Operation & Safety Manual

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

T500J, ET500J

PVC 2601

3122576000

January 12, 2026 - Rev A

ANSI

English (en-US)

⚠ 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.

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 for Warranty, Product Registration, and other machine-related documentation.

This manual is originally written in English.

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 potentially hazardous situation. If not avoided, could result in serious injury or death. This decal will have an orange background.

⚠ CAUTION

Indicates a potentially 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.

NOTICE

JLG Industries, Inc. must be notified immediately in all instances where JLG products have been involved in an accident involving bodily injury or death or when substantial damage has occurred to personal property or the JLG product.

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 Visit www.jlg.com to find your local JLG office.

In USA:

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

Outside USA:

Phone: 240-420-2661
Fax: 301-745-3713
E-mail: ProductSafety@JLG.com

REVISION LOG

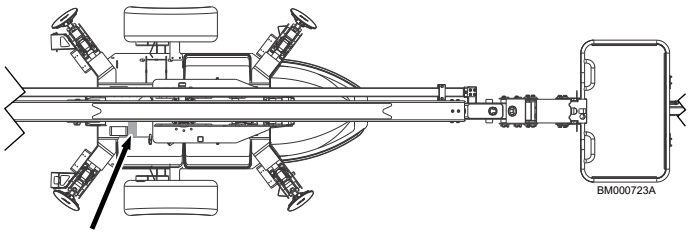
DATE	REVISION	DESCRIPTION
January 12, 2026	A	Original Issue

Other Publications Available

Publication	Publication Number
Service & Maintenance Manual	3122567500
Illustrated Parts Manual	3122568900

Serial Number Location

A serial number plate is affixed on the top of the frame at the rear, left side. If the serial number plate is damaged or missing, the machine serial number is also stamped on the frame.



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SECTION 1
Safety Precautions

1.1 GENERAL

This section outlines the necessary precautions for towing and also proper and safe machine operation and maintenance. For proper machine use, it is mandatory that a daily routine is established based on the content of this manual. 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 followed to ensure the machine is safe to operate.

An owner's manual that provides general trailer information cannot cover all of the specific details necessary for the proper combination of every trailer, tow vehicle and hitch. Therefore, you must read, understand and follow the instructions given by the tow vehicle and trailer hitch manufacturers, as well as the instructions in this manual.

The owner/user/operator/lessor/lessee of the machine should not operate the machine 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.

If there are any questions with regard to safety, training, inspection, maintenance, application, and operation, please contact JLG Industries, Inc. ("JLG").

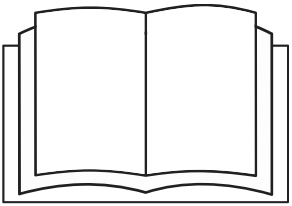
⚠ WARNING

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

1.2.1 Operator Training and Knowledge

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



- Only personnel who have received proper training regarding the inspection, application and operation of MEWPs (including recognizing and avoiding hazards associated with their operation) shall be authorized to tow or operate the machine.
- 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.

1.2.2 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 load shown on the decals located on the machine. Do not travel on unsupported surfaces.

1.2.3 Machine Inspection

- Do not operate this machine until the inspections and functional checks as specified in the User Responsibilities, Machine Preparation, and Inspection Section 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 Manual.
- Ensure the enable trigger and 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

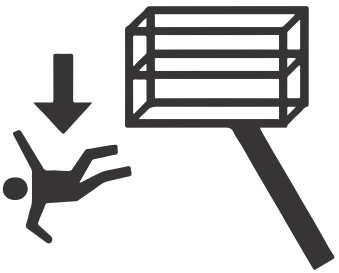
1.3.1 General

- 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 unless using the optional JLG Material Hook attachment.
- 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.
- Do not allow personnel to tamper with or operate the machine from the ground with personnel in the platform, except in an emergency.

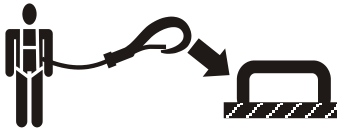
- Do not carry materials directly on platform railing unless approved by JLG.
- When two or more persons are in the platform, the operator shall be responsible for all machine operations.
- Always ensure that power tools are properly stowed and never left hanging by their cord from the platform work area.
- 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. Do not leave hydraulic cylinders fully extended for long periods of time.
- Supplies or tools which extend outside the platform are prohibited unless approved by JLG.
- Do not place boom or platform against any structure to steady the platform or to support the structure.
- Fully lower platform and shut off all power before leaving machine.

1.3.2 Trip and Fall Hazards

- Before operating the machine, ensure all gates are closed and fastened in their proper position.



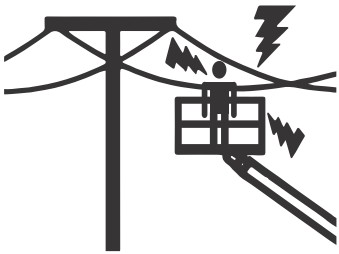
- During operation, occupants in the platform must wear a full body harness with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.

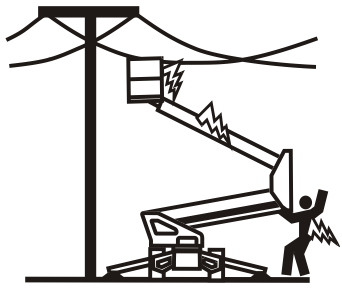


- Enter and exit only through gate area. Use extreme caution when entering or leaving platform. Ensure that the platform assembly is fully lowered and boom telescoped out. Face the platform when entering or leaving the platform. Always maintain “three point contact” with the machine, using two hands 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.
- Never use the boom assembly or the trailer structure to enter or leave the platform.
- Keep oil, mud, and slippery substances cleaned from footwear and the platform floor.

1.3.3 Electrocution Hazards

- This machine is not insulated and does not provide protection from contact with or proximity to electrical current.
- It is not recommended to use the machine during lightning. To prevent injury or machine damage if lightning occurs during operation, lower the boom and shut down the machine in a safe and secure location.





- Maintain distance from electrical lines, apparatus, or any energized (exposed or insulated) parts according to the Minimum Approach Distance (MAD) as shown in *Table — Minimum Approach Distances (MAD), page 18*.
- Allow for machine movement and electrical line swaying.

Table 1. Minimum Approach Distances (MAD)

Voltage Range (Phase to Phase)	Minimum Approach Distance in Feet (Meters)
0 to 50 KV	10 (3)
Over 50K V 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.

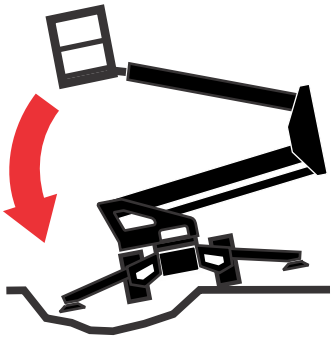
- Maintain a clearance of at least 10 ft (3 m) between any part of the machine and its occupants, their tools, and their equipment from any electrical line or apparatus carrying up to 50,000 volts. One foot additional clearance is required for every additional 30,000 volts or less.
- The MAD may be reduced 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 MAD shall be reduced to a distance within the designed working dimensions of the insulating barrier. This determination shall be made by a qualified person with respect to electrical transmission and distribution 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.

1.3.4 Tipping Hazards

- Ensure that the ground conditions are adequate to support the maximum load shown on the decals located on the machine. Do not travel on unsupported surfaces.
- The user must be familiar with the surface before operating. Do not exceed the allowable side slope and grade while operating.



- Do not elevate platform or travel with platform elevated while on or near a sloping, uneven, or soft surface.
- Ensure machine is positioned on a smooth, firm surface with outriggers properly set and within the limits of the maximum operating slope before elevating platform.
- Before traveling on floors, bridges, trucks, and other surfaces, check allowable capacity of the surfaces.
- Never exceed the maximum platform capacity as specified on the platform. Distribute loads evenly on platform floor. 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 (0.6 m) 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 with platform attached. Do not tie-off machine to any adjacent structure. Never attach wire, cable, or any similar items to platform.
- 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.
- Do not operate the machine when wind conditions, including gusts, exceed 28 mph (12.5 m/s). Refer to *Table — Beaufort Scale (For Reference Only), page 20*. 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 in the platform when operating outdoors. The addition 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.

⚠ WARNING

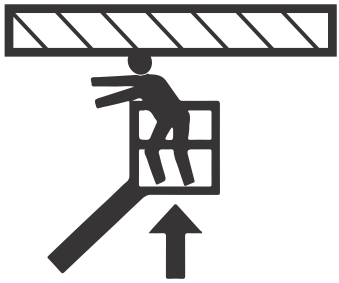
Do not operate the machine when wind conditions exceed specifications shown in the General Specifications section of this manual or as shown on the capacity placard on the platform billboard.

Table 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.

1.3.5 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.
- Always post a lookout when traveling in areas where vision is obstructed.
- Keep non-operating personnel at least 6 ft (1.8 m) 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.
- 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

1.4.1 Towing Regulations

There are local and national regulations (height, width, brakes etc.) that must be followed by the owner and operator. It is the responsibility of the trailer mounted boom lift owner and operator to determine which regulations apply and to comply with these requirements.

1.4.2 Towing Hazards

Safe and proper usage of the trailer mounted boom lift is essential to avoid accidents. Unsafe use; separation of trailer mounted boom lift from tow vehicle or loss of control of the trailer mounted boom lift or trailer/tow vehicle combination could result in death or serious injury. Common causes for trailer accidents include:

1. Driving too fast for conditions;
2. Failure to adjust handling while towing a trailer;
3. Trailer improperly coupled to the hitch;
4. Incorrect use of safety chains;

5. Incorrect use of breakaway brake;
6. Mismatch of trailer and hitch;
7. Unsafe tires, lug nuts or wheels;
8. Inoperable brakes, lights or mirrors;
9. Modifying the trailer;
10. Inadequate tow vehicle or towing hitch; and
11. Not properly maintaining the trailer structure.

1.4.3 Lifting and Hauling Hazards

- Never allow personnel in platform while towing, lifting, or hauling.
- Ensure boom is in the stowed position and the transportation latch is locked prior to towing, lifting or hauling. The platform must be completely empty.
- 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.

1.5.1 Maintenance Hazards

- Shut off power to all controls and remove the key to 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.
- 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 combustion engine-powered machines 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 & Maintenance Manual for the weights of critical stability items.

⚠ WARNING

Modification or major alteration of a MEWP shall be made only with the prior written permission from the manufacturer. Modification is defined as change(s) to a MEWP that affect the operation, stability, safety factors, rated load, or safety of the MEWP in any way.

1.5.2 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.

1.6 LONG-TERM STORAGE

- Prior to long-term storage of machines (placed into storage for periods greater than 3 months) with an internal combustion engine, refer to the engine manufacturer's guidance regarding fuel degradation.
- For long-term storage of battery-electric machines, store machines in a cool, dry place away from direct sunlight and heat sources. Avoid storing batteries in a fully discharged or fully charged state.

SECTION 2
User Responsibilities, Machine Preparation, and Inspection

2.1 PERSONNEL TRAINING

The Mobile Elevating Work Platform (MEWP) is a personnel handling device, so it is necessary that it be operated and maintained only by trained personnel.

2.1.1 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 MEWP 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.

2.1.2 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.

2.1.3 Operator Responsibility

The operator must be instructed that they have 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.

2.1.4 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 user's 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.

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. The frequency of inspections and maintenance must be increased as necessary when the machine is used in a harsh or hostile environment, if the machine is used with increased frequency, or if the machine is used in a severe manner.

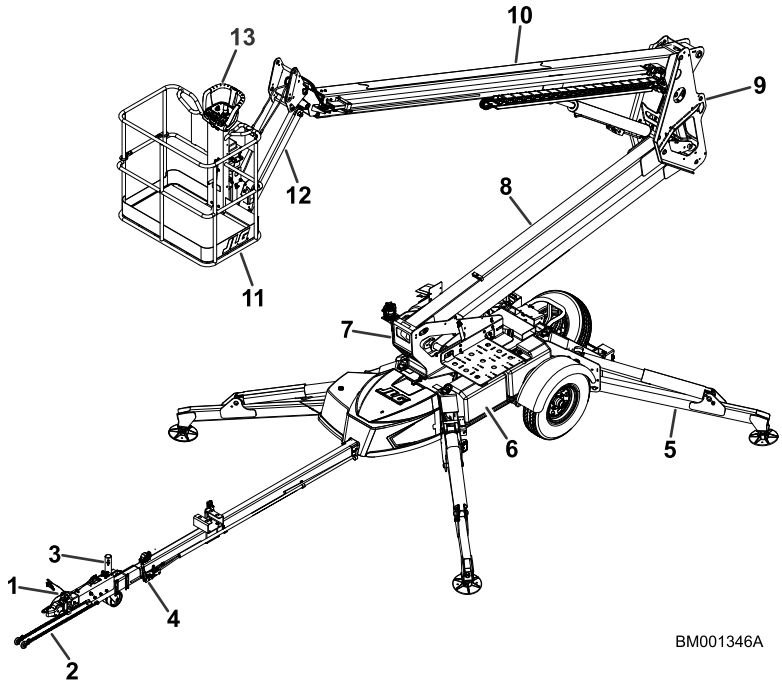
Table 3. Inspection and Maintenance Table

Type	Frequency	Primary Responsibility	Service Qualification	Reference
Pre-Start Inspection	Before using each day; or whenever there is an Operator change	User or Operator	User or Operator	Operation & Safety Manual
Pre-Delivery Inspection (See Note)	Before each sale, lease, or rental delivery	Owner, Dealer, or User	Qualified JLG Mechanic	Service & Maintenance Manual and applicable JLG inspection form
Frequent Inspection (See Note)	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 & Maintenance Manual and applicable JLG inspection form
Periodic Machine Inspection (See Note)	No later than 12 months from the date of prior inspection	Owner, Dealer, or User	Factory Trained Service Technician (Recommended)	Service & Maintenance Manual and applicable JLG inspection form
Preventive Maintenance	At intervals as specified in the Service & Maintenance Manual	Owner, Dealer, or User	Qualified JLG Mechanic	Service & Maintenance Manual
Note: Inspection forms are available from JLG. Use the Service & Maintenance Manual to perform 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 specified JLG product model.

2.3 MACHINE COMPONENTS



1. Coupler	6. Chassis	11. Platform
2. Safety Chains	7. Turntable	12. Jib
3. Tongue Jack	8. Lower Boom	13. Platform Station
4. Parking Brake	9. Upright	
5. Outrigger	10. Boom	

2.4 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.

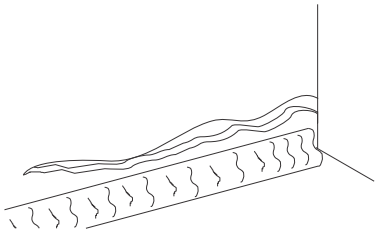


Figure 1. Parent Metal Crack

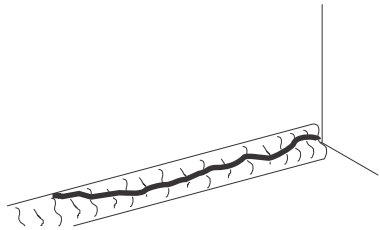


Figure 2. Weld Crack

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 & Safety Manual, AEM Safety Manual (ANSI markets only), and ANSI Manual of Responsibilities (ANSI markets only) are enclosed in the weather resistant storage container.

5. **Walk-Around Inspection** — Perform as instructed.

6. **Battery** — Charge as required.

7. **Fuel (Combustion Engine Powered Machines)** — Add the proper fuel as necessary.

