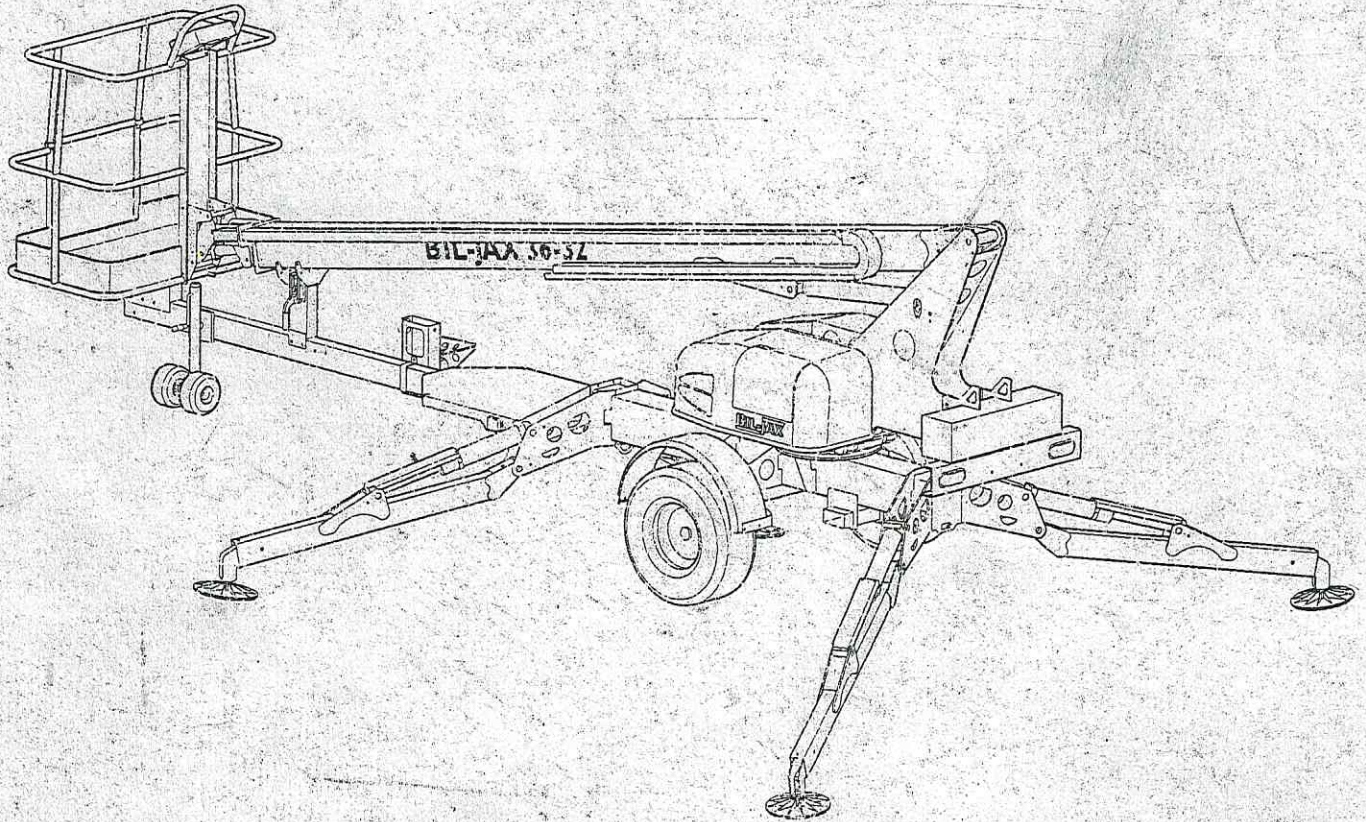


# **BIL-JAX** A STEP ABOVE® **AERIAL WORK PLATFORMS**

Operator's Manual

## **3632T**

Hydraulic Telescoping Boom Lift







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### **BOOM PERSONNEL LIFT**

**This equipment is designed and manufactured in compliance with the duties, responsibilities, and standards set forth for manufacturers in the ANSI 92.2 standard in effect at the time of manufacture.**

**This equipment will meet or exceed applicable OSHA codes and ANSI A92.2 standards when used in accordance with sections 7, 8, 9 & 10 of ANSI A92.2 and all other manufacturer's recommendations.**

**It is the responsibility of the user of this equipment to follow all applicable ANSI, OSHA, Federal, State, and local codes and regulations that govern the safe operation of this equipment.**

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# PREFACE

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The purpose of this manual is to provide a thorough understanding of the Bil-Jax 3632T Telescoping Boom Lift operation and controls. Read the safety and operating instructions in this manual and become familiar with the location and use of all controls.

Follow all warnings, cautions, and instructions in this manual and any attached to and supplied with the boom lift. All OSHA, ANSI, state, and local codes and regulations concerning this equipment should be obtained, read, and thoroughly understood before attempting to operate this equipment.

To ensure proper and safe use of this equipment, only trained and qualified personnel should operate and maintain the boom lift.





# 1

## Safety

---

### 1-1 INTRODUCTION

Familiarity and proper training are required for the safe operation of mechanical equipment. Equipment operated improperly or by untrained personnel can be dangerous. Read the operating instructions in this manual and become familiar with the location and proper use of all controls. Inexperienced operators should receive instruction from someone familiar with the equipment before being allowed to operate the machine. The use of intelligence and common sense in the operation of mechanical equipment is the best practice in any safety policy. Be professional and always observe the safety procedures set forth in this manual.

All OSHA, ANSI, state, and local codes and regulations pertaining to this equipment should be obtained, read, and thoroughly understood before attempting to operate this equipment. Persons under the influence of drugs, alcohol, or prescription medication should not be on or near this equipment. Common sense should be implemented at all times during the use of this equipment. Do not operate this equipment in areas where the equipment or user may come in contact with a live power source.

The information contained herein is not to be considered as legal advice and is intended for informational purposes only. This information is offered to alert Bil-Jax customers to procedures that may be of concern to them.

This information is not intended to be all inclusive and is to be followed in the use of Bil-Jax equipment only.

For any questions concerning the safe use of this equipment, call 800-537-0540 before operating.

## SAFETY NOTES

This manual contains DANGERS, WARNINGS, CAUTIONS, and NOTES that must be followed to prevent the possibility of improper service, personnel injury or death, and damage to equipment.

### DANGER

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Dangers warn of equipment operation near electrical power lines that could lead to personal injury or death.

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### WARNING

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Warnings describe conditions or practices that could lead to personal injury or death.

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### CAUTION

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Cautions provide information important to prevent errors that could damage machine or components.

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**NOTE:** Notes contain additional information important to a procedure.



## 1-2 BEFORE OPERATION

Ensure the following general safety precautions are followed before operating the Model 3632T Telescoping Boom Lift.

- ALWAYS survey the usage area for potential hazards such as untamped earth fills, unlevel surfaces, overhead obstructions, and electrically charged conductors or wires. Be aware of any potential hazards and always consider what could happen. Watch for moving vehicles in the operating area.
- ALWAYS read, understand, and follow the procedures in this manual before attempting to operate equipment.
- ALWAYS inspect the equipment for damaged or worn parts. Check for cracked welds, hydraulic leaks, damaged wiring, loose wire connectors, damaged outriggers, low tire pressure, uneven tire wear, or tire damage. Also check for any improper operation. NEVER operate equipment if damaged in any way. Improperly operating equipment must be repaired before using.
- ALWAYS wear proper clothing for the job. Wear protective equipment as required by federal, state, or local regulations. The operator MUST wear a safety harness and lanyard.
- ALWAYS locate, read, and follow all directions and warnings displayed on the equipment.
- ALWAYS inspect the equipment for “DO NOT USE” tags. NEVER use equipment tagged in this way until all repairs are made and all “DO NOT USE” tags are removed by authorized maintenance personnel.
- ALWAYS make sure the platform and the outrigger footpads are free of mud, grease, or other slippery material to reduce the possibility of slipping.
- NEVER allow improperly trained personnel to operate this equipment. Only trained and authorized personnel shall be allowed to operate this equipment.
- NEVER operate this equipment if you are under the influence of alcohol or drugs, or if you feel ill, dizzy, or unsteady in any way. Operators must be physically fit, thoroughly trained, and not easily excitable.
- NEVER modify, alter, or change the equipment in any way that would affect its original design or operation in any way.
- NEVER operate this equipment in ways for which it is not intended.

## 1-3 DURING OPERATION

Ensure the following general safety precautions are followed during the operation of the Bil-Jax 3632T Telescoping Boom Lift.

### DANGER

This machine is not insulated for use near electrical power lines and DOES NOT provide protection from contact with or close proximity to any electrically charged conductor. Operator must maintain safe clearances at all times (10 feet minimum) and always allow for platform movement such as wind induced sway. Always contact the power company before performing work near power lines. Assume every line is hot. Remember, power lines can be blown by the wind.

Refer to Table 1-1 for minimum safe approach distances between machine and electrical power lines.

Table 1-1. Minimum Safe Approach Distances

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance	
	(Feet)	(Meters)
0 to 300V	Avoid Contact	
Over 300V to 50KV	10	3.05
Over 50KV to 200KV	15	4.60
Over 200KV to 350KV	20	6.10
Over 350KV to 500KV	25	7.62
Over 500KV to 750KV	35	10.67
Over 750KV to 1000KV	45	13.72

- ALWAYS position lift far enough away from power sources to ensure that no part of the lift can accidentally reach into an unsafe area. This includes full extension of the boom through 360 degrees rotation.
- ALWAYS operate only on a firm and level surface. NEVER use on surfaces that do not support the equipment with its rated load capacity and the resulting force exerted on the outriggers during boom extension and rotation.
- ALWAYS keep yourself and all personnel away from potential pinch or shear points.
- ALWAYS report any misuse of equipment to the proper authorities. Horseplay is prohibited.
- ALWAYS maintain good footing on the work platform. NEVER wear slippery soled shoes.
- ALWAYS make certain all personnel are clear and there are no obstructions before repositioning basket.
- ALWAYS cordon off area around the outriggers to keep personnel and other equipment away from it while in use.
- ALWAYS stay clear of wires, cables, and other overhead obstructions.
- ALWAYS engage the boom travel latch and platform transport latch before towing the trailer.

- NEVER allow electrode contact with any part of the platform if welding is being performed from the platform.
- NEVER use without the outriggers fully extended and firmly based.
- NEVER override or by-pass manufacturer's safety devices.
- NEVER attach a safety harness to an adjacent structure, pole, or equipment while working from the boom platform.
- NEVER raise the outriggers or move the trailer with materials on board.
- NEVER raise the outriggers or try to move the trailer with the boom raised or extended.
- NEVER stand or sit on cage bars. Work only within the work cage and do not lean out over the cage to perform work.
- NEVER attempt to increase working height with boxes, ladders, or other means.
- NEVER operate this equipment when exposed to high winds, thunderstorms, ice, or any other weather conditions that would compromise operator safety.
- NEVER allow ropes, electric cords, hoses, etc. to become entangled in the equipment when the platform is being raised or lowered.
- NEVER exceed manufacturer's load limits. Use only the Bil-Jax manufactured material lifting hook for lifting materials (supplied as an option). Make sure all tools and equipment are safely stowed.
- NEVER exceed load ratings by transferring loads to the platform or to the optional material lifting hook at elevated heights.
- NEVER use cage to carry materials and never allow overhang of materials when raising or lowering the platform.
- NEVER push or pull with the boom or platform and NEVER use the boom to lift any part of the trailer.
- NEVER use the boom or platform to place a "dead man" load against any structure, materials, or equipment.
- NEVER climb up or down boom.
- NEVER leave the keys in the boom lift while unattended or not in use.



## 1-4 MAINTENANCE SAFETY

Ensure the following safety precautions are observed whenever maintenance is performed on the Bil-Jax 3632T Telescoping Boom Lift.

### General Maintenance

- ALWAYS perform maintenance procedures according to manufacturer's requirements. NEVER short change maintenance procedures.
- ALWAYS check hydraulic system. Make sure all lines, connectors, and fittings are tight and in good condition.
- ALWAYS turn the key switch OFF before connecting or disconnecting wiring to or from valve solenoids or other load devices.
- ALWAYS disconnect power to the hydraulic pump drive motor before making electrical checks of the hydraulic valves.
- ALWAYS keep all mechanisms properly adjusted and lubricated according to maintenance schedule and manufacturer's specifications.
- ALWAYS perform a function check of operating controls before each use and after repairs have been made.
- ALWAYS locate and protect against possible pinch points prior to performing maintenance and repairs.
- ALWAYS use factory-approved parts to repair or maintain this equipment. If this equipment is rebuilt, retesting is required in accordance with factory instructions.
- NEVER allow water or foreign particles into the DC electric motor housing. Ingestion of water or foreign particles may cause serious damage to the motor. If the motor gets wet, oven dry the motor to remove all moisture before operating; consult motor manufacturer for drying instructions.
- NEVER test or operate the hydraulic components when another person is near the equipment.
- NEVER add unauthorized fluids to the hydraulic system or battery. Check original manufacturer specifications.
- NEVER exceed the manufacturer's recommended relief valve settings.
- NEVER touch or allow metal tools to contact static discharge sensitive electronic components. ALWAYS use static discharge prevention mats and grounding devices when handling electronic components.
- NEVER tamper with cylinder counter balance valves. Contact the Bil-Jax Service Department at 800-537-0540 if the cylinder counter balance valves need adjusting.
- NEVER attempt repairs you do not understand. Consult manufacturer if you have any questions regarding proper maintenance, specifications, or repair.

## Battery Maintenance

Ensure the following general safety precautions are followed whenever performing battery maintenance on the Bil-Jax 3632T Telescoping Boom Lift.

- ALWAYS check battery acid level daily. Check battery test indicator for proper state of charge on maintenance free batteries before using lift.
- ALWAYS wear safety glasses when working near battery.
- ALWAYS avoid contact with battery acid. Battery acid causes serious burns. Avoid contact with skin or eyes. If accidental contact occurs, flush with water and consult a physician immediately.
- ALWAYS disconnect ground cable first when removing battery.
- ALWAYS connect ground cable last when installing battery.
- ALWAYS charge batteries in open, well-ventilated areas.
- NEVER smoke when servicing battery.
- NEVER allow batteries to overcharge and boil.
- NEVER short across battery posts to check for current. NEVER break a live circuit at battery.
- NEVER jump start other vehicles using boom lift battery.

## 1-5 DAMAGED EQUIPMENT POLICY

### Safety Statement

At Bil-Jax, we are dedicated to the safety of all users of our products. Therefore, all Bil-Jax lifts are designed, manufactured and tested to comply with current applicable Federal OSHA and ANSI codes and regulations.

### Damage Policy

There may be occasions when a Bil-Jax lift is involved in an incident that results in structural damage to the lift. This can seriously compromise the ability of the lift to perform in a safe manner. Therefore, whenever a Bil-Jax lift is damaged structurally or when there is the possibility of structural damage (this damage may be internal and is not always visible to the naked eye), Bil-Jax may require that the lift be returned to our facility at 125 Taylor Parkway, Archbold, Ohio, for reconditioning. If you have any questions concerning what constitutes structural damage, please call the Bil-Jax Service Department at 800-537-0540.

### Damage Repair Notice

There may be occasions when a Bil-Jax lift is involved in an incident resulting in non-structural damage. When this occurs and repairs are made by the owner or area distributor, please notify Bil-Jax of these non-maintenance repairs and request a repair form to be filled out and returned to Bil-Jax.

Bil-Jax, Inc.  
125 Taylor Parkway  
Archbold, Ohio 43502

**Reporting Safety Defects**

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Bil-Jax, Inc.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in any individual problems between you, your dealer, or Bil-Jax, Inc.

To contact NHTSA you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (366-0123 in Washington, DC area) or write to:

NHTSA  
U.S. DEPARTMENT of TRANSPORTATION  
400 7 th Street SW (NSA-11)  
Washington, DC 20590

You can also obtain other information about motor vehicle safety from the Hotline.



# 2

## Introduction

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### 2-1 GENERAL DESCRIPTION

The Bil-Jax 3632T Telescoping Boom Lift (Figure 2-1) is designed and manufactured to position personnel with their tools and equipment at overhead work locations. Platform load capacity is rated at 500 pounds. During all boom operations, the unit is supported by four extended outriggers.

The boom lift is battery powered and operated with electronic pushbutton controls, a hydraulic power unit, a hydraulic gear motor, and hydraulic cylinders. The hydraulic power unit includes a reservoir, pump, and control valves. Four hydraulic cylinders elevate, extend, and level the work basket. The hydraulic motor and mating worm gear rotates the boom 360° around a vertical axis.

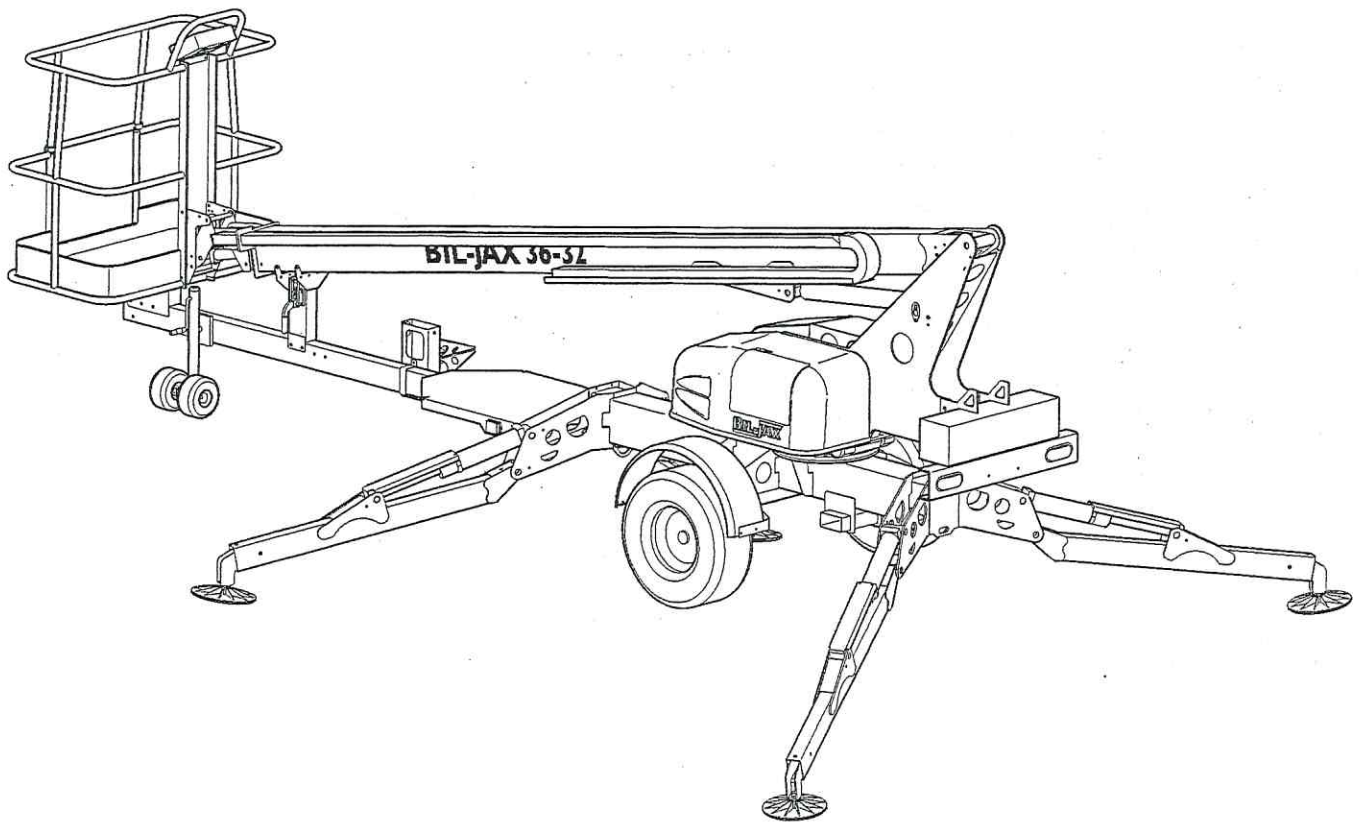


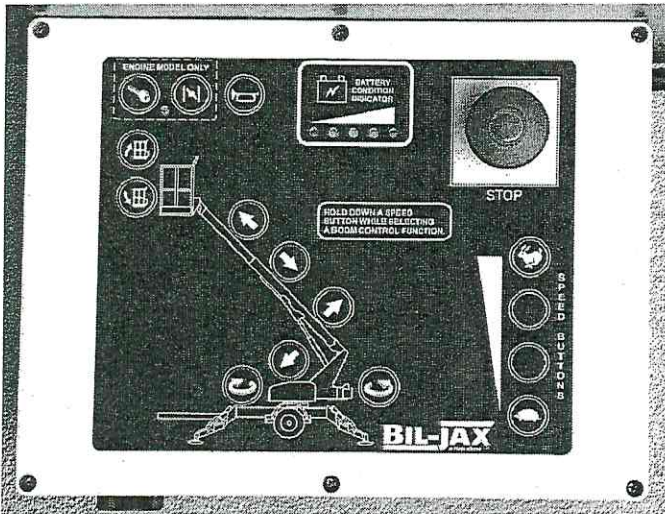
Figure 2-1. Bil-Jax 3632T Telescoping Boom Lift

The hydraulic power unit uses a 24 Volt, 39 Amp, one horsepower, DC motor to drive the hydraulic pump. The DC motor is powered by four 6 Volt DC, 245 Amp-hour, deep charge batteries connected in series. A 40 Amp, automatic, on-board battery charger is provided for recharging the batteries at the end of each work period.

