If there is a question about application and/or operation, contact:

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Original instructions written in English

The purpose of this Maintenance Manual is to provide qualified service personnel with information for servicing and maintaining Hy-Brid Lifts. All information in this manual must be read and understood before any attempt is made to service this machine.

The operation and safety manual is considered a part of the work platform and contains instructions and operating procedures essential to properly and safely operate the Custom Equipment Hy-Brid Lift. Users must read and understand all information in the Safety and Operations Manual before operation.

**DANGER**

THE OPERATION AND SAFETY MANUAL MUST BE READ AND UNDERSTOOD PRIOR TO OPERATING THE MACHINE.

- The user/operator should not accept operating responsibility until the manual has been read and understood as well as having operated the lift under supervision of an experienced and qualified operator.
- Because the manufacturer has no direct control over machine application and operation, proper safety practices are the responsibility of the user and all operating personnel.

**WARNING**

ANY MODIFICATION ON THIS MACHINE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE MANUFACTURER IS PROHIBITED.
# TABLE OF CONTENTS

NOTES........................................................................................................................................................................... 2  
FOREWORD ........................................................................................................................................................................ 3  
TABLE OF CONTENTS .............................................................................................................................................................. 4  
INDEX OF FIGURES .............................................................................................................................................................. 5  
SECTION 1 | SAFETY ........................................................................................................................................................................ 6  
  1.1 | SAFETY SYMBOLS ........................................................................................................................................................................ 6  
  1.2 | GENERAL RULES AND PRECAUTIONS ......................................................................................................................................... 6  
  1.3 | STABILITY TESTING ............................................................................................................................................................... 7  
  1.4 | SAFETY GUIDELINES ........................................................................................................................................................... 7  
SECTION 2 | MAINTENANCE .................................................................................................................................................................... 9  
  2.1 | BATTERY MAINTENANCE ......................................................................................................................................................... 9  
  2.2 | CHARGING THE BATTERY ......................................................................................................................................................... 9  
  2.3 | LUBRICATION ........................................................................................................................................................................ 11  
  2.4 | COMPONENTS REQUIRING ADJUSTMENT ............................................................................................................................. 11  
  2.5 | EXAMINATION, REPAIR, REPLACEMENT OF LIMITED LIFE COMPONENTS ....................................................................................... 11  
  2.6 | SAFETY DEVICES AND SYSTEMS REQUIRING CHECKS ........................................................................................................ 11  
  2.7 | STORAGE .............................................................................................................................................................................. 11  
  2.8 | MAJOR ALTERATIONS OR REPAIRS ........................................................................................................................................ 11  
SECTION 3 | MAINTENANCE CHECKLISTS .................................................................................................................................................. 12  
  3.1 | PRE-START INSPECTION CHECKLIST ....................................................................................................................................... 13  
  3.2 | FREQUENT INSPECTION CHECKLIST .................................................................................................................................... 14  
  3.3 | PRE-DELIVERY/ANNUAL INSPECTION CHECKLIST ................................................................................................................ 15  
SECTION 4 | TECHNICAL REFERENCES .................................................................................................................................................. 16  
  4.1 | HYDRAULIC SCHEMATIC .......................................................................................................................................................... 16  
  4.2 | ELECTRICAL SCHEMATIC ................................................................................................................................................... 18  
SECTION 5 | WIRING DIAGRAMS ............................................................................................................................................................ 20  
  5.1 | WIRING DIAGRAM .............................................................................................................................................................. 20  
  5.2 | WIRING DIAGRAM ........................................................................................................................................................... 22  
SECTION 6 | TROUBLESHOOTING FLOWCHARTS .................................................................................................................................................. 24  
  6.1 | TROUBLESHOOTING FLOWCHART: POWER ........................................................................................................................ 24  
  6.2 | TROUBLESHOOTING FLOWCHART: ELEVATING .................................................................................................................... 26  
  6.3 | TROUBLESHOOTING FLOWCHART: LOWERING ..................................................................................................................... 28  
SECTION 7 | PARTS DIAGRAMS ............................................................................................................................................................... 30  
  7.1 | SAFETY AND CONTROL DECALS ............................................................................................................................................ 30  
  7.2 | MAIN POWER/SAFETY CIRCUIT ............................................................................................................................................. 31  
  7.3 | ELEVATE/LOWER CIRCUIT .................................................................................................................................................... 32  
  7.4 | WHEELS/BRAKES .................................................................................................................................................................. 34  
  7.5 | COVERS/OTHER ............................................................................................................................................................ 35  
SECTION 8 | WARRANTY ......................................................................................................................................................................... 36
INDEX OF FIGURES

FIGURE 1: Equivalent Stability Test ........................................................................................................................................................7
FIGURE 2: Upper Control Removal ......................................................................................................................................................7
FIGURE 3: Maintenance Pin Lock Use .................................................................................................................................................8
FIGURE 4: Maintenance Pin Lock Storage ............................................................................................................................................8
FIGURE 5: Battery Charger LED Display ............................................................................................................................................10
SECTION 1 | SAFETY

1.1 | SAFETY SYMBOLS

**DANGER**

FAILURE TO FOLLOW THIS WARNING WILL CAUSE DEATH OR PERSONAL INJURY.

