Operation and Safety Manual

Model
80HX
80HX+6

P/N - 3120890

August 21, 2007

CE

NQA ISO9001 REGISTERED COMPANY UKAS QUALITY MANAGEMENT 015

FOREWORD

The purpose of this manual is to provide users with the operating procedures essential for the promotion of proper machine operation for its intended purpose. It is important to over-stress proper machine usage. All information in this manual should be READ and UNDERSTOOD before any attempt is made to operate the machine. **YOUR OPERATING MANUAL IS YOUR MOST IMPORTANT TOOL** - Keep it with the machine. **REMEMBER ANY EQUIPMENT IS ONLY AS SAFE AS THE OPERATOR.**

BECAUSE THE MANUFACTURER HAS NO DIRECT CONTROL OVER MACHINE APPLICATION AND OPERATION, PROPER SAFETY PRACTICES ARE THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL.

ALL INSTRUCTIONS IN THIS MANUAL ARE BASED ON THE USE OF THE MACHINE UNDER PROPER OPERATING CONDITIONS, WITH NO DEVIATIONS FROM THE ORIGINAL DESIGN. ALTERATION AND/OR MODIFICATION OF THE MACHINE IS STRICTLY FORBIDDEN, WITHOUT WRITTEN APPROVAL FROM JLG INDUSTRIES, PER OSHA REGULATIONS AND APPLICABLE ANSI STANDARDS.

THIS SAFETY ALERT SYMBOL IS USED TO CALL ATTENTION TO POTENTIAL HAZARDS WHICH MAY LEAD TO SERIOUS INJURY OR DEATH IF IGNORED.

Safety of personnel and proper use of the machine are of primary concern, DANGER, WARNING, CAUTION, IMPORTANT, INSTRUCTIONS and **NOTE** are inserted throughout this manual to emphasize these areas. They are defined as follows:

⚠ DANGER

DANGER INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED WILL RESULT IN SERIOUS INJURY OR DEATH.]

⚠ WARNING

WARNING INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED COULD RESULT IN SERIOUS INJURY OR DEATH.

⚠ CAUTION

CAUTION INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY. IT MAY ALSO BE USED TO ALERT AGAINST UNSAFE PRACTICES

⚠ IMPORTANT

IMPORTANT OR INSTRUCTIONS INDICATES A PROCEDURES ESSENTIAL FOR SAFE OPERATION AND WHICH, IF NOT FOLLOWED, MAY RESULT IN A MALFUNCTION OR DAMAGE TO THE MACHINE.

⚠ IMPORTANT

JLG INDUSTRIES MAY HAVE ISSUED SAFETY RELATED BULLETINS FOR YOUR JLG PRODUCT. CONTACT JLG INDUSTRIES INC. OR THE LOCAL AUTHORIZED JLG DISTRIBUTOR FOR INFORMATION CONCERNING SAFETY RELATED BULLETINS WHICH MAY HAVE BEEN ISSUED FOR YOUR JLG PRODUCT. ALL ITEMS REQUIRED BY THE SAFETY RELATED BULLETINS MUST BE COMPLETED ON THE AFFECTED JLG PRODUCT

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.

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All procedures herein are based on the use of the machine under proper operating conditions, with no deviations from original design intent... as per OSHA regulations.

READ & HEED!

The ownership, use, service, and/or maintenance of this machine is subject to various governmental and local laws and regulations. It is the responsibility of the owner/user to be knowledgeable of these laws and regulations and to comply with them. The most prevalent regulations of this type in the United States are the Federal OSHA Safety Regulations*. Listed below, in abbreviated form are some of the requirements of Federal OSHA regulations in effect as of the date of publication of this handbook.

The listing of these requirements shall not relieve the owner/user of the responsibility and obligation to determine all applicable laws and regulations and their exact wording and requirements, and to comply with the requirements. Nor shall the listing of these requirements constitute an assumption of responsibility of liability on the part of JLG Industries, Inc.

1. Only trained and authorized operators shall be permitted to operate the aerial lift.
2. A malfunctioning lift shall be shut down until repaired.
3. The controls shall be plainly marked as to their function.
4. The controls shall be tested each day prior to use to determine that they are in safe operating condition.
5. All personnel in the platform shall, at all times, wear approved fall protection devices and other safety gear as required.
6. Load limits specified by the manufacturer shall not be exceeded.
7. Instruction and warning placards must be legible.
8. Aerial lifts may be field modified for uses other than those intended by the manufacturer only if certified in writing by the manufacturer to be in conformity to JLG requirements and to be at least as safe as it was prior to modification.
9. Aerial lifts shall not be used near electric power lines unless the lines have been de energized or adequate clearance is maintained.
10. Employees using aerial lifts shall be instructed on how to recognize and avoid unsafe conditions and hazards.
11. Ground controls shall not be operated unless permission has been obtained from personnel in the platform, except in case of an emergency.
12. Regular inspection of the job site and aerial lift shall be performed by competent persons.
13. Personnel shall always stand on the floor of the platform, not on boxes, planks, railing or other devices, for a work position.

*Applicable Federal OSHA regulations for the United States, as of the date of publication of this manual, include, but are not limited to, 29 CFR 1910.67, 29 CFR 1926.20, 29 CFR 1926.21, 29 CFR 1926.28, and 29 CFR 1926.453.

REVISON LOG

Original Issue	-	May 1, 1999
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SECTION 1. SAFETY PRECAUTIONS

1.1 GENERAL

This section prescribes the proper and safe practices for major areas of machine usage. In order to promote proper usage of the machine, it is mandatory that a daily routine be established based on instructions given in this section. A maintenance program must be also be established by a qualified person and must be followed to ensure that the machine is safe to operate.

The owner/user/operator of the machine should not accept operating responsibility until this manual has been read and understood, and operation of the machine, under the supervision of an experienced and qualified person, has been completed. If there is a question on application and or operation, JLG Industries Inc., should be consulted.

⚠ WARNING

MODIFICATION OR ALTERATION OF AN AERIAL PLATFORM SHALL BE MADE ONLY WITH PRIOR WRITTEN PERMISSION OF THE MANUFACTURER.

1.2 DRIVING/TOWING

Before driving the machine, the user must be familiar with the drive, steer and stopping characteristics. This is especially important when driving in close quarters.

The user should be familiar with the driving surface before driving. The surface should be firm and level and grades should not exceed the allowable grade for the machine.

NOTE: *Remember that the key to safe and proper usage is common sense and its careful application.*

The machine is not equipped with provisions for towing. Refer to Section 6 for emergency towing procedures.

SPECIAL NOTE:

⚠ WARNING

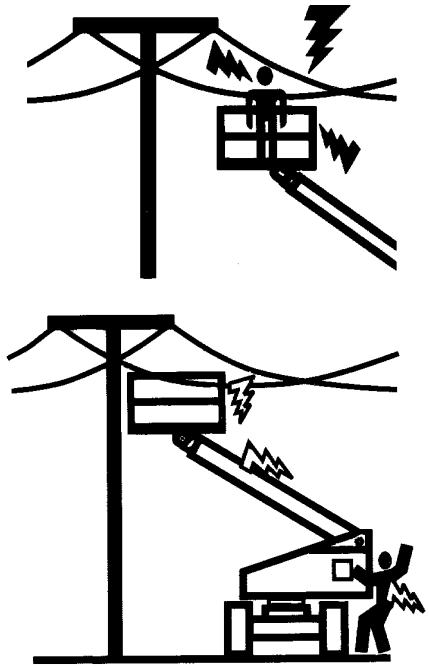
FAILURE TO COMPLY WITH SAFETY PRECAUTIONS LISTED IN THIS SECTION AND ON THE MACHINE COULD RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH, AND IS A SAFETY VIOLATION.

Table 1-1. Minimum Safe Approach Distances (M.S.A.D.) to energized (exposed or insulated) power lines and parts

Voltage Range (Phase to Phase)	MINIMUM SAFE APPROACH DISTANCE in Meters
0 to 300V	AVOID CONTACT
Over 300V to 50 KV	3
Over 50KV to 200 KV	5
Over 200 KV to 350 KV	6
Over 350 KV to 500 KV	8
Over 500 KV to 750 KV	11
Over 750 KV to 1000 KV	14

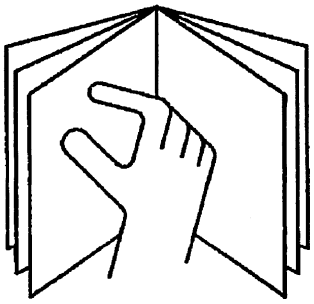
DANGER: DO NOT maneuver machine or personnel inside PROHIBITED ZONE. ASSUME all electrical parts and wiring are ENERGIZED unless known otherwise.

1.3 ELECTROCUTION HAZARD



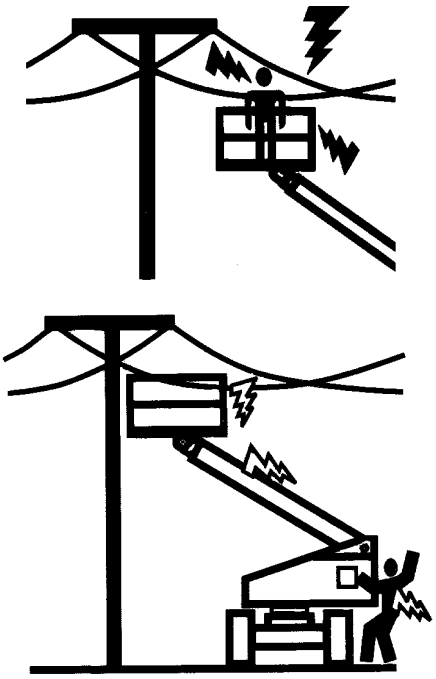
- MAINTAIN SAFE CLEARANCE FROM ELECTRICAL LINES AND APPARATUS. ALLOW FOR BOOM SWAY, ROCK OR SAG AND ELECTRICAL LINE SWAYING. THE MACHINE DOES NOT PROVIDE PROTECTION FROM CONTACT WITH OR PROXIMITY TO AN ELECTRICALLY CHARGED CONDUCTOR.
- MAINTAIN A CLEARANCE OF AT LEAST 3 M (10 FEET) BETWEEN ANY PART OF THE MACHINE OR ITS LOAD AND ANY ELECTRICAL LINE OR APPARATUS CARRYING UP TO 50,000 VOLTS. 30.5 cm ADDITIONAL CLEARANCE IS REQUIRED FOR EVERY ADDITIONAL 30,000 VOLTS OR LESS.

1.4 PRE-OPERATIONAL

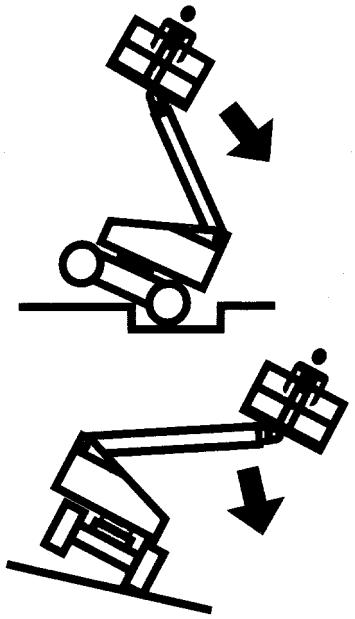


- READ YOUR MANUAL. UNDERSTAND WHAT YOU'VE READ - THEN BEGIN OPERATIONS.
- ALLOW ONLY AUTHORIZED AND QUALIFIED PERSONNEL TO OPERATE MACHINE WHO HAVE DEMONSTRATED THAT THEY UNDERSTAND SAFE AND PROPER OPERATION AND MAINTENANCE OF THE UNIT.

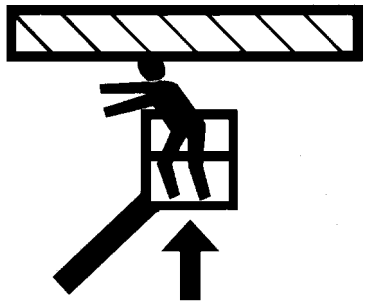
- AN OPERATOR MUST NOT ACCEPT OPERATING RESPONSIBILITIES UNTIL ADEQUATE TRAINING HAS BEEN GIVEN BY COMPETENT AND AUTHORIZED PERSONS.
- BEFORE OPERATION, CHECK WORK AREA FOR OVERHEAD ELECTRIC LINES, MACHINE TRAFFIC SUCH AS BRIDGE CRANES, HIGHWAY, RAILWAY AND CONSTRUCTION EQUIPMENT.



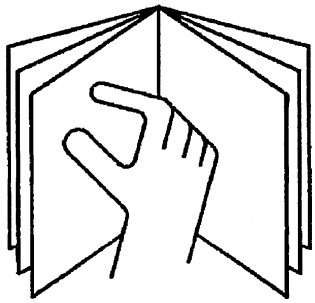
- PRECAUTIONS TO AVOID ALL KNOWN HAZARDS IN THE WORK AREA MUST BE TAKEN BY THE OPERATOR AND HIS SUPERVISOR BEFORE STARTING THE WORK.
- DO NOT OPERATE THIS MACHINE UNLESS IT HAS BEEN SERVICED AND MAINTAINED ACCORDING TO THE MANUFACTURERS SPECIFICATIONS AND SCHEDULE.
- ENSURE DAILY INSPECTION AND FUNCTION CHECK IS PERFORMED PRIOR TO PLACING MACHINE INTO OPERATION.
- NEVER DISABLE OR MODIFY THE FOOTSWITCH OR ANY OTHER SAFETY DEVICE. UNAUTHORIZED MODIFICATION OF THE MACHINE IS A SAFETY VIOLATION.



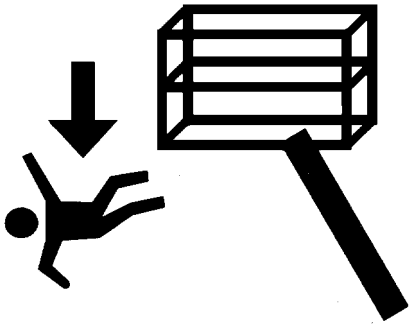
- DO NOT OPERATE MACHINE WHEN WIND CONDITIONS EXCEED 12.5 M/S (30MPH).
- NEVER OPERATE BOOM FUNCTIONS (TELE, SWING, LIFT) WHEN MACHINE IS ON A TRUCK, OTHER VEHICLE, OR ABOVE GROUND STRUCTURE.
- THIS MACHINE CAN BE OPERATED IN NOMINAL AMBIENT TEMPERATURES OF -20° C TO 40° C (0° F TO 104°F). CONSULT FACTORY TO OPTIMIZE OPERATION OUTSIDE THIS RANGE.



- APPROVED HEAD GEAR MUST BE WORN BY ALL OPERATING AND GROUND PERSONNEL.

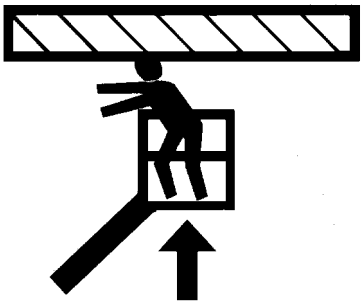


- READ AND OBEY ALL DANGERS, WARNINGS, CAUTIONS AND OPERATING INSTRUCTIONS ON MACHINE AND IN THIS MANUAL.
- BE FAMILIAR WITH LOCATION AND OPERATION OF GROUND STATION CONTROLS.

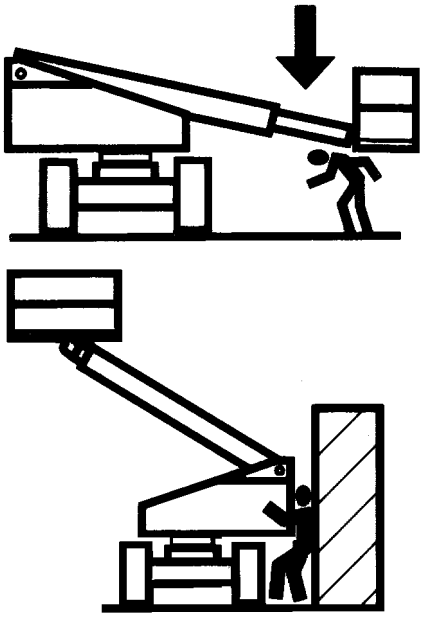


- ALWAYS USE THREE POINT CONTACT WHEN ENTERING OR EXITING THE MACHINE. FACE THE MACHINE WHEN YOU ENTER OR LEAVE. THREE POINT CONTACT MEANS THAT TWO HANDS AND ONE FOOT OR ONE HAND AND TWO FEET ARE IN CONTACT WITH THE MACHINE AT ALL TIMES DURING MOUNT AND DISMOUNT.

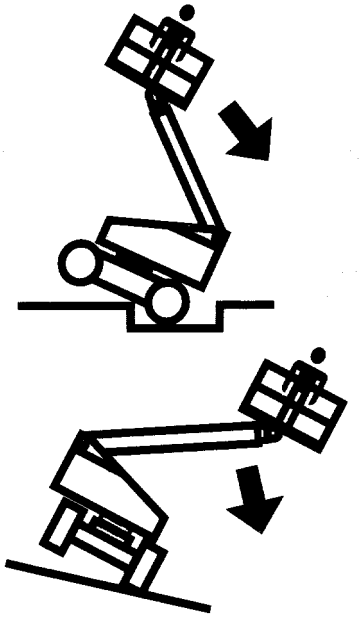
1.5 DRIVING



- WATCH FOR OBSTRUCTIONS AROUND MACHINE AND OVERHEAD WHEN DRIVING.
- ALWAYS POSITION BOOM OVER REAR (DRIVE) AXLE IN LINE WITH DIRECTION OF TRAVEL. REMEMBER, IF BOOM IS OVER FRONT (STEER) AXLE, DIRECTION OF STEER AND DRIVE MOVEMENT WILL BE OPPOSITE FROM NORMAL OPERATION.

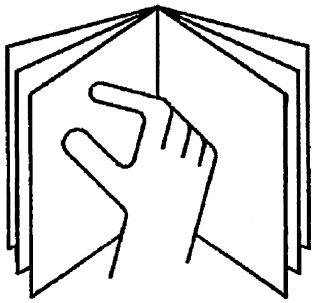


- DO NOT USE DRIVE FUNCTION TO POSITION PLATFORM CLOSE TO OBSTACLES. USE BOOM FUNCTION INSTEAD.
- WHEN DRIVING IN HIGH SPEED, SWITCH TO LOW SPEED BEFORE STOPPING. TRAVEL GRADES IN LOW DRIVE, HIGH ENGINE ONLY.
- DO NOT USE HIGH SPEED DRIVE WHEN IN RESTRICTED OR CLOSE QUARTERS, OR WHEN DRIVING IN REVERSE.
- BE AWARE OF STOPPING DISTANCES WHEN TRAVELING IN HIGH AND LOW SPEEDS.
- ALWAYS POST A LOOKOUT AND SOUND HORN WHEN DRIVING IN AREAS WHERE VISION IS OBSTRUCTED.
- KEEP NON-OPERATING PERSONNEL AT LEAST 2 M (6 FEET) AWAY FROM MACHINE DURING DRIVING OPERATIONS.

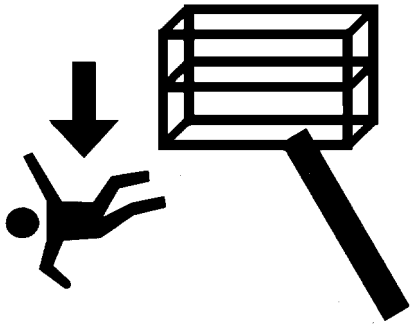


- CHECK TRAVEL PATH FOR PERSONS, HOLES, BUMPS, DROP-OFFS, OBSTRUCTIONS, DEBRIS, AND COVERINGS WHICH MAY CONCEAL HOLES AND OTHER HAZARDS.
- TRAVEL IS PERMITTED ON GRADES AND SIDESLOPES NO GREATER THAN THOSE INDICATED IN WARNING PLACARD AT MACHINE PLATFORM.
- OPERATION WITH BOOM RAISED IS RESTRICTED TO FIRM, LEVEL AND UNIFORM SURFACE.
- DO NOT TRAVEL ON SOFT OR UNEVEN SURFACES, AS TIPPING WILL OCCUR.
- DO NOT DRIVE MACHINE NEAR PITS, LOADING DOCKS OR OTHER DROP-OFFS.

1.6 OPERATION.

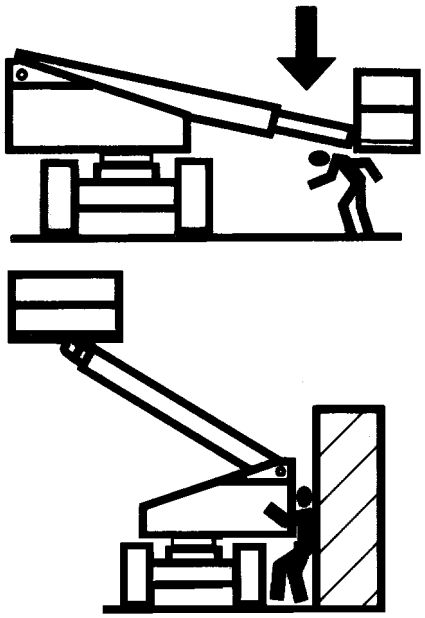


- READ YOUR MANUAL. UNDERSTAND WHAT YOU'VE READ - THEN BEGIN OPERATIONS.

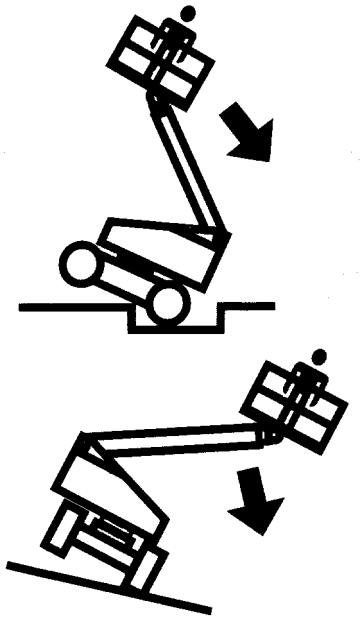


- PRIOR TO ENTERING AND EXITING PLATFORM AT GROUND LEVEL, FULLY LOWER THE BOOM. EXTEND BOOM UNTIL END OF FLY BOOM CONTACTS GROUND. WITH BOOM LIFT IN THIS CONFIGURATION, ENTER AND/OR EXIT PLATFORM THROUGH GATE OPENING.
- JLG RECOMMENDS ALL PERSONS IN THE PLATFORM TO WEAR LANYARDS WITH AN APPROVED FALL PROTECTION DEVICE. SECURE LANYARD TO DESIGNATED LANYARD ATTACH POINT ON PLATFORM. KEEP GATE CLOSED AT ALL TIMES.
- TO AVOID FALLING - USE EXTREME CAUTION WHEN ENTERING OR LEAVING PLATFORM ABOVE GROUND. ENTER OR EXIT THRU GATE ONLY. PLATFORM FLOOR MUST BE WITHIN 30CM (1 FOOT) OF ADJACENT - SAFE AND SECURE - STRUCTURE. ALLOW FOR PLATFORM VERTICAL MOVEMENT AS WEIGHT IS TRANSFERRED TO OR FROM PLATFORM.