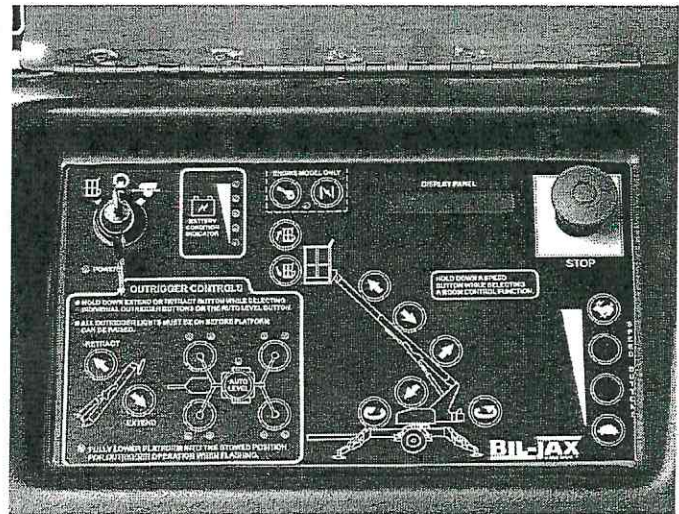
Two control panels (Figure 2-2) use pushbutton switches and hydraulic valves to control the direction and speed of boom lift and rotation. One set of operator controls is provided for ground operation and another set is provided for operation from the platform. Elevation and rotation controls are operational only when the moving boom section is within a programmed safe operating zone.

The ground and platform control panels include choke and start buttons for use with boom models equipped with a gasoline engine as the primary or alternate power source. Battery condition indicators show the charge state of the batteries. When pressed, a stop button at each control panel immediately stops all boom motions. The ground control panel includes a lighted text window that displays the present operating status or an existing error condition. The platform control panel includes a horn button that sounds an audible alarm when pressed.

Boom elevation, extension, and rotation speeds are selected from low to high by speed buttons. The lift and extension cylinders have load-holding valves in the base of each cylinder in case of a hydraulic hose failure.



PLATFORM CONTROL



GROUND CONTROL

Figure 2-2. Platform and Ground Station Controls



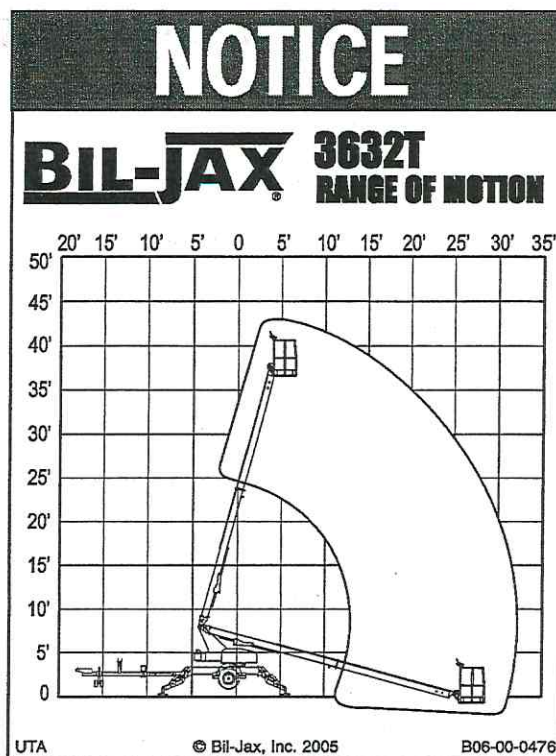


Figure 2-3. Safe Operating Zone

Only one boom motion is permitted at a time, and only as long as the boom is within the safe operating zone (Figure 2-3). When a selected boom motion exceeds a safe operating limit, the boom motion ceases and another boom motion must be selected within the safe operating zone.

Outrigger load sensing switches and level sensing interlocks prevent all platform boom operations until the four outriggers are properly extended, the trailer is level, and the full weight of the boom lift is loaded onto the outriggers. A boom-raised interlock prevents outrigger operation until the platform boom is fully lowered to the stowed position.

A hydraulic hose failure at either retract-cylinder port will cause a counterbalance valve to stop the return oil flow. It is strongly recommended that no one adjust or tamper with these safety devices. If service is required, please notify Bil-Jax for instructions.

The 3632T boom lift cylinders will not rust or corrode during storage since the cylinder rod is fully immersed in oil. It is important that the cylinder rods be kept clean and undamaged for the protection of the cylinder head packings.

In the event of power loss, control system failure or other problems, all boom movement functions may be accomplished by auxiliary or manual operations.

Auxiliary retraction, rotation and lowering of the platform are accessed inside the pump compartment. A hand pump and switch panel are used for auxiliary operations. See Section 3-4 for further instructions.

Manual lowering of the platform is by a lowering valve plunger on the base of boom lift cylinder. Pulling and holding the valve retracts the boom lift cylinder. The boom may need to be rotated to a clear area before lowering.

Manual boom extension/retraction and turntable rotation are accessed inside the pump compartment. The hand pump and selected valves on the pump unit are used for these functions. See Section 3-6 for further instructions.



## 2-2 SPECIFICATIONS

### Boom Lift Work Platform

Model Number: 3632T                      Serial Number \_\_\_\_\_  
 Manufactured by: Bil-Jax, Inc.  
 BIL-JAX AERIAL WORK PLATFORMS  
 125 Taylor Parkway  
 Archbold, Ohio 43502  
 800-537-0540

**Table 2-1. Specifications**

<b>Feature</b>	<b>3632T Model</b>
Rated Platform Load	500 lbs (227 kg) total (2 men plus tools)
Maximum Work Height	42 ft 6 in (12,95 m)
Extended Platform Height	36 ft 6 in (11,12 m)
Maximum Outreach	32 ft (9,8 m) from centerline 27 ft (8,2 m) from footpad edge
Turntable Rotation	360° Continuous
Platform Dimensions	43 in. H x 48 in. W x 30 in. D (109 cm x 122 cm x 76 cm)
Platform Rotation (option)	45°, Manual
Power Source, DC Model	4 Deep Cycle, 6 Volt DC, 245 Amp-hour Batteries
Battery Charger, DC Model	110/120 Volt, 40 Amp
Hydraulic Pressure	3000 psi (20684 kPa)
Reservoir Capacity	4.8 Gallons (18,2 Liters)
Hydraulic Capacity	7 Gallons (26,5 Liters)
Hydraulic Oil	SAE 10W, low foaming
Gross Vehicle Weight, DC Model	4100 lbs (1860 kg) nominal
Tongue Weight	160 lbs (72,6 kg)
Trailer Brakes	Hydraulic Surge (standard), Electric (optional)
Parking Brake	Mechanical
Tow Speed Rating	60 mph (97 km/hr)
Tire Size	ST 225/75 D15

## 2-3 WARRANTY

Bil-Jax warrants its boom lifts for one year from the date of delivery against all defects of material and workmanship, provided the unit is operated and maintained in compliance with Bil-Jax's operating and maintenance instructions; structural components are warranted for three years. Bil-Jax will, at its option, repair or replace any unit or component part which fails to function properly in normal use.

This warranty does not apply if the lift and/or its component parts have been altered, changed, or repaired without the consent of Bil-Jax or by anyone other than Bil-Jax or its factory trained personnel, nor if the lift and/or its components have been subjected to misuse, negligence, accident or any conditions deemed other than those considered as occurring during normal use.

Components not manufactured by Bil-Jax are covered by their respective manufacturer's warranties. A list of those components and their warranties is available upon written request to Bil-Jax.

Bil-Jax shall not in any event be liable for the cost of any special, indirect, or consequential damages to anyone, product, or thing. This warranty is in lieu of all other warranties expressed or implied. We neither assume nor authorize any representative, or other person, to assume for us any other liability in connection with the sale, rental, or use of this product.





# 3

## Operation

### 3-1 OPERATOR CONTROLS

The Bil-Jax 3632T Telescoping Boom Lift is equipped with multiple operator controls. Equipment power and outrigger controls are located at ground level. Boom lift and rotation controls are located at ground level and on the work platform.

#### Ground Control Station

The ground control station (Figure 3-1) is used to operate the outriggers and lift boom. To access the ground control panel, open the control panel access cover.

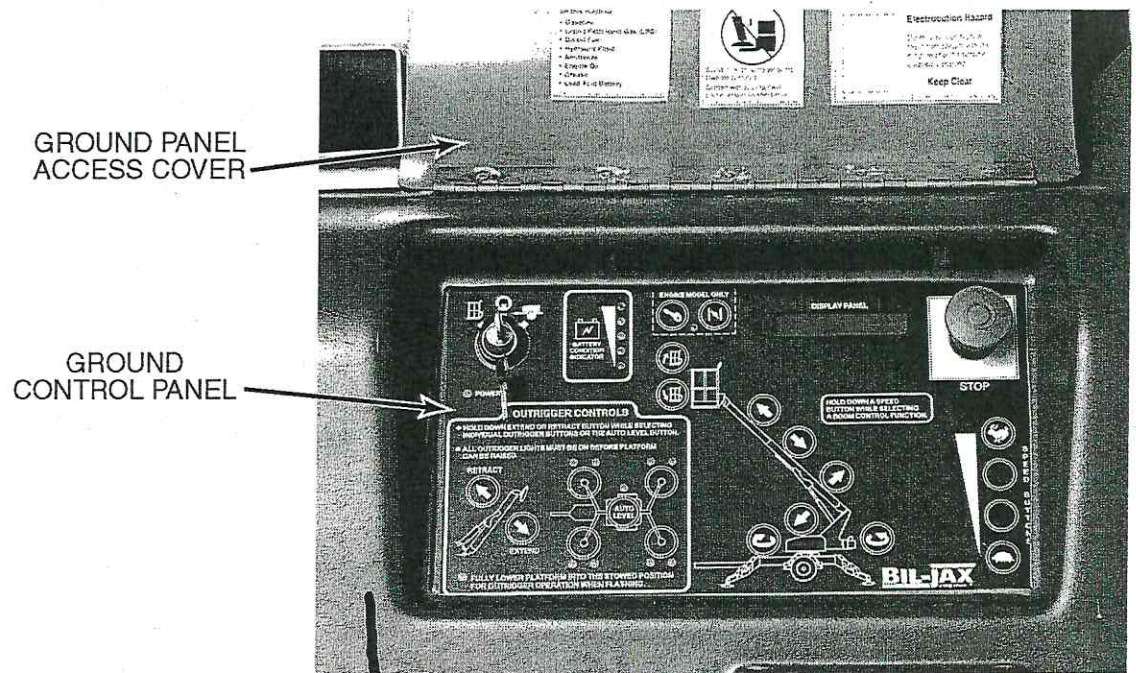


Figure 3-1. Ground Control Station

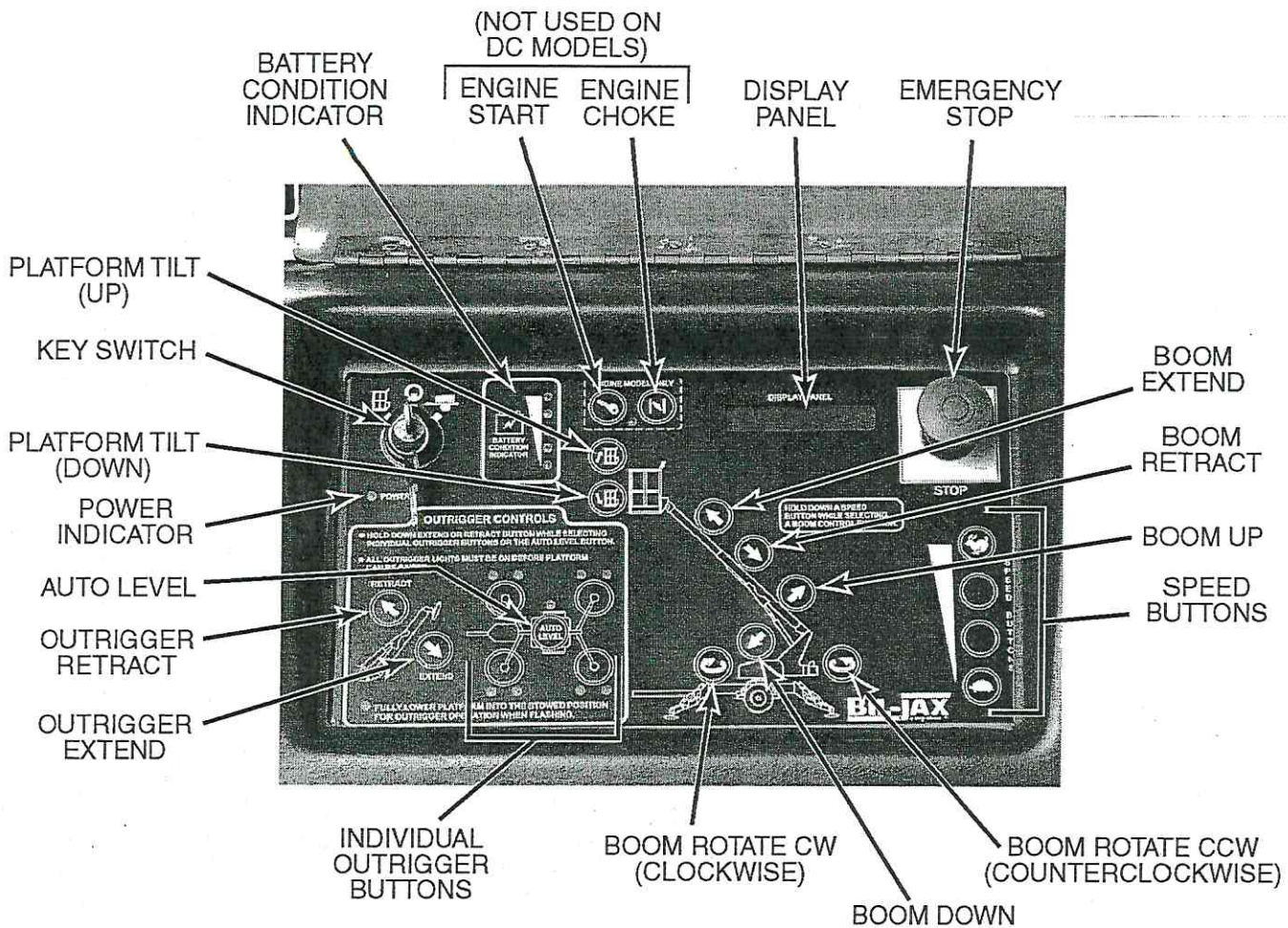


Figure 3-2. Ground Control Panel

The control panel at the ground control station (Figure 3-2) includes the following controls and indicators.

**Key Switch**

Turning the key switch to the left selects operation from the platform. Turning the key switch to the right selects operation from the ground control panel. The center (power off) position interrupts all electric and hydraulic power operations except emergency lowering. Removing the key protects against operation by unauthorized persons. The key may be removed with the key switch in any selected position.

**Battery Condition Indicator**

Indicator LEDs light up to indicate the level of charge remaining in the batteries. A lighted green LED indicates a good charge level. Lighted yellow LEDs indicate the need for charging soon. Lighted red LED warns that the battery charge level is low; boom operations should be halted until the batteries are recharged.

**Engine Start and Choke (Not used on DC model)**

Start a cold engine by pressing the choke button, then press the key button to start the engine. To start/restart a warm engine, press the key button only to start/restart.

**Display Panel**

The DISPLAY PANEL is a lighted text window that displays the present operating status or an existing error condition when the key switch is on.



### ***Emergency Stop Button***

When pushed in, the emergency STOP button disconnects electrical power to the ground and platform control stations. The emergency STOP pushbutton should only be pressed to immediately stop all boom motion. To resume control, pull out the emergency STOP button.

### ***Boom Extend/Retract Buttons***

Pressing and holding a desired speed button and the Boom Extend button at the same time extends the boom out. Pressing and holding a desired speed button and the Boom Retract button at the same time retracts the boom. In and out boom motion continues until the buttons are released, or the boom reaches a hard stop or a safe travel limit.

### ***Boom Up/Down Buttons***

Pressing and holding a desired speed button and the Boom Up button at the same time will raise the boom. Pressing a desired speed button and the Boom Down button at the same time will lower the boom. The up and down motion continues until the buttons are released, or the boom reaches a hard stop or a safe travel limit.

### ***Boom Rotation CW/CCW Buttons***

Pressing and holding a desired speed button and the Boom Rotation CW or CCW button at the same time enables the boom to rotate in the direction selected. The boom will rotate through 360 degrees until the buttons are released.

### ***Speed Buttons***

The SPEED BUTTONS along the lower, right side of the control panel must be pressed and held while selecting a boom function. Four speeds are available to control the positioning of the boom lift.

### ***Outrigger Controls***

For automatic outrigger extension/retraction: Select Extend or Retract outrigger button and the Auto Level button at the same time. To manually extend or retract the outriggers: Select Extend or Retract outrigger button and one of the outrigger buttons at the same time. The outrigger indicator LEDs light up when the outriggers are properly deployed and the boom weight is on the outriggers. Each of the outer outrigger LEDs indicate load is on the outrigger footpad. Each of the inner outrigger LEDs, when flashing, indicate that side is low and needs to be further raised for leveling. The Auto Level LED lights up when the boom is level.

### ***Platform Tilt Buttons***

Press and hold a speed button and the desired platform tilt button at the same time to level the work platform (levels the platform only, not the boom lift).

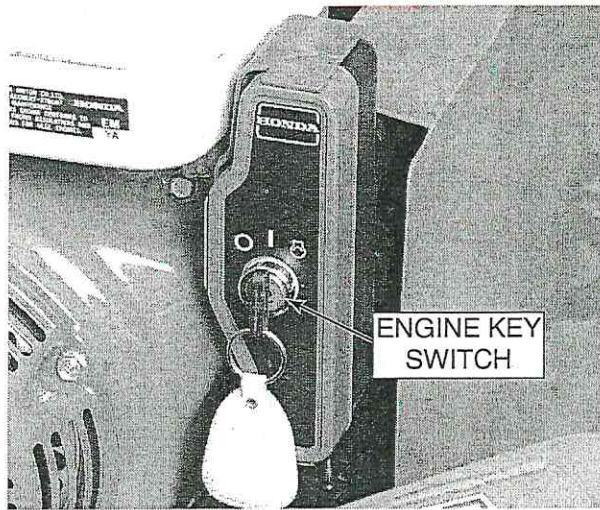
### ***Hydraulic Hand Pump***

The boom lift is equipped with a hydraulic hand pump (see Figure 3-12). In case hydraulic power is lost, the hand pump may be used to manually lower, extend/retract, and rotate the boom lift. A selected hydraulic cylinder can be operated by manually activating the hydraulic valves and operating the hand pump. Operating details are provided in Section 3-6.



**Engine Key Switch (Gas Model only)**

On the gas model boom lift, the engine key switch (Figure 3-3) must be in the ON position (as shown) to enable engine start-up from the ground or platform control station.



**Figure 3-3. Engine Key Switch**

## Platform Control Station

The platform control station (Figure 3-3) operates the boom lift, boom extension, boom rotation, and platform tilt motions. The platform control station includes the following controls.

