JLG®

An Oshkosh Corporation Company

Operation and Safety Manual

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

Model
1850SJ
PVC 2001

ANSI CE CSA **AS/NZS**

31215066
October 17, 2019 - Rev A

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⚠ WARNING

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

FOREWORD

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

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

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

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

Refer to www.JLG.com for Warranty, Product Registration, and other machine-related documentation.

SAFETY ALERT SYMBOLS AND SAFETY SIGNAL WORDS

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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

⚠ WARNING

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

NOTICE

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

NOTICE

JLG INDUSTRIES, INC. MUST BE NOTIFIED IMMEDIATELY IN ALL INSTANCES WHERE JLG PRODUCTS HAVE BEEN INVOLVED IN AN ACCIDENT INVOLVING BODILY INJURY OR DEATH OR WHEN SUBSTANTIAL DAMAGE HAS OCCURRED TO PERSONAL PROPERTY OR THE JLG PRODUCT.

For:

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

Contact:

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

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

In USA:

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

Outside USA:

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

REVISION LOG

Original Issue	A - October 17, 2019

LIST OF FIGURES

SECTION 1. SAFETY PRECAUTIONS

1.1 GENERAL

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

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

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

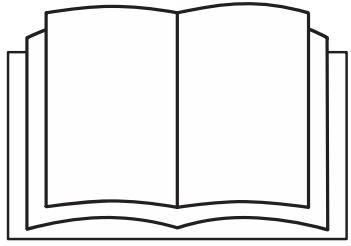
⚠ WARNING

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

1.2 PRE-OPERATION

Operator Training and Knowledge

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



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

Workplace Inspection

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

Machine Inspection

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

⚠ WARNING

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

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

1.3 OPERATION

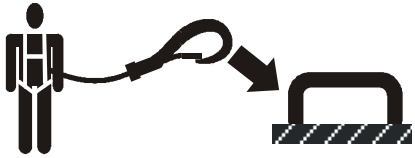
General

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

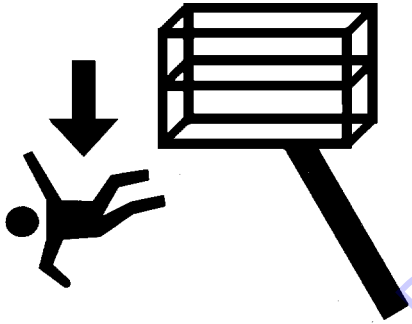
- Do not carry materials directly on platform railing unless approved by JLG.
- When two or more persons are in the platform, the operator shall be responsible for all machine operations.
- Always ensure that power tools are properly stowed and never left hanging by their cord from the platform work area.
- When driving, always position boom over rear axle in line with the direction of travel. Remember, if boom is over the front axle, steer and drive functions will be reversed.
- Do not assist a stuck or disabled machine by pushing or pulling except by pulling at the chassis tie-down lugs.
- Fully lower platform and shut off all power before leaving machine.
- Remove all rings, watches, and jewelry when operating machine. Do not wear loose fitting clothing or long hair unrestrained which may become caught or entangled in equipment.
- Persons under the influence of drugs or alcohol or who are subject to seizures, dizziness or loss of physical control must not operate this machine.
- Hydraulic cylinders are subject to thermal expansion and contraction. This may result in changes to the platform position while the machine is stationary. Factors affecting thermal movement can include the length of time the machine will remain stationary, hydraulic oil temperature, ambient air temperature, and platform position.

Trip and Fall Hazards

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



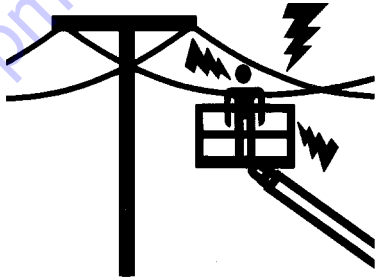
- Enter and exit only through gate area. Use extreme caution when entering or leaving platform. Ensure that the platform assembly is fully lowered. Face the platform when entering or leaving the platform. Always maintain three points of contact with the machine, using two hands and one foot or two feet and one hand at all times during entry and exit.

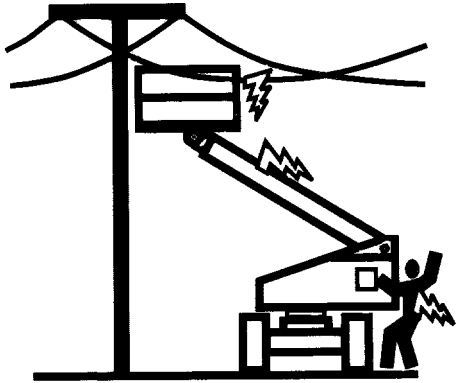


- Keep both feet firmly positioned on the platform floor at all times. Never position ladders, boxes, steps, planks, or similar items on unit to provide additional reach for any purpose.
- Keep oil, mud, and slippery substances cleaned from footwear and the platform floor.

Electrocution Hazards

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





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

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

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

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

- Maintain a clearance of at least 10 ft. (3m) between any part of the machine and its occupants, their tools, and their equipment from any electrical line or apparatus carrying up to 50,000 volts. One foot additional clearance is required for every additional 30,000 volts or less.

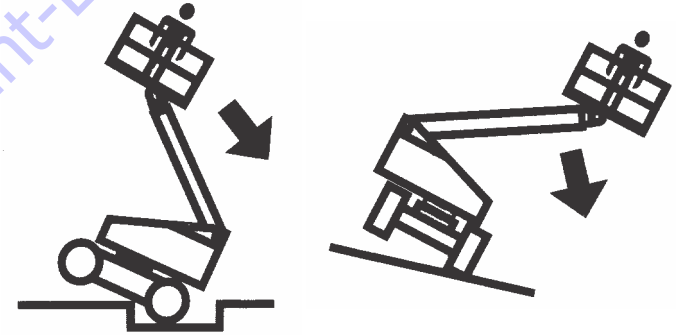
- The minimum approach distance may be reduced if insulating barriers are installed to prevent contact, and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the machine. The minimum approach distance shall be reduced to a distance 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.

⚠ 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 decals located on the chassis adjacent to each wheel. Do not travel on unsupported surfaces.
- The user must be familiar with the operating 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 smooth, firm surface within the limits of the maximum operating slope before elevating platform or driving with the platform in the elevated position.

- Before driving on floors, bridges, trucks, and other surfaces, check allowable capacity of the surfaces.
- Never exceed the maximum platform capacity as specified on the platform. Keep all loads within the confines of the platform, unless authorized by JLG.
- Keep the chassis of the machine a minimum of 2 ft. (0.6m) from holes, bumps, drop-offs, obstructions, debris, concealed holes, and other potential hazards at the ground level.
- Do not push or pull any object with the boom.
- Never attempt to use the machine as a crane. Do not tie-off machine to any adjacent structure. Never attach wire, cable, or any similar items to platform.
- If boom assembly or platform is in a position that one or more wheels are off the ground, all persons must be removed before attempting to stabilize the machine. Use cranes, forklift trucks, or other appropriate equipment to stabilize machine.
- Do not operate the machine when wind conditions exceed specifications shown in section 8.2 of this manual or as shown on the capacity placard on the platform billboard. Factors affecting wind speed are; platform elevation, surrounding structures, local weather events, and approaching storms.
- Wind speed can be significantly greater at height than at ground level.
- Wind speed can change rapidly. Always consider approaching weather events, the time required to lower the platform, and methods to monitor current and potential wind conditions.
- Do not cover or increase surface area of the platform or the load. Do not carry large surface area items int he platform when operating outdoors. The addition of such items increases the exposed wind area of the machine. Increased areas exposed to wind will decrease stability.
- Do not increase the platform size with unauthorized modifications or attachments.

NOTICE

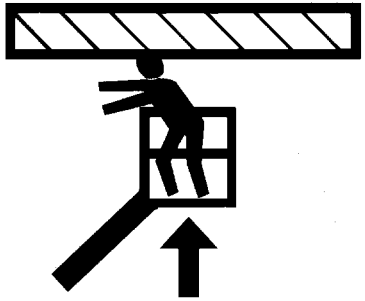
DO NOT OPERATE THE MACHINE WHEN WIND CONDITIONS EXCEED SPECIFICATIONS SHOWN IN SECTION 8.2 OR AS SHOWN ON THE CAPACITY PLACARD ON THE PLATFORM BILLBOARD.

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

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

Crushing and Collision Hazards

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



- During operation, keep all body parts inside platform railing.
- Use the boom functions, not the drive function, to position the platform close to obstacles.
- Always post a lookout when driving in areas where vision is obstructed.
- Keep non-operating personnel at least 6 ft. (1.8m) away from machine during all operations.
- Under all travel conditions, the operator must limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors.
- Be aware of stopping distances in all drive speeds. When driving in high speed, reduce drive speed before stopping. Travel grades in low speed only.
- Do not use high speed drive in restricted or close quarters or when driving in reverse.
- Exercise extreme caution at all times to prevent obstacles from striking or interfering with operating controls and persons in the platform.
- Ensure that operators of other overhead and floor level machines are aware of the MEWP's presence. Disconnect power to overhead cranes.
- Do not operate over ground personnel. Warn personnel not to work, stand, or walk under a raised boom or platform. Position barricades on floor if necessary.

1.4 TOWING, LIFTING, AND HAULING

- Never allow personnel in platform while towing, lifting, or hauling.
- This machine should not be towed, except in the event of emergency, malfunction, power failure, or loading/unloading. Refer to the Emergency Procedures section of this manual for emergency towing procedures.
- Ensure boom is in the stowed position and, if equipped, the turntable locked prior to towing, lifting or hauling. The platform must be completely empty of tools.
- When lifting machine, lift only at designated areas of the machine. Lift the unit with equipment of adequate capacity.
- Refer to the Machine Operation section of this manual for lifting information.

1.5 MAINTENANCE

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

Maintenance Hazards

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

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks. Wear gloves to help protect hands from spraying fluid.

- Use only replacement parts or components that are approved by JLG. To be considered approved, replacement parts or components must be identical or equivalent to original parts or components.
- Never attempt to move heavy parts without the aid of a mechanical device. Do not allow heavy objects to rest in an unstable position. Ensure adequate support is provided when raising components of the machine.
- Do not use machine as a ground for welding.
- When performing welding or metal cutting operations, precautions must be taken to protect the chassis from direct exposure to weld and metal cutting spatter.
- Do not refuel the machine with the engine running.
- Use only approved non-flammable cleaning solvents.
- Do not replace items critical to stability, such as batteries or solid tires, with items of different weight or specification. Do not modify the MEWP in any way to affect stability.
- Refer to the Service and Maintenance Manual for the weights of critical stability items.

⚠ WARNING

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

Battery Hazards

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

⚠ CAUTION

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

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

SECTION 2. USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

2.1 PERSONNEL TRAINING

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

Operator Training

Operator training must cover:

1. Reading and understanding the Operation and Safety Manual.
2. Thorough understanding of the intended purpose and function of the MEWP controls, including platform, ground, and emergency descent controls.
3. Control labels, instructions, and warnings on the machine.
4. Applicable regulations, standards, and safety rules.
5. Use of approved fall protection equipment.
6. Enough knowledge of the mechanical operation of the machine to recognize a malfunction or potential malfunction.
7. The safest means to operate the machine where overhead obstructions, other moving equipment, and obstacles, depressions, holes, and drop-offs exist.
8. Means to avoid the hazards of unprotected electrical conductors.
9. Selection of the appropriate MEWP and available options for the work to be performed considering specific job requirements, with involvement from the MEWP owner, user, and/or supervisor.
10. The responsibility of the operator to ensure all platform occupants have a basic level of knowledge to work safely on the MEWP, and to inform them of applicable regulations, standards, and safety rules.
11. The requirement for familiarization in addition to training.

Training Supervision

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

Operator Responsibility

The operator must be instructed they have the responsibility and authority to shut down the machine in case of a malfunction or other unsafe condition of either the machine or the job site.

Machine Familiarization

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

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

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

1. Location of the manual storage compartment and the requirement to ensure the required manual(s) are present on the MEWP;
2. Purpose and function of the machine controls and indicators at the platform and ground control stations;
3. Purpose, location, and function of the emergency controls;
4. Operating characteristics and limitations;
5. Features and devices;
6. Accessories and optional equipment.

2.2 PREPARATION, INSPECTION, AND MAINTENANCE

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

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.

