Operators and Safety Manual

Models
100SX
110SXJ
110SX
120SXJ

3121104

June 10, 2003

ANSI

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.

The owner/user/operator/lessor/lessee must be familiar with Sections 6, 7, 8, 9, 10 of ANSI A92.5-1992. 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”).

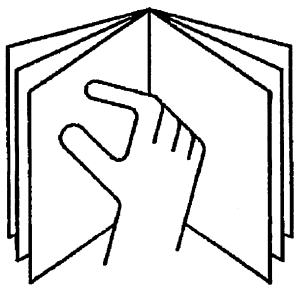
⚠ WARNING

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 and understood in its entirety before operating the machine. For clarification, questions, or additional information regarding any portions of this manual, contact JLG Industries, Inc.



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

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 30 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.

Platform

1. Check platform and control console for damage, loose or missing parts, and security.
2. Check control switches and levers for damage, loose or missing parts and security. Assure that all levers function properly.
3. Check control switches, levers and electrical connections for tightness and evidence of corrosion, and wiring for defects and chafing damage. Assure that all switches function properly.
4. Check access gate hinges and latch for proper operation, damage and security.
5. Check platform rotator mechanism for proper operation, damage, security. Check hydraulic lines for leakage, damage and security.

NOTE: *Check all DANGER, WARNING, CAUTION and INSTRUCTION placards for legibility and security on the entire machine.*

Torque Requirements

The Torque Chart (See Figure 2-7.) consists of standard torque values based on bolt diameter and grade, also specifying dry and wet torque values in accordance with recommended shop practices. This chart is provided as an aid to the operator in the event he/she notices a condition that requires prompt attention during the walk-around inspection or during operation, until the proper service personnel can be notified. The Service and Maintenance manual provides specific torque values and periodic maintenance procedures with a listing of individual components. Utilizing this Torque Chart in conjunction with the preventive maintenance section in the Service and Maintenance manual will enhance safety, reliability, and performance of the machine.

2.4 DAILY WALK-AROUND INSPECTION

It is the operator's responsibility to inspect the machine before the start of each workday. It is recommended that each operator inspect the machine before operation, even if the machine has already been put into service under another operator. This Daily Walk-Around Inspection is the preferred method of inspection. (See Figure 2-3.)

In addition to the Daily Walk-Around Inspection, be sure to include the following as part of the daily inspection:

1. Overall cleanliness.

   Check all standing surfaces for oil, fuel and hydraulic oil spillage and foreign objects. Ensure overall cleanliness.

2. Placards.

   Keep all information and operating placards clean and unobstructed. Cover when spray painting or shot blasting to protect legibility.

3. Operator's and Safety Manual.

   Ensure a copy of this manual and the ANSI A92.5-1992 Responsibilities, are enclosed in the manual storage box.

4. Machine Log.

   Ensure a machine operating record or log is kept, check to see that it is current and that no entries have been left uncleared, leaving machine in an unsafe condition for operation.

5. Start each day with a full fuel tank.

⚠ WARNING

TO AVOID INJURY, DO NOT OPERATE A MACHINE UNTIL ALL MALFUNCTIONS HAVE BEEN CORRECTED. USE OF A MALFUNCTIONING MACHINE IS A SAFETY VIOLATION.

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

NOTE: *Check boom horizontal limit switch for proper operation and security, both visually and manually. Switch must shut down high engine and high drive speed when boom is raised above horizontal:*

6. Check platform footswitch for proper operation. Switch must be released to start engine and depressed to operate machine.
7. Check that drive brakes hold when machine is driven up a grade and stopped.

NOTE: *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.*

8. Assure that all items requiring lubrication are serviced. Refer to Table 2-1, Lubrication Chart, for specific requirements.

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/HER 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 operator read and understand the proper procedures before operating the machine. These procedures will aid in obtaining optimum lift service and safe operation.

3.2 PERSONNEL TRAINING

The aerial platform is a personnel handling device; therefore it is essential that it be operated and maintained only by authorized and qualified 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.

In addition, personnel operating the machine should be familiar with ANSI standard A92.5-1992 Responsibilities Section. This outlines the responsibilities of the owners, users, operators, lessors and lessees concerning safety, training, inspection, maintenance, application and operation.