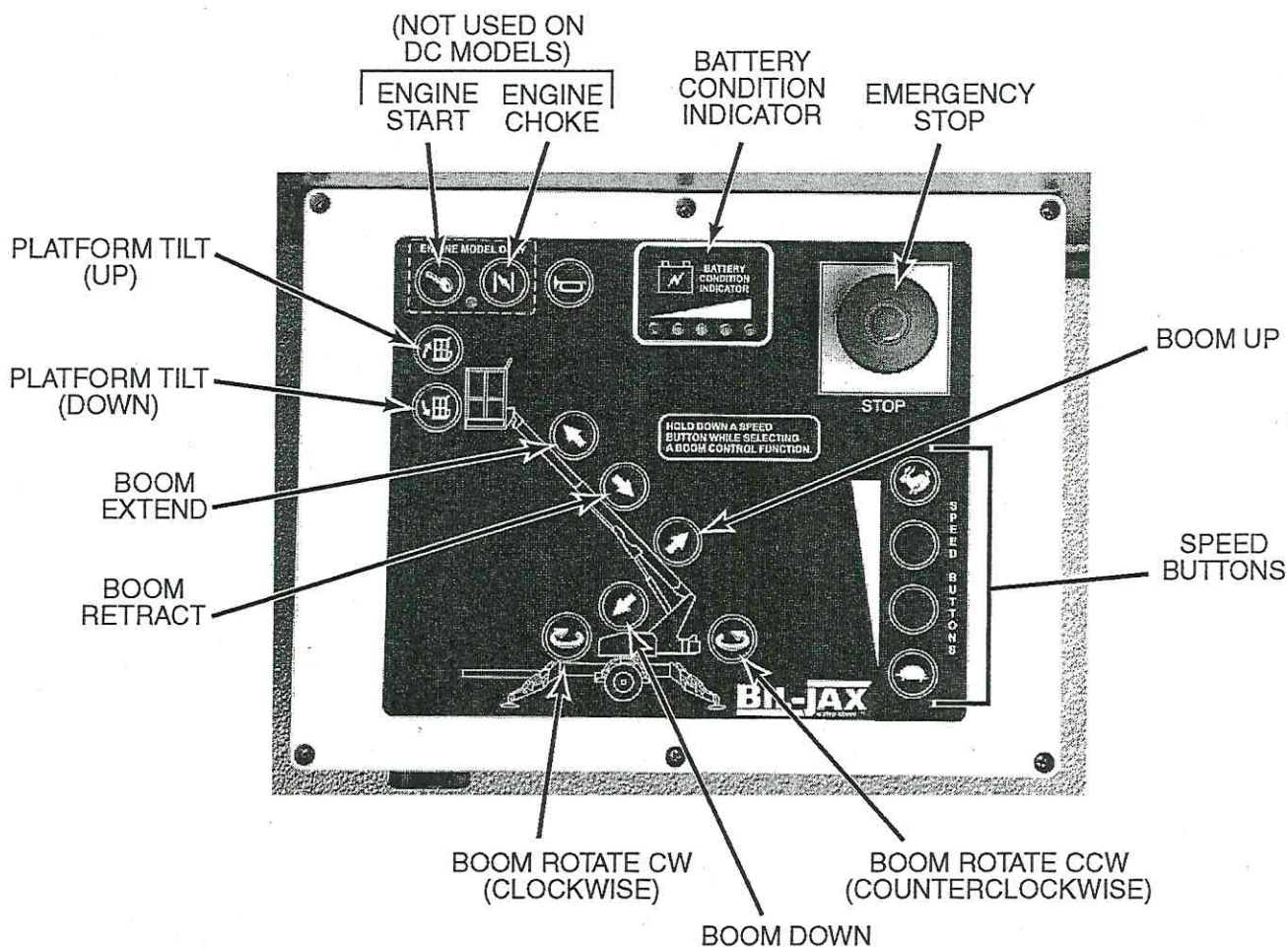


Figure 3-4. Platform Control Station

### **Engine Start and Choke (Not used on DC model)**

Start a cold engine by pressing the choke button, then press the key button to start the engine. To start/restart a warm engine, press the key button only to start/restart.

### **Horn Button**

Pressing the button will sound the horn. Use the horn button to warn personnel in the area of a falling object hazard, impending boom motions, or the need for assistance.

### **Battery Condition Indicator**

Indicator LEDs light up to indicate the level of charge remaining in the batteries. A lighted green LED indicates a good charge level. Lighted yellow LEDs indicate the need for charging soon. Lighted red LED warns that the battery charge level is low; boom operations should be halted until the batteries are recharged.

**Emergency Stop Button**

When pushed in, the emergency STOP button disconnects electrical power to the ground and platform control stations. The emergency STOP pushbutton should only be pressed to immediately stop all boom motion. To resume control, pull out the emergency STOP button.

**Speed Buttons**

The SPEED BUTTONS along the lower, right side of the control panel must be pressed and held while selecting boom functions. Four speeds are available to control the positioning of the boom lift.

**Boom Rotation CW/CCW Buttons**

Pressing and holding a desired speed button and the Boom Rotation CW or CCW button at the same time enables the boom to rotate in the direction selected. The boom will rotate through 360 degrees until the buttons are released.

**Boom Up/Down Buttons**

Pressing and holding a desired speed button and the Boom Up button at the same time will raise the boom. Pressing a desired speed button and the Boom Down button at the same time will lower the boom. The up and down motion continues until the buttons are released, or the boom reaches a hard stop or a safe travel limit.

**Boom Extend/Retract Buttons**

Pressing and holding a desired speed button and the Boom Extend button at the same time extends the boom out. Pressing and holding a desired speed button and the Boom Retract button at the same time retracts the boom. In and out boom motion continues until the buttons are released, or the boom reaches a hard stop or a safe travel limit.

**Platform Tilt Buttons**

Press and hold the slow speed button and the desired platform tilt button at the same time to level the work platform (levels the platform only, not the boom lift).

**115 Volt Outlet**

The 115 Volt AC outlet is provided for running electrical power tools in the work platform. A connecting power cord must be plugged in to a suitable power source. The power plug is located on the trailer frame, in front of the accessory equipment stowage plate. The outlet is rated for a 15-ampere load. Do not overload the accessory power circuit.



## 3-2 NORMAL OPERATING PROCEDURE

Perform the following procedures to operate the Bil-Jax 3632T Telescoping Boom Lift.

1. Read and follow all safety precautions contained in Section 1 and all responsibilities outlined in the ANSI A92.2 reprint contained in Section 6 of this manual.
2. Position the boom lift at the work area. Make sure the boom lift is on a firm and level surface and that there are no potential hazards such as overhead obstructions or electrically charged conductors. Do not operate the boom lift if such hazards exist.
3. Check the boom lift for damaged or worn parts. Repair or replace parts as necessary. Do not use a damaged boom lift.
4. Apply the boom lift parking brake or chock the wheels.
5. Lower the tongue jack and unhitch the boom lift from the tow vehicle. The boom lift must be unhitched before the outriggers are lowered.
6. See Figure 3-5 and lower the outriggers as follows:
  - a. Turn the key switch to the ground control station to ground controls. If power does not come on, make sure both emergency stop buttons (ground and platform) are pulled out and the main power disconnect is plugged in.
  - b. The control microprocessor will perform self-diagnostics to test the operating system. After several seconds, the DISPLAY PANEL window will read:

**BIL - JAX  
A STEP ABOVE**

- c. Verify that the control status indicator LED is lit up. (If the control status indicator LED is not on, the outrigger buttons will not work).

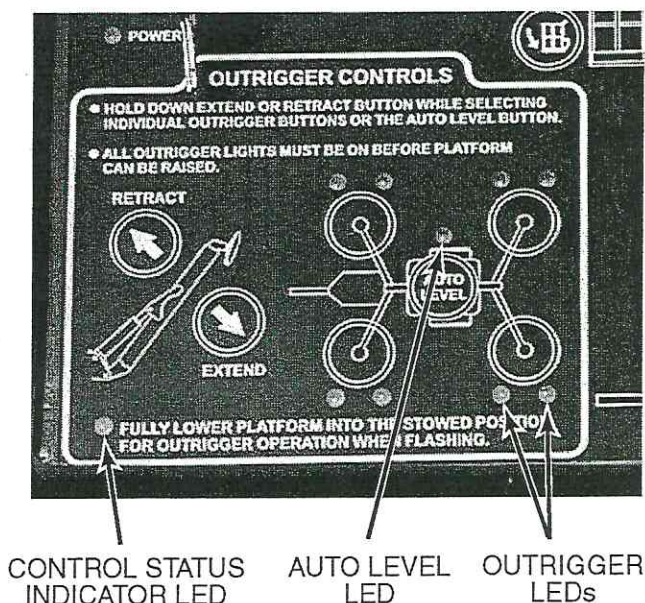


Figure 3-5. Outrigger Controls

- d. Extend the boom lift outriggers using Auto Level or Manual Level. When boom is leveled properly, two LEDs at each outrigger button and the LED at the Auto Level button will be on.

**Auto Level:** Press and hold the Extend and Auto Level buttons at the same time.

**Manual Level:** Extend the two outriggers closest to the trailer coupler first. Lower each pair of outriggers by pressing the Extend and the two outrigger buttons at the same time.

- e. Verify that all eight outrigger LEDs are lit around the OUTRIGGER CONTROLS diagram. (If all outrigger LEDs are not lit, the DISPLAY PANEL window will display an error message).

**NOTE:** The level sensor and four outrigger footpad position switches are part of a safety interlock checked by the control microprocessor. The safety interlock prevents all boom operations if the trailer is not level or if one or more outriggers are not supporting the vehicle load. The load of the boom lift vehicle must be placed on all four outriggers and the trailer must be level to enable hydraulic-powered boom lift operations.

**NOTE:** The Range of Motion Diagram at the platform and ground control stations show the range of platform motion (safe operating zone) facing away from the trailer tongue. Make sure that the safe operating zone is clear throughout the 360-degree range of turntable rotation.

- f. Verify that the AUTO LEVEL indicator LED is lit. (If the AUTO LEVEL indicator is not lit, the boom lift may not be level).



**! WARNING**

Always verify that the platform locking pins engage in their locking holes. Failure to lock the platform in the upright position can present a platform tipping hazard. A tipping platform can cause serious injury or death to the operator.

7. Open the platform latch (Figure 3-6) and pivot the platform upright. Make sure the platform locking pins engage in the pivot locking holes.
8. Pull the latch release on the boom travel latch (Figure 3-7), raise the latch handle, and swing the latch U-bolt down.



Figure 3-6. Platform Latch and Locking Pins

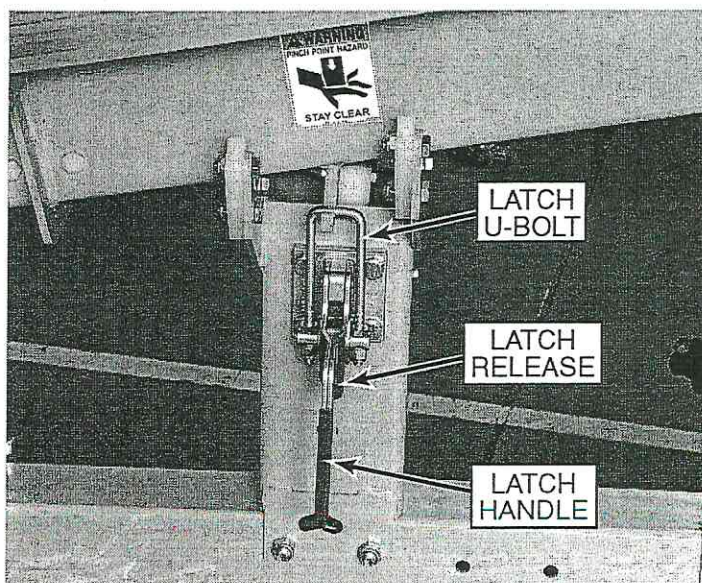


Figure 3-7. Boom Travel Latch



9. Use the ground control panel to operate the boom lift controls. Raise, lower, extend, and rotate the boom by pressing the speed and desired function button at the same time. Get familiar with the controls. Learn to smoothly start and stop all boom motions.
10. Lower the boom onto the boom rest to position the platform for boarding. Turn the key switch to the platform control position.
11. Raise the safety bar and enter the work platform. Put on the safety harness and attach the lanyard to the Fall Protection Attachment Point on the side of the platform support beam.
12. Use the platform control panel to operate the boom controls. Raise, lower, extend, and rotate the boom by pressing the speed and desired function button at the same time. Get familiar with the controls. Learn to smoothly start and stop all boom motions.

### **WARNING**

A warning device will sound if the boom becomes out of level. If this occurs, immediately:

- a. Retract extension.
- b. Rotate boom over trailer tongue.
- c. Lower boom into stowed position.
- d. Relevel the lift.

13. Should the platform become tilted out of the normal vertical axis, press and hold the slow speed button and one of the platform tilt buttons at the same time to adjust.
14. Monitor the Battery Condition Indicator during operation and charge the batteries as necessary. (See Section 3-5.)
15. Always fully retract, rotate, then lower boom over trailer tongue to the stowed position before exiting the platform.
16. When boom lift operations are complete, retract the boom and outriggers and stow the work platform for towing according to the following procedure:
  - a. Fully retract the telescoping boom. Center the boom over the boom rest and fully lower the boom until seated in the stowed position for transport.
  - b. Unfasten the safety harness and exit the platform.
  - c. Using one hand, pull both platform locking pins (Figure 3-6) toward each other. Disengage the locking pins from their mating pin holes and pivot the platform onto the lift boom.
  - d. Clamp the platform latch handle. Engage the boom travel latch.

**NOTE:** To fully set the clamp block on the top rail, you may have to adjust the basket tilt up or down. The basket tilt must be adjusted before the outriggers are raised.

- e. Turn the key switch to the ground control position. Be careful not to lower the trailer wheel onto your foot.
- f. Press and hold in the outrigger RETRACT button and the AUTO LEVEL button. Hold both buttons in until all outriggers fully retract to the upright position.
- g. Refer to paragraph 3-7 for towing instructions.

### 3-3 MATERIAL LIFT OPERATIONS (OPTIONAL)

If the boom lift has been supplied with the optional material lifting hook, use the following procedure to perform material lift operations.

1. Unplug the utility power cord connector and the control communications cable connector at the work platform (Figure 3-8).
2. Remove the platform keeper pin and retaining pin. With the assistance of another person, lift and remove the platform from the boom nose.
3. Remove the keeper pin and retaining pin at the material lift stowage fixture. Install the material lift assembly on the boom nose; secure with retaining pin and keeper pin.

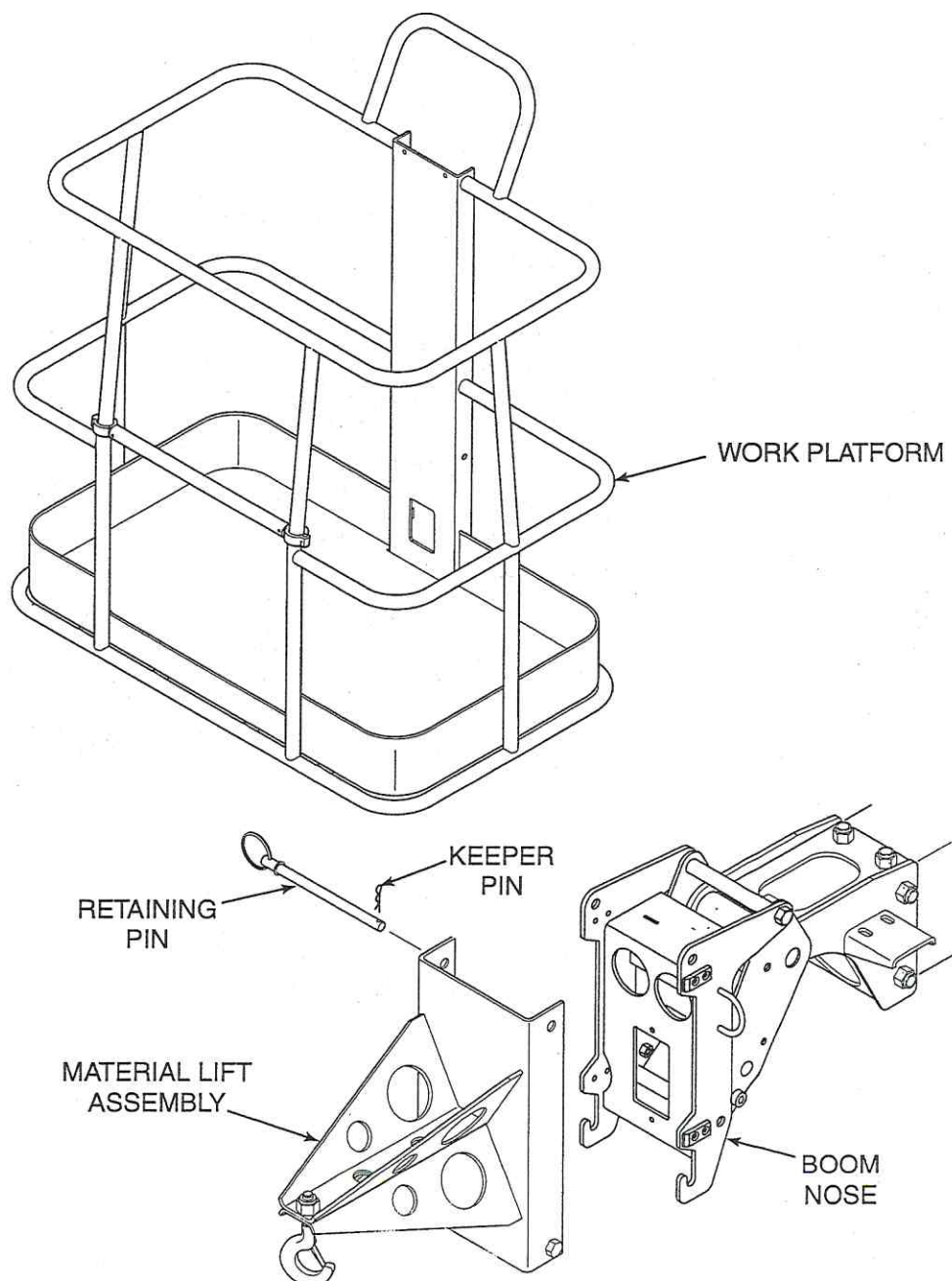


Figure 3-8. Remove/Install Work Platform and Material Lift Assembly



4. Remove and relocate the platform control box according to the following procedure:
  - a. The platform control box is secured with a latch at the back of the control box. Unlatch and remove the platform control box from the work platform. Take the box to the ground control station.
  - b. Press STOP button at the ground control box.
  - c. Open ground control box compartment cover.
  - d. Unplug communication cable (Figure 3-9) from bottom of ground control box.
  - e. Plug platform control box communication cable into open receptacle on bottom of ground control box.
  - f. Pull out STOP button at the ground control box. Verify that platform control box STOP button is also pulled out.
  - g. With platform control box in hand, stand away from ground control station to perform boom control operations for material lifting.

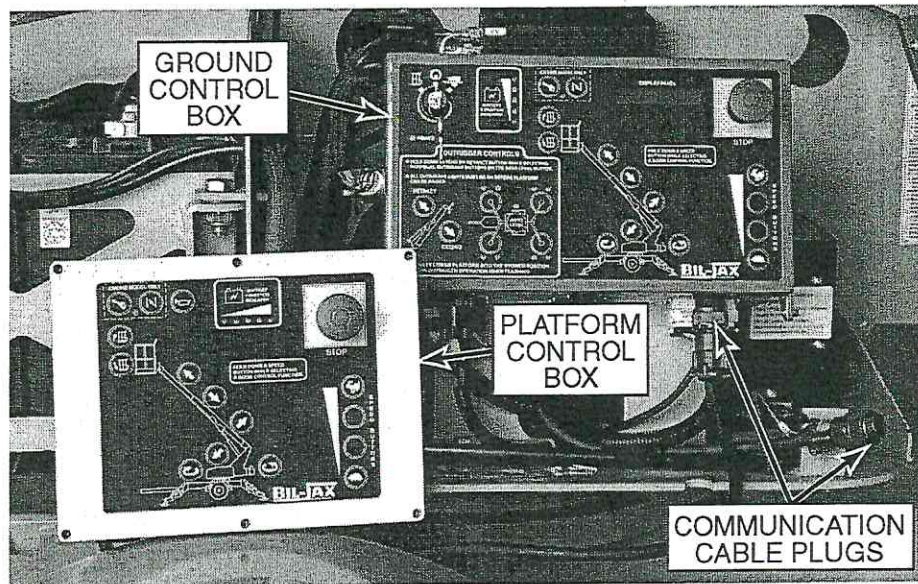


Figure 3-9. Using Remote Platform Control Box

### **! WARNING**

Always observe the weight lifting limitations when performing material lifting operations with the Bil-Jax 3632T Telescoping Boom. Exceeding the weight lifting limitations can cause the boom to tip and fall. A falling boom can cause serious injury or death to personnel.

