Operation and Safety Manual

Keep this manual with the machine at all times.

Models

1930ES/2030ES/2630ES/ 2646ES/3246ES

ANSI

P/N - 3121165
February 16, 2006

FOREWORD

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

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

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

SAFETY ALERT SYMBOLS AND SAFETY SIGNAL WORDS

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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

⚠ 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.

IMPORTANT

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.

IMPORTANT

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

For:

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

Contact:

Product Safety and Reliability Department
JLG Industries, Inc.
1 JLG Drive
McConnellsburg, PA 17233

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

In USA:

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

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E-mail: ProductSafety@JLG.com

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SECTION - 7 - INSPECTION AND REPAIR LOG

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SECTION 1. SAFETY PRECAUTIONS

1.1 GENERAL

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

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

These sections contain the responsibilities of the owner, user, operator, lessor, and lessee concerning safety, training, 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”).

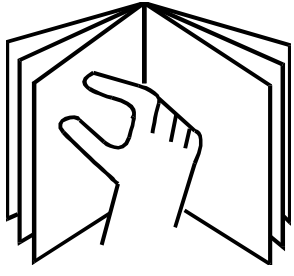
⚠ WARNING

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

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



- An operator must not accept operating responsibilities until adequate training has been given by competent and authorized persons.
- Allow only those authorized and qualified personnel to operate the machine who have demonstrated that they understand the safe and proper operation and maintenance of the unit.
- Read, understand, and obey all DANGERS, WARNINGS, CAUTIONS, and operating instructions on the machine and in this manual.
- Ensure that the machine is to be used in a manner which is within the scope of its intended application as determined by JLG.
- All operating personnel must be familiar with the emergency controls and emergency operation of the machine as specified in this manual.
- Read, understand, and obey all applicable employer, local, and governmental regulations as they pertain to your utilization and application of the machine.

Workplace Inspection

- Precautions to avoid all hazards in the work area must be taken by the user before operation of the machine.
- Do not operate or raise the platform from a position on trucks, trailers, railway cars, floating vessels, scaffolds or other equipment unless the application is approved in writing by JLG.
- Before operation, check work area for overhead hazards such as electric lines, bridge cranes, and other potential overhead obstructions.
- Check floor surfaces for holes, bumps, drop-offs, obstructions, debris, concealed holes, and other potential hazards.
- Check the work area for hazardous locations. Do not operate the machine in hazardous environments unless approved for that purpose by JLG.
- 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 operate the machine when wind conditions exceed 28 mph (12.5 m/s).
- This machine can be operated in nominal ambient temperatures of 0^{o} F to 104^{o} F (-20^{o} C to 40^{o} C). Consult JLG to optimize operation outside of this temperature range.

Machine Inspection

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

⚠ WARNING

MODIFICATION OR ALTERATION OF AN AERIAL WORK PLATFORM 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 deck. Keep mud, oil, grease, and other slippery substances from footwear and platform deck.

1.3 OPERATION

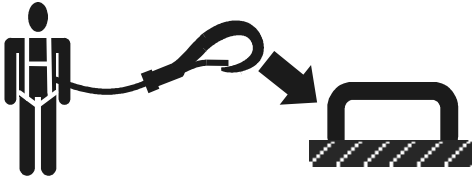
General

- 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.
- Hydraulic cylinders, other than the outrigger cylinders, should never be left at end of travel (fully extended or fully retracted) before shutdown or for long periods of time. Always "bump" control in opposite direction slightly when function reaches end of travel. This applies both to machines in operation or in the stowed position.

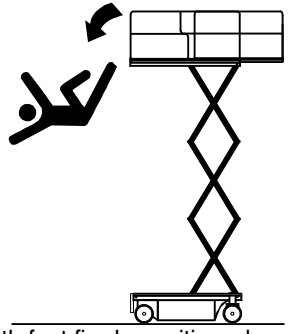
- Do not allow personnel to tamper with or operate the machine from the ground with personnel in the platform, except in an emergency.
- Do not carry materials directly on platform railing unless approved by JLG.
- When two or more persons are in the platform, the operator shall be responsible for all machine operations.
- Always ensure that power tools are properly stowed and never left hanging by their cord from the platform work area.
- Do not assist a stuck or disabled machine by pushing or pulling except by pulling at the chassis tie-down lugs.
- Stow scissor arm assembly and shut off all power before leaving machine.

Trip and Fall Hazards

- JLG Industries, Inc. recommends that all persons in the platform wear a full body harness with a lanyard attached to an authorized lanyard anchorage point while operating this machine. For further information regarding fall protection requirements on JLG products, contact JLG Industries, Inc.



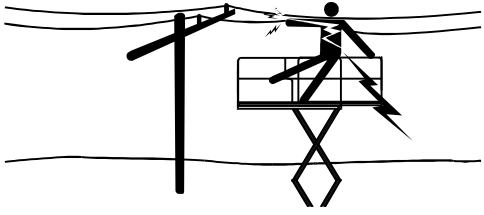
- Prior to operation, ensure all gates and rails are fastened and secured in their proper position. Identify the designated lanyard anchorage point(s) at the platform and securely attach the lanyard. Attach only one (1) lanyard per lanyard anchorage point

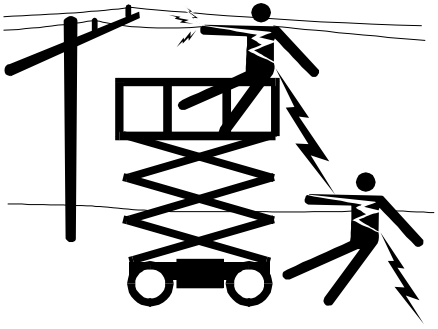


- Keep both feet firmly positioned on the platform floor at all times. Never position ladders, boxes, steps, planks, or similar items on unit to provide additional reach for any purpose.
- Never use the scissor arm assembly to gain access to or leave the platform.
- Use extreme caution when entering or leaving platform. Ensure that the scissor arm assembly is fully lowered. Face the machine when entering or leaving the platform. Always maintain “three point contact” with the machine, using two hands and one foot or two feet and one hand at all times during entry and exit.
- Keep oil, mud, and slippery substances cleaned from footwear and the platform floor.

Electrocution Hazards

- This machine is not insulated and does not provide protection from contact with an electrically charged conductor.





- Maintain safe clearance from electrical lines, apparatus, or any energized (exposed or insulated) parts in accordance with the Minimum Safe Approach Distance (MSAD) as specified in Table 1-1. Allow for machine movement and electrical line swaying.

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

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

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

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

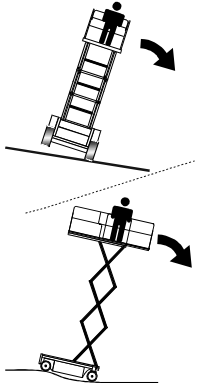
- The minimum safe approach distance may be reduced if insulating barriers are installed to prevent contact, and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the machine. The minimum safe approach distance shall be reduced to a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

⚠ DANGER

DO NOT MANEUVER MACHINE OR PERSONNEL INSIDE PROHIBITED ZONE (MSAD). 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 should be familiar with the driving surface before driving. Do not exceed the allowable sideslope and grade while driving

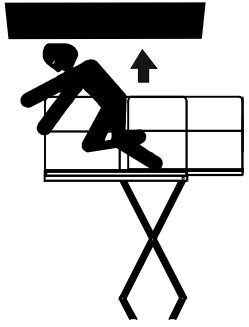


- Do not elevate platform or drive with platform elevated while on or near a sloping, uneven, or soft surface. Ensure machine is positioned on a firm, level and smooth surface before elevating platform or driving with the platform in the elevated position.
- Before driving on floors, bridges, trucks, and other surfaces, check allowable capacity of the surfaces.
- Never exceed the maximum work load as specified on the platform. Keep all loads within the confines of the platform, unless authorized by JLG.

- Keep the chassis of the machine a minimum of 0.6m (2 ft.) from holes, bumps, drop-offs, obstructions, debris, concealed holes, and other potential hazards at the ground level.
- Never attempt to use the machine as a crane. Do not tie-off machine to any adjacent structure. Never attach wire, cable, or any similar items to platform.
- Do not cover the platform sides or carry large surface-area items in the platform when operating outdoors. The addition of such items increases the exposed wind area of the machine.
- Do not increase the platform size with unauthorized deck extensions or attachments.
- If scissor arm assembly or platform is caught so that one or more wheels are off the ground, all persons must be removed before attempting to free the machine. Use cranes, forklift trucks, or other appropriate equipment to stabilize machine and remove personnel.

Crushing and Collision Hazards

- Approved head gear must be worn by all operating and ground personnel.
- Keep hands and limbs out of the scissor arm assembly during operation.
- Watch for obstructions around machine and overhead when driving. Check clearances above, on sides, and bottom of platform when lifting or lowering platform.



- During operation, keep all body parts inside platform railing.
- Always post a lookout when driving in areas where vision is obstructed.
- Keep non-operating personnel at least 1.8m. (6 ft.) away from machine during all driving 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 causing hazards of collision or injury to personnel.

- Be aware of stopping distances in all drive speeds. When driving in high speed, switch to low speed before stopping. Travel grades in low speed only.
- Do not use high speed drive in restricted or close quarters or when driving in reverse.
- Exercise extreme caution at all times to prevent obstacles from striking or interfering with operating controls and persons in the platform.
- Ensure that operators of other overhead and floor level machines are aware of the aerial work platform's presence. Disconnect power to overhead cranes. Barricade floor area if necessary.
- Avoid operating over ground personnel. Warn personnel not to work, stand, or walk under a raised platform. Position barricades on floor as necessary.

1.4 TOWING, LIFTING, AND HAULING

- Never allow personnel in platform while towing, lifting, or hauling.
- This machine should not be towed, except in the event of emergency, malfunction, power failure, or loading/unloading. Refer to emergency towing procedures.
- Ensure platform is fully retracted and completely empty of tools prior to towing, lifting or hauling.
- When lifting machine with a forklift, position forks only at designated areas of the machine. Lift with a forklift of adequate capacity.
- Refer to Section 4 for lifting information.

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SECTION 2. USER RESPONSIBILITIES, MACHINE PREPARATION AND INSPECTION

2.1 PERSONNEL TRAINING

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

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.

Operator Training

Operator training must cover:

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

Training Supervision

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

Operator Responsibility

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

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

2.2 PREPARATION, INSPECTION, AND MAINTENANCE

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

IMPORTANT

JLG INDUSTRIES, IINC. RECOGNIZES A FACTORY-CERTIFIED SERVICE TECHNICIAN AS A PERSON WHO HAS SUCCESSFULLY COMPLETED THE JLG SERVICE TRAINING SCHOOL FORT HE SPECIFIC JLG PRODUCT MODEL.

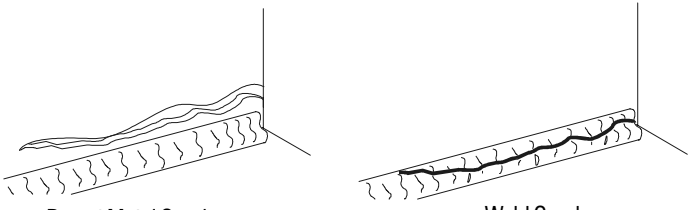
Table 2-1.Inspection and Maintenance Table

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	Operator and Safety Manual
Pre-Delivery Inspection (See Note)	Before each sale, lease, or rental delivery.	Owner, Dealer, or User	Qualified JLG Mechanic	Service and Maintenance Manual and applicable JLG inspection form
Frequent Inspection	In service for 3 months or 150 hours, whichever comes first; or Out of service for a period of more than 3 months; or Purchased used.	Owner, Dealer, or User	Qualified JLG Mechanic	Service and Maintenance Manual and applicable JLG inspection form
Annual Machine Inspection	Annually, no later than 13 months from the date of prior inspection.	Owner, Dealer, or User	Factory Certified 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.*				

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 Operator and Safety Manual, AEM Safety Manual (ANSI markets only), and ANSI Manual of Responsibilities (ANSI markets only) is enclosed in the weather resistant storage container.
5. **"Walk-Around" Inspection** – Refer to Figure 2-1
6. **Battery –** Charge as required.
7. **Fuel** (Combustion Engine Powered Machines) – Add the proper fuel as necessary.
8. **Engine Oil Supply** (If equipped) - Ensure the engine oil level is at the Full mark on the dipstick and the filler cap is secure.
9. **Fluid Levels** – Check the hydraulic oil level. Ensure hydraulic oil is added as required.
10. **Accessories/Attachments** - Reference the Operator and Safety Manual of each attachment or accessory installed upon the machine for specific inspection, operation, and maintenance instructions.
11. **Function Check** – Once the "Walk-Around" Inspection is complete, perform a functional check of all systems in an area free of overhead and ground level obstructions. Refer to Section 4 for more specific operating instructions.

