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# Operation and Safety Manual

*Original Instructions - Keep this manual with the machine at all times.*

**Model(s)**

**X1000AJ**

**X33JP**

**ANSI**



**P/N - 3121783**

November 18, 2019 - Rev B

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## WARNING

Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

## **FOREWORD**

The Mobile Elevating Work Platform (MEWP) models covered in this manual are designed and tested to meet or exceed various compliance standards. Please refer to the manufacturer's nameplate affixed to the subject MEWP for specific standard compliance information.

This manual is a very important tool! Keep it with the machine at all times.

The purpose of this manual is to provide owners, users, operators, lessors, and lessees with the precautions and operating procedures essential for the safe and proper machine operation for its intended purpose.

Due to continuous product improvements, JLG Industries, Inc. reserves the right to make specification changes without prior notification. Contact JLG Industries, Inc. for updated information.

Refer to [www.JLG.com](http://www.JLG.com) for Warranty, Product Registration, and other machine-related documentation.

**SAFETY ALERT SYMBOLS AND SAFETY SIGNAL WORDS**



This is the Safety Alert Symbol. It is used to alert you to the potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**⚠ DANGER**

INDICATES AN IMMINENTLY HAZARDOUS SITUATION. IF NOT AVOIDED, WILL RESULT IN SERIOUS INJURY OR DEATH. THIS DECAL WILL HAVE A RED BACKGROUND.

**⚠ WARNING**

INDICATES A POTENTIALITY HAZARDOUS SITUATION. IF NOT AVOIDED, COULD RESULT IN SERIOUS INJURY OR DEATH. THIS DECAL WILL HAVE AN ORANGE BACKGROUND.

**⚠ CAUTION**

INDICATES A POTENTIALITY HAZARDOUS SITUATION. IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY. IT MAY ALSO ALERT AGAINST UNSAFE PRACTICES. THIS DECAL WILL HAVE A YELLOW BACKGROUND.

**NOTICE**

INDICATES INFORMATION OR A COMPANY POLICY THAT RELATES DIRECTLY OR INDIRECTLY TO THE SAFETY OF PERSONNEL OR PROTECTION OF PROPERTY.

**⚠ WARNING**

THIS PRODUCT MUST COMPLY WITH ALL SAFETY RELATED BULLETINS. CONTACT JLG INDUSTRIES, INC. OR THE LOCAL AUTHORIZED JLG REPRESENTATIVE FOR INFORMATION REGARDING SAFETY RELATED BULLETINS WHICH MAY HAVE BEEN ISSUED FOR THIS PRODUCT.

**NOTICE**

JLG INDUSTRIES, INC. SENDS SAFETY RELATED BULLETINS TO THE OWNER OF RECORD OF THIS MACHINE. CONTACT JLG INDUSTRIES, INC. TO ENSURE THAT THE CURRENT OWNER RECORDS ARE UPDATED AND ACCURATE.

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**For :**

- Accident Reporting
- Product Safety Publications
- Current Owner Updates
- Questions Regarding Product Safety
- Standards and Regulations Compliance Information
- Questions Regarding Special Product Applications
- Questions Regarding Product Modifications

**Contact :**

Product Safety and Reliability Department  
JLG Industries, Inc.  
13224 Fountainhead Plaza  
Hagerstown, MD 21742  
USA

or Your Local JLG Office  
(See addresses on inside of manual cover)

**In USA:**

Toll Free: 877-JLG-SAFE (877-554-7233)

**Outside USA:**

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**REVISION LOG**

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## SECTION 1. SAFETY PRECAUTIONS

### 1.1 GENERAL

This section outlines the necessary precautions for proper and safe machine usage and maintenance. It is mandatory that a daily routine is established based on the content of this manual to promote proper machine usage. A maintenance program, using the information provided in this manual and the Service and Maintenance Manual, must also be established by a qualified person and must be followed to ensure that the machine is safe to operate.

The owner/user/operator/lessor/lessee of the machine must not accept operating responsibility until this manual has been read, training is accomplished, and operation of the machine has been completed under the supervision of an experienced and qualified operator.

This section contains the responsibilities of the owner, user, operator, lessor, and lessee concerning safety, training, inspection, maintenance, application, and operation. If there are any questions with regard to safety, training, inspection, maintenance, application, and operation, please contact JLG Industries, Inc. ("JLG").

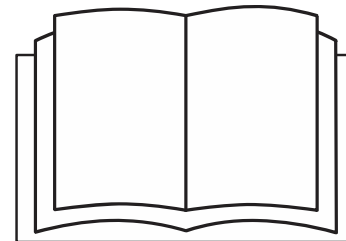
### **⚠ WARNING**

**FAILURE TO COMPLY WITH THE SAFETY PRECAUTIONS LISTED IN THIS MANUAL COULD RESULT IN MACHINE DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.**

### 1.2 PRE-OPERATION

#### Operator Training and Knowledge

- Read, understand, and study the Operation and Safety Manual in its entirety before operating the machine. For clarification, questions, or additional information regarding any portions of this manual, contact JLG Industries, Inc.



## **SECTION 1 - SAFETY PRECAUTIONS**

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- Only personnel who have received proper training regarding the inspection, application and operation of MEWPs (including recognition and avoiding hazards associated with their operation) shall be authorized to operate a MEWP.
- Only properly trained personnel who have received unit-specific familiarization shall operate a MEWP. The user shall determine if personnel are qualified to operate the MEWP prior to operation.
- Read, understand, and obey all DANGERS, WARNINGS, CAUTIONS, and operating instructions on the machine and in this manual.
- Ensure that the machine is to be used in a manner which is within the scope of its intended application as determined by JLG.
- All operating personnel must have a thorough understanding of the intended purpose and function of the MEWP controls, including platform, ground and emergency descent controls.
- Read, understand, and obey all applicable employer, local, and governmental regulations as they pertain to your utilization and application of the machine.

### **Workplace Inspection**

- Precautions to avoid all hazards in the work area must be taken by the user before and during operation of the machine.
- Do not operate or raise the platform from a position on trucks, trailers, railway cars, floating vessels, scaffolds or other equipment unless the application is approved in writing by JLG.
- Before operation, check work area for overhead hazards such as electric lines, bridge cranes, and other potential overhead obstructions.
- Check operating surfaces for holes, bumps, drop-offs, obstructions, debris, concealed holes, and other potential hazards.
- Check the work area for hazardous locations. Do not operate the machine in hazardous environments unless approved for that purpose by JLG.
- Ensure that the ground conditions are adequate to support the maximum outrigger load indicated on the outrigger load decals located on the machine.

### Machine Inspection

- Do not operate this machine until the inspections and functional checks as specified in Section 2 of this manual have been performed.
- Do not operate this machine until it has been serviced and maintained according to the maintenance and inspection requirements as specified in the machine's Service and Maintenance Manual.
- Ensure all safety devices are operating properly. Modification of these devices is a safety violation.

#### **WARNING**

**MODIFICATION OR ALTERATION OF A MEWP SHALL BE MADE ONLY WITH PRIOR WRITTEN PERMISSION FROM THE MANUFACTURER.**

- Do not operate any machine on which the safety or instruction placards or decals are missing or illegible.
- Check the machine for modifications to original components. Ensure that any modifications have been approved by JLG.
- Avoid accumulation of debris on platform floor. Keep mud, oil, grease, and other slippery substances from footwear and platform floor.

### 1.3 OPERATION

#### General

- Machine operation requires your full attention. Bring the machine to a full stop before using any device, i.e. cell phones, two-way radios, etc. that will distract your attention from safely operating the machine.
- Do not use the machine for any purpose other than positioning personnel, their tools, and equipment.
- Before operation, the user must be familiar with the machine capabilities and operating characteristics of all functions.
- Never operate a malfunctioning machine. If a malfunction occurs, shut down the machine. Remove the unit from service and notify the proper authorities.
- Do not remove, modify, or disable any safety devices.
- Never slam a control switch or lever through neutral to an opposite direction. Always return switch to neutral and stop before moving the switch to the next function. Operate controls with slow and even pressure.



## SECTION 1 - SAFETY PRECAUTIONS

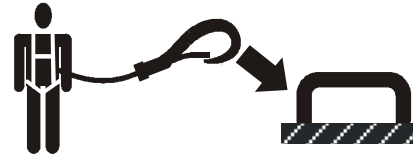
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- Do not allow personnel to tamper with or operate the machine from the ground with personnel in the platform, except in an emergency.
- Do not carry materials directly on platform railing unless approved by JLG.
- When two or more persons are in the platform, the operator shall be responsible for all machine operations.
- Always ensure that power tools are properly stowed and never left hanging by their cord from the platform work area.
- When driving, always position boom over rear axle in line with the direction of travel. Remember, if boom is over the front axle, steer and drive functions will be reversed.
- Do not assist a stuck or disabled machine by pushing or pulling except by pulling at the chassis tie-down lugs.
- Fully lower platform and shut off all power before leaving machine.
- Remove all rings, watches, and jewelry when operating machine. Do not wear loose fitting clothing or long hair unrestrained which may become caught or entangled in equipment.

- Persons under the influence of drugs or alcohol or who are subject to seizures, dizziness or loss of physical control must not operate this machine.
- Hydraulic cylinders are subject to thermal expansion and contraction. This may result in changes to the platform position while the machine is stationary. Factors affecting thermal movement can include the length of time the machine will remain stationary, hydraulic oil temperature, ambient air temperature and platform position.

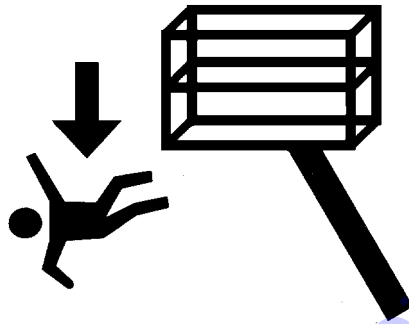
### Trip and Fall Hazards

- Prior to operation, ensure all gates are closed and fastened in their proper position.
- During operation, occupants in the platform must wear a full body harness with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.



- Enter and exit only through gate area. Use extreme caution when entering or leaving platform. Ensure

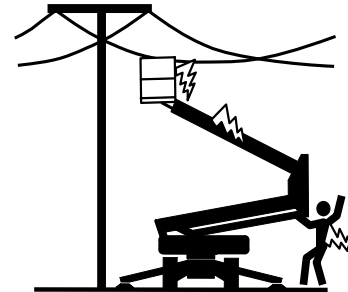
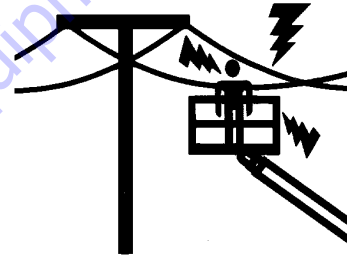
that the platform assembly is fully lowered. Face the platform when entering or leaving the platform. Always maintain "three point contact" with the machine, using two hands and one foot or two feet and one hand at all times during entry and exit.



- Keep both feet firmly positioned on the platform floor at all times. Never position ladders, boxes, steps, planks, or similar items on unit to provide additional reach for any purpose.
- Keep oil, mud, and slippery substances cleaned from footwear and the platform floor.

### Electrocution Hazards

- This machine is not insulated and does not provide protection from contact or proximity to electrical current.



## SECTION 1 - SAFETY PRECAUTIONS

- Maintain distance from electrical lines, apparatus, or any energized (exposed or insulated) parts according to the Minimum Approach Distance (MAD) as shown in Table 1-1.
- Allow for machine movement and electrical line swaying.

**Table 1-1. Minimum Approach Distances (M.A.D.)**

Voltage Range (Phase to Phase)	MINIMUM APPROACH DISTANCE in Feet (Meters)
0 to 50 KV	10 (3)
Over 50KV to 200 KV	15 (5)
Over 200 KV to 350 KV	20 (6)
Over 350 KV to 500 KV	25 (8)
Over 500 KV to 750 KV	35 (11)
Over 750 KV to 1000 KV	45 (14)

**NOTE:** *This requirement shall apply except where employer, local or governmental regulations are more stringent.*

- Maintain a clearance of at least 10 ft. (3m) between any part of the machine and its occupants, their tools, and their equipment from any electrical line or apparatus carrying up to 50,000 volts. One foot addi-

tional clearance is required for every additional 30,000 volts or less.

- The minimum approach distance may be reduced if insulating barriers are installed to prevent contact, and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the machine. The minimum approach distance shall be reduced to a distance within the designed working dimensions of the insulating barrier. This determination shall be made by a qualified person in accordance with the employer, local, or governmental requirements for work practices near energized equipment

### **DANGER**

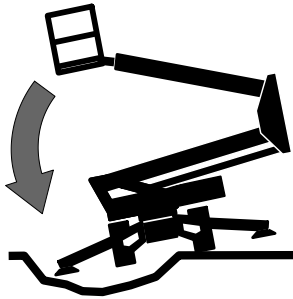
**DO NOT MANEUVER MACHINE OR PERSONNEL INSIDE PROHIBITED ZONE (MAD). ASSUME ALL ELECTRICAL PARTS AND WIRING ARE ENERGIZED UNLESS KNOWN OTHERWISE.**

### **Tipping Hazards**

- Ensure that the ground conditions are adequate to support the maximum outrigger load indicated on the outrigger load decals located on the machine. Do not travel on unsupported surfaces.

## SECTION 1 - SAFETY PRECAUTIONS

- The user must be familiar with the operating surface before driving. Do not exceed the allowable side-slope and grade while driving.



- Do not elevate platform while on or near a sloping, uneven, or soft surface. Ensure machine is positioned on a smooth, firm surface within the limits of the maximum operating slope before elevating platform.
- Before driving on floors, bridges, trucks, and other surfaces, check allowable capacity of the surfaces.
- Do not elevate the platform unless the machine is on a firm operating surface and outriggers are properly set.

