

HY-BRID LIFTS™

BY CUSTOM EQUIPMENT LLC

MAINTENANCE & TROUBLESHOOTING MANUAL
PUSH-AROUND AERIAL WORK PLATFORM

SUPO-643E
REV F



HB-P3.6

SERIES I

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

1.1 | SAFETY SYMBOLS



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.



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



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.



MAINTENANCE INFORMATION IS FOR USE BY TRAINED PERSONNEL ONLY



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.

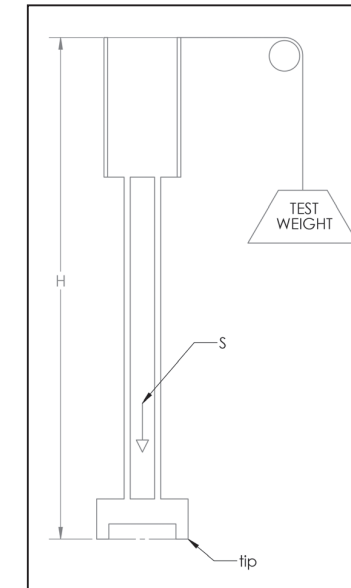


FIGURE 1: Equivalent Stability Test

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.

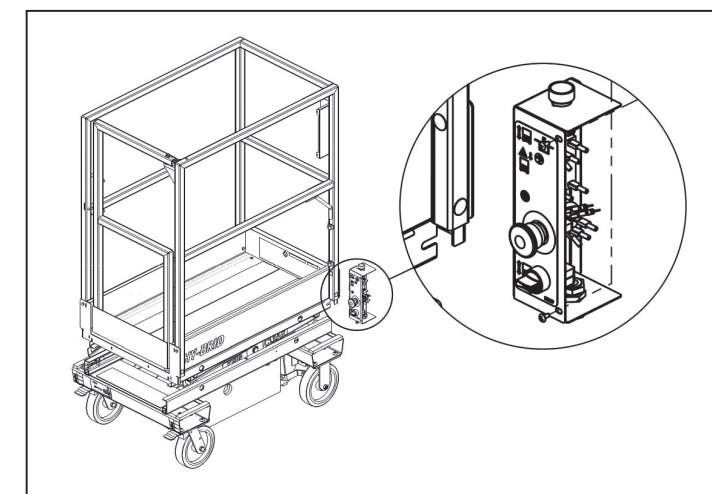


FIGURE 2: Upper Control Removal

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.

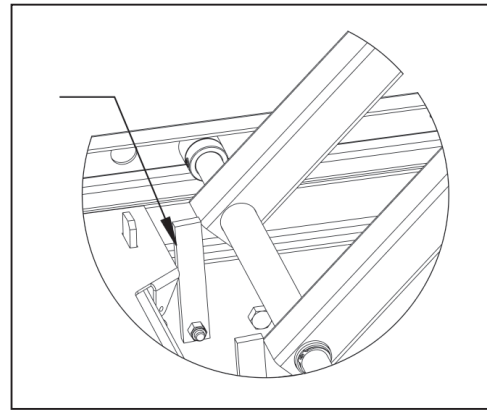


FIGURE 3: Maintenance Pin Lock Use

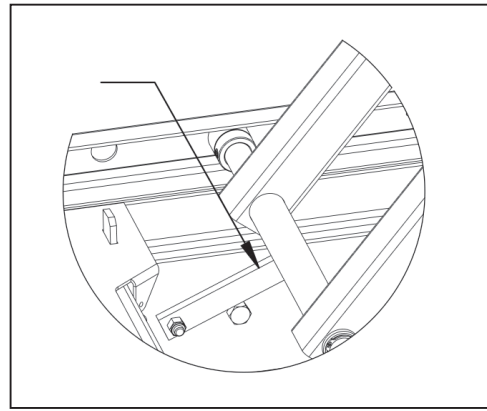


FIGURE 4: Maintenance Pin Lock Storage



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.



NEVER ADD ACID TO BATTERY!

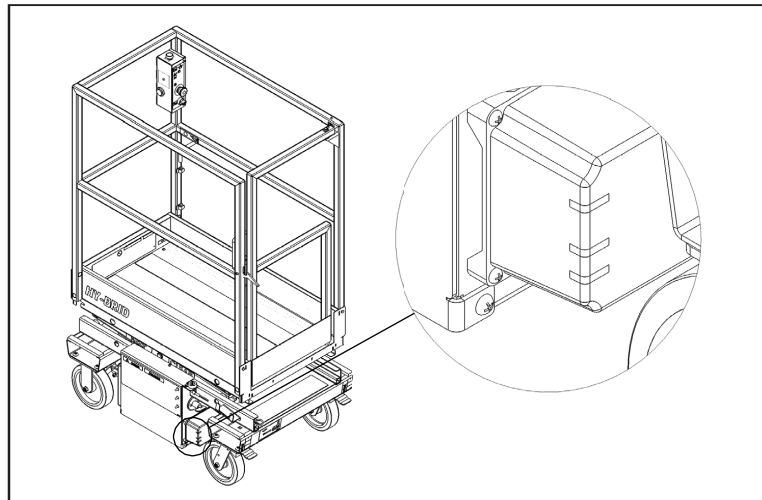
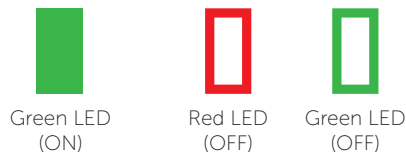


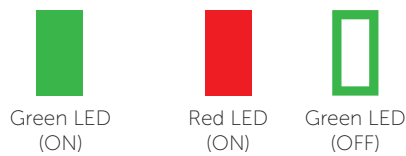
FIGURE 5: Battery Charger LED Display

How to read the battery displays

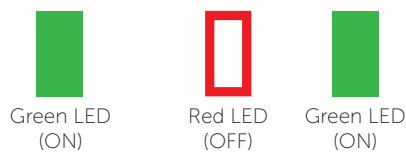
POWER **BATTERY 1 STATUS**
CHARGING **READY**
 This display indicates that the power is on but there is no connection to a battery. The charger must see approximately five (5) volts on a battery to deliver D/C current.



POWER **BATTERY 1 STATUS**
CHARGING **READY**
 This display indicates that power is on and that both outputs are delivering D/C current to the batteries.



POWER **BATTERY 1 STATUS**
CHARGING **READY**
 This display indicates that power is on and that both outputs are finished charging and are in a float maintenance mode.



2.3 | LUBRICATION

Item	Specification	Frequency of Lubrication
Wheels	Teflon Spray	Quarterly

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.



FAILURE TO PERFORM INSPECTIONS AND PREVENTATIVE MAINTENANCE AT RECOMMENDED INTERVALS MAY RESULT IN THE UNIT BEING OPERATED WITH A DEFECT THAT MAY RESULT IN INJURY OR DEATH OF THE OPERATOR.

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



THIS CHECKLIST MUST BE USED AT THE BEGINNING OF EACH SHIFT OR AFTER EVER 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.

Y – Yes/Acceptable N – No/Unacceptable R – Repaired

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

Date: _____ Inspected By: _____

3.2 | FREQUENT INSPECTION CHECKLIST



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

Y – Yes/Acceptable N – No/Unacceptable R – Repaired

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

Date: _____ Inspected By: _____

3.3 | PRE-DELIVERY/ANNUAL INSPECTION CHECKLIST



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.

