



# Operation Manual

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## **A13JE** **Articulated Boom** **Mobile Elevating Work Platform**



### **Warning**

Operators and maintenance personnel must read and understand this manual before operating and maintaining this vehicle, otherwise it may lead to casualties! This manual should be kept in a safe place for reference by relevant personnel.

# Articulated Boom Mobile Elevating Work Platform Operation Manual

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## Foreword

Thank you for choosing to use this Mobile Elevating Work Platform from LGMG. This machine is designed according to BS EN280-1:2022. The information specified in this manual is intended for the safe and proper operation of this machine for its' intended purpose.

For maximum performance and utilization of this machine, thoroughly read and understand all the information in this manual before starting, operating, or performing maintenance on this machine.

Due to continuous product improvements, LGMG reserves the right to make specification changes without any prior notifications. For any updated information, contact LGMG.

Ensure all preventive maintenance to the machine is performed according to the interval specified in the maintenance schedule.

Keep this manual with this machine for reference at all times. When the ownership of this machine is transferred, this manual shall be transferred with this machine. This manual must be replaced immediately if it is lost, damaged, or becomes illegible.

This manual is copyrighted material. The reproduction or copy of this manual is not allowed without the written approval of LGMG.

The information, technical specifications and drawings in this manual are the latest available when this manual is issued. Due to continuous improvement, LGMG reserves the right to change the technical specifications and machine design without notice. If any specifications and information in the manual are not consistent with your machine, please contact the service department of LGMG.

### WARNING

**Only personnel who have been properly trained and qualified to operate or maintain this machine can operate, repair and maintain this machine.**

**Improper operation, maintenance, and repair are dangerous and can cause personal injury and death.**

**Before any operation or maintenance, the operator shall thoroughly read this manual. Do not operate, perform any maintenance or make any repairs on this machine before reading and understanding this manual.**

**The user shall load the platform strictly according to the load rating of the platform. Do not overload the platform or make any modifications to the platform without permission from LGMG.**

**The operation regulations and preventions in this manual are only applicable for the specified use of this machine.**

## Safety Precautions

The operator of this machine shall understand and follow the existing safety regulations of state and local governments. If these are unavailable, the safety instructions in this manual shall be followed.

To help prevent accidents, read and understand all warnings and precautions in this manual before operation or performing maintenance.

The safety measures are specified in Chapter 1 Safety.

It is impossible to foresee every possible hazard and the safety instructions in this manual may not cover all safety prevention measures. Always ensure the safety of all personnel and protect the machine against any damage. If unable to confirm the safety of some operations, contact LGMG.

The operation & maintenance prevention measures listed in this manual are only applicable to the specified uses of this machine. LGMG assumes no responsibility if this machine is used beyond the range of this manual. The user and the operator shall be responsible for the safety of such operations.

Do not perform any operation forbidden in this manual in any situation.

The following signal words are applicable for identifying the level of safety information in this manual.



**Danger:**

**An imminent situation, that if not avoided, will result in severe injuries or death. This is also applicable to situations that will cause serious machine damage, if not avoided.**



**Warning:**

**A potentially dangerous situation, that if not avoided, may result in severe injuries or death. This is also applicable to situations that may cause serious machine damage, if not avoided.**



**Notice:**

**A situation, that if not avoided, may result in minor or intermediate injury. This is also applicable to situations that may cause machine damage or shorten machine service life.**

# Chapter 1 Safety





## 1.1 Danger

Failure to follow the instructions and safety rules in this manual may cause death or serious injury.

## 1.2 No operation is allowed unless

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

- 1) Avoid dangerous situations. Know and understand the safety rules before proceeding with the next step.
- 2) Always perform a pre-operation inspection.
- 3) Always perform a pre-use functional test.
- 4) Check the workplace.
- 5) Use the vehicle only for its intended purpose.
- 6) Read, understand, and follow the manufacturer's instructions and safety rules - safe operation manuals and vehicle decals.
- 7) Read, understand and follow user safety rules and work site regulations.
- 8) Read, understand and follow all applicable government laws and regulations.
- 9) You have received the training on safe operation of the vehicle.

## 1.3 Classification of dangers



### Classification of hazards

The meanings of symbols, color codes and characters of LGMG's products are as follows:

**Security warning symbol:** are used for warning of potential personal injuries. **Observe all safety instructions below these signs, to avoid situations**

causing potential personal injury and death.



**Red: Signifies dangerous situations. If not avoided, will result in personal death or severe injury.**



**Orange: Signifies dangerous situations. If not avoided, may result in personal death or severe injury.**



**Yellow: Signifies dangerous situations. If not avoided, may result in minor or intermediate personal injury.**



**Blue: Signifies dangerous situations. If not avoided, property loss or damage can occur.**

## 1.4 Intended purpose

This vehicle is only used to lift operators and their tools and materials to high-altitude workplaces.



**The vehicle is strictly forbidden to carry goods.**

## 1.5 Safety sign maintenance

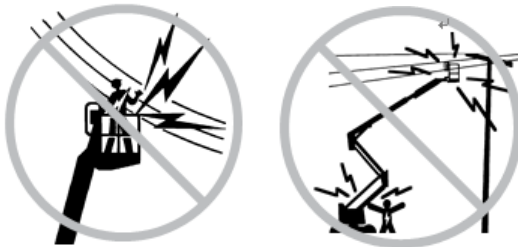
- 1) The operators should always keep in mind

their safety when replacing any missing or damaged safety signs.

- 2) The safety decal should be cleaned with mild soap and water.
- 3) Do not use solvent-based cleaners as they may damage the material of the safety decal.

## 1.6 Risk of electric shock

- 1) This vehicle is not insulated and is not provided with electrical shock protection when it comes into contact with or near electrical wire.



- 2) This vehicle should be kept an adequate safety distance from power line and electrical equipment according to applicable government laws and regulations and the following table.

Voltage	Required safety distance
0~50KV	3.05 m
50KV~200KV	4.6 m
200KV~350KV	6.10 m
350KV~500KV	7.62 m
500KV~750KV	10.67 m
750KV~1000KV	13.72 m

- 3) The effects of strong winds or gusts on the movement of the platform, the swinging and slackening of the wires should be considered.
- 4) If the vehicle comes into contact with live wires, please keep away from the vehicle. None is allowed to touch or operate the vehicle on the ground or platform before cutting off the power supply.
- 5) Do not operate the vehicle during lightning or storms.

- 6) Do not use the vehicle as a ground wire when welding.

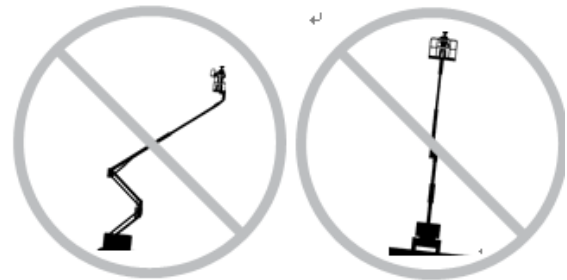
## 1.7 Risk of tipping

The personnel, equipment and materials on the platform may not exceed the maximum load capacity of the platform.

Model	A13JE
Maximum number of people	2 people
Maximum allowable wind speed	12.5m/s
Maximum platform working load	200kg

## 1.8 Safety in the work area

- 1) The boom can be lifted or extended only when the vehicle is on a solid, flat surface.



- 2) When the platform is lifted, the driving speed may not exceed 0.8km/h.
- 3) The tilt sensor may not be used as a level indicator. The buzzer on the turntable will sound only when the vehicle is heavily tilted.
- 4) When the buzzer sounds: Do not extend, rotate or lift the boom beyond the horizontal plane. The vehicle should be moved to a solid, flat surface before lifting the platform. If the buzzer sounds when lifting the platform, the boom should be telescoped carefully and the platform should be lowered. Do not rotate the boom during lowering. The vehicle should be moved to a solid, flat surface before lifting the platform.
- 5) For outdoor operation, do not lift the boom when the wind speed may exceed 12.5m/s. If the wind speed exceeds 12.5m/s. After the boom is lifted, the boom should be

lowered and do not continue to operate the vehicle.



- 6) Do not operate the vehicle in strong winds or gusts. Do not increase the surface area of the platform or load. Increasing the area exposed to the wind will reduce the stability of the vehicle.
- 7) Do not operate the vehicle with the upper control box when the platform is caught, jammed, or other nearby objects are blocking its normal movement. If you want to operate the vehicle with the lower control box, you must operate it after all personnel have left the platform.
- 8) In the telescoped state, the vehicle should be operated carefully and slow down when driving on uneven terrain, gravel, unstable or smooth surfaces, near holes or steep slopes.



- 9) When the boom is lifted or extended, the vehicle may not drive on uneven terrain, unstable surfaces, or other dangerous conditions, or near these areas.
- 10) Do not push or pull any object that is outside the platform.
- 11) Do not use the vehicle as a crane.
- 12) Do not place, tie, or hang any loads on any part of the vehicle.



- 13) Do not use the boom to push the vehicle or other object.
- 14) Do not make the boom contact adjacent components.
- 15) The limit switch may not be changed or disabled.
- 16) The boom or platform may not be tied to adjacent components.
- 17) The load may not be placed outside the perimeter of the platform.
- 18) Do not modify the elevating work platform without the prior written permission of the manufacturer. Installing additional equipment for placing tools or other materials on the platform, pedal plate or guardrail will increase the weight of the platform and the surface area of the platform or increase the load.
- 19) Do not modify or damage any parts that may affect the safety and stability of the vehicle.
- 20) Key parts that affect the vehicle's stability may not be replaced with parts of different weights or specifications.
- 21) Do not use any battery that weighs less than the original battery. The battery not only acts as a counterweight, but also is essential for maintaining the stability of the vehicle. The weight of each battery or battery pack must reach 65kg, and the minimum weight of each battery tray (including battery) must reach 123kg.
- 22) Do not place the ladder or scaffolding in the platform or against any part of the vehicle.
- 23) Only tools and materials that are evenly distributed and can be safely moved by people on the platform can be transported.
- 24) Do not operate the vehicle on a moving surface or on a vehicle.
- 25) Make sure all tires are in good conditions

and the nuts are properly tightened.