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 areas:

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, in particular the wearing of a safety harness or other approved fall protection devices with a lanyard attached to the platform at all times.
5. Sufficient 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, etc. on the supporting surface exist.
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 person in an open area free of obstructions until the trainee has developed the ability to safely control a machine in congested work locations.

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 and to request further information from his/her supervisor or an authorized JLG Distributor before proceeding.

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

NOTE: *One of the capacity indicator lights should be illuminated at all times during operation. If no capacity lights are on, a bulb could be burned out. Operation of the machine must be halted until the lights are working properly.*

Check the capacity decal in the platform and at the ground control station for the machines operating capacity(s).

27. Capacity Indicator and Exceeding Operating Radius Indicator

    The capacity indicator and exceeding operating radius indicators display to the operator the maximum rated platform capacity and the maximum radius for that capacity using different colored lights. The operator must not exceed the rated capacity or the maximum radius for the load (personnel, tools, and supplies) shown on the indicator.

    A light for each different capacity is used; blue indicates operating within maximum capacity range, yellow indicates operating within reduced capacity range. Models equipped with Extend-A-Reach have a blue and a red light only. When moving the platform from one capacity area to another, one light will go out and another will come on indicating the correct capacity for that area. A steady red light indicates you have exceeded the machines operating radius. You must immediately stop and ''LIFT UP'' or ''TELE IN'' until the red light goes out. A blinking red light and a buzzer sounding indicates you have exceeded the platform load capacity (personnel, tools, and supplies) and maximum radius. You must immediately stop all functions and then ''LIFT UP'' or ''TELE IN'' until the red light goes out and the buzzer stops. Check to make sure the load in the platform does not exceed the rated capacity.

3.4 PLACARDS AND DECALS

Read and understand all placards and decals. Do not operate any machine on which DANGER, WARNING, CAUTION, or INSTRUCTION PLACARDS OR DECALS ARE MISSING OR ILLEGIBLE. Replace placards and decals if damaged, missing, or illegible.

Decals are made of Lexan Pressure Sensitive Adhesive with a protective film on the front. Remove the damaged decal and thoroughly clean the surface before installing a new decal. Simply peel off the backing and press the decal on to the surface.

NOTE: *Placards and Decals can be ordered by using the part numbers located by each placard or decal. See Figure 3-5., Caution, Danger, Warning Decal Location - Sheet 1 of 2 and Figure 3-6., Caution, Danger, Warning Decal Location - Sheet 2 of 2.*

SECTION 4. MACHINE OPERATION

4.1 DESCRIPTION

This machine is a self-propelled aerial work platform on the end of an elevating, telescoping and rotating boom. The JLG 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 and over machinery or equipment.

The JLG 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. The operator can raise, lower, extend or retract the boom; swing the boom to the left or right; and when equipped with a platform rotator, can rotate the platform around the boom end. Standard boom swing is 360° 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, telescope and swing and 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.

Instruction and hazard warnings are posted adjacent to both operator control stations and at other places on the machine. It is extremely important that operators know what instructions and warnings are placed on the machine, and review these periodically so that they are fresh in their minds. Vibrations emitted by these machines are not hazardous to an operator in the work platform.

The JLG Lift is designed to provide efficient and safe operation when maintained and operated in accordance with warnings on the machine, in the Operators and Safety Manual, and all jobsite and government rules and regulations. As with any type of machinery, the operator is very important to efficient and safe operation. Owner/user/operator must be familiar with Sections 6, 7, 8, 9, and 10 of ANSI A92.5-1992. These sections contain the responsibilities of the owner, users, operators, lessors and lessees concerning safety, training, inspection, maintenance, application and operation. It is absolutely necessary that the JLG Lift be regularly maintained in accordance with this manual and the machine Service and Maintenance manual, and that any evidence of lack of maintenance, malfunction, excessive wear, damage or modification to the machine be reported immediately to the machine owner or the jobsite supervisor or safety manager and that the machine be taken out of service until all discrepancies are corrected.

