Operation Manual

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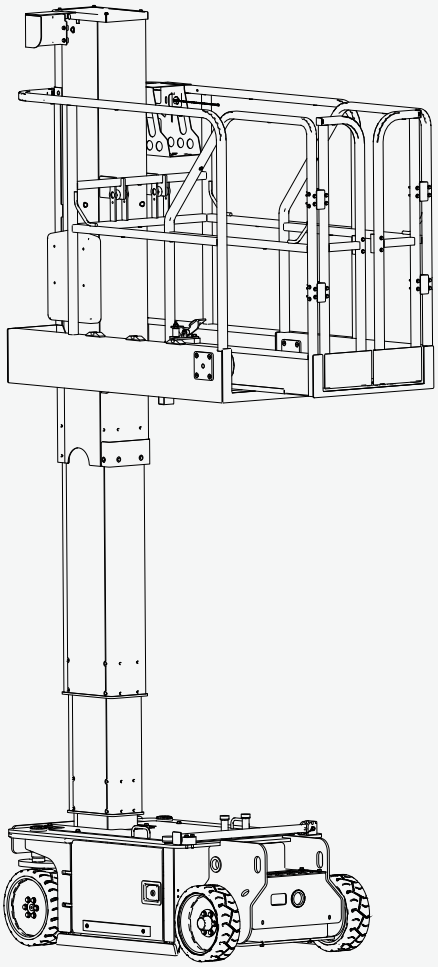
Translated version

VM05EL/VM160EL



CE ANSI CSA GB

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⚠ WARNING

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure and avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information, go to: www.P65warnings.ca.gov.

For disposal, please comply with local regulations.

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To Users

Thank you for choosing and using the machinery of **Hunan Sinoboom Intelligent Equipment Co., Ltd.**

Use this machine only to transport tools to work locations and for performing tasks on the work platform. Only authorized personnel who have received appropriate MEWP training may operate this machine. Before using the machine, carefully read and fully understand this manual and strictly follow its relevant instructions. Different countries, regions, or governments may have equipment operating regulations that conflict with this manual. The stricter safety operating regulations should be followed. Our company will not be liable for any adverse consequences arising from the failure to operate and use the machine in accordance with this manual or the relevant regulations.

This manual provides necessary safety precautions and operation instructions for users. This manual covers the basic configuration information of one or more models. Please refer to the information applicable to your machine model. Treat this manual as an integral part of the machine and keep it with the machine at all times This manual may not be copied, distributed, sold, or altered without written permission from Sinoboom.

Due to continuous improvement and upgrading of product design and different product models covered, some charts and textual content in the manual may be not applicable to your machine. Our company reserves the right to revise the contents of this manual due to technological improvements. Changes will be made without prior notice. Contact Sinoboom to obtain the most current version of the manual.

Please go to www. sinoboom. com to download your desired Operation Manual, Maintenance Manual and Parts Manual.

If you have any questions, contact **Hunan Sinoboom Intelligent Equipment Co., Ltd.**

Manual Revision History:

Version	Date	Description
A	May 2024	Original issue

Applicable Models

The manual applies to the following models and serial numbers:

Model	Metric Trade Name	Imperial Trade Name	Serial No.
VM05EL	VM05EL	VM160EL	1000500100 to present

Note:

- Check the machine model and serial number on the machine nameplate. The location of the nameplate can be found in the ***Decals Diagram*** section of the Operation Manual.
- Product model numbers are indicated on the nameplates to distinguish products with different main technical parameters.
- Product trade names (product commercial codes) are used for marketing purposes and machine decals for the differentiation of products with different main technical parameters. Product trade names are categorized as metric and imperial trade names: metric trade names are applicable to regions/countries using the metric system or as specifically requested by customers; imperial trade names are applicable to regions/countries using the imperial system or as specifically requested by customers.

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1 SAFETY WARNING SYMBOLS AND SIGNS

The safety warning symbols used on the machine and in the manuals have the following meanings:

Safety warning symbol. This symbol is used to alert you to potential hazards. Observe all safety instructions following a symbol to avoid possible injuries.

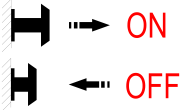
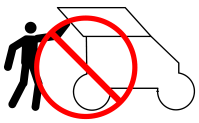
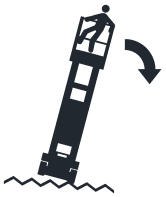
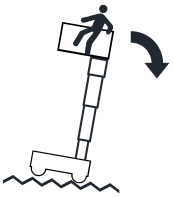
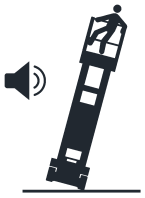
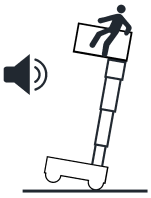
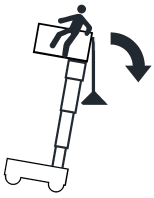
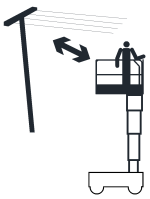
DANGER
Indicates an imminently hazardous situation that, if not avoided, *will* result in death or serious injury.

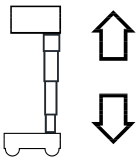
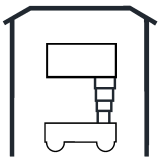
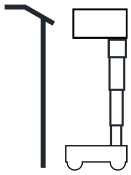
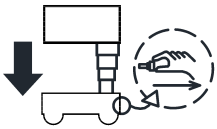
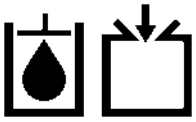
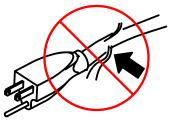
WARNING
Indicates an imminently hazardous situation that, if not avoided, *could* result in death or serious injury.

CAUTION
Indicates an imminently hazardous situation that, if not avoided, *could* result in minor or moderate injury.

NOTICE
Indicates information directly or indirectly related to personal safety, machine damage, or property loss.

The safety signs used on the machine and in the manuals have the following meanings:

 Refer to the Maintenance Manual	 Anchor point only for 1 person	 Wind speed	 Chemical burns hazard	 Wedge the wheel
 Refer to the Operation Manual	 Add lubricant	 Crushing hazard – safety shoes required	 Danger of hot, high-pressure fluid spray	 Wind
 Noise level	 Burn hazard	 Keep a safe distance from high temperatures	 Pull out – ON Press – OFF	 Alarm sounding
 Horn	 Hydraulic oil level low	 Hydraulic oil level high	 Temperature	 Replace with tires of the same specification
 Only qualified maintenance personnel may access the compartment	 Electrocution hazard on platform	 Electrocution hazard on the ground and platform	 Tipping hazard – avoid uneven ground	 Tipping hazard – avoid uneven ground
 Tipping hazard – never use machine in strong, gusty winds	 Tipping hazard – never use machine in strong, gusty winds	 Tipping hazard – never push or pull objects outside the platform	 Tipping hazard – never suspend objects from the platform	 Tipping hazard – never place ladders and scaffolding on the platform
				

Keep a safe distance from power lines	Collision hazard – keep head clear of overhead obstacles when raising platform	Crushing hazard – keep hands clear from overhead obstacles when raising platform	Fall hazard – never climb on platform guardrails	Fall hazard – never climb on the mast boom
 Platform up and down movement	 Indoor use	 Outdoor use	 Emergency lowering handle position	 Wear protective clothing and safety goggles
 Only qualified maintenance personnel may perform maintenance work	 Lateral force	 Electrocution hazard	 Battery explosion hazard	 No smoking or open flames/sparks
 No smoking or open flames/sparks	 Lifting point	 Lashing point	 Tire ground pressure	 Hydraulic oil filler
 Platform load capacity	 Do not use damaged power cords	 Tool or weight	 Fast/high speed	 Slow/low speed

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2 IMPORTANT SAFETY RULES

2.1 GENERAL

This chapter briefly describes the precautions that must be followed for safe and proper operation and maintenance of this machine. To ensure safe use and proper operation of the machine, the operator must perform routine maintenance on the machine in accordance with the Operation Manual and Maintenance Manual. In addition, the machine must be regularly maintained and serviced by a qualified service technician according to the instructions provided in the Maintenance Manual.

Familiarize yourself with the local regulations concerning Mobile Elevated Work Platforms (MEWPs) and related operations. The rules for equipment operation from different countries, regions, or governments may conflict with this manual, so the stricter safety operation rules should be followed. If you have any questions about safety, training, inspection, maintenance, purposes and operation of the machine, please contact Hunan Sinoboom Intelligent Equipment Co., Ltd.

Sinoboom cannot foresee all the potential hazards related to this machine, so all parties involved should place high importance on safety issues.

⚠ WARNING

Failure to follow the operating instructions and safety rules in this manual may result in machine damage, property loss, or personal injury.

2.2 PREPARING FOR OPERATION

Operator's Training and Knowledge Requirements

Before operating this machine, read, understand, and comply with all applicable regulations and requirements of employers, local authorities, and the government related to equipment use.

Before operating this machine, you should read and fully understand this manual, undergo professional training based on this Operation Manual, and only operate this machine independently after acquiring the qualification for proficient operation. The training content should include, but not be limited to, the following topics:

- Warnings, operating instructions, and the Operation Manual on the machine.
- Pre-start test
- Factors affecting the stability of the machine
- Common hazards and how to avoid them
- Workplace Inspection
- Functions and related knowledge of all controls, including emergency controls
- Use of personal protective equipment appropriate to the work task, workplace, and environment
- Safe operation
- Transport
- How to prevent unauthorized use

Workplace Inspection

Before and during the operation of the machine, users must pay attention to the hazards and take preventive measures to avoid hazards in the work area. Without the written permission of Hunan Sinoboom Intelligent Equipment Co., Ltd., this machine shall not be used in the following areas or conditions:

- Steep slopes or caves
- Ground with protrusions, obstacles, or debris
- Insecure or slippery surfaces
- Surfaces not sufficient to support the machine (machine weight + load weight)
- Trucks, trailers, rail cars, ships, or other equipment
- Dangerous locations
- Places with overhead electric wires, cranes, or other potential obstacles
- In gusty and/or strong wind conditions, or lightning
- Unauthorized persons
- Other areas where unsafe conditions may occur

Machine Inspection

Make sure to complete all checks in strict accordance with the steps in the ***Pre-operation Inspection*** section of this manual before operating the machine:

- ***Pre-start test*** : Ensure that no components are loose/loosening, missing or altered. Components must be securely fixed, without visible damage, leakage, or excessive wear, etc., all parts must be in their original locations and operating position; make sure that all fluid levels, battery level, etc. are appropriate; ensure that maintenance work has been completed

in accordance with the requirements specified in the Maintenance Manual.

- ***Decals inspection*** : Ensure that no decals and nameplates are missing and/or damaged; decals must be clearly visible.
- ***Functional test*** : Make sure that all functions of the machine are working properly.

⚠ WARNING

It is forbidden to alter or modify the machine without the written permission of Hunan Sinoboom Intelligent Equipment Co., Ltd.

2.3 OPERATION SAFETY

General

⚠ WARNING

- This machine shall only be used to transport tools to work locations and for performing tasks on the work platform, and should not be used for other purposes.
- Operators should use personal fall protection equipment (PFPE) while operating the machine. If workplace or other rules require the use of PFPE by persons on the platform, the PFPE should be inspected and used in accordance with the PFPE manufacturer's instructions and applicable government requirements.
- The operator must devote their full attention to their work during the operation of the machine. The use of mobile phones, wireless communication devices, etc. may distract the operator and affect the safe operation of the machine, so the operator should completely stop the machine before using such devices.
- Remove all rings, watches and other accessories before operating the machine, do not wear loose clothing, and do not let long hair hang loosely.
- Individuals who have consumed alcohol or taken medication, who are overly fatigued or mentally distressed, who suffer from health conditions such as heart disease, high blood pressure, epilepsy, etc., individuals with a fear of heights or who feel unwell are prohibited from operating the machine.
- Do not operate a damaged or malfunctioning machine. In case of any failure, stop the machine immediately, label the machine appropriately, and contact the manufacturer or relevant department.
- Never disassemble, modify or retrofit the machine or its parts.
- Never disable any safety devices of the machine.
- Never place objects on the platform guardrails.

⚠ WARNING

- Never push the control switch or joystick forcefully through the neutral position directly into the opposite direction. Before pushing the switch to the next function position, move it back to the neutral position and stop, and then move it with slow and uniform force to perform the next function.
- Except in case of emergency, it is forbidden to perform operations from the ground if any person is still on the platform.
- When there are two or more people on the platform, all operation of the machine must be conducted by the operator.
- Always operate the machine in well-ventilated conditions to avoid carbon monoxide or nitrogen oxide poisoning.
- Before leaving the machine, the platform should be completely lowered and all power should be shut off.

Electrocution Hazard

⚠ WARNING

- This machine is not insulated and is not equipped with electric shock or insulation protection features.
- Do not use this machine during thunderstorms or heavy rain. Should you encounter thunderstorms or heavy rain while operating the machine, immediately lower the platform completely to a safe and stable position, and disconnect all power sources so as to avoid personal injury or machine damage.

- Comply with the national or regional provisions covering minimum safe distance from live conductors. In absence of such provisions, comply with the specifications in the table below to keep a minimum safe distance from power lines, electrical equipment or any live (bare or insulated) components. The minimum safe distance must take into account factors such as machine movement and the swinging or sagging of power lines.
- If an insulating partition rated for the voltage of the power lines is installed, the minimum safe distance can be reduced. Such partitions may not be part of the machine or fixed on the machine. The reduction in the minimum safe distance due to insulating partitions must comply with the relevant national or local regulations.
- Do not use the machine as a ground wire during welding and polishing operations.

Table 2-1 Minimum Safe Distance

Voltage (Phase to Phase, kV)	Minimum Safe Distance
0-50	3.05 m (10 ft)
50 - 200	4.60 m (15 ft)
200 - 350	6.10 m (20 ft)
350 - 500	7.62 m (25 ft)

Table 2-1 Minimum Safe Distance (continued)

Voltage (Phase to Phase, kV)	Minimum Safe Distance
500 - 750	10.67 m (35 ft)
750 - 1000	13.725 m (45 ft)

⚠ DANGER

Do not operate the machine or transport personnel with the machine within access-restricted areas with live electrical equipment.