“DANGER” indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

**WARNING**

FAILURE TO FOLLOW THIS WARNING MAY CAUSE DEATH OR PERSONAL INJURY.

“WARNING” indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

**CAUTION**

FAILURE TO FOLLOW THIS WARNING MAY CAUSE INJURY OR DAMAGE TO EQUIPMENT.

“CAUTION” indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury or damage to equipment.

1.2 | GENERAL RULES AND PRECAUTIONS

An operator of any type of work platform is subject to certain hazards that cannot be protected by mechanical means. It is therefore essential that operators be competent, careful, physically and mentally fit and thoroughly trained in safe operation of this machine.

Although Custom Equipment, LLC conforms to specified EN: 280, it is the responsibility of the owner to instruct operators with the safety requirements made not only by Custom Equipment, LLC, but by the various safety boards in your area, as well as additional requirements set forth by EN: 280. If you come across a situation that you think might be unsafe, stop the platform and request further information from qualified sources before proceeding.

**WARNING**

MAINTENANCE INFORMATION IS FOR USE BY TRAINED PERSONNEL ONLY

**WARNING**

NEVER REACH BETWEEN SCISSORS LINKS OR PROP UP PLATFORM UNLESS MAINTENANCE PINS ARE IN PLACE.
1.3 | STABILITY TESTING

The HB-P3.6 has been stability tested to standards EN280 or AS 14180. The most adverse stability test is the stationary, lateral slope configuration for both units. The overturning moment created by the test loads and forces is equivalent to a test on an unloaded machine on a level surface, as shown in the figure below. For the HB-P3.6, the test weight/pull force is 22.8 kg / 50 lb.

![FIGURE 1: Equivalent Stability Test](image)

1.4 | SAFETY GUIDELINES

Removing Platform Control
For maintenance, the upper control panel will need to be unscrewed and removed in order to operate from ground level. Elevate the platform to set the maintenance lock in place.

![FIGURE 2: Upper Control Removal](image)
Maintenance Lock
The maintenance lock must be placed into position whenever the machine is being serviced in the raised or partially raised position. Serious injury and/or death could result if maintenance lock is not used properly.

![FIGURE 3: Maintenance Pin Lock Use](image1)
![FIGURE 4: Maintenance Pin Lock Storage](image2)

**WARNING**

FAILURE TO COMPLY WITH THE LISTED SAFETY PRECAUTIONS MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY, OR DEATH.

Other Guidelines
- Never work under an elevated platform until maintenance locks have been engaged.
- Remove all rings, watches, and jewelry when performing any maintenance.
- Do not wear long hair unrestrained or loose fitting clothing and neckties which may become caught on or entangled in equipment.
- Observe and obey all warnings and cautions on machine and in manual.
- Keep oil, grease, water, etc. wiped from standing surfaces and handholds.
- Before making any adjustments, lubricating or performing any other maintenance, shut off all power controls.
- Battery should always be disconnected during replacement of electrical components.
- Keep all support equipment and attachments stowed in their proper place.
- Use only approved nonflammable cleaning solvents.
- After maintenance, inspect the machine as described for Pre-delivery.
2.1 | BATTERY MAINTENANCE

Battery cycle life will vary significantly depending on the depth of discharge. The deeper the depth of discharge the fewer cycles a battery will deliver. Conversely, the shallower the depth of discharge the more cycles a battery will deliver. To optimize the health of your battery, limit discharge to 80%.

The performance and life of a battery will vary with application, usage, temperature and depth of discharge. AGM batteries tend to deliver higher than their rated capacity (up to 10-15% higher) for -30 cycles until they are “broken in” and settle at their rated capacity.

Operating batteries above 27°C will yield run times above the rated capacity and operating batteries below 27°C will yield run times below the rated capacity. Cold temperatures can significantly reduce battery capacity. Although higher temperatures increase the battery capacity they also accelerate corrosion and reduce overall battery life.

2.2 | CHARGING THE BATTERY

This unit is equipped with a deep cycle 12-volt AGM maintenance-free battery

Batteries should be fully charged after each use. Opportunity charging can be done but the batteries should be fully charged at least every other day if they are used daily. Charge in a ventilated area as gases may be released through the pressure relief valve if the batteries are excessively over-charged.

NOTE: The surrounding temperature greatly affects the power reserve within a battery.

EXAMPLE: A battery that is 100% charged at 27°C drops to 65% at 0°C At -18°C, this battery will drop to 40% efficiency.

BATTERIES GENERATE EXPLOSIVE GASES. KEEP SPARKS AND FLAME AWAY FROM BATTERIES. DO NOT SMOKE WHILE CHARGING.

To Charge:
• Park the machine on a level surface.
• Plug charger into AC outlet until charged.
• For best battery life, leave charger plugged in until machine will be used again. The charger will maintain the battery charge

DO NOT OPERATE UNIT WHILE CHARGING. DO NOT DISABLE CHARGER INTERLOCK.
How to read the battery displays

This display indicates that the power is on but there is no connection to a battery. The charger must see approximately five (5) volts on a battery to deliver D/C current.