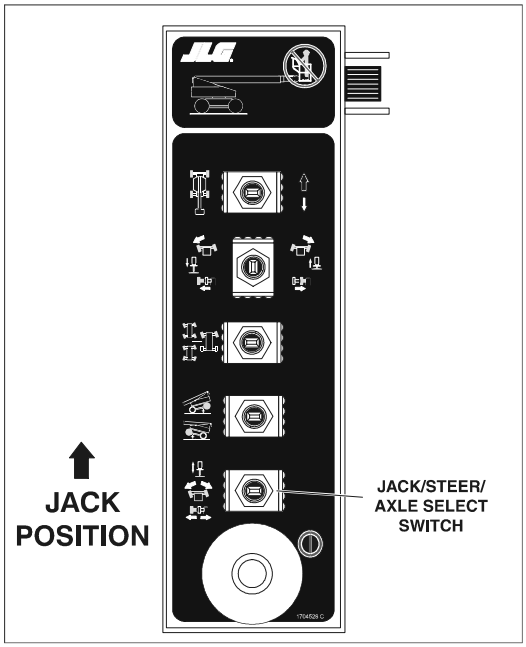
The JLG Lift is not intended to be used to lift material other than supplies which personnel in the platform require to do their job. Supplies or tools which extend outside the platform are prohibited. It must not be used as a forklift, crane, support for overhead structure, or to push or pull another object or the lift itself.

The machine is equipped with an auxiliary battery operated power unit which will provide hydraulic power in the event of a primary engine power loss. Auxiliary power can be controlled from either the Platform Control Station or the Ground Control Station. Follow the instructions placed at the control stations.

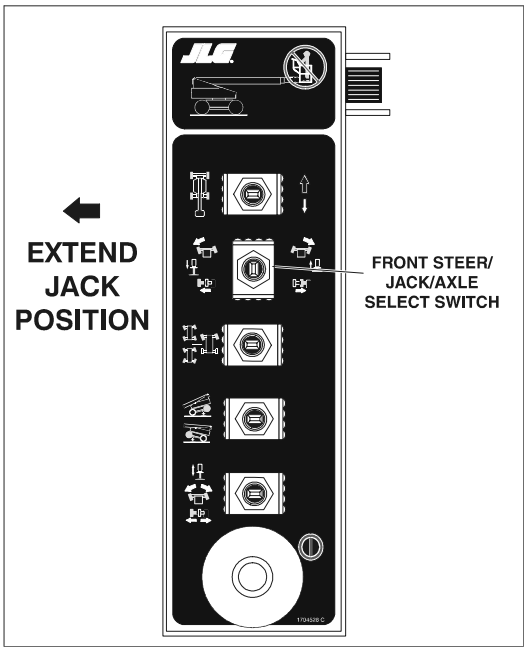
The JLG Lift is hydraulically powered using hydraulic motors and cylinders for various machine motions. The hydraulic components are controlled by electrically activated hydraulic valves using switches and control levers. The speeds of functions controlled by control levers are variable from zero to maximum speed depending upon the position of the control lever. Functions controlled by toggle switches are either on or off and higher or lower speed is possible when the Function Speed control switch is used in conjunction with the function toggle switch. A foot operated switch in the platform must be depressed before any controls will function and provides a means of emergency stop when the operator's foot is removed from the footswitch.

The JLG Lift is a four wheel drive machine with drive power being supplied by a hydraulic motor for each drive wheel. Each drive wheel is supplied with a hydraulically released, spring-applied brake. The swing drive is also equipped with such a brake. These brakes are automatically applied any time the Drive or Swing Control lever are returned to the neutral position.

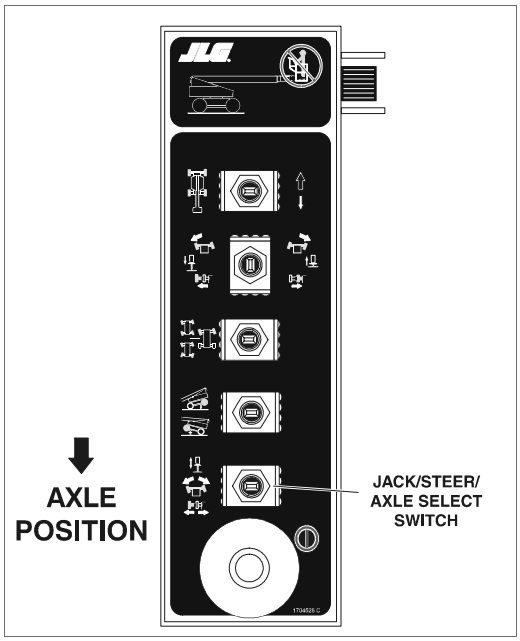
Refer to the capacity decal in the platform and at the ground control station for the rated capacity. See instructions in this manual and on the machine for checking procedures.