Tripping and Fall Hazards

⚠ WARNING

- Before operating the machine, make sure that the platform guardrails are properly installed and that the platform gates are closed and properly secured.
- Operators on the platform must wear the safety belt properly and secure the safety belt to the specified anchorage point with the hook. Each anchorage point should only be used by one person.
- Exercise extreme caution when entering and exiting the platform. Use only the platform gate for access and never use the mast boom for entry or exit. Before entering and exiting the platform, make sure the platform is fully lowered. When entering and exiting the platform, face the platform and maintain three points of contact with the machine, with both hands and one foot or both feet and one hand.
- Both feet must be securely placed on the platform floor at all times. It is forbidden to sit, stand or climb on the platform guardrails.
- Never use ladders, boxes, steps, boards, or similar items on the platform to extend your reach.
- Do not allow oil, sludge or other slippery substances to remain on work shoes and platform floor.
- Keep the platform floor unobstructed.

Tipping Hazard

⚠ WARNING

- Before driving the machine onto any ground, bridge, truck or other surface, check if the loading capacity of the surface is sufficient to support the machine (machine weight + platform load). Do not drive the machine on any surfaces or edges that are not capable of fully supporting the machine.
- Operators must familiarize themselves with the ground conditions of the work area before commencing work.
- Do not operate the machine on moving surfaces or vehicles.
- The total weight of personnel, devices and materials on the platform may not exceed the platform's rated load capacity, and all loads must be kept within the designated range of the platform.
- Only low gears may be used for driving the machine on a slope.
- The machine must not be driven on slopes, steps or arched surfaces that exceed the maximum gradeability of the machine.

⚠ WARNING

- Do not use the tilt alarm as a level indicator. The tilt alarm on the platform will only sound when the machine is severely tilted.
- If the tilt alarm sounds, please lower the platform, and move the machine to firm and level ground.
- Do not drive the machine on uneven or soft surfaces or slopes that exceed the maximum gradeability of the machine or under other hazardous conditions with the platform raised.
- The platform can only be raised or extended when the machine is on firm, flat ground.
- When the machine is traveling on uneven ground, or on other rough surfaces such as gravel, or near holes, steep slopes, etc., maintain a distance of at least 0.6 m (2 ft) from any potential hazards, and reduce speed.
- Do not push or pull any objects located outside the platform.
- Never push or pull other equipment or objects with the platform or mast boom.
- Do not place or attach any suspended load on or to any part of the machine.
- Do not place any load outside the perimeter of the platform.
- Using the machine as a hoist or crane is strictly prohibited.
- Never attach the machine or any part of it to any adjacent object.
- Do not operate the machine with the compartment doors on the side of chassis open.
- When one or more tires are off the ground, first evacuate all personnel, then use a hoist, crane or other suitable equipment to stabilize the machine.
- Without written authorization of the manufacturer, it is forbidden to modify, remove or install any parts (including counterweights), that may affect the safety and stability of the machine.

⚠ WARNING

- **Do not replace critical parts that affect the stability of the machine with parts of different weight or specifications. For example, batteries not only provide power, but also serve as a counterweight, and are crucial for maintaining the stability of the machine.**

⚠ WARNING

- **If the machine can be used outdoors, do not operate the machine when the wind speed exceeds 12.5 m/s (28 mph) (including gust). Please refer to the Beaufort wind force scale in the table below. Factors that affect wind speed include: the height of the platform, surrounding terrain, and local weather conditions, such as wind speed at height, which may be much higher than at ground level.**
- **Wind speeds may change at any time. Always consider the impending weather conditions, the time needed to lower the platform, and methods to monitor the current and potential wind conditions.**
- **When operating the machine outdoors, do not carry items with a large surface area on the platform, do not cover the surface of the platform or load, and never use additional items to increase the surface area of the platform or load. Adding such additional items will increase the exposure of the machine to the wind. Increasing the windward area will lead to reduced machine stability.**

Table 2-2

BEAUFORT SCALE	WIND SPEED		DESCRIPTION	SURFACE CONDITIONS
	METERS/ SECOND	MILES/ HOUR		
0	0-0.2	0-0.5	Calm	Calm. Smoke rises vertically.
1	0.3-1.5	1-3	Light air	Direction of wind shown by smoke drift.
2	1.6-3.3	4-7	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	3.4-5.4	8-12	Gentle breeze	Leaves and small twigs in constant motion.
4	5.5-7.9	13-18	Moderate breeze	Raises dust and loose paper. Small branches move.
5	8.0-10.7	19-24	Fresh breeze	Small trees sway.
6	10.8-13.8	25-31	Strong breeze	Large branches in motion. Whistling heard in telegraph wires. Umbrella used with difficulty.
7	13.9-17.1	32-38	Near gale	Whole trees in motion. Inconvenience felt when walking against the wind.

Table 2-2 (continued)

BEAUFORT SCALE	WIND SPEED		DESCRIP-TION	SURFACE CONDITIONS
	METERS/ SECOND	MILES/ HOUR		
8	17.2-20.7	39-46	Gale	Twigs break from trees. Cars veer on the road.
9	20.8-24.4	47-54	Strong gale	Slight structural damage.

⚠ DANGER

If wind speed exceeds 12.5 m/s (28 mph) after the platform has been raised, the platform should be retracted immediately, all power sources should be disconnected, and the machine should be stopped.

Collision and Crushing Hazards

⚠ WARNING

- All operators and other personnel in the work area must wear approved safety helmets.
- Keep all parts of the body within the platform guardrails during operation.

- Care should be taken at all times to avoid contact with stationary (built-up structures etc.) objects or moving objects (vehicles, cranes etc.) to prevent obstacles from hitting or interfering with control components or personnel on the platform.

- During operation, make sure to check the clearance and obstacles above, around and below the platform.

- Be aware of the field of vision and potential blind spots when moving or operating the machine. Observers should be put in place in case the field of vision is obstructed.

- During operation, other people must maintain a distance of at least 1.8 m (6 ft) from the machine.
- When the machine is operating at height, warn other personnel not to work, stand or walk under the raised mast boom or platform. If necessary, the work area should be cordoned off on the ground level.

- Make sure there are no persons and/or obstacles below the platform before lowering the platform.
- Do not place hands, arms, or other body parts near areas where they may be crushed.
- Do not work under the platform or near the mast boom when the platform is not protected by lifting equipment and the safety bars are not in place.
- Ensure that operators of other equipment in the vicinity working at height and on the ground are aware that this MEWP is in operation.

⚠ WARNING

- Limit travel speed based on ground conditions, congestion, ground slope, position of personnel, and other factors.
- Understand braking distances at all travel speeds. When traveling at high speed reduce the travel speed before stopping.
- Do not use the high speed setting when traveling in areas with limited or enclosed spaces or when reversing.
- Before releasing the brake, the machine must be placed on a horizontal surface or secured.

2.4 TOWING, HAULING AND LIFTING SAFETY

⚠ WARNING

- **Except in case of emergency situations, machine malfunction, power loss or loading/unloading, it is strictly prohibited to tow or drag the machine.**
- **When towing or dragging the machine, comply with local policies and road traffic regulations.**
- **Before towing, dragging or lifting operations, make sure that the machine is in stowed condition, the machine has no loose or unfixed parts, and no tools are on the platform.**
- **Only the lifting points/rigging equipment lashing points on the chassis may be used to tow, haul or lift the machine. Ensure that the machine lifting points/rigging equipment lashing points and their rigging equipment are intact and that the belt or rope to be used has sufficient load strength.**
- **When towing, hauling or lifting the machine, no persons are allowed on the platform.**
- **Before loading/unloading the machine, ensure that the transport vehicle is parked on level ground, that the loading surface of the transport vehicle has sufficient capacity/strength to support the machine, and that the slope of the ramp used for driving the machine onto the vehicle does not exceed the maximum gradeability of the machine.**
- **When loading/unloading the machine, the transport vehicle must be secured to prevent it from moving.**
- **The wheels should be locked after the machine is loaded to prevent it from moving.**
- **The machine can only be lifted from the specific position with lifting equipment with sufficient lifting capacity. Care should be taken to prevent the machine from colliding with surrounding objects.**

For towing and dragging procedures, refer to the ***Emergency Towing*** section of this manual. For transport and lifting procedures, please refer to the ***Transport and Lifting*** section of this manual.

2.5 MAINTENANCE SAFETY

Unsafe Maintenance Hazards

⚠ WARNING

- **Before performing any adjustment or service operations, power off all control units and ensure that all moving parts are safely secured and cannot move unintentionally.**
- **Before performing any adjustment or service operations, ensure that the mast boom is stowed. Never work under a raised platform/mast boom. If it becomes necessary to work under the raised platform/mast boom, the platform and mast boom must be supported with appropriate safety supports.**
- **When lifting or moving heavy parts of the machine, use equipment with sufficient capacity, and never place heavy objects in an unstable position after moving.**
- **When machine parts are lifted by other equipment, ensure that there are no persons under and/or around the equipment.**
- **When striking brass rods with a mallet, make sure to wear eye protection.**
- **If you need to replace parts, use only original parts specified by Sinoboom.**
- **Do not wash the machine with water. The machine contains electronic components such as solenoid valves and sensors, which may fail or operate erratically after water ingress. If it is necessary to wash with water, turn off the emergency stop button and power switch before proceeding. Only turn the power back on after ensuring the machine is completely dry.**
- **Make sure the machine is turned off before using flushing equipment (such as a high-pressure water gun) to clean the machine. Do not direct water or steam ejected from the flushing equipment at electrical components, as this may cause short-circuits or electrical shocks.**

⚠ WARNING

- After maintenance is completed, thoroughly clean up any spilled hydraulic oil, and avoid allowing it to be spilled on the ground.
- After maintenance is completed, immediately wash off any hydraulic oil that may have come into contact with your skin.
- Waste hydraulic fluids, fuels, coolants and refrigerants must be recycled or disposed as per local regulations.

High Temperature and High Pressure Hazards

⚠ WARNING

- While the machine is in operation or after running for a period of time, components may generate high surface temperatures, which can cause burns upon contact. Do not touch any hot parts!
- It is forbidden to repair or tighten hydraulic hoses or seals while the machine is operating or when the oil system is under pressure.
- Before loosening or disassembling hydraulic parts (especially the counterbalance valve on the cylinder), the hydraulic pressure of all hydraulic lines should be released and the hydraulic oil should completely cool down.
- For engine-powered machines, do not attempt to open the radiator cover while it is hot.
- Disassemble the hydraulic components slowly to prevent the hydraulic oil from splashing and causing injuries.
- Never check for hydraulic leakages by hand. Use a piece of cardboard or stiff paper to locate leaks, and wear gloves to protect your hands from spraying hydraulic fluid.
- Do not operate the machine in case of hydraulic or air leaks. Oil or air leakage from the hydraulic system may penetrate and burn the skin.
- Never plug hydraulic leaks by hand. If there is a leak, the pressure of the hydraulic system should be released first, maintenance/repair should be carried out after the hydraulic oil has cooled down.
- If injury occurs due to high temperature and/or high pressure, seek immediate medical attention. If treatment is not carried out immediately, serious complications may result.

Welding and Grinding Operation Hazards

⚠ WARNING

- Welding, grinding and polishing operations must follow the appropriate local safety procedures.
- Before performing welding, grinding and polishing operations, turn off the machine's power, and ensure that all wires or cables are connected correctly.
- Do not use the machine as a ground wire during welding and grinding operations.
- Always make sure that all power tools are placed completely within the perimeter of the platform. Do not hang the cords of power tools on the guardrail of the platform or in any work area outside the platform, and do not hang the power tools directly by their cords.

Fire and Explosion Hazards

⚠ WARNING

- Do not operate the machine, charge the battery or refuel the machine in places where potentially flammable or explosive gases may be present.
- Refueling and charging should be carried out in a well-ventilated place without flames, sparks, and other hazards that may cause fire or explosion.
- For engine-powered machines, do not refuel the machine while the engine is running.
- Never spray ether or other starting agents into glow-plug-equipped engines (engine-powered machines).
- Never touch the battery terminals or cable clamps with tools that can generate sparks.
- Only approved non-flammable cleaning solutions should be used on the machine.

Battery Hazard

⚠ WARNING

- Be sure to read and adhere to the battery manufacturer's recommendations on proper battery use and maintenance procedures.
- Individuals without adequate professional qualification should not repair and maintain the battery system, otherwise this may cause personal injury or damage to the battery system.
- Individuals without adequate professional qualification should not modify parameters, signal lights, etc. during the operation of the battery system, otherwise this may cause personal injury or damage to the battery system.
- Always wear goggles, protective gloves and protective clothing, and remove all rings, watches and other accessories before servicing the battery. Contact with live circuits may result in death or serious injury.
- Before replacing the battery, be sure to select an appropriate number of personnel and suitable lifting methods.
- It is forbidden to modify the battery system without approval to avoid serious accidents.
- When maintaining electrical components, the battery should be disconnected.
- Do not place tools or other metal objects across the two terminals of the battery.
- The battery charger can only be connected to a grounded three-wire AC power outlet. Make sure the charger is working properly before charging. Do not connect the battery directly to a power outlet.
- If the battery becomes hot, deformed, leaks, emits an unusual smell, or produces smoke during use, stop using the battery immediately and report to the relevant maintenance personnel promptly.
- Batteries contain sulfuric acid and can produce explosive

⚠ WARNING

mixtures of hydrogen and oxygen. Keep any materials (including cigarette/smoking materials) that can cause sparks or flames away from batteries to prevent explosion.

- Never touch the battery terminals or cable clamps with tools that can generate sparks.
- Never charge the battery in direct sunlight. The battery should be charged in a well-ventilated place.