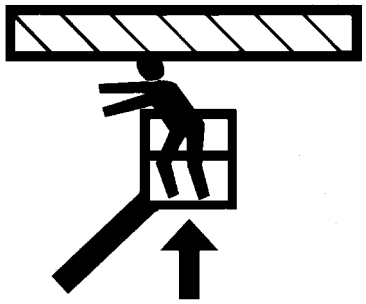
- TRANSFERS BETWEEN A STRUCTURE AND THE AERIAL PLATFORM EXPOSE OPERATORS TO FALL HAZARDS. THIS PRACTICE SHOULD BE DISCOURAGED WHEREVER POSSIBLE. WHERE TRANSFER MUST BE ACCOMPLISHED TO PERFORM THE JOB TWO LANYARDS WITH AN APPROVED FALL PROTECTION DEVICE WILL BE USED. ONE LANYARD SHOULD BE ATTACHED TO THE AERIAL PLATFORM. THE OTHER TO THE STRUCTURE. THE LANYARD THAT IS ATTACHED TO THE AERIAL PLATFORM SHOULD NOT BE DISCONNECTED UNTIL SUCH TIME AS THE TRANSFER TO THE STRUCTURE IS COMPLETE. OTHERWISE, DO NOT STEP OUTSIDE OF PLATFORM.
- DO NOT ADD NOTICE BOARDS OR SIMILAR ITEMS TO THE PLATFORM. ADDITION OF SUCH ITEMS INCREASES THE EXPOSED WIND AREA OF THE MACHINE.
- NEVER POSITION LADDERS, STEPS, OR SIMILAR ITEMS ON UNIT TO PROVIDE ADDITIONAL REACH FOR ANY PURPOSE.
- WHEN RIDING IN OR WORKING FROM PLATFORM, BOTH FEET MUST BE FIRMLY POSITIONED ON THE FLOOR.
- KEEP OIL, MUD AND SLIPPERY SUBSTANCES CLEANED FROM FOOTWEAR AND PLATFORM FLOOR.
- NEVER "WALK" THE BOOM TO GAIN ACCESS TO OR LEAVE PLATFORM.
- NEVER PLACE HANDS OR ARMS IN TOWER BOOM OR UPRIGHT MECHANISM.
- KEEP ALL NON-OPERATING PERSONNEL AT LEAST 2 METERS AWAY FROM THE MACHINE AT ALL TIMES.
- IF PLATFORM OR BOOM IS CAUGHT SO THAT ONE OR MORE WHEELS ARE OFF THE FLOOR, ALL PERSONNEL MUST BE REMOVED FROM PLATFORM BEFORE ATTEMPTING TO FREE MACHINE. USE CRANES, FORKLIFT TRUCKS OR OTHER EQUIPMENT TO REMOVE PERSONNEL AND STABILIZE MACHINE MOTION, IF NECESSARY.



- THE OPERATOR IS RESPONSIBLE TO AVOID OPERATING MACHINE OVER GROUND PERSONNEL AND TO WARN THEM NOT TO WORK, WALK OR STAND UNDER A RAISED BOOM OR PLATFORM. POSITION BARRICADES ON FLOOR IF NECESSARY.



- ENSURE MACHINE IS POSITIONED ON A FIRM, LEVEL AND UNIFORM SUPPORTING SURFACE BEFORE RAISING OR EXTENDING BOOM.



- CHECK CLEARANCES ABOVE, ON SIDES AND BOTTOM OF PLATFORM WHEN RAISING, LOWERING, SWINGING, AND TELESCOPING BOOM.
- EXERCISE EXTREME CAUTION AT ALL TIMES TO PREVENT OBSTACLES FROM STRIKING OR INTERFERING WITH OPERATING CONTROLS AND PERSONS IN PLATFORM.
- ENSURE THAT OPERATORS OF OTHER OVERHEAD AND FLOOR MACHINES ARE AWARE OF THE AERIAL PLATFORMS PRESENCE. DISCONNECT POWER TO OVERHEAD CRANES. POSITION BARRICADES ON FLOOR IF NECESSARY.
- NEVER "SLAM" A CONTROL SWITCH OR LEVER THROUGH NEUTRAL TO THE OPPOSITE DIRECTION. ALWAYS RETURN SWITCH TO NEUTRAL AND STOP; THEN MOVE SWITCH TO THE DESIRED POSITION. OPERATE LEVERS WITH SLOW, EVEN PRESSURE.
- DO NOT CARRY MATERIALS ON PLATFORM RAILING UNLESS APPROVED BY JLG INDUSTRIES INC.
- NEVER PUSH OR PULL THE MACHINE OR OTHER OBJECTS BY TELESCOPING THE BOOM.
- NEVER USE BOOM FOR ANY PURPOSE OTHER THAN POSITIONING PERSONNEL, THEIR TOOLS AND EQUIPMENT.
- NEVER EXCEED MANUFACTURERS RATED PLATFORM CAPACITY - REFER TO CAPACITY DECAL ON MACHINE. DISTRIBUTE LOADS EVENLY ON PLATFORM FLOOR.
- NEVER OPERATE A MALFUNCTIONING MACHINE. IF A MALFUNCTION OCCURS, SHUT DOWN THE MACHINE, RED TAG IT, AND NOTIFY PROPER AUTHORITIES.
- DO NOT REMOVE, MODIFY, OR DISABLE FOOTSWITCH BY BLOCKING OR ANY OTHER MEANS.
- DO NOT ASSIST A STUCK OR DISABLED MACHINE BY PUSHING OR PULLING EXCEPT BY PULLING AT CHASSIS TIE-DOWN LUGS.
- NEVER ATTEMPT USING BOOM AS A CRANE. STRUCTURAL DAMAGE OR TIPPING MAY OCCUR.
- STOW BOOM AND SHUT OFF ALL POWER BEFORE LEAVING MACHINE.
- NO STUNT DRIVING OR HORSEPLAY IS PERMITTED.

- NEVER ATTEMPT TO FREE A MACHINE STUCK IN SOFT GROUND OR ASSIST A MACHINE UP A STEEP HILL OR RAMP BY USING BOOM "LIFT", "TELESCOPE", OR "SWING" FUNCTIONS.
- NEVER ATTACH WIRE, CABLE, OR ANY SIMILAR ITEMS TO PLATFORM.
- DO NOT PLACE BOOM OR PLATFORM AGAINST ANY STRUCTURE TO STEADY PLATFORM OR SUPPORT STRUCTURES.
- DO NOT USE THE LIFT, SWING, OR TELESCOPE FUNCTIONS FOR THE BOOM, TO MOVE EITHER THE MACHINE OR OTHER OBJECTS.
- HYDRAULIC CYLINDERS SHOULD NEVER BE LEFT FULLY EXTENDED OR RETRACTED FOR ANY LENGTH OF TIME. ALWAYS "BUMP" CONTROL IN OPPOSITE DIRECTION SLIGHTLY WHEN FUNCTION BEING USED REACHES END OF TRAVEL. THIS APPLIES TO MACHINES IN OPERATION OR IN STOWED MODE.
- DO NOT OPERATE ANY MACHINE ON WHICH DANGER, WARNING, CAUTION OR INSTRUCTION PLACARDS OR DECALS ARE MISSING OR ILLEGIBLE.
- MACHINE MUST ALWAYS BE SHUT DOWN WHEN REFUELING. NO SMOKING IS MANDATORY. NEVER REFUEL DURING AN ELECTRICAL STORM. ENSURE THAT FUEL CAP IS CLOSED AND SECURE AT ALL OTHER TIMES.

1.7 TOWING AND HAULING

- DO NOT TOW A MACHINE EXCEPT IN AN EMERGENCY. SEE SECTION 6 FOR EMERGENCY TOWING PROCEDURES.
- LOCK TURNTABLE BEFORE TRAVELING LONG DISTANCES OR BEFORE HAULING MACHINE ON A TRUCK OR TRAILER.

SECTION 2. PREPARATION AND INSPECTION

2.1 GENERAL

This section provides the necessary information needed by those personnel that are responsible to place the machine in operation readiness, and lists checks that are performed prior to use of the machine. It is important that the information contained in this section be read and understood before any attempt is made to operate the machine. Ensure that all the necessary inspections have been completed successfully before placing the machine into service. These procedures will aid in obtaining maximum service life and safe operation.

⚠ IMPORTANT

SINCE THE MACHINE MANUFACTURER HAS NO DIRECT CONTROL OVER THE FIELD INSPECTION AND MAINTENANCE, SAFETY IS THE RESPONSIBILITY OF THE OWNER/OPERATOR.

2.2 PREPARATION FOR USE

Before a new machine is put into operation it must be carefully inspected for any evidence of damage resulting from shipment and inspected periodically thereafter, as outlined in Delivery and Frequent Inspection (see section 2-3). During initial start-up and run, the unit should be thoroughly checked for hydraulic leaks. A check of all components should be made to ensure their security.

All preparation necessary to place the machine in operation readiness status is the responsibility of management personnel. Preparation requires good common sense, (i.e. telescope works smoothly and brakes operate properly) coupled with a series of visual inspections. The mandatory requirements are given in the Daily Walk Around Inspection (see section 2-4).

It should be assured that the items appearing in the Delivery and Frequent Inspection and Functional Check are complied with prior to putting the machine into service.

2.3 DELIVERY AND FREQUENT INSPECTION

NOTE: *This machine requires periodic safety and maintenance inspections by an authorized JLG Dealer.*

The following checklist provides a systematic inspection to assist in detecting defective, damaged, or improperly installed parts. The checklist denotes the items to be inspected and conditions to examine.

Frequent inspection shall be performed every 3 months or 150 hours whichever comes first, or more often when required by environment, severity, and frequency of usage.

Chassis

1. Check front tire and wheel assemblies for loose or worn spindles, components and hardware for security, tires for wear and damage.
2. Check steering assembly for loose or bent tie rod, cylinder and hydraulic lines for leaks and security, and hardware for proper installation.
3. Check rear tire and wheel assemblies for security, tires for wear and damage.
4. Check drive hubs, hydraulic motors, brakes and hydraulic lines for damage and leaks.
5. Check oil level in drive hub by removing pipe plug on side and feeling for oil level. (Contact Service Personnel for assistance if needed).

NOTE: *Torque hubs should be one-half full of lubricant.*

6. Check 4WS steering assembly (if equipped) for loose or bent tie rod, cylinder and hydraulic lines for leaks and security, and hardware for proper installation.
7. Check counterbalance, flow divider valves, hydraulic swivel assembly and lines for visible damage, evidence of leakage, and security and electrical connections for corrosion and tightness.
8. Check extending axle assemblies for evidence of leakage and security; pressure lines for abnormal chafing drive hubs, hydraulic motors, brakes and hydraulic lines for damage and leaks.

9. Check extending axles for visible damage and loose or missing parts.
10. Check oscillating axle (if equipped) for loose, missing and worn parts, pivot pin and lockout cylinder pins for security, lockout cylinders and hydraulic hoses for damage and leaks.

Turntable

1. Check turntable and turntable lock for damage, loose or missing parts, and security. Check swing drive hub, hydraulic motor, and brake for damage, loose or missing parts, hydraulic lines and component housings for evidence of leakage; pinion for proper mesh with swing gear.
2. Check swing bearing for damage, wear, lubrication and loose or missing bearing bolts.
3. Check solenoid valves and hydraulic lines for damage, leakage, security and electrical connections for tightness and evidence of corrosion.
4. Check ground controls for damage, loose or missing parts, security, electrical connections for evidence of corrosion and tightness and wiring for insulation damage. Assure that all switches function properly.
5. Check manual descent valves for visible damage, evidence of leakage and security. Assure that valves function properly.
6. Check battery for damage, loose or missing vent caps, electrical connections for tightness, and evidence of corrosion, holddown brackets for tightness, and electrolyte for proper water level. Add only clean distilled water to battery.
7. Check engine and accessories for damage, loose or missing parts, leakage and security. Check throttle solenoid and linkage for damage, electrical connections for tightness, and evidence of corrosion and wiring for insulation damage.
8. Check fuel lines for damage, leakage and security.
9. Check all access doors for damage, proper operation of latches, props and security.
10. Check fuel tank for damage, leakage and filler cap for security.
11. Check hydraulic reservoir and hydraulic lines for damage, leakage and security.

NOTE: *JLG recommends replacing the hydraulic filter element after the first 50 hours of operation and then every 300 hours thereafter, unless system indicator require earlier replacement.*

12. Check all cylinder pin and shaft retaining hardware for security and wear.
13. Check all electrical cables for defects, damage, loose or corroded connections.

Boom

1. Check all cylinder pin and shaft retaining hardware for security and wear.
2. Check hydraulic lines, electrical cable and track assemblies for damage, missing parts and security.
3. Check lift cylinder and cross pins and hydraulic lines for damage, wear, leakage and security.
4. Check boom pivot pins for damage, wear, and security.
5. Check hydraulic line and electrical cable track assembly for visible damage, loose or missing parts, and security.
6. Check boom for damage, missing parts and security.
7. Check boom wear pads for damage, wear and security.
8. Check boom telescope cylinder and cross pins and hydraulic lines for damage, wear, leakage and security.
9. Check platform leveling cylinder and cross pins and hydraulic lines for damage, wear, leakage and security.
10. Check boom/platform pivot pin for damage, wear and security.

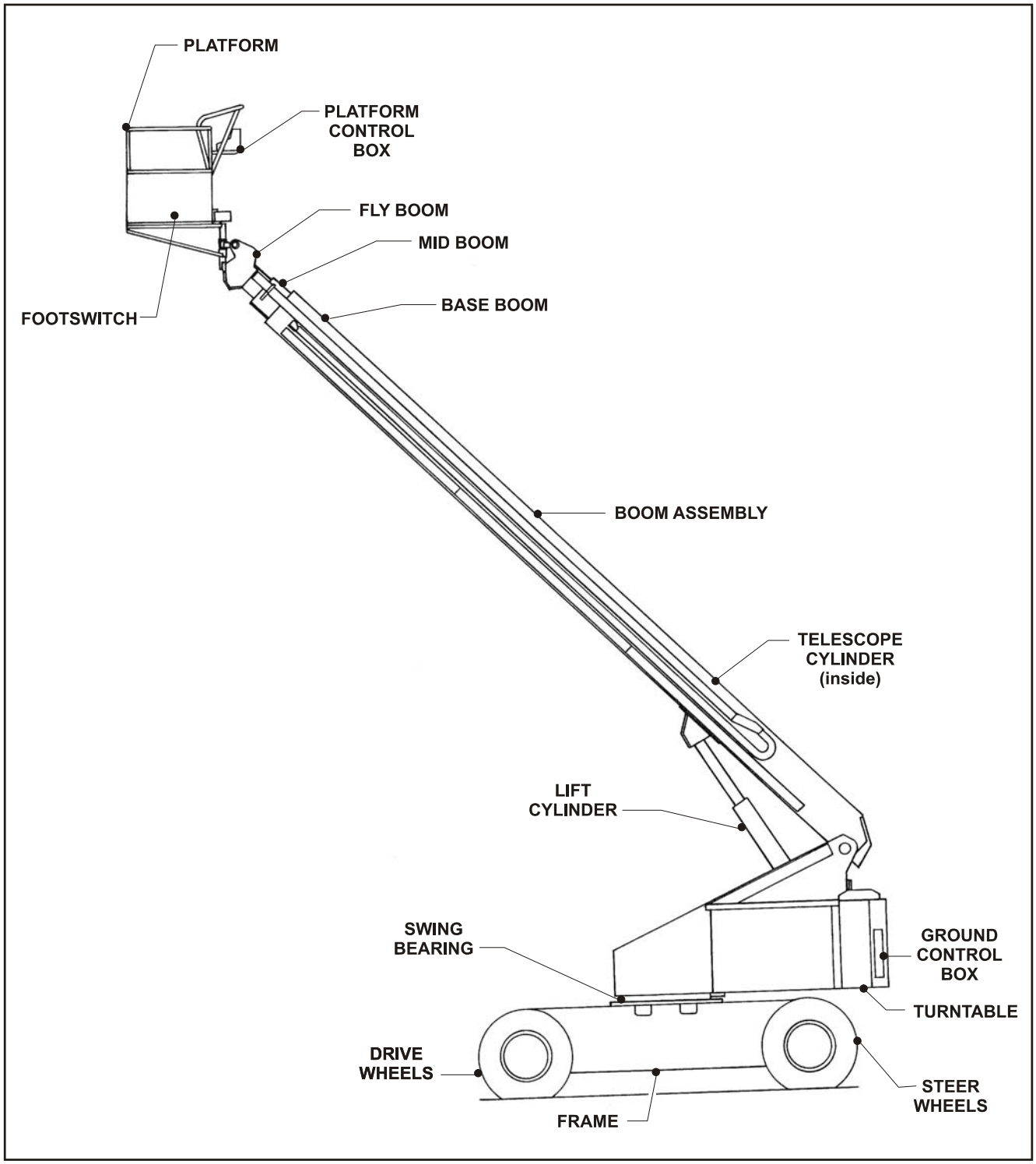


Figure 2-1. Machine Nomenclature

11. Check horizontal and capacity limit switches mounted on turntable for security of mounting, damage to switch arms and rollers; and for debris.

12. Check boom tape for correct length and tearing or defacing at any point.

Extend-A-Reach (If Equipped)

1. Check the slave cylinder, weld link and cross pins, and lines for visible damage, wear, lubrication, evidence of leakage, and security.

2. Check extend-a-reach for visible damage, loose or missing parts, and security.

3. Check hydraulic lines and electrical cable for damage, missing parts and security.

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 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 switches function properly.

4. Check capacity indicator for correct operation, any damage and that decals are not defaced. Ensure indicator dial is zeroed with boom at horizontal and indicator dial moves in accordance with boom angle.

5. Check access gate hinges and latch for proper operation, damage and security.

6. 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 (Figure 2-6.) 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 2-2.)

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 is 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.

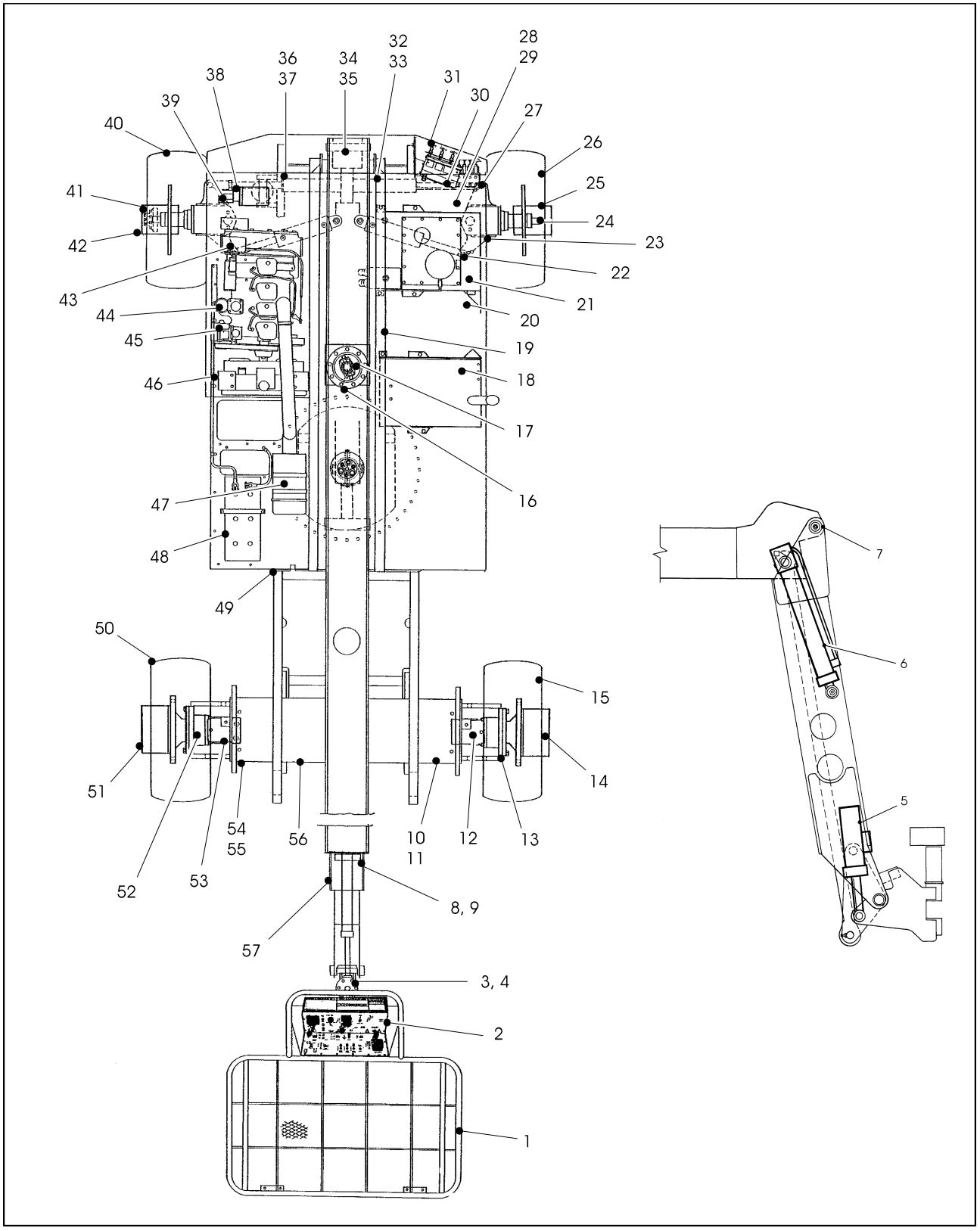


Figure 2-2. Daily Walk-Around Inspection - Sheet 1 of 4

GENERAL

NOTE: *Begin the "Walk-Around Inspection" at Item 1, as noted on the diagram. Continue to the right (counter-clockwise viewed from top) checking each item in sequence for the conditions listed in the "Walk-Around Inspection Checklist".*

⚠ 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: *Do not overlook visual inspection of chassis underside. Checking this area often results in discovery of conditions which could cause extensive machine damage.*

1. **Platform Assembly -** No loose or missing parts, no visible damage. Lock bolts in place. Footswitch in good working order, not modified, disabled or blocked. Check area of fly boom nose section above and under platform slave level cylinder for accumulation of foreign material. Remove any foreign material present.
2. **Platform Control Console -** Switches and levers return to neutral and are properly secured, no loose or missing parts, no visible damage, decals/placards secure and legible, control marking legible.
3. **Rotator -** Properly secured, no visible damage, no evidence of leakage.
4. **Rotator and Motor -** Properly secured, no visible damage, no evidence of leakage.
5. **Slave Leveling Cylinder, Extend-A-Reach -** Properly secured, no visible damage, no evidence of leakage. (If equipped on Extend-A-Reach)
6. **Extend-A-Reach Lift Cylinder -** Properly secured, no visible damage, or signs of leakage, evidence of proper lubrication. (If equipped on Extend-A-Reach)
7. **Extend-A-Reach Pivot -** No loose, damaged, or missing parts, evidence of proper lubrication. (If equipped on Extend-A-Reach)
8. **Hose and Cable Guards/Clamps -** Properly secured, no visible damage.
9. **Power Track -** No loose, damaged or missing parts, no visible damage.
10. **Steer Cylinder Assembly, Right Rear -** Properly secured, no visible damage or signs of leakage. (4 Wheel Steer)
11. **Tie Rod and Steering Linkage -** No loose or missing parts, no visible damage. Tie rod end studs locked. (4 Wheel Steer)
12. **Drive Motor and Brake, Right Rear -** No visible damage, no evidence of leakage.
13. **Spindle, Right Rear -** No loose or missing parts, no visible damage, evidence of proper lubrication. (4 Wheel Steer)
14. **Drive Hub, Right Rear -** No visible damage, no evidence of leakage.
15. **Wheel/Tire Assembly, Right Rear -** Properly secured, no loose or missing lug nuts, no visible damage.
16. **Turntable Bearing and Pinion -** No loose or missing hardware; no visible damage, evidence of proper lubrication. No evidence of loose bolts or looseness between bearing and structure.
17. **Swing Drive Motor and Brake -** No visible damage, no evidence of leakage.
18. **Fuel Supply -** Fuel filler cap secure. Tank - no visible damage; no evidence of leaks.
19. **Extend-A-Reach Control valves (Tank Compartment)** No visible damage, no evidence of leakage, no unsupported wires or hoses, no damaged wires.