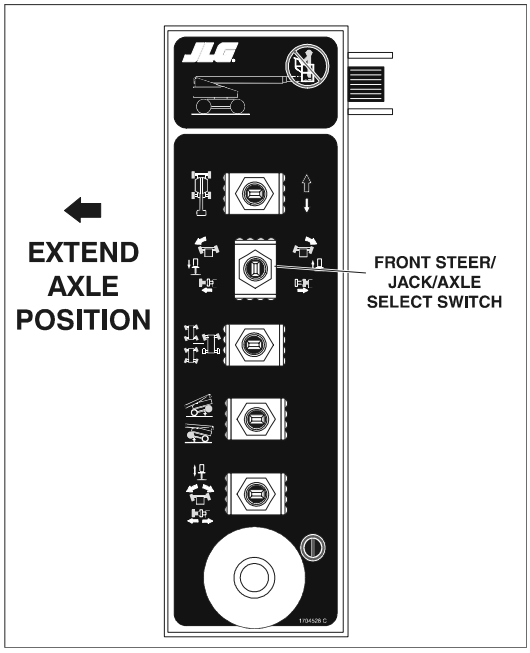
4. Push and hold the Jack/Steer/Axle Select switch in the Jack position.



5. Position the Front Steer/Jacks/Axle switch to the Extend Jack position until the jack is fully extended.



6. Push and hold the Jack/Steer/Axle Select switch in the Axle position.



7. Position Front Steer/Jacks/Axle switch to the Extend Axle position until axles are fully extended and the Axles Set light is on.
8. If the light does not illuminate when the axles are fully extended, contact a qualified service technician before continuing operation.

SECTION 5. OPTIONAL EQUIPMENT

5.1 DUAL FUEL SYSTEM (GAS ENGINE ONLY)

Description

The dual fuel system enables the standard gasoline engine to run on either gasoline or LP gas. The system includes pressurized cylinders mounted on the frame, and the valves and switches needed to switch the fuel supply from gasoline to LP gas or from LP gas to gasoline.

A two position, FUEL toggle switch at the ground control station supplies electrical power to open the gasoline gas shut-off solenoid and close the LP gas shut off solenoid when positioned to the GASOLINE position. This switch supplies electrical power to open the LP gas shut-off solenoid and close the gasoline shut-off solenoid when positioned to the LP position.

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 counterclockwise.

⚠ CAUTION

BE SURE GASOLINE IS EXHAUSTED BEFORE SWITCHING TO LP GAS. SEE STEP (3) BELOW.

3. While engine is operating, place DUAL FUEL switch at Ground Control to center OFF position. Allow engine to operate without load, until engine begins to stumble from lack of gasoline. As engine begins to stumble, place the switch to LP position, allowing LP gas to flow to the fuel regulator.

Changing From LP Gas to Gasoline

1. With engine operating on LP under a no-load condition, position DUAL FUEL switch at Ground Control Station to GASOLINE position.
2. If engine stumbles because of lack of gasoline, place the switch to LP position until engine regains smoothness, then return switch to GASOLINE position. Repeat as necessary until engine runs smoothly on gasoline.
3. Close hand valve on LP gas supply tank by turning clockwise.

5.2 MOTION ALARM

A 12-volt alarm horn, mounted on the turntable, provides an audible warning when the machine is in the travel (DRIVE) mode. It will function in FORWARD or REVERSE and for boom functions to warn jobsite personnel the machine is traveling.

5.3 ELECTRIC GENERATOR

An electric generator mounted on the machine functions to supply electrical power to the platform. This device will provide enough power to run assorted power tools.

5.4 STROBE LIGHT

An amber or red rotating beacon may be installed on the hood or platform. The light will come on when the ignition switch is in the on position.

5.5 CYLINDER BELLOWS

A one piece accordion shaped rubber bellows may be attached to the rod end of the cylinder barrel and to the cylinder rod as close to the rod attach bushing as possible. The bellows affords protection to the cylinder rod in either the extended or retracted position. The bellows are installed on the lift cylinder, slave cylinder, master cylinder and steer cylinder.