- Never exceed the maximum platform capacity as specified on the platform. Keep all loads within the confines of the platform, unless authorized by JLG.
- Keep the chassis and outriggers of the machine a minimum of 2 ft. (0.6m) from holes, bumps, drop-offs, obstructions, debris, concealed holes, and other potential hazards at the ground level.
- Do not push or pull any object with the boom.
- Never attempt to use the machine as a crane. Do not tie-off machine to any adjacent structure. Never attach wire, cable, or any similar items to platform.
- Do not operate the machine when wind conditions exceed 28 mph (12.5 m/s). Refer to Table 1-2, Beaufort Scale (For Reference Only). Factors affecting wind speed are; platform elevation, surrounding structures, local weather events, and approaching storms.
- Wind speed can be significantly greater at height than at ground level.
- Wind speed can change rapidly. Always consider approaching weather events, the time required to lower the platform, and methods to monitor current and potential wind conditions.
- Do not cover or increase surface area of the platform or the load. Do not carry large surface area items into the platform when operating outdoors. The addition

## SECTION 1 - SAFETY PRECAUTIONS

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of such items increases the exposed wind area of the machine. Increased areas exposed to wind will decrease stability.

- Do not increase the platform size with unauthorized modifications or attachments.
- If boom assembly or platform is in a position that one or more outriggers are off the ground, all persons must be removed before attempting to stabilize the machine. Use cranes, forklift trucks, or other appropriate equipment to stabilize machine.

### **WARNING**

**DO NOT OPERATE THE MACHINE WHEN WIND CONDITIONS EXCEED SPECIFICATIONS SHOWN IN SECTION 6, FIGURE 1-2 OR AS SHOWN ON THE CAPACITY PLACARD ON THE PLATFORM BILLBOARD.**

**Table 1-2. Beaufort Scale (For Reference Only)**

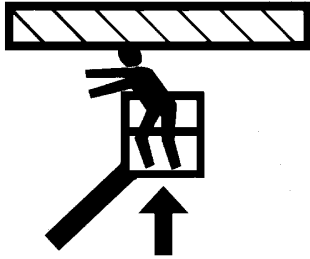
Beaufort Number	Wind Speed		Description	Land Conditions
	mph	m/s		
0	0	0-0.2	Calm	Calm. Smoke rises vertically
1	1-3	0.3-1.5	Light air	Wind motion visible in smoke
2	4-7	1.6-3.3	Light breeze	Wind felt on exposed skin. Leaves rustle
3	8-12	3.4-5.4	Gentle breeze	Leaves and smaller twigs in constant motion
4	13-18	5.5-7.9	Moderate breeze	Dust and loose paper raised. Small branches begin to move.
5	19-24	8.0-10.7	Fresh breeze	Smaller trees sway.
6	25-31	10.8-13.8	Strong breeze	Large branches in motion. Flags waving near horizontal. Umbrella use becomes difficult.
7	32-38	13.9-17.1	Near Gale/Moderate Gale	Whole trees in motion. Effort needed to walk against the wind.
8	39-46	17.2-20.7	Fresh Gale	Twigs broken from trees. Cars veer on road.
9	47-54	20.8-24.4	Strong Gale	Light structure damage.

## SECTION 1 - SAFETY PRECAUTIONS

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### Crushing and Collision Hazards

- Approved head gear must be worn by all operating and ground personnel.
- Watch for obstructions around machine and overhead when driving. Check clearances above, on sides, and bottom of platform during all operations.



- During operation, keep all body parts inside platform railing.
- Use the boom functions, not the drive function, to position the platform close to obstacles.
- Always post a lookout when driving in areas where vision is obstructed.
- Keep non-operating personnel at least 6 ft. (1.8m) away from machine during all operations.

- Under all travel conditions, the operator must limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors.
- Be aware of stopping distances in all drive speeds. When driving in high speed, switch to low speed before stopping. Travel grades in low speed only.
- Do not use high speed drive in restricted or close quarters or when driving in reverse.
- Exercise extreme caution at all times to prevent obstacles from striking or interfering with operating controls and persons in the platform.
- Ensure that operators of other overhead and floor level machines are aware of the MEWP's presence. Disconnect power to overhead cranes.
- Do not operate over ground personnel. Warn personnel not to work, stand, or walk under a raised boom or platform. Position barricades on floor if necessary.

### 1.4 TOWING, LIFTING, AND HAULING

- Never allow personnel in platform while towing, lifting, or hauling.
- Ensure boom is in the stowed position and the turntable locked prior to towing, lifting or hauling. The platform must be completely empty of tools.
- When lifting machine, lift only at designated areas of the machine. Lift the unit with equipment of adequate capacity.
- Refer to the Machine Operation section of this manual for lifting information.

### 1.5 MAINTENANCE

This sub-section contains general safety precautions which must be observed during maintenance of this machine. Additional precautions to be observed during machine maintenance are inserted at the appropriate points in this manual and in the Service and Maintenance Manual. It is of utmost importance that maintenance personnel pay strict attention to these precautions to avoid possible injury to personnel or damage to the machine or property. A maintenance program must be established by a qualified person and must be followed to ensure that the machine is safe.

#### Maintenance Hazards

- Shut off power to all controls and ensure that all moving parts are secured from inadvertent motion prior to performing any adjustments or repairs.
- Never work under an elevated platform until it has been fully lowered to the full down position, if possible, or otherwise supported and restrained from movement with appropriate safety props, blocking, or overhead supports.
- DO NOT attempt to repair or tighten any hydraulic hoses or fittings while the machine is powered on or when the hydraulic system is under pressure.



## SECTION 1 - SAFETY PRECAUTIONS

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- Always relieve hydraulic pressure from all hydraulic circuits before loosening or removing hydraulic components.
- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks. Wear gloves to help protect hands from spraying fluid.



- Use only replacement parts or components that are approved by JLG. To be considered approved, replacement parts or components must be identical or equivalent to original parts or components.
- Never attempt to move heavy parts without the aid of a mechanical device. Do not allow heavy objects to rest in an unstable position. Ensure adequate support is provided when raising components of the machine.

- Do not use machine as a ground for welding.
- When performing welding or metal cutting operations, precautions must be taken to protect the chassis from direct exposure to weld and metal cutting spatter.
- Do not refuel the machine with the engine running.
- Use only approved non-flammable cleaning solvents.
- Do not replace items critical to stability, such as batteries or solid tires, with items of different weight or specification. Do not modify the MEWP in any way to affect stability.
- Refer to the Service and Maintenance Manual for the weights of critical stability items.

### **⚠ WARNING**

**MODIFICATION OR ALTERATION OF A MEWP SHALL BE MADE ONLY WITH PRIOR WRITTEN PERMISSION FROM THE MANUFACTURER.**

## **Battery Hazards**

- Always disconnect batteries when servicing electrical components or when performing welding on the machine.
- Do not allow smoking, open flame, or sparks near battery during charging or servicing.
- Do not contact tools or other metal objects across the battery terminals.
- Always wear hand, eye, and face protection when servicing batteries. Ensure that battery acid does not come in contact with skin or clothing.

### **CAUTION**

**BATTERY FLUID IS HIGHLY CORROSIVE. AVOID CONTACT WITH SKIN AND CLOTHING AT ALL TIMES. IMMEDIATELY RINSE ANY CONTACTED AREA WITH CLEAN WATER AND SEEK MEDICAL ATTENTION.**

- Charge batteries only in a well ventilated area.
- Avoid overfilling the battery fluid level. Add distilled water to batteries only after the batteries are fully charged.

### SECTION 2. PREPARATION AND INSPECTION

#### 2.1 PERSONNEL TRAINING

The MEWP (mobile elevating work platform) is a personnel handling device; so it is necessary that it be operated and maintained only by trained personnel.

##### Operator Training

Operator training must cover:

1. Reading and understanding the Operation and Safety Manual.
2. Thorough understanding of the intended purpose and function of the MEWP controls, including platform, ground, and emergency descent controls.
3. Control labels, instructions, and warnings on the machine.
4. Applicable regulations, standards, and safety rules.
5. Use of approved fall protection equipment.
6. Enough knowledge of the mechanical operation of the machine to recognize a malfunction or potential malfunction.
7. The safest means to operate the machine where overhead obstructions, other moving equipment, and obstacles, depressions, holes, and drop-offs exist.

8. Means to avoid the hazards of unprotected electrical conductors.
9. Selection of the appropriate MEWPs and available options for the work to be performed considering specific job requirements, with involvement from the MEWP owner, user, and/or supervisor.
10. The responsibility of the operator to ensure all platform occupants have a basic level of knowledge to work safely on the MEWP, and to inform them of applicable regulations, standards, and safety rules.
11. The requirement for familiarization in addition to training.

##### Training Supervision

Training must be delivered by a qualified person in an open area free of hazards until the trainee has demonstrated the ability to safely control and operate the machine.

##### Operator Responsibility

The operator must be instructed that he/she has the responsibility and authority to shut down the machine in case of a malfunction or other unsafe condition of either the machine or the job site.

## SECTION 2 - PREPARATION AND INSPECTION

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### 2.2 PREPARATION, INSPECTION, AND MAINTENANCE

The following table covers machine inspections and maintenance required by JLG Industries, Inc. Consult local regulations for further requirements for MEWPs. Frequency of inspections and maintenance must be increased as necessary when machine is used in a harsh or hostile environment, if machine is used with increased frequency, or if machine is used in a severe manner.

#### Machine Familiarization

**NOTE:** Responsibilities for familiarization may vary by region.

Only properly trained personnel who have received unit-specific familiarization shall operate a MEWP. The user shall determine if personnel are qualified to operate the MEWP prior to operation. The user shall ensure that after familiarization, the operator operates the MEWP for a sufficient period of time to achieve proficiency. When authorized by the user, self-familiarization can be achieved, if authorized, by a properly trained operator reading, understanding and following the manufacturer's operator's manual.

Prior to users authorization of an operator to use a specific model of MEWP, the user shall ensure the operator is familiarized on the following:

1. Location of the manual storage compartment and the requirement to ensure the required manual(s) are present on the MEWP;

2. Purpose and function of the machine controls and indicators at the platform and ground control stations;
3. Purpose, location, and function of the emergency controls;
4. Operating characteristics and limitations;
5. Features and devices;
6. Accessories and optional equipment.

## SECTION 2 - PREPARATION AND INSPECTION

**Table 2-1. Inspection and Maintenance Table**

Type	Frequency	Primary Responsibility	Service Qualification	Reference
Pre-Start Inspection	Before using each day; or whenever there's an Operator change.	User or Operator	User or Operator	Operation and Safety Manual
Pre-Delivery Inspection (See Note)	Before each sale, lease, or rental delivery.	Owner, Dealer, or User	Qualified JLG Mechanic	Service and Maintenance Manual and applicable JLG inspection form
Frequent Inspection	In service for 3 months or 150 hours, whichever comes first; or Out of service for a period of more than 3 months; or Purchased used.	Owner, Dealer, or User	Qualified JLG Mechanic	Service and Maintenance Manual and applicable JLG inspection form
Annual Machine Inspection	Annually, no later than 13 months from the date of prior inspection.	Owner, Dealer, or User	Factory Trained Service Technician (Recommended)	Service and Maintenance Manual and applicable JLG inspection form
Preventative Maintenance	At intervals as specified in the Service and Maintenance Manual.	Owner, Dealer, or User	Qualified JLG Mechanic	Service and Maintenance Manual

**NOTE:** Inspection forms are available from JLG. Refer to Section 6 - Operators Maintenance when performing inspections.

### **NOTICE**

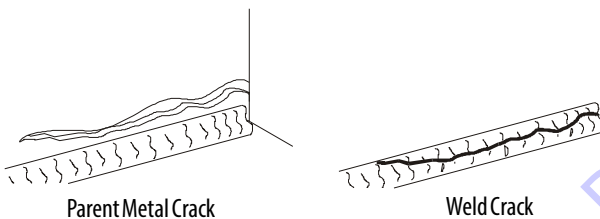
**JLG INDUSTRIES, INC. RECOGNIZES A FACTORY TRAINED SERVICE TECHNICIAN AS A PERSON WHO HAS SUCCESSFULLY COMPLETED THE JLG SERVICE TRAINING SCHOOL FOR THE SPECIFIC JLG PRODUCT MODEL.**

## SECTION 2 - PREPARATION AND INSPECTION

### Pre-Start Inspection

The Pre-Start Inspection should include each of the following:

1. **Cleanliness** – Check all surfaces for leakage (oil, fuel, or battery fluid) or foreign objects. Report any leakage to the proper maintenance personnel.
2. **Structure** - Inspect the machine structure for dents, damage, weld or parent metal cracks or other discrepancies.



3. **Decals and Placards** – Check all for cleanliness and legibility. Make sure none of the decals and placards are missing. Make sure all illegible decals and placards are cleaned or replaced.

4. **Operation and Safety Manuals** – Make sure a copy of the Operation and Safety Manual, AEM Safety Manual (ANSI markets only), and ANSI Manual of Responsibilities (ANSI markets only) is enclosed in the weather resistant storage container.
5. **Walk-Around Inspection** – Refer to Figure 2-1.
6. **Battery** – Charge as required.
7. **Fuel** (Combustion Engine Powered Machines) – Add the proper fuel as necessary.
8. **Engine Oil Supply** (Combustion Engine Powered Machines) - Ensure the engine oil level is at the Full mark on the dipstick and the filler cap is secure.
9. **Hydraulic Oil** – Check the hydraulic oil level. Ensure hydraulic oil is added as required.
10. **Function Check** – Once the “Walk-Around” Inspection is complete, perform a functional check of all systems in an area free of overhead and ground level obstructions. Refer to Section 4 for more specific operating instructions.
11. **Platform Gate** – Keep gate and surrounding area clean and unobstructed. Verify the gate closes properly and is not bent or damaged. Keep gate closed at all times except when entering/exiting the platform and loading/unloading materials.

## SECTION 2 - PREPARATION AND INSPECTION

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- 12. Lanyard Attach Points** – During operation, occupants in the platform must wear a full body harness with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.

