



An Oshkosh Corporation Company



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Operation and Safety Manual

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

Model

600S

660SJ

PVC 2001

ANSI   **AS/NZS**

31215033

November 04, 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
E-mail: ProductSafety@JLG.com

REVISION LOG

Original Issue A - November 04, 2019

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SECTION 1. SAFETY PRECAUTIONS

1.1 GENERAL

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

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

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

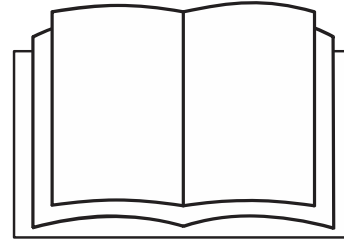
⚠ WARNING

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

1.2 PRE-OPERATION

Operator Training and Knowledge

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



- 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.

SECTION 1 - SAFETY PRECAUTIONS

- 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.

SECTION 1 - SAFETY PRECAUTIONS

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

Trip and Fall Hazards

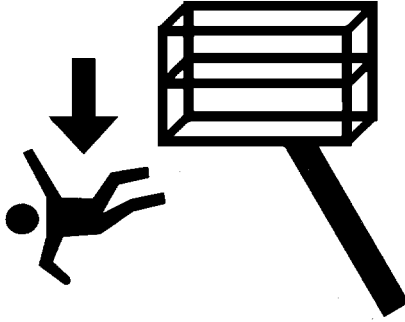
- Prior to operation, ensure all gates are closed and fastened in their proper position.
- During operation, occupants in the platform must wear a full body harness with a lanyard attached to an authorized lanyard anchorage point. Attach only one (1) lanyard per lanyard anchorage point.



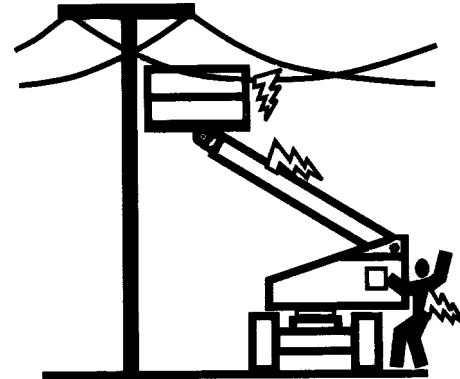
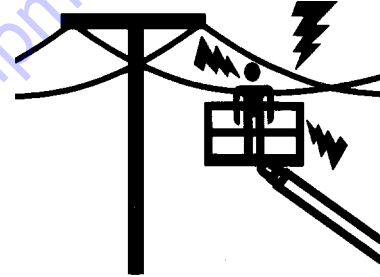
- Enter and exit only through gate area. Use extreme caution when entering or leaving platform. Ensure that the platform assembly is fully lowered. Face the platform when entering or leaving the platform. Always maintain “three point contact” with the machine, using two hands and one foot or two feet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

Electrocution Hazards

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



- 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.



SECTION 1 - SAFETY PRECAUTIONS

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

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

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

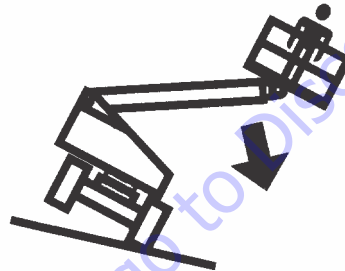
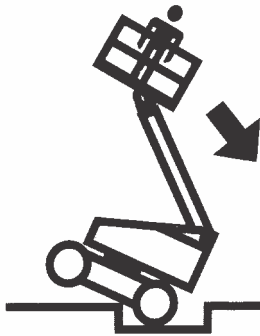
- The minimum approach distance may be reduced if insulating barriers are installed to prevent contact, and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the machine. The minimum approach distance shall be reduced to a distance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



**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 28 mph (12.5 m/s). Refer to Table 1-2, Beaufort Scale (For Reference Only). Factors affecting wind speed are; platform elevation, surrounding structures, local weather events, and approaching storms.
- Wind speed can be significantly greater at height than at ground level.
- Wind speed can change rapidly. Always consider approaching weather events, the time required to lower the platform, and methods to monitor current and potential wind conditions.
- Do not cover or increase surface area of the platform or the load. Do not carry large surface area items in the platform when operating outdoors. The addition of such items

SECTION 1 - SAFETY PRECAUTIONS

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.

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NOTICE

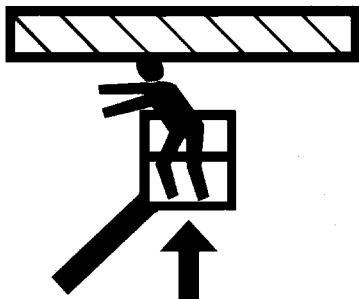
DO NOT OPERATE THE MACHINE WHEN WIND CONDITIONS EXCEED SPECIFICATIONS SHOWN IN SECTION 7, TABLE 7-2 OR AS SHOWN ON THE CAPACITY PLACARD ON THE PLATFORM BILLBOARD.

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 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.

SECTION 1 - SAFETY PRECAUTIONS

- 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.



⚠ WARNING

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

- 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.

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.

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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 MEWPs and available options for the work to be performed considering specific job

requirements, with involvement from the MEWP owner, user, and/or supervisor.

10. The responsibility of the operator to ensure all platform occupants have a basic level of knowledge to work safely on the MEWP, and to inform them of applicable regulations, standards, and safety rules.
11. The requirement for familiarization in addition to training.

Training Supervision

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

Operator Responsibility

The operator must be instructed that 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

NOTICE

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.

SECTION 2 - USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

Table 2-1. Inspection and Maintenance Table

Type	Frequency	Primary Responsibility	Service Qualification	Reference
Pre-Start Inspection	Before using each day; or whenever there's an Operator change.	User or Operator	User or Operator	Operation and Safety Manual
Pre-Delivery Inspection (See Note)	Before each sale, lease, or rental delivery.	Owner, Dealer, or User	Qualified JLG Mechanic	Service and Maintenance Manual and applicable JLG inspection form
Frequent Inspection (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.

SECTION 2 - USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

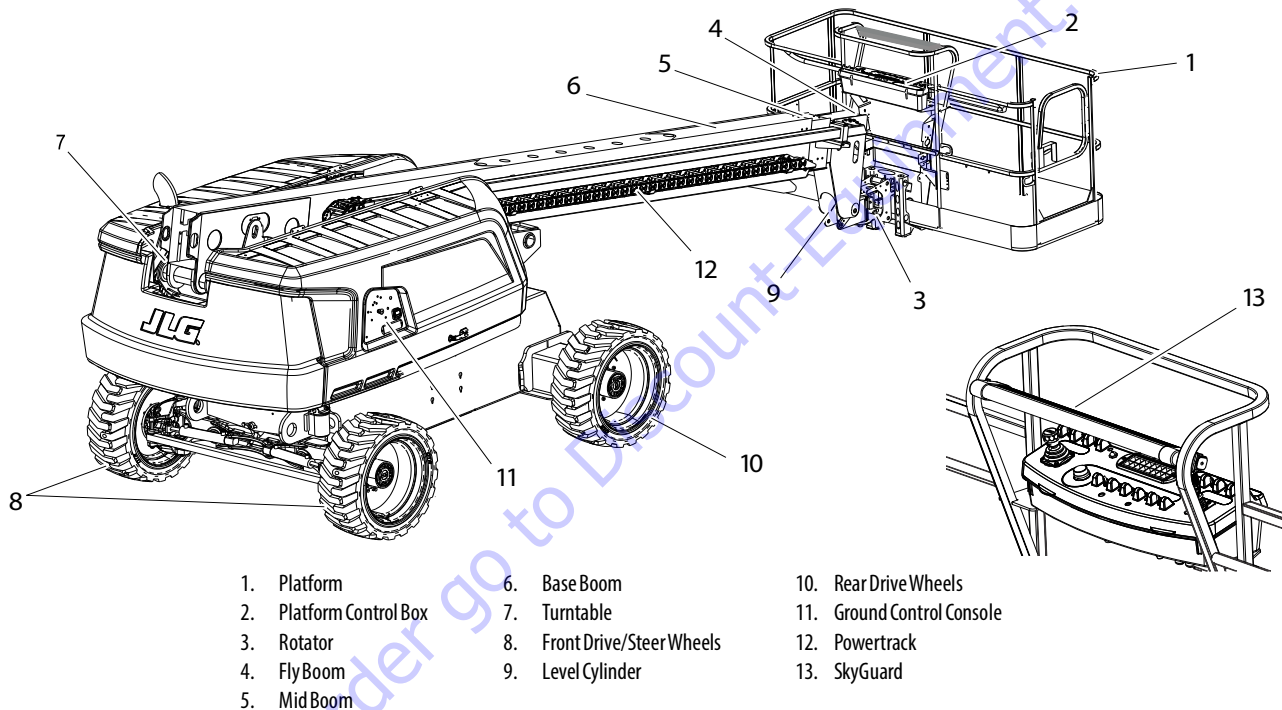


Figure 2-1. Basic Nomenclature - 6005

SECTION 2 - USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

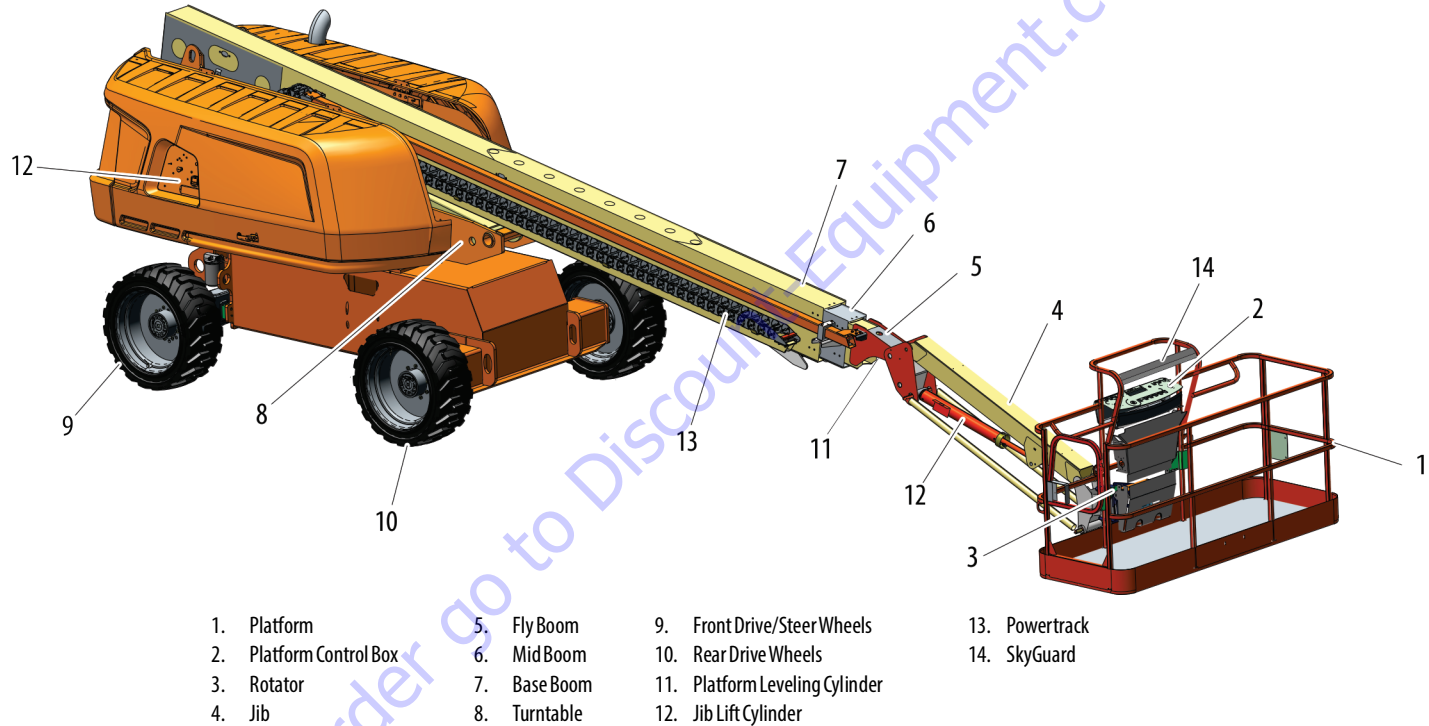


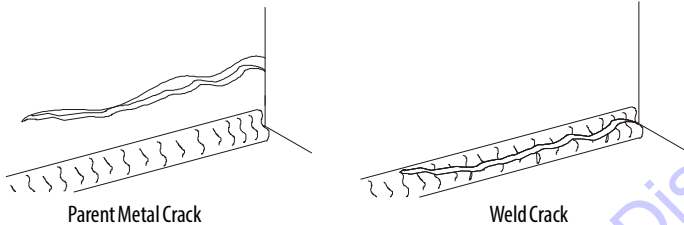
Figure 2-2. Basic Nomenclature - 660SJ

SECTION 2 - USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

Pre-Start Inspection

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

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



3. **Decals and Placards** – Check all for cleanliness and legibility. Make sure none of the decals and placards are missing. Make sure all illegible decals and placards are cleaned or replaced.
4. **Operation and Safety Manuals** – Make sure a copy of the Operation and Safety Manual, AEM Safety Manual (ANSI markets only), and ANSI Manual of Responsibilities (ANSI markets only) is enclosed in the weather resistant storage container.

5. **Walk-Around Inspection** – Refer to “Walk-Around Inspection” on page 7.
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. **Platform Gate** – Keep gate and surrounding area clean and unobstructed. Verify the gate closes properly and is not bent or damaged. Keep gate closed at all times except when entering/exiting the platform and loading/unloading materials.

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

 WARNING

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

SECTION 2 - USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

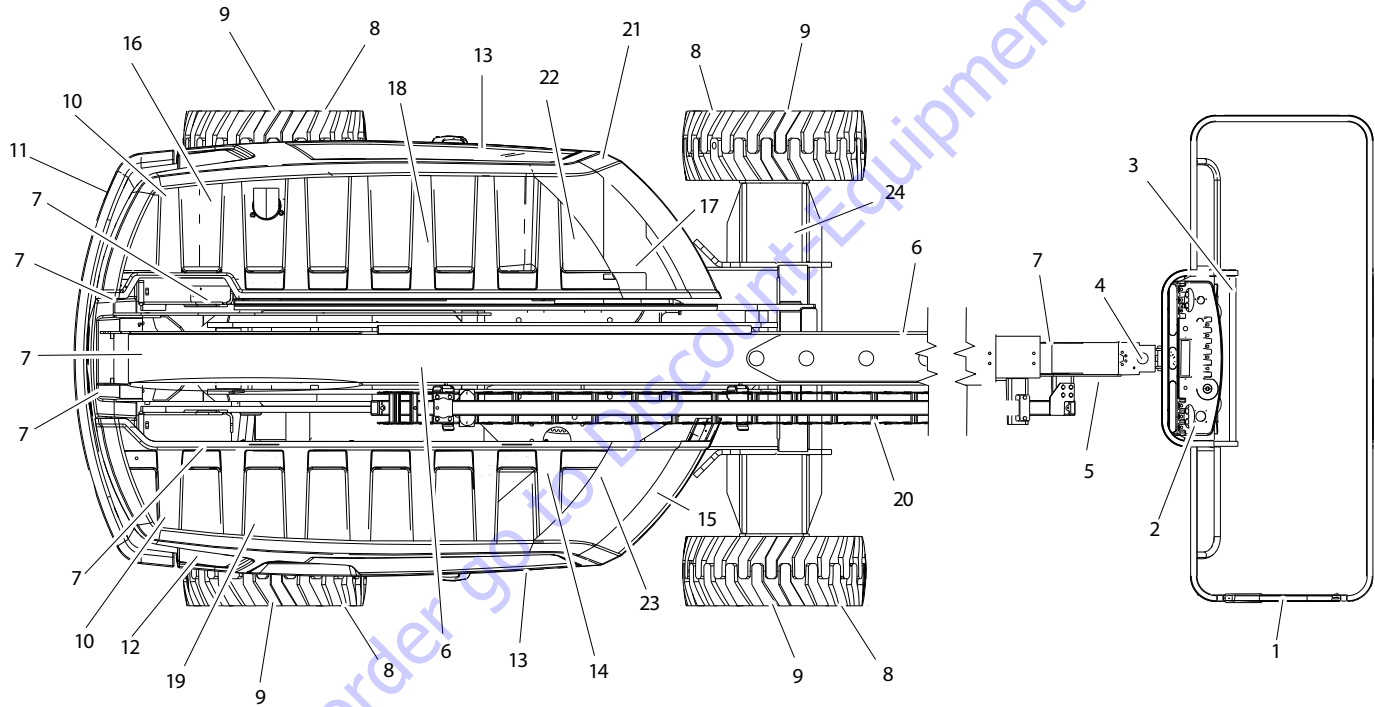


Figure 2-3. Daily Walk-Around Inspection Diagram

Walk-Around Inspection

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

WARNING

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

NOTICE

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

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

- 1. Platform Assembly and Gate** - Footswitch works properly, not modified, disabled or blocked. Gate latches 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. Jib Assembly and Jib Rotator (If Equipped)** - See Inspection Note.
- 6. Boom Sections/Uprights/Turntable** - See Inspection Note.
- 7. All Hydraulic Cylinders** - No visible damage; pivot pins and hydraulic hoses undamaged, not leaking.
- 8. Wheel/Tire Assemblies** - Properly secured, no missing lug nuts. Inspect for worn tread, cuts, tears or other discrepancies. Inspect wheels for damage and corrosion.
- 9. Drive Motor, Brake, and Hub** - No evidence of leakage.
- 10. Tie Rod Ends and Steering Spindles** - See Inspection Note.
- 11. Counterweight** - See Inspection Note.
- 12. Ground Control Console** - Switches and levers return to neutral when activated and released, decals/placards secure and legible, control markings legible.

SECTION 2 - USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

13. **Hood Assemblies** - See Inspection Note.
14. **Swing Motor** - No evidence of damage.
15. **Turntable Bearing** - Evidence of proper lubrication. No evidence of loose bolts or looseness between bearing and machine.
16. **Hydraulic Pump and Reservoir** - See Inspection Note.
17. **Battery** - Batteries have proper electrolyte level; cables tight; see Inspection Note.
18. **Air Shutoff Valve (ASOV) (If Equipped)** - See Inspection Note.
19. **Fuel Tank** - See Inspection Note.
20. **Power Track** - See Inspection Note.
21. **Turntable Lock** - Operable.
22. **Auxiliary Power Pump** - See Inspection Note.
23. **Main Control Valve** - See Inspection Note.
24. **Frame** - See Inspection Note.

Function Check

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 check all limiting and cut-out switches to ensure proper operation. All boom sections should extend/retract together at the same rate of speed. Any difference would indicate delayed movement and loose wire ropes.
 - d. Ensure proper operation of the manual descent controls, as described in Section 5.5 of this manual.
2. From the platform control console:
 - a. Ensure the control console is firmly secured in the proper location.
 - b. Check all guards protecting the switches or locks are in place.
 - c. Operate all functions and check all limiting and cut-out switches.
 - d. Ensure all machine functions are disabled when the Emergency Stop Button is pushed in.
 - e. Operate all functions and ensure proper operation. 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 FACTORY TRAINED SERVICE TECHNICIAN. LOOSE OR MISADJUSTED WIRE ROPES COULD RESULT IN SERIOUS INJURY OR DEATH.

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 FACTORY TRAINED SERVICE TECHNICIAN. LOOSE OR MISADJUSTED WIRE ROPES COULD RESULT IN SERIOUS INJURY OR DEATH.

3. With the platform in the stowed position:
 - a. Drive the machine on a grade, not to exceed the rated gradeability, and stop to ensure the brakes hold;
 - b. Check that the tilt indicator is illuminated to ensure proper operation.

SECTION 2 - USER RESPONSIBILITIES, MACHINE PREPARATION, AND INSPECTION

4. Swing the boom over either of the rear tires and ensure that the Drive Orientation indicator illuminates and that the Drive Orientation Override switch must be used for the drive function to operate.
5. 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 4.10 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.

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.

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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.

Ground Control Station

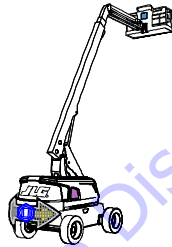
⚠ WARNING

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.

(See Figure 3-1., Figure 3-2., Figure 3-3., and Figure 3-4.)

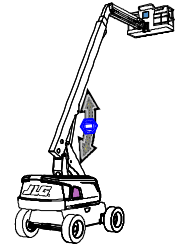
1. Swing

Provides 360 degrees continuous turntable rotation.



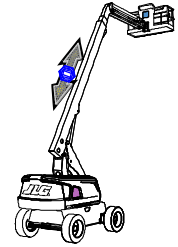
2. Boom Lift

Provides raising and lowering of the boom.



3. Boom Telescope

Provides extension and retraction of the boom.



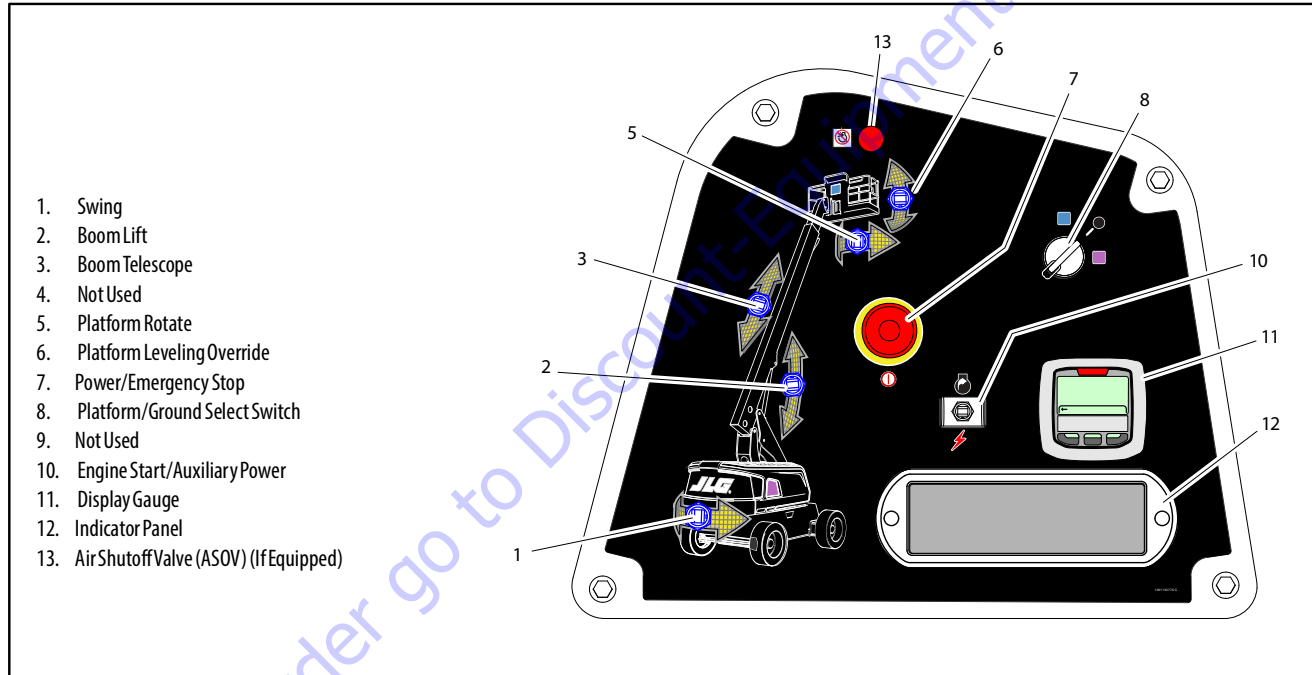


Figure 3-1. Ground Control Station - 600S

SECTION 3 - MACHINE CONTROLS AND INDICATORS

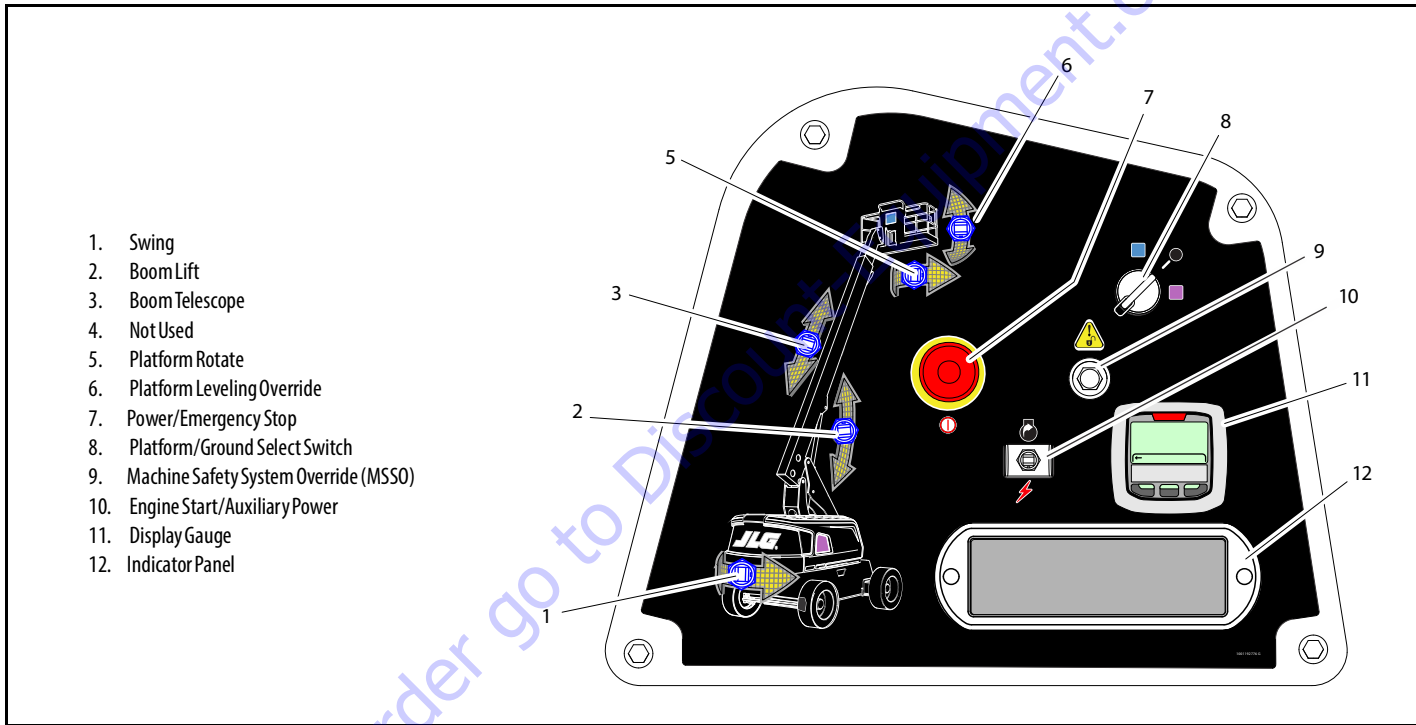


Figure 3-2. Ground Control Station - 600S with Machine Safety System Override (MSSO)(CE Only)

