

# Operation and Safety Manual

ZS1414HD/ZS1414DC/ZS1414HD-Li/ZS1414DC-Li/  
ZS1414HA/ZS1414AC/ZS1414HA-Li/ZS1414AC-Li/  
ZS1212HD/ZS1212DC/ZS1212HD-Li/ZS1212DC-Li/  
ZS1212HA/ZS1212AC/ZS1212HA-Li/ZS1212AC-Li/  
ZS1012HD/ZS1012DC/ZS1012HD-Li/ZS1012DC-Li/  
ZS1012HA/ZS1012AC/ZS1012HA-Li/ZS1012AC-Li/  
ZS0812DC/ZS0812HA/ZS0812DC-Li/ZS0812HA-Li/  
ZS0808HD/ZS0808DC/ZS0808HD-Li/ZS0808DC-Li/  
ZS0808HA/ZS0808AC/ZS0808HA-Li/ZS0808AC-Li/  
ZS0608HD/ZS0608DC/ZS0608HD-Li/ZS0608DC-Li/  
ZS0607HD/ZS0607DC/ZS0607HD-Li/ZS0607DC-Li/  
ZS0607HA/ZS0607AC/ZS0607HA-Li/ZS0607AC-Li/  
ZS0607DCS/ZS0607ACW/ZS0607ACW-Li/

ZS0407DC/ZS0407DC-Li  
Operation and Safety Manual

Nov 2021 Version G



## **Foreword**

We appreciate your choice of our machine for your application. The Operation and Safety Manual must be read and understood in its entirety before operating the machine.

This manual introduces you safety information, significant technical specs, safety operation in detail for working efficiency improving. Keep this manual properly at all times for looking up.

Do not operate the machine if there is any doubt in operation, please consult local service team for troubleshooting. We do not take the consequence of wrong operation.

This manual should be considered a permanent part of your machine and should remain with the machine at all times.

The content is under intellectual property protection, permission is required for a copy or other application.

There might be some tiny differences in details between your machine and the upgraded one due to the continuous improving. For clarification, questions, or additional information regarding any portions of this manual, contact the distributor.

Our company reserves the right to modify this manual as technical improvement without notice.

Thank you for your trust and support for our products!

## Safety Precaution Icons

This manual has the following safety precaution icons:

### **⚠ DANGER**

Failure to comply with the safety precautions listed in this manual could result in personal injury or death.

### **⚠ WARNING**

Failure to comply with the safety precautions listed in this manual could result in potential personal injury or death.

### **⚠ CAUTION**

Failure to comply with the safety precautions listed in this manual could result in potential mild personal injury.

### **NOTICE**

Indicates risks unrelated with personal injury (such as property damage).

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# **Operation and Safety Manual**

## **Section 1 Safety Precautions**





## SECTION 1 SAFETY PRECAUTIONS

### 1.1 General

To Owners/Users/Operators:

Zoomlion appreciates your choice of our machine for your application. Our number one priority is user safety, which is best achieved by our joint efforts. The following requirements need to be adhere to for the purpose of safety operating:

- a) Obey all user rules, job site regulations and governmental regulations.
- b) Read, understand and obey all operating instructions on the machine and in this manual.
- c) Keep good safety operating convention.
- d) Allow only those authorized and qualified personnel to operate the machine under the supervision of an experienced and qualified operator.
- e) An operator must not operate the machine if he has any doubts.

Zoomlion appreciates your choice of our machine for your application.

### 1.2 Pre-operation

#### **⚠ DANGER**

**Failure to comply with the safety precautions listed in this manual could result in personal injury or death.**

**An operator must not operate the machine, only if:**

- a) He has learned and practiced the principles of safe machine operation contained in this operational manual.
  - 1) Avoid hazardous situations.
  - 2) Be aware of safety rules before further operation.
  - 3) Perform a pre-operation inspection at all times.
  - 4) Implement functional test before operating the machine at all times.
  - 5) Inspect job site.
  - 6) Only use the machine as it was intended.
- b) Read, understand and obey the manufacturer's instructions and safety rules—safety and operator's manuals and machine decals.
- c) Read, understand and obey employer's safety rules and worksite regulations.

- d) Read, understand and obey all applicable governmental regulations.
- e) The operator is properly trained to safely operate the machine.

### 1.3 Hazard Classification

Decals on this machine use symbols, color coding, and signal words to identify the following:



**Safety alert symbol**—used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

#### **▲ DANGER**

Indicates a hazardous situation which, if not avoided, will result in death or serious injury. This decal will have a red background.

#### **▲ WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious injury. This decal will have an orange background.

#### **▲ CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. This decal will have a yellow background.

#### **NOTICE**

Indicates a property damage message. This decal will have a blue background.

### 1.4 Intended Use

This machine is intended to be used only to lift personnel, along with their tools, and materials to an aerial work site.

### 1.5 Safety Alert Symbols and Maintenance

Replace any missing or damaged safety signs. Keep operator safety in mind at all times. Use mild soap and water to clean safety signs. Do not use solvent-based cleaners because they may damage the safety sign material.










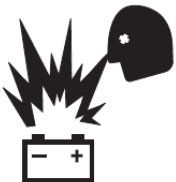




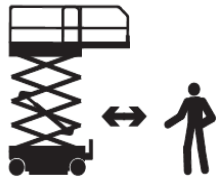



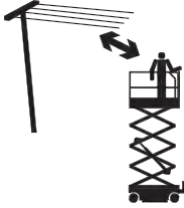


				
Read operational manual	Read service manual	Crushing hazard	Crushing hazard	Collision hazard
				
Tip-over hazard	Tip-over hazard	Tip-over hazard	Tip-over hazard	Electrocution hazard
				
Electrocution hazard	Explosion hazard	Fire hazard	Burn hazard	Dermohemia hazard
				
Engage safety arm	Keep away from moving parts	Keep clear of outriggers and tires	Move machine to level ground	Close chassis tray
				
Lower the platform	Do not set up where it cannot be leveled with outriggers	Maintain required clearance	Compartment maintenance implement by trained and authorized personnel only	Use a piece of cardboard or paper to search for leaks

Figure 1-1 Symbol and hazard pictorials definitions

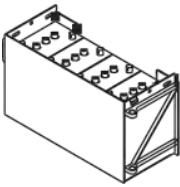


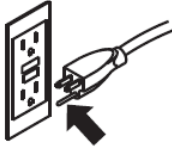


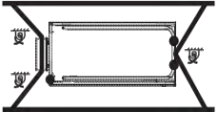






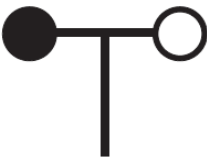

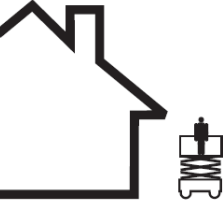

				
Batteries used as counterweights	Chock the wheels	Release brakes	3-wire grounded AC power supply only	Replace damaged wire and cable
				
Wheel load	Transporting diagram	Tie-down points	Lanyard anchorage points	No smoking
				
Voltage rating for power to platform	Pressure rating for air line to platform	Manual force	Wind speed	
				
Maximum capacity	Outdoor	Indoor		

Figure 1-1 Symbol and hazard pictorials definitions

## 1.6 Safety Operation

### 1.6.1 Operator safety

Personal fall protection equipment (PFPE) is required when operating this machine. If PFPE is required in job site or in operator's manual, following rules should be complied with:

all PFPE must comply with applicable governmental regulations, and must be inspected and used in accordance with the PFPE manufacturer's instructions.

### 1.6.2 Workplace safety

#### 1.6.2.1 Electric shock hazard

#### **⚠ DANGER**

**This machine is not electrically insulated and will not provide protection from contact with or proximity to electrical current.**

- a) Obey all local and governmental regulations regarding required clearance from electrical power lines. Keep required clearance listed in Table 1-1.



**Table 1-1 Required clearance**

No.	Voltage	Required clearance
1	0 to 50KV	3.05 m/10ft
2	50 to 200KV	4.60 m/15ft
3	200 to 350KV	6.10 m/20ft
4	350 to 500KV	7.62 m/25ft
5	500 to 750KV	10.67m/35ft
6	750 to 1000KV	13.72m/45ft

- b) Allow for platform movement, electrical line sway or sag, and beware of strong or gusty winds.
- c) Keep away from the machine if it contacts energized power lines. Personnel on the ground or in the platform must not touch or operate the machine until energized power lines are shut off.



- d) Do not operate the machine during lightning or storms.
- e) Do not use the machine as a ground for welding.

### 1.6.2.2 Tip-over hazard

#### **⚠ DANGER**

- a) Occupants, equipment and materials shall not exceed the maximum platform capacity.

**Table 1-2 Rated load**

Model	Maximum Capacity	Capacity on Platform Extended
ZS1414 Series	260kg/570 lbs	113kg /250 lbs
ZS1212 Series	350kg /770 lbs	113kg/250 lbs
ZS1012 Series	350kg/770 lbs	113kg/250 lbs
ZS0812 Series	450kg/990 lbs	113kg/250 lbs
ZS0808 Series	230kg/510 lbs	113kg/250 lbs
ZS0608 Series	380kg/840 lbs	113kg/250 lbs
ZS0607 Series	230kg/510 lbs	113kg/250 lbs
ZS0407 Series	240Kg/530 lbs	100kg/220 lbs



- b) Do not elevate the platform unless the machine is on firm level ground.



- c) Do not depend on the tilt alarm as a level indicator. The tilt alarm sounds on the chassis only when the machine is on a severe slope.

If the tilt alarm sounds: use extreme caution to lower the platform with the emergency lowering pull rod. Move the machine to a firm, level surface before lifting.

- d) Do not drive over 0.5mph (0.8km/h) with the platform raised.

Outdoor use: do not raise the platform when wind speeds may exceed 12.5 m/s (28 mph ). Lower the platform and stop operating the machine if the wind speed exceeds 12.5 m/s (28 mph ).

Indoor use: do not exceed the rated values of allowable manual force and maximum occupants listed in Table 1-3.

**Table 1-3 Maximum allowable manual force**

Model	Manual force	Maximum occupants
ZS1414 Series	400N/90 lbs force	2 (Indoor use only)
ZS1212 Series	400N/90 lbs force	3 (Indoor use only)
ZS1012 Series	400N/200N 90 lbs force /45 lbs force	2 (Indoor)/ 1 (Outdoor)
ZS0812HA Series	400N/90 lbs force	3(Indoor)/ 2 (Outdoor)
ZS0812DC Series	400N/200N 90 lbs force /45 lbs force	2 (Indoor)/ 1 (Outdoor)
ZS0808 Series	400N/90 lbs force	2 (Indoor use only)
ZS0608 Series	400N/200N 90 lbs force /45 lbs force	2 (Indoor)/ 1 (Outdoor)
ZS0607(HD/HA/DC/AC/DCS) Series	400N/90 lbs force	2 (Indoor use only)

**Table 1-3 Maximum allowable manual force**

Model	Manual force	Maximum occupants
ZS0607ACW Series	400N/200N 90 lbs force /45 lbs force	2 (Indoor)/ 1 (Outdoor)
ZS0407 Series	400N/90 lbs force	2 (Indoor use only)

- e) Do not operate the machine in strong or gusty winds. Do not increase the surface area of the platform or the load. Increasing the area exposed to the wind will decrease machine stability.



- f) Use extreme care and slow speeds while driving the machine in the stowed position across uneven terrain, debris, unstable or slippery surfaces and nearholes and drop-offs.



- g) Do not drive the machine on or near uneven terrain, unstable surfaces or other hazardous conditions with the platform raised or extended.

- h) The following operations are prohibited at any circumstances:

- 1) Push the machine or other objects with the platform.
- 2) Contact adjacent structures with the platform.
- 3) Tie the platform to adjacent structures.
- 4) Place loads outside the platform perimeter.
- 5) Operate the machine with the chassis trays open.
- 6) Push off or pull toward any object outside of the platform.



- i) Do not modify or alter an aerial work platform without prior written permission from the manufacture.
  - 1) Do not alter or disable the limit switches.
  - 2) Do not alter or disable machine components that in any way affect safety and stability.
  - 3) Do not replace items critical to machine stability with items of different weight or specification.
  - 4) Mounting attachments for holding tools or other materials onto the platform, toeboards, or guard rail system can increase the weight in the platform and the surface area of the platform or the load.
  
- j) Do not use lead acid or lithium-ion batteries that weigh less than the original equipment. Batteries are used as counterweight and are critical to machine stability.
  - 1) Each lithium-ion battery must weigh 54kg/119 lbs for ZS1414(HD-Li/HA-Li/DC-Li/AC-Li). Lithium-ion battery tray including batteries must weigh a minimum of 170kg/375 lbs.
  - 2) Each battery must weigh 37kg/82 lbs for ZS(HD/HA/DC/AC). Battery tray including batteries must weigh a minimum of 220kg/485 lbs.
  - 3) Each lithium-ion battery must weigh 47kg/104 lbs for ZS1212(HD-Li/HA-Li/DC-Li/AC-Li) /ZS1012(HD-Li/HA-Li/DC-Li/AC-Li) /ZS0812(HA-Li/DC-Li). Lithium-ion battery tray including batteries must weigh a minimum of 165kg/364 lbs.
  - 4) Each battery must weigh 37kg/82 lbs for ZS1212(HD/HA/DC/AC). Battery tray including batteries must weigh a minimum of 215kg/474 lbs.
  - 5) Each battery must weigh 30kg/66 lbs for ZS1012(HD/HA/DC/AC) / ZS0812(HA/DC). Battery tray including batteries must weigh a minimum of 190kg/419 lbs.
  - 6) Each lithium-ion battery must weigh 41kg /90 lbs for ZS0808(HD-Li/HA-Li/DC-Li/AC-Li) /ZS0608(HD-Li/DC-Li). Lithium-ion battery tray including batteries must weigh a minimum of 165kg/364 lbs.
  - 7) Each lithium-ion battery must weigh 28kg/62 lbs for ZS0808(HD/HA/DC/AC) /ZS0608(HD/DC). Battery tray including batteries must weigh a minimum of 175kg/386 lbs.
  - 8) Each lithium-ion battery must weigh 36kg/79 lbs for ZS0607(HD-Li/HA-Li/DC-Li/AC-Li/ACW-Li). Lithium-ion battery tray including batteries must weigh a minimum of 135kg/298

lbs.

- 9) Each battery must weigh 26kg/57 lbs for ZS0607(HD/HA/DC/AC/ACW). Battery tray including batteries must weigh a minimum of 145kg/320 lbs.
- 10) Each battery must weigh 37kg/82 lbs for ZS0607DCS. Battery tray including batteries must weigh a minimum of 120kg/265 lbs.
- 11) Each lithium-ion battery must weigh 30kg/66 lbs for ZS0407DC-Li. Lithium-ion battery tray including batteries must weigh a minimum of 120kg/265 lbs.
- 12) Each battery must weigh 25kg/55 lbs for ZS0407DC. Battery tray including batteries must weigh a minimum of 140kg/309 lbs.
- k) Do not place or attach fixed or overhanging loads to any part of this machine.
- l) Do not place ladders or scaffolds in the platform or against any part of this machine.



- m) Do not transport tools and materials unless they are evenly distributed and can be safely handled by person(s) in the platform.
- n) Do not use the machine on a moving or mobile surface or vehicle. Be sure the tires are in good condition and the lug nuts tightened, besides the opening pin installed in the right position.

### 1.6.2.3 Crush hazard

#### **⚠ DANGER**

- a) Keep hands and limbs out of scissors.
- b) Do not work under the platform or in the scissor links without the safety arm in place.
- c) Use common sense and planning when operating the machine with the controller from the ground. Maintain safe distances between the operator, the machine and fixed objects.

### 1.6.2.4 Danger of operation on the slope

#### **⚠ DANGER**

**Do not drive the machine on slopes that exceed its longitudinal and lateral ratings. Longitudinal and lateral ratings apply to machines in the stowed position.**

**Table 1-4 Longitudinal and lateral ratings for stowed position**

<b>Model</b>	<b>Maximum longitudinal rating for the Stowed Position</b>	<b>Maximum lateral Rating for the Stowed Position</b>
ZS1414 Series	25% (14°)	25% (14°)
ZS1212 Series	25% (14°)	25% (14°)
ZS1012 Series	25% (14°)	25% (14°)
ZS0812 Series	25% (14°)	25% (14°)
ZS0808 Series	25% (14°)	25% (14°)
ZS0608 Series	30% (17°)	30% (17°)
ZS0607 Series	25% (14°)	25% (14°)
ZS0407 Series	30% (17°)	30% (17°)

**1.6.2.5 Fall off hazard**

**⚠ DANGER**

**The guard rails system provides fall protection. If occupant(s) of the platform are required to wear personal fall protection equipment (PFPE) due to job site or employer rules, PFPE and its use shall be in accordance with the PFPE manufacturer's instructions and applicable governmental requirements. Use approved lanyard attachment point provided.**

- a) Do not sit, stand or climb on the platform guard rails. Maintain a firm footing on the platform floor at all times.
- b) Do not climb down from the platform when raised.



- c) Keep the platform floor clear of debris.
- d) Do not enter or exit the platform unless the machine is in the stowed position.
- e) Attach the platform entry chain or close the entry gate before operating.
- f) Do not operate the machine unless the guard rails are properly installed and the entry is secured for operation.

#### 1.6.2.6 Collision hazard

### **⚠ DANGER**

#### **No stunt driving or horseplay while operating a machine.**

- a) Be aware of limited sight distance and blind spots when driving and operating.



- b) Be aware of extended platform position when moving the machine.
- c) Be sure the machine is on a level surface or secured before releasing the brake.
- d) Operators must comply with employer, job site, and governmental rules regarding use of personal protective equipment.
- e) Check the work area for overhead obstructions or other possible hazards.



- f) Be aware of crushing hazards when grasping the platform guard rail.



- g) Observe and use the color-coded direction arrows on the platform controls and the platform decal plate for drive and steer functions.

- h) Do not lower the platform unless the area below is clear of personnel and obstructions.



- i) Limit travel speed according to the condition of the ground surface, congestion, slope, location of personnel, and any other factors which may cause collision.



- j) Do not operate a machine in the path of any crane or moving overhead machinery unless the controls of the crane have been locked out and/or precautions have been taken to prevent any potential collision.

### 1.6.2.7 Burn hazard

#### **⚠ DANGER**

- a) Liquid or gas burn hazard.
  - 1) Do not operate a machine with a hydraulic oil or air leak. An air leak or hydraulic leak can penetrate and/or burn skin.

- 2) Batteries contain acid. Always wear protective clothing and eye wear when working with batteries.



- 3) Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.
- 4) Do not expose the battery or charger in water or rain while charging.

**⚠ DANGER**

- b) Electric shock or burn hazard.
  - 1) Conduct daily check with wires and cables.



- 2) Change damaged items prior to operation. Avoid contact with battery terminals. Remove all rings, watches and jewelry.
- 3) Connect the battery charger to a grounded, AC 3-wire electrical outlet only.

**1.6.2.8 Explosion and fire hazard**

**⚠ DANGER**

- a) Do not operate the machine or charge the battery in hazardous locations or locations where potentially flammable or explosive gases or particles may be present.
- b) Keep sparks, flames, and lighted tobacco away from batteries. Batteries emit explosive gas.



- c) Swing out the charger tray when charging indoor for cooling.



- d) Do not use tools which could produce flames to contact battery terminals or cable clamp.
- e) Keep lithium-ion battery away from heat.
- f) Do not over charge or over discharge the lithium-ion battery.
- g) If there is heat, deformation, liquid leakage, odor or smoke when charging, stop using the lithium-ion battery and place the battery in an open place away from the crowd.
- h) It is strictly forbidden to immerse the lithium-ion battery in water, acid, alkaline and salt solution. Avoid rain.

### 1.6.2.9 Machine damage hazard

#### **⚠ DANGER**

- a) Do not use a damaged or malfunctioning machine. Conduct a thorough pre-operation inspection of the machine and test all functions before each work shift.
- b) Immediately tag and remove from service a damaged or malfunctioning machine.
- c) Be sure all maintenance has been performed as specified in this manual and the appropriate Zoomlion service manual.
- d) Be sure all decals are in place and legible.
- e) Be sure operator's, safety, and responsibilities manuals are complete, legible, and in the storage container located on the machine.

### 1.6.2.10 Component damage hazard

#### **⚠ DANGER**

- a) Do not use a charger other than the ZOOMLION charger.
- b) Use the appropriate number of people and proper lifting techniques when lifting batteries. Locked after each use.



# **Operation and Safety Manual**

## **Section 2 Machine Components and Controls**





## SECTION 2 MACHINE COMPONENTS AND CONTROLS

### 2.1 Machine Components

a) ZS1414/ZS1212/ZS1012 Series.

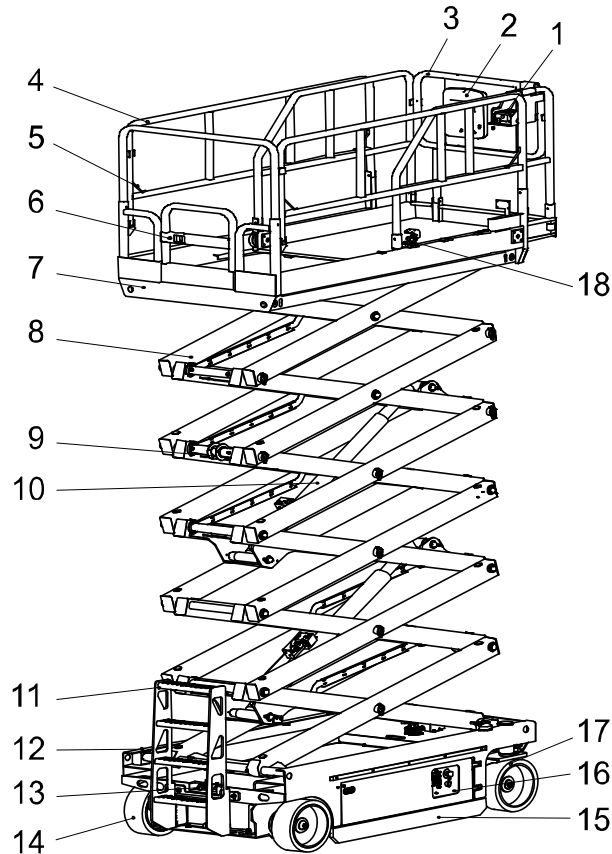


Figure 2-1 Components 1

Table 2-1 Component Instruction 1

No.	Item	No.	Item	No.	Item
1	Platform Console	7	Fixed platform	13	Manual pump (HD series only)
2	Manual Storage Container	8	Scissor arm	14	Non-steering tire
3	Platform extension	9	Safety arm	15	Pothole guard
4	Platform guard rails	10	Lifting cylinder	16	Ground control
5	Lanyard anchorage points	11	Entry ladder	17	Steering wheel
6	Platform entry gate	12	Charger	18	Foot switch

b) ZS0812/ZS0808/ZS0608/ZS0607 Series.

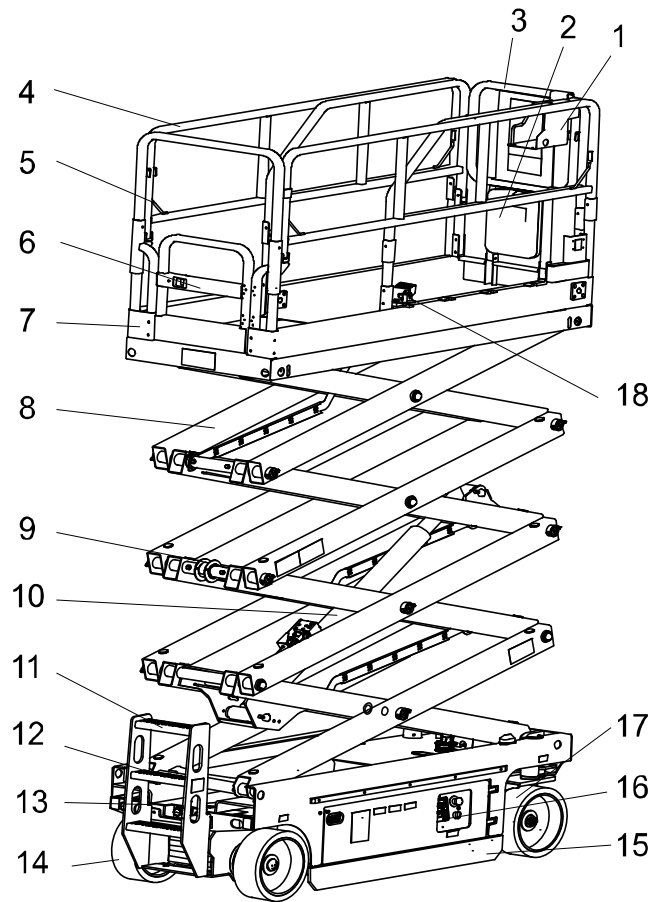


Figure 2-2 Components 2

Table 2-2 Component instruction 2

No.	Item	No.	Item	No.	Item
1	Platform Console	7	Fixed platform	13	Manual pump (HD series only)
2	Manual Storage Container	8	Scissor arm	14	Non-steering tire
3	Platform extension	9	Safety arm	15	Pothole guard
4	Platform guard rails	10	Lifting cylinder	16	Ground control
5	Lanyard anchorage points	11	Entry ladder	17	Steering wheel
6	Platform entry gate	12	Charger	18	Footswitch

c) ZS0407DC/ZS0407DC-Li.