8. **Engine Oil Supply** — 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. **Accessories/Attachments** — Refer to the Accessories section in this manual or accessory installed upon the machine for specific inspection, operation, and maintenance instructions.

11. **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 — Machine Operation* for more specific instructions.

12. **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.

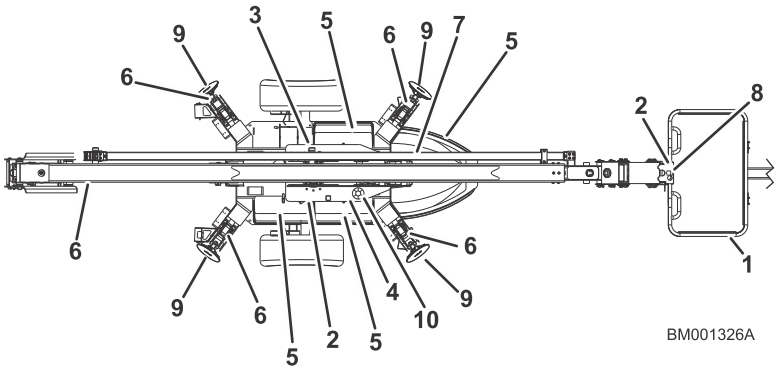
13. **Lanyard Attach Points** — During operation, occupants in the platform must wear a full body harness with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.

⚠ 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.

2.5 WALK-AROUND INSPECTION

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.

NOTICE

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

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 and Gate** - See Inspection Note. Access drop bar slides freely. Platform retention pin properly installed and locked.

2. **Platform & Ground Control Stations** - Switches and levers return to neutral, decals/placards secure and legible, control markings legible.

3. **Boom Sections/Turntable** - See Inspection Note.

4. **Swing Drive & Turntable Bearing** - No evidence of damage. Evidence of proper lubrication. No evidence of loose bolts or looseness between bearing and machine.
5. **Cover Assemblies** - See Inspection Note.
6. **All Hydraulic Cylinders** - No visible damage; pivot pins and hydraulic hoses undamaged, not leaking.
7. **Main Hydraulic Pump** - See Inspection Note.
8. **Platform Rotator (If Equipped)** - See Inspection Note.
9. **Outriggers** - See Inspection Note. Pads pivot freely.
10. **Beacon** - See Inspection Note.
11. **Periodic Inspection** - Ensure the machine is current with periodic (annual) inspection requirements. Refer to the periodic inspection placard affixed to machine; see *Section — Safety Decals*.

2.6 FUNCTION CHECK

⚠ 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.

Perform the Function Check as follows:

1. From the ground control station with no load in the platform:
   a. Ensure that all machine functions are disabled when the Emergency Stop Button is pushed in.
   b. Ensure all boom functions stop when the function enable switch is released.
   c. Operate all functions and ensure proper operation.
   d. Check that all guards protecting the function control switches and controllers are in place.
   e. Ensure proper operation of the manual descent controls.

2. From the platform control station:
   a. Ensure that the control station is firmly secured in the proper location.
   b. Check that all guards protecting the function control switches and controllers are in place.
   c. Operate all functions and ensure proper operation.
   d. Ensure all boom functions stop when the function enable switch is released.
   e. Ensure that all machine functions are disabled when the Emergency Stop Button is pushed in.
3. With the platform in the stowed position:
   a. Check that telescope out and lift up above horizontal are disabled with the outriggers retracted and the boom out of transport position.

SECTION 3
Towing

3.1 GENERAL

⚠ WARNING

Do not move the trailer until the trailer is properly hitched to the tow vehicle and the trailer jack is fully retracted.

3.2 COUPLER

The trailer is equipped with a ball hitch coupler that is suitable for the size and weight of the trailer. The load rating of the coupler and the necessary ball size are listed on the trailer tongue. Do not change the coupler to a smaller size.

3.3 TOW VEHICLE AND HITCH INFORMATION

⚠ WARNING

If the vehicle or hitch is not properly selected and matched to the Gross Vehicle Weight Rating (GVWR) of your trailer, you can cause an accident that could lead to death or serious injury.

The towing hitch attached to your tow vehicle must have a capacity equal to or greater than the load rating of the trailer you intend to tow. The hitch capacity must also be matched to the tow vehicle capacity.

3.4 COUPLING AND UNCOUPLING THE TRAILER

⚠ WARNING

The trailer must be properly and securely coupled to the hitch of the tow vehicle. Uncoupling of the trailer during transport could result in death or serious injury.

Before Coupling the Trailer to Tow Vehicle

1. Wipe the hitch ball clean and inspect it visually and by feel for flat spots, cracks and pits.
2. Ensure boom is stowed with platform over hitch. Secure the boom with the transport latch.

3. Push in the Emergency Stop at Platform Controls.
4. Push in the Emergency Stop at Ground Controls. Position Platform/Ground Select switch to center OFF.
5. Remove loose items from the platform.

3.4.1 Tongue Height

Proper tongue height is critical to maintaining stability during towing. The trailer should always be as level as possible while towing. Due to varying vehicle height, the coupling height may need adjusted with a raised or dropped ball mount.

⚠ WARNING

The trailer tongue must be level before towing. Adjust the coupler or tow vehicle hitch to achieve this height.

3.4.2 Coupler and Ball

The coupler on the trailer connects to the ball attached to the hitch on the tow vehicle. Before each tow, coat the ball with a thin layer of automotive bearing grease to reduce wear and ensure proper operation; and check the locking device that secures the coupler to the ball for proper operation.

If you see or feel evidence of wear, such as flat spots, deformations, pitting or corrosion, on the ball or coupler, immediately have your dealer inspect them to determine the proper action to prevent possible failure of the ball and coupler system. All bent or broken coupler parts must be replaced before towing the trailer.

The coupler must operate properly and automatically snap into the latched position. Oil the pivot points, sliding surfaces, and spring ends with SAE 30W motor oil. Keep the ball pocket and latch mechanism clean. Dirt or contamination can prevent proper operation of the latching mechanism.

When replacing a ball, the load rating must match or exceed the GVWR of the trailer.

3.4.3 Tongue Jack

Note: To avoid damaging the handle while trailering in the horizontal position, secure the handle to the jack with a bungee cord or rope.

The jack is designed to be swiveled into a horizontal or storage position. In both the vertical and horizontal positions, the plunger must be securely positioned in the mating hole in the mounting bracket. To place the jack into the horizontal position, allow about 2" (5 cm) of ground clearance beneath the wheels. Pull the plunger pin out of the opening and swivel the jack. Rotate either left or right until the plunger pin snaps into the proper mounting bracket hole.

3.4.4 Coupling the Trailer to the Hitch

Lubricate the hitch ball and the inside of the coupler with a thin layer of automotive bearing grease before each tow to reduce wear and ensure proper operation. If your trailer is equipped with a tongue jack, raise the coupler above the ball height.

1. Wipe the inside and outside of the coupler clean and inspect it visually for cracks and deformations; feel the inside of the coupler for worn spots and pits. Be sure the coupler is tight to the tongue of the trailer. All coupler fasteners must be visibly solid against the trailer frame.
2. Raise the bottom surface of the coupler to be above the top of the hitch ball by using the tongue jack.
3. Once the hitch on the trailer is open, align the tow vehicle up with the trailer hitch.
4. Using the tongue jack, lower the entire weight of the trailer on to the ball hitch of the tow vehicle.
5. Insert the pin into the hole behind the collar to lock the collar into place.
6. Disengage the parking brake.
7. Be sure the coupler is all the way on the hitch ball and the collar/locking mechanism is engaged. A properly engaged locking mechanism will allow the coupler to raise the rear of the tow vehicle. Using the tongue jack, test to see that you can raise the rear of the tow vehicle by 1 inch (2.5 cm), after the coupler is locked to the hitch.

NOTICE

Overloading can damage the tongue jack. Do not use the tongue jack to raise the tow vehicle more than 1 inch (2.5 cm).

Note: If the coupler cannot be secured to the hitch ball, do not tow the trailer.

8. Retract the tongue jack until it is fully retracted and stow.

3.4.5 Uncoupling the Trailer from the Hitch

Follow these steps to uncouple your trailer from the tow vehicle:

1. Engage the parking brake.
2. Disconnect the electrical connector.
3. Disconnect the breakaway brake switch cable. For an electric breakaway break system, promptly replace the pull pin in the switchbox.
4. Disconnect the safety chains from the tow vehicle.
5. Unlock the coupler and open it.
6. Before extending the tongue jack, make certain the ground surface below the jack pad will support the tongue load.
7. Rotate the jack handle (or crank) clockwise. This will slowly extend the tongue jack and transfer the weight of the trailer tongue to the jack.

3.4.6 Rigging Safety Chains

Visually inspect the safety chains and hooks for wear or damage. Replace worn or damaged safety chains and hooks before towing.

Rig the safety chains so that they:

1. Cross each other underneath the coupler
2. Loop around a frame member of the tow vehicle or to holes provided in the hitch system (DO NOT attach them to an interchangeable part of the hitch assembly)
3. Have enough slack to permit tight turns, but not be close to the road surface, so if the trailer uncouples, the safety chains can hold the tongue up above the road.

3.4.7 Testing Breakaway Brake

If the coupler or hitch fails, a properly connected and working breakaway brake system will apply brakes on the trailer. The safety chains will keep the tow vehicle attached and as the brakes are applied at the trailer's axles, the trailer/tow vehicle combination can come to a controlled stop.

HYDRAULIC BRAKES

The breakaway brake system includes a cable attached to an activation lever. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer.

Connect the breakaway cable to the tow vehicle so that the activation lever will be pulled before all of the slack in the safety chains is taken up. Do not connect the breakaway cable to a safety chain or to the hitch ball or hitch ball assembly. This would keep the breakaway brake system from operating when it is needed.

Manually pull the activation lever and test tow the trailer, at less than 5 mph (8 kph). You should feel the trailer resisting being towed, but the wheels will not necessarily be locked. If the brakes do not function, do not tow the trailer until the brakes are repaired.

Reset the activation lever prior to towing.

⚠ WARNING

Connect the breakaway cable to the tow vehicle and NOT to the hitch, ball, or support. Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer. Have it serviced or repaired.

Note: Do not tow the trailer with the breakaway brake system ON because the brakes will overheat which can result in permanent brake failure.

3.4.8 Connect the Electrical Cables

Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors.

- Check all lights for proper operation:
  1. Clearance and Running Lights (Turn on tow vehicle headlights).
  2. Brake Lights (Step on tow vehicle brake pedal).
  3. Turn Signals (Operate tow vehicle directional signal lever).
  4. Backup Lights (Put tow vehicle gear shift into reverse).

⚠ WARNING

Before each tow, check that the taillights, brake lights and turn signals work.

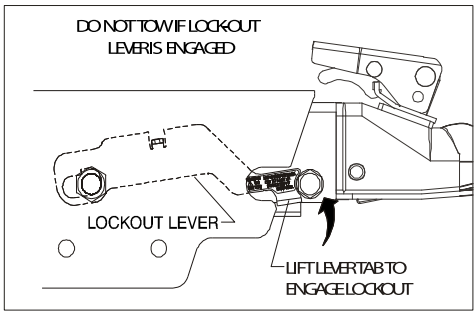
3.5 PARKING BRAKE ALARM (IF EQUIPPED)

The Parking Brake Alarm is intended to alert the tow vehicle operator if the parking brake is engaged prior to towing. When the trailer electrical harness is connected to the tow vehicle and the tow vehicle brake pedal is depressed, the alarm will emit a steady sound if trailer parking brake is engaged.

3.6 ENGAGING MANUAL LOCKOUT LEVER

The manual lockout lever is used to control the brake pressure being applied to the trailer when backing up. Having the actuator in the extended position will make it easier to engage the lockout lever.

To engage the lockout lever, move the lever back and upwards until the front of the lever nests into the round spacer as shown below. This will prohibit movement of the actuator when backing up. The lockout lever will move to the towing position when you drive forward again.



3.7 TRAILER MANEUVERING

The hazards and risks of injury are also much greater than when driving without a trailer. Driving a vehicle with a trailer in tow is different from driving without a trailer in tow. Acceleration, maneuverability and braking, are all lessened with a trailer in tow. Spend time adjusting to the different feel and maneuverability of the tow vehicle with a trailer.

3.8 TOWING GUIDELINES

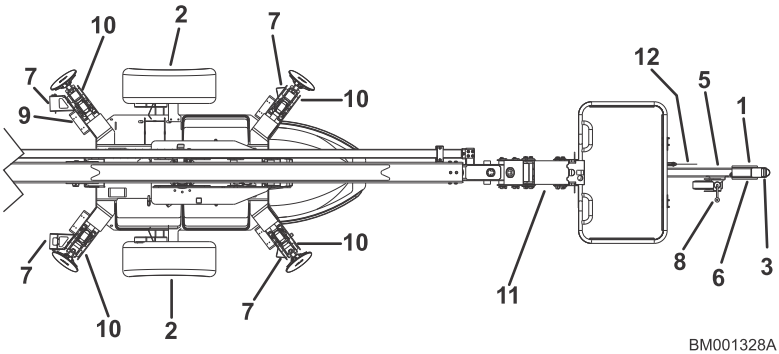
- Before towing, check coupling, safety chain, safety brake, tires, wheels and lights.
- Check the lug nuts or bolts for tightness.
- Check coupler tightness after towing 50 miles (80.5 km).
- Be aware of the width of the trailer. This is important when turning, passing, and pulling next to a curb.
- Be aware of the height of the trailer, especially when approaching roofed areas and around trees.
- Be sure your rear view mirrors are adjusted properly. Use your mirrors to verify that you have room to change lanes or pull into traffic.
- Use your turn signals well in advance.
- Increase speed slowly when starting the tow. Carefully watch the trailer and if you observe any trailer sway, stop and reposition the load.
- Allow plenty of stopping space for your trailer and tow vehicle.
- Do not drive so fast that the trailer begins to sway due to speed. Never drive faster than 65 mph (105 kph).
- Allow plenty of room for passing. Passing distance with a trailer is 4 times the passing distance without a trailer.
- Shift your automatic transmission into a lower gear for city driving.
- Use lower gears for climbing and descending grades.
- Do not ride the brakes while descending grades.
- Slow down for bumps in the road. Take your foot off the brake when crossing the bump.
- Do not apply the brakes to correct extreme trailer swaying. Continued pulling of the trailer, and even slight acceleration, will provide a stabilizing force.
- Make regular stops after every 50 miles (80.5 km) or about once each hour. Confirm that:

  1. The coupler is secure to the hitch and is locked.

2. Electrical connectors are connected.
3. There is appropriate slack in the safety chains.
4. There is appropriate slack in the breakaway switch cable.
5. The tires are not visibly low on pressure.

3.9 PRE-TOW INSPECTION

Prior to each tow, a Pre-Tow Inspection must be performed. Check each item as specified in the checklist below and as noted on the diagram.



BM001328A

⚠ WARNING

To avoid possible injury, be sure machine power is off. Do not tow machine until all malfunctions have been corrected.

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. Brakes - Reservoir level full. Proper operation and adjustment.
2. Wheel and Tires - Properly secured, no missing lug nuts, proper inflation. Refer to Tires & Wheels. Inspect wheels for damage and corrosion.
3. Trailer Coupler - Secured, locked, and in proper operating condition.
4. Tow Vehicle Coupler Ball (Not Shown) - Secured and in proper operating condition. Rock the hitch ball in all directions to make sure it is tight to the hitch, and visually check that the hitch ball nut is solid against the lock washer and hitch frame.
5. Safety Chains - Check that the chains are properly rigged to tow vehicle, not to detachable hitch components.
6. Emergency Breakaway Cables - Check that the cables are properly rigged to tow vehicle, not to detachable hitch components.