Figure 2-3. Daily Walk-Around Inspection - Sheet 2 of 4

20. **Control Valves (Tank Compartment) -** No loose or missing parts, no evidence of leakage, no damaged wires.
21. **Hydraulic Oil Supply -** Recommended oil level in sight gauge. (Check level with cold oil, systems shut down, machine in stowed position) Cap in place and secure.
22. **Steer Cylinder Assembly** - Properly secured, no visible damage or signs of leakage.
23. **Cowling and Latches, Right Side -** All cowling and latches in working condition, properly secured, no loose or missing part.
24. **Spindle, Right Front -** Properly secured, no loose or missing parts, no visible damage.
25. **Drive Hub, Right Front** - No visible damage, no evidence of leakage. **(4 Wheel Drive)**
26. **Wheel/Tire Assembly, Right Front -** Properly secured, no loose or missing lug nuts, no visible damage.
27. **Tie Rod and Steering Linkage, Right Front -** No loose or missing parts, no visible damage. Tie rod end studs locked.
28. **Axle Lock Pin, Right Front -** No loose or missing parts, no visible damage. Installed in proper location.
29. **Oscillating Axle Cylinder, Right Front** - Properly secured, no visible damage or signs of leakage. **(If Equipped)**
30. **Ground Controls -** Switches operable, no visible damage, decals secure and legible.
31. **Manual Descent -** No evidence of leakage, no visible damage.
32. **Oscillating Axle** - Properly secured, no loose or missing parts, no visible damage. **(If Equipped)**
33. **Towing Package** - No loose, damaged or missing parts, no visible damage. **(If Equipped)**
34. **Master Cylinder** - Properly secured, evidence of lubrication.
35. **Lift Cylinder** - Properly secured, evidence of lubrication.
36. **Oscillating Axle Cylinder, Left Front** - Properly secured, no visible damage or signs of leakage. **(If Equipped)**
37. **Axle Lock Pin, Left Front -** No loose or missing parts, no visible damage. Installed in proper location.
38. **Tie Rod and Steering Linkage, Left Front -** No loose or missing parts, no visible damage. Tie rod end studs locked.
39. **Auxiliary Power Pump** - No loose or missing parts, no evidence of leakage, no damaged wires.
40. **Wheel/Tire Assembly, Left Front -** Properly secured, no loose or missing lug nuts, no visible damage.
41. **Spindle, Left Front -** Properly secured, no loose or missing parts, no visible damage.
42. **Drive Hub, Right Front** - No visible damage, no evidence of leakage. **(4 Wheel Drive)**
43. **Hydraulic Pump** - No loose or missing parts, no evidence of leakage.
44. **Muffler and Exhaust System** - Properly secured, no evidence of leakage
45. **Engine Oil Supply** - Full mark on dipstick; filler cap secure.
46. **Cowling and Latches, Left Side -** All cowling and latches in working condition, properly secured, no loose or missing part.
47. **Engine Air Filter** - No loose or missing parts; no visible damage; element clean.
48. **Battery** - Proper electrolyte levels; cables tight, no visible damage or corrosion.
49. **Turntable Lock -** Operable; No missing parts, no visible damage.
50. **Wheel/Tire Assembly, Left Rear -** Properly secured, no loose or missing lug nuts, no visible damage.

Figure 2-4. Daily Walk-Around Inspection - Sheet 3 of 4

51. **Drive Hub, Left Rear** - No visible damage, no evidence of leakage.
52. **Drive Motor and Brake, Left Rear -** No visible damage, no evidence of leakage.
53. **Spindle, Left Rear -** Properly secured, no loose or missing parts, no visible damage. (**4 Wheel Steer)**
54. **Tie Rod and Steering Linkage, Left Rear -** No loose or missing parts, no visible damage. Tie rod end studs locked. (4 Wheel Steer)
55. **Steer Cylinder Assembly, Left Rear** - Properly secured, no visible damage or signs of leakage, evidence of proper lubrication.
56. **Frame** - No visible damage, no loose or missing hardware (top and underside).
57. **Boom Sections** - No visible damage; wear pads secure. All cylinders - rod end shafts and barrel-end shafts properly secured.

Figure 2-5. Daily Walk-Around Inspection - Sheet 4 of 4

2.5 DAILY FUNCTIONAL CHECK

⚠ IMPORTANT

PROPER AXLE EXTENSION MUST BE CHECKED AND VERIFIED PRIOR TO ANY OTHER SYSTEMS AND/OR FUNCTIONS.

A functional check of all systems should be performed, once the walk-around inspection is complete, in an area free of overhead and ground level obstructions. First, using the ground controls, check all functions controlled by the ground controls. Next, using the platform controls, check all functions controlled by the platform controls.

⚠ WARNING

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

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

NOTE: *Perform checks from the ground controls first, where applicable, then from the platform controls.*

1. Extendable Axles.

   Prior to extending the axles, verify that the boom will not elevate above horizontal and that it will not extend more than 10 feet (3.0 m). For machines equipped with red Axles Set or red Axles Not Set indicator lamps, at the platform and/or the ground controls, verify the lamps illuminate until the axles are properly extended and locked. For machines equipped with green Axles Set indicator lamps at the platform and/or the ground controls, the lamps should not illuminate until the axles are extended and locked.

⚠ WARNING

DO NOT OPERATE THE MACHINE IF THE BOOM ELEVATES ABOVE HORIZONTAL OR EXTENDS BEYOND TEN FEET WITHOUT FULLY EXTENDING AND LOCKING THE AXLES.

Check axle operation as follows:

NOTE: *Fixed axle machines have retaining pins for the axles, steer cylinders, and tie rods. Machines equipped with oscillating axles do not have these retaining pins and all extending and retracting operations are performed from the platform without aid of an assistant.*

Machines Without Jacks

a. Position the boom over the drive wheel end of machine. Position STEER/AXLES valve, located adjacent to the right front wheel, to AXLES. Remove axle lock pins.

⚠ IMPORTANT

DO NOT USE EXTEND-A-REACH (IF EQUIPPED) TO LIFT MACHINE WHEN EXTENDING AND RETRACTING AXLES.

NOTE: *On machines equipped with Soft Touch Proximity System, the operator must press and hold the override button on the front of the control box in order to lift the drive wheels from the ground.*

b. Position LIFT control to DOWN and hold until drive wheels rise from the ground; it may be necessary to feather the lift control to maintain drive wheel elevation.

c. With the aid of an assistant, position the EXTENDABLE AXLE/STEER switch located on the platform control console to LEFT until axles are fully extended. On machines with fixed axles, install axle lock pins.

d. Position LIFT control to UP to lower the machine; elevate the boom sufficiently and reposition the boom over the steer wheel end of the machine.

e. Repeat steps b thru d for the steer axle. On machines with fixed axles, remove the tie rod lock pins, steer cylinder lock pin, and axle lock pins.

f. Position STEER/AXLES valve to STEER.

g. On machines with fixed axles, cycle steer system in both directions to ensure tie rod and steer cylinder are properly locked.

h. For machines equipped with a green Axles Set Indicator lamp, verify proper operation of the lamp at the platform and ground controls.

Machines With Jacks

NOTE: *For machines equipped with a front jack only, refer to the instructions under Machines Without Jacks to extend the rear axle.*

a. Position STEER/AXLES valve, located adjacent to the right front wheel, to AXLES.

b. Position Jack/Steer/Axles select switch on the platform control console to JACK.

c. On machines with fixed axles, remove the axle lock pins on the applicable axle. If extending the steer axle, also remove the tie rod lock pins and steer cylinder lock pin.

d. Position the Jack Select Switch to either FRONT JACK or REAR JACK and position the JACK

control switch to down and hold until the wheels on the selected axle rise from the ground.

e. Position the Jack/Steer/Axles select switch to AXLES. Then, position the Steer/Axles/Jack control switch to left until the axles are fully extended. On machines with fixed axles, install axle lock pins. If extending the steer axle, also install the tie rod lock pins and steer cylinder lock pin.

f. Position the JACK control to the up position to lower the machine. Ensure the jack is fully retracted before operating the machine.

⚠ CAUTION

ENSURE THE JACK IS FULLY RETRACTED BEFORE OPERATING THE MACHINE. FAILURE TO DO SO COULD RESULT IN DAMAGE TO THE MACHINE.

g. Repeat steps b thru f to extend the opposite axle.

h. Position the STEER/AXLES valve to STEER.

i. On machines with fixed axles, cycle the steer system in both directions to ensure the tie rod and steer cylinder are properly locked.

j. For machines equipped with a green Axles Set Indicator lamp, verify proper operation of the lamp at the platform and ground controls.

2. Drive forward and reverse; check for proper operation.

3. Steer left and right; check for proper operation.

4. If equipped with 4 wheel steer, check rear steer left and right for proper operation.

5. If equipped, check platform rotator for smooth operation and assure platform will rotate 90 degrees in both directions from centerline of boom.

6. Raise, lower, and swing boom to LEFT and RIGHT a minimum of 45 degrees (Cycle function several times.) Check for smooth elevation and swing motion.

7. If equipped with Extend-A-Reach, raise and lower and swing Extend-A-Reach (Cycle functions several times). check for smooth elevation and swing motion.

8. Telescope boom in and out several cycles at various degrees of elevation lengths. Check for smooth telescope operation.

9. Check that platform automatic self-leveling system functions properly during raising and lowering of the boom.

10. Check platform level adjustment system for proper operation.

NOTE: *Turntable lock is on turntable facing platform. To disengage lock, pull snap pin from lock pin, lift lock pin up to unlock turntable. Return snap pin to lock pin to hold lock pin in the disengaged position. Reverse procedure to engage turntable lock.*

11. Swing turntable to LEFT and RIGHT a minimum of 45 degrees. Check for smooth motion.

12. With the aid of an assistant to monitor the CHASSIS OUT OF LEVEL indicator light on the platform control console, manually activate the indicator light by compressing any one of the three tilt indicator mounting springs. If the light does not illuminate, shut down machine and contact a qualified service technician before continuing operation.

13. Footswitch.

⚠ IMPORTANT

FOOTSWITCH MUST BE ADJUSTED SO THAT FUNCTIONS WILL OPERATE WHEN PEDAL IS APPROXIMATELY AT ITS CENTER OF TRAVEL. IF SWITCH OPERATES WITHIN LAST 1/4" OF TRAVEL, TOP OR BOTTOM, IT SHOULD BE ADJUSTED.

a. Activate hydraulic system. By depressing footswitch. Operate TELESCOPE and hold control. Remove foot from footswitch, motion should stop. If it does not, shut down machine and contact a certified JLG service technician.

b. With footswitch depressed, operate LIFT and hold control. Remove foot from footswitch, motion should stop. If it does not, shut down machine and contact a certified JLG service technician.

c. With engine power shut down, depress the footswitch. Attempt to start engine. Engine should not attempt to start when footswitch is depressed. If starter engages or engine turns over, shut down machine and contact a certified JLG service technician.

14. Auxiliary Power.

    Operate each function control switch (e.g. TELE, LIFT and SWING) to assure that they function in both directions using auxiliary power instead of engine power.

15. Ground Controls.

    Place GROUND/PLATFORM SELECT switch to GROUND. Start engine. Platform controls should not operate.

2.6 TORQUE REQUIREMENTS

The Torque Chart (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 a condition is noticed 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.

2.7 BATTERY MAINTENANCE

⚠ WARNING

TO AVOID INJURY FROM AN EXPLOSION, DO NOT SMOKE OR ALLOW SPARKS OR A FLAME NEAR BATTERY DURING SERVICING.

Battery Maintenance

1. The battery is maintenance free except for occasional battery terminal cleaning, as noted in the following.
2. Remove battery cables from each battery post one at a time, negative first. Clean cables with acid neutralizing solution (e.g. baking soda and water or ammonia) and wire brush. Replace cables and/or cable clamp bolts as required.
3. Clean battery post with wire brush then re-connect cable to post. Coat non-contact surfaces with mineral grease or petroleum jelly (Vaseline).
4. When all cables and terminal posts have been cleaned, ensure all cables are properly positioned and are not pinched. Close battery compartment cover.

2.8 LUBRICATION

NOTE: *The lubrication intervals in the following lubrication diagram and chart are equivalent to the following:*

150 hours = 3 months
300 hours = 6 months
600 hours = 1 year
1200 hours = 2 years

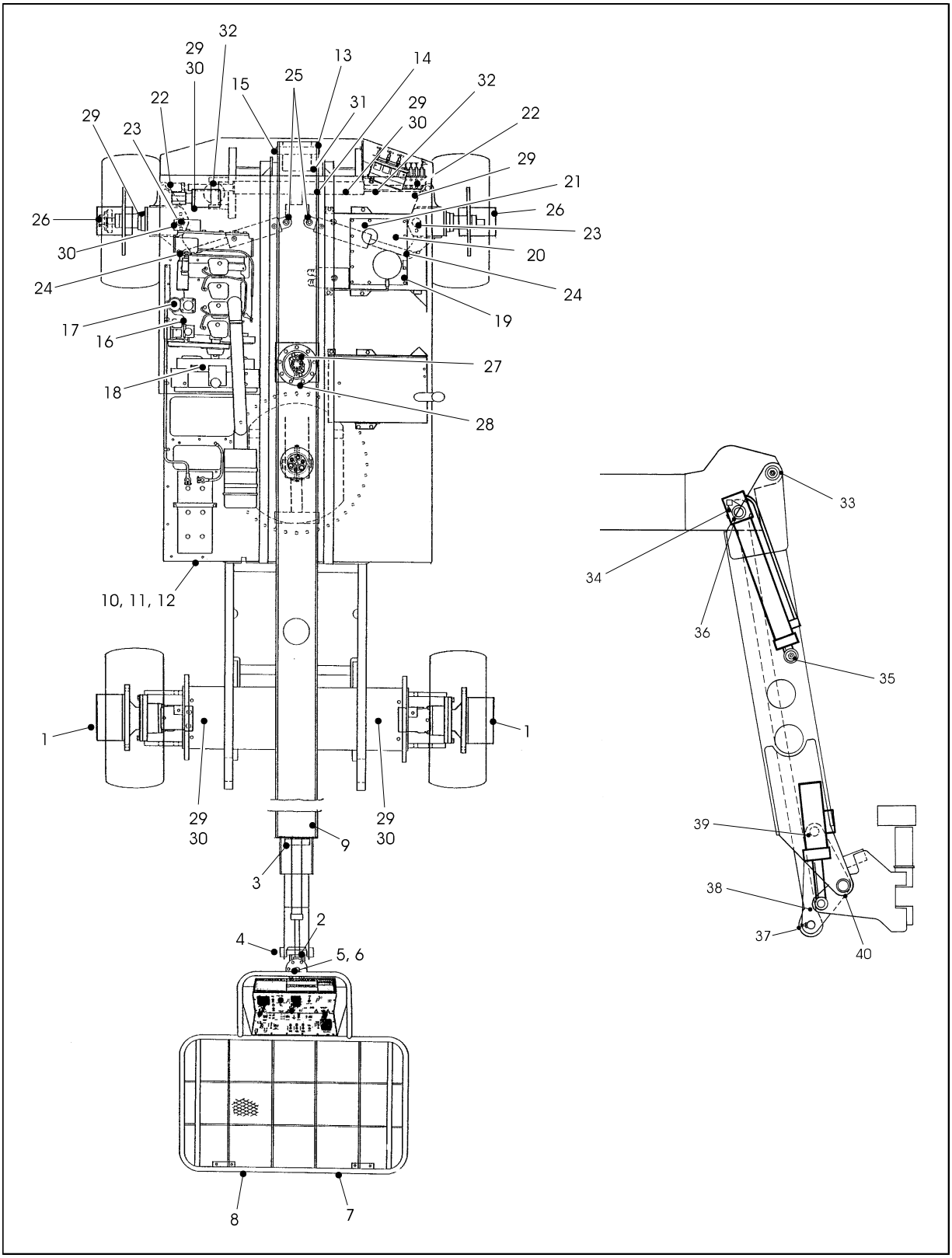


Figure 2-6. Lubrication Diagram

Table 2-1. Lubrication Chart

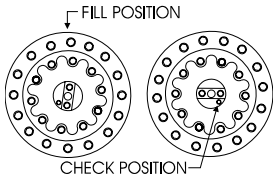
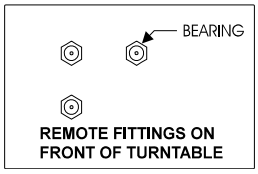
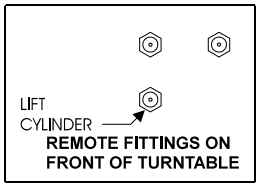
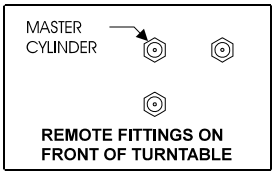
	Components	Number/Type Lube Points	Capacity	Lube	Interval		Hours		Comments
					3 Months 150 hrs	6 Months 300 hrs	1 Year 600 hrs	2 Years 1200 hrs	
1	Wheel Drive Hubs	Level/Fill Plug	1.3 liters (1/2 full)	EPGL (SAE90)				X	Check level every 150 hours; change @ 1200 hours 
2	Slave Cylinder (Rod)	1 Grease Fitting	A/R	MPG		X			
3	Slave Cylinder (Barrel)	1 Grease Fitting	A/R	MPG		X			Gain access through boom fly section.
4	Platform Pivot	1 Grease Fitting	A/R	MPG		X			
5	Rotating Column (Optional)	2 Grease Fittings	A/R	MPG	X				
6	Rotary Worm Gear (Optional)	N/A	A/R	MPG		X			Brush on.
7	Platform Hinges	2 Grease Fittings	A/R	MPG		X			
8	Platform Latch	N/A	A/R	EO		X			
9	Boom Chain Extension Sheave	1 Grease Fitting	A/R	MPG	X				Align access holes in mid and fly boom.
10	Swing Bearing	2 Grease Fittings	A/R	MPG	X				Remote Access 
11	Lift Cylinder (Barrel End)	1 Grease Fitting	A/R	MPG	X				Remote Access 
12	Master Cylinder (Barrel End)	1 Grease Fitting	A/R	MPG	X				Remote Access 
13	Master Cylinder (Rod End)	1 Grease Fitting	A/R	MPG	X				

Table 2-1. Lubrication Chart

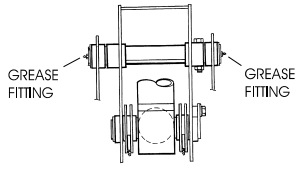
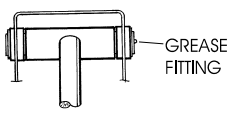
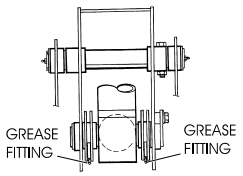
	Components	Number/Type Lube Points	Capacity	Lube	Interval		Hours		Comments
					3 Months 150 hrs	6 Months 300 hrs	1 Year 600 hrs	2 Years 1200 hrs	
14	Boom Chain Retract Sheave	1 Grease Fitting	A/R	MPG	X				
15	Boom Pivot Bushings	2 Grease Fittings	A/R	MoS_2	X				
16	Engine Crankcase	Fill Cap	Refer to Engine Manual	EO					Check daily. Change in accordance wth engine manual.
17	Engine Oil Filter	N/A	N/A	N/A					Change in accordance with engine manual.
18	Engine Coolant	Radiator Cap	Refer to Engine Manual						Refer to engine manual for coolant specifications. Check daily with engine cold.
19	Hydraulic Oil	Fill Cap	56 gallons	HO				X	Check daily. Change every 1200 hours.
20	Hydraulic Oil Return Filters	N/A	N/A	N/A					Check filter gauges for element construction daily. Replace as necessary.
21	Hydraulic Reservoir Suction Filter	N/A	N/A	N/A			X		Replace filter element every 600 hours; clean mesh as necessary.
22	Tie Rod Ends	2 Grease Fittings	A/R	MPG	X				
23	King Pins	2 Grease Fittings	A/R	MPG	X				
24	Steer Cylinder (Rod End)	1 Grease Fitting	A/R	MPG	X				
25	Steer Cylinder (Barrel End)	1 Grease Fitting	A/R	MPG	X				
26	Wheel Bearings	N/A	A/R	MPG			X		Repack
27	Swing Drive Hub	Fill Plug	0.5 liters (1/2 Full)	EPGL (SAE90)			X		Check oil level weekly; change every 600 hours
28	Swing Bearing and Pinion Gear Teeth	N/A	A/R	MPG			X		Apply by brush onto bearing and gear teeth
29	Axle Beam (Extendable Axles)	N/A	A/R	MPG		X			Apply by brush
30	Axle Lock Pin (Extendable Axles)	N/A	A/R	MPG	X				Apply by brush
31	Oscillating Axle Pivot	1 Grease Fitting	A/R	MPG	X				
32	Oscillation Cylinder	2 Grease Fittings	A/R	MPG	X				
33	Extend-A-Reach Pivot (If Equipped)	2 Grease Fittings	A/R	MPG	X				
34	Extend-A-Reach Lift Cylinder (Barrel End)	1 Grease Fitting	A/R	MPG	X				
35	Extend-A-Reach Lift Cylinder (Rod End)	1 Grease Fitting	A/R	MPG	X				

Table 2-1. Lubrication Chart

	Components	Number/Type Lube Points	Capacity	Lube	Interval		Hours		Comments
					3 Months 150 hrs	6 Months 300 hrs	1 Year 600 hrs	2 Years 1200 hrs	
36	Extend-A-Reach - Boom End (If Equipped)	2 Grease Fittings	A/R	MPG	X				
37	Extend-A-Reach - Platform End (if Equipped)	1 Grease Fitting	A/R	MPG	X				
38	Extend-A-Reach - Slave Cylinder Rod End (If Equipped)	1 Grease Fittings	A/R	MPG	X				
39	Extend-A-Reach Link - Slave Cylinder Pivot Point (If Equipped)	1 Grease Fitting	A/R	MPG	X				
40	Extend-A-Reach Link - Slave Cylinder Pivot Point (If Equipped)	1 Grease Fitting	A/R	MPG	X				

NOTES:	KEY TO LUBRICANTS	
Lubrication intervals are based on machine operation under normal conditions. For machines used in multi shift operations and/or exposed to hostile environments or conditions, lubrication frequencies must be increased accordingly.	EO	Engine Oil
	EPGL	Extreme Pressure Gear Lube
	HO	Hydraulic Fluid (Mobil #424 or equivalent)
	MPG	Multi-Purpose Grease

SIZE	THD	BOLT DIA. (CM)	THREAD STRESS AREA (SQ. CM)	VALUES FOR ZINC PLATED BOLTS ONLY									UNPLATED CAP SCREWS	
				SAE GRADE 5 BOLTS & GRADE 2 NUTS					SAE GRADE 8 BOLTS & GRADE 8 NUTS				UNBRAKO 1960 SERIES SOCKET HEAD CAP SCREW WITH LOC-WEL PATCH	
				CLAMP LOAD (KG)	TORQUE (DRY OR LOC. 263) NM	TORQUE (LUB.) NM	TORQUE (LOCTITE 262) NM	TORQUE (LOCTITE 242 OR 271) NM	CLAMP LOAD (KG)	TORQUE (DRY OR LOC. 263) NM	TORQUE (LUB.) NM	TORQUE (LOCTITE 262) NM	TORQUE (LOCTITE 242 OR 271) NM	CLAMP LOAD (KG)	TORQUE (as received) NM
4	40	0.2845	0.0153	172	1	1	—	—	245	2	1	—	—	—	—
	48		0.0168	191	1	1	—	—	272	2	1	—	—	—	—
6	32	0.3505	0.0232	263	2	2	—	—	372	3	2	—	—	—	—
	40		0.0258	277	2	2	—	—	417	3	2	—	—	—	—
8	32	0.4166	0.0356	408	4	3	—	—	572	5	4	—	—	—	—
	36		0.0374	426	4	3	—	—	599	5	4	—	—	—	—
10	24	0.4826	0.0445	508	5	4	—	—	717	7	5	—	—	—	—
	32		0.0508	583	6	4	—	—	817	8	6	—	—	—	—
1/4	20	0.6350	0.0808	916	11	9	—	12	1297	16	12	—	18	1442	18
	28		0.0925	1052	14	10	—	16	1488	19	14	—	21	1651	19
5/16	18	0.7938	0.1331	1515	23	18	22	26	2141	34	25	30	41	2377	34
	24		0.1473	1678	26	19	23	29	2821	34	27	34	41	2631	37
3/8	16	0.9525	0.1969	2241	41	31	38	48	3175	61	48	54	68	3493	61
	24		0.2230	2540	48	34	43	54	3583	68	48	61	75	3983	68
7/16	14	1.1112	0.2700	3085	68	48	61	75	4332	95	75	85	109	4822	95
	20		0.3015	3425	75	68	68	81	4854	109	81	95	122	5384	102
1/2	13	1.2700	0.3604	4105	102	75	92	115	5783	149	109	130	163	6437	149
	20		0.4061	4854	122	88	108	136	6532	163	122	146	183	7253	156
9/16	12	1.4288	0.4623	5262	149	109	133	163	7539	204	149	188	224	8256	210
	18		0.5156	5874	163	122	148	183	8278	231	176	209	258	9208	224
5/8	11	1.5875	0.5740	6532	204	149	183	224	9231	298	231	244	326	10251	285
	18		0.6502	7394	231	176	207	258	10433	326	244	277	359	11612	298
3/4	10	1.9050	0.8484	9662	353	271	325	387	13653	515	380	408	570	15150	495
	16		0.9474	10796	407	298	363	448	15241	570	434	456	631	16919	542
7/8	9	2.2225	1.1735	13336	583	434	523	644	18870	814	624	658	895	20956	793
	14		1.2929	14697	637	475	576	705	20775	895	678	724	983	23088	861
1	8	2.5400	1.5392	17509	868	651	785	915	23360	1220	922	931	1342	27488	1173
	12		1.6840	19142	949	719	858	997	27080	1356	1003	1079	1492	30074	1241
1-1/8	7	2.8575	1.9380	19187	1085	814	968	1139	31162	1736	1302	1396	1898	34610	1681
	12		2.1742	21546	1193	895	1087	1254	34927	1953	1464	1566	2136	38828	1871
1-1/4	7	3.1750	2.4613	24404	1519	1139	1368	1593	38554	2468	1844	1970	2712	43954	2373
	12		2.7254	27035	1681	1247	1516	1762	43818	2712	2034	2183	2983	48671	2549
1-1/2	6	3.4925	2.9337	29076	1980	1492	1792	2068	47174	3227	2413	2586	3559	52391	3145
	12		3.3401	33113	2278	1708	2042	2373	53570	3688	2766	2935	4068	59648	3308
1-1/2	6	3.8100	3.5687	35381	2630	1980	2379	2746	57380	4284	3200	3430	4712	63731	4122
	12		4.0132	39781	2983	2224	2676	3118	142200	4827	3607	3856	5322	71669	4433

Note: These torque values do not apply to cadium plated fasteners.

