

HY-BRID LIFTS™

BY CUSTOM EQUIPMENT LLC

MAINTENANCE & TROUBLESHOOTING MANUAL
PUSH-AROUND AERIAL WORK PLATFORM

SUPO-648
REV G



HB-P4.5

HB-P5.0

SERIES I

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Revision Log:

REV A: Initial Release.....	FEB 2014
REV B:.....	MAY 2014
REV F: Reference 2804.....	DEC 2015
REV G:.....	JUNE 2016

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-P4.5 and HB-P5.0 have 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-P4.5 and the HB-P5.0, the test weight/pull force is 22.8 kg / 50 lb.

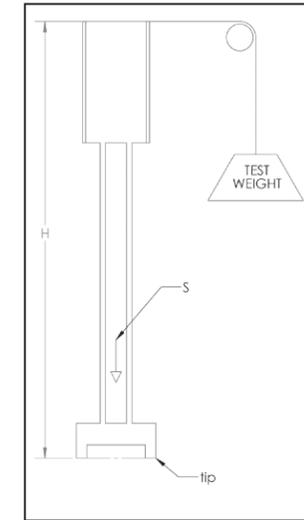


FIGURE 1: Equivalent Stability Test

1.4 | SAFETY GUIDELINES

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.

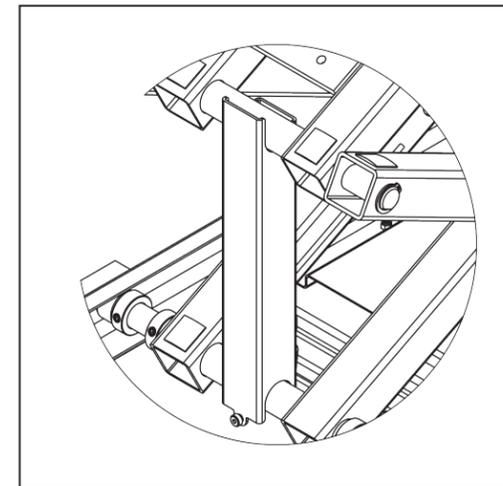


FIGURE 2: Maintenance PIN Lock Use

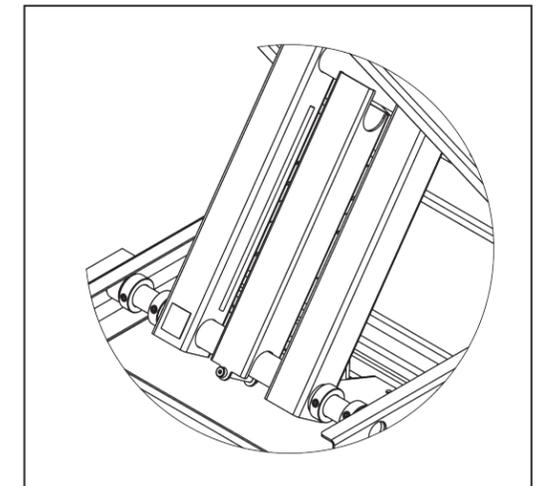


FIGURE 3: Maintenance PIN Lock Storage



**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

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2.1 | BATTERY MAINTENANCE AGM BATTERIES

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 80°F (27°C) will yield runtimes above the rated capacity and operating batteries below 80°F (27°C) will yield runtimes 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 | BATTERY MAINTENANCE WET CELL BATTERIES

If this unit is equipped with a deep cycle 12-volt Group 27 battery, the care and maintenance of your battery has much to do with how well this unit functions. Battery wiring and water level should be checked monthly. Do not overfill. When the cells are too full, fluid will seep out when charging. The solution is at its proper strength when the battery is manufactured. Use distilled water and keep fluid up to proper level. When required, water should be added to battery after charging, unless water level is below the plates.

- Slide cabinet open to access battery.
- Remove battery caps and check fluid level.
- Fill each cell (if needed) to split ring with distilled water.
- Reinstall caps.
- Wash all dirt, debris, acid, etc., off battery whenever corrosion is detected. Use a solution of 5ml baking soda per 0.95 liters of warm water.
- Coat terminals with a commercially available coating.
- Close cabinet and latch in place.

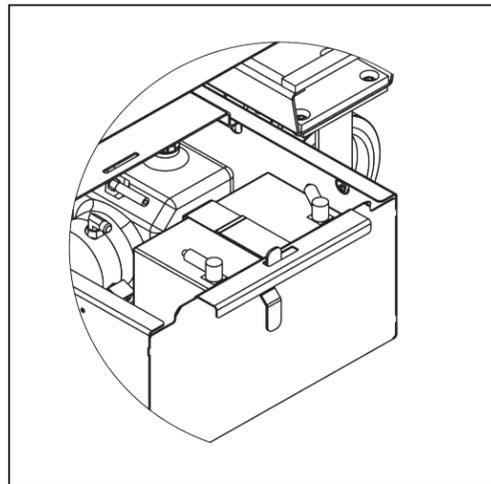


FIGURE 4: Battery Maintenance Access

2.3 | CHARGING THE BATTERY

This unit is equipped with either a deep cycle 12-volt AGM maintenance-free battery or a deep cycle Group 27 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 80° F (27°C) drops to 65% at 32°F (0°C) At 0°F (-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.

Do not operate unit while charging. Shortened battery life will result.

- 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



NEVER ADD ACID TO BATTERY!