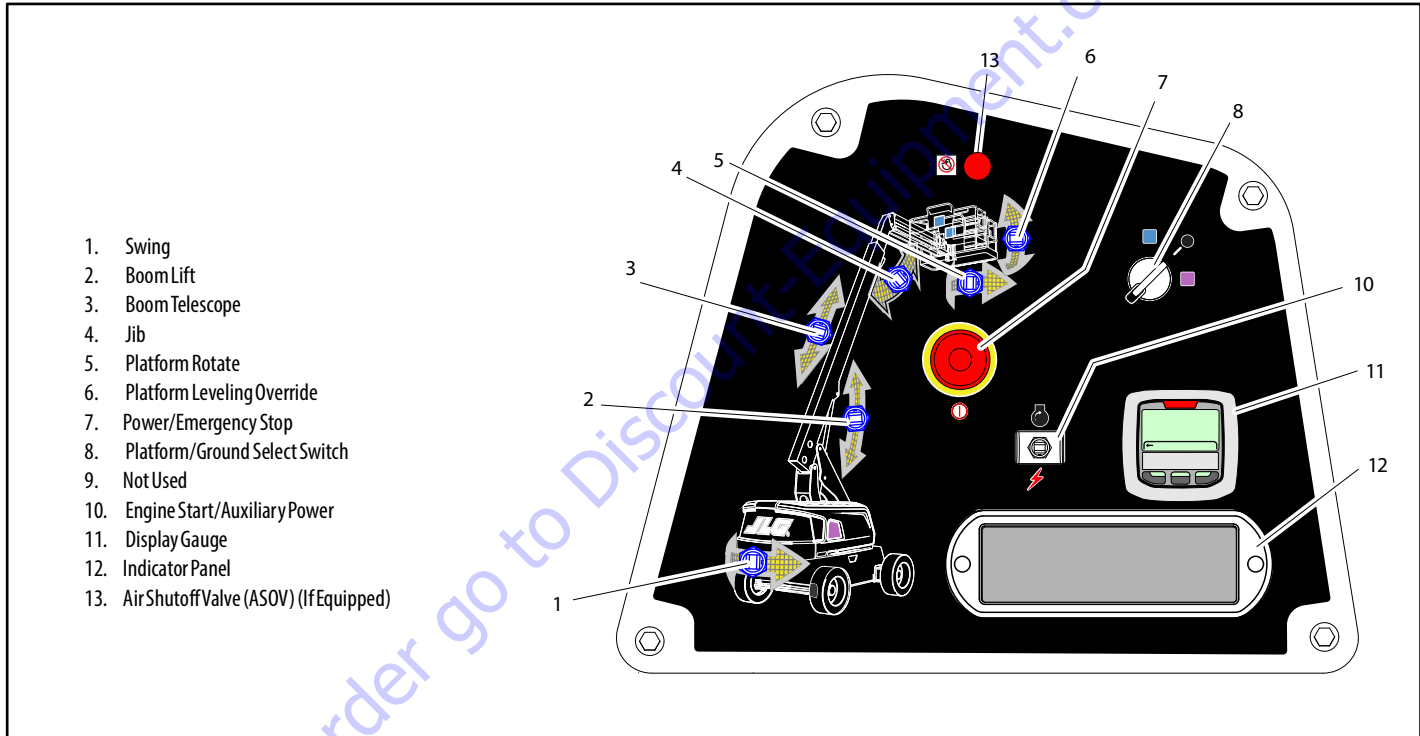


Figure 3-3. Ground Control Station - 660SJ

SECTION 3 - MACHINE CONTROLS AND INDICATORS

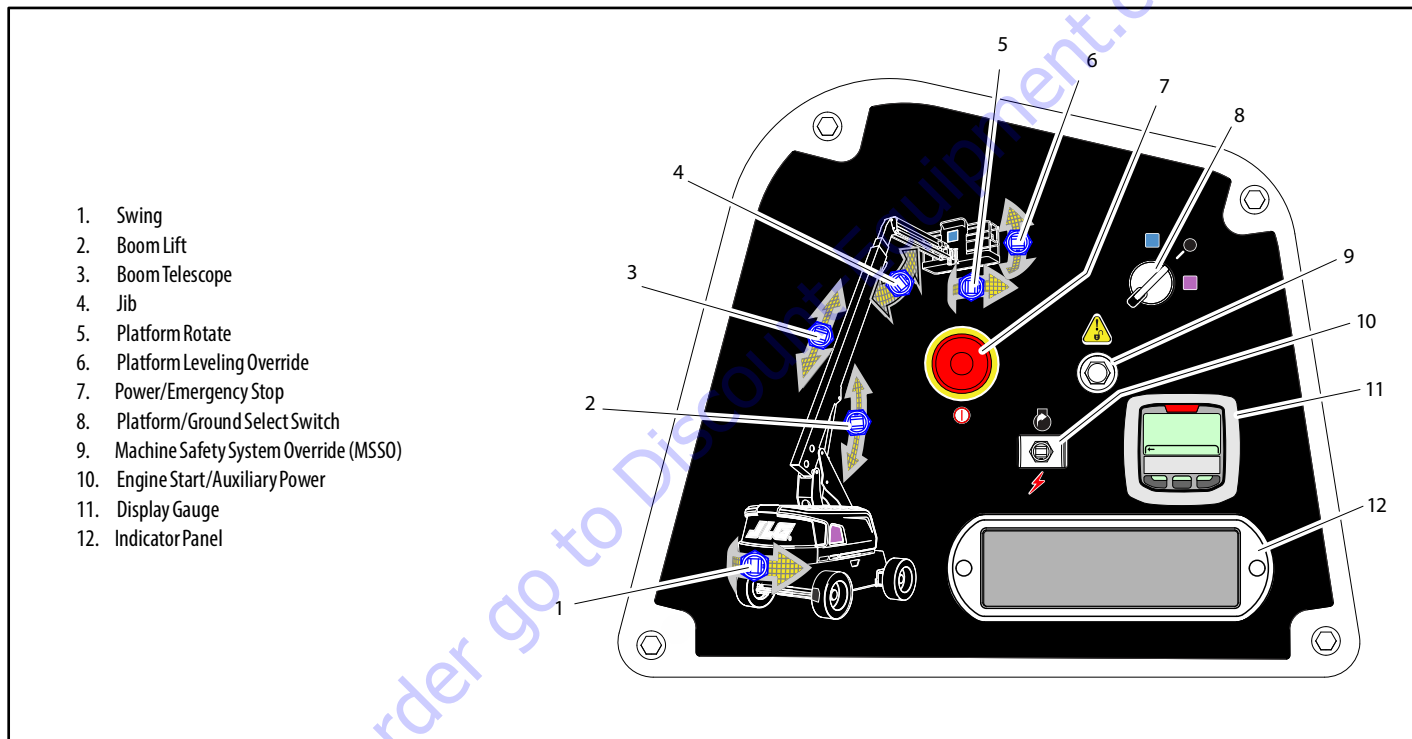
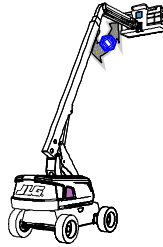


Figure 3-4. Ground Control Station - 660SJ with Machine Safety System Override (MSSO)(CE Only)

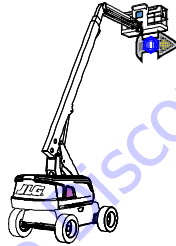
4. Jib (If Equipped)

This switch provides raising and lowering of the jib.



5. Platform Rotate

Provides rotation of the platform.

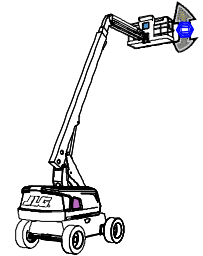


⚠ WARNING

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

6. 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.



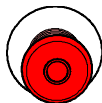
SECTION 3 - MACHINE CONTROLS AND INDICATORS

CAUTION

ALWAYS POSITION EMERGENCY STOP SWITCH TO THE 'OFF' POSITION (PUSHED IN) WHEN MACHINE IS NOT IN USE.

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.



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

8. Platform/Ground Select Switch

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



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

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



NOTE: On machines with diesel engines, when Glow Plug Indicator is lighted (Yellow), wait until light goes out before cranking engine.

10. 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.



11. 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.



12. Indicator Panel

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

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

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



Ground Control Indicator Panel

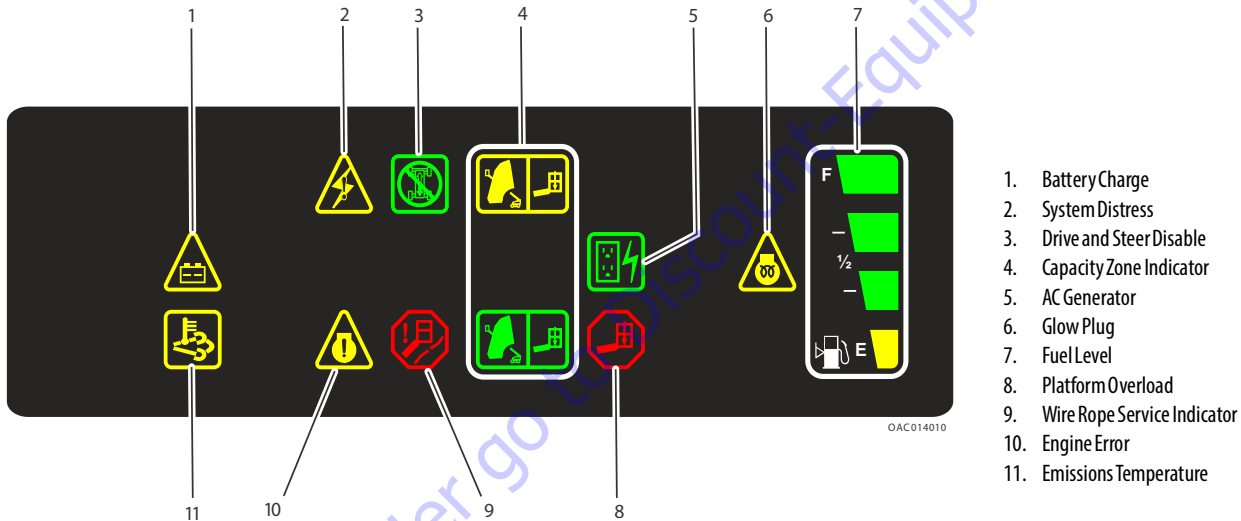


Figure 3-5. Ground Control Indicator Panel

SECTION 3 - MACHINE CONTROLS AND INDICATORS

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

1. Battery Charge Indicator

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



2. 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.

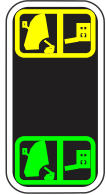
3. Drive and Steer Disable Indicator

Indicates the Drive and Steer Disable function has been activated.



4. 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.

5. AC Generator Indicator

Indicates the generator is in operation.



6. Glow Plug Indicator

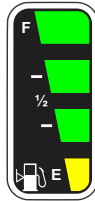
Indicates the glow plugs are on. The glow plugs are automatically turned on with the ignition circuit and remain on for approximately seven seconds. Start the engine only after the light goes out.



SECTION 3 - MACHINE CONTROLS AND INDICATORS

7. Fuel Level Indicator

Indicates the level of the fuel in the fuel tank.



8. Platform Overload Indicator

Indicates the platform has been overloaded.



9. 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.



10. Engine Error Indicator

Indicates a fault with the engine and service is required.



11. Emissions Temperature Warning Indicator

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



Ground Control Console Display Gauge

(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

SECTION 3 - MACHINE CONTROLS AND INDICATORS

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.

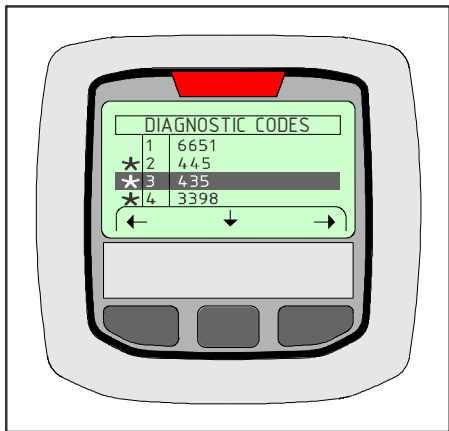


Figure 3-7. Diagnostic Screen

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.

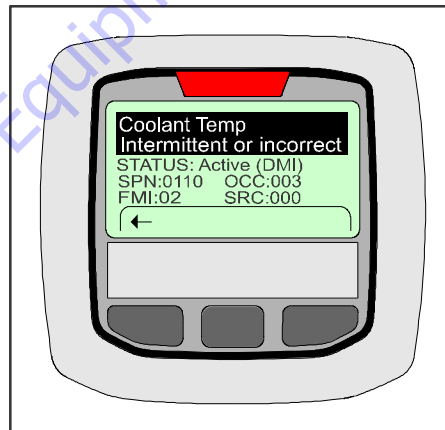


Figure 3-8. Engine Diagnostic Screen

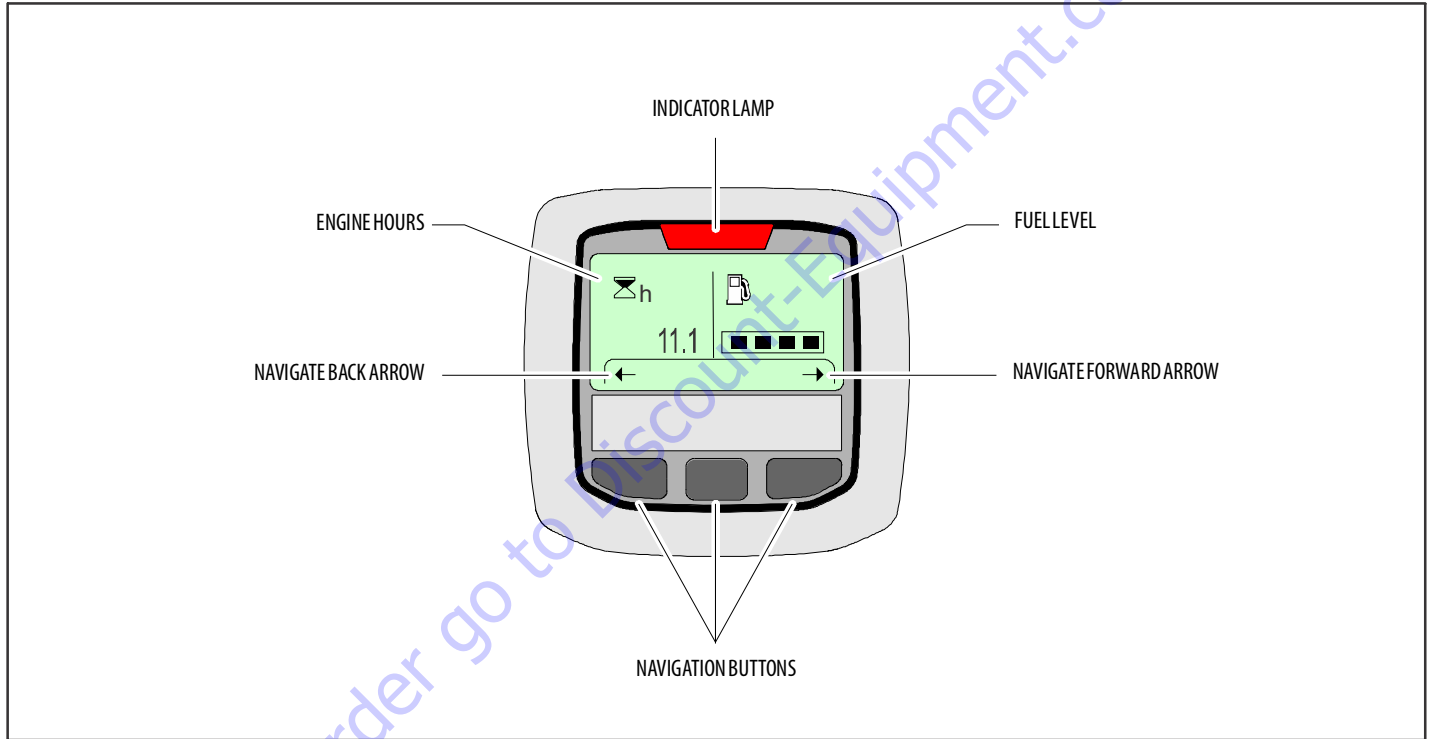
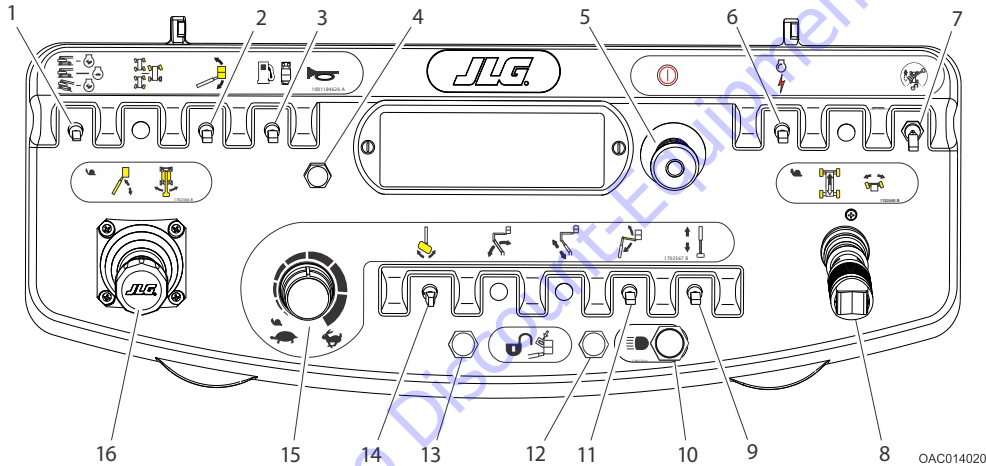


Figure 3-9. Ground Control Console Display Gauge

SECTION 3 - MACHINE CONTROLS AND INDICATORS

Platform Console



OAC014020

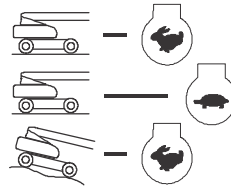
- | | | |
|-------------------------------|-------------------------------|-----------------------------------|
| 1. Drive Speed/Torque Select | 7. Drive Orientation Override | 12. Soft Touch/SkyGuard Override |
| 2. Platform Leveling Override | 8. Drive/Steer | 13. Soft Touch/SkyGuard Indicator |
| 3. Fuel Select (If Equipped) | 9. Telescope | 14. Platform Rotate |
| 4. Horn | 10. Lights (If Equipped) | 15. Function Speed Control |
| 5. Power/Emergency Stop | 11. Jib Lift (If Equipped) | 16. Main Lift/Swing Controller |
| 6. Start/Auxiliary Power | | |

⚠ 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 Switch

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.

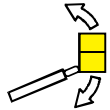


⚠ WARNING

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.

2. 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.



3. Fuel Select (Dual Fuel Engine Only) (If Equipped)

Moving the switch to the appropriate position selects gasoline or liquid propane fuel.



4. Horn

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

5. Power/Emergency Stop Switch

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



6. Start/Auxiliary Power

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



SECTION 3 - MACHINE CONTROLS AND INDICATORS

The Auxiliary Power control switch energizes the electrically operated hydraulic pump. (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 main boom lift, main telescope, jib (if equipped) and swing.

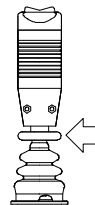
7. Drive Orientation Override

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.



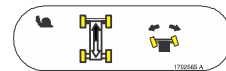
NOTE: To operate the Drive joystick, pull up on the locking ring below the handle.

NOTE: The Drive joystick is spring loaded and will automatically return to neutral (off) position when released.



8. 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.



9. Telescope

Provides extension and retraction of the main boom.



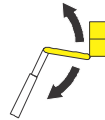
10. Lights (If Equipped)

Operates accessory light packages if the machine is so equipped.



11. Jib Lift (If Equipped)

Provides for raising or lowering of the jib by positioning up/down.



12. 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 shut-down situation.



13. 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.

When Soft Touch is active, the indicator will be on continuously and the alarm will sound. When SkyGuard is active, the indicator will flash, and the horn will sound continuously.

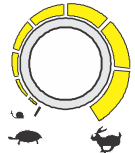
14. Platform Rotate

Provides rotation of the platform when positioned to the right or left.



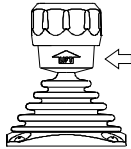
15. Function Speed Control

This control affects the speed of telescope and jib lift (if equipped). Turning the knob all the way counterclockwise until it clicks puts drive and swing into creep mode.



SECTION 3 - MACHINE CONTROLS AND INDICATORS

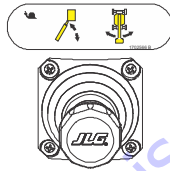
NOTE: To operate the Main Boom Lift/Swing joystick, pull up on the locking ring below the handle.



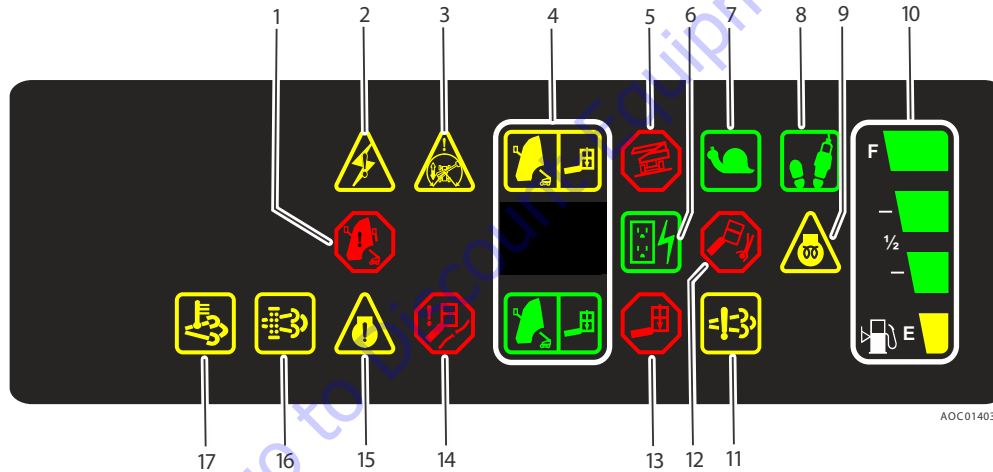
NOTE: The Main Boom Lift/Swing joystick is spring loaded and will automatically return to neutral (off) position when released.