- 26) The ambient temperature in which the vehicle is operated is -25°C ~ 40°C.
- 27) Please replace the hydraulic oil as required temperature.
- 28) The allowable fluctuation of the vehicle's supply voltage is  $\pm 10\%$ .


## 1.9 Risk of crushing

- 1) Do not put your hands and arms close to areas where there is a risk of scratching or crushing.
- 2) When operating the vehicle on the ground with the control unit, please keep your normal judgment and make a good planning. A safe distance should be kept between the operator, the vehicle and the stationary object.

## 1.10 Risk of operating on slopes

Do not drive the vehicle on a slope that exceeds the vehicle's slope and side slope ratings. The slope rating applies to the vehicle that is in the retracted state.

Maximum slope rating, stowed position

Platform downhill 	30% (17°)
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## 1.11 Risk of falling



- 1) During operation, the personnel on the platform must wear the full body safety device and secure it with a seat belt hook to the approved rope attachment point. Only one hook can be tied to each rope

attachment point.

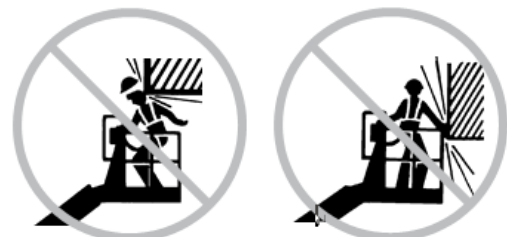
- 2) Do not sit, stand or climb on the guardrail of the platform. Always stand on the platform floor stably.



- 3) After the platform is lifted, the operator may not climb down the platform.
- 4) Keep the platform floor free of debris.
- 5) Lower the platform entry lifting rod or close the entry door before operating.
- 6) Do not operate the vehicle if the guardrail is not installed properly or the entrance door fails to guarantee safe operation.
- 7) Do not enter or exit the platform unless the vehicle is in the telescoped state.
- 8) Make sure slow speed is selected before descending any slope.

## 1.12 Risk of collision

- 1) When starting or operating the vehicle, pay attention to the blind spots within the line of sight.
- 2) When rotating the turntable, pay attention to the position of the boom and the tail of the turntable.
- 3) Check the work area to avoid obstacles or other possible hazards.



- 4) When grabbing the platform guardrail, be careful of the risk of squeezing.
- 5) Lower the boom when there are no people or obstacles in the area underneath.



- 6) Limit the drive speed according to the ground conditions, congestion levels, slope, personnel location and any other factors that may cause a collision.
- 7) It is not allowed to operate the vehicle on any crane or moving overhead vehicle route unless the crane control unit has been locked and/or precautions have been taken to prevent any potential collision.
- 8) When operating the vehicle, avoid any dangerous behaviors.
- 9) Users must abide by user rules, workplace rules and government rules regarding the use of personal protective equipment.
- 10) The direction arrows of the drive and steering function of the upper control box should be noted.

### 1.13 Risk of component

#### damage

- 1) It is not allowed to charge the battery with any battery charger that is greater than the maximum output voltage of 48V or quick charge in a short time.
- 2) Do not use the vehicle as a ground wire when welding.
- 3) Do not use the vehicle where magnetic fields may exist.

### 1.14 Risk of explosion and fire

- 1) Do not operate the vehicle where it is dangerous or where flammable or explosive gases or particles may be present.

- 2) Charge the battery only in an open, well-ventilated area away from sparks, flames and lighted tobacco.

### 1.15 Risk of vehicle damage

- 1) Do not operate a vehicle that is damaged or faulty.
- 2) Before each work shift, thoroughly perform the pre-operation inspection against the vehicle and test all functions. A damaged or faulty vehicle should be immediately marked and stopped.
- 3) Make sure all maintenance operations have been performed as specified in this manual.
- 4) Make sure all decals are properly positioned and easily identifiable.
- 5) Make sure this manual is stored in a file box on the platform.

### 1.16 Risk of bodily injury

- 1) Do not operate the vehicle when hydraulic oil leaks, which may penetrate or burn your skin.
- 2) Incorrect contact with any component under the cover may cause serious injury. Only qualified authorized service personnel can access the compartment. It is recommended that the operator perform the inspection only during the pre-operation inspection. All compartments must be closed and locked during operation.

### 1.17 Battery safety

#### Risk of burn

- 1) The battery contains acidic substances. Wear protective clothing and goggles when operating the battery.



- 2) Avoid spilling or touching the acid in the battery. Soda and water can be used to neutralize the spilled battery acid.
- 3) The battery pack must be placed vertically.
- 4) Do not expose the battery or charger to water or rain.
- 5) When the vehicle stops for a long time, it is necessary to turn off the main power switch.

### Risk of explosion



- 1) Sparks, flames and lit cigarettes are prohibited from getting close to the battery. The battery can release explosive gases.
- 2) The battery pack cover must remain open throughout the charging process.
- 3) Do not touch the battery terminals or cable clamps with tools that may cause sparks.

### Risk of component damage

- 1) Do not charge the battery with any battery charger that is greater than the maximum output voltage of 48V.
- 2) The battery pack must be charged together.
- 3) The battery pack pin should be disconnected before removing the battery pack.

### Risk of electric shock/burn

- 1) Connect the battery charger to a grounded AC three-wire power outlet only.
- 2) Check the lines, cables and wires for damage daily. Replace the damaged items before operation.

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

### Risk of tipping

Do not use any battery that weighs less than the original battery. The battery not only acts as a counterweight in the chassis, but also is essential for maintaining the stability of the vehicle. The weight of each battery or battery pack must reach 65kg, and the minimum weight of each battery tray (including battery) must reach 123kg.

### Danger during lifting

Remove or install the battery pack with a fork.

## 1.18 Check for Tires and wheels

This check item is conducted every 250 hours or once per quarter, whichever comes first.

Keeping tires and wheels in a good condition is critical for safe operation and good performance. Failure of the tires and wheels may cause the platform to tilt. If such failure is not found and repaired in time, it will also cause damage to platform parts.

- 1) Check treads and sides of tires for scratches, cracks, punctures, and other abnormal wear.
- 2) Check if the wheels are damaged, bent or cracked.

## 1.19 Locked after each use

- 1) Choose a safe parking location that can be a solid, flat surface without obstructions or heavy traffic.
- 2) Telescope the boom and lower the platform.



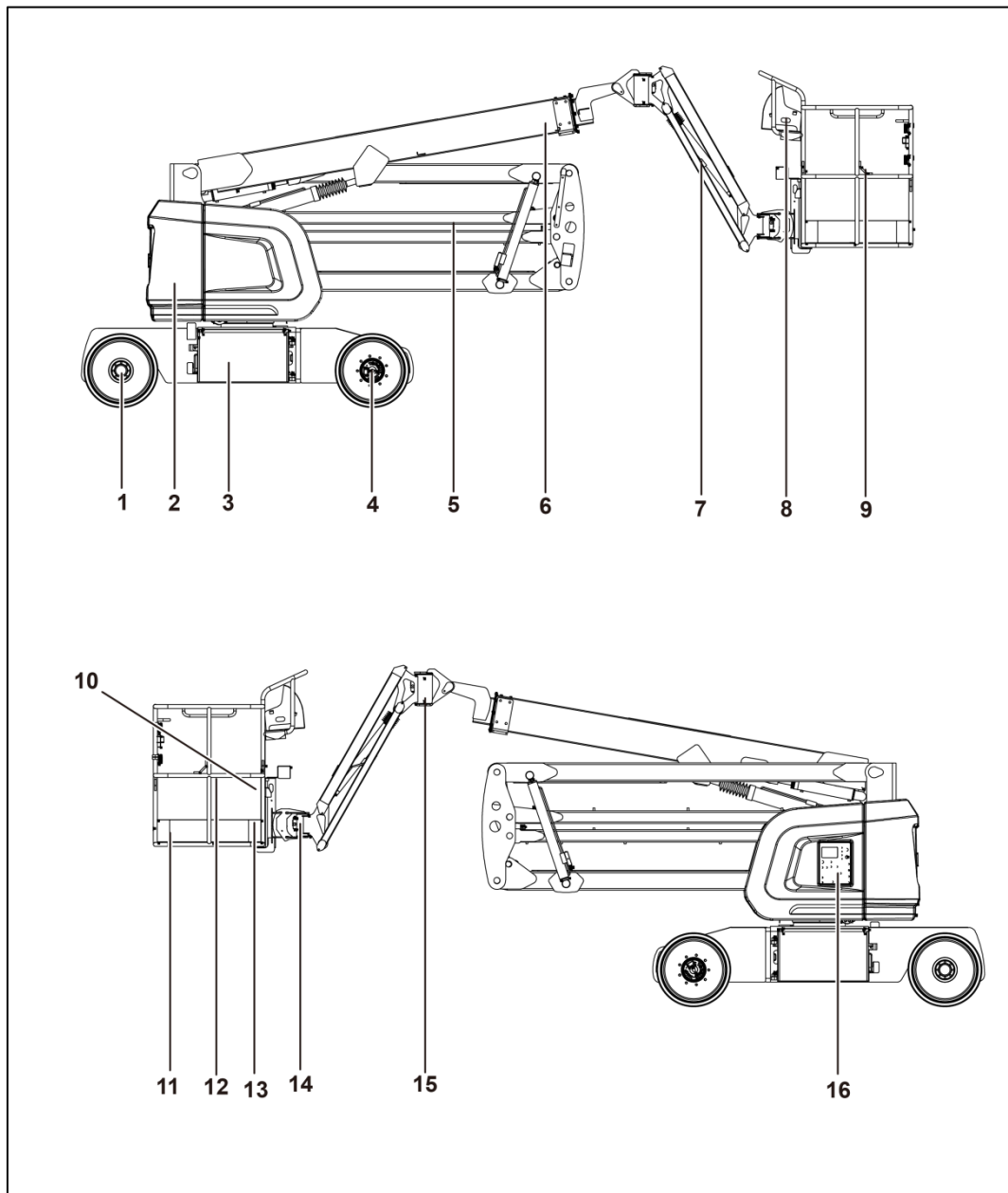
- 3) Rotate the turntable so that the boom is between the non-steer wheels.
- 4) Turn the key switch to the "OFF" position and remove the key to avoid any unauthorized use.
- 5) Block the wheel with a wedge.
- 6) Charge the battery. (If necessary)