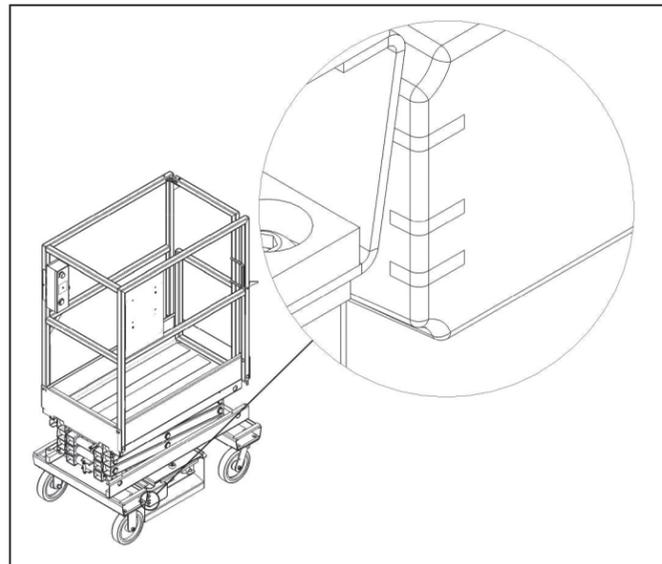


FIGURE 5: Battery Charger LED Display

How to read battery display

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.



Green LED (ON)



Red LED (OFF)



Green LED (ON)

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.



Green LED (ON)



Red LED (ON)



Green LED (OFF)

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.



Green LED (ON)



Red LED (OFF)



Green LED (ON)

2.4 | LUBRICATION

Item	Specification	Frequency of Lubrication
Wheels	Teflon Spray	Quarterly

2.5 | COMPONENTS REQUIRING ADJUSTMENT

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

2.6 | 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.

2.7 | SAFETY DEVICES AND SYSTEMS REQUIRING CHECKS

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

2.8 | 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.

2.9 | 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 required and included in this manual:

- Pre-Start (Required before operation at each work shift)
- Frequent (Required at intervals not more than three months)
- 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 EVERY SIX TO EIGHT HOURS OF USE. FAILURE TO DO SO COULD AFFECT THE SAFETY OF THE OPERATOR.

MODEL: _____ 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			
Check that there are no damaged, dented, or bent structural members.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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, and there are no leaks. Check that hoses and cables have no worn areas or chafing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the tires for damage.	<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).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Platform Controls — Check all switches and push buttons for proper operation:			
Up/Down Controls (Elevates, Lowers, Enable button must be pressed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Stop (stops all movement)	<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"/>
Alarm (Not damaged, sounds for descent)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Up/Down Rocker Switch (Elevates, Lowers)	<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 engage and hold when platform is elevated.	<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: _____ 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.
- 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.			
Inspect the condition of hydraulic fluid in reservoir. Oil should have a clear amber color.			
Inspect the entire machine for signs of damage, broken welds, loose bolts, or improper repairs. (Check for corrosion, cracking, abrasion, etc.)			
Check that all snap rings are secure in grooves on pivot pins			
Check if tires are leaning in or out.			
Verify that bubble level is in place.			
Verify that maintenance and inspection records are up to date.			
Check the hydraulic fluid level with the platform fully lowered.			
Functional Tests			
Perform all check on Pre-Start inspection checklist.			
Functions operate smoothly			
Functions operate over full range of motion			
Emergency lowering – Manual override functions properly			
Check that the platform does not drift down with a full load			
Wheels lubricated if needed			
Comments:			

DATE: _____ INSPECTED BY: _____

3.3 | PRE-DELIVERY/ANNUAL 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: _____ 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.
- 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

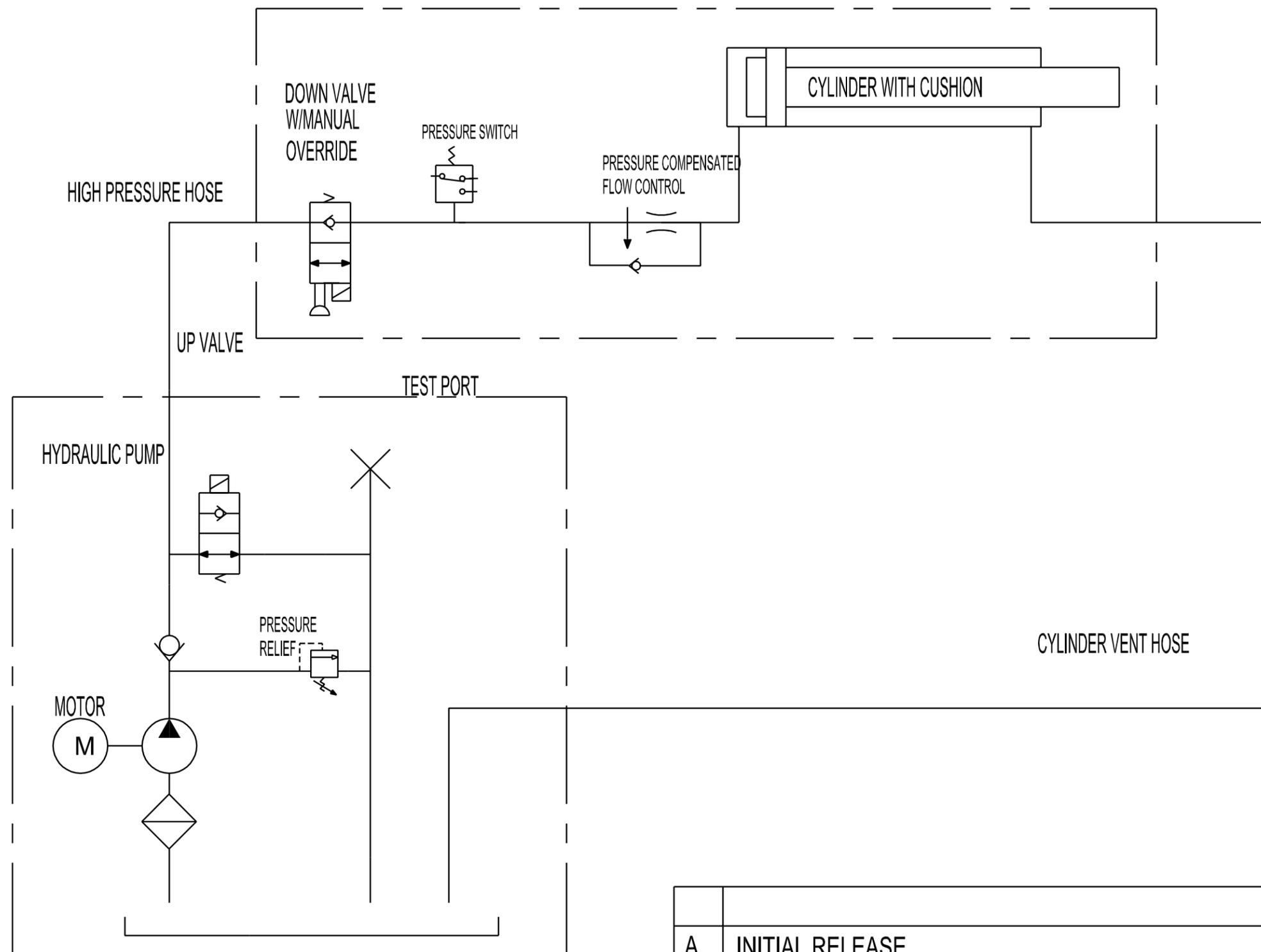
BASE:	Y	N	R	PLATFORM:	Y	N	R
Inspect slide tracks for damage				All rails in place/secure			
All frame bolts tight				No bent rails			
Pump Secure				No broken welds			
DC motor secure				Platform power outlet safe/working (if installed)			
Battery Hold Downs Secure				Entrance gate closes freely			
Batteries Fully Charged				Cables in place/secure			
Counterweights secured				FUNCTIONS:			
Wheels: Grease casters				Elevate/Lower Operational			
Wheels: Bolts/Nuts Tight				Master Power Switch Breaks Circuits			
Maintenance Locks: Pins storage location				Emergency Stop Breaks Circuits			
All Shields/Guards in place				Emergency Down Operational			
Hydraulic Oil Level				Motion Alarms Functional			
Check all hydraulic hoses for leaks				Brakes: Operational			
Check all hydraulic fittings for leaks				Bubble Level in Place			
				When beginning to elevate, overload light and alarm activate. Then, if not overloaded, allows elevation to continue, and light and alarm stop.			
SCISSORS				When overloaded, platform stops elevating.			
No Broken Welds				Check battery Voltage: <12.5V, charge.			
Ret. Rings Secure on Pivots				WIRING/OTHER:			
No Bent Beam Members				Switches secure			
All rollers turn freely				Contactors secure			
DECALS:				Tight on terminals (no loose wiring)			
Legibility				Operator / Service Manual Included			
Correct capacity noted				Battery Charger Secure / Operational			
Proper placement quantity							