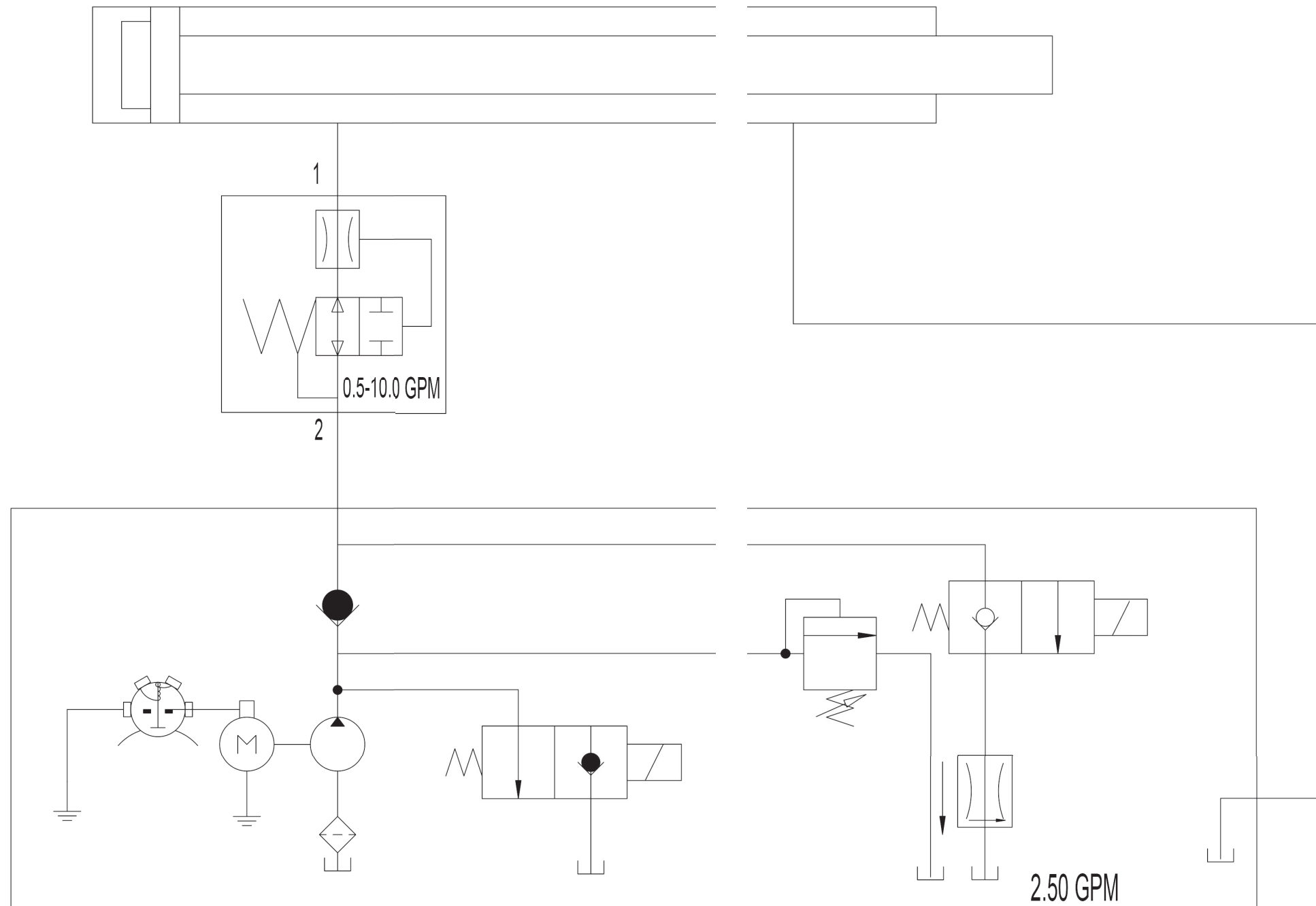
Y – Yes/Acceptable N – No/Unacceptable R – Repaired

BASE:	Y	N	R	PLATFORM:	Y	N	R
Inspect Slide Tracks For Damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All Rails In Place/Secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All Frame Bolts Tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No Bent Rails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pump Secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No Broken Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DC Motor Secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Platform Power Outlet* Safe/Working	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery Hold Down Secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Entrance Gate Closes Freely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Batteries Fully Charge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cables In Place/Secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Counterweights Secured	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FUNCTIONS:			
Wheels: Grease Casters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Elevate/Lower Operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wheels: Bolts/Nuts Tight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Master Power Switch Breaks Circuits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance Locks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency Stop Breaks Circuits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All Shields/Guards In Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Emergency Down Operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hydraulic Oil Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Motion Alarms Functional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check All Hydraulic Hoses For Leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Brakes: Operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check All Hydraulic Fittings For Leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bubble Level In Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SCISSORS:				Overload Light And Alarm Activate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No Broken Welds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If Overloaded Platform Stops Elevating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ret. Rings Secure Pivots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Battery Voltage: <12.5V, Charge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No Bent Beam Members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WIRING/OTHER:			
All Rollers Turn Freely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Switches Secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DECALS:				Contact(S) Secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Legibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Terminals Secure (No Loose Wiring)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct Capacity Noted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manuals Included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper Placement/Quantity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Battery Charger Secure/Operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:							