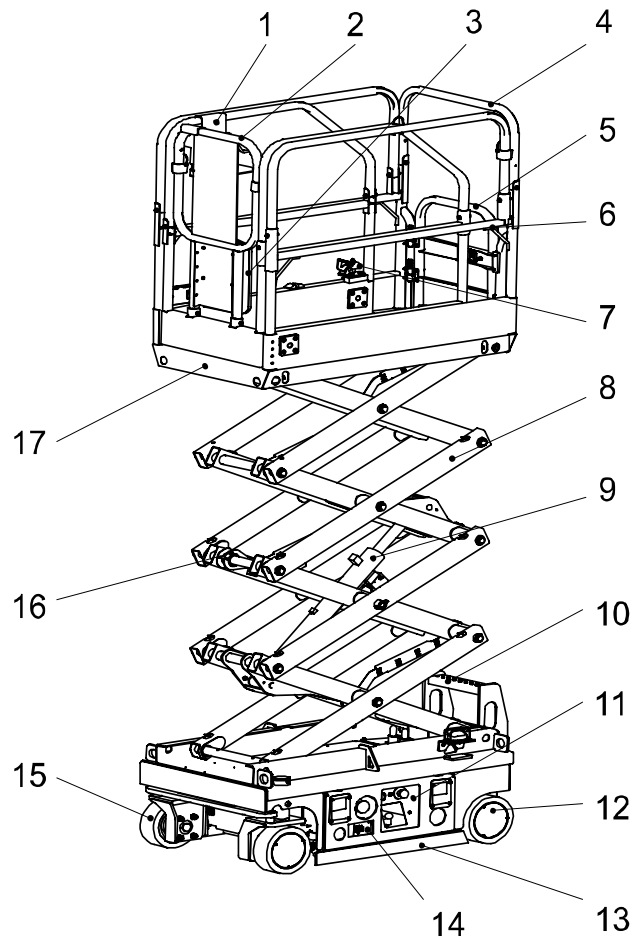


Figure 2-3 Components 3

Table 2-3 Component instruction 3

No.	Item	No.	Item	No.	Item
1	Platform Console	7	Foot switch	13	Pothole guard
2	Platform extension	8	Scissor arm	14	Charger
3	Manual Storage Container	9	Lifting cylinder	15	Steering wheel
4	Platform guard rails	10	Entry ladder	16	Safety arm
5	Platform entry gate	11	Ground control	17	Fixed platform
6	Lanyard anchorage points	12	Non-steering tire		

## 2.2 Machine Controller

### **CAUTION**

The manufacturer has no direct control over machine application and operation. The user and operator are responsible for conforming with good safety practices.

#### 2.2.1 Electronic control unit (ECU)

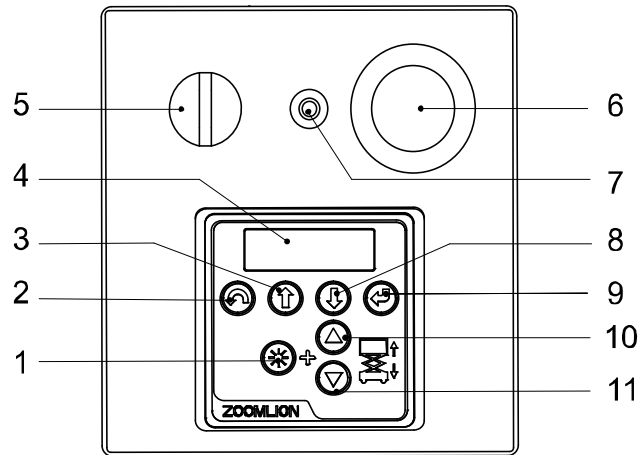


Figure 2-4 Electronic control Panel

Table 2-4 Electronic control panel instruction

No.	Item	No.	Item
1	Lifting enable button	7	10A breaker
2	Menu escape button	8	Menu down button
3	Menu up button	9	Menu enter button
4	LCD diagnostic readout	10	Platform up button
5	Key switch	11	Platform down button
6	Emergency stop switch		

a) Lifting enable button.

Press this button to activate lifting function.

b) Key switch.

Turn the switch to the platform position and the platform controls will operate. Turn the key switch to the off position and the machine will be off. Turn the key switch to the ground position and the electronic controls will operate.

c) Emergency stop switch.



Push in the Red Emergency Button to the off position to stop all functions. Pull out the Red Emergency Button to the on position to operate the machine.

### 2.2.2 Platform control unit (PCU)

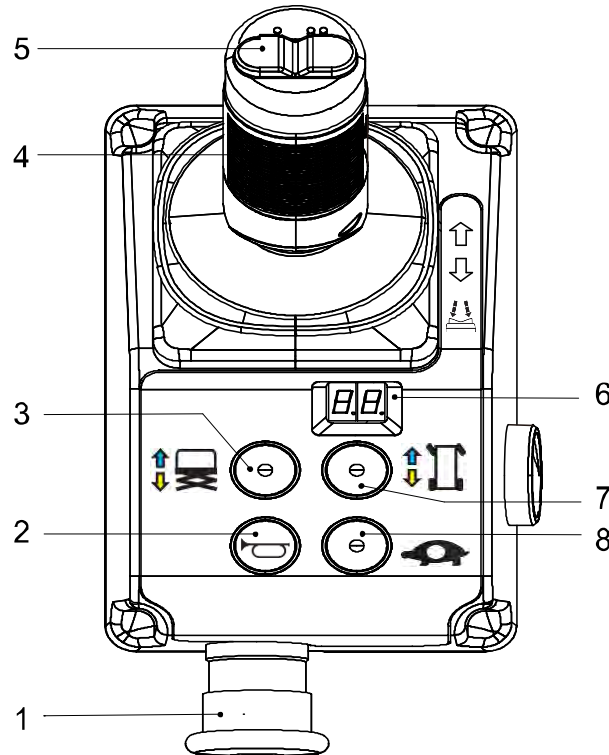


Figure 2-5 Platform control panel

Table 2-5 Platform control panel instruction

No.	Item	No.	Item
1	Emergency stop switch	5	Steering thumb button
2	Horn button	6	LED Readout
3	Lift function button	7	Drive function button
4	Control handle	8	Drive speed button

a) Emergency stop switch.

Push in the Red Emergency Button to the off position to stop all functions. Pull out the Red Emergency Button to the on position to operate the machine.

b) Horn button.

Press the horn button and the horn will sound. Release the horn button and the horn will not sound.



- c) Lift function button.

Push this button to activate the lift function. If the control handle is not moved within seven seconds, press the lift function button again.



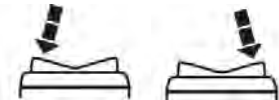
- d) Proportional control handle and function enable switch for drive, steer and lift functions.

Lift function: press and hold the function enable switch to enable the lift function on the platform control handle. Move the control handle in the direction indicated by the blue arrow and the platform will raise. Move the control handle in the direction indicated by the yellow arrow and the platform will lower. The descent alarm should sound while the platform is lowering.

Drive function: press and hold the function enable switch to enable the drive function on the platform control handle. Move the control handle in the direction indicated by the blue arrow on the control panel and the machine will move in the direction that the blue arrow points. Move the control handle in the direction indicated by the yellow arrow on the control panel and the machine will move in the direction that the yellow arrow points.

- e) Thumb switch for steer function.

Press the left side of the thumb switch and the machine will turn in the direction the blue triangle points on the platform control panel. Press the right side of the thumb switch and the machine will turn in the direction the yellow triangle points on the platform control panel.



- f) LED readout for electric quantity indication and indicative operation code display.

- g) Drive function button.

Push this button to activate the drive function. If the control handle is not moved within seven seconds, press the lift function button again.



- h) Drive speed button.

Press this button to activate the slow drive mode. The indicator light will illuminate when the slow drive mode is activated. Select this function in drive mode.



# **Operation and Safety Manual**

## **Section 3 Machine Inspection**





## SECTION 3 MACHINE INSPECTION

### 3.1 General

#### **⚠ DANGER**

**An operator must not operate the machine, only if he has learned and practiced the principles of safe machine operation contained in this operational manual.**

- a) Avoid hazardous situation.
- b) Perform a pre-operation inspection at all times.

**Know and understand the pre-operation inspection before going on to the next section.**

- c) Conduct functional test before usage.
- d) Inspect job site.
- e) Only use the machine as it was intended.

#### **3.1.1 Pre-operation inspection fundamentals**

- a) It is the responsibility of the operator to perform a pre-operation inspection and routine maintenance.
- b) The pre-operation inspection is a visual inspection performed by the operator prior to each workshift. The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests.
- c) The pre-operation inspection also serves to determine if routine maintenance procedures are required. Only routine maintenance specified in this manual may be performed by the operator.
- d) Refer to the list on the next page and check each of the items.
- e) If damage or any unauthorized variation from factory delivered condition is discovered, the machine must be tagged and removed from service.
- f) Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications. After repairs are completed, the operator must perform a pre-operation inspection again before going on to the function tests.
- g) Scheduled maintenance inspections shall be performed by qualified service technicians according to the manufacturer's specifications and the requirements listed in the responsibilities manual.

#### **3.1.2 Pre-operation inspection**

- a) Be sure operation, safety, and responsibilities manuals are complete, legible, and in the storage container located on the machine.
- b) Be sure all decals are in place and legible. See Inspection section.
- c) Check for hydraulic oil leaks and proper oil level. Add oil if needed. See Maintenance section.

- d) Check for engine oil leaks and proper oil level. Add oil if needed. See Maintenance section.
- e) Check for engine coolant leak and proper liquid level. Add coolant if needed. See Maintenance section.
- f) Check the following components or areas for damage, improperly installed, or missing parts and unauthorized modification:
  - 1) Electrical components, wiring, and electrical cables.
  - 2) Hydraulic hoses, fittings, cylinders, manifolds.
  - 3) Drive motors.
  - 4) Wearing pads.
  - 5) Tires and wheels.
  - 6) Engine and related components.
  - 7) Alarm and indicator (if equipped).
  - 8) Nuts, bolts and other fasteners.
  - 9) Brake release components.
  - 10) Safety arm.
  - 11) Platform extension.
  - 12) Scissor pin and retaining fasteners.
  - 13) Platform joystick.
  - 14) Outrigger hosing and foot pad (if equipped).
  - 15) Battery pack and connections.
  - 16) Ground strap.
  - 17) Platform entry chain or gate.
  - 18) Platform overload components.
  - 19) Pothole guards.
  - 20) Lanyard anchorage points.
  - 21) Check the machine for:
    - ① Cracks in welds or structural components
    - ② Dents or damage.
    - ③ Rust, corrosion, or oxidation.

- g) Be sure that all structural and other critical components are present and all associated fasteners and pins are in place and properly tightened.
- h) Be sure that the engine trays are closed and latched and the batteries are properly connected.
- i) Be sure that the hood is in place and locked after inspection.

### **⚠ CAUTION**

**If the platform must be raised to inspect the machine, make sure the safety arm is in place. See Operating Instruction section.**

## **3.2 Function Test**

### **3.2.1 Function test fundamentals**

- a) The function tests are designed to discover any malfunctions before the machine is put into service. The operator must follow the step-by-step instructions to test all machine functions.
- b) A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service. Repair to the machine may only be made by a qualified service technician, according to the manufacturer's specifications.
- c) After repairs are completed, the operator must perform a pre-operation inspection again before putting the machine into service.

### **⚠ DANGER**

**An operator must not operate the machine, only if he has learned and practiced the principles of safe machine operation contained in this operational manual.**

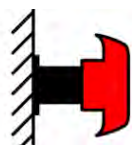
- a) Avoid hazardous situations.
- b) Perform a pre-operation inspection at all times.
- c) Conduct functional test before usage.

**Know and understand the pre-operation inspection before going on to the next section.**

- d) Inspect job site.
- e) Only use the machine as it was intended.

### **3.2.2 Turn on the Power Switch**

Pull out the red main power switch to on position which located on the side of battery container.

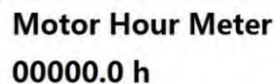


### 3.2.3 At the electronic controls

- a) Test emergency stop.
- 1) Select a test area that is firm, level and free of obstruction.
  - 2) Be sure the batteries are connected.
  - 3) Pull out the platform and ground red Emergency Stop Button to the on position.
  - 4) Turn the key switch to electronic control.
  - 5) Observe the diagnostic LED readout on the platform controls. The LED should look like the picture below:



- 6) Observe the diagnostic LCD readout on the electronic controls. The LCD should display the model and hour meter:



**Motor Hour Meter**  
**00000.0 h**

- 7) Push in the ground red Emergency Stop Button to off position.
  - 8) Result: No function should operate.
  - 9) Pull out the red Emergency Stop Button to the on position.
- b) Test the Up/Down functions.
- 1) This machine uses flashlights and buzzer warning.
  - 2) Descent alarm: the flashlight illuminates 60 times per minute. The descent alarm sounds at 60 beeps per minute.
  - 3) Descent delay alarm: the flashlight illuminates 120 times per minute. The descent alarm sounds at 120 beeps per minute.
  - 4) When the pothole guards have not deployed: the flashlight illuminates 120 times per minute. The descent alarm sounds at 120 beeps per minute.
  - 5) When the machine is not level: the flashlight illuminates 120 times per minute. The descent alarm sounds at 120 beeps per minute.
  - 6) Do not press the lift function enable button.
  - 7) Press the platform up or down button.
  - 8) Result: the lift function should not operate.



- 9) Do not press the platform up or down button.
- 10) Press the lift function enable button.
- 11) Result: the lift function should not operate.
- 12) Press and hold the lift function enable button and the platform up button.
- 13) Result: the platform should raise.
- 14) Press and hold the lift function enable button and platform down button.
- 15) Result: the platform should lower.

The minimum distance between platform and ground should reach 2.3m/7ft 7in. Descent delay light will illuminate and alarm will sound. Be sure there is no personnel or obstructions under the platform when lowering. Release and move the control handle to continue the lowering operation.

- c) Test emergency lowering.
  - 1) Activate the up function by pressing the lift enable button and platform up button, and raise the platform approximately 60cm /2ft.
  - 2) Pull the emergency lowering knob located behind the entry ladder.
  - 3) Result: platform should lower. Descent alarm will not sound.

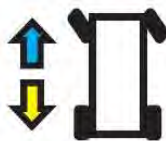
### 3.2.4 At the platform controls

- a) Test emergency stop.
  - 1) Select a test area that is firm, level and free of obstruction.
  - 2) Turn the key switch to platform control.
  - 3) Push in the platform red Emergency Stop Button to the off position.
  - 4) Result: no function should operate.
- b) Test the horn.
  - 1) Pull out the red Emergency Stop to the on position.
  - 2) Press the horn button.
  - 3) Result: the horn should sound.
- c) Test the Function Enable Switch and Up/Down function.
  - 1) Do not hold the function enable switch on the control handle.
  - 2) Slowly move the control handle in the direction indicated by the blue arrow, then in the direction indicated by the yellow arrow.
  - 3) Result: no function should operate.

- 4) Press the lift function enable button.
- 5) Wait seven seconds for the lift function to time out.



- 6) Slowly move the control handle in the direction indicated by the blue arrow, then in the direction indicated by the yellow arrow.
  - 7) Result: the lift function should not operate.
  - 8) Press the lift function enable button, the indicator lights up.
  - 9) Press and hold the function enable switch on the control handle when indicator lighting, and slowly move the control handle in the direction indicated by the blue arrow.
  - 10) Result: the platform should raise. The pothole guards should deploy.
  - 11) Release the control handle.
  - 12) Result: the platform should stop raising.
  - 13) Press and hold the function enable switch on the control handle when indicator lighting, and slowly move the control handle in the direction indicated by the yellow arrow.
  - 14) Result: the platform should lower.
- d) Test drive function button.
- 1) Press the drive function button, then the indicator lights up.

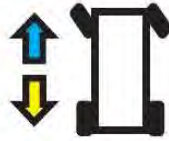


- 2) Wait seven seconds for the drive function to time out.
  - 3) Slowly move the control handle in the direction indicated by the blue arrow, then in the direction indicated by the yellow arrow.
  - 4) Result: no function should operate.
- e) Test the steering.

**CAUTION**

**When performing the steer and drive function tests, stand in the platform facing the steer end of the machine.**

- 1) Press the drive function button, then the indicator lights up.

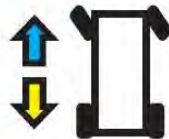


- 2) Press and hold the functional enable switch on the control handle when lighting.
  - 3) Press the thumb rocker switch on top of control handle in the direction indicated by the blue triangle on the control panel.
  - 4) Result: the steer wheels should turn in the direction indicated by the blue triangle.
  - 5) Press the thumb rocker switch on top of the control handle in the direction indicated by the yellow triangle on control panel.
  - 6) Result: the steer wheels move towards the direction indicated by the yellow triangle.
- f) Test driving and braking.

**CAUTION**

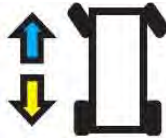
**The brake must be able to hold the machine on any slope it is able to climb. This test is performed on the ground with a platform controller. Do not stand in the platform.**

- 1) Press the drive function button, then the indicator lights up.

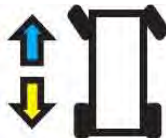


- 2) Press the function enable switch on the control handle when lighting.
  - 3) Slowly move the control handle in the direction indicated by the blue arrow on the control panel until the machine begins to move, then return the control handle to the center position.
  - 4) Result: the machine should move in the direction that the blue arrow points on the control panel, then come to an abrupt stop when the control handle is returned to the center position.
  - 5) Slowly move the control handle in the direction indicated by the yellow arrow on the control panel until the machine begins to move, then return the control handle to the center position.
  - 6) Result: the machine should move in the direction that the yellow arrow points on the control panel, then come to an abrupt stop when the control handle is returned to the center position.
- g) Test the tilt sensor operation.
- 1) Fully lower the platform.
  - 2) Place a 5\*10cm/2\*4in or similar piece of wood under both wheels on the side and drive the machine up onto them.
  - 3) Raise the platform approximately 2.3m/ 7ft 7in from the ground.

- 4) Result: the platform should stop raising. The tilt alarm will sound and the light will illuminate. Platform controller LED readout displays LL, ground controller LCD displays LL: Machine Tilted.
- 5) Press the drive function button, then the indicator lights up.



- 6) Press and hold the functional enable switch on the control handle.
  - 7) Move the control handle in the direction indicated by the blue arrow, then move the control handle in the direction indicated by the yellow arrow.
  - 8) Result: the drive function should not work in either direction.
  - 9) Lower the platform and remove both pieces of wood.
- h) Test elevated drive speed.
- 1) Raise the platform approximately 2.3m/7ft 7in from the ground.
  - 2) Press the drive function button, then the indicator lights up.



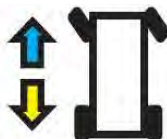
- 3) Press and hold the functional enable switch on the control handle. Slowly move the control handle to full drive position.
  - 4) Result: the maximum achievable drive speed with the platform raised should not exceed 22cm/9in per second.
  - 5) If the drive speed with the platform raised exceeds 22cm/9in per second, immediately tag and remove the machine from service.
- i) Test the pothole guards.

### **CAUTION**

**The pothole guards should automatically deploy when the platform is raised. The pothole guards activate limit switches that allow the machine to continue to function. If the pothole guards do not deploy, an alarm sounds and the machine will not drive or steer.**

- 1) Raise the platform.
- 2) Result: when the platform is raised 2.3m/7ft 7in from the ground, the pothole guards should deploy.

- 3) Press on the pothole guards on one side, and then the other.
- 4) Result: the pothole guards should not move.
- 5) Lower the platform.
- 6) Result: the pothole guards should return to the stowed position.
- 7) Place a 5-10cm/2\*4 in or similar piece of wood under a pothole guard.
- 8) Raise the platform.
- 9) Result: before the platform is raised 2.3m/7ft 7in from the ground, a warning light should illuminate, and an alarm should sound. The platform controls LED readout should display 18 and the electronic controls LCD should display 18: Pothole Guard Fault.
- 10) Press the drive function button.



- 11) Press and hold the functional enable switch on the control handle.
- 12) Slow move the control handle in the direction indicated by the blue arrow, then in the direction indicated by the yellow arrow.
- 13) Result: the machine should not move forward or backward.
- 14) Press the drive function button, then the indicator lights up.
- 15) Press and hold the functional enable switch on the control handle.
- 16) Press the thumb rocker switch on top of the control handle in the direction indicated by the blue and yellow triangles on the control panel.
- 17) Result: the steer wheels should not turn left or right.
- 18) Lower the platform.
- 19) Remove the 5\*10cm/2\*4 in or similar piece of wood.

### 3.2.5 Turn off the main power switch

When the machine has not been used for a long time, press the red Main Power Switch on the side of the battery box to the off position to turn off the main power.



### 3.3 Workplace Inspection

#### **⚠ DANGER**

**An operator must not operate the machine, only if he has learned and practiced the principles of safe machine operation contained in this operational manual.**

- a) Avoid hazardous situations.
- b) Perform a pre-operation inspection at all times.
- c) Implement functional test before operation the machine at all times.
- d) Inspect job site

Know and understand the workplace inspection before going on to the next section.

- e) Only use the machine as it was intended.

#### **3.3.1 Workplace inspection fundamentals**

Workplace inspection helps the operator determine if the workplace is suitable for safe machine operation. It should be performed by the operator prior to moving the machine to the workplace. It is operator's responsibility to read and remember the workplace hazards, then watch for and avoid them while moving, setting up, and operating the machine.

#### **3.3.2 Workplace inspection**

Be aware of and avoid the following hazards:

- a) Drop-offs or holes.
- b) Bumps, floor obstructions or debris.
- c) Sloped surfaces.
- d) Unstable or smooth surfaces.
- e) Overhead obstructions and electric lines.
- f) Hazardous locations
- g) Inadequate surface support to withstand all load forces imposed by the machine.
- h) Wind and weather conditions.
- i) Unauthorized personnel.
- j) Other possible unsafe conditions.

### 3.4 Decals Inspection

Use the lists and pictures below to verify that all decals are legible and in place.