COMMENTS:

Date: _____ Inspected By: _____

4.1 | HYDRAULIC SCHEMATIC

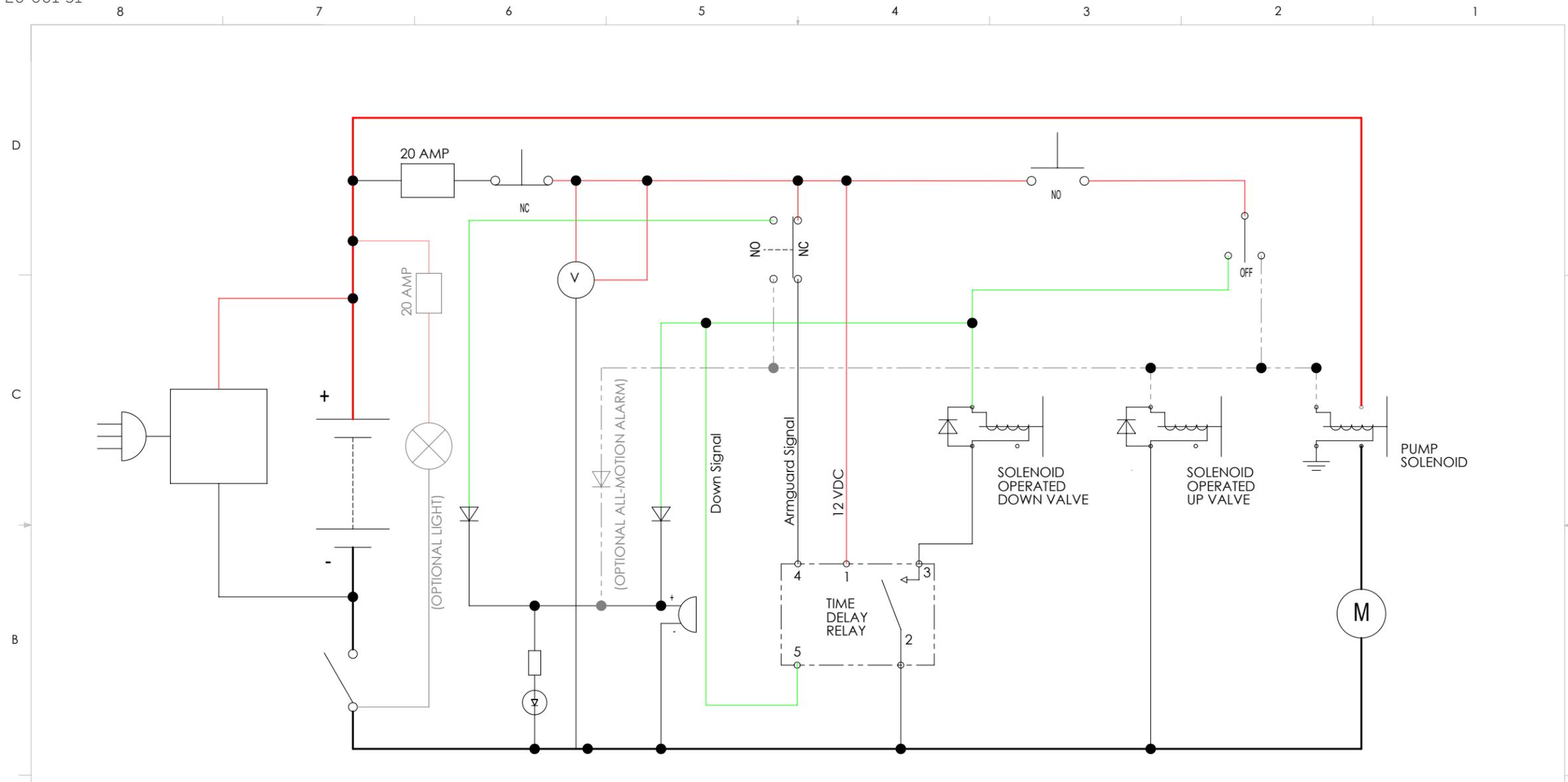
Part No. HS-HB-P4.5/5.0



A	INITIAL RELEASE	05/21/2010
No.	Revision	Date

4.2 | ELECTRICAL SCHEMATIC

Part No. WS-144-20-001-51



REV.	DESCRIPTION	DATE	BY
A	INITIAL RELEASE	1/24/2014	DJS
B	REV. DISPLAY OF CONNECTIONS TO TIME DELAY RELAY, ADDED BEACON & MOTION ALARM OPT	5/27/2014	GH