This display indicates that power is on and that both outputs are delivering D/C current to the batteries.

This display indicates that power is on and that both outputs are finished charging and are in a float maintenance mode.
2.3 | LUBRICATION

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
<th>Frequency of Lubrication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheels</td>
<td>Teflon Spray</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

2.4 | COMPONENTS REQUIRING ADJUSTMENT

Under normal use, no components should require adjustment. Contact the manufacturer if adjustments are required.

2.5 | EXAMINATION, REPAIR, REPLACEMENT OF LIMITED LIFE COMPONENTS

With proper use, regular battery charging, and regular inspection, there are no limited life components that require routine replacement.

2.6 | SAFETY DEVICES AND SYSTEMS REQUIRING CHECKS

Check safety functions as part of daily inspection. Check that the brakes are holding.

2.7 | STORAGE

After periods of storage, exposure to extremes of ambient conditions—heat, cold, moisture, dust etc. inspect the machine. Batteries will need to be charged. Refer to the Pre-Delivery/ Frequent Inspection Checklist in the Maintenance Manual.

2.8 | MAJOR ALTERATIONS OR REPAIRS

Any alterations must be approved by the manufacturer. Major repairs, which affect the stability, strength, or performance of the machine must also be approved by the manufacturer, recorded, and include machine inspection and testing. Never attach pipe racks, material lifting devices, or make any other alteration that is not part of the intended design of the machine.
Regular inspection and conscientious maintenance is important to efficient economical operation of this machine. It will help to assure that equipment will perform satisfactorily with a minimum of service and repair. Make checks at the stated intervals or more frequently if required by local operating conditions. The following inspection checklists are included in this manual:

- Pre-Start (required before operation at each work shift)
- Frequent
- Pre-Delivery/Annual (Required at intervals not more than twelve months)

The rated life of the machine is Light Intermittent Duty (typical use 10 years, 40 weeks per year, 20 hours per week, 5 load cycles per hour).
### 3.1 | PRE-START INSPECTION CHECKLIST

#### WARNING

THIS CHECKLIST MUST BE USED AT THE BEGINNING OF EACH SHIFT OR AFTER EVERY SIX TO EIGHT HOURS OF USE. FAILURE TO DO SO COULD AFFECT THE SAFETY OF THE OPERATOR.

MODEL NUMBER: __________________ SERIAL NUMBER: __________________

Keep inspection records up-to-date. Record and report all discrepancies to your supervisor. A dirty machine cannot be properly inspected.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Y</th>
<th>N</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISUAL INSPECTIONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are no loose or missing parts.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Check that warning and instructional labels are legible and secure. Ensure that load capacity is clearly marked.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Check the platform rails and safety gate for damage.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Platform and base controls are not missing, damaged, or disconnected.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Electrical cables and wires are not torn, frayed, or disconnected.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Hydraulic hoses are not torn or loose; there are no leaks; hoses and the cables have no worn areas or chafing.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Check the tires for damage. Check that wheel axle retaining rings and set screw in rear wheel are tight.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Check that all snap rings are secure in grooves on pivot pins.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Functional Tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gate closes automatically and latches (alignment can be adjusted with screw on toe board or railing if necessary).</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Platform Controls: Check all switches and push buttons for proper operation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Stop (Stops all movement)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Drive &amp; Up/Down Mode Switch (Selects drive/steer or elevate mode)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Joystick (Return to neutral, drives forward &amp; reverse, elevates &amp; lowers)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Drive Enable Trigger (Must be activated to drive)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Base Controls: Check all switches and push buttons for proper operation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Stop (Stops all movement)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Key Switch (Selects Platform Control, Ground Control, or Off)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Up/Down Rocker Switch (Elevates, Lowers)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Alarm (Not damaged, sounds for descent, tile)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Wheels: Front and rear wheels rotate freely.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Brakes: Machine stops when joystick released.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pothole guards deploy and lock when platform is elevated.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Lift does not elevate when pothole guards are blocked.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Date: __________________ Inspected By: __________________
AERIAL PLATFORMS SHALL BE INSPECTED, SERVICED AND ADJUSTED TO MANUFACTURER’S REQUIREMENTS BY A QUALIFIED MECHANIC PRIOR TO EACH SALE, LEASE, OR RENTAL, AND EVERY 3 MONTHS OR 150 HOURS, WHICHEVER COMES FIRST

MODEL NUMBER: __________ SERIAL NUMBER: ________________________________

Check each item listed below
Use proper operating, service, and maintenance manual for specific information and settings
If an item is found to be unacceptable, make the necessary repairs and check the “repaired” box.
When all items are “acceptable” the unit is ready for service

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Y</th>
<th>N</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISUAL INSPECTIONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform all the checks on the Pre-Start Inspection Checklist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect the condition of hydraulic fluid in reservoir. Oil should have a clear amber color.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect the entire machine for signs of damage, broken welds, loose bolts, or improper repairs. (Check for corrosion, cracking, abrasion, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check that all snap rings are secure in grooves on pivot pins.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check if tires are leaning in or out</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verify that bubble level is in place</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FUNCTIONAL TESTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functions operate smoothly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functions operate over full range of motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency lowering - Manual override functions properly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check that the platform does not drift down with a full load</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheels lubricated if needed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date: ___________________________ Inspected By: ____________________________

HY-BRID LIFTS

MAINTENANCE & TROUBLESHOOTING
HB-P3.6
### 3.3 | PRE-DELIVERY/ANNUAL INSPECTION CHECKLIST

**WARNING**

THIS CHECKLIST MUST BE USED MONTHLY OR AFTER EVERY 100 HOURS OF USE. FAILURE TO DO SO COULD AFFECT THE SAFETY OF THE OPERATOR.