**Table 3-1 Decal 1 (ZS1414 Series)**

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775207010403010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775707030201020	Label- Capacity, 260kg /570 lbs	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775307080401050	Label- AC Power to Platform	1
11	00775607010401030	Label- Wheels Load, 1280kg /2820 lbs	4
12	00775307080402110	Instruction- Main Power Switch Operation	1
13	00775307080402060	Danger- Explosion and Fire Hazard	1
14	00775307040401040	Danger- Crushing Hazard	5
15	00775307040401050	Label- Safety Arm	4
16	00775307080402170	Label- Max Manual Force	1
17	00775307080401060	Label- Platform Power Rated Voltage	1
18	00775307040401100	Danger- Tip-over Hazard	1
19	00775307080402130	Label- Pre-operation Inspection	1
20	00775307080202140	Label- Charger Power Supply	1
21	00775207020201020	Label- Lithium-ion Battery (ZS1414HD/DC/HA/AC-Li only)	2
22	00775307080401040	Label- High pressure liquid hazard	1
23	00775307040401070	Label- Notice, Close tray	2
24	00775307040401060	Label- Use safety arm	1
25	00775307080401020	Label- Electrocution hazard	1
26	00775307010402050	Label- Battery tray quality warranty	1
27	00775307020401010	Label- Brake release (ZS1414HD/HA/HD-Li/HA-Li only)	1
28	00775609900401040	Nameplate	1
29	00775307080401080	Label- non-insulated	1

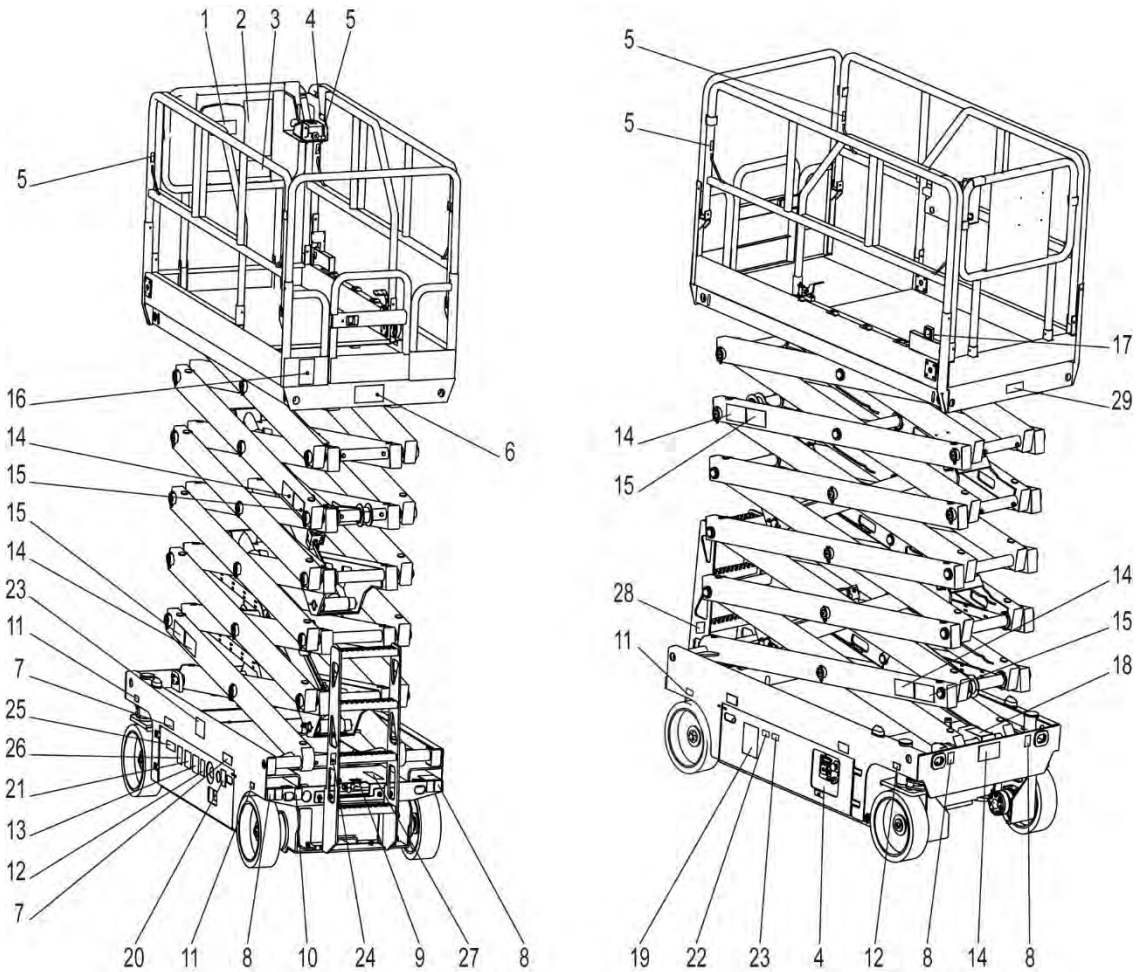


Figure 3-1 Decal position 1 (ZS1414 Series)



Table 3-2 Decal 2 (ZS1212 Series)

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775207010403010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775607010201020	Label- Capacity, 350kg /770 lbs	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775307080401050	Label- AC Power to Platform	1
11	00775607010401030	Label- Wheels Load, 1280kg /2820 lbs	4
12	00775307080402110	Instruction- Main Power Switch Operation	1
13	00775307080402060	Danger- Explosion and Fire Hazard	1
14	00775307040401040	Danger- Crushing Hazard	5
15	00775307040401050	Label- Safety Arm	4
16	00775307080402170	Label- Max Manual Force	1
17	00775307080401060	Label- Platform Power Rated Voltage	1
18	00775307040401100	Danger- Tip-over Hazard	1
19	00775307080402130	Label- Pre-operation Inspection	1
20	00775307080202140	Label- Charger Power Supply	1
21	00775207020201020	Label- Lithium-ion Battery (ZS1212HD/DC/HA/AC-Li only)	2
22	00775307080401040	Label- High pressure liquid hazard	1
23	00775307040401070	Label- Notice, Close tray	2
24	00775307040401060	Label- Use safety arm	1
25	00775307080401020	Label- Electrocution hazard	1
26	00775307010402050	Label- Battery tray quality warranty	1
27	00775307020401010	Label- Brake release (ZS1212HD/HA/HD-Li/HA-Li only)	1
28	00775609900401040	Nameplate	1
29	00775307080401080	Label- non-insulated	1

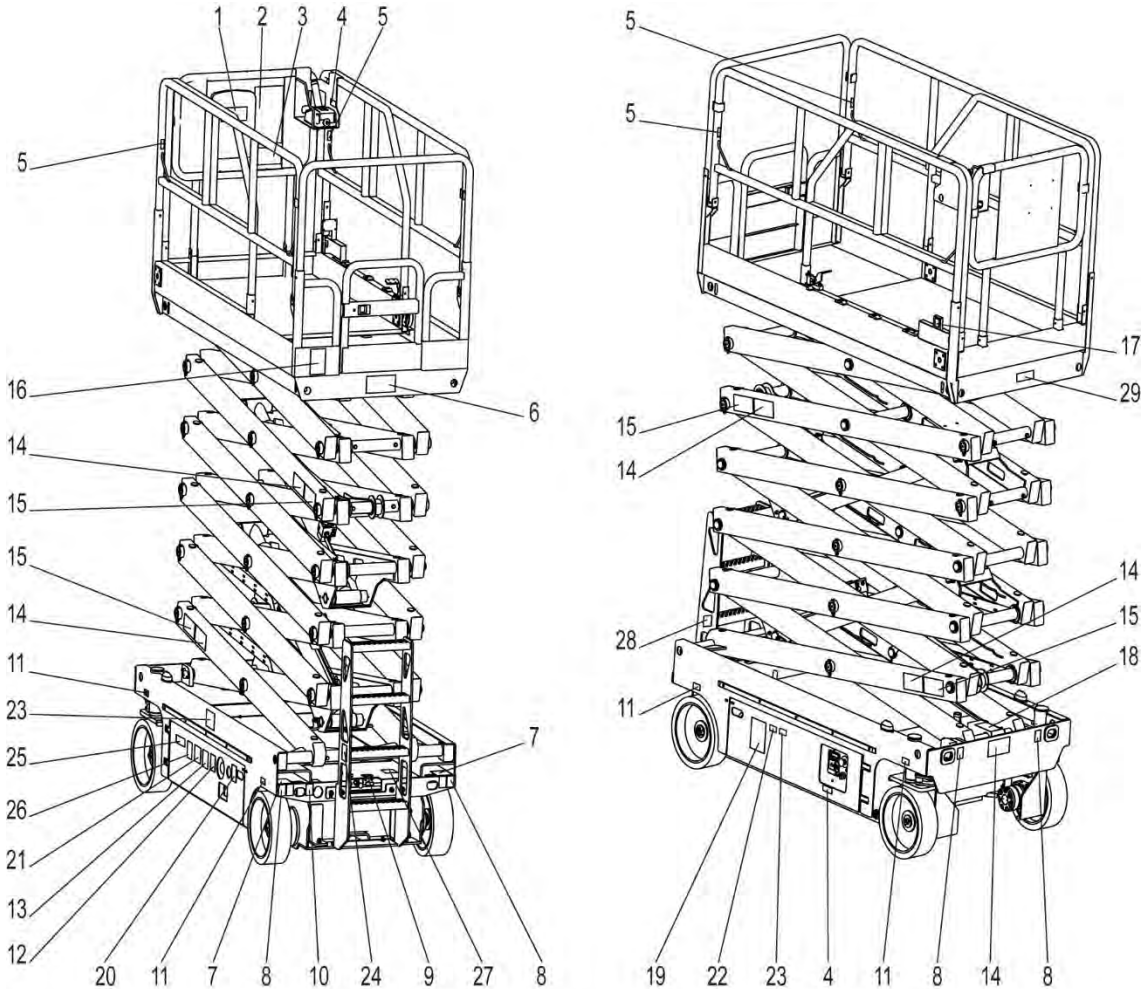


Figure 3-2 Decal position 2 (ZS1212 Series)

Table 3-3 Decal 3 (ZS1012 Series)

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775307010402010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775507010201030	Label- Capacity, 350kg/770 lbs	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775307080401050	Label- AC Power to Platform	1
11	00775507010401040	Label- Wheel Load, 1183kg/2610 lbs	4
12	00775307080402110	Instruction- Main Power Switch Operation	1
13	00775307080402060	Danger- Explosion and Fire Hazard	1
14	00775307040401040	Danger- Crushing Hazard	5
15	00775307040401050	Label- Safety Arm	4
16	00775307010402030	Label- Max Manual Force	1
17	00775307080401060	Label- Platform Power Rated Voltage	1
18	00775307040401100	Danger- Tip-over Hazard	1
19	00775307080402130	Label- Pre-operation Inspection	1
20	00775307080202140	Label- Charger Power Supply	1
21	00775207020201020	Label- Lithium-ion Battery (ZS1012HD/DC/HA/AC-Li only)	2
22	00775307080401040	Label- High pressure liquid hazard	1
23	00775307040401070	Label- Notice, Close tray	2
24	00775307040401060	Label- Use safety arm	1
25	00775307080401020	Label- Electrocutation hazard	1
26	00775307010402050	Label- Battery tray quality warranty	1
27	00775307020401010	Label- Brake release (ZS1012HD/HA/HD-Li/HA-Li only)	1
28	00775609900401040	Nameplate	1
29	00775307080401080	Label- non-insulated	1

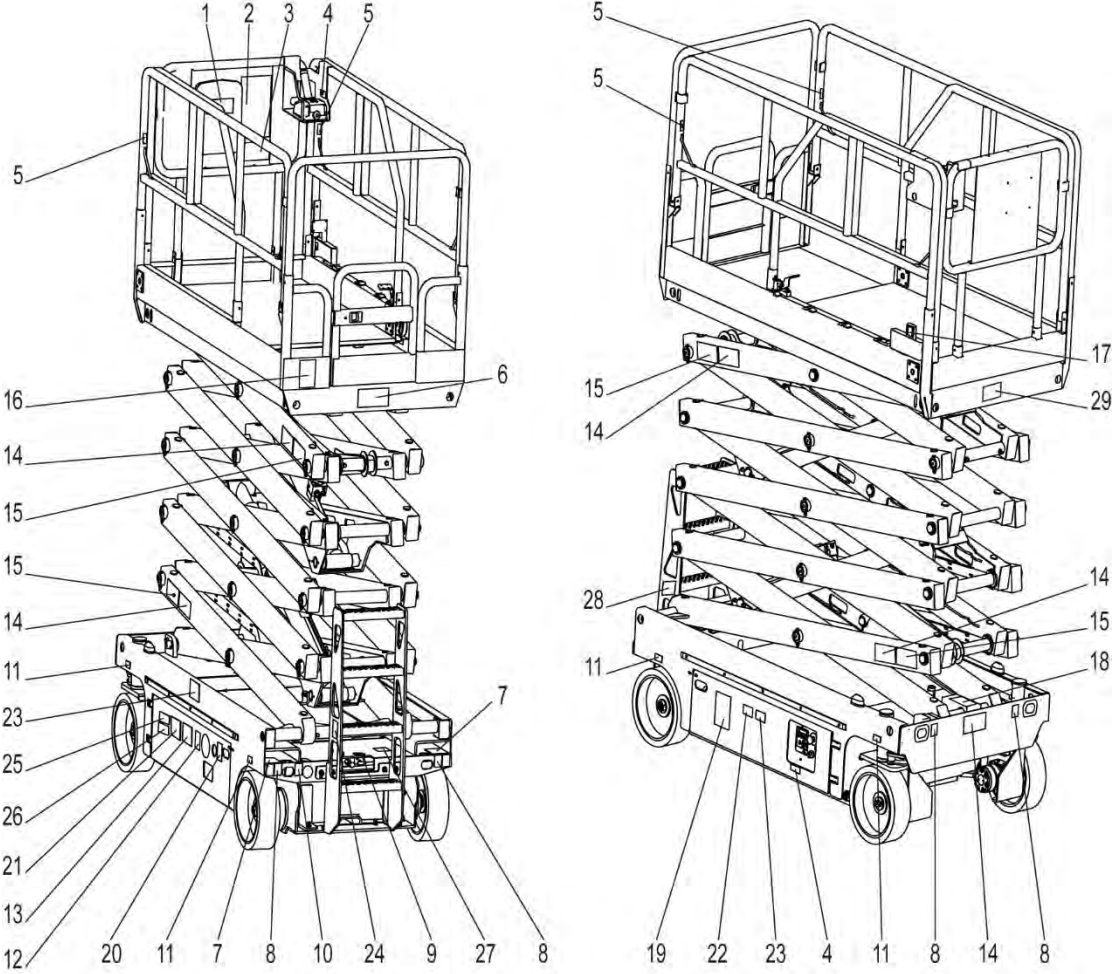


Figure 3-3 Decal position 3 (ZS1012 Series)

Table 3-4 Decal 4 (ZS0812 Series)

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775307010402010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775407060201020	Label- Capacity, 450kg/990 lbs	1
	00775407080201020	Label- Capacity, 450kg/990 lbs (ZS0812HA Series)	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775307080401050	Label- AC Power to Platform	1
11	00775507010401040	Label- Wheel Load, 1183kg/2610 lbs	4
12	00775307080402110	Instruction- Main Power Switch Operation	1
13	00775307080402060	Danger- Explosion and Fire Hazard	1
14	00775307040401040	Danger- Crushing Hazard	3
15	00775307040401050	Label- Safety Arm	2
16	00775307010402030	Label- Max Manual Force	1
17	00775307080401060	Label- Platform Power Rated Voltage	1
18	00775307040401100	Danger- Tip-over Hazard	1
19	00775307080402130	Label- Pre-operation Inspection	1
20	00775307080202140	Label- Charger Power Supply	1
21	00775207020201020	Label- Lithium-ion Battery (ZS0812HA-Li/DC-Li only)	2
22	00775307080401040	Label- High pressure liquid hazard	1
23	00775307040401070	Label- Notice, Close tray	2
24	00775307040401060	Label- Use safety arm	1
25	00775307080401020	Label- Electrocution hazard	1
26	00775307010402050	Label- Battery tray quality warranty	1
27	00775307020401010	Label- Brake release (ZS0812HA/HA-Li only)	1
28	00775609900401040	Nameplate	1
29	00775307080401080	Label- non-insulated	1

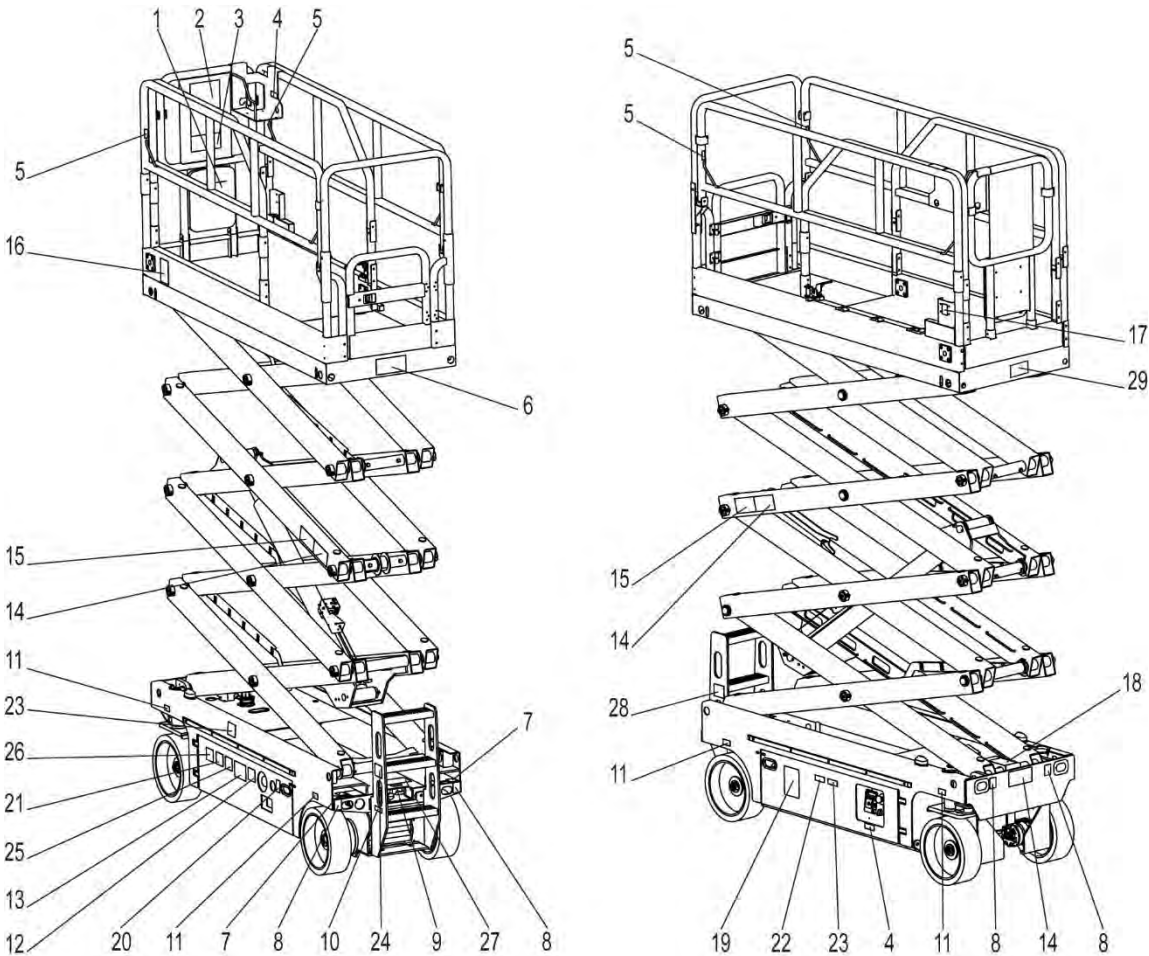


Figure 3-4 Decal position 4 (ZS0812 Series)

Table 3-5 Decal 5 (ZS0808 Series)

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775207010403010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775307040201020	Label- Capacity, 230kg/510 lbs	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775307080401050	Label- AC Power to Platform	1
11	00775307010402020	Label- Wheel Load, 830kg/1830 lbs	4
12	00775307080402110	Instruction- Main Power Switch Operation	1
13	00775307080402060	Danger- Explosion and Fire Hazard	1
14	00775307040401040	Danger- Crushing Hazard	5
15	00775307040401050	Label- Safety Arm	4
16	00775307080402170	Label- Max Manual Force	1
17	00775307080401060	Label- Platform Power Rated Voltage	1
18	00775307040401100	Danger- Tip-over Hazard	1
19	00775307080402130	Label- Pre-operation Inspection	1
20	00775307080202140	Label- Charger Power Supply	1
21	00775207020201020	Label- Lithium-ion Battery (ZS0808HD/DC/HA/AC-Li only)	2
22	00775307080401040	Label- High pressure liquid hazard	1
23	00775307040401070	Label- Notice, Close tray	2
24	00775307040401060	Label- Use safety arm	1
25	00775307080401020	Label- Electrocutation hazard	1
26	00775307010402050	Label- Battery tray quality warranty	1
27	00775307020401010	Label- Brake release (ZS0808HD/HA/HD-Li/HA-Li only)	1
28	00775609900401040	Nameplate	1
29	00775307080401080	Label- non-insulated	1

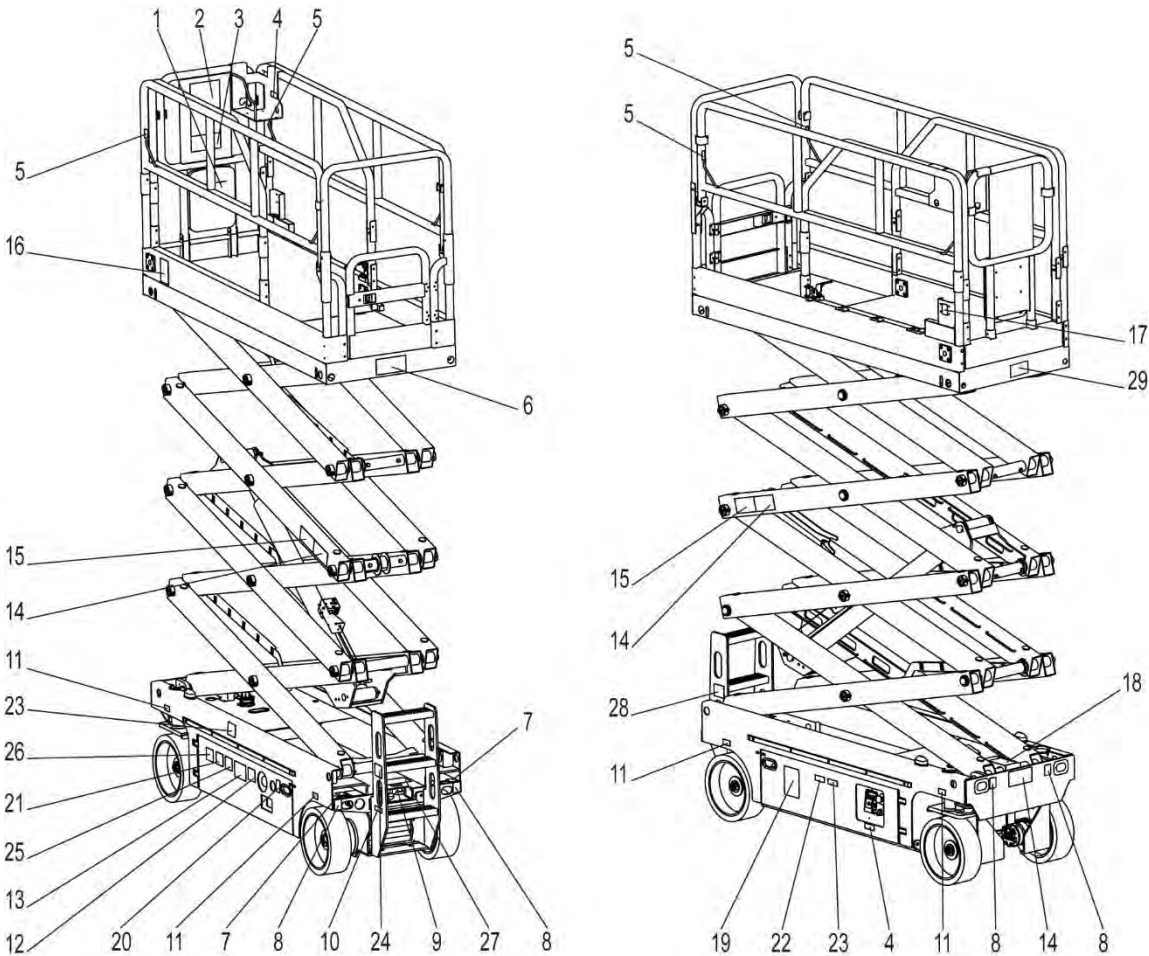


Figure 3-5 Decal position 5 (ZS0808 Series)



Table 3-6 Decal 6 (ZS0608 Series)

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775307010402010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775307010202040	Label- Capacity, 380kg/840 lbs	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775307080401050	Label- AC Power to Platform	1
11	00775307010402020	Label- Wheel Load, 830kg/1830 lbs	4
12	00775307080402110	Instruction- Main Power Switch Operation	1
13	00775307080402060	Danger- Explosion and Fire Hazard	1
14	00775307040401040	Danger- Crushing Hazard	3
15	00775307040401050	Label- Safety Arm	2
16	00775307010402030	Label- Max Manual Force	1
17	00775307080401060	Label- Platform Power Rated Voltage	1
18	00775307040401100	Danger- Tip-over Hazard	1
19	00775307080402130	Label- Pre-operation Inspection	1
20	00775307080202140	Label- Charger Power Supply	1
21	00775207020201020	Label- Lithium-ion Battery (ZS0608HD-Li/DC-Li only)	2
22	00775307080401040	Label- High pressure liquid hazard	1
23	00775307040401070	Label- Notice, Close tray	2
24	00775307040401060	Label- Use safety arm	1
25	00775307080401020	Label- Electrocutation hazard	1
26	00775307010402050	Label- Battery tray quality warranty	1
27	00775307020401010	Label- Brake release (ZS0608HD/HD-Li only)	1
28	00775609900401040	Nameplate	1
29	00775307080401080	Label- non-insulated	1