Custom Equipment, Inc. Richfield, WI 53076
Phone: (262)644-1300

ELECTRICAL SCHEMATIC, HB-P4.5/5.0

PART NO: WS-144-20-001-51 B-SIZE SCALE: 1:1

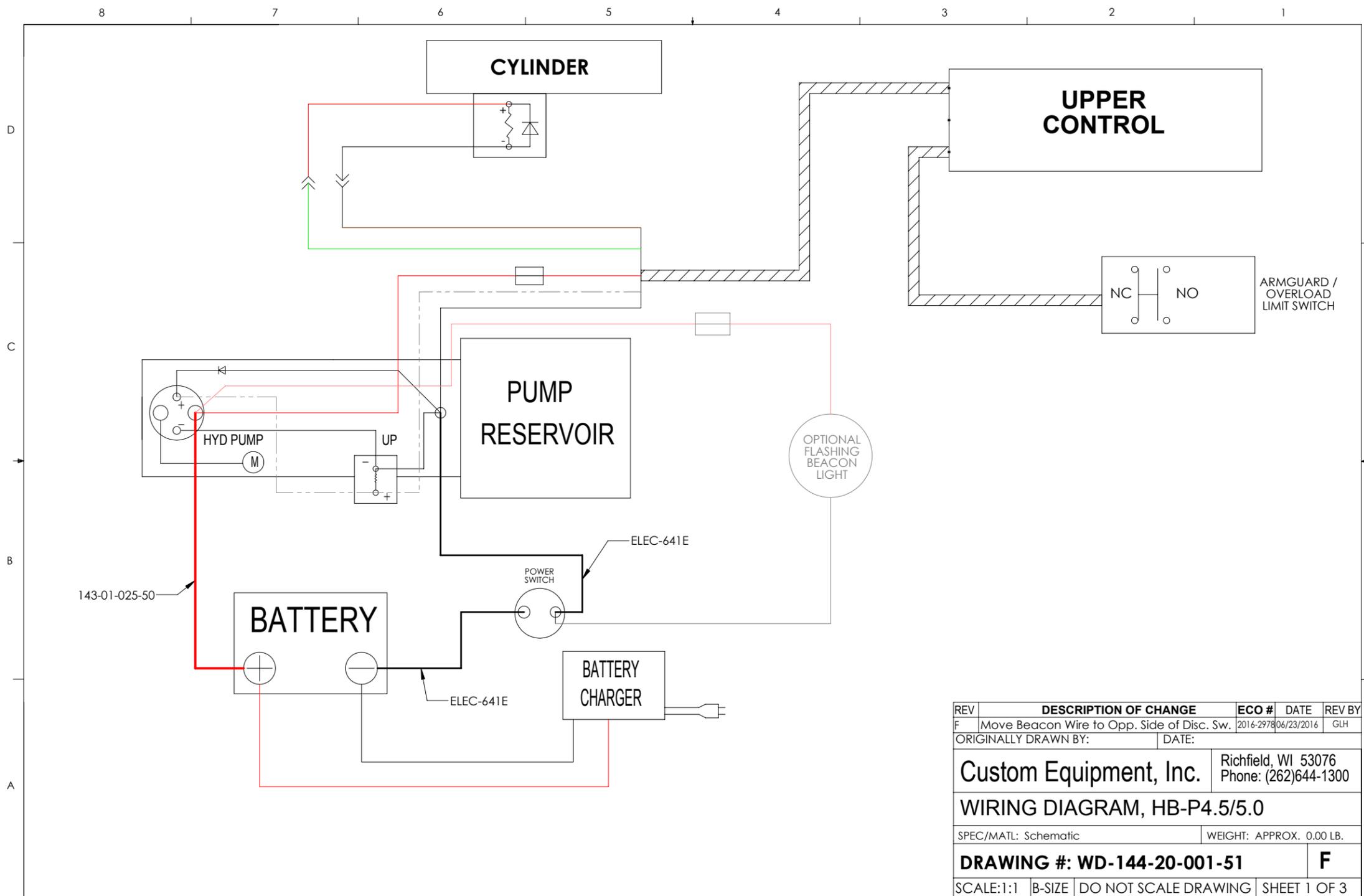
DATE: 3/28/2013

DO NOT SCALE DRAWING WS-144-20-001-51
 WELDING TOLERANCES: .X=±.060 .XX=±.030 .XXX=±.010
 MACHINING TOLERANCES: .X=±.030 .XX=±.015 .XXX=±.005
 FORMING TOLERANCES: .X=±.06 .XX=±.020 .XXX=±.010

THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY TO CUSTOM, EQUIPMENT AND IS LOANED IN EXPECTATION THAT IT WILL BE KEPT CONFIDENTIAL AND USED ONLY FOR THE PURPOSE FOR WHICH IT IS LOANED.