## Chapter 2 Legend





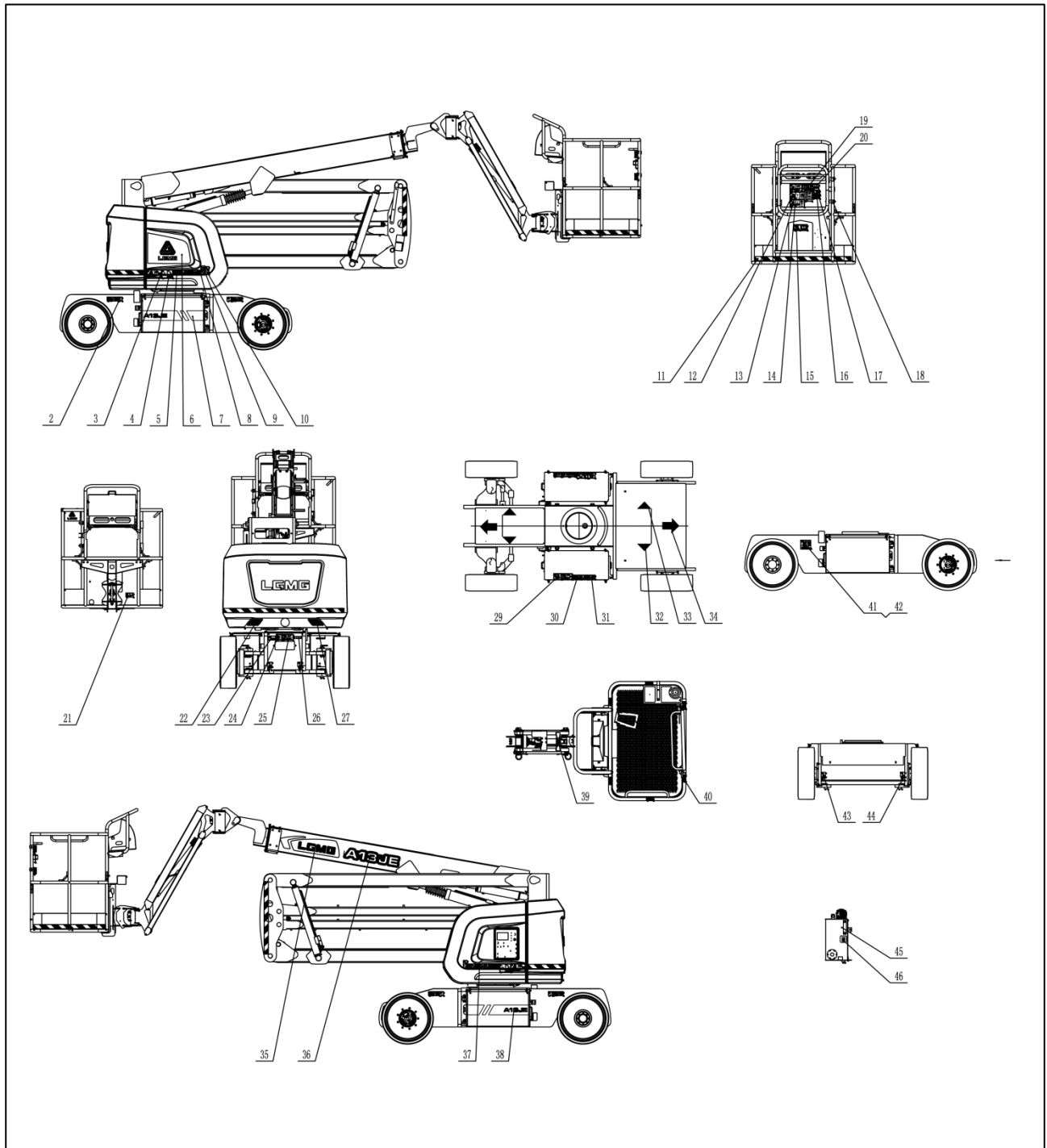
No.	Name	No.	Name
1	Steering wheel	9	Lanyard fixing point
2	Counterweight	10	File box
3	Battery box	11	Platform
4	Non-steering wheel	12	Guardrail
5	Tower boom section	13	Foot switch
6	Base boom section	14	Platform rotate cylinder
7	Jib	15	Jib rotate cylinder
8	Upper control box	16	Lower control box



## Chapter 3 Decal



## Decal







31-2534003044



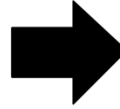
32-2534000050



33-2534000051



34-2534000052



35-2534001749



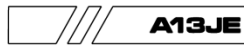
36-2534003359



37-2534000011



38-2534003361



39-2534000042



40-2534000017



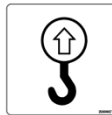
41、42-2534001185



43-2831990027



44-2534000027



45-2534001377



46-2534001995



## Decal List

No.	Code	Name
1	2534000045	Label-Tire change attention
2	2534003364	Label-Wheel load
3	2534000004	Label-Explosion burn warning
4	2534000048	Label-Anti-electric shock
5	2534000026	Label-Instructions reading
6	2534003367	Label-LGMG
7	2534003360	Label-Left box model
8	2534000047	Label-No firework warning
9	2534000276	Label-CE
10	2534000043	Label-Anti-crashing danger
11	2534000024	Label-Warning line
12	2534000037	Label-Outdoor hand power
13	2534000040	Decal-Warning tip-over during uphill and downhill
14	2534000035	Label-Platform rated load
15	2534000119	Label-Instructions reading
16	2534000247	Label-Electric shock hazard
17	2534000039	Label-Anti-rollover attention
18	2534001809	Label-Anti-scratch
19	2534002021	Label-Downhill warning
20	2534000145	Label-Warning
21	2534000041	Label-Keeping away from vehicle warning
22	2534003365	Label-Anti-scratch
23	2534003337	Label-Power supply switch
24	2534002022	Label-Turn off the power
25	2534000007	Label-Electric shock warning
26	2534002023	Label-Charging indicator
27	2534003366	Label-Anti-scratch
28	2534000053	Label-Arrow sign-blue(C010)
29	2534000124	Decal-No water-spraying
30	2534000062	Decal-Battery as counterweight
31	2534003044	Decal-Non-professionals do not operate
32	2534000051	Arrow sign-blue(C010)
33	2534000050	Arrow sign-yellow(043)
34	2534000052	Arrow sign-yellow(043)
35	2534001749	Label-Group LOGO-LGMG
36	2534003359	Label-Model sign
37	2534000011	Label-In-box maintenance attention
38	2534003361	Label-Right box model
39	2534000042	Label-Anti-falling attention

40	2534000017	Label-Lanyard fixing point
41、42	2534001185	Label-Vehicle nameplate
43	2831990027	Label-Transport Tie Down
44	2534000027	Label-Lifting Point
45	2534001377	Label-Hydraulic oil level
46	2534001995	Label-Hydraulic oil tank



## **Chapter 4 Specification**



## Specification

### A13JE Vehicle parameters

#### 4.1 Vehicle performance parameters

Item		Parameter	Item	Parameter
Rated load (kg)		200	Turntable rotation by one circle (S)	95-125
Vehicle weight (kg)		6950	Boom lifting (S)	32-40
Maximum number of people		2	Boom lowering (S)	26-30
Maximum working height (m)		15	Tower boom lifting (S)	40-52
Maximum basket height (m)		13	Tower boom lowering (S)	38-46
Maximum horizontal extension (m)		7.46	Telescopic boom extended (S)	22-28
Maximum span height (m)		7.1	Telescopic boom telescoped (S)	25-28
Turning radius(outside)(m)		4.07	Jib lifting (S)	19-23
Turning radius(inside) (m)		1.97	Jib lowering (S)	17-21
Vehicle speed (in the telescoped state) (km/h)		$5 \pm 0.25$	Jib boom rotation (S)	13-17
Vehicle speed (in the lifted state) (km/h)		$0.8 \pm 0.05$	Platform rotation (S)	13-26
Maximum allowable tilt angle	Along the boom	3°	Maximum manual force (N)	400
	In the orthogonal direction of the boom.	3°		
Theoretical climbing ability		30%	Maximum allowed wind speed (m/s)	12.5

#### 4.2 Main dimensions

Item		Parameter	Item	Parameter
Vehicle length (mm)		6698	Wheelbase (mm)	2030
Vehicle width (mm)		1500	Track width (mm)	1310
Vehicle height (mm)		1984	Ground clearance (in the stowed state) (mm)	200
Working basket size (L×W) (mm)		1200×900	Tire specification	600×190

#### 4.3 Hydraulic system

Item		Parameter/content
Type		Open system
Displacement of main pump (ml/r)		4.54
Displacement of rotary system(ml/r)		198
System pressure (MPa)		22

#### 4.4 Electrical system

Item		Parameter/content
Pump motor	Rated power (kW)	4.5

Drive motor	Rated power (kW)	3.56
Battery (Total)	Output voltage (V)	51.5
	Capacity (Ah)	250
Charger	Nominal DC output voltage (V)	48

#### 4.5 Transmission system

Item		Parameter/content
Driving reducer	Output torque(Nm)	2825
Rotary reducer	Output torque(Nm)	7900