5. Use material lifting hook with lifting straps or wire rope slings to lift and place materials at the work site. Never exceed the 500 lb (227 kg) lifting capacity of the fully extended boom.



### 3-4 AUXILIARY RETRACTION, ROTATION AND LOWERING

Auxiliary retraction, rotation and lowering functions allow the telescoping boom lift to be moved and lowered while hydraulic power is interrupted. (Minimal battery voltage is needed to open the electric solenoid valves). Refer to Figure 3-10.

The following procedures for auxiliary retraction, rotation and lowering requires a person on the ground to open the pump compartment to access the lug wrench, the manual hand pump and the adjacent switch panel.

The usual auxiliary boom operation sequence is to retract the telescoping boom first. Then, rotate boom over the trailer tongue prior to lowering.

#### Auxiliary Retraction

Hold up the bottom toggle switch on the switch panel and simultaneously actuate the hand pump using the lug wrench as a handle. This will retract the telescoping boom section.

#### Auxiliary Rotation

Hold the upper toggle to the right for counterclockwise rotation or hold to the left for clockwise rotation while simultaneously actuating the hand pump.

#### Auxiliary Lowering

Push the bottom toggle switch down while holding in the lower enable button.



Figure 3-10. Hand Pump and Switch Panel for Auxiliary Operations

**Note:** If there is insufficient battery power for auxiliary operations, see Sections 3-5 and 3-6 for manual lowering, extension, retraction and rotation procedures.

### 3-5 MANUAL LOWERING

Manual lowering function allows the lift boom to be lowered while hydraulic power is interrupted.

The manual lowering valve (Figure 3-11) is equipped with a plunger located at the base of the lift cylinder. Use the plunger to lower the platform in case of a complete electrical power failure, a load shift, or other emergency situation. To lower the work platform, pull the valve plunger. Continue pulling the plunger to lower the boom.

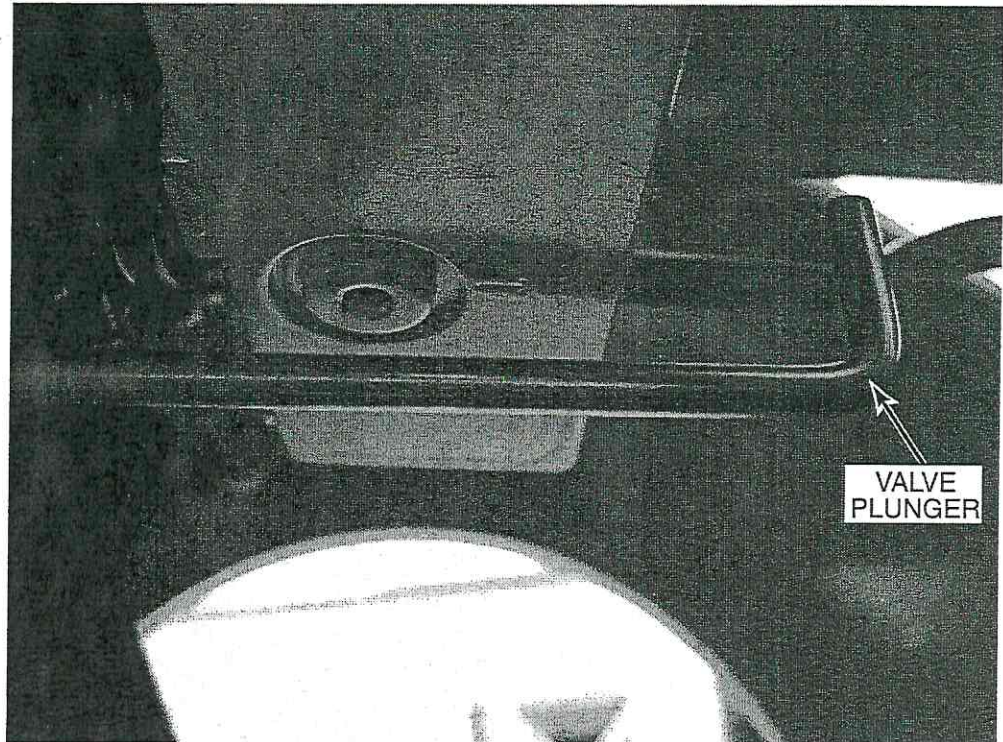


Figure 3-11. Manual Lowering Valve



## 3-6 HYDRAULIC HAND PUMP OPERATIONS

A hydraulic hand pump is located in the pump compartment (Figure 3-12). In case of a power failure you can use the hand pump and selected hydraulic valve settings to manually extend or retract the telescopic boom or rotate the boom turntable.

### Extend/Retract Telescoping Boom

Use the following procedure to manually extend or retract the telescoping boom.

1. Close (unscrew) the proportional valve plunger (Figure 3-12) to enable the hydraulic hand pump operations. (This step is most easily done using both index fingers to turn the valve plunger).
2. Press and hold in the extend valve plunger to manually extend the telescopic boom. Press and hold in the retract valve plunger to manually retract the boom.
3. Install the lug wrench in the pump and apply a pumping action. The boom will extend or retract about 1/2 inch (13 mm) per pump cycle.
4. After extending or retracting the boom, return the proportional valve plunger to its normal operating position (screwed in).

### Rotate Boom Turntable

Use the following procedure to manually rotate the boom turntable.

1. Close (unscrew) the proportional valve plunger (Figure 3-12) to enable the hydraulic hand pump operations. (This step easily done using both index fingers to turn the valve plunger.)
2. The rotate valve is a three-position valve with a two position bayonet type plunger. For clockwise rotation press and hold the plunger in. For counterclockwise rotation rotate the plunger 1/4 turn counterclockwise; the plunger will pop out. Then, pull and hold the plunger out.
3. Install the lug wrench in the pump and apply a pumping action. The boom turntable rotates about 2 degrees per pump cycle.

**NOTE:** The pump handle is located in the pump compartment.

4. After rotating the boom return the proportional valve plunger to its normal operating position (screwed in).



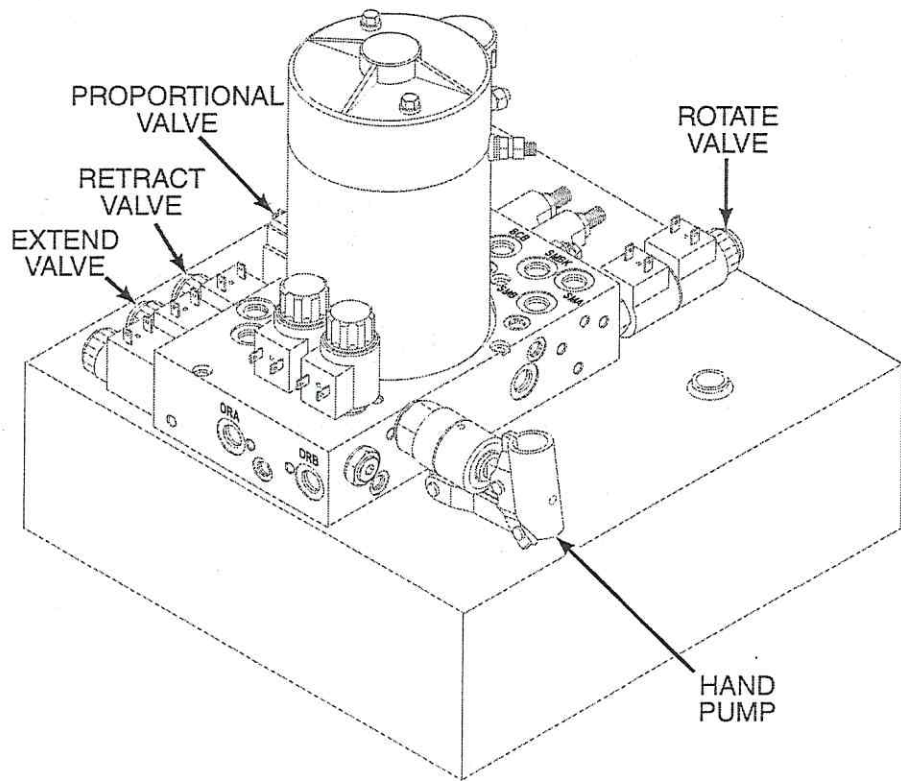
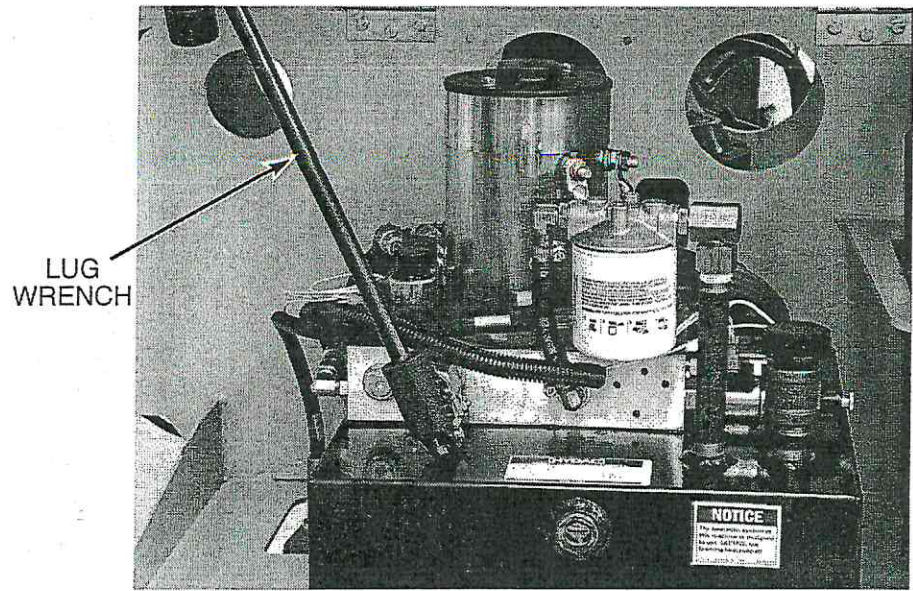


Figure 3-12. Hand Pump Operation

### 3-7 BATTERY RECHARGE (DC MODEL ONLY)

The DC model boom lift batteries should be recharged after each 8-hour work shift or more often if needed. When the boom lift is not in use, the batteries should be recharged at least once per week. The normal charge time is 10 to 12 hours. If the battery charge is extremely low, a full recharge may take up to 24 hours.

Recharge the DC model boom lift batteries as follows:

#### **!** WARNING

Recharge the batteries in a well-ventilated area only. Do not charge batteries near fire, flame, or other ignition sources. Batteries being charged may emit highly explosive hydrogen gas. Failure to properly ventilate the charge gases may result in serious injury or death.

1. Move the boom lift to a well-ventilated area with direct access to a grounded 120 VAC electrical outlet. Make sure the recharge area is not near fire, flames, or other ignition sources.
2. Plug a heavy-duty extension cord (not provided) into the plug located on the cargo plate in front of the turntable. The recommended extension cord should be a 12 AWG multi-strand, grounded cord no longer than 50 feet (15 meters).

**NOTE:** Using an underrated, or long, power cord will reduce the output of the battery charger resulting in longer charge time.

3. Plug the extension cord into a grounded 120 VAC receptacle. Verify that the green CHARGING indicator LED lights up on the battery charger.
4. The following sequence of events occur during a normal charge cycle. Refer to Figure 3-13.
  - a. The green CHARGING indicator LED lights up continuously. The bulk mode CHARGE CURRENT value is displayed. Press and hold the BATTERY VOLTAGE button to display the detected battery voltage.

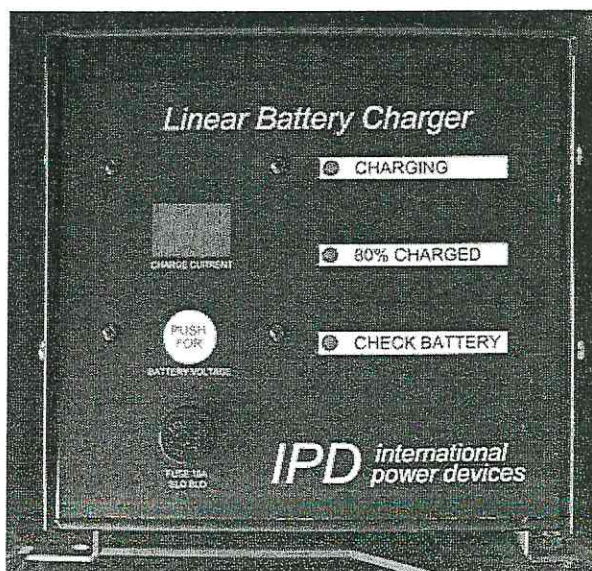


Figure 3-13. Battery Charger



- b. If a battery fault is detected, a fault code (F1, F2, F3, F4, F5, or F9) appears on the CHARGE CURRENT display and the red CHECK BATTERY indicator LED lights. The fault codes and data are shown in Table 3-1.
- c. When the batteries reach the 80% charge condition the yellow 80% CHARGED indicator LED lights and the green CHARGING indicator LED begins to flash.
- d. When the batteries are fully charged, the green and yellow indicator LEDs go off. The charger indicates CC (Charge Complete.) The display fades after two hours.

**Table 3-1. Charger Fault Codes**

Code	Description	Limits	Possible Cause
F1	Over Voltage	>112% charge voltage	Loose battery or charger connection
F2	Over Current	>60 Amperes	Battery fault
F3	Bulk Mode Timeout	14 Hrs Max.	Battery fault
F4	ARD Mode Timeout	6 Hrs Max.	Battery fault
F5	FCT Mode Timeout	2.5 Hrs Max	Battery fault
F9	Self-test Error		Charger fault

 **CAUTION**

**Always remember to unplug the battery charger power cord before moving the boom lift. Failure to unplug the power cord will cause damage to the equipment.**

- 5. Inspect the charge indicator LEDs near the end of the expected charge cycle. If all indicator LEDs are off, the battery is fully charged. (The CHARGE CURRENT indicator should display 00.)

**NOTE:** The yellow 80% CHARGED indicator lights up when the battery voltage is nearing full charge. At full charge (3-1/2 hours after the 80% CHARGED indicator lights up), the charger turns off.

If the battery voltage does not reach the 80% CHARGED level in 14 hours, the charger turns off and the red CHECK BATTERY indicator LED lights up. This prevents extended charging of a faulty battery.

- 6. Unplug the extension cord from the 120 VAC receptacle and the charger receptacle. Properly store the extension cord for next use.



## 3-8 BOOM LIFT TRANSPORT

The boom lift trailer is a single axle trailer fitted with a two-inch ball hitch, hydraulic surge brakes, mechanical parking brake, breakaway safety cable, safety chains, brake lights, and side marker lights. Proper boom lift transport requires the correct hookup and inspection of these trailer components before towing. Use the following procedures to hitch, tow, and back the boom lift trailer:

### Trailer Hitching

Trailer hitching requires a second person to give tow vehicle backing instructions.

1. Back the tow vehicle to the trailer. Verify that the ball and hitch are in line and that the trailer hitch will clear the ball. Jack up the tongue as needed.
2. Align the ball and hitch (Figure 3-14). Fasten the breakaway safety cable to the tow vehicle.

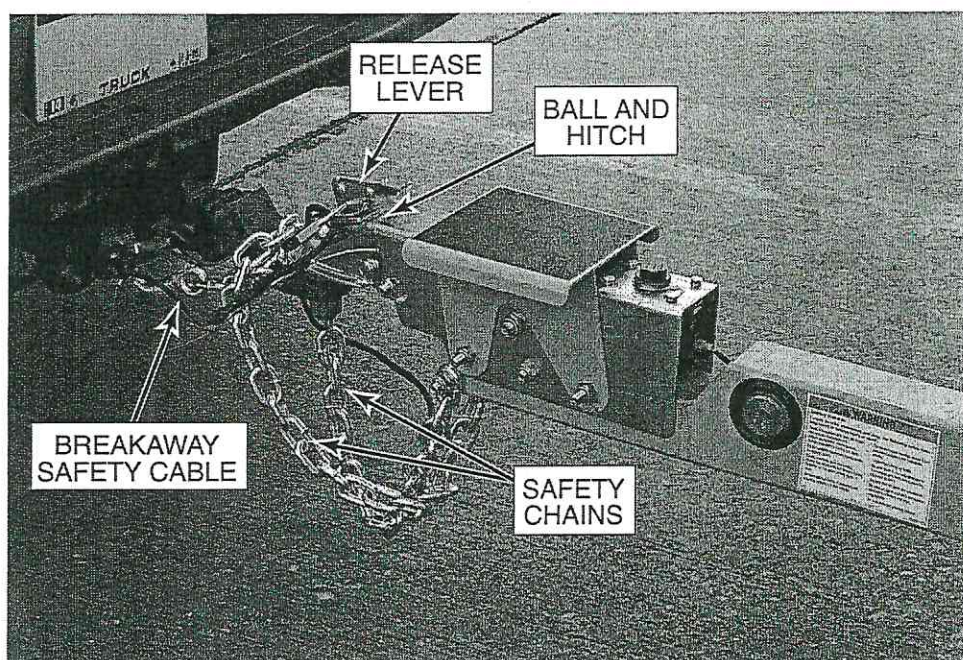


Figure 3-14. Trailer Hitching

3. Lift release lever and lower the ball hitch onto the ball. Put release lever down to secure the ball.
4. Crank the jack down to check for secure coupling. If jacking will raise the tow vehicle bumper two or three inches, the ball hitch coupling is secure.
5. Release the trailer parking brake.
6. Pull the pivot locking pin. Swivel the jack 90 degrees to the travel position and engage the pivot locking pin.

 **CAUTION**

**Always cross and attach the safety chains before towing. Failure to attach safety chains properly will allow tongue to drop in case of ball hitch failure, resulting in serious damage to the trailer and equipment.**

7. Attach the trailer safety chains to the tow vehicle. Make sure the chains cross under the trailer tongue. If needed, cross the chains over then under the tow bar to prevent dragging.
8. Connect the trailer lights to the tow vehicle power plug.
9. Check the breakaway safety cable. If the safety cable does not have adequate slack, the brakes may drag.
10. Before towing the trailer, check the following and make all necessary adjustments, corrections, or repairs:
  - a. Check that the trailer jack and outriggers are in their travel positions.
  - b. Verify that the boom and platform transport latches secure the boom and work platform. If the boom and work platform are not secured, secure the transport latch at this time.
  - c. Verify that all on-board equipment is secured.
  - d. Check that the key switch is in the OFF position. Remove the key.
  - e. Verify that trailer brake lights and marker lights work properly.
  - f. Check that the trailer tires are evenly inflated and not low on air.

 **WARNING**

**Improper tightening of boom lift trailer wheel nuts can cause wheel lugs to shear, causing serious injury or damage to equipment. Check and maintain the proper wheel nut torque according to the maintenance instructions in this manual.**

Periodically check the wheel nut torque according to the instructions in Section 4 of this manual. More frequent torque checks are required when a wheel is recently installed.

Prior to towing, while the trailer wheels are elevated for boom lift operation, check for loose wheels and for wheel lug wear indications. If a loose wheel mounting is indicated, remove and inspect the wheel lugs for damage. Do not tow the boom lift with worn or damaged wheel lugs.



# 4

## Operator Service

### 4-1 SCHEDULED SERVICE CHECKS

Perform the following daily/weekly/monthly service checks as listed in Table 4-1.