⚠ CAUTION

- Avoid spilling battery acid or allowing it to come into contact with unprotected skin. If battery acid spills, use water mixed with bicarbonate (baking soda) to neutralize the acid. In case of contact with battery acid, rinse the acid off immediately with plenty of water and seek medical attention promptly.
- Always keep the battery upright. If the battery is placed on its side or at an angle, liquid may spill from the battery.
- Discarded batteries can be hazardous, and must not be treated like regular waste. If you need to discard them, please contact a battery recycling company.

NOTICE

- Please use the charger provided by the manufacturer to charge the battery.
- The charging process must be completed in full. Frequent intermittent charging can damage the battery.
- The battery is only suitable for use with the equipment it was provided with at the time of manufacture. Do not use the battery for other purposes.
- Do not reverse the positive and negative terminals of the battery for use.
- Do not short-circuit the positive and negative terminals of the battery system.
- Do not place objects or tools on the battery to prevent short circuiting it.
- Do not strike, throw, step on, or hit the battery with sharp objects.
- Do not immerse the battery in water, acidic, alkaline or salty solutions, and protect the battery from rain.
- The battery should be fully charged immediately after each use of the machine, then the machine power switch should be turned off.

NOTICE

Battery over-discharge (continued use of battery with level of less than 10%) or battery under-voltage caused by long-term non-charging (battery with level of less than 10% not charged for more than three days), resulting in battery capacity attenuation and failure, are not covered by the warranty.

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3 RESPONSIBILITIES OF RELEVANT PARTIES

3.1 OWNER'S (OR LESSOR'S) RESPONSIBILITIES

- The owner (or lessor) is obliged to help the user understand all the instructions in the manual.
- The owner (or lessor) should provide the latest manuals or replace missing or damaged decals. To obtain the most current machine manuals please contact Sinoboom or its authorized agents.
- The owner (or lessor) should comply with local regulatory requirements related to the use of the machine.

3.2 EMPLOYER'S RESPONSIBILITIES

- The employer must ensure that the operator is properly trained and qualified to operate the machine.
- The employer should ensure that the user is healthy and has good judgment, sense of cooperation and psychological qualities.
- The employer has the responsibility to ensure that signalmen have good visual and auditory judgment, master standard command signals and send clear and accurate signals, and have sufficient experience to identify hazards and inform operators to avoid hazards in time.
- The employer should clarify the corresponding safety responsibilities to each operator and require them to report unsafe factors to the supervisor timely.

3.3 TRAINER'S RESPONSIBILITIES

- The trainer must be accredited by Sinoboom, have comprehensive knowledge training on the machine, and must have the required skills related to machine repair and maintenance.
- The trainer must conduct training in an open area free of hazards until the trainees acquire the ability to safely control and operate the machine.

3.4 USER'S RESPONSIBILITIES

- The user must be properly trained on MEWP, and authorized.
- The user must carefully read and fully understand this manual and the decals on the machine.
- The user must report to the owner (lessor) all anomalies that may cause the machine to work abnormally or have potential dangers, and if possible, correct the abnormal situation promptly while ensuring safety.
- The user must be fully aware of the content and procedures of the respective operation.
- The user must be familiar with and comply with signal instructions and operation requirements in emergency situations.
- The user must be vigilant in observing for any hazardous conditions and promptly report any dangers to other operators and signal personnel. This includes situations such as high-voltage lines, unrelated personnel, and unfavorable ground conditions.
- The user must stop using the equipment if it is not functioning properly or if a hazardous condition arises.

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4 TECHNICAL PARAMETERS

4.1 MACHINE SPECIFICATIONS

Table 4-1 Specifications

Item	Metric	Imperial
Product Category		
Battery type	Maintenance-free lead-acid battery	
Travel drive type	DC motor	
Dimensions		
Maximum platform height, indoor	4.9 m	16 ft 1 in
Maximum platform height, outdoor	3.7 m	12 ft 1.7 in
Maximum working height, indoor	6.9 m	22 ft 7.7 in
Maximum working height, outdoor	5.7 m	18 ft 8.4 in
Maximum horizontal reach	0.5 m	1 ft 7.7 in
Overall length	1.38 m	4 ft 6.3 in
Overall width	0.78 m	2 ft 6.7 in
Overall height	1.99m	6 ft 6.3 in
Wheelbase	1.06 m	3 ft 5.7 in
Track width	0.67 m	2.2 ft
Ground clearance (pothole guard retracted)	0.068 m	2.7 in
Ground clearance (pothole guard extended)	0.015 m	0.59 in
Platform dimensions (L×W×H)	1.34 m×0.74 m×1.1 m	4 ft 5 in×2 ft 5 in×3 ft 7 in
Performance		
Rated capacity - main platform	227 kg	500 lb
Rated capacity - platform extension	113 kg	249 lb
Maximum number of occupants (in-door/outdoor)	1 person/1 person	
Travel speed (stowed)	0 - 4 km/h	0 - 2.5 mph
Travel speed (raised)	0 - 0.5 km/h	0 - 0.3 mph
Platform lifting time (rated load)	24 - 28 sec	
Platform lowering time (rated load)	24 - 28 sec	
Gradeability (2WD)	25 %/14°	
Maximum allowable tilt angle (front-rear/left-right)	3°/1.5°	

Table 4-1 Specifications (continued)

Item	Metric	Imperial
Turning radius (inside/outside)	0.14 m/1.34 m	5.5 in/4 ft 5 in
Tire (spec/type)	Dia. 305×100 mm/solid Dia. 305×114 mm/solid	Dia. 12×4 in/solid Dia. 12×4.5 in/solid
Maximum operating noise level	72 dB	
IP rating	IP 54	
Maximum total vibration on the platform	2.5 m/s²	
Maximum whole body vibration value (WBV)	0.5 m/s²	
Power		
Drive x steer	2 WD × 2 WS	
Power unit motor (voltage/power)	24 V DC/2.2 kW	
Hydraulic tank volume	6 L	1.3 gal (UK)/1.6 gal (US)
Hydraulic system pressure	14 MPa	2030 psi
Battery specifications (voltage, capacity, discharge time) – lead-acid battery	24 V, 120 Ah, 20 hr	
System voltage	24 VDC	
Control voltage	24 VDC	
Charger (input voltage/output current)	100 – 240 V AC/15 A	
Drive motor (voltage/power)	24 V DC/0.4 kW	
Weight		
Gross weight	970 kg	2138 lb
Ground bearing data		
Maximum tire load	320 kg	705 lb
Ground pressure	733 kPa	106 psi
Environment		
Maximum allowable lateral force	200 N	45 lbf
Maximum allowable wind speed (indoor/outdoor)	0/12.5 m/s	0/28 mph
Maximum allowable altitude	1000 m	3280.8 ft
Allowable ambient temperature range (lead-acid battery)	-10℃ – 40℃	14℉ – 104℉
Allowable ambient temperature range (lithium battery)	-20℃ – 40℃	-4℉ – 104℉
Maximum allowable relative humidity	90 %	

Table 4-1 Specifications (continued)

Item	Metric	Imperial
Storage environment	Store at -20° C to 50° C (-4° F to 122° F) in a well-ventilated environment with 90 % relative humidity (max.) (20° C [68° F]), protected from rain, sun, corrosive gas, flammable or explosive materials.	

Note:
a) The platform height plus the operator height (assumed to be 2 m/6 ft 7 in) equals the working height.
b) In different areas, hydraulic oil, engine oil, coolant, fuel and lubricant should be added in accordance with the ambient temperature.
c) In cold weather, auxiliary devices are needed to start the machine.
d) The ground bearing data is approximate, without considering different options, thus it is applicable only when taking an adequate safety factor into account.
e) Rated platform load capacity refers to the maximum allowable load on the platform, including the weight of persons, materials, tools, accessories and other objects.
f) The hydraulic tank capacity is the maximum volume of the tank.
g) It's recommended not to use the lead-acid battery under the ambient temperature below 0℃, otherwise the battery capacity will decay rapidly and the battery life will be affected.

4.2 FUNCTION SPEED

Table 4-2

Item	Parameter
Raise the platform	24 – 28 s
Lower the platform	24 – 28 s
Travel in high gear – stowed	24 – 30 s
Travel in low gear – stowed	49 – 60 s
Travel – operating	195 – 237 s
Braking distance	S≤0.5 m (1.64 ft)

a) The function speed depends on the start point and end point of the movement, rather than on the controls/switches.
b) The drive speed test results will vary with tires of different specifications.
c) All speed tests should be conducted from the platform controls. Test results will differ if tested from the ground controls.
d) All tests should be conducted with the hydraulic oil temperature at 20 to 30℃ (68 to 86℉). If the hydraulic oil temperature is too low the test results will be affected.

Test requirements:

Raise the platform: Place a load that matches the machine's rated capacity on the platform and fully raise the mast boom (from fully retracted to fully raised) twice.

Lower the platform: Place a road that matches the machine's rated capacity and fully retract the mast boom (from fully raised to fully retracted) twice.

Travel in high gear – stowed: With the machine in stowed position on level surface, switch to high gear, and push the travel joystick to the maximum travel distance to drive the machine forward and reverse for 30 m (98.4 ft) respectively for two times.

Travel in low gear – stowed: With the machine in stowed position on a level surface, switch to low gear, and push the travel joystick to the maximum travel distance to drive the machine forward and reverse for 30 m (98.4 ft) respectively for two times.

Travel – operating: With the machine in operating position on a level surface, push the travel joystick to the maximum travel distance to drive the machine forward and reverse for 30 m (98.4 ft) respectively for two times.

Braking distance : As described in the "Travel in high gear – stowed" test requirements, once the machine reaches the maximum drive speed, immediately release the control handle (starting timing) until the machine stops. Perform this maneuver for two times.

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5 PRE-OPERATION INSPECTION

A pre-operation inspection must be performed before each operation, before resuming operations, and before changing operators, as well as after each repair. Please carefully check each item according to the content of this section.

5.1 BASIC MACHINE COMPONENTS

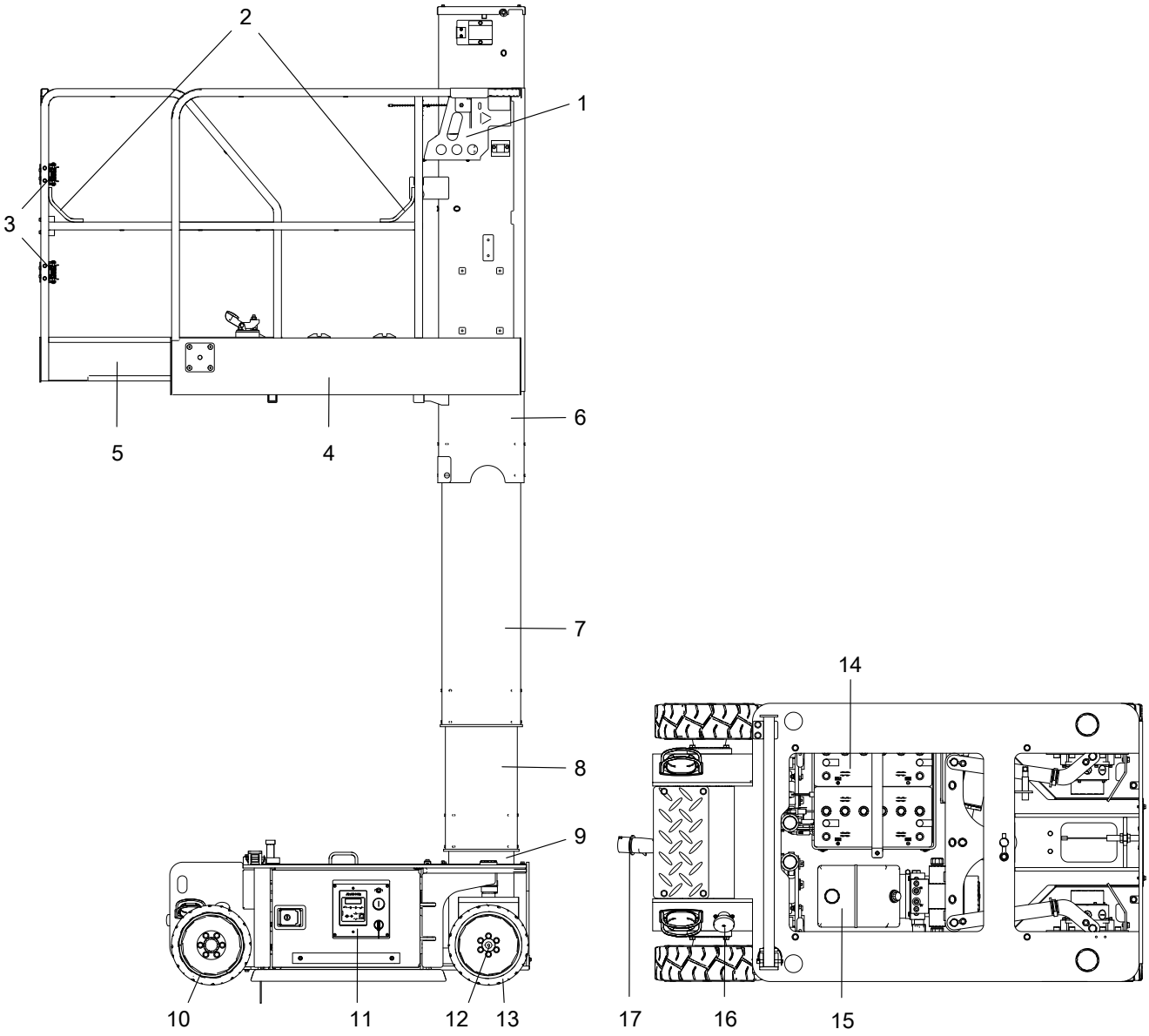

Fig. 1

Table 5-1

1. Platform controller	**2.** Harness anchorage point	**3.** Hinge assembly
4. Main platform	**5.** Platform extension	**6.** Fourth boom section
7. Third boom section	**8.** Second boom section	**9.** Base boom
10. Rear wheel (non-steering wheel)	**11.** Ground controller	**12.** Drive reducer and motor
13. Front wheel (steering wheel)	**14.** Battery	**15.** Power unit
16. Power-off switch	**17.** Charger plug cable	

5.2 MACHINE POSITIONS

The machine positions/states covered in this manual are stowed position, transport position, operating position, and non-operating position. Each position is described in detail below:

- **Stowed position:** the mast boom is fully retracted.
- **Transport position:** the mast boom is fully retracted.
- **Operating position (raised):** the mast boom is raised until it is disengaged from the proximity switch.
- **Non-operating position:** the mast boom is not disengaged from the proximity switch.