16. 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.



Platform Control Indicator Panel



- | | | | |
|--------------------------------|---------------|-----------------------|---|
| 1. Boom Control System Warning | 6. Generator | 10. Fuel Level | 14. Wire Rope Service |
| 2. System Distress | 7. Creep | 11. Emissions Failure | 15. Engine Error |
| 3. Drive Orientation | 8. Footswitch | 12. Level System | 16. Diesel Particulate Filter Indicator |
| 4. Capacity Zone Indicator | 9. Glow Plug | 13. Platform Overload | 17. Emissions Temperature |
| 5. Tilt Alarm Warning | | | |

SECTION 3 - MACHINE CONTROLS AND INDICATORS

1. 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.

2. 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.

3. 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).

4. 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.

5. Tilt Warning Light and Alarm

This red illuminator indicates that 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 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.

6. AC Generator Indicator

Indicates the generator is in operation.



7. 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.



8. 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.

SECTION 3 - MACHINE CONTROLS AND INDICATORS

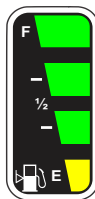
9. Glow Plug Indicator

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



10. Fuel Level Indicator

Indicates the level of the fuel in the fuel tank.



11. Engine Emissions System Failure Indicator

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



12. 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.



13. Platform Overload Indicator

Indicates the platform has been overloaded.



14. Wire Rope Service

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



15. Engine Error Indicator

Indicates a fault with the engine and service is required.



16. Diesel Particulate Filter (DPF) Indicator

Icon will illuminate when standstill exhaust system cleaning is required.



17. Emissions Temperature Indicator

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



18. 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).



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SECTION 4. MACHINE OPERATION

4.1 DESCRIPTION

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

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 main boom or swing the boom to the left or right. Standard boom swing is 360 degree continuous left and right of the stowed position. The machine has a Ground Control Station which will override the Platform Control Station. Ground Controls operate Boom Lift and Swing, and are to be used in an emergency to lower the platform to the ground should the operator in the platform be unable to do so.

4.2 OPERATING CHARACTERISTICS AND LIMITATIONS

Platform Load Sensing System (LSS)

Capacities

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

1. Machine is positioned on a smooth, firm surface within the limits of the maximum operating slope.
2. Load is within manufacturer's rated capacity.
3. All machine systems are functioning properly.
4. Machine is as originally equipped from JLG.

The Platform Load Sensing System provides the platform capacity to the control system. The control system will light the applicable capacity zone light in both the platform control box and the ground control station based on the value observed by the LSS system.

The control system determines which capacity zone (Unrestricted 550 lb (250 kg) or Restricted 750 lb (340kg) the platform can be operated in. If the operator attempts to cross the boundary of the current zone and enter the next zone of lessor or no restriction with more weight in the platform than what is allowed, the machine will stop at the boundary of the current zone and not enter the zone of lessor or no restriction. At this point, the control system will only allow the boom telescope function to retract and will only allow the boom lift function to lift up.

When the LSS system senses a platform load equal to or less than 550 lb (250 kg), platform position is unrestricted within the envelope boundaries.

If the LSS system senses an overload condition, boom functions will be disabled, the overload alarm will sound at the platform.

Stability

Machine stability is based on two positions which are called FORWARD and BACKWARD stability. The machines position of least FORWARD stability is shown in Figure 4-2., Position of Least Forward Stability, and its position of least BACKWARD stability is shown in Figure 4-1., Position of Least Backward Stability.

⚠ WARNING

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

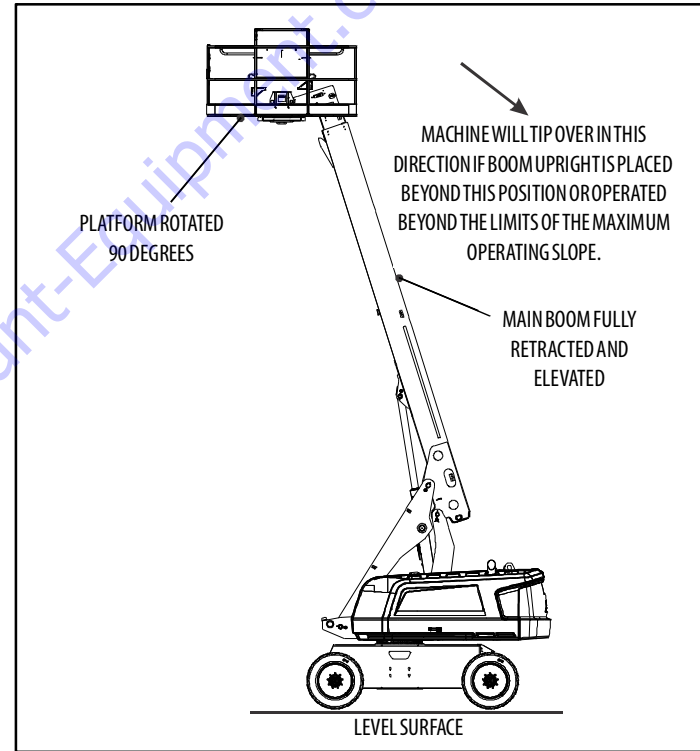


Figure 4-1. Position of Least Backward Stability

SECTION 4 - MACHINE OPERATION

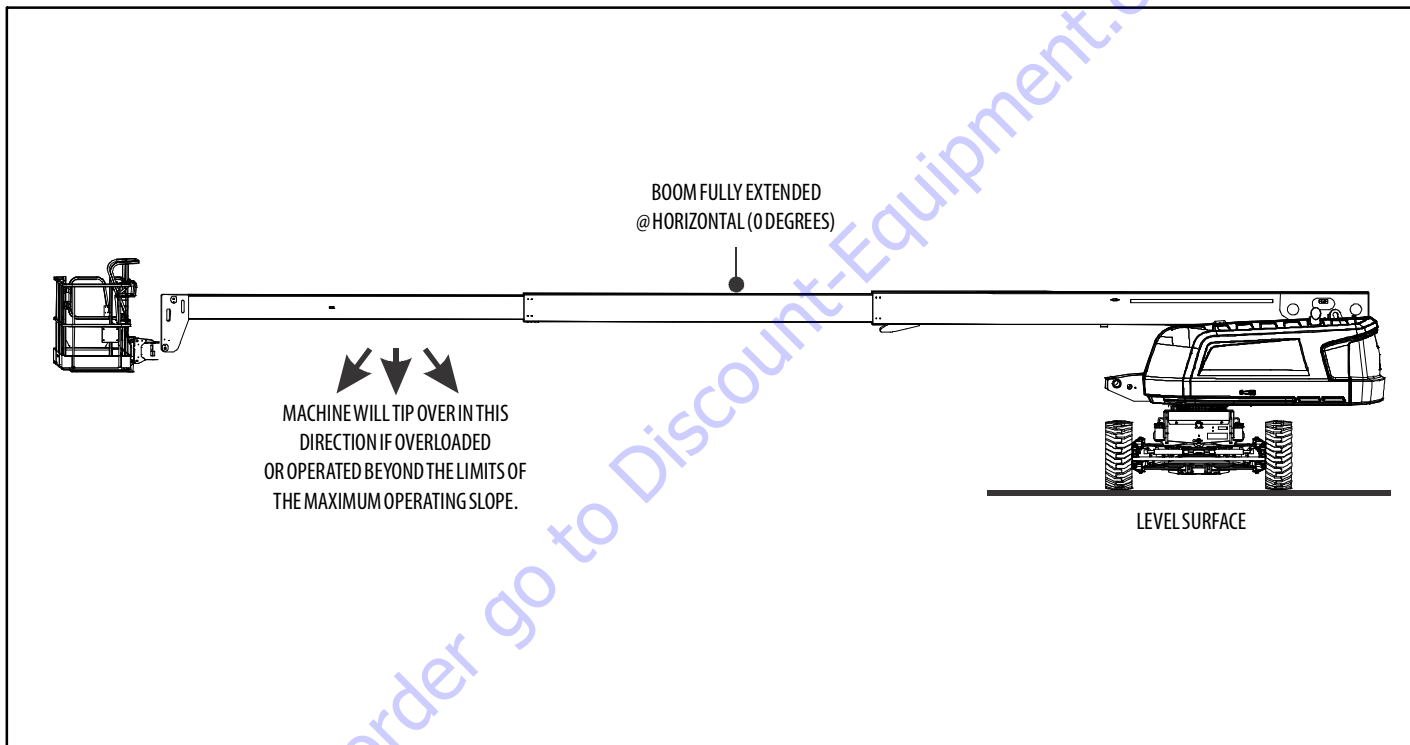


Figure 4-2. Position of Least Forward Stability

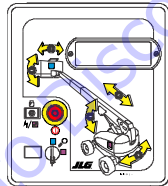
4.3 ENGINE OPERATION

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 station.



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

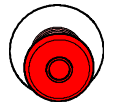
1. Turn key of Platform/Ground Select switch to Ground.



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



3. Push the Engine Start switch until engine starts.



SECTION 4 - MACHINE OPERATION

CAUTION

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

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



5. Turn Platform/Ground Select switch to Platform.



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



7. From Platform, pull 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 Platform/Ground Select switch to Off.

NOTE: 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.

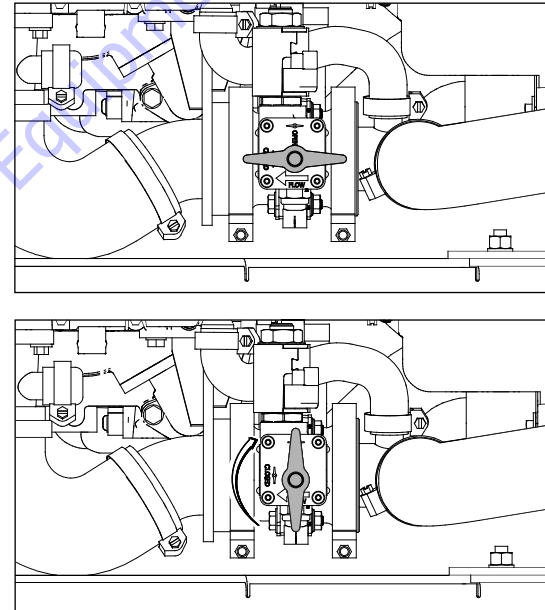


Figure 4-3. ASOV Reset (Closed to Open Position)

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 Empty range, the Low Fuel light will begin to flash once a second and there will be approximately 60 minutes of engine run time left. If the system is in this condition and automatically shuts down the engine or if the operator manually shuts down the engine before the 60 minute run time is complete, the Low Fuel light 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 - When the engine shuts down, no restarts will be permitted until fuel is added to the tank.

4.4 TRAVELING (DRIVING)

See Figure 4-5., Grade and Sideslope

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

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

Traveling is limited by two factors:

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

⚠ WARNING

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

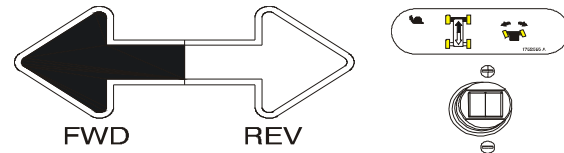
TO AVOID LOSS OF TRAVEL CONTROL OR TIP OVER, DO NOT DRIVE MACHINE ON GRADES EXCEEDING THOSE SPECIFIED IN THE OPERATING SPECIFICATIONS SECTION OF THIS MANUAL.

BE SURE THE TURNTABLE LOCK IS ENGAGED BEFORE ANY EXTENDED TRAVELING.

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.

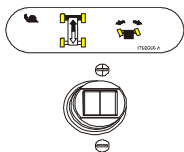


Traveling Forward and Reverse

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

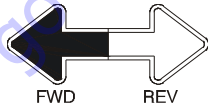


2. Position Drive controller to FORWARD or REVERSE as desired.



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 panel 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 gradability.

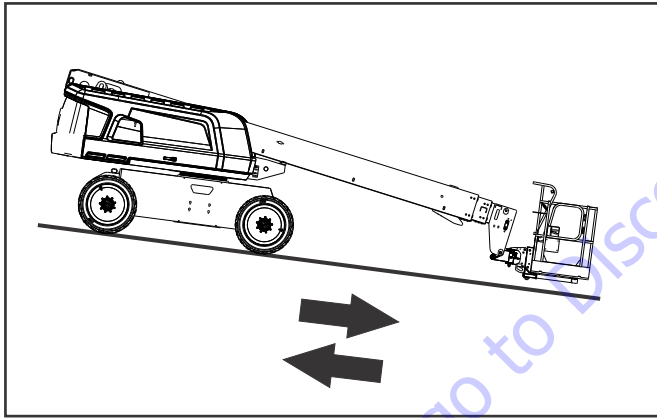


Figure 4-4. Traveling on a Grade

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.

4.5 STEERING

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



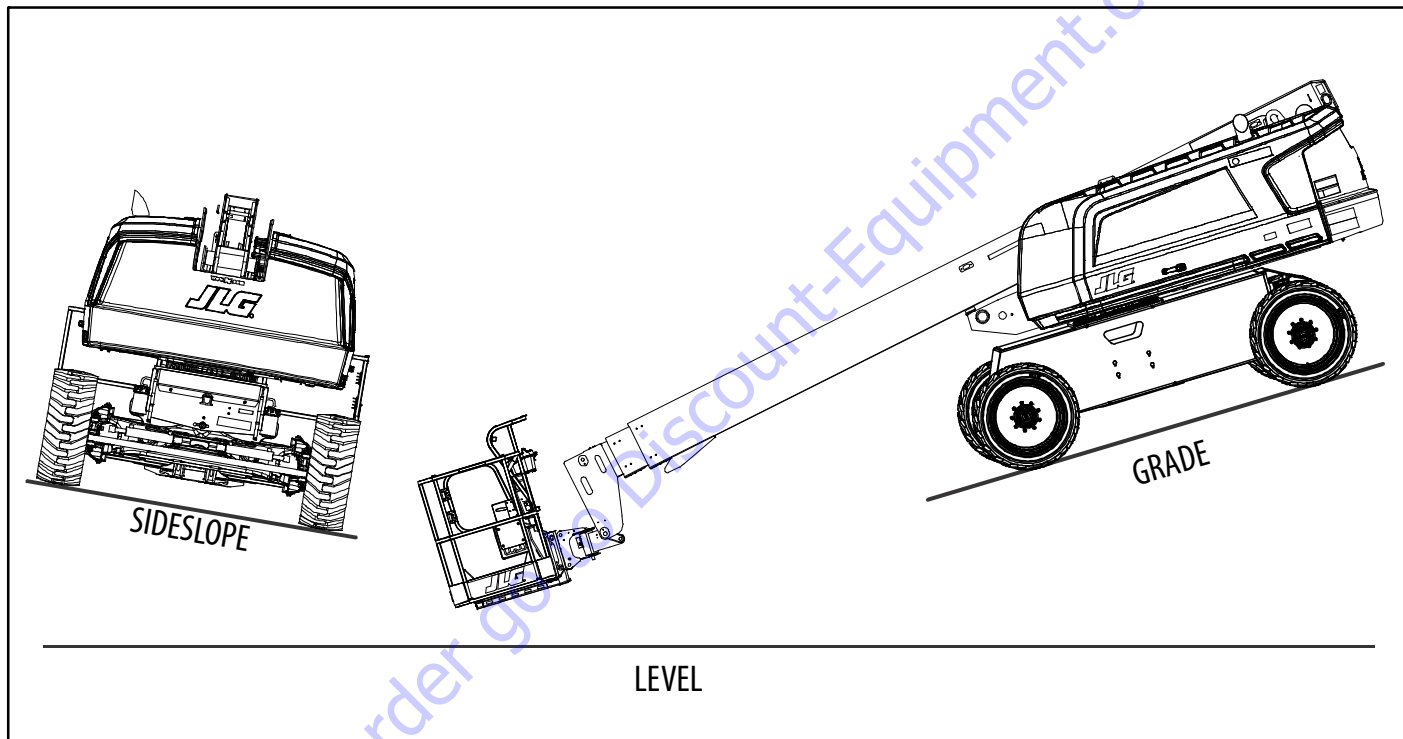


Figure 4-5. Grade and Sideslope

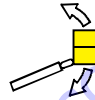
4.6 PLATFORM

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.

To Level Up or Down - Position the Platform/Level control switch Up or Down and hold until the platform is level.



Platform Rotation

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



⚠ 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 INDICATOR IS LIT.

DO NOT DEPEND ON THE TILT WARNING LIGHT AS A LEVEL INDICATOR FOR THE CHASSIS. THE TILT WARNING LIGHT INDICATES CHASSIS IS ON AN EXCESSIVE SLOPE (5 DEGREES 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 THE BOOM IS RAISED ABOVE HORIZONTAL, LOWER PLATFORM TO GROUND LEVEL. THEN REPOSITION MACHINE SO THAT CHASSIS IS LEVEL BEFORE RAISING BOOM.

IF THE 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.

⚠ WARNING

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

4.7 BOOM

31215033

SECTION 4 - MACHINE OPERATION

⚠ 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 SWITCH TO STOP THE MACHINE.

Swinging the Boom

To swing boom, use Swing control switch 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.

NOTE: On CE Market machines, when boom functions are being operated there is an interlock that prevents the use of Drive and Steer functions.

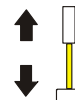
Raising and Lowering the Main Boom

To raise or lower the Main Boom, position the Main Boom Lift switch to Up or Down until the desired height is reached.



Telescoping the Main Boom

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



4.8 SHUT DOWN AND PARK

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

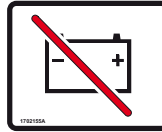
1. Drive machine to a reasonably well protected area.
2. Ensure boom is fully retracted and lowered over rear axle.
3. Shut down Emergency Stop at Platform Controls.
4. Shut down Emergency Stop at Ground Controls. Position Platform/Ground Select switch to center OFF (center position).
5. If necessary, cover Platform Controls to protect instruction placards, warning decals, and operating controls from hostile environment.

NOTICE

IF PARKING A MEWP WITH THE BOOM ELEVATED IN AN EFFORT TO CONSERVE SPACE, BOOMS MAY BE ELEVATED, BUT SHALL NOT BE EXTENDED. IT IS THE OPERATOR'S RESPONSIBILITY TO ENSURE ALL SAFETY PRECAUTIONS IN SECTION 1 OF THIS MANUAL ARE FOLLOWED FOR EACH UNIQUE SITUATION.

4.9 BATTERY QUICK-DISCONNECT (IF EQUIPPED)

Machines equipped with the battery quick-disconnect allow all machine power to be easily disconnected at the battery without removing battery cables from the battery posts. To disconnect power, locate the RED quick-disconnect switch near the battery, and turn it to the **OFF** position.



4.9 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 5.5, Machine Safety System Override (MSSO)(CE Only) for operating procedures.



4.10 SKYGUARD OPERATION

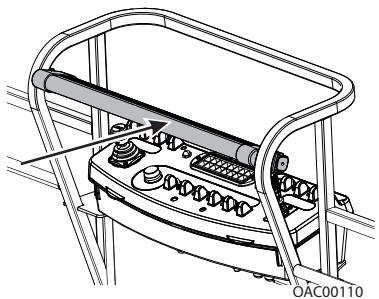
SkyGuard provides enhanced control panel protection. When the SkyGuard sensor is activated, functions in use at the time of actuation will reverse or cutout. The SkyGuard Function Table provides more details on these functions.

During activation, the horn will sound and the SkyGuard beacon (if equipped) will illuminate until sensor and footswitch are disengaged.

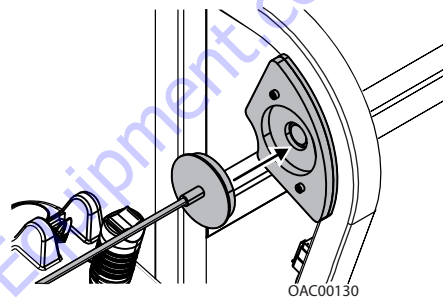
If the SkyGuard sensor remains activated after function reversal or cutout, depress and hold the SkyGuard Override Switch to allow normal functions until the sensor is disengaged.

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.

SkyGuard

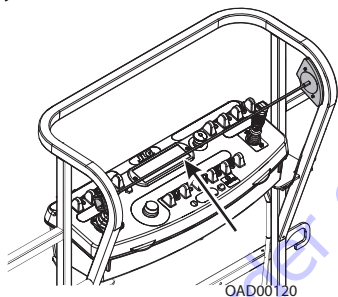


Approximately 50 lb (222 Nm) of force is applied to yellow bar.



Reattach magnetic end of cable to bracket if it becomes disconnected.

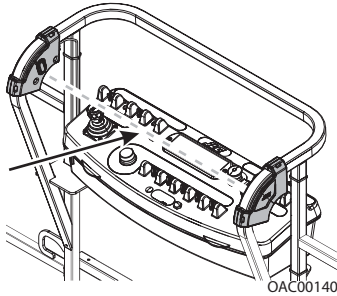
SkyGuard SkyLine



Cable is pressed, breaking the magnetic connection between the cable and right bracket.

SkyGuard SkyEye

Operator passes through path of sensor beam.



SkyGuard Function Table

Drive Forward	Drive Reverse	Steer	Swing	Boom Lift Up	Boom Lift Down	Boom Tele Out	Boom Tele In	Jib Lift	Basket Level	Basket Rotate
R*/C**	R	C	R	R	R	R	C	C	C	C
R= Indicates Reversal is Activated										
C= Indicates Cutout is Activated										
*DOS (Drive Orientation System) Enabled										
** DOS Not Enabled, machine is driving straight without steering, and any other hydraulic function is active										

4.11 OSCILLATING AXLE LOCKOUT TEST (IF EQUIPPED)

NOTICE

LOCKOUT SYSTEM TEST MUST BE PERFORMED QUARTERLY, ANY TIME A SYSTEM COMPONENT IS REPLACED, OR WHEN IMPROPER SYSTEM OPERATION IS SUSPECTED.

Refer to Section 7.5, Oscillating Axle Lockout Test (If Equipped) for procedure.

4.12 STEER/TOW SELECTOR (IF EQUIPPED)

WARNING

DO NOT ATTEMPT TO TOW MACHINE UNLESS EQUIPPED WITH COMPLETE TOW PACKAGE FROM MANUFACTURER.

A push-pull type selector valve located adjacent to the steer cylinder and linkage regulates oil flow in the steer circuit for steering and towing. When steering the unit the valve knob is pushed IN. When towing the unit the valve knob is pulled OUT to the float position.

4.13 TOWING (IF EQUIPPED)

WARNING

RUNAWAY VEHICLE/MACHINE HAZARD. MACHINE HAS NO TOWING BRAKES. TOWING VEHICLE MUST BE ABLE TO CONTROL MACHINE AT ALL TIMES. ON-HIGHWAY TOWING NOT PERMITTED. FAILURE TO FOLLOW INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH.

MAXIMUM TOWING SPEED 5 MPH (8 KM/H).

