JLG®

An Oshkosh Corporation Company

Operation and Safety Manual

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

TOUCAN 12E
TOUCAN 12E Plus
TOUCAN 32E

PVC 2507

ANSI CE UKCA

31210535

June 18th , 2026 - Rev B

English - Operation & Safety

⚠ WARNING

Operating, servicing and maintain ing 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

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.

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 OF PERSONNEL 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:

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SECTION 1. SAFETY PRECAUTIONS

1.1 GENERAL

This section outlines the necessary precautions for proper and safe machine operation and maintenance. In order to promote proper machine usage, 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 must be followed to ensure that the machine is safe to operate. The owner/user/operator/lessor/lessee of the machine must not accept operating responsibility until this manual has been read, training is accomplished, and operation of the machine has been completed under the supervision of an experienced and qualified operator.

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

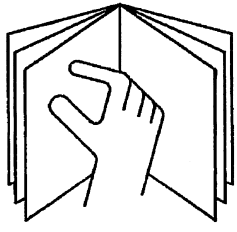
⚠ WARNING

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

1.2 PRE-OPERATION

Operator Training and Knowledge

- The Operation and Safety Manual must be read and understood in its entirety before operating the machine. For clarification, questions, or additional information regarding any portions of this manual, contact JLG Industries, Inc.



- An operator must not accept operating responsibilities until adequate training has been given by competent and authorized persons.
- Allow only those authorized and qualified personnel to operate the machine who have demonstrated that they understand the safe and proper operation and maintenance of the unit.

- 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 be familiar with the emergency controls and emergency operation of the machine as specified in this manual.
- Read, understand, and obey all applicable employer, local, and governmental regulations as they pertain to your utilization and application of the machine.
- Check and obey all federal, state, and/or local regulations regarding waste storage, disposal, and recycling of components such as batteries, electronic components, fluids, tires, and hoses.

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 floor 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.
- Be sure that the ground conditions are able to support the maximum load shown on the decals located on the machine.
- This machine can be operated in nominal ambient temperatures of -20° C to 40° C (0° F to 104° F). Consult JLG to optimize operation outside of this temperature range.
- This machine has a maximum operating altitude of 3000m (9840 ft). Consult JLG for operation outside this range.
- This machine must be used in a sufficient ambient light.

Machine Inspection

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

⚠ WARNING

MODIFICATION OR 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.

- 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 deck. Keep mud, oil, grease, and other slippery substances from footwear and platform deck.

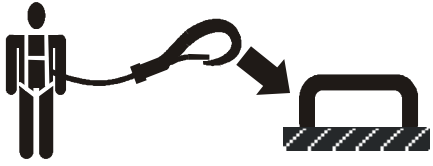
1.3 OPERATION

General

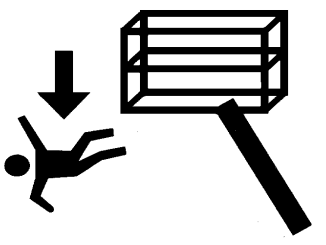
- Machine operation requires your full attention. Bring the machine to a full stop before using any device, i.e. cell phones, two-way radios, etc. that will distract your attention from safely operating the machine.
- Do not use the machine for any purpose other than positioning personnel, their tools, and equipment.
- Before operation, the user must be familiar with the machine capabilities and operating characteristics of all functions.
- Never operate a malfunctioning machine. If a malfunction occurs, shut down the machine. Remove the unit from service and notify the proper authorities.
- Do not remove, modify, or disable any safety devices.
- Never slam a control switch or lever through neutral to an opposite direction. Always return switch to neutral and stop before moving the switch to the next function. Operate controls with slow and even pressure.
- 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.
- Do not assist a stuck or disabled machine by pushing or pulling except by pulling at the chassis tie-down lugs.
- Fully lower platform and shut off all power before leaving machine.
- Remove all rings, watches, and jewelry when operating machine. Do not wear loose fitting clothing or long hair unrestrained which may become caught or entangled in equipment.
- Persons under the influence of drugs or alcohol or who are subject to seizures, dizziness or loss of physical control must not operate this machine.

Trip and Fall Hazards

- Prior to operation, ensure all gates are fastened and secured in their proper position.

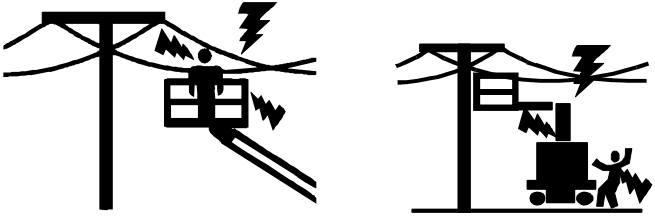


- During operation, occupants in the platform must wear a full body harness with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.
- Identify the designated lanyard anchorage point(s) at the platform and securely attach the lanyard. Attach only one (1) lanyard per lanyard anchorage point.
- Enter and exit only through gate area. Use extreme caution when entering or leaving platform. Ensure that the platform assembly is fully lowered. Face the machine 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 extending structure to gain access to or leave the platform.
- Keep oil, mud, and slippery substances cleaned from footwear and the platform floor.

Electrocution Hazards



- This machine is not insulated and does not provide protection from contact or proximity to electrical current.
- Maintain distance from electrical lines, apparatus, or any energized (exposed or insulated) parts according to the Minimum Approach Distance (MAD) as shown in Table 1-1.
- Allow for machine movement and electrical line swaying.
- Maintain a clearance of at least 3 m (10 ft.) 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. A 0,3 m (1 ft.) additional clearance is required for every additional 30 000 volts or less.
- The minimum approach distance may be reduced if insulating barriers are installed to prevent contact and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the machine. The minimum approach distance shall be reduced to a distance within the designed working dimensions of the insulating barrier. This determination shall be made by a qualified person in accordance with the employer, local or governmental requirements for work practices near energized equipment.

Table 1-1. Minimum Approach Distance (M.A.D.)

Voltage Range (Phase to Phase)	MINIMUM APPROACH DISTANCE in Meters (Feet)
0 to 50 kV	3 (10)
Over 50 kV to 200 kV	5 (15)
Over 200kV to 350 kV	6 (20)
Over 350 kV to 500 KV	8 (25)
Over 500 kV to 750 kV	11 (35)
Over 750 kV to 1000 kV	14 (45)
NOTE: *This requirement shall apply except where employer, local or governmental regulations are more stringent.*	

⚠ DANGER

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

Tipping Hazards

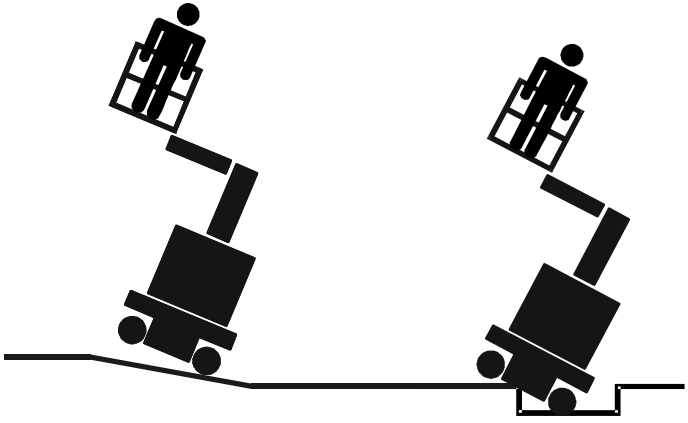
- Ensure that the ground conditions are adequate to support the maximum tire load indicated on the tire load decal located on the chassis. Do not travel on unsupported surfaces.
- The user must be familiar with the driving surface before driving. Do not exceed the allowable sideslope and grade while driving.
- Do not elevate platform or drive with platform elevated while on or near a sloping, uneven, or soft surface. Ensure machine is positioned on a firm, level and smooth surface before elevating platform or driving with the platform in the elevated position.
- Never exceed the maximum work load as specified on the platform. Keep all loads within the confines of the platform, unless authorized by JLG.
- Keep the chassis of the machine a minimum of 0.6 m (2 ft.) from holes, bumps, drop-offs, obstructions, debris, concealed holes, and other potential hazards at the ground level.
- Do not operate the machine when wind conditions exceed 12.5 m/s (28 mph).

NOTICE

DO NOT OPERATE THE MACHINE WHEN WIND CONDITIONS EXCEED 28 MPH (12,5 M/S OR 45 KM/H).

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

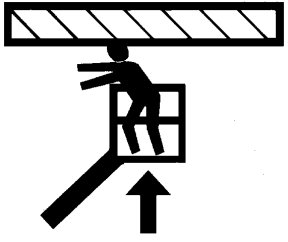
Beaufort Number	Wind Speed		Description	Land Conditions
	mph	m/s		
0	0	0-0.2	Calm	Calm. Smoke rises vertically.
1	1-3	0.3-1.5	Light air	Wind motion visible in smoke.
2	4-7	1.6-3.3	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	3.4-5.4	Gentle breeze	Leaves and smaller twigs in constant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



- Never attempt to use the machine as a crane. Do not tie-off machine to any adjacent structure. Never attach wire, cable, or any similar items to platform.
- Do not cover the platform sides or carry large surface-area items in the platform when operating outdoors. The addition of such items increases the exposed wind area of the machine.
- Do not increase the platform size with unauthorized deck extensions or attachments.
- If the extending structure assembly or platform is caught so that one or more wheels are off the ground, all persons must be removed before attempting to free the machine. Use cranes, forklift trucks, or other appropriate equipment to stabilize machine and remove personnel.

Crushing and Collision Hazards

- Approved head gear must be worn by all operating and ground personnel.
- Check work area for clearances overhead, on sides, and bottom of platform when lifting, swinging or lowering platform, and driving.



- During operation, keep all body parts inside platform railing
- Always post a lookout when driving in areas where vision is obstructed.
- Keep non-operating personnel at least 2m (6 ft.) away from machine during all operations.
- Limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors which may cause hazard of collision or injury to personnel.
- Be aware of stopping distances in all drive speeds. When driving in high speed, slow down the machine using the controller before stopping.
- Do not use high speed drive in restricted or close quarters or when driving in reverse.
- Exercise extreme caution at all times to prevent obstacles from striking or interfering with operating controls and persons in the platform.
- Ensure that operators of other overhead and floor level machines are aware of the aerial work platform's presence. Disconnect power to overhead cranes. Barricade floor area if necessary.
- Do not operate over ground personnel. Warn personnel not to work, stand, or walk under a raised platform. Position barricades on floor as necessary.

1.4 TOWING, LIFTING, AND HAULING

- Never allow personnel in platform while towing, lifting, or hauling.
- This machine should not be towed, except in the event of emergency, malfunction, power failure, or loading/unloading. Refer to Emergency Towing Procedures.
- Ensure extending structure is fully retracted and that the platform and the tool tray are completely empty of tools prior to towing, lifting or hauling.
- Refer to Section 3 for lifting information.

1.5 MAINTENANCE

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

Maintenance Hazards

- Shut off power to all controls and 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.

- Ensure replacement parts or components are 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.
- 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 unit in any way to affect stability.
- Reference the Service and 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.

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.

⚠ CAUTION

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

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

SECTION 2. USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

2.1 PERSONNEL TRAINING

The aerial platform is a personnel handling device; so it is necessary that it be operated and maintained only by trained personnel.

Operator Training

Operator training must cover:

- Use and limitations of the controls in the platform and at the ground, emergency controls and safety systems.
- Control labels, instructions, and warnings on the machine.
- Rules of the employer and government regulations.
- Use of approved fall protection device.
- Enough knowledge of the mechanical operation of the machine to recognize a malfunction or potential malfunction.
- The safest means to operate the machine where overhead obstructions, other moving equipment, and obstacles, depressions, holes or drop-offs exist.
- Means to avoid the hazards of unprotected electrical conductors.
- Specific job requirements or machine application.
- Reading and understanding the Operation and Safety manual.

Training Supervision

Training must be done under the supervision of a qualified person in an open area free of obstructions until the trainee has developed the ability to safely control and operate the machine.

Operator Responsibility

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

NOTE: *The Manufacturer or Distributor will provide qualified people for training assistance with the first unit(s) delivered and from that time forward as requested by the user or his/her personnel.*

2.2 PREPARATION, INSPECTION, AND MAINTENANCE

Table 2-1 explains the periodic machine inspections and maintenance required by JLG Industries, Inc. Consult local regulations for further requirements for aerial work platforms. 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 2-1. Inspection and Maintenance Table

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

NOTE: *Inspection forms are available from JLG. Use the Service and Maintenance Manual to perform inspections.*

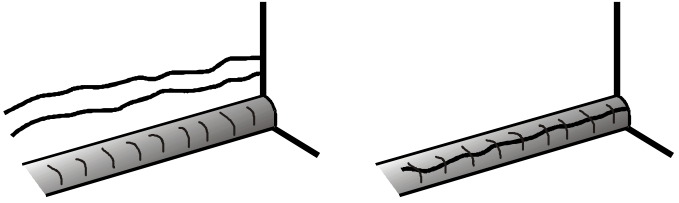
NOTICE

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

2.3 PRE-START INSPECTION

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

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



Parent Metal Crack Weld Crack

Harness fixing points - Verify each ring is not deformed or worn and that the plate is not folded.

3. **Decals and Placards** – Check all for cleanliness and legibility. Ensure none of the decals and placards are missing. Ensure all illegible decals and placards are cleaned or replaced. (See Section 5.8 - DECAL INSTALLATION)
4. **Operation and Safety Manuals** – Ensure that a copy of the Operation and Safety manual, AEM Safety Manual (ANSI markets only), and ANSI Manual of Responsibility (ANSI markets only) is enclosed in the weather resistant storage container.
5. **"Walk-Around" Inspection** – Refer to Figure 2-1.
6. **Battery –** Charge as required.
7. **Hydraulic Oil** – Check the hydraulic oil level in the reservoir, add as required.
8. **Accessories/Attachments** - Reference the Operation and Safety Manual of each attachment or accessory installed upon the machine for specific inspection, operation, and maintenance instructions.
9. **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 3 for more specific instructions on the operation of each function.

2.4 DAILY WALK-AROUND INSPECTION

Begin the "Walk-Around Inspection" at Item 1, see Figure 2-1. Continue checking each item in sequence for the conditions listed in the following checklist.

⚠ WARNING

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

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

1. **Hood Assemblies** - *See inspection note.*
2. **SkyGuard** - *See inspection note.*
3. **Ground Controls** - Placards secure and legible, control switches return to neutral position, emergency stop switches function properly. Control markings legible.
4. **Hydraulic Pump/Motor, Control Valve Installation/ Oil Level in Reservoir** - No unsupported wires or hoses; no damaged or broken wires - *See inspection note.*
5. **Steering Assembly** - *See inspection note.*
6. **Wheel/Tire Assemblies** - Properly secured, no missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies. *See inspection note.*
7. **Drive Motor and Hub** - No evidence of leakage - *See inspection note.*
8. **Battery Trays** - *See Inspection Note.*
9. **Manual Controls -** *See Inspection Note.*
10. **Beacon** - *See Inspection Note.*
11. **Hydraulic Cylinders -** No visible damage, pivot pins and hydraulic hoses undamaged, no leakage (hose connections - valve block).
12. **Limit Switches** - Mast and Jib limit switches, chain slack limit switches and overload sensor are properly installed and fastened. *See inspection note.*
13. **Platform Assembly and Gate** - Gate opens and closes properly. Manual in storage container. *See Inspection Note.*

14. **Platform Control Console** - Ensure that the control console is firmly secured in the proper location. Placards secure and legible, control lever and switches return to neutral, and emergency stop switch functions properly.
15. **Lifting chains, Chain Yokes and Clevis Pins** - Must be installed and in good condition. Chains must be correctly tensioned and lubricated.
16. **Extending Structure** - *See inspection note.*

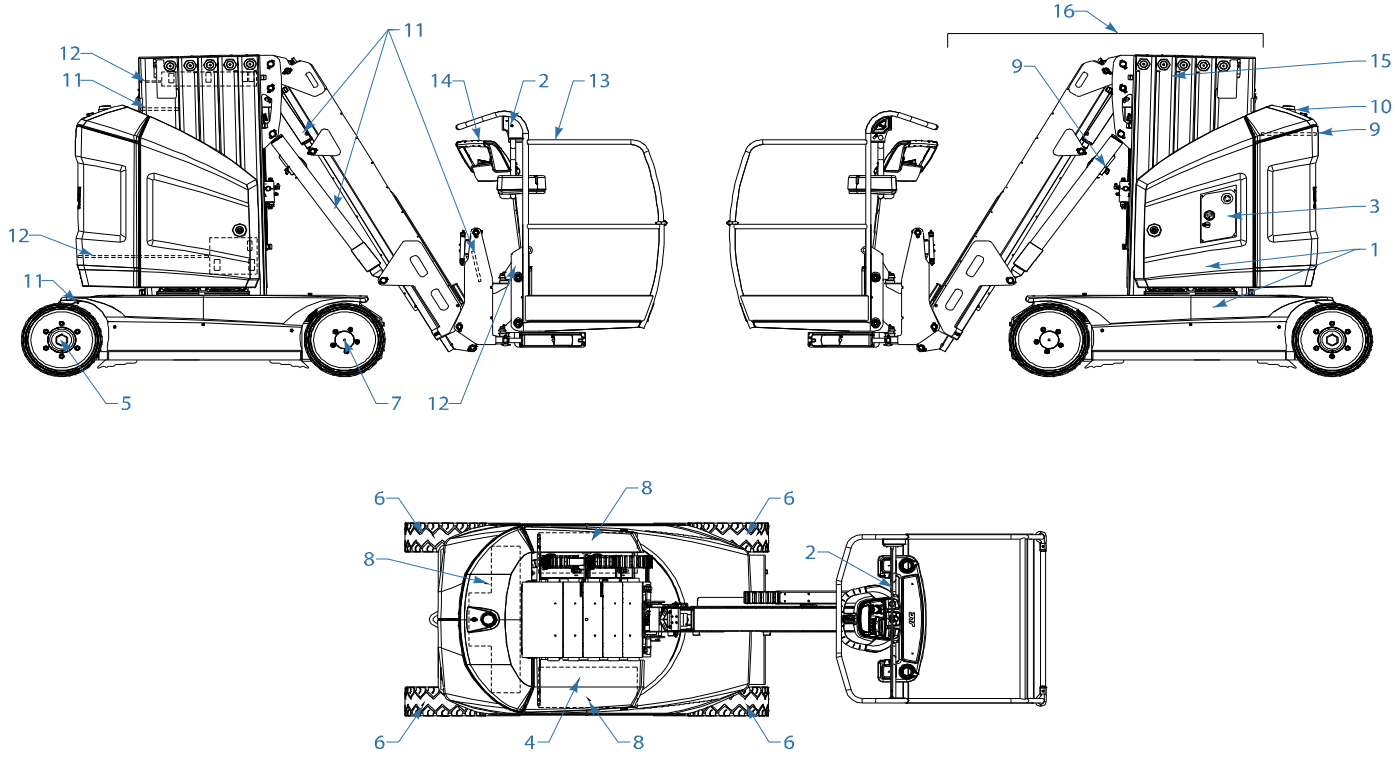


Figure 2-1. Daily Walk-Around Inspection

2.5 FUNCTION CHECK

Refer to Section 3 for description and operation of machine functions.

1. From the **Ground Control Panel** with no load in the platform:
   - **a.** Operate all functions to ensure proper operation.
   - **b.** While operating a mast lift-up movement, push in all other function buttons. Mast lift-up movement should continue and no other movement should occur.
   - **c.** Ensure that all machine functions are disabled when the emergency stop switch is depressed.
   - **d.** Ensure all mast, jib, telescope, swing, manual platform level adjustment and platform rotation (If equipped) functions stop when the function enable button (If equipped) is released.
   - **e.** Raise the mast about one meter (3 ft.), check if the manual descent valve lowers the mast properly (refer to Figure 3-6. for mast manual descent valve location).
   - **f.** Raise the jib about half a meter (2 ft.), check if the manual descent valve lowers the jib properly (Refer to Figure 3-7.).
2. From the **Platform Control Console**:
   - **a.** Operate all functions including horn button to ensure proper operation.
   - **b.** Ensure that all machine functions are disabled when the emergency stop switch is depressed.
   - **c.** Ensure all mast, jib, telescope, swing, manual platform level adjustment and platform rotation (if equipped) functions stop when the function enable button is released.
   - **d.** Ensure all drive functions stop when joystick trigger is released.
   - **e.** With the mast elevated half a meter (2 ft.), on a smooth, firm and level surface, drive the machine to check if the high drive cutout speed-limit is engaged. Drive speed will be reduced from a top speed of 5.7 km/h to 0.75 km/h (3.50 mph to 0.45 mph) (Approx.).