Note: When the mast boom is disengaged from the proximity switch, the platform height (from the ground to the platform floor) is 0.75 ± 0.05 m (29.5 ± 2 in).

5.3 PRE-START TEST

⚠ WARNING

If any damage, malfunction, or unauthorized modifications differing from the factory state are found with the machine, it should be immediately tagged and shut down. Report the fault to the relevant maintenance personnel and do not operate the machine until safe operation can be guaranteed.

The pre-start test must include the following:

1. Cleanliness – check all surfaces of the machine for leaks (hydraulic oil, battery electrolyte, etc.) or foreign objects.
2. Structure – check whether there are any abnormalities in the equipment structure, such as dents, damage, cracks in welds or structural components, severe rust, severe corrosion, etc.
3. Operation Manual and Maintenance Manual – ensure that the Operation Manual and Maintenance Manual are intact, easy to read, and stored in the manuals storage box on the platform.
4. Decals and nameplate – ensure that labels and the nameplate are in place, intact, accurately located and visible.

⚠ WARNING

Do not operate the machine if any label or nameplate is missing or worn.

5. Maintenance – ensure that maintenance has been completed on the machine in accordance with the maintenance inspection requirements specified in the Maintenance Manual.
6. Battery – charge the battery as required. The electrolyte level, if adjustable, must be kept at an appropriate height.
7. Hydraulic oil – check the hydraulic oil level. Add a suitable amount of hydraulic oil as needed.
8. Options/accessories – if the machine is equipped with any options/accessories, consult this manual and the supplemental manuals for options/accessories for inspection, operation and maintenance instructions.
9. Machine components – in addition to checking other stated items, check the following components to ensure that they are correctly installed and firmly attached without loose, missing or altered parts and visible damage, leakage or excessive wear, etc., and that all components are in their original positions and normal operating position.
    1) Platform assembly and gate – the platform extension (if equipped) shall extend and retract normally and be secured firmly; all wire rope safety pins (if equipped) for supporting the platform shall be installed properly.Ensure that the rope anchorage points are safe and reliable with only one person per anchorage point; make sure the latches and hinges are in normal working states, that the platform gate opens and closes properly, is not bent or damaged, and

that the surrounding area is free of obstacles. The gate should remain closed at all times, except for entering/exiting the platform and loading/unloading materials.

2) Ground controller and platform controller – ensure that all control switches are turned off, that joysticks are in the neutral position and can return to the neutral position after activated and released, and that all control markings are visible.
3) Mast boom assembly
4) Tire and wheel assembly – ensure that the tire and wheel assembly is firmly secured and wheel nuts are not loose or missing; check for worn tread, cuts, breakage or other abnormalities;
5) Drive machine or motor.
6) Brake device and brake release function.
7) Platform emergency lowering function.
8) Tire steering linkage and wheel carrier.
9) Pothole protective device – extend and retract normally.
10) Power unit, hydraulic cylinder, valve block, oil tank, hoses, pipe fittings and other hydraulic parts.
11) Electrical parts such as limit switches and wire harnesses.

NOTICE

Make sure to check the platform floor area, as inspection of this area may uncover conditions that could cause personal injury or machine damage.

5.4 FUNCTIONAL TEST

Before performing a functional test:

- Choose a firm, flat and level test area.
- Make sure the test area is free from obstructions.

⚠ WARNING

If any switch/handle returns to the neutral position but the corresponding movement does not stop, push in the emergency stop button to stop the machine.

NOTICE

While testing the platform lifting and lowering function, it's normal that, after the platform lifting or lowering movement stops, there has relative movement between two boom sections but the platform height remains unchanged.

Follow these steps to perform a functional test:

1. With no load on the working platform switch the ground/platform control selector switch of the ground controller to the ground control position, pull out the emergency stop button on the ground controller, and perform the following checks from the ground controller:

1) Make sure that the relevant indicator lights on the display illuminate, and that no error message is displayed during the entire functional test.
2) Make sure that when the emergency stop button is pressed, the controller is powered off, the machine cannot be started and no functions operate.
3) Activate any action switch without activating the enable switch – the corresponding function must not operate.
4) Activate the enable switch and any action switch at the same time, the corresponding function should operate normally. Release the switch/handle after one action is performed – the corresponding action should be stopped reliably and safely.

2. Switch the ground/platform control selector switch of the ground controller to the platform control position, pull out the emergency stop button on the ground controller and platform controller, and perform the following checks from the platform controller:

1) Make sure that when the emergency stop button at the platform controller is pressed, the platform controller is powered off, and no function can be activated from the platform controller.
2) Make sure that the horn sounds properly when the horn button is pressed.
3) Activate any action switch/handle without activating the enable switch – the corresponding function cannot be activated.
4) Activate the enable switch and any action switch/handle at the same time – the corresponding function should operate normally. Move the switch/handle to the neutral position after an action is performed – the corresponding action should stop reliably and safely.

   Note: After the travel function handle is activated, release the brake handle, the brake must be able to hold the machine on any slope within the maximum gradeability reliably without sliding.

5) In platform lift and lower mode, the joystick controls the platform lifting and lowering functions, while the travel and steer functions shall be disabled.
6) In drive and steer mode, the joystick controls travel and steer functions, while the platform lifting and lowering functions shall be disabled.
7) With the machine traveling in non-operating position without activating low-speed travel mode, after activating the travel function and pushing the joystick, the machine shall immediately enter high-speed travel status; push the joystick to the full drive position – the machine should reach the maximum travel speed.
8) With the machine in non-operating position, press the turtle speed button – the button shall illuminate and the machine shall switch to low-speed travel mode; pushing the joystick to the full drive position - the machine shall reach the maximum speed in low-speed travel mode (for platform controller with Turtle speed button).
9) With the machine traveling in non-operating position, push upward the high/low travel speed selector switch, the machine shall switch to low-speed travel mode; pushing the joystick to the full drive position - the machine shall reach the maximum speed in low-speed travel mode (for platform controller with high/low travel speed selector switch).
10) With the machine in operating position, the travel speed of the machine will be reduced to the elevated travel speed automatically.

5.5 INDOOR/OUTDOOR MODE VERIFICATION

The indoor or outdoor mode can be set on outdoor models. The maximum working height in different modes can be found in ***Technical Parameters*** section of this manual.

The selected indoor or outdoor mode will not change when the machine is turned off. When the machine is turned on, the previously selected mode is still selected. You have to check and confirm after each startup that the machine is in the correct mode, and change the operating mode corresponding with the working environment.

⚠ WARNING

The indoor mode must not be used in outdoor applications.

For indoor/outdoor mode setting method, please refer to ***Operation Instructions*** section.

6 CONTROLLERS AND INDICATORS

6.1 GROUND CONTROLLER

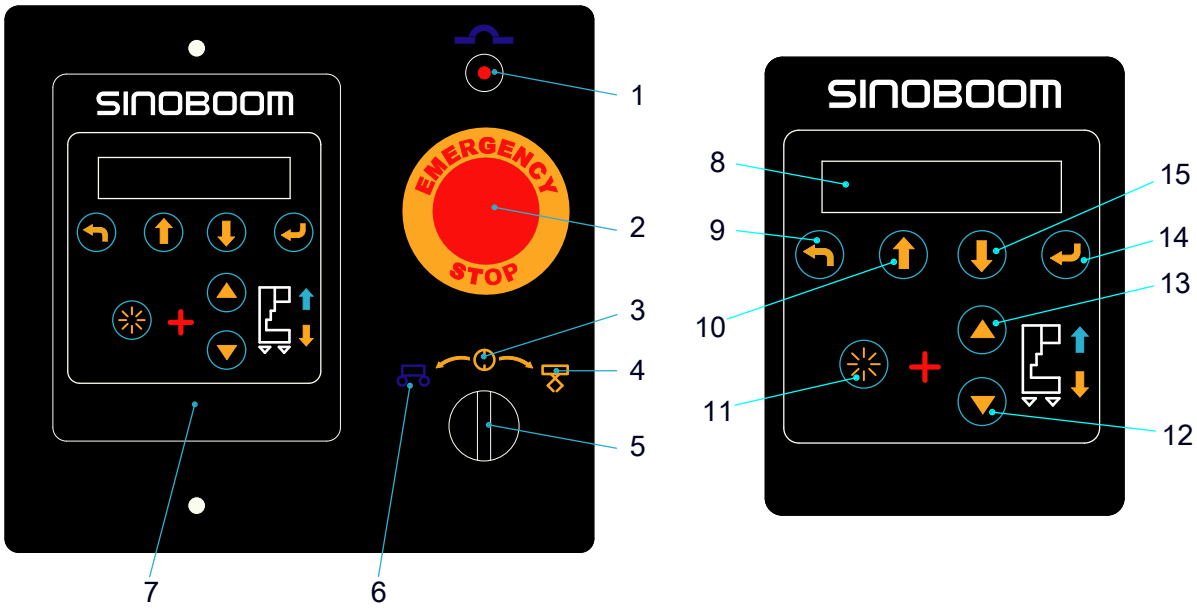

Fig. 1

Table 6-1

No.	Name	Description
1	Self-resetting fuse	Provides overcurrent protection
2	Emergency stop button	When pulled to the “ON” position the machine can be started normally; pushing the button to the “OFF” position will deactivate the controller, the machine cannot be started and no functions can be activated.
3	Neutral/OFF position	/
4	Platform control position	/
5	Key switch (ground/platform control selector switch)	Set the switch to neutral position: the machine will be powered off. Turn the switch to “platform control position”: all functions will be operative only at the platform controller; the ground controller will not work. Turn the switch to “ground control position”, and all functions will be operative only at the ground controller while the platform controller will not work.
6	Ground control position	/
7	Main controller	/
8	Ground display	ECU menu selection/setting interface

Table 6-1 (continued)

No.	Name	Description
9	Return key	Go to the previous interface of the ground display screen
10	Up arrow key	Scroll up the ground display screen
11	Enable key	Press and hold the Enable key; all functions will be enabled to operate.
12	Platform Down key	Control platform down function
13	Platform Up key	Control platform up function
14	Enter key	Enter the next interface of the ground display screen
15	Down arrow key	Scroll down the ground display

6.2 PLATFORM CONTROLLER (SINOBOOM CONTROL SYSTEM)

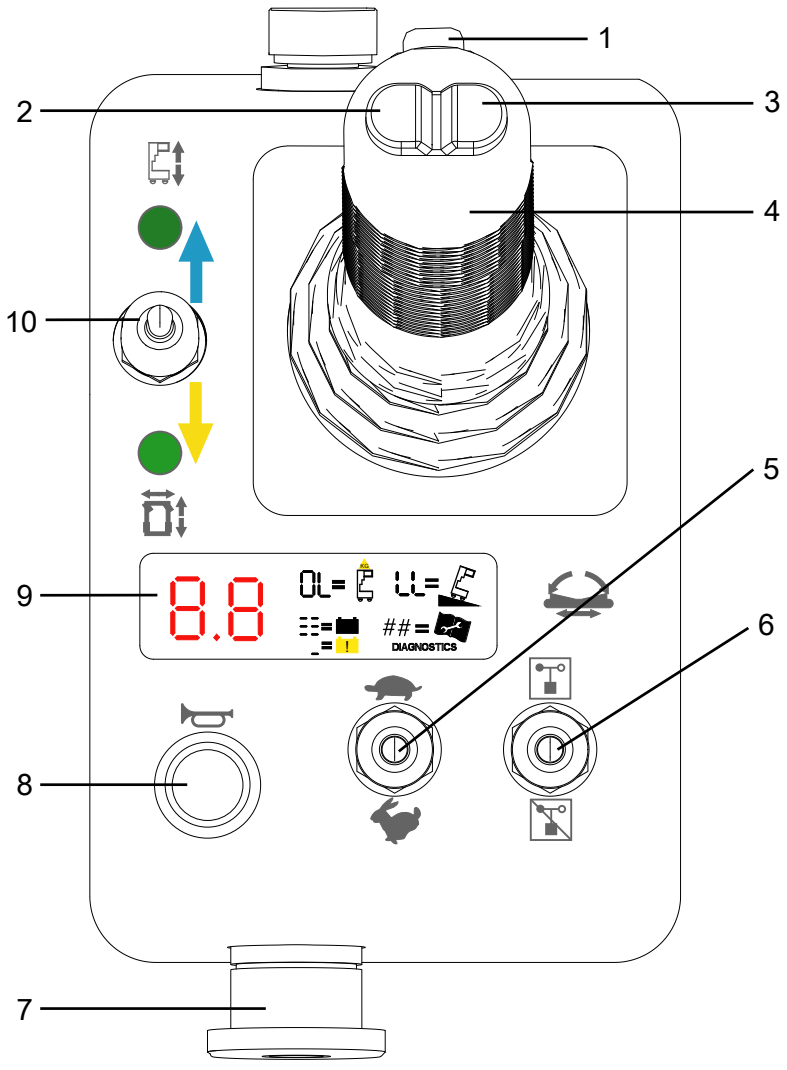

Fig. 2

Table 6-2

No.	Name	Description
1	Enable switch	Move and hold the switch – all functions will be enabled to operate.
2	Left turn thumb button	Press the button to steer the machine to the left.
3	Right turn thumb button	Press the button to steer the machine to the right.
4	Joystick	In platform lift and lower mode, pushing this joystick forward/back will raise/lower the platform; In drive and steer mode, pushing this joystick forward/back will drive forward/back.
5	High/low travel speed selector switch	Move the switch up to enable low travel speed mode.
6	Indoor/outdoor mode selector switch (if equipped)	Move the switch up to enable outdoor mode; Move the switch down to enable indoor mode.
7	Emergency stop button	Pull out the button to the ON position – the platform controller will function normally; press the button to the OFF position, the platform controller will be powered off and no function can be activated from the platform controller.
8	Horn button	Press the button to sound the horn.
9	Platform display	Display battery level, alarm message and fault codes.
10	Lift/drive and steer function enable switch	Move the switch up to enable platform lift/lower mode; Move the switch down to enable travel and steer mode.