### **WARNING**

**IF THE MACHINE DOES NOT OPERATE PROPERLY, TURN OFF THE MACHINE IMMEDIATELY! REPORT THE PROBLEM TO THE PROPER MAINTENANCE PERSONNEL. DO NOT OPERATE THE MACHINE UNTIL IT IS DECLARED SAFE FOR OPERATION.**

## SECTION 2 - PREPARATION AND INSPECTION

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### Walk-Around Inspection

#### NOTICE

Do not overlook visual inspection of chassis underside. Checking this area may result in discovery of conditions which could cause extensive machine damage.

#### General

Begin the "Walk-Around Inspection" at Item 1, as noted on the diagram. Continue checking each item in sequence for the conditions listed in the following checklist.

#### ⚠ WARNING

TO AVOID POSSIBLE INJURY, BE SURE MACHINE POWER IS OFF. DO NOT OPERATE MACHINE UNTIL ALL MALFUNCTIONS HAVE BEEN CORRECTED.

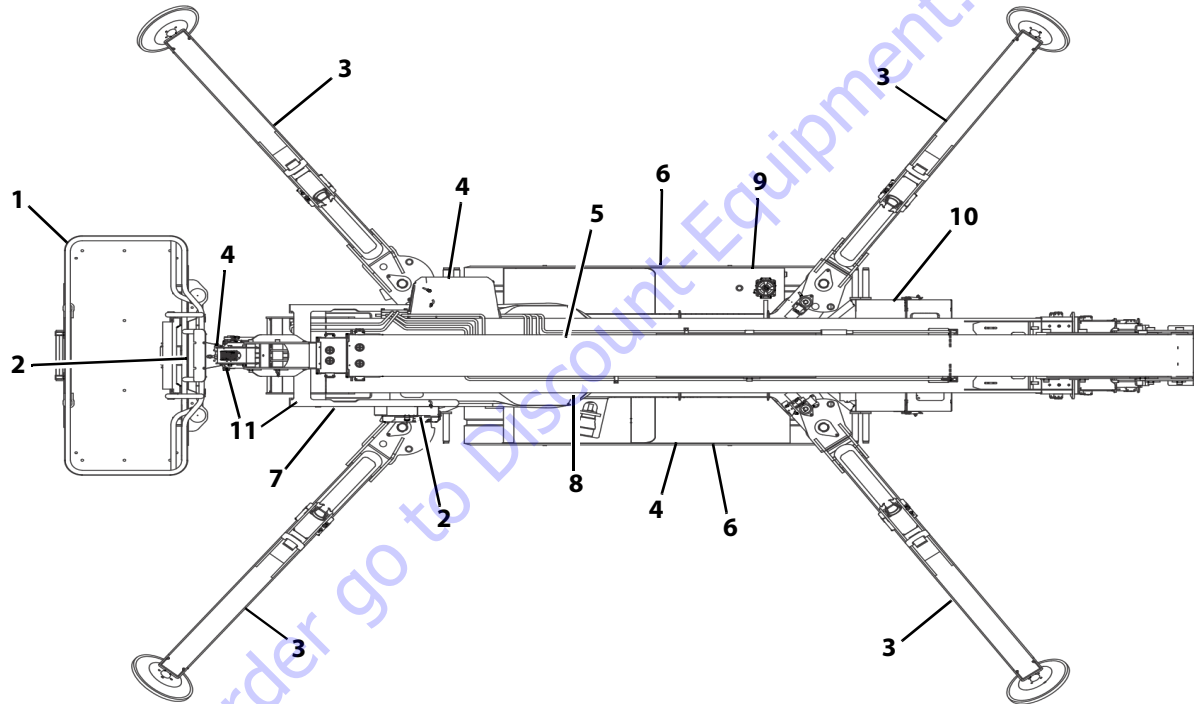
**INSPECTION NOTE:** *On all components, make sure there are no loose or missing parts, that they are securely fastened, and no visible damage, leaks or excessive wear exists in addition to any other criteria mentioned.*

1. **Platform Assembly, Foot Switch, Ladder and Gate** - Foot switch in good working order, not modified, disabled or blocked. Manual(s) in storage container, access bar slides up and down properly, platform properly installed and with both caps screwed on. See Inspection Note.

2. **Control Stations** - Switches and buttons return to neutral when activated and released, decals/placards secure and legible, control markings legible.
3. **Outriggers** - See Inspection Note; pads pivot freely.
4. **Electrical & Hydraulic Cover Assemblies** - See Inspection Note.
5. **Boom Sections & Turntable** - See Inspection Note.
6. **Drive Tracks** - Properly Adjusted. See Inspection Note.
7. **Diesel Engine or Lithium ION Battery Pack** - Free of debris and See Inspection Note.
8. **Swing Drive & Turntable Bearing**- Check for proper lubrication. See Inspection Note.
9. **Hydraulic Tank** - Hydraulic oil level correct and See Inspection Note.
10. **Electric Engine and Hydraulic Pump** - See Inspection Note.
11. **Platform Rotator & Machine Bubble Level** - See Inspection Note.



## SECTION 2 - PREPARATION AND INSPECTION



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**Figure 2-1. Daily Walk-Around Inspection**

### Function Check

#### **WARNING**

**ENSURE NO FUNCTIONS (EXCEPT TRACK FUNCTIONS) OPERATE WHEN OUT-RIGGERS ARE NOT PROPERLY SET.**

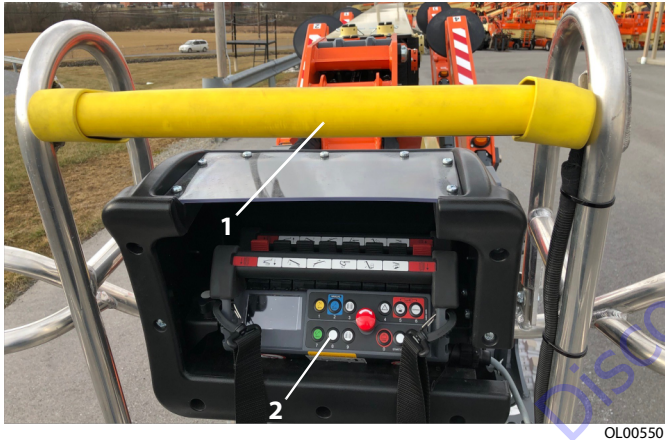
After properly setting up on outriggers, perform the function check as follows:

1. From the ground control console with no load in the platform:
  - a. Check all guards protecting function control switches and controllers are in place.
  - b. Ensure all machine functions are disabled when Emergency Stop Button is pushed in.
  - c. Ensure all boom functions stop when function switch is released.
  - d. Operate all functions and ensure proper operation.
  - e. Ensure main lift down, tower lift down, swing and jib lift down, work properly when using the emergency lowering controls.
2. From the platform control console:
  - a. Ensure that the control console is firmly secured in the proper location.
  - b. Check that all guards protecting the function control switches and controllers are in place;
  - c. Ensure all boom functions stop when the foot switch is released.
  - d. Ensure that all machine functions are disabled when the Emergency Stop Button is pushed in.
  - e. Operate all functions and ensure proper operation.
  - f. Ensure main lift down, tower lift down, and jib lift down, work properly when using the emergency lowering controls.
3. SkyGuard™ Function Test
  - a. From the platform controls, test the SkyGuard™ feature by setting up machine and operating the telescope out functions and then activating the SkyGuard™ sensor. The telescope out function will stop and the telescope in function will operate for a short duration, also the ground alarm will sound until the SkyGuard™ sensor or footswitch is disengaged.
  - b. Disengage the SkyGuard™ sensor, release controls, cycle the power OFF and ON, make sure normal operation is available.
  - c. If SkyGuard™ remains activated after function reversal or cutout, depress and hold the SkyGuard™ Override Switch (button number 8) to

## SECTION 2 - PREPARATION AND INSPECTION

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allow normal use of machine functions until the SkyGuard™ sensor is disengaged.

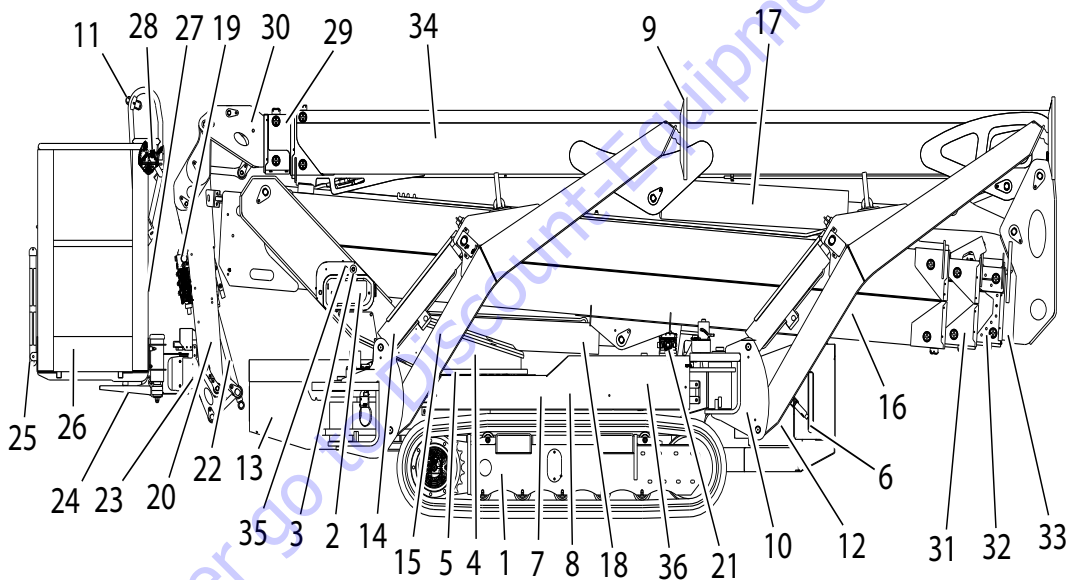


1. SkyGuard™ Sensor
2. SkyGuard™ Override Switch (button number 8)

**Figure 2-2. SkyGuard™ Sensor and Override Switch Location**

To order go to [Discount-Equipment.com](http://Discount-Equipment.com)

**SECTION 3. MACHINE CONTROLS, INDICATORS AND OPERATION**



OL00010

**Figure 3-1. Basic Machine Component Locations**

## **SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION**

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### **Basic Machine Component Locations**

1. Extendible Track Undercarriage
2. Ground Control Station
3. Ground Emergency Stop
4. Rotating Turret (inside)
5. Turntable
6. Fuel Tank (Diesel only)
7. Frame
8. Ground Hydraulics Compartment
9. Stabilizer Plate
10. Outrigger Joint
11. SkyGuard™ Sensor
12. Diesel Engine or Electric Motor
13. Lithium Battery Pack (If equipped)
14. Stabilizer Cylinder
15. Stabilizer
16. Tower Boom
17. Main Cylinder
18. Tower Cylinder
19. JIB Hydraulic block
20. JIB Arm
21. Hydraulic Oil Filter
22. Platform Leveling Cylinder
23. Platform Swing Actuator
24. Platform Support
25. Platform Access Ladder
26. Platform
27. Manual Compartment
28. Platform Remote Control
29. Main Boom Extension 1
30. Main Boom Extension 2
31. Tower Boom Extension 1
32. Tower Boom Extension 2
33. Tower Boom Extension 3
34. Main Boom
35. Main Power Keyswitch
36. Battery Disconnect Switch & Battery Compartment

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

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### **⚠ WARNING**

**TO AVOID SERIOUS INJURY, DO NOT OPERATE MACHINE IF ANY CONTROL LEVERS OR SWITCHES CONTROLLING PLATFORM MOVEMENT DO NOT RETURN TO THE OFF POSITION WHEN RELEASED.**

### **3.1 GROUND CONTROL STATION**

See Figure 3-2. Ground Control Station

### **NOTICE**

**FOR PROLONGED SHUTDOWN OR WHILE PERFORMING MAINTENANCE/ REPAIRS, TURN OFF THE BATTERY DISCONNECT SWITCH.**

#### **1. Main Power Key Switch**

This switch must be turned to the ON (**I**) position before power is supplied to the Power/Emergency Stop switch. When machine is not in use, the key can be removed in the OFF (**O**) position.

#### **2. Power/Emergency Stop Switch**

This two-position red switch removes power from the ground controls when pushed in. Twist the switch clockwise to allow for machine operation at the ground control station.

#### **3. Platform/Ground Selector Switch**

This selector switch allows the operator to control the machine from the platform control box when in the counter-clockwise position.

This selector switch allows the operator to control the machine from the ground control station when in the clockwise position.

#### **4. Bypass Key Switch**

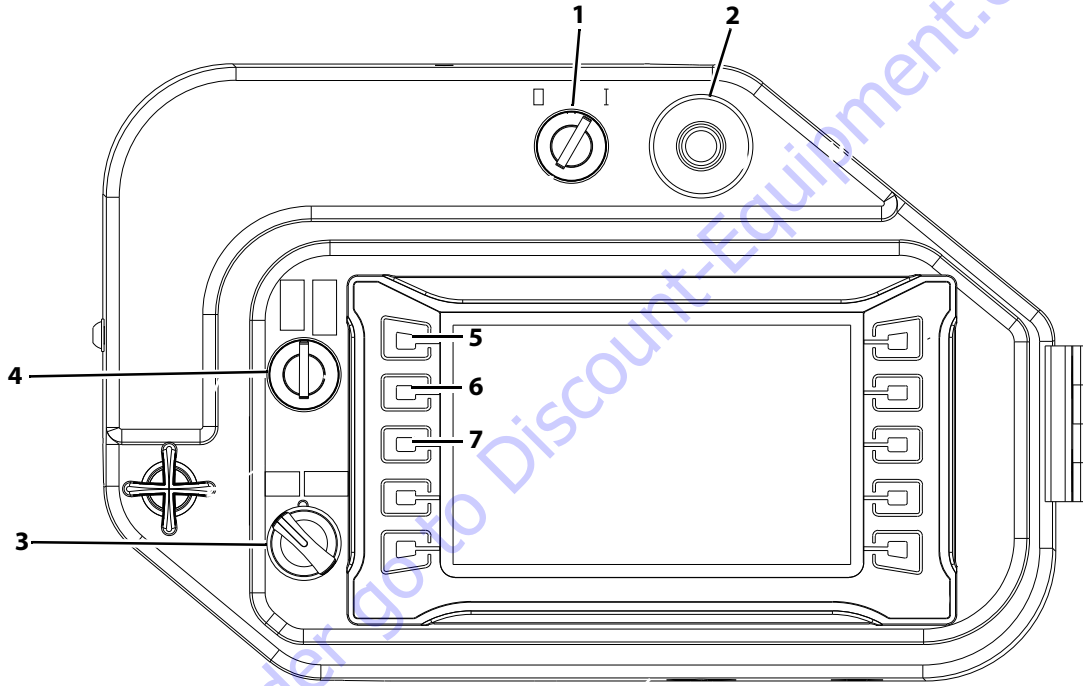
See Section 5.4, Bypass Key for more information.