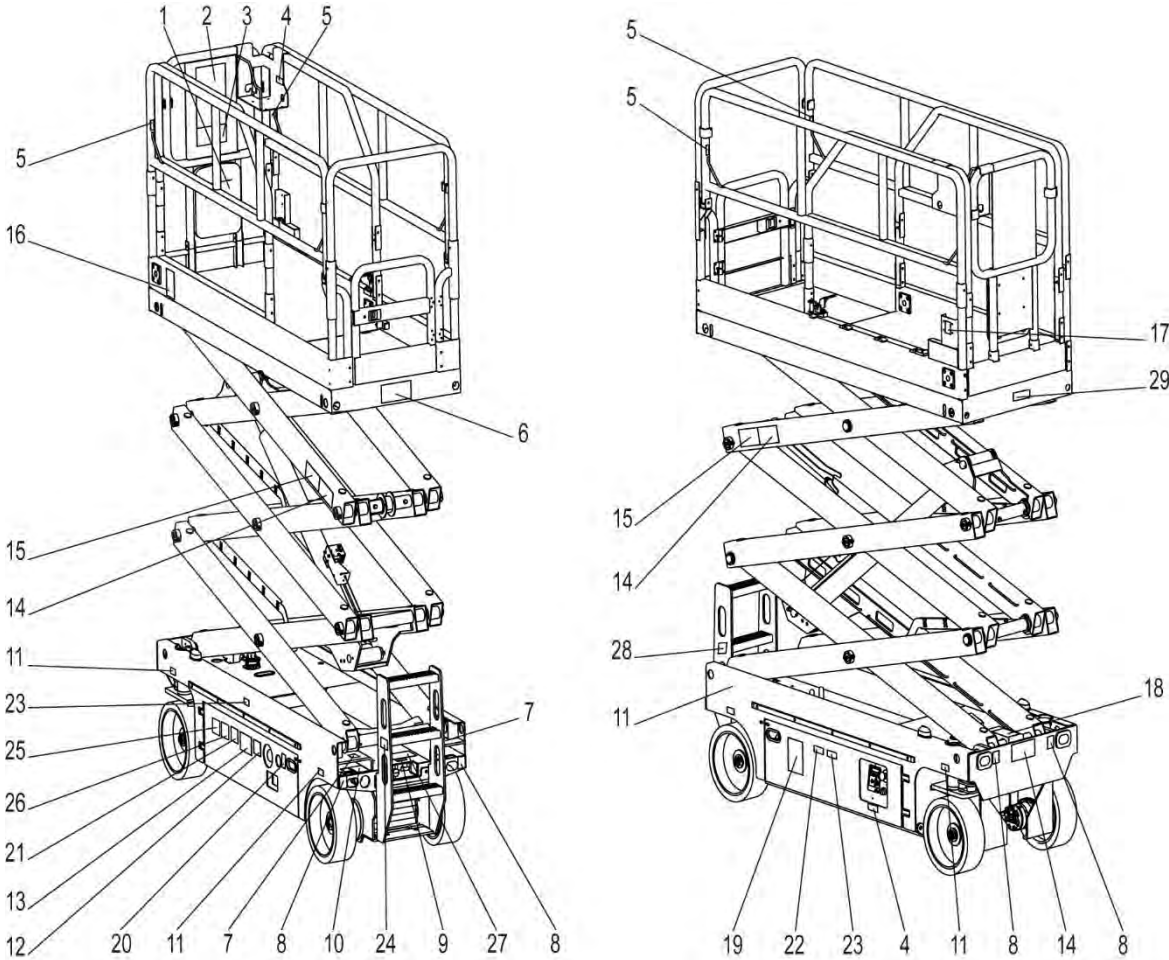


Figure 3-6 Decal position 6 (ZS0608 Series)

Table 3-7 Decal 7 (ZS0607 Series)

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775207010403010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775307040201020	Label- Capacity, 230kg/510 lbs	1
	007753070F0201030	Label- Capacity, 230kg/510 lbs (ZS0607ACW Series)	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775307080401050	Label- AC Power to Platform	1
11	00775307040401030	Label- Wheel Load, 580kg/1280 lbs	4
	007753070F0401030	Label- Wheel Load, 645kg/1420 lbs (ZS0607ACW Series)	4
12	00775307080402110	Instruction- Main Power Switch Operation	1
13	00775307080402060	Danger- Explosion and Fire Hazard	1
14	00775307040401040	Danger- Crushing Hazard	3
15	00775307040401050	Label- Safety Arm	2
16	00775307080402170	Label- Max Manual Force	1
	00775307010402030	Label- Max Manual Force	1
17	00775307080401060	Label- Platform Power Rated Voltage	1
18	00775307040401100	Danger- Tip-over Hazard	1
19	00775307080402130	Label- Pre-operation Inspection	1
20	00775307080202140	Label- Charger Power Supply	1
21	00775207020201020	Label- Lithium-ion Battery (ZS0607HD/HA/AC/DC/ACW-Li only)	2
22	00775307080401040	Label- High pressure liquid hazard	1
23	00775307040401070	Label- Notice, Close tray	2
24	00775307040401060	Label- Use safety arm	1
25	00775307080401020	Label- Electrocution hazard	1
26	00775307040401080	Label- Battery tray quality warranty	1
27	00775307020401010	Label- Brake release (ZS0607HD/HA/HD-Li/HA-Li only)	1
28	00775609900401040	Nameplate	1
29	00775307080401080	Label- non-insulated	1

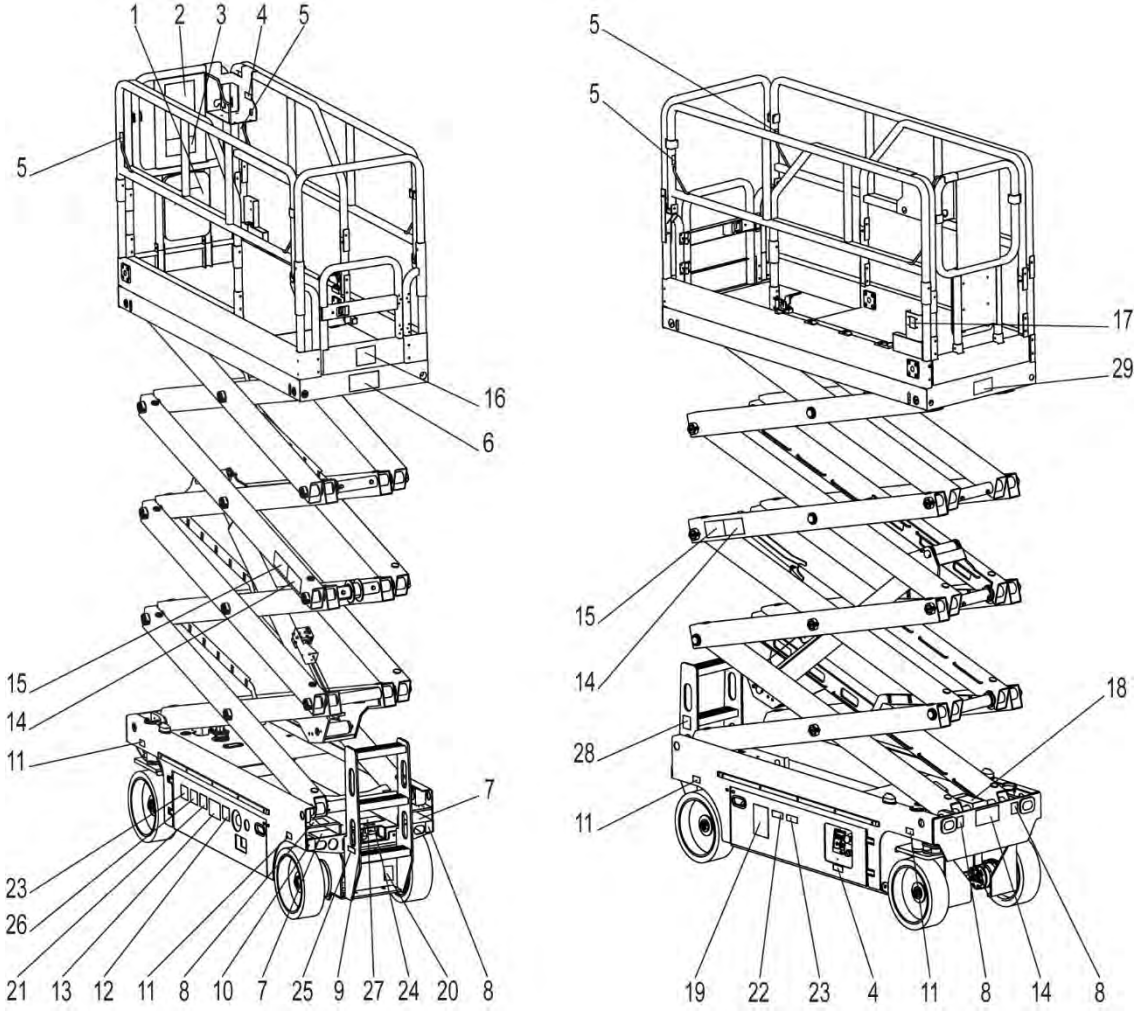


Figure 3-7 Decal position 7 (ZS0607 Series)

Table 3-8 Decal 8 (ZS0407 Series)

NO.	Code	Item	Qty
1	00775307080402040	Label- Store the Operation and Safety Manual	1
2	00775207010403010	Label- Safety Rules	1
3	00775207010403070	Danger- Tip-over Hazard	1
4	00775307080402030	Label- Read the Instructions Carefully	2
5	00775307080202090	Label- Lanyard Anchorage Point	4
6	00775207010203030	Label- Capacity, 240kg/530 lbs	1
7	00775307080202210	Label- Forklift Hole	2
8	00775307080202010	Label- Lifting and tying	4
9	00775307080402150	Label- Emergency Lowering	1
10	00775207010403040	Label- Wheel Load, 390kg/860 lbs	4
11	00775307080402110	Instruction- Main Power Switch Operation	1
12	00775307080402060	Danger- Explosion and Fire Hazard	1
13	00775207010403020	Danger- Crushing Hazard	3
14	00775207010403060	Label- Safety Arm	2
15	00775307080402170	Label- Max Manual Force	1
16	00775207010403050	Danger- Tip-over Hazard	1
17	00775307080402130	Label- Pre-operation Inspection	1
18	00775207020201020	Label- Lithium-ion Battery (ZS0407DC-Li only)	1
19	00775307080401060	Label- Platform Power Rated Voltage	1
20	00775307080401050	Label- AC Power to Platform	1
21	00775307080202140	Label- Charger Power Supply	1
22	00775609900401040	Nameplate	1
23	00775307080401080	Label- non-insulated	1

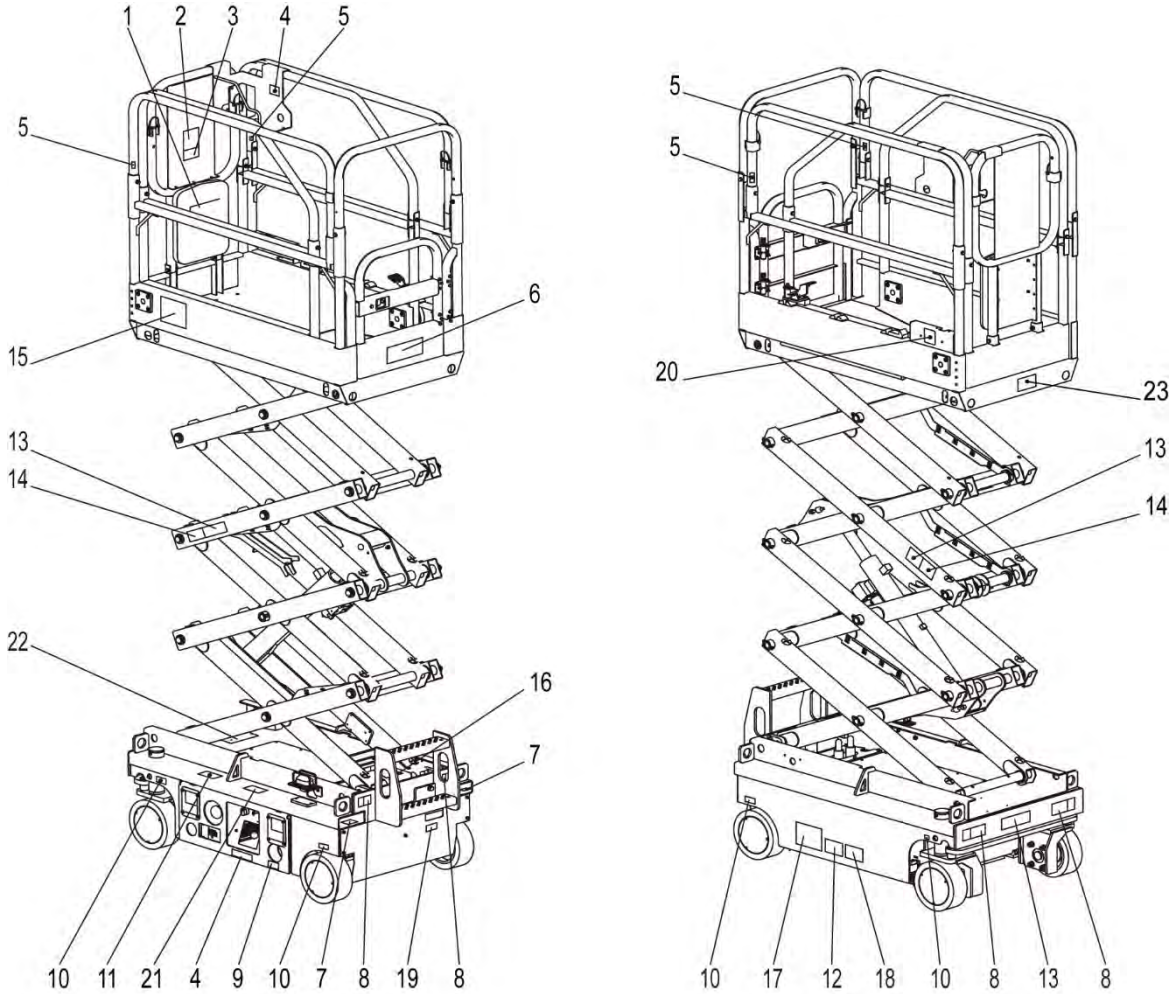


Figure 3-8 Decal position 8 (ZS0407 Series)

ZS1414 Series

Platform

**1**

**CAUTION**

Keep the Operation and Safety Manual with the machine at all times.

**2**

**WARNING**

Non-insulated

**3**

**DANGER**

1. Do not touch the platform or any other parts of the machine while it is in operation. 2. Do not touch the platform or any other parts of the machine while it is in operation. 3. Do not touch the platform or any other parts of the machine while it is in operation.

**4**

AC Power to Platform

00775307080401050

**5**

**CAUTION**

Maximum manual operation force

400N

**6**

**DANGER**

Failure to read, understand and obey the operator's manual and the following safety rules will result in death or serious injury.

**Improper Use Hazard**

- Do not use the machine on uneven, slippery, or unstable surfaces.
- Do not use the machine on surfaces that are not designed for use with the machine.
- Do not use the machine on surfaces that are not designed for use with the machine.
- Do not use the machine on surfaces that are not designed for use with the machine.

**Electrocution Hazards**

Line Voltage	Maximum Height (m)
120V/240V	1.8/3.0
230V/240V	1.8/3.0
230V/240V	1.8/3.0
230V/240V	1.8/3.0
230V/240V	1.8/3.0
230V/240V	1.8/3.0

**Tip-over Hazards**

- Do not use the machine on uneven, slippery, or unstable surfaces.
- Do not use the machine on surfaces that are not designed for use with the machine.
- Do not use the machine on surfaces that are not designed for use with the machine.
- Do not use the machine on surfaces that are not designed for use with the machine.

**7**

Read and understand Operator's Manual, Responsibilities Manual and Safety Manual and all safety signs before using or maintaining machine.

00775307080402030

**8**

X1

00775307080202090

**9**

250 kg, 147 kg, 113 kg

Scissor

**10**

**DANGER**

Crushing Hazard

Contact with moving parts will result in death or serious injury.

00775307080402090

**11**

**DANGER**

Crushing Hazard

Death or serious injury can result from contact with moving parts.

00775307080402090

Chassis

**12**

**13**

**Emergency Lowering**

Pull out the Emergency lowering knob to lower the platform.

00775307080402150

**14**

**WARNING**

Do not operate this machine until this inspection has been performed by a qualified person.

- Check the machine for any damage or wear.
- Check the machine for any damage or wear.
- Check the machine for any damage or wear.
- Check the machine for any damage or wear.
- Check the machine for any damage or wear.

00775307080402150

**15**

**DANGER**

Explosion and Fire Hazards

Ignition of explosive gases, or contact with corrosive acid will cause death, burns or blindness.

00775307080402200

**16**

220V AC 10A

00775307080202140

**17**

**CAUTION**

Shut off power to all controls for long time machine halt or

00775307080402145

**18**

00775307080202110

**19**

Tire load, maximum

1280 kg

00775607010401030

**20**

**DANGER**

Tip-over hazard

Altering or disabling limit switches can result in machine tip-over. Machine tip-over will result in death or serious injury.

00775307080401100

**21**

**DANGER**

Collision Hazard

Failure to secure machine before releasing brakes will result in death or serious injury.

00775307080403100

**22**

**DANGER**

Crushing Hazard

Death or serious injury can result from contact with moving scissor arms.

00775307080403000

**23**

**DANGER**

Injection Hazard

Escaping fluid under pressure can penetrate skin, causing serious injury.

00775307080401500

**24**

**DANGER**

Backflow / Fire Hazard

Death or serious injury will result from use of improper or damaged cord and outlet.

00775307080403200

**25**

**DANGER**

Tip-over Hazard

Do not use the machine on uneven, slippery, or unstable surfaces.

00775307080403000

**26**

**DANGER**

Tip-over Hazard

Do not use the machine on uneven, slippery, or unstable surfaces.

00775307080403000

**27**

220V AC 10A

00775307080401100

**28**

00775307080403000

**29**

Li

00775307080403000

Figure 3-9 Decal 1

ZS1212 Series

Platform

1

**CAUTION**

Keep the Operation and Safety Manual with the machine at all times.

2

**WARNING**

Non-insulated

3

**DANGER**

Tip-over Hazard  
If the boom pivots on a broken hinge, chain or service jacks, the boom may fall.

2. Do not touch the machine to avoid surface.

4

**AC Power to Platform**

00775307080401050

5

**CAUTION**

Maximum manual operation force

400N

6

**DANGER**

Failure to read, understand and obey the operator's manual and the following safety rules will result in death or serious injury.

**Impinger Line Hazard**  
Always maintain a safe distance from the impinger line. Do not touch the impinger line. Do not touch the impinger line when it is energized. Do not touch the impinger line when it is energized. Do not touch the impinger line when it is energized. Do not touch the impinger line when it is energized.

**Electrocution Hazard**  
The machine is not an electrically insulated platform. Do not touch the machine when it is energized. Do not touch the machine when it is energized. Do not touch the machine when it is energized. Do not touch the machine when it is energized.

Line Voltage	Maximum Impinger Current
230V AC	20 mA
240V AC	20 mA
250V AC	20 mA
260V AC	20 mA
270V AC	20 mA
280V AC	20 mA
290V AC	20 mA
300V AC	20 mA

**Tip-over Hazard**  
Do not touch the machine when it is energized. Do not touch the machine when it is energized. Do not touch the machine when it is energized. Do not touch the machine when it is energized.

7

Read and understand Operator's Manual, Responsibilities Manual and Safety Manual and all safety signs before using or maintaining machine.

00775307080402030

8

9

10

11

Scissor

10

**DANGER**

Crushing hazard  
Contact with moving parts will result in death or serious injury.

1. Do not stand or stay nearby the platform during operation.  
2. Follow safety rules. Do not touch the platform.

11

**DANGER**

Crushing Hazard  
Death or serious injury can result from contact with moving parts.

Do not load weight as the safety arm is in place.  
Engage safety arm before performing maintenance or repair.

Chassis

12

13

**Emergency Lowering**  
Pull out the Emergency lowering knob to lower the platform.

00775307080402150

14

**WARNING**

Do not operate this machine until the inspection has been performed to ensure proper operation.

1. Only trained and authorized personnel should operate the machine. The training instructor must be observing the safety, operation and maintenance instructions in the manufacturer's manual, particularly with the work done established by the employer and applicable government laws and regulations. If an operator is not trained, they should not be allowed to operate the machine until they have received the necessary training.

2. Do not attempt to repair the machine's engine or electrical system, unless you are a qualified electrician or mechanic. If you are not a qualified electrician or mechanic, contact a qualified electrician or mechanic for assistance.

3. Do not attempt to repair the machine's engine or electrical system, unless you are a qualified electrician or mechanic. If you are not a qualified electrician or mechanic, contact a qualified electrician or mechanic for assistance.

4. Do not attempt to repair the machine's engine or electrical system, unless you are a qualified electrician or mechanic. If you are not a qualified electrician or mechanic, contact a qualified electrician or mechanic for assistance.

5. This machine must be repaired with caution. In case of failure, stop operation immediately.

6. Inspect and use of the machine must be done according to the manufacturer's instructions.

15

**DANGER**

Explosion and Fire Hazards  
Ignition of explosive gases or contact with corrosive fluid will cause death, burns or blindness.

Keep all open flames and sparks away. Wear personal protective equipment, including face shield, gloves and long sleeve shirt.

Read manuals  
Read and understand all manuals before operating the machine. Do not operate the machine if you do not understand the information in the manuals. Consult your supervisor, the owner or the manufacturer.

00775307080402050

16

220V AC  
10A

00775307080302140

17

**CAUTION**

Shut off power to all controls for long time repair. Turn On / Turn Off

00775307080402110

18

00775307080202010

19

Tire load, maximum  
1280kg

00775607010401030

20

**DANGER**

Tip-over hazard  
Altering or disabling limit switches can result in machine tip-over. Machine tip-over will result in death or serious injury.

00775307080401100

21

**DANGER**

Collaboration Hazard  
Failure to secure machine before releasing cables will result in death or serious injury.

1. Make sure machine is on a firm, level surface or secured.  
2. Chock wheels.  
3. Release brakes.

00775307080403110

22

**DANGER**

Crushing Hazard  
Death or serious injury can result from contact with moving scissor arms.

Engage safety arm before performing maintenance or repair.  
See service manual.

00775307080401010

23

**DANGER**

Injection Hazard  
Escaping fluid under pressure can penetrate skin, causing serious injury.

00775307080401040

24

**DANGER**

Electrocution / Fire Hazard  
Death or serious injury will result from use of improper or damaged cord and outlet.

Before each use, inspect for damaged cord cables and wires. Replace damaged items before operating.

00775307080401050

25

**DANGER**

Tip-over hazard  
Failure to secure machine will result in death or serious injury.

1. Make sure machine is on a firm, level surface or secured.  
2. Chock wheels.  
3. Release brakes.

00775307080403110

26

**DANGER**

Tip-over hazard  
Raising the platform or driving the machine on uneven ground will result in death or serious injury.

Close chassis trays before raising the platform or driving the machine.