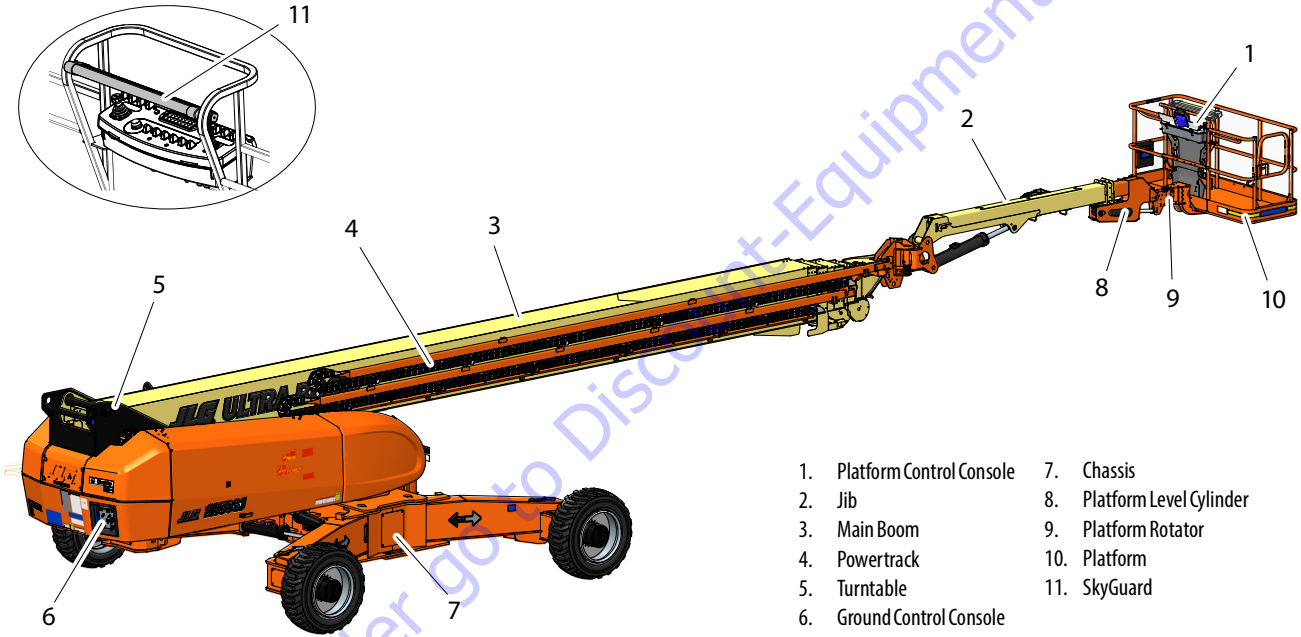


Figure 2-1. Basic Nomenclature - Sheet 1 of 3

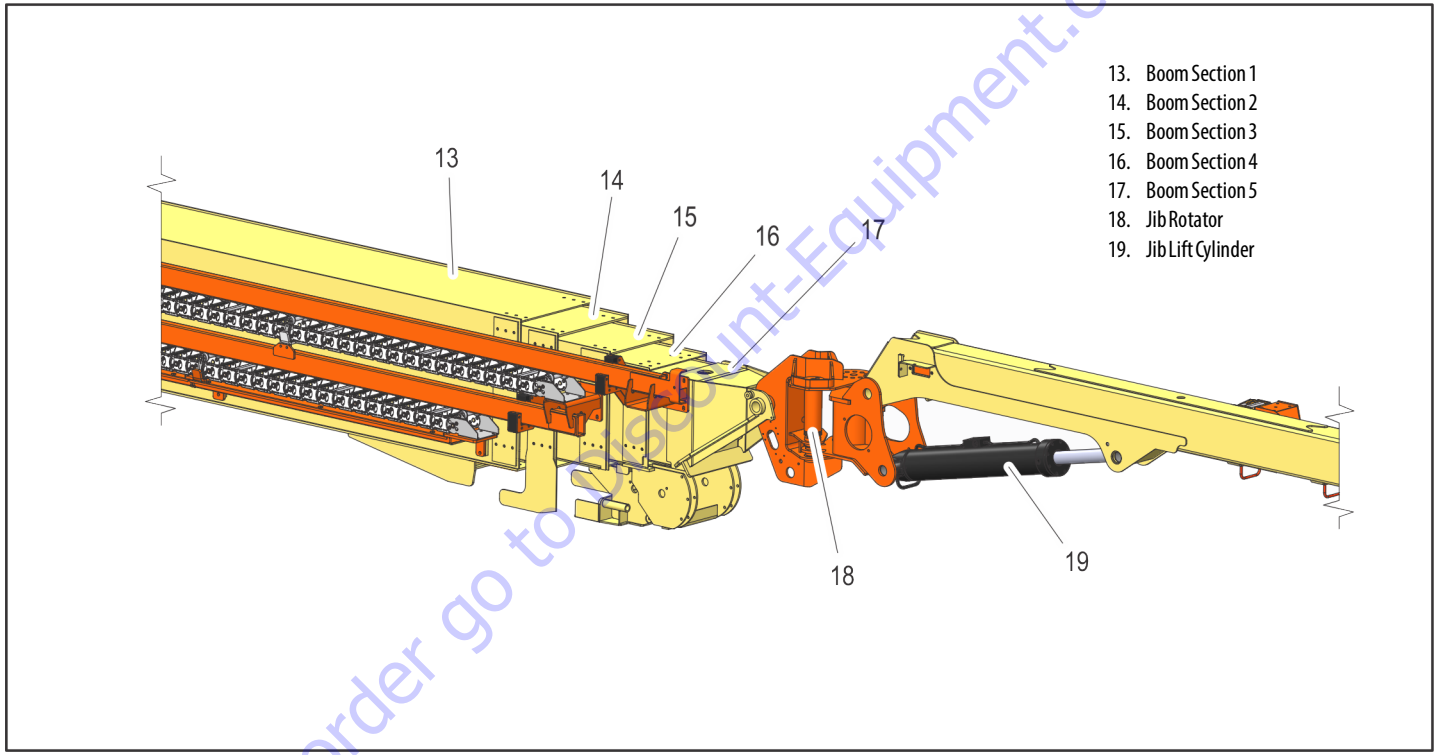


Figure 2-2. Basic Nomenclature - Sheet 2 of 3

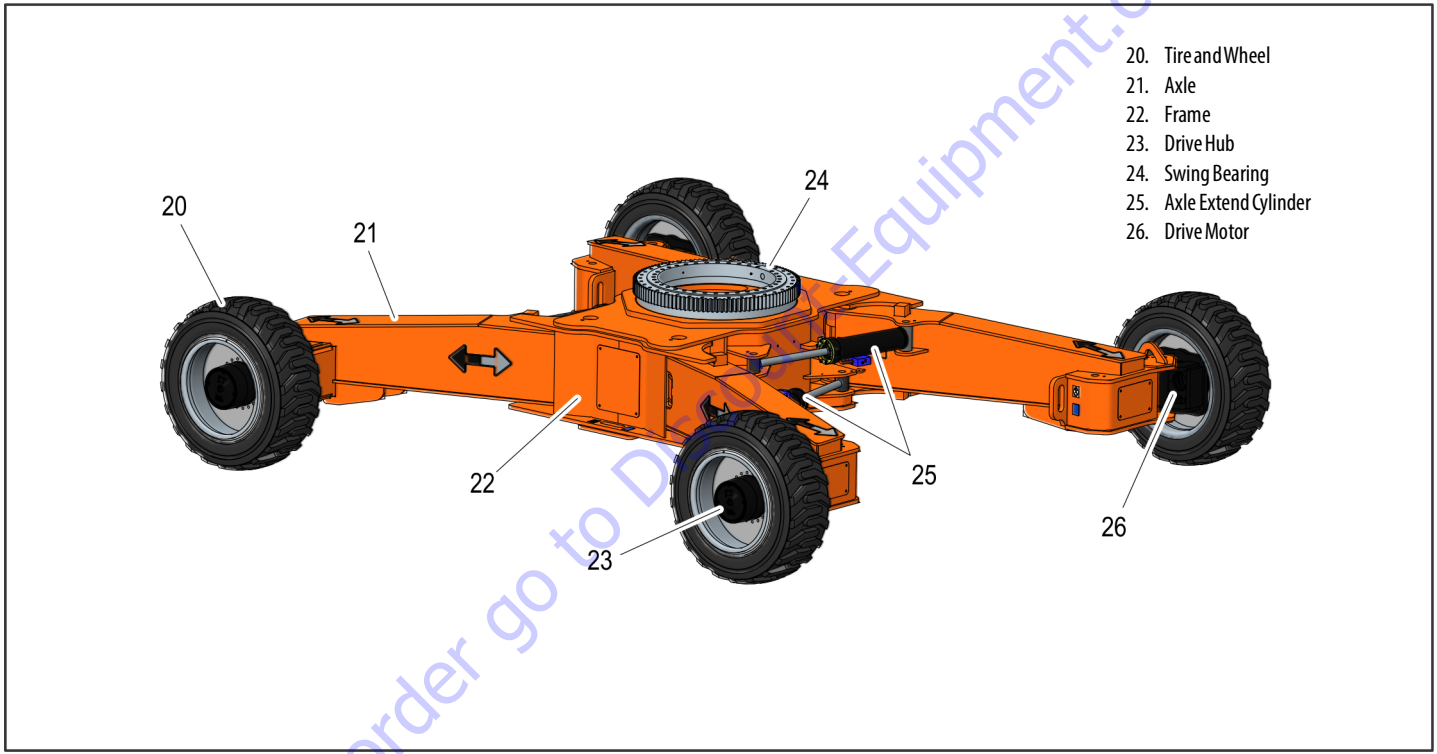
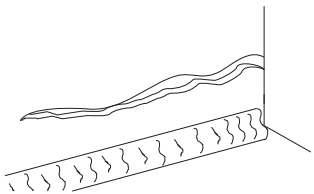


Figure 2-3. Basic Nomenclature - Sheet 3 of 3

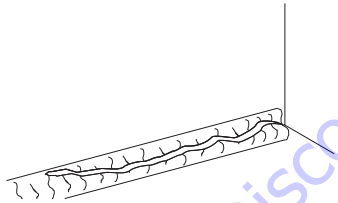
Pre-Start Inspection

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

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



Parent Metal Crack



Weld Crack

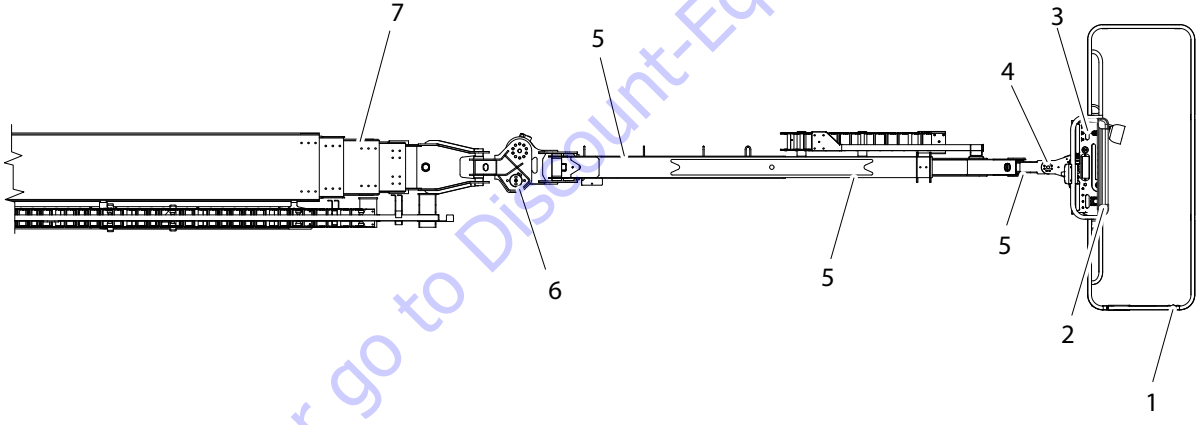
3. **Decals and Placards** – Check all for cleanliness and legibility. Make sure none of the decals and placards are missing. Make sure all illegible decals and placards are cleaned or replaced.
4. **Operation and Safety Manuals** – Make sure a copy of the Operation and Safety Manual, AEM Safety Manual (ANSI markets only), and ANSI Manual of Responsibilities (ANSI markets only) is enclosed in the weather resistant storage container.
5. **Walk-Around Inspection** – Perform as instructed.
6. **Battery –** Charge as required.
7. **Fuel** (Combustion Engine Powered Machines) – Add the proper fuel as necessary.
8. **Engine Oil Supply** - Ensure the engine oil level is at the Full mark on the dipstick and the filler cap is secure.
9. **Hydraulic Oil** – Check the hydraulic oil level. Ensure hydraulic oil is added as required.
10. **Accessories/Attachments** - Refer to the Accessories section in this manual or the accessory installed upon the machine for specific inspection, operation, and maintenance instructions.
11. **Function Check** – Once the Walk-Around Inspection is complete, perform a functional check of all systems in an area free of overhead and ground level obstructions. Refer to Section 4 for more specific operating instructions.
12. **Boom Control System Check -** Perform a check of the boom control system as specified in this section.

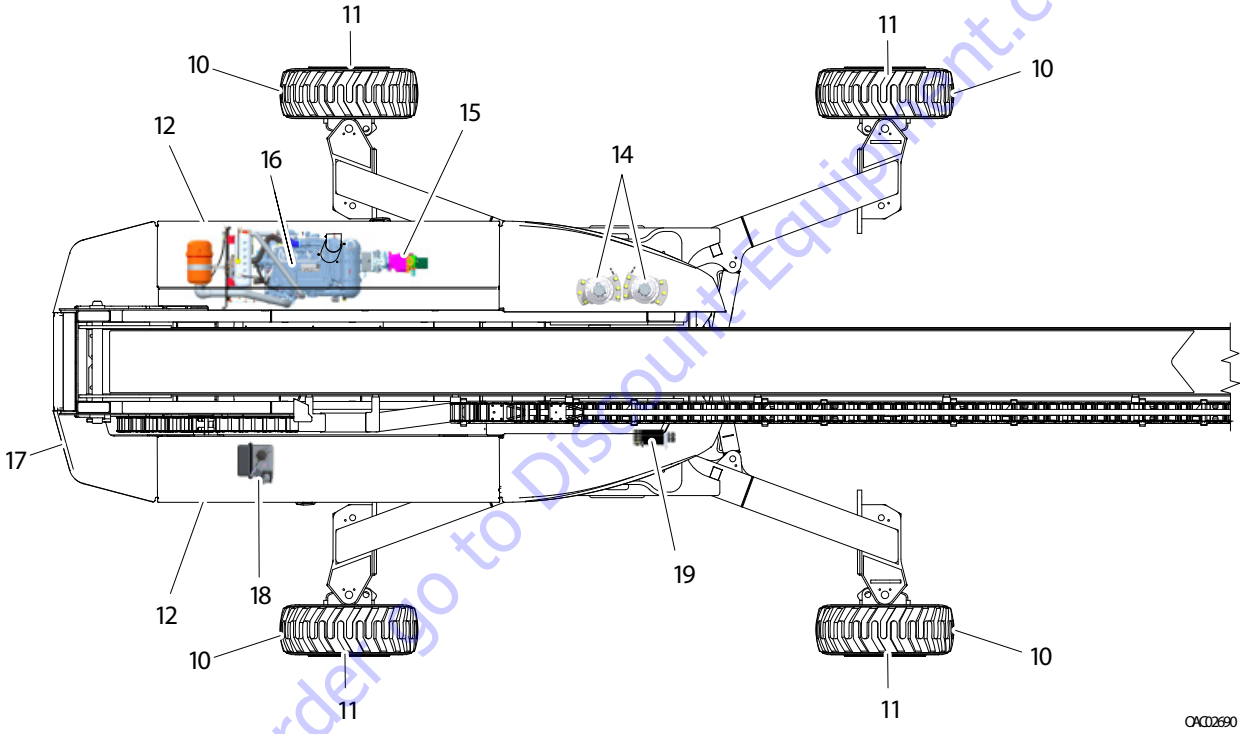
13. **Platform Gate –** Keep gate and surrounding area clean and unobstructed. Verify the gate closes properly and is not bent or damaged. Keep gate closed at all times except when entering/exiting the platform and loading/unloading materials.
14. **Lanyard Attach Points –** During operation, occupants in the platform must wear a full body harness with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.

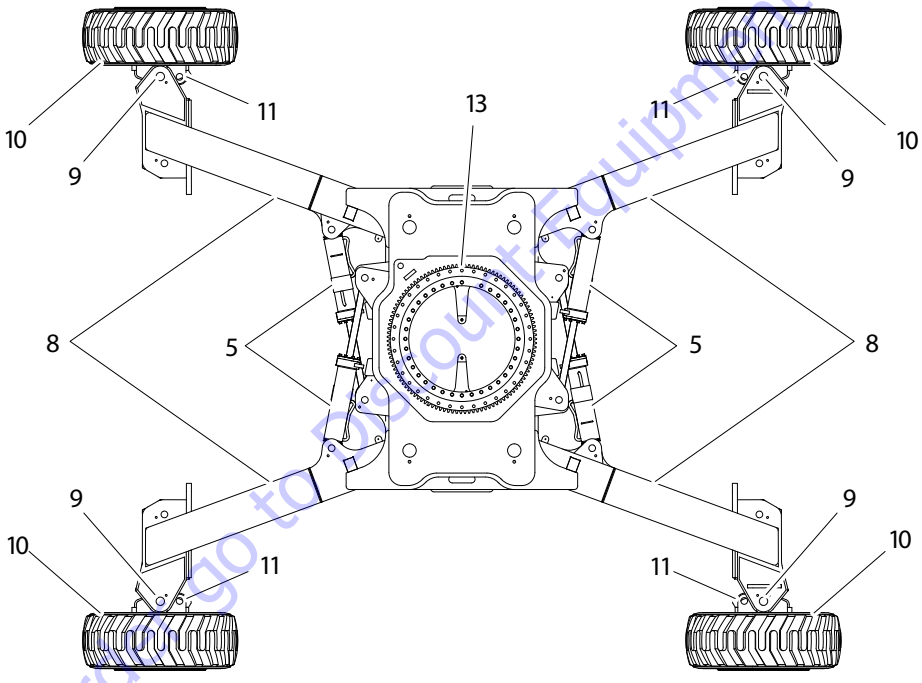
⚠ WARNING

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

Walk-Around Inspection







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General

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

⚠ WARNING

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

NOTICE

DO NOT OVERLOOK VISUAL INSPECTION OF CHASSIS UNDERSIDE. CHECKING THIS AREA MAY RESULT IN DISCOVERY OF CONDITIONS WHICH COULD CAUSE EXTENSIVE MACHINE DAMAGE.