#### MODEL NUMBER: __________  SERIAL NUMBER: ________________________________

Keep inspection records up-to-date.

Record and report all discrepancies to your supervisor.

A dirty machine cannot be properly inspected.

<table>
<thead>
<tr>
<th>Y — Yes/Acceptable</th>
<th>N — No/Unacceptable</th>
<th>R — Repaired</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BASE:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inspect Slide Tracks For Damage</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>All Frame Bolts Tight</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Pump Secure</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>DC Motor Secure</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Battery Hold Down Secure</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Batteries Fully Charge</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Counterweights Secured</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Wheels: Grease Casters</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Wheels: Bolts/Nuts Tight</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Maintenance Locks</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>All Shields/Guards In Place</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Oil Level</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Check All Hydraulic Hoses For Leaks</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Check All Hydraulic Fittings For Leaks</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td><strong>SCISSORS:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Broken Welds</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Ret. Rings Secure Pivots</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>No Bent Beam Members</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>All Rollers Turn Freely</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td><strong>DECALS:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legibility</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Correct Capacity Noted</td>
<td>□</td>
<td></td>
</tr>
<tr>
<td>Proper Placement/Quantity</td>
<td>□</td>
<td></td>
</tr>
</tbody>
</table>

Comments:

*If Installed

Date: ___________________________  Inspected By: ___________________________

---

**MAINTENANCE & TROUBLESHOOTING**

HB-P3.6

---

**HY-BRID LIFTS**

SUPO-643E  REV F
4.1 | HYDRAULIC SCHEMATIC
SECTION 4 | TECHNICAL REFERENCES

MAINTENANCE & TROUBLESHOOTING
HB-P3.6
SUPO-643E
REV F

REVISIONS

<table>
<thead>
<tr>
<th>REV</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>INITIAL RELEASE</td>
<td>04/30/2013</td>
<td>DJS</td>
</tr>
</tbody>
</table>

HY-BRID LIFTS
6.1 | TROUBLESHOOTING FLOWCHART: POWER
Troubleshooting Step 1: Main Power
Rev. B

Does the machine function: (Elevate/Lower) → No

Is the battery charger plugged in? → No

Is the master power switch off? → No

Unplug the charger. Machine should not be operated while battery is charging.

Is the battery connected? → Yes

Is the battery filled with water and fully charged? → Yes

See Wiring Diagram WD-143-20-001-51

Connect battery.

Is the master power switch off? → Yes

Turn master power switch on.

Is short protection fuse blown? → No

Replace with 20 Amp AGC Fuse.

Yes

See SD-Battery-01

Contact Hy-Brid Lifts with questions about a different problem

WARNING
Any modification on this machine without the express consent of the manufacturer is prohibited.

WARNING
Failure to comply with safety precautions may result in damage, injury, or death.

Refer to Maintenance Manual for complete warnings

See also Main Power & Safety Circuit
Wiring Diagram: WD-143-20-001-51
Or Schematic: WS-143-20-001-51

Check wiring connections to identify a power supply problem.

See Electrical Schematic WS-143-20-001-51
Or Pictorial Schematic WSP-143-20-001-51
And Instruction Circuit Check HB-P3.6 Power

See also Main Power & Safety Circuit Wiring Diagram: WD-143-20-001-51
Or Schematic: WS-143-20-001-51
WARNING
Failure to comply with safety precautions may result in damage, injury, or death. Refer to Maintenance Manual for complete warnings.

Troubleshooting Flowcharts--General Notes:
Inspect parts for visible damage as they are encountered. After each step, check if problem has been indentified and/or resolved. If so, make the recommended fix or see a referenced document. If not, continue troubleshooting. If a part has been identified as needing replacement, see the Parts View to identify part number to order. If any wiring or components have been altered from the original manufacture, problems may not be identifiable.

Is E-Stop Button depressed/activated:
- Yes
  - Reset E-Stop button. Pull out at both upper control and lower control locations.
- No
  - Machine is Down
    - See Elevating Problems Flowchart
  - Machine is Up
    - See Lowering Problems Flowchart

Check wiring connections to identify a power supply problem.
- See Electrical Schematic WS-143-20-001-51
- Or Pictorial Schematic WSP-143-20-001-51
- And Instruction Circuit Check-HB-P3.6-Power

Are all power supply connections and switches functioning properly?
- Yes
  - Repair or Replace identified problem.
- No
  - Visually inspect wire harness from lower controls to upper. Is there damage?
    - Yes
      - Replace wire harness or repair wire
    - No
      - Repair or Replace identified problem.