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7 OPERATION INSTRUCTIONS

7.1 GENERAL

This mobile elevating work platform is used to transport tools to work locations and for performing tasks on the work platform. This machine has two control positions: ground control position and platform control position.

⚠ WARNING

- **Except in case of emergency, it is forbidden to perform operations from the ground if any person is still on the platform.**
- **If any switch/handle returns to the neutral position but the corresponding movement does not stop, push in the emergency stop button to stop the machine.**
- **The replacement joystick of the platform controller must be of the same brand as the original one, otherwise the machine functions may be impeded or accidents may occur.**

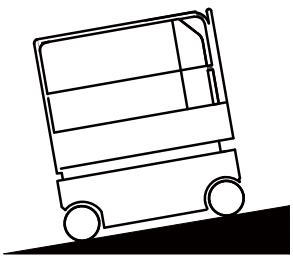
7.2 GRADEABILITY

Gradeability refers to the maximum allowable slope angle the machine can achieve on firm ground with sufficient traction, the platform in stowed position and occupied by only one person. Gradeability will decrease when the load on the platform increases.

⚠ WARNING

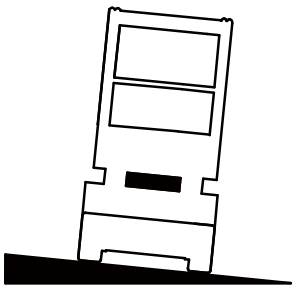
Do not drive the machine on slopes exceeding the machine's maximum gradeability.

The gradeability includes uphill/downhill as well as lateral slope capability. Uphill/downhill gradeability of this machine:



Uphill/downhill: 25 %/14 °

Lateral slope limit:



Lateral slope: 5%/3°

7.3 ACTIVATE THE MACHINE

NOTICE

Before activating the machine, make sure that:

- *The power switch is turned on.*
- *The lithium battery, if acting as the power source, is activated (refer to **Activate Lithium Battery**).*

Note: The first start must always be done from the ground control position.

Start machine from the ground

1. Turn the ground/platform control selector switch at the ground control position to the Ground control position.
2. Pull out the emergency stop button at the ground control position to the ON position.
3. The turntable screen will be turned on and should show no error message. All functions will be operative only at the ground control position; the platform control position will not work.

Start machine from the platform

1. Turn the ground/platform control selector switch at the ground control position to the platform control position.
2. Pull out the emergency stop button at the ground control position to the ON position.
3. Pull out the emergency stop button at the platform control position to the ON position.

⚠ WARNING

Before pulling out the emergency stop button at the platform controller, ensure the joystick is in the neutral position; if not, do not operate the machine.

4. The platform screen will be turned on and should show no error message. All functions will be operative only at the platform control position; the ground control position will not work.

7.4 CHARGING THE BATTERY

There are three types of batteries that may be used in this machine: Lead acid battery, maintenance-free lead acid battery, and lithium battery. The latter two types do not require maintenance.

The battery level must be checked before each operation.

When the battery level is too low, the low battery alarm will be displayed on the platform display screen, and the high travel speed will be reduced. Stop the machine immediately and fully charge the battery.

NOTICE

- *The machine is delivered with a battery level less than 80%, so it is recommended that the battery is fully charged once the machine has been delivered.*
- *The charging current must not exceed the maximum allowable charging current indicated on the battery.*
- *The charging voltage must not exceed the maximum allowable voltage indicated on the battery.*
- *The battery charging temperature range is -10 °C to 45 °C. If equipped with a charging heating system, the charging temperature range is -20 °C to 45 °C.*
- *Battery over-discharge (continued use of battery with levels of less than 10%) or battery under-voltage caused by long-term non-charging (battery with levels of less than 10% not charged for more than three days), resulting in battery capacity attenuation and failure, are not covered by the warranty.*
- *It is recommended not to use a lead acid battery with an ambient temperature below 0 °C; otherwise the battery capacity will decay rapidly, and battery life will be affected.*

Charging lead-acid (maintenance required) batteries

1. Checking the battery level.
   - Check the battery level on the screen of the platform controller. When the battery level is ≤20 %, the low battery alarm will be triggered and the battery needs to be charged immediately. To avoid affecting the normal performance of the machine it is recommended to charge the battery when the battery level is below 30 %.
   - As an alternative means of determining the battery status, open the cover on the battery and measure the density of the electrolyte. If the density of the electrolyte is less than 1.13 kg/l the battery has been over-discharged (discharge depth exceeds 80 %) and must be charged immediately. This should be avoided, as frequently over-discharging the battery will reduce its service life.

   NOTICE

   Measure the temperature of the electrolyte. If it exceeds 45 °C wait for the battery to cool before proceeding to the following steps.
2. Completely power off the machine.
3. Connect the plug between the battery and the charger cable. If the machine is equipped with an automatic liquid refilling system, ensure that the refilling pipe is connected.
4. Connect the battery charger to a grounded AC circuit. The indicator light will illuminate steadily once the battery is fully charged.
5. After charging is complete, disconnect the cable plug from the battery to the charger.

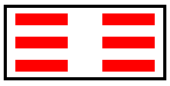
Charging maintenance-free batteries

1. Check the battery level on the screen of the platform controller. When the battery level is ≤20 %, the low battery alarm will be triggered and the battery needs to be charged immediately. To avoid affecting the normal performance of the machine it is recommended to charge the battery when the battery level is below 30 %.
2. Completely power off the machine.
3. Connect the battery charger to a grounded AC circuit. The indicator light will illuminate steadily once the battery is fully charged.
4. After charging is complete, disconnect the cable plug from the battery to the charger.

Description of Battery Level Indications

The battery level indication on the platform display is as follows:

Table 7-1

Platform battery level indication	State of charge	Description
	90-100 %	The battery has been fully charged.
	70 %	The battery is at 70 % of its capacity.
	50 %	The battery is at 50 % of its capacity.
	30 %	The battery is at 30 % of its capacity.
	20 %	The battery level is at 20 %, which is low. The battery should be charged immediately.
	10 %	The battery level is at 10 %, which is extremely low. The machine will move slowly. The battery should be charged immediately.

Charger LED Description

LED indicator light and digital display description:

Connect the charger to the battery and plug the charger to a standard power outlet; the charger will enter the charging mode. The following information will be displayed in sequence: AC XXX (the current AC input voltage), CPU X.XX (software version of the charger), b** (the current charging curve code).

Charging state indicator lights and digital display description:

- % (state of charge indicator light) represents the current state of charge in percent (%). For example: 10 20 30…100 (%).
- V (charge voltage indicator light) represents the current charge voltage, the number indicates the voltage value. For example: 24.0 (V).
- A (charge current indicator light) represents the current charge current, the number indicates the current value. For example: 36.0 (A).

7.5 ACTIVATE LITHIUM BATTERY

If your machine is equipped with a lithium battery, it may be needed to activate the battery when it has entered sleep mode.

The lithium battery will go into sleep mode under the following conditions:

- After pressing and holding the OFF key for 3 s, BMS detects 0 V voltage;
- When the machine has not been used for 72 hours (the discharge current has been lower than 10 A for 72 hours).
- When the state of charge (SOC) of lithium battery is between 5% and 10%, after the battery has operated for 5 minutes;
- When the SOC is less than 5%;
- When the lithium battery has the highest-level failure and output is prohibited.

To use the machine again, push the start switch of the lithium battery, or charge the battery.

NOTICE

- *When the SOC is between 5% and 10%, the lithium battery can be activated by pushing the start switch for several times until the SOC is lower than 5%;*
- *When the SOC is less than 5%, the lithium battery cannot be activated by pushing the start switch, and it must be connected to an external charger to get charged.*

7.6 INDOOR/OUTDOOR MODE SETTING

For machines with outdoor mode with limited height, you can set the machine to indoor/outdoor mode as per the instructions below. The maximum working height in different modes is different, as described in ***Technical Parameters*** section of this manual.

⚠ WARNING

The indoor mode must not be used in outdoor applications.

Note: The selected mode will not change when the machine is turned off. When the machine is turned on, the previously selected mode is still selected.

Sinoboom Control System

Indoor/outdoor mode selection

For models equipped with the indoor/outdoor mode selector switch on the platform controller, operate the switch to select indoor or outdoor mode:

- Move up the indoor/outdoor mode selector switch, the machine will be switched to outdoor mode.
- Move down the indoor/outdoor mode selector switch, the machine will be switched to indoor mode.

For models without indoor/outdoor mode selector switch, operate the ground controller to select indoor or outdoor mode: Select System Settings option on the ground controller display and then enter Indoor/Outdoor Mode screen to select desired mode.

Indoor mode setting

On the System Parameters screen of the ground controller display, the Indoor Continuous Lifting and Indoor Secondary Confirm options can be activated or deactivated to set up the lifting function for different working conditions in indoor mode.

If Indoor Secondary Confirm option is activated, the Indoor Continuous Lifting option will be deactivated automatically, so the indoor mode can be set up as follows:

- **Setting I:** Indoor Secondary Confirm activated but Indoor Continuous Lifting deactivated.
- **Setting II:** Indoor Secondary Confirm and Indoor Continuous Lifting deactivated.
- **Setting III:** Indoor Secondary Confirm deactivated but Indoor Continuous Lifting activated.

  Note: If the platform controller has no indoor/outdoor mode selector switch, the Indoor Secondary Confirm option can't be activated, and the Setting I is not available.

For different countries/regions, the available settings are as follows:

- **For China:** Default to Setting II, no other available settings.
- **US/Australia/EU:** Default to Setting I, Setting II and III available.
- **Korea/Japan/Abroad:** Default to Setting III, Setting I and II available.

  Note: The "Abroad" in Country Selection screen of Sinoboom control system refers to countries/regions except China, Korea, Japan, EU, US and Australia.

Indoor/outdoor mode operation

- After the outdoor mode is selected, the decimal point at the bottom right of the platform control screen will be off, and the platform can be lifted to its outdoor maximum height, with "Od" shown on the platform control screen.
- After the indoor mode is selected, the decimal point at the bottom right of the platform control screen will light up.
  - **In Setting I:** The platform will stop lifting when lifted to its outdoor maximum height, with "Id" shown on the platform control screen. Then, return the joystick to the neutral position and release the enable switch. Push the indoor/outdoor mode selector switch up to the outdoor mode and then down to the indoor mode. Hold the enable switch on the joystick and push the joystick forward. The platform will then continue to lift to its indoor maximum height.
  - **In Setting II:** The platform can be lifted to its maximum height in outdoor mode, with "Id" shown on the platform control screen. Then, return the joystick to the neutral position and release the enable switch. Hold the enable switch on the joystick and push the joystick forward. The platform will then continue to lift to its indoor maximum height.
  - **In Setting III:** The platform can be lifted to its indoor maximum height directly, with "Id" shown on the platform control screen.

7.7 LIFT AND LOWER THE PLATFORM

⚠ WARNING

If the tilt alarm is triggered, stop operation and fully lower the platform. Do not start operation again unless the tilt cause has been corrected.

NOTICE

This machine uses spiral coils for ground and platform communication cable, which, after stretched for a long time, will become less flexible. To facilitate the spiral coils returning to its specified position normally during platform lowering, if the machine has been in the operating position for more than 3h, the platform shall be lowered in stages, that is, wait 5 - 10 s for every lowering height of 1 m (3.3 ft). Make sure the boom is in stowed position when the machine is not in use.

Perform Operations on the Ground

1. **Raise the platform:** Press and hold the Enable key on the joystick and press the Platform Up key. The platform should rise and the pothole protective device should deploy.
2. **Lower the platform:** Press and hold the Enable key on the joystick and press the Platform Down

key. The platform should descend and the pothole protective device should retract.

Perform Operations on the Platform

- **Activate platform lift and lower mode - Sinoboom control system:** Move up the lift/drive & steer function enable switch, the indicator above the switch will illuminate, the machine will enter the platform lift and lower mode.

Note: When performing operation from the platform, the lifting speed of the platform is in direct proportion to the travel distance of the joystick. The shorter the travel distance, the slower the speed.

1. **Raise the platform:** Press and hold the enable switch on the joystick and push the joystick forward. The platform should rise and the pothole protective device should deploy.
2. **Lower the platform:** Press and hold the Enable switch on the joystick and pull the joystick back. The platform should descend and the pothole protective device should retract.

Note: While using the platform controller to lower the platform in the operating position, after the platform has reached the non-operating position, it will automatically stop lowering. The operator must restart the platform lowering function (release the joystick, return to the neutral position, and then turn the joystick again). The platform will continue to descend after 5 s.

7.8 TRAVELING

⚠ WARNING

- **The machine must not travel with the platform raised unless it is on a firm and flat surface without exceeding the maximum allowable climbing angle.**
- **The machine must not be driven on slopes, steps or arched surfaces that exceed the maximum gradeability of the machine.**
- **Extreme care must be taken when driving the machine in reverse or with the platform raised.**
- **When driving the machine in potentially dangerous situations such as driving on slopes or reversing, operate the handle in small increments to avoid danger due to excessive speed.**

Activate Drive and Steer Mode

- Sinoboom Control System: Move the lift/drive and steer function enable switch down, the indicator under the switch will illuminate. The machine will enter drive and steer mode.

Drive Forward and Reverse

Note: The travel speed is in direct proportion to the travel distance of the joystick. The shorter the travel distance, the slower the speed.

1. Activate the drive and steer mode.
2. **Driving forward:** Press and hold the enable switch on the joystick and push the joystick forward. The machine will move forward.
3. **Driving reverse:** Press and hold the enable switch on the joystick and pull the joystick back. The machine will move in reverse.
4. **Braking:** While the machine is traveling: when the joystick is released the machine should stop.