Table 4-1. Service Checks

Service Check	Daily before use	Weekly	Monthly
Check to see that all decals are present.	✓		
Check that controls and indicators at ground and platform control stations operate properly.	✓		
Raise and extend boom and press emergency stop button. Verify that the boom and outrigger cylinders remain stable and do not drift.	✓		
Check that boom down limit switch and outrigger position switches operate properly.	✓		
Check/add hydraulic oil per paragraph 4-3.	✓		
Check tires for proper inflation. When cold, tires should be inflated to 55 psi (3,8 bar).	✓		
Check running lights for proper operation.	✓		
Check battery electrolyte level. If battery charge is low, add water to bring electrolyte just above plates. If batteries are fully charged, raise electrolyte to full mark in each cell.		✓	
Check transport hitch components for damage and proper operation. Refer to Hitching in paragraph 3-7.		✓	
Check electrical wiring for cuts, loose terminals, broken wires, chaffing, corrosion, or other damage. Repair all damage, remove corrosion, and seal exposed connections.		✓	
Check boom lift for missing or loose hardware. Replace or tighten missing or loose hardware as needed.		✓	
Check/add hydraulic oil per paragraph 4-3.			✓
Clean battery terminals and battery charger operation.			✓
Check operation of manual lowering valve and hand pump.			✓
Check operation of load holding valves.			✓
Check wheel nut torque per paragraph 4-2.			✓
Lubricate compartment hinges and latches with light weight machine oil.			✓



Do not try to adjust, repair, or replace any hydraulic or electrical control device. These include, but are not limited to hydraulic load control valves, hydraulic flow control valves, solenoid valves, and limit switches. These are all safety related controls that are not to be adjusted or tampered with. If control adjustments are needed, refer to the 3632T Service and Parts Manual for those that can be adjusted. Contact Bil-Jax if additional information is needed.

## 4-2 WHEEL NUT TORQUE REQUIREMENTS

It is very important to apply and maintain the correct wheel bolt torque on the boom lift trailer. The wheel bolts must be evenly tightened to the following specified torque increments whenever a trailer wheel is removed and installed. Use the following tightening procedure:

5. Evenly tighten the wheel nuts to 25 lb-ft (34 N·m) in the tightening sequence shown in Figure 4-1.
6. Evenly tighten the wheel nuts to 60 lb-ft (81 N·m) using the tightening sequence shown.
7. Evenly tighten the wheel nuts to 100 lb-ft (136 N·m) using the tightening sequence shown.

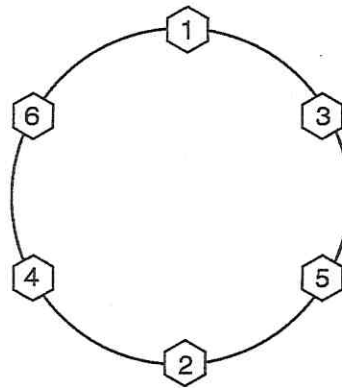


Figure 4-1. Wheel Nut Tightening Sequence

## 4-3 LUBRICATION

Lubrication makes operation of the Bil-Jax 3632T Telescoping Boom Lift more efficient and extends the equipment life.

Lubricate trailer jack post and jack handle grease fitting weekly with NLGI Grade 2 multi-purpose grease.

## 4-5 TROUBLESHOOTING

Table 4-2. Troubleshooting Chart

Problem	Cause	Correction
1. No lights (no power) at ground control panel when key switch is on.	<ul style="list-style-type: none"> <li>a. Emergency stop engaged (pushed in).</li> <li>b. Battery charge is low.</li> <li>c. Battery ground or in-series cable loose.</li> <li>d. Battery main disconnect unplugged</li> </ul>	<ul style="list-style-type: none"> <li>a. Pull emergency stop buttons out to disengage.</li> <li>b. Check charge level. Recharge battery if needed.</li> <li>c. Check for and repair loose battery connections or ground fault.</li> <li>d. Plug in main disconnect.</li> </ul>
2. Hydraulic function does not work and display window shows an error message.	<ul style="list-style-type: none"> <li>a. Fault detected by safety interlock circuit/microprocessor.</li> <li>b. Boom lift electrical/electronic failure.</li> </ul>	<ul style="list-style-type: none"> <li>a. Correct fault condition per data in Table 4-3.</li> <li>b. Correct fault condition per data in Table 4-3.</li> </ul>
3. Outrigger indicator lamps will not light up.	<ul style="list-style-type: none"> <li>a. Power tuned off</li> <li>b. Emergency stop or power button engaged (pushed in).</li> <li>c. All outriggers not deployed.</li> </ul>	<ul style="list-style-type: none"> <li>a. Turn key switch to ground controls.</li> <li>b. Pull emergency stop buttons out to disengage.</li> <li>c. Deploy all outriggers.</li> </ul>
4. Boom Up/Down, Extend/Retract and Rotation functions do not work.	<ul style="list-style-type: none"> <li>a. Power turned off.</li> <li>b. Low battery power.</li> <li>c. Emergency Stop Button(s) engaged (pushed in).</li> <li>d. Battery ground or in-series cable loose.</li> <li>e. All outriggers not properly deployed</li> <li>f. Hydraulic pump not pumping.</li> </ul>	<ul style="list-style-type: none"> <li>a. Turn key switch to either ground or platform controls.</li> <li>b. Check Battery Condition Indicator LEDs on ground or platform control panel. Recharge batteries if yellow or red LED is lighted.</li> <li>c. Pull emergency stop buttons out to disengage.</li> <li>d. Check for and repair loose battery connections or ground lead.</li> <li>e. Check outrigger display. All eight outrigger LEDs and Auto Level LED must be lit. Lower outrigger jacks to engage switches and level boom lift.</li> <li>f. Check pump motor operation; repair or replace if not running. Check gear pump; replace if hot to touch.</li> </ul>
5. Boom Up, Extend functions do not work.	<ul style="list-style-type: none"> <li>a. Boom lift is out of level (will still lower, retract, and rotate).</li> </ul>	<ul style="list-style-type: none"> <li>a. Level boom lift with Auto Level or level using individual outrigger buttons.</li> </ul>

<p>6. Single boom lift or rotation function does not work.</p>	<p>a. Loose wiring connector. b. Valve solenoid not operating properly. c. System interlock fault. d. Broken or loose wire.</p>	<p>a. Check wiring terminals in control box and at valve manifold; repair loose wiring terminal. b. Swab out valve solenoids and recheck function; replace solenoid if faulty. c. Check display for system status. Correct indicated fault conditions. d. Repair or replace wire.</p>
<p>7. Boom lift and rotate functions do not operate properly.</p>	<p>a. Valve solenoid not operating properly. b. Loose solenoid wiring.</p>	<p>a. Inspect/clean valve solenoids and recheck function; replace solenoid if faulty. b. Check wiring terminals in control box and at valve manifold; repair loose wiring terminal.</p>
<p>8. Boom lift and rotate functions operate intermittently.</p>	<p>a. Loose connection. b. Loose connector at valve coil.</p>	<p>a. Reconnect wiring. b. Check wiring connection to valve coil; repair loose wiring.</p>



Table 4-3. Error Code Definitions

ERROR MESSAGE	DEFINITION OF ERROR	COMMENTS
001 MACHINE IS IN DOWN ONLY MODE	Machine was either never leveled, outriggers not lowered, or machine went out of level with use.	Retract boom to travel position and extend outriggers using auto level.
002 LOSS OF PLATFORM COMMUNICATION	Ground control lost communication with platform control.	Check for unplugged or damaged platform control cable.
005 PLATFORM CONTROL HAS STUCK KEY	Platform control detected a stuck or pressed key on power up.	Turn key switch off and on again without pressing any buttons.
008 GROUND CONTROL HAS STUCK KEY	Ground control detected a stuck or pressed key on power up.	Turn key switch off and on again without pressing any buttons.
009 BOOM UP WITHOUT OUTRIGGERS ON GROUND	Ground control detected the boom is up and all outriggers are not on the ground	Retract boom to travel position and extend outriggers using auto level.
010 LEVEL SENSOR HAS ERRATIC OUTPUT	The ground control detected an erratic output from the level sensor.	Retract and extend outriggers using auto level.
015 MACHINE IS NOT LEVEL	Machine has gone out of level with use.	Retract and extend outriggers using auto level.
016 LIFT BOOM	A boom rotate, extend, or retract function requested with boom down.	Raise boom from travel position.
017 STOW BOOM	An outrigger function requested with boom up.	Retract and lower boom to travel position.
021 OPEN CIRCUIT PRIMARY UP	A load of less than 70mA detected in primary up circuit on power-up.	Check for faulty boom up solenoid coil and wiring.
022 SHORTED CIRCUIT PRIMARY UP	Excessive load detected in primary up circuit on power-up.	Check for faulty boom down solenoid coil and wiring.
033 OPEN CIRCUIT EXTEND	A load of less than 70mA detected in extend circuit on power-up.	Check for faulty boom extend solenoid coil/wiring.
034 SHORTED CIRCUIT EXTEND	Excessive load detected in extend circuit on power-up.	Check for faulty boom extend solenoid coil/wiring.
035 OPEN CIRCUIT RETRACT	A load of less than 70mA detected in retract circuit on power-up.	Check for faulty boom retract solenoid coil/wiring.
036 SHORTED CIRCUIT RETRACT	Excessive load detected in retract circuit on power-up.	Check for faulty boom retract solenoid coil/wiring.
037 OPEN CIRCUIT PLATFORM LEVEL UP	A load of less than 70mA detected in platform level up circuit on power-up.	Check for faulty level up solenoid coil/wiring.
038 SHORTED CIRCUIT PLATFORM LEVEL UP	Excessive load detected in platform level up circuit on power-up.	Check for faulty level up solenoid coil/wiring.
039 OPEN CIRCUIT PLATFORM LEVEL DOWN	A load of less than 70mA detected in platform level down circuit on power-up.	Check for faulty level down solenoid coil/wiring.
040 SHORTED CIRCUIT PLATFORM LEVEL DOWN	Excessive load detected in platform level down circuit on power-up.	Check for faulty level down solenoid coil/wiring.
045 OPEN CIRCUIT TURNTABLE CW	A load of less than 70mA detected in rotate CW circuit on power-up.	Check for faulty rotate CW solenoid coil/wiring.
046 SHORTED CIRCUIT TURNTABLE CW	Excessive load detected in rotate CW circuit on power-up.	Check for faulty rotate CW solenoid coil/wiring.
047 OPEN CIRCUIT TURNTABLE CCW	A load of less than 70mA detected in rotate CCW circuit on power-up.	Check for faulty rotate CCW solenoid coil/wiring.



## 4-4 HYDRAULIC SYSTEM

Hydraulic system maintenance varies with equipment use and the environment in which the boom lift is used. Constant attention to keep the oil clean and the reservoir properly filled will help prevent possible damage to the system.

### Hydraulic System Inspection

Check the hydraulic hoses and fittings for leaks and damage daily. Tighten or replace as necessary to prevent hydraulic oil loss. Secure hoses and lines as needed to prevent rubbing and chafing.

### Fluid Check and Replacement

The hydraulic oil level should be checked with the boom down, the outriggers raised, and the trailer wheels on a level surface. The hydraulic oil level should be visible and at least half way up the oil level sight gage.

Do not mix hydraulic oils. The reservoir is originally filled with Energol HLP-HD46, a high-grade, non-foaming hydraulic oil designed for temperatures as low as  $-20^{\circ}\text{F}$  ( $-33^{\circ}\text{C}$ ). For temperatures reaching  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ), use Dextron Automatic Transmission Fluid Type A.

If either oil is not available, a good grade SAE 10W hydraulic oil may be used where the low temperature is above  $32^{\circ}\text{F}$  ( $0^{\circ}\text{C}$ ). SAE 5W hydraulic oil may be used where low temperatures reach  $0^{\circ}\text{F}$  ( $-18^{\circ}\text{C}$ ).

If the hydraulic oil level is not visible or low in the sight gage, add clean hydraulic oil at the hydraulic reservoir fill port. Pour the hydraulic oil slowly to avoid getting air bubbles in the liquid.

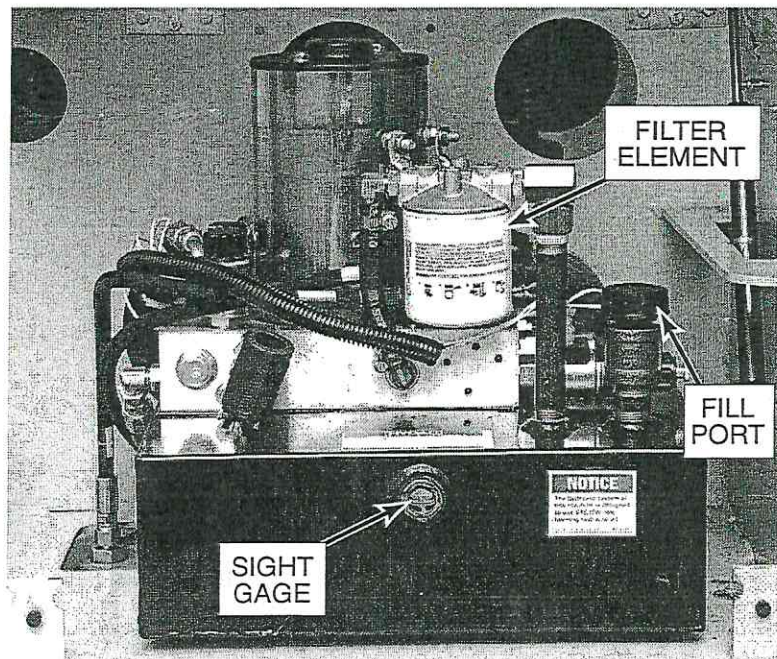


Figure 4-2. Hydraulic Reservoir

ERROR MESSAGE	DEFINITION OF ERROR	COMMENTS
048 SHORTED CIRCUIT TURNTABLE CCW	Excessive load detected in rotate CCW circuit on power-up.	Check for faulty rotate CCW solenoid coil/wiring.
049 OPEN CIRCUIT OUTRIGGER RETRACT	A load of less than 70mA detected in outrigger retract circuit on power-up.	Check for faulty outrigger retract solenoid coil/wiring.
050 SHORTED CIRCUIT OUTRIGGER RETRACT	Excessive load was detected when Out- rigger Retract circuit was energized.	Check for faulty outrigger retract solenoid coil/wiring.
051 OPEN CIRCUIT OUTRIGGER EXTEND	A load of less than 70mA detected in outrigger retract circuit on power-up.	Check for faulty outrigger extend solenoid coil/wiring.
052 SHORTED CIRCUIT OUTRIGGER EXTEND	Excessive load was detected in outrigger extend circuit on power-up.	Check for faulty outrigger extend solenoid coil/wiring.
053 OPEN CIRCUIT LF OUTRIGGER	A load of less than 70mA detected in left front outrigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
054 SHORTED CIRCUIT LF OUTRIGGER	Excessive load was detected in left front outrigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
055 OPEN CIRCUIT RF OUTRIGGER	A load of less than 70mA detected in right front outrigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
056 SHORTED CIRCUIT RF OUTRIGGER	Excessive load detected in right front outrigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
057 OPEN CIRCUIT LR OUTRIGGER	A load of less than 70mA detected in left rear outrigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
058 SHORTED CIRCUIT LR OUTRIGGER	Excessive load detected in left rear out- rigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
059 OPEN CIRCUIT RR OUTRIGGER	A load of less than 70mA detected in right rear outrigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
060 SHORTED CIRCUIT RR OUTRIGGER	Excessive load detected in right rear outrigger circuit on power-up.	Check for faulty solenoid coil/wiring at outrigger.
069 OPEN CIRCUIT PROPORTIONAL	A load of less than 70mA detected in proportional valve circuit on power-up.	Check for faulty solenoid coil/wiring at proportional valve.
070 SHORTED CIRCUIT PROPORTIONAL	Excessive load detected in proportional valve circuit on power-up.	Check for faulty solenoid coil/wiring at proportional valve.



## 4-6 MATERIAL SAFETY DATA SHEETS

### MATERIAL SAFETY DATA SHEET FOR LEAD ACID BATTERIES, WET, FILLED WITH ACID

SECTION I: GENERAL INFORMATION					
Manufacturer's Name:	Crown Battery Mfg. Company	EMERGENCY NO: 800 487-2879			
Street Address:	1445 Majestic Drive	OR 800 OIL-TANK			
City, State, Zip	Fremont, Ohio 43420	REVISION DATE: 5/18/2000			
Phone Number:	419 334-7181				
SECTION II: MATERIAL IDENTIFICATION AND INFORMATION					
COMPONENTS	PERCENT	OSHA PEL	ACGIH TLV	OTHER LIMITS	CAS NUMBER
Hazardous Components 1% or greater Carcinogens 0.01% or greater					
METALLIC LEAD METAL	25.5%	0.05 mg/m3	0.05 mg/m3	NONE	7439-92-1
LEAD SULFATES	18.2%	0.05 mg/m3	0.05 mg/m3	NONE	7439-92-1
LEAD OXIDES	18.0%	0.05 mg/m3	0.05 mg/m3	NONE	7439-92-1
POLYPROPYLENE CASE MTL	6.4%				
SEPARATORS	3.5%				
SULFURIC ACID(H2SO4)	5.2%	1.0 mg/m3	1.0 mg/m3	NONE	7664-93-9
WATER	19.2%				
REGULATORY INFORMATION: Those ingredients listed above are not subject to the reporting requirements of 313 of Title III of the Superfund Amendments and Reauthorization Act. The items are covered in an exemption as a "Manufactured Article". 372.30(b)					
SECTION III: PHYSICAL / CHEMICAL CHARACTERISTICS					
Boiling Point	Approximately 203F	Vapor Density:	Greater Than 1		
Vapor Pressure	14 @ 37% @ 80 F	Melting Point:	-36 F to -10.6 F		
Solubility in Water	100%	Water Reactive:	Yes, Produces Heat		
Specific Gravity	1.245 - 1.295 Battery Electrolyte				
Appearance & Odor	Clear Liquid with Sharp Pungent Odor				
SECTION IV: FIRE AND EXPLOSION HAZARD DATA:					
Flash Point: Not Combustible					
Auto Ignition Temperature	N/A	Flammability Limits in Air % by Volume:		N/A	
Extinguishing Media: Dry Chemical Carbon Dioxide, Water Fog, Water					
Special Fire Fighting Procedures: Sulfuric Acid Fumes, Sulfur Dioxide Gas or Carbon Monoxide may be released when acid decomposes. Wear NIOSH approved self contained breathing apparatus.					
<u>Unusual Hazards:</u> Water applied to sulfuric acid generates heat and causes acid to splatter. Wear full-cover acid resistant clothing. Sulfuric acid reacts violently with metals, nitrates, chlorates, carbides, fulminates, picrates and other organic materials. Reacts with most metals to yield explosive/flammable hydrogen gas. This reaction is intensified when sulfuric acid is diluted with water to form battery electrolyte.					





# MATERIAL SAFETY DATA SHEET

## FOR AW-46 HYDRAULIC OIL

1-SITE SPECIFIC INFORMATION: AW-46 HYDRAULIC OIL

2-GENERAL INFORMATION TRADE NAME: AW-46 HYDRAULIC OIL  
EMERGENCY TELEPHONE NUMBERS: (517) 849-2144  
CHEMICAL FAMILY: LUBRICATING OIL  
CAS NUMBER: MIXTURE: ISSUE DATE 12/15/96  
HAZARDOUS INGREDIENTS:

-----  
CONTAINS NO INGREDIENTS NOW KNOWN TO BE HAZARDOUS AS DEFINED IN OSHA 29 CFR 1910.1000 AND OSHA 29 CFR 1910.1200.

