hold along the downward arrow direction, and the forearm is luffing down until it reaches the lowest position. After releasing the handle, it automatically resets to the middle.
21	**Telescopic arm control switch** 	Telescopic arm control switch is a self-resetting handle switch used to control the telescoping function. ■ Pull the handle and hold along the arrow direction to the left, extending the telescopic arm until it reaches its maximum length. After releasing the handle, it automatically resets to the middle. ■ Pull the handle and hold along the arrow direction to the right, and retracting the telescopic arm until it reaches its minimum length. After releasing the handle, it automatically resets to the middle.

NO	NAME	DESCRIPTION
22	**Upper arm lift/lower button** 	Hold the enable switch and push the handle forward as the boom rises and push the handle backward as the boom falls. Hold the enable switch, push the handle to the left and the tower rotates to the left, push the handle to the right and the tower rotates to the right.
23	**Lower arm lift/lower button** 	Hold the enable switch and push the handle 25 forward to lift the boom and push the handle backward to lower the boom.
24	**Walking button** 	Hold the enable switch, push the handle forward, the car moves forward； push the handle back 25 the car moves backward. Hold the enable switch and press the left thumb switch button above the handle to turn the front wheel to the left. Press the right thumb switch button to turn the front wheel to the right. Note: Walking and steering can be done at the same time, but will reduce walking speed.
25	**Control handle** 	The control handle can be pushed forward, backward, left, right, can be stepless speed regulation, the greater the range, the faster the speed. B on the front of the handle is the enable switch, and A on the upper is the thumb switch. Through the function button combined with the control handle to control the device to do the corresponding action.

NO	NAME	DESCRIPTION
26	**Rotating position selector switch** 	The rotating position selector switch is a three - position handle switch. Normally, the switch is in the middle position. Turn the switch to the left A, hold the enable switch, push the handle 25 left/right, and turn the fence left/right. Turn the switch to B on the right side, hold the enable switch, push the handle 25 left/right, and turn the body left/right. Note: Switch back to the middle position after finishing the action.
27	**Angle tilt alarm light** 	When the slope angle of the aerial working platform is greater than the maximum allowable angle of 3°, the indicator is on, and the lifting action of all bending arms is locked.
28	**Overload and controller faulty alarm light** 	This lamp does two things: The indicator lights when overloaded. When a fault occurs, the alarm light is on and the fault code is displayed on the panel of the lower control box.
29	**The horn button** 	The siren 16 is mounted in the rotating part of the body, and it sounds when we press the horn button 29.

NO	NAME	DESCRIPTION
30	Alarm buzzer 	This buzzer works in two situations: Intermittent hum: When the slope of the machine exceeds the allowed maximum, all actions are stopped. All that can be done is to lower the folded arm and withdraw the telescopic arm, so that the machine can be returned to a state suitable for slant. Continuous beeping: When the load of the machine exceeds the allowed maximum, all actions are stopped and all that can be done is to lower the folded arm and retract the telescopic arm.
31	Forced unlock switch 	When the machine is in failure and alarm (the alarm is a non-fatal safety alarm), the switch can be flipped to achieve emergency lowering. Warning: This switch is only allowed to be used in emergency situations when the machine needs to be moved, or in special working conditions such as loading, and the safety of personnel must be ensured when used. Random use may cause the machine to tip over or casualties.

4.3 Frame tilt alarm

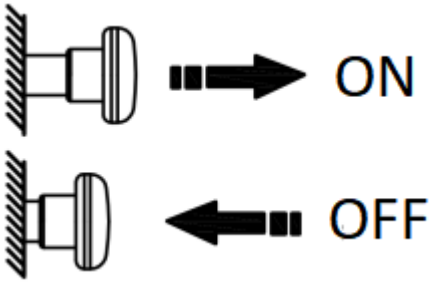


The frame tilt sensor is mounted on the turret to detect whether the frame is level.

Once the sensor detects that the frame tilt Angle is greater than 5 degrees, the indicator light on the sensor will change from green to red, and the control system will send out an alarm signal. After the alarm signal is issued, the control system will activate the buzzer alarm, and the upper tilt alarm indicator of the upper control box will light up.

Note: In the alarm state, the forward and backward of the machine, the extension of the telescopic boom and the upward luffing boom are invalid .

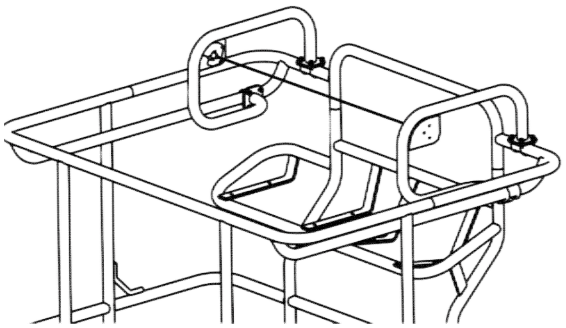
4.4 Power switch



The power switch is installed on the right side of the chassis to control the on and off of the vehicle circuit.

- Before turning on the main power switch, please confirm that the lower control box key switch is in the middle.
- When the equipment is not used for a long time or repaired and inspected, dial the key switch to the middle and then cut off the main power switch.
- When charging the device, please cut off the main power supply switch first.

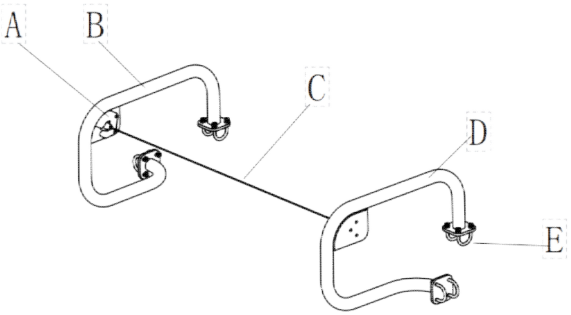
4.5 Anti-extrusion device



The anti-extrusion unit is designed to alarm the ground personnel when the operator accidentally touches the platform control panel. The boom movement will then be interrupted, raising an alarm.

The system has a flat design with split cables above the platform control panel After the split cable is triggered, the actuator will withdraw from the switch socket and then disable the lift and drive function on the platform. The machine horn on the platform makes a sound, and the whole vehicle reports the fault code. Remind others that they may need assistance. These notifications will continue issued until the system is reset.

A: Switch socket
B: Left tube
C: Cable
D: Right tube
E: U-type lock: M6 self-locking nut



Pre-operation inspection:

Check the anti-extrusion device for damage, improper installation, or missing parts and unauthorized changes.

- Nuts, bolts, and other fasteners
- Wiring, cables, and unit components
- Cracks in welds or structural components
- Pitting or breakage on the device

function testing:

1. Press the cable of the whole vehicle to release the actuator from the switch socket.
   -The alarm horn sounded.
2. Run every function of the machine.
   -All of the functions of the machine shall not be operational.
3. Insert the actuator into the switch socket.
   -The horn closed.
4. Run every function of the machine.
   -All functions of the machine shall be run.

Chapter 5 Operating instructions

5.1 Summary

This equipment is a self-propelled working platform， A platform is equipped at the end of the swing telescopic boom.The platform shaking caused by the lifting boom will not affect the safety of the operators in the platform.The machine can be used to transport workers to work at height.

The upper controller of the equipment is located on the working platform.The operator can use this controller to operate the machine for forward, backward, left and right steering, upward / downward luffing of the lifting boom, rotation of the turntable, left and right rotation and up and down leveling of the platform, expansion and contraction of the telescopic boom and other functional operations.The equipment has a ground controller, which can be used to operate when the platform controller fails.The lower controller can operate the lifting and rotation of the boom, which is used to lower the platform to the ground when the operator on the platform cannot operate in an emergency.The lower controller is used to check the machine function and action before operation.

Operating instructions and warnings are pasted near the two controllers and elsewhere in the machine.Let operators know the operation instructions and warnings and review them regularly, so as to improve their familiarity with machine operation and maintenance.

Safe operation instructions are provided for the operator in the operation and maintenance manual, which comply with national laws and regulations and on-site operation rules of the workplace.Safe operation instructions are very important to operators. According to the instructions in the operation and maintenance manual, the machine should be maintained regularly. If the machine is not maintained regularly or has faults, damage or changes, it should be reported to the machine owner or the person in charge of the operation site or the safety supervisor in time, so that the machine can be repaired in time. These are necessary.

The equipment can not lift heavy objects except for the operation tools required by the operator to operate in the working platform. Operation tools are not allowed to be placed outside the working platform.This machine can not be used as a lift, crane or high-altitude support column, and can not be used to push or pull other objects.

Each functional action of the equipment is realized by the hydraulic pump or hydraulic motor providing power for each hydraulic cylinder.Each hydraulic element is controlled by the hydraulic valve, and the hydraulic valve is controlled by the switch and operating lever, so as to control the movement of each hydraulic component.The speed of each function action controlled by the operating lever can change from zero to maximum, and the speed is determined by the position of the operating lever.The function action controlled by the toggle switch is only startup and shutdown.When operating the machine with the upper control, the foot switch on the platform floor must be pressed before operation.When the foot switch is released, the operation of each function action fails, which also provides an emergency stop method.

The machine is 2x2 and the motor is driving each driving wheel. Each drive wheel is a spring brake brake, electric release. When the drive lever is brought back to the median, the drive wheel automatically applies to the brake.

5.2 Operating characteristics and limitations

Machine working capacity

Please confirm before operating the self-propelled telescopic boom aerial work platform:

(1) The machine is located on a flat and solid level ground;
(2) The working load does not exceed the rated load.
(3) The machine is in normal working condition.
(4) Are the tires fastened.
(5) The machine has not been modified without authorization.