7. Lights and Signals - Check clearance lights, tail lights, stop lights, turn signals, and backup lights for proper operation. Replace or repair inoperative lights.
8. Tongue Jack - Retracted and stowed.
9. License Plate - Secured to mounting
10. Leveling Jacks - See inspection note.
11. Stow Latch - Properly secured.
12. Parking Brake - released.

NOTICE

Observe all local and national motor vehicle regulations pertaining to the operation of trailers.

SECTION 4
Machine Controls and Indicators

4.1 GENERAL

NOTICE

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

Note: On all battery powered machines:
If at any time during operation the machine is idle for a period exceeding 30 minutes, the emergency stop switch(es) must be recycled to start the machine again.

This section provides the necessary information needed to understand control functions.

4.2 CONTROLS AND INDICATORS

Note: The indicator panels use different shaped symbols to alert the operator to different types of operational situations that could arise. The meaning of those symbols are explained below.



Indicates a potentially hazardous situation, which if not corrected, could result in serious injury or death. This indicator will be red.

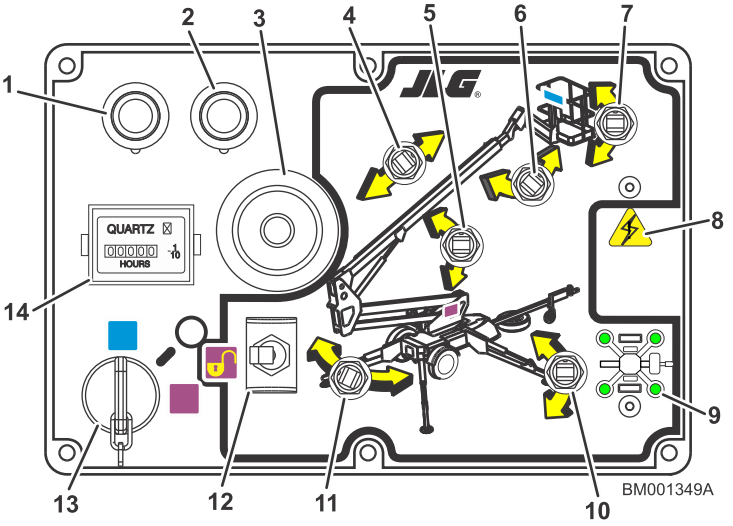


Indicates an abnormal operating condition, which if not corrected, may result in machine interruption or damage. This indicator will be yellow.



Indicates important information regarding the operating condition, i.e. procedures essential for safe operation. This indicator will be green with the exception of the capacity indicator which will be yellow.

4.3 GROUND CONTROL STATION



1. Engine Start (If Equipped)
2. Engine Choke (If Equipped)
3. Power/Emergency Stop
4. Main Boom Telescope
5. Main Boom Lift
6. Jib Lift
7. Platform Level
8. System Distress
9. Outrigger Indicator
10. Outrigger Control
11. Swing
12. Function Enable
13. Platform/Ground Select
14. Hourmeter

4.3.1 Ground Control Station Functions

⚠ WARNING

When operating the boom ensure there are no personnel around or under platform.

⚠ WARNING

To avoid serious injury, do not operate machine if any control levers or toggle switches controlling platform movement do not return to the off or neutral position when released.

Note: The Function Enable switch must be held down in order to operate Boom Telescope, Lift, Swing, Jib Lift, and Platform Level Override.



Note: When machine is shut down the Platform/ Ground Select switch and Emergency Stop must be positioned to Off.
To operate machine from the platform, the Platform/Ground Select switch must be turned to the blue square.
To operate the machine from the ground, the Platform/Ground Select switch must be turned to the purple square.



Engine Choke (If equipped)
When starting a cold engine, the choke switch must be pushed in (along with the engine start switch) until the engine starts.

Engine Start (If equipped)
To start the engine, the switch must be held up until the engine starts.

Function Enable
The switch must be held to the right to enable all boom controls.



Hourmeter
Registers the amount of time the machine has been in use. On electric machines, all functions when motion is commanded are recorded. On engine powered machines, by connecting into the oil pressure circuit of the engine, only engine hours are recorded. The hourmeter registers up to 9,999.9 hours and cannot be reset.



Jib Lift
Provides raising and lowering of the jib.

Main Boom Lift
Provides raising and lowering of the main boom.

Main Boom Telescope
Provides extension and retraction of the main boom.

Outrigger Control
Allows the operator to raise or lower the outriggers.

Outrigger Indicators
Each individual outrigger indicator will illuminate to show its respective outrigger is properly deployed.

Platform / Ground Select Switch
The three position, key operated switch supplies power to the platform controls when positioned to Platform. With the switch key turned to the Ground position only ground controls are operable.



Note: When the Platform/Ground Select Switch is in the center position, power is shut off to the controls at both operating stations. Remove the key to prevent the controls from being actuated.

Platform Leveling Override Switch
A three position switch allows the operator to adjust the automatic self leveling system. This switch is used to adjust platform level in situations such as ascending/descending a grade.

⚠ 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.

Power / Emergency Stop Switch
A two-position red mushroom shaped switch supplies power to Platform/Ground Select switch when pulled out (On position). When pushed in (Off position), power is shut off to the Platform/Ground Select switch.



Note: When Power/Emergency Stop switch is in the On position and engine is not running, an alarm will sound, indicating the ignition power is On.

NOTICE

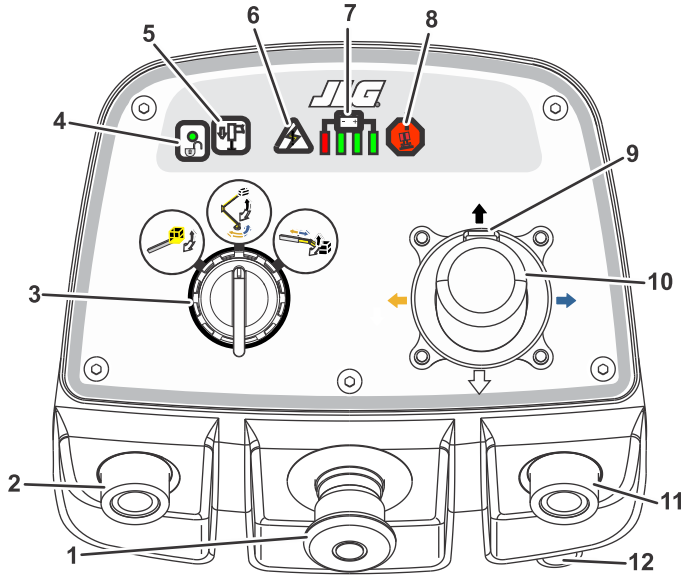
Always position emergency stop switch to the Off position (pushed in) when machine is not in use.

Swing
Provides 410° non-continuous turntable rotation.

System Distress
The light indicates that the JLG Control System has detected a malfunction and a Diagnostic Trouble Code has been set in the system memory. Refer to the Service Manual for instructions concerning the trouble codes and trouble code retrieval.
The malfunction indicator light will illuminate for 2-3 seconds when the key is positioned to the on position to act as a self test.



4.4 PLATFORM CONTROL STATION



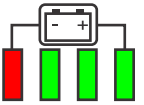
1. Power / Emergency Stop
2. Engine Choke (If Equipped)
3. Function Selector
4. Enable Indicator
5. Outrigger Set Indicator
6. System Distress Indicator
7. Battery Level Indicator
8. Tilt Alarm Warning Indicator
9. Function Enable
10. Function Controller
11. Engine Start (If Equipped)
12. USB Port

4.4.1 Platform Control Station Functions

⚠ WARNING

To avoid serious injury, do not operate machine if any control levers or toggle switches controlling platform movement do not return to the off or neutral position when released.

Battery Level Indicator (Electric Machines Only)
Indicates the charge level of the battery.



Enable Indicator
The enable indicator shows that the controls are enabled. If a function is not selected within seven seconds, or a seven second lapse between ending one function and beginning the next function occurs, the enable light will go out.



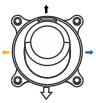
Engine Choke (If Equipped)
When starting a cold engine, the choke switch must be pushed in (along with the engine start switch) until the engine starts.



Engine Start (If Equipped)
To start the engine, the switch must be pushed in until the engine starts.



Function Controller
Controls boom functions (Platform Level, Lift, Swing, Jib Lift, Telescope, Outriggers, Drive, and Steer) depending upon the position of the Function Selector Switch.



Function Enable
To operate any function, the enable switch must be activated and the 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 enable light will go out and the enable switch must be released and depressed again to enable the controls.
Releasing the enable switch removes power from all controls.

Function Selector
Selects the function (Platform Level, Lift, Swing, Jib Lift, Telescope) that is controlled by the function controller.



Outrigger Set Indicator
Indicates the outriggers are properly set.



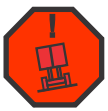
Power / Emergency Stop
A two-position red mushroom shaped switch supplies power to Platform Controls when pulled out (On position). The switch must be twisted clockwise to pull it out.
When pushed in (Off position), power is shut off to the platform controls. Within about 2 seconds of pulling the switch out, the machine will perform a diagnostic check of the various electrical circuits, and if everything is functioning correctly, the platform alarm will beep once. During this time the lights on the indicator panel will also blink once as a bulb check.



System Distress Indicator
The light indicates that the JLG Control System has detected a malfunction and a Diagnostic Trouble Code has been set in the system memory. Refer to the Service Manual for instructions concerning the trouble codes and trouble code retrieval.
The malfunction indicator light will illuminate for 2-3 seconds when the key is positioned to the on position to act as a self test.



Tilt Alarm Warning Indicator
Indicates that the chassis is out of level (2.0°). If the boom is out of the stowed position and the chassis is out of level, an audible alarm will sound.

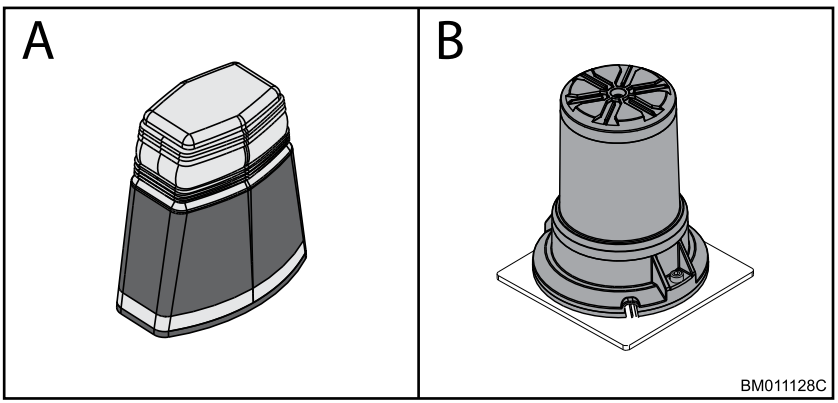


⚠ WARNING

If illuminated when boom is raised or extended, retract and lower to below horizontal. Then reposition machine so that it is level before extending boom or raising boom from the transport position.

USB Port
Provides a USB port in the platform.

4.5 BEACONS



A. LED Motion / Amber Beacon (CS550)

B. Beacon

Note: Image for reference only. Beacon design may vary based on beacon type, machine model and installation location.

4.5.1 ClearSky® LED Motion / Amber Beacon (CS550)

The ClearSky® CS550 is installed on ClearSky Smart Fleet™ equipped machines.

The CS550 can function as a machine beacon using multiple colors and flash patterns for communication and identification purposes. In addition to amber, colors include: red, blue, green, cyan, and white. The ClearSky Smart Fleet mobile app can command visual alerts or audible alarms to assist in machine identification.

The CS550 also functions as a visible connectivity point for ClearSky Smart Fleet. Refer to the ClearSky Smart Fleet section for more information.

4.5.2 Amber Beacon

This amber-colored beacon flashes in a consistent pattern to alert those nearby that the machine power is on. The device may also use different flash patterns to identify specific machine alerts.

4.6 FAULT CODES

A single-digit fault code blinks on the Platform and the Ground control station to signal the operator of a procedure fault.

Code	Message
0	Chassis Tilt Sensor Out Of Range Running At Creep - Material Hook Mode
1	Function Locked Out - Joystick Not Centered At Startup Function Locked Out - Trigger Permanently Closed Function Problem - Engine Choke Permanently Selected Function Problem - Engine Start Permanently Selected Function Problem - Jib Down Permanently Selected Function Problem - Jib Up Permanently Selected Function Problem - Level Down Permanently Selected Function Problem - Level Up Permanently Selected Function Problem - Lift Down Permanently Selected Function Problem - Lift Up Permanently Selected Function Problem - Outrigger Set Permanently Selected Function Problem - Outrigger Stow Permanently Selected Function Problem - Swing Left Permanently Selected Function Problem - Swing Right Permanently Selected Function Problem - Telescope In Permanently Selected Function Problem - Telescope Out Permanently Selected Joystick Moved But Trigger Switch Open Trigger Closed Too Long While In Neutral

Code	Message
2*	Drive & O/R Prevented - Operate From Platform Drive & O/R Prevented - Place Boom On Rest Drive & O/R Prevented - Set Hand Brake Drive Prevented - Lift Down Drive Prevented - Stow Outriggers Drive Prevented - Telescope In Lift Down Prevented - Tele In First Lift Up & Tele Out Prevented - Tilted & Above Elevation "Lift Up & Tele Out Prevented - Tilted, Unset,& Above Elevation " Lift Up & Tele Out Prevented - Unset & Above Elevation Lift Up Prevented - Check Outriggers Lift Up Prevented - Lift Down Then Set Outriggers Lift Up Prevented - Tilted Model Changed - Hydraulics Suspended - Cycle EMS Outrigger Stow Prevented - Tele In First Outriggers Prevented - Elevated Running At Creep - Tilted & Above Elevation Running At Creep - Unset & Above Elevation Tele Out Prevented - Set Outriggers Tele Out Prevented - Tilted
* A “2” user flash code indicates a problem with the machine set up, such as an outrigger not properly set. If this occurs while the boom is elevated, all functions will operate at a reduced speed. Immediately return the platform to the stowed position and reposition the machine or reset the outriggers, as required. If the problem still exists, troubleshoot with a JLG analyzer. A “2” user flash code and tilt alarm warning indicator activated at the same time indicates a potential tipping condition. If this occurs while boom is elevated, the lift up and telescope out functions will not operate. Telescope in, lift down and swing functions will operate at reduced speed. THE BOOM MUST BE FULLY RETRACTED BEFORE LOWERING. Immediately return the platform to the stowed position and reposition the machine or reset the outriggers, as required. If the problem still exists, troubleshoot with a JLG analyzer.	
3	Battery Voltage Too High - System Shutdown Battery Voltage Too Low - System Shutdown No Charge System Output
4	Functions At Cutback - Power Module Current Limit Power Module Too Hot - Please Wait
5	Battery Voltage Too High - System Shutdown Battery Voltage Too Low - System Shutdown Engine Not Running
9	Vehicle Requires Service

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SECTION 5
Machine Operation

5.1 GENERAL

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

The primary operator control station is in the platform. From this control station, the operator can raise or lower the main or tower boom or swing the boom to the left or right.

Standard boom swing is 410° non-continuous left and right of the stowed position. The machine has a Ground Control Station which will override the Platform Control Station. Ground Controls operate Boom Lift and Swing. 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.