Machine should not be operated while battery is charging.

Reset E-Stop button. Pull out at both upper control and lower control locations.
6.2 | TROUBLESHOOTING FLOWCHART: ELEVATING

Troubleshooting Step 2A: Elevating

**WARNING:** Set up for maintenance safety:
- Remove load from platform.
- Check for overhead obstructions.
- Platform movement may occur.
- Never Reach between scissors links or prop up platform unless maintenance pins are in place.

### Troubleshooting Flowchart: Elevating

- **Does machine elevate?**
  - Yes (but not properly)
  - No
- **Does the pump run?**
  - Yes
  - Remove obstruction
  - No
- **Is the emergency down valve open?**
  - Yes
  - Close emergency down valve
  - No
- **Check wiring connections in elevate components.**
  - See Electrical Schematic WS-143-20-001-51
  - Or Pictorial Schematic WSP-143-20-001-51
  - And instruction Circuit Check-HB-P3.6-Elevate
- **Are power connections to elevate circuit and switches functioning properly?**
  - Yes
  - Replace or repair identified problem. See Parts List.
  - No
- **Replace damaged switch at upper control.**
- **With platform lowered, fill pump reservoir with at least 1.25 liters of oil.**
- **Flush down valve by simultaneously pressing up switch and pulling e-down cable control for 30 sec.**
  - There may be foreign matter lodged.
- **Replace pump assembly.**
  - May be worn or defective.
- **Is armguard limit switch damaged?**
  - Yes
  - Replace limit switch.
  - No
- **Is armguard limit switch damaged?**
  - Yes
  - Replace limit switch.
  - No
- **Is platform overloaded?**
  - Yes
  - Remove overload. Lower to stowed position before continuing use.
  - No
- **Is platform overloaded?**
  - Yes
  - Remove overload. Lower to stowed position before continuing use.
  - No
- **Ascent speed slow or erratic?**
  - Yes
  - Are any structural members bent?
  - Yes
  - Contact manufacturer to arrange replacement.
  - No
  - No
- **Is platform overloaded?**
  - Yes
  - Remove overload. Lower to stowed position before continuing use.
  - No
- **Is battery fully charged?**
  - Yes
  - Charge battery. See SD-Battery-01
  - No
- **Is there a restriction in hydraulic hose?**
  - Yes
  - Replace hydraulic hose.
  - No
Troubleshooting Flowcharts--General Notes:
Inspect parts for visible damage as they are encountered.
After each step, check if problem has been indentified and/or resolved.
If so, make the recommended fix or see a referenced document.
If not, continue troubleshooting.
If a part has been identified as needing replacement, see the Parts View To identify part number to order.
If any wiring or components have been altered from the original manufacture, problems may not be identifiable.

WARNING
Any modification on this machine without the express consent of the manufacturer is prohibited.

WARNING
Failure to comply with safety precautions may result in damage, injury, or death. Refer to Maintenance Manual for complete warnings

Is up/down switch damaged?
No
Yes
Replace damaged switch at upper control.

Is Overload Enable Limit Switch damaged?
No
Yes
Replace OL Enable LS

Is hydraulic fluid low?
No
Yes
With platform lowered, fill pump reservoir with at least 1.25 liters of oil.

Time and parts available?
No
Yes
Replace Pump Assembly

Check wiring connections in elevate components. See Electrical Schematic WS-143-20-001-51 Or Pictorial Schematic WSP-143-20-001-51 And instruction Circuit Check-HB-P3.6- Elevate

Are power connections to elevate circuit and switches functioning properly?
No
Yes
Replace or repair identified problem. See Parts List.

Flush down valve by simultaneously pressing up switch and pulling e-down cable control for 30 sec. There may be foreign matter lodged.

Replace pump assembly. May be worn or defective.

Level of skill with hydraulic maintenance?
Experienced with hydraulic systems
Not experienced with hydraulics

Check Hydraulic Circuit. (Additional tools and higher level of skill required) See Hydraulic Schematic HS-HB-P3.6

Contact Hy-Brig Lifts

Reference Revision B
Does machine lower?

- Yes, but not properly
  - Starts descending, then stops?
    - No
    - Descent speed slow or erratic?
      - Yes
        - Are maintenance lock, pins in place?
          - Yes
            - Are any structural members bent?
              - Yes
                - Replace limit switch
              - No
                - Contact manufacturer to arrange replacement.
          - No
            - Creeps down? Or Goes up and Comes Back Down?
              - Yes
                - Is emergency down valve open?
                  - Yes
                    - Flush down valve by simultaneously pressing up switch and pulling e-down cable control for 30 sec.
                  - No
                    - Close emergency down valve. Check cable connections.
              - No
                - Is emergency down valve open?
                  - Yes
                    - Replace emergency down valve. Check cable connections.
                  - No
                    - Yes
                    - Replace hydraulic hose
                    - No
                      - Yes
                        - Replace down valve. Might be able to repair with seal kit, probably need to replace cylinder. If walls inside cylinder are scratched or pitted, cylinder needs replacement.
                      - No
                        - Yes
                          - Replace pump.
                          - No
                            - No
                              - Yes or Don’t know
                                - Replace down valve. Might be able to repair with seal kit, probably need to replace cylinder. If walls inside cylinder are scratched or pitted, cylinder needs replacement.