#### **5. In the Controls menu, this button is used to switch between machine control functions.**

#### **6. Controls machine movement in the UP or RIGHT direction.**

#### **7. Controls machine movement in the DOWN or LEFT direction.**

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION



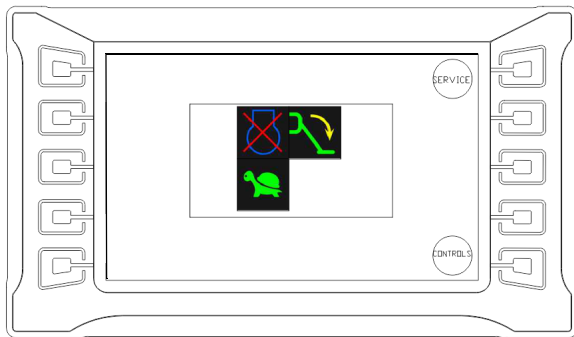
L0410

**Figure 3-2. Ground Control Station**

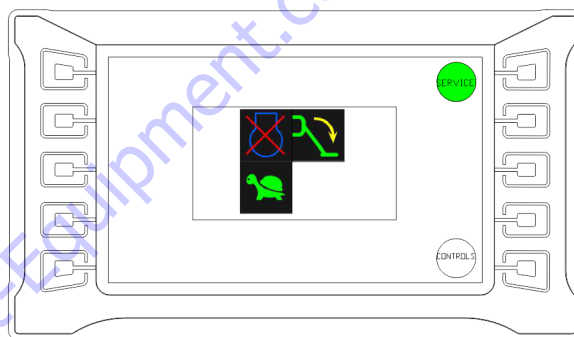


## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

### MENU SCREENS



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OL00450

#### Main Menu

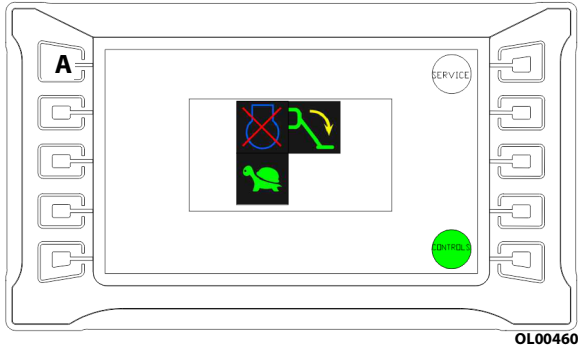
The main menu displays the menu functions. This screen also displays machine stabilization status and selected speed. The main menu also displays the menu functions.

#### Service

Press this button for service related items. Press the ESC button to go back to the main menu.

**NOTE:** Refer to service manual for further information.

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION



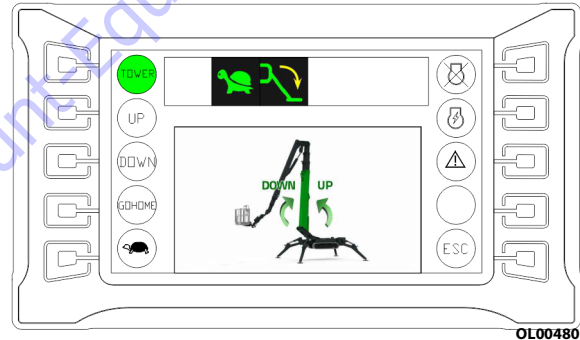
### Controls

Press this button to go to the machine control functions screen. Machine functions possible in this menu are:

- Tower Boom (TOWER)
- Main Boom (MAIN)
- Extend/Retract Main Boom (EX-MAIN)
- Jib (JIB)
- Platform Rotate (ROTATE)
- Turn Table Rotate (SWING)

Press button **(A)** to cycle through functions 1 through 6. The machine will cycle to the next function every time button **(A)** is pressed.

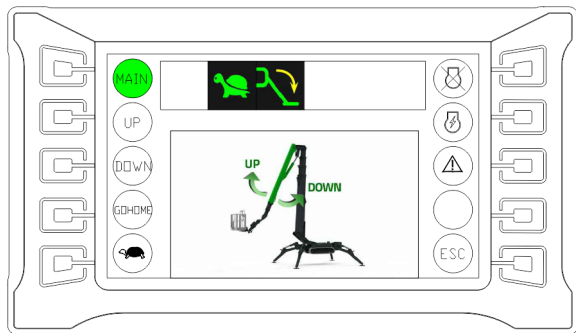
- Go Home
- Operating Speed
- Diesel Engine (Diesel only)
- Electric Engine (Diesel only)
- Emergency Descent



### Tower Boom (TOWER)

Use this function to raise and lower the tower boom. Use the Up and Down buttons to perform operations.

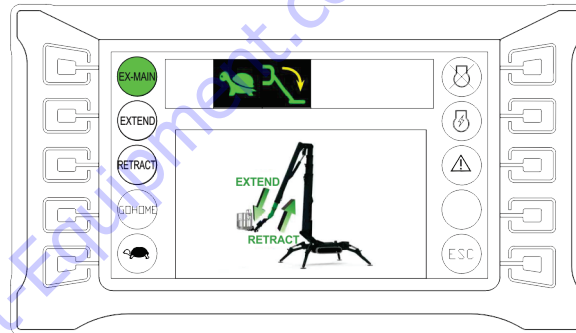
## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION



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### Main Boom (MAIN)

Use this function to raise and lower the main boom. Use the Up and Down buttons to perform operations.

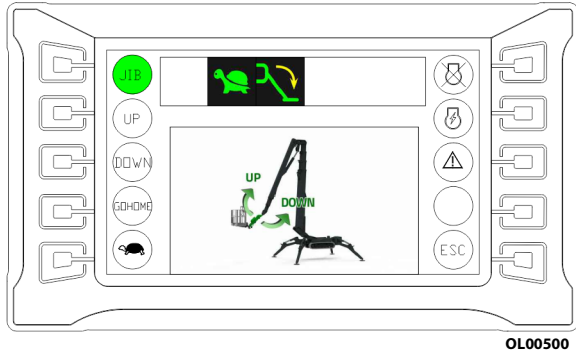


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### Extend/Retract Main Boom (EX-MAIN)

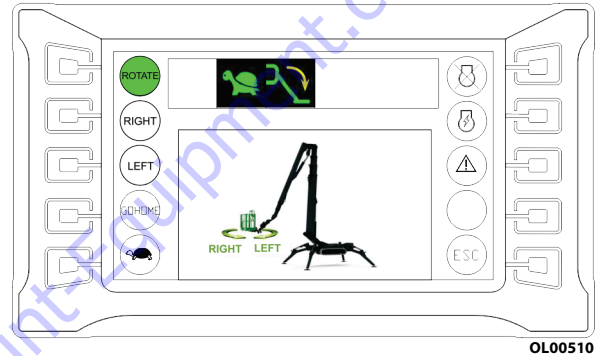
Use this function to extend and retract the main boom. Use the EXTEND and RETRACT buttons to perform operations.

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION



### Jib (JIB)

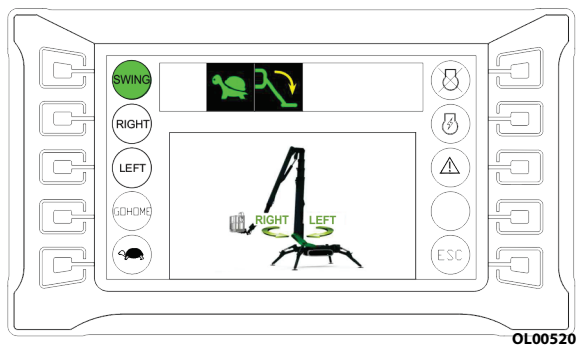
Use this function to raise and lower the Jib. Use the Up and Down buttons to perform operations.



### Platform Rotate (ROTATE)

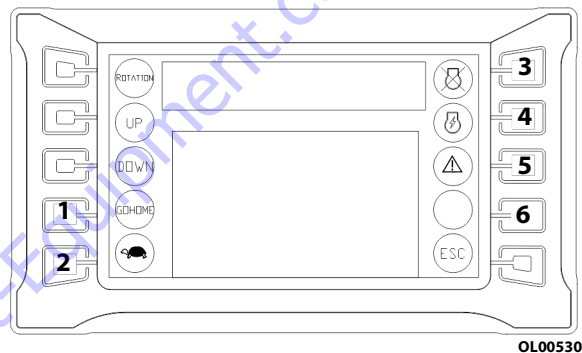
Use this function to rotate the platform. Use the RIGHT and LEFT buttons to perform operations.

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION



### Turn Table Rotate (SWING)

Use this function to rotate the turn table. Use the RIGHT and LEFT buttons to perform operations.



### Go Home (1)

Use this function to bring the machine to fully closed position. Press and hold to perform operation. Machine will stop closing once returned to working position, continue to hold button until the "auto icon" goes away. After a slight delay, machine will close completely.

### Operating Speed (2)

Use this function to switch between slow and normal speeds for aerial operations.

### Diesel Engine (3)

Use this function to operate diesel engine (if equipped).

### **Electric Engine (4)**

Use this function to activate electric motor (if equipped).

### **Emergency Descent (5)**

Use this function to bring the platform to the ground incase of main power failure. See Section 5.3, Emergency Operation for more information.

### **Bypass Button (6)**

In the event the Bypass Key Switch is needed, this button must be pressed to enter and acknowledge Bypass mode has been initiated. The Bypass icon will be displayed by the button when the Bypass Key Switch is activated. See Section 5.4, Bypass Key for more information.

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

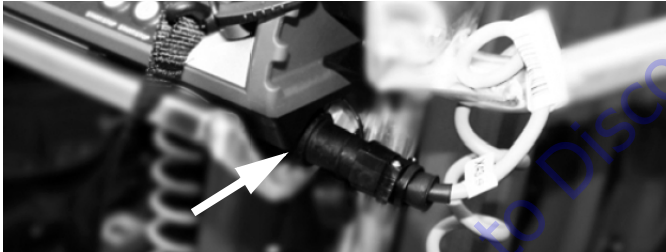
### 3.2 PLATFORM CONTROL STATION

The platform control station is connected to the machine at the platform using a flexible cable.

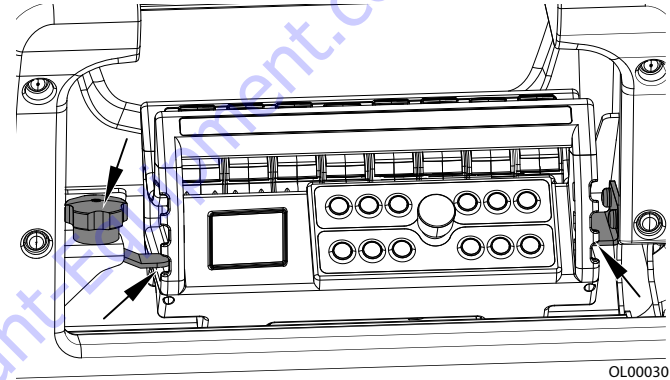
**NOTE:** Before removing or connecting the flex cable, the machine must be turned OFF.

#### Installing the Platform Control Station

1. Connect the flexible control cable at the platform to the Platform Control Station box connector on the right side of the control box.



2. In the platform, slide the remote control station assembly into the storage box and place the rib on the right side of the control station assembly under the metal tab attached to the storage box assembly.



3. Lower remote control station assembly into the storage box, ensure the attached flexible cable slides into the slot also on the right side of the box.
4. On the left side of the control station secure the box by turning the handle on the locking tab clockwise locking the rib of the control station under the rotating metal tab of the handle assembly.
5. To remove the control station assembly, reverse the four steps above.

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

### Platform Control Functions

#### Platform Foot Switch (see photo below)

To operate any function, the footswitch must be depressed and a function selected within seven seconds. If a function is not selected within seven seconds, or if a seven second lapse between ending one function and beginning the next function, the footswitch must be released and depressed again to enable the controls.



OL00560

See Figure 3-3. on page 3-13, Platform Control Console for remaining items.

**NOTE:** Buttons 1, 2, 3, 4, 5, 6, 7, 8, 9, serve a double function - they can be used to operate a machine function (icon on button) or used as numerical keys (per number

below the button) when the SERVICE button (6) sub-menu is activated on the LCD display.

1. Outrigger - Automatic Retract  
This control allows the operator to control the retraction of all 4 outriggers at one time.
  2. Outrigger - Manual  
This control allows the operator to control the extension or retraction of one outrigger at a time.
  3. Track Width Adjust  
This control allows the operator to widen the track.
  4. Emergency Lowering  
This button allows the operator to lower the boom if main power is not working.
- NOTE:** Buttons 5 and 6 when pressed simultaneously also activate the horn.
5. Speed Selector/Horn  
This button allows the operator to select the desired engine speed for operation.
  6. Service Menu/Horn  
This button allows the operator to access the Service Menu.
  7. Outrigger - Automatic Set And Level  
This control allows the operator to control the extension of all 4 outriggers at one time.





## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

---

### 8. Selector Button

Used for selecting an item when the Service Menu button (6) is pressed.

This button is also used as the SkyGuard™ Override switch. When the SkyGuard™ system is engaged, press this button to override and disengage SkyGuard™.

### 9. Track Width Adjust

This control allows the operator to narrow the track.

### 10. Power/Emergency Stop

A two-position red switch removes power from the ground controls when pushed in. Twist the switch clockwise to allow for machine operation at the ground control station.

### 11. Go Home

Holding this button in allows the operator to return the MEWP to the fully closed position. The machine will determine and perform the necessary maneuvers to bring to boom down to the closed position.

### 12. Diesel Engine Starter

This button allows the operator to start or stop the diesel engine. Holding this button in allows the operator to pre-heat the diesel engine in cold climates.

### 13. Electric Engine Start

This button allows the operator to start or stop the electric engine.

**NOTE:** *Controllers (14 through 21), the speed of component movement is proportional to the controller distance from the center neutral position.*

### ERROR



Movement of a controller without first pressing the platform footswitch is indicated by the depress footswitch error icon on the platform/remote LCD display.

### 14. Left Side Track Drive And Steer

This control when moved forward or rearward simultaneously with the right side track control (21), allows the operator to move the machine in a straight forward or reverse direction. If each control is moved individually, different amounts or in opposite directions steering the machine occurs.

### 15. Tower Boom Lift

This control allows the operator to raise and lower the tower boom.

### 16. Main Boom Lift

This control allows the operator to raise and lower the main boom.

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

17. Main Boom Telescope  
This switch allows the operator to extend and retract the main boom.
18. Platform Rotate  
This switch allows the operator to rotate the platform to the right or left.
19. Jib  
This control allows the operator to raise and lower the jib.
20. Swing  
This control allows the operator to swing the boom assembly to the right or left.
21. Right Side Track Drive And Steer  
This control when moved forward or rearward simultaneously with the left side track control (14), allows the operator to move the machine in a straight forward or reverse direction or, if each control is moved individually or in opposite directions, to steer the machine.
22. Platform Level Switch

**NOTE:** *The platform will auto-correct to level once another function is activated. The platform will auto-correct to level before the requested function is performed.*

To manually Level Up, turn switch counter-clockwise and hold until desired position is reached. To manually Level Down, turn switch clockwise and hold until desired position is reached.

23. Display  
Display shows status of machine and operating information. Wait until a display screen appears before starting operation.

### Platform/Remote Control Station LCD Display

At machine start-up and during machine operation the main LCD display screen (item 23 - Figure 3-3.) is activated. There are eight (8) display positions which indicate machine status during various stages of operation.

1	3	5	7
2	4	6	8

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

**Position 1** Reduced operating area if all outriggers are not fully deployed.

1	3	5	7
2	4	6	8



**Position 2** Currently Unused.

1	3	5	7
2	4	6	8

**Position 3** Displays if selected engine (gas/diesel or electric) is on or off. The X on the icon indicates the engine is off.

1	3	5	7
2	4	6	8



**Position 4** Displays selected engine speed.

1	3	5	7
2	4	6	8



**Position 5**

1	3	5	7
2	4	6	8

- Displays outriggers are properly set and boom functions are allowed. No display indicates outriggers are not properly set and boom functions are not allowed.
- Displays overload icon when load sensor exceeds allowed work load.



**Position 6**

1	3	5	7
2	4	6	8

Indicates boom, jib, turntable, and base are aligned. Drive, steer, track width adjustment and outrigger functions are operational if this symbol below is present. No symbol indicates these functions are not operational. Drive and steer are operational if all 4 outriggers are not contacting the ground.

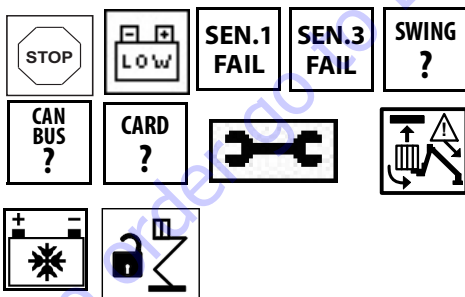


## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

**Position 7** Can indicate any of the following situations:

1	3	5	7
2	4	6	8

- An emergency stop is pushed in (off).
- A low battery. Batteries need charging by running the gas/diesel engine or connecting to a power source.
- Tower boom sensor is faulty.
- Main boom sensor is faulty. Boom functions are cut out.
- Swing sensor is faulty.
- CANBUS communication is faulty.
- Electronic fault.
- Lithium ION - Signals an error in the BMS - Battery Management System
- Skyguard™ sensor has be activated.
- Battery cold/heater activated system is enabled.
- Safety by-pass activated



or:

- 50 Hr. - 1st Service Interval - See Section 6 - Table 6-10 and Table 6-11, Component Maintenance Intervals.



**Position 8**























1	3	5	7
2	4	6	8

- Indicates emergency lowering has been selected.
- Lithium ION - Battery Charge Status and Battery Charger Plugged In.
- Low Lithium charge - Machine reduced speed, must charge Lithium system.





















## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

Table 3-1. LCD Display Icon Descriptions

	Gas/Diesel engine running		Electric motor running		Remove weight or remote control from platform		Machine Maximum Tilt Angle Exceeded
	Minimum speed		Standard speed		Lower and Retract Boom		Rotate outrigger
	Emergency lowering		Battery voltage low		Machine in prohibited area		RPM signal missing
	Overload in platform		Weight in platform too low		Cables sensor fault		Electric motor OFF
	Safety bypass active		Tower Boom cylinder sensor fault		Gas/Diesel engine OFF		Machine stabilized
	Battery cold/heater activated system enabled				Boom retracted and aligned		

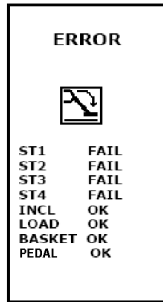
## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

**Table 3-1. LCD Display Icon Descriptions (Continued)**

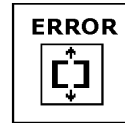
	Maximum speed		Emergency stop pressed		Turntable bearing sensor signal missing		CAN BUS signal missing
	Press footswitch		Select a control		Board or software wrong		Close the jib arm.
	Swing to the right or left		Raise tower boom arms		Wrong remote control connection (on the basket, at the ground)		Stabilization from basket with remote control not placed
	Tower cylinder sensor missing		Cables sensor missing				
	Reduced operating area active		It is possible to only operate the jib				
	Raise outrigger		Double line sensor error, check error menu				

## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

**Table 3-2. LCD Display Error Descriptions**



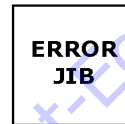
One of the most important error displays in regard to boom movements; this visualization displays why boom movement has been prohibited; in regard to outrigger set, inclination (tilt) platform load, platform/remote control box and footswitch status.



Retract and align the machine



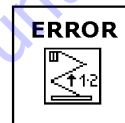
Error in sensor on tower boom cylinder



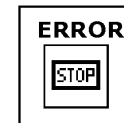
Retract the JIB to work with 200kg



Overload in platform



It is necessary to raise the tower boom



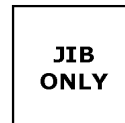
An emergency stop is pressed



Platform/ Remote Control Box is not connected properly



Lift the outriggers to move the tracks



It is possible to only operate the JIB



It is necessary to swing the turntable



## SECTION 3 - MACHINE CONTROLS, INDICATORS AND OPERATION

Table 3-2. LCD Display Error Descriptions (Continued)

<p><b>ERROR</b></p>	<p>Error in sensor on main boom cylinder</p>	<p><b>ERROR</b></p>	<p>Press the footswitch to operate the controls</p>
<p><b>ERROR</b></p>	<p>Error in sensor on main boom</p>	<p><b>ERROR ROTATE STAB</b></p>	<p>Retract the outrigger to rotate it</p>
<p><b>NO</b></p>	<p>Operation not permitted with emergency lowering</p>	<p><b>OIL</b></p>	<p>Oil pressure missing = engine turns off <i>Diesel Only</i></p>
	<p>Engine temperature too high = Motor remains at min. <i>Diesel Only</i></p>	<p><b>ERROR</b></p>	<p>Too much weight on platform</p>

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### SECTION 4. MACHINE OPERATION

#### 4.1 DESCRIPTION

This machine is a Mobile Elevating Work Platform (MEWP) used to position personnel, along with their necessary tools and materials at work locations.

This MEWP has a primary operator control station in the platform. The operator can control drive, steer, boom/platform functions and outriggers. The machine has a Ground Control Station which will override the Platform Control Station. Ground Controls operate boom and platform functions. Except for performing inspections and the function check, the ground controls are to be used in an emergency to lower the platform to the ground should the operator in the platform be unable to do so.

This machine is equipped with an ALL MOTION alarm warning system to alert other personnel in the work area of any machine movement during operation. The motion alarm system is activated during machine function movement such as track, boom, or outrigger operation.

#### 4.2 BOOM OPERATING CHARACTERISTICS AND LIMITATIONS

##### Capacities

Raising platform above horizontal with or without any load in platform, is based on the following criteria:

- Machine is positioned on a firm surface with outriggers set properly with the outrigger pads on horizontal surfaces.
- Load is within manufacturer's rated capacity.
- All machine systems are functioning properly.

##### Stability

In addition to the conditions listed above under Capacities, machine stability also depends on the following:

- A work surface capable of supporting the machine and a slope within machine leveling specifications.
- Platform is only operated within its work area specification for rated load and boom reach. (See Figure 4-3., Figure 4-4., and Figure 4-7.)

## SECTION 4 - MACHINE OPERATION

### 4.3 ENGINE OPERATION

The battery disconnect switch must be ON (see Section 4.10 on page 4-29). The emergency stop switch at the ground control station and platform control box must be ON (turned clockwise) to start the engine.

#### Diesel Starting Procedure



1. With power on, set the platform/ground control select switch to the platform control box (counter-clockwise) position, then press and hold the diesel engine START/STOP button (1) on the platform control box until engine starts.

**NOTE:** Holding the diesel engine START/STOP button in will allow the glow plugs to come to an appropriate tem-

perature for starting. When they are at temperature, the engine will start.

**NOTE:** If engine fails to start promptly, do not crank for an extended time. Should engine fail to start again, allow starter to cool off for 2-3 minutes. If engine fails after several attempts, refer to manufacturers engine maintenance manual.

**NOTE:** Allow engine to warm-up for a few minutes at low speed before applying any load.

**NOTE:** At low temperatures start the motor and let it run for a few minutes, so that the hydraulic oil circulates and reaches at least 50°F (10°C) before operating the platform.

#### Diesel Shutdown Procedure

1. Remove all load and allow engine to operate at low speed for 3-5 minutes; this allows further reduction of internal engine temperature.
2. Turn off the diesel engine by pressing the diesel engine START/STOP button on the platform control box.
3. The shutdown procedure takes about 1 minute, wait for complete shut-off (display off).
4. Push EMERGENCY STOP switches at the platform and ground in, to the off position.
5. Turn engine key and main power key to off.

## SECTION 4 - MACHINE OPERATION

### Electric Engine Starting Procedure - AC Voltage Machine

#### **⚠ CAUTION**

**ENSURE THE ELECTRICAL CIRCUIT BEING USED IS THE SAME VOLTAGE AND FREQUENCY INDICATED ON THE ELECTRIC ENGINE PLATE. USE AN AC EXTENSION CORD WITH SUFFICIENT AMPERAGE CAPACITY TO PROPERLY POWER THE MACHINE.**



1. Before connecting the machine to the electrical circuit, ensure the key on the diesel engine is in the OFF position.
2. Power the machine using a heavy duty AC power cord with sufficient amperage capacity, through

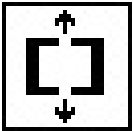
the connector (1) positioned near the electric engine.

3. Turn on the circuit breaker switch (2) positioned behind the clear plastic cover near the electric engine (— symbol is ON, O symbol is OFF).
4. Start the electric engine using the electrical engine start button on the platform control box. (item 5 - Figure 4-1.) and operate machine.
5. When finished operating with the electric engine, turn off breaker switch (2), and unhook the electric AC cord from connector (1).

## SECTION 4 - MACHINE OPERATION

### 4.4 BASE AND BOOM/JIB ALIGNMENT

The machine uses internal cylinder sensors to calculate the position of the boom. Using these sensors, the machine can determine if the boom assembly is completely lowered and retracted, the jib is lowered, and the turntable is aligned with the base.



When these conditions are met this symbol will display in position (6) on the Platform/Remote Control LCD display.

UNLESS THESE CONDITIONS ARE MET, DRIVE, STEER, TRACK WIDTH ADJUSTMENT, AND OUTRIGGER MOVEMENT IS PREVENTED.



1. Base/Boom Alignment - Visual Indicator

## SECTION 4 - MACHINE OPERATION

---

### 4.5 TRACKS - DRIVING, STEERING AND TRACK WIDTH ADJUST

#### **⚠ WARNING**

KEEP EVERYONE A DISTANCE OF AT LEAST 6 FT. (1.83 M) FROM THE MACHINE WHEN OPERATING THE TRACKS.

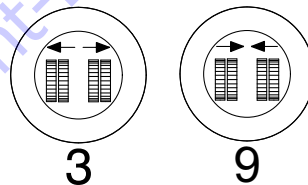
**NOTE:** *The base and boom/jib must be aligned and retracted before this function will operate, see Section 4.4, BASE AND BOOM/JIB ALIGNMENT.*

#### Track width adjust

#### **NOTICE**

DO NOT WIDEN OR NARROW THE TRACKS WIDTH WHEN PARKED WITH THE TRACKS ON THE GROUND. THE MACHINE MUST BE TRAVELLING OR RAISED ON ITS OUTRIGGERS WHEN OPERATING THIS FUNCTION.