5.2 OPERATING CHARACTERISTICS AND LIMITATIONS

5.2.1 Operating Conditions

The boom can be raised above horizontal with or without any load in platform, if:

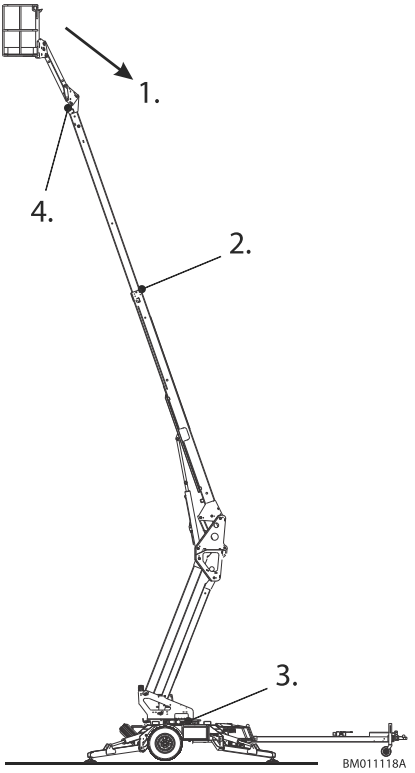
1. Machine is positioned on a smooth, firm surface within the limits of the maximum operating slope.
2. Machine outriggers are set properly.
3. Machine is not coupled to tow vehicle.
4. Load is within manufacturer's rated capacity.
5. All machine systems are functioning properly.
6. Machine is as originally equipped from JLG.

5.3 STABILITY

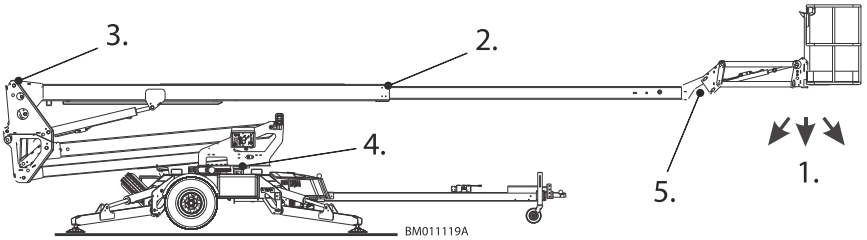
Machine stability is based on two positions which are called FORWARD and BACKWARD stability. The machines position of least FORWARD stability is shown in Figure — Position of Least Forward Stability, and its position of least BACKWARD stability is shown in Figure — Position of Least Backward Stability.

⚠ WARNING

To avoid forward or backward tipping, do not overload machine or operate the machine beyond the limit of the maximum operating slope.



1. Machine will tip over in this direction if overloaded
2. Main boom fully elevated
3. Turntable rotated 180° from stowed position
4. Jib fully elevated



1. Machine will tip over in this direction if overloaded
2. Main boom fully extended and horizontal
3. Tower raised enough for main boom to reach horizontal position
4. Turntable in stowed position
5. Jib horizontal

5.4 ENGINE OPERATION (IF EQUIPPED)

Note: When operating a machine at high altitudes, a decrease in machine performance may occur due to a decrease in air density.

Note: When operating a machine at high ambient temperatures, a decrease in machine performance and an increase in engine coolant temperature may occur.

Note: Avoid repeated, low intensity, or periodic machine operation and extended engine idle times in cold weather environments.

Note: Contact JLG Customer Service for operation under abnormal conditions.

5.4.1 Starting Procedure

Note: Initial starting should always be performed from the Ground Control station. Make sure to perform a ground control function check prior to platform operation.

⚠ CAUTION

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 engine maintenance manual.

1. Turn key of Platform/Ground Select switch to Ground.



2. Pull the Power/Emergency Stop switch to On.



3. Push the Engine Start switch until engine starts.
   When starting a cold engine, the Engine Choke switch must be pushed in (along with the Engine Start switch) until the engine starts.

⚠ CAUTION

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

4. After engine has had sufficient time to warm up, push in the Power/ Emergency Stop switch and shut engine off.



5. Turn Platform/Ground Select switch to Platform.



6. From Ground Control Station, pull Power/ Emergency Stop switch out.



7. From Platform, pull Power/Emergency Stop switch out.



8. Push the Engine Start switch until engine starts.

5.4.2 Shutdown Procedure

⚠ CAUTION

If an engine malfunction causes an unscheduled shutdown, determine the cause and correct it before restarting the engine.

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. Push Power/Emergency Stop switch in.



3. Turn Platform/Ground Select switch to Off.

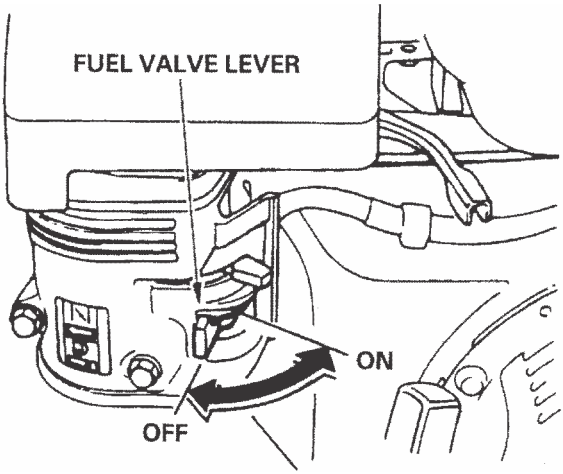


Note: Refer to Engine Manufacturer's manual for detailed information.

5.4.3 Fuel Valve Lever

Note: The fuel valve is turned off upon delivery and must be turned on prior to use. The fuel valve should be turned off when machine is not being used.

The fuel valve lever must be in the ON position for the engine to run. When the engine is not in use, leave the fuel valve lever in the OFF position to prevent carburetor flooding and to reduce the possibility of fuel leakage.



5.5 GRADE/SIDE SLOPE

Note: Refer to the Operating Specifications table for gradeability and side slope ratings.

All ratings for gradeability and side slope are based upon the machine's boom being in the stowed position, fully lowered, and retracted.

Traveling is limited by two factors:

1. Gradeability, which is the percent of grade of the incline the machine can climb.
2. Side slope, which is the angle of the slope the machine can be driven across.

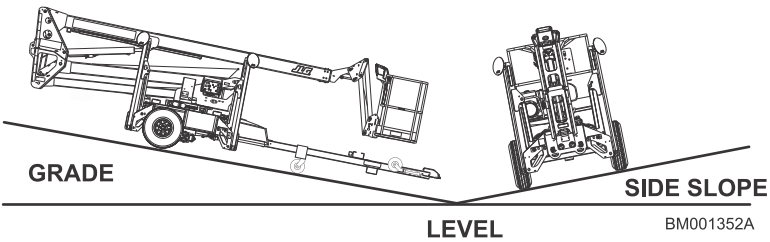


Figure 3. Grade and Side Slope

5.6 OUTRIGGERS

NOTICE

The outriggers must be set before lifting can begin.

⚠ CAUTION

Always unhitch from tow vehicle prior to operating outriggers.

5.6.1 From Ground Control Station

1. Position the Platform/Ground Select switch to ground control.
2. Engage and hold the function enable switch together with the outrigger control switch.
3. The lift is equipped with auto-level. When the lift reaches level an alarm will sound with three short beeps indicating that the lift is level. If the auto-level system does not operate properly, DO NOT operate the machine; have the system repaired by a qualified service technician.

5.7 PLATFORM

5.7.1 Platform Level Adjustment

⚠ 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.

Note: During normal operation of the machine, the platform will automatically maintain its position.

To manually level up:

1. Turn and hold select switch to platform level position.
2. Squeeze the enable switch.
3. Move controller forward until desired position is reached.

To manually level down:

1. Turn and hold select switch to platform level position.
2. Squeeze the enable switch.
3. Move controller backward until desired position is reached.

5.7.2 Platform Rotation (If Equipped)

To rotate the platform to the left or right, use the manually actuated platform rotator until desired position is reached.

5.8 BOOM AND JIB

⚠ WARNING

To avoid serious injury, do not operate machine if any control lever or toggle 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, use emergency stop switch to stop the machine.

5.8.1 Swinging the Boom

To swing boom, use Swing control to select Right or Left direction.

NOTICE

When swinging the boom make sure there is ample room for the boom and upright to clear surrounding walls, partitions and equipment.

5.8.2 Raising and Lowering the Boom

To raise the boom:

1. Select the Boom Control on the select switch.
2. Squeeze the enable switch.

3. Move the controller forward.

To lower the boom:

1. Select the Boom Control on the select switch.
2. Squeeze the enable switch.
3. Move the controller backward.

5.8.3 Telescoping the Boom

To extend the boom:

1. Select the Telescope Control on the select switch.
2. Squeeze the enable switch.
3. Move the controller backward.

To retract the boom:

1. Select the Telescope Control on the select switch.
2. Squeeze the enable switch.
3. Move the controller forward.

5.8.4 Raising and Lowering the Jib

To raise the jib:

1. Select the Jib Control on the select switch.
2. Squeeze the enable switch.
3. Move the controller to the right.

To lower the jib:

1. Select the Jib Control on the select switch.
2. Squeeze the enable switch.
3. Move the controller to the left.

5.9 BATTERY CHARGING

5.9.1 Operation

⚠ DANGER

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.

⚠ DANGER

Do not open or disassemble charger.

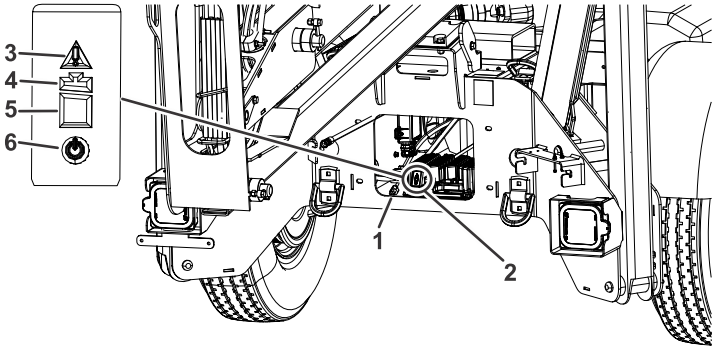
Do not operate charger if the AC supply cord is damaged or if the charger has been damaged in any way.

Note: Park the machine in a well-ventilated area before charging.

1. The battery charger AC input plug is located at the rear of the machine. Connect the charger AC input plug to a grounded outlet.
2. When powered up, the charger will go through a short self-test. The battery charger lights on the ground control station will flash in sequence for two seconds.
3. The batteries are fully charged when the green LEDs of the battery level indicator on the platform control station are illuminated. Additionally, the green LEDs on the battery charger status panel will illuminate at full charge.

Note: If the charger is left plugged in, the charger will automatically restart a complete charge cycle if the batteries voltage drops below a minimum voltage or 30 days has elapsed.

5.9.2 Charger Indicator LEDs



1. Charger Plug
2. Charge Indicator LED Panel
3. Fault Indicator LED (Red or Amber)
4. Battery Charging LED 1 (Green)
5. Battery Charging LED 2 (Green)
6. AC Power LED (Blue)

- **AC Power On:** blue LED (**6**) solid
- **Low State of Charge:** green LED 2 (**5**) flashing, green LED 1 (**4**) off
- **High State of Charge:** green LED 2 (**5**) solid, green LED 1 (**4**) flashing
- **Charge Complete:** green LED 2 (**5**) and green LED 1 (**4**) solid
- **Fault Indicator:** red LED (**3**) solid
- **External Error Condition Caution:** amber LED (**3**) flashing

5.10 CLEARSKY SMART FLEET™

ClearSky Smart Fleet™ integrates on-machine hardware with web-based software and a mobile app to provide fleet management data and analytics. Personnel with the appropriate permissions can access telematics and machine identification data using a dashboard visible in the ClearSky Smart Fleet web portal or the ClearSky Smart Fleet mobile app. (Navigation and visual configuration may vary between the web portal or mobile app.)

Features include machine monitoring such as fuel level and battery charge, remote analyzer tasks including diagnostic trouble codes or system alerts, and access control (if available) restrictions.

Refer to the Access Control and Beacons sections of this manual for more information. Visit the ClearSky section of the JLG website for more resources and information about accessing web portal or mobile app data.

5.11 ACCESS CONTROL - CLEARSKY SMART FLEET™ (IF EQUIPPED)

NOTICE

Operator access to the machine may be placed into a restricted state remotely.

If a modification to a restricted state is required, contact the ClearSky Smart Fleet™ account owner. Only authorized personnel can make changes from within the web portal or mobile app.

This machine may be equipped with ClearSky Smart Fleet Access Control. Using the ClearSky Smart Fleet mobile app or web portal (remotely or locally), the machine can be placed into restricted states that limit machine functionality for all operators.

By using this machine, the operator acknowledges Access Control functionality, including restricted states, and accounts for it in their safe use plan.

Restricted states may include:

1. Speed Restricted — Machine is in Creep mode. See Operation section for more information on machine mode.
2. Speed and Function Restricted — Machine is in Creep mode and boom movement is restricted to transport position. In this state, once the boom reaches the transport position, it is not permitted to leave that defined position.
3. Locked Out — Machine has been locked out and will not operate (including engine start and auxiliary power, if applicable).

⚠ CAUTION

The Locked Out state will override the machine capability to use auxiliary power.

Note: Restricted functionality may occur if the CS550 (ClearSky® LED Motion / Amber Beacon) is damaged or removed. A protective cage is available through JLG.

Machines equipped with ClearSky Smart Fleet Access Control are also equipped with the CS550. Refer to the ClearSky Smart Fleet and Beacons sections of this manual for more information.

5.12 SHUT DOWN AND PARK

⚠ WARNING

Before the machine is separated from the towing vehicle, proper steps must be taken to prevent the machine from moving.

Note: When parking battery powered units overnight, batteries should be charged properly to ensure readiness for following workday.

The preferred procedures to shut down and park the machine are as follows:

1. Transport the machine to a reasonably well-protected area.
2. Ensure boom is stowed with platform over hitch. Secure the boom with the transport latch.
3. Push in the Emergency Stop at Platform Controls.
4. Push in the Emergency Stop at Ground Controls. Position Platform/Ground Select switch to center OFF.
5. If necessary, cover Platform Controls to protect instruction placards, warning decals and operating controls from hostile environment.
6. Set parking brake and uncouple from towing vehicle.

5.13 LIFTING AND TIE DOWN

NOTICE

When transporting the machine, the boom must be fully lowered into the boom rest and transport latch secured.

5.13.1 Lifting

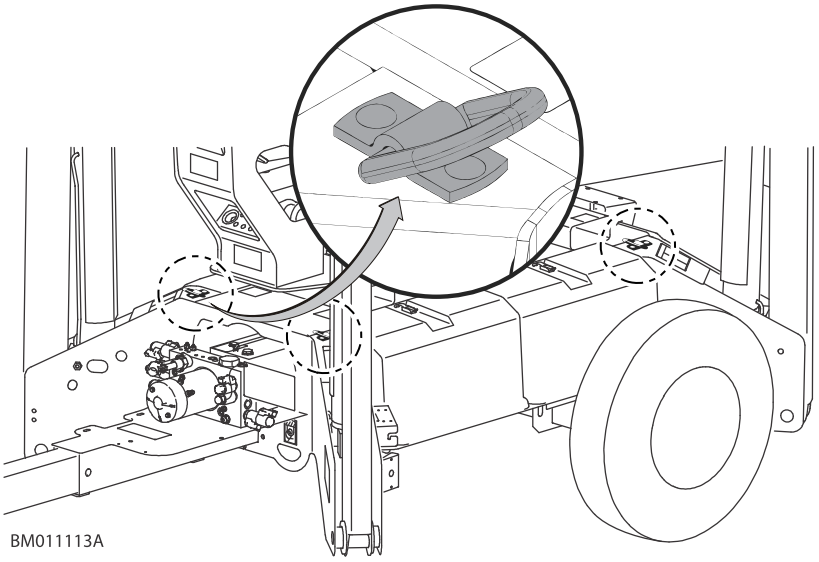
1. Refer to the Machine Serial Number Plate, call JLG Industries, or weigh the individual unit to find out the Gross Vehicle Weight.
2. Place the boom in the stowed position.
3. Remove all loose items from the machine.
4. Properly adjust the forks to use the provided channels and to prevent damage to the machine. (See *Figure — Lifting and Tie Down Chart, page 64*.)