SAE GRADE 5

SAE GRADE 8

Figure 2-7. Torque Chart

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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 user 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.

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 Government, 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.*

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 the 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 the boom above horizontal and/or the extension of the boom beyond the retracted position with or without any load in the 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 design capacity.
3. All machine systems are functioning properly.
4. Proper tire pressure exists in the tires.
5. Machine is as originally equipped from JLG.

Stability

This machine as originally manufactured by JLG Industries Inc., when operated within its rated capacity on a smooth, firm and level supporting surface, and in accordance with the instructions provided on the machine and this manual, provides a stable machine for all platform positions.

Machine stability is based on two positions which are called FORWARD STABILITY and BACKWARD STABILITY. The machines position of least forward stability is shown in Figure 3-1., Position of Least Forward Stability and its position of least backward stability is shown in Figure 3-2., Position of Least Backward Stability.

⚠ WARNING

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

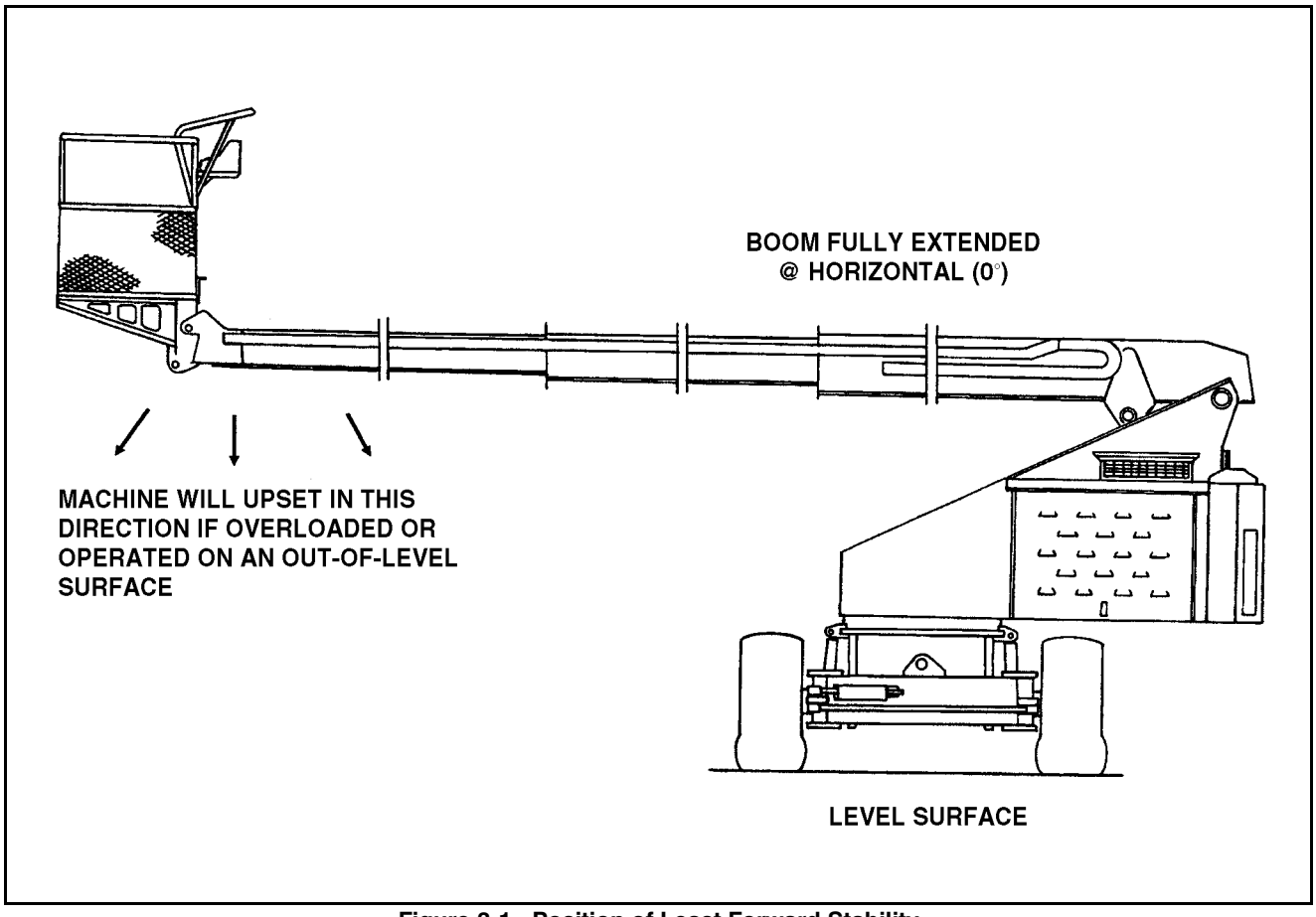


Figure 3-1. Position of Least Forward Stability

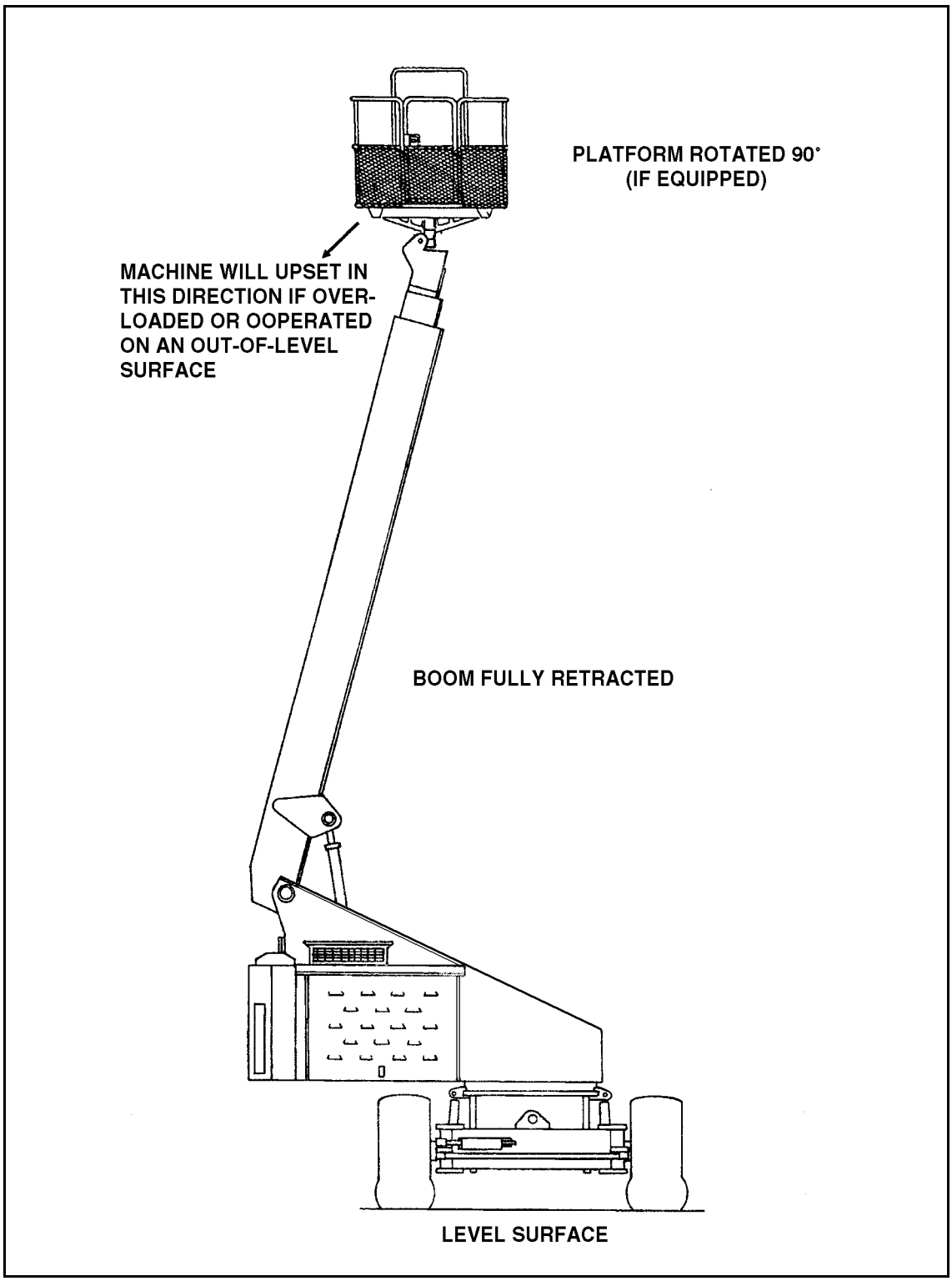


Figure 3-2. Position of Least Backward Stability

3.4 CONTROLS AND INDICATORS

Ground Controls

PERFORM PRE-OPERATIONAL CHECKS AND INSPECTIONS FROM THE GROUND CONTROL STATION. WHEN PERSONNEL ARE IN THE PLATFORM, OPERATION OF THE BOOM WILL ONLY BE PERFORMED WITH THE PERMISSION OF THE PLATFORM OCCUPANT(S).

⚠ CAUTION

WHEN THE MACHINE IS SHUT DOWN THE MASTER/EMERGENCY STOP SWITCH MUST BE POSITIONED TO THE "OFF" POSITION TO PREVENT DRAINING THE BATTERY.

1. Master Switch.

   A two-position key operated switch furnishes battery power to the platform to the platform or ground control switches when station power is selected from the ground control panel and the master switch is turned "ON".

2. Control Station Selector.

   A three position, center off, key activated PLATFORM/GROUND SELECT switch supplies power to the platform control console when positioned to PLATFORM. With the switch in the GROUND position, power is shut off to the platform station, and only the controls on the ground control panel are operable.

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

⚠ WARNING

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

3. Ignition.

   The machine is equipped with an on-off ignition switch and a separate start push button switch on the ground control panel which supplies electrical power to the start solenoid when the ignition switch is placed in the ON position and the START button is depressed.

NOTE: *Lift, Swing, and Telescope control switches are spring-loaded and will automatically return to neutral (off) when released.*

⚠ WARNING

WHEN OPERATING THE BOOM ENSURE THERE ARE NO PERSONNEL AROUND OR UNDER PLATFORM.

4. Lift Control.

   The three-position LIFT control switch provides raising and lowering of the main boom when positioned to UP or DOWN.

5. Telescope Control.

   The three-position TELESCOPE control switch provides extension and retraction of the boom, when positioned to IN or OUT.

6. Swing Control.

   The three-position SWING control switch provides 360 degrees continuous turntable rotation when positioned to RIGHT or LEFT.

⚠ CAUTION

WHEN OPERATING ON AUXILIARY POWER, DO NOT OPERATE MORE THEN ONE FUNCTION AT THE SAME TIME. SIMULTANEOUS OPERATION CAN OVERLOAD THE AUXILIARY PUMP MOTOR.

7. Auxiliary Power Control.

   A toggle type AUXILIARY POWER control switch energizes the electrically operated auxiliary hydraulic pump, when actuated. The switch must be held in the ON position for the duration of auxiliary pump use.

8. Glow Plug Switch (Deutz Diesel Engine Only).

   The push-button switch relays power to the glow plugs used to warm the air intake on cold start operations.

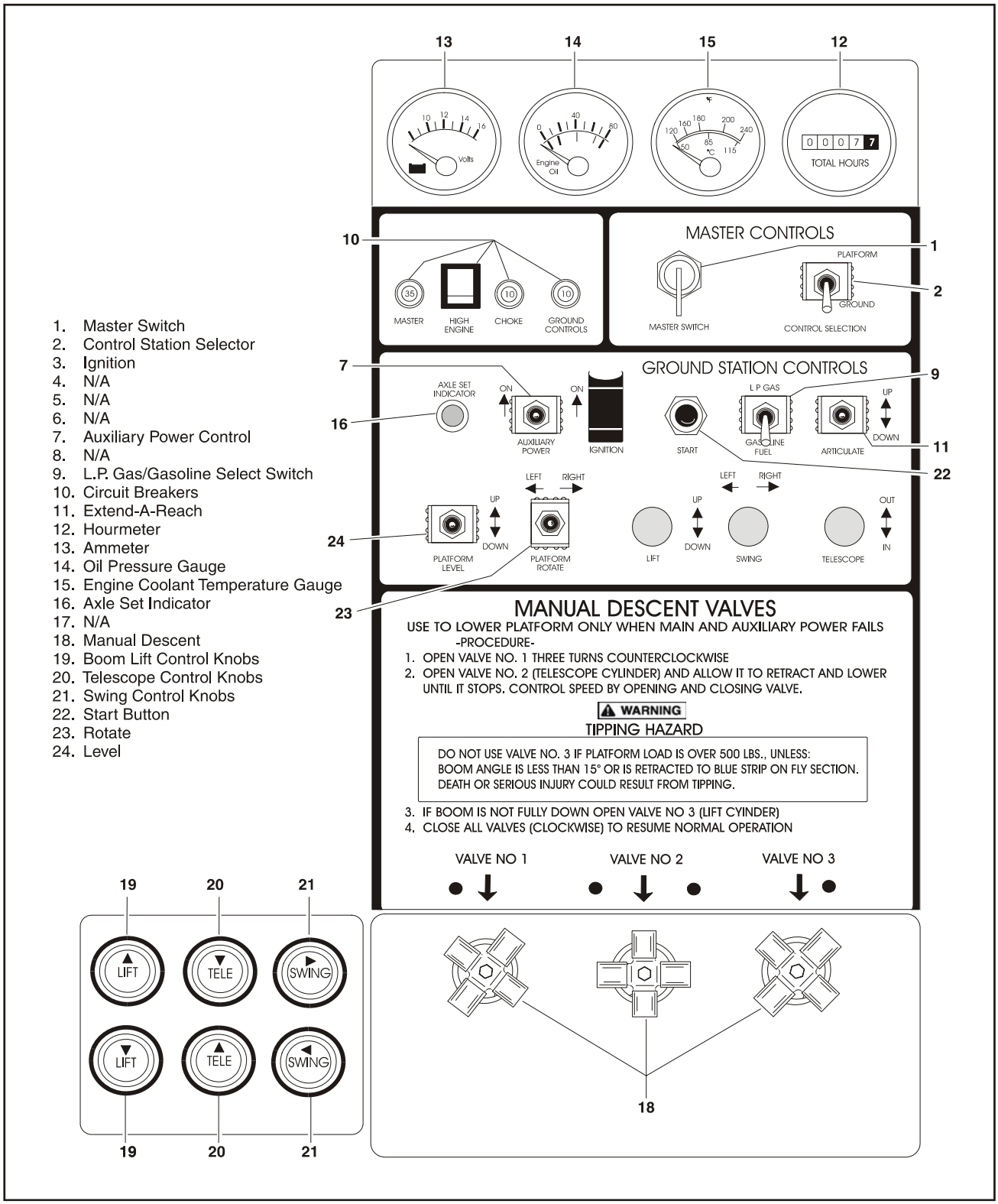


Figure 3-3. Ground Control Station - May 1994 to Present with Hydraulic Controls

1. Master Switch
2. Control Station Selector
3. Ignition
4. Lift Control
5. Telescope Control
6. Swing Control
7. Auxiliary Power Control
8. N/A
9. L.P. Gas/Gasoline Select Switch
10. Circuit Breakers
11. Extend-A-Reach
12. Hourmeter
13. Ammeter
14. Oil Pressure Gauge
15. Engine Coolant Temperature Gauge
16. Axle Set Indicator
17. N/A
18. Manual Descent
19. N/A
20. N/A
21. N/A
22. Start Button
23. Rotate
24. Level

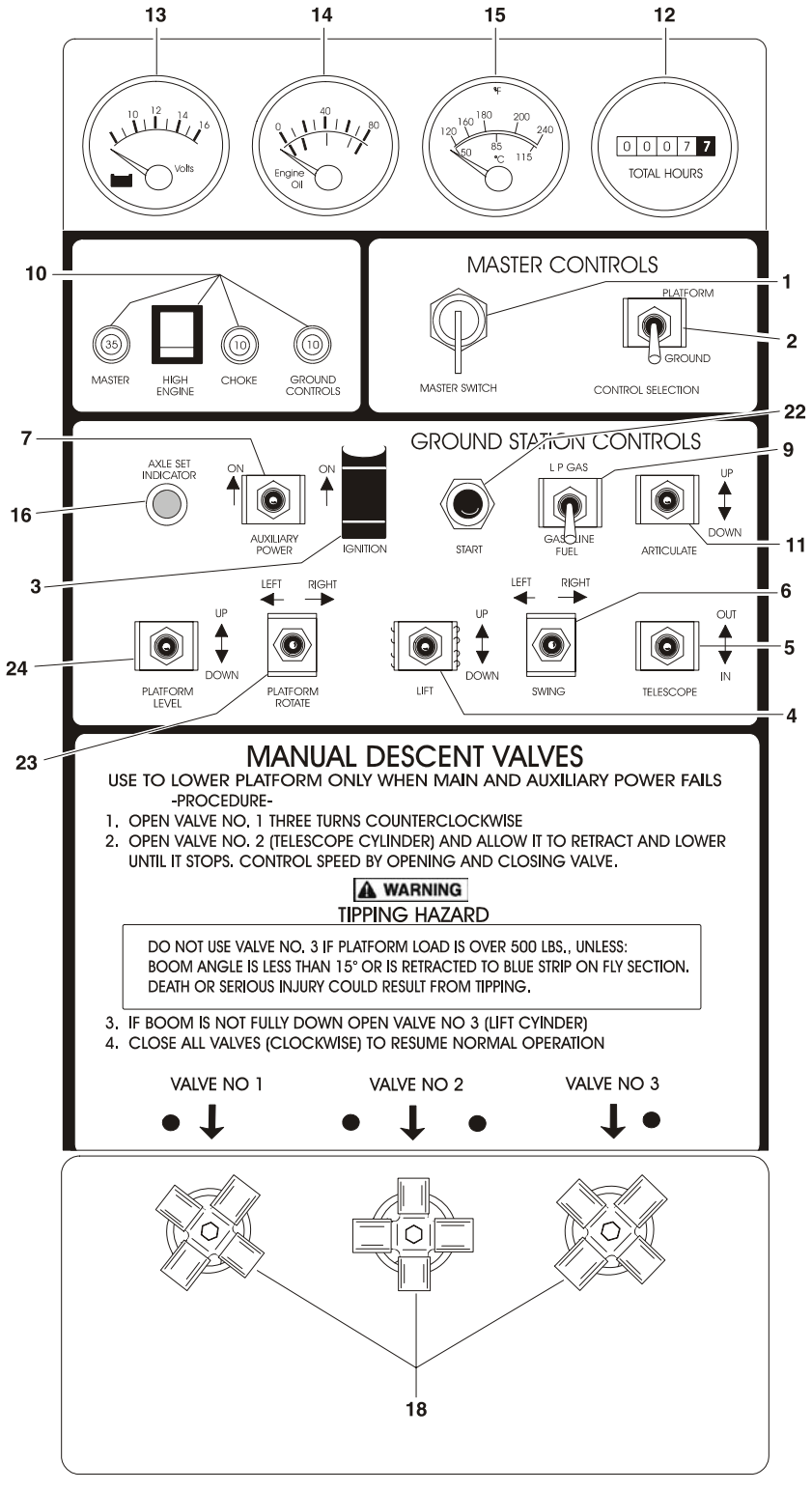


Figure 3-4. Ground Control Station - May 1994 to Present without Hydraulic Controls

1. Master Switch
2. Control Station Selector
3. Ignition
4. Lift Control
5. Telescope Control
6. Swing Control
7. Auxiliary Power Control
8. Glow Plug Switch
9. L.P. Gas/Gasoline Select Switch
10. Circuit Breakers
11. N/A
12. Hourmeter
13. Ammeter
14. Oil Pressure Gauge
15. Engine Coolant Temperature Gauge
16. Axle Set Indicator
17. Choke
18. Manual Descent
19. Boom Lift Control Knobs
20. Telescope Control Knobs
21. Swing Control Knobs
22. Start Button
23. N/A
24. N/A

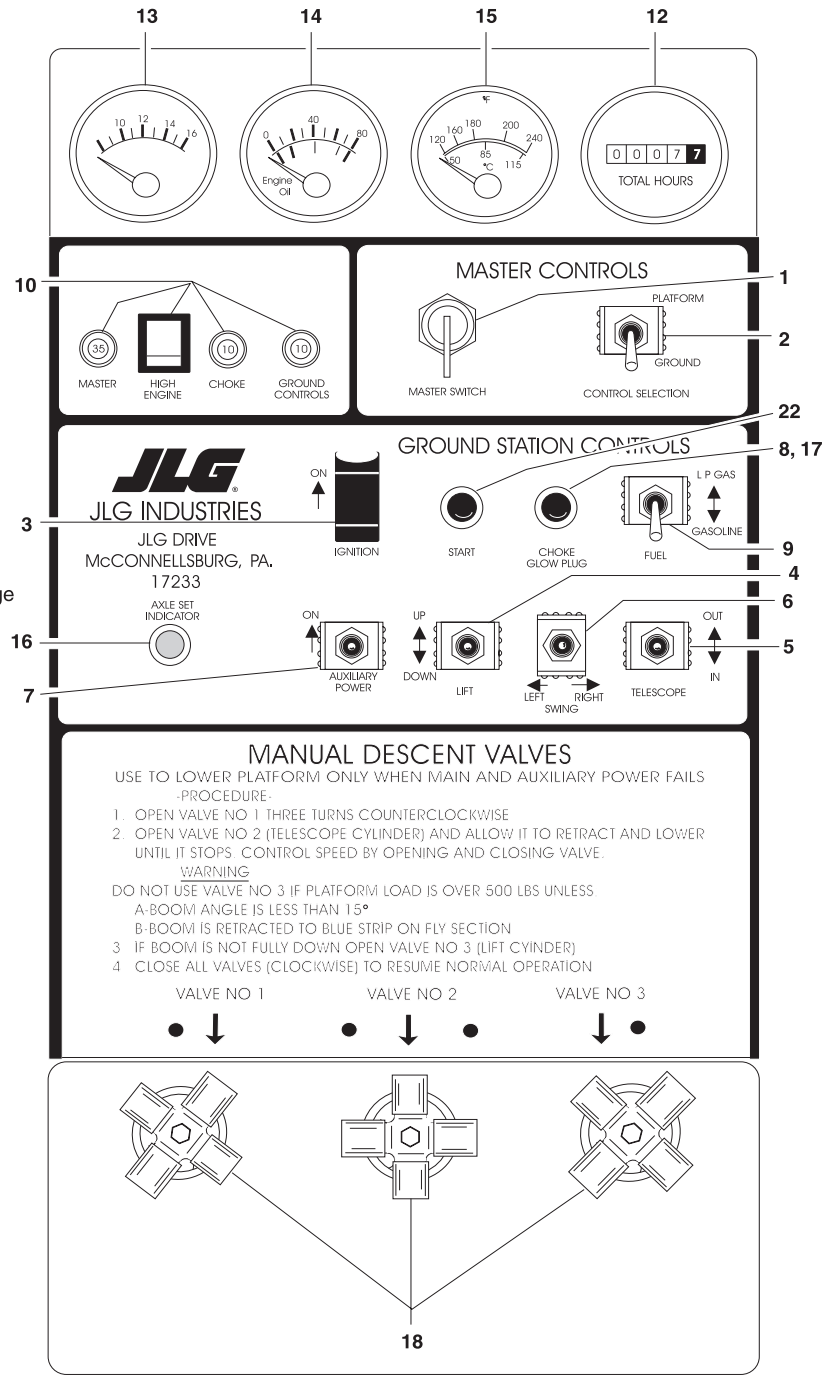


Figure 3-5. Ground Control Station - Prior to May 1994

9. L.P. Gas/Gasoline Select Switch.

   An optional two position contact toggle switch supplies electrical power to open the gasoline shut-off solenoid and closes the LP gas shut-off solenoid when placed in the “GASOLINE” position. This switch supplies electrical power to open the LP gas shut-off solenoid and closes the gasoline shut-off solenoid when positioned to the LP position.