Steering While Traveling

1. Activate the drive and steer mode.
2. **Steer left:** Press and hold the Enable switch on the joystick, push the joystick forward and press the left button on the top of the joystick with your thumb – the machine will steer left.
3. **Steer right:** Press and hold the Enable switch on the joystick, push the joystick forward and press the right button on the top of the joystick with your thumb – the machine will steer right.

Travel on Slopes

⚠ WARNING

The machine must not be driven on slopes, steps or arched surfaces that exceed the maximum gradeability of the machine.

Before traveling on a slope, please determine:

1. The machine's maximum gradeability.
2. The slope grade. To determine the slope grade:
   - Use a suitable carpenter's ruler, a straight piece of wood and a tape measure.
   - Measure the height (H) and length (L) of the slope.

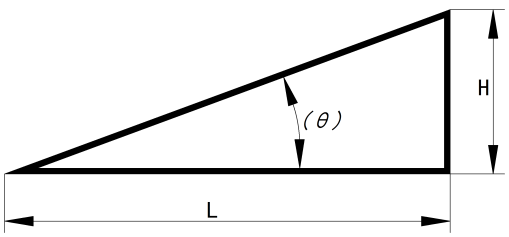


Fig. 1

- Slope grade= H/L x 100%.

⚠ WARNING

Do not drive the machine on the maximum permissible slope for more than 2 minutes to avoid overheating the drive motor.

High and Low Travel Speed Switching

⚠ WARNING

- **In a tilted condition the machine must be driven at low speed.**
- **Before traveling at high speeds, make sure to first observe whether the surrounding environment is safe. Otherwise, it is possible that collisions and other hazards may occur with obstacles or other people.**

Sinoboom control system:

1. With the machine traveling in non-operating position, push up the high/low travel speed selector switch, the indicator will illuminate, and the travel speed will be switched to low speed.

NOTICE

With the machine in non-operating position and the high/low travel speed selector switch in neutral or lower position, activate the travel function and push the joystick, the machine will start to travel at high speed immediately, and pushing the joystick to full drive position will bring the machine to the maximum travel speed.

2. With the machine in operating position, the travel speed of the machine will be reduced to the elevated travel speed automatically.

7.9 EXTEND AND RETRACT PLATFORM

⚠ WARNING

- **While extending or retracting the platform, do not stand on the platform extension.**
- **Do not lower the platform if the platform extension has not been fully retracted.**
- **The platform extension can be secured in three slots. Do not work on the platform extension while it has not been secured.**

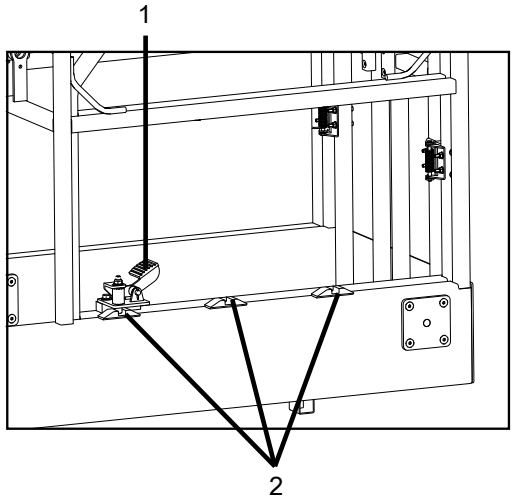


Fig. 2

Extend the platform:

1. Depress the pedal #1, grasp and push the guardrail of the platform extension to extend the platform extension.
2. Release the pedal #1, and insert the platform extension end into the slot #2 to secure it.

Retract the platform:

1. Depress the pedal #1, grasp and pull the guardrail of the platform extension back to retract the platform extension.
2. Release the pedal #1, and insert the platform extension end into the slot #2 to secure it.

7.10 TURNING OFF AND STOPPING

1. Park the machine on a firm, flat, and level surface, and make sure the area is adequately protected.

2. Make sure that platform has been completely lowered, and remove all loads from the platform.
3. Press the emergency stop buttons on the ground controller and platform controller, turn the ground/platform control selector switch to the Neutral position, and remove the key (if equipped).
4. Close the platform controller guard to protect the platform controller and its handles, switches and panels from damage by harsh environments.
5. If the machine will not be used for a prolonged period of time, press the power-off switch to OFF or pull out the power-off handle.
6. Make sure that all panels and gates are closed and secured.

7.11 TRANSPORT AND LIFTING

The mobile elevating work platform is a non-road vehicle and is not licensed for on-road use, so the machine needs to be transported and transferred by road, railway or waterway.

⚠ WARNING

Only qualified individuals may drive the machine onto or from the transport vehicle.

Before transporting and lifting the machine:

1. Determine the total weight of the machine (see machine nameplate or ***Technical Parameters*** section of this manual) and select the appropriate lifting equipment, rigging equipment, and transport vehicle.
2. Make sure that the machine is in transport position, the machine has no loose or unfixed parts, and that no people or any tools are on the platform.
3. Ensure that the machine lifting points/rigging equipment lashing points and their rigging equipment are intact and that the belt or rope to be used has sufficient load strength.
4. Before loading/unloading the machine, ensure that the transport vehicle is parked on level ground and that the ramp used for driving the machine onto the transport vehicle does not exceed the maximum gradeability of the machine.
5. When loading/unloading the machine, the transport vehicle must be secured to prevent it from moving.
6. The wheels should be locked after the machine is loaded to prevent it from moving.
7. Before releasing the brake, the machine must be parked on a horizontal surface or secured.
8. The machine may only be lifted from a specific position with a forklift or crane with sufficient lifting capacity. Care should be taken to prevent the machine from colliding with surrounding objects.

Transport

1. Adjust the machine to the transport position.
2. On the ground controller, switch the “ground/platform control selector switch” to “neutral” position, and remove the key (if equipped).
3. Use at least 2 ropes or belts at the lashing points shown in the figure below to securely fix the chassis to the transport vehicle, and take appropriate safety protection measures.
4. Adjust the rigging appropriately to prevent damage to the rope or belt.

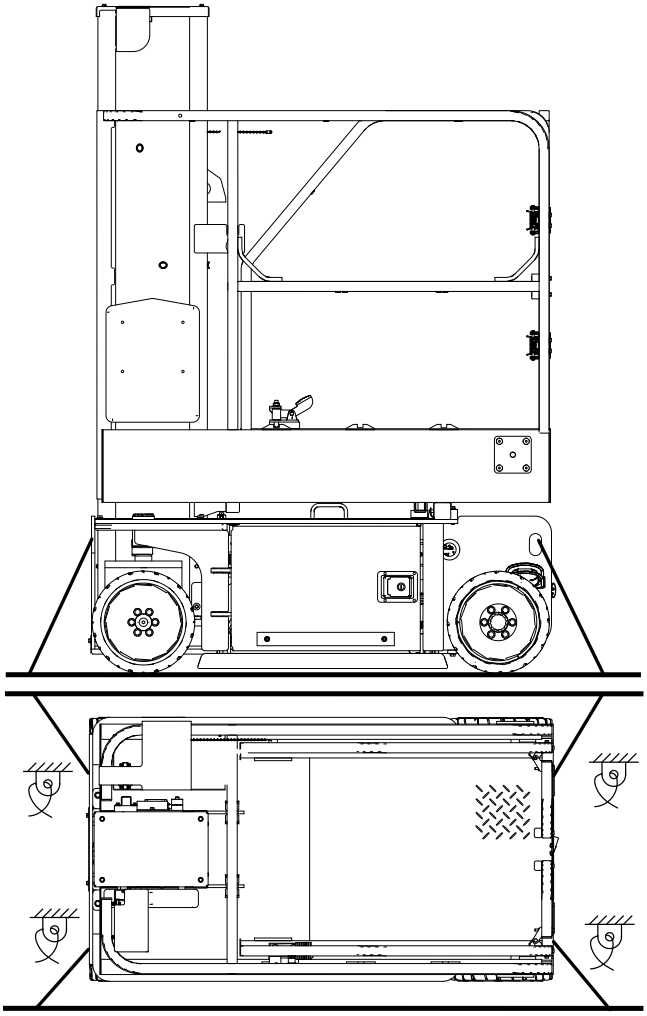


Fig. 3 Transport Diagram

Lifting

1. Determine the center of gravity of the machine.
2. The rigging equipment must be attached to the machine's specified lifting point.
3. Adjust the rigging equipment properly to avoid damage to the machine and keep the machine level.

X=417 mm (16.4 in) Y=510 mm (20.1 in)

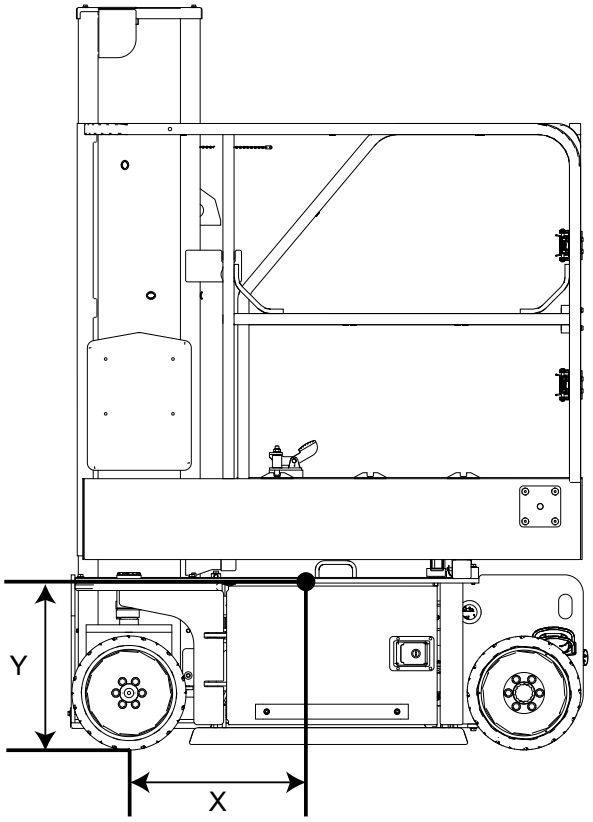


Fig. 4 Diagram of Center of Gravity

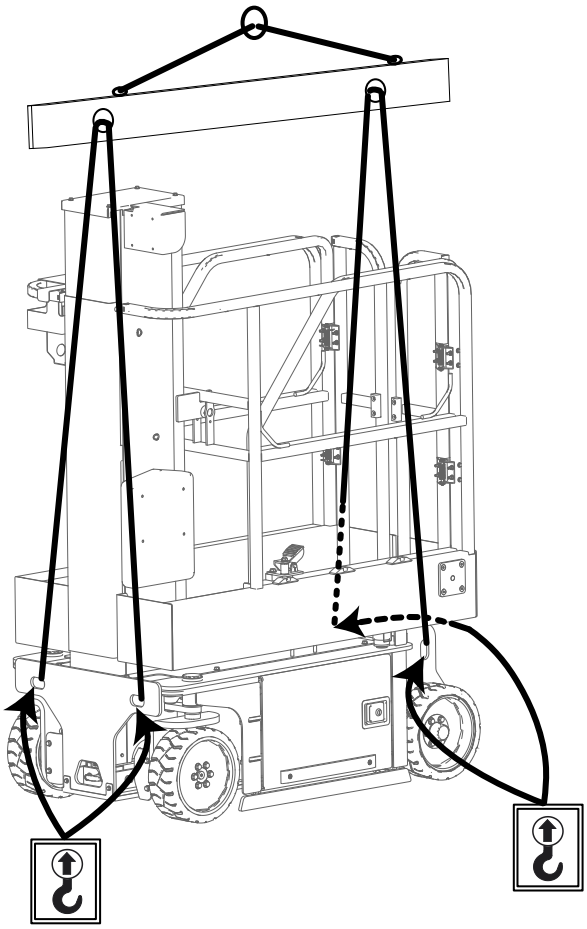


Fig. 5 Diagram of Lifting with Rigging Equipment

A forklift may be used to lift the machine.

1. Align the forklift forks to the positions indicated by the arrows in the diagram below.
2. Drive the forklift forward to fully insert the forks into the pockets.
3. Lift the machine by 0.4 m (16 in) and then tilt the forks backward slightly to keep the machine stable.
4. Keep the machine horizontal when lowering the fork frame.

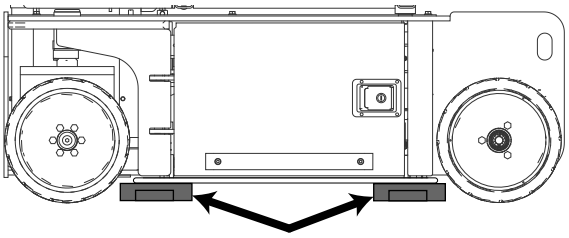


Fig. 6 Diagram of lifting with forklift

7.12 STORAGE

Mobile elevating work platforms should be stored in places that are protected from rain, humidity, sunlight, or corrosive gases, and that have good ventilation.

In order to ensure the machine can be operated normally after prolonged storage the following measures should be taken when storing the machine:

1. Lower the platform to the stowed position.
2. Press the emergency stop buttons on the ground controller and platform controller, turn the ground/platform control selector switch to the Neutral position, and remove the key (if equipped).
3. Press the power switch/pull out the power handle.
4. Chock the wheels.
5. Wipe off all dust and oil from the machine to keep it clean.
6. Apply lubricating oil to parts prone to corrosion.
7. When long-term storage is required, the hydraulic oil should be drained, the positive pole and negative pole of the battery should be disconnected, and insulation protection measures shall be taken.
8. Close and lock all panels and gate locks on the machine.
9. For a machine stored for more than three months, idle the machine every three months for not less than one hour each time, and clean and maintain the machine.
10. For a machine stored for more than one and a half years, a comprehensive inspection and maintenance on the machine should be carried out before use, aging seals and filter elements should be replaced as appropriate.

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8 EMERGENCY PROCEDURES

This chapter describes the steps to follow in the event of unexpected situations during operation.