Stability

The stability of the machine can be divided into two working conditions: forward stability and backward stability.The forward tilt stability is shown in Figure 5-1, and the backward tilt stability is shown in Figure 5-2.

To prevent the machine from turning forward and backward, do not overload the machine or operate the machine on uneven ground.

5.3 Driving operation

- Unless it is confirmed that the machine is on a flat and solid ground, it is strictly prohibited to drive the machine under the lifting state of the lifting boom; In order to avoid losing control of driving operation or overturning, it is forbidden to drive on an inclined road with a slope exceeding the requirements in the manual.
- Do not operate on a slope more than 3 °;
- When climbing, the driving mode should select climbing mode.When the platform is driving in the lifting state or in reverse, especially when any part of the machine is less than 2m away from the obstacle, drive carefully.
- Keep the telescopic boom between the left and right wheels of the vehicle when driving. If it exceeds the driving area, turn the turntable back to the appropriate position.

Forward and Backward Operation Steps

(1) When the emergency stop switch is open, hold the control handle, hold the front enabling switch of the handle, and push the handle forward from the median to control the forward drive. The farther the handle deviates from the median, the faster it travels.

(2) Hold the joystick, press the front side enabling switch of the handle, and pull the handle backward from the median to control the backward drive. The farther the handle deviates from the median, the faster the retreat speed..

5.4 Steering Operation

(1) The emergency stop switch is open, hold the handle and press the front enabling switch of the handle; also press the left button of the thumb switch driving the control handle to achieve a left turn.

(2) Hold the joystick and press the front handle enabling switch and press the right side button of the joystick to achieve a right turn..

5.5 Platform Operation

Platform Leveling Operation

This operation is a manual leveling correction of the work platform and can only be performed when the equipment is in transport condition.

The working platform of this machine is automatically levelled. When the platform is tilted, manual leveling can be carefully used for correction. If operated or reoriented incorrectly, tools or personnel in the platform may fall. Improper operation may cause equipment damage or even casualties.

Turn the upper/lower control switch to select the upper/lower control operation：

Upper control operation (transport status only):

- When the working platform slopes downward, dial the platform leveling control switch 19 and the indicator light, hold the enabling switch on the front side of the control handle 25 and push the joystick forward until the platform is in the horizontal position and release the handle, and the handle will automatically reset to the middle.
- When the working platform slopes upward, dial the platform leveling control switch 19 and the indicator light, hold the enabling switch on the front side of the control handle 25 and push the joystick forward until the platform is in the horizontal position and release the handle, and the handle will automatically reset to the middle.

Note: After moving the switch, no action within 30 seconds, the indicator light is off; the switch should be switched again before operation.

Lower control operation:

- When the working platform slopes downward, dial the platform to level the control switch 3 and hold the direction selection button 11 to push upward until

the platform is in the horizontal position, and the switch is automatically reset to the middle.

- When the working platform is tilted up, dial the platform to level the control switch 3 and hold it, and the direction selection button 11 is pushed down until the platform is in the horizontal position, and the switch is automatically reset to the middle.

Platform Swing Operation

Turn the upper/lower control switch to select the upper/lower control operation.

Upper control operation:

- Push the rotating part selector switch 26 to the left A, hold the enabling switch on the front side of the joystick 25, push the handle to the left, and move the fence to the left.
- Push the rotating part selector switch 26 to the left A, hold the enabling switch on the front side of the handle 25, push the handle to the right, and turn the fence to the right.

Notice
After finishing the action, turn the switch back to the middle position.

Lower control operation:

- Turn button 4 up the fence and hold, the direction selection button 11 pushes down, the working platform moves left, and the button is automatically reset to the middle.
- Turn the button 4 up the fence and hold, the direction selection button 11 pushes up, the working platform turns right, and the button is automatically reset to the middle.

5.6 Turntable rotation operation

- Do not operate the machine to turn or lift when it is on an inclined road.
- Do not rely solely on the tilt alarm to determine whether the chassis is level.
- In any case, if the control handle or switch of the working platform panel cannot be automatically returned to the center after release, it must be stopped immediately and handed over to professional maintenance personnel before operation, so as to avoid greater equipment damage and even casualties.
- If the operation of the equipment does not stop after the release of the control handle or switch, release the foot switch quickly and press the emergency stop button to stop.

Upper control operation

- Push the rotating part selector switch 26 to the right B, hold the enabling switch on the front of the handle 25, push the handle to the left and turn the table to the left.
- Push the rotating part selector switch 26 to the right B, hold the enabling switch on the front side of the handle 25, push the handle to the right, and turn the table to the right.

Notice
After finishing the action, turn the switch back to the middle position.

Lower control operation

- Turn the button 6 up and hold, the direction selection button 11 pushes up, the body turns right, and the button is automatically reset to the middle.
- Turn the button 6 up and hold, the direction selection button 11 push down, the body moves left, the button automatically reset to the middle.

Notice
Before the rotation, we must ensure that there is enough space to prevent the equipment from encountering obstacles in the process of rotation, and pay attention to observe the rotating parts and the wall have enough space.

5.7 Lifting Arm Operation

Downward amplitude change operation

Turn the upper/lower control switch to select the upper/lower control operation.

Upper control operation

- Move the lower amplitude control switch 23, the indicator light within 30 seconds, hold the enabling switch on the front of the handle 25, push the handle forward, the boom up, release the handle, the handle automatically reset to the middle.
- Move the lower amplitude control switch 23, the indicator light within 30 seconds, hold the enabling switch on the front of the handle 25, push the handle backward, lower the boom, release the handle, and the handle will automatically reset to the middle.

Lower control operation

- Pull the lower arm change button 9 up and hold, push the direction selection button 11 up, lift the arm frame, release the button, and the button automatically reset to the middle.
- Pull the lower arm change button 9 up and hold, push the direction selection button 11 down, drop the boom down, release the button, and the button is automatically reset to the middle.

Upward amplitude change operation

Turn the upper/lower control switch to select the upper/lower control operation.

Upper control operation

- Move the upper amplitude control switch 22, the indicator light within 30 seconds, hold the enabling switch on the front of the handle 25, push the handle forward, the boom up, release the handle, the handle automatically reset to the middle.
- Move the upper amplitude control switch 22, the indicator light within 30 seconds, hold the enabling switch on the front of the handle 25, push the handle backward, lower the boom, release the handle, and the handle will automatically reset to the middle.

Lower control operation

- Pull the upper arm change button 8 up and hold, push the direction selection button 11 up, lift the arm frame, release the button, and the button automatically reset to the middle.
- Pull the upper arm change button 8 up and hold, push the direction selection button 11 down, drop the boom down, release the button, and the button is automatically reset to the middle.

Telescopic Arm Operation

Turn the upper/lower control switch to select the upper/lower control operation.

Upper control operation

- Pull the expansion arm expansion control switch 21, the indicator for 30 seconds, hold the enabling switch on the front of the handle 25, push the handle forward, the expansion arm out, release the handle, the handle will automatically reset to the middle.
- Pull the telescopic control switch 21, with the indicator on within 30 seconds, hold the enabling switch on the front of the joystick 25, push the handle backward, withdraw the arm back, release the handle, and the handle will automatically reset to the middle.

Lower control operation

- Pull the lower arm change button 8 up and hold, push the direction selection button 11 up, lift the arm frame, release the button, and the button automatically reset to the middle.
- Pull the lower arm change button 8 up and hold, push the direction selection button 11 down, drop the boom down, release the button, and the button is automatically reset to the middle.

5.8 Emergency operation

Emergency function is mainly in order to provide power for emergency action when the machine cannot operate due to electrical fault. Then professional maintenance technicians find the cause of the fault and troubleshoot it.

Perform the following steps to perform emergency operations.

Notice
Emergency operation is limited to the use of a short time (from the maximum Angle and the maximum length position, when the motor does not work).

Emergency Operation Procedure:

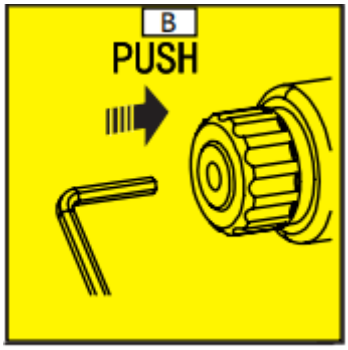
(1) Turn on the right cover.

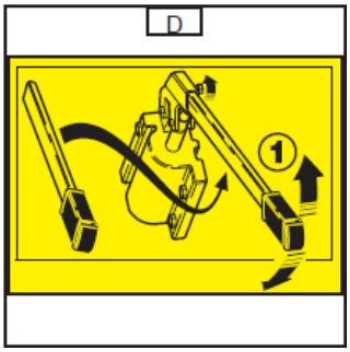
(2) Evacuate the workers under the fence.

Notice
In the emergency drop, the first operation makes the expansion arm recovery, and the last manipulation makes the upper arm down.

(3) When the car is required to move, you need to press the tool into the solenoid valve corresponding to the action (Figure B).