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

1. **Platform Assembly and Gate** - Footswitch works properly, not modified, disabled or blocked. Gate latch and hinges in working condition.
2. **SkyGuard** - See Inspection Note.
3. **Platform Control Console** - Switches and levers return to neutral when activated and released, decals/placards secure and legible, control markings legible.
4. **Platform Rotator** - See Inspection Note.
5. **All Hydraulic Cylinders** - No visible damage; pivot pins and hydraulic hoses undamaged, not leaking.
6. **Jib Rotator and Jib Lock Cylinder** - See Inspection Note.
7. **Boom Sections/Turntable** - See Inspection Note.
8. **Axles** - See Inspection Note.
9. **Steering Spindles and Sensors** - See Inspection Note.
10. **Wheel/Tire Assemblies** - Properly secured, no missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies. Inspect wheels for damage and corrosion.
11. **Drive Motor, Brake, and Hub** - No evidence of leakage.
12. **Hood Assemblies** - See Inspection Note.
13. **Turntable Bearing** - Evidence of proper lubrication. No evidence of loose bolts or looseness between bearing and machine.
14. **Swing Drive** - No evidence of damage.

15. **Hydraulic Pump** - See Inspection Note.
16. **Air Shutoff Valve (ASOV) (If Equipped)** - See Inspection Note.
17. **Ground Control Console** - Switches and levers return to neutral when activated and released, decals/placards secure and legible, control markings legible.
18. **Diesel Exhaust Fluid (DEF) Tank (If Equipped)** - Proper Fluid Level. See Inspection Note.
19. **Auxiliary Hydraulic Pump** - See Inspection Note.

Function Check

⚠ WARNING

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

⚠ WARNING

TO AVOID A COLLISION AND INJURY IF PLATFORM DOES NOT STOP WHEN A CONTROL SWITCH OR LEVER IS RELEASED, REMOVE FOOT FROM FOOTSWITCH OR USE EMERGENCY STOP TO STOP MACHINE.

Perform the Function Check as follows:

1. From the ground control console with no load in the platform:
   - **a.** Ensure that all machine functions are disabled when the Emergency Stop Button is pushed in.
   - **b.** Ensure all functions stop when the function switch is released.
   - **c.** Operate all functions and ensure proper operation.
   - **d.** Ensure that all machine functions are disabled when the Emergency Stop Button is pushed in.
   - **e.** Raise main boom approximately horizontal, then extend and retract boom sections. All boom sections should extend/retract together at the same rate of speed. Any difference would indicate delayed movement and loose wire ropes.

⚠ WARNING

IF DELAYED MOVEMENT IS DETECTED IN WIRE ROPE OPERATION, LOWER PLATFORM TO STOWED POSITION, SHUT DOWN MACHINE, AND HAVE WIRE ROPES INSPECTED/SERVICED BY A QUALIFIED JLG MECHANIC. LOOSE OR MISADJUSTED WIRE ROPES COULD RESULT IN SERIOUS INJURY OR DEATH.

2. Check the Boom Control System. Refer to Boom Control System Check Procedure later in this section.
3. From the platform control console:
   - **a.** Ensure that the control console is firmly secured in the proper location.
   - **b.** Check that all guards protecting the switches or locks are in place.
   - **c.** Ensure that all machine functions are disabled when the Emergency Stop Button is pushed in.
   - **d.** Ensure that all machine functions stop when the footswitch is released.
   - **e.** Operate all functions and ensure proper operation.

f. Raise main boom approximately horizontal, then extend and retract boom sections. All boom sections should extend/retract together at the same rate of speed. Any difference would indicate delayed movement and loose wire ropes.

⚠ WARNING

IF DELAYED MOVEMENT IS DETECTED IN WIRE ROPE OPERATION, LOWER PLATFORM TO STOWED POSITION, SHUT DOWN MACHINE, AND HAVE WIRE ROPES INSPECTED/ SERVICED BY A QUALIFIED JLG MECHANIC. LOOSE OR MISADJUSTED WIRE ROPES COULD RESULT IN SERIOUS INJURY OR DEATH.

4. With the platform in the stowed position:

a. Drive the machine on a grade, not to exceed the maximum operating slope, and stop to ensure the brakes hold.

b. Ensure the tilt indicator is illuminated to ensure proper operation.

c. Check that the boom telescope (beyond transport mode), lift up (more than 5° above horizontal), and swing (beyond 35° from center) functions are disabled with the axles retracted.

5. With the jib in line with the boom and locked, make sure the jib will not unlock unless:

a. The machine is in transport position (booms retracted; main boom below elevation [5 degrees]).

b. Jib boom retracted; axles retracted.

c. The boom capacity select switch is in 500# mode.

6. With the jib in the stowed position, make sure the jib will not swing unless:

a. The jib is fully retracted.

b. The machine is in transport position (booms retracted; main boom below elevation [5 degrees]; axles retracted).

c. The boom capacity select switch is in 500# mode.

7. Extend the axles and swing the boom over either of the rear tires and ensure the Drive Orientation indicator illuminates and the Drive Orientation Override switch must be used for the drive function to operate.

8. With the machine positioned on a smooth, firm surface within the limits of the maximum operating slope, elevate the boom above 5 degrees of horizontal; Select high speed drive mode. Carefully attempt to drive and ensure the drive speed is reduced.

SkyGuard Function Test

NOTE: *Refer to Section 4.13 for additional information on SkyGuard operation.*

From the Platform Console in an area free from obstructions:

1. Operate the telescope out function.
2. Activate the SkyGuard sensor:
   a. **SkyGuard -** Apply approximately 50 lb (222 Nm) of force to yellow bar.
   b. **SkyGuard - SkyLine -** Press cable to break magnetic connection between the cable and right bracket.
   c. **SkyGuard - SkyEye -** Put arm or hand in path of sensor beam.
3. Once the sensor has been activated, verify the following conditions:
   a. Telescope out function stops and telescope in function operates for a short duration.
   b. The horn sounds.
   c. If equipped with a SkyGuard beacon, the beacon illuminates.

NOTE: *If SkyGuard is enabled with the Soft Touch system, functions will cut out instead of reversing.*

4. Disengage the SkyGuard sensor, release controls, then recycle the footswitch. Ensure normal operation is available.

NOTE: *On machines equipped with SkyLine, reattach magnetic end of the cable to the bracket.*

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

Boom Control System Check Procedure

Perform the following check with no load (personnel or material) in the platform from the ground control console.

1. Extend all axles fully.
2. With the boom fully retracted, raise the boom off the boom rest to horizontal.
3. Position the jib horizontal and fully retracted, jib straight and locked, and platform level.
4. Extend the boom until it stops.
5. Boom must stop on colored stripe matching the capacity indicator. If the boom does not stop on the correct stripe, the system must be repaired by JLG authorized Service Personnel before the machine can be used.
6. Push and hold the gray Boom Control System Test Button on the ground control console. The lighting of the green Boom Control System Calibrated indicator indicates the system is functioning properly. No indicator light or the lighting of the red Boom Control System Warning indicator indicates the system must be repaired by JLG authorized Service Personnel before the machine can be used.

SECTION 3. MACHINE CONTROLS AND INDICATORS

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 control functions.

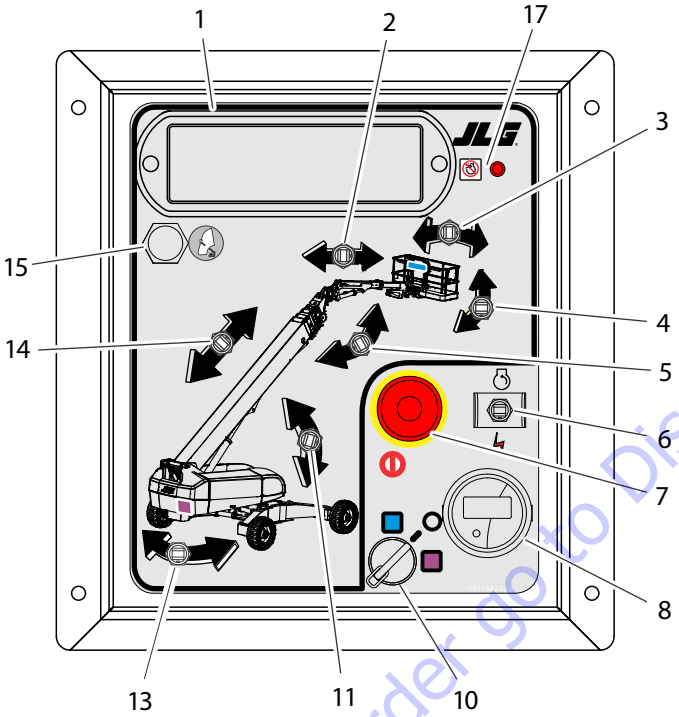
3.2 CONTROLS AND INDICATORS

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

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

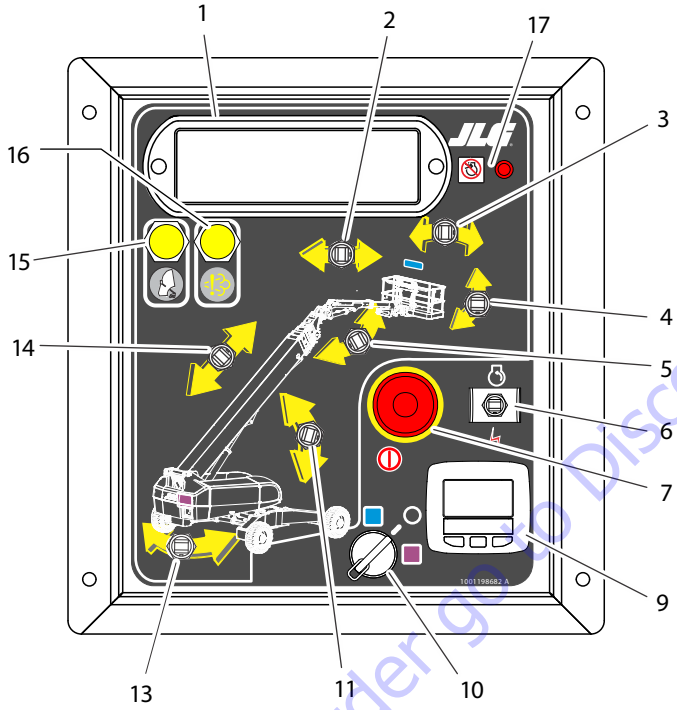
Indicates an abnormal operating condition, which if not corrected, may result in machine interruption or damage. This indicator will be yellow.

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



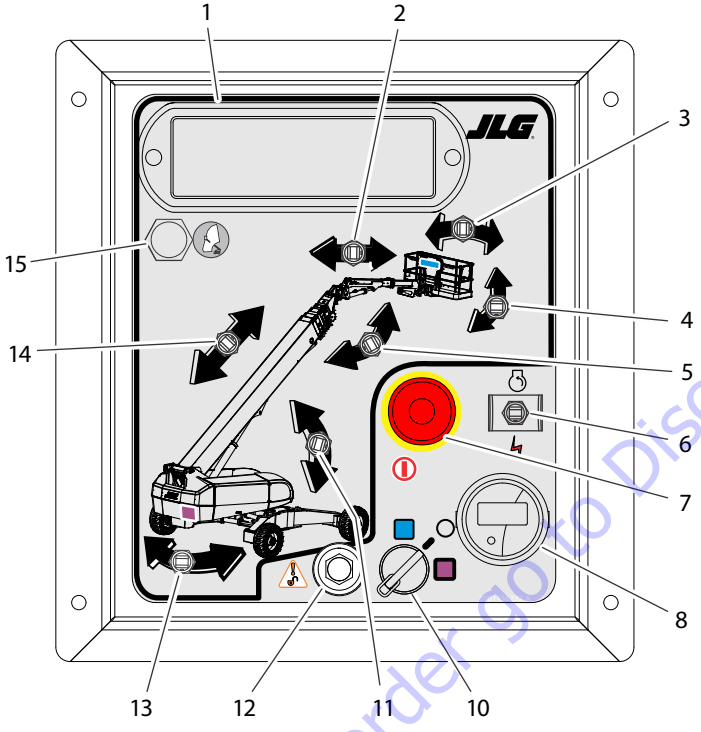
1. Indicator Panel
2. Jib Telescope
3. Platform Rotate
4. Platform Leveling Override
5. Jib Lift
6. Engine Start/Auxiliary Power Switch
7. Power/Emergency Stop
8. Hourmeter
9. Not Used
10. Platform/Ground Select
11. Main Lift
12. Not Used
13. Swing
14. Telescope
15. Boom Control System Test
16. Not Used
17. Air Shutoff Valve (ASOV) (If Equipped)

Figure 3-1. Ground Control Console



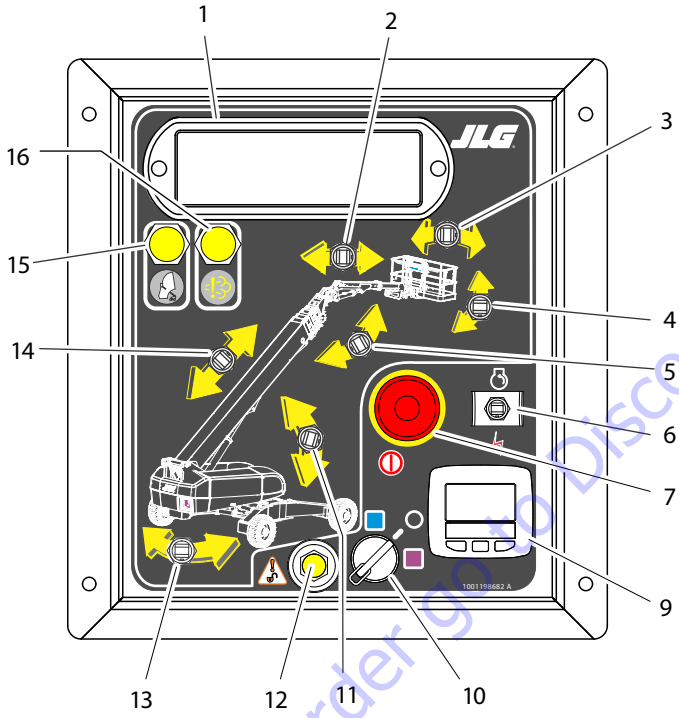
1. Indicator Panel
2. Jib Telescope
3. Platform Rotate
4. Platform Leveling Override
5. Jib Lift
6. Engine Start/Auxiliary Power Switch
7. Power/Emergency Stop
8. Not Used
9. Display Gauge
10. Platform/Ground Select
11. Main Lift
12. Not Used
13. Swing
14. Telescope
15. Boom Control System Test
16. Selective Catalyst Reduction (SCR)
17. Air Shutoff Valve (ASOV) (If Equipped)

Figure 3-2. Ground Control Console with Selective Catalytic Reduction (SCR)



1. Indicator Panel
2. Jib Telescope
3. Platform Rotate
4. Platform Leveling Override
5. Jib Lift
6. Engine Start/Auxiliary Power Switch
7. Power/Emergency Stop
8. Hourmeter
9. Not Used
10. Platform/Ground Select
11. Main Lift
12. Machine Safety System Override (MSSO)
13. Swing
14. Telescope
15. Boom Control System Test

Figure 3-3. Ground Control Console with Machine Safety System Override (MSSO) (CE Only)



1. Indicator Panel
2. Jib Telescope
3. Platform Rotate
4. Platform Leveling Override
5. Jib Lift
6. Engine Start/Auxiliary Power Switch
7. Power/Emergency Stop
8. Not Used
9. Display Gauge
10. Platform/Ground Select
11. Main Lift
12. Machine Safety System Override (MSSO)
13. Swing
14. Telescope
15. Boom Control System Test
16. Selective Catalyst Reduction (SCR)

Figure 3-4. Ground Control Console with Machine Safety System Override (MSSO) and Selective Catalytic Reduction (SCR) (CE Only)

Ground Control Console

⚠ 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.