#### 4.6 Oil filling capacity

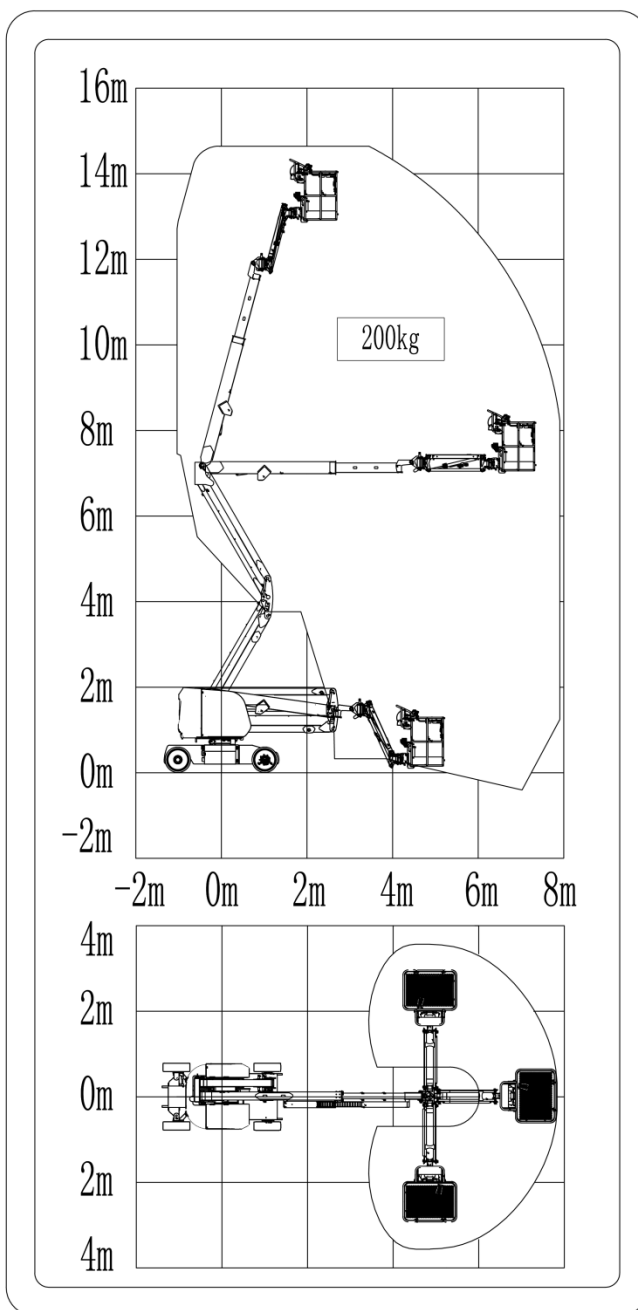
Item	Parameter
Hydraulic oil (L)	25
Gear oil (L)	$0.68 \times 2$

Note: When hydraulic oil and diesel are filled, it is necessary to use the corresponding hydraulic oil and diesel according to operating environment and temperature, and refer to the following contents:

Item	Condition	Oil viscosity brand	Oil mass	Remarks
Hydraulic oil(L)	The lowest temperature $> -25^{\circ}\text{C}$	L-HV32 Low temperature hydraulic oil	25	Recommended chevron brand
	$-40^{\circ}\text{C} < \text{The lowest temperature} \leq -25^{\circ}\text{C}$	L-HS32 Ultra low temperature hydraulic oil		
	The lowest temperature $\leq -40^{\circ}\text{C}$	10# Aviation hydraulic oil		
Reducer oil(L)	$30^{\circ}\text{C} < \text{The lowest temperature}$	85W/140	$0.68 \times 2$	SAE API 1560 GL-5
	$-10^{\circ}\text{C} < \text{The lowest temperature} < 30^{\circ}\text{C}$	85W/90		
	$-30^{\circ}\text{C} < \text{The lowest temperature} < -10^{\circ}\text{C}$	80W/90		
	The lowest temperature $< -30^{\circ}\text{C}$	75W		



#### 4.7 Range of motion

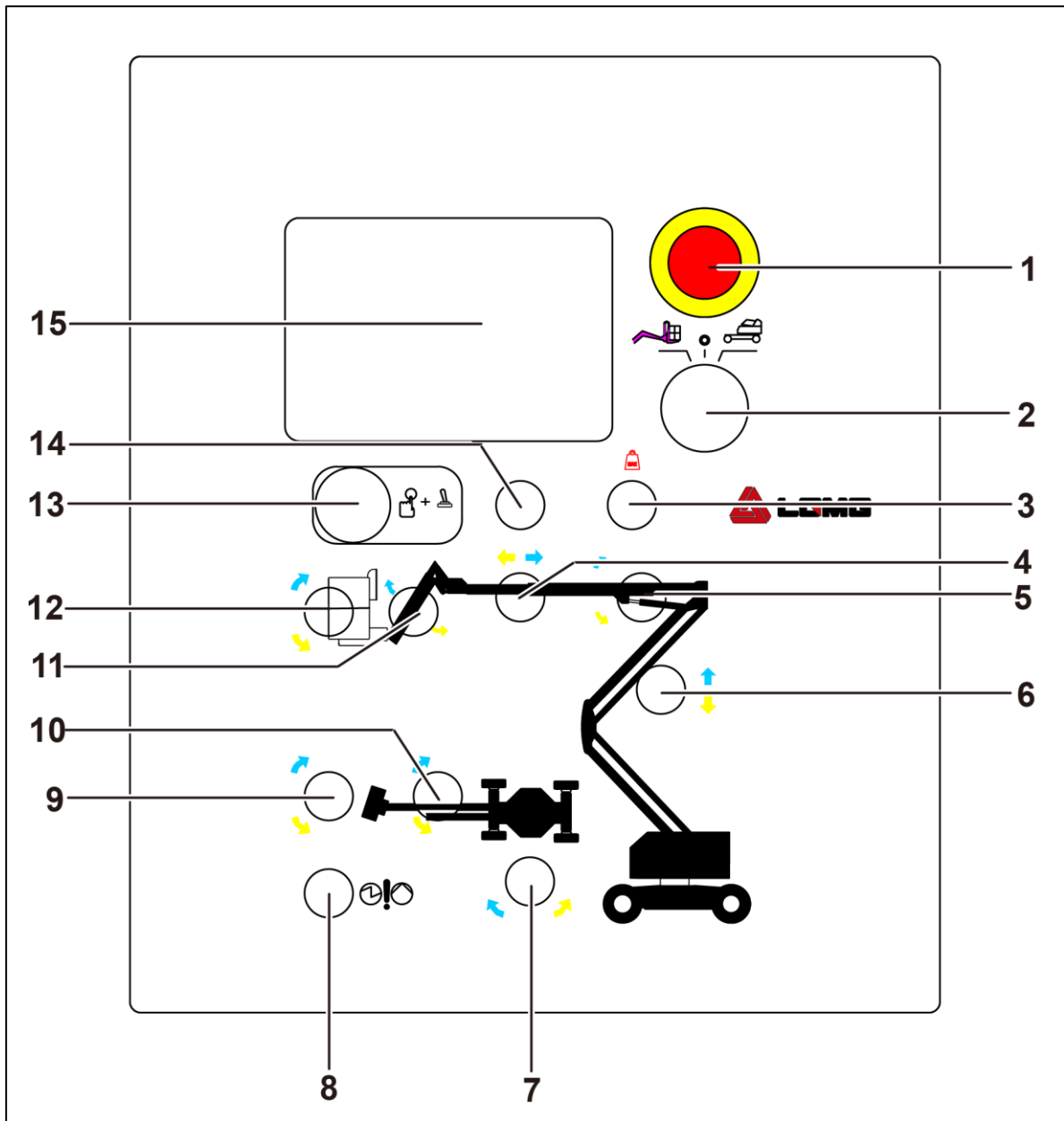




## **Chapter 5 Control Unit**











## 5.1 Lower control box



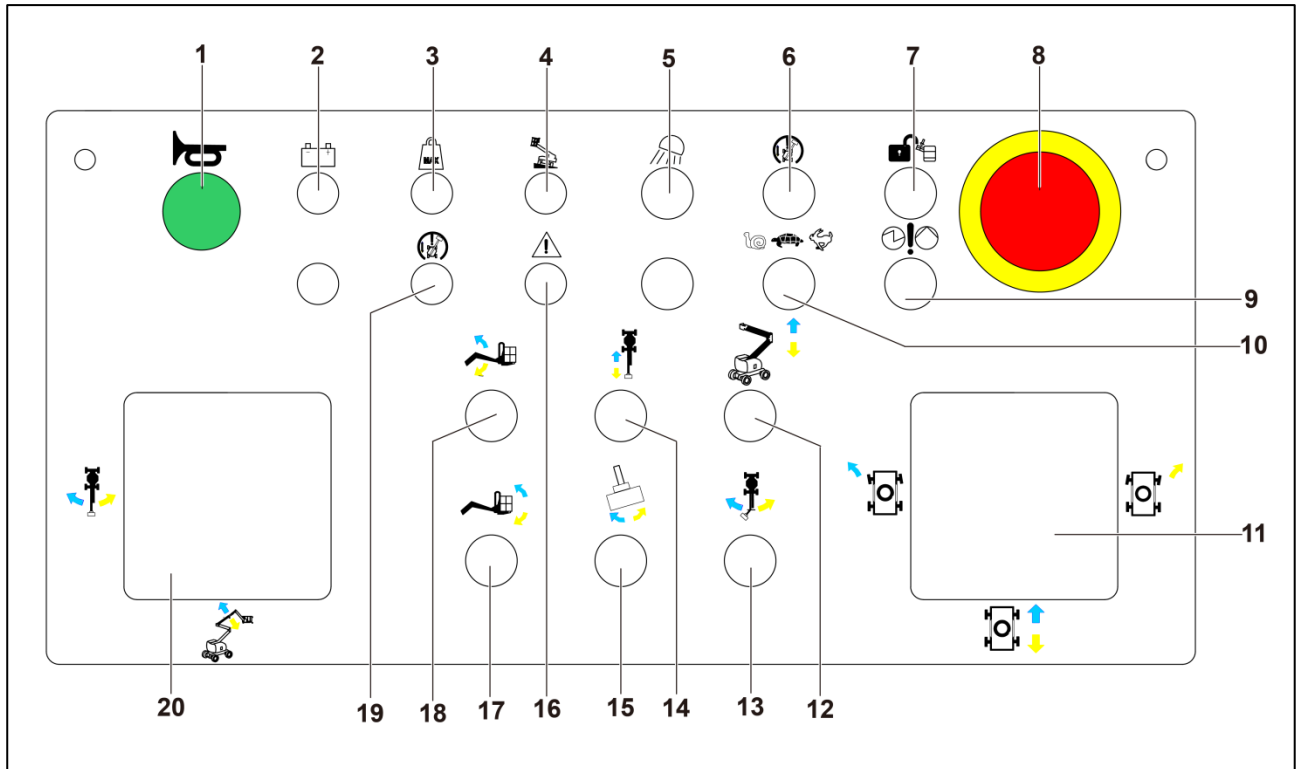
No.	Name	No.	Name
1	Emergency stop button switch	9	Platform rotate switch
2	Key switch	10	Jib boom rotate switch
3	Platform overload indicator	11	Jib boom up/down switch
4	Base boom extend/retract switch	12	Platform level switch
5	Base boom up/down switch	13	Function enable button switch
6	Tower boom up/down switch	14	20A breaker
7	Turntable rotate button	15	Display
8	Auxiliary power switch	16	