00775307080401010

27

220V AC  
10A

00775307080401100

28

00775307080401100

29

Li

00775307080401100

Figure 3-10 Decal 2



ZS1012 Series

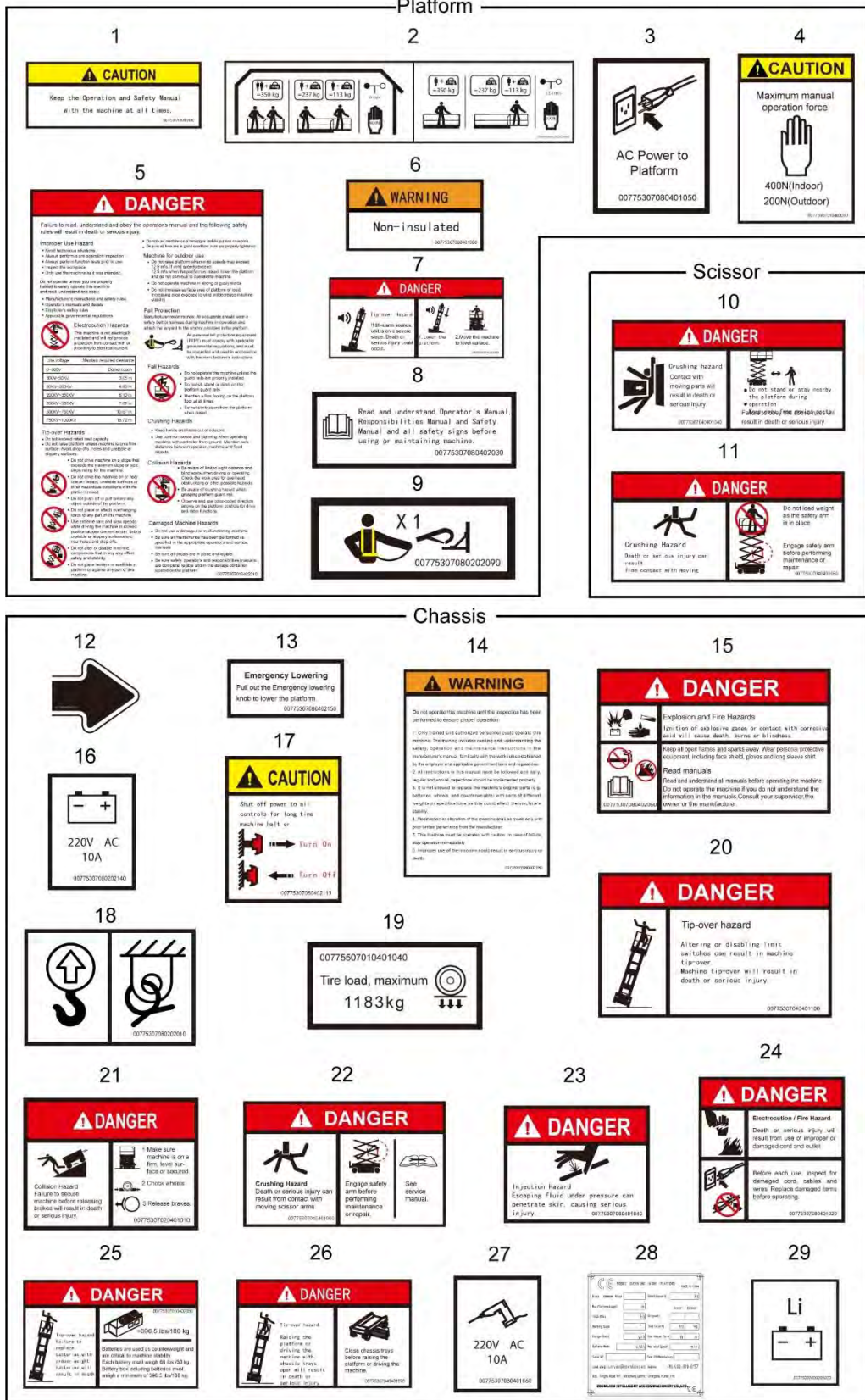


Figure 3-11 Decal 3

ZS0812DC Series

Platform

**1**

**CAUTION**

Keep the Operation and Safety Manual with the machine at all times.

**2**

**3**

AC Power to Platform

00775307080401050

**4**

**CAUTION**

Maximum manual operation force

400N(Indoor)  
200N(Outdoor)

**5**

**DANGER**

Failure to read, understand and obey the operator's manual and the following safety rules will result in death or serious injury.

**Improper Use Hazard**

- Read the operator's manual.
- Always perform the operation in accordance with the instructions.
- Do not use the machine for any other purpose than that intended.
- Do not operate the machine if you are impaired by alcohol, drugs, or fatigue.
- Do not operate the machine if you are under the influence of any medication that may affect your ability to operate the machine safely.
- Do not use the machine on uneven or slippery surfaces.
- Do not use the machine on wet or icy surfaces.
- Do not use the machine on surfaces that are not designed for its use.
- Do not use the machine on surfaces that are not designed for its use.
- Do not use the machine on surfaces that are not designed for its use.

**Electrocution Hazard**

The machine is not electrically insulated and may become energized if it comes in contact with a live electrical source.

**Use Caution**

Use Caution	Maximum Manual Operation Force
Indoor	400 N (90 lbf)
Outdoor	200 N (45 lbf)

**Tip-over Hazard**

- Do not exceed the rated capacity.
- Do not use the machine on uneven or slippery surfaces.
- Do not use the machine on wet or icy surfaces.
- Do not use the machine on surfaces that are not designed for its use.
- Do not use the machine on surfaces that are not designed for its use.

**Crushing Hazard**

- Do not use the machine on uneven or slippery surfaces.
- Do not use the machine on wet or icy surfaces.
- Do not use the machine on surfaces that are not designed for its use.

**Damaged Machine Hazard**

- Do not use the machine on uneven or slippery surfaces.
- Do not use the machine on wet or icy surfaces.
- Do not use the machine on surfaces that are not designed for its use.

**6**

**WARNING**

Non-insulated

**7**

**DANGER**

Electrocution Hazard

The machine is not electrically insulated and may become energized if it comes in contact with a live electrical source.

**8**

Read and understand Operator's Manual, Responsibilities Manual and Safety Manual and all safety signs before using or maintaining machine.

00775307080402030

**9**

**X1**

00775307080202090

Scissor

**10**

**DANGER**

Crushing Hazard

Contact with moving parts will result in death or serious injury.

Do not stand or stay in the platform during operation.

Failure to obey this warning will result in death or serious injury.

**11**

**DANGER**

Crushing Hazard

Death or serious injury can result from contact with moving parts.

Engage safety arm before performing maintenance or repair.

Chassis

**12**

**13**

**Emergency Lowering**

Pull out the Emergency lowering knob to lower the platform.

00775307080402150

**14**

**WARNING**

Do not operate the machine until the inspection has been performed and the proper operation is confirmed.

1. Only trained and authorized personnel should operate the machine.
2. The machine should be inspected before each use.
3. The machine should be inspected before each use.
4. The machine should be inspected before each use.
5. The machine should be inspected before each use.

**15**

**DANGER**

Explosion and Fire Hazards

Ignition of explosive gases or contact with corrosive acid will cause death, burns or other injuries.

Read manuals

Read and understand all manuals before operating the machine. Do not operate the machine if you do not understand the information in the manuals. Consult your supervisor, the owner or the manufacturer.

**16**

220V AC  
10A

0077530708030140

**17**

**CAUTION**

Shut-off power to all controls for long time machine fault or

00775307080402111

**18**

00775307080302011

**19**

Tire load, maximum

1183 kg

00775307010401040

**20**

**DANGER**

Tip-over hazard

Altering or disabling limit switches can result in machine tip-over.

Machine tip-over will result in death or serious injury.

00775307080401100

**21**

**DANGER**

Collision Hazard

Failure to secure machine before releasing brakes will result in death or serious injury.

Make sure machine is on a firm, level surface or secured.

Check brakes.

Release brakes.

00775307080403100

**22**

**DANGER**

Crushing Hazard

Death or serious injury can result from contact with moving scissor arms.

Engage safety arm before performing maintenance or repair.

See service manual.

00775307080403000

**23**

**DANGER**

Injection Hazard

Escaping fluid under pressure can penetrate skin, causing serious injury.

00775307080401040

**24**

**DANGER**

Electrocution / Fire Hazard

Death or serious injury will result from use of improper or damaged cord and outlet.

Before each use, inspect for damaged cord cables and wires. Replace damaged items before operating.

00775307080401020

**25**

**DANGER**

Tip-over Hazard

Altering or disabling limit switches can result in machine tip-over.

Machine tip-over will result in death or serious injury.

00775307080401100

**26**

**DANGER**

Tip-over Hazard

Altering or disabling limit switches can result in machine tip-over.

Machine tip-over will result in death or serious injury.

00775307080401100

**27**

220V AC  
10A

00775307080401160

**28**

**29**

Li

00775307080401020

Figure 3-12 Decal 4

ZS0812HA Series

Platform

1 **CAUTION**  
Keep the Operation and Safety Manual with the machine at all times.

2 **WARNING**  
Non-insulated

3 AC Power to Platform  
00775307080401050

4 **CAUTION**  
Maximum manual operation force  
400N(Indoor)  
200N(Outdoor)

5 **DANGER**  
Failure to read, understand and obey the operator's manual and the following safety rules will result in death or serious injury.

6 **WARNING**  
Non-insulated

7 **DANGER**  
Fall Protection

8 Read and understand Operator's Manual, Responsibilities Manual and Safety Manual and all safety signs before using or maintaining machine.  
00775307080402030

9 **WARNING**  
X1

10 **DANGER**  
Crushing hazard  
Do not stand on or near the platform during operation.  
00775307080403000

11 **DANGER**  
Crushing Hazard  
Do not stand on or near the platform during operation.  
00775307080403000

Chassis

12 **WARNING**  
Emergency Lowering  
Pull out the Emergency lowering knob to lower the platform.  
00775307080402100

13 **CAUTION**  
Shut off power to all controls for long time machine halt or  
Turn On  
Turn Off  
00775307080402110

14 **WARNING**  
Do not operate this machine until the inspection has been performed by a competent person.  
00775307080402100

15 **DANGER**  
Explosion and Fire Hazards  
Ignition of explosive gases or contact with corrosive liquid will cause death, burns or all redness.  
00775307080402000

16 220V AC 10A  
00775307080402100

17 **CAUTION**  
Shut off power to all controls for long time machine halt or  
Turn On  
Turn Off  
00775307080402110

18 **WARNING**  
Tire load, maximum  
1183kg  
00775307080401040

19 **WARNING**  
Crushing Hazard  
Death or serious injury can result from contact with moving scissor arms.  
00775307080401060

20 **DANGER**  
Tip-over hazard  
Altering or disabling limit switches can result in machine tip-over.  
00775307080401100

21 **DANGER**  
Collision Hazard  
Failure to secure machine before releasing brakes will result in death or serious injury.  
00775307080401010

22 **DANGER**  
Crushing Hazard  
Death or serious injury can result from contact with moving scissor arms.  
00775307080401060

23 **DANGER**  
Injection Hazard  
Escaping fluid under pressure can penetrate skin causing serious injury.  
00775307080401040

24 **DANGER**  
Electrocution / Fire Hazard  
Death or serious injury will result from use of improper or damaged cord and outlet.  
00775307080401020

25 **DANGER**  
Tip-over hazard  
Failure to secure machine before releasing brakes will result in death or serious injury.  
00775307080401010

26 **DANGER**  
Tip-over hazard  
Raising or driving the machine in the chassis is a serious safety hazard.  
00775307080401010

27 220V AC 10A  
00775307080401060

28 **WARNING**  
Do not operate this machine until the inspection has been performed by a competent person.  
00775307080402100

29 **WARNING**  
Li

Figure 3-13 Decal 5

ZS0808 Series

Platform

1 **CAUTION**  
Keep the Operation and Safety Manual with the machine at all times.

2 **WARNING**  
Non-insulated

3 **DANGER**  
1 Do not touch live wires or parts of a circuit board. Contact or even proximity could cause injury.  
2 Do not touch the machine to a live surface.

4 **AC Power to Platform**  
00775307080401050

5 **CAUTION**  
Maximum manual operation force  
400N

6 **DANGER**  
Failure to read, understand and obey the operator's manual and the following safety rules will result in death or serious injury.  
**Improper Lifting Hazard**  
Do not operate unless you are properly trained in safety. Always use the proper lifting technique and safety rules.  
**Electrocution Hazards**  
The machine is not electrically insulated. It is not safe to touch any exposed electrical parts.  
**Tip-over Hazards**  
Do not operate unless you are properly trained in safety. Always use the proper lifting technique and safety rules.  
**Collapsing Hazards**  
Do not operate unless you are properly trained in safety. Always use the proper lifting technique and safety rules.

7 **Read and understand Operator's Manual, Responsibilities Manual and Safety Manual and all safety signs before using or maintaining machine.**  
00775307080402030

8 **Fall Protection**  
Do not operate unless you are properly trained in safety. Always use the proper lifting technique and safety rules.  
**Fall Hazards**  
Do not operate unless you are properly trained in safety. Always use the proper lifting technique and safety rules.

9 **Crushing Hazard**  
Do not operate unless you are properly trained in safety. Always use the proper lifting technique and safety rules.  
**Damaged Machine Hazards**  
Do not operate unless you are properly trained in safety. Always use the proper lifting technique and safety rules.

Scissor

10 **DANGER**  
Crushing Hazard  
Contact with moving parts will result in death or serious injury.  
Do not stand or stay nearby the platform during operation.  
Follow all safety rules and instructions.  
00775307080401050

11 **DANGER**  
Crushing Hazard  
Do not stand or stay nearby the platform during operation.  
Follow all safety rules and instructions.  
00775307080401050

Chassis

12 **Emergency Lowering**  
Pull out the Emergency lowering knob to lower the platform.  
00775307080402030

13 **WARNING**  
Do not operate this machine until the inspection has been performed by a service technician.  
00775307080401050

14 **CAUTION**  
Shut off power to all controls for long time machine lift or lower.  
Turn On / Turn Off  
00775307080402030

15 **DANGER**  
Explosion and Fire Hazards  
Ignition of explosive gases or contact with corrosive material will cause death, burns or blindness.  
Read manuals  
00775307080402030

16 **220V AC 10A**  
00775307080402030

17 **CAUTION**  
Shut off power to all controls for long time machine lift or lower.  
Turn On / Turn Off  
00775307080402030

18 **Tire load, maximum 830kg**  
00775307080402030

19 **Tire load, maximum 830kg**  
00775307080402030

20 **DANGER**  
Tip-over hazard  
Altering or disabling limit switches can result in machine tip-over.  
Machine tip-over will result in death or serious injury.  
00775307080401050

21 **DANGER**  
Collapsing Hazard  
00775307080402030

22 **DANGER**  
Crushing Hazard  
00775307080402030

23 **DANGER**  
Injection Hazard  
00775307080402030

24 **DANGER**  
Electrocution / Fire Hazard  
00775307080402030

25 **DANGER**  
Tip-over hazard  
00775307080402030

26 **DANGER**  
Tip-over hazard  
00775307080402030

27 **220V AC 10A**  
00775307080402030

28 **Li**  
00775307080402030

Figure 3-14 Decal 6

ZS0608 Series

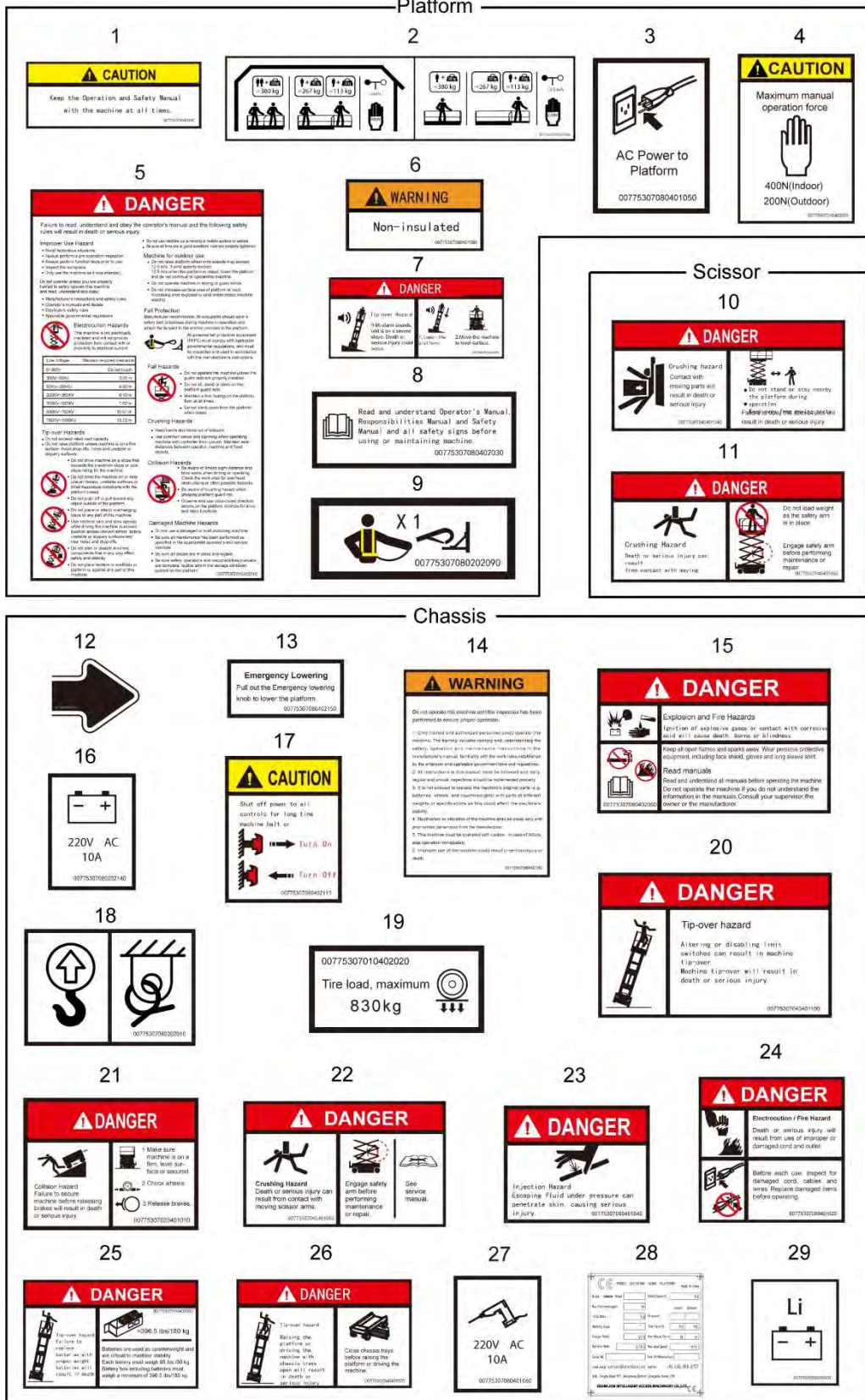


Figure 3-15 Decal 7

ZS0607 Series

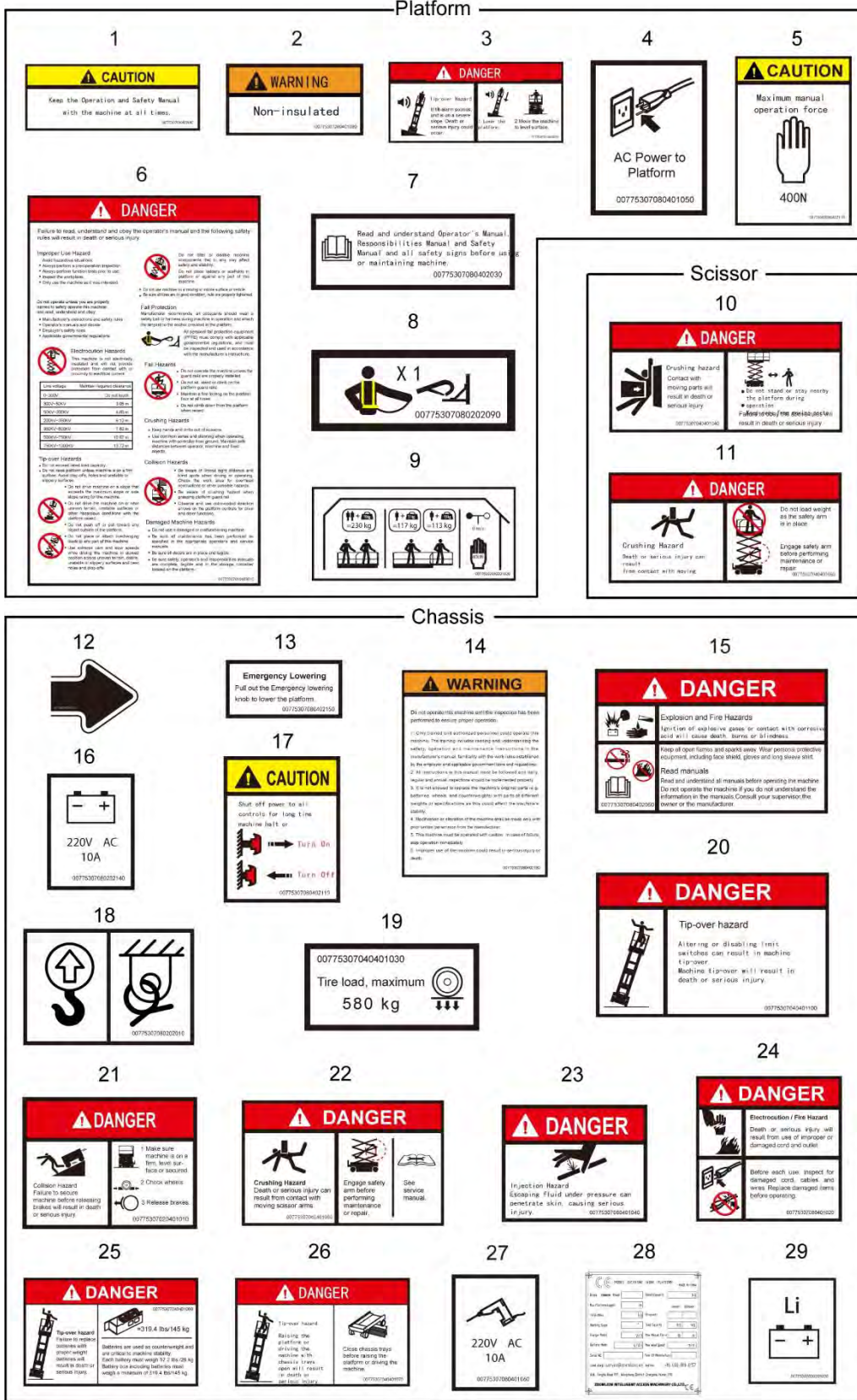


Figure 3-16 Decal 8

ZS0607ACW Series

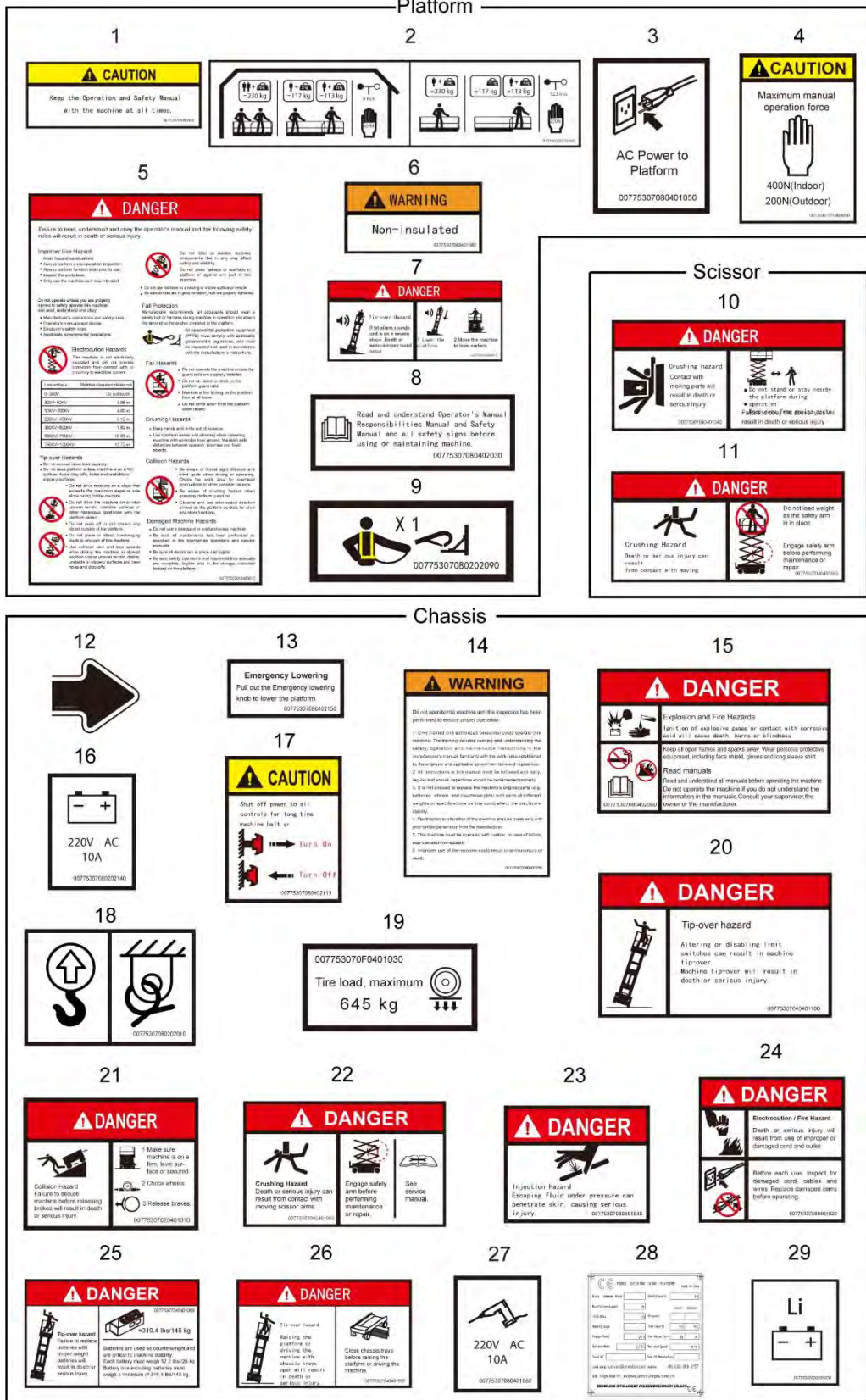


Figure 3-17 Decal 9

ZS0407 Series

Platform

**1**

**CAUTION**

Keep the Operation and Safety Manual with the machine at all times.