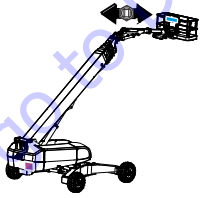
See Figure 3-1., Ground Control Console and Figure 3-3., Ground Control Console with Machine Safety System Override (MSSO) (CE Only).

1. Indicator Panel

   The Indicator Panel contains indicator lights that signal problem conditions or functions operating during machine operation.

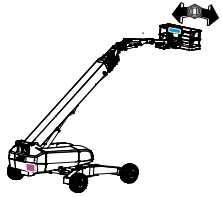
2. Jib Telescope

   Provides extension and retraction of the jib.



3. Platform Rotate

   Provides rotation of the platform.

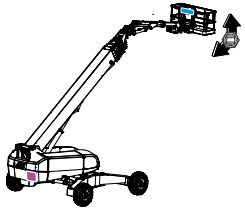


⚠ WARNING

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.

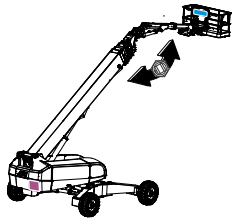
4. Platform Leveling Override

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



5. Jib Lift

Provides raising and lowering of the jib.



NOTE: *Auxiliary power only works if there is no engine oil pressure, and is disabled if engine is running.*

Functions will operate at a slower than normal rate because of the reduced hydraulic flow.

NOTICE

WHEN USING AUXILIARY POWER, DO NOT OPERATE MORE THAN ONE FUNCTION AT A TIME. SIMULTANEOUS OPERATION CAN OVERLOAD THE AUXILIARY PUMP.

6. Engine Start/ Auxiliary Power Switch

To start the engine, the switch must be held Up until the engine starts.

To use auxiliary power, the switch must be held Down for duration of auxiliary pump use.

⚠ CAUTION

WHEN THE MACHINE IS SHUT DOWN THE POWER/EMERGENCY STOP SWITCH MUST BE POSITIONED TO THE OFF POSITION TO PREVENT DRAINING THE BATTERIES.

7. Power/Emergency Stop Switch

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

8. Hourmeter

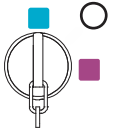
Registers the amount of time the machine has been in use, with engine running. In the event of a fault, the hourmeter also displays the three digit fault code. Refer to the Service Manual for a listing of fault codes. Additionally, there is a small, red indicator light that will blink when there is a fault on the machine to draw operator attention to the display.

9. Display Gauge

Registers the amount of time the machine has been in use, with engine running. The hourmeter registers up to 16,500 hours and cannot be reset.

NOTE: *With Platform/Ground Select switch in the center position, power is shut off to controls at both operating consoles.*

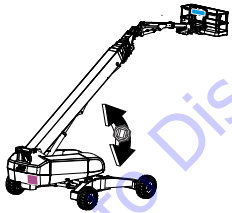
10. Platform/Ground Select Switch



A three position, key operated switch supplies power to the platform control console when positioned to Platform. With the switch key positioned in the Ground position, power is shut off to platform and only ground controls are operable.

11. Main Lift

Provides raising and lowering of the main boom.

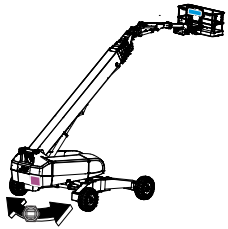


12. Machine Safety System Override (MSSO) (CE Only)

Provides emergency override of function controls that are locked out as in the event of Load Sense System activation.

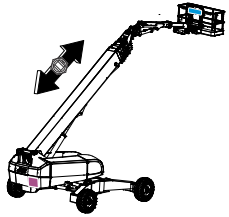
13. Swing

Provides 360 degrees continuous turntable rotation.



14. Main Telescope

Provides extension and retraction of the main boom.



15. Boom Control System Test Button

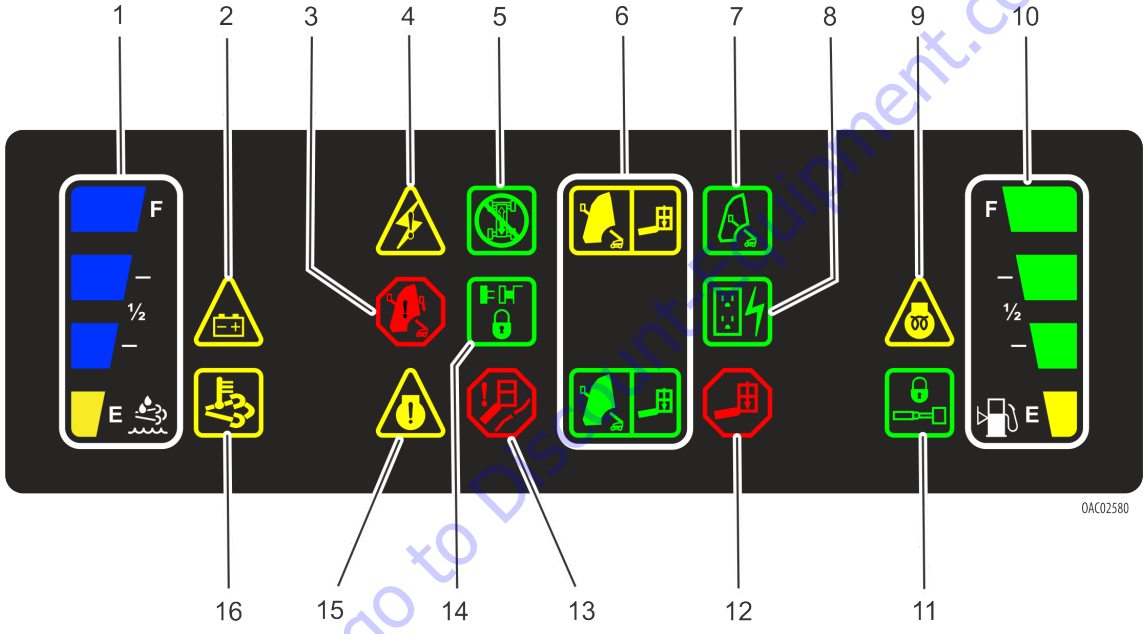
The push button is used to test the boom control system and confirm that it is working properly.

16. Selective Catalyst Reduction (SCR) Button

The Selective Catalyst Reduction (SCR) push button is used to initiate the Standstill Cleaning mode.

17. Air Shutoff Valve (ASOV) (If Equipped)

The red LED ASOV light indicates when the valve has been actuated.



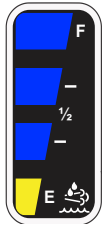
1. Diesel Exhaust Fluid Indicator (DEF)
2. Battery Charge
3. Boom Control System Warning
4. System Distress
5. Drive Steer Disable
6. Capacity Zone Indicator
7. Boom Control System Calibrated
8. Generator
9. Glow Plugs
10. Fuel Level Indicator
11. Jib Lock Pin
12. Platform Overload
13. Wire Rope Service
14. Axles Set
15. Engine Error
16. Emissions Temperature

Figure 3-5. Ground Control Indicator Panel

Ground Control Indicator Panel

(See Figure 3-5., Ground Control Indicator Panel)

1. Diesel Exhaust Fluid (DEF) Indicator

   The DEF level indicator shows the fluid level in the tank.

2. Battery Charge Indicator

   Indicates a problem in the battery or charging circuit, and service is required.

3. Boom Control System Warning Indicator

   Indicates the platform is outside the operating area and operation of certain boom functions may be disabled (i.e. lift, telescope). Attempts to use the disabled functions cause the indicator to flash and an alarm to sound. Immediately return the platform to the ground. If the indicator remains lit a boom control system fault or failure has been detected. If a failure is discovered, the system must be repaired by a JLG factory trained technician before the machine can be used.

4. System Distress Indicator

   The light indicates that the JLG Control System has detected an abnormal condition and a Diagnostic Trouble Code has been set in the system memory. Refer to the Service Manual for instructions concerning the trouble codes and trouble code retrieval.

   The system distress indicator light will illuminate for 2-3 seconds when the key is positioned to the ON position to act as a self test.

5. Drive and Steer Disable Indicator

   Indicates the Drive and Steer Disable function has been activated.

6. Capacity Zone Indicator

Indicates the platform capacity zone for the current position of the platform. Restricted capacities are permitted at restricted platform positions (shorter boom lengths and higher boom angles).

NOTE: *Refer to the capacity decals on the machine for restricted and unrestricted platform capacities.*

7. Boom Control System Calibrated Indicator

When illuminated, the light indicates the Boom Control System is properly calibrated.

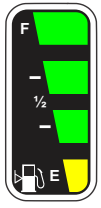
8. AC Generator Indicator

Indicates the generator is in operation.

9. Glow Plug Indicator

Indicates the glow plugs are on. The glow plugs are automatically turned on with the ignition circuit and remain on for approximately seven seconds. Start the engine only after the light goes out.

10. Fuel Level Indicator



Indicates the level of the fuel in the fuel tank.

11. Jib Lock Pin

When illuminated indicates the jib lock pins are set in place.

12. Platform Overload Indicator

Indicates the platform has been overloaded.

13. Wire Rope Service Indicator

When illuminated, the light indicates the wire ropes are loose or broken and must be repaired or adjusted prior to use.

14. Axles Set Indicator

Indicates the axles are fully extended. The indicator will flash as the axles are extending or retracting and be solid when fully extended. The indicator icon will go out when the axles are fully retracted.

15. Engine Error Indicator

Indicates a fault with the engine and service is required.

16. Emissions Temperature Warning Indicator

Icon illuminates when the engine emissions control sensor reaches a high temperature.

Ground Control Console Display Gauge - Machines using Diesel Exhaust Fluid (DEF)

(See Figure 3-9., Ground Control Console Display Gauge)

The Display Gauge shows engine hours, fuel level (if applicable), and Diagnostic Trouble Codes (DTCs) from both the JLG Control System and the engine control system. During machine start up, with no active DTCs in the control system, the splash screen will show for 3 seconds and then switch to main screen. If there is an active DTC while powering up the machine, the splash screen will show for 3 seconds, and then launch the Diagnostics Screen. The indicator lamp will light when there is an active DTC in the Fault Log.

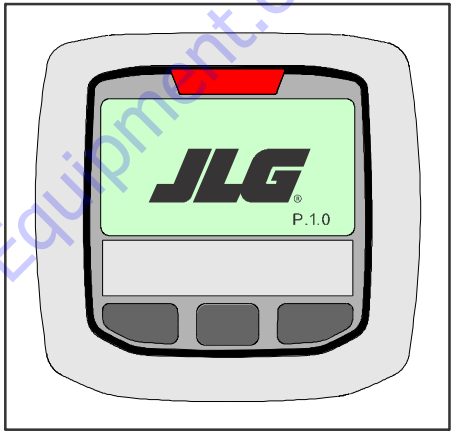


Figure 3-6. Splash Screen

The Diagnostic Screen will show active and inactive faults from the JLG Control System on the screen. An asterisk (*) will be displayed to show active faults.

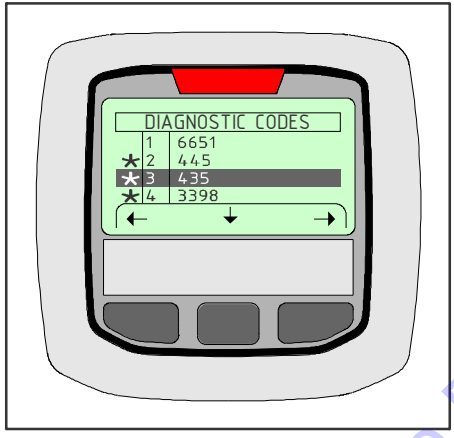


Figure 3-7. Diagnostic Screen

The Engine Diagnostics Screen will show SPN (Suspect Parameter Number), FMI (Failure Mode Identifier), and Occurrence count information. Engine SPN text is not scrollable. If there is more than one engine trouble code, the operator must exit from the Engine DTC Screen to see other SPN and FMI information.