5.1 | WIRING DIAGRAM

Part No. WD-144-20-001-51

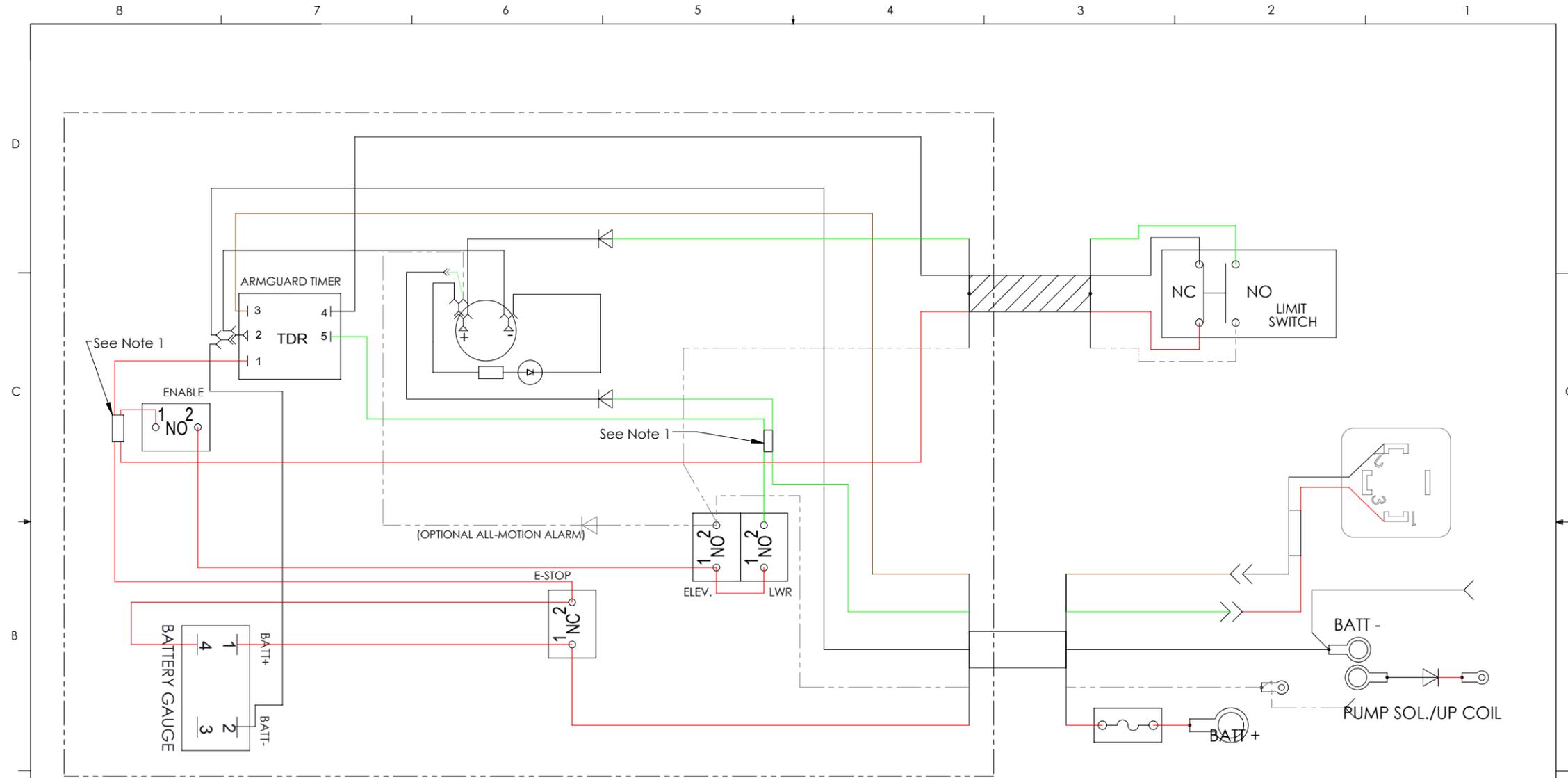


REV	DESCRIPTION OF CHANGE	ECO #	DATE	REV BY
F	Move Beacon Wire to Opp. Side of Disc. Sw.	2016-2978	06/23/2016	GLH
ORIGINALLY DRAWN BY:		DATE:		
Custom Equipment, Inc. Richfield, WI 53076 Phone: (262)644-1300				
WIRING DIAGRAM, HB-P4.5/5.0				
SPEC/MATL: Schematic		WEIGHT: APPROX. 0.00 LB.		
DRAWING #: WD-144-20-001-51				F
SCALE: 1:1	B-SIZE	DO NOT SCALE DRAWING	SHEET 1 OF 3	

THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY TO CUSTOM EQUIPMENT AND IS LOANED IN EXPECTATION THAT IT WILL BE KEPT CONFIDENTIAL AND USED ONLY FOR THE PURPOSE FOR WHICH IT IS LOANED.

5.2 | UPPER CONTROL WIRING DIAGRAM

Part No. WD-144-21-010-51



NOTES:
1) ULTRASONIC WELD AND HEAT SHRINK
OR BUTT SPLICE AND HEAT SHRINK (2 PLACES)

REV	DESCRIPTION OF CHANGE	ECO #	DATE	REV BY
F	BATT METER WIRING		2015-2804/06/28/2016	DJS
ORIGINALLY DRAWN BY:		DATE:		
Custom Equipment, Inc.		Richfield, WI 53076 Phone: (262)644-1300		
WD,HB-P4.5/5.0 UPR CTL				
SPEC/MATL: Wiring Diagram		WEIGHT: APPROX. 0.00 LB.		
DRAWING #: WD-144-21-010-51				F
SCALE:1:1	B-SIZE	DO NOT SCALE DRAWING	SHEET 1 OF 1	