00775307080401050

**2**

**WARNING**

Non-insulated

00775307080401050

**3**

**DANGER**

Tip-over hazard  
If the platform is tilted to a severe angle, death or serious injury could occur.

1. Lower the platform  
2. Move the machine to level surface.

00775307080401050

**4**

AC Power to Platform

00775307080401050

**5**

**CAUTION**

Maximum manual operation force

400N

00775307080401050

**6**

**DANGER**

Failure to read, understand and obey the operator's manual and the following safety rules will result in death or serious injury.

**Improper Use Hazard**

- Do not operate on uneven, slippery, or unstable surfaces.
- Do not operate on slopes.
- Do not operate on wet, icy, or frozen surfaces.
- Do not operate on surfaces that are too hot or too cold.
- Do not operate on surfaces that are too soft or too hard.
- Do not operate on surfaces that are too rough or too smooth.
- Do not operate on surfaces that are too dark or too light.
- Do not operate on surfaces that are too noisy or too quiet.
- Do not operate on surfaces that are too bright or too dim.
- Do not operate on surfaces that are too fast or too slow.
- Do not operate on surfaces that are too high or too low.
- Do not operate on surfaces that are too steep or too shallow.
- Do not operate on surfaces that are too narrow or too wide.
- Do not operate on surfaces that are too curved or too straight.
- Do not operate on surfaces that are too irregular or too regular.
- Do not operate on surfaces that are too complex or too simple.
- Do not operate on surfaces that are too difficult or too easy.
- Do not operate on surfaces that are too dangerous or too safe.
- Do not operate on surfaces that are too scary or too fun.
- Do not operate on surfaces that are too boring or too exciting.
- Do not operate on surfaces that are too dull or too sharp.
- Do not operate on surfaces that are too soft or too hard.
- Do not operate on surfaces that are too wet or too dry.
- Do not operate on surfaces that are too hot or too cold.
- Do not operate on surfaces that are too bright or too dim.
- Do not operate on surfaces that are too noisy or too quiet.
- Do not operate on surfaces that are too fast or too slow.
- Do not operate on surfaces that are too high or too low.
- Do not operate on surfaces that are too steep or too shallow.
- Do not operate on surfaces that are too narrow or too wide.
- Do not operate on surfaces that are too curved or too straight.
- Do not operate on surfaces that are too irregular or too regular.
- Do not operate on surfaces that are too complex or too simple.
- Do not operate on surfaces that are too difficult or too easy.
- Do not operate on surfaces that are too dangerous or too safe.
- Do not operate on surfaces that are too scary or too fun.
- Do not operate on surfaces that are too boring or too exciting.
- Do not operate on surfaces that are too dull or too sharp.

**Electrocution Hazards**

The machine is not electrically insulated and will not provide protection from electrical current.

Line Voltage	Maximum Input Current
115VAC	10.0A
230VAC	5.0A
240VAC	4.8A
250VAC	4.6A
260VAC	4.4A
270VAC	4.2A
280VAC	4.0A
290VAC	3.8A
300VAC	3.6A
310VAC	3.4A
320VAC	3.2A
330VAC	3.0A
340VAC	2.8A
350VAC	2.6A
360VAC	2.4A
370VAC	2.2A
380VAC	2.0A
390VAC	1.8A
400VAC	1.6A

**Tip-over Hazards**

- Do not operate on uneven, slippery, or unstable surfaces.
- Do not operate on slopes.
- Do not operate on wet, icy, or frozen surfaces.
- Do not operate on surfaces that are too hot or too cold.
- Do not operate on surfaces that are too bright or too dim.
- Do not operate on surfaces that are too noisy or too quiet.
- Do not operate on surfaces that are too fast or too slow.
- Do not operate on surfaces that are too high or too low.
- Do not operate on surfaces that are too steep or too shallow.
- Do not operate on surfaces that are too narrow or too wide.
- Do not operate on surfaces that are too curved or too straight.
- Do not operate on surfaces that are too irregular or too regular.
- Do not operate on surfaces that are too complex or too simple.
- Do not operate on surfaces that are too difficult or too easy.
- Do not operate on surfaces that are too dangerous or too safe.
- Do not operate on surfaces that are too scary or too fun.
- Do not operate on surfaces that are too boring or too exciting.
- Do not operate on surfaces that are too dull or too sharp.

**7**

Read and understand Operator's Manual, Responsibilities Manual and Safety Manual and all safety signs before using or maintaining machine.

00775307080402030

**8**

X1

00775307080202090

**9**

240 kg  
140 kg  
100 kg  
0 m/s

00775307080202090

**10**

**DANGER**

Crushing hazard  
Contact with moving parts will result in death or serious injury.

Do not lean or stay nearby the platform during operation.

00775307080202090

**11**

**DANGER**

Crushing Hazard  
Death or serious injury can result from contact with moving parts.

Do not load weight on the safety arm is in place.

Engage safety arm before performing maintenance or repair.

00775307080202090

Scissor

**12**

**13**

**Emergency Lowering**

Pull out the Emergency lowering knob to lower the platform.

00775307080402150

**14**

**WARNING**

Do not operate this machine until the inspection has been performed to ensure proper operation.

- Only trained and authorized personnel should operate this machine. The training includes reading and understanding the safety operation and maintenance instructions in the manufacturer's manual, familiarity with the work site and equipment, and the operation and maintenance instructions in the manufacturer's manual.
- All instructions in this manual must be followed and all safety rules must be understood and followed.
- Do not attempt to repair the machine or replace any parts in the machine, unless you are qualified to do so.
- Modification or alteration of the machine shall be made only after your written approval from the manufacturer.
- The machine must be operated with caution. In case of failure, stop operation immediately.
- Proper use of the machine could result in serious injury or death.

00775307080402150

**15**

**DANGER**

Explosion and Fire Hazards

Light fire or explosion hazards are present with our engine and all fuel systems. Burns or blindness.

Keep all open flames and sparks away. Wear personal protective equipment, including face shield, gloves and long sleeve shirt.

Read manuals

Read and understand all manuals before operating the machine. Do not operate the machine if you do not understand the information in the manuals. Consult your supervisor, the owner or the manufacturer.

00775307080402150

**16**

220V AC  
10A

00775307080202140

**17**

**CAUTION**

Shut off power to all controls for long time machine halt or

Turn On  
Turn Off

00775307080402110

**18**

00775207010403040

Tire load, maximum

390 kg

00775207010403040

**19**

**DANGER**

Tip-over hazard

Activating or disabling limit switches can result in machine tip-over. Machine tip-over will result in death or serious injury.

00775207010403050

**20**

00775307080202010

**21**

220V AC  
10A

00775307080401050

**22**

00775307080401050

**23**

Li

00775307080401050

Figure 3-18 Decal 10



# Operation and Safety Manual

## Section 4 Operation Instruction



## SECTION 4 OPERATION INSTRUCTION

### 4.1 General

#### **⚠ DANGER**

**An operator must not operate the machine, only if he has learned and practiced the principles of safe machine operation contained in this operational manual.**

- a) Avoid hazardous situations.
- b) Perform a pre-operation inspection at all times.
- c) Implement functional test before operating the machine at all times.
- d) Inspect job site.
- e) Only use the machine as it was intended.

Fundamentals:

The Operating Instructions section provides instructions for each aspect of machine operation. It is the operator's responsibility to follow all the safety rules and instructions in the operator's safety and responsibilities manuals.

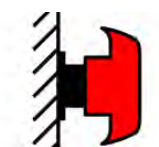
Using the machine for anything other than lifting personnel, along with their tools and materials, to an aerial work site is unsafe and dangerous.

Only trained and authorized personnel should be permitted to operate a machine. If more than one operator is expected to use a machine at different times in the same work shift, they must all be qualified operators and are all expected to follow all safety rules and instructions in the operator's, safety and responsibilities manuals. That means every new operator should perform a pre-operation inspection, function tests, and a workplace inspection before using the machine.

### 4.2 Machine Operation

#### 4.2.1 Turn on/off main power switch

- a) Push in the red Power Switch to the off position at the battery box side to shut off machine power.
- b) Pull out the red Power Switch to on position to operate the machine.
- c) If the machine is out of service for a long time or in maintenance, turn off the Power Switch.



### 4.2.2 Emergency stop

- a) Push in the red Emergency Stop button to the off position at the electronic controls or the platform controls to stop all functions.
- b) Repair any function that operates when Power Switch and red Emergency Stop button are pushed in.

### 4.2.3 Emergency lowering

Pull the emergency lowering knob to lower the platform.

### 4.2.4 Operation after usage

- a) Select a safe parking location-firm level surface, clear of obstruction and traffic.
- b) Lower the platform.
- c) Turn the key switch to the off position and remove the key to secure from unauthorized use.
- d) Charge the batteries.

## 4.3 Operation from Ground

### **⚠ CAUTION**

**Maintain safe distances between the operator, the machine and fixed objects.**

**Notice the drive direction when using the controller.**

### 4.3.1 Start electronic operation function

- a) Be sure the battery pack is connected before operating the machine.
- b) Turn the key switch to electronic control.
- c) Pull out both ground and platform red Emergency Stop buttons to the on position.

### 4.3.2 Adjust platform position

Press and hold both lifting enable button and platform up/down button on control panel to adjust platform position.

Drive and steer functions are not available from the electronic controls.

## 4.4 Operation from Platform

### 4.4.1 Start platform operation function

- a) Be sure the battery pack is connected before operating the machine.
- b) Turn the key switch to platform control.
- c) Pull out both ground and platform red Emergency Stop buttons to the on position.

#### 4.4.2 Adjust platform position

- a) Press the lift function enable button.



On the LCD screen, a circle below the lift function symbol will turn on.

If the control handle is not moved within seven seconds of pushing the lift button, the circle below the lift function symbol will turn off and lift function will not operate. Press the lift function button again.

- b) Press and hold function enable switch on handle while the lifting function indicator is on.
- c) Move the control handle according to markings on the control panel.

#### 4.4.3 Steering

- a) Press the drive function button.

On the LCD screen, a circle below the drive function symbol will turn on.

If the control handle is not moved within seven seconds of pushing the drive function button, the circle below the drive function symbol will turn off and drive function will not operate.

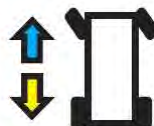
- b) Press and hold function enable switch on handle while the drive function indicator is on.
- c) Press and hold steering thumb button on the top of handle for steering according to the symbols on control panel.



#### 4.4.4 Drive

- a) Press the drive function button. On the LCD screen, a circle below the drive function symbol will turn on.

If the control handle is not moved within seven seconds of pushing the drive function button, the circle below the drive function symbol will turn off and drive function will not operate.



- b) Press and hold function enable switch on handle while the drive function indicator is on.
- c) Increase speed: slowly move the control handle off center.

- d) Decrease speed: slowly move the control handle toward center.
- e) Stop: return the control handle to center or release the function enable switch.
- f) Use the color-coded direction arrows on the platform controls and on the platform to identify the direction the machine will travel.
- g) Machine travel speed is restricted when the platform is raised.
- h) Battery condition will affect machine performance. Machine drive speed and function speed will drop when the battery level indicator is flashing.

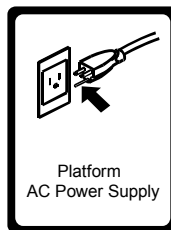
#### 4.4.5 Drive speed selection

Select the desired drive speed by control handle, usually, the machine is in the normal drive speed. Press the slow drive speed mode button, the circle below the button will turn on, slow drive speed mode is activated, the drive speed will be restricted even if the control handle moves to the max speed position.



#### 4.4.6 Platform AC power

Pull out the power plug on the left side of climbing ladder when using the platform AC power (if equipped), connect it to ground power socket. AC power socket on platform could provide AC power.




### 4.5 Operation on Slope

#### 4.5.1 Driving on a slope


**⚠ DANGER**

- a) Determine the longitudinal and lateral ratings and slope of the slope under machine retract condition.

**Table 4-1 Longitudinal rating**

Maximum longitudinal rating in the stowed state			
	ZS1414 Series/ZS1212 Series/ZS1012 Series/ ZS0812 Series/ZS0808 Series/ZS0607 Series	25%	14°
	ZS0608 Series/ZS0407 Series	30%	17°

**Table 4-2 Lateral rating**

Maximum lateral rating in the stowed state			
	ZS1414 Series/ZS1212 Series/ZS1012 Series/ ZS0812 Series/ZS0808 Series/ZS0607 Series	25%	14°
	ZS0608 Series/ZS0407 Series	30%	17°

- b) Slope rating is limited by ground conditions and traction. Press the drive speed button to the fast drive speed mode.
- c) Measure the slope with a digital inclinometer OR use the following procedure. You will need: carpenter's rule, straight block (minimum length 1m/ 3ft 3in), tape measure.
- 1) Lay the piece of wood on the slope.
  - 2) At the downhill end, lay the level on the top of edge of the piece of wood and lift the end until the piece of wood is level.
  - 3) While holding the piece of wood level, measure the vertical distance from the bottom of the piece of wood to the ground. Divide the tape measure distance (rise) by the length of the piece of wood (run) and multiply by 100.

Example:

Block = 3.6m /12ft (144in),

Stroke=3.6m /12ft,

Rise = 0.3m /12in,

Grade  $0.3m /12in \div 3.6m /144in = 0.083 \times 100 = 8.3\%$ .



If the slope exceeds the maximum slope or side slope rating, then the machine must be winched or transported up or down the slope. See Transport and Lifting section.

#### 4.5.2 Operating on a slope

**⚠ DANGER**

Determine the rating of the chassis working Angle when the machine is working longitudinally and laterally on the slope.

**Table 4-3 Maximum chassis working Angle**

Model	Longitudinal rating	Lateral rating
ZS1414 Series	3°	1.5°
ZS1212 Series	3°	1.5°
ZS1012 Series	3°	1.5°
ZS0812HA Series	3°	1.5°
ZS0812DC Series	3°	2°
ZS0808 Series	3°	1.5°
ZS0608 Series	3°	1.5°
ZS0607 Series	3°	1.5°
ZS0407 Series	3°	1.5°

**If the slope exceeds the chassis working Angle rating, tilt alarm will sound, then the platform must be lowered carefully. Move the machine to a firm, level surface before lifting.**

## 4.6 Traction

a) Notice (DC/AC series only):

It is not recommended that this machine be towed, except in the event of an emergency such as a machine malfunction or a total machine power failure.

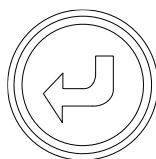
b) Warning:

- 1) If the machine has any inclination, the wheel must be fully blocked before manually releasing the brake, otherwise it may cause injury or even death.
- 2) Runaway Hazard. The equipment does not have traction brakes and the towing vehicle must be able to control the equipment at all times. Do not conduct traction on the highway. Failure to do so could result in serious injury.
- 3) Maximum traction speed should not exceed 3.2km/h (2 mile/h), and the traction spacing should not exceed 18m /60 ft. Maximum traction slope should not exceed 25%.

c) The device provides two ways to release the brakes: the electronically released brake and the mechanical way:

- 1) Electronically released brake (DC/AC series):
  - ① Pull out device main power switch, platform emergency stop button and ground emergency stop button.
  - ② Press and hold ECU Menu Entry Button.





- ③ Turn the key switch to electronic control.
- ④ Until the following interface appears on the LCD reading device:

**1. Set Speed**

- ⑤ Scroll to the following screen by pressing the Menu Down Button:

**4. Machine Mode**

- ⑥ Press Menu Entry Button to display following interface:

**Break Release**

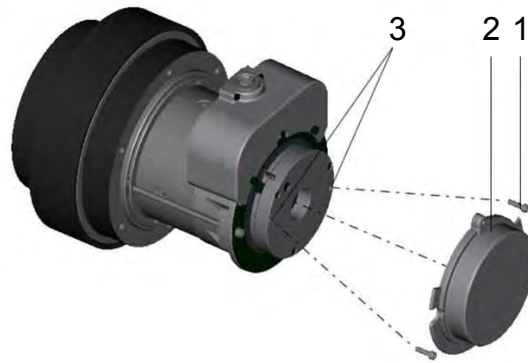
- ⑦ Long press Menu Entry Button to display the following interface, and the buzzer will alarm, indicating that the brake has been released.

**Break Is Released**

- ⑧ After the equipment is towed, the key switch is turned off and the brake is restored.

2) Mechanical brake release (DC series):

- ① Press device main power switch, platform emergency stop button and ground emergency stop button.
- ② Remove the two rear cover bolts, and the brake cover bolts are also the release bolts for the brakes. Rear cover bolts size M5×0.8×20mm, See the following icon 1.
- ③ Remove brake cover, see the following icon 2.
- ④ Insert the rear cover bolt 1 into the two manual release holes 3 of the brake housing.



**Figure 4-1 Brake diagram**

- ⑤ Tighten the bolt to release the brake.
- ⑥ Repeat this process for the other wheel drive.

The brake must be restored after the machine has been towed or pushed to the maintenance position.

## 4.7 Operation Code

### 4.7.1 Operation indicator code

If the platform controls LED or electronic controls LCD diagnostic readout displays an operational indicator code such as LL, the fault condition must be repaired or removed before resuming machine operation. Push in and pull out the red Emergency Stop button to reset the system.

- a) LED Readout.



- b) LCD Readout.



- c) Operation Indicator Code:

- 1) LL Off-Level.
- 2) OL Overload.
- 3) CH Chassis Mode Operation.
- 4) 18 Pothole Guard Fault.
- 5) 37 Battery Exhausted.

Refer to Zoomlion Maintenance manual for further information. A code and a description of a code can

also be viewed at the electronic controls LCD display.

#### 4.7.2 Platform overload

If the platform controller LED diagnostic readout displays OL, and the electronic controller LCD diagnostic readout displays OL as well, it indicates platform overloaded, all functions will stop. Alarm will sound.

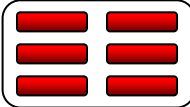





**OL**

**OL: PLATFORM OVERLOAD**

- a) Press the red Emergency Stop button to off position.
- b) Remove load from platform.
- c) Pull out the Red Emergency Button to the on position to operate the machine.
- d) The reading device shows normal.

#### 4.7.3 Battery level indicator

Use the LED diagnostic readout to determine the lead acid or lithium-ion battery level. When Low Charge appears on the platform controls LED display, the machine must be taken out of service and charged, otherwise all machine functions will be disabled.

	
Battery Level:90-100%	Battery Level:70%
	
Battery Level:50%	Battery Level:30%
	
Battery Level:20%	Battery Level:10%

## 4.8 Safety Arm and Guard Operation

### 4.8.1 How to use the safety arm

- a) Attempt to raise the platform to approximately 2.4m/7ft 10in .
- b) Rotate the safety arm away from the machine and let it hang down.
- c) Lower the platform until the safety arm rests securely on the link. Keep clear of the safety arm when lowering the platform.

### 4.8.2 How to fold guard

The platform railing system consists of three fold down rail sections for the extension deck and three sections for the main deck. All six sections are held in place by four wire lock pins.

- a) Fully lower the platform and retract the platform extension.
- b) Remove the platform controls.
- c) From inside the platform, remove the two extension deck lock pins.
- d) Fold the front rail components. Keep hands free of pinch points.
- e) Replace the two moved pins back into each side rail bracket.
- f) Fold the rail components of each side. Keep hands free of pinch points.
- g) At the rear of the main deck, remove the two main deck lock pins.
- h) Carefully open the gate and exit the platform.
- i) Fold down the rear gate and entry side rails as one unit. Keep hands free of pinch points.
- j) Fold down the left and right side rails. Keep hands free of pinch points.
- k) Replace the two moved pins back into each side rail bracket.

### 4.8.3 How to raise guard

Follow the fold down instructions but in reverse order, ensuring all lock pins are in place and installed properly.

### 4.8.4 Operation after usage

- a) Select a safe parking location-firm level surface, clear of obstruction and traffic.
- b) Lower the platform.
- c) Turn the key switch to the off position and remove the key to secure from unauthorized use.
- d) Charge the batteries.

## 4.9 Battery and Charger Operation

### **CAUTION**

#### **Battery and Charger Instruction.**

#### **4.9.1 Observe and obey**

- a) Do not use an external charger or booster battery.
- b) Charge the battery in a well-ventilated area.
- c) Use proper AC input voltage for charging as indicated on the charger.
- d) Use only a ZOOMLION authorized battery and charger.

#### **4.9.2 Charging the battery**

- a) Be sure the batteries are connected before charging the batteries.
- b) Open the battery compartment. The compartment should remain open for the entire charging cycle.

#### **4.9.3 Maintenance free battery**

- a) Connect the battery charger to a grounded AC circuit.
- b) The charger will indicate when the battery is fully charged.

#### **4.9.4 Standard battery**

- a) Remove the battery vent caps and check the battery acid level. If necessary, add only enough distilled water to cover the plates. Do not add excessive distilled water before the charging process.
- b) Replace the battery vent caps.
- c) Connect the battery charger to a grounded AC circuit.
- d) The charger will indicate when the battery is fully charged.
- e) Check the battery acid level when the charging cycle is complete. Replenish with distilled water to the bottom of the fill tube. Do not overfill.

#### **4.9.5 Dry battery filling and charging instructions**

- a) Remove the battery vent caps and permanently remove the plastic seal from the battery vent openings.
- b) Fill each cell with battery acid (electrolyte) until the level is sufficient to cover the plates.
- c) Do not fill to maximum level until the battery charge cycle is complete. Overfilling can cause the battery acid to overflow during charging. Neutralize battery acid spills with baking soda and water.
- d) Install the battery vent caps.
- e) To Charge Battery.

- f) Check the battery acid level when the charging cycle is complete. Replenish with distilled water to the bottom of the fill tube. Do not overfill.

## 4.10 Lithium-ion Battery and Charger Operation

### **⚠ CAUTION**

#### **Lithium-ion Battery and Charger Instruction**

##### **4.10.1 Observe and obey**

- a) Lithium-ion battery fast charge charger power reaches 1500W/2 hp, charging AC input current is 8A. Please select the power outlet with sufficient load to charge the device, the regular ordinary (10A) can only charge one device.
- b) Do not over charge or over discharge the lithium-ion battery.
- c) If there is heat, deformation, liquid leakage, odor or smoke when charging, stop using the lithium-ion battery and place the battery in an open place away from the crowd.
- d) The battery is only suitable for the matching equipment, and the battery should not be used in other occasions.
- e) It is forbidden to use the wire to directly short the battery output port.
- f) Do not use or store this product in environments such as corrosive, explosive, high temperature (heating, near fire or sun exposure).
- g) When charging, please use the special charger that comes with the device, and avoid charging in direct sunlight. Do not let children touch the charger in use.
- h) If the battery system is not used for a long time, it should be placed in a cool and dry environment (temperature below 30°C/86°F, humidity less than 90%) and charged at least once every three months.
- i) When the battery voltage is too low, it should be charged in time, otherwise the battery will be over-discharged and the machine will not move.
- j) Do not apply external force to the battery or drop it from high altitude.
- k) Keep the battery away from heat.
- l) Do not use an external charger or booster battery.
- m) Charge the battery in a well-ventilated area.
- n) Use proper AC input voltage for charging as indicated on the charger.
- o) Use only a ZOOMLION authorized charger.
- p) It is strictly forbidden for non-professionals to disassemble and modify the battery system. For

repairs, please contact our after-sales personnel.