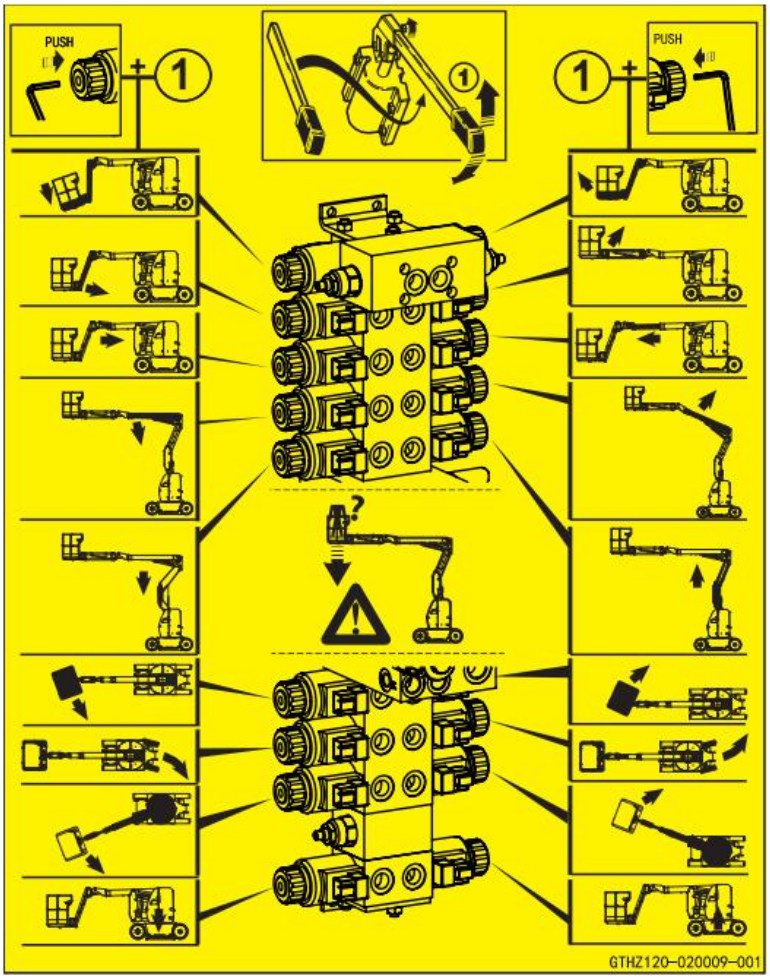
(4) Shake the manual pump up and down simultaneously (Figure D).

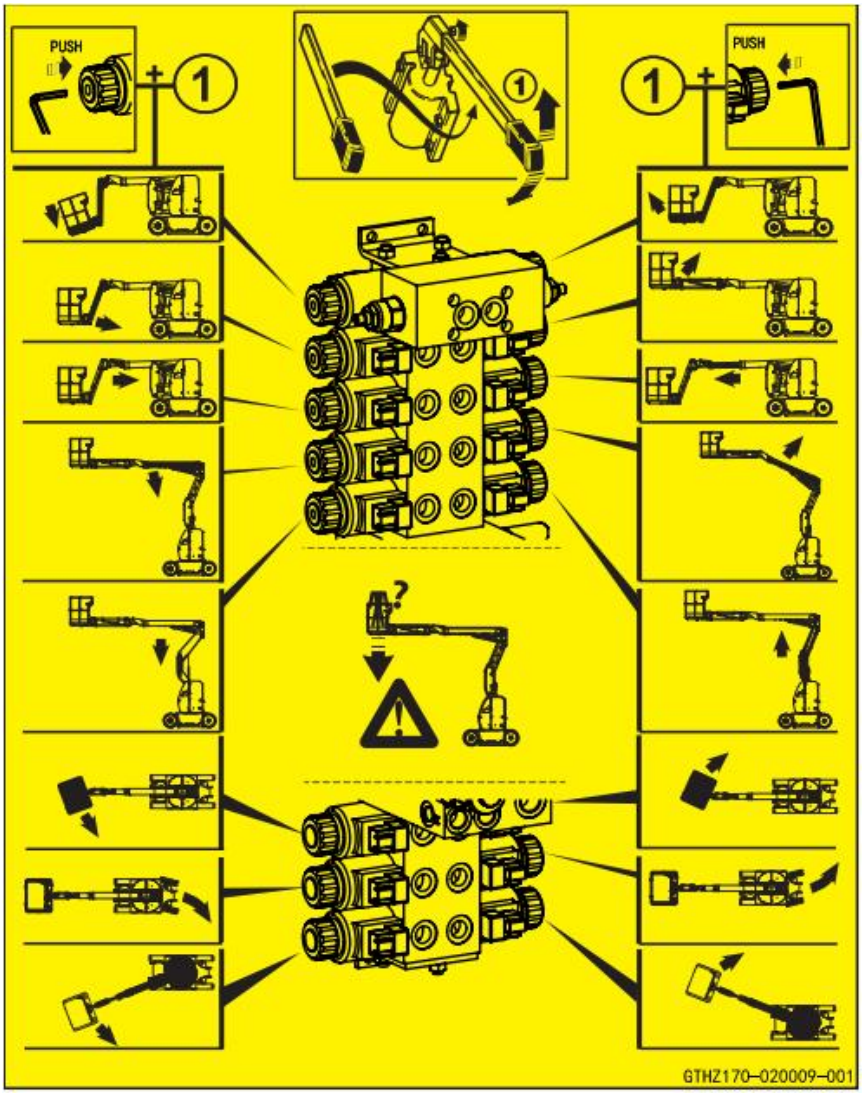




The corresponding functions of each solenoid valve are as follows:

GTHZ120





5.9 Forearm operation

Turn the upper/lower control switch to select the upper/lower control operation.

Upper control operation:

- Pull the forearm amplitude control switch 20, the indicator light on within 30 seconds, hold the enabling switch before the joystick 25, push the handle forward, lift the forearm, release the handle, the handle automatically reset to the middle.
- Pull the arm amplitude control switch 20 and the indicator light within 30 seconds, hold the enabling switch before the joystick 25, push the handle backward, drop the arm down, release the handle, and the handle will automatically reset to the middle.

Lower control operation:

- Push the swing arm variable button 6 up and hold it, the direction selection button 11 pushes up, the forearm rises, release the button, and the button is automatically reset to the middle.
- Push the swing arm amplitude button 6 up and hold it, the direction selection button 11 pushes down, the forearm drops, release the button, and the button is automatically reset to the middle.

5.10 Shutdown and parking

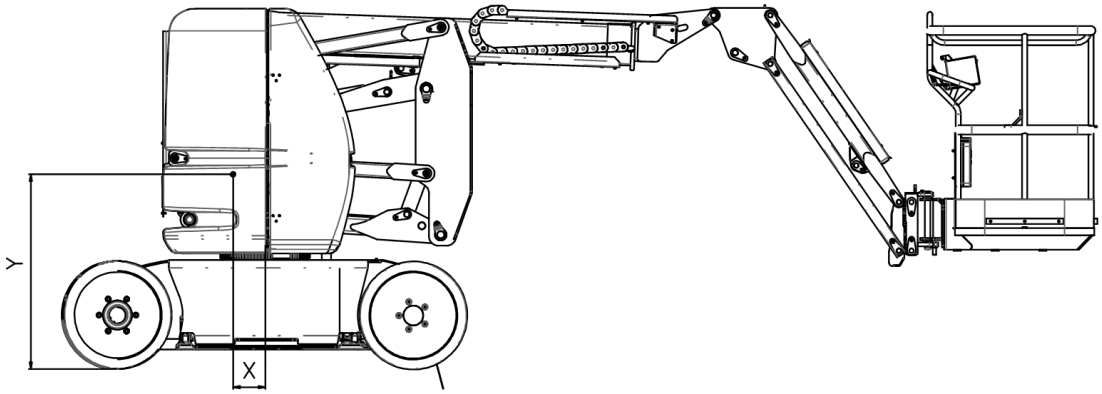
The procedure for shutting down and parking the machine is as follows：

(1) Drive the machine to a protected area.
(2) Make sure the telescopic boom is fully retracted and lowered beyond the rear wheel.
(3) Total Uninstall.
(4) Lower control the key selection switch to the middle position, press the emergency stop switch and pull out the key.
(5) If necessary, the platform controller shall be covered to protect the operation indication label, warning label and control device from the adverse environment.

5.11 Lifting and binding

Lifting operation

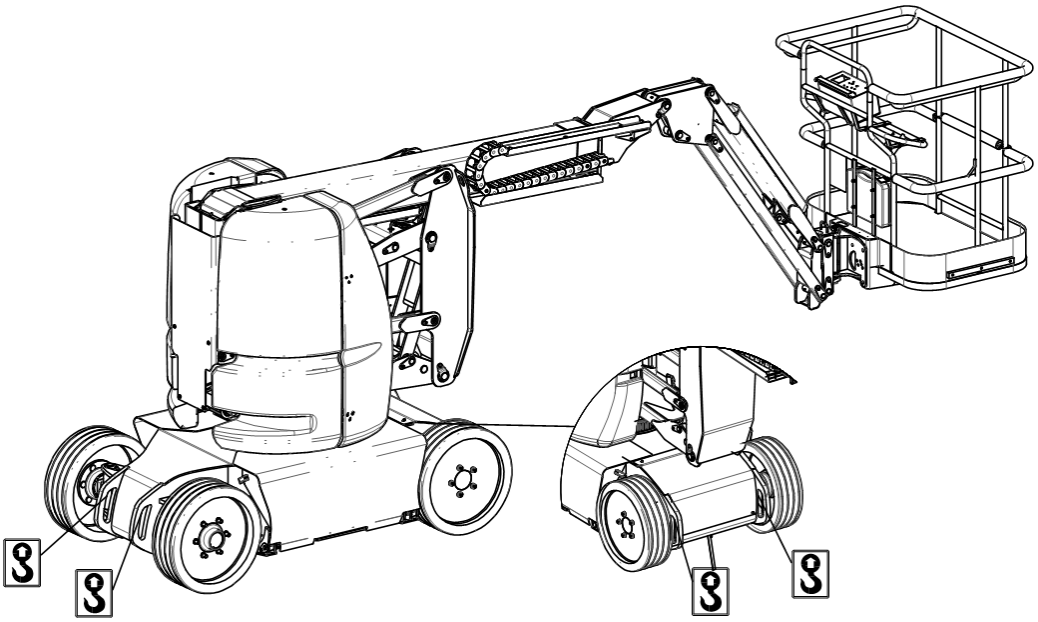
(1) Check the label to see the total weight of the machine.