5.13.2 Overhead Lifting

If equipped with the four optional lifting lugs, the machine can be lifted from overhead.

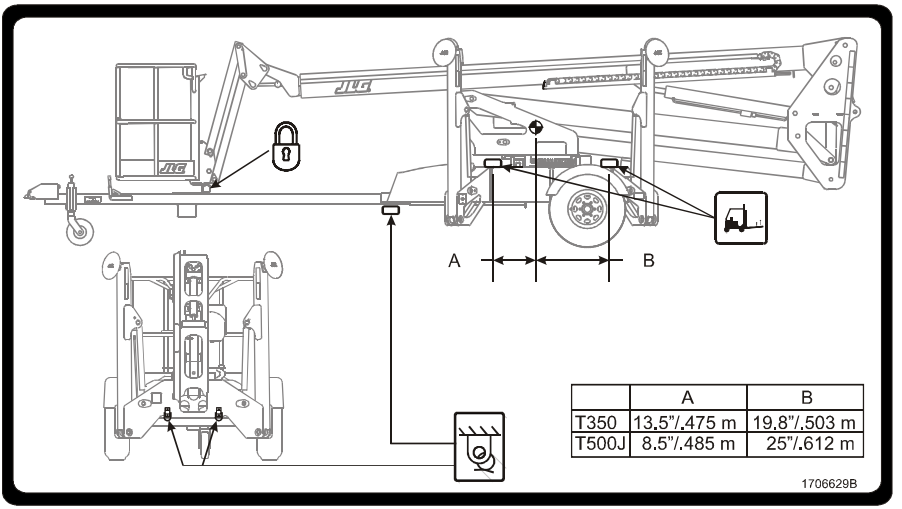
1. Refer to the Machine Serial Number Plate, call JLG Industries, or weigh the individual unit to find out the Gross Vehicle Weight.
2. Place the boom in the stowed position.
3. Remove all loose items from the machine.

4. Properly adjust the rigging to prevent damage to the machine and so the machine remains level.



5.13.3 Tie Down

1. Place the boom in the stowed position and secure with the transport latch. (See *Figure — Lifting and Tie Down Chart, page 64*.)
2. Remove all loose items from the machine.
3. Secure the chassis and the platform using straps or chains of adequate strength and attached to the designated tie down points. (See *Figure — Lifting and Tie Down Chart, page 64*.)

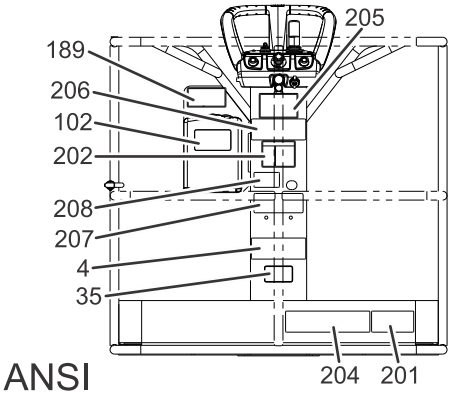


	A	B
T350	13.5"/.475 m	19.8"/.503 m
T500J	8.5"/.485 m	25"/.612 m

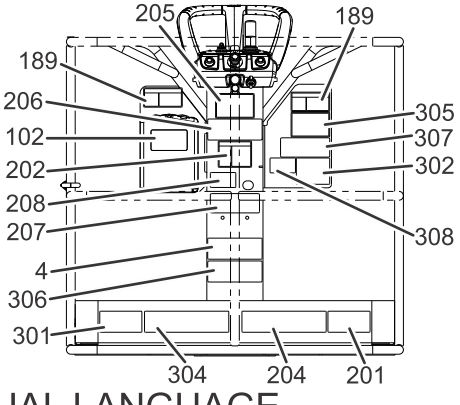
Figure 4. Lifting and Tie Down Chart

5.14 SAFETY DECALS

Note: Some components may be removed for illustrative clarity.



ANSI



DUAL LANGUAGE

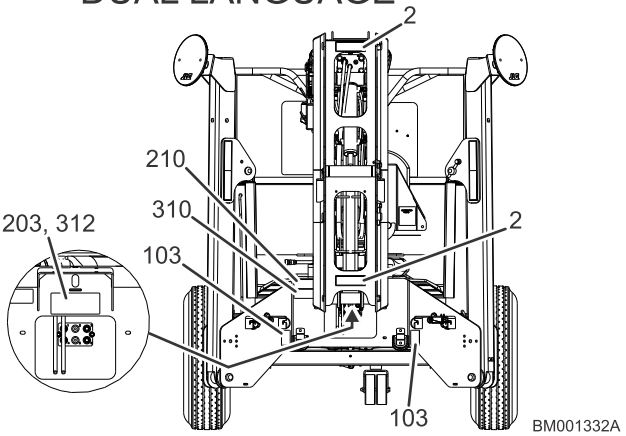


Figure 5. View 1

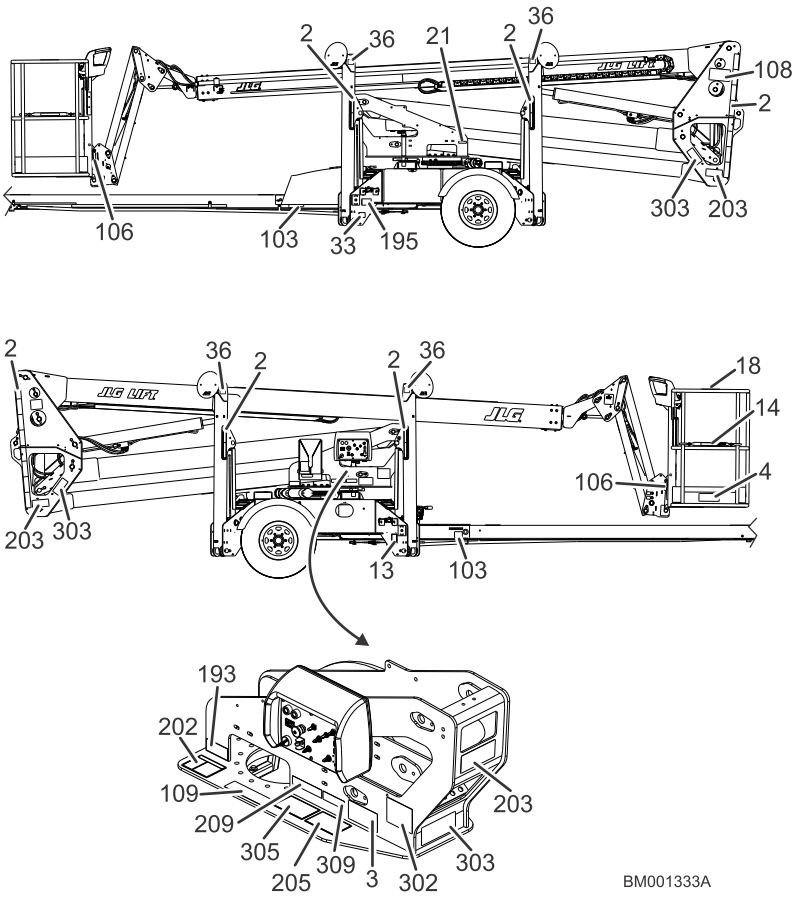


Figure 6. View 2

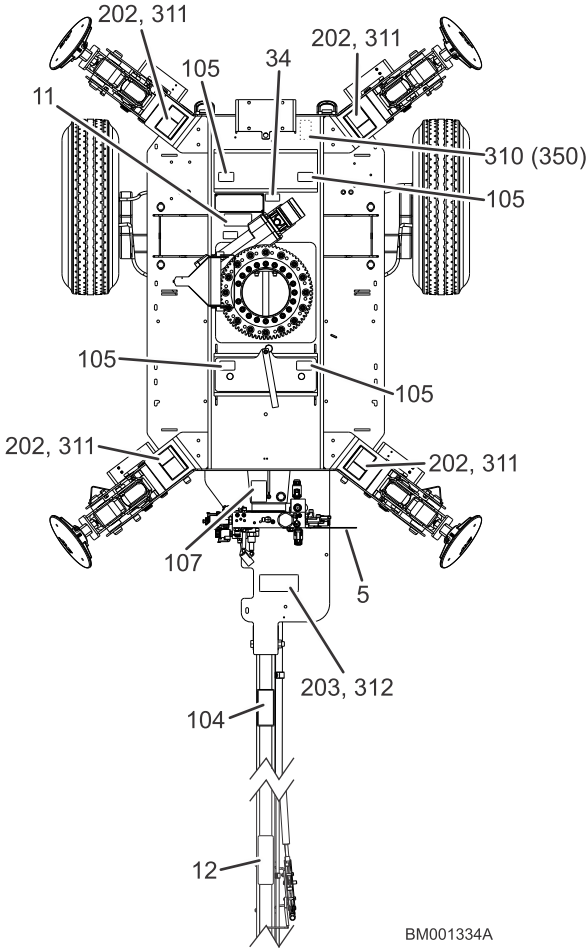


Figure 7. View 3

Table 4. Safety Decal Legend

Item #	English	French/English	Spanish/English	Portuguese/ English	Spanish
2	1705817	1705817	1705817	1705817	1705817
3	1706106	1706106	1706106	1706106	1706106
4	1706107	1706107	1706107	1706107	1706107
5	1706139	1706139	1706139	1706139	1706139
11	1001214673	1001214673	1001214673	1001214673	1001214673
12	1001260244	1001260244	1001260244	1001260244	1001260244
13	1001289470	1001290807	1001290664	1001290808	1001290664
14	1706385	1706385	1706385	1706385	1706385
18	—	1706495	1706494	1706496	1706494
21	3251243	3251243	3251243	3251243	3251243
33	1001112471	1001112471	1001112471	1001112471	1001112471
34	1001228370 — Battery-Powered 1001223453 — Engine-Powered	1001228370 — Battery-Powered 1001223453 — Engine-Powered	—	—	—
35	1001231801	—	—	—	—
36	1706264	1706264	1706264	1706264	1706264
102	1701640	1701640	1701640	1701640	1701640
103	1703814	1703814	1703814	1703814	1703814
104	1706384	1706384	1706384	1706384	1706384

Table 4. Safety Decal Legend (continued)

Item #	English	French/English	Spanish/English	Portuguese/ English	Spanish
105	1704016	1704016	1704016	1704016	1704016
106	1704277	1704277	1704277	1704277	1704277
107	1704412	1704412	1704412	1704412	1704412
108	1706629	1706629	1706629	1706629	1706629
109	1706372	1706372	1706372	1706372	1706372
189	1706127	0274819	0274832	0274830	1706428
193	1705304 — 8 hour 1706922 — 24 hour	1705304 — 8 hour 1706922 — 24 hour	—	—	—
195	1706318	1706318	1706318	1706318	1706318
201	1706112	1706112	1706112	1706112	—
202	1706128	1706128	1706128	1706128	—
203	1706099	1706099	1706099	1706099	—
204	1706111	1706111	1706111	1706111	—
205	1706135	1706135	1706135	1706135	—
206	1706386	1706386	1706386	1706386	—
207	1706387	1706387	1706387	1706387	—
208	1706108	1706108	1706108	1706108	—
209	1706109	1706109	1706109	1706109	—
210	1703813	1703813	1703813	1703813	—

Table 4. Safety Decal Legend (continued)

Item #	English	French/English	Spanish/English	Portuguese/ English	Spanish
301	—	1706513	1706427	1706524	1706427
302	—	1706516	1706430	1706527	1706430
303	—	1706517	1706431	1706528	1706431
304	—	1706518	1706432	1706529	1706432
305	—	1706519	1706433	1706530	1706433
306	—	1706520	1706434	1706531	1706434
307	—	1706521	1706435	1706532	1706435
308	—	1706522	1706436	1706533	1706436
309	—	1706523	1706437	1706534	1706437
310	—	1703864	1703840	1703832	1703840
311	—	1706565	1706664	1706657	—
312	—	1706569	1706665	1706658	—

SECTION 6
Emergency Procedures

6.1 GENERAL

This section explains the steps to be taken in case of an emergency situation during operation.

6.2 INCIDENT NOTIFICATION

JLG Industries, Inc. must be notified immediately of any incident involving a JLG product. Even if no injury or property damage is evident, the factory should be contacted by telephone and provided with all necessary details.

- USA: 877-JLG-SAFE (554-7233)
- EUROPE: (32) 0 89 84 82 20
- AUSTRALIA: (61) 2 65 811111
- E-mail: ProductSafety@JLG.com

Failure to notify the manufacturer of an incident involving a JLG Industries product within 48 hours of such an occurrence may void any warranty consideration on that particular machine.

NOTICE

Following any incident, thoroughly inspect the machine and test all functions first from the ground controls, then from the platform controls. Do not lift above 3 m (10 ft.) until you are sure that all damage has been repaired, if required, and that all controls are operating correctly.

6.3 EMERGENCY OPERATION

6.3.1 Operator Unable to Control Machine

If the platform operator is pinned, trapped or unable to operate or control machine, do the following:

1. Other personnel should operate the machine from ground controls only as required.

2. Other qualified personnel on the platform may use the platform controls.

⚠ WARNING

Do not continue operation if controls do not function properly.

3. Cranes, forklift trucks or other equipment can be used to remove platform occupants and stabilize motion of the machine.

6.3.2 Platform or Boom Caught Overhead

If the platform or boom becomes jammed or snagged in overhead structures or equipment, do the following:

1. Shut off the machine.
2. Rescue all people in the platform before freeing the machine. Personnel must be out of the platform before operating any controls on the machine.
3. Use cranes, forklifts, or other equipment to stabilize motion of the machine to prevent a tip over as required.
4. From the ground controls, use the Auxiliary Power System (if equipped) to carefully free the platform or boom from the object.
5. Once clear, restart the machine and return the platform to a safe position.
6. Inspect the machine for damage. If the machine is damaged or 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.

6.4 MANUAL DESCENT

The manual descent system is provided as an emergency means to lower personnel from the platform.

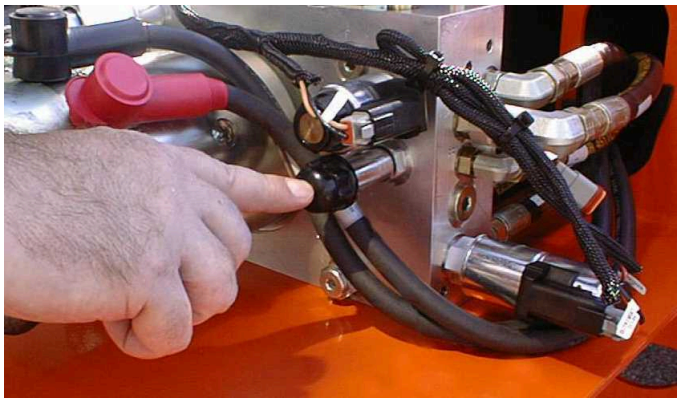
Note: The main valve cover must be removed to access Lift and Telescope manual controls.