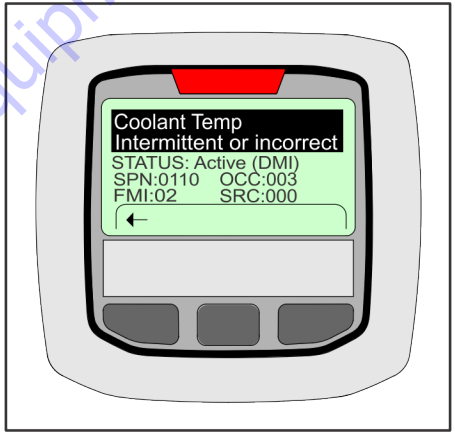


Figure 3-8. Engine Diagnostic Screen

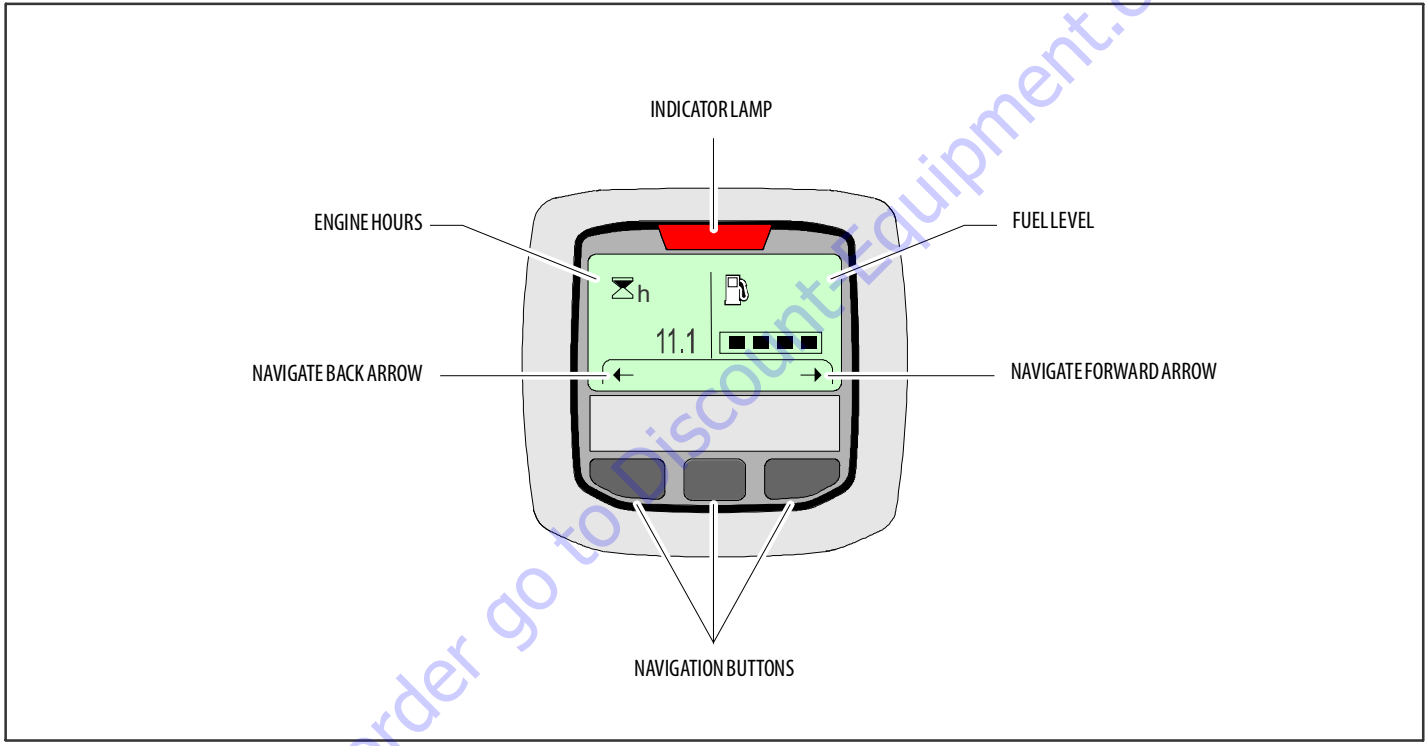
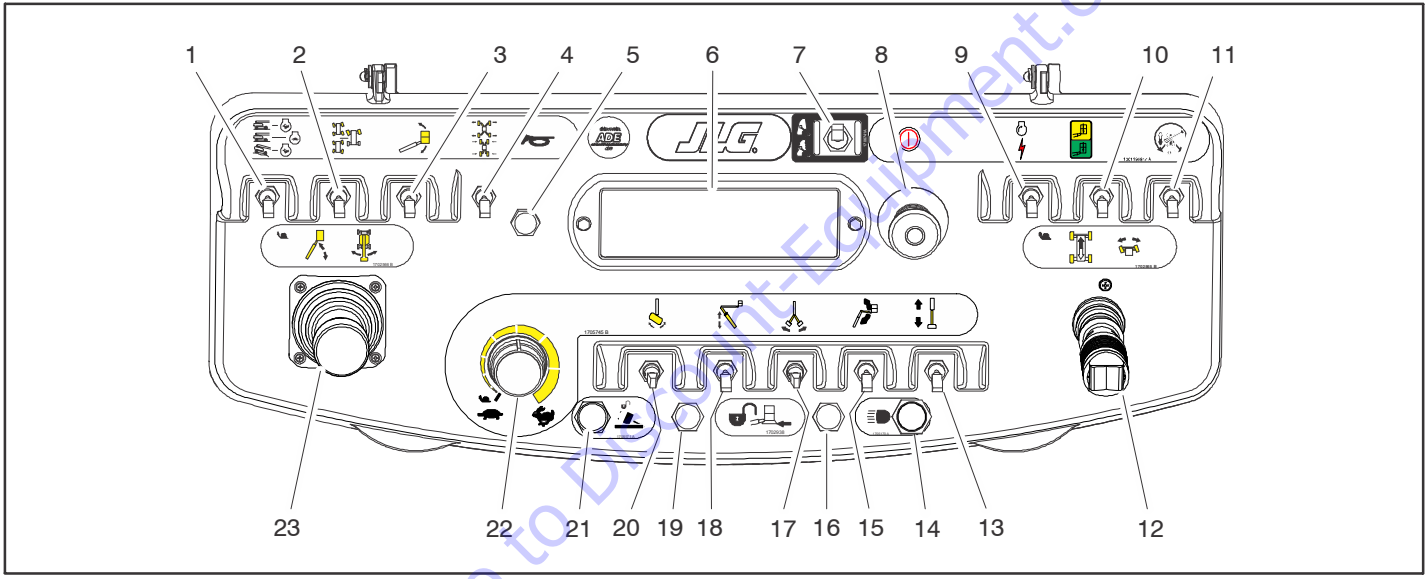


Figure 3-9. Ground Control Console Display Gauge



1. Drive Speed/Torque Select
2. Steer Select
3. Platform Leveling Override
4. Axle Extend/Retract
5. Horn
6. Indicator Panel
7. Boom Control Select
8. Power/Emergency Stop
9. Start/Auxiliary Power
10. Capacity Select
11. Drive Orientation Override
12. Drive/Steer
13. Main Telescope
14. Lights
15. Jib Lift
16. Soft Touch/SkyGuard Override
17. Jib Stow
18. Jib Telescope
19. Soft Touch/SkyGuard Indicator
20. Platform Rotate
21. Lock Pin Indicator
22. Function Speed Control
23. Main Lift/Swing

Figure 3-10. Platform Control Console

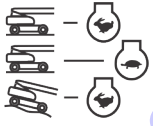
Platform Console

(See Figure 3-10., Platform Control Console)

⚠ WARNING

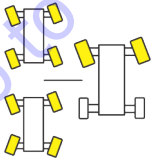
TO AVOID SERIOUS INJURY, DO NOT OPERATE MACHINE IF ANY CONTROL LEVERS OR TOGGLE SWITCHES CONTROLLING PLATFORM MOVEMENT DO NOT RETURN TO THE OFF OR NEUTRAL POSITION WHEN RELEASED.

1. Drive Speed/Torque Select



The forward position gives maximum drive speed. The back position gives maximum torque for rough terrain and climbing grades. The center position allows the machine to be driven as quietly as possible.

2. Steer Select

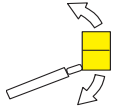


The action of the steering system is operator selectable. The center switch position gives conventional front wheel steering with the rear wheels unaffected. This is for normal driving at maximum speeds. The forward position is for "crab" steering. When in this mode both front and rear axles steer in the same direction, which allows the chassis to move sideways as it goes forward. This can be used for positioning the machine in aisle ways or close to buildings. The back switch position is for "coordinated" steering. In this mode the front and rear axles steer in the opposite directions to produce the tightest turning circle for maneuvering in confined areas.

⚠ WARNING

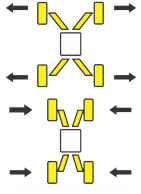
ONLY USE THE PLATFORM LEVELING OVERRIDE FUNCTION FOR SLIGHT LEVELING OF THE PLATFORM. INCORRECT USE COULD CAUSE THE LOAD/OCCUPANTS TO SHIFT OR FALL. FAILURE TO DO SO COULD RESULT IN DEATH OR SERIOUS INJURY.

3. Platform Leveling Override



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

4. Axle Extend/Retract



Allows the operator to extend or retract the axles. The axles can only be extended or retracted while the machine is being driven forward or reverse.

5. Horn

A push-type HORN switch supplies electrical power to an audible warning device when pressed.

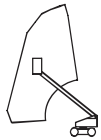
6. Indicator Panel

The LED Indicator Panel contains indicator lights that signal problem conditions or functions operating during machine operation.

Within about 2 seconds of pulling the Power/Emergency Stop switch out, the machine will perform a diagnostic check of the various electrical circuits, and if everything is OK, the platform alarm will beep once. During this time the lights on the indicator panel will also blink once as a bulb check.

7. Boom Control Select

Automatic Mode:



When the Boom Control is positioned to Automatic, lift and telescope movements are coordinated by the JLG control system and the automatic platform leveling feature is active during lift, telescope, swing, and drive movements.

NOTE: *• While operating lift up, the boom may also telescope out.*
• While operating lift down, the boom may also telescope in.
• While operating swing or drive, the boom may lift up or lift down.
• While operating telescope in, the boom may lift down when at high boom angles and the creep light is flashing.

Manual Mode:

When the boom control is positioned to Manual, lift and telescope movements are controlled separately by the operator and the automatic platform leveling feature is active only during lift functions.

NOTE: *When positioned to Manual, boom functions will be stopped when the envelope limits are reached. When this occurs, operate a different function or select the automatic position.*

NOTE: *Depending upon the angle of the chassis and the angle of the boom, swing left or swing right may be disallowed while in the Manual mode. The BCS light will illuminate and further attempts to swing in the disallowed direction will cause the BCS to flash. When this occurs the only choices are to swing in the opposite direction or switch to automatic mode.*

8. Power/Emergency Stop

A two-position red mushroom shaped switch supplies power to Platform Controls when pulled out (on). When pushed in (off), power is shut off to the platform controls.

9. Start/Auxiliary Power

When pushed forward, the switch energizes the starter motor to start the engine.

When pushed back, it energizes the electrically operated hydraulic pump, when actuated. (Switch must be held on for duration of auxiliary pump use.)The auxiliary pump functions to provide sufficient oil flow to operate the basic machine functions should the main pump or engine fail. The auxiliary pump will operate platform rotate, jib lift, jib level, jib telescope, jib stow, platform level, main boom lift, main telescope and swing.

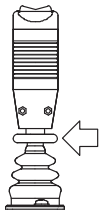
10. Capacity Select

This switch allows the operator to select between an operating envelope with a 500 lb. (227 kg for ANSI markets and 230 kg for CE and Australia markets) capacity restriction or a 1000 lb. (454 kg for ANSI markets and 450 kg for CE and Australia markets) capacity restriction.

11. Drive Orientation Override

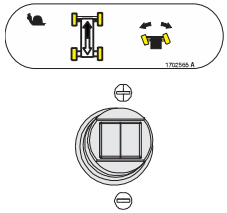
When the boom is swung over the rear tires or further in either direction, the Drive Orientation indicator will illuminate when the drive function is selected. Push and release the switch, and within 3 seconds move the Drive/Steer control to activate drive or steer. Before driving, locate the black/white orientation arrows on both the chassis and the platform controls. Move the drive controls in a direction matching the directional arrows for the intended direction of travel.

NOTE: *To operate the Drive Joystick, pull up on the locking ring below the handle.*



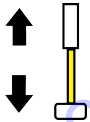
NOTE: *The DRIVE control levers are spring-loaded and will automatically return to neutral (OFF) position when released.*

12. Drive/Steer



Push forward to drive forward, pull back to drive in reverse. Steering is accomplished via a thumb-activated rocker switch on the end of the steer handle.

13. Main Telescope

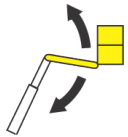


Provides extension and retraction of the main boom.

14. Lights (If Equipped)

Operates accessory light packages if the machine is so equipped.

15. Jib Lift



Provides raising and lowering of the jib.

16. Soft Touch/SkyGuard Override Switch

For machines equipped with SkyGuard:

The SkyGuard override switch enables functions cut out by the Skyguard system to be operated again, allowing the operator to resume use of machine functions.

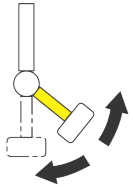
For machines equipped with both SkyGuard and Soft Touch:

The switch operates like the SkyGuard override switch as described above. The switch also enables the functions cut out by the Soft Touch system to operate again at creep speed, allowing the operator to move the platform away from the obstacle that caused the shutdown situation.

NOTICE

UPON ACTIVATING THE JIB STOW CONTROL SWITCH, A SLIGHT DELAY WILL BE EXPERIENCED BEFORE THE JIB WILL BEGIN TO MOVE.

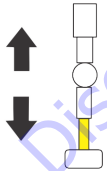
17. Jib Stow



Allows the jib to be returned to the stowed position for transport and also taken out of the transport position for machine usage. This control operates both jib swing and the jib lock pin in a coordinated manner.

NOTE: *The Jib Telescope function only operates in the 500 lb. (227 kg for ANSI markets and 230 kg for CE and Australia markets) capacity mode.*

18. Jib Telescope



Provides extension and retraction of the jib.

19. Soft Touch/SkyGuard Indicator

Indicates the Soft Touch bumper is against an object or the SkyGuard sensor has been activated. All controls are cut out until the override button is pushed. For Soft Touch, controls are then active in the Creep Mode or for SkyGuard, controls will work normally.

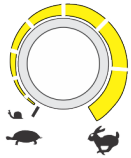
20. Platform Rotate

Allows the operator to rotate the platform to the left or right.

21. Lock Pin Indicator

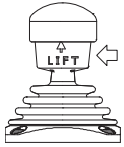
When illuminated, indicates the jib is centered and the jib lock pin is engaged. When blinking, indicates the jib is in the process of being stowed or centered. The indicator is off when the lock pin is disengaged and the jib is stowed (machine in transport position).

22. Function Speed Control



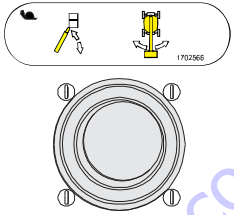
This control affects the speed of Main Boom Telescope, Jib Telescope, and Jib Lift. Turning the knob all the way counterclockwise until it clicks puts Drive, Main Lift, Platform Rotate, and Swing into Creep mode.