-----  
HEALTH HAZARD DATA THRESHHOLD LIMIT VALUE: 5mg/m<sup>3</sup> AS OIL MIST 8 hr, TWA  
PRIMARY ROUTES OF ENTRY: INHALATION, SKIN ABRASION AND INGESTION.  
CARCINOGENIC: NO  
SYMPTOMS IF INGESTED, CONTACTED WITH SKIN, OR VAPOR INHALED: NO ADVERSE EFFECTS EXPECTED.  
EYES: FLUSH WITH WATER FOR 15 MINUTES SKIN: WASH THOROUGHLY WITH WARM SOAPY WATER.  
INGESTION: DO NOT INDUCE VOMITTING-SEEK MEDICAL ATTENTION.  
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NONE KNOWN  
AIR EXPOSURE LIMITS: P.E.L. NOT ESTABLISHED T.L.V.5mg/m<sup>3</sup> OSHA 29 CFR 1910.1000

HEALTH: 1FIRE: 1SPECIFIC: XREACTIVITY: 0

-----  
PHYSICAL DATA: BOILING POINT: 400+ DEG F. VAPOR PRESSURE (PSIA): N/A  
SPECIFIC GRAVITY (H<sub>2</sub>O=1): 0.87 SOLUBILITY IN WATER: NEGLIGIBLE  
PH OF CONCENTRATE: N/A  
APPEARANCE AND ODOR: PALE YELLOW, PETROLEUM ODOR

-----  
FIRE AND EXPLOSION HAZARD DATAFLASH POINT(METHOD USED): 425 DEG F.  
FLAMMABLE LIMITS: NOT DETERMINED LEL: N/AUEL: N/A  
EXTINGUISHING MEDIA: SAND, DRY CHEMICAL, FOAM, CO<sub>2</sub>. TREAT AS CLASS B FIRE.  
UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

-----  
REACTIVIYY DATA STABILITY: STABLE CONDITIONS TO AVOID: AVOID EXTREMES OF HEAT.  
INCOMPATIBILITY (MATERIALS TO AVOID): STRONG OXIDIZING MATERIALS.  
HAZARDOUS DECOMPOSITION PRODUCTS: INCOMPLETE COMBUSTION MAY CAUSE CARBON OXIDES.  
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

-----  
SPILL OR LEAK PROCEDURES: STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED. DIKE AND ABSORB ON INERT MATERIAL. FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS FOR DISPOSAL OF COLLECTED MATERIAL.  
-----



## MATERIAL SAFETY DATA SHEET FOR AW-46 HYDRAULIC OIL (Continued)

SPECIAL PROTECTION INFORMATION                      RESPIRATORY PROTECTION (SPECIFIC TYPE)  
NONE REQUIRED  
VENTILATION: NORMAL                      LOCAL EXHAUST: NORMAL  
MECHANICAL EXHAUST (GENERAL) X  
PROTECTIVE GLOVES: OIL IMPERVIOUS GLOVES RECOMMENDED  
EYE PROTECTION: SAFETY GLASSES RECOMMENDED  
OTHER PROTECTIVE EQUIPMENT: NONE REQUIRED

---

SPECIAL INSTRUCTIONS SPECIAL LABELLING INSTRUCTIONS: NOT REQUIRED  
SPECIAL PACKAGING RECOMMENDATIONS: NONE  
HANDLING AND STORAGE RECOMMENDATIONS: DO NOT CUT OR WELD ON EMPTY  
CONTAINERS, AVOID EXTREMES OF COLD OR HEAT. STORE IN CLEAN DRY AREA.

DISCLAIMER: THE INFORMATION CONTAINED HEREIN HAS BEEN COMPILED FROM SOURCES  
CONSIDERED TO BE DEPENDABLE AND IS ACCURATE TO THE BEST OF THE SELLERS  
KNOWLEDGE. THE SELLER MAKES NO WARRANTY WHATSOEVER, EXPRESSED, IMPLIED OR OF  
MERCHANTABILITY REGARDING THE ACCURACY OF SUCH DATA OR THE RESULTS TO  
BE OBTAINED FROM THE USE THEREOF.



# 5

## Replacement Decals

Refer to Table 5-1 and Figure 5-1 through Figure 5-2 for descriptions and locations of decals on the Bil-Jax 3632T Hydraulic Telescoping Boom Lift.

**Table 5-1. Replacement Decals**

Decal No.	Description of Decal	Qty	Decal No.	Description of Decal	Qty
0202-0523	Made in USA	1	B06-00-0485	NOTICE: Material/Lifting Configuration Set-Up	1
B06-00-0034	DANGER: Electric Shock Charger	1	B06-00-0488	CAUTION: Component Damage Hazard	1
B06-00-0062	NOTICE: AC Power	1	B06-00-0489	CAUTION: Emergency Retraction Valve	1
B06-00-0068	NOTICE: Hydraulic System Oil	1	B06-00-0491	WARNING: Platform Operation Instructions	1
B06-00-0161B	Bil-Jax Logo, 6" Black	2	B06-00-0493	CAUTION: Stowing Platform – Latch Securely	1
B06-00-0173	NOTICE: Fall Protection Attachment Point	2	B06-00-0494	NOTICE: Contains Hazardous Materials	1
B06-00-0404	WARNING: Outrigger Crush Toe	8	B06-00-0495	CAUTION: Compartment Access Restricted	2
B06-00-0405	WARNING: Hand Pinch Point	16	B06-00-0496	CAUTION: Generator Plate Max. Cap. 200 lbs.	1
B06-00-0468	WARNING: Base Operating Instructions for 3632T	1	B06-00-0497	NOTICE: Load Capacity for Material Lifting Hook	1
B06-00-0471	DANGER: Before Use/Main Instruction/ Hazard Platform	1	B06-00-0502	CAUTION: Accessory Mounting Plate Max. Cap. 75 lbs.	1
B06-00-0473	NOTICE: Operators Manual Missing	1	B06-00-0503	NOTICE: Platform Rotation Handle	1
B06-00-0474	NOTICE: Max Load 500	1	B06-00-0504	NOTICE: Emergency Hand Pump	1
B06-00-0475	WARNING: Operators Manual Read/Understand	1	B06-00-0505	DANGER: Before Use/Main Instruction/Hazard Ground	1
B06-00-0476	NOTICE: Range of Motion	2	B06-00-0506	NOTICE: Emergency Lowering	2
B06-00-0477	WARNING: Forklift Pockets – Instruction for Use	2	B06-00-0508	3632T Model, 3.5" Black	2
B06-00-0478	NOTICE: Plug Here for Platform Power/Charger	1	B06-00-0521	DANGER: Tip Over Hazard DO NOT Disable Switches	5
B06-00-0479	WARNING: Towing Hazards	2	B06-00-0522	CAUTION: Auxiliary Operation Instructions	1
B06-00-0480	3632T Model, 6" Black	2	B06-00-0523	Auxiliary Operation Switches	1
B06-00-0481	CAUTION: Transport Safety Latch	2			
B06-00-0482	DANGER: Electrocution Hazard	2			
B06-00-0483	WARNING: Maximum Towing Speed: 60 mph	1			
B06-00-0484	DANGER: Battery/Charger Safety Rules	1			



**NOTICE**  
**AC POWER**  
  
 UTA © BIL-Jax, Inc. 2005 B06-00-0062

B06-00-0062

**NOTICE**  
**Fall Protection Attachment Point**  
  
 UFG/UTA B06-00-0173 © BIL-Jax, Inc. 2005

B06-00-0173

**NOTICE**  
 The hydraulic system of this machine is designed to use SAE10W, low foaming hydraulic oil.  
 OIV/UTA © BIL-Jax, Inc. 2005 B06-00-0068

B06-00-0068

**WARNING**  
**CRUSH HAZARD**  
  
 Stand clear of outrigger being lowered or raised.  
 Contact with outrigger will cause serious crushing injury.  
 FTC/UTA © BIL-Jax, Inc. 2005 B06-00-0404

B06-00-0404

**WARNING**  
**PINCH POINT HAZARD**  
  
**STAY CLEAR**  
 UTA © BIL-Jax, Inc. 2005 B06-00-0405

B06-00-0405

**WARNING**  
**GROUND OPERATING INSTRUCTIONS FOR 3632T**

**UNHITCHING**  
 Machine must be unhitched from vehicle before setting up.  
 1. Apply parking brake.  
 2. Remove lighting plug, safety chains and break away cable from vehicle.  
 3. Release trailer coupler from tow vehicle.  
 4. Deploy and lower trailer tongue jack.

**SETTING UP**  
 1. Read and follow all instructions in Operators Manual and on all decals prior to operation.  
 2. Check that personnel and obstructions are clear of outriggers.  
 3. Set key switch to ground controls.  
 4. Release both emergency stop buttons (ground and platform controls).  
 5. Deploy outriggers using:  
**AUTO LEVEL**  
 Press and hold "extend" and "auto level" button simultaneously; or  
**MANUAL LEVEL**  
 Deploy the two outriggers closest to the trailer coupler first.  
 Manually lower each outrigger by pressing "extend" and the individual outrigger buttons simultaneously.  
 6. When properly leveled, two lights at each outrigger button and the light at the "auto level" button will be on.

Improper use of this equipment will result in serious injury or death. This machine must not be operated unless you are completely familiar with and follow all instructions contained in the Operators Manual.

**OPERATING INSTRUCTIONS**  
 1. Unclamp boom transport latch.  
 2. Release platform transport latch, swing platform into operating position.  
 3. Make sure platform lock pins are fully engaged.  
 4. Check all functions for proper operation.  
 • Set key switch to ground controls.  
 • Release both emergency stop buttons (ground and platform controls).  
 • Select function and speed by pressing the appropriate buttons simultaneously.  
 5. Fully retract, then lower boom to stowed position. Move key switch to platform controls. Lift is now ready for operation from the platform.  
 When using optional material lifting hook, see Operators Manual for instructions.

**WARNING DEVICE**  
 Tilt alarm will sound if boom becomes out of level. If this occurs, operator must immediately:  
 1. Retract extension boom.  
 2. Rotate platform over trailer coupler.  
 3. Lower boom into stowed position.  
 4. Check outrigger footing and releve lift.

**EMERGENCY STOP**  
 Push in red emergency stop button to stop all functions.

**EMERGENCY LOWERING**  
 Emergency lowering can only be accomplished from the ground.  
 1. Open cover on opposite side of ground control panel.  
 2. Locate instruction decal.  
 3. Follow instructions for Auxiliary/ Manual Boom Rotation, Retraction and Lowering.

**STOWING LIFT**  
 1. Retract extension boom.  
 2. Rotate platform over trailer coupler.  
 3. Lower boom into stowed position.  
 4. Engage and lock boom transport latch.  
 5. Fully raise outriggers using:  
**AUTO RETRACT**  
 Press and hold "retract" and "auto level" button simultaneously; or  
**INDIVIDUAL RETRACT**  
 Retract the two outriggers farthest from the trailer coupler first.  
 Raise each outrigger by pressing "retract" and the individual outrigger buttons simultaneously.

**TOWING**  
 Before towing, boom must be in stowed position. See stowing lift section.  
 1. Release platform lock pins and swing platform into transport position, then lock with platform transport latch.  
 2. Secure trailer coupler to towing vehicle.  
 3. Attach safety chains, break away cable and lighting plugs to tow vehicle. Secure for safe transit.  
 4. Confirm all lights are working properly.  
 5. Fully raise and stow trailer tongue jack.  
 6. Release parking brake.  
 • Trailer weight must not exceed vehicle towing capacity.  
 • Do not exceed maximum towing speed.

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B06-00-0468

**DANGER**  
**FAILURE TO FOLLOW THESE BATTERY AND CHARGER SAFETY RULES WILL CAUSE SERIOUS INJURY OR DEATH.**

**ELECTROCUTION HAZARDS**  
 Risk of Electric Shock  
 • DO NOT expose batteries or charger to water and/or rain.  
 • DO NOT use frayed or damaged electric cords when charging.  
 • Connect input cord only to properly grounded three wire outlet with specified voltage and frequency.

**BURN HAZARDS**  
 • Batteries contain acid. Always wear protective eyewear, face shield and protective clothing when working on or near battery.

**EXPLOSION HAZARDS**  
 • DO NOT contact battery terminals or cable clamps with tools that may cause sparks.  
 • During charging, explosive oxyhydrogen gas is generated.  
 • DO NOT smoke or allow open fire, sparks, or embers near battery when charging.

**COMPONENT DAMAGE HAZARDS**  
 • Keep terminals and terminal connections clean.  
 • Batteries must be charged using rated voltage noted on serial plate.  
 • Consult Operators Manual and Parts and Service Manual for additional information on battery maintenance.

HIRA/UTA © BIL-Jax, Inc. 2005 B06-00-0034

B06-00-0034

Figure 5-1. Replacement Decals, Sheet 1 of 5



## ⚠ DANGER

**FAILURE TO READ, UNDERSTAND AND FOLLOW THESE SAFETY INSTRUCTIONS OR ANY IMPROPER USE OF THIS EQUIPMENT WILL RESULT IN SERIOUS INJURY OR DEATH.**

**BEFORE USE**  
Operator is responsible for proper machine operation.  
DO NOT operate this machine unless you have:

- been fully trained in proper operation.
- read and understood Operators Manual.
- read and understood all warning and instruction decals.

Inspect lift for any damaged or worn components (see Operators Manual for complete maintenance and inspection procedures)

**NEVER TAKE CHANCES - DO NOT use this lift if you are under the influence of drugs or alcohol, or if you feel dizzy, ill or unsteady.**

**SET UP**  
Survey the jobsite and identify all potential hazards. Operator is responsible to avoid all hazardous situations. Cordon off area around base to keep unauthorized personnel and other equipment away from machine. Operate on firm and level surface only. DO NOT use machine on any surface which will not support the load applied to outrigger foot pad.

Lower all four outriggers until weight of the machine is fully supported by the outriggers and machine is level (green "auto level" light should be on).

Using ground controls, perform operational test of all boom functions.

When working on public roads, warnings and barriers must be set up in accordance with all local, state and federal traffic codes.

**ELECTROCUTION HAZARDS**  
This machine is NOT electrically insulated and DOES NOT provide protection for personnel from contact with, or close proximity to, any live electrical power source and should be considered energized by all personnel coming in contact with machine.

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance (Feet)	(Meters)
0 to 300V	Avoid Contact	
Over 300V to 50KV	10	3.05
Over 50KV to 200KV	15	4.60
Over 200KV to 350KV	20	6.10
Over 350KV to 500KV	25	7.62
Over 500KV to 750KV	35	10.67
Over 750KV to 1000KV	45	13.72

**TIP HAZARDS**  
DO NOT use unless all four outriggers are completely lowered and the machine is level.  
DO NOT release outriggers with boom extended or operator occupying platform.  
DO NOT exceed rated load capacity.  
DO NOT set machine up on any surface unless it can be leveled using only outriggers.  
DO NOT use chocks, blocks or shims of any kind to level machine.  
DO NOT continue to operate machine if tilt alarm sounds. Retract and lower boom immediately.  
DO NOT operate machine in strong or gusty winds.  
DO NOT increase surface area of platform. Increasing areas exposed to wind will decrease machine stability.  
DO NOT push off or pull on any object outside of the platform.

**IF YOU HAVE NOT BEEN PROVIDED WITH SAFETY LITERATURE, OR FOR ANY QUESTIONS CONCERNING THE SAFE USE OF THIS MACHINE, CONTACT YOUR LOCAL BIL-JAX DISTRIBUTOR, OR BIL-JAX, INC. AT 419-445-8915.**

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B06-00-0471

## ⚠ WARNING

### FORK LIFT USE

Engage and lock boom transport latch before lifting.  
Do not exceed forklift lifting capacity.  
Fully insert forks into pockets.  
Failure to follow all forklift rules and instructions will result in property damage, serious injury or death.

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B06-00-0477

## NOTICE

If Operators Manual is missing from case, please contact your local Bil-Jax distributor or Bil-Jax, Inc. at 800-537-0540.

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B06-00-0473

## NOTICE

### AC power connection for platform and charger.

UTA © Bil-Jax, Inc. 2005 B06-00-0478

B06-00-0478

## ⚠ WARNING

Failure to read, understand and follow enclosed Operators Manual may result in serious injury or death.

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B06-00-0475

## NOTICE

# BIL-JAX 3632T

### RANGE OF MOTION

UTA © Bil-Jax, Inc. 2005 B06-00-0476

B06-00-0476

## ⚠ WARNING

### TOWING HAZARDS

**Failure to read, understand and follow these safety rules will result in property damage, serious injury or death.**

Read, understand and follow all of the tow vehicle manufacturer's recommendations, warnings and instructions before towing this trailer.  
Do not exceed maximum towing speed: 60 mph/97 km/h  
Do not exceed Gross Vehicle Weight Rating (GVWR).  
Do not exceed the vehicle tow rating.  
Do not exceed the Gross Combination Weight Rating (GCWR).  
Do not exceed the Gross Axle Weight Rating (GAWR).  
Be sure safety chains (if required) are securely attached to tow vehicle.

Do not transport machine unless all transport latches have been engaged and locked.  
Tongue jack must be raised and stowed.  
Parking brake must be released.  
Do not load cargo on trailer.  
Be sure coupler is securely attached to tow vehicle and hitch ball is securely attached to hitch.  
Be sure that all lights are operational.  
Be sure all lights and hitch components conform to Federal and local regulations.  
Be sure tires are properly inflated.

UTA © Bil-Jax, Inc. 2005 B06-00-0479

B06-00-0479

## NOTICE

<p><b>Not Equipped with Platform Rotation</b> Total of occupants and equipment must not exceed 500 lbs. / 227 kg.</p>	<p><b>Maximum Load:</b> 500 lbs. / 227 kg <b>Maximum Occupants: 2</b></p>
<p><b>Equipped with Platform Rotation</b> Total of occupants and equipment must not exceed 440 lbs. / 200 kg.</p>	<p><b>Maximum Load:</b> 440 lbs. / 200 kg <b>Maximum Occupants: 2</b></p>

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B06-00-0474

Figure 5-1. Replacement Decals, Sheet 2 of 5



**CAUTION**

All boom sections must be fully retracted then completely lowered to tow.

All transport latches must be fully engaged and locked.

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B06-00-0481

**WARNING**

**MAXIMUM TOWING SPEED:**  
60 mph / 97 km/h

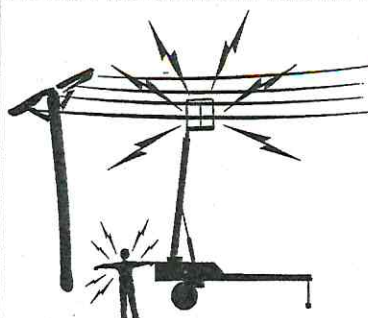
Follow all local and national towing speed regulations.

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B06-00-0483

**DANGER**

**ELECTROCUTION HAZARD**



It is unlawful to operate this equipment within 10 feet of high voltage lines of 50,000 volts or less.

This machine is **NOT** insulated.

Do not use within 10 ft. of power lines or other electrically charged sources.

This machine **DOES NOT** provide protection for personnel from contact with or close proximity to any live electrical power source and **should be considered energized** by all personnel coming in contact with machine.

**KEEP CLEAR**

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B06-00-0482

**NOTICE**

**MATERIAL LIFTING CONFIGURATION**

- Disconnect platform controls from platform.
- Remove platform control box. Open clamp on back of platform control box and slide box up and off.
- Open turntable cover at ground controls.
- Disconnect electric cord on bottom right side of ground control box and connect cord from platform control box. Close turntable cover.
- Hold platform securely while removing pin securing platform to boom.
- Lift platform up and remove from machine.
- Remove pin that secures material lifting hook to base. Remove material lifting hook.
- To install material lifting hook, insert bottom rail into platform mounting bracket and rotate up into position. Insert clevis pin.
- Operate material lifting hook from ground with platform controls. Keyswitch should be turned to platform control position.
- Reverse above process to convert machine to personnel lift.

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B06-00-0485

**DANGER**

**BATTERY AND CHARGER OPERATING INSTRUCTIONS**

**OBSERVE AND FOLLOW**

- Do not use external charger or booster battery.
- Recharge batteries after each work shift.
- Use proper AC input voltage for charging as indicated on charger.
- Do not expose charger to water.

**TO CHARGE BATTERY**

- Remove battery vent caps and check battery fluid level. If necessary, add only enough water to cover the plates. Do not overfill. Replace battery vent caps.
- Be sure battery disconnect plug is connected before charging batteries.
- Connect the battery charger to a grounded AC circuit.
- The charger will automatically shut off when charging cycle is complete.

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**CAUTION**

**COMPONENT DAMAGE HAZARD**

Prior to transport, close the fuel shut-off valve. Open valve for operation. Failure to close the fuel shut-off valve before transporting machine may result in engine damage.

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B06-00-0488

**WARNING**

**PLATFORM OPERATING INSTRUCTIONS FOR 3632T**

Improper use of this equipment will result in serious injury or death. This machine must not be operated unless you are completely familiar with and follow all instructions contained in the Operators Manual.

**OPERATING INSTRUCTIONS**

1. Read and follow all instructions in Operators Manual and on all decals prior to operation.
2. Follow the instructions on the ground controls for "Unhitching", "Setting Up" and "Operating Instructions".
3. Verify outriggers are properly set and lift is level.
4. Always wear full body harness and attach lanyard to the fall protection attachment.
5. Both emergency stop buttons (ground and platform controls) should be in the released position.
6. Press and hold the desired function and speed button simultaneously.
7. Fully retract boom before lowering into the transport position.