3. With the platform in the transport (stowed) position:

- **a.** Swing the boom over either of the rear tires and ensure that the Drive Orientation indicator illuminates and that the Drive Orientation Override switch must be used for the drive function to operate. Reposition the platform in line with the chassis.
- **b.** Drive the machine on a grade, not to exceed the rated gradeability, and stop to ensure the brakes hold;
- **c.** Check that the tilt indicator is illuminated to ensure proper operation.

Skyguard function check

NOTE: *Refer to Section 3.16 for additional information on SkyGuard operation.*

From the platform Control Console in an area free from obstructions:

1. Operate the Mast Up function.
2. Activate the SkyGuard sensor:

   Press the yellow bar to get it out of its housing on the right bracket.
3. Once the sensor has been activated, verify the following conditions:
   a. Mast Up function stops and Mast Lowering function operates for a short duration.
   b. The horn sounds.
   c. If equipped with a Alert Beacon, the beacon blinks.
4. Disengage the SkyGuard sensor (Reattach the rod to the right bracket), release controls, then, recycle the enable switch. Ensure normal operation is available.

If Skyguard remains activated after function reversal or cutout, push and release the Skyguard Override switch to allow normal use of machine functions until the sensor is disengaded.

NOTE: *The needed movement must be performed within 3 seconds.*

Overload Sensor Check

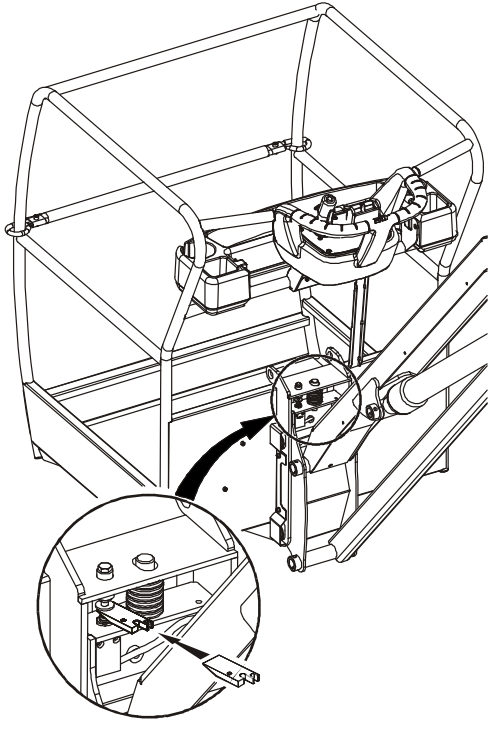


Figure 2-2. Overload Sensor

Check the overload indicator light/alarm to ensure proper operation. Wedge a block (P/N: ST2741 - located in the manual storage container) to activate the overload sensor and keep it activated. Refer to Figure 2-2.

1. From the Platform Control Console:
   - **a.** Confirm an audible alarm sounds.
   - **b.** Verify the overload indicator (Red) blinks.
   - **c.** Check that all functions are disabled.
2. From the Ground Control Panel:
   - **a.** Confirm an audible alarm sounds.
   - **b.** Verify the overload indicator (Red) blinks.

NOTES:

SECTION 3. MACHINE CONTROLS, INDICATORS AND OPERATION

3.1 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.

This section provides the necessary information needed to understand controls and their functions.

⚠ WARNING

DO NOT RAISE PLATFORM EXCEPT ON A SMOOTH, FIRM AND LEVEL SURFACE FREE OF OBSTRUCTIONS AND HOLES.

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.

IF THE PLATFORM DOES NOT STOP WHEN A CONTROL SWITCH OR LEVER IS RELEASED, USE THE EMERGENCY STOP SWITCH TO STOP THE MACHINE.

3.2 DESCRIPTION

This machine is a 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 and shall only be accessed with the extending structure fully stowed. From this control station, the operator can drive and steer the machine in both forward and reverse directions. The operator can raise or lower the mast and the boom, or extend/retract the telescope or swing the mast to the left or right.

Standard mast swing is 172.5 degree left and right of the stowed position. The machine has a Ground Control Station which will override the Platform Control Station. Ground Controls operate mast, boom, telescope and swing and 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. The Ground Control is also to be used in Pre-Start Inspection.

3.3 OPERATING CHARACTERISTICS AND LIMITATIONS

General

A thorough knowledge of the operating characteristics and limitations of the machine is always the first requirement for any user, regardless of user's experience with similar types of equipment.

Placards

Important points to remember during operation are provided at the control stations by DANGER, WARNING, CAUTION, NOTICE, and INSTRUCTION placards. This information is placed at various locations for the express purpose of alerting personnel of potential hazards constituted by the operating characteristics and limitations of the machine. See foreword for definitions of placard safety signal words.

Capacities

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

1. Machine is positioned on a smooth, firm and level surface.
2. Load is within manufacturer's rated design capacity.
3. All machine systems are functioning properly.
4. Machine is as originally equipped from JLG.

3.4 PLATFORM LOADING

The platform maximum rated load capacity is shown on a placard located on the platform billboard and ground control station and is based upon the machine positioned on a smooth, firm, and level surface. Refer to Section 5 for the maximum platform capacity.

The platform is entered through an entry gate at the rear of the platform. Keep entry gate closed during machine operation.

Stability

Machine stability is based on two (2) conditions which are called FORWARD and BACKWARD stability. The machine's position of least FORWARD stability is shown in Figure 3-2. and its position of least BACKWARD stability is shown in Figure 3-1.

⚠ WARNING

TO AVOID FORWARD OR BACKWARD TIPPING, DO NOT OVERLOAD MACHINE OR OPERATE THE MACHINE ON AN OUT-OF-LEVEL SURFACE

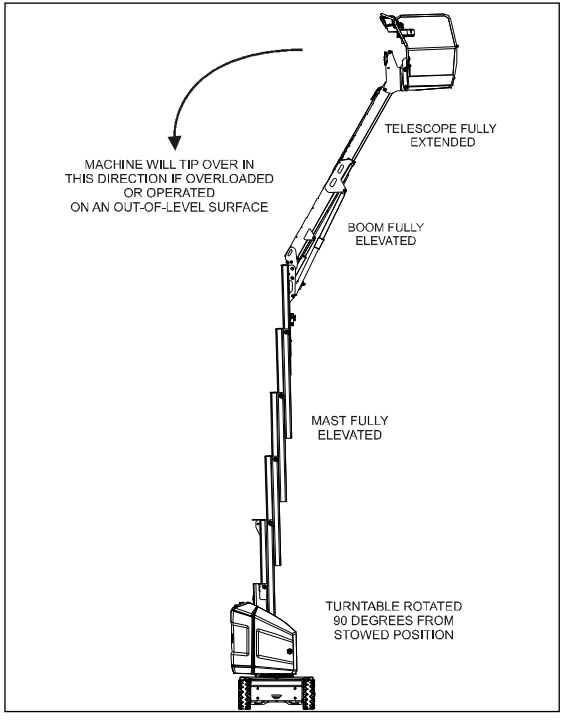


Figure 3-1. Position of Least BACKWARD stability

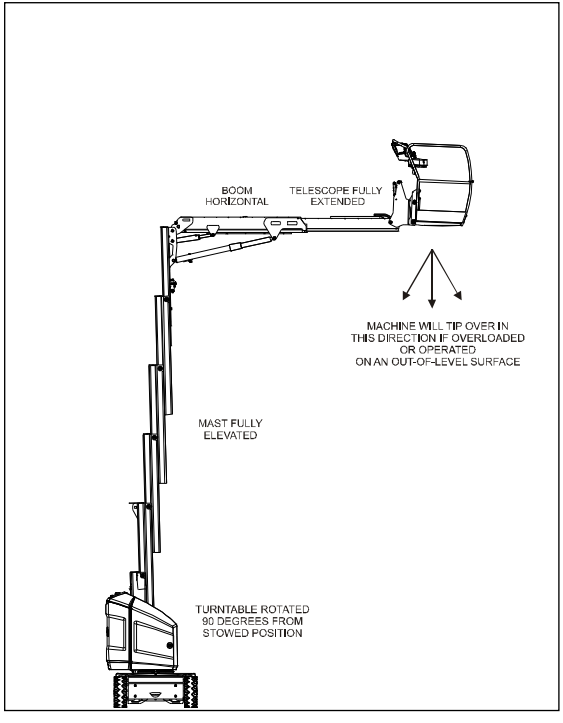
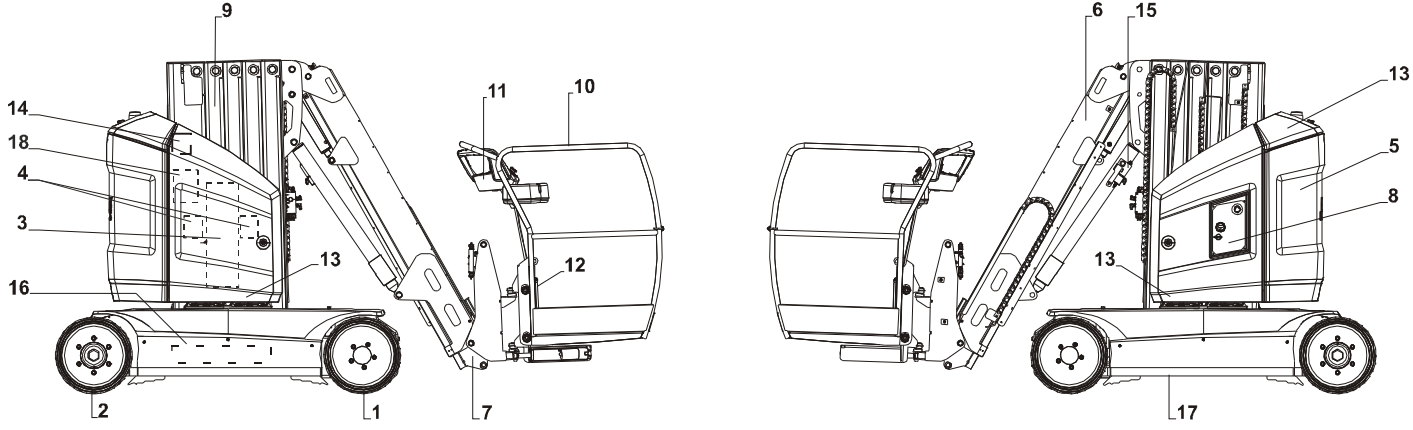


Figure 3-2. Position of Least FORWARD stability

3.5 MACHINE CONTROL LOCATIONS



1. Driving Wheels
2. Steering Wheels
3. Pump/Motor, Control Valves
4. Hand Pump/Hand Pump Lever
5. Counterweight
6. Boom
7. Fly Boom Section
8. Ground Control Panel
9. Telescopic Mast
10. Platform
11. Platform Control Console
12. Manual Storage Container
13. Access Door to batteries
14. Mast Manual Descent Valve
15. Jib manual descent Valve
16. Turntable
17. Chassis
18. Charger

Figure 3-3. Basic Nomenclature - Machine Control Locations

3.6 CONTROLS AND INDICATORS

⚠ 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 POSITION WHEN RELEASED.

NOTE: *The indicator panels uses 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.

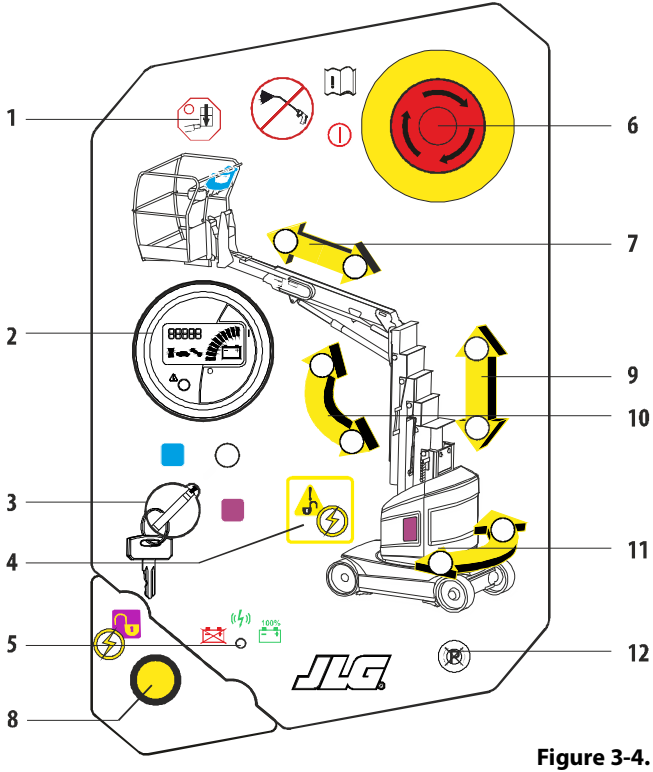
3.7 GROUND CONTROL STATION

⚠ WARNING

DO NOT OPERATE FROM GROUND CONTROL STATION WITH PERSONNEL IN THE PLATFORM EXCEPT IN AN EMERGENCY.

NOTICE

WHEN THE MACHINE IS SHUT DOWN FOR OVERNIGHT PARKING OR BATTERY CHARGING, THE PLATFORM/OFF/GROUND SELECTOR AND THE EMERGENCY STOP SWITCHES MUST BE POSITIONED TO OFF TO PREVENT DRAINING THE BATTERIES.



1. Overload Warning Light
2. Multi-Display Indicator (MDI)
3. Platform/Off/Ground Selector Switch
4. Machine Safety System Override (MSSO) (If equipped)
5. Battery Charger Status Indicator
6. Emergency Stop Switch
7. Telescope In/Out Buttons
8. Function Enable Button (If equipped)
9. Mast Lift/Lower Buttons
10. Boom Lift/Lower Buttons
11. Turntable Swing Buttons
12. Brake Release Button

Figure 3-4. Ground Control Station

1. **Overload Warning Light** - This lamp (red), when blinking, indicates that the maximum rated load in the platform is exceeded. The platform must be safely unloaded until the alarm stops.

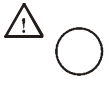
2. **Multi-Display Indicator (MDI)**

Hourmeter - The hourmeter symbol is lit when the number of operated hours is displayed.

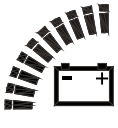
Speed reduction - Indicates that the controlled function is operated at its slowest speed (depends on operating condition).

The wrench symbol is lit when a DTC (Diagnosis Troubleshooting Code) is displayed.

Five Digits Display
In normal operating condition, displays the total amount of machine operation time accumulated. In abnormal operating condition, displays a DTC (Diagnosis Troubleshooting Code).



Alarm LED
Illuminates in abnormal operating condition (when a DTC, other than 00xx DTC's exists).



Battery Discharge Indicator (BDI).
This bar-graph is designed to let the operator know the condition of the battery before starting to use the machine.
The last bar flashes when the level of charge is less than 10%. The bar-graph is not displayed when the batteries are completely discharged.

3. **Platform/Off/Ground Selector Switch** - A three-position, key-operated power select switch supplies power to the platform or ground controls and powers machine down in the off position.

4. **Machine Safety System Override (MSSO) (If equipped)** - Provides emergency override of function controls that are locked out in the event of Load Sense System activation.

5. **Battery Charger Status Indicators** - This panel is designed to give the operator an accurate reading on the status of the battery charger. REFER TO Section 3.18 OF THIS MANUAL FOR FURTHER INFORMATION.

SOLID GREEN - Charge complete

FAST FLASHING GREEN - High charge

SLOW FLASHING GREEN - Low charge

RED - Error

6. **Emergency Stop Switch** - Depress the switch to stop all functions of the machine. The switch must be turned clockwise to restore the machine functions.

7. **Telescope In/Out Buttons** - Membrane switches that provide extension and retraction of the boom (If equipped - with the Function Enable Switch (**8**) pushed in).

8. **Function Enable Button (If equipped)** - A membrane switch that must be pushed in and held to enable the controls of the ground control station.

9. **Mast Lift/Lower Buttons** - Membrane switches that provide raising or lowering of the mast (If equipped - with the Function Enable Switch (**8**) pushed in).

10. **Boom Lift/Lower Buttons** - Membrane switches that provide raising or lowering of the boom (If equipped - with the Function Enable Switch (**8**) pushed in).

11. **Turntable Swing Buttons** - Membrane switches that provide swinging of the superstructure to the right or to the left (If equipped - with the Function Enable Switch (**8**) pushed in).

12. **Brake Release Switch**

⚠ WARNING

DO NOT MANUALLY DISENGAGE THE BRAKES UNLESS THE MACHINE:
- IS IN TRANSPORT (STOWED) POSITION.
- IS ON A SMOOTH, FIRM AND LEVEL SURFACE.
- WHEELS CHOCKED OR MACHINE POSITIVELY CONNECTED TO TOW VEHICLE.

The machine must be powered ON to Ground Control Mode at the Platform/Off/Ground selector switch to operate the brake release switch. Refer to Section 3.20 of this manual for further information.

Platform Manual Descent Valves

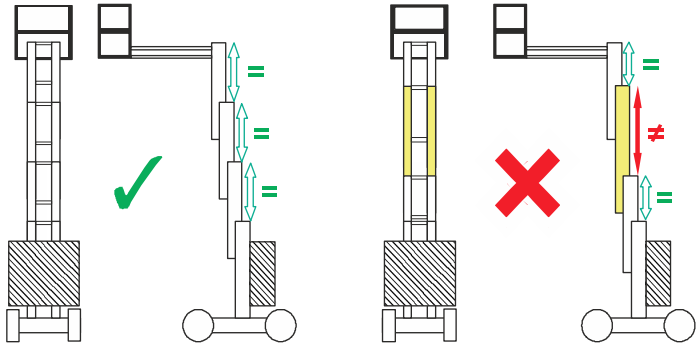
The platform manual descent valves are used in the event of total power failure to lower the platform using gravity.

These devices are composed of:

- **a flow control valve located on the pump/motor assembly.**
- **a mast manual descent valve.**
- **a boom manual descent valve.**

⚠ WARNING

DO NOT USE THE MANUAL DESCENT CONTROLS IF THE SLACK CHAIN WARNING IS ACTIVE. REFER TO SECTION 4 FOR SPECIFIC RECOVERY PROCEDURES. WHEN USING THE MANUAL DESCENT CONTROL, ENSURE THE MAST ELEMENTS ARE LOWERING SYNCHRONOUSLY.



1. Fully screw the flow control valve knob (clockwise) (refer to Figure 3-5.).
2. To lower the mast:
   a. Install the actuator on the cylinder hydraulic valve (refer to Figure 3-6.).
   b. Screw the actuator. Unscrew the actuator when the platform is lowered to the desired level.
   c. Return the actuator at its initial position after use (do not forget to install the coil).
3. To lower the boom once the mast is fully retracted, pull the manual descent valve, override button (refer to Figure 3-7.). Release the button when the platform is lowered to the desired level.
4. Fully unscrew the flow control valve knob (counter-clockwise).

⚠ WARNING

KEEP BODY, HANDS AND ARMS OUT OF THE PATH OF THE MAST, THE JIB AND THE PLATFORM WHILE LOWERING.

Flow Control Valve

The flow control valve is located on the pump/motor assembly, behind the lateral access door. A knob (**1**) allows to manually open/close the valve.