Function Check

Perform the Function Check as follows:

1. From the ground control console with no load in the platform:
   - **a.** Check that all guards protecting the function control switches and controllers are in place;
   - **b.** Operate all functions and check all limiting and cut-out switches.
   - **c.** Check manual descent
   - **d.** Ensure that all machine functions are disabled when the Emergency Stop Button is depressed.
2. From the platform control console:
   - **a.** Ensure that the control console is firmly secured in the proper location.
   - **b.** Check that all guards protecting the function control switches and controllers are in place;
   - **c.** Operate all functions and check all limiting and cut-out switches.
   - **d.** Ensure that all machine functions are disabled when the Emergency Stop Button is depressed.

3. With the platform in the transport (stowed) position:
   a. Drive the machine on a grade, not to exceed the rated gradeability, and stop to ensure the brakes hold.
   b. Check the tilt indicator light to ensure proper operation. The light should be illuminated when tilted.

Table 2-2. Maximum High Drive Cutout Height

Model	High Drive Cutout	
1930ES	56 in	1.4 m
2030ES	70 in	1.8 m
2630ES	76 in	1.9 m
2646ES	76 in	1.9 m
3246ES	76 in	1.9 m

Table 2-3. Tilt vs. Height

Model	Tilt Setting (front to back)	Tilt Setting (side to side)	Maximum Deck Elevation	
	Degrees		Feet	Meters
1930ES	3	1.5 2 2.5 3	18.75 (Full) 14 11 9	5.7 4.3 3.4 2.7
2030ES	3	1.5 2 2.5 3	20 (Full) 15 12 10	6 4.5 3.7 3
2630ES	3	1.5 2 2.5 3	25.4 (Full) 20 16 13	7.7 6 4.9 4
2646ES	3	2 2.5 3	26 (Full) 22 20	7.9 6.7 6
3246ES	3	2 2.5 3	31.75 (Full) 22 20	9.7 6.7 6

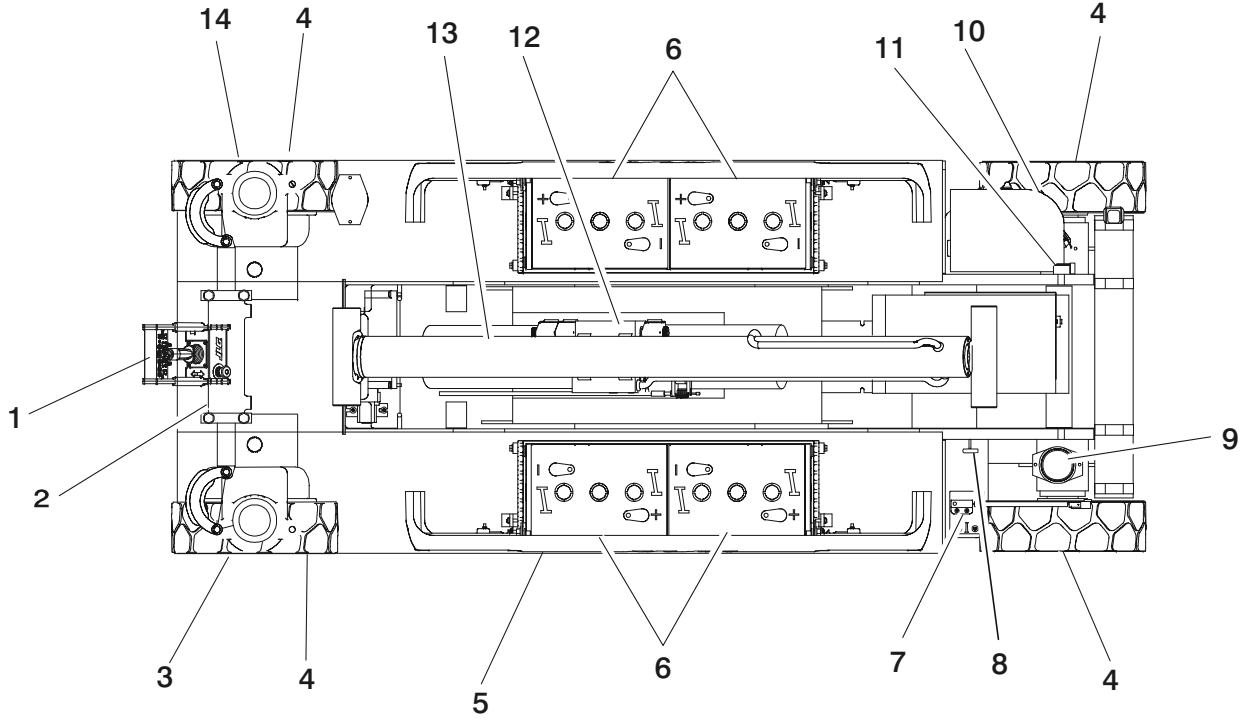


Figure 2-1. Daily Walk-Around Inspection - Sheet 1 of 3

General

Begin the “Walk-Around Inspection” at Item 1, as noted on the diagram. Continue Left (counterclockwise viewed from top) checking each item in sequence for the conditions listed in the following checklist.

⚠ WARNING

TO AVOID POSSIBLE INJURY, BE SURE MACHINE POWER IS “OFF” DURING “WALK-AROUND INSPECTION”.

IMPORTANT

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

NOTE: *On each item, make sure there are no loose or missing parts, that they are securely fastened, and that no visible damage exists in addition to any other criteria mentioned.*

1. Platform Control Console - Placard secure and legible, control lever and switches return to neutral, control lever lock and emergency stop switch function properly, manual in storage box.
2. Steer Cylinder - See Note
3. Spindle, Tie Rod, Drive Motor and Steer Linkage (left front) - See Note
4. Wheels and Tires - Properly secured, no missing lug nuts. Refer to Section 6, Tires and Wheels. Inspect wheels for damage and corrosion
5. Pothole Protection System - See Note
6. Battery Compartment - Proper electrolyte level.
7. Proximity Switch - See Note
8. Manual Descent - See Note
9. Beacon - See Note
10. Ground Controls - Placard secure and legible, control switches return to neutral position, emergency stop switch functions properly. Control markings legible.

Figure 2-2. Daily Walk-Around Inspection - Sheet 2 of 3

11. Rotary Switch - See Note

12. Hydraulic Pump/Motor, Control Valve Installation - No unsupported wires or hoses; no damaged or broken wires - See Note

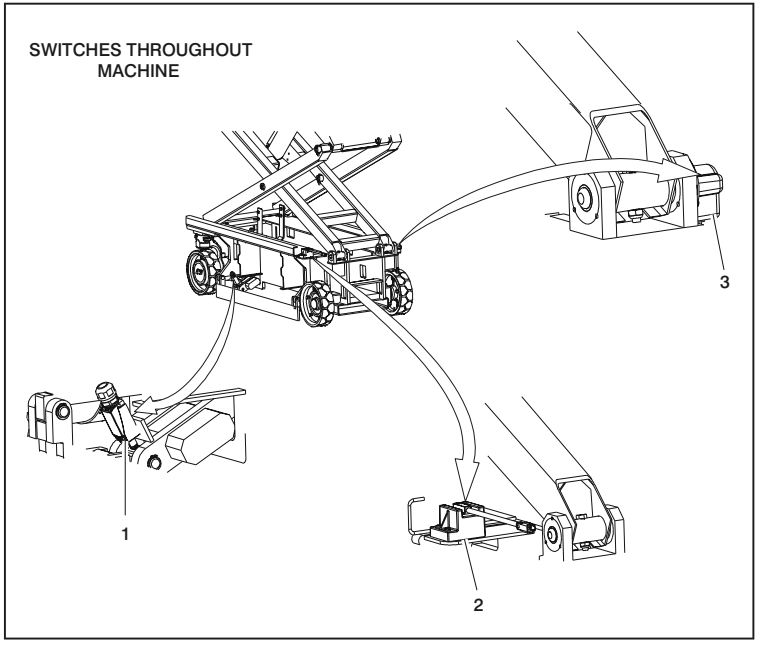
13. Lift Cylinder - See Note

14. Spindle, Tie Rod, Drive Motor and Steer Linkage (left front) - See Note

15. Sizzor Arms, Pivot Pins and Sliding Wear Pads (Not Shown) - See Note

16. Platform/Handrail Installation (Not Shown) - See Note

Figure 2-3. Daily Walk-Around Inspection - Sheet 3 of 3



1. Pothole Switch (Typical on opposite side of machine)
2. Proximity Switch
3. Rotary Switch

Figure 2-4. Switch Location

SECTION 3. USER RESPONSIBILITIES AND MACHINE CONTROL

3.1 GENERAL

IMPORTANT

SINCE THE MANUFACTURER HAS NO DIRECT CONTROL OVER MACHINE APPLICATION AND OPERATION, CONFORMANCE WITH GOOD SAFETY PRACTICES IN THESE AREAS IS THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL.

This section provides the necessary information needed to understand control functions. Included in this section are the operating characteristics and limitations, and functions and purposes of controls and indicators. It is important that the user read and understand the proper procedures before operating the machine. These procedures will aid in obtaining optimum service life and safe operation.

3.2 PERSONNEL TRAINING

The scissor lift is a personnel handling device; therefore, it is essential that it be operated and maintained only by authorized personnel who have demonstrated that they understand the proper use and maintenance of the machine. It is important that all personnel who are assigned to and responsible for the operation and maintenance of the machine undergo a thorough training program and check out period in order to become familiar with the characteristics prior to operating the machine.

Persons under the influence of drugs or alcohol or who are subject to seizures, dizziness or loss of physical control must not be permitted to operate the machine.

Operator Training

Operator training must include instruction in the following:

1. Use and limitations of the platform controls, ground controls, emergency controls and safety systems.
2. Knowledge and understanding of this manual and of the control markings, instructions and warnings on the machine itself.
3. Knowledge and understanding of all safety work rules of the employer and of Federal, State and Local Statutes, including training in the recognition and avoidance of potential hazards in the work place; with particular attention to the work to be performed.
4. Proper use of all required personnel safety equipment.
5. Sufficient knowledge of the mechanical operation of the machine to recognize a malfunction or potential malfunction.

6. The safest means to operate near overhead obstructions, other moving equipment, obstacles, depressions, holes, drop-offs, etc. on the supporting surface.
7. Means to avoid the hazards of unprotected electrical conductors.
8. Any other requirements of a specific job or machine application.

Training Supervision

Training must be done under the supervision of a qualified operator or supervisor in an open area free of obstructions until the trainee has developed the ability to safely control a scissor lift in congested work locations.

Operator Responsibility

The operator must be instructed that he has the responsibility and authority to shut down the machine in case of a malfunction or other unsafe condition of either the machine or the job site and to request further information from his supervisor or JLG Distributor before proceeding.

NOTE: *Manufacturer or Dealer will provide qualified persons for training assistance with first unit(s) delivered and thereafter as requested by user or his personnel.*

3.3 OPERATING CHARACTERISTICS AND LIMITATIONS

General

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

Placards

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

Capacities

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

1. Machine is positioned on a smooth, firm and level surface.
2. Load is within manufacturer's rated capacity.

3. All machine systems are functioning properly.

Stability

This machine, as originally manufactured by JLG and operated within its rated capacity on a smooth, firm and level supporting surface, provides a stable aerial platform for all platform positions.

3.4 CONTROLS AND INDICATORS

Ground Control Station

⚠ WARNING

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

PERFORM AS MANY PRE-OPERATIONAL CHECKS AND INSPECTIONS FROM THE GROUND CONTROL STATION AS POSSIBLE.