The functional description of the lower control box button switch is as follows:

Item	Button switch	Functional description
Lower control box	Key switch	When turning the key switch to the "Platform" position, the upper control box will be enabled. When turning the key switch to the "OFF" position, the vehicle will stop. Turn the key switch to the "Ground" position and the lower control box will be enabled.
	Emergency stop button switch	When pushing the red "Emergency Stop" button inward to the "OFF" position, all functions can be disabled. When each function control handle or button switch of the vehicle is enabled, all functions will not be enabled.
		When turn the red "Emergency Stop" button to the "ON" position, the vehicle can be operated and the warning light should flash.
	Function enable button switch	Do not press and hold the function enable button switch, try to activate each boom and platform function toggle switch. The boom and platform functions will not be enabled.
		When pressing and holding the function enable button switch and activating each boom and platform function toggle switch, the boom and platform functions should operate for a full cycle.
	<ol style="list-style-type: none"> <li>1. Turn the key switch to the lower control box.</li> <li>2. Turn the red "Emergency Stop" button outward to the "ON" position.</li> <li>3. Press and hold the enable button switch.</li> </ol>	
	Base boom extend/retract switch	 When pulling the switch to the left, the boom will be extended. When pulling the switch to the right, the boom will be retracted.
	Base boom up/down switch	 When pulling the switch upward, the boom will be lifted. When pulling the switch downward, the boom will be lowered. The lowering alarm should sound when the boom is lowered.
	Tower boom up/down switch	 When pulling the switch upward, the tower boom will be lifted. When pulling the switch downward, the tower boom will be lowered. The lowering alarm should sound when the boom is lowered.
	Turntable rotate switch	 Move the switch to the right, the turntable will move to the right. Move the switch to the left, the turntable will move to the left.
	Platform rotate switch	 Move the switch up and the platform will rotate to the left. Move the switch down and the platform will rotate to the right.
	Jib boom rotate switch	Move the switch up and the jib boom will rotate to the left. Move the switch down and the jib boom will rotate to the right.
	Jib boom up/down switch	 When pulling the switch upward, the jib boom will be lifted. When pulling the switch downward, the jib boom will be lowered.
	Platform level switch	 When pulling the switch upward, the platform level will lift. When pulling the switch downward, the platform level will be lowered.

Item	Button switch	Functional description
	Auxiliary power button switch	 <ol style="list-style-type: none"> <li>1. Turn the key switch to the lower control box.</li> <li>2. Turn the red “Emergency Stop” button outward to the “ON” position.</li> <li>3. Pull the auxiliary power toggle switch to upper side and repeat the above procedure.</li> </ol> <p>Result: All boom functions should be normal.</p>

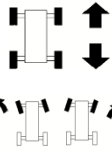







## 5.2 Upper control box








No.	Name	No.	Name
1	Horn button	11	Drive/steering control handle
2	Low battery level	12	Tower boom up/down switch
3	Platform overload indicator	13	Jib boom rotate switch
4	Machine tilt indicator	14	Base boom extend/retract switch
5	Reserve	15	Platform rotate switch
6	Drive enable switch	16	Machine fault indicator
7	Override switch	17	Platform level switch
8	Emergency stop button switch	18	Jib boom up/down switch
9	Auxiliary power switch	19	Drive enable indicator
10	Drive motor speed select switch	20	Base boom section lifting/lowering and turntable left/right rotation



The functional description of the upper control box button switch is as follows:

Item	Button switch	Functional description
Upper control box	Emergency stop button switch	<p>When pushing the red "Emergency Stop" button inward to the "OFF" position, all functions can be disabled. When each function control handle or toggle switch of the vehicle is activated, all functions cannot be enabled.</p> <p>When the red "Emergency Stop" button is turned to the "ON" position, the vehicle can be operated.</p>
	Foot switch	<p>The foot switch may not be pressed and each function of the vehicle should be enabled. Result: the vehicle function cannot be enabled.</p> <p>Press the foot switch and activate each function control handle or toggle switch of the vehicle. Result: all boom and platform functions should operate for a full cycle.</p>
	Horn button	When the horn button is pressed, the horn will sound. When the horn button is released, the horn will stop ringing.
	<ol style="list-style-type: none"> <li>1. Turn the key switch to the upper control box.</li> <li>2. Turn the red "Emergency Stop" button outward to the "ON" position.</li> <li>3. Press the foot switch.</li> </ol>	
	Drive/steering control handle	 <p>When moving the control handle upward, the vehicle will drive forward. When moving the control handle downward, the vehicle will drive backward. When pressing the left side of the thumb rocker, the vehicle will turn to the left. When pressing the right side of the thumb rocker, the vehicle will turn to the right.</p>
	Tower boom up/down switch	 <p>When pulling the switch upward, the tower boom will be lifted. When pulling the switch downward, the tower boom will be lowered. The lowering alarm should sound when the boom is lowered.</p>
	Jib boom rotate switch	 <p>When moving the switch to the right, the jib boom will rotate to the right. When moving the button switch to the left, the jib boom will rotate to the left.</p>
	Base boom extend/retract switch	 <p>When pulling the switch upward, the boom will be retracted. When pulling the switch downward, the boom will be extended.</p>
	Platform rotate switch	 <p>When moving the switch to the right, the platform will rotate to the right. When moving the button switch to the left, the platform will rotate to the left.</p>
	Platform leveling switch	 <p>When pulling the switch upward, the platform level will be lifted. When pulling the switch downward, the platform level will be lowered.</p>
	Jib boom up/down switch	 <p>When pulling the switch upward, the jib boom will be lifted. When pulling the switch downward, the jib boom will be lowered.</p>
	Base boom lifting/lowering and turntable left/right rotation	 <p>When moving the control handle to the right, the turntable will rotate to the right. When moving the control handle to the left, the turntable will rotate to the left.</p>

		 <p>When moving the control handle upward, the boom will be lifted. When moving the control handle downward, the boom will be lowered. The lowering alarm should sound when the boom is lowered.</p>
	Drive enable button	 <p>Press the foot switch and lower the boom to the telescoped position. Rotate the turntable until the boom moves over more than one non-steering wheel. As a result, the drive enable indicator should be flashes at any position within the range shown in the figure. When moving the drive control handle to the center position, the drive function will not be enabled. When moving the drive enable button switch to one side (the indicator light shall be on) and slowly moving the drive control handle away from the center position, the drive function should be enabled.</p> <p>Note: When operating the drive enable system, the vehicle can drive in the opposite direction of drive and steering control handle movement.</p>
	Drive motor speed select switch	 <p>Snail: foot switch activated low idle. Turtle: foot switch activated middle idle. Rabbit: foot switch activated high idle.</p>
	Auxiliary power button switch	 <ol style="list-style-type: none"> <li>1. Turn the key switch to the platform control unit.</li> <li>2. Turn the red "Emergency Stop" button outward to the "ON" position.</li> <li>3. Press the foot switch.</li> <li>4. Pull the auxiliary power switch to upper side and repeat the above procedure.</li> </ol> <p>Results: All boom functions should be normal. The drive function may not work with the auxiliary power supply.</p>
	Override switch	 <p>When the platform safety protection system is activated, press the override switch, and the vehicle functions can operate normally.</p>

## System fault codes

Code	Instructions
1	Controller output power 1 break circuit
2	Controller output power 2 break circuit
3	Controller output power 3、4 break circuit
4	Platform electric box expansion module Bus break circuit
5	Chassis electric box display Bus break circuit
6	Weighing fault
7	Turntable tilt sensor failure
8	Weighing sensor 1 fault
9	Weighing sensor 2 fault
10	Weighing sensor checkout fault
11	Weighing sensor 4 fault
12	Left lever fault
13	Right lever fault
14	Middle lever fault
15	Boom luffing limit switch fault
16	Tower boom luffing limit switch fault
17	Boom telescoping limit switch fault
18	Rear area detection limit switch fault
19	Motor controller fault
20	Displayer failure to receive MC2M message
21	Motor controller Bus break circuit
22	Driving overspeed
23	BMS Bus break circuit
24	BMS system fault
101	Chassis inclination
102	Driving motion is limited due to unactivated drive
103	Working bucket overweighted
115	Manual lock reminder
116	Manually lock the car
117	GPS and ECU do not match
118	GPS is removed
120	Operation sequence alarm
121	Enabling time timeout