10. Circuit Breakers.

    Four reset push-button circuit breakers return control power to the following functions when depressed.

    a. 35 amp - Master
    b. 10 amp - High Engine
    c. 10 amp - Choke
    d. 10 amp - Ground Controls

11. Extend-A-Reach.

    The extend-a-reach (ARTICULATE) control switch allows the operator to raise or lower the extend-a-reach as needed.

12. Hourmeter.

    An hourmeter, installed on a bracket mounted above the ground control box, registers the amount of time the machine has been in use, with the engine running. The hourmeter registers up to 9,999.9 hours and cannot be reset.

13. Ammeter.

    An ammeter, installed on a bracket mounted above the ground control box, indicates battery condition (i.e. charging or discharging).

14. Oil Pressure Gauge.

    An oil pressure gauge, installed on the bracket mounted above the ground control box, provides an indication of the engine lubricating oil pressure. Normal operating pressure at 2000 rpm is 40 to 60 psi.

15. Engine Coolant Temperature Gauge.

    An engine coolant temperature gauge installed on a bracket above the ground control box, provides a visual indication of the temperature of the engine coolant.

16. Axle Set Indicator (If equipped).

    The AXLE SET INDICATOR provides a visual indication that the extendable axles are properly set. Some machines built prior to 1994 will have a red indicator that lights up until the axles are extended and the retaining pins are installed. Some machines built prior to 1994 and all machines built after 1994 have a green indicator that lights up when the axles are extended and the retaining pins are properly installed.

17. Choke (If equipped).

    This push-button switch, when depressed, supplies power to the choke solenoid to enrich the fuel mixture for cold weather starting.

18. Manual Descent.

    The manual descent valves should be used, in the event of a total power failure, to lower the work platform in the event of an emergency. The valves permit the use of gravity to retract and lower the boom. Refer to Section 6 for a complete description of the manual descent systems, their application, and their operation.

19. Boom Lift Control Knobs (Hydraulic Controls Only).

    The boom LIFT control knobs provide raising and lowering of the boom when pushed in.

20. Telescope Control Knobs (Hydraulic Controls Only).

    The telescope (TELE) control knobs provide extension and retraction of the boom when pushed in.

21. Swing Control Knobs (Hydraulic Controls Only).

    The SWING control knobs provide 360 degree continuous turntable rotation. To activate swing, push in the appropriate knob.

22. Start Button.

    The START button is a momentary contact, push button type switch that supplies electrical power to the starter solenoid, when the key switch and ignition switch are in the ON position and the start button is depressed.

⚠ WARNING

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

23. Rotate (If equipped).

    The three position PLATFORM ROTATE control switch permits rotation of the platform when positioned to LEFT or RIGHT.

24. Level.

    The three position PLATFORM LEVEL control switch allows the operator to compensate for any difference in the automatic self leveling system by positioning the control switch to UP or DOWN.

Platform Station - May 1994 to Present

NOTE: *Some machines are equipped with control panels that use symbols to indicate control functions. Refer to Figure 3-11., Common Symbols - Sheet 1, Figure 3-12., Common Symbols - Sheet 2, Figure 3-13., Common Symbols - Sheet 3, and Figure 3-14., Common Symbols - Sheet 4 for these symbols and the corresponding functions.*

NOTE: *For engine starting, the footswitch must be in the released (up) position. Footswitch must be actuated in order for controls to function.*

1. Footswitch.

   This feature makes it necessary to depress the footswitch to allow operation of the controls.

⚠ WARNING

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

⚠ IMPORTANT

THE FOOTSWITCH MUST BE ADJUSTED SO THAT FUNCTIONS WILL OPERATE WHEN THE PEDAL IS APPROXIMATELY AT ITS CENTER OF TRAVEL. IF THE SWITCH OPERATES WITHIN LAST 1/4" OF TRAVEL, TOP OR BOTTOM, IT SHOULD BE ADJUSTED.

2. Power/Emergency Stop.

   An on-off POWER/EMERGENCY STOP switch and a separate START push button on the platform console supply electrical power to the starter solenoid, when the power switch is pulled out to the “on” position and the START button is depressed.

3. Start Button.

   The START button is a momentary contact, push-button switch. With the POWER/EMERGENCY STOP switch pulled up and the START button depressed, electrical power is supplied to the start solenoid.

4. Warning Horn.

   A push-type HORN switch, when pressed, supplies electrical power to activate the horn.

5. Chassis Out of Level Warning Light.

   This red indicator lights to indicate that the chassis is on a slope (over 5 degrees). If illuminated when boom is raised or extended, retract and lower to below horizontal then reposition the machine so that it is level before extending the boom or raising the boom above horizontal.

⚠ WARNING

IF THE CHASSIS OUT OF LEVEL WARNING LIGHT IS ILLUMINATED WHEN THE BOOM IS RAISED OR EXTENDED, RETRACT AND LOWER THE PLATFORM TO BELOW HORIZONTAL THEN REPOSITION THE MACHINE SO IT IS LEVEL BEFORE EXTENDING BOOM OR RAISING THE BOOM ABOVE HORIZONTAL.

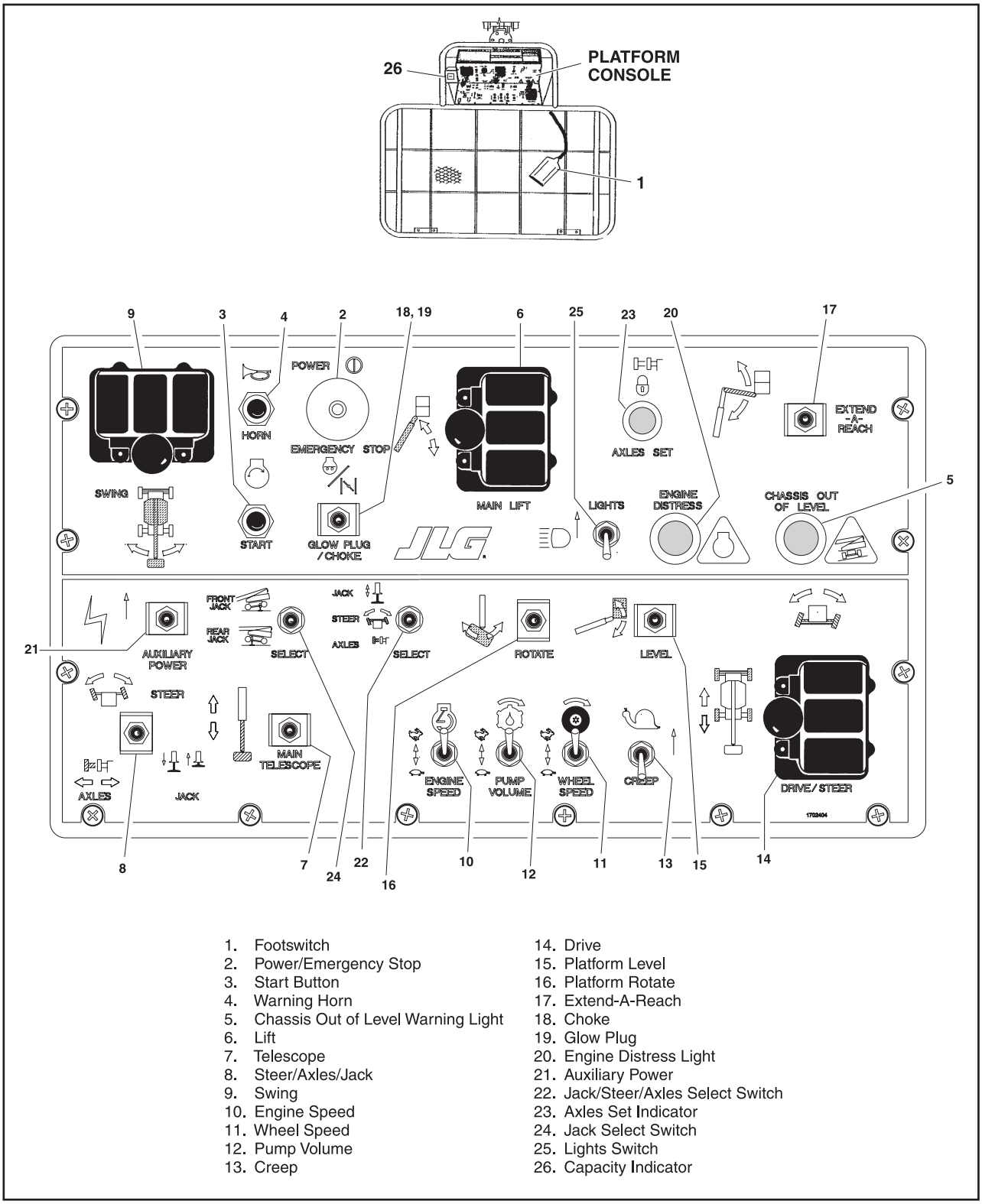
NOTE: *LIFT, SWING, and DRIVE control levers or switches are spring-loaded and will automatically return to the neutral (OFF) position when released.*

⚠ WARNING

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

6. Lift.

   The MAIN LIFT controller (proportional controls) or MAIN LIFT control lever (hydraulic controls) provides raising and lowering of the boom when positioned to up or down.



1. Footswitch
2. Power/Emergency Stop
3. Start Button
4. Warning Horn
5. Chassis Out of Level Warning Light
6. Lift
7. Telescope
8. Steer/Axles/Jack
9. Swing
10. Engine Speed
11. Wheel Speed
12. Pump Volume
13. Creep
14. Drive
15. Platform Level
16. Platform Rotate
17. Extend-A-Reach
18. Choke
19. Glow Plug
20. Engine Distress Light
21. Auxiliary Power
22. Jack/Steer/Axles Select Switch
23. Axles Set Indicator
24. Jack Select Switch
25. Lights Switch
26. Capacity Indicator

Figure 3-6. Control Console - May 1994 to Present

7. Telescope.

   The MAIN TELESCOPE control switch or MAIN TELESCOPE control lever (hydraulic controls) provides extension and retraction or the boom when positioned to in or out.

8. Steer/Axles/Jack.

   On standard machines, positioning the STEER/AXLES/JACK control switch right or left enables steering the machine to the right or to the left.

   On machines equipped with hydraulic jacks and/or hydraulic extendable axles, the function the switch controls is dependent upon the position of the JACK/STEER/AXLES SELECT switch.

NOTE: *On machines equipped with four wheel steering, the drive controller will have a thumb-rocker switch controlling rear wheel steering.*

9. Swing.

   The SWING controller provides 360 degrees continuous swing when positioned to left or right.

NOTE: *When the boom is above horizontal and if either the ENGINE SPEED, PUMP VOLUME, or WHEEL SPEED are positioned to high, high speed functions are automatically cut out and the machine continues to operate at a lower speed.*

⚠ CAUTION

DO NOT OPERATE MACHINE IF HIGH ENGINE SPEED, HIGH WHEEL MOTOR SPEED, OR HIGH PUMP VOLUME OPERATE WHEN BOOM IS ABOVE HORIZONTAL.

10. Engine Speed.

    The two position ENGINE SPEED control switch allows the operator to select higher function speeds or higher drive speed when in the high position.

11. Wheel Speed.

    The two position WHEEL SPEED control switch allows the operator to select high wheel motor speed when in the high position. When used in conjunction with high ENGINE SPEED, it gives the machine a faster drive speed.

⚠ CAUTION

TO AVOID PERSONNEL INJURY OR MACHINE DAMAGE, USE SLOW FUNCTION SPEED CONTROL WHEN POSITIONING THE PLATFORM IN CLOSE QUARTERS.

12. Pump Volume.

    The two-position PUMP VOLUME control switch allows the operator to select high pump flow, providing additional speed to all functions when in the high position. When used in conjunction with high ENGINE SPEED and WHEEL MOTOR SPEED switches, it gives the machine a faster drive speed range.

13. Creep.

    The CREEP control switch allows the operator to select a lower speed for DRIVE, LIFT, SWING and TELESCOPE, when in the on position.

14. Drive.

    The DRIVE controller provides driving either forward or backward when positioned to forward or reverse. The controller is ramped to allow infinitely variable driving speed between fast and slow.

NOTE: *On machines with four wheel steering, the Drive controller will have a thumb-rocker switch controlling steer of the rear wheels.*

15. Platform Level.

    The platform LEVEL control switch allows the operator to compensate for any difference in the automatic self-leveling system by positioning the switch up or down.

16. Platform Rotate (If Equipped).

    The platform ROTATE control switch allows operator to rotate the basket to the left or right when positioned to the desired direction.

17. Extend-A-Reach (If Equipped).

    The EXTEND-A-REACH control switch allows operator to raise or lower the extend-a-reach, as required.

18. Choke (If Equipped).

    A push-button switch supplies power to the choke solenoid for cold weather starting.

19. Glow Plug (If Equipped).

    This push-button switch when depressed supplies power to the diesel engine glow plugs for cold weather start. See diesel engine operator manual for instructions.

20. Engine Distress Light (Red).

    This indicator lights to notify the operator that the engine has no oil pressure, is overheating (water or oil), or is not producing voltage. The light will also come on if the engine has stalled.

21. Auxiliary Power.

    The AUXILIARY POWER control switch energizes the electrically operated hydraulic pump, when actuated. The switch must be held on for duration of auxiliary pump use.

    The auxiliary pump functions to provide sufficient oil flow to operate the basic machine system should the main pump or engine fail. The auxiliary pump will operator boom lift, telescope and swing.

    It should be noted that the functions will operate at a slower than normal rate because of lower hydraulic flow.

⚠ IMPORTANT

WHEN OPERATING ON AUXILIARY POWER, DO NOT OPERATE MORE THAN ONE FUNCTION AT THE SAME TIME. SIMULTANEOUS OPERATION CAN OVERLOAD THE AUXILIARY PUMP MOTOR.

NOTE: *The main function of the auxiliary power is to lower the platform in the event of primary power failure. Determine the reason for primary power failure and have the problem corrected by a qualified service technician.*

NOTE: *Auxiliary power is primarily intended for platform lowering in the event of primary power failure. However, auxiliary power may be used for platform positioning when operating in close quarters in the following sequence:*

a. Position PLATFORM/GROUND switch to PLATFORM.
b. Pull the POWER/EMERGENCY STOP switch out to the on position.
c. Depress and hold footswitch.
d. Operate appropriate control switch or lever for desired function and hold.
e. Position AUXILIARY POWER switch on and hold.
f. Release AUXILIARY POWER switch, selected control switch or lever, and footswitch.
g. Push the POWER/EMERGENCY STOP switch to the off position.

22. Jack/Steer/Axles Select Switch (If equipped).

    When the machine in equipped with the optional hydraulic jacks and/or hydraulic extendable axles, this switch is used to select the function operated by the STEER/AXLES/JACK control switch.

23. Axles Set Indicator (If equipped).

    The green AXLES SET indicator lights to inform the operator that the axles are set and locked (pinned) in position.

24. Jack Select Switch (If equipped).

    When the machine in equipped with the optional hydraulic jacks, this switch is used to select the jack to be operated; FRONT JACK or REAR JACK.

25. Lights Switch (If equipped).

    The LIGHTS switch allows the operator to turn the installed light options on or off.

26. Capacity Indicator (If equipped).

    The CAPACITY INDICATOR GAUGE is mounted on the left side of the platform console. The indicator scale is visible through a lens and indicates the maximum platform load allowable at any given boom angle and extension based on the color stripe visible at the point where the fly boom enters the mid boom.

Platform Station - September 1991 to May 1994

NOTE: *Some machines are equipped with control panels that use symbols to indicate control functions. Refer to Figure 3-11., Common Symbols - Sheet 1, Figure 3-12., Common Symbols - Sheet 2, Figure 3-13., Common Symbols - Sheet 3, and Figure 3-14., Common Symbols - Sheet 4 for these symbols and the corresponding functions.*

NOTE: *For engine starting, the footswitch must be in the released (up) position. Footswitch must be actuated in order for controls to function.*

1. Footswitch.

   This feature makes it necessary to depress the footswitch to allow operation of the controls.

⚠ WARNING

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

⚠ IMPORTANT

THE FOOTSWITCH MUST BE ADJUSTED SO THAT FUNCTIONS WILL OPERATE WHEN THE PEDAL IS APPROXIMATELY AT ITS CENTER OF TRAVEL. IF THE SWITCH OPERATES WITHIN LAST 1/4" OF TRAVEL, TOP OR BOTTOM, IT SHOULD BE ADJUSTED.

2. Power/Emergency Stop.

   An on-off POWER/EMERGENCY STOP switch and a separate START push button on the platform console supply electrical power to the starter solenoid, when the power switch is pulled out to the “on” position and the START button is depressed.

3. Start Button.

   The START button is a momentary contact, push-button switch. With the POWER/EMERGENCY STOP switch pulled up and the START button depressed, electrical power is supplied to the start solenoid.

4. Warning Horn.

   A push-type HORN switch, when pressed, supplies electrical power to activate the horn.

5. Chassis Out of Level Warning Light.

   This red indicator lights to indicate that the chassis is on a slope (over 5 degrees). If illuminated when boom is raised or extended, retract and lower to below horizontal then reposition the machine so that it is level before extending the boom or raising the boom above horizontal.

⚠ WARNING

IF THE CHASSIS OUT OF LEVEL WARNING LIGHT IS ILLUMINATED WHEN THE BOOM IS RAISED OR EXTENDED, RETRACT AND LOWER THE PLATFORM TO BELOW HORIZONTAL THEN REPOSITION THE MACHINE SO THAT IT IS LEVEL BEFORE EXTENDING THE BOOM OR RAISING THE BOOM ABOVE HORIZONTAL.

NOTE: *LIFT, SWING, and DRIVE control levers or switches are spring-loaded and will automatically return to the neutral (OFF) position when released.*

⚠ WARNING

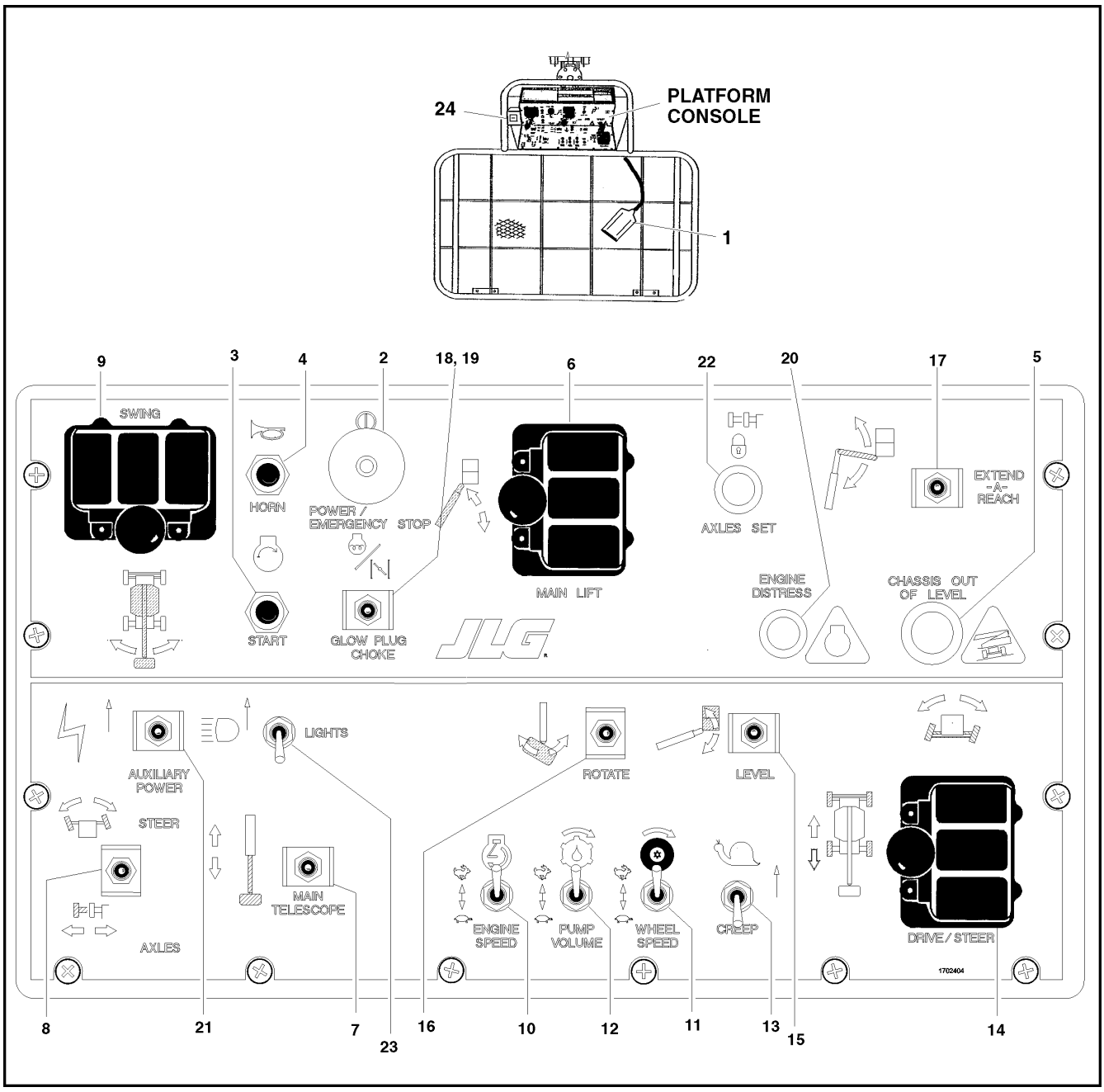
TO AVOID SERIOUS INJURY, DO NOT OPERATE THE MACHINE IF ANY CONTROL LEVERS OR TOGGLE SWITCHES CONTROLLING PLATFORM MOVEMENT DO NOT RETURN TO THE OFF OR NEUTRAL POSITION WHEN RELEASED.