WARNING: Set up for maintenance safety:
- Remove load from platform.
- Check for overhead obstructions. Platform movement may occur.
- Never Reach between scissors links or prop up platform unless maintenance pins are in place.

See also:
- Wiring Diagram WD-143-20-001-51 or Schematic: WS-143-20-001-51
- Hydraulic Schematic HS-HB-P3.6 Or Pictorial Hydraulic Circuit HSP-HB-P3.6

Check wiring connections in lowering components.
See Electrical Schematic WS-143-20-001-51 Or Pictorial Schematic WSP-143-20-001-51 And instruction Circuit Check-HB-P3.6-Elevate

WARNING:
- Double check that maintenance pins are in place
- Set up for maintenance safety: Remove load from platform.
- Check for overhead obstructions. Platform movement may occur.
- Never Reach between scissors links or prop up platform unless maintenance pins are in place.

WARNING:
- Double check that maintenance pins are in place
- Set up for maintenance safety: Remove load from platform.
- Check for overhead obstructions. Platform movement may occur.
- Never Reach between scissors links or prop up platform unless maintenance pins are in place.
Troubleshooting Flowcharts--General Notes:
Inspect parts for visible damage as they are encountered.
After each step, check if problem has been indentified and/or resolved.
If so, make the recommended fix or see a referenced document.
If not, continue troubleshooting.
If a part has been identified as needing replacement, see the Parts View
To identify part number to order.
If any wiring or components have been altered from the original
manufacture, problems may not be identifiable.

WARNING
Any modification on this machine without
the express consent of the manufacturer
is prohibited.

WARNING
Failure to comply with safety precautions
may result in damage, injury, or death.
Refer to Maintenance Manual for
complete warnings.
Listed in the following section are diagrams for parts that may be available for replacement and for reference. These represent current model revisions. Refer to our website, www.hybridlifts.com for more complete part listings and earlier revisions. Several parts are model-, serial number-, or manufacture date-specific. Contact your dealer for replacement part availability and pricing.

7.1 | SAFETY AND CONTROL DECALS

Refer to the Hy-Brid Lifts Operation and Safety Manual for decal part numbers and locations.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Part Number</th>
<th>Description</th>
<th>Qty.</th>
<th>Um</th>
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<tbody>
<tr>
<td>1</td>
<td>143-21-006-51</td>
<td>DECALS, HB-P3.6</td>
<td>1</td>
<td>EA</td>
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<tr>
<td>1.1</td>
<td>DE727</td>
<td>DECAL, KEEP</td>
<td>2</td>
<td>EA</td>
</tr>
<tr>
<td>1.2</td>
<td>DE728</td>
<td>DECAL, CLEAR</td>
<td>2</td>
<td>EA</td>
</tr>
<tr>
<td>1.3</td>
<td>DE600E-14</td>
<td>DECAL, MAINT LOCK(SYMBOLS)</td>
<td>1</td>
<td>EA</td>
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<td>1.4</td>
<td>DE600E-24F</td>
<td>DECAL, WHEEL LOAD HB-P3.6</td>
<td>4</td>
<td>EA</td>
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<td>DE751</td>
<td>DECAL, E-DOWN CABLE</td>
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<td>EA</td>
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<td>1.6</td>
<td>DE601</td>
<td>DECAL, LOGO HY-BRID</td>
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<tr>
<td>1.7</td>
<td>DE603-5</td>
<td>MODEL#, DECAL-HB-P3.6</td>
<td>2</td>
<td>EA</td>
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<tr>
<td>1.8</td>
<td>DE746</td>
<td>DECAL, LANYARD ATTACHMENT</td>
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<td>EA</td>
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<td>1.9</td>
<td>DE666</td>
<td>DECAL, LWR</td>
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<td>DE675</td>
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<td>DE706</td>
<td>DECAL, UPR HB, ZTR, MID</td>
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<td>EA</td>
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<td>1.14</td>
<td>DE726</td>
<td>DECAL, CAPACITY, 500#, 1P, WO/So</td>
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<td>DE669</td>
<td>DECAL, CTL UPR</td>
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<td>3</td>
<td>N/A</td>
<td>SERIAL NUMBER LOCATION</td>
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<td>4</td>
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## 7.2 | MAIN POWER/SAFETY CIRCUIT