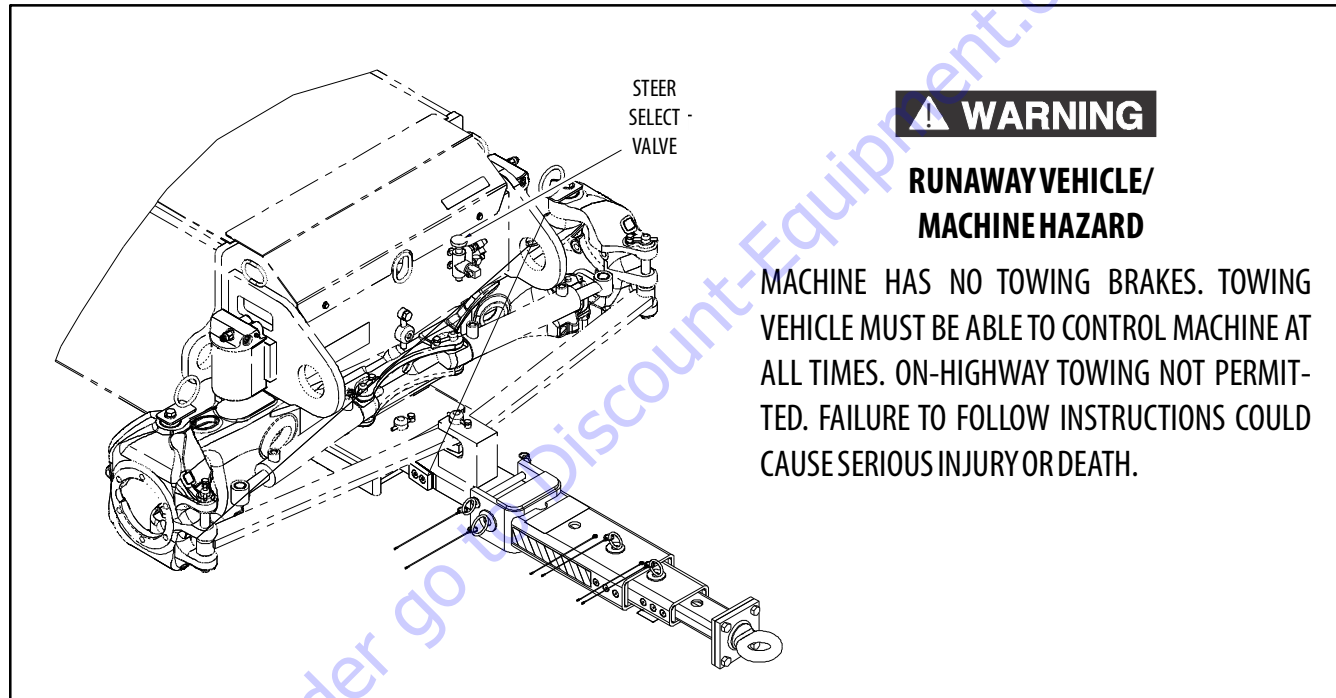
MAXIMUM TOWING GRADE 25%.

Prior to towing the machine, complete the following:

CAUTION

DO NOT TOW MACHINE WITH ENGINE OPERATING OR DRIVE HUBS ENGAGED.

1. Retract, lower and position boom over rear wheels in line with direction of travel; lock turntable.

**⚠ WARNING****RUNAWAY VEHICLE/
MACHINE HAZARD**

MACHINE HAS NO TOWING BRAKES. TOWING VEHICLE MUST BE ABLE TO CONTROL MACHINE AT ALL TIMES. ON-HIGHWAY TOWING NOT PERMITTED. FAILURE TO FOLLOW INSTRUCTIONS COULD CAUSE SERIOUS INJURY OR DEATH.

Figure 4-6. Towbar

SECTION 4 - MACHINE OPERATION

2. Connect tow bar to front of frame with attach pins, and tow bar to towing vehicle.
3. Disconnect drive hubs by inverting disconnect cap. Refer to Figure 4-7., Drive Disconnect Hub.
4. Actuate steer/tow selector valve for towing; pull valve knob OUT to float position. (This opens the steer circuit to reservoir, allowing the steer cylinder rod free travel.) The machine is now in the towing mode.

After towing the machine, complete the following:

1. Actuate steer/tow selector valve for steering; push valve knob IN to the actuated position.
2. Reconnect drive hubs by inverting disconnect cap.
3. Disconnect tow bar from steering hitch and from towing vehicle. The machine is now in the driving mode.

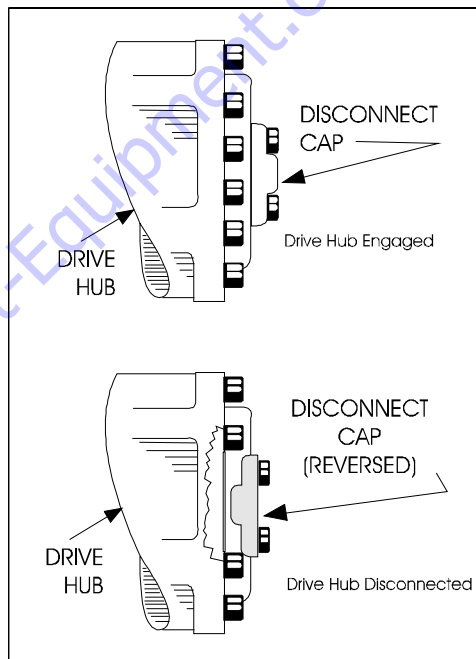


Figure 4-7. Drive Disconnect Hub

4.14 AUXILIARY POWER

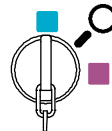
⚠ CAUTION

WHEN OPERATING ON AUXILIARY POWER, DO NOT OPERATE MORE THAN ONE FUNCTION AT A TIME. (SIMULTANEOUS OPERATION CAN OVERLOAD THE 12-VOLT AUXILIARY PUMP MOTOR.)

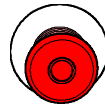
A toggle type auxiliary power control switch is located on the platform control station and another is located on the ground control station. Operation of either switch turns on the electrically driven auxiliary hydraulic pump. This should be used in case of failure of the main power plant. The auxiliary pump will operate tower boom lift, tower telescope, main boom lift, main telescope and swing. To activate auxiliary power:

Activating from the Platform Control Station

1. Position Platform/Ground Select Key Switch to Platform.



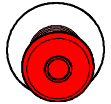
2. Position Power/Emergency Stop switch to On.



3. Depress and hold footswitch.
4. Position Auxiliary Power switch to On and hold.



5. Operate appropriate control switch, lever or controller for desired function and hold.
6. Release Auxiliary Power switch, selected control switch, lever or controller, and footswitch.
7. Position Power/Emergency Stop switch to Off.



Activating from the Ground Control Station

1. Position Platform/Ground Select Key Switch to Ground.

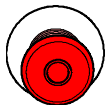


2. Position Power/Emergency Stop switch to On.



SECTION 4 - MACHINE OPERATION

3. Position Auxiliary Power switch to On and hold.
4. Operate appropriate control switch or controller for desired function and hold.
5. Release Auxiliary Power switch, and appropriate control switch or controller.
6. Position Power/Emergency Stop switch to Off.



4.15 DUAL FUEL SYSTEM (GAS ENGINE ONLY)

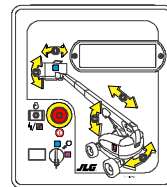
The dual fuel system enables the standard gasoline engine to run on either gasoline or LP gas.

⚠ CAUTION

IT IS POSSIBLE TO SWITCH FROM ONE FUEL SOURCE TO THE OTHER WITHOUT ALLOWING THE ENGINE TO STOP. EXTREME CARE MUST BE TAKEN AND THE FOLLOWING INSTRUCTIONS MUST BE FOLLOWED.

Changing From Gasoline to LP Gas

1. Start engine from Ground Control Station.
2. Open hand valve on LP gas supply tank by turning counter-clockwise.
3. While engine is operating on Gasoline under a no-load condition, place Fuel Select switch at Platform Control to LP position.



Changing From LP Gas to Gasoline

1. With engine operating on LP under a no-load condition, position Fuel Select switch at Platform Control Station to Gasoline position.
2. Close hand valve on LP gas supply tank by turning clockwise.



4.16 TIE DOWN AND LIFTING

When transporting machine, boom must be in the stowed mode with turntable lock pin engaged and machine securely tied down to truck or trailer deck. Four tie down eyes are provided in the frame slab, one at each corner of the machine.

If it becomes necessary to lift the machine using an overhead or mobile crane, it is very important that the lifting devices are attached only to the designated lifting eyes, and that the turntable lock pin is engaged. (See Figure 4-8., Lifting Chart)

NOTE: *Lifting eyes are provided at the rear in the frame slab and at the top of the turntable near the boom pivot. Each of the four or slings used for lifting machine must be adjusted individually so machine remains level when elevated.*

NOTICE

SECURE TURNTABLE WITH TURNTABLE LOCK BEFORE TRAVELING LONG DISTANCES OR HAULING MACHINE ON TRUCK/TRAILER.

SECTION 4 - MACHINE OPERATION

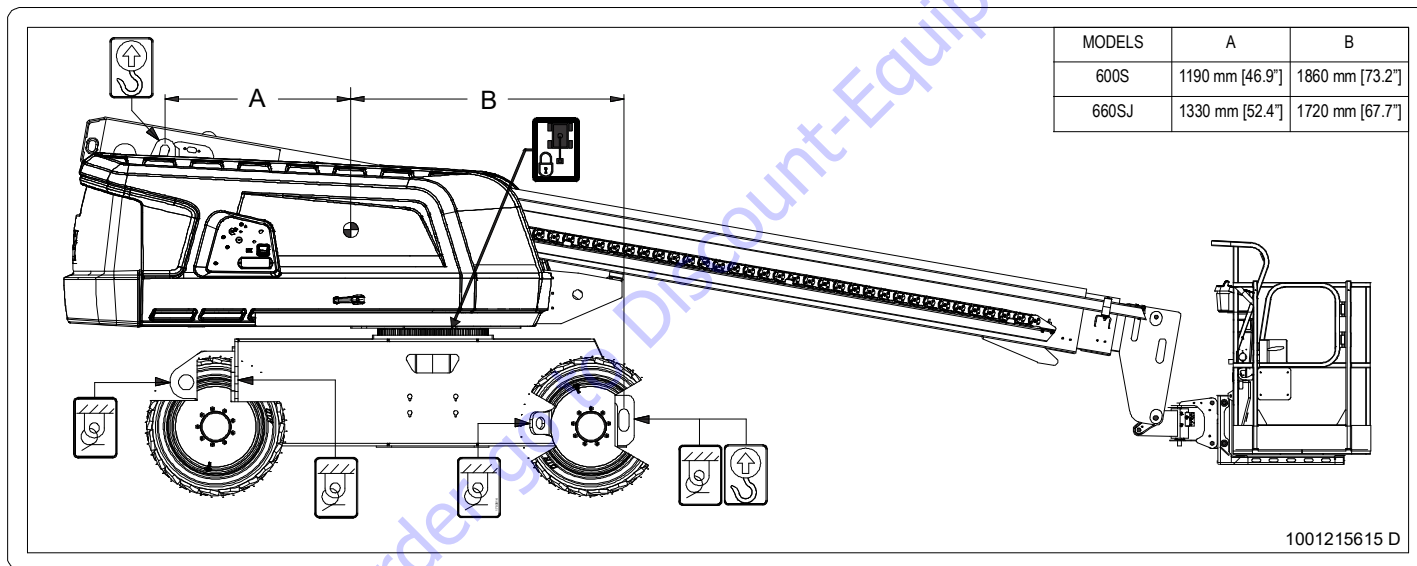


Figure 4-8. Lifting Chart

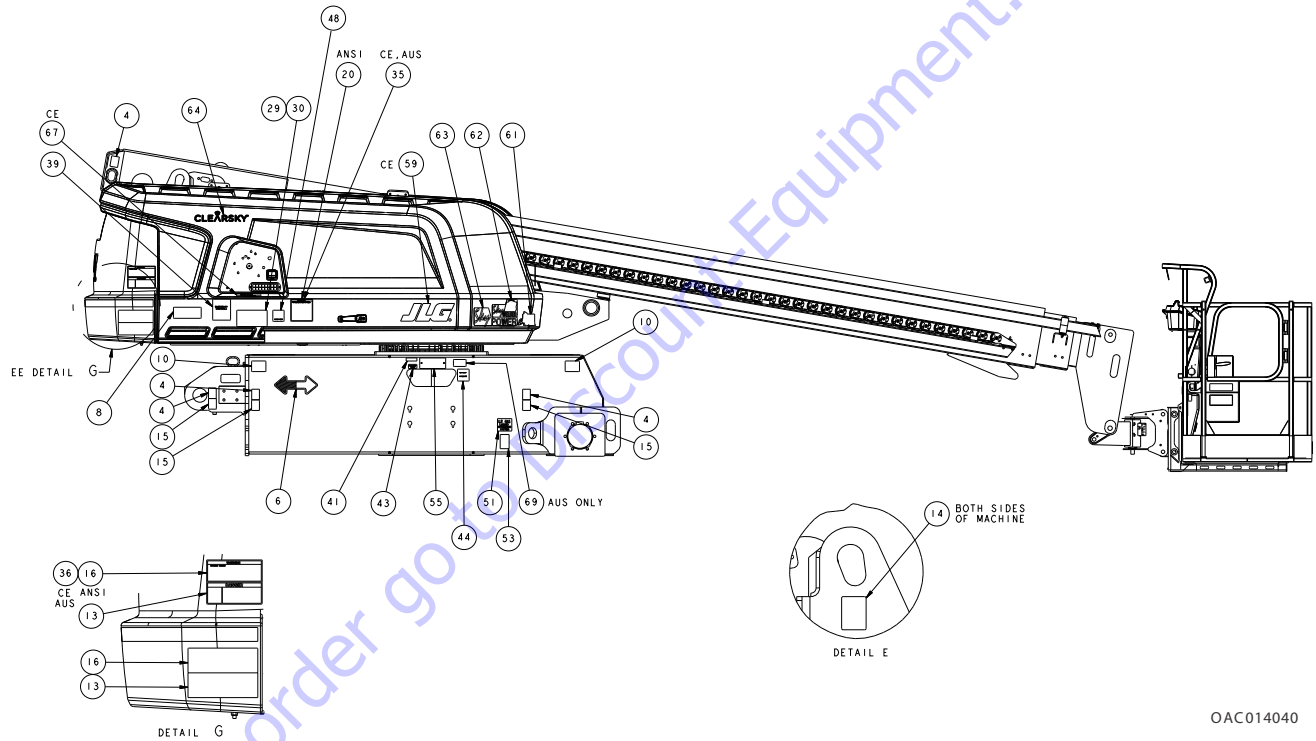


Figure 4-9. Decal Installation - Sheet 1 of 6

OAC014040

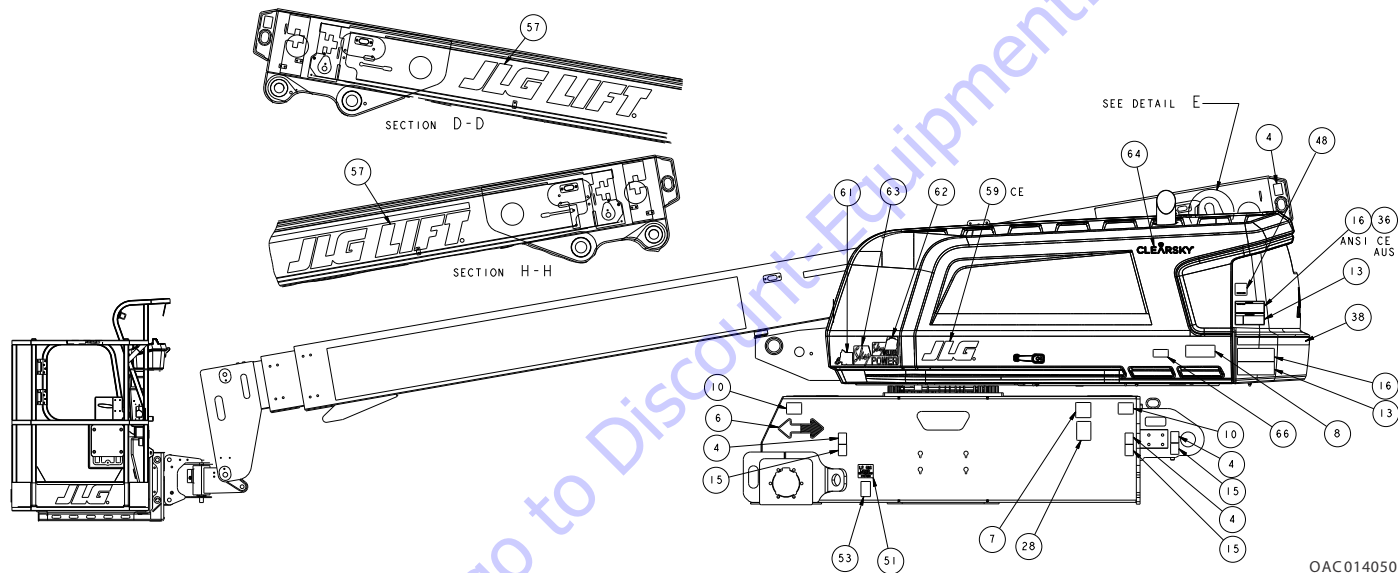
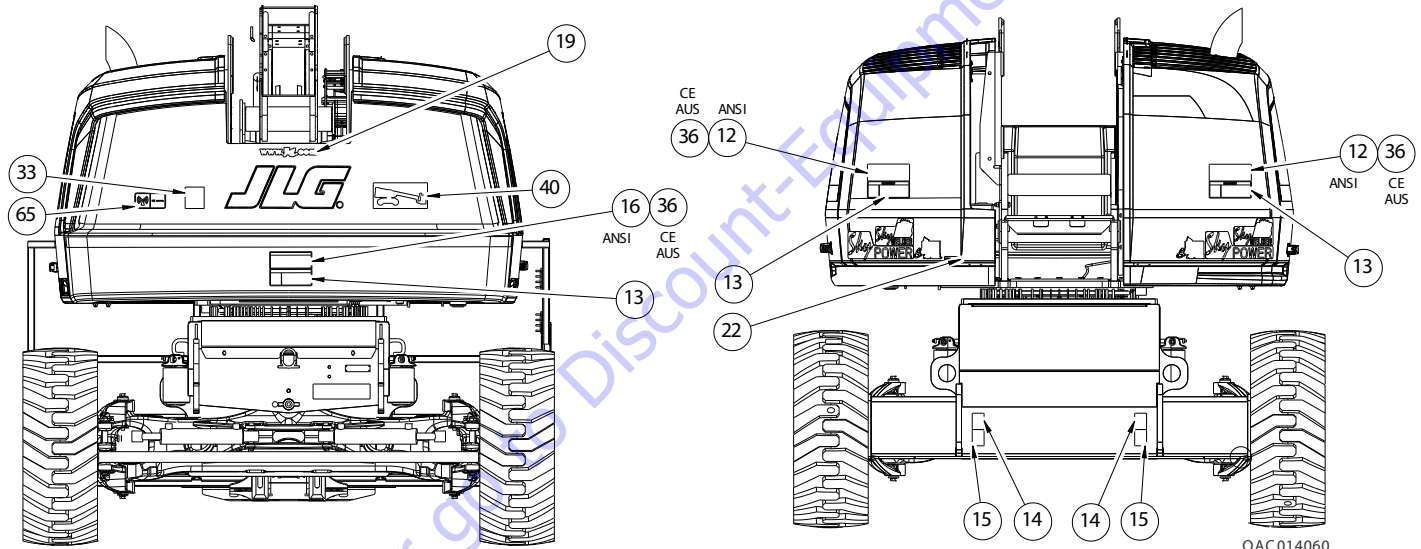


Figure 4-10. Decal Installation - Sheet 2 of 6



OAC014060

Figure 4-11. Decal Installation - Sheet 3 of 6

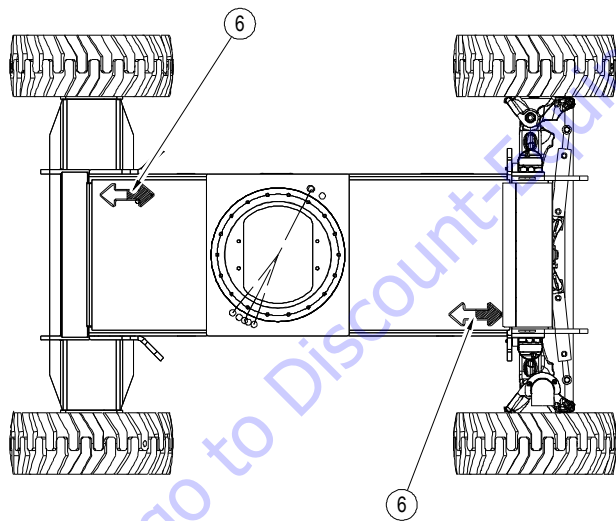


Figure 4-12. Decal Installation - Sheet 4 of 6

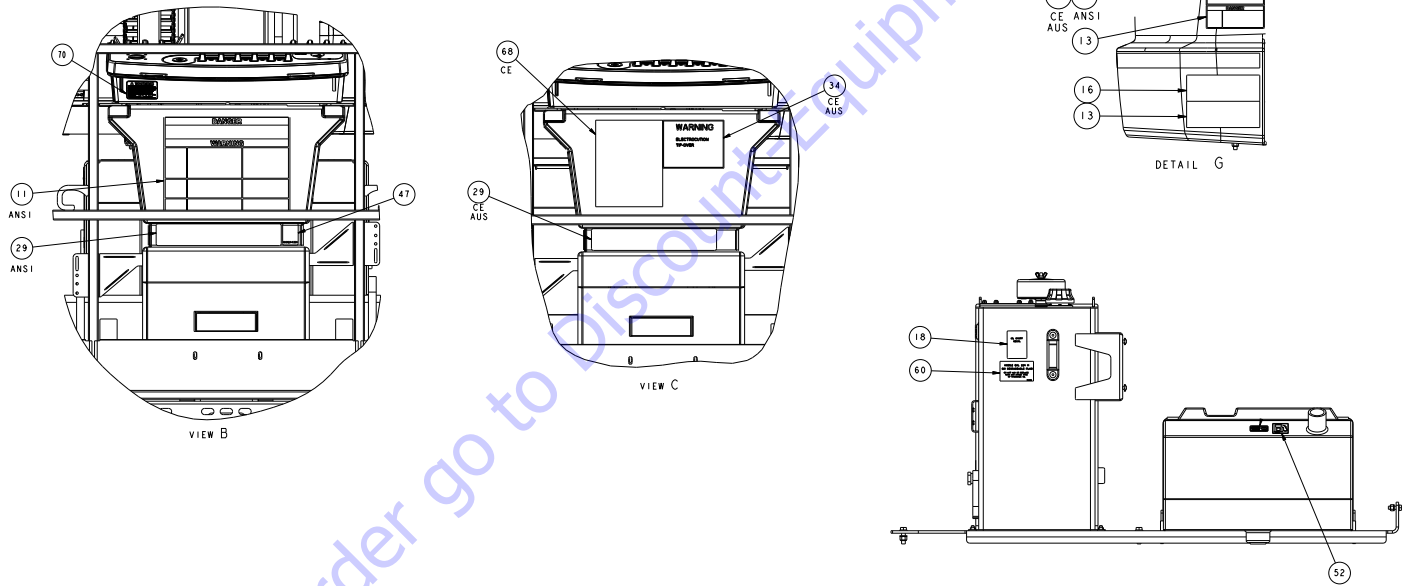


Figure 4-13. Decal Installation - Sheet 5 of 6

SECTION 4 - MACHINE OPERATION

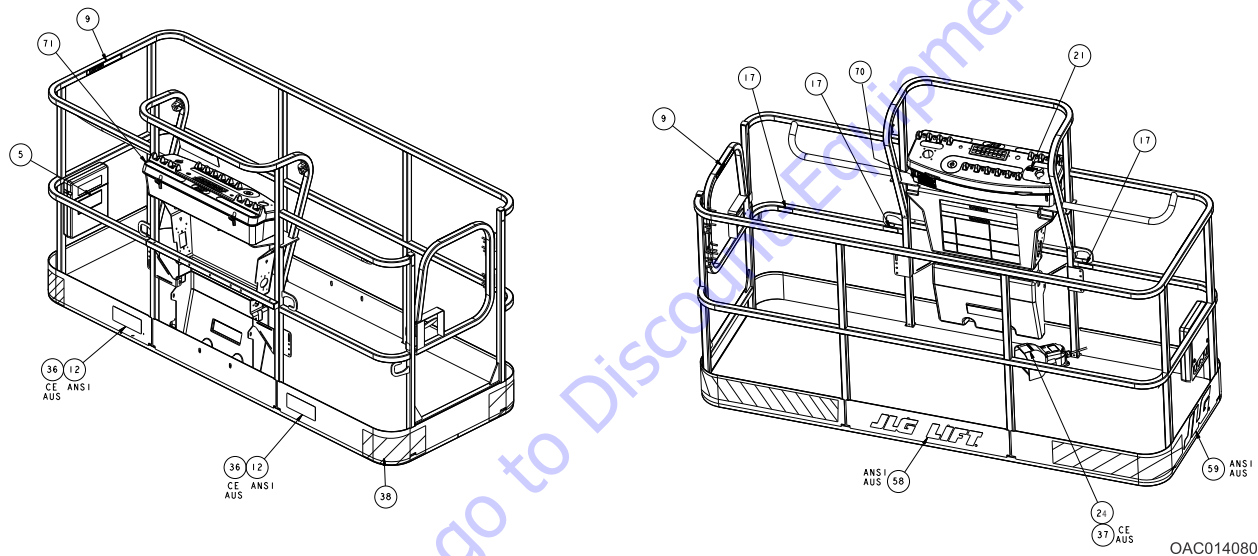


Figure 4-14. Decal Installation - Sheet 6 of 6

Table 4-1. 600S Decal Legend

Item #	ANSI 1001251126-C	Korean 1001250774-C	Traditional Chinese 1001250776-C	Simplified Chinese 1001194219-C	Portuguese 1001250780-C	Spanish 1001250782-C	French 1001250784-C	CE 1001250786-A	Japanese 1001250788-C	Australian N/A
1	--	--	--	--	--	--	--	--	--	--
2	--	--	--	--	--	--	--	--	--	--
3	--	--	--	--	--	--	--	--	--	--
4	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499	--
5	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509	--
6	1701529	1701529	1701529	1701529	1701529	1701529	1701529	1701529	1701529	--
7	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631	--
8	1702815	1702815	1702815	1702815	1702815	1702815	1702815	1702815	1702815	--
9	1702868	1705969	1001116846	1705968	1704002	1704001	1704000	--	--	--
10	1001216059	1001216059	1001216059	1001216059	1001216059	1001216059	1001216059	1001216059	1001216059	--
11	1703797	1703927	1703925	1001116847	1703928	1703923	1703924	--	1703926	--
12	1703804	1703951	1703949	1001116850	1703952	1703947	1703948	--	1703950	--
13	1703805	1703939	1001116851	1703937	1703940	1703935	1703936	1705961	1703938	--
14	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811	--
15	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814	--
16	1703953	1703945	1703943	1001116845	1703946	1703941	1703942	--	1703944	--
17	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277	--