## ZAPI fault codes

Code	Instructions	Notes
0	NONE	no error
8	WATCHDOG	device software reset (watchdog)
13	EEPROM KO	device hardware data storage EEPROM
17	LOGIC FAILURE #3	Internal logic card failure
18	LOGIC FAILURE #2	Internal logic card failure
19	LOGIC FAILURE #1	Voltage supply on key input is too low or too high
28	VMN LOW PUMP	mains under-voltage
29	VMN HIGH PUMP	mains over-voltage
30	VMN LOW	mains under-voltage
31	VMN HIGH	mains over-voltage
37	CONTACTOR CLOSED	line contactor is closed at startup
38	CONTACTOR OPEN	device hardware contact 1 = manufacturer specific
52	I = 0 EVER PUMP	no pump current
53	STBY I HIGH	current on device output side continues over current No.1
60	CAPACITOR CHARGE	voltage phase failure
62	HIGH TEMPERATURE	excess temperature device
66	BATTERY LOW	Battery is discharged
74	DRIVER SHORTED	A1 output shorted/DC link over-voltage No.1
75	CONTACTOR DRIVER	A1 output opened/DC link under-voltage No.1
76	COIL SHORTED	
77	LC COIL OPEN	
80	FORWARD+BACKWARD	Forward and Reverse request direction together
82	ENCODER ERROR	
84	Steer Sensor. Ko	
212	WRONG RAM	checksum ram failed
213	AUX BATTERY SHORT	
214	EVP1 COIL OPEN	
215	EVP2 COIL OPEN	
216	AUX COIL OPEN	
217	PUMP I NO ZERO	
218	MOT. THERMIC SENS. KO	sensor temperature device broken (manufacturer specific)
219	DEADMAN ABSENT	
220	KEY OFF SHORTED	
221	CHECKSUM	
222	SMARTDRIVER KO	smart driver failure
223	COIL SHORTED	short circuit
224	WAITING FOR NODE	
225	CURRENT SENSOR KO	
229	POS EB SHORTED	
230	EMERGENCY	
231	WATCHDOG2	
232	CONT DRV EV 1-5	valve1 and/or valve5 driver open
232	CONT DRV EV 2	valve2 driver open
232	CONT DRV EV 3	valve3 driver open
232	CONT DRV EV 4	valve3 driver open
233	POWER MOS SHORTED	

234	DRV SHOR EV 1-5	valve1 and/or valve5 driver shorted (always on)
234	DRV SHOR EV2	valve2 (always on)
234	DRV SHOR EV3	valve3 (always on)
234	DRV SHOR EV3	valve4 (always on)
235	COIL SHORT EV	
236	CURRENT GAIN	
237	ANALOG INPUT	
238	TILLER ERROR	
239	EVP2 NOT OK 0	evp2 driver open
239	EVP2 NOT OK 1	evp2 driver shorted
240	EVP1 NOT OK 0	evp1 driver open
240	EVP1 NOT OK 1	evp1 driver shorted
244	PHASE KO	
245	BUMPER STOP	
246	AUX DRIVER OPEN	
248	CAN BUS KO	<p>Periodic PDO_RX are not received and a timeout alarm is triggered:  an additional info number explain which message is missing:  0x80: SYNCRO is missing (COB ID = 0x80)  NODE: PD01RX is missing (COB ID = 0x200 +NODE)  0xFF: both synchro message and PDO1RX messages are missing</p>
250	THERMIC SENS. KO	sensor temperature device broken (manufacturer specific)
251	WRONG SET BATTERY	
252	WRONG ZERO	
253	SLIP PROFILE	
254	AUX DRIVER SHORTED	A3 output broken/DC link under-voltage No.2



## **Chapter 6 Pre-operation Inspection**





## 6.1 No operation is allowed

### unless

You have understood and practiced the principles about safe operation of the vehicle in this manual.

- 1) Avoid dangerous situations.
- 2) Always perform a pre-operation inspection. You should understand pre-operation inspection before proceeding with the next step.
- 3) Check the workplace.
- 4) Always perform a pre-use functional test.
- 5) Use the vehicle only for its intended purpose.

## 6.2 Basic principles

- 1) It is the operator's responsibility to perform pre-operation inspection and routine maintenance.
- 2) Pre-operation inspection is a very intuitive process that is performed by the operator before each shift. The purpose of the inspection is to determine if there is a significant problem with the vehicle before the operator performs a functional test.
- 3) Pre-operation inspection can also be used to determine if a routine maintenance procedure is necessary. The operator can only perform the routine maintenance items specified in this manual.
- 4) See the checklist on the next page and check each item.
- 5) In the event of any damage or any unauthorized changes different from the normal status, the vehicle should be marked and prohibited from putting into operation.
- 6) Only qualified authorized service technicians are allowed to maintain the vehicle according to the manufacturer's instructions. After the maintenance is completed, the operator must perform a

pre-operation inspection again before continuing the functional test.

- 7) Regular maintenance inspections should be performed by qualified authorized service technicians according to the manufacturer's specifications and the requirements listed in the responsibilities manual.

## 6.3 Pre-operation inspection

- 1) Make sure the manual is complete, easy to read, and stored in a file box on the platform.
- 2) Make sure all decals are clear, legible, and in the right place. See the decal section.
- 3) Check hydraulic oil for leakage and appropriate oil level. Please fill the oil as needed. See the "Maintenance" section.
- 4) Check the battery fluid for leakage and appropriate liquid level. Add the distilled water as needed. See the "Maintenance" section.
- 5) Check the following parts or areas for damage, improper installation, parts missing or unauthorized changes:
  - Electrical components, wires and cables
  - Valve block, hose, joint, cylinder
  - Hydraulic tank
  - Drive motor, rotary motor and drive reducer
  - Boom wear pad
  - Tires and wheels
  - Limit switch, tilt sensor and horn
  - Nuts, bolts and other fasteners
  - Platform overload components
  - Platform entrance door
  - Alarm light
  - Platform control unit and ground control unit
- 6) Check the entire vehicle for the followings:
  - Crack in a weld or structural member
  - Dent or damage to the vehicle

- Make sure all structural members and other critical components are complete, and all associated fasteners and pins are in the right position and tightened.
- Make sure the battery is located and connected properly.
- After completing the inspection, make sure all compartment covers are properly located and locked.

## **Chapter 7 Workplace Inspection**



## 7.1 No operation is allowed unless

- 8) Wind and weather conditions
- 9) Unauthorized personnel
- 10) Other possible unsafe conditions

You have understood and practiced the principles about safe operation of the vehicle in this manual.

- 1) Avoid dangerous situations.
- 2) Always perform a pre-operation inspection.
- 3) Check the workplace. You should understand pre-operation inspection before proceeding with the next step.
- 4) Always perform a pre-use functional test.
- 5) Use the vehicle only for its intended purpose.

## 7.2 Basic principles

- 1) Workplace inspection will help the operator determine if the workplace is safe for operation of the vehicle. The operator should perform pre-operation inspection before moving the vehicle to the workplace.
- 2) It is the operator's responsibility to understand and remember the hazards in the workplace and to be aware of and avoid these hazards when moving, installing and operating the vehicle.

## 7.3 Workplace inspection

Be aware of and avoid the following dangerous situations

- 1) Steep slope or cave
- 2) Protrusions, ground obstacles or debris
- 3) Inclined surface
- 4) Unstable or smooth surface
- 5) Overhead obstacles and high voltage wires
- 6) Dangerous location
- 7) Surface support that is not sufficient to withstand the full load applied by the vehicle



## **Chapter 8 Functional Test**





## 8.1 No operation is allowed

### unless

You have understood and practiced the principles about safe operation of the vehicle in this manual.

- 1) Avoid dangerous situations.
- 2) Always perform a pre-operation inspection.
- 3) Check the workplace.
- 4) Always perform a pre-use functional test.
- 5) You should understand the functional test and inspection before proceeding with the next step.
- 6) Use the vehicle only for its intended purpose.

## 8.2 Basic principles

- 1) Functional tests are used to detect faults before operating the vehicle.
- 2) The operator must follow the steps to test all the functions of the vehicle.
- 3) Do not use a malfunctioning vehicle. If a fault is found, the vehicle must be marked and stopped.
- 4) Only qualified authorized service technicians are allowed to maintain the vehicle according to the manufacturer's instructions.
- 5) After the maintenance is completed, the operator must perform the pre-operation inspection and functional test again before operating the vehicle.

## 8.3 Functional test

- 1) Choose a test place that is solid, level and free of obstacles.
- 2) Make sure the battery has been connected.

## 8.4 Test on the lower control

### box

- 1) Turn the key switch to the position of the lower control box.
- 2) Turn the red "Emergency Stop" button to the "ON" position.

Result: The alarm light starts to flash.

### Test of emergency stop

- 1) Push the ground red "Emergency Stop" button inward to the "OFF" position.

Result: No function can be enabled.

- 2) Turn the red "Emergency Stop" button to the "ON" position.

### Test of vehicle function

- 1) Do not press and hold the function enable button switch. Try to enable each boom and platform function button switch.

Result: No boom and platform function can be enabled.

- 2) Press and hold the function enable button and activate each boom and platform function toggle switch.

Result: The boom and platform functions should operate for a full cycle. When the boom is lowered, the lowering alarm (if equipped) should sound.

### Test of auxiliary power

- 1) Turn the key switch to the position of the lower control box.
- 2) Turn the red "Emergency Stop" button to "ON" position.
- 3) Keep the auxiliary power switch on, and activate each boom function button switch.

Note: To save battery power, test each function in a partial cycle.

- 4) Result: All functions should be enabled.

## 8.5 Test on the upper control

### box

- 1) Turn the key switch to the position of the upper control box.
- 2) Turn the red "Emergency Stop" button to the "ON" position.

Result: The alarm light starts to flash.

#### Test of emergency stop

- 1) Push the platform red "Emergency Stop" button to the "OFF" position.
- 2) Start each function control handle or toggle switch on the vehicle.

Result: No function can be enabled.

- 3) Turn the red "Emergency Stop" button to the "ON" position.

#### Test of tilt sensor

- 1) Turn the key switch to the upper control box.
- 2) Turn the platform red "Emergency Stop" button to the "ON" position.
- 3) Press the foot switch.
- 4) Lift the base boom by approximately 0.3m. The vehicle is located at a 3° slope along the boom or 3° slope in the orthogonal direction of the boom.

Result: The tilt indicator should be always on and the buzzer will sound. Limit of extending, lifting, rotation, leveling and drive functions.

- 5) Lower the base boom to the telescoped position and lift the tower boom by approximately 0.3m. The vehicle is located at a 3° slope along the boom or 3° slope in the orthogonal direction of the boom.

Result: The tilt indicator should be always on and the buzzer will sound. Limit of extending, lifting, rotation, leveling and drive functions.

- 6) Lower the tower boom to the telescoped position, extend the base boom by approximately 0.3m and the vehicle is located at a 3° slope along the boom or 3° slope in the orthogonal direction of the

boom.