NOTE: *When the machine is shut down for overnight parking or battery charging, the emergency stop and power select switches must be positioned to off to prevent draining the batteries.*

1. Platform/Ground Control Switch
   A three position, key-operated power select switch supplies operating power to the platform or ground controls, as selected. When positioned to platform, the switch provides power to the emergency stop switch at the platform controls. When positioned to ground, the switch provides power to the ground control. The ground control emergency stop switch provides power to the key switch. With the power select switch in the center off position, power is shut off to both platform and ground controls.
2. Platform Lift/Lower Switch - A three position, momentary contact Lift control switch provides raising and lowering of the platform when positioned to up or down
3. Emergency Stop Switch - A two-position, red, mushroom-shaped emergency stop switch, when positioned to ON with the power selector switch positioned to ground, furnishes operating power to the ground control station. In addition, the switch can be used to turn off power to the function controls in the event of an emergency. Power is turned on by pulling the switch out (on), and is turned off by depressing switch.

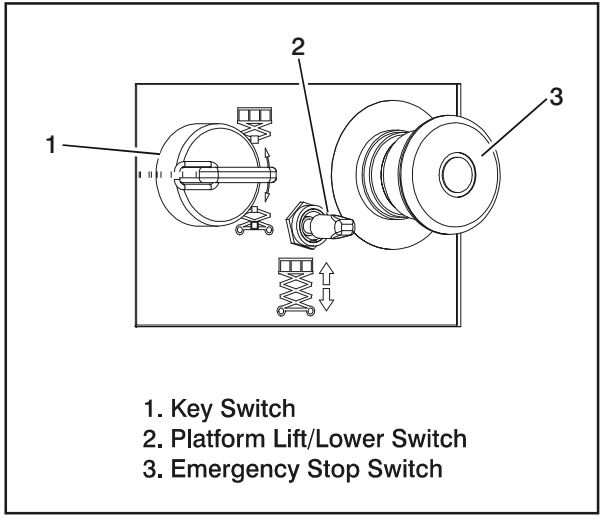


Figure 3-1. Ground Control Station

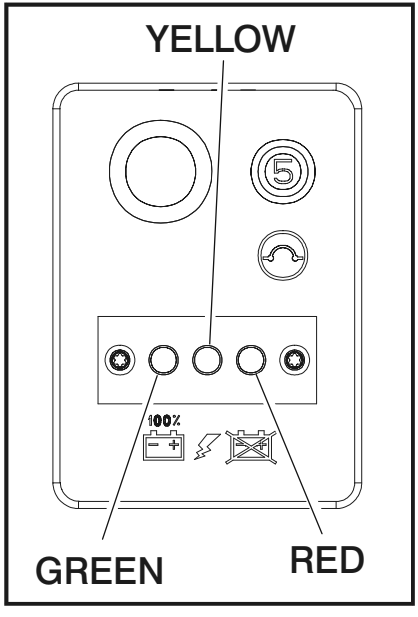
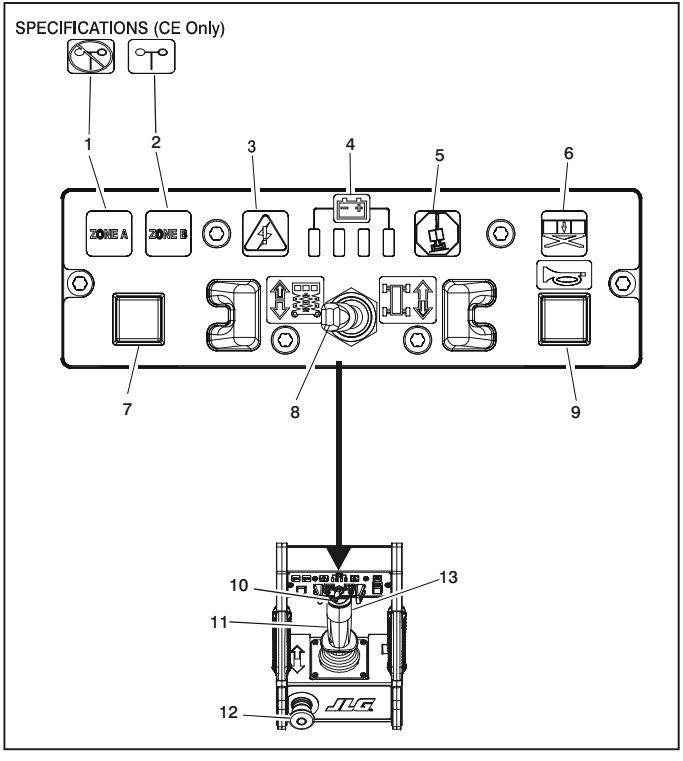


Figure 3-2. Battery Charger Status

4. Battery Charger Status - This panel, located to the right of the ground control box, is designed to give the operator an accurate read on the status of the battery charger.
   - **a.** Green = Charge complete
   - **b.** Yellow = Charging in process
   - **c.** Red = Charging abnormal



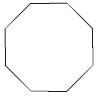
1. Indoor (CE) / Zone A Capacity (ANSI)*
2. Outdoor (CE) / Zone B Capacity (ANSI)
3. System Distress
4. Battery Discharge Indicator
5. Tilt Indicator
6. Overload Indicator
7. Capacity Select Switch
8. Lift/Drive Select Switch
9. Horn
10. Steer Switch
11. Controller
12. Emergency Stop Switch
13. Trigger Switch

NOTE: **There is no light equipped on a single capacity ANSI machine.*

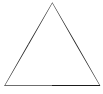
Figure 3-3. Platform Control Station

3.5 PLATFORM CONTROL STATION

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



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



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

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

1. Indoor (CE) / Zone A Capacity (ANSI/AUS) - This indicator light will be illuminated when the Indoor (CE) or Zone A (ANSI/AUS) capacity is selected.
2. Outdoor (CE) / Zone B Capacity (ANSI/AUS) - This indicator light will be illuminated when the Outdoor (CE) or Zone B (ANSI/AUS) capacity is selected.
3. System Distress Indicator - This indicator will light up with a fault flash code that will determine where a problem, within the system, exists.
4. Battery Discharge Indicator (BDI) - This set of lights is designed to let the operator know the condition of the batteries.
5. Tilt Indicator Warning Light - A red warning light on the control panel that illuminates when the chassis is on a slope greater than what the machine is programmed for.
6. Overload Indicator (If Equipped) - Indicates the platform has been overloaded.

NOTE: *If the Overload Indicator is illuminated, fully lower the machine and reduce the weight in the platform so as to not exceed the rated workload indicated on the capacity decal.*

7. Capacity Select Switch - On model 2630ES/3246ES machines this switch is used to choose allowable capacity zone. On all CE machines, except the 2630ES, this switch is used to select either indoor or outdoor capacity zone.

8. Lift/Drive Select - This toggle switch is used to select either drive or lift. After selecting a function, the controller must be moved in the proper direction in order to activate that function. The function must be selected with the joystick in the neutral position. Otherwise, the function select will not occur.

9. Horn - This push-button switch, when activated, permits the operator to warn jobsite personnel when the machine is operating in the area.

10. Steer Switch - The steer switch is a thumb operated switch located at the top of the control handle. Depressing the switch to the right will steer the wheels to the right. Depressing the switch to the left will steer the wheels to the left.

11. Controller - The control handle controls three functions: drive, lift, and steer. The drive and lift switch must be selected prior to moving the control handle. After selecting the drive function, moving the control handle forward will drive the machine forward and moving the control handle backwards will drive the machine backward. After selecting the lift function, moving the control handle backward will raise the platform and moving the control handle forward will lower the platform. The speed on all selected functions is proportionally controlled by the distance of travel of the hand controller. The thumb-operated steer switch on top of the hand controller activates the steer wheels in the direction activated (right or left).

12. Emergency Stop Switch - A two-position, red, mushroom-shaped emergency stop switch functions to provide power to the platform control station and also to turn off power to the platform function controls in the event of an emergency. With the Power selector switch positioned to platform, power is turned on by pulling the switch out (on), and is turned off by pushing the switch in (off).

13. Trigger Switch - This switch is located on the front of the controller. The trigger switch acts as an enable and must be depressed when operating the drive, steer and lift functions. When released, the function being operated will stop.

⚠ CAUTION

IF THE TILT INDICATOR WARNING LIGHT OR HORN IS ON WHEN PLATFORM IS RAISED, LOWER PLATFORM COMPLETELY, THEN REPOSITION MACHINE SO THAT IT IS LEVEL BEFORE RAISING PLATFORM.

14. Tilt Alarm Warning Horn - The Tilt Alarm Warning Horn is activated when the chassis is on a slope greater than what the machine is programmed for and the platform is elevated.

NOTE: *ANSI/CSA/AUS machines are equipped with a tilt interlock which cuts out drive and lift up functions when chassis is on a slope greater than what is allowable for the machine and the platform is elevated.*

⚠ CAUTION

DO NOT "LOWER" WITHOUT COMPLETELY RETRACTING THE PLATFORM EXTENSION.

⚠ CAUTION

DO NOT OPERATE MACHINE IF HIGH DRIVE SPEED OPERATES WHEN PLATFORM IS RAISED ABOVE THE STOWED POSITION.