SECTION 4 - MACHINE OPERATION

Table 4-1. 600S Decal Legend

Item #	ANSI 1001251126-C	Korean 1001250774-C	Traditional Chinese 1001250776-C	Simplified Chinese 1001194219-C	Portuguese 1001250780-C	Spanish 1001250782-C	French 1001250784-C	CE 1001250786-A	Japanese 1001250788-C	Australian N/A
18	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412	--
19	1704885	1704885	1704885	1704885	1704885	1704885	1704885	--	1704885	--
20	1705336	1705345	1001116849	1001116848	1705349	1705917	1705347	--	1705344	--
21	1705351	1705427	1001116863	1705430	1001113680	1705910	1705429	--	1705426	--
22	3251243	--	3251243	3251243	3251243	3251243	3251243	--	3251243	--
23	--	--	--	--	--	--	--	--	--	--
24	3252347	1703981	1703982	1001116852	1703985	1703983	1703984	--	1703980	--
25	--	--	--	--	--	--	--	--	--	--
26	--	--	--	--	--	--	--	--	--	--
27	--	--	--	--	--	--	--	--	--	--
28	1001131269	--	--	--	--	--	1001131269	--	--	--
29	1001254665	1001254669	1001254671	1001254679	1001254673	1001254675	1001254667	1001185237	1001254677	--
30	1001254666	1001254670	1001254672	1001254680	1001254674	1001254676	1001254668	--	1001254678	--
31	--	--	--	--	--	--	--	--	--	--
32	--	--	--	--	--	--	--	--	--	--
33	--	--	--	--	--	--	--	1705084	--	--
34	--	--	--	--	--	--	--	1705921	--	--
35	--	--	--	--	--	--	--	1705822	--	--

Table 4-1. 600S Decal Legend

Item #	ANSI 1001251126-C	Korean 1001250774-C	Traditional Chinese 1001250776-C	Simplified Chinese 1001194219-C	Portuguese 1001250780-C	Spanish 1001250782-C	French 1001250784-C	CE 1001250786-A	Japanese 1001250788-C	Australian N/A
36	--	--	--	--	--	--	--	1701518	--	--
37	--	--	--	--	--	--	--	1705828	--	--
38	4420051	4420051	4420051	4420051	4420051	4420051	4420051	4420051	4420051	--
39	--	--	--	--	--	--	--	--	--	--
40	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	--
41	--	--	--	--	--	--	--	--	--	--
42	--	--	--	--	--	--	--	--	--	--
43	1001223453	--	--	--	--	--	1001223453	--	--	--
44	1001223055	1001224048	1001224050	1001224051	1001224051	1001224051	1001223971	--	1001224053	--
45	--	--	--	--	--	--	--	--	--	--
46	--	--	--	--	--	--	--	--	--	--
47	--	--	--	--	--	--	--	--	--	--
48	--	--	--	--	--	--	--	--	--	--
49	--	--	--	--	--	--	--	--	--	--
50	--	--	--	--	--	--	--	--	--	--
51	1700818	1700818	1700818	1700818	1700818	1700818	1700818	1700818	1700818	--
52	1701505	1701505	1701505	1701505	1701505	1701505	1701505	1701505	1701505	--
53	1701542	1701542	1701542	1701542	1701542	1701542	1701542	1701542	1701542	--

SECTION 4 - MACHINE OPERATION

Table 4-1. 600S Decal Legend

Item #	ANSI 1001251126-C	Korean 1001250774-C	Traditional Chinese 1001250776-C	Simplified Chinese 1001194219-C	Portuguese 1001250780-C	Spanish 1001250782-C	French 1001250784-C	CE 1001250786-A	Japanese 1001250788-C	Australian N/A
57	1702861	1702861	1702861	1702861	1702861	1702861	1702861	1702861	1702861	--
58	1702774	1702774	1702774	1702774	1702774	1702774	1702774	1702774	1702774	--
59	1702773	1702773	1702773	1702773	1702773	1702773	1702773	1702773	1702773	--
60	1702788	1702788	1702788	1702788	1702788	1702788	1702788	1702788	1702788	--
61	1705358	1705358	1705358	1705358	1705358	1705358	1705358	1705358	1705358	--
62	1705355	1705355	1705355	1705355	1705355	1705355	1705355	1705355	1705355	--
63	1705460	1705460	1705460	1705460	1705460	1705460	1705460	1705460	1705460	--
64	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	--
65	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	--
66	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	--
67	--	--	--	--	--	--	--	1001197408	--	--
68	--	--	--	--	--	--	--	1001181145	--	--
70	1001231801	1001231801	--	--	--	--	--	--	--	--
71	1001184618	1001184618	1001184618	1001184618	1001184618	1001184618	1001184618	1001184619	1001184618	--

Table 4-2. 660SJ Decal Legend

Item #	ANSI 1001251127-C	Korean 1001250775-C	Traditional Chinese 1001194218-C	Simplified Chinese 1001194220-C	Portuguese 1001250781-C	Spanish 1001194224-C	French 1001250785-C	CE 1001194228-F	Japanese 1001250789-C	Australian 1001250790-B
1	--	--	--	--	--	--	--	--	--	--
2	--	--	--	--	--	--	--	--	--	--
3	--	--	--	--	--	--	--	--	--	--
4	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499
5	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509
6	1701529	1701529	1701529	1701529	1701529	1701529	1701529	1701529	1701529	1701529
7	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631
8	1702817	1702817	1702817	1702817	1702817	1702817	1702817	1702817	1702817	1702817
9	1702868	1705969	1001116846	1705968	1704002	1704001	1704000	--	--	--
10	1001216060	1001216060	1001216060	1001216060	1001216060	1001216060	1001216060	1001216060	1001216060	1001216060
11	1703797	1703927	1703925	1001116847	1703928	1703923	1703924	--	1703926	--
12	1703804	1703951	1703949	1001116850	1703952	1703947	1703948	--	1703950	--
13	1703805	1703939	1001116851	1703937	1703940	1703935	1703936	1705961	1703938	1705961
14	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811
15	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814
16	1703953	1703945	1703943	1001116845	1703946	1703941	1703942	--	1703944	--
17	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277

SECTION 4 - MACHINE OPERATION

Table 4-2. 660SJ Decal Legend

Item #	ANSI 1001251127-C	Korean 1001250775-C	Traditional Chinese 1001194218-C	Simplified Chinese 1001194220-C	Portuguese 1001250781-C	Spanish 1001194224-C	French 1001250785-C	CE 1001194228-F	Japanese 1001250789-C	Australian 1001250790-B
18	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412
19	1704885	1704885	1704885	1704885	1704885	1704885	1704885	--	1704885	1704885
20	1705336	1705345	1001116849	1001116845	1705349	1705917	1705347	--	1705344	--
21	1705351	1705427	1001116863	1705430	1001113680	1705910	1705429	--	1705426	--
22	3251243	--	3251243	3251243	3251243	3251243	3251243	--	3251243	--
23	--	--	--	--	--	--	--	--	--	--
24	3252347	1703981	1703982	1001116852	1703985	1703983	1703984	--	1703980	--
25	--	--	--	--	--	--	--	--	--	--
26	--	--	--	--	--	--	--	--	--	--
27	--	--	--	--	--	--	--	--	--	--
28	1001131269	--	--	--	--	--	1001131269	--	--	--
29	1001255220	1001255224	1001255229	1001255228	1001255230	1001255232	1001255222	1001194236	1001255234	1001194236
30	1001255221	1001255225	1001255227	1001255229	1001254674	1001255233	1001255223	1001194236	1001255235	1001194236
31	--	--	--	--	--	--	--	--	--	--
32	--	--	--	--	--	--	--	--	--	--
33	--	--	--	--	--	--	--	1705084	--	1705084
34	--	--	--	--	--	--	--	1705921	--	1705921
35	--	--	--	--	--	--	--	1705822	--	1705822

Table 4-2. 660SJ Decal Legend

Item #	ANSI 1001251127-C	Korean 1001250775-C	Traditional Chinese 1001194218-C	Simplified Chinese 1001194220-C	Portuguese 1001250781-C	Spanish 1001194224-C	French 1001250785-C	CE 1001194228-F	Japanese 1001250789-C	Australian 1001250790-B
36	--	--	--	--	--	--	--	1701518	--	1701518
37	--	--	--	--	--	--	--	1705828	--	1705828
38	4420051	4420051	4420051	4420051	4420051	4420051	4420051	--	4420051	4420051
39	--	--	--	--	--	--	--	--	--	1001112551
40	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615	1001215615
41	--	--	--	--	--	--	--	--	--	--
42	--	--	--	--	--	--	--	--	--	--
43	1001223453	--	--	--	--	--	1001223453	--	--	--
44	1001223055	1001221048	1001224050	1001224051	1001224051	1001224051	1001223971	--	1001224053	--
45	--	--	--	--	--	--	--	--	--	--
46	--	--	--	--	--	--	--	--	--	--
47	--	--	--	--	--	--	--	--	--	--
48	--	--	--	--	--	--	--	--	--	--
49	--	--	--	--	--	--	--	--	--	--
50	--	--	--	--	--	--	--	--	--	--
51	1700818	1700818	1700818	1700818	1700818	1700818	1700818	1700818	1700818	1700818
52	1701505	1701505	1701505	1701505	1701505	1701505	1701505	1701505	1701505	1701505
53	1701542	1701542	1701542	1701542	1701542	1701542	1701542	1701542	1701542	1701542

SECTION 4 - MACHINE OPERATION

Table 4-2. 660SJ Decal Legend

Item #	ANSI 1001251127-C	Korean 1001250775-C	Traditional Chinese 1001194218-C	Simplified Chinese 1001194220-C	Portuguese 1001250781-C	Spanish 1001194224-C	French 1001250785-C	CE 1001194228-F	Japanese 1001250789-C	Australian 1001250790-B
54	--	--	--	--	--	--	--	--	--	--
55	--	--	--	--	--	--	--	--	--	--
56	--	--	--	--	--	--	--	--	--	--
57	1702861	1702861	1702861	1702861	1702861	1702861	1702861	1001159323	1702861	1702861
58	1702774	1702774	1702774	1702774	1702774	1702774	1702774	--	1702774	1702774
59	1702773	1702773	1702773	1702773	1702773	1702773	1702773	1702773	1702773	1702773
60	1702788	1702788	1702788	1702788	1702788	1702788	1702788	1702788	1702788	1702788
61	1705358	1705358	1705358	1705358	1705358	1705358	1705358	1705358	1705358	1705358
62	1705355	1705355	1705355	1705355	1705355	1705355	1705355	1705355	1705355	1705355
63	1705460	1705460	1705460	1705460	1705460	1705460	1705460	1705460	1705460	1705460
64	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208	1001116208
65	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989	1001120989
66	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852	1001143852
67	--	--	--	--	--	--	--	--	--	--
68	--	--	--	--	--	--	--	1001181145	--	--
69	--	--	--	--	--	--	--	--	--	1001231422
70	1001231801	--	--	--	--	--	--	--	--	--
71	1001184618	1001184618	1001184618	1001184618	1001184618	1001184618	1001184618	1001184619	1001184618	1001184618

SECTION 5. EMERGENCY PROCEDURES

5.1 GENERAL

This section explains the steps to be taken in case of an emergency situation while operating.

5.2 INCIDENT NOTIFICATION

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

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

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

NOTICE

FOLLOWING ANY ACCIDENT, THOROUGHLY INSPECT THE MACHINE AND TEST ALL FUNCTIONS FIRST FROM THE GROUND CONTROLS, THEN FROM THE PLATFORM CONTROLS. DO NOT LIFT ABOVE 3 M (10 FT.) UNTIL YOU ARE SURE THAT ALL DAMAGE HAS BEEN REPAIRED, IF REQUIRED, AND THAT ALL CONTROLS ARE OPERATING CORRECTLY.

5.3 EMERGENCY OPERATION

Operator Unable to Control Machine

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

1. Other personnel should operate the machine from ground controls only as required.
2. Other qualified personnel on the platform may use the platform controls. DO NOT CONTINUE OPERATION IF CONTROLS DO NOT FUNCTION PROPERLY.
3. Cranes, forklift trucks or other equipment can be used to remove platform occupants and stabilize motion of the machine.

Platform or Boom Caught Overhead

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

1. Shut off the machine.
2. Rescue all people in the platform before freeing the machine. Personnel must be out of the platform before operating any controls on the machine.
3. Use cranes, forklifts, or other equipment to stabilize motion of the machine to prevent a tip over as required.
4. From the ground controls, use the Auxiliary Power System (if equipped) to carefully free the platform or boom from the object.
5. Once clear, restart the machine and return the platform to a safe position.
6. Inspect the machine for damage. If the machine is damaged or does not operate properly, turn off the machine immediately. Report the problem to the proper maintenance personnel. Do not operate the machine until it is declared safe for operation.

5.4 EMERGENCY TOWING PROCEDURES

Towing this machine is prohibited, unless properly equipped. However, provisions for moving the machine have been incorporated. For specific procedures, refer to Section 4.

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

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



NOTE: *If the MSSO functionality is used, the fault indicator will flash and a fault code is set in the JLG Control System which must be reset by a qualified JLG Service Technician.*

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

To operate the MSSO:

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

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SECTION 6. ACCESSORIES

Table 6-1. Available Accessories

Accessory	Market						
	ANSI (USA Only)	ANSI	CSA	CE	AUS	Japan	China
SkyPower™ (7500W)	√	√	√	√	√	√	√
SkyPower™ (4000W)	√	√	√	√	√	√	√
SkyWelder™	√	√	√	√	√	√	√
Pipe Rack	√		√		√		
Soft Touch	√	√	√	√	√	√	√
SkyGlazier™	√	√	√	√	√		
SkyCutter	√	√	√			√	
Fall Arrest Platform (36x96)	√	√	√				√
Fall Arrest Platform (36x72)	√	√	√				√
Bolt-On External Fall Arrest (36x96)	√	√	√			√	√
Bolt-On External Fall Arrest (36x72)	√	√	√			√	√

SECTION 6 - ACCESSORIES

Table 6-2. Options/Accessories Relationship Table

ACCESSORY	REQUIRED ITEM	COMPATIBLE WITH (note 1)	INCOMPATIBLE WITH	INTERCHANGABLE WITH (note 2)
SkyPower (7500 watt generator and Air line to platform)		SkyGlazier, SkyWelder, SkyCutter		
SkyWelder (Stick welder)	SkyPower	SkyCutter	Soft Touch, Pipe Jacks/Racks, Platfm MTR, 4' Platfm	SkyGlazier
SkyGlazier (Glass panel tray)		SkyPower	Pipe Jacks/Racks, Soft Touch, Platfm Mesh to Top Rail, 4' Platfm	SkyWelder , SkyCutter
SkyCutter (Plasma cutter)	SkyPower	SkyWelder	Soft Touch, Platfm MTR, Pipe Jacks/Racks, 4' Platfm	SkyGlazier
Pipe Jacks / Racks		SkyPower	Platfm MMR, Platfm MTR, Soft Touch	SkyWelder , SkyCutter, SkyGlazier
Note 1: Any non "Sky" accessory, not listed under "INCOMPATIBLE WITH", are compatible				
Note 2: Can be used on same unit but not simultaneously.				

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⚠ WARNING

INSTALLING OR REMOVING APPROVED ACCESSORIES OR CHANGING PLATFORM SIZE REQUIRES RECALIBRATION OF THE BOOM CONTROL SYSTEM (SEE SERVICE AND MAINTENANCE MANUAL).

6.6 SKYPOWER™

The generator supplies AC power through an AC receptacle in the platform to run tools, lights, and cutting and welding equipment . All power regulation components are located in a watertight box connected by cable to the generator. The generator supplies power when running at the specified speed with the power switch on (switch is located on platform). A three-pole, 30 Amp circuit breaker protects the generator from overload.

Generator Output**ANSI Specs:**

240V;60Hz; 3-Phase; 7.5kW and 240V/120V:60Hz; Single Phase:6kW.

CE Specs:

3-phase, 240-volt, 7.5kw, 18.3-amps, 1.0-pf

1-phase, 240 volt, 6.0kw, 26-amps, 1.0-pf

1-phase, 120 volt, 6.0kw, 50-amps, 1.0-pf

Peak:

3-phase 8.5kw

1-phase 6.0kw

Accessory Ratings

Drive-Type	Generator Speed
Belt-Drive/Pulley	3000rpm (50 Hz) 3600 rpm (60 Hz)

Safety Precautions

- Do not over load platform.
- Make sure no personnel are beneath platform.
- Keep lanyard attached at all times.
- Do not use electrical tools in extremely wet conditions.
- Use correct voltage for tool being used.
- Do not over load circuit.

Preparation and Inspection

- Ensure generator is secure, check condition of belt and wiring.

Operation

Start engine, turn on generator, begin using.

6.7 SKYWELDER™

The welder is capable of TIG and Stick welding and is capable at producing 200 Amps at 100% duty cycle or 250 Amps at 50% duty cycle.

Welding Accessories

The platform will provide provisions for storing 12 ft. welding leads consisting of a clamp and a stinger. A fire extinguisher will also be provided.



Figure 6-1. SkyWelder™ - Sheet 1 of 2

SECTION 6 - ACCESSORIES

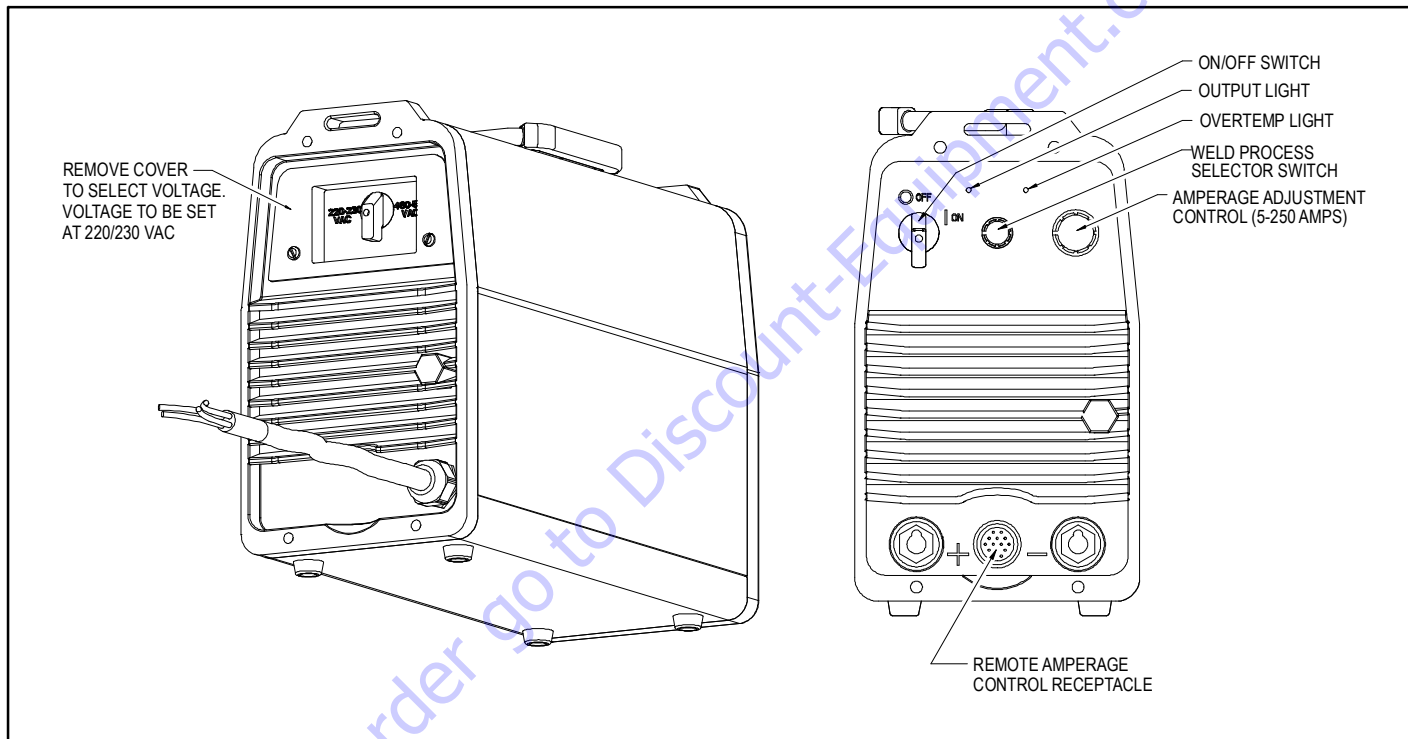


Figure 6-2. SkyWelder™ - Sheet 2 of 2

Accessory Ratings

Table 6-3. Welding Characteristics

Welding Mode	Input Power	Rated Output	Welding Amperage Range	Maximum Open Circuit Voltage	Amps Input At Rated Load Output. 50/60 Hz				
					230 V	460 V	575 V	KVA	KW
Stick (SMAW) TIG (GTAW)	3-Phase	280 Amp at 31.2V. 35% Duty Cycle	5-250A	79VDC	30.5	17	13	15.7	10
		200 Amp at 28V. 100% Duty Cycle			20	11	8	10.3	6.4
	1-Phase	200 Amp at 28V. 50% Duty Cycle	5-200A	70VDC	35	-----	-----	9.8	6.5
		150 Amp at 28V. 100% Duty Cycle			34	-----	-----	6.9	4.4

Safety Precautions

- Do not over load platform.
- De-rate the platform by 70lbs/32kg when welder is installed IN the platform.
- Check for cracked welds and damage to welder supports.
- Check for proper and secure installation of welder and bracket.
- Be certain no personnel are beneath platform.
- Do not exit platform over rails or stand on rails.
- Keep lanyard attached at all times.
- Ensure correct polarity of leads.
- Use proper welding apparel.
- Use correct rod size and current settings.
- Do not use electrical cords without ground.
- Do not use electrical tools in water.

SECTION 6 - ACCESSORIES

- Do not weld to platform.
- Do not ground through the platform.
- Do not use a high frequency arc starter with TIG welder.

Preparation and Inspection

Connect ground clamp to metal being welded, make sure there is a good ground connection and observe proper polarity, begin welding.

Operation

Start engine turn on generator then turn on welder.

Wear proper welding apparel. Set welder to proper amperage and voltage settings for thickness and type of metal being welded. Begin welding.

Refer to Miller Welder Operators Manual.

Generator will not start under an electrical load.

6.8 PIPE RACK

Pipe Racks provide a means of storage of pipe or conduit inside the platform to help prevent rail damage and optimize platform utility. Pipe Racks reduce clutter and optimize available platform capacity.

NOTICE

REDUCE PLATFORM CAPACITY BY 100 LBS. (45.5 KG).

NOTICE

MAXIMUM LOAD IN THE RACKS IS 180 LBS. (82 KG), EVENLY DISTRIBUTED BETWEEN THE TWO RACKS.

NOTICE

WEIGHT IN RACKS PLUS WEIGHT IN PLATFORM MUST NOT EXCEED RATED CAPACITY.

6.9 SOFT TOUCH

A padding kit is mounted to the platform rails and to a frame suspended below the platform. Limit switches deactivate platform functions when the padded framework contacts an adjacent structure. A button on the platform console allows override of the system.