Result: The tilt indicator should be always on and the buzzer will sound. Limit of extending, lifting, rotation, leveling and drive functions.

- 7) The vehicle is in the telescoped state. The vehicle is located at a less than 3° slope along the boom or less than 3° slope in the orthogonal direction of the boom.

Result: The tilt indicator may not light and the buzzer will not sound.

#### Test of horn

- 1) Press the horn button.

Result: The horn will sound.

#### Test of foot switch

- 1) Do not press the foot switch and test the vehicle's functions.

Result: The vehicle functions cannot be enabled.

#### Test of vehicle function

- 1) Press the foot switch.
- 2) Start each function control handle or toggle switch on the vehicle.

Result: All boom/platform functions should work normally in a full cycle.


#### Test of drive and steering functions

- 1) Press the foot switch.
- 2) When moving the right control handle upward, the vehicle will drive forward, and when moving the right control handle downward, the vehicle will drive backward.
- 3) When pressing the left side of the thumb rocker on the top of the control handle, the vehicle will turn to the left, and when pressing the right side of the thumb rocker on the top of the control handle, the vehicle will turn to the right.

#### Test of drive and brake functions

- 1) Press the foot switch.
- 2) Slowly move the right control handle until the vehicle moves forward or backward, and then return the handle to the center position.

Result: The vehicle suddenly stops.

 **Caution: The brake must be able to stop the vehicle stably on any slope that it can climb.**

#### Test of drive enable system

- 1) Press the foot switch and lower the boom to the telescoped position.
- 2) Rotate the turntable until the boom moves more than one non-steering wheel.

Result: The drive enable indicator should be flashes when the boom is at any position within the range shown in the figure.



- 3) Move the drive control handle away from the center position.

Result: The drive function cannot be enabled.

- 4) Move the drive enable toggle switch to one side and slowly move the drive control handle away from the center position.

Result: The drive function should be enabled.

 **Caution: When operating the**

**drive enable system, the vehicle can drive in the opposite direction of drive and steering control handle movement.**

#### Test of limited drive speed

- 1) Press the foot switch.
- 2) Lift the base boom by approximately 0.3m.
- 3) Slowly move the drive control handle to the full drive position.

Result: The maximum achievable drive speed may not exceed 0.8Km/h when the base boom is lifted.

- 4) Lower the base boom to the telescoped state.
- 5) Lift the tower boom by approximately 0.3m.

- 6) Slowly move the drive control handle to the full drive position.

Result: The maximum achievable drive speed may not exceed 0.8km/h when the tower boom is lift.

- 7) Lower the tower boom to the telescoped state.
- 8) Extend the base boom by approximately 0.3m.
- 9) Slowly move the drive control handle to the full drive position.

Result: The maximum achievable drive speed may not exceed 0.8km/h when the base boom is extended.

- 10) Telescope the boom.

If the drive speed is above 0.8km/h when the base boom is lifted and the tower boom is lifted or extended, the vehicle should be marked immediately and stopped.

#### Test of auxiliary power

- 1) Turn the key switch to the upper control box.
- 2) Turn the red "Emergency Stop" button to the "ON" position
- 3) Press the foot switch.
- 4) Push the auxiliary power button switch and activate each boom function control handle or toggle switch.

 **Caution: To save battery power,**

**test each function in a partial cycle.**

Result: All boom and steering functions should be enabled. The drive function is limited.

#### Test of lifting/drive select function

- 1) Press the foot switch.
- 2) Move the drive control handle away from the center position and activate one boom function toggle switch.

Result: The boom functions not work.



## **Chapter 9 Operating Instructions**



## 9.1 No operation is allowed

### unless

You have understood and practiced the principles about safe operation of the vehicle in this manual.

- 1) Avoid dangerous situations.
- 2) Always perform a pre-operation inspection.
- 3) Check the workplace.
- 4) Always perform a pre-use functional test.
- 5) Use the vehicle only for its intended purpose.

## 9.2 Basic principles

- 1) The vehicle is a self-propelled electric drive lifting device which is equipped with a working platform on the crank arm mechanism. The vibration generated when the vehicle is running will not be dangerous to the operator who stands on the work platform. The vehicle can be used to load workers and their portable tools to a certain height from the ground, or to reach a certain working area above the vehicle or equipment.
- 2) The Operating Instructions section provides specific instructions for all aspects of vehicle operation. It is the operator's responsibility to follow all safety rules and instructions in this manual.
- 3) In addition to lifting workers and tools to the overhead workplace, it is unsafe or even dangerous to use the vehicle for other purposes.



**Caution: This vehicle is strictly**

**prohibited from carrying goods.**

- 4) Only trained and authorized personnel can operate the vehicle. If more than one operators use the same vehicle at different times during the same work shift, they must be qualified operators and follow all safety rules and instructions in the Operation and

Maintenance Manual. This means that every new operator should perform pre-operation inspections, functional tests and workplace inspections before operating the vehicle.

## 9.3 Emergency stop

- 1) On the ground control unit or platform control unit, push the red emergency stop button to the "OFF" position to stop all functions.
- 2) The function should be fixed if it is still working when any of the red emergency stop buttons is pressed.
- 3) Selecting and operating the lower control box will interrupt the function of red "Emergency Stop" button on the platform. The lower control box takes precedence.

## 9.4 Auxiliary control

If the main power fails, the auxiliary power should be used.

- 1) Turn the key button switch to the ground or the upper control box.
- 2) Turn the red "Emergency Stop" button to the "ON" position.
- 3) When operating the power unit (i.e., emergency pump) on the platform, press the foot switch.
- 4) Enable the desired function while keeping the power unit (i.e., emergency pump) open.
- 5) The drive function may not work with the auxiliary power unit.
- 6) The single continuous use time of emergency power shall not exceed 7.5 minutes.

## 9.5 Operation on the ground

- 1) Turn the key switch to the lower control box.
- 2) Turn the red "Emergency Stop" button to the "ON" position.

### Adjust the platform position

- 1) Press and hold the function enable button switch.
- 2) Move the button switch according to the mark on the control panel.
- 3) The drive and steering functions are not available through the lower control box.

## 9.6 Operation on the platform

- 1) Turn the key switch to the upper control box.
- 2) Turn the red "Emergency Stop" button on the ground and platform to the "ON" position.
- 3) Make sure the battery is connected before operating the vehicle.

### Adjust the platform position

- 1) Press the foot switch.
- 2) Slowly move the corresponding function control handle or toggle switch according to the mark on the control panel.

### Steering

- 1) Press the foot switch.
- 2) Turn the steering wheel by pressing the thumb rocker button on the top of the control handle. When pressing the left button of the thumb rocker, the vehicle will turn to the left; when pressing the right button of the thumb rocker, the vehicle will turn to the right.

### Drive

- 1) Press the foot switch.
- 2) Increase the speed: Slowly move the drive control handle away from the center position.
- 3) Reduce the speed: Slowly move the drive control handle toward the center position.
- 4) Stop: Return the drive control handle to the center position or release the foot switch.
- 5) Determine the direction in which the vehicle will move using the directional arrow on the upper control box.

- 6) The movement speed of the vehicle will be limited when the boom is lifted



**Warning: When the vehicle is**

**going downhill, please select the medium speed mode or the slow speed mode, and that is, set the upper control box button switch in the turtle mode or snail mode!**



**Warning: Continuous driving may**

**lead to high temperature of the motor or controller. At this time, the controller is under high temperature protection and the driving action is restricted. Please put the machine on the ground and wait for the temperature of the motor or controller to decrease before continuing to drive.**

**Drive on a slope**



Maximum slope rating, platform downhill: 30% (17°)



**Caution: The slope rating is**

**limited by the ground conditions and traction.**

Make sure the boom is below the horizontal position and the platform is between the non-steering wheels. Turn the drive speed selector switch to the rabbit position.

- 1) Determine the slope

Measure the slope with a digital inclinometer or follow the steps below.

The following tools are required:

Carpentry's ruler, straight block with a length of at least 1m, tape measure

Place the block on the slope.

Place the carpentry's ruler on the upper edge of the block at the end of the downhill slope and raise the end of the block until it is level.

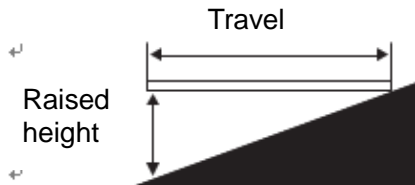
Keep the block level and measure the vertical



distance from the bottom of the block to the ground.

Divide the tape measure distance (the raised height) by the block length (travel) and multiply by 100.

eg:



Wood block=3.6m

Travel=3.6m

Raised height=0.3m

$0.3/3.6=0.083 \times 100=8.3\%$  rating

If the slope exceeds the maximum uphill, downhill or side slope rating, the vehicle must be lifted or transported up and down the slope. See the "Transportation and Lifting" section.

#### Drive enable

- 1) If the indicator is flashes, it indicates that the boom has moved one of more than two non-steering wheels and the drive function is disabled.
- 2) To drive, move the drive enable button switch to either side and slowly move the drive control handle away from the center position.

Note: The vehicle may move in the opposite direction to the drive and steering control handles.

- 3) Always determine the direction in which the vehicle drives according to the directional arrow on the upper control box and chassis.

## 9.7 Platform overload

### indicator

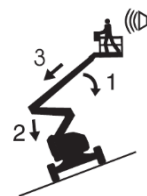
If the indicator is always on and the buzzer alarm, it indicates that the platform is overloaded and all functions will be disabled. Remove the load from the platform until the indicator is off.

## 9.8 Vehicle non-level

### indicator

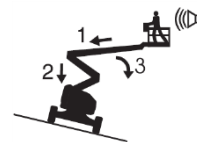
If the indicator is on, it indicates that the vehicle is not level. When the indicator is on, the buzzer will sound and the vehicle should be moved to a hard, level surface.

Determine the state of the articulating boom on slope, as shown below. Before moving the machine to the solid and horizontal ground, lower the articulating boom per the following steps. Before lowering the boom, do not rotate the boom.