**EMERGENCY STOP**  
Push in red emergency stop button to stop all functions.

**WARNING DEVICE**  
Tilt alarm will sound if boom becomes out of level. If this occurs, operator must immediately:

1. Retract extension boom.
2. Rotate platform over trailer coupler.
3. Lower boom into stowed position
4. Check outrigger footing and relever lift.
5. Relevel lift.

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B06-00-0491

**NOTICE**

One or more of the following hazardous materials are used on this machine:

- Gasoline
- Liquid Petroleum Gas (LPG)
- Diesel Fuel
- Hydraulic Fluid
- Antifreeze
- Engine Oil
- Grease
- Lead Acid Battery

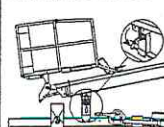
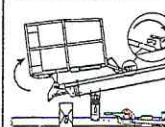
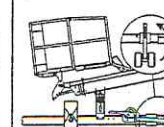
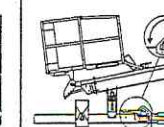
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**CAUTION**

**PRIOR TO TOWING INSTRUCTIONS**

Failure to follow all towing instructions below will cause damage to equipment and/or tow vehicle.

<p><b>Secure boom transport latch.</b></p> 	<p><b>Secure platform transport latch.</b></p> 	<p><b>Raise and secure jack stand.</b></p> 	<p><b>Release parking brake.</b></p> 
--	---	--	--

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Figure 5-1. Replacement Decals, Sheet 3 of 5



**CAUTION**  
**COMPARTMENT ACCESS IS RESTRICTED**

Improper contact with components under any cover will cause serious injury.



Only trained and authorized maintenance personnel should access compartments.

Access by operator is only advised when performing preoperation inspection. All compartments must remain closed and secured during operation and transport.

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**CAUTION**  
**GENERATOR MOUNTING PLATE**

**Maximum Load:  
 200 lbs. / 91 kg**

Secure equipment on plate.  
 Do not exceed maximum load weight.  
 Unsecured or overloaded cargo will cause damage and serious injury.

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**NOTICE**  
**MATERIAL LIFTING HOOK**

**Maximum Load:  
 500 lbs / 227 kg**

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B06-00-0497

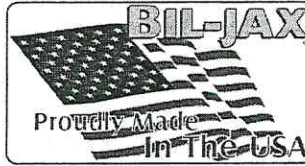
**CAUTION**  
**EQUIPMENT MOUNTING PLATE**

**Maximum Load:  
 75 lbs. / 34 kg**

For use with pressure washer, air compressor or similar equipment only.  
 Secure equipment on plate.  
 Do not exceed maximum load weight.  
 Unsecured or overloaded cargo will cause damage and serious injury.

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B06-00-0502



0202-0523

**NOTICE**

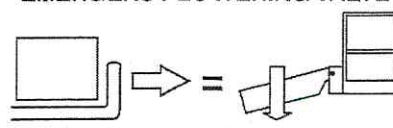
Handle should be used for the following applications:

- Emergency Turntable Rotation
- Emergency Hand Pump
- Tire Iron

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B06-00-0503

**NOTICE**  
**EMERGENCY LOWERING VALVE**



**PULL TO LOWER**

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B06-00-0506

**NOTICE**  
**EMERGENCY HAND PUMP HANDLE INSERTION**



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B06-00-0504

**DANGER**


**FAILURE TO READ, UNDERSTAND AND FOLLOW THESE SAFETY INSTRUCTIONS OR ANY IMPROPER USE OF THIS EQUIPMENT WILL RESULT IN SERIOUS INJURY OR DEATH.**

**BEFORE USE**  
 Operator is responsible for proper machine operation.  
 DO NOT operate this machine unless you have:

- been fully trained in proper operation.
- read and understood Operators Manual.
- read and understood all warning and instruction decals.

Inspect lift for any damaged or worn components (see Operators Manual for complete maintenance and inspection procedures)  
**NEVER TAKE CHANCES - DO NOT** use this lift if you are under the influence of drugs or alcohol, or if you feel dizzy, ill or unsteady.

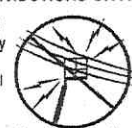
**SET UP**  
 Survey the jobsite and identify all potential hazards. Operator is responsible to avoid all hazardous situations.  
 Cordon off area around base to keep unauthorized personnel and other equipment away from machine.  
 Operate on firm and level surface only. DO NOT use machine on any surface which will not support the load applied to outrigger foot pad.  
 Lower all four outriggers until weight of the machine is fully supported by the outriggers and machine is level (green "auto level" light should be on).  
 Using ground controls, perform operational test of all boom functions.  
 When working on public roads, warnings and barriers must be set up in accordance with all local, state and federal traffic codes.



**ELECTROCUTION HAZARDS**  
 This machine is NOT electrically insulated and DOES NOT provide protection for personnel from contact with, or close proximity to, any live electrical power source and should be considered energized by all personnel coming in contact with machine.

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance (Feet)	Minimum Safe Approach Distance (Meters)
0 to 300V	Avoid Contact	
Over 300V to 50KV	10	3.05
Over 50KV to 200KV	15	4.80
Over 200KV to 350KV	20	6.10
Over 350KV to 500KV	25	7.62
Over 500KV to 750KV	35	10.67
Over 750KV to 1000KV	45	13.72

**TIP HAZARDS**  
 DO NOT use unless all four outriggers are completely lowered and the machine is level.  
 DO NOT release outriggers with boom extended or operator occupying platform.  
 DO NOT exceed rated load capacity.  
 DO NOT set machine up on any surface unless it can be leveled using only outriggers.  
 DO NOT use chocks, blocks or shims of any kind to level machine.  
 DO NOT continue to operate machine if lull alarm sounds. Retract and lower boom immediately.  
 DO NOT operate machine in strong or gusty winds.  
 DO NOT increase surface area of platform. Increasing areas exposed to wind will decrease machine stability.  
 DO NOT push off or pull on any object outside of the platform.



DO NOT place or attach overhanging loads to any part of platform.  
 DO NOT exceed platform capacity when transferring loads to the platform while elevated.  
**FALL HAZARDS**  
 DO NOT operate without full body harness and lanyard in use by all platform occupants.  
 • Attach lanyard to fall protection attachment point provided in platform.  
 DO NOT stand, sit or climb on guard rails or top edge of platform.  
 DO NOT lean out over top edge of platform guard rails to perform work.  
 • Maintain a firm footing on the platform at all times.  
 DO NOT use boxes, ladders, scaffolding, or any other means to increase working height.  
 DO NOT climb up or down boom.  
 DO NOT climb down from platform when raised.  
 DO NOT allow ropes, electric cords, hoses, or similar objects to become entangled in the machine.  
 DO NOT operate machine without platform entry mid-rail fully lowered.  
 DO NOT move or reposition machine while platform is raised.  
**COLLISION HAZARDS**  
 DO NOT use where lift operator can come in contact with overhead obstructions such as electric wires, cables, ropes, overhangs or similar hazards.  
 To avoid hand injuries, always keep hands inside platform area during boom movement.

**MISUSE HAZARDS**  
 DO NOT override, alter, or bypass safety devices.  
 DO NOT use boom turntable rotation or platform rotation for pushing or pulling.  
 DO NOT use platform as a crane for lifting materials. Always remove platform and use optional material lifting hook attachment.  
 DO NOT use when exposed to rain, snow, or other severe weather.  
**EXPLOSION HAZARDS**  
 DO NOT allow flames, sparks, or embers near batteries.  
 DO NOT smoke near batteries. Batteries produce a hydrogen-oxygen gas mixture which can explode.  
 DO NOT smoke while near fuel tank on internal combustion engine.  
**GENERAL INSTRUCTIONS**  
 Be sure all tires are in good condition, air filled tires are properly inflated and lug nuts are properly tightened.  
 DO NOT leave keys in machine while unattended.  
 Plug charger in at the end of each day. (DC only)  
**MATERIAL LIFTING CONFIGURATION HAZARDS**  
 DO NOT exceed material lifting rated capacity.  
 DO NOT raise load unless material lifting hook is properly secured to machine.  
 DO NOT raise unless load is properly balanced and secured to machine.  
 DO NOT stand under or allow personnel under load or machine when load is raised.

**IF YOU HAVE NOT BEEN PROVIDED WITH SAFETY LITERATURE, OR FOR ANY QUESTIONS CONCERNING THE SAFE USE OF THIS MACHINE, CONTACT YOUR LOCAL BIL-JAX DISTRIBUTOR, OR BIL-JAX, INC. AT 419-445-8915.**

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B06-00-0505

Figure 5-1. Replacement Decals, Sheet 4 of 5



# BIL-JAX

B06-00-0161B

# 3632T

B06-00-0480

# 3632T

B06-00-0508

**CAUTION**

**MANUAL RETRACTION**

1. Turn proportional valve counterclockwise until it stops.
2. Press and hold the button located in the center of retraction valve end cap.
3. Actuate hand pump to retract.
4. Return proportional valve to original position to resume operation.

**MANUAL ROTATION**

1. Turn proportional valve counterclockwise until it stops.
2. Rotational Direction  
**To rotate boom clockwise:**  
 Push and hold rotational valve knob.  
**To rotate boom counterclockwise:**  
 Slightly turn knob counterclockwise, pull and hold rotational valve knob.
3. Actuate hand pump to retract.
4. Return proportional valve to original position to resume operation.

**MANUAL LOWERING**

1. Press and hold valve at the base of the lift cylinder.
2. Refer to the diagram decal located on turntable at the ground control side.

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B06-00-0489

**CAUTION**

**AUXILIARY RETRACTION, ROTATION AND LOWERING**

**AUXILIARY BOOM OPERATION SEQUENCE**

1. Retract boom completely.
2. Rotate boom over tongue prior to lowering.
3. Lower boom to towing position.

**AUXILIARY RETRACTION**  
 Hold bottom toggle up and simultaneously pump emergency hand pump to retract.

**AUXILIARY ROTATION**  
 Hold upper toggle right to rotate counterclockwise or hold left to rotate clockwise. Simultaneously pump emergency hand pump.

**AUXILIARY LOWERING**  
 Push bottom toggle down while holding lower enable button.

**Note:** If there is not enough battery power for auxiliary boom operations, see Manual Retraction, Rotation and Lowering Procedures.

SWITCH PANEL

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B06-00-0522

**DANGER**

**TIP-OVER HAZARD**

Machine tip-over will cause death or serious injury.

Do not alter or disable limit switch(es).

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B06-00-0521

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 RTA B06-00-0523

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Figure 5-1. Replacement Decals, Sheet 5 of 5



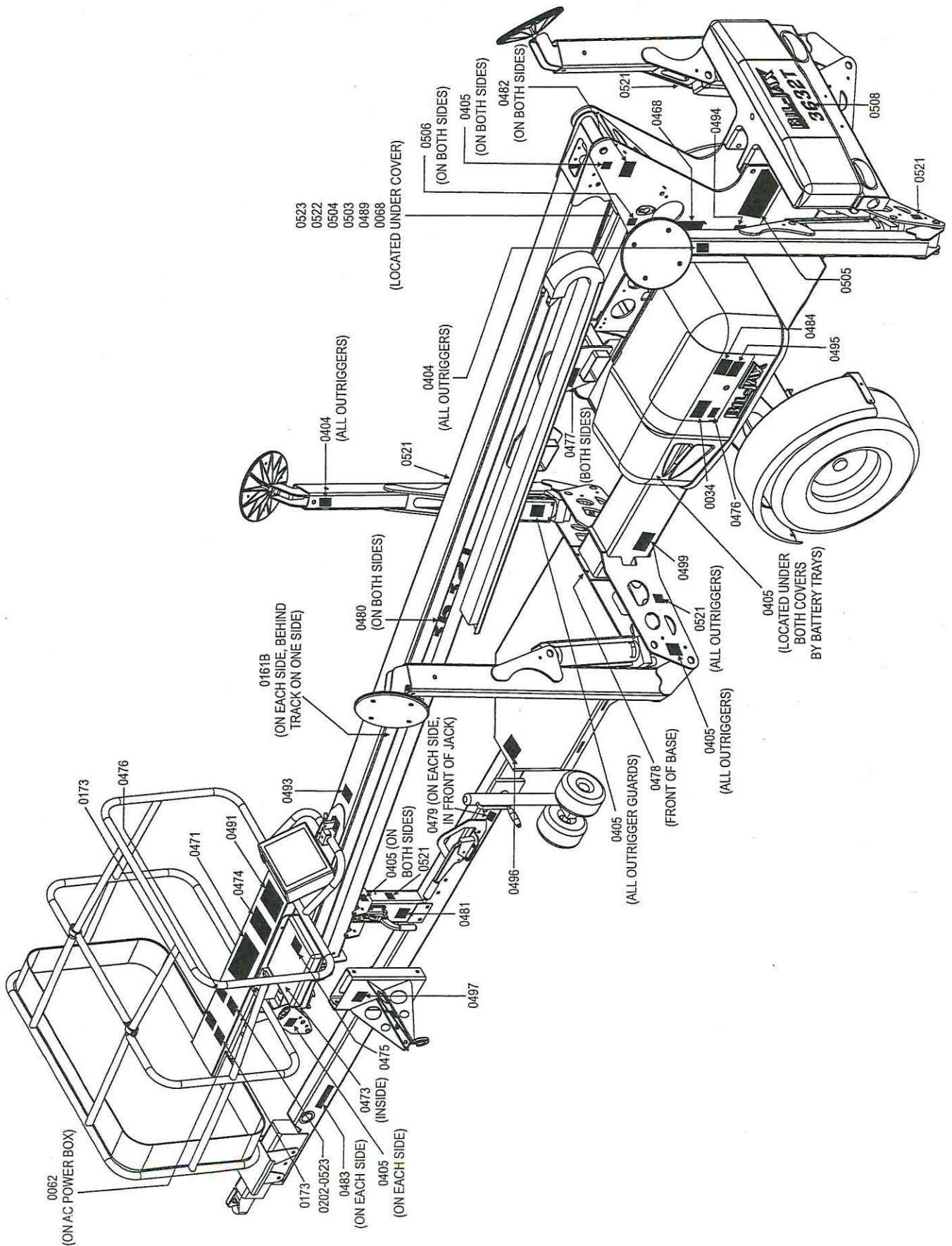


Figure 5-2. Decal Locations, Trailer and Boom





# 6

## ANSI Reprint

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The following sections are reprinted from the ANSI A92.2-2001 code in effect at the time of manufacture. Permission to reprint has been granted by the Scaffold Industry Association.

### 7. Responsibilities of Dealers and Installers

- 7.1 General Responsibilities.** Each dealer or installer as applicable shall comply with the requirements of this section.
- 7.2 Vehicle Specifications.** Each dealer or installer, or both, who sells an aerial device shall inform the owner or user, or both, of the manufacturer's minimum vehicle specifications.
- 7.3 Vehicle Weight Distribution.** The installer shall be responsible for the weight distribution of the completed mobile unit in accordance with the requirements of the aerial device and the applicable regulations. Allowance shall be made for the weight of readily removable tools and material specified by the user.
- 7.4 Manuals.** Upon delivery of the equipment to the owner or user, the dealer or installer shall provide the manuals as required by Paragraph 6.4 of this standard and manuals for auxiliary equipment added by the installer.
- 7.5 Installations.** The installer shall comply with Sections 5 and 6 of this standard relating to proper installation and shall follow the instructions of the manufacturer. In the event the original manufacturer no longer exists, an equivalent entity may provide these instructions. The installer of an aerial device shall, before the mobile unit is placed in operation, perform stability tests in accordance with the requirements of 4.5.1 and 4.5.2, the operational and visual tests in accordance with the requirements of 6.6.1 and 6.6.2, and the appropriate electrical tests required in 5.4.3 of this standard. The installer shall, when installing an aerial device on a chassis which is a highway vehicle, comply with all requirements of the applicable Federal Motor Vehicle Safety Standards in effect at the time of installation. Certification as a manufacturer (alteration, intermediate or final) of a motor vehicle under the Federal Motor Vehicle Safety Standards is required. The travel height of the mobile unit shall be posted in a location that is readily visible to the vehicle operator. For insulated aerial devices, the installer shall assure conformance to the Qualification test requirements of 5.3.2 by either obtaining certification of the test and performing a periodic test after installation, or by performing the Qualification test.
- 7.6 Quality Assurance.** The installer shall have a documented quality assurance program which will ensure compliance with this standard.
- 7.7 Welding.** All welds made by the installer, whose failure could result in motion of the platform(s) shall meet the Structural Welding Code AWS D1.1-98 and AWS D1.2-98. The installer shall establish applicable welding quality assurance procedures for all weldments.
- 7.8 Training.** The dealer or installer shall offer training or training materials that aid owners and users in the operation, inspection, testing and maintenance of the aerial device. This training shall be offered initially and subsequently on request.
- 7.8.1 Dealer or Installer as User.** Whenever a dealer or installer directs personnel to operate an aerial device (inspecting, sales demonstrations, or any form of use), the dealer or installer shall assume the responsibilities of users as specified in Section 9 of this standard. All personnel authorized to operate the aerial device shall have been trained.

## 8. Responsibilities of Owners

**8.1 General Responsibilities.** Each owner shall comply with the requirements of this section. The following responsibilities pertain to the owner's inspection, testing, maintenance, modification, training, and transfer of ownership. These activities shall be performed by qualified person(s).

### 8.2 Inspection and Testing Classifications.

**8.2.1 Initial Inspection and Test.** Prior to initial use, all new or modified mobile units shall be inspected and tested to ensure compliance with the provisions of this standard. Verification by the manufacturer, the installer or an equivalent entity(s), meets this requirement.

**8.2.2 Regular Inspection and Tests.** The inspection procedure for mobile units is divided into two classifications based upon the intervals at which inspections and tests shall be performed. Intervals shall be set by the owner in accordance with the manufacturer's recommendations. Such intervals are dependent upon component function and exposure to wear, deterioration and other agents which adversely affect component life. Two classifications are designated:

- (1) Frequent Inspection and Test: Daily to monthly intervals.
- (2) Periodic Inspection and Test: One to twelve month intervals.

**8.2.3 Frequent Inspection and Test.** Items determined by the owner in accordance with the manufacturer's recommendations for each specific aerial device shall be inspected for defects. The following tests and inspections shall be performed by the operator once daily, prior to first use:

- (1) Operating controls and associated mechanisms for conditions interfering with proper operation.
- (2) Visual and audible safety devices for malfunction.
- (3) Hydraulic or pneumatic systems for observable deterioration or excessive leakage.
- (4) Fiberglass and other insulating components for visible damage or contamination.
- (5) Missing or illegible operational and instructional markings.
- (6) Electrical systems of/or related to the aerial device for malfunction, signs of excessive deterioration, dirt and moisture accumulation.
- (7) Visual inspection of bolts, pins, and other fasteners for loose, deformed or missing fasteners and other locking devices. Any suspected items shall be carefully examined or tested and a determination made by a qualified person as to whether they constitute a safety hazard. All unsafe items shall be replaced or repaired before use.

**8.2.4 Periodic Inspection or Test.** An inspection of the mobile unit shall be performed at the intervals defined in 8.2.2 depending upon its activity, severity of service, and environment, or as specifically indicated below. (These inspections shall include the requirements of 8.2.3):

- (1) Structural members for deformation, cracks or corrosion
- (2) Parts, such as pins, bearings, shafts, gears, rollers, locking devices, chains, chain sprockets, wire and synthetic ropes, and sheaves for wear, cracks or distortion.
- (3) Hydraulic and pneumatic relief valve settings.
- (4) Hydraulic system for proper oil level.
- (5) Hydraulic and pneumatic fittings, hoses, and tubing for evidence of leakage, abnormal deformation or excessive abrasion.
- (6) Compressors, pumps, motors, and generators for loose fasteners, leaks, unusual noises or vibrations, loss of operating speed, and excessive heating.
- (7) Hydraulic and pneumatic valves for malfunction and visible cracks in the external valve housing, leaks, and sticking spools.
- (8) Visually inspect any vacuum prevention systems and verify function of such systems on Category "A" aerial devices.
- (9) Hydraulic and pneumatic cylinders and holding valves for malfunction and visible damage.