#### 4.10.2 Charging lithium-ion battery

- a) Connect the battery charger to a grounded AC circuit.
- b) Keep the battery tray open during battery charging, but avoid rain.
- c) The charger will indicate when the battery is fully charged.

### 4.11 Transport and Lift

#### 4.11.1 Observe and obey

- a) ZOOMLION provides this securement information as a recommendation. The driver is solely responsible for ensuring that the machine is properly secured and the correct trailer is selected pursuant to CHINA Department of Transportation regulations, other localized regulations, and their company policy.
- b) ZOOMLION customers needing to containerize any lift or ZOOMLION product should source a qualified freight forwarder with expertise in preparing, loading and securing construction and lifting equipment for international shipment.
- c) Only qualified aerial lift operators should move the machine on or off the truck.
- d) The transport vehicle must be parked on a level surface.
- e) The transport vehicle must be secured to prevent rolling while the machine is being loaded.
- f) Be sure the vehicle capacity, loading surfaces and chains or straps are sufficient to withstand the machine weight. ZOOMLION lifts are very heavy relative to their size. See the serial label for the machine weight.
- g) Be sure the machine is on a level surface or secured before releasing the brake.
- h) Do not allow the rails to fall when the snap pins are removed. Maintain a firm grasp on the rails when the rails are lowered.
- i) Do not drive the machine on a slope that exceeds the uphill, downhill or side slope rating. See Driving on a Slope in the Operating Instructions section.
- j) If the slope of the transport vehicle bed exceeds the maximum slope rating, the machine must be loaded and unloaded using a winch as described in the brake release operation.

#### 4.11.2 Transport

- a) Brake Release Operation:
  - 1) Chock the wheels to prevent the machine from rolling.



- 2) Be sure the winch line is properly secured to the drive chassis tie points and the path is clear of all obstructions.
- 3) Push in the black brake release knob to open the brake valve (HD/HA series).



- 4) Pump the red brake release pump knob (HD/HA series).
  - 5) For the brake release of DC/AC series models, please refer to 4.6.
- b) After loaded:
- 1) Chock the wheels to prevent the machine from rolling.
  - 2) Pull out the red Emergency Button at both the ground and platform controls to the on position (HD/HA series).
  - 3) Press and hold the drive/steer function enable switch on the control handle. Move the control handle off center and immediately release it to reset the brakes (HD/HA series).
  - 4) Push the red Emergency Stop button at both ground and platform controls to the off position.
- c) Towing the machine is not recommended. If the machine must be towed, do not exceed 3.2 km/h (2mile/h).
- d) Securing to Truck or Trailer for Transit:
- 1) Always use the extension deck lock when the machine is transported. Turn the key switch to the off position and remove the key before transporting.
  - 2) Inspect the entire machine for loose or unsecured items. Use chains or straps of ample load capacity.
  - 3) Use a minimum of 2 chains or straps. Adjust the rigging to prevent damage to the chains.



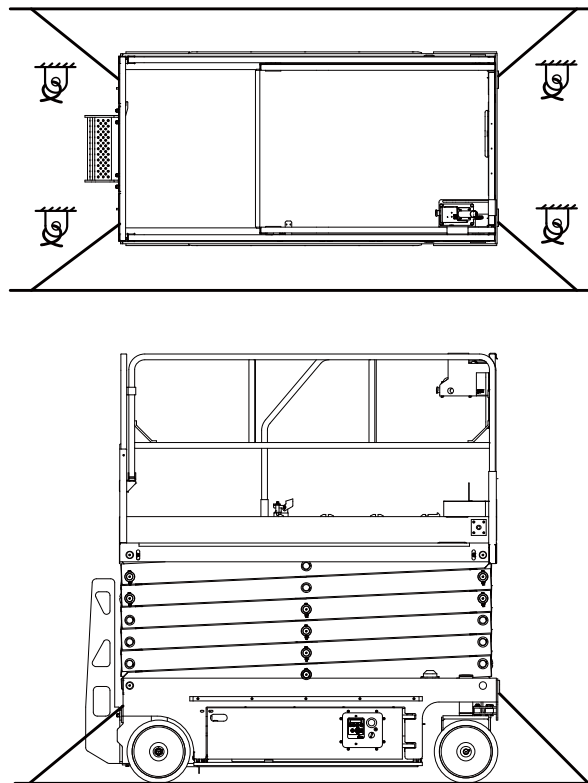
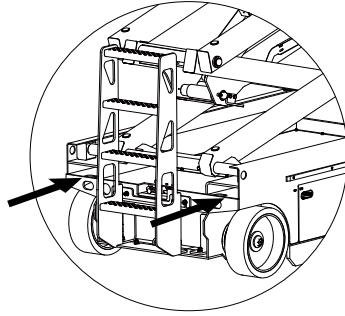


Figure 4-2 Tie down points

#### 4.11.3 Lift

### **⚠WARNING**

- a) Observe and Obey:
  - 1) Only qualified riggers should rig and lift the machine.
  - 2) Only qualified forklift operators should lift the machine with a forklift.
  - 3) Be sure the crane capacity, loading surfaces and straps or lines are sufficient to withstand the machine weight. See the serial label for the machine weight.
- b) Lifting the machine with a Forklift:
  - 1) Be sure the extension deck, controls and component trays are secured. Remove all loosen parts.
  - 2) The platform must remain lowered during all loading and transport procedures.
  - 3) Use the forklift pockets located on both sides of the ladder. See Figure 4-3.



**Figure 4-3 Forklift pockets**

- 4) Align the forklift fork with the position of the forklift pockets and drive forward until the fork is fully inserted.
  - 5) Raise the machine 0.4m /1ft 4in and then tilt the forks back slightly to keep the machine secure.
  - 6) Be sure the machine is level when lowering the forks.
- c) Lifting Instruction:
- 1) Fully lowering the platform. Be sure the extension deck, controls and component trays are secured. Remove all loose items on the machine.
  - 2) Use Table 4-4 and Figure 4-4 to determine the center of gravity of the machine.
  - 3) Attach the rigging only to the designated lifting points on the machine. There are two 2.5cm/1 in holes on the front of the machine, and two holes on the rear of the machine for lifting.
  - 4) Adjust the rigging to prevent damage to the machine and to keep the machine level.

Table 4-4 Center of gravity

Model	X Axis	Y Axis
ZS1414 Series	105 cm/3ft 5in	71 cm/2ft 4in
ZS1212 Series	85.7 cm/2ft 10in	64.1 cm/2ft 1in
ZS1012 Series	89.5 cm/2ft 11in	63.7 cm/2ft 1in
ZS0812 Series	90.4 cm/3ft	59.9 cm/2ft
ZS0808 Series	88.1 cm/2ft 11in	62.8cm/2ft 1in
ZS0608 Series	87.8 cm/2ft 11in	58.5cm/1ft 11in
ZS0607(HD/HA/AC/DC/DCS) Series	69.5 cm/2ft 3in	54 cm/1ft 9in
ZS0607ACW Series	67.1 cm/2ft 2in	50.3 cm/1ft 8in
ZS0407 Series	49.8 cm/1ft 8in	42.1 cm/1ft 5in

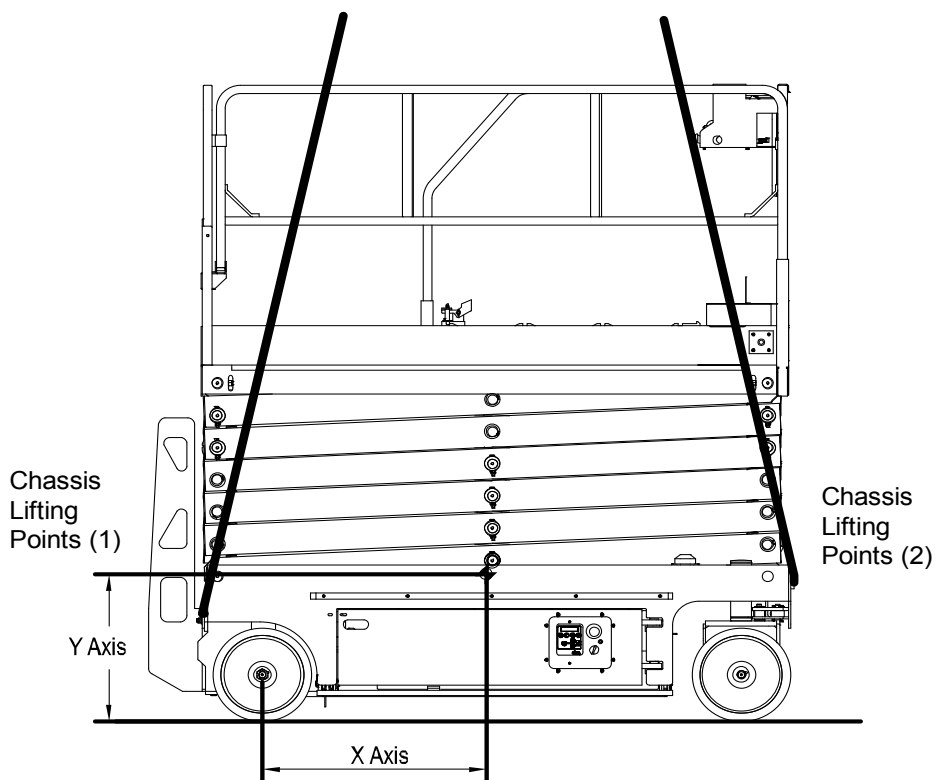


Figure 4-4 Center of gravity



# **Operation and Safety Manual**

## **Section 5 Maintenance**





## SECTION 5 MAINTENANCE

### 5.1 General



Observe and Obey:

- a) Only routine maintenance items specified in this manual shall be performed by the operator.
- b) Scheduled maintenance inspections shall be performed by qualified service technicians, according to the manufacturer's specifications and the requirements listed in the responsibilities manual.
- c) Disposal of materials should be according to the regulations of government and relevant environmental protection administration.
- d) Use only ZOOMLION approved replacement parts. ZOOMLION assumes no responsibility for hazards occurred to equipment and personnel caused by the use of unauthorized parts.

#### 5.1.1 Maintenance symbols legend

The following symbols have been used in this manual to help communicate the intent of the instructions. When one or more of the symbols appear at the beginning of a maintenance procedure, it conveys the meaning below.



Indicates that tools will be required to perform this procedure.



Indicates that new parts will be required to perform this procedure.

#### 5.1.2 Pre-start inspection

- a) Be sure operator's, safety, and responsibilities manuals are complete, legible, and in the storage container located on the machine.
- b) Be sure all decals are in place and legible.
- c) Check for hydraulic oil leaks and proper oil level. Add oil if needed. See Maintenance section.
- d) Check for battery fluid leaks and proper fluid level. Add distilled water if needed after battery charged. Check the following components or areas for damage, improperly installed, or missing parts and unauthorized modifications:

- 1) Electrical components, wiring, and electrical cables.
- 2) Hydraulic hoses, fittings, cylinders, and manifolds.
- 3) Drive motor/motor.
- 4) Wear pads.
- 5) Tires and wheels.
- 6) Limit switches and horn.
- 7) Alarm and indicator (if equipped).
- 8) Nuts, bolts and other fasteners.
- 9) Brake release unit.

### 5.1.3 Maintenance hazard

- a) Shut off power to all controls and ensure that all moving parts are secured from inadvertent motion prior to performing any adjustments or repairs.
- b) Never work under an elevated platform until it has been fully lowered to stowed position, if possible, or otherwise supported and restrained from movement with appropriate safety props, blocking, or overhead supports.
- c) DO NOT attempt to repair or tighten any hydraulic holes or fittings while the machine is powered on or when the hydraulic system is under pressure.
- d) Always relieve hydraulic pressure from all hydraulic circuits before loosening or removing hydraulic components.
- e) DO NOT use your hand to check for leaks. Use a piece of card- board or paper to search for leaks. Wear gloves to help protect hands from spraying fluid.



### 5.1.4 Body injury hazard

Do not operate a machine with a hydraulic oil or air leak. An air leak or hydraulic leak can penetrate and/or burn skin. During or after a period of running of the hydraulic system, the parts may produce high surface temperature, and improper contact will cause burn to skin. Overhauling or adjusting any part of hydraulic system can cause serious injuries. Only trained maintenance personnel are allowed to repair or adjust the hydraulic system.

Access by the operator is only advised when performing a pre-operation inspection. All compartments



must remain closed and secured during operation.

## 5.2 Hydraulic System Maintenance



### 5.2.1 Hydraulic oil level

Maintaining the hydraulic oil at the proper level is essential to machine operation. Improper hydraulic oil levels can damage hydraulic components. Daily checks allow the inspector to identify changes in oil level that might indicate the presence of hydraulic system problems.

- a) Be sure the machine is on a firm and level surface and in stowed position.
- b) By observing oil level in hydraulic oil tank, the hydraulic oil level after excluding air in the hydraulic system should reach the maximum scale mark on the hydraulic oil tank, and not be higher than bottom of the oil tank cap (different models have different maximum scale).
- c) Add oil as needed. Do not overfill.

### 5.2.2 Hydraulic oil capacity

**Table 5-1 Capacity**

Model	Hydraulic tank	Hydraulic system (including tank)
ZS1414 Series	25L /6.6 US gal	30L /7.9 US gal
ZS1212/ZS1012 Series	25L /6.6 US gal	24L /6.3 US gal
ZS0812/ZS0808/ZS0608 Series	25L /6.6 US gal	20L /5.3 US gal
ZS0607 Series	8L /2.1 US gal	6L /1.6 US gal
ZS0407 Series	4L /1.1 US gal	4L /1.1 US gal

### 5.2.3 Hydraulic oil specification

Please refer to the Table 5-2 for the recommended type and model of hydraulic oil (Table 5-2 is not used to specify the model and parameters of hydraulic oil). Please select proper hydraulic oil according to the specific application environment of the equipment. For special environment or special requirements of users, please contact ZOOMLION or the hydraulic oil manufacturer.

#### **CAUTION**

**Do not mix oils of different brands or types, as they contain different additives which may cause negative effects. If mixing of hydraulic oils is unavoidable, permission must be obtained from the hydraulic oil manufacturer. After-sales service of ZOOMLION does not cover machine malfunction caused by hydraulic oil mixing.**

Table 5-2 Technical parameters of hydraulic oil

Technical Parameters Type	ISO Viscosity Grade	Pour Point °C/°F	Flash Point °C /°F	kinematic viscosity cSt(40°C/104°F)	Viscosity index
Great Wall 4632 grease non-flammable hydraulic oil N32 (Eco-Friendly)	32	-20/-4	270/518	28.8-35.2	180
Great Wall Ground NO.10 aviation hydraulic fluid	—	-55/-67	107/225	10.53(50°C/122°F)	120
Great Wall Zhuoli L-HS 15 Ultralow temperature oil	15	-57/-71	164/327	15.35	172
Great Wall Zhuoli L-HS 32 Ultralow temperature oil	32	-48/-54	224/435	31.35	166
Great Wall Zhuoli L-HS 46 Ultralow temperature oil	46	-43/-45	238/460	45.81	170
Great Wall Zhuoli L-HV 15 Low temperature oil	15	-45/-49	173/343	15.51	140
Great Wall Zhuoli L-HV 32 Low temperature oil	32	-39/-38	231/448	33.4	150
Great Wall Zhuoli L-HV 46 Low temperature oil	46	-37/-35	240/464	48.7	150
Great Wall Zhuoli L-HV 68 Low temperature oil	68	-35/-31	238/460	70.47	150

Table 5-2 Technical parameters of hydraulic oil

Technical Parameters Type	ISO Viscosity Grade	Pour Point °C/°F	Flash Point °C /°F	kinematic viscosity cSt(40°C/104°F)	Viscosity index
Great Wall Zhuoli L-HM 46 Antiwear hydraulic oil (High pressure)	46	-15/5	240/464	45.8	97
Great Wall Zhuoli L-HM 68 Antiwear hydraulic oil (High pressure)	68	-13/9	245/473	67.4	98
Mobil SHC Aware H 32 (Eco-Friendly)	32	-30/-22	185/365	32	140
Clarity Synthetic EA Hydraulic Oil	46	-44/-47	221/430	46	180
Mobil DTE 10 Ultra 22	22	-54/-65	224/435	22.4	164
Mobil DTE 10 Ultra 32	32	-54/-65	250/482	32.7	164
Mobil DTE 10 Ultra 46	46	-45/-49	232/450	45.6	164
Chevron/CaltexRando Rando HDZ 15	15	-60/-76	150/302	15.7	144
Chevron/CaltexRando Rando HDZ 32	32	-49/-56	204/399	33	150
Chevron/CaltexRando Rando HDZ 46	46	-47/-53	216/421	46.7	153
Chevron/CaltexRando Rando MV 15	15	-42/-44	154/309	15.8	155
Chevron/CaltexRando Rando MV 32	32	-36/-33	210/410	33.5	154
Chevron/CaltexRando Rando MV 46	46	-33/-27	214/417	44	154

### 5.2.4 Hydraulic oil viscosity and temperature limit

Proper use of hydraulic oil: please note the corresponding oil viscosity and temperature limit. Under normal conditions, the recommended oil temperature should be controlled at 30°C/86°F to 60°C/140°F, this highest temperature should be no more than 90°C/194°F. The oil temperature affects the oil viscosity and the thickness of the oil film. Excessive oil temperatures can also damage or shorten the life of the oil seal and other rubber components, which can cause oil leakage in the hydraulic system, while high temperatures can exacerbate the evaporation and oxidation of the oil.

Pre-delivery of the machine, specific model of hydraulic oil shall be added as required by customer. If machine operating environment temperature is beyond the temperature limit of the hydraulic oil, different hydraulic oil suited to the actual conditions shall be used in time. On account of the safety of machine components and work efficiency, it is advisable that the starting temperature should be 25°C/77°F higher than the pour point of hydraulic oil.

If the altitude is higher than 4,000 m/13,100ft, please use a lower viscosity grade hydraulic oil based on the above requirements for the use of hydraulic oil for hydraulic pump normally operation.

### 5.2.5 Hydraulic oil replacement

We suggest that changing time of the hydraulic oil is as follows:

- a) First changing: operating for 500 hrs after commissioning.
- b) Second and subsequent changing: every 2,000 hrs of operation or once a year.

The above recommended intervals are suitable for most applications. Higher temperatures and pressures will shorten the oil's service life, so the hydraulic oil should be changed sooner than the recommended. For small load work, the oil change time can be extended.

Cleanliness of the hydraulic oil upon delivery is NAS9 (ISO4406 18/15), and for normal operation, the cleanliness should not be lower than NAS10 (ISO4406 19/16). We suggest that the hydraulic oil should be checked every 6 months, and the oil should be sampled at least once upon the time for oil changing. The oil sample can be sent to the hydraulic oil manufacturer or qualified third-party testing agency for analysis and to determine whether it is still usable.

### 5.2.6 Return oil filter element replacement

The oil return filter element is recommended to be changed every 1,000 hrs of operation or every year, whichever comes first. Proper filter element condition is essential to good machine performance and service life. Dirty or clogged filters will affect machine performance and damage components. Under hostile environment and bad operating conditions, the filter should be checked and replaced more frequently.

## 5.3 Battery Maintenance



Proper battery condition is essential to good machine performance and operational safety. Improper fluid levels or damaged cables and connections can result in component damage and hazardous conditions.

This inspection is not required for machines with sealed or non-maintainable batteries.

Check electrolyte level of the battery every two weeks. Fully charge the battery before adding water. If the electrolyte level is much higher than the plate, then no need to add water.

### **CAUTION**

**Electric shock hazard:**

**Contact with hot or live circuits may result in death or serious injury. Remove all rings, watches and jewelry.**

**Body Injury Hazard:**

**Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.**

**The battery should be fully charged before this inspection.**

- a) Only qualified riggers should rig the machine.
- b) Only certified crane operators should lift the machine and only in accordance with the applicable crane regulations.
- c) Be sure that the battery hold-down brackets are in place and secure.

Adding terminal protectors and a corrosion preventative sealant will help eliminate the corrosion on the battery terminals and cables.

## 5.4 Regular Maintenance

- a) Maintenance performed quarterly, annually and every two years must be completed by a person trained and qualified to perform maintenance on this machine according to the procedures found in the service manual for this machine.
- b) Machines that have been out of service for more than three months must receive the quarterly inspection before they are put back into service.
- c) By observing oil level in hydraulic oil tank, the hydraulic oil level after excluding air in the hydraulic system should reach the maximum scale mark on the hydraulic oil tank, and not be higher than bottom of the oil tank cap (different models have different maximum scale).

- d) Add oil as needed. Do not overfill.
- e) Inspect the wheel bolts for proper torque quarterly.

# **Operation and Safety Manual**

## **Section 6 Storage and Ex-factory Test**







## SECTION 6 STORAGE AND EX-FACTORY TEST

### 6.1 Storage Conditions

Ambient temperature for machine storage and transportation should be between -20°C/-4°F and 40°C/104°F, with relative humidity not greater than 85% and 100% only for short-term.