*If Installed

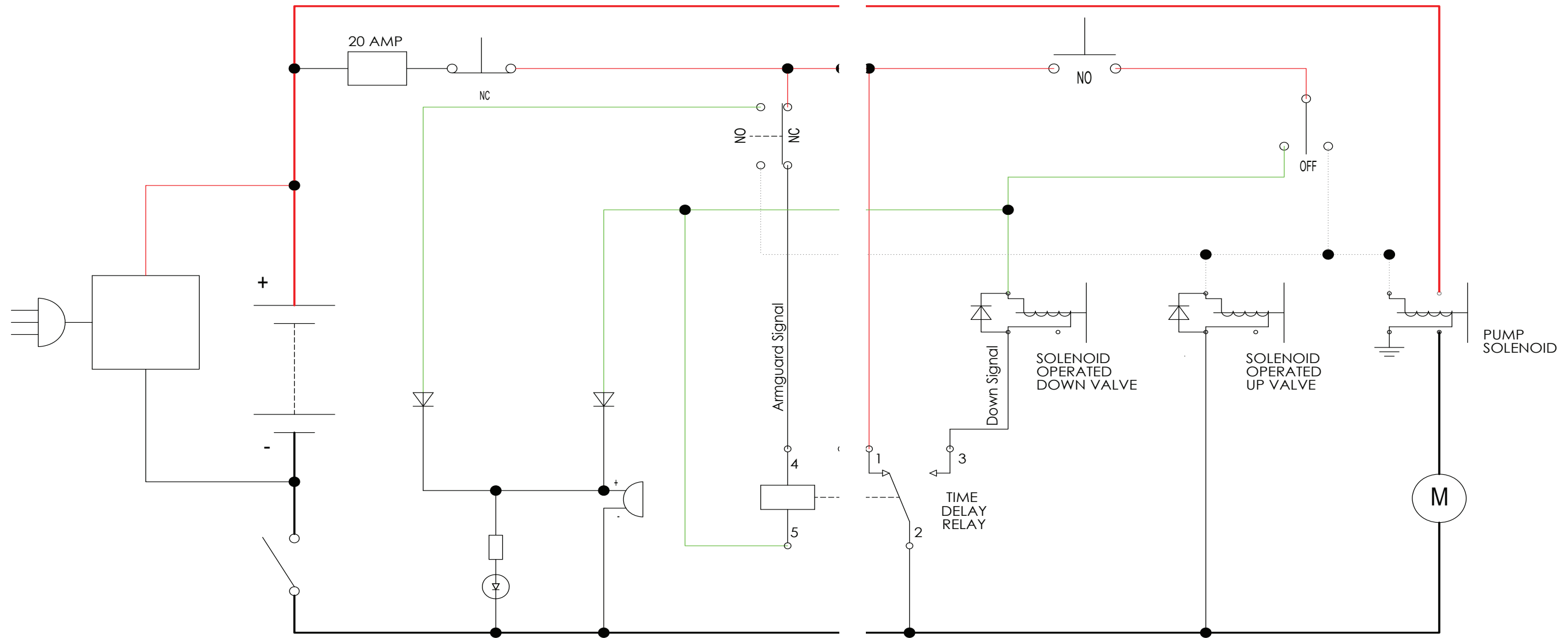
Date: _____ Inspected By: _____

4.1 | HYDRAULIC SCHEMATIC



REV.	DESCRIPTION	DATE	BY
A	INITIAL RELEASE	8/27/2013	DJS
B	CHANGED FLOW CTL FROM 3.5 TO 2.5 (ECO 1739)	11/15/2013	DJS

4.2 | ELECTRICAL SCHEMATIC

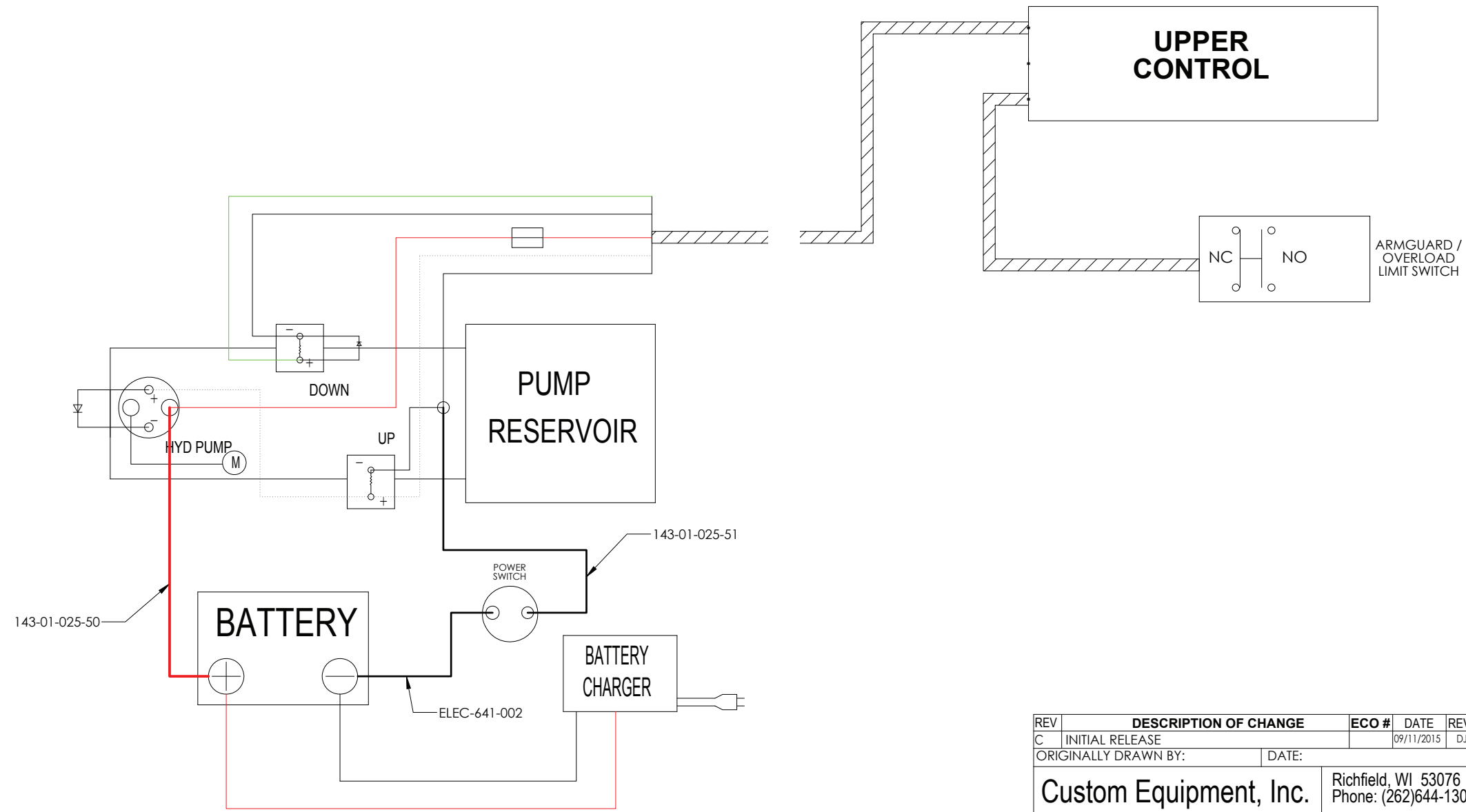


REVISIONS			
REV.	DESCRIPTION	DATE	BY
A	INITIAL RELEASE	04/30/2013	DJS

5.1 | WIRING DIAGRAM

Part No. WD-143-20-001-51

Rev A

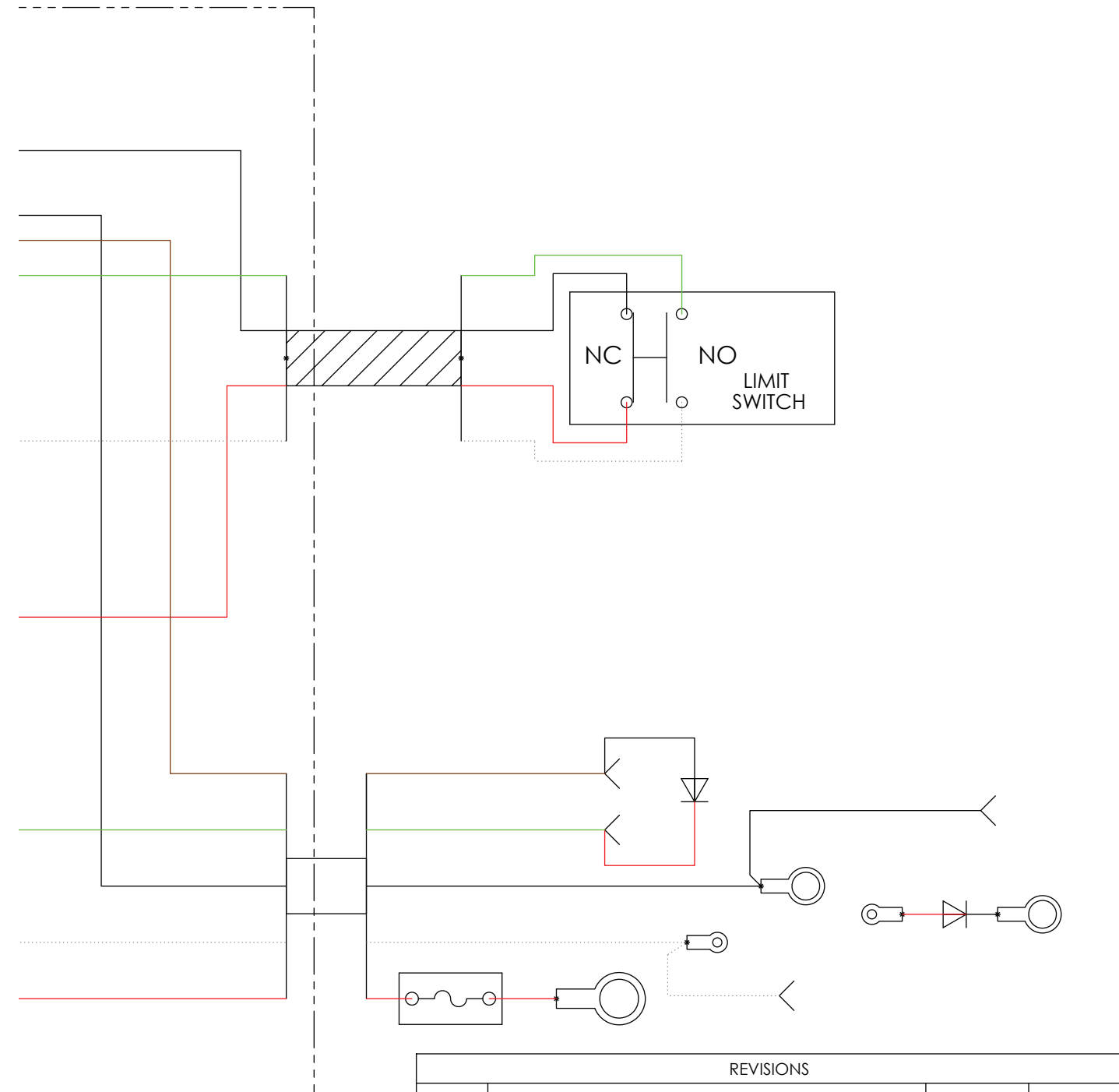
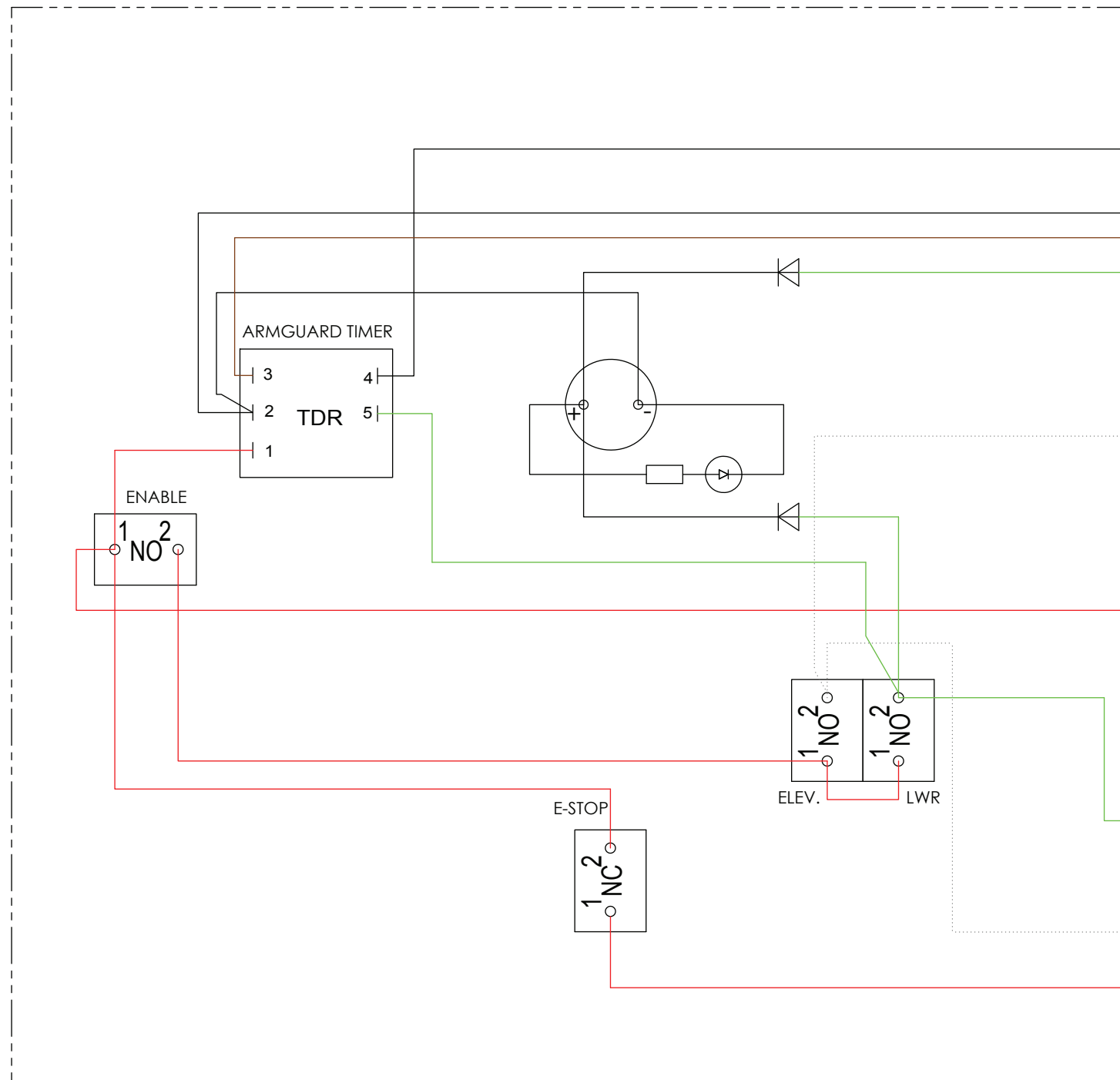