Press and hold button 3 for widening or button 9 for narrowing the track.



### Traveling (Drive and Steer)

#### **⚠ WARNING**

USE EXTREME CAUTION WHEN APPROACHING A CREST OF ANY TERRAIN OBSTACLE. CHECK FOR CURBS, LARGE STONES, OR OTHER TERRAIN OBSTACLES INCLUDING OVERHEAD OBSTACLES AS THE MACHINE WILL MAKE UNCONTROLLED PIVOTING MOTIONS WHEN THE CENTER OF GRAVITY (*CENTER OF TRACK FRAME*) SHIFTS OVER AN EDGE. SLOW DOWN TO MINIMIZE ACCELERATION DURING PIVOTING MOVEMENT.

USE EXTREME CAUTION WHEN DRIVING IN REVERSE.

- To drive straight forward or reverse, move the controllers for both tracks at the same time, direction and position.
- Always fully widen the track prior to driving, if possible, for easier steering and increased stability.
- Always travel in the slow speed setting unless the travel path is firm, level and uniform.

### Traveling (Grades and Side Slopes)

#### **⚠ WARNING**

TO AVOID LOSS OF TRAVEL CONTROL OR "TIP OVER", FULLY WIDEN TRACKS, AND DO NOT DRIVE MACHINE ON GRADES EXCEEDING 16 DEGREES (29%).

USE RAMPS WHEN TRAVELLING ON STEPS OR OTHER SURFACES THAT ARE NOT SMOOTH OR HAVE GOOD TRACTION.

WHEN DRIVING ON SIDESLOPES, FULLY WIDEN THE TRACKS AND EXTEND THE LOW SIDE OUTRIGGERS UNTIL THEY ARE CLOSE TO THE GROUND TO HELP PREVENT A TIP-OVER IF A CHANGE IN SURFACE OCCURS. (SEE FIGURE 4-1.)

DRIVE ON SIDESLOPES WITH THE BOOM STOWED. DO NOT DRIVE ON SIDESLOPES WHICH EXCEED 14 DEGREES.



## SECTION 4 - MACHINE OPERATION

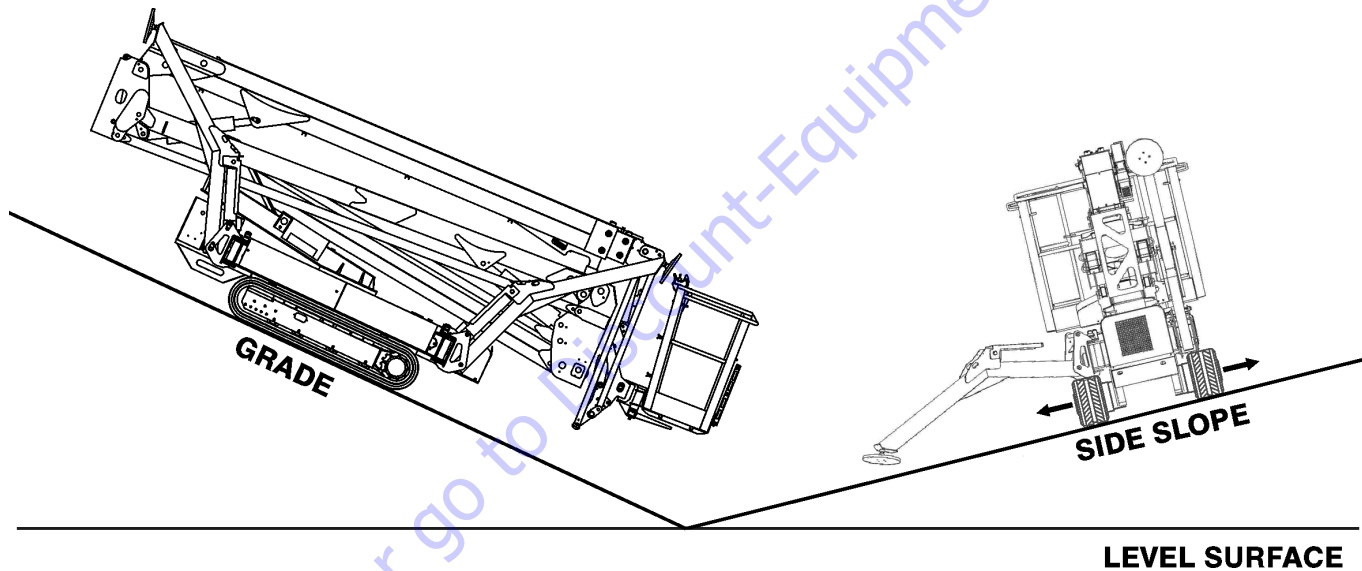


Figure 4-1. Grade and Side Slope Definition

## SECTION 4 - MACHINE OPERATION

### Jib Position for Traveling

It is necessary to raise the JIB arm when driving up or down slopes that exceed 10° and but less than the max. 15° to prevent the jib from contacting the ground.

#### NOTICE

**ONLY PERFORM THIS OPERATION WHEN IT IS NECESSARY. IN ALL OTHER SITUATIONS, DRIVE WITH THE BOOM AND JIB FULLY LOWERED AND ALIGNED.**



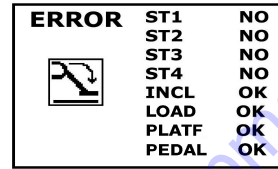
Permission to use the JIB is indicated by the icon in position 5 on the remote control display panel.

Before lifting the jib arm in the traversing phase, the following conditions must be verified:

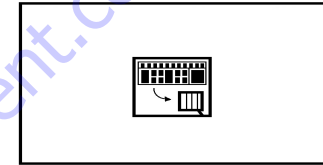
- All outriggers must be lifted from the ground.
- There must be no operator in the platform.

**NOTE:** *The aerial part safety device by-pass key must not have been activated after the machine has been closed and aligned.*

If any of these conditions have not been met, the use of the JIB is not possible and one of the following error displays appears.



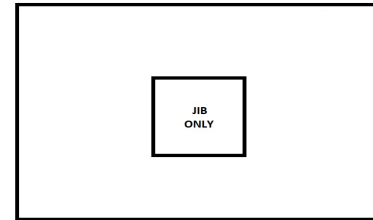
OL00160



OL00170

After these conditions have been met, make sure that there are no obstacles in the Jib working area and operate as follows:

- Activate joystick for moving the JIB arm. If a different joystick is activated an error message will appear on the display.



OL00180

- After slope has been passed, for which the jib had to be raised, fully lower jib and continue traveling.
- With JIB raised, ALWAYS travel at minimum speed and keep JIB as near as possible to the ground.

## SECTION 4 - MACHINE OPERATION

### 4.6 OUTRIGGER OPERATION

#### **⚠ WARNING**

BE CERTAIN OUTRIGGER PADS ARE SET ON A FIRM AND HORIZONTAL SURFACE. DO NOT SET OUTRIGGER PADS ON INCLINED, VERTICAL, OR SLIPPERY SURFACES.

#### **NOTICE**

THE OUTRIGGERS WILL NOT OPERATE UNLESS THE BOOM AND JIB ARE COMPLETELY LOWERED, RETRACTED AND ALIGNED WITH THE BASE.

**NOTE:** Base and boom/jib must be aligned and stowed before this function will operate, see Section 4.4, BASE AND BOOM/JIB ALIGNMENT.

### Variable Outrigger Positioning



OL00590


The outrigger joints have locking pins to secure the outriggers while in operational and transport positions.

To position each outrigger from the transport position to the restricted or full area of operation, follow these steps:

1. Pull the outrigger lock handle (1) upward to the locked open position (2) of the groove.
2. Swing outrigger to the desired position.
3. Pull the handle downward toward the locked position and make sure each outrigger locks in the selected position. Make sure that the handle fully closes into the locked position.

## SECTION 4 - MACHINE OPERATION

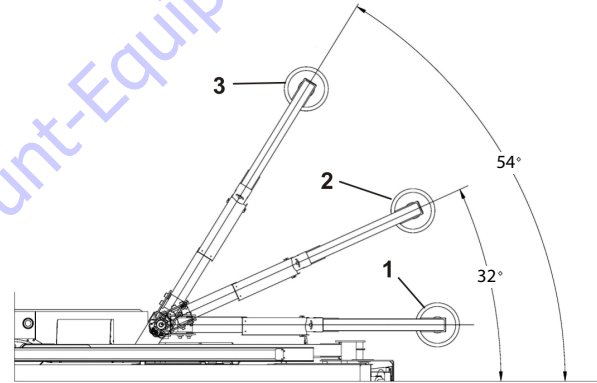
4. Ensure all four pins have dropped into their seats for each outrigger.

	<b>ERROR</b>	
	ST1	FAIL
	ST2	FAIL
	ST3	FAIL
	ST4	FAIL
	INCL	OK
	LOAD	OK
	PLATF	OK
WHEELS	OK	

If one of the four outrigger locking pins is lifted or the outrigger position control microswitch is not working properly, all movement will be stopped and an error message will appear on the platform/remote control LCD display.

Operation will be possible when the outrigger position locking pin is properly set and/or the microswitch is in the correct configuration again.

Check correct positioning of the outrigger lock handle and two microswitches at each outrigger before every use, as shown in following illustration.



**Figure 4-2. Outrigger Positions**

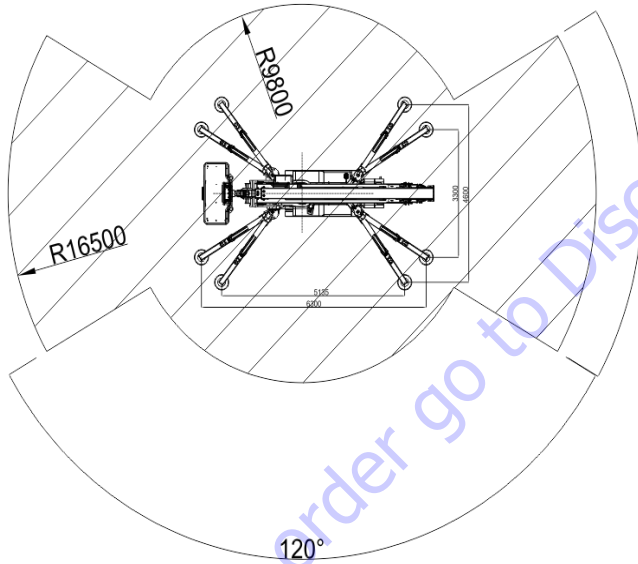
1. Transport Position
2. Restricted Work Area Position
3. Full Work Area Position

## SECTION 4 - MACHINE OPERATION

### Operating with Outriggers Set to 32° - Restricted Work Area Of Operation

(See Figure 4-3. and Figure 4-4.)

**NOTE:** Swing and jib functions will not be allowed in certain areas.



If at least one of the outriggers is set in the restricted area position (32°), the platform/remote control box LCD will display the symbol for restricted area operation in position 1 which is always visible during the use of the machine in this set up.

#### **⚠ WARNING**

**DO NOT OPERATE IF SYMBOL FOR RESTRICTED AREA OF OPERATION IS NOT DISPLAYED ON THE LCD SCREEN WHEN ANY OF THE OUTRIGGERS ARE IN THE RESTRICTED AREA POSITION.**

If you try to position the boom outside the allowed working area by rotating the boom, the movement will be stopped and a message on the LCD display will appear indicating that it is necessary to rotate in the opposite direction in order to keep working.

The following illustrations (*Figure 4-3. and Figure 4-4.*) show the various areas of allowable boom rotation and jib extend operation for the different outrigger settings.

## SECTION 4 - MACHINE OPERATION

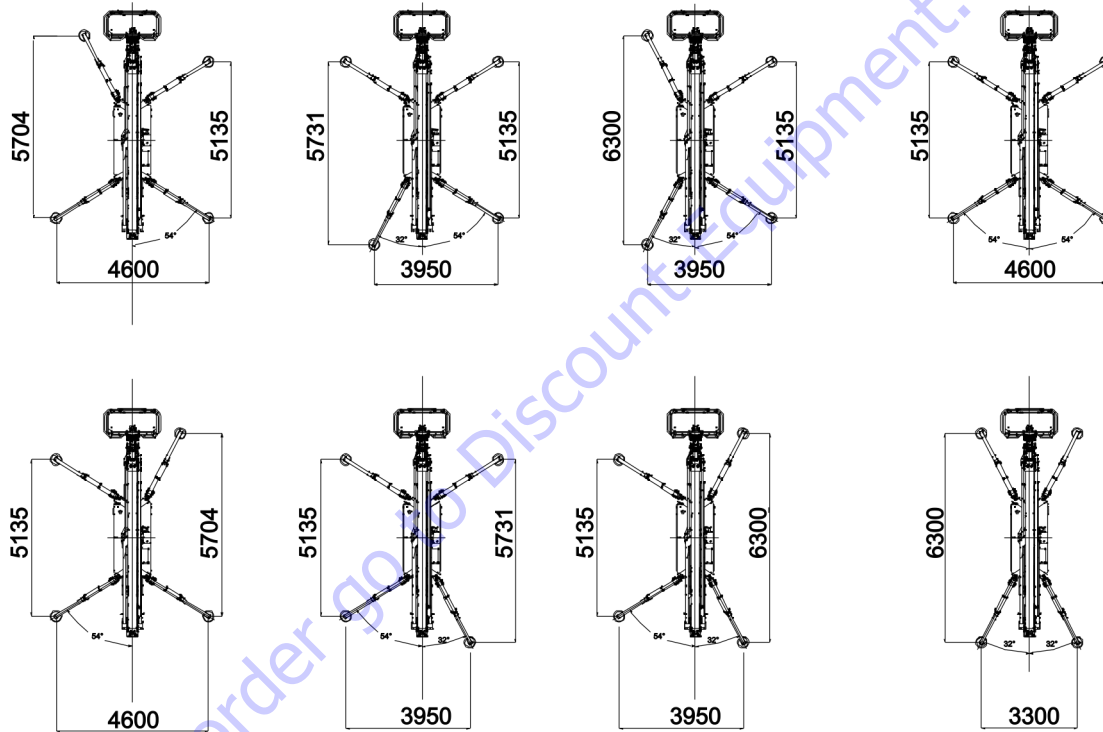


Figure 4-3. Outrigger Positions (Sheet 1 of 2)