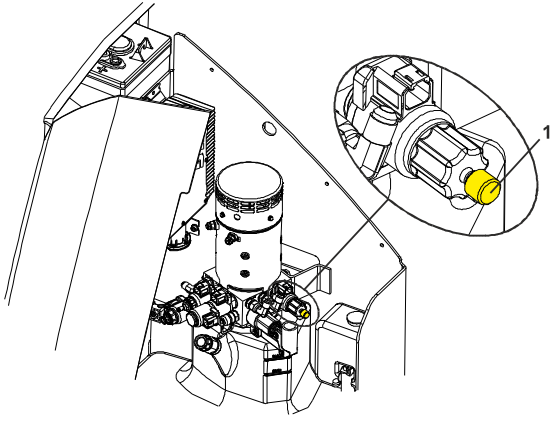
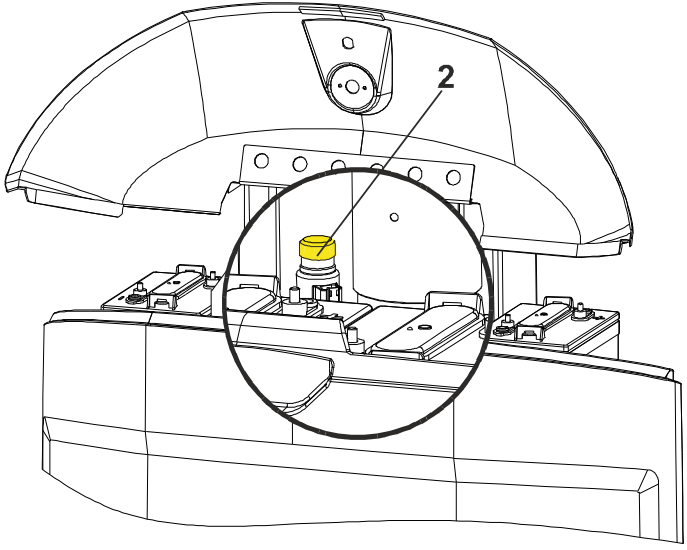


Figure 3-5. Flow Control Valve

Mast Manual Descent Valve and Actuator

- The mast manual descent **actuator (2)** is located behind the batteries access door, on the hydraulic **valve (3)**.



- Unscrew the actuator (**2**) from the valve (**3**)

- Remove the coil (**4**)

- Screw the actuator (**2**) on the valve

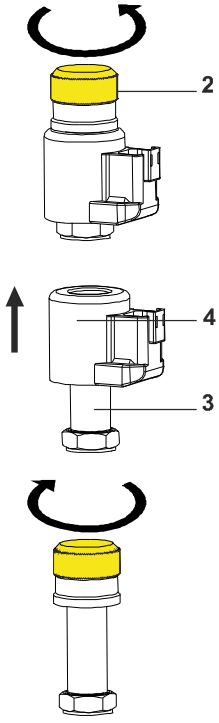


Figure 3-6. Mast Manual Descent Actuator Installation

Boom Manual Descent Valve

- The boom manual **descent button (5)** is located on the boom cylinder valve.

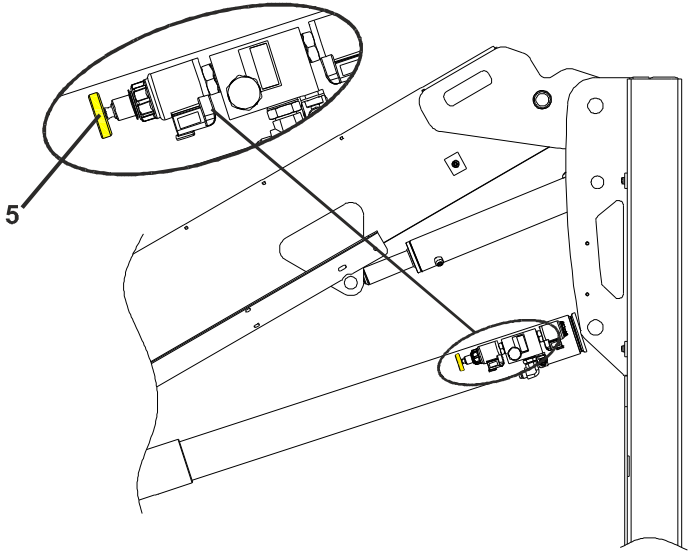


Figure 3-7. Boom Manual Descent Valve

Manual Swinging Operating Devices

The manual swinging operating devices are used in the event of total power failure to manually swing the superstructure. Those devices are composed of:

- a control valve **(6)** located on the pump/motor assembly. (Refer to Figure 3-8.).

- a hand pump **(7)**, also located on the pump/motor assembly. (Refer to Figure 3-8.).

1. Push and screw (clockwise) the control valve knob while activating the hand pump to swing the turntable to the right.
2. Pull and unscrew (counterclockwise) the control valve knob while activating the hand pump to swing the turntable to the left.

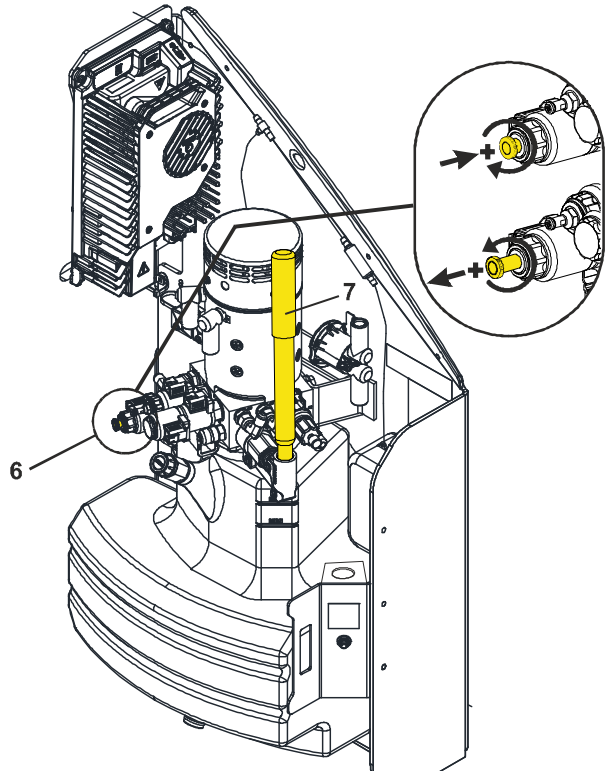


Figure 3-8. Manual Swinging Operating Devices

Boom Manual Lift Up Valve

The manual boom lift up operating device is used in the event of hydraulic power pack failure to manually lift up the boom.

1. Push and hold the boom lift membrane switch at the ground control station. (Refer to Figure 3-4.).
2. Activate the hand pump to lift up the boom.

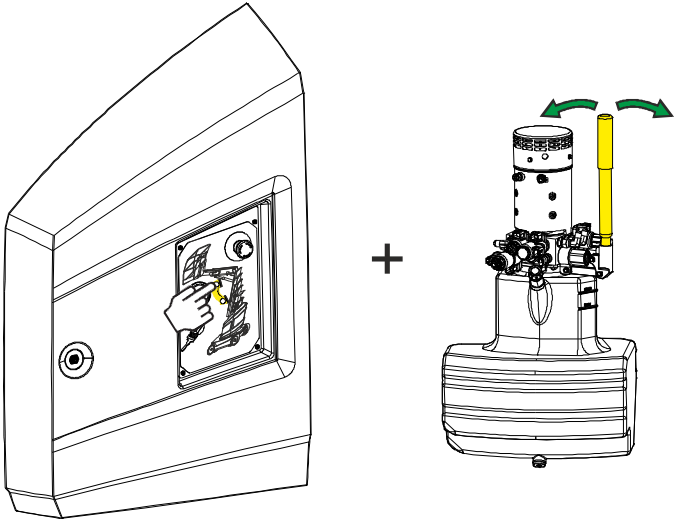


Figure 3-9. Boom Manual Lift Up Valve

3.8 PLATFORM CONTROL STATION

⚠ WARNING

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

1. Indicator Panel
2. Emergency Stop Switch
3. Trigger Switch
4. Drive/Swing Functions Controller
5. Steer Switch
6. Function Enable Button
7. Mast Lift Up/Down Joystick Controller
8. Telescope In/Out Joystick Controller
9. Boom Lift Up/Down Joystick Controller
10. Platform Rotation Switches (if equipped)
11. SkyGuard Override Button
12. Platform Levelling Override Buttons
13. Drive Orientation System (DOS) Override Button
14. Horn Button

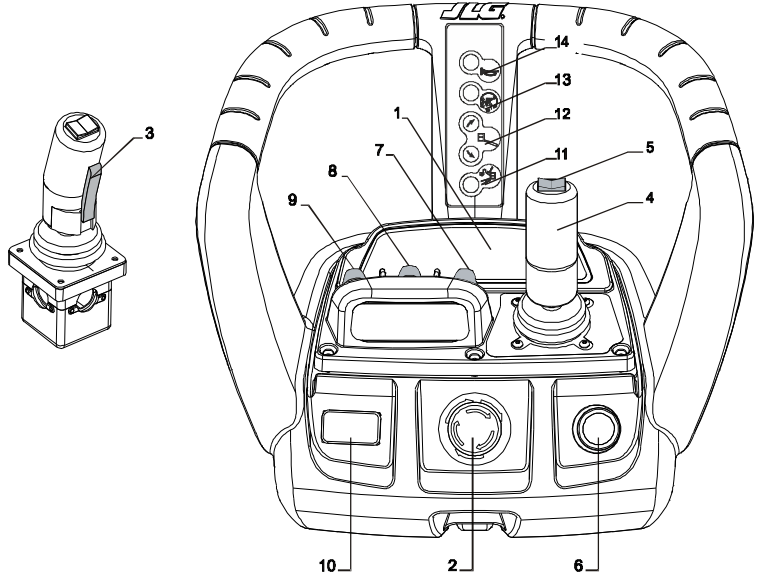


Figure 3-10. Platform Control Station

1. Indicator Panel

NOTE: *The indicator lights will illuminate for approximately 1 second when the key is positioned to the ON position to act as a self test.*

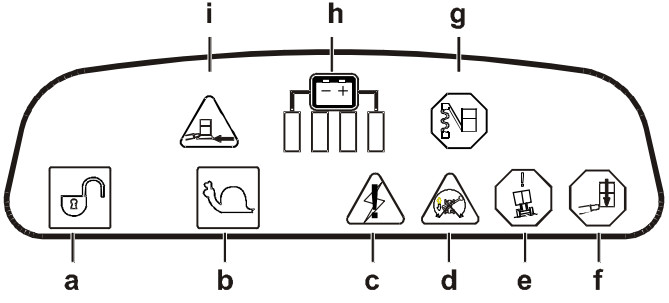


Figure 3-11. Platform Control Indicator Panel

- **a-** Control Enable Indicator (Green)
- **b-** Creep Speed Indicator (Green)
- **c-** System Distress Indicator (Yellow)
- **d-** Drive Orientation Indicator (Yellow)
- **e-** Tilt Indicator Warning Light (Red)
- **f-** Overload Indicator Warning Light (Red)
- **g-** Slack Chain Indicator Warning Light (Red)
- **h-** Battery Discharge Indicator (BDI)
- **i-** Soft Touch (If equipped) OR SkyGuard Indicator (Yellow)

a. When lit, indicates that the controls are enabled. If a function is not actuated within seven seconds, or a seven seconds lapse between ending one function and beginning the next function occurs, the enable light will go out and the enable must be released and activated again to enable the controls. When blinking, indicates that the machine is in a configuration where the current activated function is not permitted.

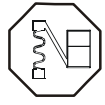
b. Indicates that the controlled function is operated at its slowest speed (depends on operating condition).

c. This light indicates that the control system has detected an abnormal condition. This lamp when actuated is flashing a DTC (Diagnostic Troubleshooting Code). For an explanation of these codes and items, the operator can or cannot correct, see Service Manual.

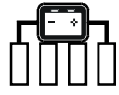
d. When the structure is swung beyond the rear tires or further in either direction, the Drive Orientation indicator will illuminate. This is a signal for the operator to verify that the drive control is being operated in the proper direction (i.e. controls reversed situations).

e. Indicates that the chassis is out of level (refer to machine specifications for max. allowable slope angle). If the machine is out of the transport (stowed) position and the chassis is out of level, an audible alarm will sound.

f. Indicates that the maximum rated load in the platform is exceeded. In addition to the warning indicator, an audible alarm sounds. The platform must be unloaded until the alarm stops.



g. Indicates that a slack chain condition has been detected. In addition to the warning indicator, an audible alarm will sound as long as the slack chain condition exists.



h. This set of lights indicates the charge level of the battery.

i. SkyGuard - Indicates that the SkyGuard has been activated. See § 3.16 - "SkyGuard Operation". **Soft Touch** (If equipped) - Indicates the Soft Touch sensors have detected an obstacle. In addition to the warning indicator, an audible alarm sounds. Once illuminated, Push and release the horn button and within 3 seconds, control the desired movement (this movement will be performed at reduced speed).

2. **Emergency Stop Switch** - A two-position, red, emergency stop switch, when positioned to ON furnishes operating power to the platform control station. In addition, the switch can be used to turn off power to the function controls in the event of an emergency. Power is turned off by depressing the switch and power is turned on by turning the switch clockwise to pull it out.

3. **Trigger Switch** - This switch located at the front of the controller acts as an enable and must be depressed before operating the drive, steer and swinging functions. When released, the function being operated will stop.

4. **Drive/Swing Functions Controller** - This dual axis joystick controls drive and swinging functions. The speed of both functions is proportionally controlled by the distance of travel of the hand joystick.
   Drive - Engage the trigger switch lever (**3**) with the joystick in neutral position then move the control handle forward to drive the machine forward or move the control handle backward to drive the machine backward.
   Swing - Engage the trigger switch lever (**3**) with the joystick in neutral position then toggle the control handle to the left to swing the superstructure to the left or toggle the control handle to the right to swing to the right.

5. **Steer Switch** - The thumb-operated steer switch on top of the control handle activates the steer wheels in the direction activated (right or left).

6. **Function Enable Button** - This button is used to enable mast, boom, telescope, platform levelling and rotation (if equipped) functions. It must be depressed and held before actuating a boom, telescope, platform levelling or rotation (if equipped) function. When released, the function being operated will stop.

7. **Mast Lift Up/Down Joystick Controller** - This fingertip, single axis, joystick controller operates Mast Lift Up and Lift Down functions.
   With the joystick controller in neutral position, push-in and hold the Function Enable Button (**6**), moving the joystick Up will raise the mast and moving the joystick Down will lower the mast. The speed of the movements is proportionally controlled by the distance of travel of the joystick.

8. **Telescope In/Out Joystick Controller** - This fingertip, single axis, joystick controller operates Telescope In and Telescope Out functions.
   With the joystick controller in neutral position, push-in and hold the Function Enable Button (**6**), moving the joystick Up will extend the telescope and moving the joystick Down will retract the telescope. The speed of the movements is proportionally controlled by the distance of travel of the joystick.

9. **Boom Lift Up/Down Joystick Controller** - This fingertip, single axis, joystick controller operates Boom Lift Up and Boom Lift Down functions.
   With the joystick controller in neutral position, push-in and hold the Function Enable Button (**6**), moving the joystick Up will raise the boom and moving the joystick Down will lower the boom. The speed of the movements is proportionally controlled by the distance of travel of the joystick.

10. **Platform Rotation Switch (if equipped)** - A rocker switch allows the operator to swing the platform. Push-in and hold the Function Enable Button (**6**); pushing-in the Platform Rotation Switch will swing the platform in the corresponding direction.

11. **SkyGuard Override Switch** - The switch enables functions cut out by the SkyGuard system to be operated again allowing the operator to resume use of the machine functions.

12. **Platform Levelling Override Buttons** - Two membrane switches allow the operator to adjust the automatic self levelling system. Push-in and hold the Function Enable Button (**6**); pushing-in the upper button will tilt the platform forward and pushing-in the lower button will tilt the platform backward.

13. **Drive Orientation Override Button -** When the jib is swung beyond the rear tires or further in either direction, the Drive Orientation indicator will illuminate. Before driving, locate the black/white orientation arrows on both the chassis and the platform controls. Push and release the override switch and within 3 seconds slowly move the Drive/Steer control to actuate drive or steer. Move the drive control toward the arrow matching the intended direction of machine travel.

14. **Horn Button** - This button, when activated, permits the operator to warn job site personnel when the machine is operating in the area.

Grade and Side Slope

See Figure 3-12., Grade and Side Slope

NOTE: *Refer to the Operating Specifications table for Gradeability and Sideslope ratings.*

With the machine in transport mode, travelling is limited by two factors: gradeability and side slope. Gradeability is the percent of grade of the incline the machine can climb. Side slope is the angle of the surface the machine can be driven across. Refer to Table 5-1.
When the machine is out of transport (stowed) position, the machine must not be operated on grade or side slopes greater than that is specified in Table 5-1.

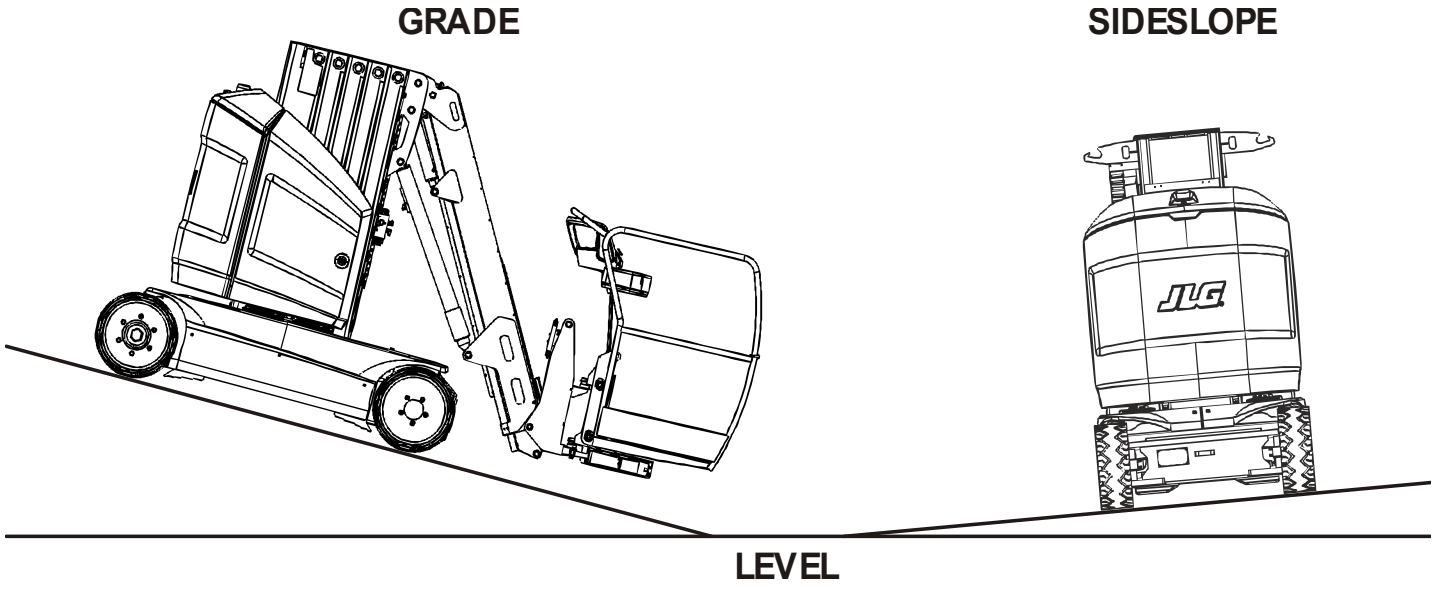


Figure 3-12. Grade and Side Slope

3.9 OPERATION

1. At ground control station, position the key-select switch to PLATFORM.
2. Position the emergency stop switch to the on (out) position by turning it clockwise.
3. At platform control station, position the emergency stop switch to the on (out) position by turning it clockwise.

NOTE: *If at any time during operation, the machine remains idle for a period exceeding 2 hours, machine power will be shut down. The emergency stop switch(es) must be recycled to start machine again.*

⚠ WARNING

TO AVOID SERIOUS INJURY, DO NOT OPERATE MACHINE IF ANY CONTROL LEVERS OR SWITCHES CONTROLLING THE PLATFORM MOVEMENT DOES NOT RETURN TO THE OFF OR NEUTRAL POSITION WHEN RELEASED. IF THE PLATFORM DOES NOT STOP WHEN CONTROL LEVER OR THE ENABLE BUTTON/TRIGGER SWITCH IS RELEASED, USE THE EMERGENCY STOP SWITCH TO STOP THE MACHINE.