REV	DESCRIPTION OF CHANGE	ECO #	DATE	REV E
C	INITIAL RELEASE		09/11/2015	DJS
ORIGINALLY DRAWN BY:		DATE:		
Custom Equipment, Inc.			Richfield, WI 53076 Phone: (262)644-1300	
WD,HB-P3.6				
SPEC/MATL: Wiring Diagram		WEIGHT: APPROX. 0.00 LB.		
DRAWING #: WD-143-20-001-51				C
SCALE:1:1	B-SIZE	DO NOT SCALE DRAWING	SHEET 1 OF 1	

5.2 | WIRING DIAGRAM

WD-143-21-004-51-UPR

Rev. B

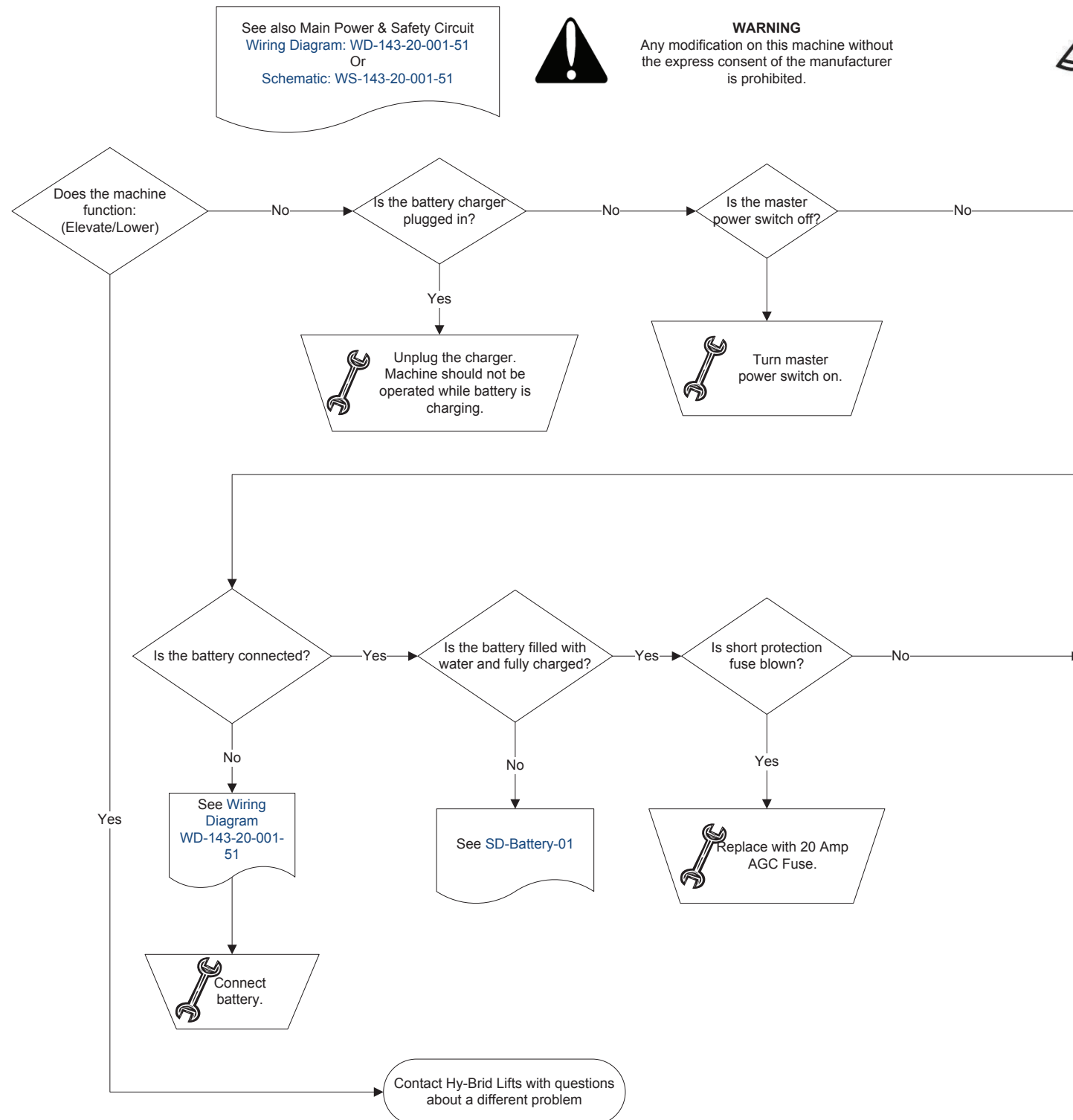


REVISIONS			
REV.	DESCRIPTION	DATE	BY
A	INITIAL RELEASE	4/30/2013	DJS
B	LIMIT SWITCH WIRING (ECO 1758)	12/18/2013	

6.1 | TROUBLESHOOTING FLOWCHART: POWER

Troubleshooting Step 1: Main Power

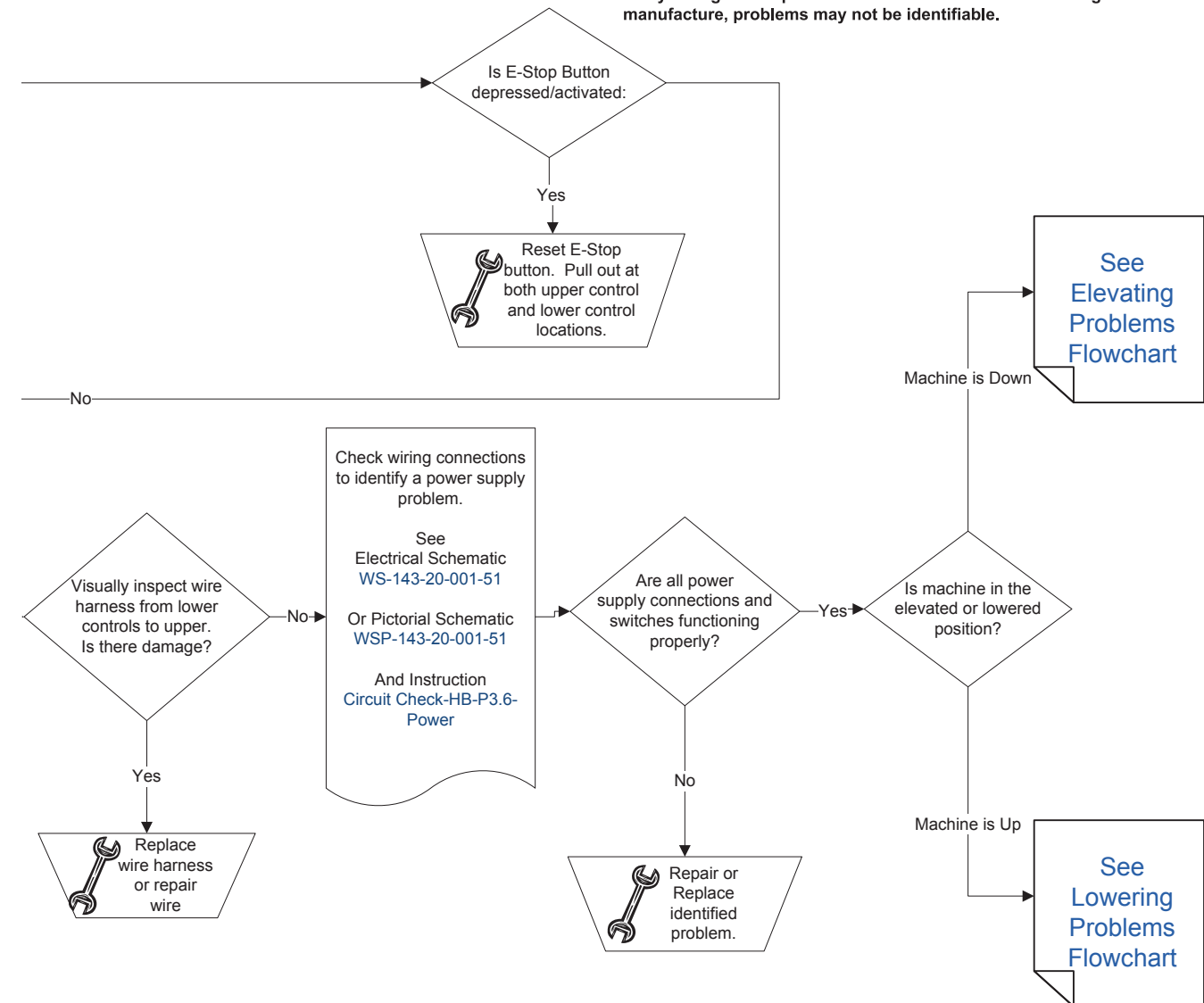
Rev. B



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:

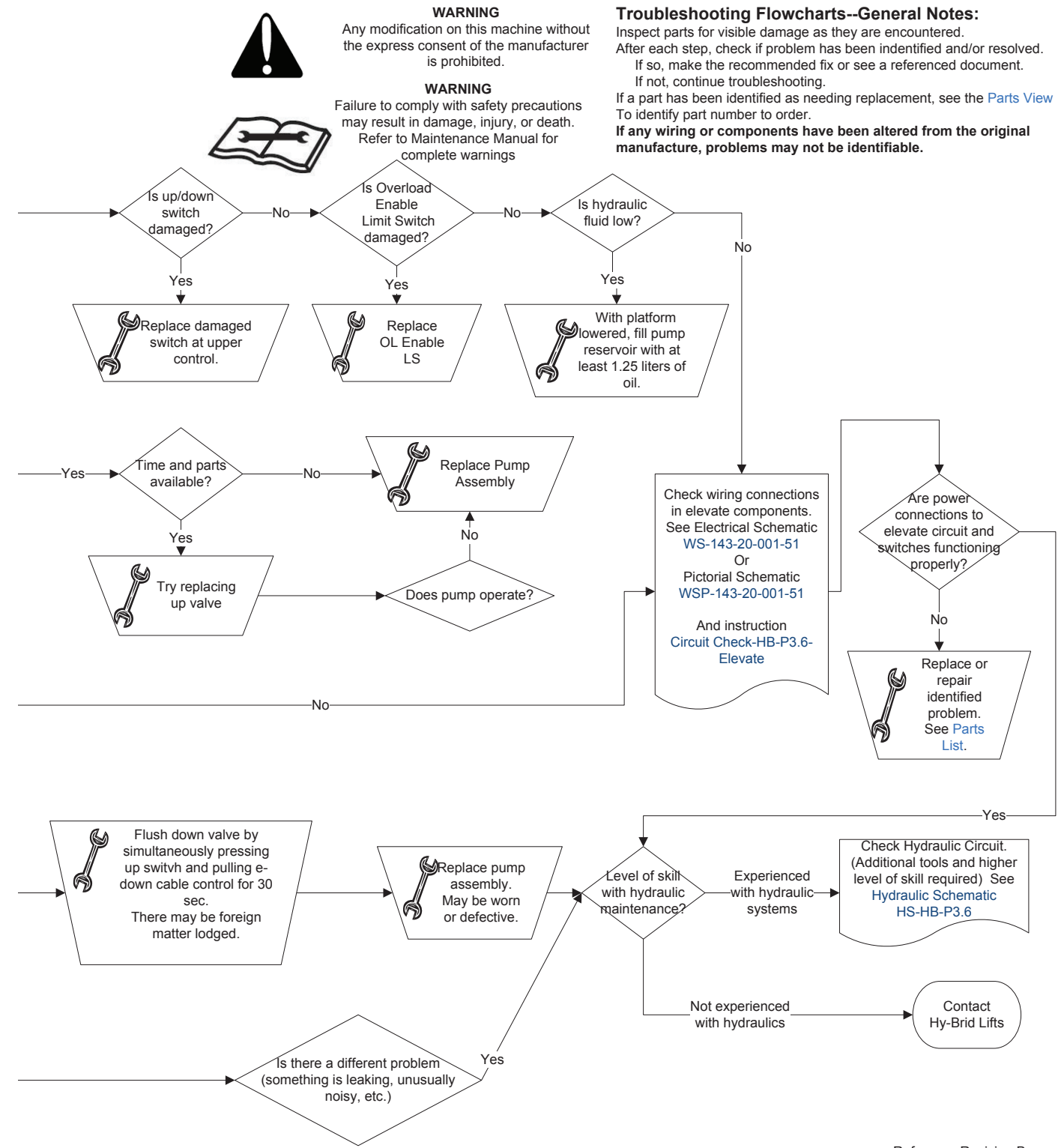
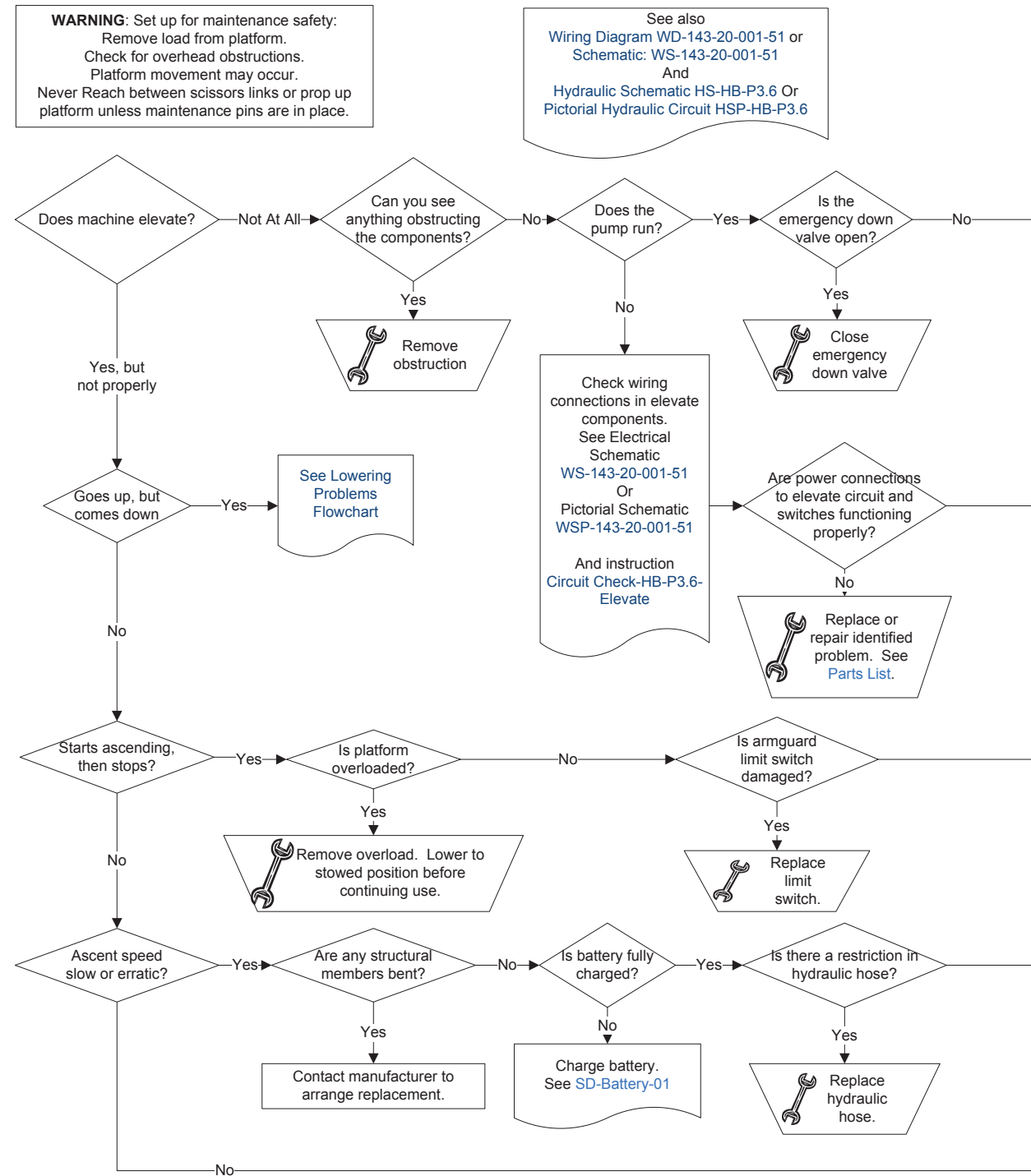
Inspect parts for visible damage as they are encountered. After each step, check if problem has been identified and/or resolved. If so, make the recommended fix or see a referenced document. If not, continue troubleshooting. If a part has been identified as needing replacement, see the [Parts View](#)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