6. Lift.

   The MAIN LIFT controller provides raising and lowering of the boom when positioned to up or down.

7. Telescope.

   The MAIN TELESCOPE control switch provides extension and retraction or the boom when positioned to in or out.



1. Footswitch
2. Power/Emergency Stop
3. Start Button
4. Warning Horn
5. Chassis Out of Level Warning Light
6. Lift
7. Telescope
8. Steer/Axles/Jack
9. Swing
10. Engine Speed
11. Wheel Speed
12. Pump Volume
13. Creep
14. Drive
15. Platform Level
16. Platform Rotate
17. Extend-A-Reach
18. Choke
19. Glow Plug
20. Engine Distress Light
21. Auxiliary Power
22. Axles Set Indicator
23. Lights Switch
24. Capacity Indicator

Figure 3-7. Control Console - Sept. 91 to May 94

8. 3333Steer/Axles.

   On standard machines, positioning the STEER/AXLES control switch right or left enables steering the machine to the right or the left.

   On machines equipped with hydraulic extendable axles, the function the switch controls is dependent upon the position of the lever on the STEER/AXLES SELECTOR valve.

NOTE: *On machines equipped with four wheel steering, the drive controller will have a thumb-rocker switch controlling rear wheel steering.*

9. Swing.

   The SWING controller provides 360 degrees continuous swing when positioned to left or right.

NOTE: *When the boom is above horizontal and if either the ENGINE SPEED, PUMP VOLUME, or WHEEL SPEED are positioned to high, high speed functions are automatically cut out and the machine continues to operate at a lower speed.*

⚠ CAUTION

DO NOT OPERATE MACHINE IF HIGH ENGINE SPEED, HIGH WHEEL MOTOR SPEED, OR HIGH PUMP VOLUME OPERATE WHEN BOOM IS ABOVE HORIZONTAL.

10. Engine Speed.

    The two position ENGINE SPEED control switch allows the operator to select higher function speeds or higher drive speed when in the high position.

11. Wheel Speed.

    The two position WHEEL SPEED control switch allows the operator to select high wheel motor speed when in the high position. When used in conjunction with high ENGINE SPEED, it gives the machine a faster drive speed.

⚠ CAUTION

TO AVOID PERSONNEL INJURY OR MACHINE DAMAGE, USE SLOW FUNCTION SPEED CONTROL WHEN POSITIONING THE PLATFORM IN CLOSE QUARTERS.

12. Pump Volume.

    The two-position PUMP VOLUME control switch allows the operator to select high pump flow, providing additional speed to all functions when in the high position. When used in conjunction with high ENGINE SPEED and WHEEL MOTOR SPEED switches, it gives the machine a faster drive speed range.

13. Creep.

    The CREEP control switch allows the operator to select a lower speed for DRIVE, LIFT, SWING and TELESCOPE, when in the on position.

14. Drive.

    The DRIVE controller (provides driving either forward or backward when positioned to forward or reverse. The controller is ramped to allow infinitely variable driving speed between fast and slow.

NOTE: *On machines with four wheel steering, the Drive controller will have a thumb-rocker switch controlling steer of the rear wheels.*

15. Platform Level.

    The platform LEVEL control switch allows the operator to compensate for any difference in the automatic self-leveling system by positioning the switch to UP or DOWN.

16. Platform Rotate (If Equipped).

    The platform ROTATE control switch allows operator to rotate the basket to the left or right when positioned to the desired direction.

17. Extend-A-Reach (If Equipped).

    The EXTEND-A-REACH control switch allows operator to raise or lower the extend-a-reach, as required.

18. Choke (If Equipped).

    A push-button switch supplies power to the choke solenoid for cold weather starting.

19. Glow Plug (If Equipped).

    This push-button switch when depressed supplies power to the diesel engine glow plugs for cold weather start. See diesel engine operator manual for instructions.

20. Engine Distress Light (Red).

    This indicator lights to notify the operator that the engine has no oil pressure, is overheating (water or oil), or is not producing voltage. The light will also come on if the engine has stalled.

21. Auxiliary Power.

    The AUXILIARY POWER control switch energizes the electrically operated hydraulic pump, when actuated. The switch must be held on for duration of auxiliary pump use.

    The auxiliary pump functions to provide sufficient oil flow to operate the basic machine system should the main pump or engine fail. The auxiliary pump will operator boom lift, telescope and swing.

    It should be noted that the functions will operate at a slower than normal rate because of lower hydraulic flow.

⚠ IMPORTANT

WHEN OPERATING ON AUXILIARY POWER, DO NOT OPERATE MORE THAN ONE FUNCTION AT THE SAME TIME. SIMULTANEOUS OPERATION CAN OVERLOAD THE AUXILIARY PUMP MOTOR.

NOTE: *The main function of the auxiliary power is to lower the platform in the event of primary power failure. Determine the reason for primary power failure and have the problem corrected by a qualified service technician.*

NOTE: *Auxiliary power is primarily intended for platform lowering in the event of primary power failure. However, auxiliary power may be used for platform positioning when operating in close quarters in the following sequence:*

a. Position PLATFORM/GROUND switch to PLATFORM.
b. Pull the POWER/EMERGENCY STOP switch out to the on position.
c. Depress and hold footswitch.
d. Operate appropriate control switch or lever for desired function and hold.
e. Position AUXILIARY POWER switch on and hold.
f. Release AUXILIARY POWER switch, selected control switch or lever, and footswitch.
g. Push the POWER/EMERGENCY STOP switch to the off position.

22. Axles Set Indicator (If equipped).

    The green AXLES SET indicator lights to inform the operator that the axles are set and locked (pinned) in position.

23. Lights Switch (If equipped).

    The LIGHTS switch allows the operator to turn the installed light options on or off.

24. Capacity Indicator (If equipped).

    The CAPACITY INDICATOR GAUGE is mounted on the left side of the platform console. The indicator scale is visible through a lens and indicates the maximum platform load allowable at any given boom angle and extension based on the color stripe visible at the point where the fly boom enters the mid boom.

Platform Station - Hydraulic Controls

NOTE: *For engine starting, the footswitch must be in the released (up) position. Footswitch must be actuated in order for controls to function.*

1. Footswitch.

   This feature makes it necessary to depress the footswitch to allow operation of the controls.

⚠ WARNING

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

⚠ IMPORTANT

THE FOOTSWITCH MUST BE ADJUSTED SO THAT FUNCTIONS WILL OPERATE WHEN THE PEDAL IS APPROXIMATELY AT ITS CENTER OF TRAVEL. IF THE SWITCH OPERATES WITHIN LAST 1/4" OF TRAVEL, TOP OR BOTTOM, IT SHOULD BE ADJUSTED.

2. Ignition/Emergency Stop.

   An ON-OFF IGNITION/EMERGENCY STOP switch and a separate START push button on the platform console supply electrical power to the starter solenoid, when the ignition switch is pulled out to the “IGNITION ON” position and the START button is depressed.

3. Start Button.

   The START button is a momentary contact, push-button switch. With the IGNITION/EMERGENCY STOP switch pulled up and the START button depressed, electrical power is supplied to the start solenoid.

4. Warning Horn.

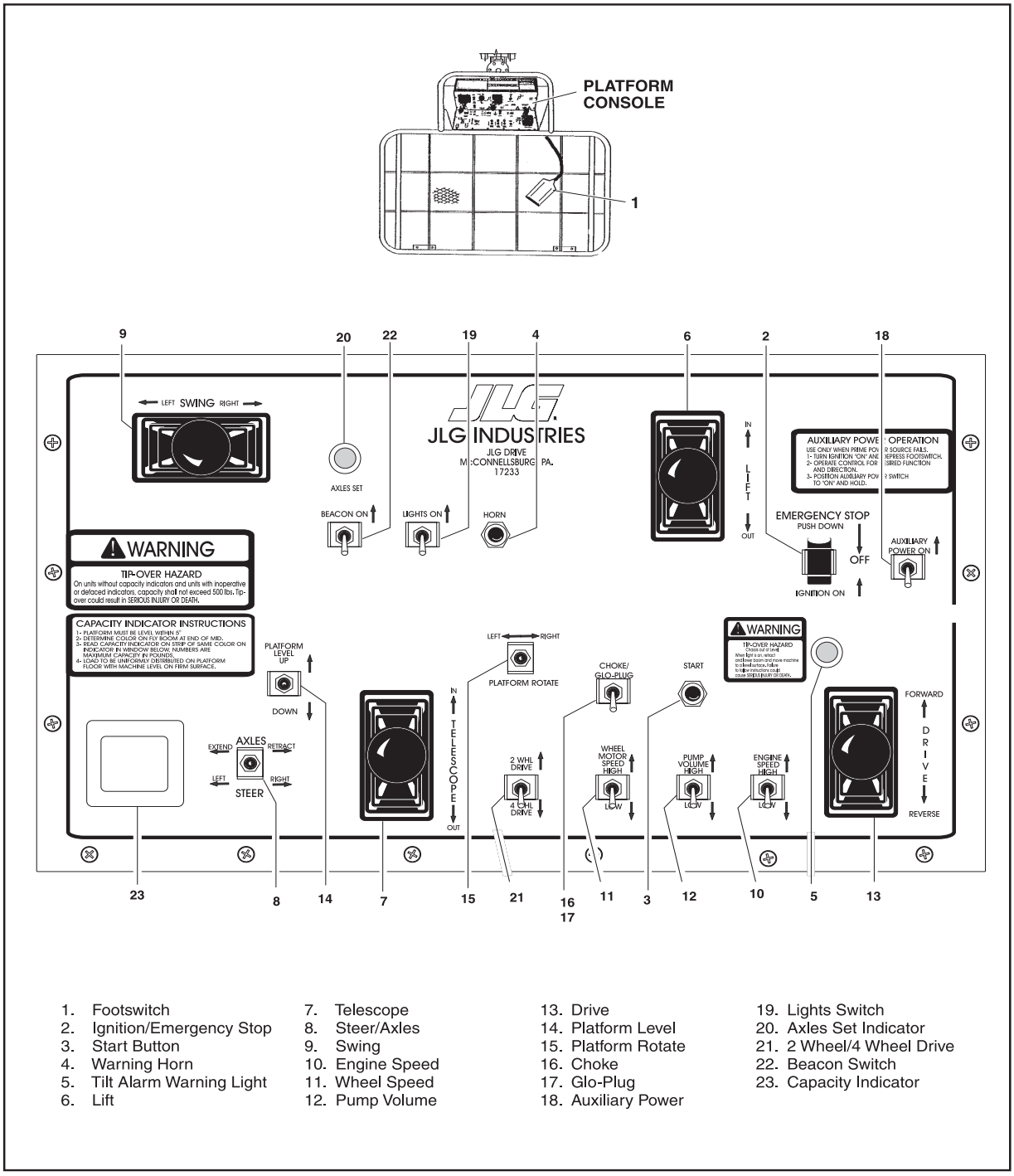
   A push-type HORN switch, when pressed, supplies electrical power to activate the horn.

5. Tilt Alarm Warning Light.

   This red indicator lights to indicate that the chassis is on a slope (over 5 degrees). If illuminated when boom is raised or extended, retract and lower to below horizontal then reposition the machine so it is level before extending boom or raising boom above horizontal.

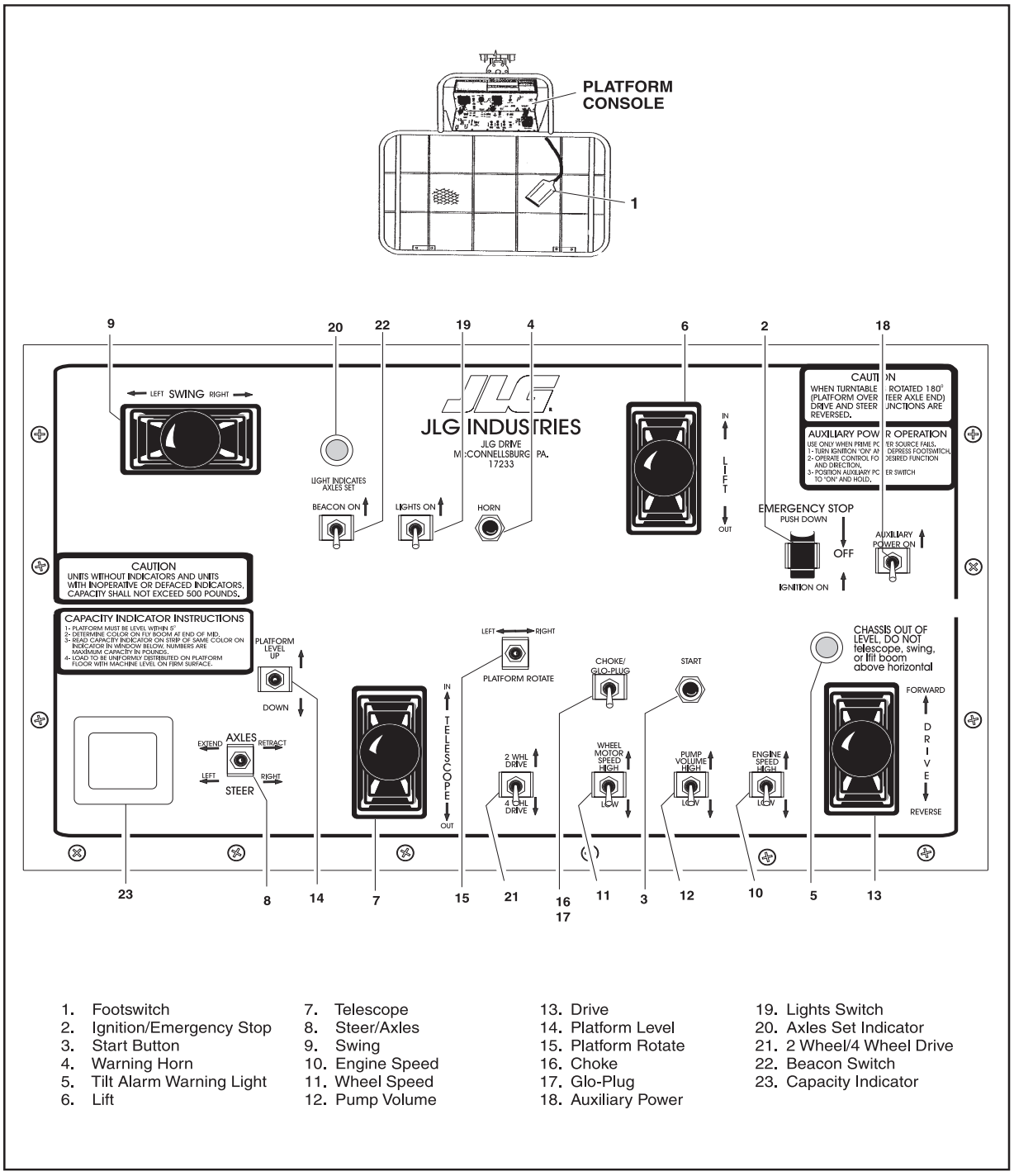
⚠ WARNING

IF THE TILT ALARM IS ILLUMINATED WHEN BOOM IS RAISED OR EXTENDED, RETRACT AND LOWER THE PLATFORM TO BELOW HORIZONTAL THEN REPOSITION MACHINE SO THAT IT IS LEVEL BEFORE EXTENDING BOOM OR RAISING BOOM ABOVE HORIZONTAL.



1. Footswitch
2. Ignition/Emergency Stop
3. Start Button
4. Warning Horn
5. Tilt Alarm Warning Light
6. Lift
7. Telescope
8. Steer/Axles
9. Swing
10. Engine Speed
11. Wheel Speed
12. Pump Volume
13. Drive
14. Platform Level
15. Platform Rotate
16. Choke
17. Glo-Plug
18. Auxiliary Power
19. Lights Switch
20. Axles Set Indicator
21. 2 Wheel/4 Wheel Drive
22. Beacon Switch
23. Capacity Indicator

Figure 3-8. Control Console - Hydraulic Controls May 1994 to Present



1. Footswitch
2. Ignition/Emergency Stop
3. Start Button
4. Warning Horn
5. Tilt Alarm Warning Light
6. Lift
7. Telescope
8. Steer/Axles
9. Swing
10. Engine Speed
11. Wheel Speed
12. Pump Volume
13. Drive
14. Platform Level
15. Platform Rotate
16. Choke
17. Glo-Plug
18. Auxiliary Power
19. Lights Switch
20. Axles Set Indicator
21. 2 Wheel/4 Wheel Drive
22. Beacon Switch
23. Capacity Indicator

Figure 3-9. Control Console - Hydraulic Controls Prior to May 1994

NOTE: *LIFT, SWING, and DRIVE control levers or switches are spring-loaded and will automatically return to the neutral (OFF) position when released.*

⚠ WARNING

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

6. Lift.

   The LIFT control lever provides raising and lowering of the boom when positioned to UP or DOWN.

7. Telescope.

   The TELESCOPE control lever provides extension and retraction or the boom when positioned to IN or OUT.

8. Steer/Axles.

   On standard machines, positioning the STEER/AXLES control switch right or left enables steering the machine to the right or to the left.

   On machines equipped with hydraulic extendable axles, the function the switch controls is dependent upon the position of the lever on the STEER/AXLES SELECTOR valve. Ignition/Emergency Stop.

9. Swing.

   The SWING control lever provides 360 degrees continuous swing when positioned to LEFT or RIGHT.

NOTE: *When the boom is above horizontal and if either the ENGINE SPEED, PUMP VOLUME, or WHEEL MOTOR SPEED are positioned to HIGH, high speed functions are automatically cut out and the machine continues to operate at a lower speed.*

⚠ CAUTION

DO NOT OPERATE MACHINE IF HIGH ENGINE SPEED, HIGH WHEEL MOTOR SPEED, OR HIGH PUMP VOLUME OPERATE WHEN BOOM IS ABOVE HORIZONTAL.

10. Engine Speed.

    The two position HIGH ENGINE speed control switch allows the operator to select higher function speeds or higher drive speed when positioned to HIGH.

11. Wheel Speed.

    The two position WHEEL SPEED control switch allows the operator to select high wheel motor speed when positioned to HIGH. When used in conjunction with HIGH ENGINE speed, it gives the machine a faster drive speed.

⚠ CAUTION

TO AVOID PERSONNEL INJURY OR MACHINE DAMAGE, USE SLOW FUNCTION SPEED CONTROL WHEN POSITIONING THE PLATFORM IN CLOSE QUARTERS.

12. Pump Volume.

    The two-position PUMP VOLUME control switch allows the operator to select high pump flow, providing additional speed to all functions when positioned to HIGH. When used in conjunction with high HIGH ENGINE and WHEEL MOTOR SPEED switches, it gives the machine a faster drive speed range.

13. Drive.

    The DRIVE control lever provides driving either forward or backward when positioned to FORWARD or REVERSE.

14. Platform Level.

    The PLATFORM LEVEL control switch allows the operator to compensate for any difference in the automatic self-leveling system by positioning the switch to UP or DOWN.

15. Platform Rotate (If Equipped).

    The PLATFORM ROTATE control switch allows operator to rotate the basket to the left or right when positioned to the desired direction.

16. Choke (If Equipped).

    A push-button switch supplies power to the choke solenoid for cold weather starting.

17. Glo-Plug (If Equipped).

    This push-button switch when depressed supplies power to the diesel engine glow plugs for cold weather start. See diesel engine operator manual for instructions.

18. Auxiliary Power.

    The AUXILIARY POWER control switch energizes the electrically operated hydraulic pump, when actuated. The switch must be held ON for duration of auxiliary pump use.

    The auxiliary pump functions to provide sufficient oil flow to operate the basic machine system should the main pump or engine fail. The auxiliary pump will operator boom lift, telescope and swing.

    It should be noted that the functions will operate at a slower than normal rate because of lower hydraulic flow.

⚠ IMPORTANT

WHEN OPERATING ON AUXILIARY POWER, DO NOT OPERATE MORE THAN ONE FUNCTION AT THE SAME TIME. SIMULTANEOUS OPERATION CAN OVERLOAD THE AUXILIARY PUMP MOTOR.

NOTE: *The main function of the auxiliary power is to lower the platform in the event of primary power failure. Determine the reason for primary power failure and have the problem corrected by a qualified service technician.*

NOTE: *Auxiliary power is primarily intended for platform lowering in the event of primary power failure. However, auxiliary power may be used for platform positioning when operating in close quarters in the following sequence:*

a. Position PLATFORM/GROUND switch to PLATFORM.

b. Position IGNITION/EMERGENCY STOP switch to ON.

c. Depress and hold footswitch.

d. Operate appropriate control switch or lever for desired function and hold.

e. Position AUXILIARY POWER switch to ON and hold.

f. Release AUXILIARY POWER switch, selected control switch or lever, and footswitch.

g. Position IGNITION/EMERGENCY STOP switch to OFF.

19. Lights Switch (If equipped).

    The LIGHTS switch allows the operator to turn the installed light options (except beacon light) on or off.

20. Axles Set Indicator (If equipped).

    The red Axles Set or red Axles Not Set indicator illuminates until the axles are properly extended and locked. The green Axles Set indicator lamp illuminates when the axles are extended and locked.

21. 2 Wheel Drive/4 Wheel Drive.

    The two position 2 WHL DRIVE/4 WHL DRIVE control switch allows the operator to select high speed (2 WHEEL DRIVE) or low speed (4 WHEEL DRIVE).

22. Beacon Switch (If equipped).

    The BEACON switch allows the operator to turn the beacon light on or off.

23. Capacity Indicator (If equipped).

    The CAPACITY INDICATOR GAUGE is on the left side of the platform console. The indicator scale is visible through a lens and indicates the maximum platform load allowable at any given boom angle and extension based on the color stripe visible at the point where the fly boom enters the mid boom.

Steer/Axle Selector Valve

A two-position selector valve, located on the frame adjacent to the right front wheel, regulates oil flow for the steer and axle circuit. The valve handle must be positioned to AXLE for axle extension and to STEER for normal operation.