NOTE: *To operate the Main Boom Lift/Swing joystick, pull up on the locking ring below the handle.*

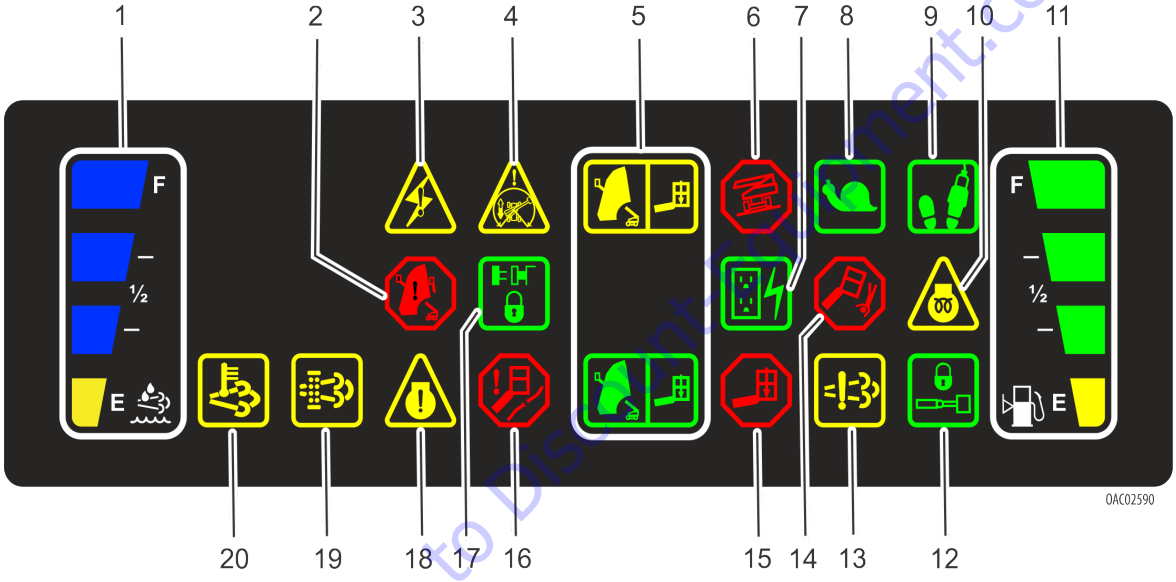


NOTE: *The Main Boom Lift/Swing joystick is spring loaded and will automatically return to neutral (off) position when released.*

23. Main Lift/Swing Controller



Provides main lift and swing. Push forward to lift up, pull backward to boom down. Move right to swing right, move left to swing left. Moving the joystick activates switches to provide the functions selected.



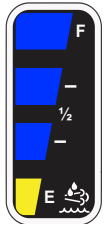
1. Diesel Exhaust Fluid Indicator (DEF)
2. Boom Control System Warning
3. System Distress
4. Drive Orientation
5. Capacity Zone Indicator
6. Tilt Alarm Warning
7. Generator
8. Creep
9. Footswitch Enable
10. Glow Plugs
11. Fuel Level Indicator
12. Jib Lock Pin
13. Emissions Failure
14. Level System
15. Platform Overload
16. Wire Rope Service
17. Axles Set
18. Engine Error
19. Diesel Particulate Filter Indicator
20. Emissions Temperature

Figure 3-11. Platform Control Indicator Panel

Platform Control Indicator Panel

(See Figure 3-11., Platform Control Indicator Panel)

1. Diesel Exhaust Fluid (DEF) Indicator



The DEF level indicator shows the fluid level in the tank.

2. Boom Control System Warning Indicator

Indicates the platform is outside the operating area and operation of certain boom functions may be disabled (i.e. lift, telescope). Attempts to use the disabled functions cause the indicator to flash and an alarm to sound. Immediately return the platform to the ground. If the indicator remains lit, a boom control system fault or failure has been detected. If a failure is discovered, the system must be repaired by a JLG factory trained technician before the machine can be used.

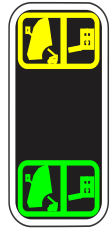
3. System Distress Indicator

The light indicates that the JLG Control System has detected an abnormal condition and a Diagnostic Trouble Code has been set in the system memory. Refer to the Service Manual for instructions concerning the trouble codes and trouble code retrieval.

4. Drive Orientation Indicator

When the boom is swung beyond the rear drive tires or further in either direction, the Drive Orientation indicator will illuminate when the drive function is selected. 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).

5. Capacity Zone Indicator



Indicates the maximum platform capacity zone for the current position of the platform. Restricted capacities are permitted at restricted platform positions (shorter boom lengths and higher boom angles).

NOTE: *Refer to the capacity decals on the machine for restricted and unrestricted platform capacities.*

6. Tilt Warning Light and Alarm

This red illuminator indicates the chassis is on a slope. If the boom is above horizontal and the machine is on a slope, the tilt alarm warning light will illuminate, an alarm will sound, available functions are placed in Creep speed, and drive is cut out in the direction of travel. Drive in the opposite direction may be allowed under certain conditions.

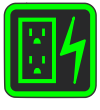
Tilt Angle	Market
5°	All Markets

⚠ WARNING

IF TILT WARNING LIGHT IS ILLUMINATED WHEN BOOM IS RAISED OR EXTENDED, RETRACT AND LOWER TO BELOW HORIZONTAL THEN REPOSITION MACHINE SO THAT IT IS WITHIN THE LIMITS OF THE MAXIMUM OPERATING SLOPE BEFORE EXTENDING BOOM OR RAISING BOOM ABOVE HORIZONTAL.

NOTE: *When the tilt sensor alarm is activated the Drive function will be disabled if the boom is elevated above horizontal.*

7. AC Generator Indicator



Indicates the generator is in operation.

8. Creep Speed Indicator

When the Function Speed Control is turned to the creep position, the indicator acts as a reminder that all functions are set to the slowest speed.

9. Footswitch/Enable Indicator

To operate any function, the footswitch must be depressed and the function selected within seven seconds. The enable indicator shows that the controls are enabled. If a function is not selected within seven seconds, or if a seven second lapse between ending one function and beginning the next function, the enable light will go out and the footswitch must be released and depressed again to enable the controls.

Releasing the footswitch removes power from all controls and applies the drive brakes.

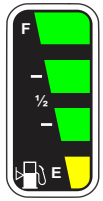
⚠ WARNING

TO AVOID SERIOUS INJURY, DO NOT REMOVE, MODIFY OR DISABLE THE FOOTSWITCH BY BLOCKING OR ANY OTHER MEANS.

10. Glow Plug Indicator

Indicates the glow plugs are operating. After turning on ignition, wait until light goes out before cranking engine.

11. Fuel Level Indicator



Indicates the level of the fuel in the fuel tank.

12. Jib Lock Pin Indicator

When illuminated indicates the jib lock pins are set in place.

13. Engine Emissions System Failure Indicator

Icon illuminates when there is a fault with the Emissions After Treatment system.

14. Level System Indicator

Indicates a fault in the electronic leveling system. The fault indicator will flash and an alarm will sound. All functions will default to creep if the boom is extended past transport mode or elevated more than 8 degrees above horizontal.

15. Platform Overload Indicator

Indicates the platform has been overloaded.

16. Wire Rope Service

When illuminated, the light indicates the wire ropes are loose or broken and must be repaired or adjusted prior to use.

17. Axles Set Indicator

Indicates the axles are fully extended. The indicator will flash as the axles are extending or retracting and be solid when fully extended. The indicator icon will go out when the axles are fully retracted.

18. Engine Error Indicator

Indicates a fault with the engine and service is required.

19. Diesel Particulate Filter (DPF) Indicator

Icon will illuminate when standstill exhaust system cleaning is required.

20. Emissions Temperature Indicator

Icon illuminates when the engine emissions control sensor reaches a high temperature.

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SECTION 4. MACHINE OPERATION

4.1 DESCRIPTION

This machine is a mobile elevating work platform used to position personnel, along with their necessary tools and materials at work locations.

The primary operator control station is in the platform. From this control station, the operator can drive and steer the machine in both forward and reverse directions. The operator can raise or lower the upper or lower boom or swing the boom to the left or right. Standard boom swing is 360 degree non-continuous left and right of the stowed position. The machine has a Ground Control Station which will override the Platform Control Station. Ground Controls operate all functions except drive and steer. Except for performing inspections and the Function Check, the ground controls are used in an emergency to lower the platform to the ground should the operator in the platform be unable to do so.

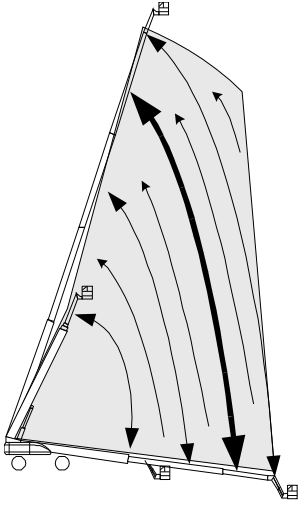
4.2 BOOM OPERATING CHARACTERISTICS AND LIMITATIONS

Capacities

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

1. Machine is positioned on a smooth, firm surface within the limits of the maximum operating slope.
2. Axles are fully extended.
3. Jib is centered and lock pin is engaged.
4. Load is within manufacturer's rated capacity.
5. All machine systems are functioning properly.
6. Machine is as originally equipped from JLG.

Controlled Arc

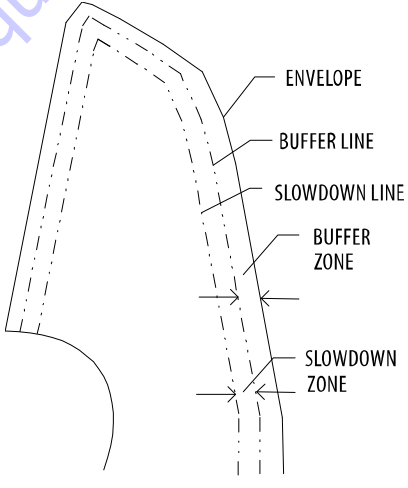


Controlled Arc Boom Movement

When the Boom Control Select switch is in the automatic mode, the Boom Control System automatically controls lift and telescope when the lift function is selected to move the platform through a predetermined arc, equivalent to the percentage of extension. (i.e. If you start at 70% boom extension, you will end up at approximately 70% boom extension no matter where you stop in the arc). This means that when lifting down, telescope in will function automatically, or when lifting up, telescope out will function automatically.

When the Boom Control Switch is in the manual mode, lift and telescope functions are independent functions controlled by the operator.

Envelope Tracking



When the platform approaches the edges of the operating envelope all machine functions are slowed down except jib and platform functions, telescope in or out at the rearward edge and

telescope in or out on the forward edge are slowed down automatically by the boom control system to reduce machine motions.

NOTE: *Boom Control System in Automatic Mode: When the boom is completely elevated along the edge of the backward stability region and the telescope in function is activated, lift down will automatically function until the boom is away from the edge of the backward stability region.*

Boom Control System in Manual Mode: The boom will stop when the end of the envelope is reached and the operator must activate lift and/or telescope in the proper direction to bring the boom back into the envelope.

Controlled Angle

The control system automatically maintains a constant elevated boom angle when swinging the turntable. If the boom angle is at 30 degrees and swing only is activated the control system shall add lift to maintain the relative boom angle at 30 degrees.

Swing Speed Proportioning

The Boom Control System sensors sense the distance the platform is extended from the turntable, allowing higher swing speeds with the boom retracted and gradually slower swing speeds as the boom is extended.

Platform Load Sensing System (LSS)

The Platform Load Sensing System provides the platform capacity to the control system.

If the LSS system senses an overload condition, boom functions will be disabled, the overload indicator is illuminated at both control stations, and the overload alarm will sound. Reduce the weight in the platform to not exceed the rated workload indicated on the capacity decal, then the controls will work again.

4.3 CAPACITY SELECT

The Boom Control System allows the operator to select operation in a 500 lb. (227 kg for ANSI markets and 230 kg for CE and Australia markets) capacity restriction envelope or a 1000 lb. (454 kg for ANSI markets and 450 kg for CE and Australia markets) capacity restriction envelope. The operator selects the desired capacity restriction by positioning the Capacity Select switch on the platform console. The Capacity Indicator shows the capacity selected, and both capacity lights will flash and an alarm sound if the platform is out of the selected capacity range.

NOTE: *Operation in the 1000 lb. (454 kg for ANSI markets and 450 kg for CE and Australia markets) envelope requires the jib to be fully retracted.*

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 4-1., and its position of least BACKWARD stability is shown in Figure 4-2.

⚠ WARNING

TO AVOID FORWARD OR BACKWARD TIPPING, DO NOT OVERLOAD MACHINE OR OPERATE THE MACHINE BEYOND THE LIMIT OF THE MAXIMUM OPERATING SLOPE.