6.2 | TROUBLESHOOTING FLOWCHART: ELEVATING

Troubleshooting Step 2A: Elevating

Rev. B



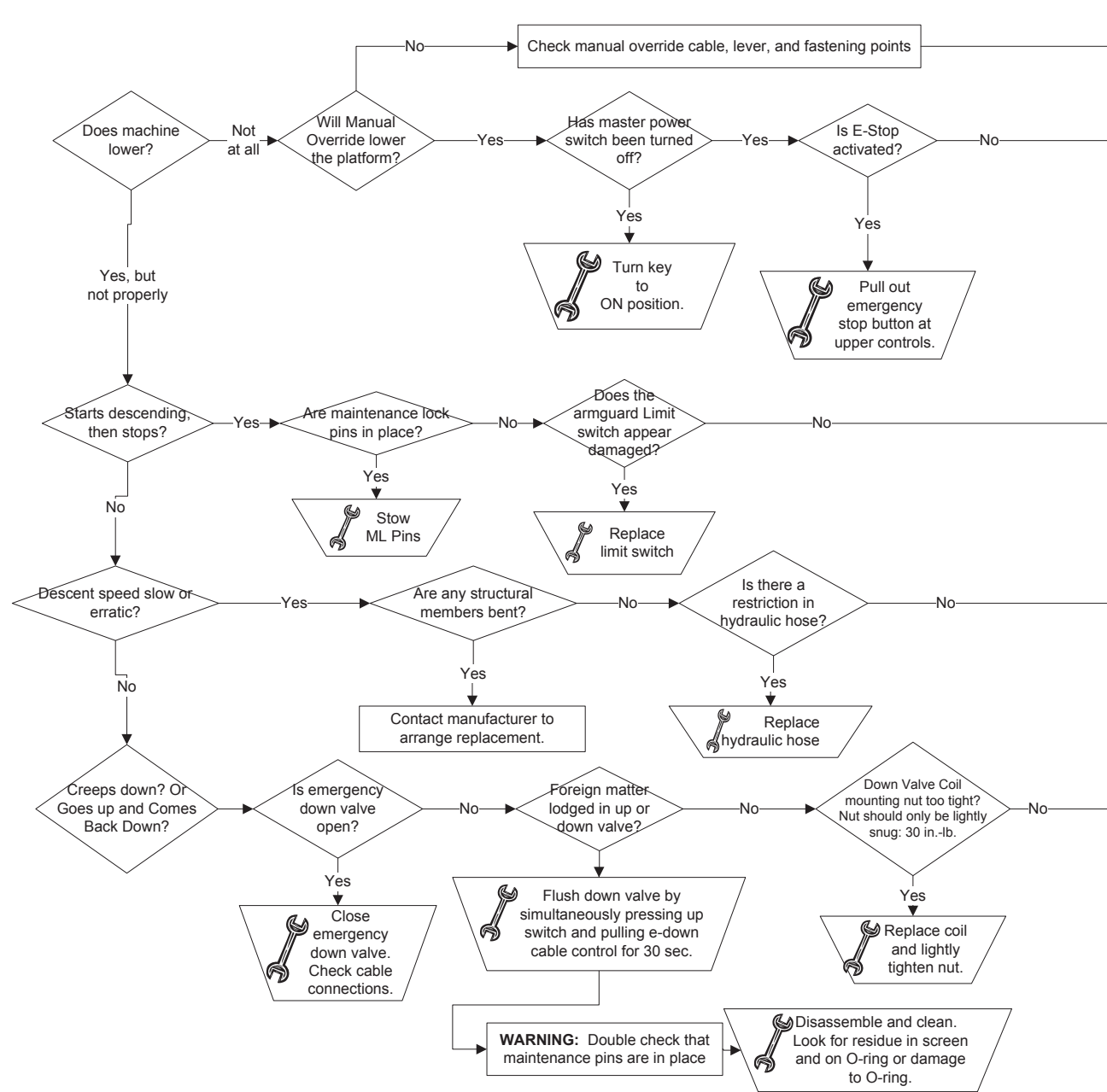
Reference Revision B

6.3 | TROUBLESHOOTING FLOWCHART: LOWERING

Troubleshooting Step 2B: Lowering
Rev. B

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
And
Hydraulic Schematic HS-HB-P3.6 Or
Pictorial Hydraulic Circuit HSP-HB-P3.6



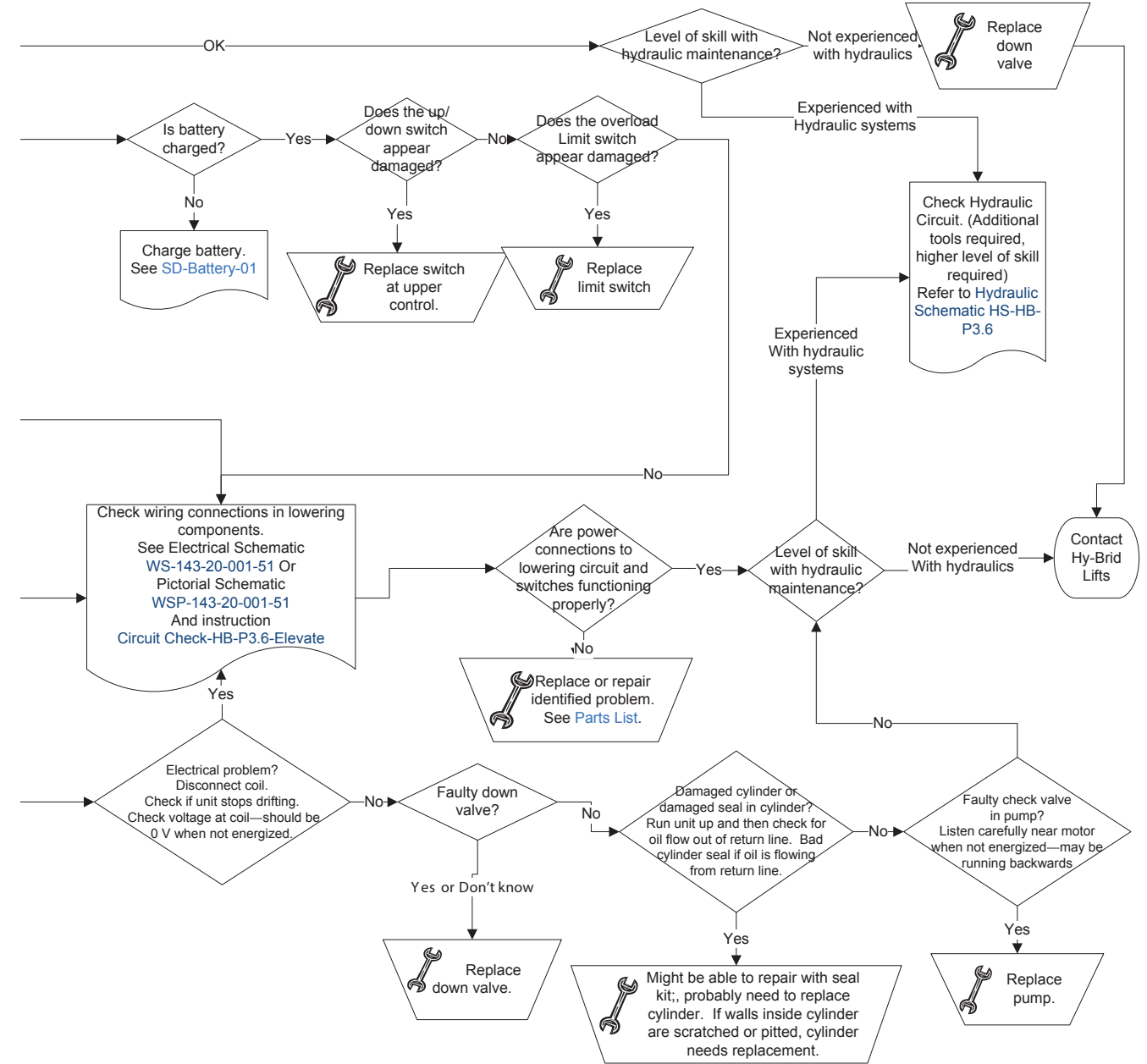
WARNING
Any modification on this machine without the express consent of the manufacturer is prohibited.



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

Troubleshooting Flowcharts--General Notes:

Inspect parts for visible damage as they are encountered. After each step, check if problem has been identified 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.**



Reference Revision B



USE ONLY MANUFACTURER APPROVED REPLACEMENT PARTS. USE OF NON-OEM PARTS WILL VOID WARRANTY.



REPLACEMENT OF THE FOLLOWING COMPONENTS WILL AFFECT THE STRENGTH, STABILITY, OR SAFETY FUNCTION OF THE UNIT: BATTERY, HYDRAULIC CYLINDER, CONTROL BOARD, AND ALL STRUCTURAL COMPONENTS.