Model		GTHZ120	GTHZ170	GTHZ170C
Total weight		6670kg	6990kg	7130kg
Gravity centre	x axe	130mm	151mm	149mm
	y axe	1060mm	850mm	912mm

(2) The lifting boom is placed in the retracted state.
(3) Remove all moving parts from the machine.
(4) Keep the machine level.

If the crane must be used for lifting, the lifting device can only be tied at the designed binding hole (where the lifting position label is pasted).

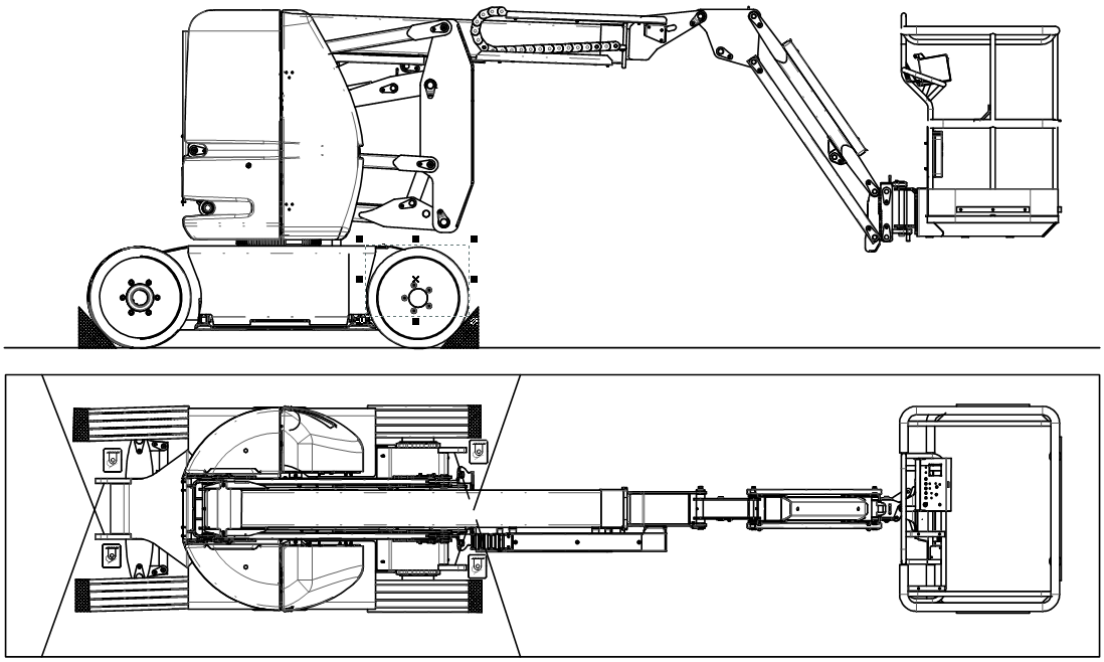


Notice

The lifting holes are located at the front and rear ends of the frame.The four ropes or chains used for lifting must be corrected to keep the machine in a horizontal position during lifting.The bearing capacity of the rope or chain must meet the needs of lifting the machine, otherwise it may lead to serious accidents.

Bundling operation

(1) Check the label to see the total weight of the machine.
(2) Remove all moving parts from the machine.
(3) Plug the front and rear positions of each tire with wedges.
(4) Bind the chassis to the binding hole with a rope or chain of appropriate length.



Notice

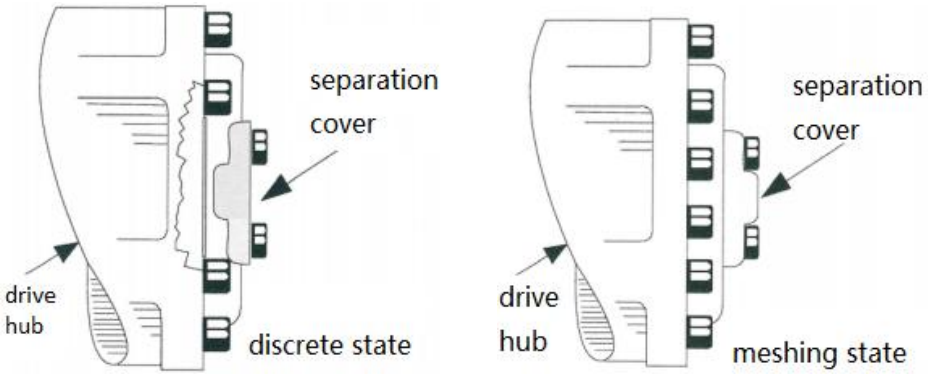
When transporting machines. The lifting boom must be in a closed position and securely attached to the truck or trailer. The machine has four bundling holes located at the four corners of the frame.

5.12 Trailer operation

- This machine has no trailer braking device, so the machine is at risk of losing control.Therefore, the traction vehicle must be able to control the machine.
- High speed trailers are prohibited. The maximum traction speed is 8km / h and the maximum traction slope is 25%.
- Illegal operation may lead to serious accidents or personal casualties.

Before traction, complete the following preparations:

(1) The telescopic boom retracts, the lifting boom is lowered in place, and the turntable rotates to zero.
(2) Remove the release cover to separate the drive hub.
(3) After the trailer operation is completed, restore the release cover to re engage the drive hub.



It is strictly forbidden to trailer during the operation of motor pump or the rotation of driving wheel.

Chapter 6 Emergency operation

6.1 Summary

This chapter provides the rules to be observed and the emergency operation in case of emergency during operation on the machine.The entire operation manual of the machine, including this chapter, shall regularly train all personnel related to the machine or those in contact with the machine.

6.2 Emergency traction steps

In case of machine failure or power failure, it may be necessary to move the machine. Unless equipped with appropriate equipment, traction is strictly prohibited.The following steps are only for emergency movement to the appropriate maintenance area.

（1）Block the wheels.

（2）Remove the release cover to separate the drive hub.

（3）Connect suitable equipment, remove the wedge and traction the machine.

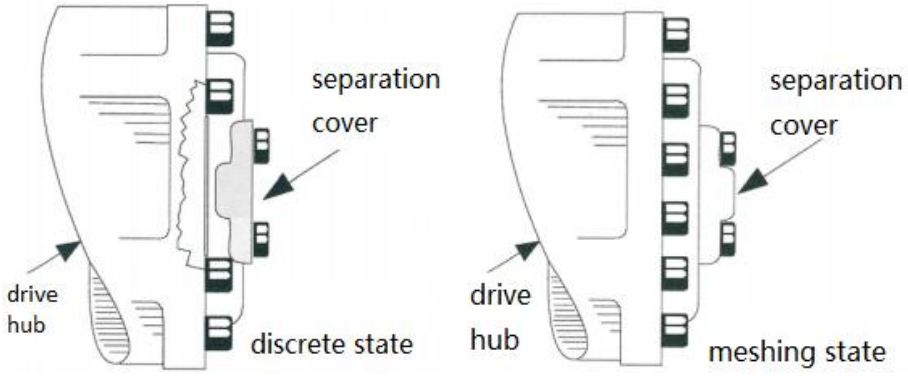
After traction, perform the following steps：

（1）Place the machine on a solid and flat ground.

（2）Chock the wheels.

（3）Remove the release cover and restore the drive hub.

（4）Remove the wedge from under the wheel.



6.3 Emergency control device and installation position

6.3.1 Emergency stop button

(1) There is an emergency stop button on the lower controller panel and the upper controller panel respectively.

Check the emergency stop function before each operation of the machine.If there is any problem, repair it immediately.

(2) In the normal working state, the emergency stop button is in the pop-up position, turn on the power supply of the control system, and the system works normally.In

case of emergency, press any emergency button and the machine will stop running immediately.

6.3.2 Lower controller

The lower controller is located on the right side of the vehicle, and a key selection switch is installed on the lower control panel.The upper control can be switched to the lower control by turning the key switch， The luffing, slewing, telescopic and leveling operations of the main boom are carried out through the lower controller.In actual operation, in case of controller function failure, rescuers or companions can switch to the lower control for operation.

6.3.3 hand pump

This machine is equipped with a hand-shaking pump, located on the right side of the ground control box. This function can be used only if the motor or controller of the pump station fails. The operated pump can reduce the expansion arm and folding arm downward as described in Section 5.8.

6.4 Emergency operation

6.4.1 Lower control operation

Be familiar with using the lower controller for emergency operation in case of emergency.

The lower control operator must be very familiar with the performance characteristics and parameters of the machine, and be familiar with the functions of various control handles and button switches on the lower controller. Relevant training and actual simulation operation shall be carried out to ensure that they can take treatment calmly and freely in case of emergency.

6.4.2 Emergency treatment when the operator is unable to operate the machine

If the operator in the platform has collapsed or is entangled by ropes, etc., and cannot operate the machine:

(1) Other personnel can only operate the machine through the ground control device as needed.
(2) A forklift crane or other device can be used to transfer people on the platform and to keep the machine stable.