Table 6-4. Maximum Work Load Capacity with Soft Touch

Maximum Work Load (Capacity) -600S ANSI Unrestricted: Restricted:	500 lb (227 kg) 900 lb (408 kg)
Maximum Work Load (Capacity) -600S CE Unrestricted: Restricted:	496 lb (225 kg) 893 lb (405 kg)
Maximum Work Load (Capacity) -660SJ ANSI Unrestricted: Restricted:	500 lb (227 kg) 700 lb (310 kg)
Maximum Work Load (Capacity) -660SJ CE Unrestricted: Restricted:	496 lb (225 kg) 694 lb (315 kg)

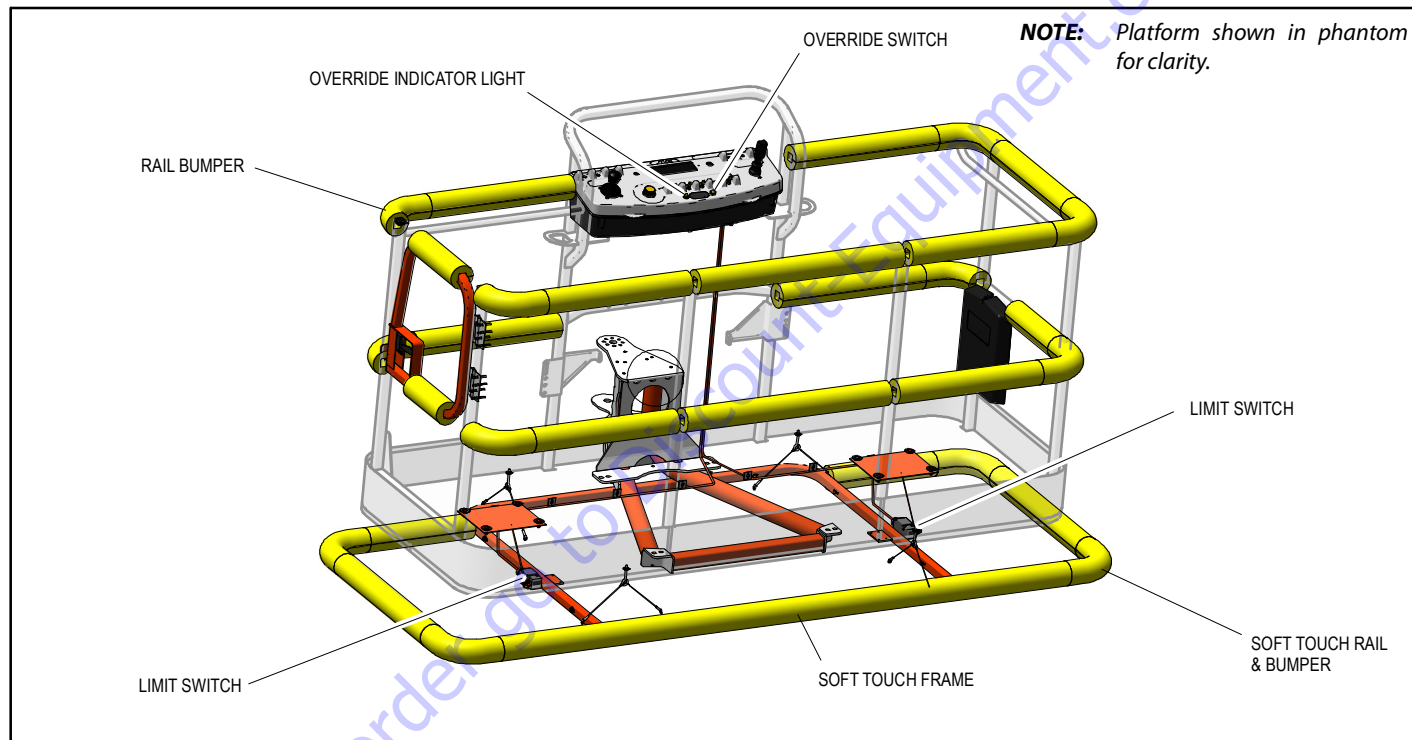


Figure 6-3. Soft Touch

6.10 SKYGLAZIER™

The SkyGlazier™ allows glaziers to efficiently position panels. The glazier package consists of a tray that extends from the bottom of the platform. The panel rests on the tray and against top-rail of the platform, which is padded to prevent damage to the panel. The SkyGlazier™ includes a strap to secure the panel to the platform rail.

Safety Precautions

⚠ WARNING

ENSURE LOAD IS SECURED WITH LOAD STRAP.

⚠ WARNING

DO NOT OVERLOAD TRAY OR PLATFORM. TOTAL MACHINE CAPACITY IS REDUCED WHEN TRAY IS INSTALLED.

⚠ WARNING

WITH THE SKYGLAZIER INSTALLED, THE ORIGINAL PLATFORM CAPACITY RATINGS ARE REDUCED AS SHOWN IN TABLE 6-5, SPECIFICATIONS FOR SKYGLAZIER™. DO NOT EXCEED THE NEW PLATFORM CAPACITY RATING. REFER TO CAPACITY DECAL LOCATED ON TRAY.

⚠ WARNING

AN INCREASE OF THE AREA EXPOSED TO THE WIND WILL DECREASE STABILITY. LIMIT PANEL AREA TO 32 SQ.FT. (3 SQ.M)


1. Ensure no personnel are beneath platform.
2. Do not exit platform over rails or stand on rails.
3. Remove tray when not in use.

Specifications

Table 6-5. Specifications for SkyGlazier™

Capacity Zone	Rated Capacity Platform	Rated Capacity SkyGlazier™	Manual Force	Wind Rating
1000 lb/454 kg	500 lb 227 kg	250 lb 113 kg	90 lb 400 N	20 mph 9 m/s
750 lb/340 kg	440 lb 200 kg	150 lb 68 kg	90 lb 400 N	20 mph 9 m/s
600 lb/272 kg	250 lb 113 kg	150 lb 68 kg	45 lb 200 N	20 mph 9 m/s
550 lb/250 kg	250 lb 113 kg	150 lb 68 kg	45 lb 200 N	20 mph 9 m/s
500 lb/230 kg	250 lb 113 kg	150 lb 68 kg	45 lb 200 N	20 mph 9 m/s

Table 6-5. Specifications for SkyGlazier™

Capacity Zone	Rated Capacity Platform	Rated Capacity SkyGlazier™	Manual Force	Wind Rating
Max. Dimensions of panel	3 m ² / 32 sq ft			
*Total Platform Capacity is defined as platform capacity + tray capacity.				
 WARNING INSTALLING OR REMOVING APPROVED ACCESSORIES OR CHANGING PLATFORM SIZE REQUIRES RECALIBRATION OF THE BOOM CONTROL SYSTEM. (REFER TO SERVICE AND MAINTENANCE MANUAL).				

Preparation and Inspection

Check for cracked welds and damage to tray. Make sure tray is properly secured to platform.

Check to ensure strap is not torn or frayed.

Operation

Load SkyGlazier™ with panel and secure with strap. Position panel to its desired location.

6.11 SKYCUTTER

duty cycle or 14A at 92 VDC @ 60% duty cycle.

The Plasma Cutter will be capable of cutting up to a thickness of 3/8 in. metal and is capable of producing 27A at 92 VDC @ 35%

Accessory Ratings

Table 6-6. Plasma Cutter Characteristics

Spec.	Rated Output	Amperes Input @ Rated Output, 60 Hz, Single-Phase	KVA/KW	Plasma Gas	Plasma Gas Flow/ Pressure	Rated Cutting Capacity @ 10 IPM	Max. OCV
120Volts ±10% (20A)	27 A @91VDC @20% Duty Cycle	28.8 max; 0.30*	3.4KVA 3.2KW	Air or Nitrogen Only @ 90- 120 PSI (621-827 kPa)	4.5 CFM (129L/Min) @60 PSI (414 kpa)	3/8 in. (10 mm)	400VDC
120Volts ±10% (15A)	20 A @88VDC @35% Duty Cycle	20.6 max; 0.30*	2.5 KVA 2.3 KW				
240Volts ±10% (27A)	27 A @91VDC @35% Duty Cycle	13.9 max; 0.13*	3.3 KVA 3.0KW				
*While idling.							

Safety Precautions

⚠ WARNING

DO NOT OVER LOAD PLATFORM.

⚠ WARNING

DE RATE THE PLATFORM BY 70LBS/32KG WHEN PLASMA CUTTER IS IN THE PLATFORM

- Check for cracked welds and damage to plasma supports.
- Check for proper and secure installation of welder and bracket.
- Make sure no personnel are beneath platform.
- Do not exit platform over rails or stand on rails.
- Only use this option on models specified.
- Keep lanyard attached at all times.
- Ground connect is made.
- Use proper cutting apparel.
- Use correct cutting settings.
- Do not use electrical cords without ground.
- Do not use electrical tools in water.

- Do not cut platform.
- Do not ground through the platform.
- Wear proper cutting apparel.
- Do not drive machine while connecting external air/gas sources.
- Preparation and Inspection
- Connect ground clamp to metal being cut, make sure there is a good ground connection, begin cutting.

Operation

Use output control to set cutting output.

Place control in gas/air set position to safely adjust gas/air pressure. Only gas/air circuit is activated.

If 22-27 amperes of cutting output is used with 115 VAC input power, and overload protection on the input power circuit frequently opens, either reduce the cutting output and/or the cut time or find more adequate power.

6.12 FALL ARREST PLATFORM

NOTE: Refer to JLG External Fall Arrest System manual (P/N-3128935) for more detailed information.

The external fall arrest system is designed to provide a lanyard attach point while allowing the operator to access areas outside the platform. Exit/Enter the platform through the gate area only. The system is designed for use by one person.

Personnel must use fall protection at all times. A full body harness is required with lanyard not to exceed 6 ft. (1.8 M) in length, that limits the maximum arrest force to 900 lbs. (408 kg) for the trans-fastener type and 1350 lbs. (612 kg) for the shuttle type fall arrest system.

⚠ WARNING

DO NOT OPERATE ANY MACHINE FUNCTIONS WHILE OUTSIDE OF PLATFORM. BE CAREFUL WHEN ENTERING/EXITING THE PLATFORM AT ELEVATION.

6.13 BOLT-ON EXTERNAL FALL ARREST

The bolt-on external fall arrest system is designed to provide a lanyard attach point while allowing the operator to access areas outside the platform. Exit/Enter the platform through the gate area only. The system is designed for use by one person.

Personnel must use fall protection at all times. A full body harness is required with lanyard not to exceed 6 ft. (1.8 M) in length, that limits the maximum arrest force to 900 lbs. (408 kg).

External Fall Arrest System capacity is 310 lb (140 kg) - one (1) person maximum.

Do not move platform during use of the external fall arrest system.

⚠ WARNING

DO NOT OPERATE ANY MACHINE FUNCTIONS WHILE OUTSIDE OF PLATFORM. BE CAREFUL WHEN ENTERING/EXITING THE PLATFORM AT ELEVATION.

⚠ WARNING

IF THE EXTERNAL FALL ARREST SYSTEM IS USED TO ARREST A FALL OR IS OTHERWISE DAMAGED, THE ENTIRE SYSTEM MUST BE REPLACED AND THE PLATFORM FULLY INSPECTED BEFORE RETURNING TO SERVICE. REFER TO THE SERVICE MANUAL FOR REMOVAL AND INSTALLATION PROCEDURES.

NOTICE

THE EXTERNAL FALL ARREST SYSTEM REQUIRES AN ANNUAL INSPECTION AND CERTIFICATION. THE ANNUAL INSPECTION AND CERTIFICATION MUST BE PERFORMED BY A QUALIFIED PERSON OTHER THAN THE USER.

Inspection Before Use

The external fall arrest system must be inspected before each use of the aerial work platform. Replace components if there are any signs of wear or damage.

Before each use, perform a visual inspection of the following components:

SECTION 6 - ACCESSORIES

- Cable: Inspect cable for proper tension, broken strands, kinks, or any signs of corrosion.

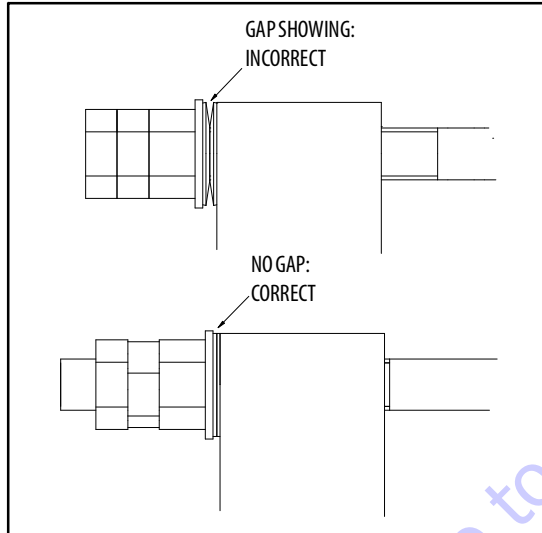


Figure 6-4. Bolt-On External Fall Arrest Cable Tension

- Fittings & Brackets: Ensure all fittings are tight and there are no signs of fractures. Inspect brackets for any damage.

- Attachment Ring: No cracks or signs of wear are acceptable. Any signs of corrosion requires replacement.
- Attaching Hardware: Inspect all attaching hardware to ensure there are no missing components and hardware is properly tightened.
- Platform Rails: No visible damage is acceptable.

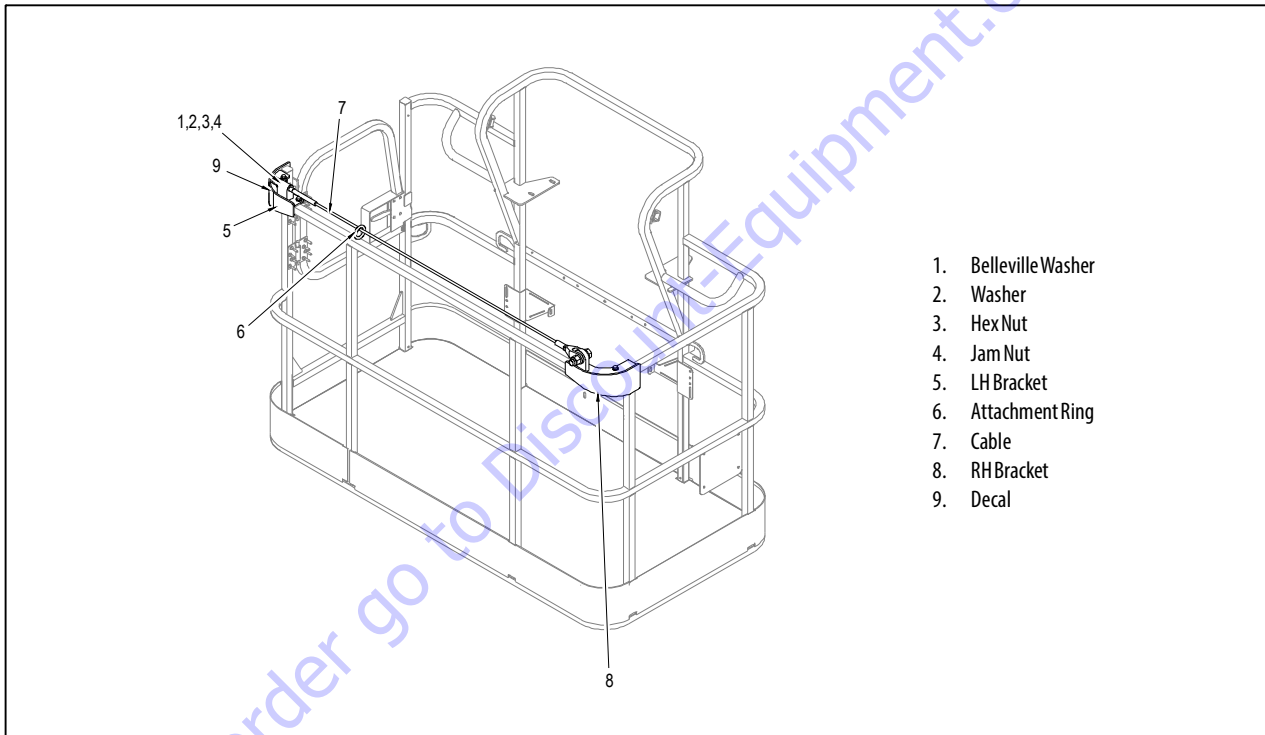


Figure 6-5. Bolt-On External Fall Arrest System

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SECTION 7. GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

7.1 INTRODUCTION

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

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

Other Publications Available:

Service and Maintenance Manual 31215034
 Illustrated Parts Manual 31215035

7.2 OPERATING SPECIFICATIONS

Table 7-1. Operating Specifications

Maximum Work Load (Capacity) -600S*	
Unrestricted:	600 lb (272 kg)
Restricted:	1000 lb (454 kg)
Maximum Work Load (Capacity) -660SJ*	
Unrestricted:	550 lb (250 kg)
Restricted:	750 lb (340 kg)
Maximum Operating Slope	5°
Maximum Travel Grade (Gradeability)- 4WD	45%
Maximum Travel Grade (Side Slope)	5°
Maximum Manual Force (600S)	90 lbs. (400 N)
Maximum Manual Force (660SJ)	100 lbs. (445 N)
Maximum Wind Speed	28 mph (12.5 m/s)
Maximum Tire Load:	
600S	12760 lbs. (5788kg)
660SJ	14720 lbs. (6677kg)
Ground Bearing Pressure - 600S	
Foam-Filled	83.1 psi (5.84 kg/cm ²)
Pneumatic	77.7 psi (5.46 kg/cm ²)

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Table 7-1. Operating Specifications

Ground Bearing Pressure	
Foam-Filled	86.4 psi (6.07 kg/cm ²)
Pneumatic	85.1 psi (5.98 kg/cm ²)
Maximum Drive Speed (4WD)	3.8 MPH (6.3 Km/hr.)
Electrical System	12VDC
Gross Machine Weight (Approximate)	
600S - 2WS	21,884 lbs. (9947 kg)
600S - 4WS	22,070 lbs. (10032 kg)
660SJ - 2WD	26,707 lbs. (12140 kg)
660SJ - 4WS	26,947 lbs. (12249 kg)
*Maximum Work Load (Capacity) can be affected by the addition of the Soft Touch option. If equipped with Soft Touch, refer to Section 6 and the decal on your machine for these values.	

Dimensional Data

Table 7-2. Dimensional Data

Machine Height (Stowed)	8ft. 2.4 in. (2.5 m)
Machine Length (Stowed)	
600S	28ft. 7 in. (8.71 m)
660SJ	35ft. 4.7 in. (10.79 m)
Machine Width	8ft. 2 in. (2.48 m)
Turning Radius (outside)	
-2WS	19ft. 4 in. (5.89 m)
-4WS	12ft. 4 in. (3.76 m)
Turning Radius (inside)	
-2WS	9ft. 2 in. (2.8 m)
-4WS	4ft. 2 in. (1.27 m)
Wheelbase	8ft. 2.7 in. (2.51 m)
Total Axle Oscillation	8 in. (0.2 m)
Ground Clearance	12 in. (0.3 m)
Platform Height	
600S	59ft. 8 in. (18.18 m)
660SJ	65ft. 8 in. (20.02 m)

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Table 7-2. Dimensional Data

Horizontal Reach 600lb (272 kg) Zone 600S	50 ft. 2 in. (15.29 m)
Horizontal Reach 1000 lb (454 kg) Zone 600S	50 ft. 2 in. (15.29 m)
Horizontal Reach 550lb (250 kg) Zone 660SJ	57 ft. 1 in. (17.40 m)
Horizontal Reach 750 lb (340 kg) Zone 660SJ	47 ft. 1 in. (14.61 m)
Tail Swing	4ft. 0 in. (1.22 m)

Table 7-3. Capacities

Torque Hub, Drive	24 ounces (0.7 L)
Engine Crankcase Deutz D2011L04 Deutz 2.9 L Ford MSG425-DF	10 quarts (9.4L) 9.6 quarts (9.1L) 7 quarts (6.6L)
Coolant System (Deutz 2.9)	13.2 quarts (12.5 L)
Coolant System (Ford MSG425-DF)	2 gal. (7.5L)

Capacities

Table 7-3. Capacities

Fuel Tank Diesel Diesel (Steel Tank) Gasoline	31 Gallons (117L) 52 (200L) 31 Gallons (117L)
Hydraulic Oil Tank	34 Gallons (129L)
Hydraulic System (Including Tank)	40 Gallons (151.4L)

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Engine Data

Table 7-4. Deutz D2011L04 Specifications

Fuel	Diesel
Oil Capacity	
Cooling System	5 Quarts (4.5 L)
Crankcase	11 Quarts (10.5 L) w/Filter
Total Capacity	16 Quarts (15 L)
Idle RPM	1000
Low RPM	1800
High RPM	2500
Alternator	60 Amp, belt drive
Battery	950 Cold Cranking Amps, 205 Minutes Reserve Capacity, 12 VDC
Fuel Consumption	0.79 gph (2.99 Lph)
Horsepower	49

Table 7-5. Deutz D2.9L4

Type	Liquid Cooled
Number of Cylinders	4
Bore	3.6 in (92 mm)
Stroke	4.3 in (110 mm)
Total Displacement	178 cu. in (2925 cm ³)
Firing Order	1-3-4-2
Output	49 hp (36.5 kW)
Oil Capacity	2.4 gal (9.0 L)
Coolant Capacity (System)	3.2 gal (12.1 L)
Average Fuel Consumption	0.85 gph (3.22 Lph)
Min. Low Engine RPM	1200
Mid Engine RPM	1800
Max. High Engine RPM	2600

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Table 7-6. Deutz TD2.9L4 (option)

Fuel	Ultra Low Sulfur Diesel (15ppm)
Output	67 hp (50kW)
Torque	173 ft. lbs. (234Nm) @ 1800rpm
Oil Capacity (Crankcase)	2.4 gal (9.0L)
Cooling System	3.3 Gallon (12.5L)
Low RPM	1200±50rpm
High RPM	26000±50rpm
Alternator	95Amp
Average Fuel Consumption	0.85 gph (3.22Lph)

Table 7-7. Ford MSG425-DF

Type	Liquid Cooled
Number of Cylinders	4
Displacement	2.5L
Max Rated Output (Gas)	84 hp (62 kW)
Max Rated Output (LP)	80 hp (59 kW)
Oil Capacity (engine only)	7 qt. (6.6 L)
Coolant Capacity (engine only)	0.63 gal (2.4 L)
Coolant Capacity (system)	2 gal (7.5 L)
Min. Low Engine RPM	1000
Max. High Engine RPM	3200
Fuel Consumption	
Gas	1.05 gph (3.98 Lph)
LP	1.37 gph (5.19 Lph)
Acceptable Fuel Grades	
Unleaded 87 or 89 Octane Gasoline	
Ethanol/Gasoline Mix: 10%	
HD-5 LPG	

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Tires

Table 7-8. Tire Specifications

Size	355/55D625	41/18LLx22.5
Load Range	G	G
Ply Rating	14	14
Tire Pressure	Foam-Filled	Foam-Filled

Hydraulic Oil

Table 7-9. Hydraulic Oil

HYDRAULIC SYSTEM OPERATING TEMPERATURE RANGE	SAE VISCOSITY GRADE
+0° to +180°F (-18°C to +83°C)	10W
+0°F to +210°F (-18°C to +99°C)	10W-20, 10W-30
+50°F to +210°F (+10°C to +210°C)	20W-20

NOTE: Hydraulic oils must have anti-wear qualities at least to API Service Classification GL-3, and sufficient chemical stability for mobile hydraulic system service. JLG Industries recommends standard UTTO hydraulic oil, which has an SAE viscosity index of 152.

NOTE: When temperatures remain below 20° F (-7 degrees C), JLG Industries recommends the use of Mobil DTE 10.

NOTE: Aside from JLG recommendations, it is not advisable to mix oils of different brands or types, as they may not contain the same required additives or be of comparable viscosities.