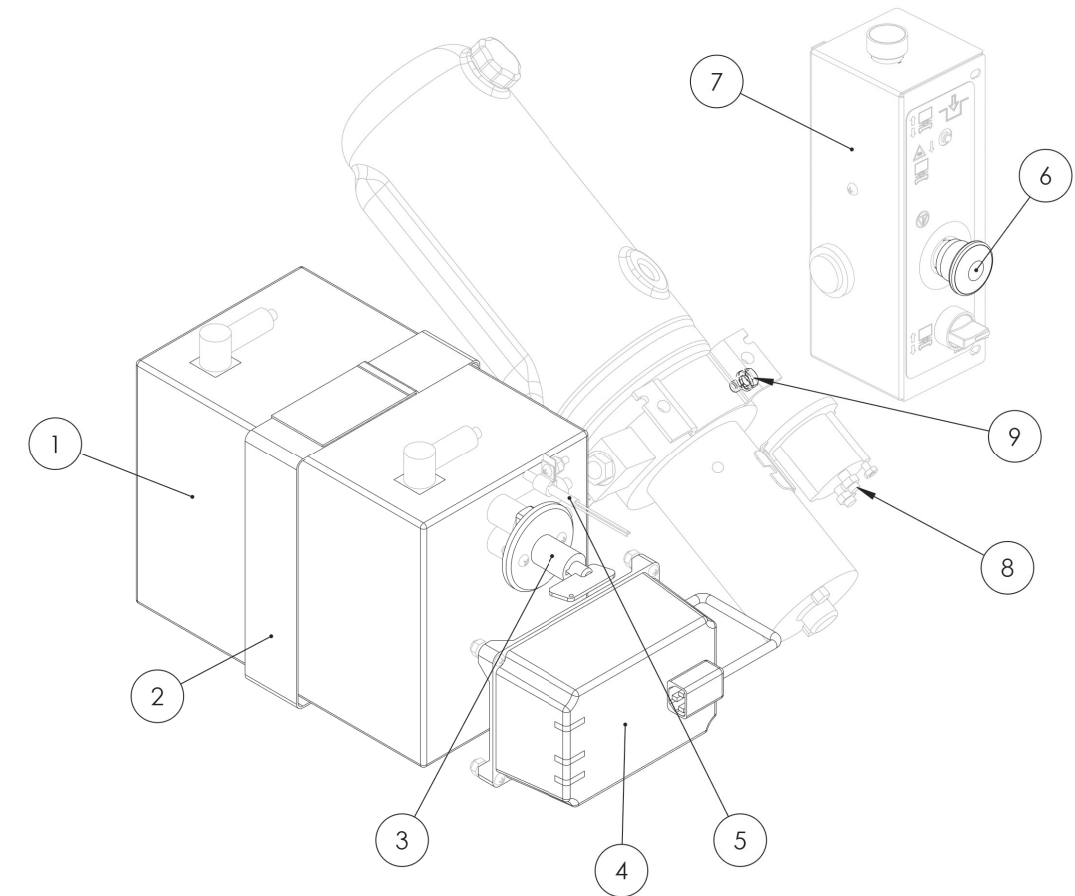
Listed in the following section are diagrams for parts that may be available for replacement and for reference. These represent current model revisions. Refer to our website, www.hybridlifts.com for more complete part listings and earlier revisions. Several parts are model-, serial number-, or manufacture 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.

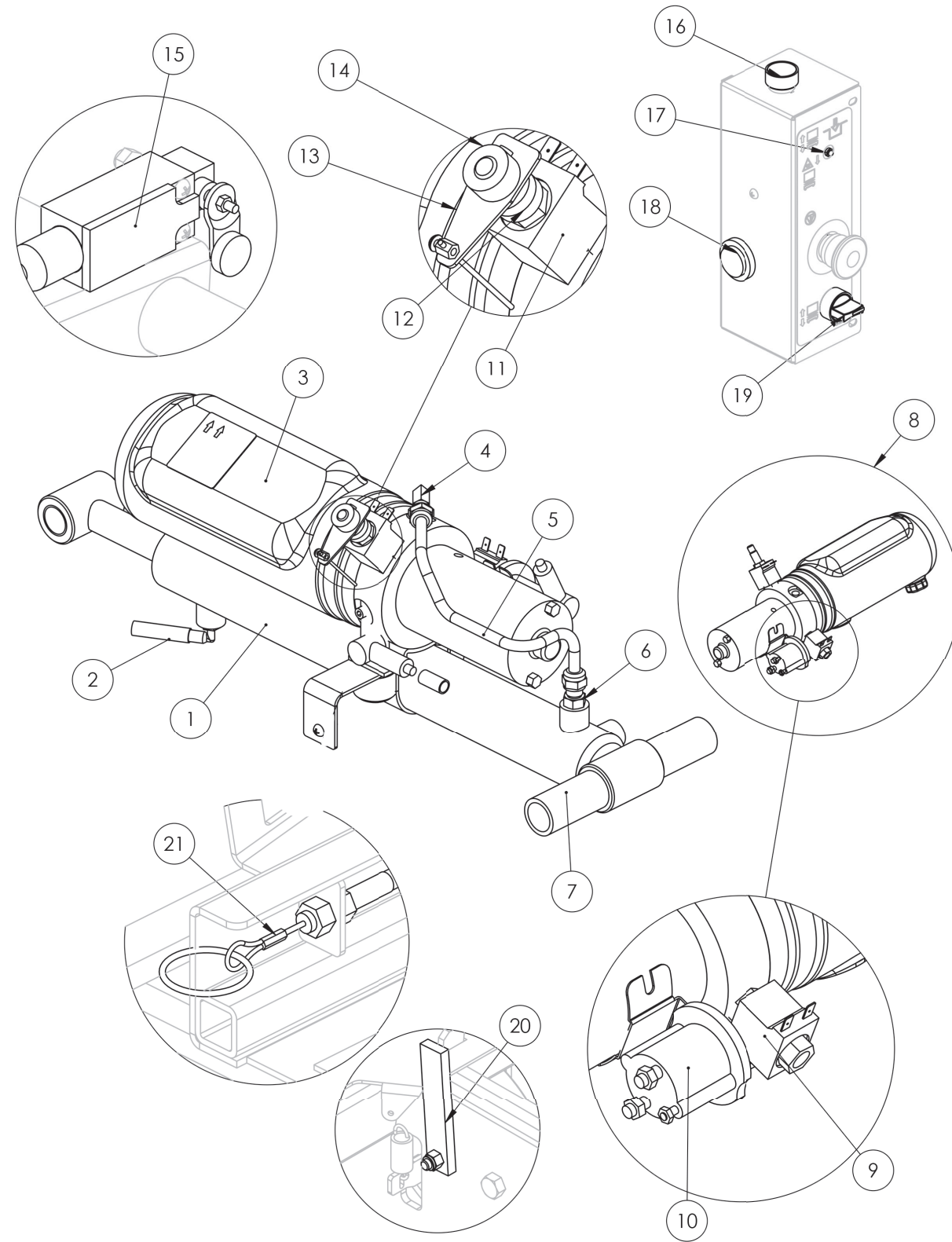
Item #	Part Number	Description	Qty.	Um
1	143-21-006-51	DECALS,HB-P3.6	1	EA
1.1	DE727	DECAL,KEEP	2	EA
1.2	DE728	DECAL,CLEAR	2	EA
1.3	DE600E-14	DECAL,MAINT LOCK(SYMBOLS)	1	EA
1.4	DE600E-24F	DECAL,WHEEL LOAD HB-P3.6	4	EA
1.5	DE751	DECAL,E-DOWN CABLE	1	EA
1.6	DE601	DECAL,LOGO HY-BRID	1	EA
1.7	DE603-5	MODEL# DECAL-HB-P3.6	2	EA
1.8	DE746	DECAL,LANYARD ATTACHMENT	1	EA
1.9	DE666	DECAL, LWR	1	EA
1.1	DE675	DECAL,NO FORK	1	EA
1.11	DE718	DECAL,CE	1	EA
1.12	DE706	DECAL,UPR HB,ZTR,MID	1	EA
1.13	DE726	DECAL,CAPACITY,500#,1P,I,WO/SO	1	EA
1.14	DE730	DECAL,OL ALARM	1	EA
2	DE669	DECAL,CTL UPR	1	EA
3	N/A	SERIAL NUMBER LOCATION	1	EA
4	N/A	SERIAL NUMBER REFERENCE	1	EA