6.4.3 Emergency treatment of work platform or lifting boom stuck at height

If the working platform or main boom is stuck by buildings and equipment at height, stop the machine immediately. Do not attempt to operate the machine through the upper controller or lower controller to get out of danger.First, transfer all personnel and tools of the working platform to a safe place by other means, then lift the restrictions of the working platform by other methods or with the help of other equipment, so that the equipment can move freely, and then operate the machine through the lower controller.

6.4.4 Inspection after machine overhaul

After the overhaul of the machine after the accident, first carefully check whether the various functions of the machine are normal through the lower controller, and then switch to the upper controller for inspection.For safety, the lifting height shall not exceed 3M unless it is confirmed that the damaged parts have been repaired in good condition.

6.4.5 Manual rotation unlocking

When the platform is above a structure or obstacle, the total power failure occurs. After manual rotation and unlocking, the boom and turntable assembly can be manually rotated.When operating the manual rotation unlocking, according to the following steps:

(1) Using a 22 (7 / 8) mm (inch) socket and ratchet spanner, position the nut on the rotating worm gear on the left side of the machine;
(2) Use gloves to pull the nut in the corresponding direction.

6.5 Accident notification

In order to better understand and protect your machinery and equipment, HANGCHA Group. requires that once an accident occurs during the use of HANGCHA products, regardless of any reason, equipment damage and casualties, please inform HANGCHA Group immediately, Otherwise, if HANGCHA Group is not notified within 48 hours of the accident, HANGCHA Group has the right to think that you have automatically waived the warranty right of the accident machine, and the warranty period will automatically terminate, regardless of the remaining warranty period.
You can inform HANGCHA group by telephone, fax, email, etc.

Chapter 7 Normal maintenance

7.1 Summary

The purpose of this chapter is to provide the operator with additional information required to correctly operate the box and maintain the machine.The maintenance part of this chapter is only used to assist the operator in daily maintenance , Not as preventive maintenance and inspection Icon.

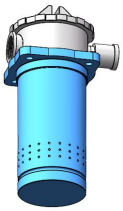
7.2 Lubrication specification

Notice
Lubrication cycle are based on machine operation under normal conditions. When the equipment operates in multi shift system or in harsh environment, the lubrication frequency shall be increased accordingly.

Lubrication specification

Lubrication device	Capacity	Suggestion
Hydraulic tank	14L	Shell 46# hydraulic oil
=Wheel reducer	0.8L	Shell Spirax a80w90
General lubrication Lubrication of body gear bearing bush		High performance lubricant

7.3 Replace the filter

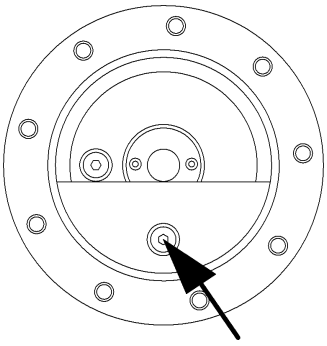
Name		Replace cycle
filter		100h

Notice
When replacing any filter, it is recommended to replace all filters on the equipment at the same time.

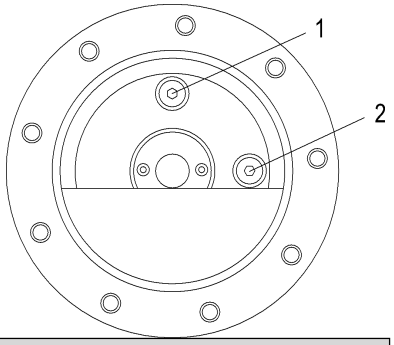
7.4 Operator maintenance

7.4.1 Reducer

Changing the gear lubricating oil of the reducer is very important for prolonging the service life of the machine and maintaining the good operating performance of the machine. Irregular replacement of the lubricating oil will lead to the decline of the performance of the equipment. If the equipment is still running under insufficient lubrication, it will cause damage to the parts and components.



(1) Park the equipment on level ground.
(2) Confirm the reducer to be maintained and drive the equipment to make any oil filling plug on the reducer at the lowest position.
(3) Unscrew the two oil filling plugs on the reducer and drain the oil.
(4) Drive the equipment so that any oil filling plug on the reducer is in the highest position and the other is in the horizontal position.
(5) Inject lubricating oil into the reducer from the upper oil filling hole until the lower surface of the oil filling hole in the horizontal position is flat.
(6) Apply thread sealant to the oil filler plug, then screw the oil filler plug back to the oil filler hole of the reducer and tighten it.
(7) Repeat the above operation for other reducers.



Lubrication of wheel reducer			
Lubrication	Oil filling plug	**capacity**	Each requires 0.8L
Lubricating oil	Shell Spirax A80W90, or other gear lubricants meeting the applicable API classification level GI5.		
Lubrication cycle	Check the oil level once every 100 hours; Every two years		

7.4.2 Lubrication of slewing ring and worm gear reducer

The annual lubrication planning of slewing ring and worm gear reducer is very important to maintain the good performance of the machine and prolong the service life of the machine. Running the equipment under insufficient lubrication will cause damage to parts and components.

(1) Lift the jib and place a wedge on the lifting cylinder, and then slowly lower the jib onto the cylinder wedge.

Danger of crushing.When lowering the boom, do not put your hands close to the lifting cylinder and all moving parts.

(2) Align the nozzle of the grease gun with the slewing bearing in the middle of the turntable.

(3) Spray butter on the tooth surface, then turn the turntable at a certain angle and repeat the above actions until the whole circle of slewing ring is coated with butter.

Do not grease the slewing bearing too much.
Too much butter will squeeze the sealing ring outside the slewing ring.

(4) Remove the safety wedge and lower the lifting boom to the retracted position.

(5) Align the nozzle of the grease gun with the drive chamber of the worm gear reducer.

(6) Add butter until it overflows.

(7) Lubricate the exposed slewing ring teeth with butter.

Lubrication of slewing ring			
Lubrication	4 grease fittings	**capacity**	As needed
Lubricating oil	Multi effect grease	**Lubrication cycle**	3 months or 150 hours of operation
Lubrication of external teeth of slewing ring			
Lubrication	Slewing ring external gear teeth	**capacity**	As needed
Lubricating oil	Open gear grease	**Lubrication cycle**	50 hours or per month
Lubrication of worm gear reducer			
Lubrication	2 grease fittings	**capacity**	As needed
Lubricating oil	Multi effect grease	**Lubrication cycle**	1000 hours or per year

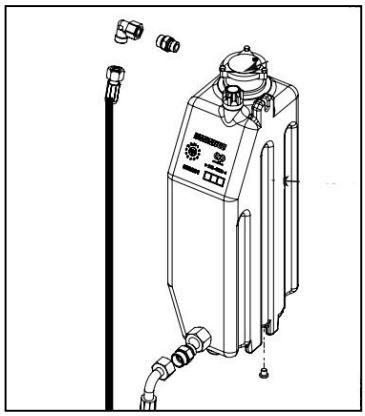
7.4.3 Testing and changing hydraulic oil

The testing and replacement of hydraulic oil is very important to maintain the good performance of the machine and prolong the service life of the machine.Polluted hydraulic oil and filter may cause the machine to run smoothly, and continued operation may cause damage to parts.In the case of poor working environment, the frequency of replacing hydraulic oil should be increased.

Notice

The hydraulic oil used in this machine is the hydraulic oil with the same quality grade as Shell hydraulic oil.Before changing the hydraulic oil, it is very important to consult the local supplier on how to select the appropriate hydraulic oil specification.If the hydraulic oil has not been replaced within two years, the hydraulic oil shall be tested every quarter. If the test is unqualified, the hydraulic oil shall be replaced in time.

Replace the hydraulic oil with the following steps:



(1) Open the left side cover of the turntable and find the hydraulic fuel tank.
(2) Remove the drain plug at the bottom of the tank and discharge all the oil into a suitable container. For the hydraulic tank volume, see the product performance parameters.
(3) Disconnect and plug the suction pipe
(4) Disconnect and block the return oil pipe.
(5) After removing the hydraulic tank fastening bolts, remove the hydraulic tank from the machine.
(6) Clean the tank inside with a neutral solvent and dry the hydraulic tank.

High pressure danger

Remove the hydraulic components slowly to reduce the hydraulic oil pressure. High hydraulic oil pressure may penetrate through the skin. If you are injured, please seek medical attention immediately.

(7) Install the hydraulic fuel tank to the machine.
(8) Connect the suction pipe and the return pipes to the hydraulic oil tank.
(9) Start the machine from the ground controller.
(10) Check the interfaces and related components of the fuel tank to ensure no leakage.

7.4.4 Replace hydraulic oil filter

Regular replacement of hydraulic oil filter is very important to maintain good performance and prolong the service life of the machine.If the hydraulic filter is polluted or the filter screen is blocked, the operating performance of the machine will decline, and continued use will cause damage to parts and components.When the environmental conditions are too bad, the filter replacement cycle should be shortened.

Replacement steps of oil filter：

(1) Open the left machine cover of the machine turntable.
(2) Clean the area near the hydraulic oil tank cover panel.
(3) Find the oil return filter at the hydraulic oil tank.
(4) Remove the return oil filter with a wrench.
(5) Release the top end cover of the filter, and remove the filter element.
(6) Apply a thin oil film to the new return oil return filter gasket.
(7) After cleaning the oil filter case and installing the new filter element, reinstall the oil filter.
(8) Clean up the hydraulic oil spilled during the execution process.
(9) Start the machine from the ground controller.
(10) Check the filter and related parts to ensure no leakage.
(11) Replacement cycle: replace the filter element for the first time, replace it every 6 months or run the machine for 300h, or when the signal shows that the filter element needs to be replaced..