If the tilt alarm sounds on the up-slope of platform:

1. Lower the base boom.
2. Lower the tower boom.
3. Retract the base boom.



If the tilt alarm sounds on the down-slope of platform:

1. Retract the base boom.
2. Lower the tower boom.
3. Lower the base boom.

## 9.9 Fall protection equipment

- 1) Personal Fall Protection Equipment (PFPE) is required to operate the vehicle.
- 2) All PFPEs must comply with the appropriate government regulations and

must be inspected and used according to the manufacturer's instructions.

## 9.10 After each use

- 1) Choose a safe parking position, which can be a solid level surface, without obstacles and heavy traffic.
- 2) Retract and lower the boom to the stowed state.
- 3) Turn the turntable so that the boom is between the non-steering wheels.
- 4) Turn the key switch to the "OFF" position and remove the key to avoid any unauthorized use.
- 5) Lock the wheel.
- 6) Charge the battery (if necessary).

## 9.11 Instructions for battery and charger

- 1) Keep in mind the followings:
  - ① Do not use an external charger or a booster battery.
  - ② Charge the battery in a well-ventilated area.
  - ③ Charge the battery using the correct AC input voltage indicated on the charger.
  - ④ Use only the batteries and chargers approved by LGMG.
- 2) Charge the battery

### Standard batteries

- ① Make sure the battery is connected before charging.
- ② Open the battery compartment cover. The compartment cover should remain open throughout the charging process.
- ③ Remove the battery vent cap and check the battery acid level. If necessary, only add the distilled water necessary for covering the plate. Do not add excessive distilled water before charging.

④ Reset the battery vent cap.

⑤ Connect the battery charger to a grounded AC circuit.

⑥ The charger will give an indication when the battery is fully charged. The indicator will flash when not fully charged.

⑦ Check the battery acid level at the end of the charge cycle. Add the distilled water to the bottom of the filling pipe. Do not add excessive distilled water.

3) Instructions for dry battery fluid filling and charging

① Open the battery vent cap.

② If the electrolyte level is far above the plate, it indicates that it is unnecessary to add water; if the electrolyte level has not yet come over the plate, it is necessary to add the distilled water. Please add water to the maximum level.

Do not fill to the maximum level until the battery charging process is completed. Excessive fluid filling may cause the battery acid to overflow during charging. Soda and water can be used to neutralize the spilled battery acid.

③ After adding water, reset the vent cap to the battery.

④ Charge the battery.

⑤ Check the battery acid level at the end of the charge cycle. Add the distilled water to the bottom of the filling pipe. Do not add excessive distilled water.

### Maintenance-free batteries

4) Charge the battery

① Make sure the battery is connected before charging.

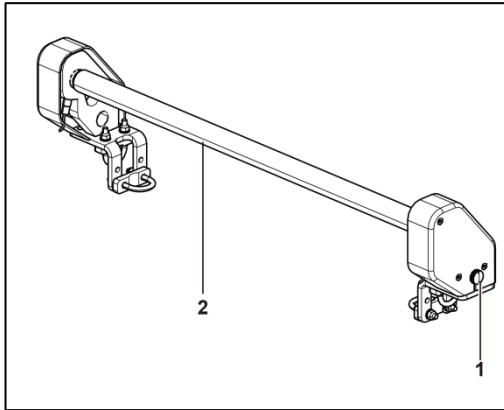
② Open the battery compartment cover. The compartment cover should remain open throughout the charging process.

③ Connect the battery charger to a grounded AC circuit.

④ The charger will give an indication when the battery is fully charged. The indicator will flash when not fully charged.

## 9.12 Instructions for

### skyguard



1. Flashing alarm

2. Safety pole

- 1) The Skyguard protective system aims to create safe and convenient operating environment for operators on the basis of ensuring operation convenience, the loading capacity of the platform and the operators' field of view.
- 2) The Skyguard protective device is disposed above the control panel of the platform. If the safety pole is stressed, the protective system will be activated instantly, and the device will stop all actions immediately, thereby preventing operators from suffering from secondary injury.
- 3) In the extreme case, the safety pole in the protective device will slip to the bottom to ensure operators have sufficient space for buffering and operation. Upon the activation of the Skyguard protective system, the device will give an alarm prompt tone immediately while the blue alarm light flickers. Through the above two approaches, other site operators are reminded, and the safety awareness of neighboring personnel is improved. In addition, the machine also provides the safety overriding switch for operators, facilitating operators to remove dangers.



## **Chapter 10 Instructions for Transportation and Lifting**

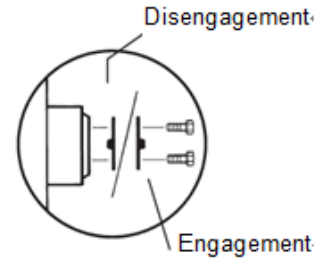


## 10.1 Compliance

- 1) Only personnel with high-altitude lifting qualifications can load and unload the vehicle.
- 2) The transport vehicle must be parked on a level surface.
- 3) When loading the vehicle, the transport vehicle must be fixed to prevent movement.
- 4) Make sure the transport vehicle's capacity, loading surface, chain or belt is sufficient to withstand the weight of the vehicle. Please refer to the nameplate for the weight of the vehicle.
- 5) Make sure the turntable has been fixed with the rotation lock before transporting. Make sure to unlock the turntable before operation.
- 6) Do not drive the vehicle on a slope that exceeds the vehicle's slope rating. Please refer to "Drive on the Slope" in the "Operation Instructions" section.
- 7) If the slope of the transport vehicle exceeds the maximum slope rating, the winch must be used to load and unload the vehicle as specified.
- 8) The vehicle is equipped with a sophisticated weighting system. It is forbidden to place heavy goods on the platform, when the vehicle is transporting, otherwise the weighting system may be damaged.

## 10.2 Freewheel configuration for trailers

- 1) Wedge the wheel to prevent the vehicle from moving.
- 2) Overturn the drive hub separation cover to release the non-steering wheel brake.



- 3) Make sure that the winch cable is properly secured to the fastening point of the drive chassis and that there are no obstacles in the moving direction.

After the vehicle is loaded:

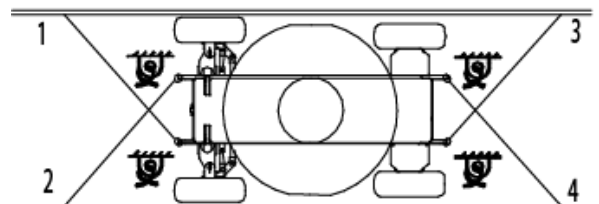
- ① Wedge the wheel to prevent the vehicle from moving.
- ② Reverse the procedures described to engage the brakes.



**Caution: Do not tow the vehicle. If the vehicle must be towed, the speed may not exceed 3.2km/h.**

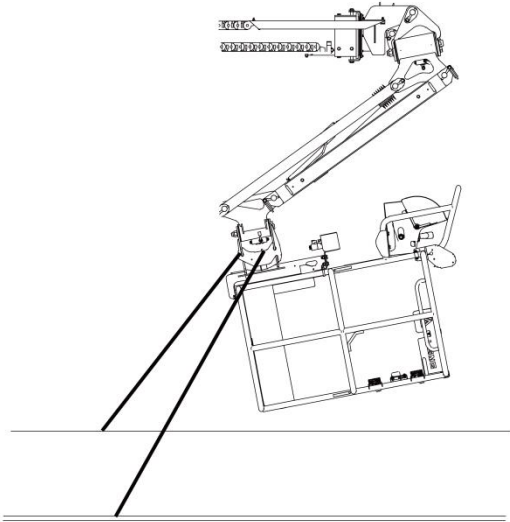
## 10.3 Transportation safety

- 1) The vehicle wheels must always be locked when preparing for transport.
- 2) Before transporting, turn the key switch to the "OFF" position and remove the key.
- 3) Thoroughly inspect the vehicle to prevent loose or unsecured parts.
- 4) Secure the vehicle to the transport surface with the fastening points on the chassis.
- 5) Use at least four chains or belts.



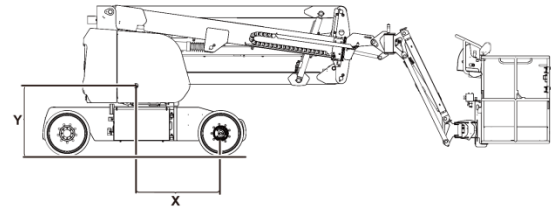
- 6) Make sure the chain or belt used has sufficient load strength.
- 7) Adjust the sling to prevent damage to the chain.
- 8) Make sure that the jib boom and platform

are telescoped. Protect the platform with the nylon strap on the platform base near the platform rotator (as shown below). Do not apply excessive downward force when protecting the boom components.



lifting point on the vehicle. There are four lifting points on the chassis.

- 4) Adjust the sling to avoid any damage to the vehicle and keep the vehicle in a level position.

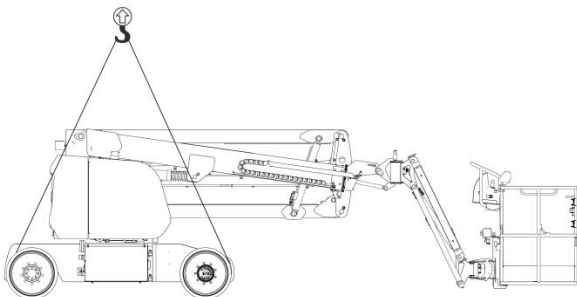


Model	X-Axis	Y- Axis
A13JE	870mm	950mm

## 10.4 Lifting instructions

**Keep in mind the followings:**

- 1) Only qualified sling assembling personnel can assemble the sling and lift the vehicle.
- 2) Make sure that the crane's lifting capacity, loading surface, belt or rope is sufficient to withstand the weight of the vehicle. Please refer to the decal and nameplate for the weight of the vehicle.



### Lifting instructions

- 1) Lower and telescope the boom completely. Lower the jib boom completely. Remove any loose parts from the vehicle.
- 2) Determine the center of gravity of the vehicle with the help of the picture below.
- 3) Only connect the sling to the specified