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<th>Item #</th>
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<th>Description</th>
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<tr>
<td>1</td>
<td>ELEC-047-6</td>
<td>Not available as a replacement part. Replace battery with 12V, Group 24 AGM Battery. Replacement weight must be minimum 22.7 kg (50 lb).</td>
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<tr>
<td>2</td>
<td>HARD-684</td>
<td>Battery Strap</td>
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<tr>
<td>3</td>
<td>ELEC-633-2</td>
<td>Master Power Switch with Key</td>
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<tr>
<td></td>
<td>ELEC-663-3</td>
<td>Spare Key</td>
</tr>
<tr>
<td>4</td>
<td>ELEC-746</td>
<td>Battery Charger</td>
</tr>
<tr>
<td>5</td>
<td>ELEC-639-6</td>
<td>Charger Cord (bare wire/IEC-320 C-13)</td>
</tr>
<tr>
<td>6</td>
<td>ELEC-071-KIT</td>
<td>Emergency Stop Button with Contact Block</td>
</tr>
<tr>
<td>7</td>
<td>143-21-004-51</td>
<td>Upper Control Assembly</td>
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<tr>
<td>8</td>
<td>N/A</td>
<td>B+ Power Connection Location on Pump</td>
</tr>
<tr>
<td>9</td>
<td>N/A</td>
<td>B- “Ground” Connection Location on Pump</td>
</tr>
<tr>
<td>NOT PICTURED</td>
<td>143-01-025-50</td>
<td>Battery Cables</td>
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<tr>
<td></td>
<td>143-01-025-51</td>
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<tr>
<td></td>
<td>ELEC-641-002</td>
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<tr>
<td>NOT PICTURED</td>
<td>ELEC-670-2</td>
<td>20A AGC Fuse</td>
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7.3 | ELEVATE/LOWE R CIRCUIT
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<th>Item #</th>
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<tbody>
<tr>
<td>1</td>
<td>HYDR-002</td>
<td>Hydraulic Pump</td>
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<td>2</td>
<td>HYDR-019</td>
<td>Hydraulic Fitting</td>
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<td></td>
<td>HYDR-022-3</td>
<td>Low Pressure Hydraulic Line</td>
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<td></td>
<td>HYDR-681</td>
<td>Hydraulic Grommet</td>
</tr>
<tr>
<td>3</td>
<td>HYDR-032</td>
<td>Hydraulic Fluid: Not available as a replacement part. Replace with Flomite #150, Dexron II, Mobil-DTE 2, or equivalent.</td>
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<tr>
<td>4</td>
<td>HYDR-035</td>
<td>Hydraulic Fitting</td>
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<td>HYDR-600-9</td>
<td>Hydraulic Line</td>
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<td>6</td>
<td>HYDR-604</td>
<td>Hydraulic Fitting</td>
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<td>7</td>
<td>143-07-005-02</td>
<td>Spacer</td>
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<td>8</td>
<td>HYDR-050-8</td>
<td>Hydraulic Pump</td>
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<td>9</td>
<td>HYDR-673</td>
<td>Up Valve Coil</td>
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<td></td>
<td>HYDR-665</td>
<td>Up Valve</td>
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<tr>
<td>10</td>
<td>HYDR-674</td>
<td>Start Solenoid (12V)</td>
</tr>
<tr>
<td>11</td>
<td>HYDR-673</td>
<td>Down Valve Coil (12V)</td>
</tr>
<tr>
<td></td>
<td>HYDR-007-2E-5</td>
<td>Down Valve</td>
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<td>12</td>
<td>WHEE-605-P</td>
<td>Shaft Spacer</td>
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<td>13</td>
<td>LAS-M115</td>
<td>Emergency Down Lever</td>
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<tr>
<td>14</td>
<td>HARD-650</td>
<td>1/16 Shaft Collar</td>
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<tr>
<td>15</td>
<td>ELEC-123-5</td>
<td>Armguard / Overload Switch</td>
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<tr>
<td>16</td>
<td>ELEC-602-KIT</td>
<td>Enable Button</td>
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<tr>
<td>17</td>
<td>ELEC-636</td>
<td>Overload Indicator Light</td>
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<tr>
<td>18</td>
<td>ELEC-635</td>
<td>Descent / Overload Alarm</td>
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<tr>
<td>19</td>
<td>ELEC-002A-KIT</td>
<td>Up / Down Rotary Switch</td>
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<tr>
<td>20</td>
<td>143-01-023-02</td>
<td>Maintenance Lock Check</td>
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<tr>
<td>21</td>
<td>HARD-644-03</td>
<td>Emergency Down Cable</td>
</tr>
<tr>
<td></td>
<td>ELEC-632</td>
<td>Time Delay Relay</td>
</tr>
<tr>
<td></td>
<td>HARD-021</td>
<td>Retaining Ring, 2.54 cm</td>
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### 7.4 | WHEELS/BRAKES

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<tbody>
<tr>
<td>1</td>
<td>143-21-008-50-K</td>
<td>Rigid Caster Assembly</td>
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<td>2</td>
<td>143-21-009-50-K</td>
<td>Swivel Caster Assembly</td>
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<tr>
<td>3</td>
<td>WHEE-706-KIT</td>
<td>Wheel 20.32 cm (8&quot;)</td>
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<td>WHEE-002-1</td>
<td>Bearing Kit</td>
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<td>WHEE-002-2</td>
<td>Axle Kit</td>
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<tr>
<td>4</td>
<td>HARD-690</td>
<td>Spring</td>
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<td>5</td>
<td>143-01-023-02</td>
<td>Brake Actuator</td>
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<td>6</td>
<td>143-01-026-02</td>
<td>Brake Cam</td>
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### 7.5 | COVERS/OTHER