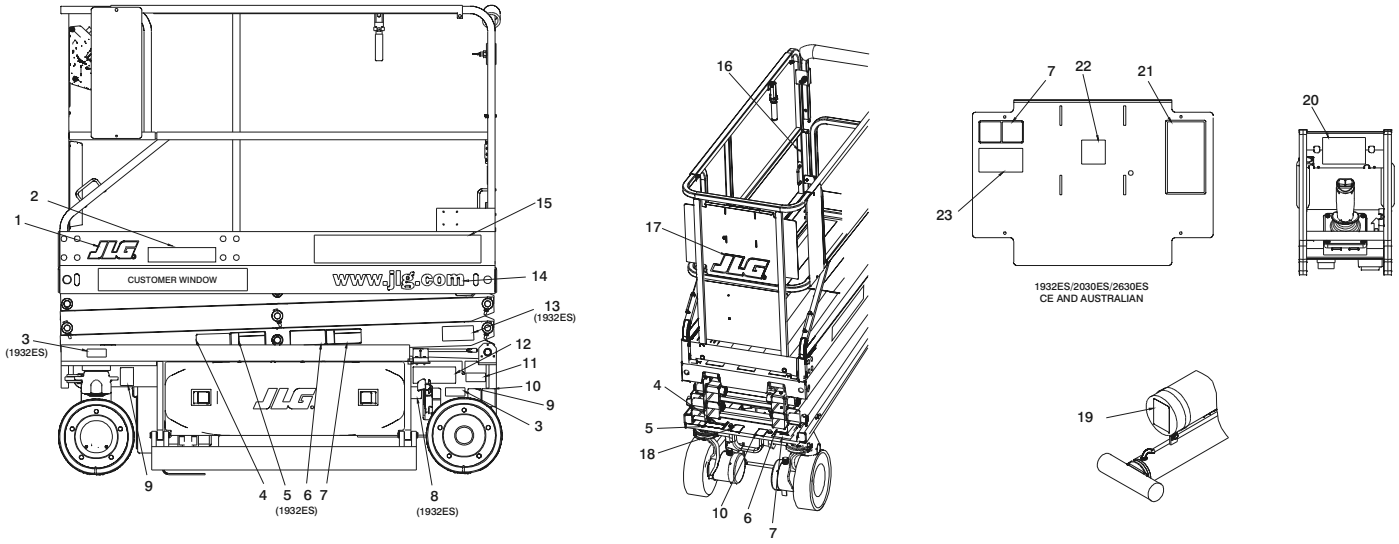


Figure 3-4. Decal Location - Sheet 1 of 4

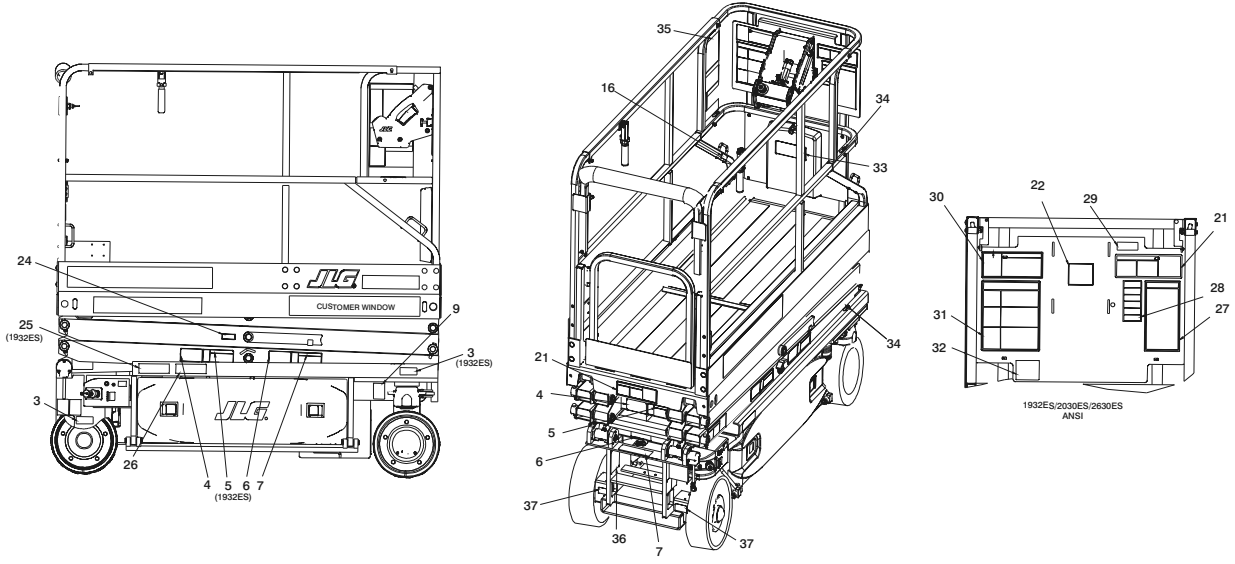


Figure 3-5. Decal Location - Sheet 2 of 4

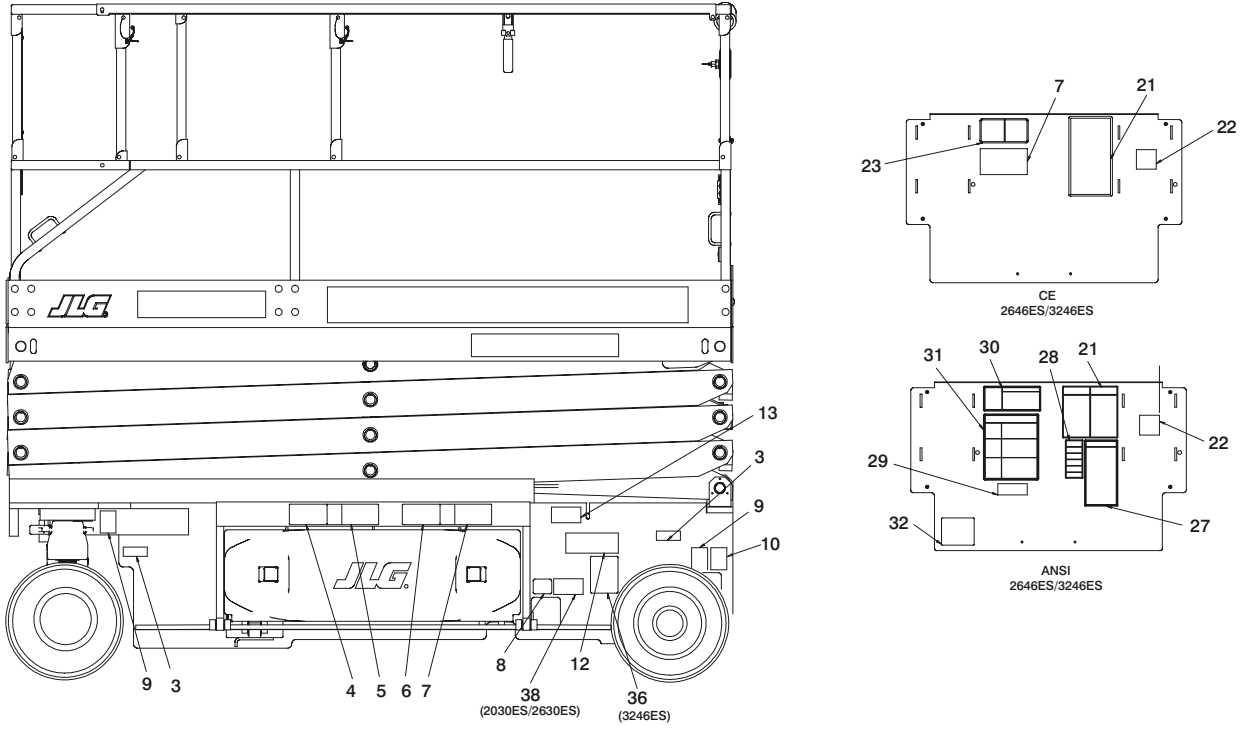


Figure 3-6. Decal Location - Sheet 3 of 4

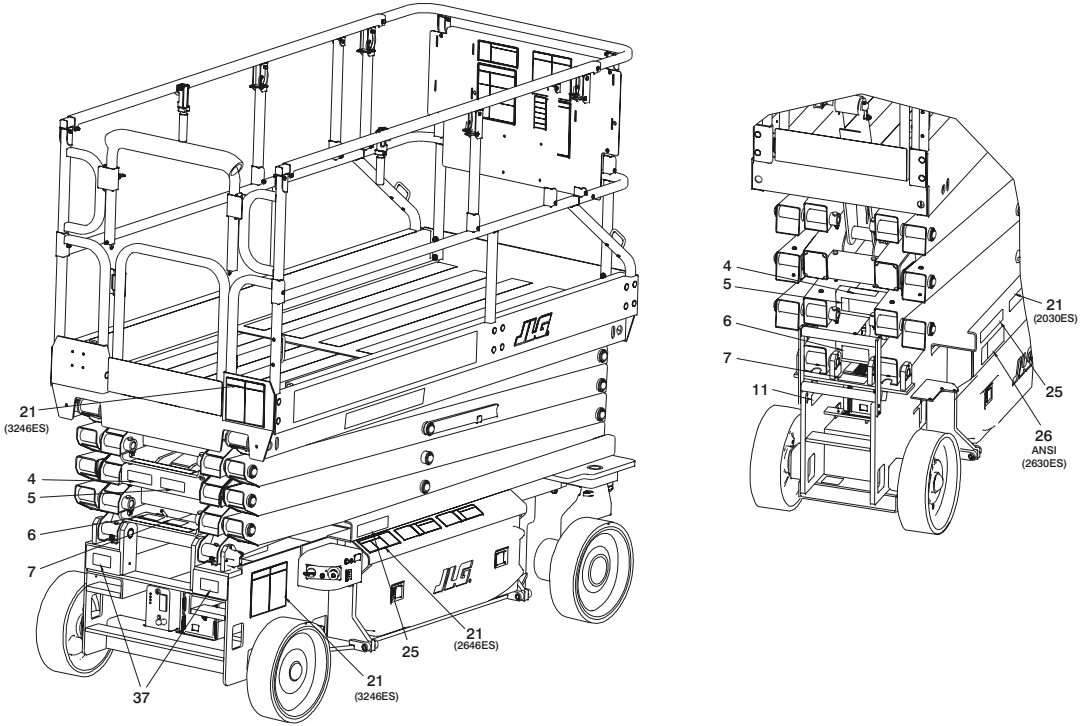


Figure 3-7. Decal Location - Sheet 4 of 4

Table 3-1. Decal Location Legend (1930ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	1705642	1705642	1705642	1705642	1705642	1705642	1705642	1705642
3	1705647	1705648	1705648	1705648	1705648	1705648	1705647	1705647
4	N/A	N/A	N/A	1705725	1705717	1705725	1705943	1706052
5	1705694	1705673	1705673	1705694	1705694	1705722	1705694	1705694
6	N/A	N/A	N/A	1705724	1705718	1705724	1705944	1706056
7	1705695	1705671	1705671	1705695	1705695	1703834	1705695	1705695
8	1702155	1702155	1702155	1702155	1702155	1702155	1702155	1702155
9	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811
10	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814
11	N/A	N/A	N/A	1703464	1703464	1703464	N/A	1703822
12	3252645	3252799	3252811	3252645	3252645	3252799	3252645	3252799
13	1703822	1703822	1703822	1703822	1703822	1703822	1703822	1703822
14	1705687	1705687	1705687	1705687	1705687	1705687	1705687	1705687
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277

Table 3-1. Decal Location Legend (1930ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499
19	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412
20	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631
21	1705638	1705666	1705666	1705666	1705666	1705666	1705638	1705638
22	1705692	1705692	1705692	1705692	1705692	1705692	1705692	1705692
23	N/A	N/A	1703877	N/A	N/A	N/A	N/A	N/A
24	1705693	1705693	1705693	1705693	1705693	1705693	1705693	1705693
25	1703813	1705670	1705670	1704339	1704339	1704341	1704344	1703856
26	1705699	N/A	N/A	N/A	N/A	N/A	1705699	N/A
27	1705679	N/A	N/A	1705679	1705679	1705727	1705679	1705679
28	1705686	N/A	N/A	1705720	1705723	1705726	1705946	1706057
29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	1705681	N/A	N/A	1705681	1705681	1705721	1705681	1705681
31	1705680	N/A	N/A	1705680	1705680	1705894	1705680	1705680
32	3251813	N/A	N/A	N/A	N/A	N/A	3251813	N/A
33	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509
34	1703819	1703819	1703819	1703819	1703819	1703819	1703819	1703819

Table 3-1. Decal Location Legend (1930ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
35	N/A	N/A	N/A	1705719	3252098	1705719	N/A	N/A
36	1700584	1700584	1700584	1700584	1703464	1700584	3252507	1700584
37	1704016	1704016	1704016	1703817	1704016	1703817	1704016	1704016

Table 3-2. Decal Location Legend (2030ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	1705643	1705643	1705643	1705643	1705643	1705643	1705643	1705642
3	1706310	1706310	1706310	1706310	1706310	1706310	1706310	1706310
4	N/A	N/A	N/A	1705725	1705717	1705725	1705943	1706052
5	1705694	1705673	1705673	1705694	1705694	1705722	1705694	1705694
6	N/A	N/A	N/A	1705724	1705718	1705724	1705944	1706056
7	1705695	1705671	1705671	1705695	1705695	1703834	1705695	1705695
8	1702155	1702155	1702155	1702155	1702155	1702155	1702155	1702155
9	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811
10	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814
11	N/A	N/A	N/A	1703464	1703464	1703464	N/A	1703822
12	3252645	3252799	3252811	3252645	3252645	3252799	3252645	3252799
13	1703822	1703822	1703822	1703822	1703822	1703822	1703822	1703822
14	1705687	1705687	1705687	1705687	1705687	1705687	1705687	1705687
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-2. Decal Location Legend (2030ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
18	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499
19	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412
20	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631
21	1705639	1705667	1705667	1705639	1705639	1705667	1705639	1705638
22	1705692	1705692	1705692	1705692	1705692	1705692	1705692	1705692
23	N/A	N/A	1703877	N/A	N/A	N/A	N/A	N/A
24	1705693	1705693	1705693	1705693	1705693	1705693	1705693	1705693
25	1703813	1705670	1705670	1704339	1704339	1704341	1704344	1703856
26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
27	1705679	N/A	N/A	1705679	1705679	1705727	1705679	1705679
28	1705686	N/A	N/A	1705720	1705723	1705726	1705946	1706057
29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	1705681	N/A	N/A	1705681	1705681	1705721	1705681	1705681
31	1705680	N/A	N/A	1705680	1705680	1705894	1705680	1705680
32	3251813	N/A	N/A	N/A	N/A	N/A	3251813	N/A
33	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509
34	1703819	1703819	1703819	1703819	1703819	1703819	1703819	1703819
35	N/A	N/A	N/A	1705719	3252098	1705719	N/A	N/A

Table 3-2. Decal Location Legend (2030ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
36	1700584	1700584	1700584	1703464	1703464	1700584	3252507	1700584
37	1704016	1704016	1704016	1703817	1704016	1703817	1704016	1704016