3.10 STEERING AND TRAVELLING (DRIVING)

⚠ WARNING

DO NOT DRIVE WITH MAST OR BOOM OUT OF TRANSPORT (STOWED) POSITION EXCEPT ON A SMOOTH, FIRM AND LEVEL SURFACE FREE OF OBSTRUCTIONS AND HOLES.

TO AVOID LOSS OF TRAVEL CONTROL OR "TIP OVER", DO NOT DRIVE MACHINE ON GRADES OR SIDE SLOPES EXCEEDING THOSE SPECIFIED IN SECTION 5.

USE EXTREME CAUTION WHEN DRIVING IN REVERSE AND AT ALL TIMES WHEN THE PLATFORM IS ELEVATED.

BEFORE DRIVING, LOCATE THE BLACK/WHITE ORIENTATION ARROWS ON BOTH THE CHASSIS AND THE PLATFORM CONTROLS. MOVE THE DRIVE CONTROLS IN A DIRECTION MATCHING THE DIRECTIONAL ARROW FOR THE INTENDED DIRECTION OF TRAVEL.

IN THE TRANSPORT POSITION IN ORDER TO ENSURE ADEQUATE VISIBILITY, THE OPERATOR MUST RAISE THE BOOM TO A CERTAIN HEIGHT. THIS HEIGHT IS APPROXIMATELY 1 METER, BUT MAY VARY DEPENDING ON SEVERAL PARAMETERS, SUCH AS THE HEIGHT OF THE OPERATOR OR OVERHEAD CLEARANCE.

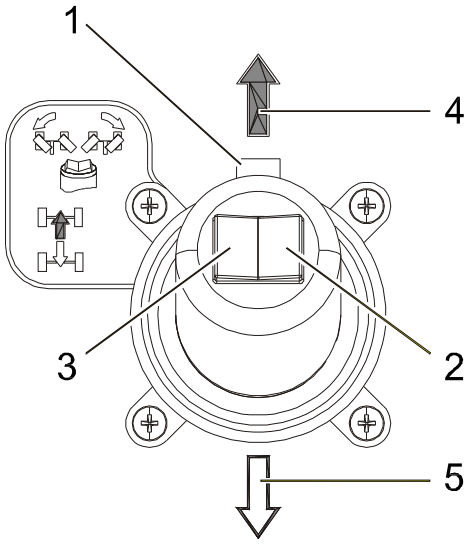


Figure 3-13. Steer/Drive Controls

Steering

1. Squeeze and hold the **trigger switch (1)** on front of the joystick.
2. Activate the thumb switch on top of the joystick to **right (2)** for travelling right or to **left (3)** for travelling left. When released, the thumb switch will return to the center-off position and the wheels will remain in the previously selected position. To return the wheels to the straightened position, the switch must be activated in the opposite direction until the wheels are centered.

Travelling (driving)

1. With all control levers in neutral position, squeeze and hold the **trigger switch (1)** on front of the joystick.
2. Move the joystick **forward (4)** (within 7 seconds after the trigger has been actuated) to drive forward or move the joystick **backward (5)** to drive in reverse. The speed of the movement is proportionally controlled by the distance of travel of the joystick.
3. Return the controller to its centered (neutral) position to stop, then release the trigger.

⚠ WARNING

IF THE TILT INDICATOR WARNING LIGHT/ALARM IS ACTIVATED WHILE DRIVING WITH THE MAST OR THE BOOM RAISED, LOWER THE MAST COMPLETELY, RETRACT THE TELESCOPE, LOWER THE BOOM AND DRIVE TO A SMOOTH, FIRM AND LEVEL SURFACE.

Drive Orientation System (DOS)

When the structure is swung beyond the rear wheels or further in either direction, the **drive orientation indicator (1)** will illuminate and drive will be disabled.

1. Push and release the **override button (2)**, and within 3 seconds move the drive/steer controls to activate drive or steer.
2. Before driving, locate the black/white directional arrows on both the chassis and the platform controls (**3**). Move the drive control joystick in a direction matching the directional arrow, for the intended direction of travel.

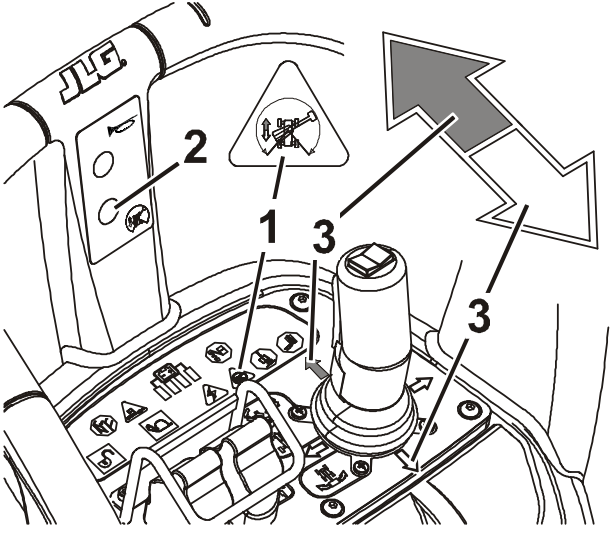


Figure 3-14. Drive Orientation System (DOS)

3.11 PLATFORM

⚠ WARNING

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

Platform Level Adjustment

To manually Level Up or Down - Push and hold the Function Enable Button, push the Platform/Level control switch Up or Down and hold until the desired platform position is obtained.

Platform Rotation (If equipped)

To rotate the platform to the left or right, push and hold the Function Enable Button, use the Platform Rotate control switch to select the direction and hold until desired position is reached.

3.12 RAISING AND LOWERING THE PLATFORM

⚠ WARNING

DO NOT RAISE THE PLATFORM EXCEPT ON A SMOOTH, FIRM AND LEVEL SURFACE FREE OF OBSTRUCTIONS AND HAZARDS. ENSURE THE AREA BENEATH THE PLATFORM IS FREE FROM PERSONNEL PRIOR TO LOWERING THE PLATFORM.

Raising and lowering the mast

1. With all control levers in neutral position, push in and hold the **Function Enable Button**.
2. To raise or lower the mast, move the mast controller in the desired movement direction. The speed of the movement is proportionally controlled by the distance of travel of the joystick.
3. Return the controller to its centered (neutral) position to stop.

Raising and lowering the boom

1. With all control levers in neutral position, push in and hold the **Function Enable Button**.
2. To raise or lower the boom, move the boom controller in the desired movement direction. The speed of the movement is proportionally controlled by the distance of travel of the joystick.
3. Return the controller to its centered (neutral) position to stop.

Telescoping the Boom

1. With all control levers in neutral position, push in and hold the **Function Enable Button**.
2. To extend or retract the boom, move the telescope controller Up (extension) or Down (retraction). The speed of the movement is proportionally controlled by the distance of travel of the joystick.
3. Return the controller to its centered (neutral) position to stop.

3.13 SWINGING

⚠ WARNING

DO NOT SWING THE SUPERSTRUCTURE EXCEPT ON A SMOOTH, FIRM AND LEVEL SURFACE, FREE OF OBSTRUCTIONS AND HOLES.

⚠ CAUTION

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

1. With all control levers in neutral position, squeeze and hold the **trigger switch** on front of the joystick.
2. Move the joystick to the desired direction: **right** or **left**. The speed of the movement is proportionally controlled by the distance of travel of the joystick.
3. Return the controller to its centered (neutral) position to stop, then release the trigger.

3.14 ALARMS

Overload Warning Light/Alarm

When the maximum rated load in the platform is exceeded, RED light indicators at both the ground and the platform control stations will blink and an audible alarm will sound. When the overload indicator warning is activated, all machine functions are disabled. The platform must be safely unloaded until the alarm stops.

Tilt Warning Light/Alarm

When the chassis is out of level (Refer to Table 5-1), the RED light indicator at platform control station will illuminate. If the machine is out of transport (stowed) position, and the chassis is out of level an audible alarm will sound.

⚠ WARNING

TO AVOID TIP OVER IF RED TILT WARNING LIGHT LIGHTS WHEN MACHINE IS OUT OF TRANSPORT POSITION, LOWER THE PLATFORM TO GROUND LEVEL. THEN REPOSITION MACHINE SO THAT CHASSIS IS LEVEL BEFORE RAISING BOOM.

When the tilt indicator warning is activated, the following functions are affected:

- The Drive function is disabled out of stowed position.
- Mast/Jib Lift and Swinging movements switch to Creep mode.
- The telescope extension is disabled.
- The retraction functions properly.

When the tilt indicator warning is activated, control the machine as follows:

1. Lower the mast.
2. Retract the telescope.
3. Return the platform in line with the chassis.
4. Lower the boom.
5. Drive the machine to a smooth, firm and level surface.

⚠ WARNING

AVOID RAISING THE MAST, EXTENDING THE TELESCOPE, OPERATING THE BOOM OR SWINGING WITH THE MACHINE OUT OF TRANSPORT POSITION WHEN THE CHASSIS IS OUT OF LEVEL. ALWAYS LOWER THE MAST AND RETRACT THE TELESCOPE AS MUCH AS POSSIBLE BEFORE OPERATING THE BOOM OR SWINGING.

Slack Chain Warning Light/Alarm

When the system detects a slack chain condition, the RED light indicator at platform control station will illuminate and an audible alarm will sound.

Slack chain condition is generally caused by the platform or the boom coming to rest on an obstacle while lowering. When the slack chain indicator warning is activated, all machine functions, except mast and boom raising movements are disabled.

Procedure to follow in case the slack chain indicator warning is activated:

1. Raise the mast or the boom (generally the reverse movement to the one that caused the alarm to be activated). This will re-tension the chain(s) and stop the alarm.
2. Examine surroundings to identify the cause.
3. Perform the movement which will clear the machine and prevent contact with the obstacle.

If the examination of the surroundings does not reveal any possible obstacle, the alarm may have been triggered by the telescopic mast jamming which could be due to:

- A foreign body entering the guiding system.
- A lack of lubrication (see Section 5).
- An incorrect play (see the Service Manual).

⚠ WARNING

IF THE SLACK CHAIN ALARM HAS BEEN TRIGGERED BY THE MAST JAMMING, FAILURE TO RESPECT THE PROCEDURES BELOW CAN CAUSE SERIOUS INJURIES.
DO NOT USE MANUAL DESCENT CONTROLS.

Once it has been determined that the slack chain is not due to the platform resting on an obstacle, proceed in the following manner:

- If the alarm is still active and if safe to do so, raise the mast slightly above previous position to deactivate it (and tension the chains).
- Retract the telescope.
- Slew the superstructure so the jib can be lowered.
- Lower the jib.
- Try again to lower the mast.
- If the alarm is no longer actuated: fully lower the mast and get qualified personnel to inspect the machine before it is used again.
- If the mast has not released itself or if the alarm is still actuated, appropriate equipment can be used to remove platform occupants and stabilize motion of the machine.

⚠ WARNING

IF THE SELF RESCUE PROCEDURE FAILED, DISCONTINUE OPERATION IMMEDIATELY.
DO NOT USE MANUAL DESCENT CONTROLS. PLATFORM OCCUPANTS MUST BE RESCUED AND THE MAST MECHANISM SERVICED BY A QUALIFIED TECHNICIAN.

3.15 MACHINE SAFETY SYSTEM OVERRIDE (MSSO) (IF EQUIPPED)

The Machine Safety System Override (MSSO) is used to override function controls for Emergency Platform Retrieval only. Refer to Section 4.7, Machine Safety System Override (MSSO) for operating procedures.

3.16 SKYGUARD OPERATION

SkyGuard provides enhanced control panel protection. When the SkyGuard sensor is activated, functions in use at the time of actuation will reverse or cutout. The SkyGuard Function Table provides more details on these functions.

During activation, the horn will sound and the SkyGuard beacon (If equipped) will blink until sensor and enable switch are disengaged.

Reattach the rod to the right bracket. If Skyguard remains activated after function reversal or cutout, push and release the Skyguard Override switch to allow normal use of machine functions until the sensor is disengaded.

NOTE: *The needed movement must be performed within 3 seconds.*

FAULT CODES

0039 - SkyGuard switch activation fault

2563 - Switch disagreement fault

Table 3-1. SkyGuard Function Table

Drive Forward	drive reverse	steer	swing	mast lift up	mast lift down	jib lift	Tele Out	Tele In	Platform Level	Platform Rotate
R* / C**	R	C	R	R	C	C	R	C	C	C
R = Indicates Reversal is Activated										
C = Indicates Cutout is Activated										
* DOS (Drive Orientation System) Enabled										
** DOS Not Enabled, machine is driving straight without steering, and any other hydraulic function is active.										

3.17 SHUT DOWN AND PARK

Shut down and park the machine as follows:

1. Drive the machine to a reasonably well-protected and well-ventilated area.
2. Ensure the platform is fully lowered.
3. Turn the platform/ground selector switch to off and remove the key to disable the machine and prevent unauthorized use.
4. At the ground control station, position the emergency stop switch to the off (pushed in) position.
5. If necessary, cover the platform console, the instruction placards, caution and warning decals so that they will be protected from hostile environment.
6. If necessary, charge the battery.

3.18 BATTERY CHARGING

NOTE: *Be sure that the machine is parked in a well-ventilated area before charging begins.*

⚠ WARNING

ONLY PLUG THE CHARGER INTO A PROPERLY INSTALLED AND GROUNDED OUTLET. DO NOT USE GROUND ADAPTORS OR MODIFY PLUG. DO NOT TOUCH NON-INSULATED PORTION OF OUTPUT CONNECTOR OR NON-INSULATED BATTERY TERMINAL.

DO NOT OPERATE CHARGER IF THE AC SUPPLY CORD IS DAMAGED OR IF THE CHARGER HAS RECEIVED A SHARP BLOW, BEEN DROPPED OR OTHERWISE DAMAGED IN ANY WAY.

ALWAYS DISCONNECT THE AC SUPPLY BEFORE MAKING OR BREAKING THE (POS/NEG) CONNECTIONS TO THE BATTERY.

DO NOT OPEN OR DISASSEMBLE CHARGER.

NOTE: *It is not necessary to charge the battery if the electrolyte specific gravity has not dropped under 1.240kg/l. Doing so regularly will greatly reduce battery life.*

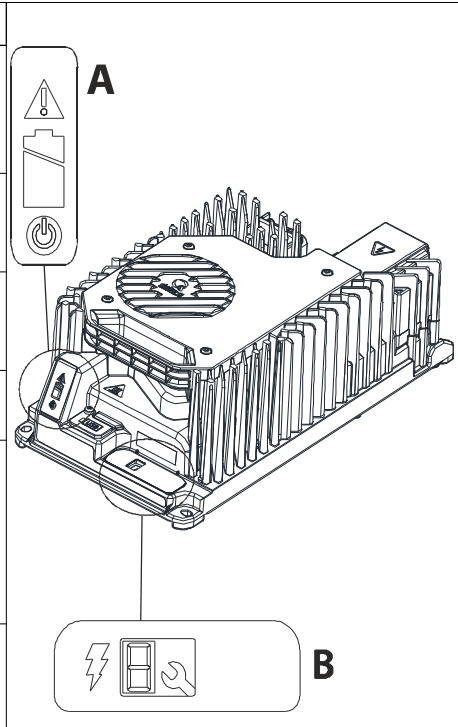
The battery charger **AC input plug (1)** is located on the battery compartment.

1. Connect the **AC input plug (1)** to a grounded outlet.

2. When first powered up, the charger will go through a short LED indicator self-test. The battery charger light's on the Ground Control Station will flash in sequence for two seconds.
3. The batteries are fully charged when the green light on the battery charger status panel (Ground Control Station) is illuminated.

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 14 days has elapsed.*

Charger Interface

Status Bar - A			Display panel - B	
	Fault Error / USB Indicator Solid red = Charge fault See display panel for details			The **Charging Output Indicator** is solid yellow when the charger output is active. Take appropriate actions while handling the charger, as there is a risk of electric shock.
	Flashing amber = External error condition - caution See display panel for details			The **Charge Profile / Error Display** shows possible codes to indicate different conditions: - 'F' codes mean that an internal fault condition has caused charging to stop. - 'E' codes mean that an external error condition has caused charging to stop. - 'P' codes mean that the charger programming mode is active.' The 'E,' 'F' and 'P' codes are followed by three numbers and a period to indicate different conditions (e.g. E-0-0-4.). See the "Charger Fault Codes" or "Charger Error Codes" sections for details on these conditions and their solutions. 'P' codes indicate the charging profile number. See Section 5.5
	Flashing green = USB port active Solid green = Safe to remove USB flash drive			
	AC Power Indicator Solid blue = AC power available			
	Battery Charging Indicator Flashing green = Low state of charge Solid green = High state of charge			
	Battery Charging Indicator Flashing green = High state of charge Solid green = charge complete			The **Select Charge Profile Button** is used to select a charge profile from those stored on the charger. Up to 25 charge profiles can be stored. Press this button to view the active charging profile.

3.19 TIE-DOWN/LIFT LUGS

Tie Down

When transporting the machine:

- Platform must be fully lowered in the stowed position.

- Remove all loose items from the machine.

- Machine must be tied down to the truck bed or trailer deck as shown in Figure 3-15.

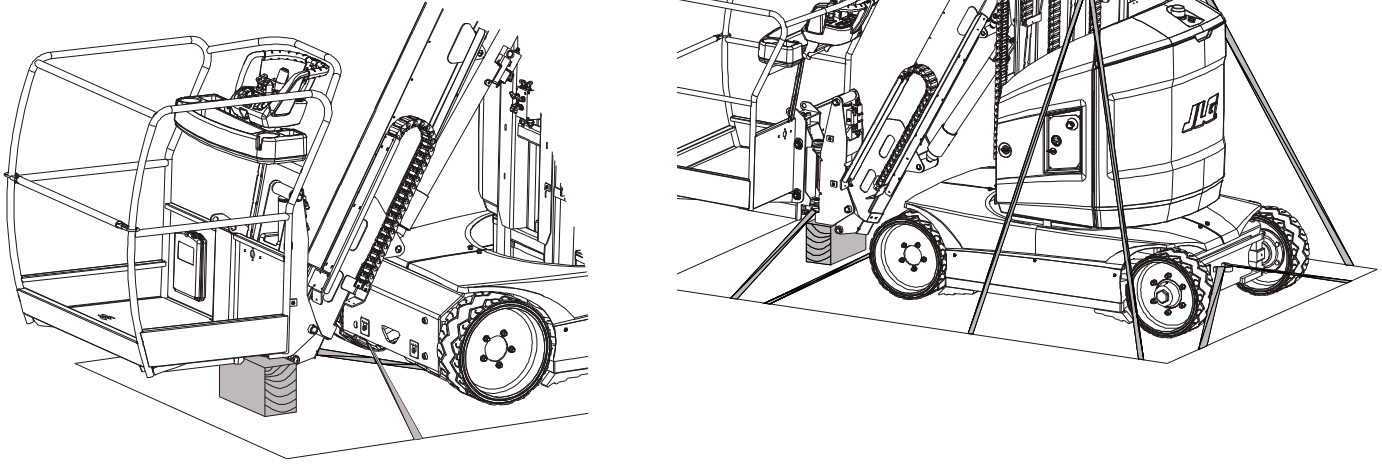


Figure 3-15. Machine Tie-Down

Lifting

When lifting the machine:

- Platform must be fully lowered in the stowed position.
- Remove all loose items from the machine.
- Attach lifting straps/chains at BOTH lifting lugs as shown in Figure 3-16.