7.4.5 Battery maintenance

The reaction products of lead-acid batteries are flammable and explosive.In order to avoid casualties caused by explosion, it is forbidden to smoke or keep the battery close to fireworks during battery maintenance.During the maintenance of lead-acid batteries, it is generally necessary to wear eye masks.

1) Open the battery cover plate and find the battery terminal and exhaust cap.
2) Remove the battery cables on the battery terminals one by one, starting from the negative pole.Clean the cable with neutral solution (such as baking soda, water or ammonia) and wire brush.Replace the cable and / or cable clamp bolts as necessary.
3) Clean the battery terminal with a brush and reconnect the cable to the terminal.Coat non-contact surfaces with mineral oil or vaseline.
4) After cleaning the terminal posts of all cable boxes, confirm that all cables are correctly positioned and not clamped.Close the battery cover.

- Do not change any electrical system components unless you are familiar with the electronic control system.
- When checking the battery, it is forbidden to connect the terminal of the battery with metal objects.Otherwise, it will cause short circuit, fire and even explosion.
- Do not charge the frozen battery, otherwise it may cause explosion.
- The lead-acid battery contains sulfuric acid, which will cause certain injury if it is accidentally contacted.Therefore, when working near the lead-acid battery, you need to wear a mask to prevent acid from splashing into your eyes.Once the acid splashes on the eyes, wash them with clean water immediately and seek medical attention in time.At the same time, it is also necessary to wear protective gloves and protective clothing during operation to avoid acid injury to the skin.If acid splashes on the skin, rinse immediately with clean water.
- Before repairing the electrical system, remove the battery wiring.When removing other wiring, first remove the grounding wire.When rewiring, finally connect the grounding wire.

7.4.6 Tire and wheel maintenance

Tire damage

For polyurethane foam tires, the company recommends that when the following situations occur, they should be stopped immediately and ready to replace the tire or tire assembly.

- Tire lamination, that is, circumferential cracks or layering between rubber.
- Unring, namely the rubber and steel ring off.
- Local block falling off of the rubber surface.
- The rubber is cracked along the diameter direction.
- Rubber wear to wear line.

If the tire is damaged but does not meet the above standards, the tyre must be inspected every day to ensure that the damaged part does not exceed the allowable standard.

Tire replacement

HANGCHA group recommends using tires with the same size, brand and level as the original tires of the machine for replacement.Please refer to the parts manual of the corresponding model for the part number of the tire of the specific model.If HANGCHA tires are not used, the replacement tires used shall meet the following characteristics:

- Tier / load rating and size equal to or better than original tires.
- The tread grounding width is equal to or better than the original tire.
- The wheel diameter, width and compensation size are equal to or better than the original tires.
- These applications (including inflation pressure and maximum tire load) are permitted by the tire manufacturer.Without the special approval of Hang Cha group, no tire filled or solid tire components should be replaced with pneumatic tyres..When selecting and installing replacement tires, ensure that all tire pressures reach the pressure specified by HANGCHA group.Due to the size difference between different brands of tires, two tires on the same axle should use the same brand.

Wheel replacement

The rims installed on each product model are strictly designed according to the stability requirements such as wheel track, tire pressure and load capacity.Changing the rim width, center position and diameter without the written advice of the factory may lead to unstable and dangerous conditions.

Wheel installation

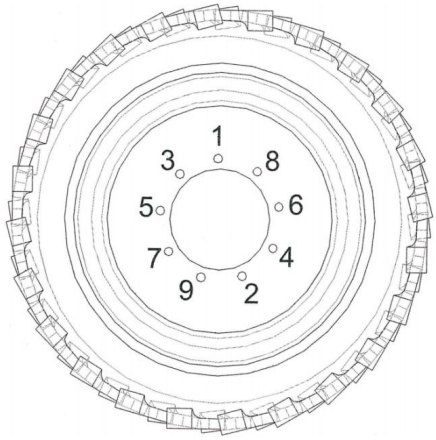
It is extremely important to use and maintain proper wheel mounting torque.

The tire nuts shall be installed and maintained with appropriate torque to prevent wheel loosening, hub bolt damage and wheel disengagement from the axle. Ensure that only matching hub bolts and tire nuts are used.

The tire nuts shall be installed and maintained with appropriate torque to prevent wheel loosening, hub bolt damage and wheel disengagement from the axle. Ensure that only matching hub bolts and tire nuts are used.

Tighten the tire nuts to the appropriate torque to prevent the wheels from loosening.Tighten the nut with spanner.If you do not have a torque spanner, use a socket spanner to tighten the nut, and then immediately ask the service station or dealer to tighten the nut to the correct torque.Over tightening will cause the hub bolts to break or permanently deform.The correct procedure for fastening the wheel is as follows:

(1) Screw on all nuts by hand to prevent thread damage.Do not use lubricant on threads or nuts.
(2) Tighten the nuts in the following order:



(3) The tightening of nuts shall be carried out in steps. Please refer to the wheel torque table and tighten the nuts in the recommended sequence.

Torque application sequence	
First time	Second time
150N·m	250N·m

(4) The wheel nuts shall be tightened after the first 50h operation or after each wheel removal. Check the torque every 3 months or 150 hours of operation.

Chapter 8 Schematic

8.1 Summary

Listed in this chapter are electrical schematics and hydraulic schematics, which can be used to view most possible operating problems.

8.2 Fault diagnosis

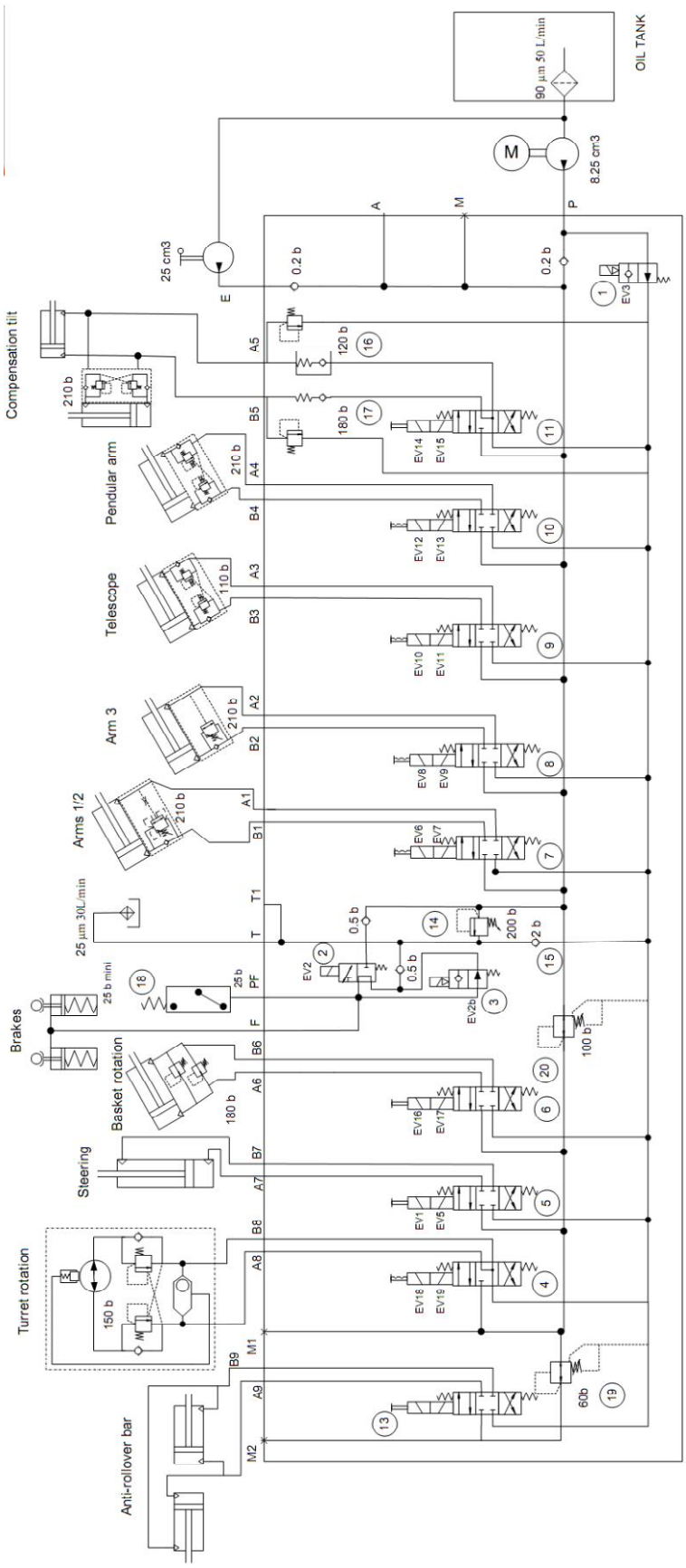
Note that familiarity with equipment and related systems is necessary.At the same time, it should be realized that the main problems that may occur in the machine are concentrated in the hydraulic and electrical systems.
The principle of fault diagnosis for any hydraulic circuit and electric control circuit is to determine whether the circuit is short of hydraulic oil and whether it is powered on.It can be determined by unlocking the bypass valve, allowing hydraulic oil to enter the function valve, and then unlocking the function valve mechanically.If the function is normal, the problem is in the control circuit.