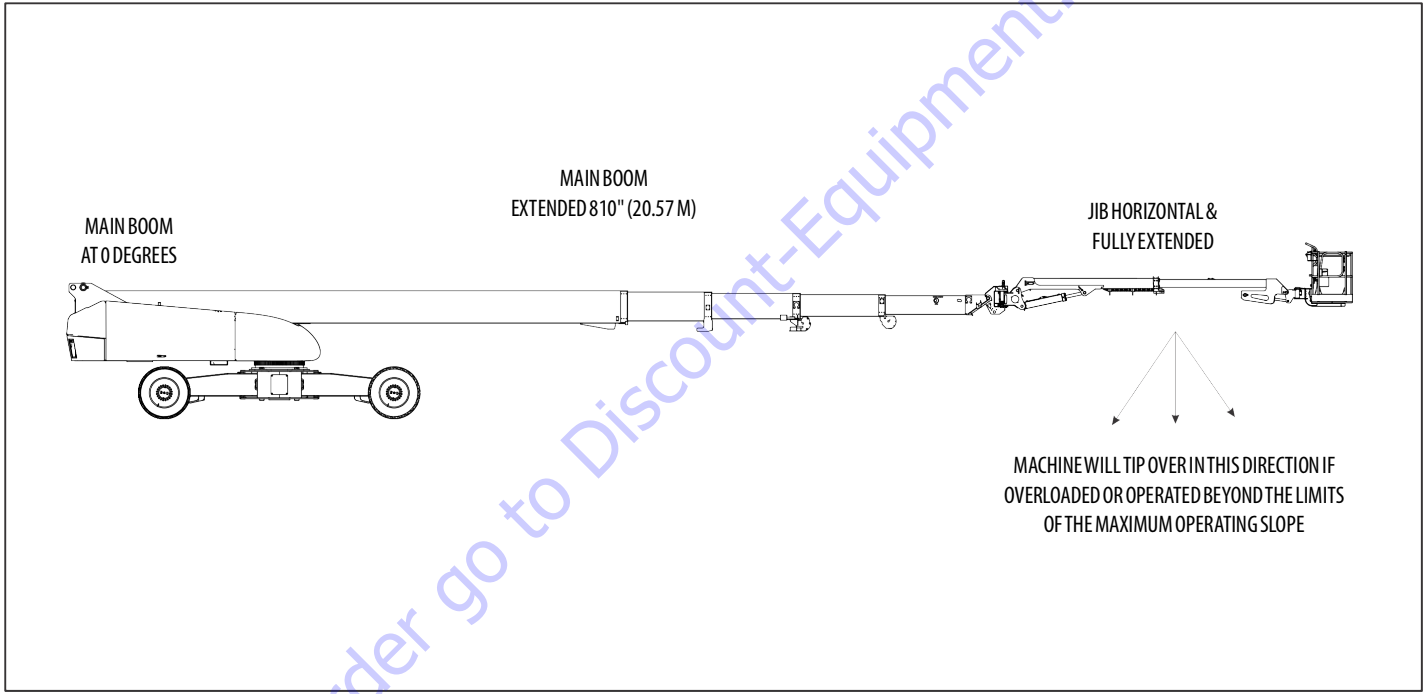


Figure 4-1. Position of Least Forward Stability

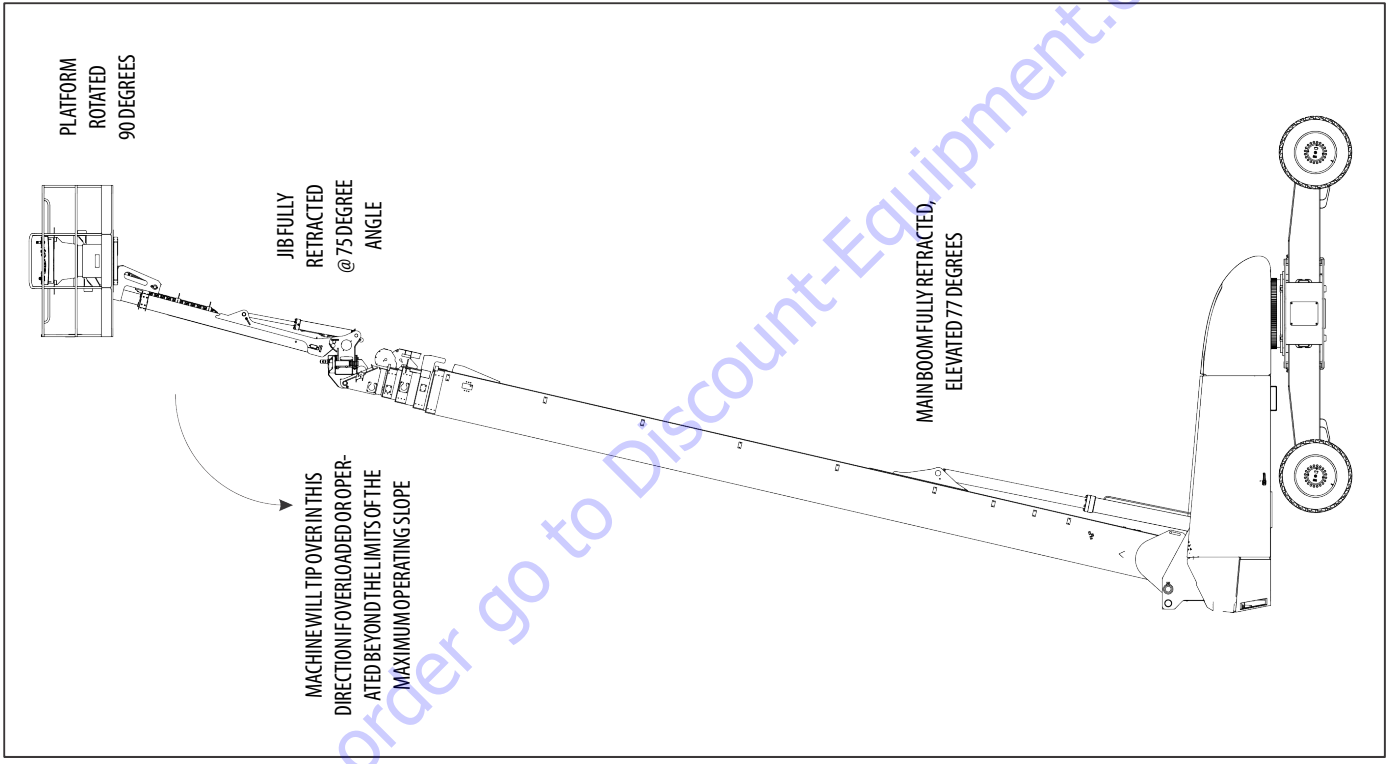


Figure 4-2. Position of Least Backward Stability

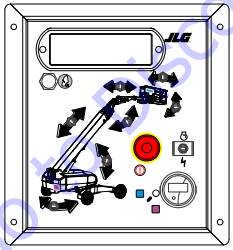
4.4 ENGINE OPERATION

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

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

NOTE: *Contact JLG Customer Service for operation under abnormal conditions.*

NOTE: *Initial starting should always be performed from the Ground Control console.*



Starting Procedure

⚠ CAUTION

IF ENGINE FAILS TO START PROMPTLY, DO NOT CRANK FOR AN EXTENDED TIME. SHOULD ENGINE FAIL TO START AGAIN, ALLOW STARTER TO COOL OFF FOR 2-3 MINUTES. IF ENGINE FAILS AFTER SEVERAL ATTEMPTS, REFER TO ENGINE MAINTENANCE MANUAL.

NOTE: *After turning on ignition, operator must wait until glow plug indicator light goes out before cranking engine.*

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

2. Pull the Power/Emergency Stop switch out.

3. Push the Engine Start switch until engine starts.

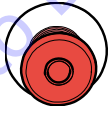
⚠ CAUTION

ALLOW ENGINE TO WARM-UP FOR A FEW MINUTES AT LOW SPEED BEFORE APPLYING ANY LOAD.

4. After engine has had sufficient time to warm up, shut engine off.
5. Turn Platform/Ground Select switch to Platform.

6. Pull out the Ground Console Power/Emergency Stop switch to provide power to the platform controls.

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



8. Push the Engine Start switch until engine starts.

NOTE: *Footswitch must be in released (up) position before starter will operate. If starter operates with footswitch in the depressed position, DO NOT OPERATE MACHINE.*

Shutdown Procedure

⚠ CAUTION

IF AN ENGINE MALFUNCTION CAUSES AN UNSCHEDULED SHUTDOWN, DETERMINE THE CAUSE AND CORRECT IT BEFORE RESTARTING THE ENGINE.

1. Remove all load and allow engine to operate at low speed for 3-5 minutes; this allows further reduction of internal engine temperature.
2. Push Power/Emergency Stop switch in.

3. Turn key of Platform/Ground Select switch to the Off position.

Refer to Engine Manufacturer's manual for detailed information.

Air Shutoff Valve (ASOV) (If Equipped)

Air Shutoff Valve (ASOV) is an overspeed protection device mounted to the engine's air intake system. When the valve is actuated, it obstructs airflow intake and stops the engine. Weekly tests are recommended to ensure the valve remains in good working condition.

1. Start the engine, running at idle.
2. Open the red switch guard on ASOV test switch, then activate toggle to test mode.

NOTE: *Test switch is located under hood to the left of the ground control panel (look for test decal).*

3. At the ground control panel, select any function and activate until valve actuates at test RPM of 1500. Once valve actuates, engine will stop.
4. Turn ignition to OFF.
5. Visually inspect valve to ensure it appears in good condition.
6. Reset valve by rotating valve handle to the Open position.

NOTE: *The handle cannot be turned unless the machine is off. Ensure the ignition is moved to the OFF position.*

⚠ WARNING

DO NOT USE ASOV AS AN ALTERNATIVE TO SHUTTING DOWN MACHINE PROPERLY.

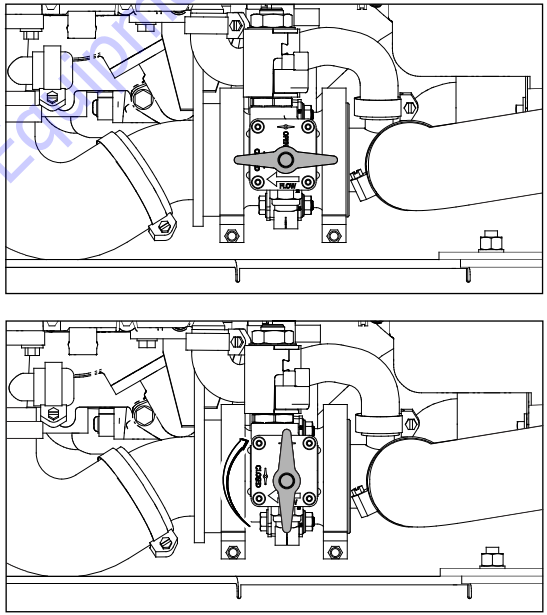


Figure 4-3. ASOV Reset (Closed to Open Position)

Fuel Reserve / Shut-Off System

NOTE: *Reference the Service and Maintenance Manual along with a qualified JLG Mechanic to verify your machine setup.*

The Fuel Shutoff System monitors the fuel in the tank and senses when the fuel level is getting low. The JLG Control System automatically shuts the engine down before the fuel tank is emptied unless the machine is set up for Engine Restart.

If fuel level reaches the Low Fuel range the ¼ tank indicator will flash once a second and there will be approximately 5 minutes of engine run time left. If the system is in this condition and automatically shuts down the engine, or the engine is manually shut down before the 5 minute run time is complete, the ¼ tank indicator will flash 10 times a second and the engine will react according to machine setup. Setup options are as follows:

- Engine One Restart - When the engine shuts down, the operator will be permitted to cycle power and restart the engine once with approximately 2 minutes of run time. After the 2 minute run time is complete or if the engine is shut down by the operator prior to the completion of the 2 minute run time, it cannot be restarted until fuel is added to the tank.
- Engine Restart - When the engine shuts down, the operator will be permitted to cycle power and restart the engine for approximately 2 minutes of run time. After the 2 minutes of run time is complete, the operator may cycle power and restart the engine for an additional 2 minutes of run time. The operator can repeat this process until there is no more fuel available.

NOTICE

CONTACT A QUALIFIED JLG MECHANIC IF THE MACHINE NEEDS RESTARTED AFTER NO MORE FUEL IS AVAILABLE.

- Engine Stop - The engine will shut down. No restarts will be permitted until fuel is added to the tank.

4.5 SELECTIVE CATALYTIC REDUCTION (SCR) - MACHINES USING DIESEL EXHAUST FLUID (DEF)

Selective Catalytic Reduction (SCR) is an emissions control used in diesel engines and requires operator interaction to ensure proper operation of the system.

The system injects liquid through a special catalyst into the exhaust stream of a diesel engine. The liquid is automotive-grade urea, otherwise known as Diesel Exhaust Fluid (DEF). The DEF sets off a chemical reaction that converts nitrogen oxides into nitrogen, water and carbon dioxide (CO_2), which is then expelled through the engine exhaust pipe.

For peak operation, the SCR system must be cleaned using one of two methods, Standstill Cleaning and Maintenance Standstill Cleaning. Standstill Cleaning is any cleaning requested by the engine outside of the regular maintenance window (for example, if the system detects crystallization in the DEF solution). Maintenance Standstill Cleaning is cleaning requested by the engine on the regular maintenance interval.

NOTE: *The system will reset the maintenance interval back to 0 hours after Standstill or Maintenance Standstill cleaning events are performed.*

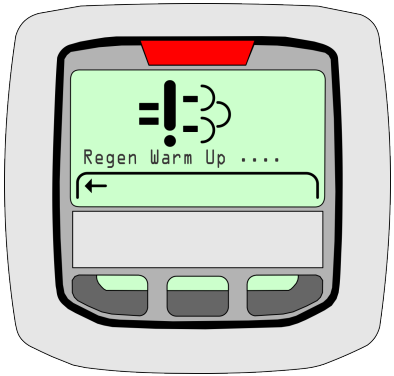
Standstill Cleaning

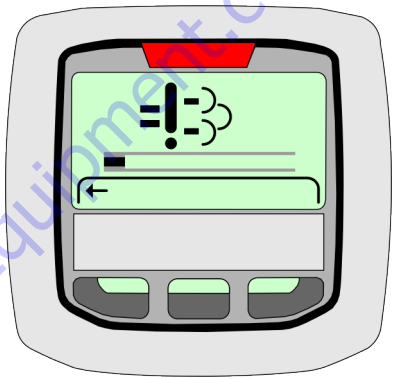
The following conditions must be met to perform Standstill Cleaning.

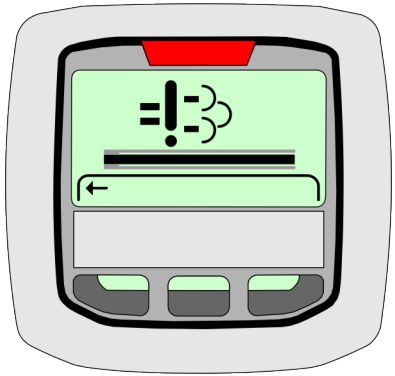
- Machine must be stationary
- Boom in the stowed position
- No personnel in platform
- Engine must be idling
- Coolant temperature must be above 104° F (40° C)
- Diesel Exhaust Fluid (DEF) tank must not be frozen
- Machine in Ground Station mode

1. The Selective Catalytic Reduction Indicator will flash when standstill cleaning is required.

2. Move the machine to an suitable area free of flammables and personnel that could be exposed to hot exhaust.
3. Launch the cleaning process by pressing the SCR button on the Ground Console for 3 seconds. The Indicator Gauge will display the following screen.







4. The Main Cleaning process will begin and last for approximately 30 to 60 minutes. The following screen will show that the process has begun and includes a status bar that indicates the progress of the cleaning process.

5. After the cleaning process is complete, the engine will run for approximately 5 minutes to allow the Engine and Exhaust After Treatment (EAT) to cool down. The Indicator Gauge will display the "Regen Complete" screen as shown and the HEST indicator will no longer be illuminated.

Maintenance Standstill Cleaning Initiation Methods

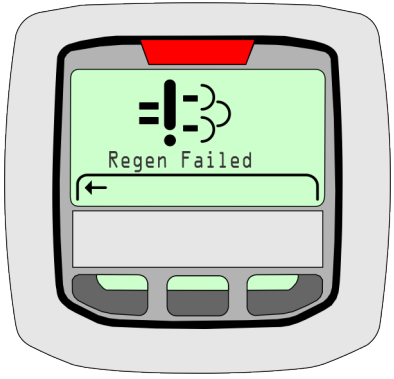
Maintenance Standstill Cleaning can be started by one of two methods, by using the Analyzer or SCR button on the Ground Console. All the same conditions as outlined under Standstill Cleaning must be met.

Cancelling Maintenance Standstill

Maintenance Standstill Cleaning will be stopped immediately if:

- The Platform/Ground Select switch is switched from Ground to Platform mode
- Any function switch is enabled to perform a boom function
- The Engine is powered down

If Maintenance Standstill Cleaning is interrupted, it must be re-initiated and the Indicator Gauge will display the "Regen Failed" screen as shown.



Unsuccessful Cleaning Event

If there is an unsuccessful cleaning event, The SCR icon will show on the display gauge. Possible causes of an Unsuccessful Cleaning Event are:

- Engine is not warmed up
- DEF tank is frozen
- Machine functions operated during cleaning event in progress
- Other engine faults are active

The Indicator Gauge will display the Regen Failed screen as shown. If the cleaning event has failed, it must be repeated.

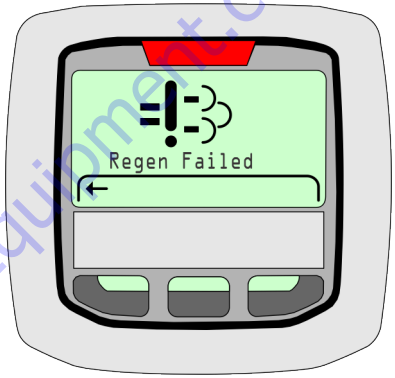


Table 4-1. Maintenance Standstill Cleaning

Standstill Cleaning Levels		Machine Hours Since Last Cleaning	System Distress Light	SCR Cleaning Light	Derate	Comments
0	Normal Operation	0-500 500-1000	--	--	None	Between 500 and 1000 hours, cleaning cycle can be initiated with JLG analyzer.
1	Standstill Required	1000-1100	--	 0.5 Hz	None	Engine coolant temperature must be >40° C and DEF must be thawed before cleaning can be initiated.
2	Warning Level	1100-1125	 Continuous	 0.5 Hz	Machine placed in Creep and DTC active	
3	Shut Off Level	>1125	 Blinking	 3 Hz	Idle Lock. Boom Functions Locked Out and Trapped in Transport.	Contact Deutz Dealer.