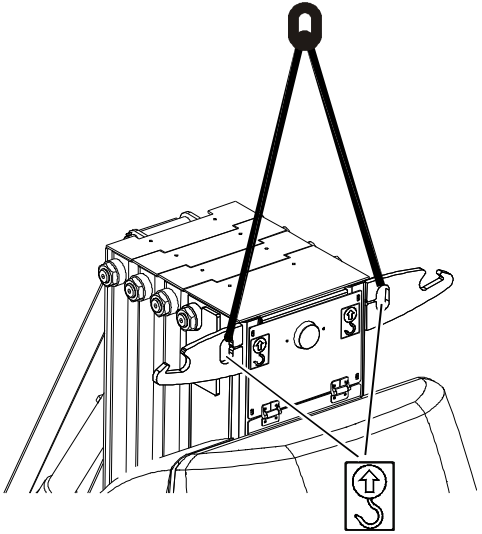
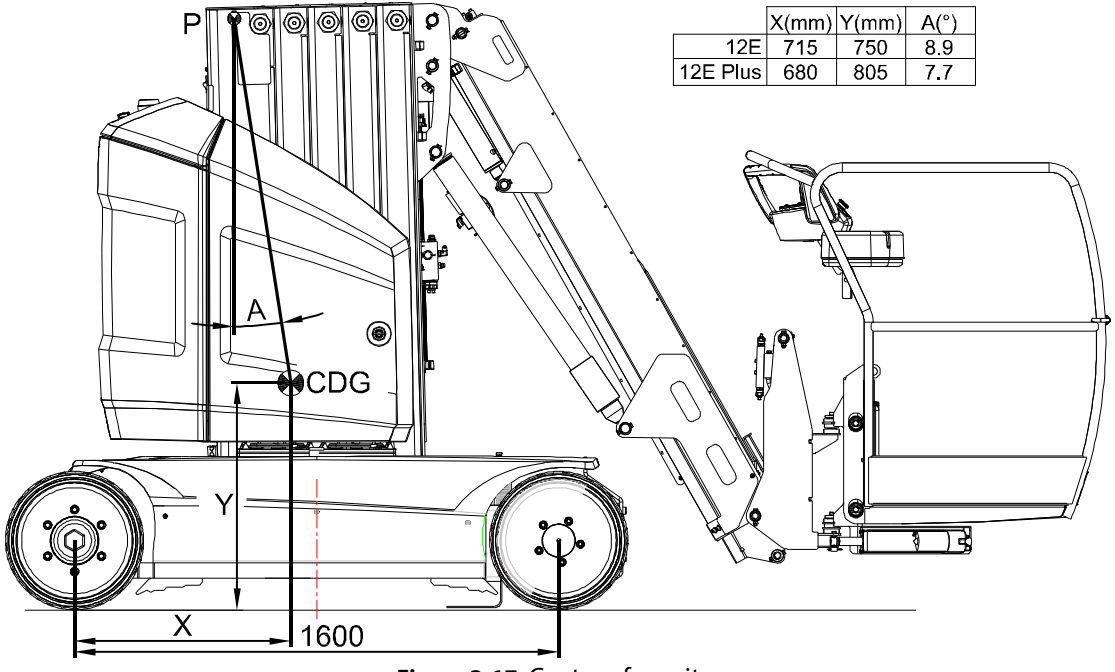


Figure 3-16. Lifting the Machine

Centre de gravity

CDG = Centre of gravity - **P**= Lift points



	X(mm)	Y(mm)	A(°)
12E	715	750	8.9
12E Plus	680	805	7.7

Figure 3-17. Centre of gravity

3.20 TOWING

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

NOTICE

THE ALLOWABLE TOWING SPEED IS 3 KM/H (1.9 MPH). THE MAXIMUM ALLOWABLE TOWING DISTANCE IS 500 M (0.3 MILES).

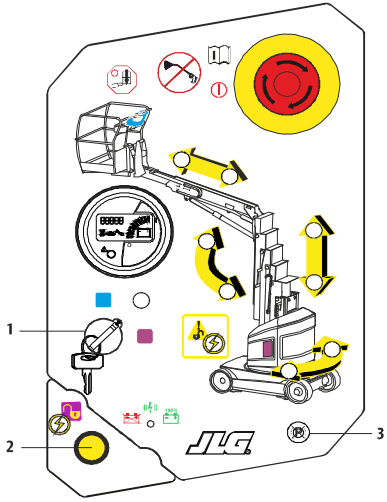


Figure 3-18. Electric Brake Release

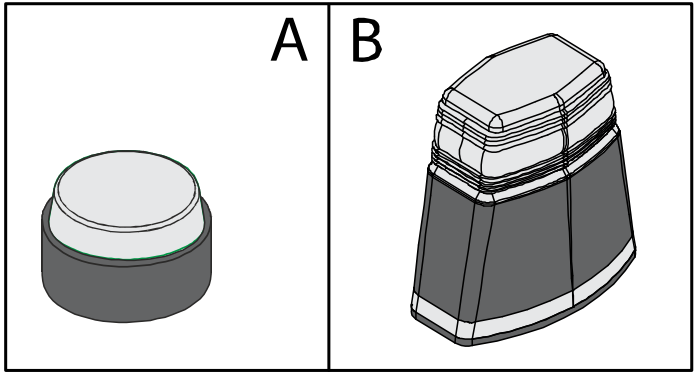
Electric Brake Release

NOTE: *Electrical release of the brakes requires enough battery power to hold the brakes in released mode until destination is reached.*

1. Chock wheels or secure machine with tow vehicle.
2. Position the key-select-switch to **ground control station (1)**.
3. Push and hold the **enable push button (2)** (If equipped).
4. Depress the **brake release button (3)** for one second to release the brakes. Once the brakes are released, an acoustic (discontinuous sound) alarm is triggered.
5. When finished towing, depress and hold both the **enable push button (2)** (If equipped) and the **brake release button (3)** again or power the machine down at the ground control station to re-engage the brakes.

NOTE: *Any action to remove electrical power from the brakes such as, depressing the ground control emergency stop switch, or switching the key switch to OFF or PLATFORM MODE will re-engage the brakes.*

3.21 BEACONS



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

3.21.1 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. Where applicable, the CS550 can also be configured to function as a SkyGuard Beacon (see below).

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

3.21.2 Amber Beacon

This amber-colored beacon flashes at a constant rate to alert those nearby that the machine is in an active work state. The device may also use different flash patterns to identify specific machine alerts.

3.21.3 Blue or Red SkyGuard® Beacon

The SkyGuard beacon is available in blue or red lamp options. The beacon will flash in conjunction with an audible alarm when the SkyGuard sensor is activated. Refer to the SkyGuard Operation section for more information.

3.22 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.

3.23 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 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.

NOTE: *At time of publication, Access Control is not available for CE/UKCA markets.*

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

Restricted states include:

1. Speed Restricted — Machine is in Creep mode. See Operation section for more information on machine mode.
2. Speed and function restricted - 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 Access Control are also equipped with the ClearSky™ CS550 internet-connected communication device. Refer to the ClearSky Smart Fleet and Beacons sections of this manual for more information.

SECTION 4. EMERGENCY PROCEDURES

4.1 GENERAL INFORMATION

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

4.2 EMERGENCY OPERATION

Operator Unable to Control Machine

IF THE PLATFORM OPERATOR IS UNABLE TO OPERATE OR CONTROL THE MACHINE:

1. Other personnel should operate the machine from ground controls only as required.
2. Only qualified personnel in the platform may use the platform controls. DO NOT CONTINUE OPERATION IF CONTROLS DO NOT FUNCTION PROPERLY.
3. Rescue equipment can be used to remove the platform occupant(s). Cranes and forklift can be used to stabilize motion of the machine.

Platform or Boom Caught Overhead

If the platform or the boom becomes jammed or snagged in overhead structures or equipment, rescue the platform occupant(s) prior to freeing the machine.

4.3 EMERGENCY CONTROL

The machine has a Ground Control Station which will override the Platform Control Station. Ground controls operate Lift and Swing, and 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.

⚠ WARNING

DO NOT OPERATE FROM GROUND CONTROL STATION WITH PERSONNEL IN THE PLATFORM EXCEPT IN AN EMERGENCY.
ENSURE THE AREA BENEATH THE PLATFORM IS FREE OF PERSONNEL OR OBSTACLES PRIOR TO LOWERING.

1. Position the **key-select switch (1)** to GROUND.
2. Push and hold the **Enable push button (2)** (If equipped).
3. Actuate the appropriate **function button (3)** until the desired elevation or position of the platform is achieved.

NOTE: *The power supply to the machine is automatically cut after 5 minutes of inactivity when the ground control station is selected. Recycle the emergency stop button or key selector to restore the machine's power supply.*

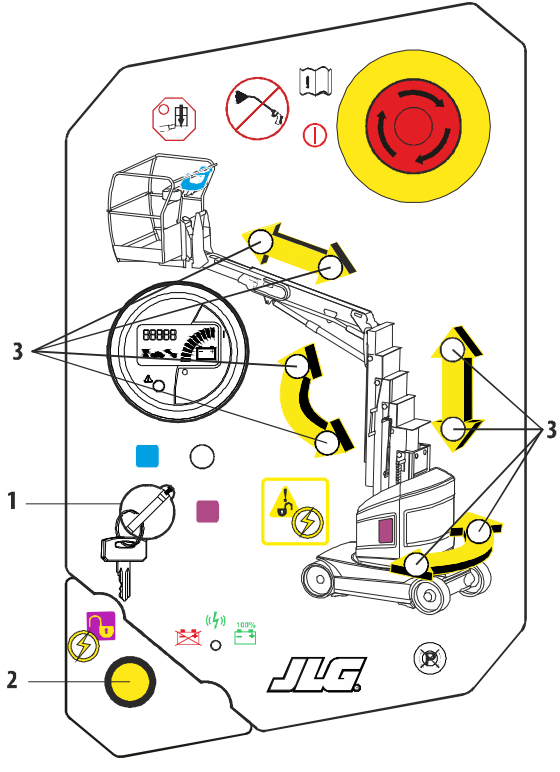


Figure 4-1. Emergency Controls

4.4 PLATFORM MANUAL DESCENT

The platform manual descent valves are used in the event of a total power failure to retract and lower the platform using gravity. Refer to Section 3 PLATFORM MANUAL DESCENT.

4.5 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.

In USA:
JLG Phone: 877-JLG-SAFE (554-7233)

EUROPE: (44) 1 698 811005

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. DO NOT ELEVATE PLATFORM UNTIL YOU ARE SURE THAT ALL DAMAGE HAS BEEN REPAIRED, AND THAT ALL CONTROLS ARE OPERATING CORRECTLY. TEST ALL FUNCTIONS FIRST FROM THE GROUND CONTROL STATION, THEN FROM THE PLATFORM CONTROL CONSOLE.

4.6 EMERGENCY TOWING

Towing this machine is discouraged. However provisions for towing the machine in emergency situations have been incorporated. Refer to Section 3.20 TOWING.

4.7 MACHINE SAFETY SYSTEM OVERRIDE (MSSO) (IF EQUIPPED)

The Machine Safety System Override (MSSO) is only to be used to retrieve an operator that is pinned, trapped, or unable to operate the machine and function controls are locked out from the platform due to a platform overload situation.

NOTE: *If the MSSO functionality is used, the fault indicator will flash and a fault code is set in the JLG Control System. A power cycle will remove the error code.*

NOTE: *No functional checks of the MSSO system are necessary. The JLG Control System will set a Diagnostic Trouble Code if the control switch is faulty.*

To operate the MSSO:

1. From the ground control console, place the Platform/Ground Select switch in the Ground position.
2. Pull out the Power/Emergency Stop control.
3. Press and hold the MSSO switch and the control switch for the desired function.

4.8 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 5. GENERAL SPECIFICATIONS AND MAINTENANCE

5.1 INTRODUCTION

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 and Maintenance Manual.

Other Publications Available Specific to this machine:

Service and Maintenance Manual EN..... 31210537

Service and Maintenance Manual FR 31210577

Illustrated Parts Manual..... 31210480

Hydraulic Schematic..... 1001222241

Electrical Schematic..... 1001197649

5.2 OPERATING SPECIFICATIONS

Table 5-1. Operating Specifications And Dimensions

Model	TOUCAN 12E	TOUCAN 12E Plus	TOUCAN 32E
Maximum Work Load	200 kg (2 persons + 40 kg material)		227 kg (500 lbs)
Maximum Manual Side Force	400 N		400 N (90 lbf)
Maximum Operating Wind Speed	12.5 m/s (28mph)		
Maximum Elevated Travel Grade (Gradeability and Side slope)	5.2% (3°)		
Maximum Stowed Travel Grade (Gradeability) (Reference Figure 3-12.)	25% (14°)		
Maximum Stowed Travel Grade (Side slope) (Reference Figure 3-12.)	8.7% (5°)		
Maximum Drive Speed Stowed Mast Elevated	 5.7 km/h (3.5 mph) 0.75 km/h (0.47 mph)		
Inside Turning Radius Outside Turning Radius	0.75 m (2.5’) 2.60 m (8.5’)		
Maximum Platform Height	9.83 m	10.65 m	9.83 m (32.3’)
Horizontal Reach From centerline of machine From rear wheel edge From side wheel edge	 4.60 m 3.57 m 4.00 m	 5.55 m 4.52 m 4.95 m	 4.55 m (14.9’) 3.52 m (11.5’) 3.95 m (13.0’)
Up and Over Clearance	6.95 m (22.8’)		

Table 5-1. Operating Specifications And Dimensions

Model	TOUCAN 12E	TOUCAN 12E Plus	TOUCAN 32E
Approximate Gross Machine Weight	4300 kg	4900 kg	4600 kg (10140 lbs)
Maximum Tire Load (per wheel)	2280 kg	2680 kg	2400 kg (5290 lbs)
Maximum Hydraulic Pressure	18 MPa (2600 psi)		
Maximum Ground Bearing Pressure	12.5 kg/cm^2	14 kg/cm^2	13 kg/cm^2 (185 psi)
Electrical System Voltage	48V DC		

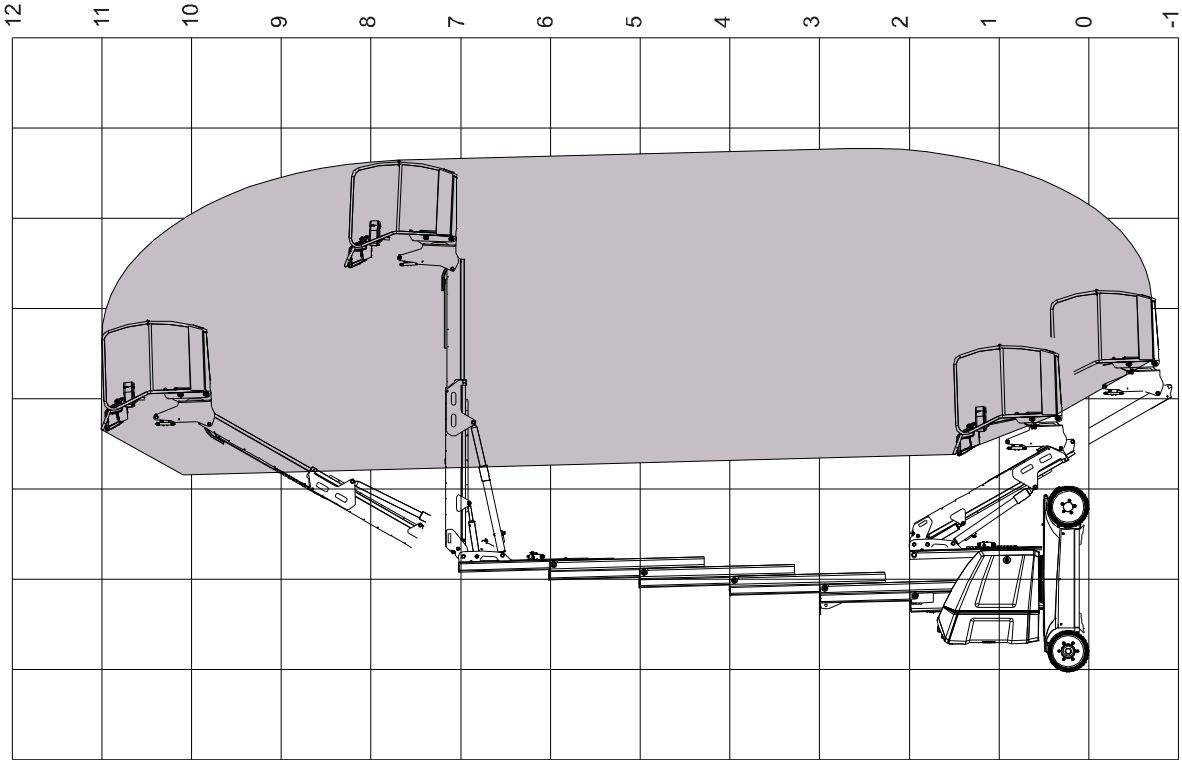


Figure 5-1. Range Diagram 12E/32E

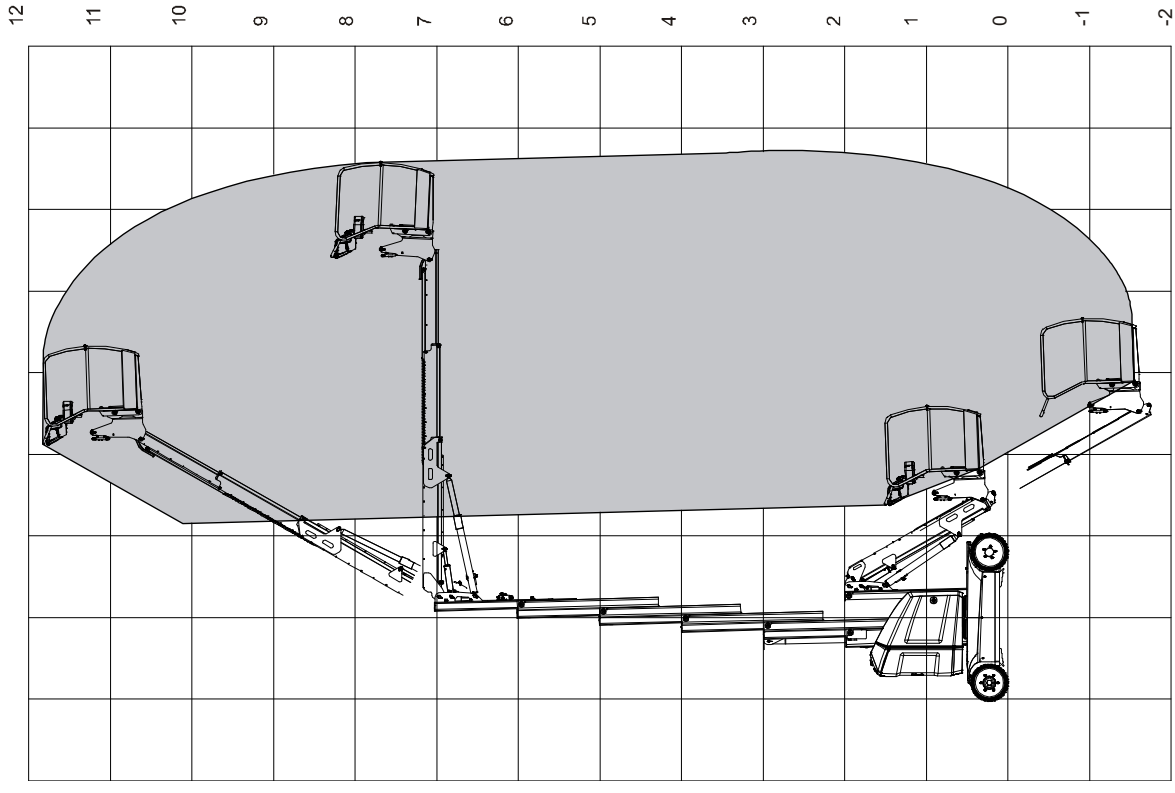


Figure 5-2. Range Diagram 12E Plus

Table 5-2. Dimensions

DESCRIPTION	All Models
Platform Height - Stowed	0.35 m (13.8″)
Overall Stowed Machine Height	1.99 m (6.5′)
Overall Machine Width	1.20 m (3.9′)
Overall Machine Length	3.65 m (12′)
Platform Size - Length	0.70 m (2.3′)
Platform Size - Width	1.05 m (3.4′)