Table 7-10. Mobilfluid 424 Specs

SAE Grade	10W30
ISO	55
Gravity, API	29.0
Density, Lb/Gal. 60°F	7.35
Pour Point, Max	-46°F (-43°C)
Flash Point, Min.	442°F (228°C)
Viscosity	
Brookfield, cP at -18°C	2700
at 40°C	55 cSt
at 100°C	9.3 cSt
Viscosity Index	152

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Table 7-11. Mobil DTE 10 Excel 32 Specs

ISO Viscosity Grade	#32
Specific Gravity	0.877
Pour Point, Max	-40°F (-40°C)
Flash Point, Min.	330°F (166°C)
Viscosity	
at 40°C	33cSt
at 100°C	6.6 cSt
at 100°F	169 SUS
at 210°F	48 SUS
cp at -20°F	6,200
Viscosity Index	140

Table 7-12. Quintolubric 888-46

Density	0.92 g/cm ³
Pour Point	<-30°C (<-22°F)
Flash Point	300°C (572°F)
Fire Point	360°C (680°F)
Autoignition Temperature	>450°C (842°F)
Viscosity	
at 0°C (32°F)	320 cSt
at 20°C (68°F)	109 cSt
at 40°C (104°F)	47.5 cSt
at 100°C (212°F)	9.5 cSt
Viscosity Index	190

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Table 7-13. Mobil EAL 224H Specs

Type	Synthetic Biodegradable
ISO Viscosity Grade	32/46
Specific Gravity	.922
Pour Point, Max	-25°F (-32°C)
Flash Point, Min.	428°F (220°C)
Operating Temp.	0 to 180°F (-17 to 162°C)
Weight	7.64 lb. per gal. (0.9 kg per liter)
Viscosity	
at 40°C	37 cSt
at 100°C	8.4 cSt
Viscosity Index	213
NOTE:	<i>Must be stored above 32°F (14°C)</i>

Table 7-14. Mobil EAL H 46 Specs

Type	Synthetic Biodegradable
ISO Viscosity Grade	46
Specific Gravity	.910
Pour Point	-44°F (-42°C)
Flash Point	500°F (260°C)
Operating Temp.	0 to 180°F (-17 to 162°C)
Weight	7.64 lb/gal (0.9 kg/L)
Viscosity	
at 40°C	45 cSt
at 100°C	8.0 cSt
Viscosity Index	153

Table 7-15. Exxon Univis HVI 26 Specs

Specific Gravity	32.1
Pour Point	-76°F (-60°C)
Flash Point	217°F (103°C)
Viscosity	
at 40°C	25.8 cSt
at 100°C	9.3 cSt
Viscosity Index	376
NOTE: Mobil/Exxon recommends that this oil be checked on a yearly basis for viscosity.	

Critical Stability Weights



DO NOT REPLACE ITEMS CRITICAL TO STABILITY WITH ITEMS OF DIFFERENT WEIGHT OR SPECIFICATION (FOR EXAMPLE: BATTERIES, FILLED TIRES, COUNTERWEIGHT, ENGINE & PLATFORM) DO NOT MODIFY UNIT IN ANY WAY TO AFFECT STABILITY.

Table 7-16. Critical Stability Weights

		LB.	KG.
Tire and Wheel	355/55D625 (FF)	440	200
	41/18LLx22.5 (FF)	700	318
Engine (complete tray)	Deutz TD 2.9L	1433	650
	D2011 L04	983	445
Counterweight	Chassis	453	205.5
	Turntable (600S)	4922	2233
	Turntable (660SJ)	5844	2653

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Table 7-16. Critical Stability Weights

Platform Only (No Control Box or Footswitch)	4 ft. (M) Swing Gate	132	60
	5 ft. (M) Swing Gate	145.5	66
	6 ft. (M) Swing Gate	159	72
	8 ft. (2.44 M) Swing Gate	230	84
	6 ft. (M) Shipyard Option	247	112

Serial Number Locations

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

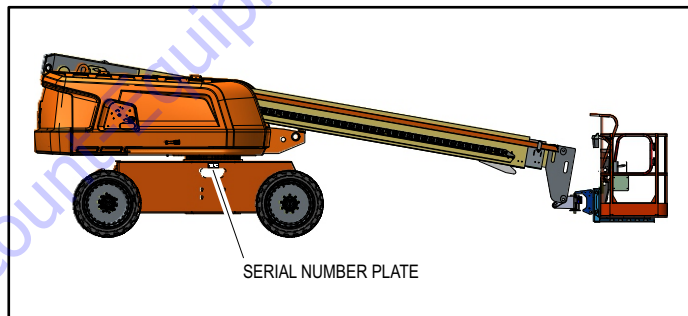


Figure 7-1. Serial Number Locations

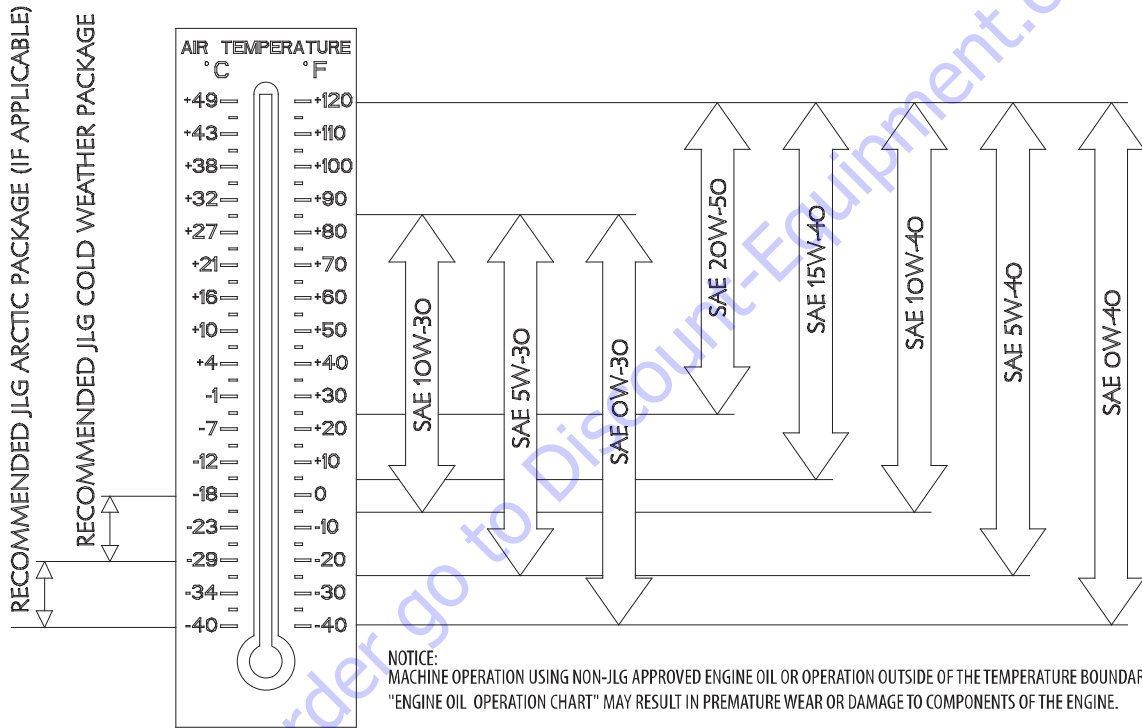


Figure 7-2. Engine Operating Temperature Specifications - Deutz 2.9L

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

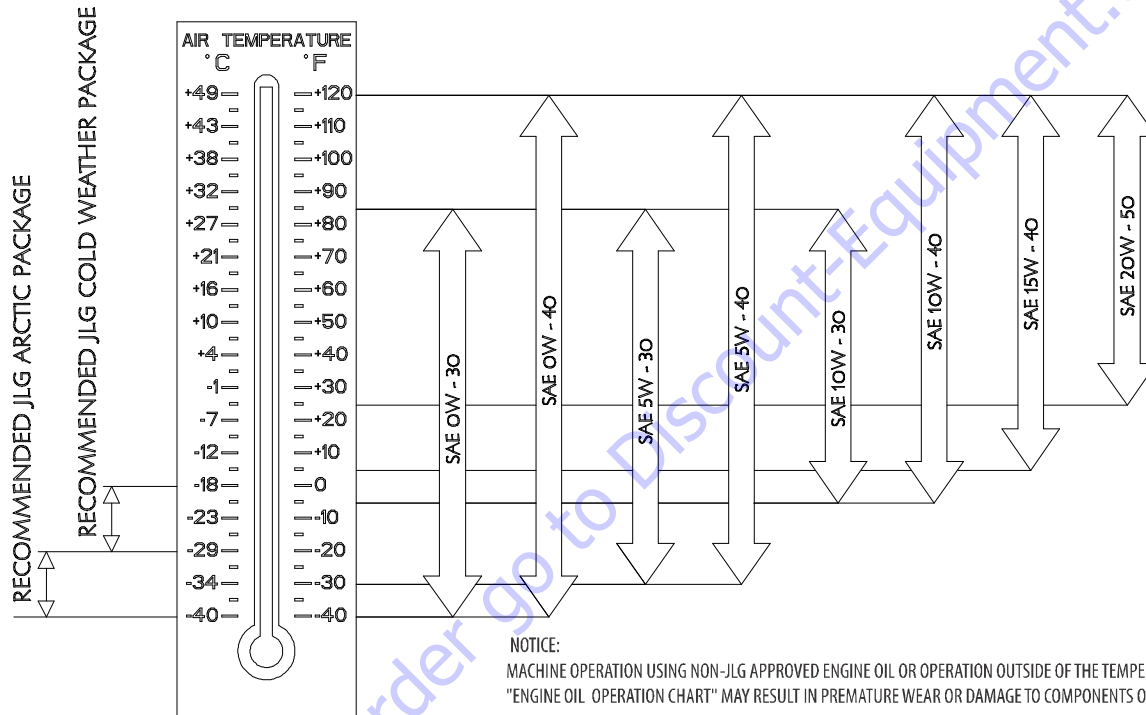


Figure 7-3. Engine Operating Temperature Specifications - Deutz 2011

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SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

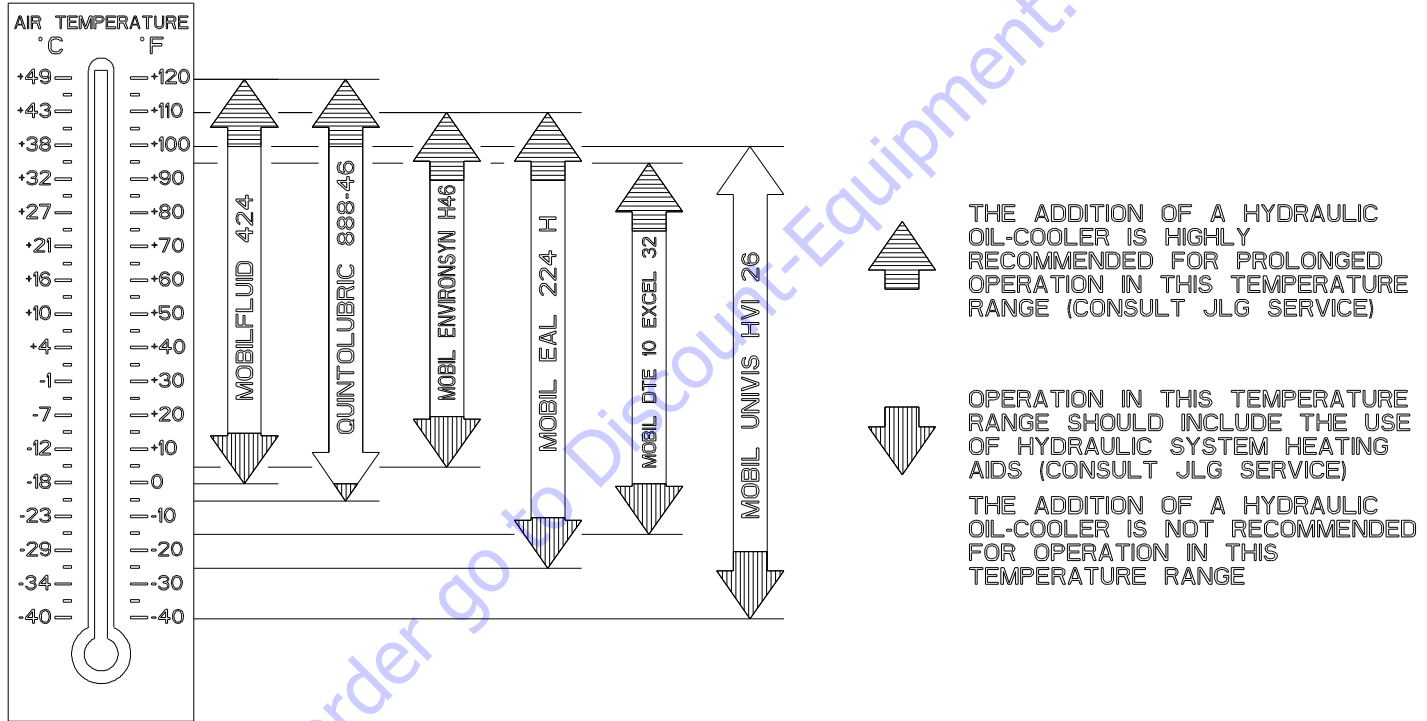


Figure 7-4. Hydraulic Oil Operation Chart - Sheet 1 of 2

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SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Fluid	Properties		Base				Classification		
	Viscosity @ 40° C (CST, Typical)	Visc Index	Mineral Oils	Vegetable Oils	Synthetic	Synthetic Polyol Esters	Readily Biodegradable*	Virtually Non-toxic**	Fire Resistant***
Mobilfluid 424	55	145	X						
Mobil DTE 10 Excel 32	32	141	X						
UNIVIS HVI 26	26	376	X						
Mobil EAL 224 H	36	212		X			X	X	
Mobil EnviroSyn H 46	49	145			X		X	X	
Quintolubric 888-46	50	185				X	X	X	X

- * Readily biodegradable classification indicates one of the following:
 CO2 Conversion > 60% per EPA 560/6-82-003
 CO2 Conversion > 80% per CEC-L-33-A-93
- ** Virtually Non-toxic classification indicates an LC50 > 5000 ppm per OECD 203
- *** Fire Resistant classification indicates Factory Mutual Research Corp. (FMRC) Approval

NOTICE:
 MACHINE OPERATION USING NON-JLG APPROVED HYDRAULIC FLUIDS OR OPERATION OUTSIDE OF THE TEMPERATURE BOUNDARIES OUTLINED IN THE "HYDRAULIC FLUID OPERATION CHART" MAY RESULT IN PREMATURE WEAR OR DAMAGE TO COMPONENTS OF THE HYDRAULIC SYSTEM.

Figure 7-5. Hydraulic Oil Operation Chart - Sheet 2 of 2

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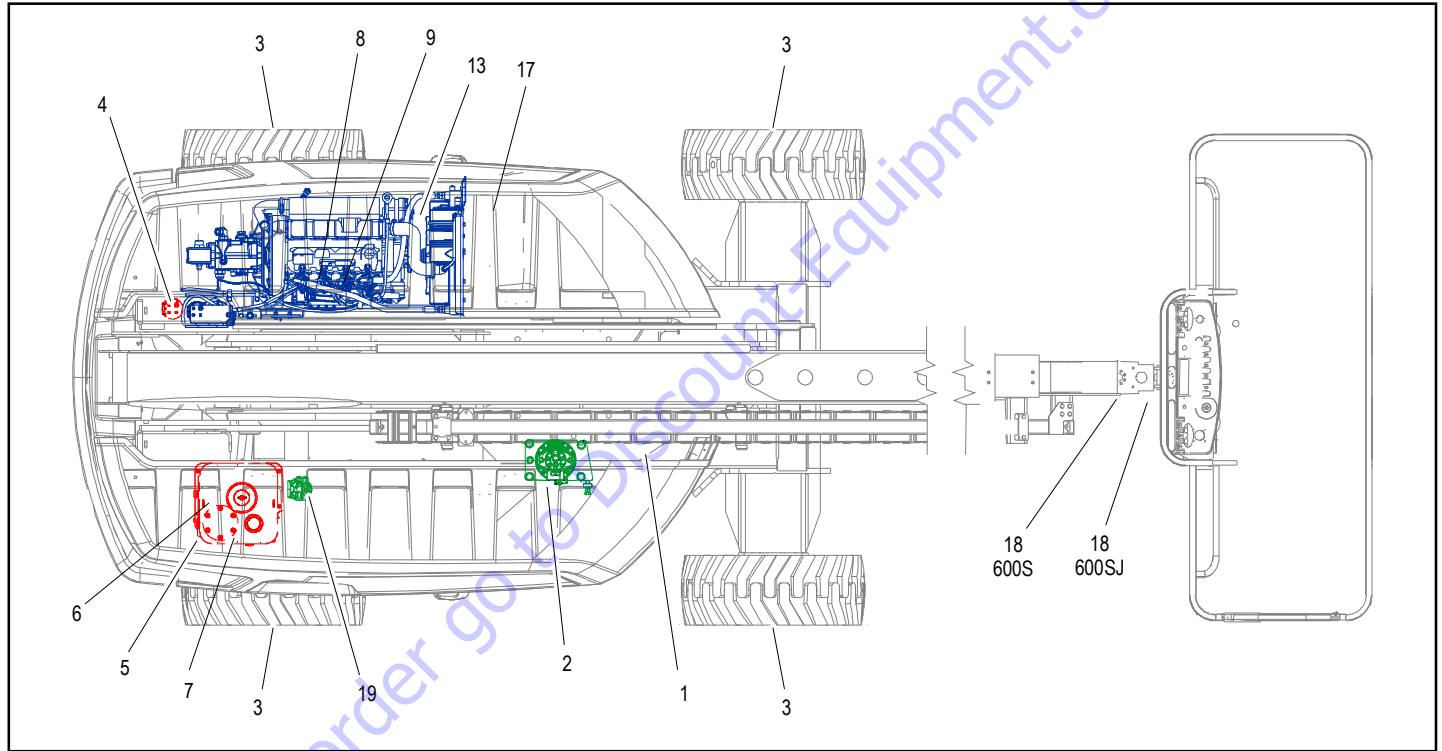


Figure 7-6. Operator Maintenance & Lubrication Diagram - Deutz 2011 Engine

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

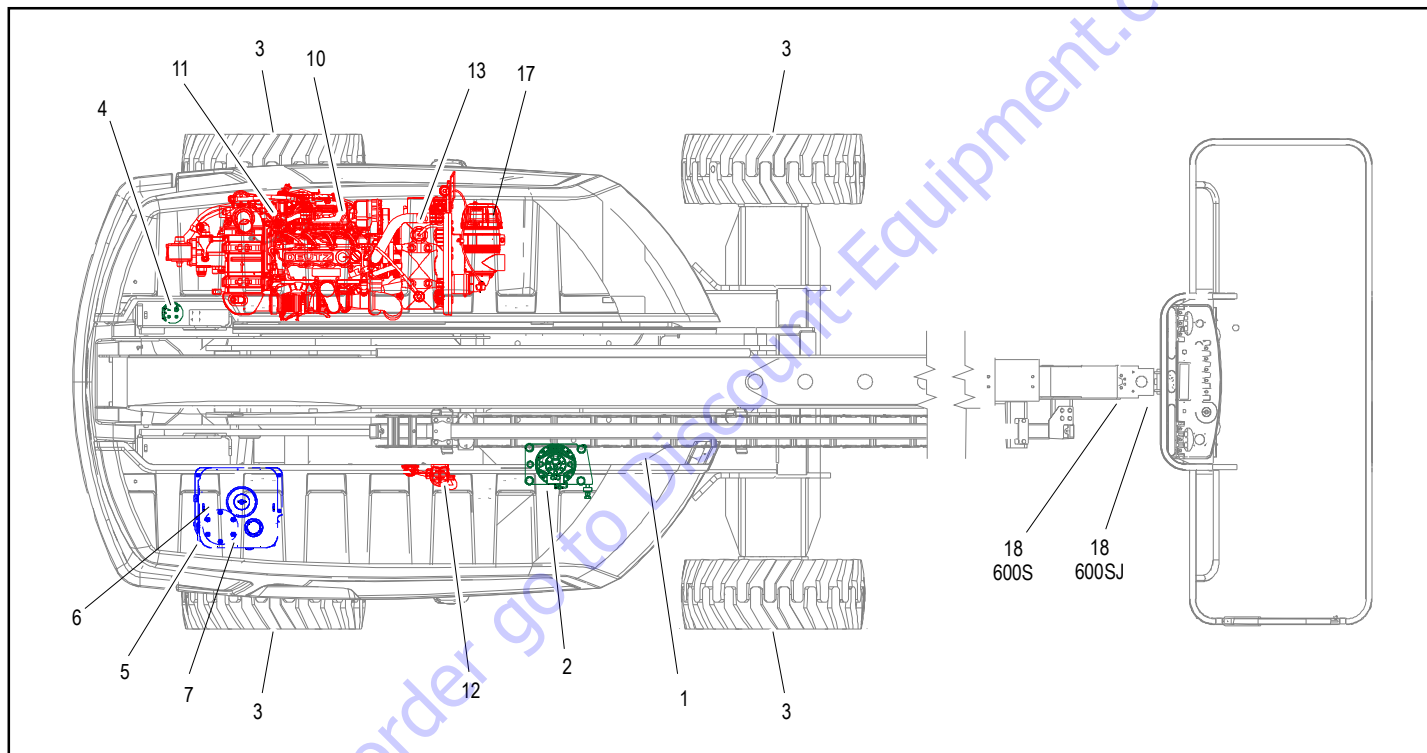


Figure 7-7. Operator Maintenance & Lubrication Diagram - Deutz 2.9L Engine

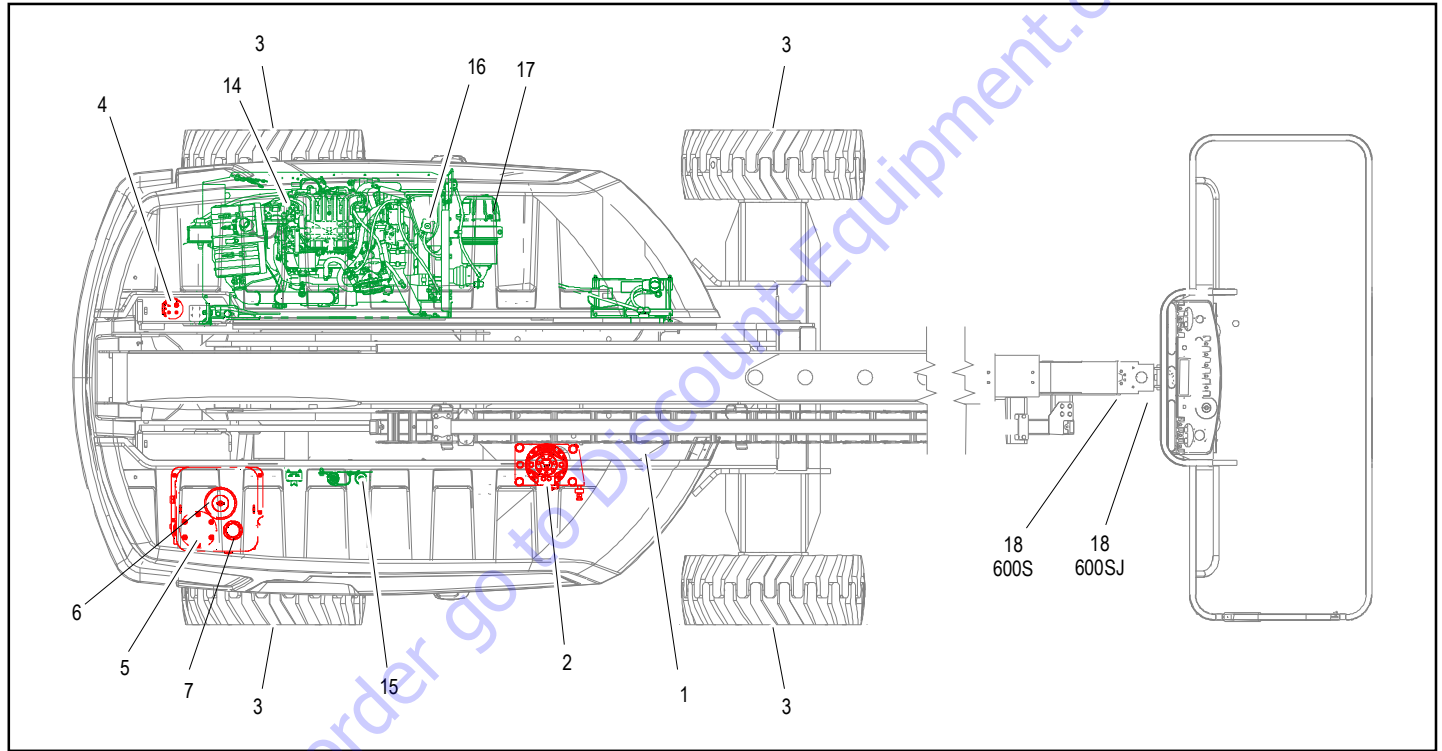


Figure 7-8. Operator Maintenance & Lubrication Diagram - Ford Engine

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

7.3 OPERATOR MAINTENANCE

NOTE: The following numbers correspond to those in Figure 7-6., Operator Maintenance & Lubrication Diagram - Deutz 2011 Engine.