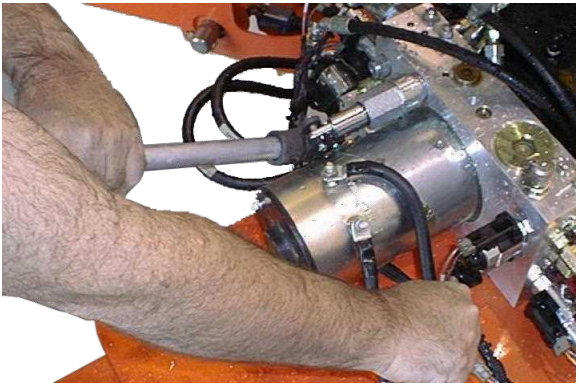
6.4.1 Lift Down

1. Locate the valve stem with the black rubber boot on the front face of the valve block. Pushing in on the boot activates the valve.



2. Locate the hand pump located on the front face of the valve block, the handle is loose mounted to the valve mounting plate.

3. To lift down; push in on the valve stem with the rubber boot and hold. At the same time, using the handle, work the hand pump until tight.



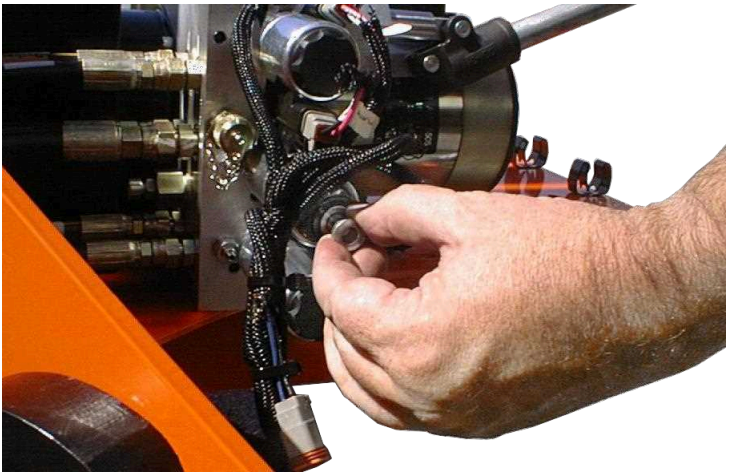
⚠ WARNING

Do not stand under the boom when using manual descent. The boom will lower rapidly.

4. The boom will descend by itself. To stop the boom from descending, release the button on the valve with the rubber boot.

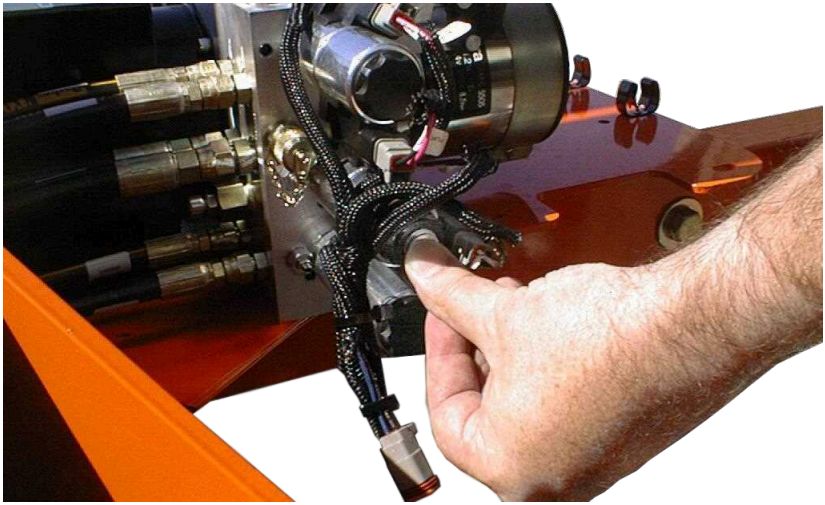
6.4.2 Telescope In

Pull out on the small button and hold. Using the handle, work the hand pump. The boom will retract with each stroke.



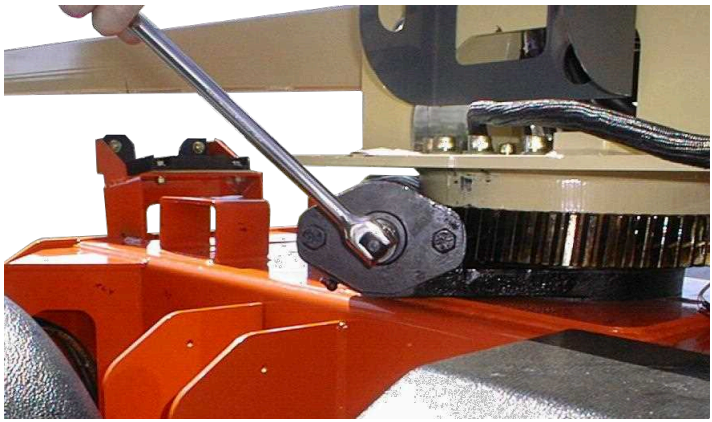
6.4.3 Telescope Out

Rotate the button clockwise, push in and hold. Using the handle, work the hand pump. The boom will extend with each stroke.



6.4.4 Swing

The manual swing override is used to manually swing the boom and turntable. Using a 7/8" socket and ratchet wrench, locate the nut on the swing worm gear. Install the wrench on the nut and ratchet in the desired direction.



6.4.5 Platform Jib

The main boom must be down to complete this operation. Locate a valve with a black knob on the Jib cylinder port block. Turn slowly counterclockwise to lower the Jib. After this operation has been completed, turn the knob clockwise until tight.



6.5 CLEARSKY SMART FLEET™ - LOCKED OUT STATE

The machine may be placed into a Locked Out state remotely through ClearSky Smart Fleet.

If the CS550 (ClearSky® LED Motion / Amber Beacon) is removed from a machine or disconnected from the control system through damage, the machine may also be placed into a Locked Out state.

NOTICE

Contact the ClearSky Smart Fleet™ account owner if the machine is in a Locked Out state.

SECTION 7
Accessories

7.1 ACCESSORY TRAY

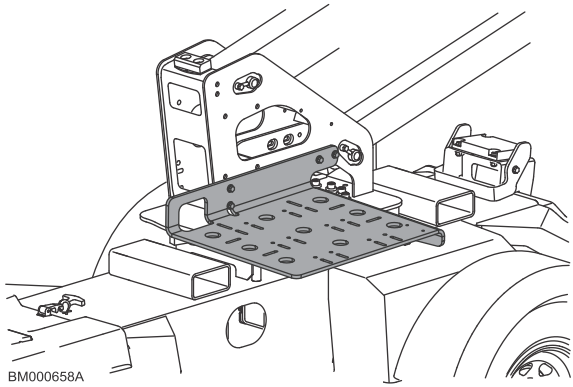


Figure 8. Accessory Tray

⚠ CAUTION

Any tool placed on the accessory tray must be properly secured and not loose.

The accessory tray is intended to hold tools such as a compressor, generator, or pressure washer. Capacity of the tray is 250 lbs. (114 kg) or a weight which does not exceed the axle rating or GVW rating, whichever is less.

7.2 MATERIAL HOOK

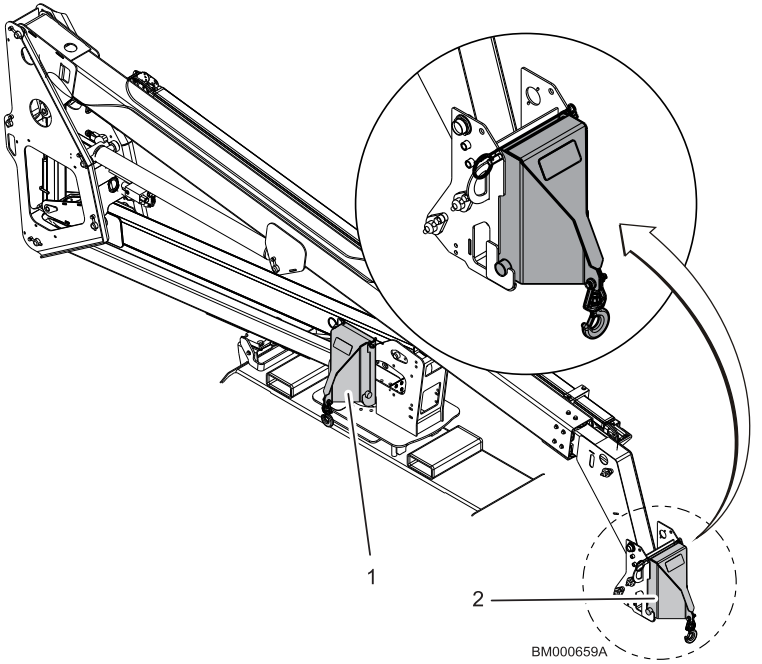


Figure 9. Material Hook

1. Storage Position
2. Installed Location

The Material Hook attachment allows lifting and placing items above ground level, and consists of a hook that attaches to the end of the boom in place of the platform.

7.2.1 Material Hook Operating Precautions

⚠ DANGER

The machine is not insulated and does not provide protection from contact with or proximity to electrical current. Maintain a safe distance and clearance from electrical lines, apparatus or any energized parts. Allow for machine movement and electrical line swaying.

⚠ WARNING

Do not operate the machine when wind conditions exceed 28 mph (12.5 m/s).

When operating a MEWP equipped with the Material Hook the following additional precautions must be observed.

- The combined weight of material and rigging equipment must not exceed the maximum load capacity of the Material Hook.
- Be aware of clearances above, below, and around the machine when handling material with the Material Hook.
- Attach a line to restrict movement of the load.
- Keep slings and chains as short as possible. Excessively long slings and chains allow the load the swing and could cause the machine to overturn.
- Never drag any part of the material on the ground or use the boom to pull sideways. The load must be freely suspended.
- Keep the Material Hook and tethered remote control cable stowed in the proper location when not in use.

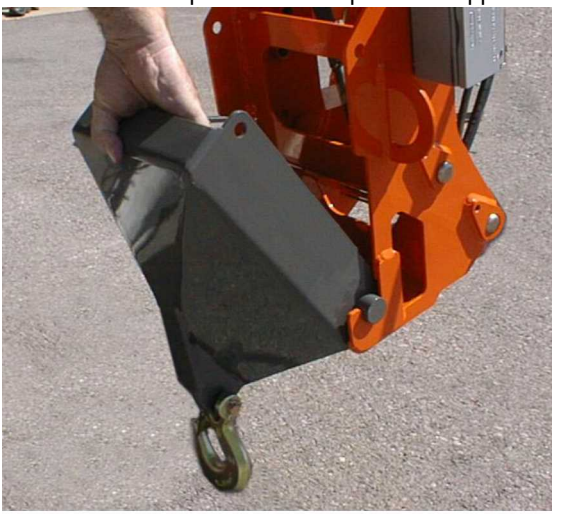
7.2.2 Material Hook Installation

NOTICE

Operate the Material Hook from the tethered remote platform control station only. Do not use the ground control station.

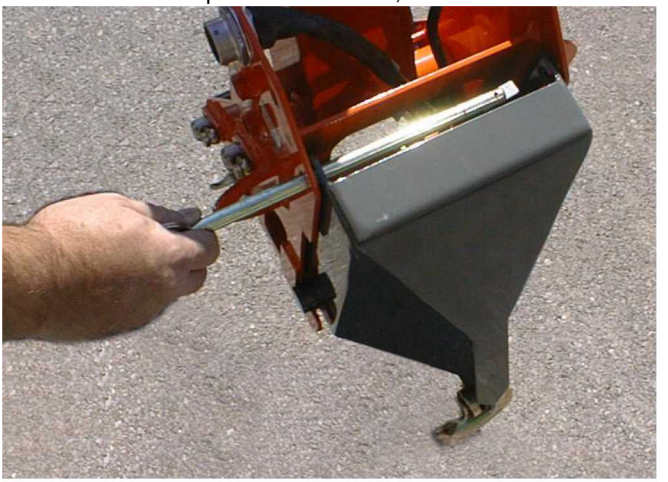
1. Remove the platform. See *Platform Removal and Installation* procedure.
2. Remove the Material Hook from the storage position on the turntable.

3. Place the hook in position on the platform support.



BM11105A

4. Secure the hook in place with the bolt, washer and nut.



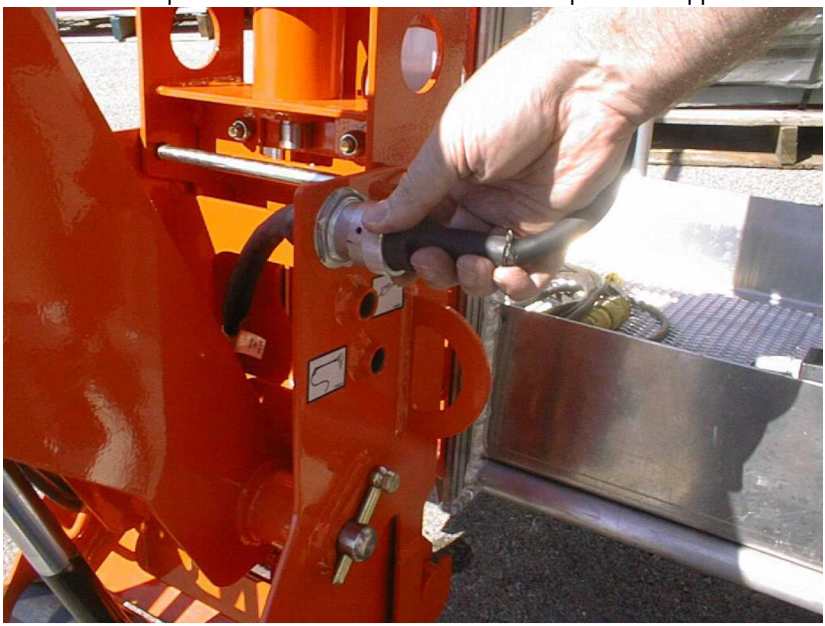
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5. Remove the platform control station from the platform.
   The platform control station must be used as a tethered remote to control the machine when using the Material Hook.

6. Connect the platform station harness to the receptacle at the hook storage area on the turntable.

7.2.3 Platform Removal and Installation

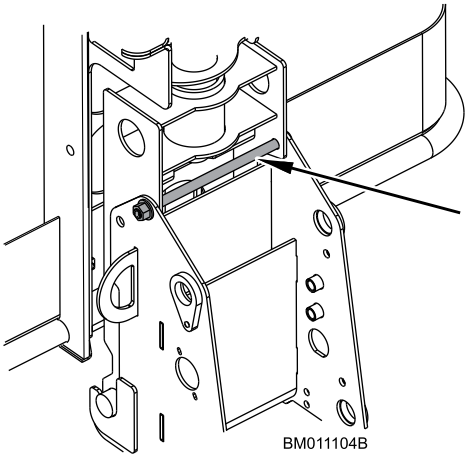
1. Disconnect the platform control station harness at the platform support.



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Note: The standard platform assembly weighs approximately 75 lbs. (34 kg). If equipped with the optional rotator, the platform assembly weighs approximately 150 lbs. (68 kg).

2. Remove the bolt, washer and nut securing the platform assembly to the platform support and remove the platform.



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3. To install the platform, repeat steps 1 and 2 in reverse order.