8.1 REPORTING ACCIDENTS

In case of any accident involving Hunan Sinoboom Intelligent Equipment Co., Ltd. products, Hunan Sinoboom Intelligent Equipment Co., Ltd. must be notified immediately. In case of any accident involving the machinery of Hunan Sinoboom Intelligent Equipment Co., Ltd., notify Hunan Sinoboom Intelligent Equipment Co., Ltd. by telephone immediately and provide all necessary details, even if the accident did not cause personal injury or property damage.

Failure to notify the manufacturer within 48 hours of the incident involving the machinery of Hunan Sinoboom Intelligent Equipment Co., Ltd. may void the product warranty.

NOTICE

Thoroughly inspect the machine and all its functions after any accident. First, test all functions from the ground controller, then from the platform controller. Ensure the machine's lifting height does not exceed 3 m (10 ft) until all damage has been repaired and all controllers operate properly.

8.2 EMERGENCY OPERATION

When the operator is unable to control the machine (squeezed or trapped on the platform):

1. Other personnel can only operate the machine with the ground controller according to the operation requirements.
2. Other qualified operation personnel on the platform can operate the platform controller. If the controller is not working properly, do not continue to operate.
3. Hoists, forklifts or other equipment that meet the requirements of use can be used to transport people on the platform and stabilize the movement of the machine.

When the platform is stuck at height:

If the platform is stuck or blocked by high buildings or aerial equipment, rescue the operator on the platform first and then get the machine out.

If any switch is reset but the movement does not stop:

If any switch/handle returns to the neutral position but the corresponding movement does not stop, push in the emergency stop button to stop the machine.

8.3 EMERGENCY LOWERING

When the power source fails, the emergency lowering handle can be used as appropriate to lower the platform into place. Correct steps for its application are as follows:

1. Locate the emergency lowering handle (near the decal of emergency lowering) located at the front of the chassis.
2. Pull out the emergency lowering handle slowly to lower the platform.

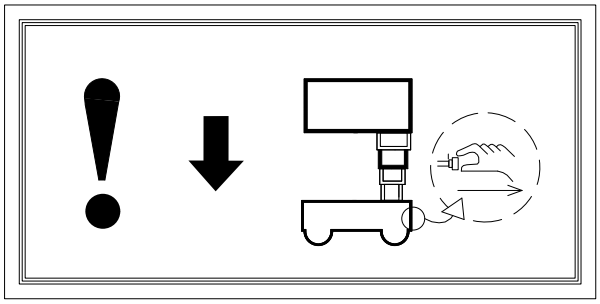


Fig. 1 Decal of Emergency Lowering

8.4 EMERGENCY TOWING

⚠ WARNING

- **Except in case of emergency situations, machine malfunction, power loss or loading/unloading, it is strictly prohibited to tow or drag the machine.**
- **When towing or dragging the machine, comply with local policies and road traffic regulations.**
- **Towing the machine on public highways is prohibited.**
- **The machine is not equipped with a brake for towing control, so the towing vehicle must be able to control the machine at all times, otherwise the machine may lose control, resulting in serious injury or death.**
- **The maximum permissible towing speed is 3 km/h (1.9 mph).**
- **The maximum permissible towing gradient is 25 %.**
- **The machine must not be towed/dragged when the brake has not been released or the machine is started.**
- **Before the brake is released, the machine must be parked on a horizontal surface or secured.**

Method 1:

Fig. 2

Table 8-1

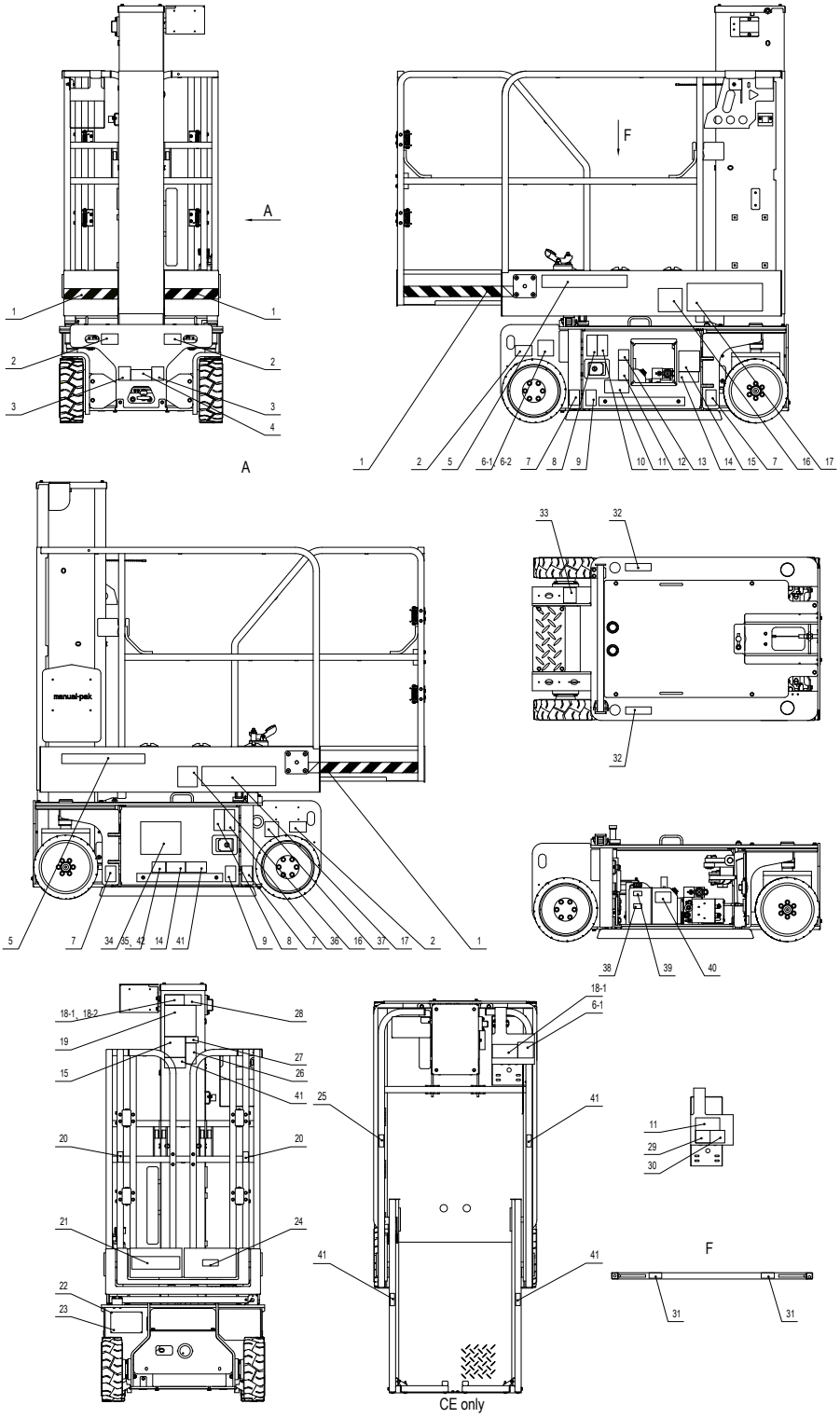
No.	Name
1	Brake (including release screw #3)
2	Brake hood
3	Release screw

1. Place the machine on solid level ground and secure the wheels with chocks to prevent the machine from moving inadvertently.
2. Make sure that the machine is in stowed without loose or unsecured objects, and there are no people or tools in the platform and no obstacles in the surrounding area.
3. Open the brake hood #2.
4. Tighten release screw #3, the brake is separated, the brake is released, the machine can be towed or dragged by an external force.
5. After towing, place the machine on firm, level ground and secure the wheels with chocks to prevent the machine from moving.
6. Loosen release screw #3 to the original position, and re-install the hood.

Method 2 (for Sinoboom Control System):

1. Place the machine on firm, level ground and secure the wheels with chocks to prevent the machine from moving.
2. Make sure that the machine is stowed and has no loose or unfixed parts, and there are no people or tools in the platform and no obstacles in the surrounding passage.
3. Pull out the emergency stop button at the ground controller to the ON position.
4. Turn the key switch to the ground control position.
5. Press the Enter key to enter the ECU menu selection mode.
6. Press the Page Down key until the screen shows “System Setting”, then press the Enter key.
7. Press the Page Down key until the screen shows “Brake Release”, and then press and hold the Enter key for 5 s.
8. The buzzer will sound, and the message “Brake Is Released” will be shown on the display, indicating that the brakes were released successfully.
9. The machine may then be towed or dragged by an external force.
10. After towing, place the machine on firm, level ground and secure the wheels with chocks to prevent the machine from moving.
11. Turn on the machine, so the brake can be operated properly.

9 DECALS DIAGRAM



No.	ANSI & CSA	CE-Imperial	CE-Metric	Description	Quan-tity
	110005100012	110005100010	110005100011	General decals diagram	1
1	216060000004	216060000004	216060000004	Yellow and black striped hazard warning tape, 50 mm (2 in) wide	2
2	101079103010	101079103010	101079103010	Decal – Lifting point and lashing point	4
3	110002100010	110002100010	110002100010	Decal - Release brake	2
4	110001100003	110001100003	110001100003	Decal - Emergency lowering	1
5	101040103021	101040103021	101040103021	LOGO SINOBOOM	2
6–1	/	104011100016	104011100016	Decal – Emergency stop button	2
6–2	104011100016	/	/	Decal – Emergency stop button	1
7	110002100020	110002100013	110002100013	Decal - Tire ground load	4
8	101038100008	101038100008	101038100008	Decal - No smoking or fire	2
9	101014100013	101014100013	101014100013	Decal – Crushing hazard	2
10	101038100002	101038100002	101038100002	Decal - High pressure hazard	1
12	101040100002	101040100002	101040100002	Decal – Refer to the manuals	1
13	110001100008	110001100008	110001100008	Decal - Lifting point	1
14	101012100008	101012100008	101012100008	Decal – Tipping hazard	2
15	110002100026	110001100010	110001100010	Decal – Electrocution hazard	2
16	103010103017	/	/	Decal – Lead-acid battery (small)	2
17	110005100002	110005100002	110005100001	Decal – Trade name	2
18-1	/	101040100005	101040100005	Decal – Refer to the manuals	2
18-2	101040100005	/	/	Decal – Refer to the manuals	1
19	110005100005	110005100003	110005100003	Decal - Requirements of use	1
20	110005100009	110005100009	110005100009	Decal – Crushing hazard	2
21	110005100006	110005100004	110005100004	Decal - Requirements of use	1
22	215050000012	215050000012	215050000012	Blind rivet 4×8-ZnD GB/T 12618.2	4
23	110002100017	110002100025	110002100025	Nameplate	1
24	101040103015	/	/	Decal – Annual inspection date	1
25	110002100024	110002100024	110002100024	Decal – Tipping hazard	2
26	110002100023	/	/	Decal - Operation instructions	1
27	103010103014	/	/	Decal – Non-insulated	1
28	101040100009	101040100009	101040100009	Decal – Tipping hazard	1
29	101040103014	/	/	Decal - Detachable joystick bracket	1
30	101055103015	/	/	Decal – Emergency stop button	1
31	103006103014	103006103014	103006103014	Decal – Anchorage point	4
32	101014100032	101014100032	101014100032	Decal - Machine serial number	2
33	110002100014	110002100014	110002100014	Decal – Platform power plug	1
34	101040103023	101040103023	101040103023	Decal - Large logo in white	1

No.	ANSI & CSA	CE-Imperial	CE-Metric	Description	Quan-tity
35	101040103020	/	/	Decal – Tipping hazard	1
36	101038100007	101038100007	101038100007	Decal – Electrocution hazard	1
37	110005100008	110005100007	110005100007	Decal – Charging voltage and current	1
38	104011100003	104011100003	104011100003	Decal – Hydraulic oil level	1
39	104011100010	104011100010	104011100010	Decal – Hydraulic oil level	1
40	101014100022	101014100022	101014100022	Decal - Hydraulic oil filler	1
41	/	101089100019	101089100019	Decal – Handle hold position	4
42	/	101040103018	101040103018	Decal – Battery weight 66 kg (146 lb)	1

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10 MAINTENANCE

This chapter provides the operator with additional information needed to properly operate and maintain the machine, and is only intended to assist the operator in performing routine maintenance tasks. For more comprehensive maintenance instructions, please refer to the ***Inspection and Preventive Maintenance Schedule*** and the Maintenance Manual.

10.1 OIL SPECIFICATIONS

NOTICE

- *Please choose suitable oil according to the ambient temperature and local regulations; the use of unsuitable oil will damage the machine components.*
- *Oils of different grades or viscosities should not be mixed. When refilling oil, the oil being added must be of the same grade and viscosity as that of the oil currently in use in the machine.*
- *The oil recommendations in this manual are for general operating conditions. For special environments or special operating requirements please contact Sinoboom for special oil.*

⚠ WARNING

- **Before refilling oil, wait until the temperature of the machine drops to room temperature, otherwise it may cause splashes, burns or other personal injury.**
- **The use of inferior oils is strictly prohibited. Using inferior oil may damage the machine, and faults caused by this are not covered by Sinoboom's warranty.**

Hydraulic Oil

Factory-filled hydraulic oil is usually based on the ambient temperature of the delivery place or as specified by customers. If the factory-filled hydraulic oil is not applicable for the machine operating environments, change to other hydraulic oil suitable for actual operating environment. The following table shows the recommended hydraulic oil grade for different ambient temperature ranges:

Table 10-1

Ambient temperature range	Hydraulic oil grade
> 40℃ (104℉)	Sinopec HM-68
0℃ – 40℃ (32℉ – 104℉)	Sinopec HM-46
-15℃ – 25℃ (5℉ – 77℉)	Sinopec HV-32
-22℃ – 25℃ (-7.6℉ – 77℉)	Sinopec L-HS32
< -22℃ (-7.6℉)	Sinopec AE-VX

10.2 TIRE ASSEMBLY

Check Tires and Rims

Maintaining the tires and rims is essential for the normal and safe operation of the machine. The machine may tip over if a tire or a rim fails, so check the tires and rims each time before operating the machine and repair defective tires and rims in a timely fashion.