Table 5-3. Tires Specifications

DESCRIPTION		All Models
Size		Ø457 x 178 mm (Ø18″ x 7″)
Wheel Bolts Torque	Front	250 N.m (184 lb.ft)
	Rear	210 N.m (155 lb.ft)

Table 5-4. Drive Motors - Hydraulic Power Unit

DESCRIPTION			All Models	
Drive Motor		Voltage	28 VAC	
		Power	2 kW	
Hydraulic Power Unit	Motor	Voltage	48 VDC	
		Power	3.0 kW	
	Pump	Displacement	4.2 cc/rev - (0.26 cu.in/rev)	
		Flow Rate	13.0 l/mn @ 11 MPa - (3.4 gal/min @ 1600 psi)	
	Capacity	Tank	21.8 l (18.7 l usable) - (5.8 gal (4.9 gal usable))	
		Hydraulic System (1)	**TOUCAN 12E/TOUCAN 32E** Approx. 20 l - (5.28 gal)	**TOUCAN 12E Plus** Approx. 21.5 l - (5.68 gal)

(1) - Including Tank

Table 5-5. Battery Specifications

DESCRIPTION	All Models
Voltage (48 VDC)	8 packs of 6V
Amp Hour (Standard battery)	215 Amp Hour @ 5 HR. Rate 260 Amp Hour @ 20HR. Rate
Battery Weight (Approx.)	265 kg (584 lbs)

Table 5-6. Lubrication Specifications

KEY	SPECIFICATIONS	e.g.
A	Extreme Pressure - Multi Purpose Grease	MOBILUX EP2 COMPLEX EP2
B	Open Gear Lube	MOBILTAC 81
C	Non Detergent Mineral Oil (*)	MOBIL DTE 10XL 68
D	Synthetic Chain Oil	Fuchs VT 800

(*) To be adapted to the machine's operating conditions. See Table 5-11

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.*

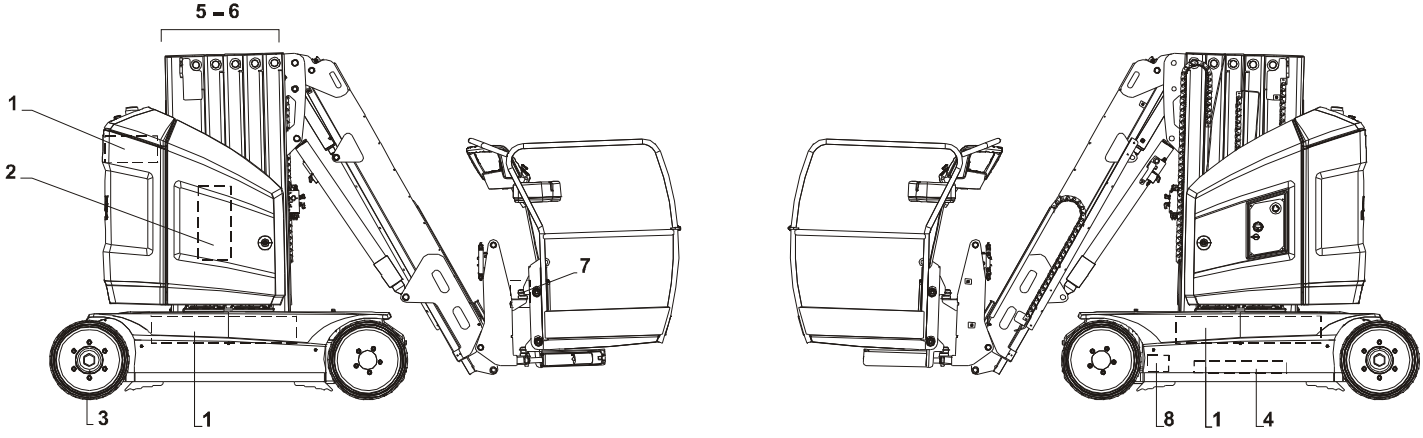
Table 5-7. Hydraulic Oil Specifications - Standard

SPECIFICATION	NERVOFLUID VG 15	MOBIL DTE 10 XL15
ISO Viscosity grade	15	15
Cinematic Viscosity @ +40°C (104°F)	14.9 mm^2/s (cSt)	15.8 mm^2/s (cSt)
Cinematic Viscosity @ +100°C (212°F)	3.8 mm^2/s (cSt)	4.07 mm^2/s (cSt)
Pour Point, Max.	-40°C (-40°F)	-54°C (-65°F)
Flash Point, Min.	175°C (347°F)	182°C (359°F)
Viscosity Index	153	168
ISO 6743-4 Classification	HV	-

Table 5-8. Hydraulic Oil Specifications - Optional

SPECIFICATIONS	PANOLIN HLP SYNTH 3504	NERVOL AGROFLUID 32
Oil Type	Synthetic Biodegradable	Synthetic Food Compatible
ISO Viscosity Grade	32 cSt	32 cSt
Cinematic Viscosity @ -20°C (-4°F)	1150 cSt	795 cSt
Cinematic Viscosity @ 0°C (32°F)	280 cSt	198 cSt
Cinematic Viscosity @ +40°C (104°F)	30.6 cSt	31 cSt
Pour Point, Max.	-58°C (-72.4°F)	-60°C (-76°F)
Flash Point, Min.	240°C (464°F)	230°C (446°F)
Viscosity Index	140	143
ISO 6743-4 Classification	-	-

5.3 OPERATOR MAINTENANCE



1. Battery
2. Oil Level / Oil Filter
3. Tires & Wheels
4. Turntable Bearing Lubrication
5. Telescopic Mast Lubrication
6. Lifting Chains Lubrication
7. Overload System Verification
8. Tilt Sensor Verification

Figure 5-3. Operator Maintenance & Lubrication Diagram

5.4 CHASSIS HOOD REMOVAL

- Unscrew the four (4) retaining screws (a);
- Remove first the left chassis cover (b): Slide the cover to the rear of the machine (1) by approx. 20 mm (1”), then lift the covers (2) to remove it completely;
- Remove the right chassis cover (c): Proceed as for the left cover.

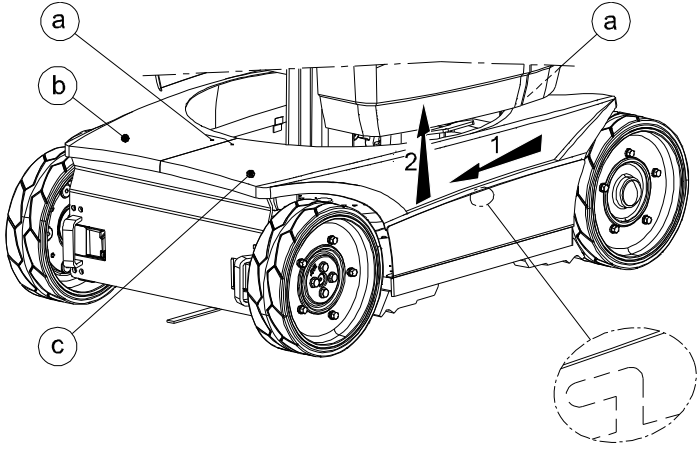


Figure 5-4. Chassis Hood Removal

5.5 BATTERY MAINTENANCE

Battery Maintenance and Safety Practices

⚠ CAUTION

ENSURE THAT BATTERY ACID DOES NOT COMES INTO CONTACT WITH SKIN OR CLOTHING. WEAR PROTECTIVE CLOTHING AND EYEWEAR WHEN WORKING WITH BATTERIES. NEUTRALIZE ANY BATTERY ACID SPILLS WITH BAKING SODA AND WATER.
BATTERY ACID RELEASES AN EXPLOSIVE GAS WHILE CHARGING, ALLOW NO OPEN FAMES, SPARKS OR LIGHTED TOBACCO PRODUCTS IN THE AREA WHILE CHARGING BATTERIES. CHARGE BATTERIES ONLY IN A WELL VENTILATED AREA.

As with any wet cell battery, check the electrolyte level of the batteries often, using the floats in the center of each cell filling.

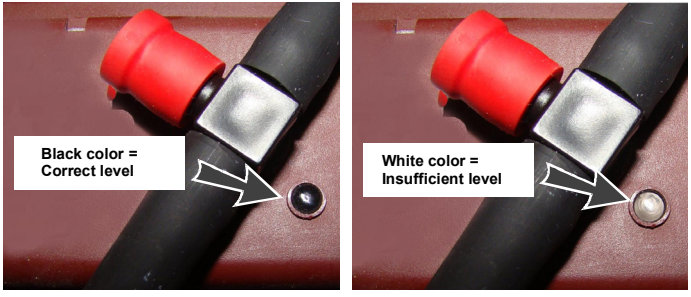


Figure 5-5. Level Indicators

Add only distilled water when required.

NOTICE

ADD ONLY DISTILLED WATER TO BATTERIES. FILL BATTERIES ONLY AFTER CHARGING (DURING CHARGE, ELECTROLYTE LEVEL INCREASES AND CAN OVERFLOW).

- Fill the **reservoir (1)** with distilled water.
- Depress and hold the filling **pump activation button (2)**.
- Release the button when the **flow indicator (3)** slows down.
- Ensure the level is correct in each cell.

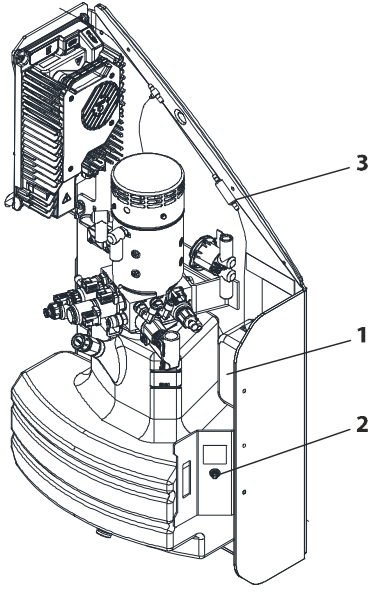


Figure 5-6. Adding Water to Batteries

1. Water Reservoir
2. Pump Activation Button
3. Flow Indicator + Filter

Regularly:

- Clean and dry the battery top.
- Ensure the connections are clean and tight.
- Drain the water that can accumulate at the bottom of the container (electrolyte overflow, leak in the filling circuit, battery cleaning…).

⚠ CAUTION

DRAINED WATER MAY HAVE BEEN IN CONTACT WITH ACID AND MAY HAVE BECOME CORROSIVE. ENSURE THAT DRAINED WATER DOES NOT COME INTO CONTACT WITH SKIN OR CLOTHING. WEAR PROTECTIVE CLOTHING AND EYE-WEAR WHEN WORKING WITH BATTERIES. NEUTRALIZE ANY BATTERY ACID SPILLS WITH BAKING SODA AND WATER.

NOTE: *The water that contacted a battery is classified as industrial waste and must be disposed of according to regulations in force.*

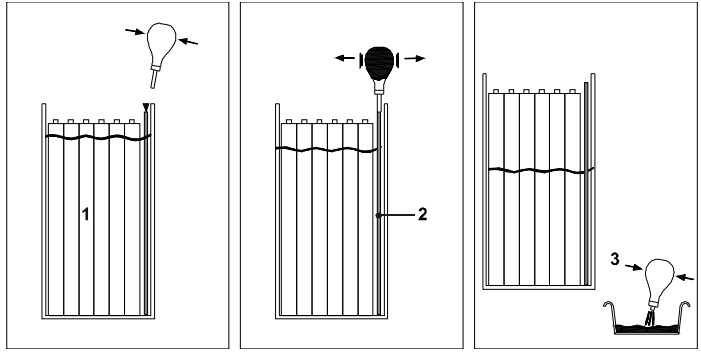


Figure 5-7. Draining the Water

1. Battery Container

2. Plunger

3. Bulb

Battery Voltage and Electrolyte Specific Gravity

NOTE: *Voltage and specific gravity measures should not be performed after battery cells have been filled. These measures must be done after a complete charge, once the charger has been unplugged and after the battery has been standing for at least 15 minutes.*

- Open the filling cap of the cell on which the red cable is connected (B+).
- Using the hydrometer, take a quantity of electrolyte sufficient so that the float emerges. Ensure that the float top does not touch the rubber bulb or that the float does not stick by capillarity to the glass wall.
- Read the value as indicated in Figure 5-8.
- Return electrolyte in the cell and record the value in the battery service log.
- Measure the cell voltage and record the value in the battery service log.
- Repeat operation for each cell in sequence from B+ (Red Cable) to B- (Black cable).

NOTE: *If important disparities are noticed between gravity/voltage of different cells or if the gravity values are lower than 1.240kg/l (after a complete charge) contact JLG Product Support.*

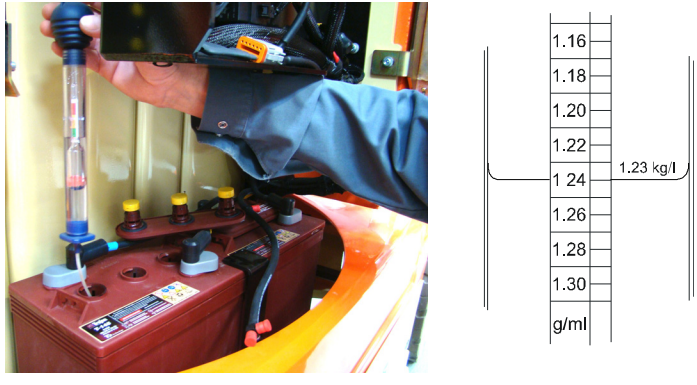


Figure 5-8. Measuring Electrolyte Specific Gravity

Filling System Maintenance

Batteries filling circuit must be serviced once a year. Cleaning frequency must be increased in case of premature clogging of the filter or a reduction of water flow.

- Disconnect and clean the **filter (3)** (See Figure 5-6.) by reversing the water flow from the normal direction.
- Check hoses for flexibility. In case of hardening in the connections area, replace the hose.
- Check every fittings and connections for leakage.
- Check the caps individually. Ensure perfect mobility of the floats. In case of clogging, replace the cap.

Use of a Battery in a Cold Environment

Low temperatures decrease battery capacity. The battery must be fully charged when the machine is operated in a cold environment.

Battery Not Working Continuously or Inactive Battery

A battery that is not used or used intermittently must be stored charged in a dry area away from freezing temperatures. A charge must be performed once a month.

- Disconnect the battery to insulate it electrically.
- Keep the top of the battery clean and dry to prevent self-discharge.

NOTICE

IF THE BATTERY IS NOT USED CONTINUOUSLY, IT MUST BE RECHARGED BEFORE USE AND AT LEAST ONCE A MONTH (EVEN IF THE ELECTROLYTE SPECIFIC GRAVITY MEASURES ARE HIGH).

BEFORE RETURNING TO SERVICE A BATTERY THAT REMAIN INACTIVE FOR A LONG PERIOD OF TIME, CHARGE THE BATTERY AND CHECK ELECTROLYTE LEVEL IN THE CELLS.

Battery Troubleshooting

Symptoms	Probables causes	Recommended Action
Electrolyte overflow.	Filling done before the charge. Cells overfilled.	Fill battery cells after the charge.
	Overcharged.	Never charge battery if electrolyte specific gravity is above 1.240 kg/l.
Inequal electrolyte specific gravity or electrolyte specific gravity too low.	Filling done before the charge.	Fill battery cells after the charge.
	Loss of electrolyte due to overflow.	Perform an equalization charge.
	Stratification of the electrolyte.	Contact your JLG Distributor/Product Support.
Low voltage in the cells in open circuit.	Electrolyte specific gravity too low.	Refer to “electrolyte specific gravity too low”
	Short-circuit.	Clean battery top.
Battery temperature too high (over 45°).	Problem with the charger.	Get the charger check by a technician.
	Bad air circulation during charge.	Open access doors to batteries during charge Reduce the temperature of the area where the battery is charged (artificial ventilation).
	Battery shorted	Change battery.
Battery incapable of supporting regular operation.	Battery under charged.	Perform an equalization charge.
	Faulty cable or connection	Check wire condition and connection.
	Battery at the end of its service life	Replace the battery.

Charger Troubleshooting

The Smart Charger is continuously monitoring itself and its environment for unusual conditions. There are a few indications that may require the user's attention.

Symptom	Recommended Action
No indicator lights	Check AC power and connection to batteries
Flashing red Fault / Error / USB Indicator	Read fault code (e.g. F-0-0-1) number on the Charge Profile / Error Display and refer to the fault code table below
Flashing amber Fault / Error / USB Indicator	Read error code (e.g. E-0-0-1) number on the Charge Profile / Error Display and refer to the error code table below

Charger Fault Codes

Code	Description	Solution
E-0-0-2 E-0-2-2	Battery low voltage	Check the battery voltage and cable connections. Check battery size and condition. This error will automatically clear once the condition has been corrected.
E-0-0-3	Charge timeout caused by battery pack not reaching required voltage within safe time limit.	Possible causes: Charger output reduced due to high temperatures, poor battery health, very deeply discharged battery and /or poorly connected battery. Possible solutions: Operate at lower ambient temperature. Replace battery pack. Check DC connections. This error will automatically clear once the charger is reset by cycling DC.

Code	Description	Solution
E-0-0-7	Battery amp hour limit exceeded	Possible causes include poor battery health, very deeply discharged battery, poorly connected battery, and / or high parasitic loads on battery while charging. Possible solutions: Replace battery pack. Check DC connections. Disconnect parasitic loads. This error will automatically clear once the charger is reset by cycling DC.
E-0-0-8	Battery temperature is out of range	Possible battery temperature sensor error. Check temperature sensor and connections. Reset charger. This error will automatically clear once the condition has been corrected.
E-0-2-3	High AC voltage error (>270VAC)	Connect charger to an AC source that provides stable AC between 85 - 270 VAC / 45-65 Hz. This error will automatically clear once the condition has been corrected.
E-0-2-5	Low AC voltage oscillation error	AC source is unstable. Could be caused by undersized generator and/or severely undersized input cables. Connect charger to an AC source that provides stable AC between 85 - 270 VAC / 45-65 Hz. This error will automatically clear once the condition has been corrected.
E-0-3-1	Internal charger error	Remove AC and battery for a minimum of 30 seconds and retry charger. If the problem persists, contact your Distributor / Product Support.

5.6 OIL LEVEL / OIL FILTER

NOTE: *Care should be taken not to introduce any impurities (dirt, water etc.) while cap or plug is removed.*

Hydraulic Oil Check

Lube Point - Hydraulic Tank
Reservoir Capacity: 21.8 liters
Lube - Hydraulic Oil (See Table 5-7)
Interval - Check Daily

NOTE: *Check oil level with the wheels fully steered to the left.*

1. Open the access door to the **hydraulic power unit (1)**.
2. Locate the **decal (2)** on the **tank (3)**.
3. The oil level in the tank must be within the MIN (minimum) and Max (maximum) **markings (4)** of the decal.
4. If additional oil is required, wipe all dirt and debris from the **filler/ breather cap (5)** area, add proper grade of oil by using a funnel. Fill until oil level is between the MIN and MAX **markings (4)**.

Hydraulic Oil Replacement

Interval - After first 50 hours of operation and every 250 hours thereafter.

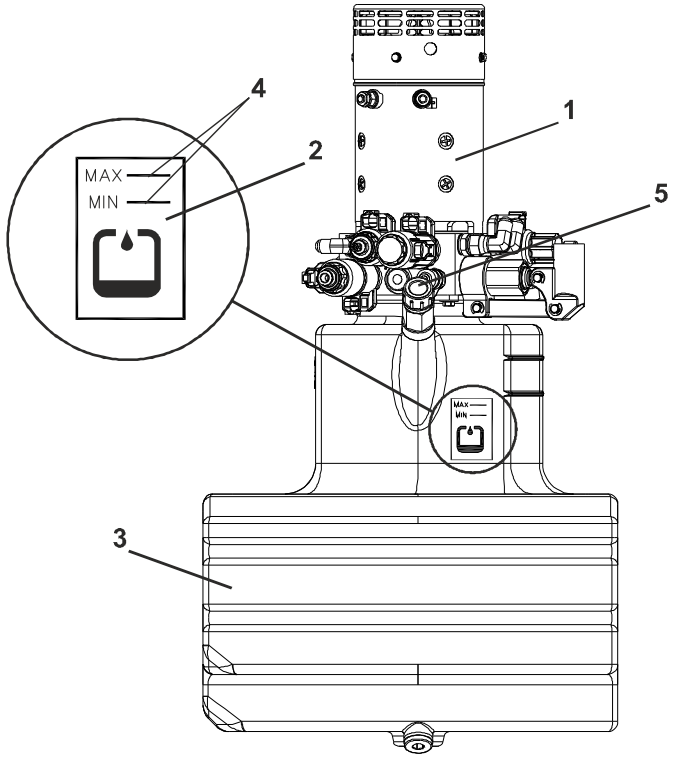


Figure 5-9. Hydraulic Oil Check

Hydraulic Filter Replacement

Lube Point - Replaceable Element (JLG P/N: 1001225151) Interval - After first 50 hours of operation and every 250 hours thereafter.