7.3 PANEL TRAY

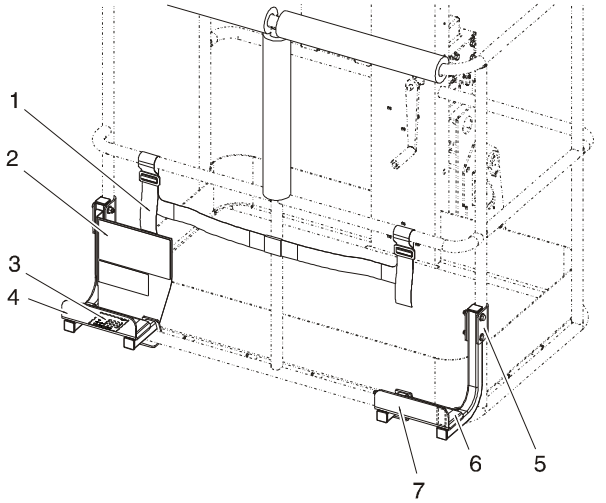


Figure 10. Panel Tray

1. Strap
2. Capacity Decal
3. Nameplate
4. Left Tray Bracket
5. Clamp
6. Pad
7. Right Tray Bracket

The Panel Tray can transport flat sheets or panels to an elevated site by positioning them in channel brackets on the outside of the platform. The accessory package consists of two tray brackets that attach to the bottom of the platform. The panel rests on the tray brackets and against the top-rail of the platform, which is padded to prevent damage. A strap mounted on the platform secures the panel to the platform rail.

7.3.1 Safety Precautions

⚠ WARNING

With the panel tray installed, the original platform capacity ratings are reduced as specified in the Operating Specifications table. Do not exceed the new platform capacity rating. Refer to the capacity decal located in the tray.

⚠ WARNING

An increase of the area exposed to the wind will decrease stability. Limit panel area to 32 sq. ft. (3 sq. m.)

⚠ WARNING

Do not overload tray or platform. Total machine capacity is reduced when tray is installed.

⚠ WARNING

Ensure panel is secured with strap.

7.3.2 Preparation and Inspection

- Check for cracked welds and damage to tray.
- Ensure tray is properly secured to platform.
- Ensure strap is not torn or frayed.
- Check for loose nuts and bolts.

Note: Replace torn or frayed straps, bent or crushed tray parts, missing or illegible decals.

7.3.3 Operation

NOTICE

When operating, make sure no personnel are beneath the platform.

Note: Remove the tray when not in use.

1. Load Panel Tray with panel.
2. Position panel to its desired location on the tray.
3. Route the adjustable strap around the panel and tighten until secure.

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SECTION 8
General Specifications and Operator Maintenance

8.1 GENERAL

This section of the manual provides additional necessary information to the operator for proper operation and maintenance of this machine.

The maintenance portion of this section is intended as information to assist the machine operator to perform daily maintenance tasks only and does not replace the more thorough Preventive Maintenance and Inspection Schedule included in the Service & Maintenance Manual.

8.2 OPERATING SPECIFICATIONS

8.2.1 Operating and Towing Specifications

	T500J/ET500J
Tongue Weight	350 lb (154 kg)
	NOTE: Tongue weight may increase with options.
Maximum Allowable Tow Speed (Do not exceed legal speed limit)	65 mph (105 kph)
Maximum Work Load (Capacity) — With Rotator — Without Rotator — With Rotator and Panel Tray — Without Rotator and with Panel Tray	 440 lb (200 kg) 500 lb (227 kg) 320 lb (145 kg) 350 lb (158 kg)
Material Hook Capacity (Optional)	500 lb (230 kg)
Accessory Tray Capacity	250 lb (114 kg)
	NOTE: Do not exceed axle rating or GVW rating.
Panel Tray Capacity — With Rotator — Without Rotator	 70 lb (32 kg) 100 lb (45 kg)
Swing	410° non-continuous
Maximum Vertical Platform Height (Unrestricted)	50 ft (15.2 m)
Vertical Reach (Unrestricted)	50 ft (15.2 m)

	T500J/ET500J
Horizontal Reach — From centerline of machine — From outrigger pad edge	 31 ft (9.45 m) 25 ft (7.62 m)
Up and Over Clearance	18 ft (5.49 m)
Maximum Outrigger Pad Load	2,740 lb (1243 kg)
Maximum Ground Bearing Pressure	30.7 psi (2.15 kg/cm^2)
Maximum Travel Gradeability (See Figure — Grade and Side Slope)	20%
Maximum Side Slope (See Figure — Grade and Side Slope)	11°
Maximum Hydraulic System Pressure	2,950 psi (203 Bar)
Maximum Operating Wind Speed	28 mph (12.5 m/s)
Maximum Horizontal Manual Force	90 lb. force (400 N)
Electrical System Voltage - Electric Machine	24 volts
Electrical System Voltage - Engine Machine	12 volts
Gross Machine Weight - Platform Empty	4,750 lb (2155 kg)
	NOTE: Machine weight may increase with options.

8.2.2 Dimensional Data

	T500J/ET500J
Overall Length Surge Brake, 2 in ball Surge Brake Combination, 2 in. ball	 26 ft 9.75 in (8.2 m) 26 ft 10.25 in (8.2 m)
Overall Height	6 ft 7.25 in (2 m)
Overall Width Outriggers up Outriggers down; pad centerline	 5 ft 8.25 in (1.8 m) 12 ft 7.75 in (3.9 m)

8.2.3 Fluid Capacities

Fuel Tank	1.6 gal (6.1 L)
Hydraulic Tank	

Filling Volume Usable Volume	4.4 gal (16.65 L) 4.0 gal (15.1 L)
Engine Crankcase	1.16 qt (1.1 L)

8.2.4 Engine

Table 5. Engine Specifications

Type	4-stroke, overhead valve, single cylinder
Displacement	23.74 in^3 (389 cm^3)
Bore x Stroke	3.46 x 2.52 in (88 x 64 mm)
Maximum Output	11.7 HP (8.7 kW) at 3,600 rpm
Maximum Torque	19.5 lb-ft (26.4 Nm) at 2,500 rpm
Fuel Consumption	0.9 gal/hr (3.5 L/hr) at 3,600 RPM
Fuel Type	Unleaded gasoline with a pump octane rating of 86 or higher
Spark Plug	NGK: BPR6ES DENSO: W20EPR-U
Spark Plug Gap	0.028 - 0.031 in. (0.70 - 0.80 mm)

Table 6. Battery Specifications (Engine Machines)

BCI Group Size	51R
Cranking Performance	550 amps @ 32°F (0°C) 450 amps @ 0°F (-18°C)
Reserve Capacity	80 minutes @ 32°F (0°C)

8.2.5 Electric Power Unit

		@ 740 PSI (51 Bar)	@1500 PSI (103 Bar)	@ 3000 PSI (207 Bar)
Motor	Power	3.0 kW		
	Voltage	24 VDC		
	Amperage	90	140	230
	Speed	4000 rpm	3600 rpm	2900 rpm
Pump	Flow Rate	3.0 gpm (11.3 lpm)	2.7 gpm (10.2 lpm)	2.2 gpm (8.3 lpm)
	Displacement	0.192 cu.in. (3.15 cc)		

8.2.6 Battery Specifications (Electric Machines Only)

Voltage	6-Volt
Amp Hour Rating	@ 20 hour rate - 220
Reserve Capacity @ 75 Amps	110 minutes
AT -40° F (-40° C) Open Circuit Voltage	Greater or equal to 6 Volts
Life Cycle Rating	600 Cycles
Internal Resistance	No more than 2.5 mOhms @ 70°F (21° C) / 4.0 mOhms @ 0°F (-18°C)
Battery Weight (Minimum allowable)	61 lb (27.7 kg)

8.2.7 Battery Charger Specifications (Electric Machines Only)

DESCRIPTION	ET500J
Electrical System Voltage (DC)	24V
Battery Charger	Delta-Q
Input	
AC Input Voltage	85 - 270 VAC
Nominal AC Input Voltage	100 - 240 VAC
Input Frequency	50 - 60 Hz
Max. AC Input Current	7.5 A
Ingress Protection	IP66
Operating Temperature	-40°F to 149°F (-40°C to +65°C)

DESCRIPTION	ET500J
Output	
Nominal DC Output Voltage	24 V
Max. DC Output Voltage	36 V
Max DC Output Current	27.1 A
Max. Interlock Current	1 A @ 24 V
Protection	
Output Reverse Polarity	Electronic Protection-Auto Reset
Output Short Circuit	Current Limited
AC Overload	Current Limited
DC Overload	Current Limited

8.2.8 Tires

	T500J/ET500J
Size	ST 225-75-R15
Load Rating	2,540 lb @ 60 psi (1152 kg @ 414 kPa)
Ply Rating/Load Range	6/D
Weight	46 lb (21 kg)
Speed Category	- -
Inflation Pressure	65 psi (448 kPa)
Wheel Nut Torque	90-120 ft. lbs. (122-164 Nm)

8.2.9 Component Weights

Component	T500J/ET500J
Frame (bare)	597 lb (271 kg)
Turntable (bare)	262 lb (119 kg)
Booms & Cylinders Assembly	1,891 lb (859 kg)
Main Boom	957 lb (435 kg)
Engine Assembly (Including Tray)	116 lb (53 kg)
Engine (bare)	57 lb (26 kg)

Component	T500J/ET500J
Axle	221 lb (100 kg)
Platform with Rotator	143 lb (65 kg)
Platform without Rotator	73 lb (33 kg)

8.2.10 Taillight and Marker Information

Bulb	JLG Part #
Stop/Turn/Taillight	1001289236
Side Marker/Reflector (2)	1001289237
Road Side Taillight	1001287897
Curb Side Taillight	1001287898

8.3 HYDRAULIC OIL SPECIFICATIONS

Table 7. Hydraulic Oil SAE Viscosity Grade Operating Temperature Ranges

Hydraulic System Operating Temperature Range	SAE Viscosity Grade
+0° to + 180° F (-18° to +83° C)	10W
+0° to + 210° F (-18° to + 99° C)	10W–20, 10W–30
+50° to + 210° F (+10° to + 99° C)	20W–20

Note: Hydraulic oils require anti-wear qualities at least to API Service Classification GL-3 and sufficient chemical stability for mobile hydraulic system service. JLG Industries recommends standard UTTO.

Note: Aside from JLG recommendations, it is not advisable to mix oils of different brands or types, as they may not contain the same required additives or be of comparable viscosities. If use of hydraulic oil other than standard UTTO is desired, contact JLG Industries for proper recommendations.

Note: Machine operation using non-JLG approved hydraulic fluids or operation outside of the temperature boundaries outlined in the hydraulic fluid operation charts may result in premature wear or damage to components of the hydraulic system.

Note: Machines may be equipped with standard UTTO biodegradable and non-toxic hydraulic oil. This is a fully synthetic hydraulic oil that possesses the same anti-wear and rust protection characteristics as mineral oils, but will not adversely affect the ground water or the environment when spilled or leaked in small amounts.

Note: When temperatures remain consistently below 20° F (-7° C), JLG Industries recommends the use of a premium “cold weather” hydraulic fluid (Viscosity Gr. 32).

Table 8. Hydraulic Oil Properties and Classifications

Fluid	Properties		Base				Classifications		
Description	Viscosity at 40° C *	Viscosity Index	Mineral Oils	Vegetable Oils	Synthetic	Synthetic Polyol Esters	Readily Biodegradable**	Virtually Non-toxic †	Fire Resistant ‡
Shell Spirax S4 TXM - Recommended	67	146	✓						
Mobilfluid 424 - Optional	60	134	✓						
Shell Tellus S2 VX32 - Recommended	32	142	✓						
Mobil DTE 10 Excel 32 - Optional	32	164	✓						
Shell Tellus S4 VX32 - Recommended	32	296	✓						
Univis HVI 26 - Optional	26	376	✓						
Shell Naturelle HF-E32	31	192		✓			✓	✓	
Shell Naturelle HF-E46	46	193			✓		✓	✓	
Quintolubric 888-46	48	190				✓	✓	✓	✓
Hydrolube HP-5046D	46	192				✓	✓	✓	✓

* cSt, Typical
** Readily biodegradeable classification indicates one of the following:

CO2 Conversion > 60% per EPA 560/6-82-003
CO2 Conversion > 80% per CEC-L-33-A-93

† Virtually Non-toxic classification indicates a LC50 > 5000 ppm per OECD 203
‡ Fire Resistant classification indicates Factory Mutual Research Corp. (FMRC) Approval

8.4 OPERATOR MAINTENANCE

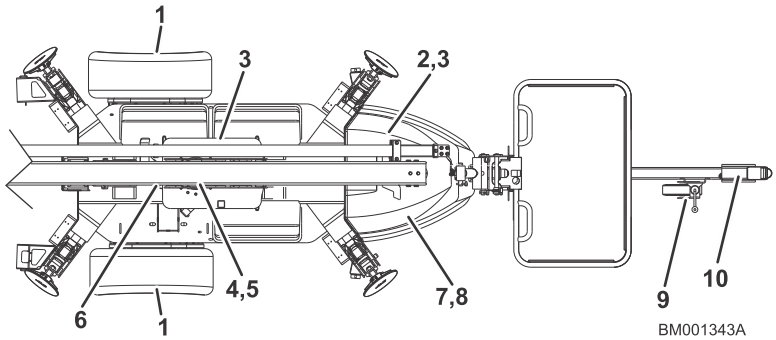


Figure 11. Operator Maintenance & Lubrication Diagram

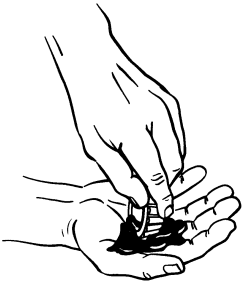
Table 9. Lubrication Specifications

KEY	SPECIFICATIONS
MPG	Multipurpose Grease having a minimum dripping point of 350° F (177° C). Excellent water resistance and adhesive qualities, and being of extreme pressure type. (Timken OK 40 pounds minimum.)
EPGL	Extreme Pressure Gear Lube (oil) meeting API service classification GL-5 or MIL-Spec MIL-L-2105
HO	Hydraulic Oil. API service classification GL-3, e.g. standard UTTO.
EO	Engine (crankcase) Oil. Gas - API SF/SG class, MIL-L-2104. Diesel - API CC/CD class, MIL-L-2104B/MIL-L-2104C.
OGL	Open Gear Lubricant - Mobiltac 375 or equivalent.

NOTICE

Lubrication intervals are based on machine operation under normal conditions. For machines used in multi-shift operations and/or exposed to hostile environments or conditions, lubrication frequencies must be increased accordingly.

1. Wheel Bearings
   Lube - MPG
   Interval - every 12 months or 12,000 miles
   Comments - Refer to the Service Manual for procedure



2. Hydraulic Oil
   Lube Point(s) - Fill Cap.
   Capacity - 4 gal. (15.1 L)
   Lube - HO .
   Interval - Check oil daily, change after every 1200 hours of operation.



3. Hydraulic Filter & Breather

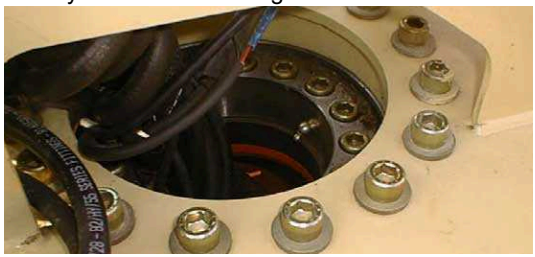


Note: The cap securing the filter must be torqued 154 to 170 ft. lbs. (209 to 230.5 Nm).

Interval - 100 hours
Comments - Change after the first 20 hours, then every 100 hours of operation.



4. Swing Bearing
Lube Point(s) - 1 Grease Fitting
Capacity - As Required
Lube - MPG
Interval - Every month or 50 hours
Comments - Rotate the bearing back and forth to ensure grease is distributed evenly the whole way around the bearing.