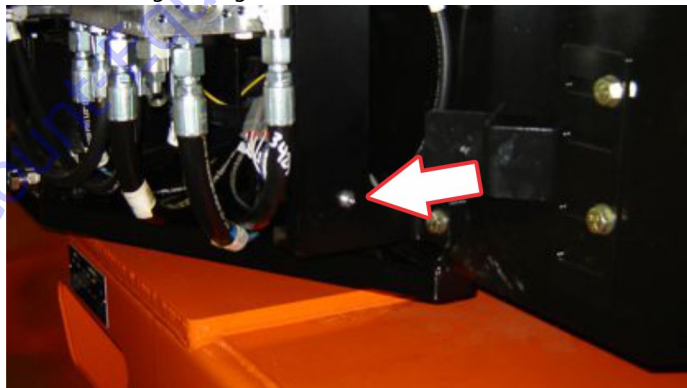
Table 7-17. Lubrication Specifications.

KEY	SPECIFICATIONS
BG*	Bearing Grease (JLG Part No. 3020029) Mobilith SHC 460.
HO	Hydraulic Oil. API service classification GL-4, e.g. Mobilfluid 424.
EPGL	Extreme Pressure Gear Lube (oil) meeting API Service Classification GL-5 or Mil-Spec Mil-L-2105.
MPG	Multipurpose Grease having a minimum dripping point of 350°F (177°C). Excellent water resistance and adhesive qualities, and being of extreme pressure type. (Timken OK 40 pounds minimum.)
EO	Engine (crankcase). Gas (5W30) - API SN, -Arctic ACEA A1/BI, A5/B5 - API SM, SL, SJ, EC, CF, CD - ILSAC GF-4. Diesel (15W40, 5W30 Arctic) - API CJ-4.
*MPG may be substituted for these lubricants, if necessary, but service intervals will be reduced.	

NOTICE

LUBRICATION INTERVALS ARE BASED ON MACHINE OPERATION UNDER NORMAL CONDITIONS. FOR MACHINES USED IN MULTI-SHIFT OPERATIONS AND/OR EXPOSED TO HOSTILE ENVIRONMENTS OR CONDITIONS, LUBRICATION FREQUENCIES MUST BE INCREASED ACCORDINGLY.

1. Swing Bearing



Lube Point(s) - 1 Grease Fittings

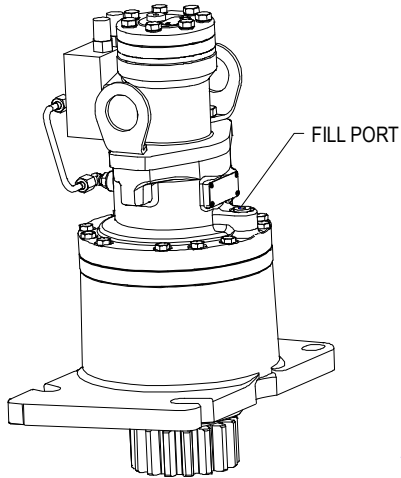
Capacity - A/R

Lube - MPG

Interval - Every 3 months or 150 hrs of operation

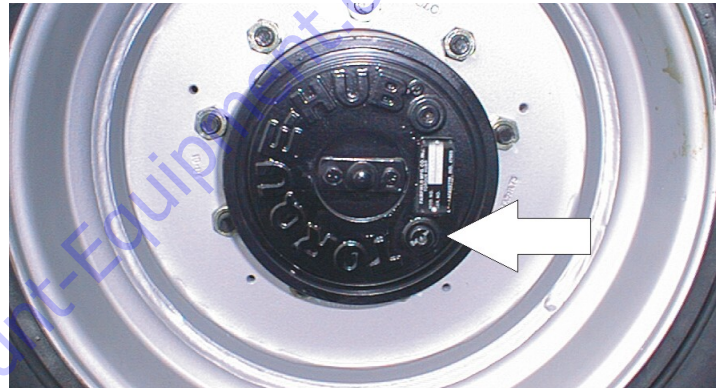
Comments - Remote Access. Apply grease and rotate in 90 degree intervals until bearing is completely lubricated.

2. Swing Drive Hub



Lube Point(s) - Level/Fill Plug
Capacity - 32 oz. (0.95 L)
Lube - 80w90 Gear Oil
Interval - Check level every 3 months or 150 hrs of operation;
change every 2 years or 1200 hours of operation

3. Wheel Drive Hub



Lube Point(s) - Level/Fill Plug
Capacity - 24 oz. (0.7 L)
Lube - 80w90 Gear Oil
Interval - Check level every 3 months or 150 hrs of operation;
change every 2 years or 1200 hours of operation

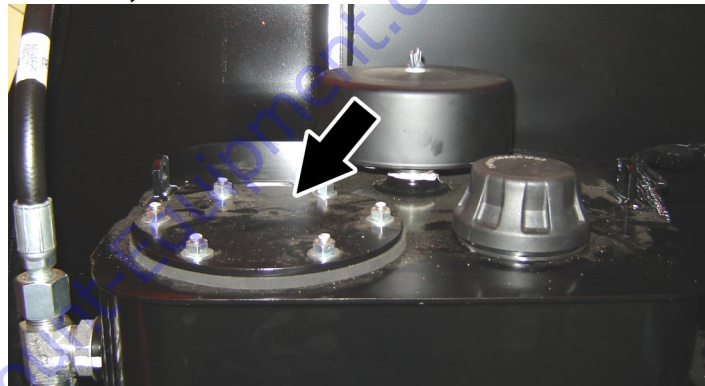
SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

4. Hydraulic Charge Filter



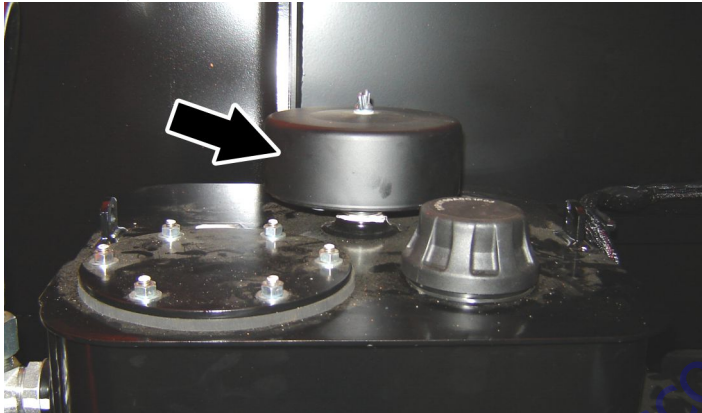
Interval - Change after first 50 hrs. and every 6 months or 300 hrs. thereafter or as indicated by Condition Indicator.

5. Hydraulic Return Filter



Interval - Change after first 50 hours and every 6 months or 300 hours thereafter or whenever Charge Filter is replaced

6. Hydraulic Tank Breather



Interval - Change after first 50 hrs. and every 6 months or 300 hrs. thereafter.

Comments - Remove wing nut and cover to replace. Under certain conditions, it may be necessary to replace on a more frequent basis.

7. Hydraulic Tank



Lube Point(s) - Fill Cap

Capacity - 34 gal tank (129 L) 40.0 gal system (151 L)

Lube - HO

Interval - Check Level daily; Change every 2 years or 1200 hours of operation

Comments - On new machines, those recently overhauled, or after changing hydraulic oil, operate all systems a minimum of two complete cycles and recheck oil level in reservoir.

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

8. Oil Change w/Filter - Deutz 2011



Lube Point(s) - Fill Cap/Spin-on Element
Capacity - 10 Quarts (9.4 L) Crankcase; 5 Quarts (4.8L) Cooler
Lube - EO
Interval - Every Year or 1200 hours of operation
Comments - Check level daily/Change in accordance with engine manual.

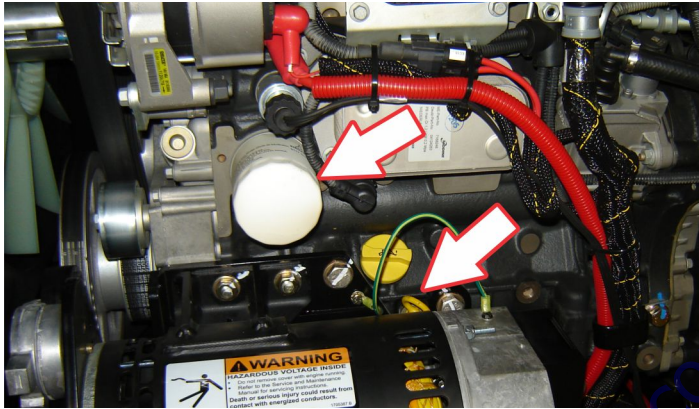
9. Fuel Filter - Deutz 2011



Lube Point(s) - Replaceable Element
Interval - Every Year or 600 hours of operation

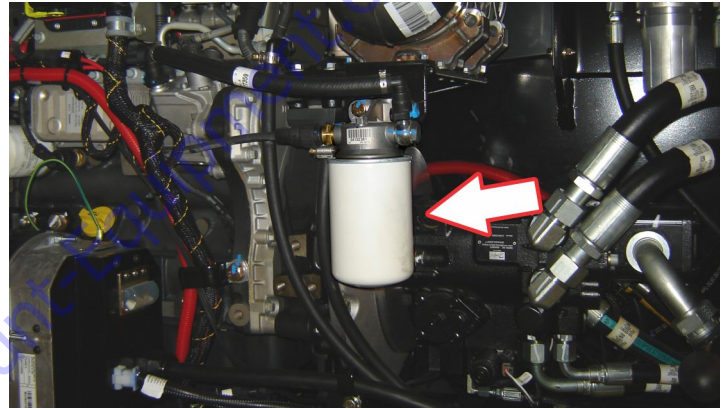
SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

10. Oil Change w/Filter - Deutz 2.9



Lube Point(s) - Fill Cap/Spin-on Element
Capacity - 9.5 Quarts (9.0 L) Crankcase
Lube - EO
Interval - Every Year or 1200 hours of operation (whichever comes first).
Comments - Check level daily/Change in accordance with engine manual.

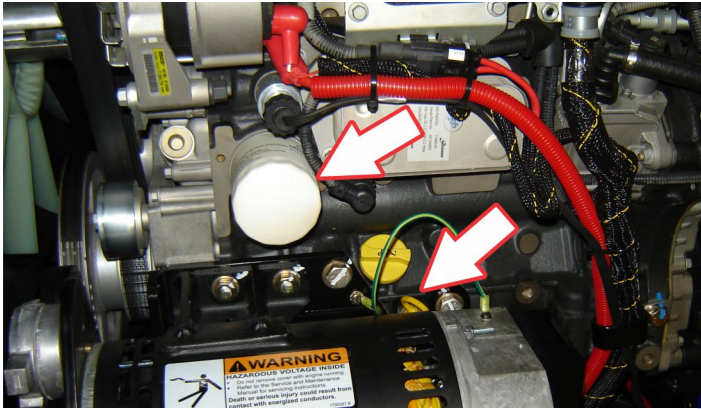
11. Fuel Filter - Deutz 2.9



Lube Point(s) - Replaceable Element
Interval - 600 hours of operation

SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

12. Oil Change w/Filter - Deutz TD2.9



Lube Point(s) - Fill Cap/Spin-on Element

Capacity - 9.5 Quarts (9.0 L) Crankcase

Lube - EO

Interval - Every Year or 600 hours of operation (whichever comes first).

Comments - Check level daily/Change in accordance with engine manual.

13. Fuel Pre-Filter - Deutz D2.9/TD2.9



Lube Point(s) - Replaceable Element

Interval - Drain water daily; Every year or 600 hours of operation

14. Engine Coolant - Deutz D2.9

Lube Point(s) - Fill Cap

Capacity (Deutz 2.9L)- 13.2 quart (12.5 L)

Lube - Anti-Freeze

Interval - Check level daily; change every 1000 hours or two years, whichever comes first.

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15. Oil Change w/Filter - Ford MSG425-DF

Lube Point(s) - Fill Cap/Spin-on Element

Capacity - 7 Quarts (6.6 L)

Lube - EO

Interval - Change in accordance with engine manual

Comments - Check level daily

16. Fuel Filter - Ford MSG425-DF

Lube Point(s) - Replaceable Element

Interval - Every Year or 600 hours of operation

17. Engine Coolant - Ford MSG425-DF

Lube Point(s) - Fill Cap

Capacity (Deutz 2.9L)- 2 gal. quart (7.5 L)

Lube - Anti-Freeze

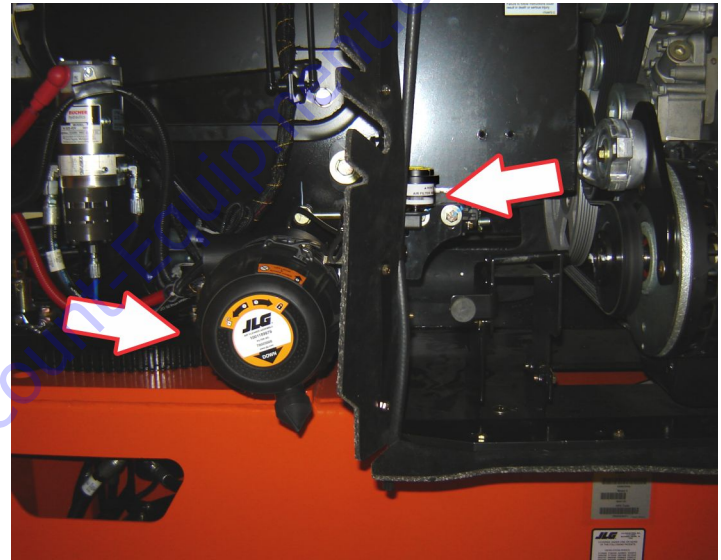
Interval - Check level daily; change every 1000 hours or two years, whichever comes first.

18. Air Filter Locations

Lube Point(s) - Replaceable Element

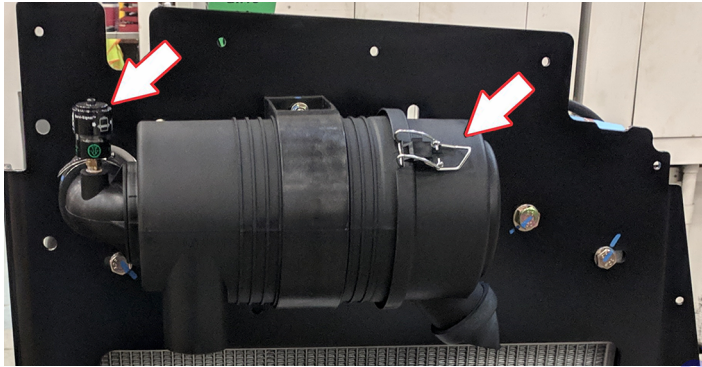
Interval - Every 6 months or 300 hours of operation or as indicated by the condition indicator.

Deutz 2.9L: Prior to SN.0300254985

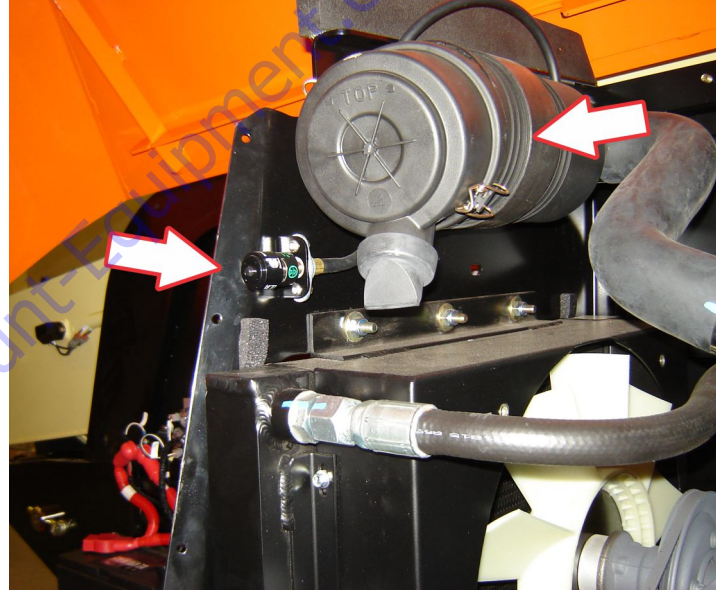


SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

Deutz D2.9L/TD2.9L: SN.0300254985 to Present

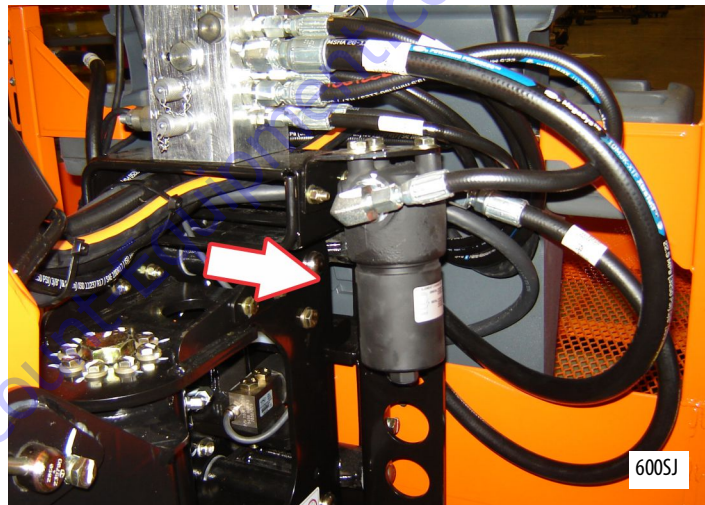


Deutz 2011



SECTION 7 - GENERAL SPECIFICATIONS & OPERATOR MAINTENANCE

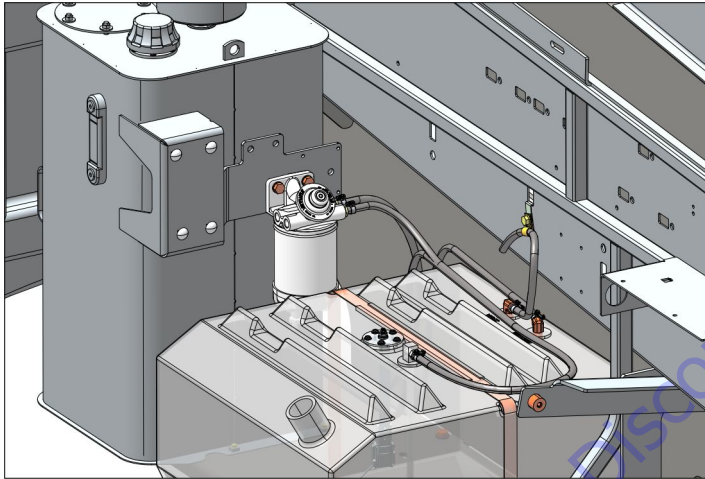
18. Platform Filter



Lube Point - Replaceable Element

Interval - Change after first 50 hours and then every year or 600 hours of operation, whichever comes first

19. Optional Fuel Filter - Deutz 2011 - China Market



Lube Point(s) - Replaceable Element

Interval - Drain water daily; Every year or 600 hours of operation

7.4 TIRES & WHEELS

Tire Damage

For polyurethane foam filled tires, JLG Industries, Inc. recommends that when any of the following are discovered, measures must be taken to remove the JLG product from service immediately and arrangements must be made for replacement of the tire or tire assembly.

- a smooth, even cut through the cord plies which exceeds 3 inches (7.5 cm) in total length
- any tears or rips (ragged edges) in the cord plies which exceeds 1 inch (2.5 cm) in any direction
- any punctures which exceed 1 inch in diameter
- any damage to the bead area cords of the tire

If a tire is damaged but is within the above noted criteria, the tire must be inspected on a daily basis to insure the damage has not propagated beyond the allowable criteria.

Tire Replacement

JLG recommends a replacement tire be the same size, ply and brand as originally installed on the machine. Please refer to the JLG Parts Manual for the part number of the approved tires for a particular machine model. If not using a JLG approved replacement tire, we recommend that replacement tires have the following characteristics:

- Equal or greater ply/load rating and size of original
- Tire tread contact width equal or greater than original
- Wheel diameter, width, and offset dimensions equal to the original
- Approved for the application by the tire manufacturer (including inflation pressure and maximum tire load)

Unless specifically approved by JLG Industries Inc. do not replace a foam filled or ballast filled tire assembly with a pneumatic tire. When selecting and installing a replacement tire, ensure that all tires are inflated to the pressure recommended by JLG. Due to size variations between tire brands, both tires on the same axle should be the same.

Wheel Replacement

The rims installed on each product model have been designed for stability requirements which consist of track width, tire pressure, and load capacity. Size changes such as rim width, center piece location,

larger or smaller diameter, etc., without written factory recommendations, may result in an unsafe condition regarding stability.

Wheel Installation

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

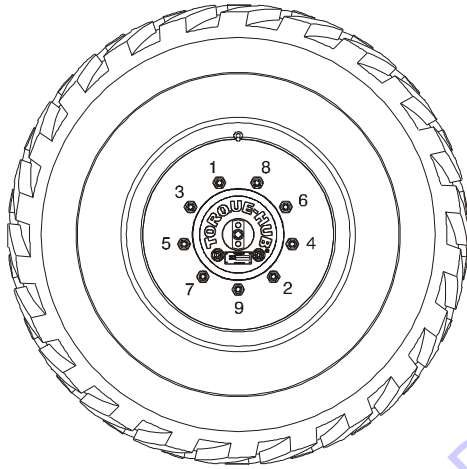
WARNING

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

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

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

2. Tighten nuts in the following sequence:



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

Table 7-18. Wheel Torque Chart

TORQUE SEQUENCE		
1st Stage	2nd Stage	3rd Stage
40ft. lbs. (55 Nm)	95 ft. lbs. (130 Nm)	170 ft. lbs. (230 Nm)

4. Wheel nuts should be torqued after first 50 hours of operation and after each wheel removal. Check torque every 3 months or 150 hours of operation.

7.5 OSCILLATING AXLE LOCKOUT TEST (IF EQUIPPED)

NOTICE

LOCKOUT SYSTEM TEST MUST BE PERFORMED QUARTERLY, ANY TIME A SYSTEM COMPONENT IS REPLACED, OR WHEN IMPROPER SYSTEM OPERATION IS SUSPECTED.

NOTE: *Ensure boom is fully retracted, lowered, and centered between drive wheels prior to beginning lockout cylinder test.*

1. Place a 6 inch (15.2 cm) high block with ascension ramp in front of left front wheel.
2. From platform control station, start engine
3. Place the Drive control lever to the forward position and carefully drive machine up ascension ramp until left front wheel is on top of block.
4. Carefully activate telescope and extend the boom at least 2 ft. (0.6 m).
5. Place Drive control lever to Reverse and drive machine off of block and ramp.
6. Have an assistant check to see that left front wheel remains locked in position off of ground.
7. Carefully activate telescope and return boom to stowed position. The lockout cylinders should release and allow wheel to rest on ground, it may be necessary to activate Drive to release cylinders.
8. Repeat the procedure for the right front wheel.
9. If lockout cylinders do not function properly, have qualified personnel correct the malfunction prior to any further operation.

7.6 PROPANE FUEL SYSTEM PRESSURE RELIEF

⚠ CAUTION

THE PROPANE FUEL SYSTEM OPERATES AT PRESSURES UP TO 312 PSI (21.5 BAR). TO MINIMIZE THE RISK OF FIRE AND PERSONAL INJURY, RELIEVE THE PROPANE FUEL SYSTEM PRESSURE (WHERE APPLICABLE) BEFORE SERVICING THE PROPANE FUEL SYSTEM COMPONENTS.

To relieve propane fuel system pressure:

1. Close the manual shut-off valve on the propane fuel tank.
2. Start and run the vehicle until the engine stalls.
3. Turn the ignition switch OFF.

⚠ CAUTION

RESIDUAL VAPOR PRESSURE WILL BE PRESENT IN THE FUEL SYSTEM. ENSURE THE WORK AREA IS WELL VENTILATED BEFORE DISCONNECTING ANY FUEL LINE.

7.7 SUPPLEMENTAL INFORMATION

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

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

For combustion engine powered machines, guaranteed Sound Power Level (LWA) per European Directive 2000/14/EC (Noise Emission in the Environment by Equipment for Use Outdoors) based on test methods in accordance with Annex III, Part B, Method 1 and 0 of the directive, is 104 dB.

The vibration total value to which the hand-arm system is subjected does not exceed $2,5 \text{ m/s}^2$. The highest root mean square value of weighted acceleration to which the whole body is subjected does not exceed $0,5 \text{ m/s}^2$.

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