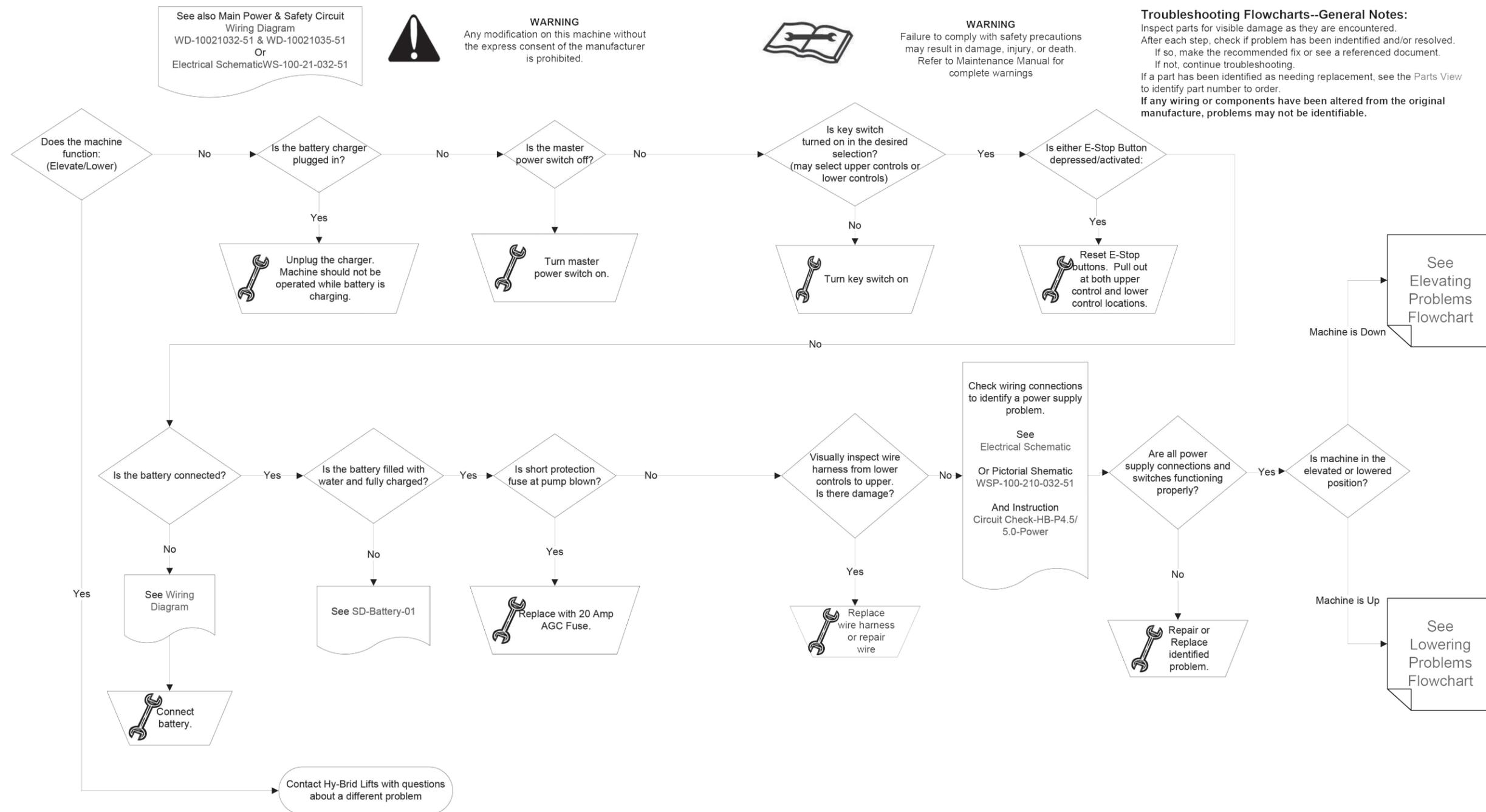
THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY TO CUSTOM, EQUIPMENT AND IS LOANED IN EXPECTATION THAT IT WILL BE KEPT CONFIDENTIAL AND USED ONLY FOR THE PURPOSE FOR WHICH IT IS LOANED.