8.3 Hydraulic operation circuit inspection

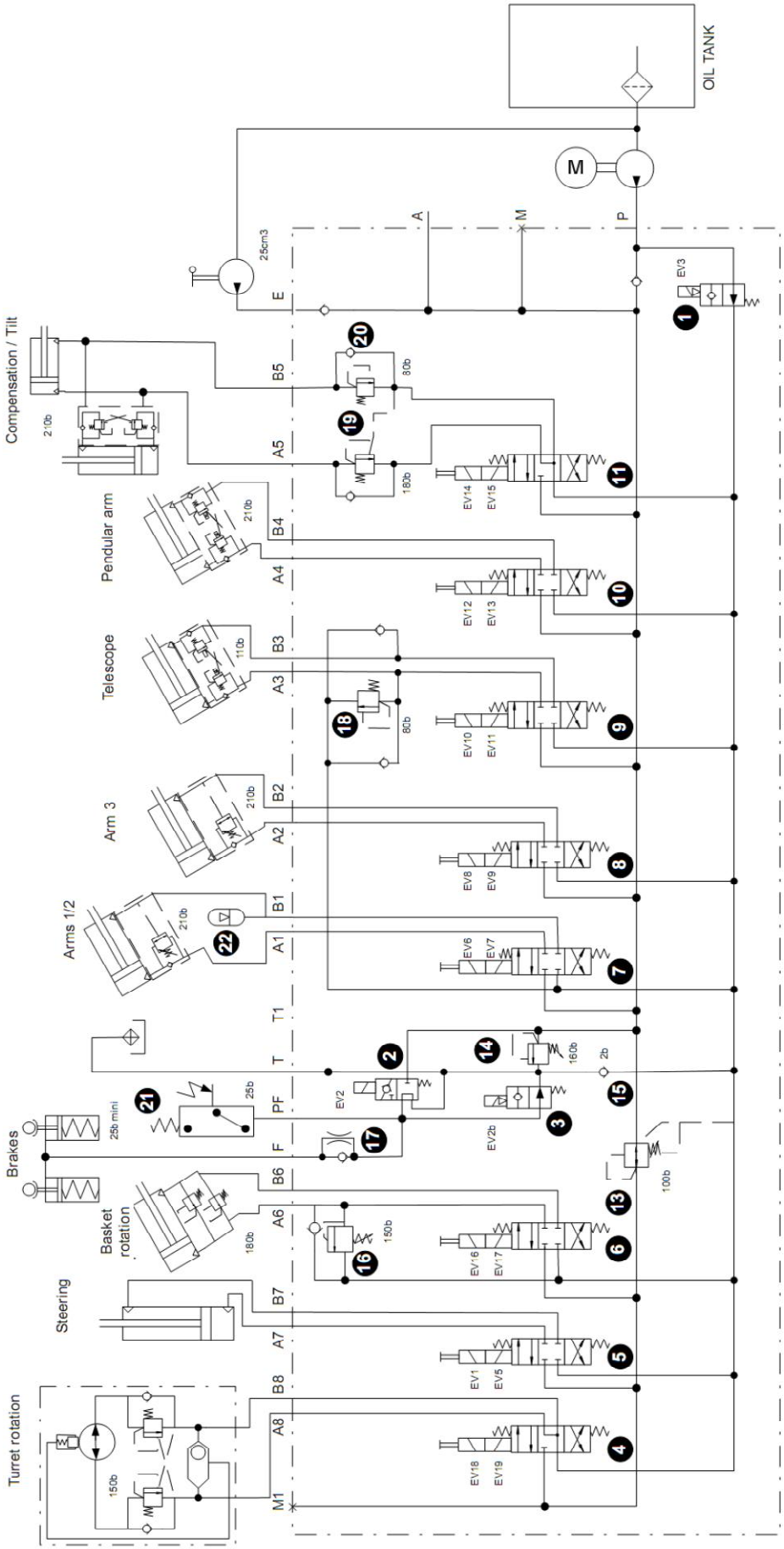
At the beginning of the problem analysis, the first is the power source (pump).If the pump can be used, systematically check the circuit components from the control components.If you need help during fault diagnosis, please refer to the following hydraulic schematic diagram and electrical schematic diagram.