Table 4-2. Cleaning When Crystallization is Detected During SCR

Crystallization Levels	Machine Hours after Crystallization	Cleaning Initiation Methods	System Distress Light	SCR Cleaning Light	Derate
Normal Operation	No Crystallization Detected	--	--	--	None
Crystallization Detected Standstill Required	0-5	SCR Switch or Analyzer	--	 0.5 Hz	None
Crystallization Detected Warning Level 1	5-600	SCR Switch or Analyzer	 Continuous	 0.5 Hz	Machine placed in Creep and DTC active
Crystallization Detected Shut Off Level	>600	Contact Deutz Dealer.	 Blinking	 3 Hz	Idle Lock. Boom Functions Locked Out and Trapped in Transport.

4.6 TRAVELING (DRIVING)

See Figure 4-5., Grade and Side Slopes - Sheet 2 of 2

NOTE: *When the main boom is raised approximately 5 degrees above horizontal, the high drive function will automatically be in low drive.*

⚠ WARNING

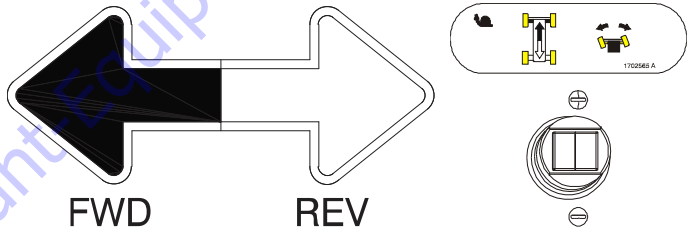
DO NOT DRIVE WITH BOOM ABOVE HORIZONTAL EXCEPT ON A SMOOTH, FIRM SURFACE WITHIN THE LIMITS OF THE MAXIMUM OPERATING SLOPE.

TO AVOID LOSS OF TRAVEL CONTROL OR TIP OVER ON GRADES AND SIDE SLOPES, DO NOT DRIVE MACHINE ON GRADES EXCEEDING THOSE SPECIFIED IN THE OPERATING SPECIFICATIONS SECTION OF THIS MANUAL.

DO NOT DRIVE ON SIDESLOPES WHICH EXCEED 5 DEGREES.

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 ARROWS FOR THE INTENDED DIRECTION OF TRAVEL.



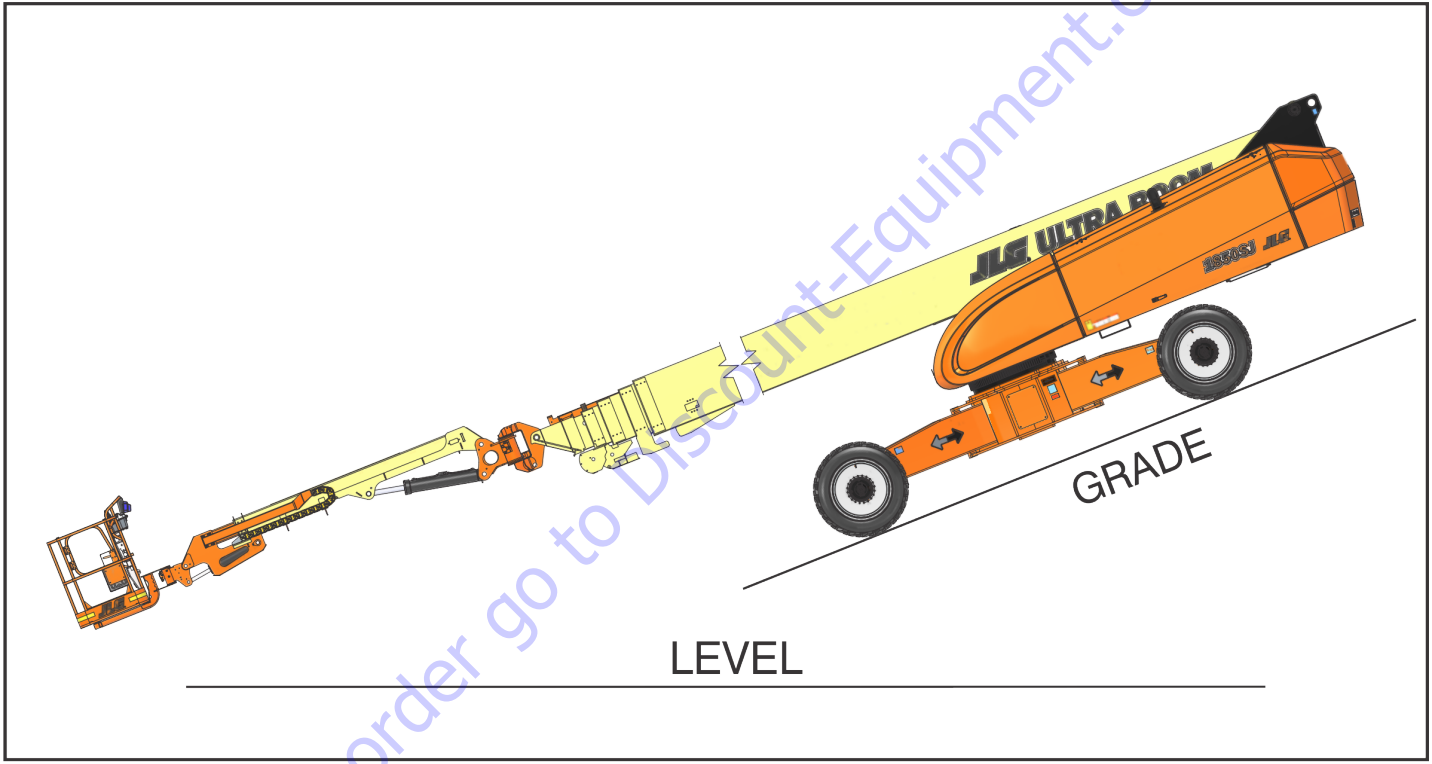


Figure 4-4. Grade and Side Slopes - Sheet 1 of 2

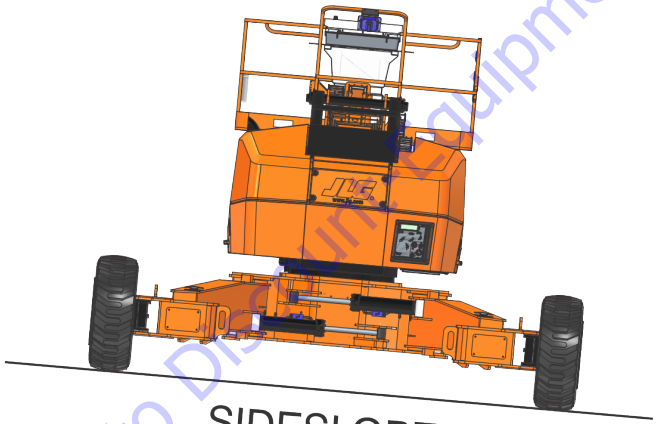
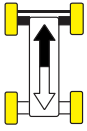


Figure 4-5. Grade and Side Slopes - Sheet 2 of 2

Traveling Forward and Reverse

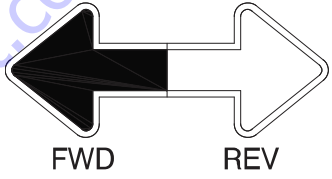
1. At Platform Controls, pull out Emergency Stop switch, start engine, and activate footswitch.

2. Position Drive controller to Forward or Reverse as desired.



This machine is equipped with a Drive Orientation Indicator. The yellow light on the platform control console indicates that the boom is swung beyond the rear drive tires and the machine may Drive/Steer in the opposite direction from the movement of the controls. If the indicator is illuminated, operate the Drive function in the following manner:

1. Match the black and white direction arrows on both platform control console and the chassis to determine the direction the machine will travel.



2. Push and release the Drive Orientation Override switch. Within 3 seconds, slowly move the Drive control toward the arrow matching the intended direction of machine travel. The indicator light will flash during the 3 second interval until the drive function is selected.

Traveling on a Grade

When traveling a grade, maximum braking and traction are obtained with the boom stowed, in position over the rear (drive) axle, and in line with the direction of travel. Drive the machine forward when climbing a grade, and in reverse when descending a grade. Do not exceed the machine's maximum rated gradeability.

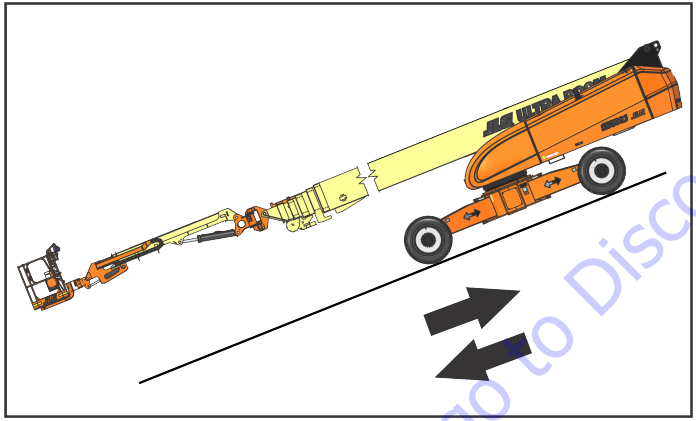


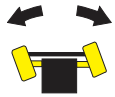
Figure 4-6. Traveling on a Grade

NOTICE

IF THE BOOM IS OVER THE FRONT (STEER) AXLE, DIRECTION OF STEER AND DRIVE MOVEMENT WILL BE OPPOSITE FROM THE MOVEMENT OF THE CONTROLS.

4.7 STEERING

Position thumb switch on Drive/Steer controller to Right for steering right, or to Left for steering left.

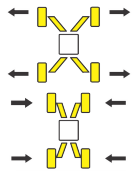


4.8 EXTENDING THE AXLES

NOTE: *The boom must be oriented between the rear wheels to extend or retract the axles.*

The operator must be driving the machine (forward or reverse) in order to extend the axles.

Position the Axle Extend switch to extend the axles or to retract to retract the axles.



4.9 PLATFORM

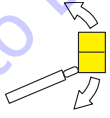
Platform Level Adjustment

⚠ 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.

NOTE: *When the Boom Control Select Switch is in the Manual mode, Platform leveling only functions during Main Lift operation. When the Boom Control Select Switch is in the Automatic mode, Platform Leveling is active during all functions except during telescope operation. Also, when in the Manual mode, the Controlled Arc and Controlled Angle systems are not active.*

During normal operation of the machine, the platform will automatically maintain it's position. To manually Level Up or Down - Position the Platform/Level control switch Up or Down and hold until the desired platform position is obtained.



Platform Rotation

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

4.10 BOOM

⚠ WARNING

A RED TILT WARNING LIGHT IS LOCATED ON THE CONTROL CONSOLE WHICH LIGHTS WHEN THE CHASSIS IS ON AN EXCESSIVE SLOPE. DO NOT SWING OR RAISE BOOM ABOVE HORIZONTAL WHEN LIGHT IS LIT.

DO NOT DEPEND ON TILT ALARM AS A LEVEL INDICATOR FOR THE CHASSIS. TILT ALARM INDICATES CHASSIS IS ON AN EXCESSIVE SLOPE (5 DEGREE OR GREATER). CHASSIS MUST BE LEVEL BEFORE SWINGING, OR RAISING BOOM ABOVE HORIZONTAL OR DRIVING WITH THE BOOM ELEVATED.

TO AVOID TIP OVER IF RED TILT WARNING LIGHT LIGHTS WHEN BOOM IS RAISED ABOVE HORIZONTAL, LOWER PLATFORM TO GROUND LEVEL. THEN REPOSITION MACHINE SO THAT CHASSIS IS LEVEL BEFORE RAISING BOOM.

⚠ WARNING

TRAVELING WITH BOOM BELOW HORIZONTAL IS PERMITTED ON GRADES AND SIDE SLOPES SPECIFIED IN THE OPERATING SPECIFICATIONS SECTION OF THIS MANUAL.

⚠ WARNING

TO AVOID SERIOUS INJURY, DO NOT OPERATE MACHINERY IF ANY CONTROL LEVER OR TOGGLE SWITCH CONTROLLING PLATFORM MOVEMENT DOES NOT RETURN TO THE 'OFF' OR NEUTRAL POSITION WHEN RELEASED.

⚠ CAUTION

TO AVOID A COLLISION AND INJURY IF PLATFORM DOES NOT STOP WHEN A CONTROL SWITCH OR LEVER IS RELEASED, REMOVE FOOT FROM FOOTSWITCH OR USE EMERGENCY STOP SWITCH TO STOP THE MACHINE.

Swinging the Boom

NOTE: *The axles must be fully extended to swing beyond the rear wheels (40 degrees).*

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

NOTICE

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

Raising and Lowering the Boom

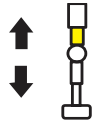
NOTE: *The lift function is not operable above 6 degrees above horizontal if the axles are not fully extended.*

To raise or lower the Boom, use Boom Lift control to select Up or Down movement.

Telescoping the Boom

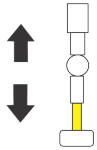
NOTE: *The telescope function is not operable beyond the transport position if the axles are not fully extended.*

To extend or retract the main boom, use the Telescope Control Switch to select In or Out movement.



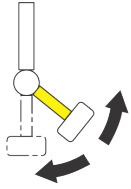
Telescoping the Jib

To extend or retract the jib, use the Jib Telescope Control Switch to select In or Out movement.



Stowing/Swinging the Jib

To swing the jib for stowage or machine usage, use the Jib Stow control to select Right or Left direction. The jib lock pin will also operate automatically while using the Jib Stow switch.



4.11 FUNCTION SPEED CONTROL

This control affects the speed of main boom telescope, jib telescope, and jib lift. Turning the knob all the way counterclockwise until it clicks puts drive, main lift, platform rotate, and swing into creep mode.

4.12 MACHINE SAFETY SYSTEM OVERRIDE (MSSO) (CE ONLY)

The Machine Safety System Override (MSSO) is used to override function controls for Emergency Platform Retrieval only. Refer to Section 6.5, Machine Safety System Override (MSSO)(CE Only) for operating procedures.

4.13 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, if equipped with a SkyGuard beacon, the beacon will illuminate until sensor and footswitch are disengaged.

If the SkyGuard sensor remains activated after function reversal or cutout, depress and hold the SkyGuard Override Switch to allow normal functions until the sensor is disengaged.

Consult the following illustrations to determine which type of SkyGuard the machine has and how it is activated. Regardless of type, SkyGuard function according to the SkyGuard Function Table does not change.