OL00241

## SECTION 4 - MACHINE OPERATION

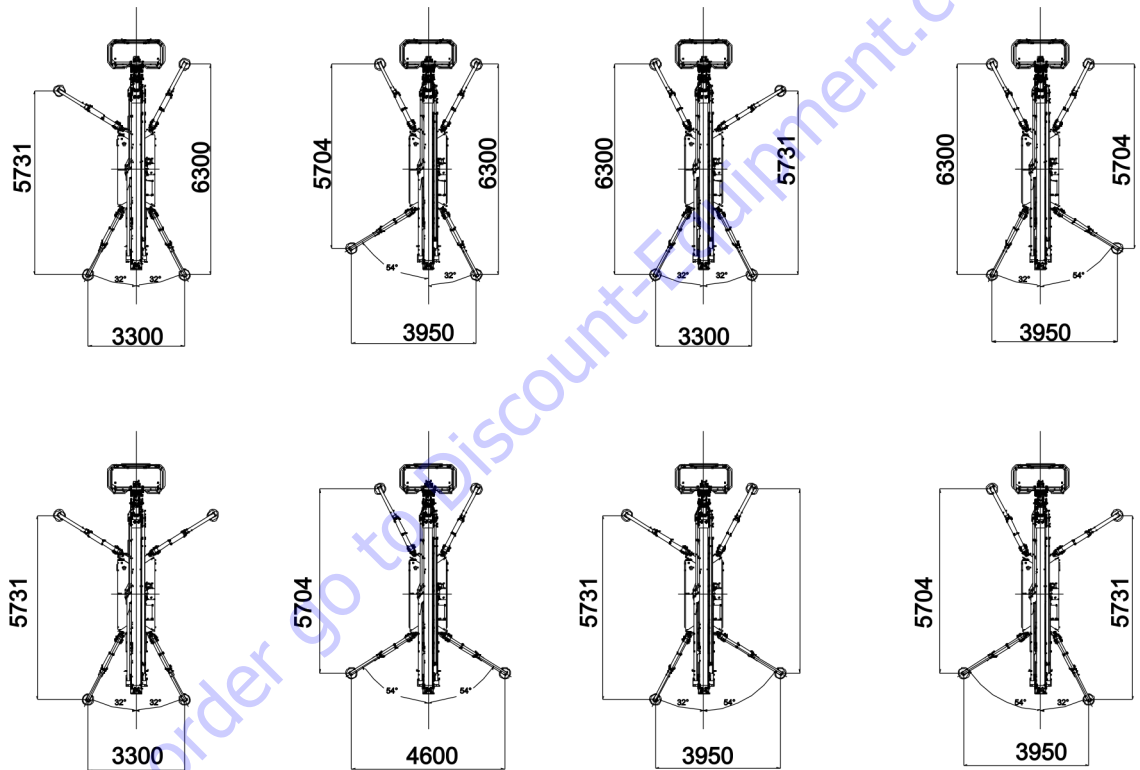


Figure 4-4. Outrigger Positions (Sheet 2 of 2)

OL00251

# SECTION 4 - MACHINE OPERATION

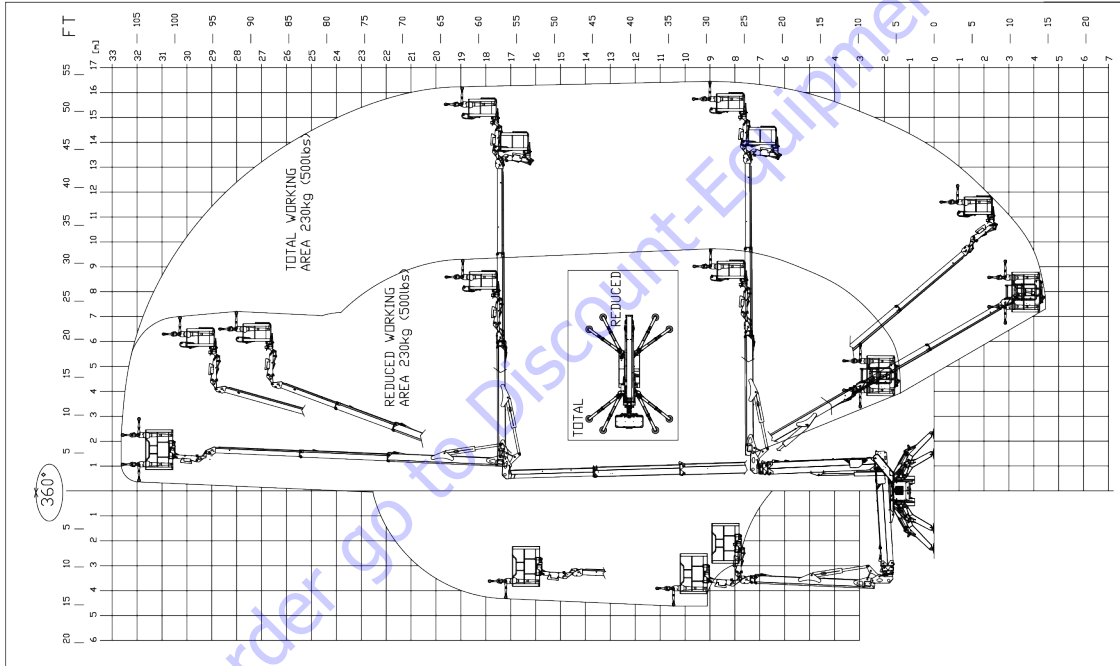


Figure 4-5. Platform - Load/Reach Chart


OL00261



## SECTION 4 - MACHINE OPERATION

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If one of the outriggers does not come into contact with the ground while being set, the engine will turn off or, the self-leveling attempt will stop. This situation may be due to the slope on which the outriggers are being set up on exceeds the allowed slope for proper set up at the end of the stabilization phase. If the machine is to be lifted even further from the ground after the outriggers are properly set, push and hold the outrigger automatic set and level button.

	<b>ST1</b>	<b>NO</b>
	<b>ST2</b>	<b>NO</b>
	<b>ST3</b>	<b>NO</b>
	<b>ST4</b>	<b>NO</b>
	<b>INCL</b>	<b>OK</b>
	<b>LOAD</b>	<b>OK</b>
	<b>PLATF</b>	<b>OK</b>
	<b>PEDAL</b>	<b>OK</b>

If the functions are selected when one of the above listed conditions is missing, an error message will appear on the platform/remote control display indicating which of the conditions are OK and which are not. If the condition is that an outrigger is not set properly, the message will also indicate which outrigger is not set properly.

ST1: if OK outrigger 1 is set properly.

ST2: if OK outrigger 2 is set properly.

ST3: if OK outrigger 3 is set properly.

ST4: if OK outrigger 4 is set properly.

INCL: if OK the machine is set up on an accepted slope.

LOAD: if OK the load in the platform is acceptable.

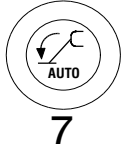
PLATFORM: if OK the platform/remote control box is in the proper location in the platform.

PEDAL: If OK the footswitch is correctly depressed.

## SECTION 4 - MACHINE OPERATION

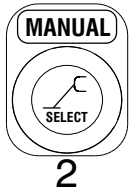
### Setting Outriggers From the Platform/Remote Console

(Reference Figure 4-6. on page 4-21 for item number location)

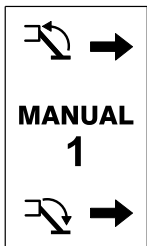


**Either** - Press and hold the outrigger auto-set and level button 7 (item 7) until OK appears on the platform LCD display;

**or**



Operate each outrigger separately by pressing button 2 (item 2) to select which outrigger to control (each outrigger is numbered 1 thru 4, see decal, each press of button 2 displays the outrigger selected on the LCD display). Press button 7 (item 7) to set that outrigger. The OK will appear on the display when the outriggers are set properly and the unit is level.



**Note:** To cycle back to outrigger auto-set mode, press button 2 (item 2) until the LCD display shows the normal operating icons.

### **⚠ WARNING**

**CHECK BUBBLE LEVEL INDICATOR TO CONFIRM UNIT IS LEVEL (BUBBLE IS IN THE 1° GREEN (CENTER) AREA) AND TRACKS ARE OFF THE GROUND BEFORE OPERATING THE BOOM FUNCTIONS. IF BUBBLE IN THE LEVEL INDICATOR IS NOT IN THE GREEN AREA, AFTER USING THE AUTO-LEVEL FUNCTION, SHUT DOWN THE MACHINE AND HAVE THE MACHINE REPAIRED BY A QUALIFIED SERVICE TECHNICIAN.**



OL00600

## SECTION 4 - MACHINE OPERATION

Each outrigger has an orange light installed. All lights will be on steady if outriggers are positioned to the full operation area. Lights will be flashing if any of the outriggers are positioned in the restricted operation area. No lights will be on if the outriggers are not set properly.



OL00610

### NOTICE

**IF ONE OF THE ORANGE LIGHTS LOCATED ON EACH OUTRIGGER SHOULD FLASH OR REMAIN ON WHEN THAT OUTRIGGER IS LIFTED FROM THE GROUND, STOP THE MACHINE IMMEDIATELY AND CALL A QUALIFIED JLG SERVICE TECHNICIAN AS THIS INDICATES A PROBLEM WITH THE CORRE-**

**SPONDING OUTRIGGER MICRO SWITCH.**

### ⚠ WARNING

**IF SLOPE EXCEEDS 13°, THE MACHINE IS NOT CAPABLE OF PROPERLY SETTING OUTRIGGERS AND LEVELING ITSELF. OPERATION OF BOOM AND PLATFORM FUNCTIONS WILL NOT BE ALLOWED IN THIS CONDITION. THE MACHINE IS CONSIDERED STABILIZED WHEN LEVELED TO LESS THAN 1° AND TRACKS ARE LIFTED AT LEAST 2 IN. (5 CM) FROM THE GROUND. STABILIZING MACHINE WITH AN INCLINATION DEGREE HIGHER THAN THE ONE ALLOWED COULD CAUSE INSTABILITY OF THE MACHINE**

If the platform ladder is higher than 16 in. (40 cm) off the ground when the ladder is lowered, when setting the machine on outriggers from the ground position, lower the outriggers until the ladder is less than 16 in. (40 cm) off the ground. Then enter the platform to properly set the machine up on outriggers.

### Retracting The Outriggers

(Reference Figure 4-6. on page 4-21 for item number location)

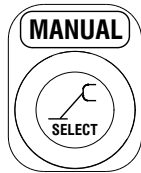


1

**Either** - Press and hold button no. 1 (*item 1*) of the remote control.

The 4 outriggers will all retract at the same time and lower the machine.

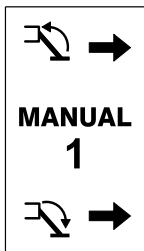
**or**



2

Operate each outrigger separately by pressing button 2 (*item 2*) to select which outrigger to control (*each outrigger is numbered 1 thru 4, see decal at each outrigger, each press of button 2 displays the outrigger selected on the LCD display*). Press button 1 (*item 1*) to retract that outrigger.

**Note:** To cycle back to outrigger auto-retract mode, press button 2 (*item 2*) until the LCD display shows the normal operating icons.



### 4.7 BOOM/PLATFORM OPERATION

#### **NOTICE**

**THE BOOM WILL NOT OPERATE UNTIL THE OUTRIGGERS ARE PROPERLY SET AND MACHINE IS LEVELED.**

**AT PLATFORM/REMOTE CONTROL STATION, TWIST EMERGENCY STOP BUTTON CLOCKWISE TO THE OUT POSITION, START ENGINE, AND ACTIVATE FOOTSWITCH FOR ALL PLATFORM/ REMOTE CONTROL FUNCTIONS.**

**ALWAYS STOW (RAISE) THE LADDER AFTER ENTERING OR EXITING THE PLATFORM TO PREVENT IT BEING DAMAGED WHEN OPERATING THE MACHINE.**

If the operator attempts to raise the JIB with more than the allowed capacity in the platform a maximum weight reminder icon appears in the middle of the platform LCD display and the function stops.

If the machine is set up on outriggers for the reduced operating area, the swing function will be stopped if and when you try to go outside the allowed working area. A message on the platform LCD display will appear informing that it is necessary to swing in the opposite direction to continue operation.

**NOTE:** *At low temperatures start the motor and let it run for a few minutes, so that the hydraulic oil circulates and reaches at least 50°F (10°C) before operating the platform.*

## SECTION 4 - MACHINE OPERATION

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### Overload Alarm

If the platform is overloaded all the boom functions are stopped, the overload icon appears on the platform/remote LCD display and the alarm sounds. To restore the boom functions it is necessary to remove the extra load.

#### **WARNING**

**TO AVOID SERIOUS INJURY, DO NOT OPERATE MACHINE IF ANY CONTROL LEVER OR SWITCH CONTROLLING PLATFORM MOVEMENT DOES NOT RETURN TO THE 'OFF' OR NEUTRAL POSITION WHEN RELEASED. IF THE PLATFORM DOES NOT STOP WHEN A CONTROL SWITCH OR LEVER IS RELEASED, REMOVE YOUR FOOT FROM THE FOOT SWITCH AND/OR USE EMERGENCY STOP SWITCH TO STOP THE MACHINE.**

If platform is lifted from the proper mounting position during the use of the machine, an alarm will sound and all the movements of the machine will stop. An error message will appear on the LCD display of the platform control.

### Platform Level Adjustment *(Item 22, Figure 4-6.)*

**NOTE:** *The platform will auto-correct to level once another function is activated. The platform will auto-correct to level before the requested function is performed.*

- To manually Level Up, turn switch counter-clockwise and hold until desired position is reached.
- To manually Level Down, turn switch clockwise and hold until desired position is reached.