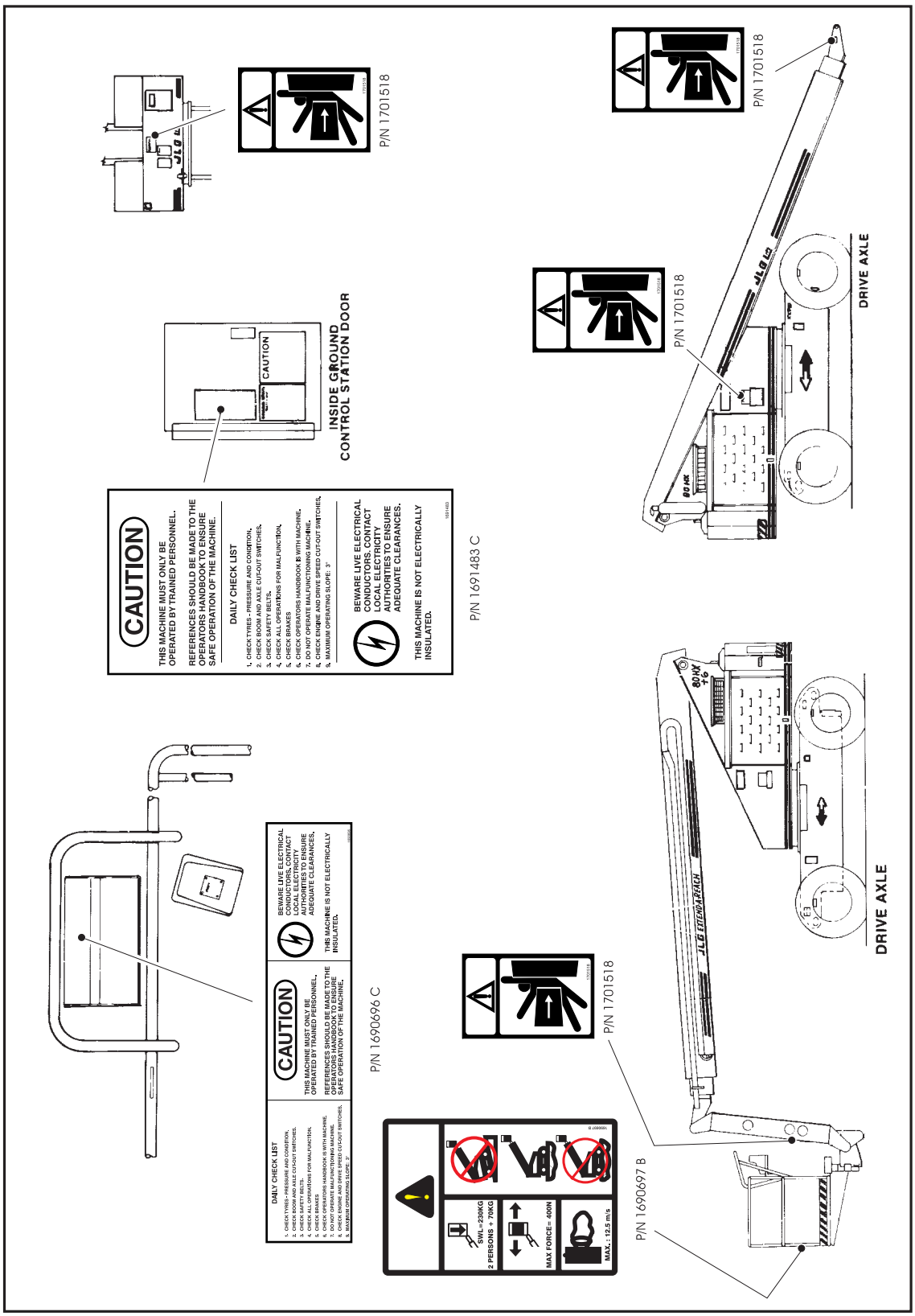
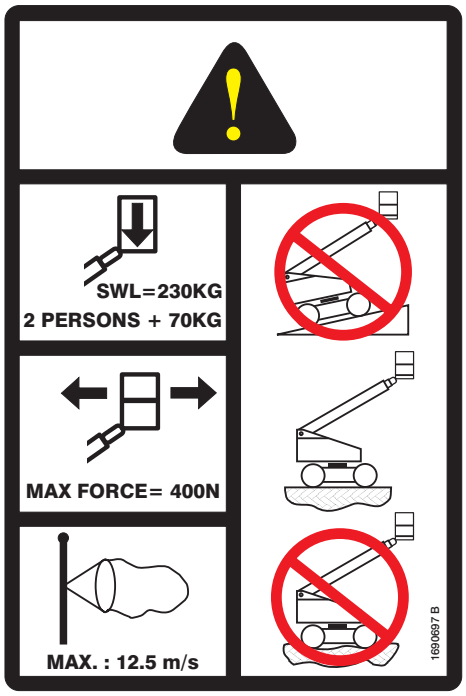


Figure 3-10. Caution, Danger, Warning Decal Location



P/N 1690697 B

P/N 1701518

CAUTION

THIS MACHINE MUST ONLY BE OPERATED BY TRAINED PERSONNEL.

REFERENCES SHOULD BE MADE TO THE OPERATORS HANDBOOK TO ENSURE SAFE OPERATION OF THE MACHINE.

DAILY CHECK LIST

1. CHECK TYRES - PRESSURE AND CONDITION.
2. CHECK BOOM AND AXLE CUT-OUT SWITCHES.
3. CHECK SAFETY BELTS.
4. CHECK ALL OPERATIONS FOR MALFUNCTION.
5. CHECK BRAKES
6. CHECK OPERATORS HANDBOOK IS WITH MACHINE.
7. DO NOT OPERATE MALFUNCTIONING MACHINE.
8. CHECK ENGINE AND DRIVE SPEED CUT-OUT SWITCHES.
9. MAXIMUM OPERATING SLOPE: 3°

BEWARE LIVE ELECTRICAL CONDUCTORS. CONTACT LOCAL ELECTRICITY AUTHORITIES TO ENSURE ADEQUATE CLEARANCES.

THIS MACHINE IS NOT ELECTRICALLY INSULATED.

1691483

P/N 1691483 C

DAILY CHECK LIST

1. CHECK TYRES - PRESSURE AND CONDITION.
2. CHECK BOOM AND AXLE CUT-OUT SWITCHES.
3. CHECK SAFETY BELTS.
4. CHECK ALL OPERATIONS FOR MALFUNCTION.
5. CHECK BRAKES
6. CHECK OPERATORS HANDBOOK IS WITH MACHINE.
7. DO NOT OPERATE MALFUNCTIONING MACHINE.
8. CHECK ENGINE AND DRIVE SPEED CUT-OUT SWITCHES.
9. MAXIMUM OPERATING SLOPE: 3°

CAUTION

THIS MACHINE MUST ONLY BE OPERATED BY TRAINED PERSONNEL.

REFERENCES SHOULD BE MADE TO THE OPERATORS HANDBOOK TO ENSURE SAFE OPERATION OF THE MACHINE.

BEWARE LIVE ELECTRICAL CONDUCTORS. CONTACT LOCAL ELECTRICITY AUTHORITIES TO ENSURE ADEQUATE CLEARANCES.

THIS MACHINE IS NOT ELECTRICALLY INSULATED.

1690696

P/N 1690696 C

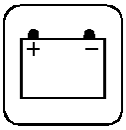
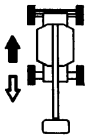
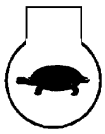
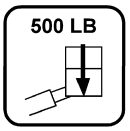
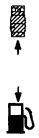
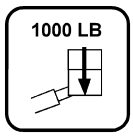
FUNCTION	SYMBOL	FUNCTION	SYMBOL
AUXILIARY POWER		CRUSHING	
BATTERY CHARGE		DANGER	
BOOM BROKEN CABLE		DRIVE	
CAUTION		DRIVE SPEED FAST	
SAFETY ALERT		DRIVE SPEED SLOW	
500 LB. CAPACITY INDICATOR		FUEL SELECT	
1000 LB. CAPACITY INDICATOR		ELECTRICAL HAZARD	
CHASSIS OUT OF LEVEL		ENGINE AIR FILTER BY-PASS	
CIRCUIT BREAKER		ENABLE INDICATOR	

Figure 3-11. Common Symbols - Sheet 1

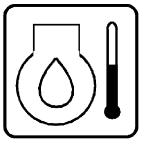
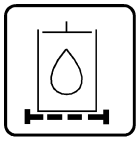
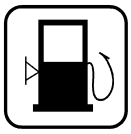
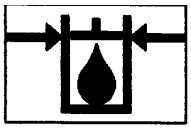
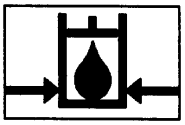
FUNCTION	SYMBOL	FUNCTION	SYMBOL
CREEP		ENGINE COLD START DEVICE (ETHER)	
ENGINE DISTRESS		HAND CRUSHING HAZARD	
ARTICULATING FLY BOOM		HIGH ENGINE OIL TEMPERATURE	
FACTORY MUTUAL		HIGH ENGINE WATER TEMPERATURE	
FAN		HORN	
FAST		HYDRAULIC FILTER BYPASS	
LOW FUEL LEVEL		HYD OIL	
FUNCTION SPEED		HYD OIL LEVEL (HIGH)	
AC GENERATOR ON		HYD OIL LEVEL (LOW)	

Figure 3-12. Common Symbols - Sheet 2

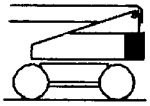
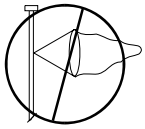
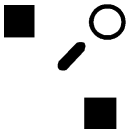
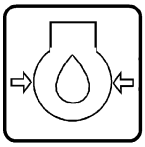
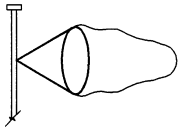
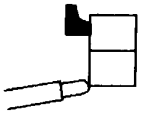
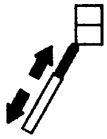
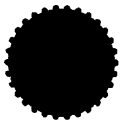
FUNCTION	SYMBOL	FUNCTION	SYMBOL
GLOW PLUG		POWER/ EMERGENCY STOP	
GROUND CONTROL		IMPORTANT	
INDOOR USE ONLY		MASTER SWITCH	
LOW ENGINE OIL PRESSURE		MAXIMUM WIND SPEED	
LP GAS		NO TIE DOWN/LIFT	
MAIN BOOM LIFT		PLATFORM CONTROL	
MAIN BOOM TELESCOPE		PLATFORM LEVEL	
MANUAL		PLATFORM ROTATE	
MANUAL DESCENT KNOB		PUMP VOLUME	

Figure 3-13. Common Symbols - Sheet 3

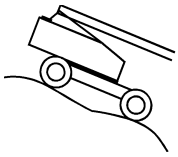
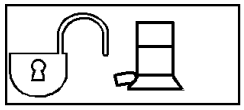
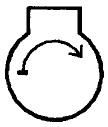
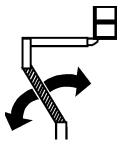
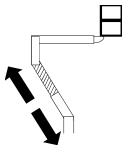
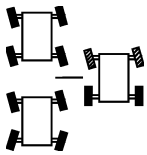
FUNCTION	SYMBOL	FUNCTION	SYMBOL
MANUAL DESCENT PUMP HANDLE		SLOW	
MINIMUM SPEED MAXIMUM TORQUE		SOFT TOUCH OVERRIDE	
SOFT TOUCH		TIE-DOWN/LIFT	
START		TOWER LIFT	
STEER		TOWER TELESCOPE	
STEER SELECT		WARNING	
SWING		WHEEL SPEED	

Figure 3-14. Common Symbols - Sheet 4

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

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. 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.

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 two wheel drive (four wheel drive available) 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.

The unrestricted capacity of the JLG Lift is 230 kg. This means that with a platform load of 230 kg or less, the platform may be positioned anywhere the boom will reach.

4.2 GENERAL

This section provides the necessary information needed to operate the machine. Included in this section are the procedures for starting, stopping, traveling, steering, parking, platform loading and transporting. It is important that the user read and understand the proper procedures before operating the machine.

4.3 ENGINE OPERATION

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

Starting Procedure

1. Check engine oil. If necessary, add oil in accordance with the Engine Manufacturer's manual.
2. Check fuel level. Add fuel if necessary.
3. Check that air cleaner components are in place and securely fastened.

⚠ CAUTION

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

4. Place ENGINE SPEED control switch on platform console to LOW position.
5. Turn key of CONTROL SELECTION switch to GROUND. Position IGNITION switch to ON, then push the START switch to the upward position until engine starts.

⚠ CAUTION

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

6. After engine has had sufficient time to warm up, shut engine off.
7. Turn key of CONTROL SELECTION switch to PLATFORM.
8. From Platform position IGNITION switch to ON, then push the START switch to the forward position until engine starts.

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

Shutdown Procedure

⚠ CAUTION

IF AN ENGINE MALFUNCTION NECESSITATES UNSCHEDULED SHUTDOWN, DETERMINE AND CORRECT CAUSE BEFORE RESUMING ANY OPERATION.

1. Remove all load and allow engine to operate at low speed setting for 3-5 minutes; this allows for further reduction of internal engine temperature.
2. Position IGNITION switch to OFF .
3. Turn key of MASTER Switch to OFF position.

NOTE: *Refer to Engine Manufacturer's manual for detailed information.*

4.4 TRAVELING (DRIVING)

⚠ WARNING

DO NOT DRIVE WITH BOOM EXTENDED OR ABOVE HORIZONTAL EXCEPT ON A SMOOTH, FIRM AND LEVEL SURFACE.

TO AVOID LOSS OF TRAVEL CONTROL OR UPSET ON GRADES AND SIDE SLOPES, DO NOT DRIVE MACHINE ON GRADES OR SIDE SLOPES EXCEEDING THOSE SPECIFIED ON THE SERIAL NUMBER NAME PLATE.

ASSURE THAT TURNTABLE LOCK IS ENGAGED BEFORE BEGINNING ANY EXTENDED TRAVELING. AVOID ANY TERRAIN FEATURES WHICH COULD CAUSE THE MACHINE TO UPSET.

TRAVEL GRADES IN "LOW" WHEEL MOTOR SPEED AND "HIGH" ENGINE SPEED ONLY. USE EXTREME CAUTION WHEN DRIVING IN REVERSE AT ALL TIMES WHEN DRIVING WITH PLATFORM ELEVATED AND ESPECIALLY WHEN DRIVING WITH ANY PART OF MACHINE WITHIN 2 M OF AN OBSTRUCTION. DO NOT USE DRIVE TO MANEUVER PLATFORM CLOSE TO AN OBSTRUCTION....USE ONE OF THE BOOM FUNCTIONS.

⚠ CAUTION

BEFORE DRIVING, MAKE SURE BOOM IS POSITIONED OVER REAR AXLE. IF BOOM IS OVER FRONT AXLE (STEER WHEELS), STEER AND DRIVE CONTROLS WILL MOVE IN OPPOSITE DIRECTIONS TO MACHINE CONTROLS.

Traveling Forward or Reverse

1. With engine running, depress footswitch and position DRIVE control to FORWARD and hold for the duration of forward travel desired.

NOTE: *When DRIVE or STEER functions are being operated there is an interlock which prevents operation of boom functions.*

2. Depress footswitch and position DRIVE control to REVERSE and hold for duration of reverse travel desired.
3. Depress footswitch and position STEER control to RIGHT for traveling right and LEFT for traveling left.
4. To obtain maximum travel speed, position the DRIVE controller to FAST and activate the following switches:
   a. Position ENGINE SPEED switch to HIGH.
   b. Position WHEEL SPEED switch to HIGH.
   c. Position PUMP VOLUME switch to HIGH.
5. Prior to stopping the machine, position switches as follows:
   a. Position ENGINE SPEED switch to LOW.
   b. Position WHEEL SPEED switch to LOW.
   c. Position PUMP VOLUME switch to LOW.
6. 6. For traveling up grades, position switches as follows:
   a. Position ENGINE SPEED switch to HIGH.
   b. Position WHEEL SPEED switch to LOW.
   c. Position PUMP VOLUME switch to LOW.

NOTE: *For smoother operation when driving with fully extended boom, place DRIVE control to SLOW before stopping.*

4.5 STEERING

Depress footswitch to steer machine, push on the left side of the switch to steer left, on the right side to steer right.

NOTE: *On machines with four wheel steering, the drive controller will have a thumb-rocker switch controlling the rear drive wheels.*

⚠ CAUTION

BEFORE OPERATING MACHINE, MAKE SURE BOOM IS POSITIONED OVER REAR AXLE. IF BOOM IS OVER FRONT AXLE (STEER WHEELS), STEER AND DRIVE CONTROLS WILL MOVE IN OPPOSITE DIRECTION THAN INDICATED ON MACHINE PLACARDS.

4.6 PARKING AND STOWING

Park and stow machine as follows:

1. Park machine in travel position; boom lowered over rear, all access panels and doors closed and secured, ignition off, turntable locked.
2. Check that brakes hold machine in position.
3. Chock wheels front and rear.
4. Turn off SELECT switch and remove key.

4.7 PLATFORM

Loading From Ground Level

1. Position chassis on a smooth, firm and level surface.
2. If total load (personnel, tools and supplies) is less then rated capacity, distribute load uniformly on platform floor and proceed to work position.

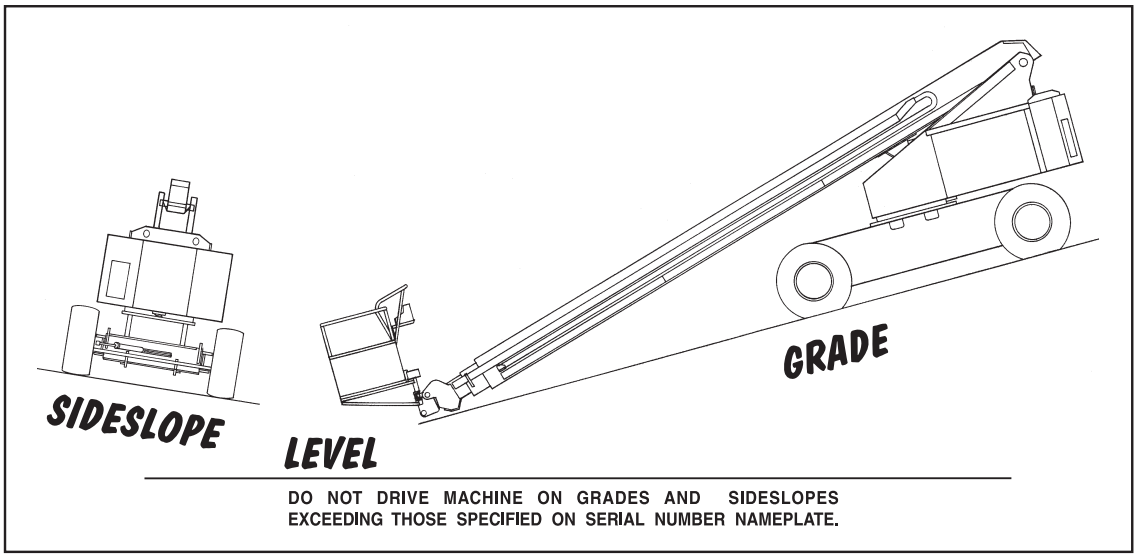


Figure 4-1. Grade and Side Slope

Loading From Positions Above Ground Level

Before loading weight to platform above ground level:

1. Determine what the total rated capacity weight will be after additional weight is loaded (personnel, tools and supplies).
2. If total weight in platform will be less then rated capacity, proceed with adding weight.

Platform Level Adjustment

1. Leveling UP. Depress footswitch to raise platform, position PLATFORM LEVEL control switch UP and hold until platform is level.
2. Leveling DOWN. Depress footswitch to lower platform, position PLATFORM LEVEL control switch to DOWN and hold until platform is level.

Platform Rotation

1. Depress footswitch to rotate platform to the left, PLATFORM ROTATE control is positioned to the LEFT and held until desired position is reached.
2. Depress footswitch to rotate platform to the right, PLATFORM ROTATE control is positioned to the RIGHT and held until desired position is reached.

4.8 BOOM

⚠ WARNING

A RED TILT ALARM WARNING LIGHT, LOCATED ON THE CONTROL CONSOLE, LIGHTS WHEN THE CHASSIS IS ON A SEVERE SLOPE (3 DEGREES OR GREATER). DO NOT SWING, EXTEND OR RAISE BOOM ABOVE HORIZONTAL WHEN LIT.

DO NOT DEPEND ON TILT ALARM AS A LEVEL INDICATOR FOR THE CHASSIS. TILT ALARM INDICATES CHASSIS IS ON A SEVERE SLOPE (3 DEGREES OR GREATER). CHASSIS MUST BE LEVEL BEFORE SWINGING, EXTENDING OR RAISING BOOM ABOVE HORIZONTAL.

TO AVOID UPSET, IF RED TILT ALARM WARNING LIGHT LIGHTS WHEN MAIN BOOM IS EXTENDED OR RAISED ABOVE HORIZONTAL, RETRACT AND LOWER PLATFORM TO NEAR GROUND LEVEL. THEN REPOSITION MACHINE SO THAT CHASSIS IS LEVEL BEFORE EXTENDING OR RAISING BOOM.

TRAVELING WITH BOOM RETRACTED AND BELOW HORIZONTAL IS PERMITTED ON GRADES AND SIDE SLOPES SPECIFIED ON CAUTION PLACARD AT PLATFORM.

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

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

Swinging the Boom

⚠ IMPORTANT

ASSURE THAT TURNTABLE LOCK IS DISENGAGED BEFORE STARTING ANY SWING OPERATION.

Depress footswitch to swing boom, position SWING control switch or controller to RIGHT or LEFT for direction desired.

NOTE: *When boom functions are being operated there is an interlock that prevents the use of DRIVE and STEER functions.*

Raising and Lowering the Main Boom

To raise and lower Boom, position LIFT control switch or controller to UP OR DOWN and hold until desired height is reached.

Telescoping the Main Boom

To extend or retract Boom, position TELESCOPE control switch to IN or OUT and hold until platform reaches desired position.

4.9 SHUT DOWN AND PARK

1. Drive machine to a protected area.
2. Position HIGH ENGINE speed control switch on Platform Control Console to LOW.
3. Assure main boom is fully retracted and lowered over rear (Drive) axle; all access panels and doors closed and secured.
4. Remove all load and allow engine to operate 3-5 minutes at LOW setting to permit reduction of engine internal temperatures.
5. At Ground Controls, turn MASTER SWITCH to (center) OFF. Position, the IGNITION switch (down) to OFF.
6. Cover the Platform Control Console to protect instruction placards, warning decals and operating controls from hostile environment.

4.10 TIE DOWN AND LIFTING

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

If it becomes necessary to lift the machine using an overhead or mobile crane, it is very important that the lifting devices are attached only to the designated lifting eyes, and that the turntable lock pin is engaged. See Figure 4-2, Lifting Chart.

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

⚠ WARNING

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

4.11 AXLES, EXTENDING AND RETRACTING

NOTE: *Throughout the text, there are references made to fixed axle machines. Fixed axle machines have retaining pins for the axles, steer cylinders, and tie rods. Machines equipped with oscillating axles do not have these retaining pins and all extending and retracting operations are performed from the platform without the aid of an assistant.*

Machines Without Jacks

1. From ground control, activate the machine hydraulic system. Raise the boom and extend the boom no more than 2.4 meters.
2. Position STEER/AXLES valve, located adjacent to right front wheel, to AXLES.
3. Position boom over drive wheel end of machine. On machines with fixed axles, remove axle lock pins.

⚠ IMPORTANT

DO NOT USE EXTEND-A-REACH (IF EQUIPPED) TO LIFT MACHINE WHEN EXTENDING AND RETRACTING AXLES.

NOTE: *On machines equipped with Soft Touch Proximity System, the operator must press and hold the override button on the front of the control box in order to lift the drive wheels from the ground.*

4. Position LIFT control to DOWN and hold until drive wheels rise from the ground; it may be necessary to feather the lift control to maintain drive wheel elevation.
5. With the aid of an assistant, position EXTENDABLE AXLE/STEER switch located on platform control console to LEFT until axles are fully extended. On machines with fixed axles, install axle lock pins.
6. Position LIFT control to UP to lower the machine; elevate the boom sufficiently and reposition the boom over the steer wheel end of the machine.
7. On machines with fixed axles, remove the tie rod lock pins, steer cylinder lock pin, and axle lock pins.

NOTE: *On machines equipped with Soft Touch Proximity System, the operator must press and hold the override button on the front of the control box in order to lift the steer wheels from the ground.*

8. Position LIFT control to DOWN and hold until the steer wheels rise from the ground; it may be necessary to feather the LIFT control to maintain wheel elevation.
9. With the aid of an assistant, position EXTENDABLE AXLE/STEER switch on platform console to LEFT until axles are fully extended.
10. On machines with fixed axles, align steer wheels and insert tie rod lock pin, axle lock pins, and steer cylinder lock pins.
11. Position LIFT control to UP to lower the machine steer wheels; position STEER/AXLES valve to STEER.
12. On machines with fixed axles, cycle steer system in both directions to ensure tie rod and steer cylinder are properly locked. You are now ready to operate all machine functions.