Table 3-3. Decal Location Legend (2630ES)

Item	ANSI 0272854-5	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	1705644	1705644	1705644	1705644	1705644	1705644	1705644	1705644
3	1706310	1706310	1706310	1706310	1706310	1706310	1706310	1706310
4	N/A	N/A	N/A	1705725	1705717	1705725	1705943	1706052
5	1705694	1705673	1705673	1705694	1705694	1705722	1705694	1705694
6	N/A	N/A	N/A	1705724	1705718	1705724	1705944	1706056
7	1705695	1705671	1705671	1705695	1705695	1703834	1705695	1705695
8	1702155	1702155	1702155	1702155	1702155	1702155	1702155	1702155
9	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811
10	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814
11	1703464	3252507	3252507	1703464	1703464	1703464	1703464	1703822
12	3252645	3252799	3252811	3252645	3252645	3252799	3252645	3252799
13	1703822	1703822	1703822	1703822	1703822	1703822	1703822	1703822
14	1705687	1705687	1705687	1705687	1705687	1705687	1705687	1705687
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-3. Decal Location Legend (2630ES)

Item	ANSI 0272854-5	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
18	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499
19	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412
20	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631
21 dual capacity	1705941	1705942	1705887	1705638	1705638	1705665	1705941	1705942
21 single capacity	1705638	1705665	1705665	N/A	N/A	N/A	1705638	N/A
22	1705692	1705692	1705692	1705692	1705692	1705692	1705692	1705692
23	N/A	N/A	1703877	N/A	N/A	N/A	N/A	N/A
24	1705693	1705693	1705693	1705693	1705693	1705693	1705693	1705693
25	1703813	1705670	1705670	1704339	1704339	1704341	1704344	1703856
26	1705699	N/A	N/A	N/A	N/A	N/A	1705699	N/A
27	1705679	N/A	N/A	1705679	1705679	1705727	1705679	1705679
28	1705686	N/A	N/A	1705720	1705723	1705726	1705946	1706057
29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	1705681	N/A	N/A	1705681	1705681	1705721	1705681	1705681
31	1705680	N/A	N/A	1705680	1705680	1705894	1705680	1705680
32	3251813	N/A	N/A	3251813	3251813	N/A	3251813	N/A

Table 3-3. Decal Location Legend (2630ES)

Item	ANSI 0272854-5	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
33	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509
34	1703819	1703819	1703819	1703819	1703819	1703819	1703819	1703819
35	N/A	N/A	N/A	1705719	3252098	1705719	N/A	N/A
36	1700584	1700584	1700584	1703464	1703464	1700584	3252507	1700584
37	1704016	1704016	1704016	1703817	1704016	1703817	1704016	1704016

Table 3-4. Decal Location Legend (2646ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	1705645	1705645	1705645	1705645	1705645	1705645	1705645	1705645
3	1706311	1706311	1706311	1706311	1706311	1706311	1706311	1706311
4	N/A	N/A	N/A	1705725	1705717	1705725	1705943	1706052
5	1705694	1705673	1705673	1705694	1705694	1705722	1705694	1705694
6	N/A	N/A	N/A	1705724	1705718	1705724	1705944	1706056
7	1705695	1705671	1705671	1705695	1705695	1703834	1705695	1705695
8	1702155	1702155	1702155	1702155	1702155	1702155	1702155	1702155
9	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811
10	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814
11	N/A	N/A	N/A	N/A	N/A	1703464	N/A	1703822
12	3252645	3252799	3252811	3252645	3252645	3252799	3252645	3252799
13	1703822	1703822	1703822	1703822	1703822	1703822	1703822	1703822
14	1705687	1705687	1705687	1705687	1705687	1705687	1705687	1705687
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-4. Decal Location Legend (2646ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
18	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499
19	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412
20	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631
21	1705640	1705668	1705668	1705640	1705640	1705668	1705640	1705638
22	1705692	1705692	1705692	1705692	1705692	1705692	1705692	1705692
23	N/A	N/A	1703877	N/A	N/A	N/A	N/A	N/A
24	1705693	1705693	1705693	1705693	1705693	1705693	1705693	1705693
25	1703813	1705670	1705670	1704339	1704339	1704341	1704344	1703856
26	1705699	N/A	N/A	N/A	N/A	N/A	1705699	N/A
27	1705679	N/A	N/A	1705679	1705679	1705727	1705679	1705679
28	1705686	N/A	N/A	1705720	1705723	1705726	1705946	1706057
29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	1705681	N/A	N/A	1705681	1705681	1705721	1705681	1705681
31	1705680	N/A	N/A	1705680	1705680	1705894	1705680	1705680
32	3251813	N/A	N/A	3251813	3251813	N/A	3251813	N/A
33	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509
34	1703819	1703819	1703819	1703819	1703819	1703819	1703819	1703819
35	N/A	N/A	N/A	1705719	3252098	1705719	N/A	N/A

Table 3-4. Decal Location Legend (2646ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
36	1700584	1700584	1700584	1703464	1703464	1700584	3252507	1700584
37	1704016	1704016	1704016	1703817	1704016	1703817	1704016	1704016

Table 3-5. Decal Location Legend (3246ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	1705646	1705646	1705646	1705646	1705646	1705646	1705646	1705646
3	1706312	1706312	1706312	1706312	1706312	1706312	1706312	1706312
4	N/A	N/A	N/A	1705725	1705717	1705725	1705943	1706052
5	1705694	1705673	1705673	1705694	1705694	1705722	1705694	1705694
6	N/A	N/A	N/A	1705724	1705718	1705724	1705944	1706056
7	1705695	1705671	1705671	1705695	1705695	1703834	1705695	1705695
8	1702155	1702155	1702155	1702155	1702155	1702155	1702155	1702155
9	1703811	1703811	1703811	1703811	1703811	1703811	1703811	1703811
10	1703814	1703814	1703814	1703814	1703814	1703814	1703814	1703814
11	N/A	N/A	N/A	N/A	N/A	1703464	N/A	1703822
12	3252645	3252799	3252811	3252645	3252645	3252799	3252645	3252799
13	1703822	1703822	1703822	1703822	1703822	1703822	1703822	1703822
14	1705687	1705687	1705687	1705687	1705687	1705687	1705687	1705687
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	1704277	1704277	1704277	1704277	1704277	1704277	1704277	1704277
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3-5. Decal Location Legend (3246ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
18	1701499	1701499	1701499	1701499	1701499	1701499	1701499	1701499
19	1704412	1704412	1704412	1704412	1704412	1704412	1704412	1704412
20	1702631	1702631	1702631	1702631	1702631	1702631	1702631	1702631
21	1705641	1705704 1705666 (Outdoor)	1705819 1705666 (Outdoor)	1705641	1705641	1705704	1705641	1705638
22	1705692	1705692	1705692	1705692	1705692	1705692	1705692	1705692
23	N/A	N/A	1703877	N/A	N/A	N/A	N/A	N/A
24	1705693	1705693	1705693	1705693	1705693	1705693	1705693	1705693
25	1703813	1705670	1705670	1704339	1704340	1704341	1704344	1703856
26	1705699	N/A	N/A	N/A	N/A	N/A	1705699	N/A
27	1705679	N/A	N/A	1705679	1705679	1705727	1705679	1705679
28	1705686	N/A	N/A	1705720	1705723	1705726	1705946	1706057
29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	1705681	N/A	N/A	1705681	1705681	1705721	1705681	1705681
31	1705680	N/A	N/A	1705680	1705680	1705894	1705680	1705680
32	3251813	N/A	N/A	3251813	3251813	N/A	3251813	N/A
33	1701509	1701509	1701509	1701509	1701509	1701509	1701509	1701509
34	1703819	1703819	1703819	1703819	1703819	1703819	1703819	1703819

Table 3-5. Decal Location Legend (3246ES)

Item	ANSI 0272854-4	CE 0272855-4	Australian 0272856-2	English/ Spanish 0272863-1	English/ French 0272857-1	Portuguese/ Spanish 0272864-1	English/ Chinese 0273795-1	Korean 0274120-1
35	N/A	N/A	N/A	1705719	3252098	1705719	N/A	N/A
36	1700584	1700584	1700584	1703464	1703464	1700584	3252507	1700584
37	1704016	1704016	1704016	1703817	1704016	1703817	1704016	1704016

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SECTION 4. MACHINE OPERATION

4.1 DESCRIPTION

This machine is a self-propelled aerial work platform on top of an elevating 'scissor' mechanism. The Scissor Lift's intended purpose is to position personnel with their tools and supplies at positions above ground level. The machine can be used to reach work areas located above machinery or equipment positioned at ground level.

The JLG Scissor Lift has a primary operator Control Station in the platform. From this Control Station, the operator can drive and steer the machine in both forward and reverse directions, raise and lower the platform and, if equipped, operate the powered deck extension. The machine has a Ground Control Station which will override the Platform Control Station. Ground Controls operate lift up and down. Ground Controls are to be used only in an emergency to lower the platform to the ground should the operator in the platform be unable to do so.

NOTE: *All platform extension capacities are 250 lb (120 kg)*

4.2 OPERATION

Platform/Ground Select Switch

The power selector switch functions to direct electrical power to the desired control station. With the switch in the ground position, power is supplied to the emergency stop switch at the ground control station. When the switch is in the platform position, power is supplied to the emergency stop switch at the platform control station. The switch should be in the off position when parking the machine overnight.

Emergency Stop Switch

This switch, when in the on (out) position, provides electrical power to the ground controls or platform controls, as applicable. In addition, the switch can be used to turn off power (push the switch IN) to the function controls in the event of an emergency.

4.3 RAISING AND LOWERING

⚠ WARNING

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

NOTE: *When selecting between the Lift/Drive functions the controller must be in the neutral position for 3 seconds before the function change is effective. The machine is inoperable at this point.*

Raising

1. If the machine is shut down, place the power selector switch to the desired position (platform or ground).
2. Position the applicable emergency stop switch to the on position.

NOTE: *If the machine is equipped with a footswitch (Japanese Specification Only), the footswitch must be depressed in conjunction with the red trigger switch, located on the controller. Power is removed from the platform controls when the footswitch is released.*

3. If operating from the ground controls, position the lift switch to up and hold until desired elevation is achieved. If operating from the platform controls, select lift function, squeeze and hold the red trigger switch, move the controller backward (up) and hold until desired elevation is reached. The lift switch works in conjunction with the enable switch. Releasing the trigger switch will stop the function being operated.

Lowering

⚠ WARNING

ENSURE SCISSOR ARM AREA IS FREE OF PERSONNEL PRIOR TO LOWERING PLATFORM.

NOTE: *The machine is equipped with a descent alarm which will sound as the platform is being lowered (CE Optional).*

If operating from the ground controls, position the lift switch to down and hold until desired elevation is achieved or until platform is fully lowered. If operating from the platform controls, select lift function squeeze the red trigger switch and push the controller forward (down) and hold until desired elevation is reached or until platform is fully lowered. The lift switch works in conjunction with the enable switch. Releasing the trigger switch will stop the function being operated.

Arm Guards (If equipped)

If the machine is equipped with arm guards, the platform will stop lowering and an alarm will sound once it has reached a preset height. At this point, the trigger switch and controller must be released before lowering function can begin again.

⚠ WARNING

DO NOT 'LOWER' WITHOUT COMPLETELY RETRACTING THE PLATFORM EXTENSION.

Platform Extension

The machine is equipped with a mechanically extendable deck, giving the operator better access to worksites. On the 1930ES/2030ES/2630ES this extension adds 3 ft (0.9m) and on the 2646ES and 3246ES the extension adds 4 ft (1.2 m) to the front of the platform. To extend the deck, pull out handles from latch and swing up, then use the handles and handrail to push the extendable deck out. To retract the deck, pull out the handles from latch and swing up, use the handles and handrail to pull and retract the deck. Be sure the handles are in place after the deck is retracted. Maximum capacity of the deck extension is 250 lb (120 kg).

Fold-Down Rails

⚠ WARNING

DO NOT RAISE PLATFORM WITH RAILS FOLDED DOWN. THE RAILS MUST BE IN THE UPRIGHT POSITION AND PROPERLY PINNED WHEN RAISING THE PLATFORM.