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<tr>
<td>1</td>
<td>MISC-031-05-KIT</td>
<td>ANTI-SLIP TAPE, 4.00, 37.50 LENG</td>
</tr>
<tr>
<td>2</td>
<td>MISC-031-06-KIT</td>
<td>ANTI-SLIP TAPE, 4.00, 16.00 LENG</td>
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<td>3</td>
<td>143-05-001-01</td>
<td>COVER, SIDE (BATT.)</td>
</tr>
<tr>
<td>4</td>
<td>HARD-086</td>
<td>LEVEL, BUBBLE</td>
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<tr>
<td>5</td>
<td>1000307601</td>
<td>RAIL, GATE LATCH</td>
</tr>
<tr>
<td>6</td>
<td>143-05-003-01</td>
<td>COVER, PUMP</td>
</tr>
</tbody>
</table>
LIMITED PRODUCT WARRANTY
Warranty Statement — International

LIMITED WARRANTIES
Subject to the terms, conditions and limitations set forth herein, Custom Equipment, LLC (“The Company”) warrants to the first end-user (“Buyer”) that:

1. Limited Product Warranty
   for a period of 24 months from the date that a new product manufactured by the Company (“Product”) is delivered to Buyer, the Product will (i) conform to the specifications published by the Company for such Product as of the date of delivery; and (ii) be free of any defect in material and/or workmanship under normal use and maintenance; and

2. Extended Structural and Chassis Warranty
   For period of 60 months from the date that the Product is delivered to the buyer, the chassis and other structural components of such Product will be free from defects in material and/or workmanship under normal use and maintenance.

EXCLUSIONS/WHAT IS NOT COVERED
The following items are NOT covered under this Limited Warranty:
• Defects in, and damages or loss relating to, any batteries incorporated by the Company into or made a part of the Product. Any such defects, damage or loss shall be exclusively covered by the battery manufacturer’s warranty, if any. For more information regarding the battery warranty, the Buyer should contact the battery manufacturer using the contact information shown on the battery;
• Damage or loss resulting from or caused by carrier handling;
• Damage or loss resulting from or caused by normal wear and tear, weathering, lack of use or use with incompatible equipment or software;
• Damage resulting from or caused by improper maintenance, improper handling or storage, improper use, abuse, neglect, operation beyond rated capacity, or operation after discovery of defective or worn parts;
• Any part, component or assembly altered or modified in any way not approved in writing by the Company; and
• Acts of God, accidents or any other causes beyond the Company’s reasonable control.

MAKING A WARRANTY CLAIM
As a prerequisite to making any claim under this Limited Warranty, Buyer must give the Company written notice of any suspected defect promptly after discovery. Such notice shall specifically identify the suspected defect, the original delivery date and complete Buyer identification and location information. The Company will not accept any Product for warranty service without receiving Buyer’s written notice and issuing a return goods authorization. Buyer shall retain all defective Products or parts, components or assemblies thereof for a minimum period of six (6) months. If requested by the Company, Buyer shall return the defective Product, or parts, components or assemblies thereof, to the Company, F.O.B, Company’s designated location. All returned Products or parts, components or assemblies thereof that are replaced under this Limited Warranty shall become the property of the Company. The Company reserves the right to review Buyer’s maintenance and operation records and procedures to determine if the alleged defect(s) were due to any of the items listed in Sections 2 of this Limited Warranty. The Company shall not be liable for any claim under this Limited Warranty if Buyer fails to satisfy the conditions set forth in this Section.

EXCLUSIVE REPAIR OR REPLACE WARRANTY REMEDY
The Company’s sole obligation and Buyer’s exclusive remedy with respect to any defect in the Product occurring during the warranty periods set forth in Section 1 of this Limited Warranty shall be for the Company, at its option, to repair or replace (or have one of its designated authorized dealers repair or replace) the Product or part, component or assembly thereof that contains a defect in materials or workmanship. The Company reserves the right, at its discretion, to use new, remanufactured or refurbished replacement parts. Notwithstanding anything in this Limited Warranty to the contrary, the Company shall not be obligated to replace the entire Product if a covered defect can be remedied by the repair or replacement of a defective part, component or assembly. The Company shall be responsible for the cost of all parts necessary to remedy such defect. Buyer shall be responsible for payment of any
costs or fees due to the authorized dealer to perform any warranty service.

DISCLAIMER OF OTHER EXPRESS AND IMPLIED WARRANTIES
Except for the limited warranties set forth in section 1 above, the Company makes no other representations or warranties and hereby disclaims all express or implied representations or warranties regarding the product including, without limitation, any merchantability, non-infringement of proprietary or third-party rights or fitness of particular purpose. There are no warranties which extend beyond the description on the face hereof. No employee or representative of the Company or any of its authorized dealers is authorized to modify any term, condition or limitation in this Limited Warranty unless such modification is made in writing and signed by an officer of the Company.

LIMITATION OF LIABILITY
Notwithstanding anything in this warranty to the contrary, in no event shall the company OR any of its affiliates or subsidiaries be liable to buyer for any indirect special, exemplary, punitive or consequential damages (including lost profits, lost revenue, down time, loss of business opportunity or other economic losses), whether in an action or contract or tort (including negligence and strict liability) or otherwise, even if the company has been specifically advised of the possibilities of such damages.