### **⚠ WARNING**

**ONLY USE THE PLATFORM LEVELING OVERRIDE FUNCTION FOR SLIGHT LEVELING OF THE PLATFORM. INCORRECT USE COULD CAUSE THE LOAD/OCCUPANT TO SHIFT OR FALL. FAILURE TO DO SO COULD RESULT IN DEATH OR SERIOUS INJURY.**

#### **Raise And Lower The Tower Boom** (Item 15, Figure 4-6.)

- To raise the tower boom, depress the foot switch and move the controller forward.
- To lower the tower boom, depress the foot switch and move the controller backwards.

**NOTE:** Tower down will retract the main boom if main boom angle is 15 degrees less than horizontal. Above 15 degrees, tower down function will bring the tower down.

#### **Raise And Lower The Main Boom** (Item 16, Figure 4-6.)

- To raise the main boom, depress the foot switch and move the controller forward.
- To lower the main boom, depress the foot switch and move the controller backwards.

#### **Telescope The Main Boom** (Item 17, Figure 4-6.)

- To extend the main boom, depress foot switch and move controller backward.
- To retract the main boom, depress foot switch and move controller forward.

#### **Platform Rotation** (Item 18, Figure 4-6.)

- To rotate the platform to the right, depress the footswitch and move the controller forward.
- To rotate the platform to the left, depress the footswitch and move the controller backwards.

#### **Raise And Lower The Jib** (Item 19, Figure 4-6.)

- To raise the jib, depress the foot switch and move the controller forward.
- To lower the jib, depress the foot switch and move the controller backwards.

#### **Swinging The Boom** (Item 20, Figure 4-6.)

### **⚠ WARNING**

**WHEN SWINGING THE BOOM MAKE SURE THERE IS AMPLE ROOM FOR THE BOOM AND UPRIGHT TO CLEAR SURROUNDING WALLS, PARTITIONS AND EQUIPMENT.**

If the turntable is swung with tower boom too low or tower boom is lowered near an outrigger, Those functions will stop before contact with an outrigger. The display on the platform/remote control box will indicate to swing in the opposite direction or lift up.

- To swing the boom to the right, depress the foot switch and move the controller forward.
- To swing boom to the left, depress foot switch and move controller backwards.

## SECTION 4 - MACHINE OPERATION

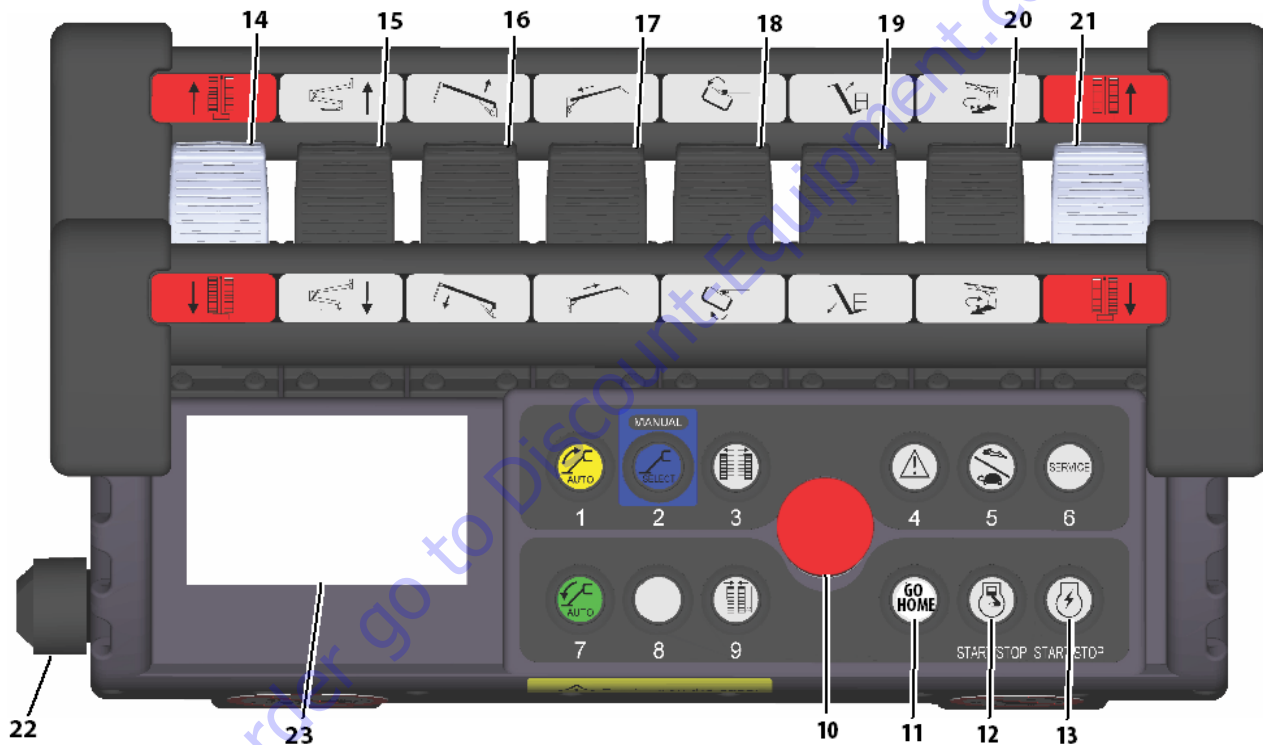


Figure 4-6. Platform/Remote Control Box

## SECTION 4 - MACHINE OPERATION

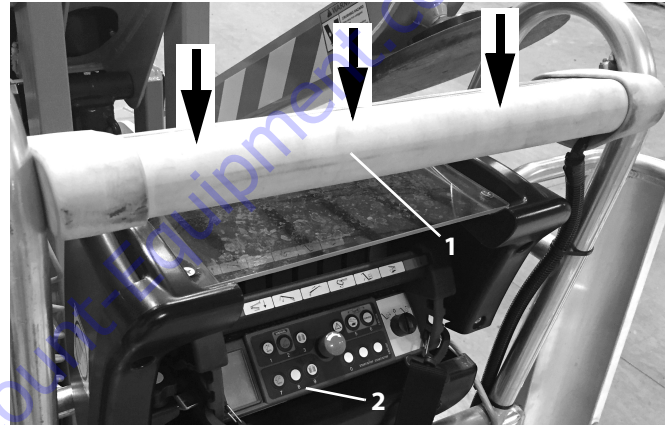
### SkyGuard Operation

The SkyGuard™ feature is used to provide enhanced control panel protection. When the SkyGuard™ sensor is activated, functions that were in use at the time of actuation will reverse or cutout and the ground alarm will beep. The table below outlines these functions.



**NOTE:** Reverse motion can be stopped by the operator by releasing the footswitch, depressing the emergency stop button, or by releasing pressure on the SkyGuard™ sensor.

If SkyGuard™ remains activated after function reversal or cutout, depress and hold the SkyGuard™ Override Switch (button number 8) to allow normal use of machine functions until the SkyGuard™ sensor is disengaged.



1. SkyGuard™ Sensor

2. SkyGuard™ Override Switch (button number 8)

**Figure 4-7. SkyGuard™ Sensor and Override Switch Location**

**Table 4-1. SkyGuard™ Function Table**

Main Lift Up	Main Lift Dn	Main Tele In	Main Tele Out	Swing	Drive Forward	Drive Reverse	Tower Lift Up	Tower Lift Down	Platform Level	Platform Rotate	Jib Lift	Go Home (All Functions)
R	C	C	R	C	C	C	R	C	C	C	C	C
R= Indicates Reversal is Activated												
C= Indicates Cutout is Activated												
N/A Indicates the function does not exist for this model												



## SECTION 4 - MACHINE OPERATION

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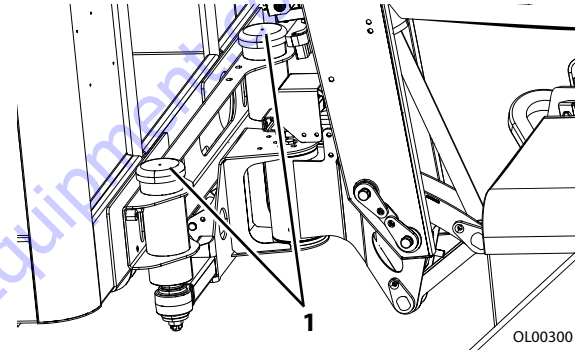
### Platform Removal/Installation

The platform may only be removed to allow passage through areas measuring a minimum of 39 in. (99cm).

**NOTE:** *If the platform is removed, only track movement is allowed.*

#### Platform Removal

1. Remove the platform control box from the mounting support.
2. Loosen and remove the aluminum caps (1) that secure the platform to the jib platform mounting posts.



3. Lift the platform off the mounting posts in an upward direction. Place platform aside for later installation.

### Platform Installation

1. Lift the platform and align the platform mounts with the jib mounting posts and lower until seated.
2. Secure the platform to the jib mounting posts with the aluminum threaded caps. Do not overtighten.
3. Re-install the platform control box into the mounting support on the platform.

### 4.8 BATTERY CHARGING - DIESEL/AC-ELECTRIC

**NOTE:** *Be sure that the machine is parked in a well ventilated area free of flames and sparks.*

- Only plug the charger into a properly grounded outlet.
- Do not use ground adaptors or modify plug. Do not touch non-insulated portion of output connector or non-insulated battery terminal.
- Always disconnect the AC supply before making or breaking the connections to the battery.
- Do not open or disassemble charger.
- Do not operate charger if the AC supply cord is damaged or if the charger has been damaged in any way.

## SECTION 4 - MACHINE OPERATION

### Battery Charging - Daily

#### **⚠ CAUTION**

**BEFORE CONNECTING THE BUILT-IN CHARGER TO THE RECEPTACLE, ENSURE THE KEY ON THE ENGINE IS POSITIONED TO OFF.**

The machine has a built-in battery charger. To activate this feature connect the machine to an appropriately grounded AC receptacle and activate the charging switch behind the clear plastic door. (See photo) Verify the battery disconnect switch is on.



### 4.9 BATTERY CHARGING - LITHIUM-ION MACHINE

To check the battery condition on the lithium ION equipped machine, power up the machine and use the special indicator shown at position 8 on the platform control station LCD display.



or;

Check charge indicator on top right side of the Lithium-Ion battery pack. While charging, this indicator shows the current charge state of the lithium-ion battery pack as follows;

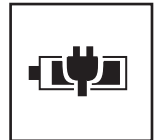


RED LED: shows that the battery is in the initial charging phase.

BLINKING GREEN LED: shows that the batteries are balancing.

GREEN LED: shows that the battery has reached 100% of charge.

If machine is powered on while charging, the LCD display on the platform control station also shows the machine charge indicator.



## SECTION 4 - MACHINE OPERATION

### Charging the Battery Pack

#### NOTICE

**DO NOT LEAVE THE MACHINE IN CONTINUOUS CHARGING FOR TIME PERIODS EXCEEDING 24 HOURS.**

**REMEMBER, THE CHARGE WORKS EVEN IF THE ELECTRONIC BOARD OF THE MACHINE IS TURNED OFF. SO THE BATTERIES CAN BE CHARGING EVEN IF THE REMOTE CONTROL IS OFF.**

**CHARGE THE MACHINE USING ONLY THE BATTERY CHARGER INSTALLED ON IT. THE USE OF A CHARGER OTHER THAN THAT PROVIDED VOIDS ANY KIND OF WARRANTY ON BATTERIES.**

Approximate time required to fully recharge the battery pack:

- Full Recharge -8 hrs. - 120V AC or 4 hrs. - 220V AC
- 80% Recharge -4 hrs. - 120V AC or 2 hrs. - 220V AC
- The batteries can be charged during machine operation, (*obviously the charging times in this case will be longer*).
- The batteries can be charged when they are not fully depleted.
- If the charge is less than 20% an audible warning signal will be activated whenever the electric motor is started, to alert the user to charge the machine.

- If the charge is less than 10%, in addition to the audible warning signal, reduced speed is activated and an icon comes on in position 4 on the platform station LCD display.



To start charging the battery connect the main AC power supply to the AC socket (1) located on the left rear of the machine next to the electric engine.

After a few seconds the charge indicator (2) located on the right hand side of the machine on top of the lithium-ion battery pack turns red, meaning the battery has started charging.



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## SECTION 4 - MACHINE OPERATION



### **⚠ WARNING**

**THE BATTERY CHARGER SUPPLIED WITH THE LIFT WAS DESIGNED TO ENSURE SAFE AND RELIABLE PERFORMANCE. IT IS ALREADY FITTED ON THE MACHINE AND DOES NOT NEED ANY ADJUSTMENT OR CONFIGURATION BY THE USER; NONETHELESS, TO AVOID INJURY AND DAMAGE TO THE BATTERY CHARGER, THE FOLLOWING ESSENTIAL PRECAUTIONS MUST BE OBSERVED:**

- Carefully read installation instructions contained in this manual. For future reference, keep manual in a safe place.
- Do not place battery pack near heat sources.

- As battery charger is sealed without forced ventilation, its performance depends on ambient temperature and type of installation.
- Be certain type of power supply available corresponds to voltage specified and indicated on the battery charger rating plate or in this Operation and Safety Manual. If any questions, contact your local JLG Service Center or the local electrical company.
- An AC class circuit breaker can be used as a protection device for the battery charger power supply, however it is recommended to use a class A or even better class B device.
- In regard to safety and electromagnetic compatibility, the battery charger features a three pin plug with ground, which can only be plugged into an grounded socket. If the plug does not go into the socket, most probably the socket is old and not grounded. In this case, contact an electrician to have the socket replaced. Do not use adapters to resolve ungrounded circuit plug problems.
- Ensure power cable is undamaged. If cable is worn or damaged, have it replaced immediately.
- If extensions or multiple sockets are used, make sure these support total rated current.