NOTE: *The rails must only be folded down when the machine is in the stowed (fully lowered) position.*

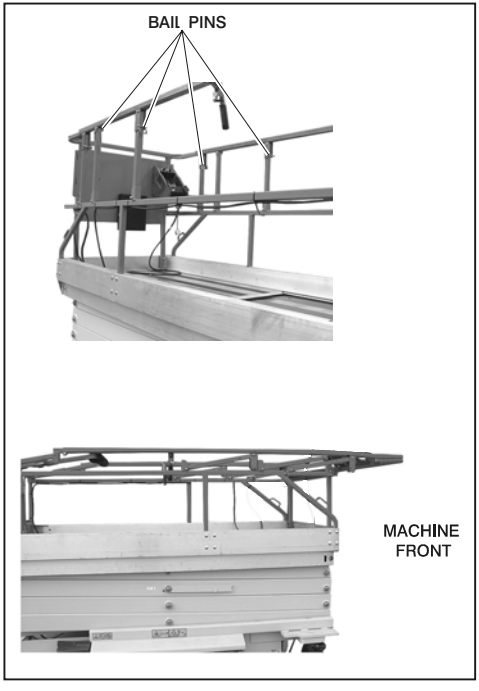
NOTE: *Ensure that the drywall gate at the rear of the machine is up and locked in position.*
Platform control box should be removed and placed on the platform with rails folded down.

1. To fold down the rails, remove the 4 bail pins at the two front corners and center of the rails.
2. Taking a firm hold on the top rails, carefully push forward and lower until the top rail rests on the middle rail.

⚠ WARNING

AFTER THE RAILS HAVE BEEN FOLDED DOWN USE EXTREME CAUTION WHEN EXITING AND ENTERING THE PLATFORM.

3. To raise the rails back to the upright position, firmly pull the rails toward the back of the machine and replace the bail pins into the rails. Return drywall gate to the lowered position.



4.4 STEERING

To steer the machine, the thumb operated steer control switch on the controller handle is positioned to the right for traveling right, or to the left for traveling left. When released, the switch will return to the center-off position and the wheels will remain in the previously selected position. To return the wheels to the straightened position, the switch must be activated in the opposite direction until the wheels are centered.

4.5 DRIVING

⚠ WARNING

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

TO AVOID LOSS OF TRAVEL CONTROL OR UPSET ON GRADES AND SIDESLOPES, DO NOT DRIVE MACHINE ON GRADES OR SIDESLOPES EXCEEDING THOSE SPECIFIED. REFERENCE Figure 4-1., Grade and Sideslope

Driving Forward

1. Place power selector switch at ground control station to platform.
2. Position emergency stop switch at platform control station to on position.
3. Select drive on the drive/lift select switch.
4. Squeeze controller (joystick), depressing red trigger on front of joystick, and move joystick forward for duration of travel. The drive system is proportional so for additional drive speed, push the joystick further in the direction of travel. Releasing the trigger will stop the function being operated.

Driving in Reverse

1. Position power selector switch at ground control station to platform.
2. Position emergency stop switch at platform control station to on position.
3. Squeeze joystick, depressing red trigger on front of joystick, and move joystick backward (reverse) for duration of travel. The drive system is proportional so for additional drive speed, push the joystick further in the direction of travel. Releasing the trigger will stop the function being operated.

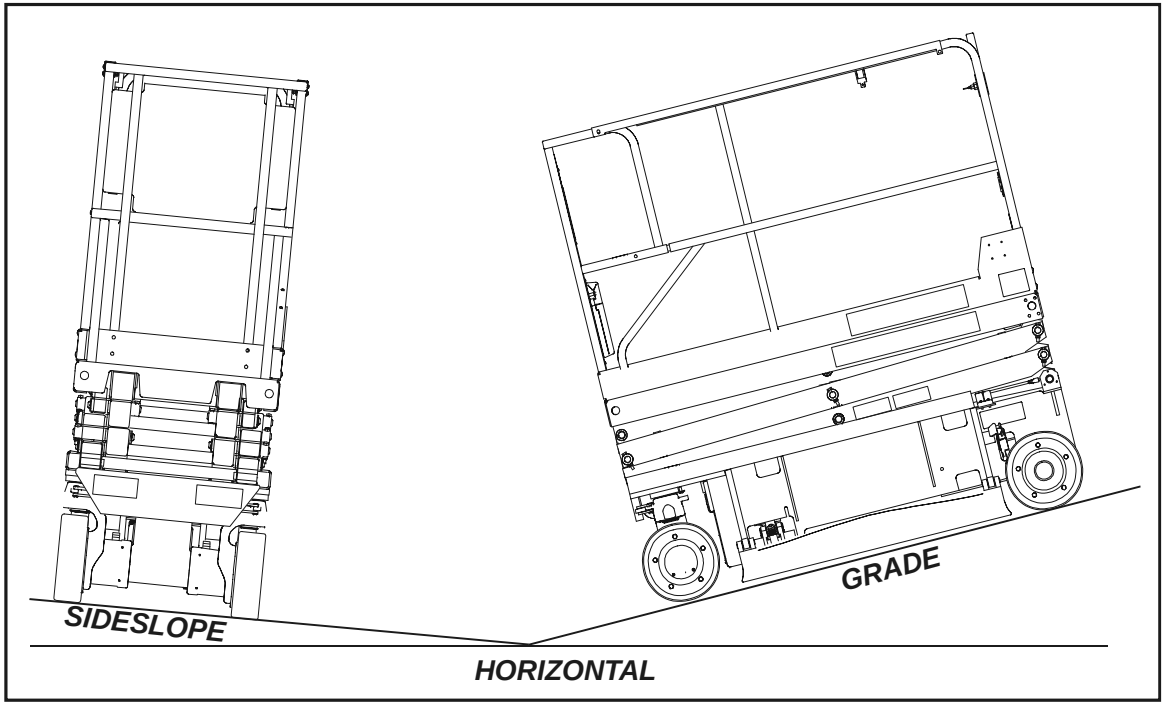


Figure 4-1. Grade and Sideslope

4.6 PARKING AND STOWING

Park and stow the machine as follows:

1. Drive the machine to a reasonably well-protected and well-ventilated area.
2. Ensure the platform is fully lowered.
3. Position the emergency stop switch to the off position.
4. If necessary, cover the instruction placards, caution and warning decals so that they will be protected from hostile environment.
5. Chock at least two wheels when parking the machine for an extended period of time.
6. Turn the power selector switch to off and remove the key to disable the machine and prevent unauthorized use.

4.7 BATTERY CHARGING

Operation

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

⚠ DANGER

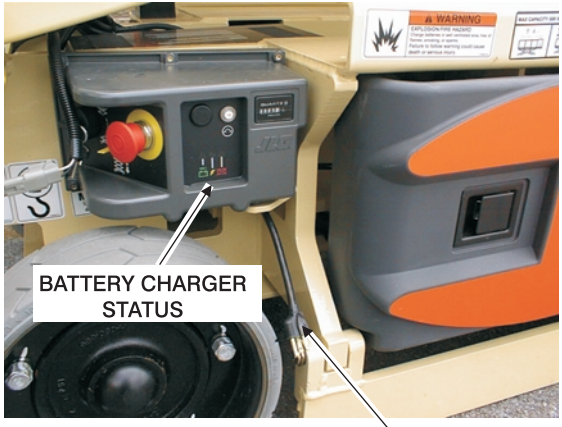
ONLY PLUG THE CHARGER INTO A PROPERLY INSTALLED AND GROUNDED OUTLET. DO NOT USE GROUND ADAPTORS OR MODIFY PLUG. DO NOT TOUCH NON-INSULATED PORTION OF OUTPUT CONNECTOR OR NON-INSULATED BATTERY TERMINAL.

ALWAYS DISCONNECT THE AC SUPPLY BEFORE MAKING OR BREAKING THE CONNECTIONS TO THE BATTERY BEFORE CHARGING.

DO NOT OPEN OR DISASSEMBLE CHARGER.

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

The battery charger receptacle is located at the right rear of the machine near the ground control panel.



1. Connect the charger to a grounded outlet.
2. On the Delta-q charger, the charger will automatically turn on and go through a short LED indicator self-test. All LED's will flash in an up and down sequence for two seconds.
3. The batteries are fully charged when green light on the battery charger status panel is illuminated.

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

Battery Charger Fault Codes (delta-q)

If a fault occurred during charging, the red "Fault" LED will flash with a code corresponding to the error. Refer to Table 4-1, Battery Charger Fault Codes (delta-q) for the flash codes and their removal.

Table 4-1. Battery Charger Fault Codes (delta-q)

Flash(s)	Fault	Fault Removal
1	Battery voltage high	Auto-recover - Indicates a high battery pack voltage
2	Battery voltage low	Auto-recover - Indicates either a battery pack failure, battery pack not connected to charger or battery volts per cell is less than 0.5 VDC. Check the battery pack and connections
3	Charge time-out	Indicates the batteries did not charge in the allowed time. This could occur if the batteries are a larger capacity than the algorithm is intended for or if the batteries are damaged old or in poor condition.
4	Check battery	Indicates the batteries could not be trickle charged up to the minimum voltage per cell level required for the charge to be started.
5	Over-temperature	Auto-recover - Indicates charger has shut down due to high internal temperature
6	QuiQ fault	Indicates that the battery will not accept charge current, or an internal fault has been detected in the charger. This fault will nearly always be set within the first 30 seconds of operation. Once it has been determined that the batteries and connections are not faulty and fault 6 is again displayed after interrupting AC power for at least 10 seconds, the charger must be brought to a qualified service depot.

4.8 PLATFORM LOADING

The platform maximum rated load capacity is shown on a placard located on the platform and is based upon the following criteria:

1. The machine is positioned on a firm, uniform surface.
2. All braking devices are engaged.
3. Refer to Section 6 for the maximum platform capacity.

NOTE: *It is important to remember that the load should be evenly distributed on the platform. The load should be placed near the center of the platform when possible.*

4.9 SAFETY PROP

⚠ CAUTION

THE SAFETY PROP MUST BE USED WHENEVER MAINTENANCE PERFORMED ON THE MACHINE REQUIRES THE SCISSOR ARMS TO BE RAISED AND ONLY WITH NO LOAD IN THE PLATFORM.

To engage the safety prop, raise the platform, swing the safety prop from it's stowed position located on the right side of the machine. Lower the platform until the safety prop rests on the designated safety prop rest.

To store the safety prop, raise the platform, swing the safety prop around and restore it back to its stowed position.

4.10 TIE DOWN/LIFT LUGS

When transporting the machine, the platform extension must be fully retracted and the platform fully lowered in the stowed mode with the machine securely tied down to the truck or trailer deck. There are two tie-down/lift lugs located at the rear of the machine for lifting and tieing down. There is a single tie-down lug at the front of the machine. This lug is designed for tieing down only. Do not attempt to lift machine from the front lug.

⚠ CAUTION

LIFTING THE MACHINE FROM THE SIDES USING A FORK TRUCK IS NOT RECOMMENDED BY JLG. IN THE EVENT THAT THE MACHINE NEEDS TO BE LIFTED FROM THE SIDES CAUTION MUST BE USED TO AVOID JAMMING THE POT HOLE PROTECTION BARS UP AGAINST THE FRAME.

EVERY TIME THE MACHINE IS LIFTED FORM THE SIDE, BE SURE AND TEST THE POT HOLE PROTECTION SYSTEM BEFORE THE MACHINE IS PUT BACK INTO OPERATION.

4.11 LIFTING

In the event that the machine must be lifted there is a forktruck pocket located at the rear of the machine. The machine can also be lifted using a proper spreader bar and straps/chains. Reference Figure 4-2., Lifting and Tie Down Diagram.