5. Swing Bearing Teeth
Lube Point(s) - Spray On
Capacity - As Required
Lube - OGL
Interval - Every month or 50 hours
Comments - More frequent lubrication intervals may be required.

6. Swing Drive

⚠ CAUTION

Do not overgrease bearings. Overgreasing bearings will result in blowing outer seals in housing.

Lube Point(s) - 2 Grease Fittings
Lube - MPG
Capacity - As Required
Interval - As Required



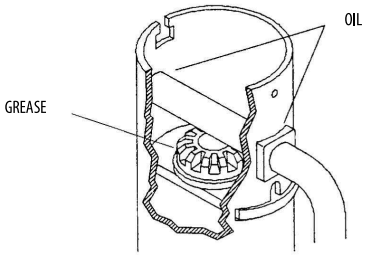
7. Engine
Capacity - See Engine Manual.
Lube - EO, 10W-30 API SJ
Interval - Check level daily; change per manufacturer's engine manual.
Comments - Adjust final oil level by mark on dipstick.



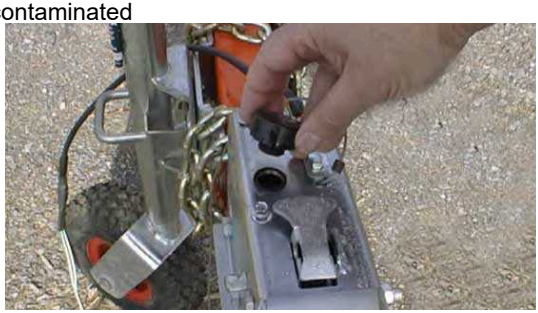
8. Fuel Tank
   Capacity - 1.6 Gal. (6.1 L)
   Fuel - Gasoline
   Interval - Check periodically during each shift.



9. Trailer Jack
   Capacity - As necessary
   Lube - MPG & EO
   Interval - As necessary



10. Surge Brake
    Lube Point(s) - Fill Cap
    Capacity - No more than 1/2" (13 mm) from top of reservoir
    Lube - DOT 3 or 4 Brake Fluid
    Interval - Check before each tow. Flush the system yearly or when system is known to be contaminated



8.5 BATTERY MAINTENANCE AND CHARGING (LEAD ACID/AGM)

⚠ WARNING

To avoid injury from an explosion, do not smoke or allow sparks or a flame near battery during servicing. Always wear eye and hand protection when servicing batteries.

8.5.1 Battery Charging (Daily)

⚠ WARNING

When battery charger is to be used, charging harness must be plugged into a grounded receptacle. If receptacle is not grounded and a malfunction should occur, the machine could cause serious electrical shock.

For increased battery life:

- Batteries should be kept at highest state of charge permitted by availability at job site and machine use. Charge batteries before they reach 20% state of charge. Avoid completely discharging the batteries.
- Fully charge the batteries each day the machine is used.
- Charge the batteries at available times between use. Flooded lead acid/AGM batteries do not develop a charging memory.
- If applicable, be sure the battery fluid covers the battery plates before charging. To avoid overflow, do not top off the fluid level until after charging.

⚠ CAUTION

When adding distilled water to the batteries, non-metallic containers and/or funnels must be used. Add water until electrolyte covers plates. Do not charge batteries unless electrolyte covers the plates.

Note: To avoid electrolyte overflow, add distilled water to batteries after charging. When adding water to the battery, fill only to level indicated or 3/8" above separators.

8.5.2 Battery Maintenance (Quarterly)

⚠ CAUTION

When adding distilled water to the batteries, non-metallic containers and/or funnels must be used. Add water until electrolyte covers plates. Do not charge batteries unless electrolyte covers the plates.

Note: To avoid electrolyte overflow, add distilled water to batteries after charging. When adding water to the battery, fill only to level indicated or 3/8" above separators.

1. Open battery compartment cover to allow access to battery terminals and vent caps.
2. Remove all vent caps and inspect electrolyte level of each cell. Electrolyte level should be to the ring approximately one inch from top of battery. Fill batteries with distilled water only. Replace and secure all vent caps.
3. Remove battery cables from each battery post one at a time, negative first. Clean cables with acid neutralizing solution (e. g., baking soda and water or ammonia) and wire brush. Replace cables and/or cable clamp bolts as required.
4. Clean battery post with wire brush then reconnect cable to post. Coat non-contact surfaces with mineral grease or petroleum jelly.
5. When all cables and terminal posts have been cleaned, ensure all cables are properly positioned and do not get pinched. Close battery compartment cover.
6. Power up machine and verify it functions properly.

8.6 TIRES AND WHEELS

8.6.1 Glossary of Tire and Loading Terminology

1. **Cold Inflation Pressure** - The pressure in the tire before you drive.The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours.
2. **Gross Axle Weight Rating/Maximum Axle Road Mass** - The maximum weight that any axle can support, as published on the VIN label on the front left side of the trailer. Actual weight determined by weighing each axle on a public scale, with the trailer attached to the towing vehicle.
3. **Gross Vehicle Weight Rating/Maximum Laden Mass/Aggregate Trailer Mass** - The maximum weight of the fully loaded trailer, as published on the VIN label. Actual weight determined by weighing trailer on a scale, without being attached to the towing vehicle.
4. **Maximum Permissible Inflation Pressure** - The maximum cold inflation pressure to which a tire may be inflated.

5. **Production Options or Accessory Weight** - Weight of options or accessories not included in the base weight of the trailer. Reference section 2.

6. **Recommended Inflation Pressure** - This is the inflation pressure provided by the vehicle manufacturer on the VIN Label.

7. **Vehicle Capacity Weight** - The maximum cargo weight the trailer is designed to carry.

8.6.2 Basic Tire Maintenance

Properly maintained tires improve the stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded vehicles are a major cause of tire failure. Therefore, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

8.6.3 Tire Inflation

Check inflation pressure weekly during use to insure the maximum tire life and tread wear. It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine under inflation by visual inspection.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

8.6.4 Tire Wear

Inspect tires periodically for wear or damage. Tires with less than 1/16" (2 mm) tread depth or visible wear bands require replacement.

A bubble, cut or bulge in a sidewall can result in a tire blowout. Inspect both sidewalls of each tire for any bubble, cut or bulge; and replace a damaged tire before towing the trailer.

⚠ WARNING

Worn, damaged or under-inflated tires can cause loss of control, resulting in damage, serious injury OR death. Inspect tires before each tow.

The following tire wear diagnostic chart will help you pinpoint the causes and solution of tire wear problems.

Table 10. Tire Wear

Wear Pattern		Cause	Action
	Center Wear	Over Inflation	Adjust Pressure to value specified in Operating Specification.
	Edge Wear	Under Inflation	Adjust Pressure to value specified in Operating Specifications.
	Cupping	Out of balance	Check bearing adjustment and balance tires.
	Flat Spots	Wheel lockup and tire skidding	Avoid sudden stops when possible and adjust brakes.

8.6.5 Tire Repair

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but tires with punctures to the sidewall must be replaced. Tires must be removed from the rim to be properly inspected before being plugged and patched.

8.6.6 Tire Replacement

A replacement tire must be the same size, ply rating and load range as originally installed on the trailer.

Please refer to the JLG Parts Manual for the part number of the approved tires for a particular machine model.

Due to size variations between tire brands, both tires on the same axle should be the same.

8.6.7 Tire Fundamentals

Tire manufacturers are required to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

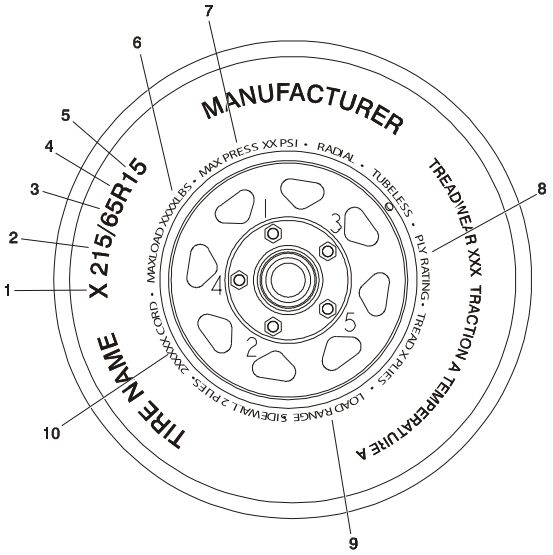


Figure 12. Information on Tires

1. **Tire Application** - This letter identifies the tire by application.
   LT = Light Trucks or Trailers
   ST = Trailer use only

2. **Tire Width** - This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

3. **Aspect Ratio** - This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

4. **Radial** - The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

5. **Wheel Diameter** - This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

6. **Maximum Load Rating** - This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

7. **Maximum Permissible Inflation Pressure** - This number is the greatest amount of air pressure that shall ever be put in the tire under normal driving conditions.

8. **Ply Rating** - The term "Ply Rating" is used to identify a given tire with its maximum load when used in a specific type of service. It is an index of tire strength and does not necessarily represent the number of cord plies in the tire.

9. **Load Range** - A letter (A,B,C etc.) used to identify a given size tire with its load and inflation limits when used in a specific type of service.

10. **Tire Ply Composition and Materials Used** - The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

8.6.8 Wheel Replacement

If the trailer has been struck, or impacted, on or near the wheels, or if the trailer has struck a curb, inspect for damage (i.e. being out of round); and replace any damaged wheel. Inspect the wheels for damage every year, even if no obvious impact has occurred.

Replacement wheels must have the same diameter, width, and profile as the original. Replacement tires must be the same size, ply rating, and load range as the tire being replaced. Refer to the Vehicle Identification plate on the chassis for wheel and tire specifications.

8.6.9 Wheel Installation

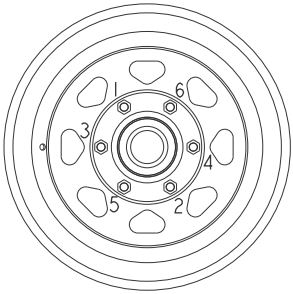
It is extremely important to apply and maintain proper wheel mounting torque.

⚠ WARNING

Wheel nuts must be installed and maintained at the proper torque to prevent loose wheels, broken studs, and possible dangerous separation of wheel from the axle. Be sure to use only the nuts matched to the cone angle of the wheel.

Tighten the lug nuts to the proper torque for the axle size on your trailer, to prevent wheels from coming loose. Use a torque wrench to tighten the fasteners. If you do not have a torque wrench, tighten the fasteners with a lug wrench, then immediately have a service garage or dealer tighten the lug nuts to the proper torque. Over-tightening will result in breaking the studs or permanently deforming the mounting stud holes in the wheels. The proper procedure for attaching wheels is as follows:

1. Start all nuts by hand to prevent cross threading. DO NOT use a lubricant on threads or nuts.
2. Tighten nuts in the following sequence:



3. The tightening of the nuts should be done in stages. Following the recommended sequence, tighten nuts per wheel torque chart.

Table 11. Wheel Torque Chart

TORQUE SEQUENCE		
1st Stage	2nd Stage	3rd Stage
20–25 ft. lbs. (25–35 Nm)	50–60 ft. lbs. (70–80 Nm)	90–120 ft. lbs. (120–163 Nm)

4. Wheel nuts should be torqued before first road use and after each wheel removal. Check and torque after the first 10 miles, 25 miles, and again at 50 miles. Check periodically thereafter.

8.6.10 Lug Nuts (Bolts)

Lug nuts are prone to loosen right after a wheel is mounted to a hub. When driving on a remounted wheel, check to see if the lug nuts are tight after the first 10, 25 and 50 miles of driving and before each tow thereafter.

⚠ WARNING

Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving.

Metal creep between the wheel rim and lug nuts will result in a wheel coming off, leading to death or serious injury. Tighten lug nuts before each tow.

8.6.11 Unsealed Wheel Bearings (Hubs)

If your trailer has unsealed axle bearings, they must be inspected and lubricated once a year or 12,000 miles to insure safe operation of your trailer. If a trailer wheel bearing is immersed in water, it must be replaced.

If your trailer has not been used for an extended amount of time, have the bearings inspected and packed more frequently, at least every six months and prior to use.

8.7 RADIO FREQUENCY (RF) INFORMATION

Note: The ClearSky Smart Fleet™ CS550 connectivity module antenna is internal to the assembly. The CS550 connectivity module complies with the wireless certification regulations in the regions of sale. Machines equipped with Clear-Sky Smart Fleet telematics must be received by countries that are certified to have ClearSky Smart Fleet. For a full listing of ClearSky Smart Fleet certified countries, please refer to the ClearSky webpage on the JLG website.

8.7.1 Federal Communications Commission (FCC)

FCC Interference Statement

ClearSky CS550 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice Regarding Radio Frequency Radiation Exposure

ClearSky CS550 complies with the FCC radio frequency exposure limits prescribed for mobile use (i.e,. antennas are greater than 20 cm from a person's body) in an uncontrolled environment. Consequently, a person within 20 cm (8 in) of a CS550 that is connected to machine battery power could expose that person to RF energy in excess of what has been established by the FCC RF exposure guidelines.

8.7.2 Innovation, Science and Economic Development (ISED)

Radio Frequency Interference Requirements

The ClearSky CS550 Class B digital apparatus complies with Canadian ICES-003. [Canada Compliance Label: CAN ICES-3 (B)/NMB-3(B)]

This device complies with Industry Canada license-exempt RSS standard (s). Operation is subject to the following two conditions:

> (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Notice Regarding Radio Frequency Radiation Exposure

ClearSky CS550 complies with the ISED radio frequency exposure limits prescribed for mobile use (i.e,. antennas are greater than 20 cm from a person's body) in an uncontrolled environment. Consequently, a person within 20 cm (8 inches) of a CS550 that is connected to machine battery power could expose that person to RF energy in excess of what has been established by the ISED RF exposure guidelines.

8.7.3 European Union Conformity (CE)

CE Interference Statement

JLG Industries, Inc. declares that the radio equipment ClearSky Smart Fleet CS550 Connectivity Module complies with Directive 2014/53/EU. Full details can be found on the declaration of conformity. The CS550 is intended to be mounted on JLG machines and has integrated beacon functionality. Additionally, it provides telematics data via WiFi or Cell, and provides local diagnostic data exchange with a mobile device connected via WiFi and BLE. Mobile device software is obtained through Google Play Store or Apple App Store.

Frequencies of Operation [and maximum power output]:

- LTE Cat M1: 700/750/800/850/900/1700/1800/1900/2100 MHz [23 dBm±2 dB]
- 2G GPRS: 900MHz [Class 4, 33 dBm ±3 dB], 1800MHz [Class 1, 30 dBm ±3 dB]
- 2G EGPRS: 900MHz [Class E2, 27 dBm ±3 dB], 1800MHz [Class E2, 26 dBm ±3 dB]
- WiFi (IEEE 802.11b/g/n): 2400-2483.5 MHz [18 dBm e.i.r.p]
- Bluetooth (BLE, Mesh 1.0 and proprietary GATT): 2400-2483.5 MHz [12.1 dBm e.i.r.p]
- GNSS (receive only: GPS, GLONASS, BeiDou, Galileo): 1575.42MHz, 1561.098MHz, 1602MHz

Ensure at least 20 cm separation distance is maintained between user's body and CS550 module to meet Maximum Permissible Exposure (MPE) restrictions for RF exposure.

Contact: JLG EMEA B.V., Polaris Avenue 63, 2132 JH Hoofddorp, Netherlands

Serial Number _____

Any additional required certificates can be attached to the rear cover of this manual or stored in the manual box.

Date	Comments

Inspection, Maintenance and Repair Log



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