1. Turn machine power off at ground control station.
2. Open the access door to the **hydraulic power unit (1)**.
3. Wipe all dirt and debris from the **filter plug (2)** area.
4. Unscrew the **filter plug (2)**, taking care not to lose the seal.
5. Install a screw (M6) in the **threaded hole (3)** of the filter and extract the **filter (4)**. Use a container to collect oil that can spill from the filter cavity.
6. Install a new filter (oil the filter O-ring before insertion). Install the seal removed in step 4 on the plug and screw the assembly.
7. Perform a few swinging movements from the ground control station to bleed the air from the circuit.
8. Check oil level in the reservoir and adjust accordingly.

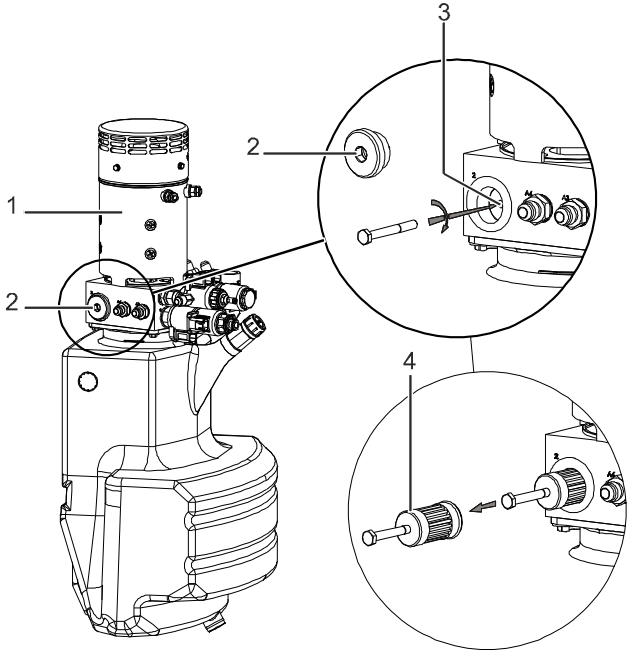


Figure 5-10. Hydraulic Filter Replacement

5.7 TIRES & WHEELS

Tire Wear and Damage

Inspect tires periodically for wear or damage. Tires with worn edges or distorted profiles require replacement. Tires with significant damage in the tread area or side wall, require immediate evaluation before replacing machine into service.

Wheel and Tire Replacement

Replacement wheels must have the same diameter and profile as the original. Replacement tires must be the same size and rating as the tire being replaced. Use of genuine parts is recommended.

Both tires/wheel on the same axle must be replaced:

- If the overall diameter of the tire is less than 445 mm.
- If any uneven wear is discovered.

  A tire with significant damage in the tread area or sidewall requires immediate evaluation before placing the machine into service. If a cut, tear, chunk, or other discrepancy exceeds any one or more of the following dimensions, the tire must be replaced:

  76 mm long, 19 mm wide, 19 mm deep

- If the metal wheel is visible at any point through the tread area of the tire.
- If more than one discrepancy exists in any quadrant of the wheel (within 90 degrees of one another).

Wheel Installation

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

⚠ WARNING

WHEEL LUG NUTS MUST BE INSTALLED AND MAINTAINED AT THE PROPER TORQUE TO PREVENT LOOSE WHEELS, BROKEN LUG NUTS, AND POSSIBLE SEPARATION OF WHEEL FROM THE AXLE. BE SURE TO USE ONLY THE LUG NUTS THAT MATCHED TO THE CONE ANGLE OF THE WHEEL.

Tighten the lug nuts to the proper torque to prevent wheels from coming loose. Use a torque wrench to tighten the fasteners. Over-tightening will result in breaking the lug nuts or permanently deforming the mounting holes in the wheels. The proper procedure for attaching wheels is as follow:

1. Start all lug nuts by hand to prevent cross threading. DO NOT use a lubricant on threads or nuts.

2. Tighten lug nuts in the following sequence.

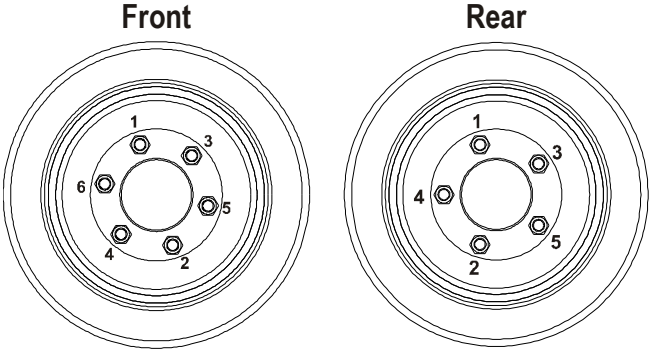


Figure 5-11. Wheel Lug Nut Tightening Sequence

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

Table 5-9. Wheel Torque Chart

Torque Sequence - Front Wheels		
1st Stage	2nd Stage	3rd Stage
50 N.m (37 lb.ft)	160 N.m (118 lb.ft)	250 N.m (184 lb.ft)

Torque Sequence - Rear Wheels		
1st Stage	2nd Stage	3rd Stage
50 N.m (37 lb.ft)	140 N.m (103 lb.ft)	210 N.m (155 lb.ft)

4. Wheel lug nuts should be torqued after the first 50 hours of operation and after each wheel removal. Check torque every 3 month or 125 hours of operation.

5.8 DECAL INSTALLATION

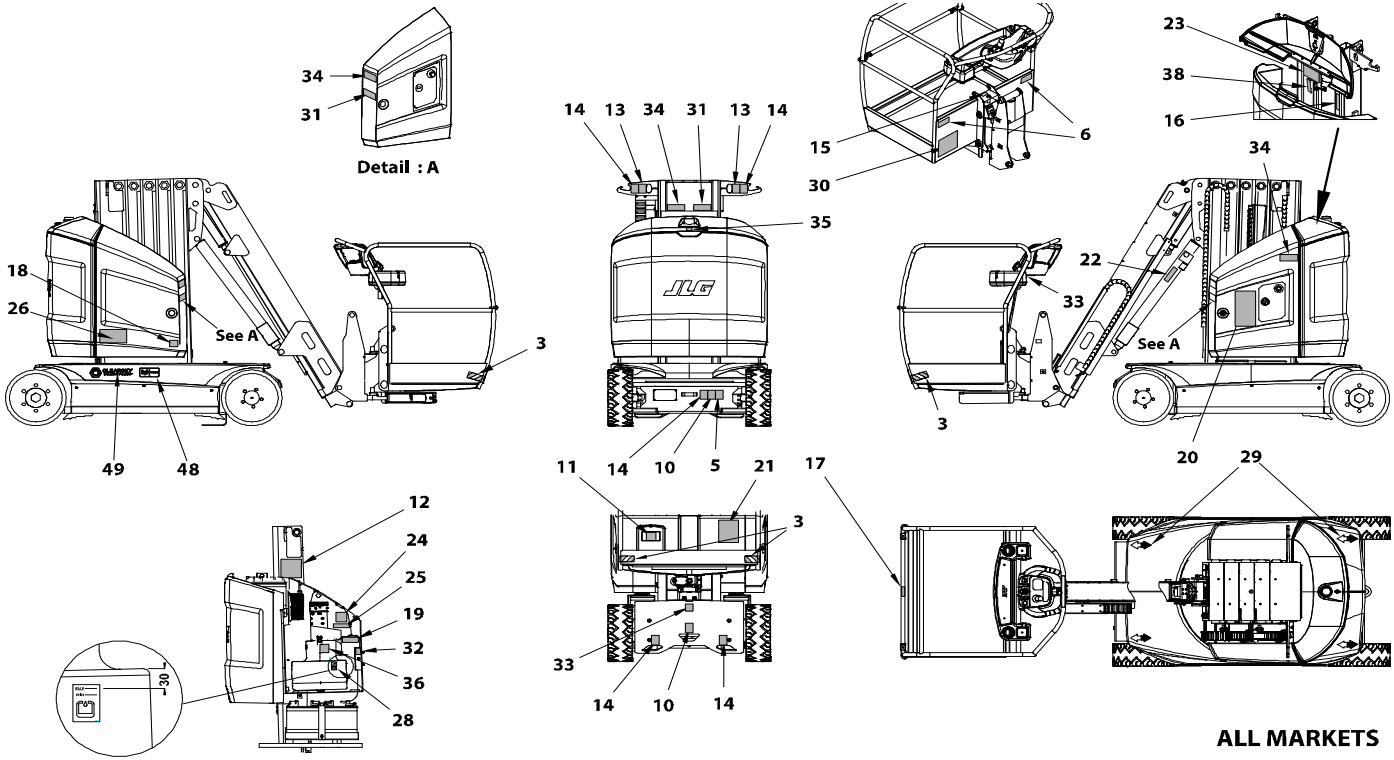
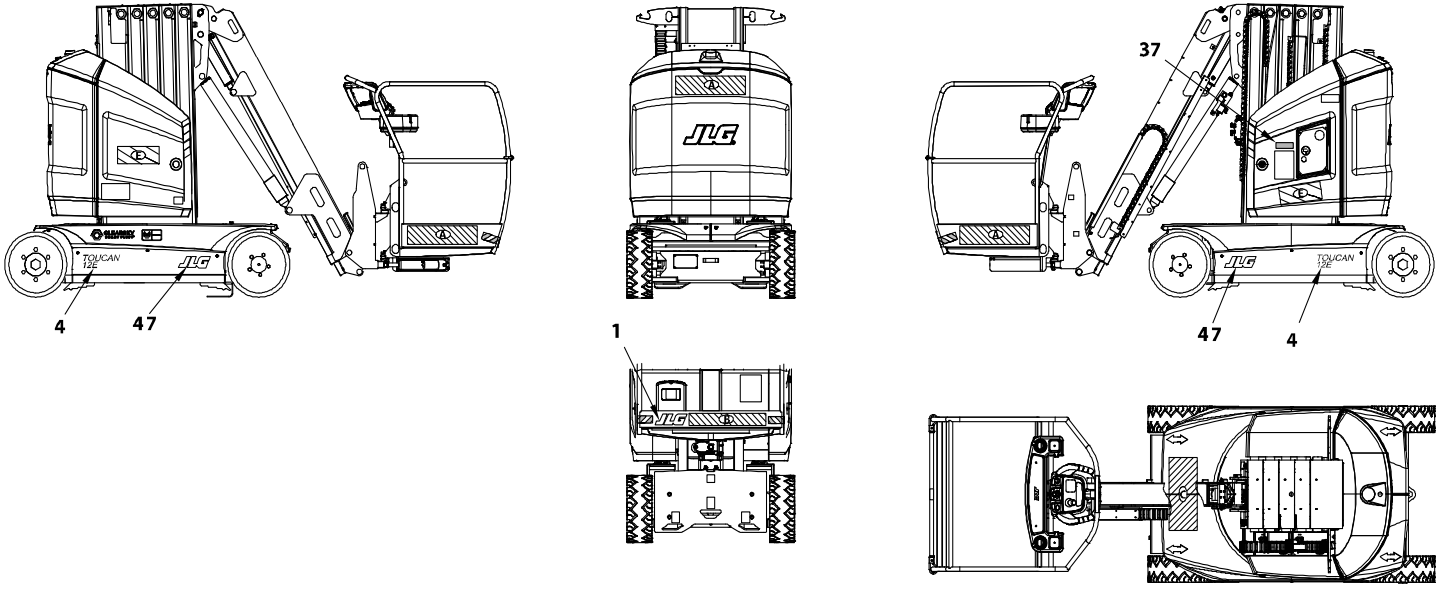
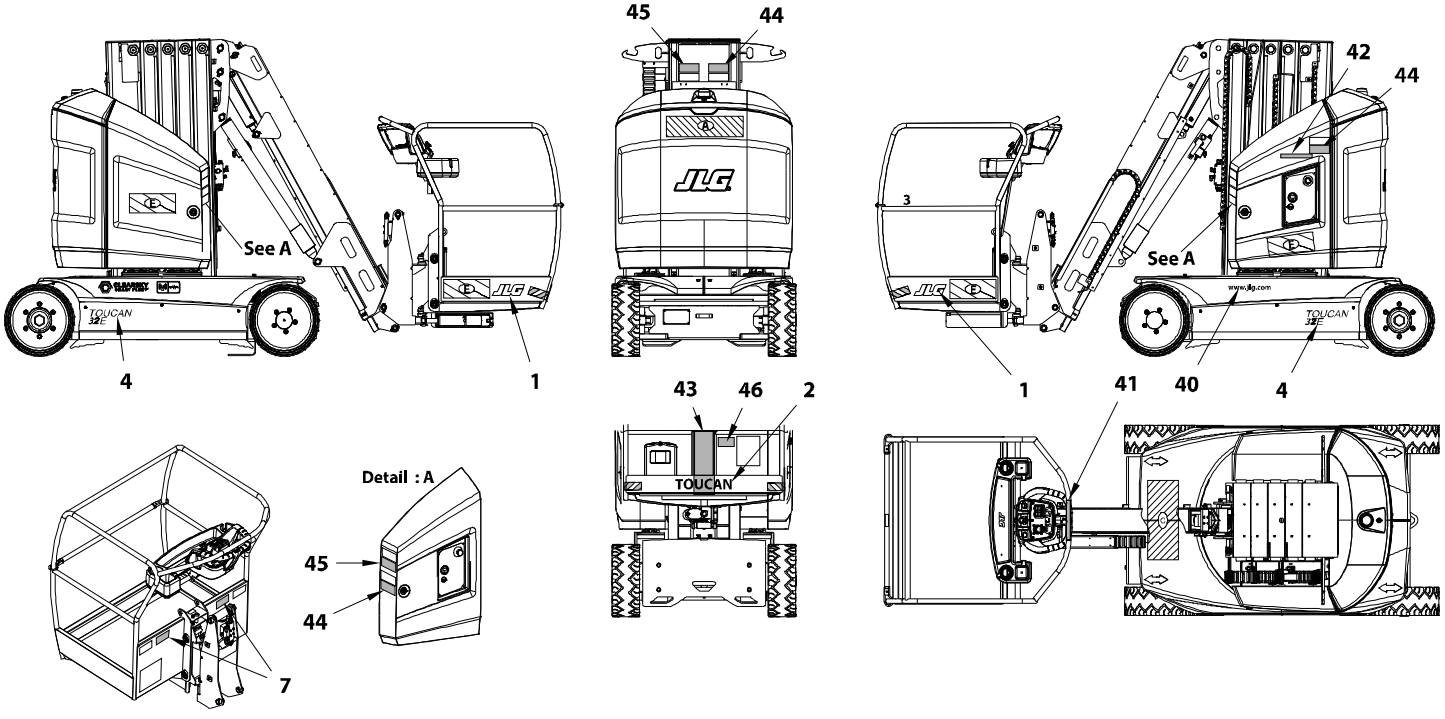


Figure 5-12. Decal Installation - All Markets



CE MARKET

Figure 5-13. Decal Installation - CE & UKCA Market



ANSI & CSA MARKETS

Figure 5-14. Decal Installation - ANSI & CSA Markets

Table 5-10. Machine Decal Installation Chart

Item #	12E	12E Plus	T32E ANSI	T32E SP-PT	T32E ENG-SP	T32E ENG-FR	Item #	12E	12E Plus	T32E ANSI	T32E SP-PT	T32E ENG-SP	T32E ENG-FR
1	1705781						24	1001226409					
2			AU1825				25	1001226410					
3	4420051						26	1001226411					
4	1001311642	1001311643	1001311644				28	AU2097					
5	AU2193	AU2194	1001226846				29	AU0149					
6	AU2107		AU2119	AU2147	AU2119		30	AU2101					
7				AU2152	AU2147	AU2140	31	AU2103		AU2118	AI2150		AU2144
8							32	AU2104					
9							33	AU2105					
10	1701499						34	AU2108		AU2117	AU2149		AU2117
11	1001227848						35	AU2229					
12	1001278484						36	1001296007					
13	1703811						37	1001189882					
14	1703814						38	Since July 2026 - 1001335548					
15	1704277						40			1704885			
16	1705803		1703785				41			AU2201			
17	1706493						42			AU2202			
18	1706740						43				1001223855	1001223853	
19	1001212356		1001212355				44				AU2155	AU2118	
20	AU2109		1001223845	1001223847	1001223849	1001223851	45				AU2154	AU2117	AU2143
21	AU2102		1001223853	1001223933	1001223935	1001223937	46			1001231801			
22	1001226407						47	1001311982					
23	Before July 2026 - 1001245245						48	1001120989					
	Since July 2026 - 1001335547						49	1001294815					

5.9 LUBRICATION

NOTE: *Recommended lubricating 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.*

Swing Bearing Race

Lube Points - 2 grease fittings
Capacity: A/R
Lube - A (See Table 5-6)
Interval - Every 250 hours of operation

1. Remove chassis hoods.
2. From ground control station, raise the mast to gain access to the turntable plate.
3. Locate the **access holes (1)** on the turntable plate.
4. Lubricate using a grease gun through both grease fittings **(2)**.

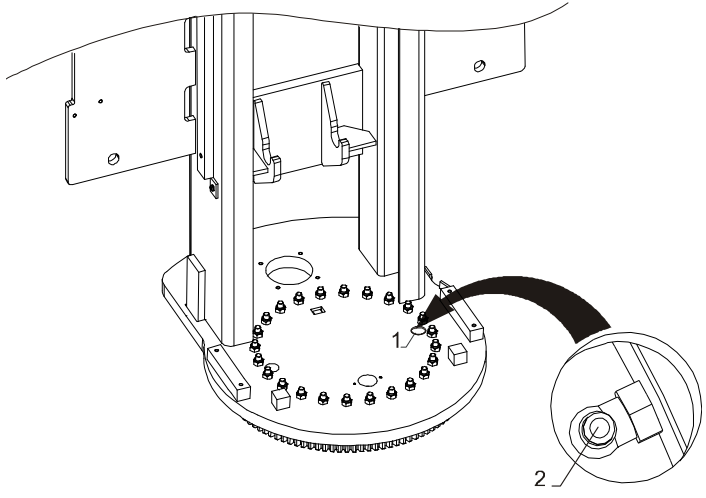


Figure 5-15. Swing Bearing Race Lubrication

Swing Bearing Teeth

Lube Points - Coat each tooth
Capacity: A/R
Lube - B (See Table 5-6)
Interval - Every 1000 hours of operation

1. Remove chassis hoods and lateral frame shields.
2. From ground control station, raise the mast to gain access to the turntable plate.
3. Fully swing the structure to the right.
4. Apply grease on the accessible bearing teeth using a **brush (1)**.
5. Fully swing the structure to the left.
6. Complete the operation on the rest of bearing teeth.

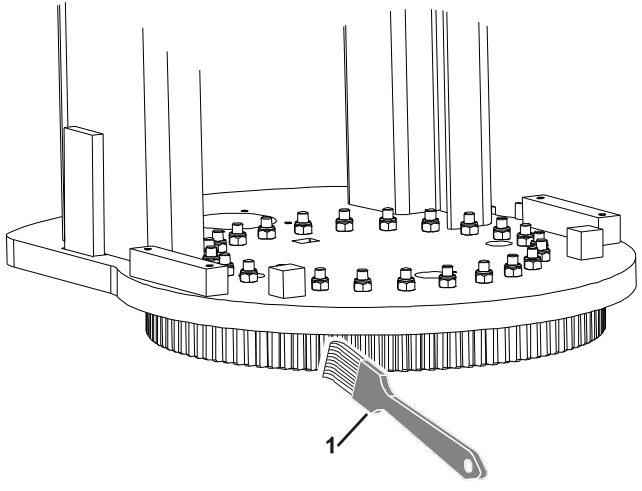


Figure 5-16. Swing Bearing Teeth lubrication

Lifting Chains

Lube Points - 8 chains
Capacity: A/R
Lube - C (See Table 5-6)
Interval - After the first 50 hours of operation and every 125 hours of operation (or every 30 days) thereafter.