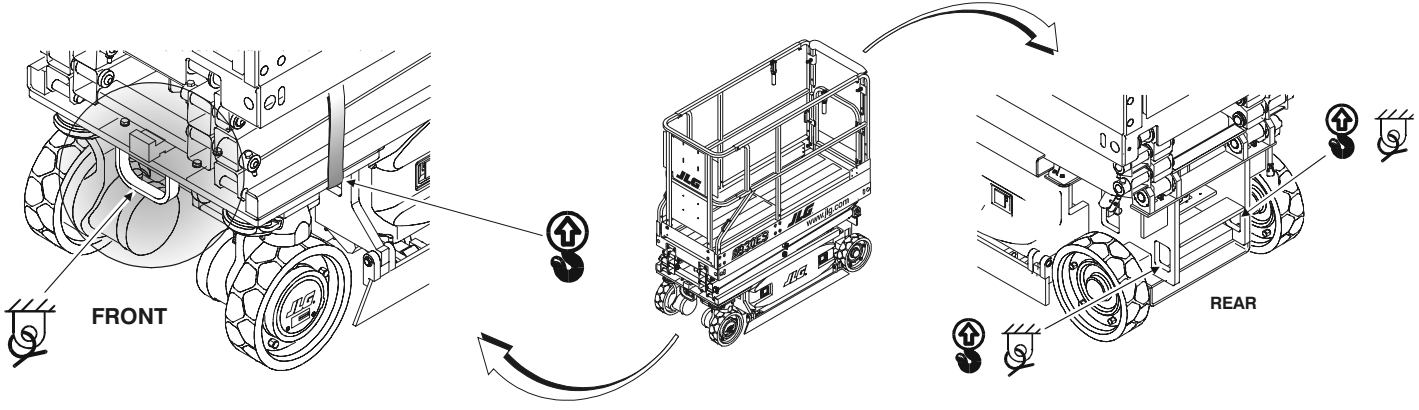


Figure 4-2. Lifting and Tie Down Diagram

4.12 TOWING

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

NOTE: *The machine may be equipped with a remote electric brake release, a push button electric brake release, or both styles of electric brake release.*

⚠ 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 KPH) FOR NO FURTHER THAN 60 FEET (18 M).

MAXIMUM TOWING GRADE 25%.

Remote Electric Brake Release

1. Chock wheels or secure machine with tow vehicle.
2. Pull the emergency stop switch out and position the keyswitch to ground mode.
3. The brake release cable hangs on a hook in the battery compartment on the opposite side of the ground control panel.
4. Locate brake release plug near the analyzer plug at the left front corner of the machine and plug the release switch into the plug.
5. Depress switch to release brakes.
6. When finished towing release switch, unplug release switch and return brake switch to the proper storage area in the battery compartment.

Push Button Electric Brake Release

NOTE: *The push button electric brake release is located on the right side of the machine just forward of the ground control box.*

1. Chock wheels or secure machine with tow vehicle.
2. Pull the emergency stop switch out and position the keyswitch to ground mode.
3. Push the button once to release the brakes.
4. To reset the brakes, push the button again, or push in the emergency stop switch, or take the ground control keyswitch out of the ground mode position.

Mechanical Brake Release

1. Chock wheels or secure machine with tow vehicle.
2. Power machine in ground mode.
3. Remove the **two cover bolts (1), cover (2), and cover o-ring seal (3)** from the back of drive motor unit.
4. Insert the **cover bolts (1)** into the **two disengage holes in the brake housing (4)**, see Item 4 in Figure 4-3., Manual Disengage
5. Tighten down the bolts and the brake on that drive motor will disengage.
6. Repeat this procedure on opposite wheel drive. With both drive motor brakes now disengaged the machine can be moved manually.
7. After towing is complete, chock wheels and **remove cover bolts (1)** from **disengage holes (4)**.
8. Reinstall **cover (2)**, before installation check the **cover o-ring seal (3)** for damage, replace if necessary.

⚠ CAUTION

AFTER THE MACHINE IS TOWED THE DISENGAGE BOLTS MUST BE REMOVED FROM THE BRAKE DISENGAGE HOLES. THE BRAKES CANNOT BE ENGAGED WITH THE DISENGAGE BOLTS IN THE BRAKE DISENGAGE HOLES. THIS WILL CAUSE THE MACHINE TO ROLL WHEN PARKED ON AN INCLINE.

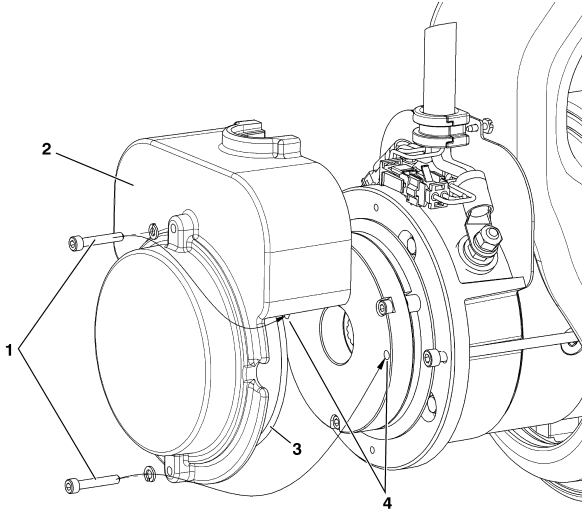
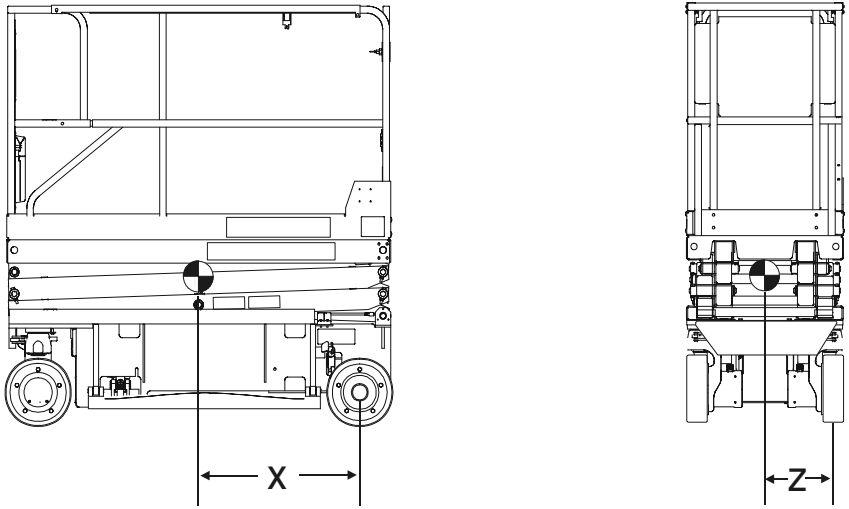


Figure 4-3. Manual Disengage



MODEL	WHEELBASE (in.)	X (in.)	Z (in.)
1930ES	63	33.5	13
2030ES	73.9	38.5	13
2630ES	73.9	38.5	13
2646ES	82.32	43.8	20.5
3246ES	82.32	43.8	20.5

MODEL	WHEELBASE (cm.)	X (cm.)	Z (cm.)
1930ES	160	83.7	33
2030ES	187.7	98.9	33
2630ES	187.7	97.8	33
2646ES	209.1	108.6	52
3246ES	209.1	108.4	52

Figure 4-4. Lifting and Tie Down Chart

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SECTION 5. EMERGENCY PROCEDURES

5.1 GENERAL

This section provides information on the procedures to be followed and on the systems and controls to be used in the event an emergency situation is encountered during machine operation. Prior to operation of the machine and periodically thereafter, the entire operating manual, including this section, should be reviewed by all personnel whose responsibilities include any work or contact with the machine.

Emergency Stop Switch

These large red buttons, one located at the Ground Control Station and one at the Platform Control Station, will immediately stop the machine when depressed.

⚠ WARNING

CHECK MACHINE DAILY TO MAKE SURE EMERGENCY STOP BUTTON IS IN PLACE AND THAT GROUND CONTROL INSTRUCTIONS ARE IN PLACE AND LEGIBLE.GROUND CONTROL STATION

The Ground Control Station is located on the left side of the machine frame. The controls on this panel provide the means for overriding the platform controls and for controlling the platform lift up and down functions from the ground. Place the power select switch in the ground position and operate the lift switch to lift up or down.

Manual Descent

The manual descent valve is used, in the event of total power failure, to lower the platform using gravity. The manual descent handle is located at the rear of the machine, above the left rear wheel. The handle is connected, by a cable, to the manual descent valve on the lift cylinder. Pulling the manual descent handle opens the valve spool, lowering the platform.

5.2 EMERGENCY OPERATION

Use of Ground Controls

IMPORTANT

KNOW HOW TO USE THE GROUND CONTROLS IN AN EMERGENCY SITUATION.

Ground personnel must be thoroughly familiar with the machine operating characteristics and the ground control functions. Training should include operation of the machine, review and understanding of this section and hands-on operation of the controls in simulated emergencies.

Operator Unable to Control Machine

1. Operate the machine from ground controls ONLY with the assistance of other personnel and equipment (cranes, overhead hoists, etc.) as may be required to safely remove the danger or emergency condition.
2. Other qualified personnel on the platform may use the platform controls. DO NOT CONTINUE OPERATION IF CONTROLS DO NOT FUNCTION NORMALLY.
3. Cranes, forklift trucks or other equipment which may be available are to be used to remove platform occupants and stabilize motion of the machine in case machine controls are inadequate or malfunction when used.

Platform Caught Overhead

If the platform becomes jammed or snagged in overhead structures or equipment, do not continue operation of the machine from either the platform or the ground until the operator and all personnel are safely moved to a secure location. Only then should an attempt be made to free the platform using any necessary equipment and personnel. Do not operate controls to cause one or more wheels to leave the ground.

Righting of Tipped Machine

A forktruck of suitable capacity or equivalent equipment should be placed under the elevated side of the chassis, with a crane or other suitable lifting equipment used to lift the platform while the chassis is lowered by the forklift or other equipment.

Post-Incident Inspection

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

5.3 INCIDENT NOTIFICATION

It is imperative that JLG Industries, Inc. be notified immediately of any incident involving a JLG product. Even if no injury or property damage is evident, the Product Safety and Reliability Department at the factory should be contacted by telephone and provided with all necessary details.

Contact at 1-877-JLG-SAFE (554-7233) between the hours of 8:00 AM - 4:45 PM Eastern Standard time.

It should be noted that 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.

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SECTION 6. GENERAL SPECIFICATIONS AND OPERATOR MAINTENANCE

6.1 INTRODUCTION

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

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

Other Publications Available Specific to this Machine:

Service and Maintenance Manual 3121166

Illustrated Parts Manual 3121167

6.2 OPERATING SPECIFICATIONS

Table 6-1. Operating Specifications

Model	1930ES	2030ES	2630ES	2646ES	3246ES
Maximum Stowed Travel Grade (Gradeability) - Refer to Figure 4-1	25%	25%	25%	25%	25%
Maximum Stowed Travel Grade (Sideslope) Refer to Figure 4-1	5°	5°	5°	5°	5°
Maximum Platform Height	18.75 ft. 5.7 m	20 ft. 6 m	25.8 ft. 7.9 m	26 ft. 7.9 m	32 ft. 9.8 m
Maximum Tire Load ANSI CE	 1365 lb (620 kg) 1540 lb (699 kg)	 1660 (755) 1835 lb (832 kg)	 1885 lb (832 kg) 1835 lb (832 kg)	 2070 lb (939 kg) 2320 lb (1052 kg)	 2070 lb (939 kg) 2320 lb (1052 kg)
Ground Bearing Pressure (ANSI)	109 psi (7.7 kg/cm^2)	81 psi (5.7 kg/cm^2)	90 psi (6.3 kg/cm^2)	87 psi (6.1 kg/cm^2)	87 psi (6.1 kg/cm^2)
Ground Bearing Pressure (CE)	8.7 kg/cm^2 (123 psi)	6.3 kg/cm^2 (90 psi)	6.3 kg/cm^2 (90 psi)	6.9 kg/cm^2 (98 psi)	6.9 kg/cm^2 (98 psi)
Maximum Drive Speed	3 mph (4.8 kmh)	3 mph (4.8 kmh)	2.75 mph (4.4 kmh)	2.5 mph (4 kmh)	2.5 mph (4 kmh)
Maximum Wind Speed (Depending on model, market, and indoor/outdoor selection)	28 mph (12.5 m/s)	28 mph (12.5 m/s)	28 mph (12.5 m/s)	28 mph (12.5 m/s)	28 mph (12.5 m/s)