This machine is equipped with solid tires that do not need to be inflated.

- Check each tire for cuts, cracks, punctures and abnormal wear. Replace the tire if necessary.
- Check each rim for damage, deformation or cracked welds. Replace the rim if necessary.

Check Wheel Nuts

The wheel nuts should be tightened before the machine is put into service for the first time and after each tire is removed. Check and tighten the wheel nuts to the specified torque every 3 months or 250 operating hours.

Replacement Requirements

⚠ WARNING

- **The tires and rims on the machine have been designed and selected according to the overall performance and load stability requirements of the machine. Therefore, the model specifications, rim width, installation center surface, diameter, etc. must not be changed, otherwise this could lead to an unstable and hazardous condition.**
- **Wheel-specific nuts must be used that match the wheel bolts. The wheel nuts must be installed and maintained with the proper tightening torque to prevent loose rims, broken bolts and wheels loosening from the axle. Be sure to only use nuts that match the mounting angle of the rim holes.**

Hunan Sinoboom Intelligent Equipment Co., Ltd. recommends the replacement tire be of the same size, ply rating and brand as the original tire. For the tire part numbers of specific machine models, please refer to the Parts Manual of the corresponding machine. If you choose not to use the replacement tires recommended by Hunan Sinoboom Intelligent Equipment Co., Ltd., the following specifications should be adhered to:

- The ply rating/rated load capacity and size should be the same as the original tire or superior to it.
- The tire tread contact width should be the same as or superior to the original tire.
- The wheel diameter, width and offset dimensions must be the same as the original tires.
- The replacement tire must be approved for the application by the tire manufacturer (including intended purpose, maximum travel speed, maximum tire load, etc.).
- Due to size differences between different tire brands, both tires on the same axle should be of the same brand.

NOTICE

Unless specifically approved by Sinoboom, do not replace foam-filled tires with pneumatic tires.

Replace Tire and Wheel Assembly

⚠ WARNING

Tighten the wheel nuts to the specified torque to prevent the wheel from loosening. Use a torque wrench to tighten the nuts. If no torque wrench is available use a socket wrench to tighten the nuts and then immediately have a service station or dealer tighten the nuts to the specified torque. Over-tightening will cause the nuts to break or permanently deform the bolt holes in the rims.

The correct steps to replace a tire and wheel assembly are as follows:

1. Make sure the machine is in stowed position.
2. Press the main power switch/pull out the main power handle and disconnect all power sources (such as battery charger) from the machine.
3. Use a jack with sufficient load capacity to lift the machine to the appropriate height so that the wheel assembly is off the ground.
4. Use suitable lifting equipment to safely support the tire and wheel assembly.
5. Remove the fasteners alternately, and then remove the wheel.
6. Align the mounting holes on the new wheel with the wheel mounting holes on the chassis, fit the flat surface of the gasket to the mounting surface (if gaskets are used). After applying Loctite 272 threadlocking adhesive to the bolts, install the bolts in sequence, and tighten the bolts diagonally to the torque specified in ***Torque Specifications*** .
7. Remove the jack as needed after installation.

10.3 INSPECTION AND PREVENTIVE MAINTENANCE SCHEDULE

This section provides safety and other vital information for machine operators. To extend the service life of the machine and ensure safe operation, all necessary inspections and maintenance work must be completed before the machine is put into service.

It is crucial to develop and adhere to a comprehensive inspection and preventive maintenance program. This manual outlines the regular inspections and maintenance procedures recommended by Hunan Sinoboom Intelligent Co., Ltd. Consult your national, regional or local regulations for aerial work platforms. The frequency of the inspection and maintenance must be increased as required by environmental conditions, requirements and frequency of usage.

Pre-delivery Inspection

The pre-delivery inspection shall be performed by qualified Sinoboom technicians.

A pre-delivery inspection shall be performed before each sale, lease or rental delivery.

Refer to the ***Inspection and Preventive Maintenance Schedule*** for items requiring a pre-delivery inspection. Refer to the corresponding section of this manual to perform inspection and maintenance procedures.

Pre-operation Inspection

A pre-operation inspection must be performed before each start or restart of work, change of operator, and after each maintenance operation. Refer to the pre-operation inspection section of the Operation Manual for detailed information. The Operation Manual must be entirely read and understood before performing the pre-operation inspection.

Regular Inspections

Regular inspections shall be performed by qualified Sinoboom technicians.

Regular inspections must be performed after the machine has been in service for 3 months or 250 hours, whichever comes first, or if it has been out of service for more than 3 months. The frequency of the inspection and maintenance must be increased as required by environmental conditions, requirements and frequency of usage.

The items included in the regular inspections are identical to the pre-delivery inspection.

Annual Inspection

An annual machine inspection must be performed once a year and no later than 13 months from the date of the previous annual inspection. Hunan Sinoboom Intelligent Equipment Co., Ltd. recommends this task be performed by a factory-trained service technician, a person recognized by Sinoboom as one who, by qualification, certificate and training, has successfully demonstrated the ability and proficiency to service, repair and maintain the Sinoboom model in question.

Refer to the ***Inspection and Preventive Maintenance Schedule*** for items requiring annual inspection, and refer to the corresponding section of this manual to perform inspection and maintenance procedures.

Preventive Maintenance

Preventive maintenance procedures shall be performed by qualified Sinoboom technicians. The frequency of the inspection and maintenance must be increased as required by environmental conditions, requirements and frequency of usage.

Refer to the ***Inspection and Preventive Maintenance Schedule*** for items requiring a preventive maintenance. Refer to the corresponding section of this manual to perform inspection and maintenance procedures.

Responsible Persons and Qualifications for Performing Inspection and Maintenance

Table 10-2

Inspection Type	Inspection Frequency	Primary Responsible Persons	Service Qualifications
Pre-operation Inspection	Before starting/restarting work, change of user, after each maintenance activity.	User or operator	Properly trained user or operator
Pre-delivery Inspection	Before each sale, lease or rental delivery	Owner, dealer or user	Qualified Sinoboom technician
Regular Inspections	In service for 3 months or 250 hours (whichever comes first) or out of service for more than 3 months	Owner, dealer or user	Qualified Sinoboom technician

Table 10-2 (continued)

Inspection Type	Inspection Frequency	Primary Responsible Persons	Service Qualifications
Annual Inspection	Once a year and no later than 13 months from the date of the previous annual inspection	Owner, dealer or user	Factory-trained service technician
Preventive Maintenance	At intervals specified in the ***Inspection and Preventive Maintenance Schedule***	Owner, dealer or user	Qualified Sinoboom technician

Inspection and Preventive Maintenance Schedule

Perform inspection and preventive maintenance for the items in the table below at the specified intervals. Maintenance and inspection intervals are calculated based on the months of service or the “accumulated operating hours” (cumulative working time) displayed on the ground controls (whichever comes first).

Inspection intervals are based on the use of the machine under normal operating conditions. The intervals should be shortened accordingly when operating in harsh environmental conditions.

Table 10-3 Inspection and Preventive Maintenance Schedule

Item	Interval		
	Before each delivery[1] or quarterly[2]	Semiannually[3]	Annually[4]
Platform assembly			
Platform	1	1	1
Guardrails and floor	2	2	2
Access gate	1, 2, 3	1, 2, 3	1, 2, 3
Platform fasteners	1, 2	1, 2	1, 2
Safety belt anchorage point	1, 2, 7	1, 2, 7	1, 2, 7
Mast boom assembly			
Mast boom weldment	1, 2	1, 2	1, 2
Wear pads	1, 2, 5, 12	1, 2, 5, 12	1, 2, 5, 12
Bearings	1, 2, 5, 12	1, 2, 5, 12	1, 2, 5, 12
Fasteners	1, 2	1, 2	1, 2
Chassis assembly			
Chassis	2	2	2
Tires	1, 2	1, 2	1, 2
Wheel nuts	1[50]	1[50]	1[50]
Traveling and steering components	1, 2, 5	1, 2, 5	1, 2, 5
Bearings	1, 2, 5, 12	1, 2, 5, 12	1, 2, 5
Left compartment, right compartment	1, 2, 3	1, 2, 3	1, 2, 3

Table 10-3 Inspection and Preventive Maintenance Schedule (continued)

Item	Interval		
	Before each delivery[1] or quarterly[2]	Semiannually[3]	Annually[4]
Drive or drive motor	1, 5, 6	1, 5, 6	1, 5, 6
Brake and brake release device	1, 5, 6	1, 5, 6	1, 5, 6
Lift motor	1, 2, 3, 6	1, 2, 3, 6, 13	1, 2, 3, 6, 13
Gear pump	1, 2, 3, 6	1, 2, 3, 6	1, 2, 3, 6
Safety strut	1, 2, 3	1, 2, 3	1, 2, 3
Hydraulic system			
Hydraulic pump	1, 2, 3, 6	1, 2, 3, 6	1, 2, 3, 6
Hydraulic cylinder	1, 2, 3, 5, 6	1, 2, 3, 5, 6	1, 2, 3, 5, 6
Hydraulic valves	1, 2, 3, 5, 6	1, 2, 3, 5, 6	1, 2, 3, 5, 6
Hydraulic hoses, pipes and fitting	1, 2, 6	1, 2, 6	1, 2, 6
Hydraulic tank and vent	1, 2, 3, 5, 6	1, 2, 3, 5, 6	1, 2, 3, 5, 6
Hydraulic oil filter	1, 5, 6	1, 5, 6	1, 5, 6, 11
Hydraulic oil	5, 6	5, 6	5, 6, 11
Electrical system			
Electrical harness, connectors	1, 2	1, 2	1, 2
Battery	1, 2, 6, 9, 12	1, 2, 6, 9, 12	1, 2, 6, 9, 12
Electrolyte	6	6	6
Charging function	3	3	3
Instruments, gauges, switches, lamps, horn	1, 3	1, 3	1, 3
Functions and controls			
Platform controller	1, 3, 4, 7, 10	1, 3, 4, 7, 10	1, 3, 4, 7, 10
Ground controller	1, 3, 4, 7, 10	1, 3, 4, 7, 10	1, 3, 4, 7, 10
Function control lock, secondary guarding device and brake	1, 3, 10	1, 3, 10	1, 3, 10
Emergency stop button (ground and platform)	1, 3, 10	1, 3, 10	1, 3, 10
Limit switches and power switch	1, 3, 10	1, 3, 10	1, 3, 10
Tilt alarm	1, 3, 10	1, 3, 10	1, 3, 10
Pothole protection device	1, 3, 10	1, 3, 10	1, 3, 10
Emergency lowering device	1, 3, 10	1, 3, 10	1, 3, 10
Overload limit function	1, 3, 10	1, 3, 10	1, 3, 10
Staged lowering function	1, 3, 10	1, 3, 10	1, 3, 10
Drive function	1, 3, 10	1, 3, 10	1, 3, 10

Table 10-3 Inspection and Preventive Maintenance Schedule (continued)

Item	Interval		
	Before each delivery[1] or quarterly[2]	Semiannually[3]	Annually[4]
Brake function	1, 3, 10	1, 3, 10	1, 3, 10
Other			
Operation Manual in the manuals compartment	10	10	10
All decals/labels complete, clear and secure	10	10	10
Annual inspection date of the machine	/	/	10
No unapproved changes or additions	10	10	10
All safety publications taken into account	10	10	10
General structural components and weldments	2	2	2
All fasteners, pins, protective guards and covers	1, 2	1, 2	1, 2
Greasing and lubricating according to specifications	10	10	10
Functional test of all systems	10	10	10
Paint and appearance	5	5	5
Inspection date stamped on the chassis	/	/	10
Notify Sinoboom of machine ownership (change)	/	/	10

Table 10-3 Inspection and Preventive Maintenance Schedule (continued)

Item	Interval		
	Before each delivery[1]or quarterly[2]	Semiannually[3]	Annually[4]
Note: [1] Before each sale, lease or shipment delivery; [2] In service for 3 months or 250 hours; or out of service for more than 3 months; [3] In service for 6 months or 500 hours; [4] Once a year and no later than 13 months from the date of the previous annual machine inspection; [50] The first inspection shall be performed once the machine reaches 50 hours in service for the first time. This occurs only once in the service life of the machine. [250] The first inspection shall be performed once the machine reaches 250 hours in service for the first time. This occurs only once in the service life of the machine. [NO.1] Before the machine is put into service for the first time, or before the first use after the oscillating cylinder or counterbalance valve has been replaced.			
Inspection activity (numerical codes): **1.** Check for correct installation (accurate position, firmly installed, tightened to the specified torque) **2.** Check for damage (cracks, cracked welds, deformation, wear, corrosion, excessive wear, gouges, abrasions and exposed threads) **3.** Check for normal function **4.** Check for normal return to neutral or “off” position (self-resetting switches return to neutral or “off” position after released) **5.** Clean and free of foreign objects **6.** Check for correct level, sealing and leaks **7.** Labels complete, clear and secure **8.** Check for appropriate tolerances **9.** Fully charged **10.** Verify/perform **11.** Replace the oil or filter element **12.** Correctly lubricated			

DECLARATION OF CONFORMITY

Machinery Directive: 2006/42/EC
Electromagnetic Compatibility Directive:
2014/30/EU

Name of manufacturer or supplier
Hunan Sinoboom Intelligent Equipment Co., Ltd.

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Authorized Representative
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Nikkelstraat 26, NL-2984 AM Ridderkerk, The Netherlands

Description of product
Mobile Elevating Working Platform

Name, type or model, batch or serial number
Name: Mobile Elevating Working Platform

Standards used, including number, title, issue date and other relative documents
EN 60204-1:2018/Safety of machinery - Electrical equipment of machines - General requirements
EN 280-1:2022 / Mobile elevating work platforms - Design calculations - Stability criteria - Construction - Safety - Examinations and tests

Declaration
I declare that as the authorised representative, the above information in relation to the manufacture of this product, is in conformity with the stated standards and other related documents following the provisions of the above Directives and their amendments.

Signature of manufacturer

Always for Better Access Solutions

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