MODEL	"A" Dimension Steer Axle To Center Of Gravity	Gross Weight Standard Machine
80H	115.5 cm	17,241 kg.
80HX	119.4 cm	14,428 kg.

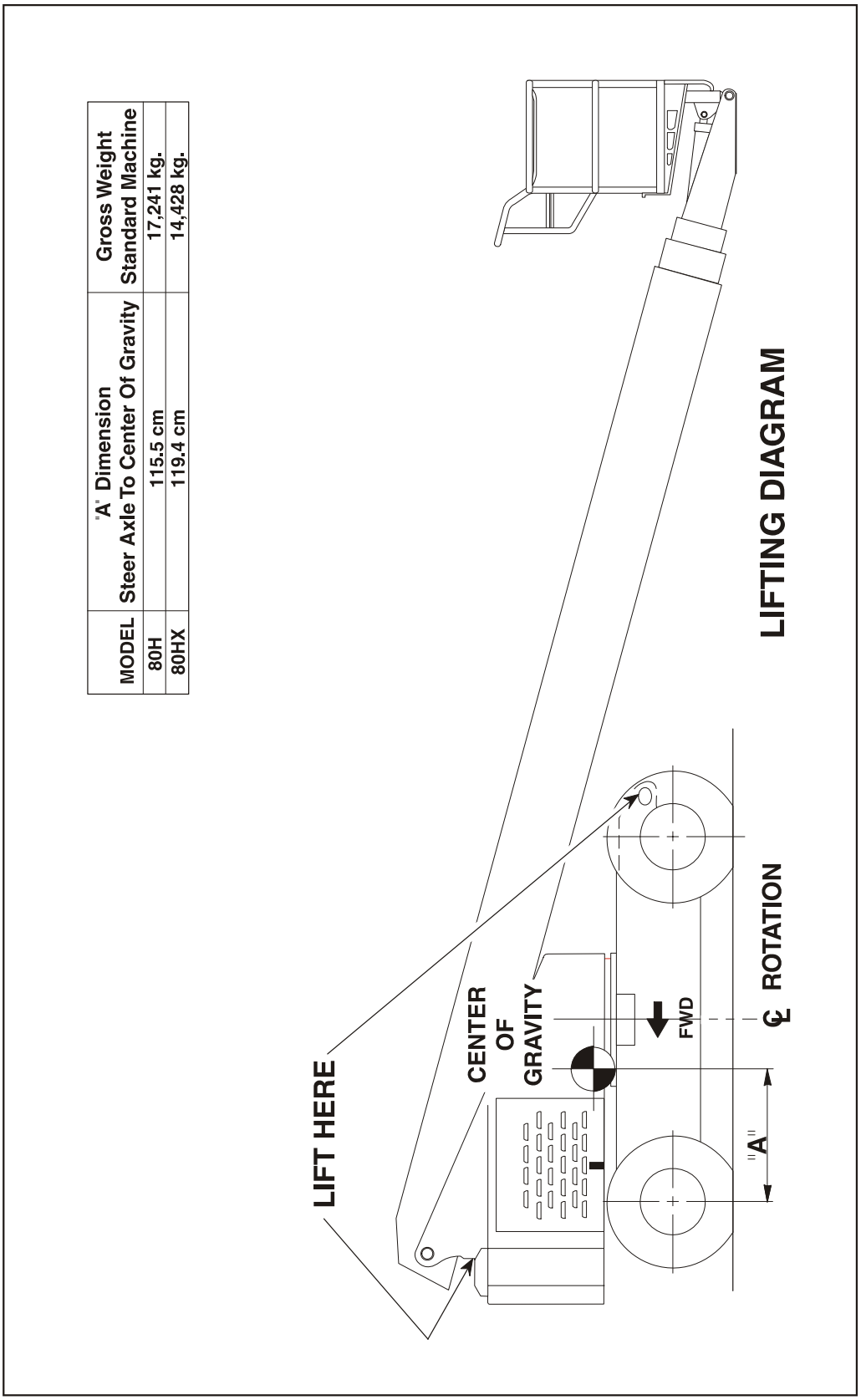


Figure 4-2. Lifting Chart

13. To retract extendable axles:

    a. Position STEER/AXLES valve located adjacent to right front wheel to AXLES.

    b. Activate the machine hydraulic system and raise the boom and extend the boom no more than 2.4 meters.

    c. Position the boom over the steer wheel end of the machine; on machines with fixed axles, remove tie rod lock pins, steer cylinder pin and axle lock pins.

NOTE: *It may be necessary to elevate the wheels and jog the steer control for removal of lock pins.*

NOTE: *On machines equipped with Soft Touch Proximity System, the operator must press and hold the override button on the front of the control box in order to lift the steer wheels from the ground.*

    d. Position the LIFT control to DOWN and hold until the steer wheels rise from the ground; it may be necessary to feather the LIFT control to maintain wheel elevation.

    e. Position EXTENDABLE AXLE/STEER switch located on platform control console to RIGHT, until axles are fully retracted.

    f. On machines with fixed axles, align steer wheels and insert tie rod lock pins and steer cylinder pin. Install axle lock pins.

    g. Position LIFT control to UP to lower the machine; elevate the boom sufficiently and reposition the boom over the drive wheel end of the machine.

NOTE: *On machines equipped with Soft Touch Proximity System, the operator must press and hold the override button on the front of the control box in order to lift the drive wheels from the ground.*

    h. Position LIFT control to DOWN and hold until the drive wheels rise from the ground; it may be necessary to feather the LIFT control to maintain drive wheel elevation.

    i. Position EXTENDABLE AXLES/STEER switch, on platform control console, to RIGHT, until axles are fully retracted. On machines with fixed axles, install axle lock pins.

    j. Position LIFT control to UP to lower the machine drive wheels; position STEER/AXLES valve to STEER.

    k. On machines with fixed axles, cycle the steer system in both directions to ensure the tie rods are properly locked.

Machines With Jacks

NOTE: *For machines equipped with a front jack only, refer to the instructions under Machines Without Jacks to extend the rear axle.*

1. Position STEER/AXLES valve, located adjacent to right front wheel, to AXLES.

2. Position the Jack/Steer/Axles Select switch on the Platform control console to JACK.

3. On machines with fixed axles, remove the axle lock pins on the applicable axle. If extending the steer axle, also remove the tie rod lock pins and steer cylinder lock pin.

4. Position the Jack Select Switch to either FRONT JACK or REAR JACK and position the JACK control switch to down and hold until the wheels on the selected axle rise from the ground.

5. Position the Jack/Steer/Axles Select switch to AXLES. Then, position the Steer/Axles/Jack control switch to left until the axles are fully extended. On machines with fixed axles, install axle lock pins. If extending the steer axle, also install the tie rod lock pins and steer cylinder lock pin.

⚠ WARNING

ENSURE THE JACK IS FULLY RETRACTED BEFORE OPERATING THE MACHINE. FAILURE TO DO SO COULD RESULT IN DAMAGE TO THE MACHINE.

6. Position the JACK control to the up position to lower the machine. Ensure the jack is fully retracted before operating the machine.

7. Repeat steps 2 thru 6 and extend the opposite axle.

8. Position the STEER/AXLES valve to STEER.

9. On machines with fixed axles, cycle the steer system in both directions to ensure the tie rod and steer cylinder are properly locked.

10. You are now ready to operate all machine functions.
11. To retract extendable axles:
    a. Position STEER/AXLES valve located adjacent to right front wheel to AXLES.
    b. On machines with fixed axles, if retracting the drive axles, remove the axle lock pins. If retracting the steer axles, remove the tie rod lock pins, steer cylinder pin and axle lock pins.

NOTE: *It may be necessary to elevate the wheels and jog the steer control for removal of lock pins.*

    c. Position the Jack Select Switch to either FRONT JACK or REAR JACK and position the JACK control switch to down and hold until the wheels on the selected axle rise from the ground.
    d. Position Steer/Axles/Jack control switch located on platform control console to the right, until axles are fully retracted.
    e. On machines with fixed axles, if retracting the steer axles, align the steer wheels and insert the tie rod lock pins and steer cylinder pin. Install axle lock pins.

⚠ WARNING

ENSURE THE JACK IS FULLY RETRACTED BEFORE OPERATING THE MACHINE. FAILURE TO DO SO COULD RESULT IN DAMAGE TO THE MACHINE.

    f. Position the JACK control switch to the UP position to lower the machine. Ensure the jack is fully retracted before operating the machine.
    g. Repeat steps b thru f and retract the axles at the opposite end of the machine.

4.12 OSCILLATING AXLE LOCKOUT TEST (IF EQUIPPED)

⚠ WARNING

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

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

1. Place a 15 cm high block with ascension ramp in front of left front wheel.
2. From platform control station, start engine .
3. Place ENGINE SPEED, WHEEL MOTOR SPEED, and PUMP VOLUME control switches to their respective LOW positions.
4. Place DRIVE control lever to FORWARD position and carefully drive machine up ascension ramp until left front wheel is on top of block.
5. Carefully activate SWING control lever and position boom over right side of machine.
6. With boom over right side of machine, place DRIVE control lever to REVERSE and drive machine off of block and ramp.
7. Have an assistant check to see that left front wheel remains locked in position off of ground.
8. Carefully activate SWING control lever and return boom to stowed position (centered between drive wheels). After boom reaches stowed position, activate DRIVE and lockout cylinders should release and allow wheel to rest on ground.
9. Place the 15 cm high block with ascension ramp in front of right front wheel.
10. Place DRIVE control lever to FORWARD and carefully drive machine up ascension ramp until right front wheel is on top of block.
11. Carefully activate SWING control lever and position boom over left side of machine.
12. With boom over left side of machine, place DRIVE control lever to REVERSE and drive machine off of block and ramp.
13. Have an assistant check to see that right front wheel remains locked in position off of ground.
14. Carefully activate SWING control lever and return boom to stowed position (centered between drive wheels). After boom reaches stowed position, activate DRIVE and lockout cylinders should release and allow wheel to rest on ground.
15. If lockout cylinders do not function properly, have qualified personnel correct the malfunction prior to any further operation.

4.13 STEER/TOW SELECTOR (IF EQUIPPED)

⚠ CAUTION

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

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

4.14 TOWING (IF EQUIPPED)

⚠ CAUTION

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 8 K.M.H.

Prior to towing the machine, complete the following:

⚠ CAUTION

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

1. Retract, lower and position boom over rear drive wheels in line with direction of travel; lock turntable.
2. Connect towbar to front of frame with attach pins, and towbar to towing vehicle.
3. Disconnect drive hubs by inverting disconnect cap. (See Figure 4-2.)
4. Actuate steer/tow selector valve for towing; pull valve knob OUT to float position. (This opens the steer circuit to reservoir, allowing the steer cylinder rod free travel.) The machine is now in the towing mode.

After towing the machine, complete the following:

1. Actuate steer/tow selector valve for steering; push valve knob IN to the actuated position.
2. Reconnect drive hubs by inverting disconnect cap. (See Figure 4-2.)
3. Disconnect towbar from steering hitch and from towing vehicle. The machine is now in the driving mode.

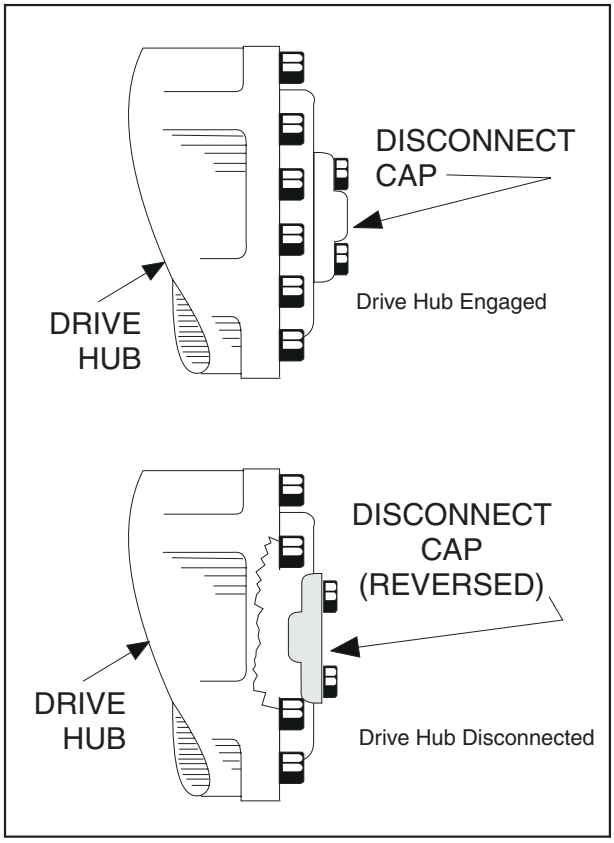


Figure 4-3. Drive Disconnect Hub

SECTION 5. OPTIONAL EQUIPMENT

5.1 ROTATOR

A Platform rotator allows for platform rotation 90 degrees from center in either direction. The rotator is designed to give added jobsite versatility. The platform should be returned to the center position for all other operations.

5.2 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 LP 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.

⚠ CAUTION

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

Changing From Gasoline to LP Gas

1. Start engine from Ground Control Station.
2. Open hand valve on LP gas supply tank by turning 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.

5.3 OSCILLATING AXLE

The oscillating front axle is attached to the frame by a pivot pin which allows all four wheels to remain on the ground when traveling on rough terrain. The oscillating axle also incorporates two lockout cylinders connected between the frame and each wheel end. The lockout cylinders permit axle oscillation when the boom is centered over the rear, and lock and hold the axle when the boom is moved off center.

5.4 TOW PACKAGE

The tow package is required when it is necessary to move the machine without use of the drive and steer system.

⚠ WARNING

TOWING IS PERMITTED ONLY FOR EMERGENCY TRAVEL ON THE JOBSITE. NO HIGHWAY TOWING IS PERMITTED.

The towing package consists of the tow bar, attaching hardware, a tow bar which connects to the eyes on front of frame and the towing vehicle, and a tow/steer selector valve which permits the steering system to ‘float free’ when towing the machine.

5.5 FOUR WHEEL DRIVE

Provides drive motors, brakes and torque hubs at each wheel to give extra traction. The system is a full time four wheel drive system and is available with either a fixed or oscillating front axle.

5.6 TRAVEL 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 to warn jobsite personnel the machine is traveling.

5.7 TILT ALARM

Senses when the machine is out of level in any direction approximately 3 degrees and illuminates a warning light at the platform control station and sounds the machine's horn, signaling the operator. A second switch mounted on the machine senses when the machine is out of level 5 degrees and will cut out two speed drive when activated.

5.8 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.

5.9 FOAM FILLED TIRES

Eliminates flats by filling tires with polyurethane foam. For use where sharp objects are frequently encountered on operating surface of jobsite.

5.10 ROTATING BEACON

An amber or red rotating beacon may be installed on the hood or platform, and can be controlled by a two position toggle switch mounted on the platform control console. When the switch is placed in the ON position, the light is activated and provides a visual warning to the machine's operation.

5.11 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.

5.12 BOOM WIPERS

A one piece U-shaped neoprene strip, be attached to the front of the base boom section, wipes the top and both sides of the fly section. The bottom side of the fly section is protected by a straight neoprene strip which also attaches to the base section.

5.13 HOSTILE ENVIRONMENT PACKAGE

The hostile environment package provides additional protection against the entry of dust, dirt, sand and other abrasive materials into the hydraulic system, control handles and switches, cylinders, boom wire ropes and wear pads, and the air inlet of the engine. The package is intended for machines that will be exposed to painting, sandblasting or other similar hostile conditions. The hostile environment package includes boom wipers, cylinder bellows, heavy duty reservoir breather, an engine air cleaner and control console cover, as required.

5.14 MOTION ALARM

A motion alarm horn provides an audible warning when the platform controls are selected at the PLATFORM/ GROUND SELECT switch, the POWER/EMERGENCY STOP switch is ON, and the footswitch is depressed. The alarm warns personnel in the jobsite area to avoid the operating machine.

5.15 FOUR WHEEL STEER

Provides spindles at all wheels. Front wheels are steered by a toggle switch as usual. Rear wheels are controlled by a thumb-rocker on top of drive controller.

5.16 SOFT TOUCH PROXIMITY SYSTEM

The soft touch system incorporates a lower padded rail, slightly larger than and encompassing the platform, suspended beneath the platform. A proximity switch is attached to the center of the rail beneath the platform floor. The proximity switch is set so that any time the lower rail comes into contact with an object, electrical power is cut off to the platform controls, shutting down all functions. To restore machine functions, the operator must press and hold the PUSH TO OVERRIDE button, located on the platform control console, and select the proper function to move the platform clear of the object. In addition to the lower rail, all stationary outside platform rails are padded.

SECTION 6. EMERGENCY PROCEDURES

6.1 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.

6.2 EMERGENCY TOWING PROCEDURES

Towing this machine is prohibited, unless properly equipped. However, provisions for moving the machine, in case of a malfunction or power failure, have been incorporated. The following procedures are to be used ONLY for emergency movement to a suitable maintenance area.

1. Chock wheels securely.
2. Disengage drive hubs by reversing disconnect caps.
3. Connect suitable equipment, remove chocks, and move machine.
4. After moving machine, complete the following procedures:
5. Position machine on a firm and level surface.
6. Chock wheels securely.
7. Engage drive hubs by reversing disconnect caps on hubs.
8. Remove chocks from wheels as needed.

6.3 EMERGENCY CONTROLS AND THEIR LOCATIONS

Power/Emergency Stop Switches

1. There is one of these red mushroom shaped switches at both the Ground Controls and Platform Controls. When depressed it will immediately stop the machine.

⚠ WARNING

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

2. Installed on the Platform Console, this round red switch is pulled up for normal machine functions. In an emergency, push the button to the down position with your palm and machine will immediately stop.

Ground Control Station

The Ground Control Station is located on the right front side of the turntable. The controls on this panel provide the means for overriding the platform controls, and for controlling the platform level, boom and swing functions from the ground. Place the KEY SELECT switch to GROUND position and operate the proper switch to lift, swing, or telescope the boom, or level the platform.

Auxiliary Power

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

1. Position PLATFORM/GROUND SELECT KEY SWITCH to PLATFORM.
2. Position POWER/EMERGENCY STOP switch to ON.
3. Depress and hold footswitch.
4. Operate appropriate control switch, lever or controller for desired function and hold.
5. Position AUXILIARY POWER switch to ON and hold.
6. Release AUXILIARY POWER switch, selected control switch, lever or controller, and footswitch.
7. Position POWER/EMERGENCY STOP switch to OFF.

To activate auxiliary power from the ground control station:

1. Position PLATFORM/GROUND SELECT KEY SWITCH to GROUND.
2. Position POWER/EMERGENCY STOP switch to ON.

3. Operate appropriate control switch or controller for desired function and hold.
4. Position AUXILIARY POWER switch to ON and hold.
5. Release AUXILIARY POWER switch, and appropriate control switch or controller.
6. Position POWER/EMERGENCY STOP switch to OFF.

Manual Descent

The manual descent valves are used, in the event of total power failure, to retract and lower the boom using gravity. The manual descent valves are located on the right side of the turntable (directly below the ground control box). This system should be used if there is a total power failure since the valves will permit use of gravity to retract and lower the boom. The procedures for use of the valves for descent and retraction are given adjacent to the valves.

6.4 EMERGENCY OPERATION

Use of Ground Controls

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.

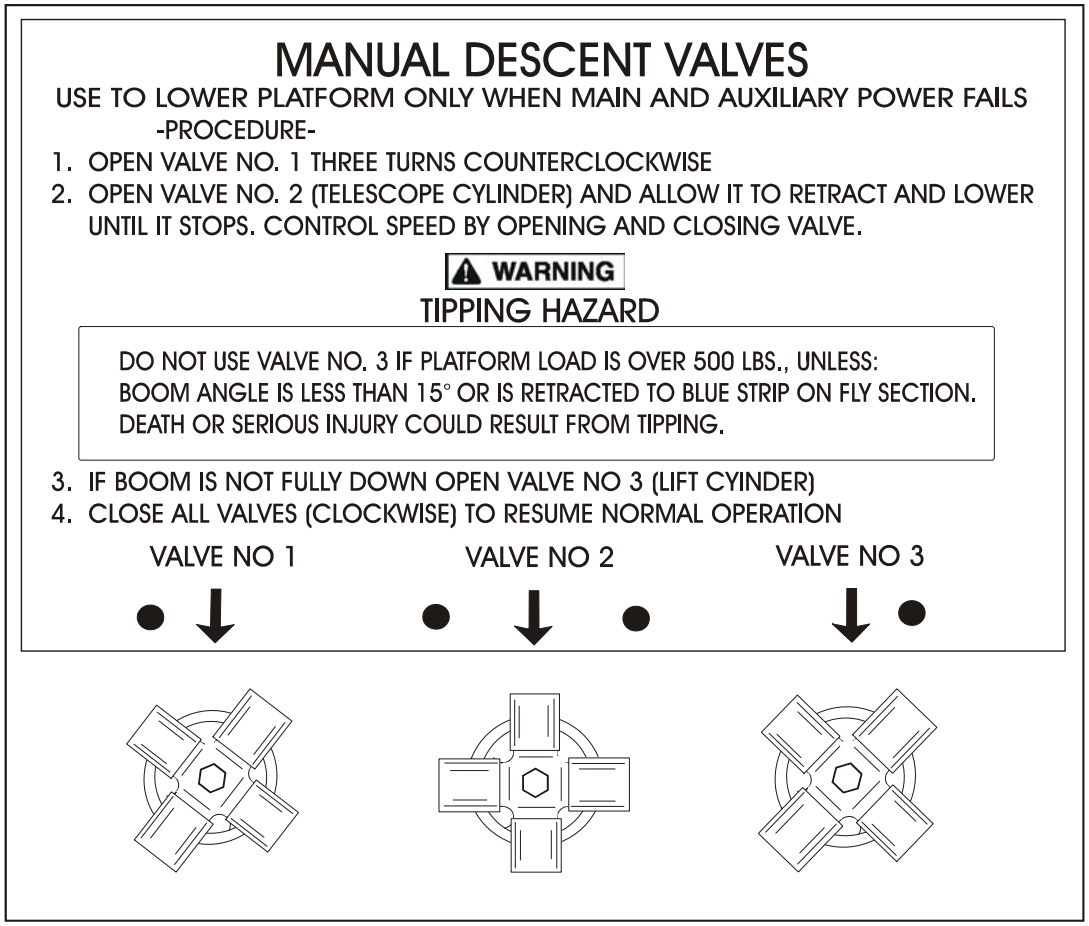


Figure 6-1. Manual Descent Valves

Operator Unable to Control Machine

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

⚠ WARNING

DO NOT OPERATE WITH PRIMARY POWER SOURCE (ENGINE OR ELECTRIC MOTOR) IF PERSONS ARE PINNED OR TRAPPED. USE AUXILIARY POWER INSTEAD.

1. Operate the machine from ground controls ONLY with the assistance of other personnel and equipment (cranes, overhead hoists, etc.) as may be be required to safely remove the danger or emergency condition.
2. Other qualified personnel on the platform may use the platform controls with regular or auxiliary power. 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 or Boom Caught Overhead

If the platform or boom 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.

Post Incident Inspection and Repair

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 3 meters until you are sure that all damage has been repaired, if required, and that all controls are operating correctly.

6.5 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 factory should be contacted by telephone and provided with all necessary details.

Contact your local JLG office.

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 7. INSPECTION AND REPAIR LOG

Table 7-1.Inspection and Repair Log

Date	Comments

Table 7-1.Inspection and Repair Log

Date	Comments

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