Table 6-1. Operating Specifications

Model	1930ES	2030ES	2630ES	2646ES	3246ES
Maximum Manual Force	Reference Decal on Machine				
Maximum Hydraulic Pressure	1800psi	1800 psi	1700 psi (single) 1850 psi (dual)	2000 psi	2000 psi
Inside Steer Angle	90°	90°	90°	90°	90°
Outside Steer Angle	69°	73°	73°	67°	67°
Electrical System Voltage (DC)	24V	24V	24V	24V	24V
Approximate Gross Machine Weight - ANSI/CSA	2750 lb	3750 lb	4750 lb	4770 lb	4780 lb
Approximate Gross Machine Weight - CE/Australia	1565 kg	2020 kg	2155 kg	2600 kg	2765kg
Ground Clearance with pot hole protection system up	3.5 in (8.9 cm)				
Ground Clearance with pot hole protection system down	1 in (2.5 cm)	.75 in (1.9 cm)			

Table 6-2. Platform Capacities

MODEL	ANSI/CSA		CE INDOOR		CE OUTDOOR		AUSTRALIAN INDOOR		AUSTRALIAN OUTDOOR	
	Max Capacity	Max Persons	Max Capacity	Max Persons	Max Capacity	Max Persons	Max Capacity	Max Persons	Max Capacity	Max Persons
1930ES	500 lb (227 kg)	2	230 kg	2	120 kg	1	230 kg	2	120 kg	1
2030ES	800 lb (363 kg)	2	360 kg	2	160 kg	1	360 kg	2	160 kg	1
2630ES single cap	500 lb (227 kg)	2	230 kg	2	N/A	N/A	230 kg	2	N/A	N/A
2630ES dual cap. to 20 ft	800 lb (363 kg)	2	360 kg	2	N/A	N/A	360 kg	2	N/A	N/A
2630ES dual cap. to 26 ft	500 lb (227 kg)	2	230 kg	2	N/A	N/A	230 kg	2	N/A	N/A
2646ES	1000 lb (454 kg)	2	450 kg	2	230 kg	2	450 kg	2	230 kg	2

Table 6-2. Platform Capacities

MODEL	ANSI/CSA		CE INDOOR		CE OUTDOOR		AUSTRALIAN INDOOR		AUSTRALIAN OUTDOOR	
	Max Capacity	Max Persons	Max Capacity	Max Persons	Max Capacity	Max Persons	Max Capacity	Max Persons	Max Capacity	Max Persons
3246ES to 26 ft.	1000 lb (454 kg) Zone A	2	450kg	2	320 kg	1	450 kg	2	320 kg	1
3246ES to 32 ft.	700 lb (317 kg) Zone B	2	320kg	2	320 kg	1	320 kg	2	320 kg	1

Dimensional Data

Table 6-3. Dimensions

MODEL	1930ES		2030ES		2630ES		2646ES		3246ES	
Unit of Measure	feet	meter	feet	meter	feet	meter	feet	meter	feet	meter
Platform Height - Elevated	18.75	5.7	20	6	25.4	7.8	26	7.9	31.8	9.7
Platform Height - Stowed	2.9	0.9	3.6	1.1	4	1.2	4	1.2	4	1.2
Working Height	25	7.6	26	7.9	32	9.8	32	9.8	38	11.6
Overall Stowed Machine Height - Rails Up	6.5	2	7.2	2.2	7.7	2.3	7.7	2.3	7.7	2.3
Overall Stowed Machine Height - Rails Collapsed	N/A	N/A	6	1.8	6.4	1.9	6.4	1.9	6.4	1.9
Rail Height (From platform floor)	3.6	1.1	3.6	1.1	3.6	1.1	3.6	1.1	3.6	1.1
Overall Machine Width	2.5	0.8	2.5	0.8	2.5	0.8	3.7	1.2	3.7	1.2
Overall Machine Length - Deck Retracted	6	1.9	7.5	2.3	7.5	2.3	8.2	2.5	8.2	2.5
Overall Machine Length - Deck Extended	9	2.8	10.5	3.2	10.5	3.2	12.4	3.8	12.4	3.8
Platform Size - Length	6.1	1.9	7.5	2.3	7.5	2.3	8.2	2.5	8.2	2.5
Platform Size - Width	2.5	0.8	2.5	0.8	2.5	0.8	3.7	1.1	3.7	1.1

Table 6-3. Dimensions

MODEL	1930ES		2030ES		2630ES		2646ES		3246ES	
Unit of Measure	**feet**	**meter**	**feet**	**meter**	**feet**	**meter**	**feet**	**meter**	**feet**	**meter**
Platform Extension Length	3	0.9	3	0.9	3	0.9	4.2	1.3	4.2	1.3
Wheelbase	63	1.6	73.9	1.9	73.9	1.9	82.3	2	82.3	2

Capacities

Table 6-4. Capacities

Model	1930ES/	2030ES/2630ES	2646ES/3246ES
Hydraulic Tank	2 Gal. (7.6 L)	2 Gal. (7.6 L)	3 Gal. (11.3 L)
Hydraulic System (Including Tank)	2.2 Gal (8.3 L)	2.8 Gal (10.6 L)	5.3 Gal (19.9 L)

Tires

Table 6-5. Tire Specifications

Model	1930ES	2030ES	2630ES	2646ES	3246ES
Size	323mm x 100mm	415 mm x 125 mm			
Max Tire Load	2500 lbs (1134 kg)	4000 lbs (1814 kg)			
Wheel Bolt Torque	105 - 120 ft lb (142-163 Nm)				

Batteries

Table 6-6. Battery Specifications

Voltage	6 V per battery
Amp Hour (Standard Battery)	220 Amp
Amp Hour (Optional High Output Battery)	245 Amp

⚠ WARNING

DO NOT REPLACE ITEMS CRITICAL TO STABILITY, SUCH AS BATTERIES OR SOLID TIRES, WITH ITEMS OF DIFFERENT WEIGHT OR SPECIFICATION. DO NOT MODIFY UNIT IN ANY WAY TO AFFECT STABILITY.

6.3 CRITICAL STABILITY WEIGHTS

Table 6-7. Critical Stability Weights

Component	1930 ES		2030ES		2630ES		2646ES		3246ES	
Unit of Measure	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Wheel and Tire Assembly (each)	15	7	40	18	40	18	40	18	40	18
Wheel/Tire and Drive Assembly (each)	93	42	93	42	93	42	93	42	93	42
Batteries - Standard (each)	62	28	62	28	71	32	71	32	71	32
Batteries - Standard - Combined	248	112	248	112	248	112	248	112	248	112

Lubrication

HYDRAULIC OIL

Table 6-8. Hydraulic Oil

HYDRAULIC SYSTEM OPERATING TEMPERATURE RANGE	SAE VISCOSITY GRADE
0˚F to +23˚F (-18˚C to -5˚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 Mobilfluid 424 hydraulic oil, which has an SAE viscosity index of 152.*

NOTE: *When temperatures remain below 20° F (-7° C), JLG Industries recommends the use of Mobil DTE13.*

NOTE: *Aside from JLG recommendations, it is not advisable to mix oils of different brands or types, as they may not contain the same required additives or be of comparable viscosities. If use of hydraulic oil other than Mobilfluid 424 is desired, contact JLG Industries for proper recommendations.*

LUBRICATION SPECIFICATIONS

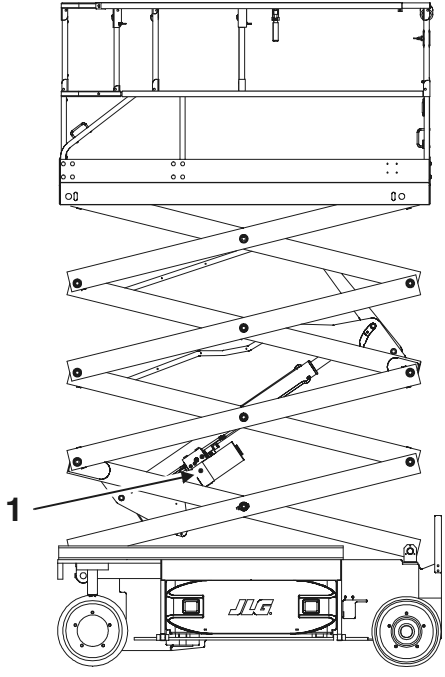
Table 6-9. Lubrication Specifications

KEY	SPECIFICATIONS
MPG	Multipurpose Grease having a minimum dripping point of 350° F. Excellent water resistance and adhesive qualities, and being of extreme pressure type. (Timken OK 40 pounds minimum.)
EPGL	Extreme Pressure Gear Lube (oil) meeting API service classification GL-5 or MIL-Spec MIL-L-2105.
HO	Hydraulic Oil. Mobil DTE 11M

Table 6-10. Mobil DTE 11M Specs

ISO Viscosity Grade	#15
Gravity API	31.9
Pour Point, Max	-40˚F (-40˚C)
Flash Point, Min.	330˚F (166˚C)
Viscosity	
at 40° C	15 cSt
at 100° C	4.1 cSt
at 100° F	80 SUS
at 210° F	43 SUS
cp at -30° F	3.200
Viscosity Index	140

6.4 OPERATOR MAINTENANCE



1. Hydraulic Oil

Figure 6-1. Lubrication Diagram

Oil Check Procedure (1)

Lube Point(s) - FIll Plug

Capacity:

1930ES/2030ES/2630ES	2646ES/3246ES
2 Gal. (7.6 L)	3 Gal. (11.3 L)

Lube - Hydraulic Oil

Interval - Every 6 months

1. With the scissor lift on a flat and level surface and the platform empty, elevate machine and swing safety prop out of it's stowed position.
2. Continue to elevate the platform until the fill plug, located on the right side of the tank attached to the lift cylinder, is fully accessible.

⚠ CAUTION

ENSURE THE SCISSOR ARMS ARE PROPERLY SUPPORTED.

NOTE: *The 2630ES/2646ES/ 3246ES platforms will have to be raised higher than the 1930ES and 2030ES in order to access the oil plug.*

3. Wipe all dirt and debris from the filler plug area.
4. Slowly remove the fill plug venting any pressure that may be built up in the reservoir.
5. To check the oil level, lower platform so it rests on the safety prop.

⚠ CAUTION

THERE MAY BE UP TO 10 PSI OF PRESSURE IN THE TANK.

6. With the plug removed, the oil level should be completely full, at the top of the fill port with scissor arms resting on the safety prop. from the fill port.
7. If additional oil is required, add proper grade of oil by using a funnel with a flexible spout or a plastic squeeze bottle. Fill until oil weeps out of opening.

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

8. Replace plug and torque to 40 ft. lbs. (56 Nm).
9. Any time a hydraulic component is removed or replaced, cycle the scissor arms several times and refer to steps 3 and 4 to recheck oil level.

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

6.5 TIRES AND WHEELS

Tire Wear and Damage

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

Wheel and Tire Replacement

Replacement wheels must have the same diameter and profile as the original. Replacement tires must be the same size and rating as the tire being replaced.

Wheel Installation

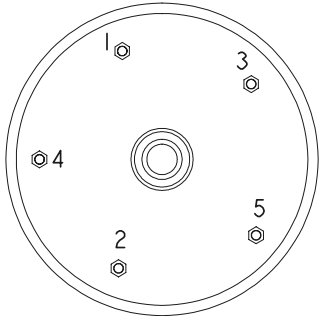
It is extremely important to apply and maintain proper wheel mounting torque.

⚠ WARNING

WHEEL NUTS MUST BE INSTALLED AND MAINTAINED AT THE PROPER TORQUE TO PREVENT LOOSE WHEELS, BROKEN STUDS, AND POSSIBLE 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.

Table 6-11. Wheel Torque Chart

TORQUE SEQUENCE		
1st Stage	2nd Stage	3rd Stage
20-30 ft lbs (28 - 42 Nm)	65-80 ft lbs (91 - 112 Nm)	105 -120 ft lbs (142 - 163 Nm)

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

SECTION 7. INSPECTION AND REPAIR LOG

Table 7-1. Inspection and Repair Log

Date	Comments

Table 7-1. Inspection and Repair Log

Date	Comments

PROPOSITION 65 WARNING

- **Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm.**
- **Batteries also contain other chemicals known to the State of California to cause cancer.**
- **Wash hands after handling.**

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