Lubricant can be applied manually with a brush or by spraying. Apply lubricant longitudinally and transversally for the lubricant to reach the joints between the plates.

Table 5-11. Recommended Viscosity Grade

TEMPERATURE	ISO VISCOSITY GRADE
-15°C to 0°C (5° to 32°F)	15 to 32 mm^2/s (cSt)
0°C to 50°C (32°F to 122°F)	46 to 150 mm^2/s (cSt)

5.10 OVERLOAD SYSTEM VERIFICATION

Interval - At least every 6 months of operation.

1. Position the platform/ground select switch to the platform position.
2. Pull out both platform and ground emergency stop switches.
3. Place a load (**L**) evenly distributed on platform floor.

	TOUCAN 12E/12E PLUS	TOUCAN 32E
L	200 kg	227 kg (500 lbs)

4. Lift the platform with your hands to apply a small upwards force (**F**), then remove the force to let the platform fall.
   - No alarm should be triggered.

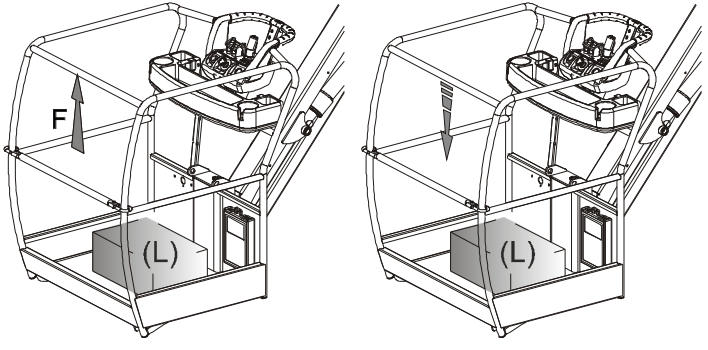


Figure 5-17. Overload System Verification

5. Add an additional weight of 15 kg (33 lbs) to the initial load.
6. Lift the platform with your hands to apply a small upwards force (**F**), then remove the force to let the platform fall.
   - RED light indicators at both the ground and the platform control stations blink.
   - An audible alarm sounds.
7. Remove the 15 kg (33 lbs) additional load.
8. Lift the platform with your hands to apply a small upwards force (**F**), then remove the force to let the platform fall.
   - No alarm should be triggered.

If the overload system does not activate as instructed, have a qualified technician calibrate and verify the system before placing the machine into service.

5.11 TILT SENSOR VERIFICATION

Interval - At least every 6 months of operation.

1. Drive the machine on a known level surface.
2. Chock both rear wheels.
3. Remove chassis hoods and place a level on the chassis positioned in line w/chassis.
4. Using a jack of appropriate capacity, lift the front on the chassis. The tilt alarm must be activated within 0.3° below the value in Table 5-1.
5. Place the spirit level perpendicular to the chassis and lift either the left or the right side of the chassis. The tilt alarm must be activated within 0.3° below the value in Table 5-1.
6. If the tilt warning is not activated within the indicated angle values, the tilt sensor must be recalibrated by a qualified technician before placing machine into service.

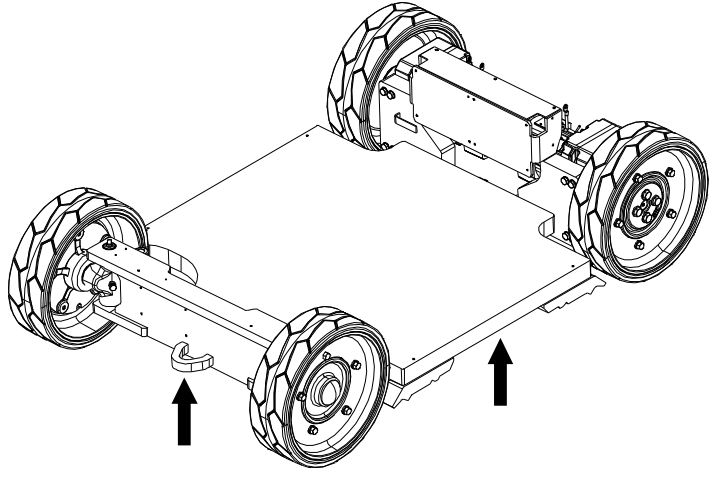


Figure 5-18. Jacking Points

5.12 SLACK CHAIN SENSORS CHECK

Interval - Check after every 6 months of operation.

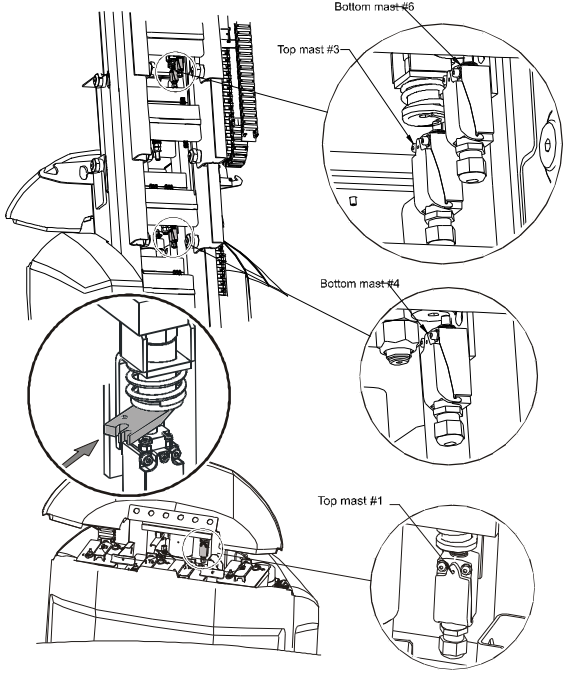


Figure 5-19. Slack/Broken Chain Sensors

Check the 4 slack chain sensors to ensure proper operation. Location: one at the top of mast 1, one at the top of mast 3, one at the bottom of mast 4 and one at the bottom of mast 6 (see opposite).

Wedge a block (P/N: ST2741) as illustrated opposite to activate the slack chain sensor and keep it activated. The system is functioning properly if:

1. From the Platform Control Console:

- An acoustic alarm sounds.
- The red slack chain indicator lights up on the Platform Control Panel.
- All functions are disabled except boom and mast raising functions.
- Prohibited movements are indicated by the orange light indicator on the platform control panel.

2. From the Ground Control Console:

- An acoustic alarm sounds.

Repeat steps 1 to 2 for each slack chain sensor.

5.13 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 ClearSky 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 web page on the JLG website.*

5.13.1 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.

5.13.2 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.

5.13.3 European Union Conformity (CE)

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 the JLG construction machines and has integrated beacon functionality. Additionally, it provides telematics data via WiFi or Cell (mobile data connection), 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

All antennas are enclosed within the CS550 module.

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

5.13.4 United Kingdom Conformity Assessed (UKCA)

JLG Industries, Inc. declares that the radio equipment ClearSky Smart Fleet CS550 Connectivity Module complies with The Radio Equipment Regulations 2017. Full details can be found on the declaration of conformity.

5.14 SUPPLEMENTAL INFORMATION

The following information is provided in accordance with the requirements of the European Machinery Directive 2006/42/EC and is only applicable to CE machines.

For electric powered machines, the equivalent continuous A-Weighted sound pressure level at the work platform is less than 70dB(A).

The vibration total value to which the hand-arm system is subjected does not exceed 2.5 m/s^2. The highest root mean square value of weighted acceleration to which the whole body is subjected does not exceed 0.5 m/s^2.

JLG declares that machines included in this manual, before placing on the market, have been subjected to the required tests in accordance with EN280-1:2022, clause 5.3.

NOTE: *CE/UKCA Declarations of conformity may vary. Refer to the original Serial number specific declaration for your machine to determine which is applicable.*

5.15 DIAGNOSTIC TROUBLE CODES (DTC)

Introduction

This sub-section provides a reference for Diagnostic Trouble Codes (DTC) read from the Multifunction Digital Indicator (MDI). For more information on the MDI, refer to Section 3. For information on the locations of any limit switches/sensors, refer to Section 2.

DTC check table

DTC	FAULT MESSAGE	DESCRIPTION	CHECK
221	FUNCTION PROBLEM - HORN PERMANENTLY SELECTED	The horn switch was closed during power-up in platform mode.	• Check if the horn switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
224	FUNCTION PROBLEM - STEER LEFT PERMANENTLY SELECTED	The Steer Left Switch was closed during powerup in platform mode.	• Check if the steer left switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
225	FUNCTION PROBLEM - STEER RIGHT PERMANENTLY SELECTED	The Steer Right Switch was closed during powerup in platform mode.	• Check if the steer right switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
226	ACCELERATOR FAULTY - WIPER OUT OR RANGE	The joystick wiper signal input is outside the acceptable voltage range.	• Center joystick and check to see if a power cycle will clear DTC. Refer problem to a qualified JLG mechanic.
227	STEER SWITCHES FAULTY	The steer left and steer right inputs were closed simultaneously.	• Check if the steer switches are damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
228	FUNCTION LOCKED OUT - ACCELERATOR NOT CENTERED	The joystick was not centered at power-up in platform mode.	• Release joystick and allow to center. • Check if the joystick is obstructed or jammed. Refer problem to a qualified JLG mechanic.
229	FUNCTION PROBLEM - TRIGGER PERMANENTLY CLOSED	The trigger switch was closed during power-up in platform mode.	• Check if the trigger switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.

DTC	FAULT MESSAGE	DESCRIPTION	CHECK
2210	TRIGGER CLOSED TOO LONG WHILE IN NEUTRAL	The trigger switch was closed for more than seven seconds while the joystick was centered.	• Check if the trigger switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
2240	LIFT ENABLE SWITCH PERMANENTLY SELECTED	The Lift Enable Switch was closed during powerup in platform mode.	• Check if the lift enable switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
2241	LIFT ENABLE SWITCH PERMANENTLY SELECTED	The Lift Enable Switch was closed during powerup in platform mode.	• Check if the lift enable switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
2242	FUNCTION LOCKED OUT - MAST JOYSTICK NOT CENTERED	The Mast Joystick was not centered at power-up in platform mode.	• Release joystick and allow to center. • Check if the joystick is obstructed or jammed. Refer problem to a qualified JLG mechanic.
2243	FUNCTION LOCKED OUT - JIB JOYSTICK NOT CENTERED	The Jib Joystick was not centered at power-up in platform mode.	• Release joystick and allow to center. • Check if the joystick is not obstructed or jammed. Refer problem to a qualified JLG mechanic.
2247	FUNCTION PROBLEM - PLATFORM ROTATE LEFT PERMANENTLY SELECTED	The Platform Rotate Left switch was closed during power-up in platform mode.	• Release the switch and allow to center. • Check if the switch is not obstructed or jammed. Refer problem to a qualified JLG mechanic.
2248	FUNCTION PROBLEM - PLATFORM ROTATE RIGHT PERMANENTLY SELECTED	The Platform Rotate Right switch was closed during power-up in platform mode.	• Release the switch and allow to center. • Check if the switch is not obstructed or jammed. Refer problem to a qualified JLG mechanic.

DTC	FAULT MESSAGE	DESCRIPTION	CHECK
2262	FUNCTION PROBLEM - PLATORM LEVEL UP PERMANENTLY SELECTED	The Platform Level Up switch was closed during power-up in platform mode.	• Check if the Platform Level Up switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
2263	FUNCTION PROBLEM - PLATORM LEVEL DOWN PERMANENTLY SELECTED	The Platform Level Down switch was closed during power-up in platform mode.	• Check if the Platform Level Down switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
2276	FUNCTION LOCKED OUT – TELESCOPE JOYSTICK NOT CENTERED	The Telescope Joystick was not centered at powerup in platform mode.	• Release joystick and allow to center. • Check if the joystick is not obstructed or jammed. Refer problem to a qualified JLG mechanic.
2310	FUNCTION PROBLEM - GROUND ENABLE PERMANENTLY SELECTED	The Ground Enable Switch was closed during power-up in ground mode.	• Check if the concerned switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2368	FUNCTION PROBLEM - MAST LIFT UP PERMANENTLY SELECTED	The Mast Lift Up Switch was closed during power-up in ground mode.	• Check if the concerned switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2369	FUNCTION PROBLEM - MAST LIFT DOWN PERMANENTLY SELECTED	The Mast Lift Down Switch was closed during power-up in ground mode.	• Check if the concerned switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2370	FUNCTION PROBLEM - JIB LIFT UP PERMANENTLY SELECTED	The Jib Lift Up Switch was closed during powerup in ground mode.	• Check if the concerned switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2371	FUNCTION PROBLEM - JIB LIFT DOWN PERMANENTLY SELECTED	The Jib Lift Down Switch was closed during power-up in ground mode.	• Check if the concerned switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.

DTC	FAULT MESSAGE	DESCRIPTION	CHECK
2372	FUNCTION PROBLEM - SWING LEFT PERMANENTLY SELECTED	The Swing Left Switch was closed during power up in ground mode.	• Check if the concerned switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2373	FUNCTION PROBLEM - SWING RIGHT PERMANENTLY SELECTED	The Swing Right Switch was closed during power-up in ground mode.	• Check if the concerned switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2377	CHAIN SLACK SWITCH DISAGREEMENT	A problem has been detected in this function.	Refer problem to a qualified JLG mechanic.
2388	PLATFORM ROTATE SWITCH FAULTY	The Platform Rotate Left and Platform Rotate Right inputs were closed simultaneously.	• Check if the platform rotate switches are damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2390	TELESCOPE SWITCH FAULTY	The Telescope In and Telescope Out inputs were closed simultaneously.	• Check if the Telescope switches are damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2393	PLATFORM LEVEL SWITCH FAULTY	The Platform Level Up and Platform Level Down inputs were closed simultaneously.	• Check if the platform level switches are damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
23109	FUNCTION PROBLEM - TELESCOPE IN PERMANENTLY SELECTED	The Telescope In Switch was closed during power-up in ground mode.	• Check if the Telescope In switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.
23110	FUNCTION PROBLEM - TELESCOPE OUT PERMANENTLY SELECTED	The Telescope Out Switch was closed during power-up in ground mode.	• Check if the Telescope Out switch is obstructed or jammed. Refer problem to a qualified JLG mechanic.

DTC	FAULT MESSAGE	DESCRIPTION	CHECK
2516	DRIVE PREVENTED - ABOVE ELEVATION	DRIVE CUTOUT set to 1 (YES), and the mast is elevated.	• Fully stow the platform. Refer problem to a qualified JLG mechanic.
2538	FUNCTION PREVENTED - CHARGER CONNECTED	Functions are prevented while the vehicle is charging.	• Check if the charger is connected to off board power source and disconnect if desired. Refer problem to a qualified JLG mechanic.
2542	FUNCTION PREVENTED - BRAKES ELECTRONICALLY RELEASED FOR TOWING	Manual brake release mode is activated. Drive or lift is not possible.	• Push manual brake release switch again or cycle power to clear manual brake release mode. • Check if the brake release switch is damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
2543	FUNCTION PREVENTED - CHAIN SLACK DETECTED	Slack was detected in the mast chain.	• Refer to section 4 for the required operations to clear the fault. • Check if the Chain Slack Limit Switches are damaged, Refer problem to a qualified JLG mechanic.
4417	BATTERY POWER LOW	The batteries are discharged.	• Recharge batteries. • Check for damaged batteries, battery cables or connections. • Check battery charger function. Be sure to observe indicators for at least 30 seconds. Refer problem to a qualified JLG mechanic.

DTC	FAULT MESSAGE	DESCRIPTION	CHECK
4420	BATTERY DEEPLY DISCHARGED	The batteries are deeply discharged.	• Recharge batteries. • Check for damaged batteries, battery cables or connections. • Check battery charger function. Be sure to observe indicators for at least 30 seconds. Refer problem to a qualified JLG mechanic.
672	FUNCTIONS CUTOUT - SOFT TOUCH DETECTED	An obstacle has been detected by the soft touch device (if equipped).	• Clear the obstacle. Refer problem to a qualified JLG mechanic.
673	FUNCTIONS CUTOUT - GATE OPEN DETECTED	If equipped - Platform entry gate is detected open.	• Check if the Gate Limit Switches are damaged, obstructed or jammed. Refer problem to a qualified JLG mechanic.
815	CHASSIS TILT SENSOR DISAGREEMENT	Tilt sensor inputs to the control system are not the same state.	Refer problem to a qualified JLG mechanic.
873	MACHINE SAFETY SYSTEM OVERRIDE OCCURED	Machine Safety System Override has been used to override a Safety System or the Platform Operator station	• A power cycle will remove the error code.

5.16 EC DECLARATION OF CONFORMITY

Manufacturer:	JLG France SAS
Address:	83 Impasse Guillaume mon Amy CS 30204 47400 Fauillet France
Technical file:	JLG EMEA B.V.
Address:	Polaris avenue 63, 2132 JH Hoofddorp The Netherlands
Position:	Senior Manager -Product strategy EMEAI
Machine Type:	Mobile Elevating Work Platform
Model Type:	Toucan 12E, Toucan 12E Plus
Notified Body:	Kuiper Certificering b.v.
EC- Number:	2842
Address:	Van Singelandtstraat 75, 7331 NM Apeldoorn The Netherlands
Certification Number:	KCEC5487
Reference Standards:	EN 280-1:2022, EN ISO 12100:2010, EN 55011:2016 +A11:2020, EN 61000-6-2:2005, EN 60204-1:2018, EN ISO 13849-1:2015

JLG Industries Inc. hereby declares that the above mentioned machine conforms with the requirements of:

2014/30/EU	EMC Directive
2014/53/EU	RED Directive (If fitted with optional equipment)
2006/42/EC	Machinery Directive

Remark: This declaration conforms with the requirements of annex II-A of the council directive 2006/42/EC.
Any modifications to the described machine violates the validity of this declaration.

5.17 UKCA DECLARATION OF CONFORMITY

Manufacturer:	JLG France SAS
Address:	83 Impasse Guillaume mon Amy CS 30204 47400 Fauillet France
Technical File:	JLG Industries UK Ltd
Address:	Braunstone Frith Industrial Estate Unit 3 Sunningdale Road, Leicester LE3 1UX United Kingdom
Position:	Director of Engineering Europe
Machine Type:	Mobile Elevating Work Platform
Model Type:	Toucan 12E, Toucan 12E Plus
Approved Body:	Amtri Veritas
AB-Number:	0463
Address:	Pierce street, Macclesfield, SK11 ER, England
Certificate Number:	AVUK5487
Reference Standards:	EN 280-1:2022, EN ISO 12100:2010, EN 55011:2016 +A11:2020, EN 61000-6-2:2005, EN 60204-1:2018, EN ISO 13849-1:2015

JLG Industries Inc. hereby declares that the above mentioned machine conforms with the requirements of:

2008 No. 1597	Supply of Machinery (Safety) Regulations 2008
2016 No. 1091	Electromagnetic Compatibility Regulations 2016
2017 No. 1206	Radio Equipment Regulations 2017 (if fitted with optional equipment)

Remark This declaration conforms with the requirements of annex II-A of the Regulation 2008 No. 1597.
Any modification of the above described machine violates the validity of this declaration.

NOTES:

SECTION 6. INSPECTION AND REPAIR LOG

Type of machine:_____ Machine Serial Number: _____

Table 6-1. Inspection and Repair Log

Date	Comments

Table 6-1. Inspection and Repair Log

Date	Comments

Name: _____

Signature: _____

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

Corporate Office
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McConnellsburg, PA 17233-9533 USA
(717) 485-5161 (Corporate)
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