### 6.2 Ex-factory Test Items

Machine must complete testing items in the following table before delivery:

**Table 6-1 Ex-factory test item (ZS1414 Series)**

Tests Items	Load Testing		Testing Movement
Overload Test	125%	325kg/716 lbs	Platform Lifting
Functional Test	110%	286kg/630 lbs	Traveling & Platform Lifting
Braking Test	100%	260kg/573 lbs	Max Speed of Forward & Reverse Traveling

**Table 6-2 Ex-factory test items (ZS1212 Series)**

Tests Items	Load Testing		Testing Movement
Overload Test	125%	437.5kg/965 lbs	Platform Lifting
Functional Test	110%	385kg/849 lbs	Traveling & Platform Lifting
Braking Test	100%	350kg/772 lbs	Max Speed of Forward & Reverse Traveling

**Table 6-3 Ex-factory test item (ZS1012 Series)**

Tests Items	Load Testing		Testing Movement
Overload Test	125%	437.5kg/965 lbs	Platform Lifting
Functional Test	110%	385kg/849 lbs	Traveling & Platform Lifting
Braking Test	100%	350kg/772 lbs	Max Speed of Forward & Reverse Traveling

**Table 6-4 Ex-factory test item (ZS0812 Series)**

Tests Items	Load Testing		Testing Movement
Overload Test	125%	562.5kg/1240 lbs	Platform Lifting
Functional Test	110%	495kg/1091 lbs	Traveling & Platform Lifting
Braking Test	100%	450kg/992 lbs	Max Speed of Forward & Reverse Traveling

**Table 6-5 Ex-factory test items (ZS0808 Series)**

Tests Items	Load Testing		Testing Movement
Overload Test	125%	287.5kg/634 lbs	Platform Lifting
Functional Test	110%	253kg/558 lbs	Traveling & Platform Lifting
Braking Test	100%	230kg/510 lbs	Max Speed of Forward & Reverse Traveling

**Table 6-6 Ex-factory test items (ZS0608 Series)**

Tests Items	Load Testing		Testing Movement
Overload Test	125%	457kg/1008 lbs	Platform Lifting
Functional Test	110%	418kg/922 lbs	Traveling & Platform Lifting
Braking Test	100%	380kg/838 lbs	Max Speed of Forward & Reverse Traveling

**Table 6-7 Ex-factory test items (ZS0607 Series)**

Tests Items	Load Testing		Testing Movement
Overload Test	125%	287.5kg/634 lbs	Platform Lifting
Functional Test	110%	253kg/558 lbs	Traveling & Platform Lifting
Braking Test	100%	230kg/510 lbs	Max Speed of Forward & Reverse Traveling

**Table 6-8 Ex-factory testing items (ZS0407 Series)**

<b>Tests Items</b>	<b>Load Testing</b>		<b>Testing Movement</b>
Overload Test	125%	300kg/660 lbs	Platform Lifting
Functional Test	110%	264kg/582 lbs	Traveling & Platform Lifting
Braking Test	100%	240kg/530 lbs	Max Speed of Forward & Reverse Traveling



# **Operation and Safety Manual**

## **Section 7 Technical Parameter**





## SECTION 7 TECHNICAL PARAMETER

Table 7-1 ZS1414 Series Technical parameters

Model	ZS1414 Series	Parameters		
<b>Dimension</b>	Work Height	15.7 m	51ft 6in	
	Platform Height	13.7 m	44ft 11in	
	Max Height (stowed position)	2.68 m	8ft 10in	
	Max Platform Height (stowed position)	1.54 m	5ft 1in	
	Max Height (Stowed, rails folded)	2.15 m	7ft 1in	
	Rails Height	1.1 m	3ft 7in	
	Overall Width	1.4 m	4ft 7in	
	Extension Length	3.77 m	12ft 5in	
	Extension Length	0.91 m	3ft	
	Platform Size (Length × Width)	2.67 × 1.12 m	8ft 9in × 3ft 8in	
	Wheelbase	2.22 m	7ft 3in	
	Ground Clearance	0.11 m	4.5in	
	Pothole Guards deploy	0.02 m	0.75in	
<b>Working Performance</b>	Platform load rating Capacity	260 kg	570 lbs	
	Max. Number of Workers	2 (Indoor)		
	Drive Speed (Stowed)	3.5 km/h (HD/HA Series)	2.2 mph (HD/HA Series)	
		4 km/h (DC/AC Series)	2.5 mph (DC/AC Series)	
	Drive Speed (Elevated)	0.8 km/h	0.5mph	
	Maximum slope rating, stowed position	25% (14°)		
	Maximum Side Slope Rating in Stowed Position	25% (14°)		
	Maximum chassis working Angle (longitudinal/lateral)	3°/1.5°		
Turning Radius (Outside)	2.6 m	8ft 6in		
Turning Radius (Inside)	0.1 m	4in		

Table 7-1 ZS1414 Series Technical parameter

Model	ZS1414 Series	Parameters	
<b>Working Environment</b>	Gross Vibration Value of Scissor Arm	≤2.5 m/s	≤5.6 mph
	Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1ft 8in /s <sup>2</sup>
	Wind Speed	0 m/s	0 mph
	Lowest Operating Temperature	-20°C	-4°F
	Highest Ambient Temperature	60°C	140°F
	SPL at Ground	<70 dBA	
	SPL at Platform	<70 dBA	
<b>Others</b>	Gross	3280kg (HD/HA Series) 3310kg (DC/AC Series)	7230 lbs (HD/HA Series) 7300 lbs (DC/AC Series)
	Power	4 packs of batteries, 6V/220AH (HD/HA/DC/AC) Lithium-ion battery, 230AH (HD-Li/HA-Li/DC-Li/AC-Li)	
	Voltage	24V	
	Platform AC Power Socket	Standard	
	Hydraulic (Function)	240 bar	3480psi
	Tire specifications	Φ381mm×127mm	Φ15in×5in
	Tire Capacity	1280 kg	2820 lbs
	Tire Contact Pressure	14.84 kg/cm <sup>2</sup>	211 psi
	Ground Pressure	0.15 kg/cm <sup>2</sup>	2.1 psi



Table 7-2 ZS1212 Series Technical parameters

Model	ZS1212 Series	Parameters		
<b>Dimension</b>	Work Height	13.8 m	45ft 3in	
	Platform Height	11.8 m	38ft 9in	
	Max Height (stowed position)	2.66 m	8ft 9in	
	Max Platform Height (stowed position)	1.52 m	4ft 12in	
	Max Height (Stowed, rails folded)	2.13 m	6ft 12in	
	Rails Height	1.1 m	3ft 7in	
	Overall Width	1.15 m	3ft 9in	
	Overall Length (Stowed)	2.49 m	8ft 2in	
	Extension Length	0.91 m	3ft	
	Platform Size (Length ×Width)	2.3 × 1.12 m	7ft 7in × 3ft 8in	
	Wheelbase	1.85 m	6ft 1in	
	Ground Clearance	0.11 m	4.5in	
	Pothole Guards deploy	0.02 m	0.75in	
<b>Working Performance</b>	Platform load rating Capacity	350 kg	770 lbs	
	Max. Number of Workers	3 (Indoor)		
	Drive Speed (Stowed)	3.5 km/h (HD/HA Series)	2.2 mph (HD/HA Series)	
		4 km/h (DC/AC Series)	2.5 mph (DC/AC Series)	
	Drive Speed (Elevated)	0.8 km/h	0.5mph	
	Maximum slope rating, stowed position	25% (14°)		
	Maximum Side Slope Rating in Stowed Position	25% (14°)		
	Maximum chassis working Angle (longitudinal/lateral)	3°/1.5°		
	Turning Radius (Outside)	2.2 m	7ft 3in	
Turning Radius (Inside)	0.1 m	4in		

Table 7-2 ZS1212 Series Technical parameter

Model	ZS1212 Series	Parameters	
<b>Working Environment</b>	Gross Vibration Value of Scissor Arm	≤2.5 m/s	≤5.6 mph
	Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1ft 8in /s <sup>2</sup>
	Wind Speed	0 m/s	0 mph
	Lowest Operating Temperature	-20°C	-4°F
	Highest Ambient Temperature	60°C	140°F
	SPL at Ground	<70 dBA	
	SPL at Platform	<70 dBA	
<b>Others</b>	Gross	2970 kg (HD/HA Series)	6550 lbs (HD/HA Series)
		3000 kg (DC/AC Series)	6615 lbs (DC/AC Series)
	Power	4 packs of batteries, 6V/220AH (HD/HA/DC/AC) Lithium-ion battery, 230AH (HD-Li/AC-Li/DC-Li/AC-Li)	
	Voltage	24V	
	Platform AC Power Socket	Standard	
	Hydraulic (Function)	240 bar	3480psi
	Tire specifications	Φ381mm×127mm	Φ15in×5in
	Tire Capacity	1280 kg	2820 lbs
	Tire Contact Pressure	13.33 kg/cm <sup>2</sup>	190 psi
Ground Pressure	0.13 kg/cm <sup>2</sup>	1.9 psi	

Table 7-3 ZS1012 Series Technical parameters

Model	ZS1012 Series	Parameters		
<b>Dimension</b>	Work Height	11.8 m	38ft 9in	
	Platform Height	9.8 m	32ft 2in	
	Max Height (stowed position)	2.53 m	8ft 4in	
	Max Platform Height (stowed position)	1.33 m	4ft 4in	
	Max Height (Stowed, rails folded)	2 m	6ft 7in	
	Rails Height	1.1 m	3ft 7in	
	Overall Width	1.15 m	3ft 9in	
	Overall Length (Stowed)	2.49 m	8ft 2in	
	Extension Length	0.91 m	3ft	
	Platform Size (Length ×Width)	2.3 × 1.12 m	7ft 7in × 3ft 8in	
	Wheelbase	1.85 m	6ft 1in	
	Ground Clearance	0.11 m	4.5in	
	Pothole Guards deploy	0.02 m	0.75in	
<b>Working Performance</b>	Platform load rating Capacity	350 kg	770 lbs	
	Max. Number of Workers	2 (Indoor)/1 (Outdoor)		
	Drive Speed (Stowed)	3.5 km/h (HD/HA Series)	2.2 mph (HD/HA Series)	
		4 km/h (DC/AC Series)	2.5 mph (DC/AC Series)	
	Drive Speed (Elevated)	0.8 km/h	0.5mph	
	Maximum slope rating, stowed position	25% (14°)		
	Maximum Side Slope Rating in Stowed Position	25% (14°)		
	Maximum chassis working Angle (longitudinal/lateral)	3°/1.5°		
Turning Radius (Outside)	2.2 m	7ft 3in		
Turning Radius (Inside)	0.1 m	4in		

Table 7-3 ZS1012 Series Technical parameter

Model	ZS1012 Series	Parameters	
<b>Working Environment</b>	Gross Vibration Value of Scissor Arm	≤2.5 m/s	≤5.6 mph
	Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1ft 8in /s <sup>2</sup>
	Wind Speed	12.5 m/s	28 mph
	Lowest Operating Temperature	-20°C	-4°F
	Highest Ambient Temperature	60°C	140°F
	SPL at Ground	<70 dBA	
	SPL at Platform	<70 dBA	
<b>Others</b>	Gross	2900 kg (HD/HA Series)	6395 lbs (HD/HA Series)
		2930 kg (DC/AC Series)	6460 lbs (DC/AC Series)
	Power	4 packs of batteries, 6V/220AH (HD/HA/DC/AC) Lithium-ion battery, 230AH (HD-Li/HA-Li/DC-Li/AC-Li)	
	Voltage	24V	
	Platform AC Power Socket	Standard	
	Hydraulic (Function)	240 bar	3480psi
	Tire specifications	Φ381mm×127mm	Φ15in×5in
	Tire Capacity	1183 kg	2605 lbs
	Tire Contact Pressure	12.24 kg/cm <sup>2</sup>	175 psi
Ground Pressure	0.1118 kg/cm <sup>2</sup>	1.7 psi	

Table 7-4 ZS0812 Series Technical parameters

Model	ZS0812 Series	Parameters	
<b>Dimension</b>	Work Height	10.0 m	32ft 10in
	Platform Height	8.0 m	26ft 3in
	Max Height (stowed position)	2.4 m	7ft 11in
	Max Platform Height (stowed position)	1.26 m	4ft 2in
	Max Height (Stowed, rails folded)	1.9 m	6ft 3in
	Rails Height	1.1 m	3ft 7in
	Overall Width	1.15 m	3ft 9in
	Overall Length (Stowed)	2.49 m	8ft 2in
	Extension Length	0.91 m	3ft
	Platform Size (Length ×Width)	2.3 × 1.12 m	7ft 7in × 3ft 8in
	Wheelbase	1.85 m	6ft 1in
	Ground Clearance	0.11 m	4.5in
	Pothole Guards deploy	0.02 m	0.75in
<b>Working Performance</b>	Platform load rating Capacity	450 kg	990 lbs
	Max. Number of Workers	3 (Indoor)/2 (Outdoor) (HA Series) 2 (Indoor)/1 (Outdoor) (DC Series)	
	Drive Speed (Stowed)	3.5 km/h (HA Series)	2.2 mph (HA Series)
		4 km/h (DC Series)	2.5 mph (DC Series)
	Drive Speed (Elevated)	0.8 km/h	0.5mph
	Maximum slope rating, stowed position	25% (14°)	
	Maximum Side Slope Rating in Stowed Position	25% (14°)	
	Maximum chassis working Angle (longitudinal/lateral)	3°/1.5° (HA Series)	
3°/2° (DC Series)			
Turning Radius (Outside)	2.2 m	7ft 3in	
Turning Radius (Inside)	0.1 m	4in	

Table 7-4 ZS0812 Series Technical parameter

Model	ZS0812 Series	Parameters	
<b>Working Environment</b>	Gross Vibration Value of Scissor Arm	≤2.5 m/s	≤5.6 mph
	Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1ft 8in /s <sup>2</sup>
	Wind Speed	12.5 m/s	28 mph
	Lowest Operating Temperature	-20°C	-4°F
	Highest Ambient Temperature	60°C	140°F
	SPL at Ground	<70 dBA	
	SPL at Platform	<70 dBA	
<b>Others</b>	Gross	2620 kg (HA Series)	5790 lbs (HA Series)
		2550 kg (DC Series)	5620 lbs (DC Series)
	Power	4 packs of batteries, 6V/220AH (HA/DC) Lithium-ion battery, 230AH (HA-Li/DC-Li)	
	Voltage	24V	
	Platform AC Power Socket	Standard	
	Hydraulic (Function)	240 bar	3480psi
	Tire specifications	Φ381mm×127mm	Φ15in×5in
	Tire Capacity	1183 kg	2605 lbs
	Tire Contact Pressure	12.24 kg/cm <sup>2</sup>	175 psi
Ground Pressure	0.1118 kg/cm <sup>2</sup>	1.7 psi	

Table 7-5 ZS0808 Series Technical parameter

Model	ZS0808 Series	Parameters		
Dimension	Work Height	10 m	32ft 10in	
	Platform Height	8 m	26ft 3in	
	Max Height (stowed position)	2.4 m	7ft 11in	
	Max Platform Height (stowed position)	1.26 m	4ft 2in	
	Max Height (Stowed, rails folded)	1.9 m	6ft 3in	
	Rails Height	1.1 m	3ft 7in	
	Overall Width	0.81 m	2ft 8in	
	Overall Length (Stowed)	2.49 m	8ft 2in	
	Extension Length	0.91 m	3ft	
	Platform Size (Length ×Width)	2.3 × 0.81 m	7ft 7in × 2ft 8in	
	Wheelbase	1.85 m	6ft 1in	
	Ground Clearance	0.11 m	4.5in	
	Pothole Guards deploy	0.02 m	0.75in	
Working Performance	Platform load rating Capacity	230 kg	510 lbs	
	Max. Number of Workers	2 (Indoor)		
	Drive Speed (Stowed)	3.5 km/h (HD/HA Series)	2.2 mph (HD/HA Series)	
		4 km/h (DC/AC Series)	2.5 mph (DC/AC Series)	
	Drive Speed (Elevated)	0.8 km/h	0.5mph	
	Maximum slope rating, stowed position	25% (14°)		
	Maximum Side Slope Rating in Stowed Position	25% (14°)		
	Maximum chassis working Angle (longitudinal/lateral)	3°/1.5°		
Turning Radius (Outside)	2.1 m	6ft 11in		
Turning Radius (Inside)	0.1 m	4in		

Table 7-5 ZS0808 Series Technical parameter

Model	ZS0808 Series	Parameters	
Working Environment	Gross Vibration Value of Scissor Arm	≤2.5 m/s	≤5.6 mph
	Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1ft 8in /s <sup>2</sup>
	Wind Speed	0 m/s	0 mph
	Lowest Operating Temperature	-20°C	-4°F
	Highest Ambient Temperature	60°C	140°F
	SPL at Ground	<70 dBA	
	SPL at Platform	<70 dBA	
Others	Gross	2060kg (HD/HA Series)	4540 lbs (HD/HA Series)
		2090kg (DC/AC Series)	4610 lbs (DC/AC Series)
	Power	4 packs of batteries, 6V/170AH (HD/HA/DC/AC) Lithium-ion battery, 160AH (HD-Li/HA-Li/DC-Li/AC-Li)	
	Voltage	24V	
	Platform AC Power Socket	Standard	
	Hydraulic (Function)	240 bar	3480psi
	Tire specifications	Φ381mm×127mm	Φ15in×5in
	Tire Capacity	830 kg	1830 lbs
	Tire Contact Pressure	8.58 kg/cm <sup>2</sup>	122 psi
Ground Pressure	0.11 kg/cm <sup>2</sup>	1.7 psi	



Table 7-6 ZS0608 Series Technical parameter

Model	ZS0608 Series	Parameters	
<b>Dimension</b>	Work Height	8 m	26ft 3in
	Platform Height	6 m	19ft 8in
	Max Height (stowed position)	2.27 m	7ft 5in
	Max Platform Height (stowed position)	1.07 m	3ft 6in
	Max Height (Stowed, rails folded)	1.77 m	5ft 10in
	Rails Height	1.1 m	3ft 7in
	Overall Width	0.81 m	2ft 8in
	Overall Length (Stowed)	2.49 m	8ft 2in
	Extension Length	0.91 m	3ft
	Platform Size (Length ×Width)	2.3 × 0.81 m	7ft 7in × 2ft 8in
	Wheelbase	1.85 m	6ft 1in
	Ground Clearance	0.11 m	4.5in
	Pothole Guards deploy	0.02 m	0.75in
<b>Working Performance</b>	Platform load rating Capacity	380 kg	840 lbs
	Max. Number of Workers	2 (Indoor)/1 (Outdoor)	
	Drive Speed (Stowed)	3.5 km/h (HD Series)	2.2 mph (HD Series)
		4 km/h (DC Series)	2.5 mph (DC Series)
	Drive Speed (Elevated)	0.8 km/h	0.5mph
	Maximum slope rating, stowed position	30% (17°)	
	Maximum Side Slope Rating in Stowed Position	30% (17°)	
	Maximum chassis working Angle (longitudinal/lateral)	3°/1.5°	
	Turning Radius (Outside)	2.1 m	6ft 11in
Turning Radius (Inside)	0.1 m	4in	

Table 7-6 ZS0608 Series Technical parameter

Model	ZS0608 Series	Parameters	
Working Environment	Gross Vibration Value of Scissor Arm	≤2.5 m/s	≤5.6 mph
	Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1 ft 8in /s <sup>2</sup>
	Wind Speed	12.5 m/s	28 mph
	Lowest Operating Temperature	-20°C	-4°F
	Highest Ambient Temperature	60°C	140°F
	SPL at Ground	<70 dBA	
	SPL at Platform	<70 dBA	
Others	Gross	1910kg (HD Series)	4210 lbs (HD Series)
		1940kg (DC Series)	4280 lbs (DC Series)
	Power	4 packs of batteries, 6V/170AH (HD/DC) Lithium-ion battery, 160AH (HD-Li/DC-Li)	
	Voltage	24V	
	Platform AC Power Socket	Standard	
	Hydraulic (Function)	240 bar	3480psi
	Tire specifications	Φ381mm×127mm	Φ15in×5in
	Tire Capacity	830 kg	1830 lbs
	Tire Contact Pressure	8.58 kg/cm <sup>2</sup>	122 psi
Ground Pressure	0.11 kg/cm <sup>2</sup>	1.7 psi	

Table 7-7 ZS0607 Series Technical parameter

Model	ZS0607 Series	Parameters		
Dimension	Work Height	7.8 m	25ft 7in	
	Platform Height	5.8 m	19ft	
	Max Height (stowed position)	2.20 m	7ft 3in	
	Max Platform Height (stowed position)	1.05 m	3ft 5in	
	Max Height (Stowed, rails folded)	1.79 m	5ft 10in	
	Rails Height	1.1 m	3ft 7in	
	Overall Width	0.76m (HD/HA/ DC/AC/DCS)	2ft 6in (HD/HA/ DC/AC/DCS)	
		0.81m (ACW Series)	2ft 8in (ACW Series)	
	Overall Length (Stowed)	1.85 m	6ft 1in	
	Extension Length	0.91 m	3ft	
	Platform Size (Length ×Width)	1.65 × 0.74 m	5ft 5in × 2ft 5in	
	Wheelbase	1.37 m	4ft 6in	
	Ground Clearance	0.06 m	2.4in	
Pothole Guards deploy	0.016 m	0.65in		
Working Performance	Platform load rating Capacity	230 kg	510 lbs	
	Max. Number of Workers	2 (Indoor) (HD/HA/DC/AC/DCS Series)		
		2 (Indoor)/1 (Outdoor) (ACW Series)		
	Drive Speed (Stowed)	3 km/h (DCS)	2.2 mph (DCS)	
		3.5 km/h (HD/HA Series)	2.2 mph (HD/HA Series)	
		4 km/h (DC/AC/ACW Series)	2.5 mph (DC/AC/ACW Series)	
	Drive Speed (Elevated)	0.8 km/h	0.5mph	
	Maximum slope rating, stowed position	25% (14°)		
Maximum Side Slope Rating in Stowed Position	25% (14°)			
Maximum chassis working Angle (longitudinal/lateral)	3°/1.5°			

Table 7-7 ZS0607 Series Technical parameter

Model	ZS0607 Series	Parameters	
Working Environment	Turning Radius (Outside)	2m (DCS)	6ft 6in (DCS)
		1.6m (Other models)	5ft 3in (Other models)
	Turning Radius (Inside)	0.4m (DCS)	1ft 3in (DCS)
		0.1m (Other models)	4in (Other models)
	Gross Vibration Value of Scissor Arm	≤2.5 m/s	≤5.6 mph
	Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1ft 8in /s <sup>2</sup>
	Wind Speed	0 m/s (HD/HA/DC/AC/DCS Series)	0 mph (HD/HA/DC/AC/DCS Series)
		12.5m/s (ACW Series)	28.0mph (ACW/ Series)
	Lowest Operating Temperature	-20°C	-4°F
Highest Ambient Temperature	60°C	140°F	
SPL at Ground	<70 dBA		
SPL at Platform	<70 dBA		
Others	Gross	1425 kg (HD/HA Series)	3140 lbs (HD/HA Series)
		1435 kg (DCS Series)	3165 lbs (DCS Series)
		1455 kg (DC/AC Series)	3210 lbs (DC/AC Series)
		1620 kg (ACW Series)	3570 lbs (ACW Series)
	Power	4 packs of batteries, 6V/170AH (HD/HA/DC/AC/ACW)	
		2 packs of batteries, 12 V/130AH (DCS)	
		Lithium-ion battery, 160AH (HD-Li/HA-Li/DC-Li/AC-Li/ACW-Li)	
Voltage	24V		
Platform AC Power Socket	Standard		
Hydraulic (Function)	240 bar	3480psi	

Table 7-7 ZS0607 Series Technical parameter

Model	ZS0607 Series	Parameters	
Others	Tire specifications	Φ305mm×100mm (DCS)	Φ12in×4in (DCS)
		Φ305mm×114mm (HD/HA Series)	Φ12in×4.5in (HD/HA Series)
		Φ323mm×100mm (DC/AC/ACW Series)	Φ13in×4in (DC/AC/ACW Series)
	Tire Capacity	580 kg (HD/HA/DC/AC/DCS Series)	1280 lbs (HD/HA/DC/AC/DCS Series)
		645 kg (ACW Series)	1420 lbs (ACW Series)
	Tire Contact Pressure	9.25 kg/cm <sup>2</sup> (HD/HA/DC/AC/DCS Series)	132 psi (HD/HA/DC/AC/DCS Series)
		10.30 kg/cm <sup>2</sup> (ACW Series)	147 psi (ACW Series)
	Ground Pressure	0.11 kg/cm <sup>2</sup> (HD/HA/DC/AC/DCS Series)	1.7 psi (HD/HA/DC/AC/DCS Series)
		0.12 kg/cm <sup>2</sup> (ACW Series)	1.9 psi (ACW Series)

Table 7-8 ZS0407 Series Technical parameter

Model	ZS0407 Series	Parameters	
<b>Dimension</b>	Work Height	6.5 m	21ft 4in
	Platform Height	4.5 m	14ft 9in
	Max Height (stowed position)	2.05 m	6ft 9in
	Max Platform Height (stowed position)	0.96 m	3ft 1in
	Max Height (Stowed, rails folded)	1.70 m	5ft 7in
	Rails Height	1.1 m	3ft 7in
	Overall Width	0.76 m	2ft 6in
	Overall Length (Stowed)	1.44 m	4ft 9in
	Extension Length	0.60 m	2ft
	Platform Size (Length ×Width)	1.29 × 0.7 m	4ft 3in × 2ft 4in
	Wheelbase	1.05 m	3ft 5in
	Ground Clearance	0.06 m	2.4in
	Pothole Guards deploy	0.017 m	0.65in
	<b>Working Performance</b>	Platform load rating Capacity	240 kg
Max. Number of Workers		2 (Indoor)	
Drive Speed (Stowed)		4 km/h	2.5 mph
Drive Speed (Elevated)		0.8 km/h	0.5mph
Maximum slope rating, stowed position		30% (17°)	
Maximum Side Slope Rating in Stowed Position		30% (17°)	
Maximum chassis working Angle (longitudinal/lateral)		3°/1.5°	
Turning Radius (Outside)		1.6 m	5ft 3in
Turning Radius (Inside)		0.4 m	1ft 4in
Gross Vibration Value of Scissor Arm		≤2.5 m/s	≤5.6 mph
Highest square root of weighing acceleration bearing by the machine body	≤0.5 m/s <sup>2</sup>	≤1ft 8in /s <sup>2</sup>	

Table 7-8 ZS0407 Series Technical parameter

Model	ZS0407 Series	Parameters	
<b>Working Environment</b>	Wind Speed	0 m/s	0 mph
	Lowest Operating Temperature	-20°C	-4°F
	Highest Ambient Temperature	60°C	140°F
	SPL at Ground	<70 dBA	
	SPL at Platform	<70 dBA	
<b>Others</b>	Gross	895 kg	1975 lbs
	Power	2 packs of batteries, 12V/85AH (DC) Lithium-ion battery, 80AH (DC-Li)	
	Voltage	24V	
	Platform AC Power Socket	Standard	
	Hydraulic (Function)	240 bar	3480 psi
	Tire specifications	Φ230mm×80mm	Φ9in×3in
	Tire Capacity	390kg	860 lbs
	Tire Contact Pressure	8.5 kg/cm <sup>2</sup>	121 psi
	Ground Pressure	0.11 kg/cm <sup>2</sup>	1.7 psi





## Appendix: Inspection and Maintenance Records

Date	record

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Date	record

# **ELECTRIC SCISSOR LIFTS**

## **Operation and Safety Manual**



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