6.1 | TROUBLESHOOTING FLOWCHART: POWER

Troubleshooting Step 1: Main Power

Flowchart: HB-P4.5/5.0 Power

Troubleshooting Step 1: Main Power



Reference Revision P01

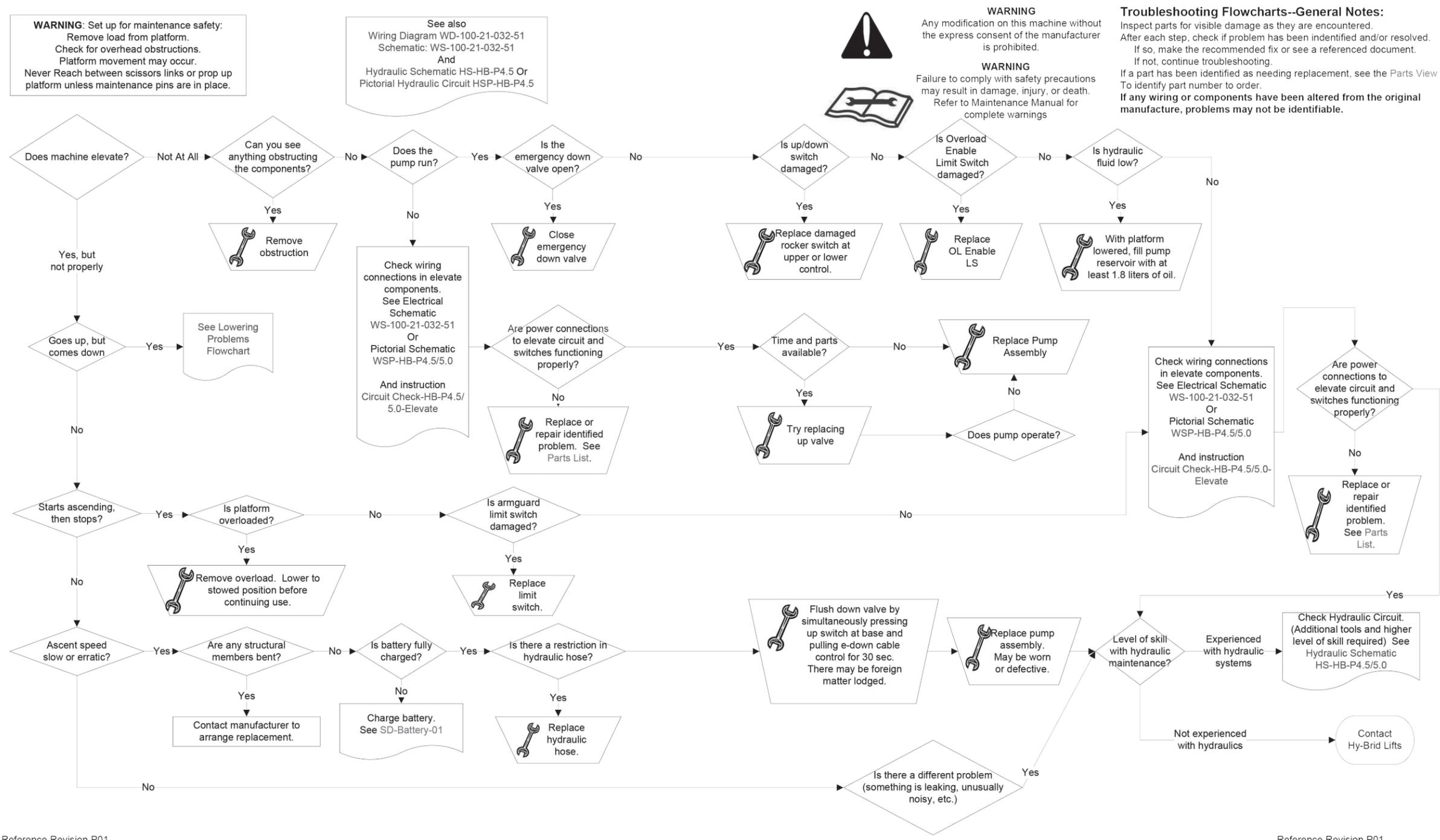
Reference Revision P01

6.2 | TROUBLESHOOTING FLOWCHART: ELEVATING

Troubleshooting Step 2A: Elevating

Flowchart-HB-P4.5/5.0-Elevating

Troubleshooting Step 2A: Elevating



Reference Revision P01

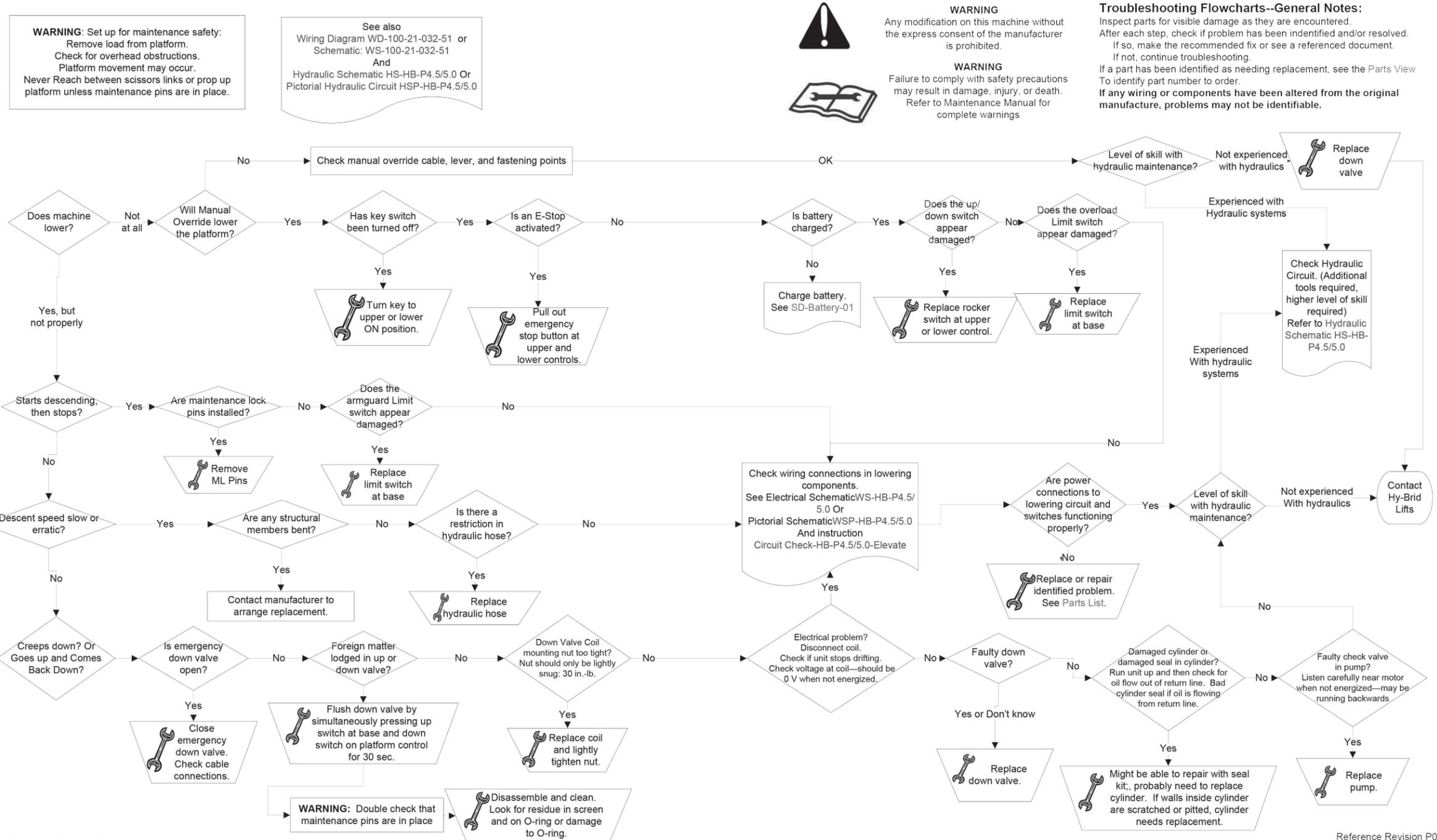
Reference Revision P01

6.3 | TROUBLESHOOTING FLOWCHART: LOWERING

Troubleshooting Step 2B: Lowering

Flowchart: HB-P4.5/5.0-Lowering

Troubleshooting Step 2B: Lowering