7.2 | MAIN POWER/SAFETY CIRCUIT



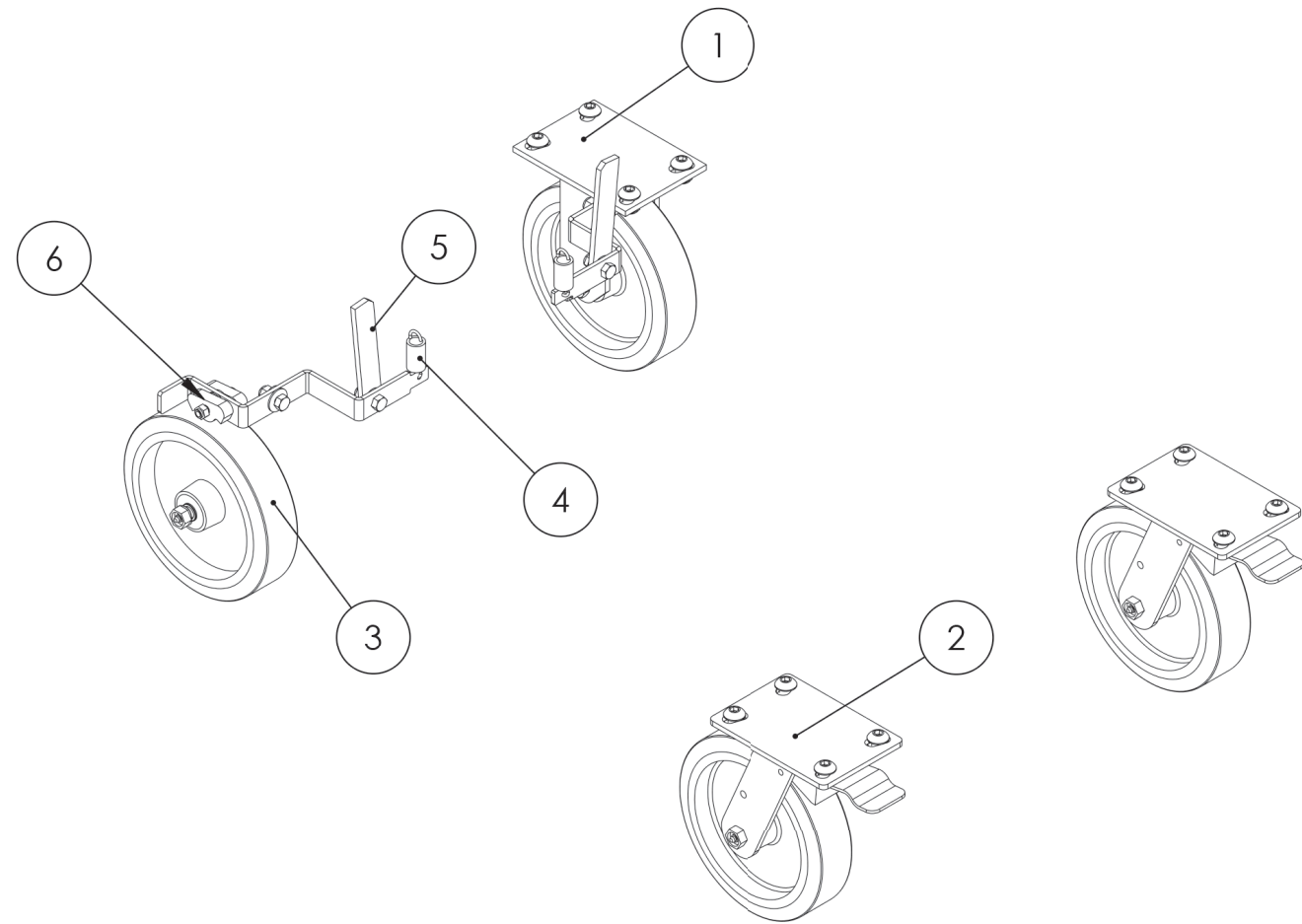
Item #	Part Number	Description
1	ELEC-047-6	Not available as a replacement part. Replace battery with 12V, Group 24 AGM Battery. Replacement weight must be minimum 22.7 kg (50 lb).
2	HARD-684	Battery Strap
3	ELEC-633-2 ELEC-663-3	Master Power Switch with Key Spare Key
4	ELEC-746	Battery Charger
5	ELEC-639-6	Charger Cord (bare wire/IEC-320 C-13)
6	ELEC-071-KIT	Emergency Stop Button with Contact Block
7	143-21-004-51	Upper Control Assembly
8	N/A	B+ Power Connection Location on Pump
9	N/A	B- "Ground" Connection Location on Pump
NOT PICTURED	143-01-025-50 143-01-025-51 ELEC-641-002	Battery Cables
NOT PICTURED	ELEC-670-2	20A AGC Fuse

7.3 | ELEVATE/LOWER CIRCUIT



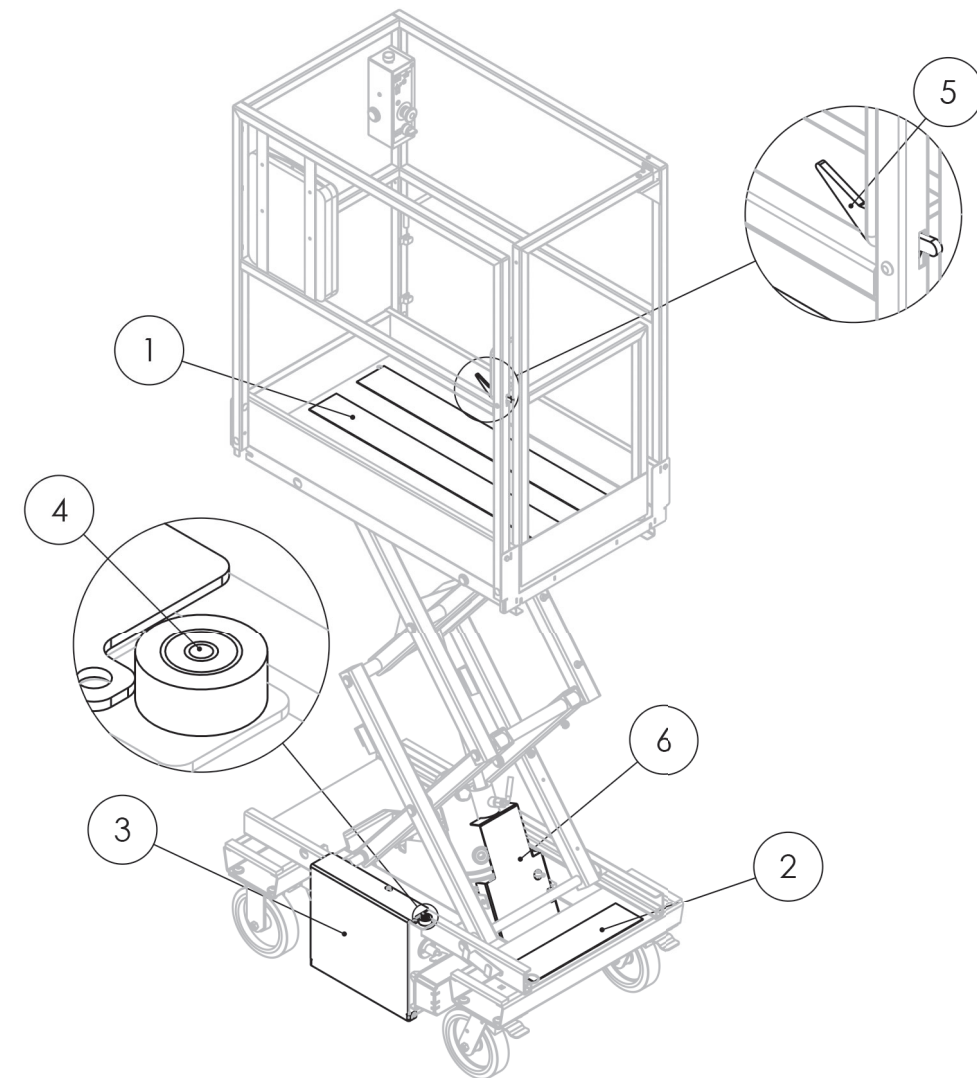
Item #	Part Number	Description
1	HYDR-002	Hydraulic Pump
2	HYDR-019 HYDR-022-3 HYDR-681	Hydraulic Fitting Low Pressure Hydraulic Line Hydraulic Grommet
3	HYDR-032	Hydraulic Fluid: Not available as a replacement part. Replace with Flomite #150, Dexron II, Mobil-DTE 2, or equivalent.
4	HYDR-035	Hydraulic Fitting
5	HYDR-600-9	Hydraulic Line
6	HYDR-604	Hydraulic Fitting
7	143-07-005-02	Spacer
8	HYDR-050-8	Hydraulic Pump
9	HYDR-673 HYDR-665	Up Valve Coil Up Valve
10	HYDR-674	Start Solenoid (12V)
11	HYDR-673 HYDR-007-2E-5	Down Valve Coil (12V) Down Valve
12	WHEE-605-P	Shaft Spacer
13	LAS-M115	Emergency Down Lever
14	HARD-650	1/16 Shaft Collar
15	ELEC-123-5	Armguard / Overload Switch
16	ELEC-602-KIT	Enable Button
17	ELEC-636	Overload Indicator Light
18	ELEC-635	Descent / Overload Alarm
19	ELEC-002A-KIT	Up / Down Rotary Switch
20	143-01-023-02	Maintenance Lock Check
21	HARD-644-03	Emergency Down Cable
(Not Pictured)	ELEC-632	Time Delay Relay
(Not Pictured)	HARD-021	Retaining Ring, 2.54 cm

7.4 | WHEELS/BRAKES



Item #	Part Number	Description
1	143-21-008-50-K	Rigid Caster Assembly
2	143-21-009-50-K	Swivel Caster Assembly
3	WHEE-706-KIT WHEE-002-1 WHEE-002-2	Wheel 20.32 cm (8") Bearing Kit Axle Kit
4	HARD-690	Spring
5	143-01-023-02	Brake Actuator
6	143-01-026-02	Brake Cam

7.5 | COVERS/OTHER



Item #	Part Number	Description
1	MISC-031-05-KIT	ANTI-SLIP TAPE,4.00,37.50 LENG
2	MISC-031-06-KIT	ANTI-SLIP TAPE,4.00,16.00 LENG
3	143-05-001-01	COVER,SIDE (BATT.)
4	HARD-086	LEVEL,BUBBLE
5	1000307601	RAIL,GATE LATCH
6	143-05-003-01	COVER,PUMP

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.

HY-BRID LIFTS™

BY CUSTOM EQUIPMENT LLC

Push-Around Aerial Work Platform
Maintenance & Troubleshooting Manual
HB-P3.6

© 2014 Custom Equipment, LLC
2647 Highway 175
Richfield, WI 53076
U.S.A.
Tel.: +1-262-644-1300
Fax: +1-262-644-1320
www.hybridlifts.com
Service@Customequipmentlifts.com

"Hy-Brid Lifts" is a trademark of Custom Equipment, LLC.
These machines comply with specified EN: 280 requirements

Revision Date: November 2014

Printed In The USA