- (10) Hydraulic and pneumatic filters for cleanliness and the presence of foreign material in the system indicating other component deterioration.
- (11) Electrical systems and components for deterioration or wear including those not readily visible on a frequent inspection.
- (12) Performance test of all boom movements.
- (13) Condition and tightness of bolts and other fasteners.
- (14) Welds, as specified by the manufacturer.
- (15) Legible and proper identification, operational, and instructional markings.
- (16) If the aerial device is rated as an insulated device, the electrical insulating components and system(s) shall be thoroughly inspected for lack of cleanliness and other conditions that compromise insulation. Then these components and system(s) shall be tested for compliance with the rating of the aerial device in accordance with one of the applicable methods and procedures as outlined in section 5.4.3 of this standard:
  - (a) If the aerial device is used for AC bare-hand work, the unit shall undergo a 60 Hz test as shown in Table 2 at least every three years;
  - (b) If the aerial device is used for DC bare-hand work, the unit shall undergo a DC test as shown in Table 2 at least every three years;
  - (c) After repair or modification of any component that crosses the insulating system(s), or the repair or replacement of an insulating component(s), the unit shall be dielectrically tested in accordance with section 5.4.3;
  - (d) An insulated replacement boom shall be tested to insure conformance to 5.3.3 by the supplier;
  - (e) Bare-hand work units shall be tested as shown in Table I after any major repair to the insulated boom or any insulated boom replacement. Any suspected items shall be carefully examined or tested and a determination made by a qualified person as to whether they constitute a safety hazard. All unsafe items shall be replaced or repaired before use.

### 8.3 Inspection and Test Records.

- (1) Items to be inspected shall be designated to the operator or other authorized person making frequent inspections. Records of frequent inspections need not be made. However, where a safety hazard is found, it shall be reported in writing to a person responsible for the corrective action and that report and a record of the correction shall be maintained for five years, or as required by applicable regulations.
- (2) Written, dated and signed reports and records shall be made of periodic inspections and tests and retained for a period of five years or as required by applicable regulations.

### 8.4 Maintenance. Maintenance and frequency of maintenance shall be determined by the owner in accordance with the manufacturer's recommendations. Welding repairs of components or welds, designated as critical in the manufacturers manual, shall be made in accordance with the manufacturers recommendations. Should the original manufacturer no longer exist an equivalent entity may determine the required procedure.

#### 8.4.1 Maintenance Training. The owner shall train their maintenance personnel in inspection and maintenance of the aerial device in accordance with the manufacturer's recommendations and Section 8 of this standard.

### 8.5 Modifications. No modifications or additions which affect the stability, mechanical, hydraulic, or electrical integrity or the safe operation of the aerial device shall be made without the written approval of the manufacturer. If such modifications or changes are made, the capacity, operation, and maintenance instruction markings shall be changed accordingly. In no case shall the safety factors be reduced below those specified in this standard or below the manufacturers design safety factors, whichever are greater. Should the original manufacturer no longer exist, an equivalent entity may approve required modification.

- 8.6 Weight Distribution.** Changes in loading or additions made to the mobile unit after the final acceptance that affect weight distribution shall meet applicable regulations by governmental agencies. In no case shall axle loads of the fully loaded vehicle exceed the Gross Axle Weight Ratings (GAWR) assigned by the manufacturer. Note: Any change in weight distribution may adversely affect stability.
- 8.7 Transfer of Ownership.** When a change in ownership of an aerial device occurs, it shall be the responsibility of the seller to provide the manufacturer's manual(s) for that aerial device to the purchaser. It is the responsibility of the purchaser to notify the manufacturer of the unit model and serial number and the name and address of the new owner within 60 days.
- 8.8 Markings.** The markings on the aerial device shall not be removed, defaced, or altered. All missing or illegible markings shall be promptly replaced.
- 8.9 Parts.** When parts or components are replaced they shall be identical in specification and function to the original aerial device parts or components or shall provide an equal or greater factor of safety.
- 8.10 Safety Bulletins.** Owners shall comply with safety related bulletins as received from the manufacturer, dealer or installer.
- 8.11 Manuals.** The owner shall insure that the operating manual(s) is stored on the mobile unit.
- 8.12 Training, Retraining, and Familiarization of Operators.**
- 8.12.1 Owner as a Renter or Lessor.** When an owner functions as a renter or lessor he shall have the same responsibilities as specified under Section 11 of this standard.
- 8.12.2 General Training.** Only personnel who have received general instructions regarding the inspection, application and operation of aerial devices, including recognition and avoidance of hazards associated with their operation, shall operate an aerial device. Such items covered shall include, but not necessarily be limited to, the following issues and requirements:
- (1) The purpose and use of manuals.
  - (2) That operating manuals are an integral part of the aerial device and must be properly stored on the vehicle when not in use.
  - (3) A pre-start inspection.
  - (4) Responsibilities associated with problems or malfunctions affecting the operation of the aerial device.
  - (5) Factors affecting stability.
  - (6) The purpose of placards and decals.
  - (7) Workplace inspection.
  - (8) Applicable safety rules and regulations, such as Part 4, ANSI C2-1997, National Electrical Safety Code (applies to utility workers as defined in ANSI C2). The above standard is an example; other industries using aerial devices have safety rules pertinent to that industry.
  - (9) Authorization to operate.
  - (10) Operator warnings and instructions.
  - (11) Actual operation of the aerial device. Under the direction of a qualified person, the trainee shall operate the aerial device for a sufficient period of time to demonstrate proficiency in the actual operation of the aerial device.
  - (12) Proper use of personal fall protection equipment
- 8.12.3 Retraining.** The operator shall be retrained, when so directed by the user, based on the user's observation and evaluation of the operator.
- 8.12.4 Familiarization.** When an operator is directed to operate an aerial device he/she is not familiar with, the operator, prior to operating, shall be instructed regarding the following items and issues :
- (1) The location of the manuals.
  - (2) The purpose and function of all controls.
  - (3) Safety devices and operating characteristics specific to the aerial device.



## 9. Responsibility of Users.

- 9.1 General Responsibilities.** Each User shall comply with the requirements of this section.
- 9.2 Personnel.** Only trained and authorized personnel shall be permitted to operate the aerial device.
- 9.3 Training, Retraining, and Familiarization of Operators.**
- 9.3.1 General Training.** Only personnel who have received general instructions regarding the inspection, application and operation of aerial devices, including recognition and avoidance of hazards associated with their operation, shall operate an aerial device. Such items covered shall include, but not necessarily be limited to, the following issues and requirements:
- (1) The purpose and use of manuals.
  - (2) That operating manuals are an integral part of the aerial device and must be properly stored on the vehicle when not in use.
  - (3) A pre-start inspection.
  - (4) Responsibilities associated with problems or malfunctions affecting the operation of the aerial device.
  - (5) Factors affecting stability.
  - (6) The purpose of placards and decals.
  - (7) Workplace inspection.
  - (8) Applicable safety rules and regulations, such as Part 4, ANSI C2-1997, National Electrical Safety Code. (applies to utility workers as defined in ANSI C2). The above standard is an example; other industries using aerial devices have safety rules pertinent to that industry.
  - (9) Authorization to operate.
  - (10) Operator warnings and instructions.
  - (11) Actual operation of the aerial device. Under the direction of a qualified person, the trainee shall operate the aerial device for a sufficient period of time to demonstrate proficiency in the actual operation of the aerial device.
  - (12) Proper use of personal fall protection equipment
- 9.3.2 Retraining.** The operator shall be retrained, when so directed by the user, based on the user's observation and evaluation of the operator.
- 9.3.3 Familiarization.** When an operator is directed to operate an aerial device he/she is not familiar with, the operator, prior to operating, shall be instructed regarding the following items and issues:
- (1) The location of the manuals.
  - (2) The purpose and function of all controls.
  - (3) Safety devices and operating characteristics specific to the aerial device.
- 9.4 Application.** The employer and assigned operator shall insure that the aerial device is used only for intended applications as defined in the operating manual, and that recognized safety practices are observed.
- 9.5 Mobile Operation.** Before and during driving, the driver shall:
- (1) Avoid traveling on any surface that adversely affects vehicle stability.
  - (2) Maintain a safe distance from obstacles and overhead lines.
  - (3) Maintain communications between the driver and the operator.
  - (4) Under all travel conditions, the driver shall limit travel speed in accordance with conditions of the ground surface, congestion, and slope.
- 9.6 Alterations.** Altering or disabling of safety devices, guards, or interlocks if so equipped shall be prohibited.
- 9.7 Bare-Hand Work.** For bare-hand work, a Category "A" aerial device shall be used.
- 9.8 Lower Controls.** The lower controls of aerial devices shall not be used for continuous operation with personnel in the platform.

## 10. Responsibilities of Operators

**10.1 General Responsibilities.** Each operator shall comply with the requirements of this section.

**10.2 Operation.** During operation of the aerial device all platform occupants shall use appropriate fall protection connected to the aerial device at the platform position.

**10.3 Work Platform.** The operator shall not use railings, planks, ladders or any other device in or on the work platform for achieving additional working height or reach.

**10.4 Brakes.** The vehicle parking brake(s) shall be set at all times that the boom is elevated except when the aerial device is being used in accordance with 9.5.

**10.5 Loading.** Any loading which includes a horizontal load shall be avoided unless the mobile unit is designed for that application.

**10.6 Observations.** Observations during operation for any defects shall be conducted on an ongoing basis.

**10.6.1 Pre-start Inspection.** Items determined by the owner in accordance with the manufacturer's recommendations for each specific aerial device shall be inspected for defects prior to each day's operation. The following tests and inspections shall be performed by the operator once daily, prior to first use:

- (1) Operating controls and associated mechanisms for conditions interfering with proper operation.
- (2) Visual and audible safety devices for malfunction.
- (3) Hydraulic or pneumatic systems for observable deterioration or excessive leakage.
- (4) Fiberglass and other insulating components for visible damage or contamination.
- (5) Missing or illegible operational and instructional markings.
- (6) Electrical systems of/or related to the aerial device for malfunction, signs of excessive deterioration, dirt and moisture accumulation.
- (7) Visual inspection of bolts, pins, and other fasteners for loose, deformed or missing fasteners and other locking devices. Any suspected items shall be carefully examined or tested and a determination made by a qualified person as to whether they constitute a safety hazard. All unsafe items shall be replaced or repaired before use.

**10.7 Worksite.** Before the aerial device is used the worksite shall be surveyed for hazards such as:

- (1) Untamped earth fills.
- (2) Ditches.
- (3) Dropoffs and floor obstructions.
- (4) Debris.
- (5) Overhead obstructions and electrical conductors.
- (6) Weather conditions.
- (7) Presence of unauthorized persons.

**10.8 Precautions.** Before and during each use the operator shall:

- (1) Check for overhead obstructions and electrical conductors.
- (2) Insure that the load on the platform and/or load lifting devices are in accordance with the manufacturer's rated capacity.
- (3) Insure that outriggers and stabilizers are used if the manufacturer's instructions require their use.
- (4) Insure that guardrails are properly installed, and the gates are closed.
- (5) Use outrigger pads when necessary to provide firm footing.

**10.9 Mobile Operation.** Before engaging in mobile operation the operator shall determine that the aerial device is specifically designed for mobile operation.

**10.10 Personnel.** Only trained and authorized personnel shall be permitted to operate the aerial device.



**10.11 Training, Retraining, and Familiarization of Operators.**

**10.11.1 General Training.** Only personnel who have received general instructions regarding the inspection, application and operation of aerial devices, including recognition and avoidance of hazards associated with their operation, shall operate an aerial device. Such items covered shall include, but not necessarily be limited to, the following issues and requirements:

- (1) The purpose and use of manuals.
- (2) That operating manuals are an integral part of the aerial device and must be properly stored on the vehicle when not in use.
- (3) A pre-start inspection.
- (4) Responsibilities associated with problems or malfunctions affecting the operation of the aerial device.
- (5) Factors affecting stability.
- (6) The purpose of placards and decals.
- (7) Workplace inspection.
- (8) Applicable safety rules and regulations, such as Part 4, ANSI C2-1997, National Electrical Safety Code (applies to utility workers as defined in ANSI C2). The above standard is an example; other industries using aerial devices have safety rules pertinent to that industry.
- (9) Authorization to operate.
- (10) Operator warnings and instructions.
- (11) Actual operation of the aerial device. Under the direction of a qualified person, the trainee shall operate the aerial device for a sufficient period of time to demonstrate proficiency in the actual operation of the aerial device.
- (12) Proper use of personal fall protection equipment

**10.11.2 Retraining.** The operator shall be retrained, when so directed by the user, based on the user's observation and evaluation of the operator.

**10.11.3 Familiarization.** When an operator is directed to operate an aerial device he/she is not familiar with, the operator, prior to operating, shall be instructed regarding the following items and issues:

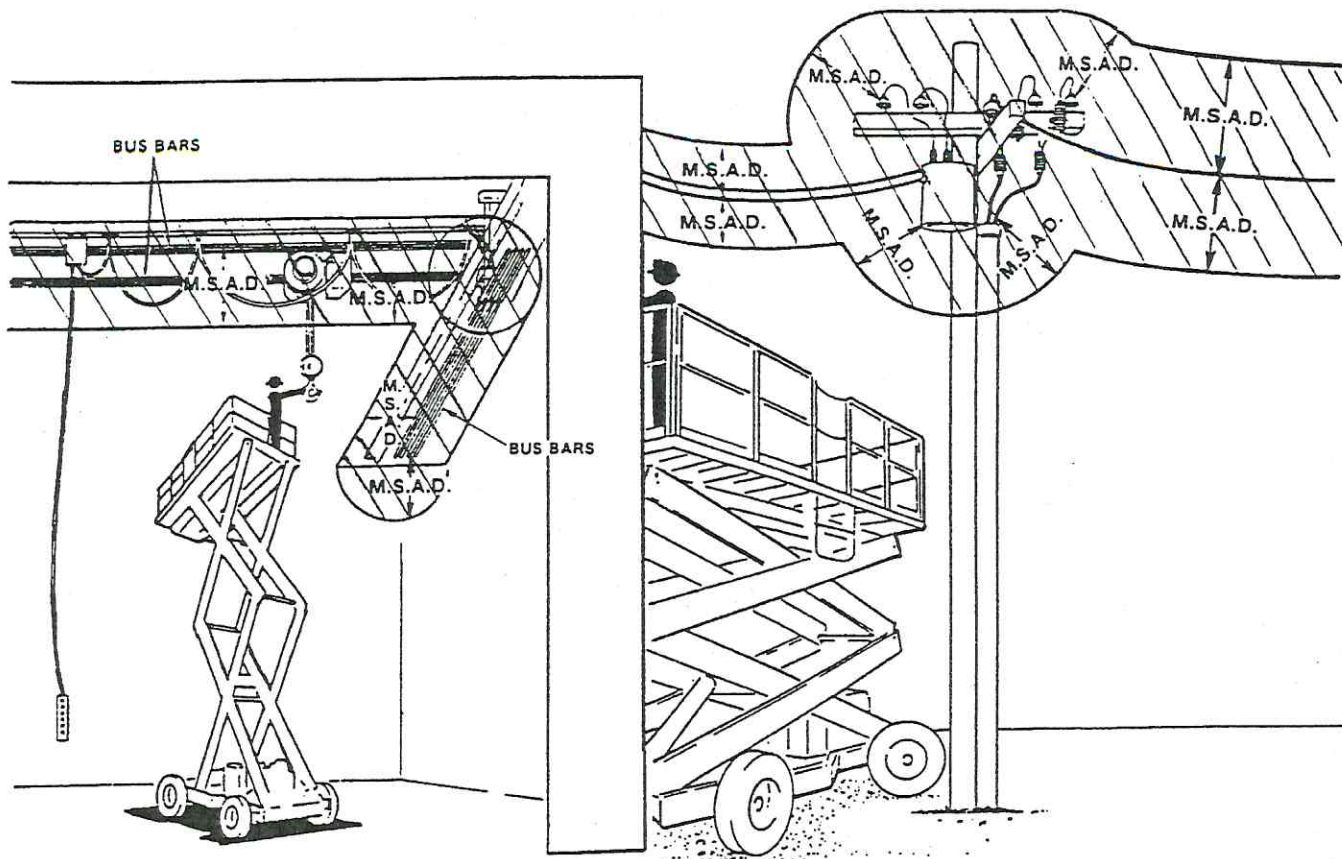
- (1) The location of the manuals.
- (2) The purpose and function of all controls.
- (3) Safety devices and operating characteristics specific to the aerial device.

## 11. Responsibilities of Renters, Lessors or Lessees

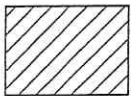
- 11.1 General Responsibilities.** Each renter or lessor or lessee shall comply with the requirements of the applicable section or sections below.
- 11.1.1 Lessor or Lessee as Dealer or Installer.** When a lessor or lessee uses the aerial device as a dealer or installer he shall have the same responsibilities as specified under Section 7 of this standard.
- 11.1.2 Lessor or Lessee as Owner.** When a lessor or lessee uses the aerial device as an owner he shall have the same responsibilities as specified under Section 8 of this standard.
- 11.1.3 Lessor or Lessee as User.** When a lessor or lessee uses the aerial device as a user he shall have the same responsibilities as specified under Section 9 of this standard.
- 11.1.4 Lessor or Lessee as Operator.** When a lessor or lessee uses the aerial device as an operator he shall have the same responsibilities as specified under Section 10 of this standard.
- 11.2 Ownership Duties.** The renter or lessor shall carry out the duties of ownership specified in this standard which are not assigned to the renting entity or lessee as the user.
- 11.3 Obligations.** Upon delivery each renter or lessor of an aerial device shall provide the operators manual and the ANSI/SIA A92.2-xxxx Manual of Responsibilities for dealers, owners, users, operators, lessors and lessees of Vehicle Mounted Elevating and Rotating Aerial Devices. These manuals shall be stored on the mobile unit.
- 11.4 Training.** The renter or lessor shall offer training or training materials that aid the renting entity or lessee in the operation, inspection, testing and maintenance of the aerial device. This training shall be offered initially and subsequently on request.
- 11.4.1 General training.** Only personnel who have received general instructions regarding the inspection, application and operation of aerial devices, including recognition and avoidance of hazards associated with their operation, shall operate an aerial device. Such items covered shall include, but not necessarily be limited to, the following issues and requirements:
- (1) The purpose and use of manuals.
  - (2) That operating manuals are an integral part of the aerial device and must be properly stored on the vehicle when not in use.
  - (3) A pre-start inspection.
  - (4) Responsibilities associated with problems or malfunctions affecting the operation of the aerial device.
  - (5) Factors affecting stability.
  - (6) The purpose of placards and decals.
  - (7) Workplace inspection.
  - (8) Applicable safety rules and regulations, such as Part 4, ANSI C2-1997, National Electrical Safety Code (applies to utility workers as defined in ANSI C2). The above standard is an example; other industries using aerial devices have safety rules pertinent to that industry.
  - (9) Authorization to operate.
  - (10) Operator warnings and instructions.
  - (11) Actual operation of the aerial device. Under the direction of a qualified person, the trainee shall operate the aerial device for a sufficient period of time to demonstrate proficiency in the actual operation of the aerial device.
  - (12) Proper use of personal fall protection equipment
- 11.4.2 Familiarization.** When an operator is directed to operate an aerial device he/she is not familiar with, the operator, prior to operating, shall be instructed regarding the following items and issues:
- (1) The location of the manuals.
  - (2) The purpose and function of all controls.
  - (3) Safety devices and operating characteristics specific to the aerial device.



**11.5 Communications.** In the event the manufacturer or installer provides the renter or lessor manuals, bulletins, or other materials for the information of the user of an aerial device, the renter or lessor shall pass them on to the user without any undue delay.



M.S.A.D. = Minimum Safe Approach Distance (See Table 6-1).



DENOTES PROHIBITED ZONE

**⚡ DANGER**

- Do not allow machine, personnel, or conductive materials inside prohibited zone.
- Maintain M.S.A.D. from all energized lines and parts as well as those shown.
- Assume all electrical parts and wires are energized unless known otherwise.

**⚠ CAUTION**

Diagrams shown are only for purposes of illustrating M.S.A.D. work positions, not all work positions.



**Table 6-1. Minimum Safe Approach Distance (M.S.A.D.) to energized  
(exposed or insulated) power lines and parts.**

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance	
	(Feet)	(Meters)
0 to 300V	Avoid Contact	
Over 300V to 50KV	10	3.05
Over 50KV to 200KV	15	4.60
Over 200KV to 350KV	20	6.10
Over 350KV to 500KV	25	7.62
Over 500KV to 750KV	35	10.67
Over 750KV to 1000KV	45	13.72









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