8.3.1 Hydraulic schematic diagram

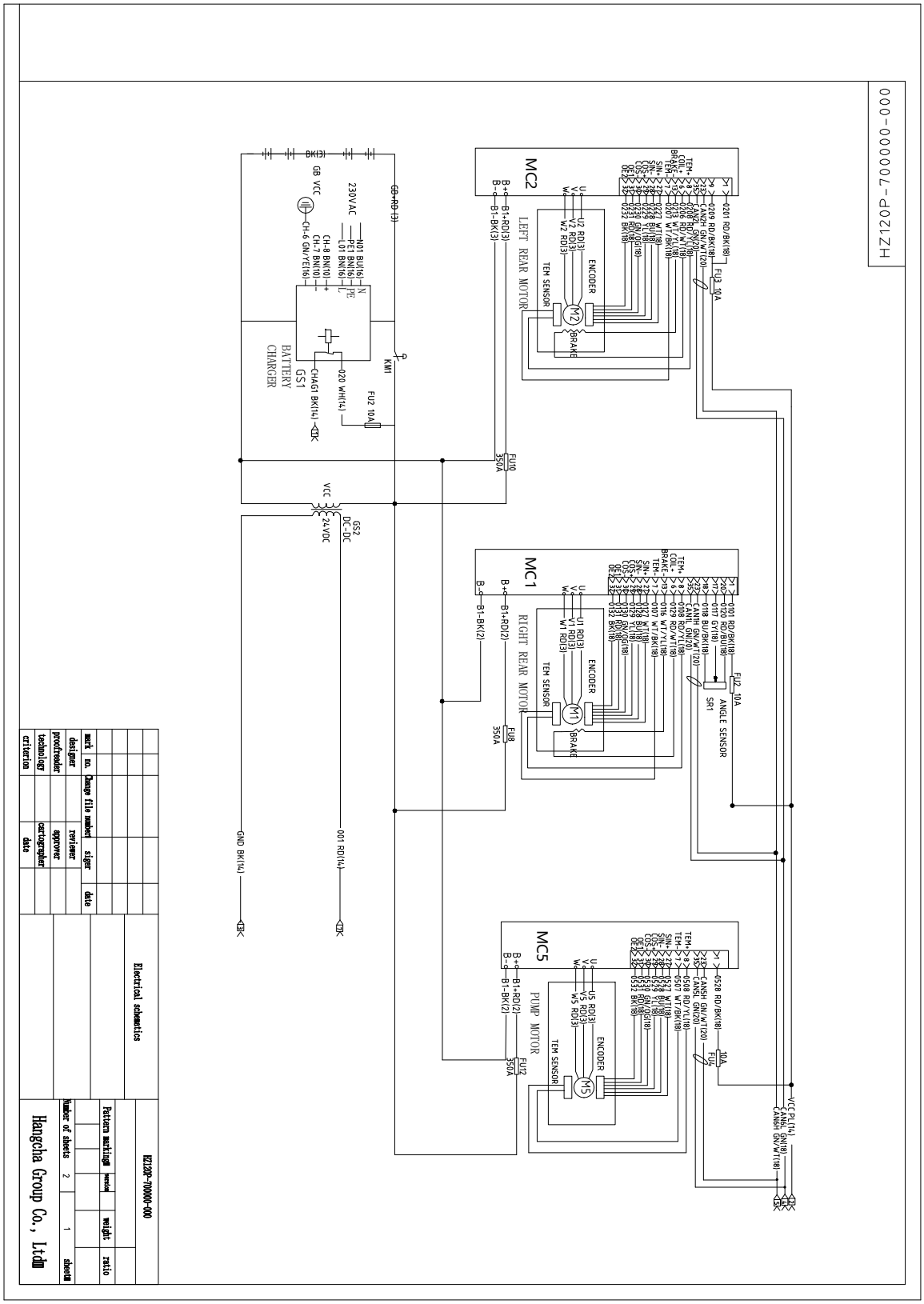
GTHZ120

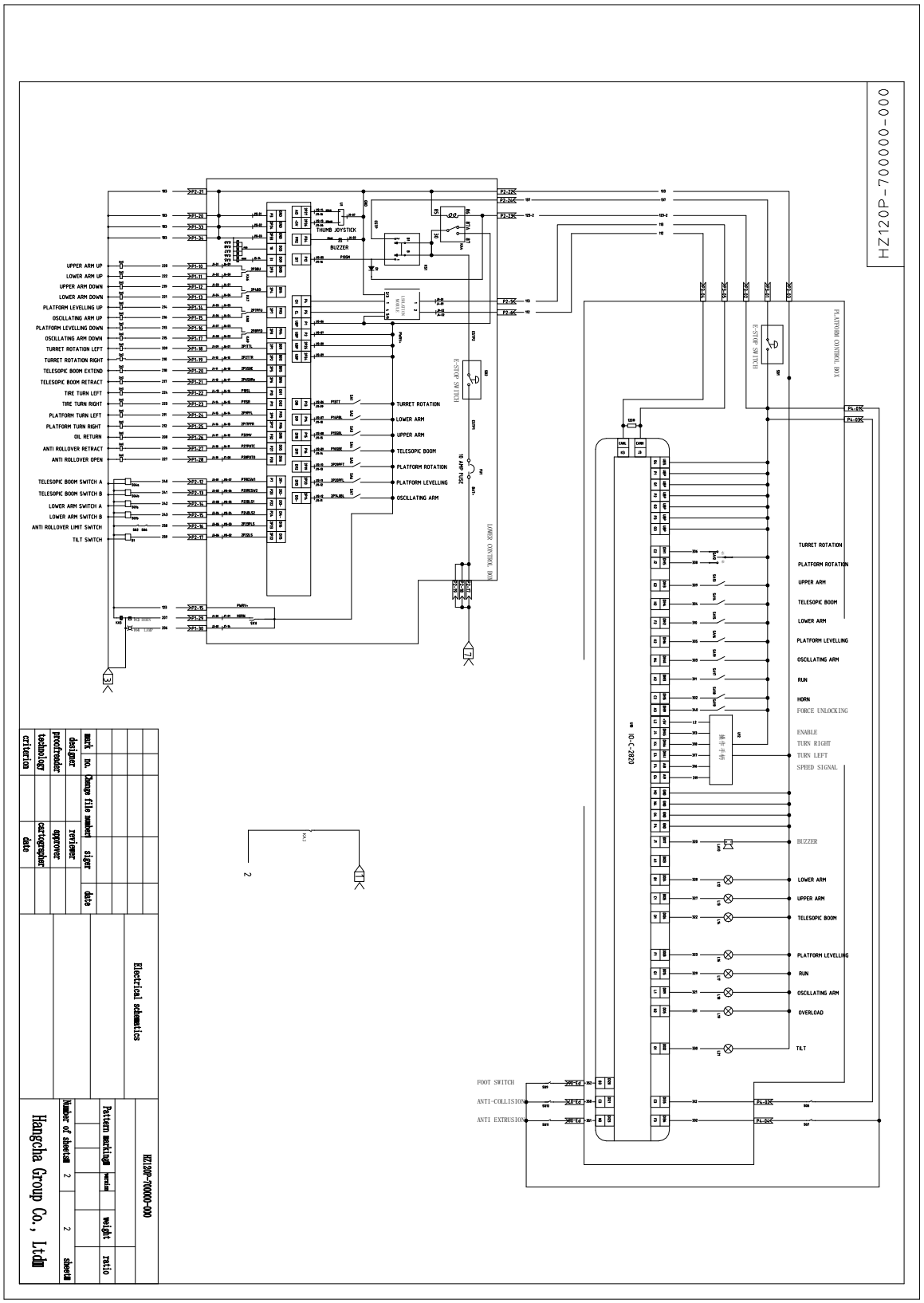


GTHZ170


OIL TANK
M
A
M
P
E
25cm3
EV3
Compensation / Tilt
210b
B5
A5
80b
180b
EV14
EV15
Pendular arm
210b
B4
A4
EV12
EV13
Telescope
110b
B3
A3
80b
EV10
EV11
Arm 3
210b
B2
A2
EV8
EV9
Arms 1/2
210b
B1
A1
EV6
EV7
T1
T
PF
F
160b
2b
EV2
EV2b
25b
25b mini
Brakes
B6
Basket rotation
180b
A6
150b
EV16
EV17
100b
Steering
B7
A7
EV1
EV5
B8
A8
EV18
EV19
Turret rotation
150b
M1

8.3.2 Electrical schematic diagram




HZ120P-700000-000
UPPER ARM UP
LOWER ARM UP
UPPER ARM DOWN
LOWER ARM DOWN
PLATFORM LEVELLING UP
OSCILLATING ARM UP
PLATFORM LEVELLING DOWN
OSCILLATING ARM DOWN
TURRET ROTATION LEFT
TURRET ROTATION RIGHT
TELESOPIC BOOM EXTEND
TELESOPIC BOOM RETRACT
TIRE TURN LEFT
TIRE TURN RIGHT
PLATFORM TURN LEFT
PLATFORM TURN RIGHT
OIL RETURN
ANTI ROLLOVER RETRACT
ANTI ROLLOVER OPEN
TELESOPIC BOOM SWITCH A
TELESOPIC BOOM SWITCH B
LOWER ARM SWITCH A
LOWER ARM SWITCH B
ANTI ROLLOVER LIMIT SWITCH
TILT SWITCH
THUMB JOYSTICK
BUZZER
E-STOP SWITCH
10 AMP FUSE
TURRET ROTATION
LOWER ARM
UPPER ARM
TELESOPIC BOOM
PLATFORM ROTATION
PLATFORM LEVELLING
OSCILLATING ARM
PLATFORM CONTROL BOX
GROUND CONTROL BOX
TURRET ROTATION
PLATFORM ROTATION
UPPER ARM
TELESOPIC BOOM
LOWER ARM
PLATFORM LEVELLING
OSCILLATING ARM
RUN
HORN
FORCE UNLOCKING
ENABLE
TURN RIGHT
TURN LEFT
SPEED SIGNAL
BUZZER
LOWER ARM
UPPER ARM
TELESOPIC BOOM
PLATFORM LEVELLING
RUN
OSCILLATING ARM
OVERLOAD
TILT
FOOT SWITCH
ANTI-COLLISION
ANTI EXTRUSION
Hangcha Group Co., Ltd
Electrical schematics
HZ120P-700000-000

Chapter 9 Inspection and maintenance record form

Date	Content	Recorder

Operation manual Chapter 9 Inspection and maintenance record form

Regular maintenance inspections must be carried out every day, every quarter, every six months and every year. Use this form to help you comply with the routine maintenance plan.

Table Maintenance schedule

Inspection interval	Inspection procedure
Every day or every 8 hours	A
Quarterly or every 250 hours	A+B
Every year or every 1000 hours	A+B+C

Maintenance inspection report

- The maintenance inspection report is divided into three sections (A, B and C) according to the maintenance procedure, the time requirements of the maintenance plan and the requirements of the maintenance procedure.
- The maintenance inspection report contains a checklist for each type of periodic inspection.
- Copy the maintenance inspection report for each inspection. The completed form shall be kept for at least 10 years or until the machine is out of use or at the request of the machine owner / company.
- Use the table below to record the results. After completing each part, tick the corresponding box.
- If any inspection result is "no", the machine must be stopped, and the machine must be rechecked after the maintenance is completed, and a mark must be ticked in the box marked "repaired". Select the appropriate inspection procedure according to the inspection type.

Maintenance check report					
Product model					
Factory number					
Inspection procedure A					
No.	**Project**	**YES** The machine is in good condition	**NO** Machine damage or failure	**REPAIRED** The machine has been repaired	**Problem description**
A-1	Check each manual				
A-2	Check each label				
A-3	Check for damaged loose or missing parts				
A-4	Check the hydraulic oil level				
A-5	Check hydraulic oil leakage				
A-6	Function check				
A-7	Check the battery level				
A-8	Perform 30 day maintenance				

Maintenance check report					
Inspection procedure B					
No.	**Project**	**YES** The machine is in good condition	**NO** Machine damage or failure	**REPAIRED** The machine has been repaired	**Problem description**
B-1	Check and replace the hydraulic oil tank return filter element				
B-2	Check the rims and tires and their fasteners				
B-3	Check hydraulic oil				
B-4	Check the angle sensor				
B-5	Check the oil level in the drive reducer				
B-6	Check the connecting bolts of slewing support				
B-7	Periodic lubricate the worm wheel worm reducer				
B-8	Check the cylinder offset				
B-9	Check the wires				
B-10	Check the battery				
B-11	Test travel speed				
B-12	Check the emergency decent function				
B-13	Check the tilt protection system				

Maintenance inspection report					
Inspection procedure C					
NO.	Project	YES The machine is in good condition	NO Machine damage or failure	REPAIRED The machine has been repaired	Problem description
C-1	Replace the gear oil in the drive reducer.				
C-2	Lubricate the worm wheel and worm gear reducer				
C-3	Change hydraulic oil				
C-4	Replace the hydraulic oil tank suction filter				
C-5	Check the boom slider				
User					
Signature of inspector					
Inspection date					
Inspector post					
Inspector unit					

Explain:

1. The maintenance inspection report shall include a checklist for each type of periodic inspection.
2. Copy the maintenance inspection report for each inspection. The completed form shall be kept for at least 10 years or until the machine is out of use or at the request of the machine owner / company / custodian.
3. Use this form to record the results. After completing each inspection procedure, tick the corresponding box.
4. Record the inspection results. If any inspection result is "no", you must stop using the machine, recheck the machine after maintenance, and tick the mark in the box of "repaired".

Select the appropriate inspection procedure according to the inspection type.

EC Declaration of Conformity

WE

HANGCHA GROUP CO., LTD.
666 Xiangfu Road, Hangzhou, Zhejiang, China

Declare that the product described is in conformity with

The Machinery Directive: 2006/42/EC
The Electromagnetic compatibility Directive: 2014/30/EU

Applicable Harmonized standards:
EN ISO 12100:2010，EN 280-1:2022, EN 60204-1 :2018

Product Name: Mobile elevating working platform
Product Model: GTHZ120, HZ120P, GTHZ170, HZ170P, GTHZ170C, HZ210A
Trade Mark:

series number:as per order

Authorised Representative and technical documentation for the machinery is available from and person authorized to compile the technical file:
Hangcha Europe GmbH
Mariechen-Graulich-Straße 12a,65439 Flörsheim am main Germany

Notified Body: SGS Italia S.p.A (Appointment Number 1381)
Address: Via Caldera, 21 20153 Milano 02/73931
The number of the EC-Type certificate: XXXX

Responsible for making this declaration is the

Manufacturer ■

Authorized representative established within the EU □

2023-12-14 Linan,Hangzhou,China	GuangYao Hou (侯光耀) Technical manager	
Issue date and place	**Name and position**	**Signature and company stamp**

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