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



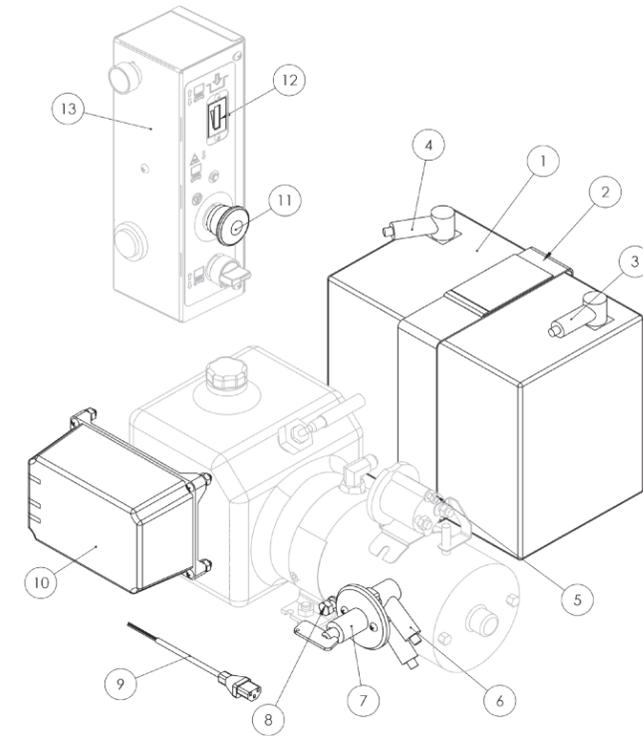
REPLACEMENT OF THE FOLLOWING COMPONENTS WILL AFFECT THE STRENGTH, STABILITY, OR SAFETY FUNCTION OF THE UNIT: BATTERY, HYDRAULIC CYLINDER, AND ALL STRUCTURAL COMPONENTS.

Listed below are replacement parts that may be available and listed for reference. These represent current 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

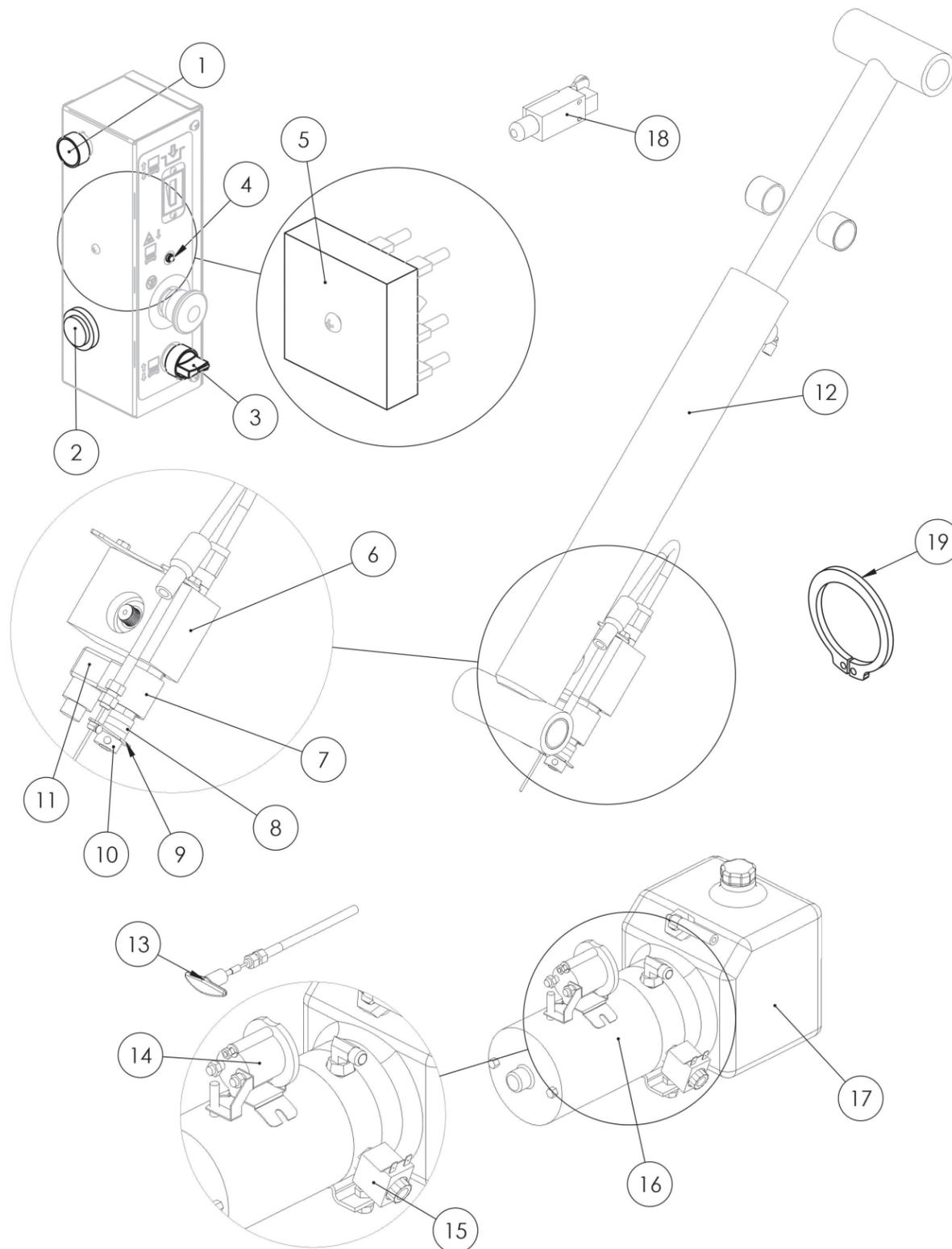
Part Number	Description
144-21-007-51-K	DECAL KIT, HB-P4.5
144-21-007-53-K	DECAL KIT, HB-P5.0
DE600E-10	DECAL, MANUAL BOX
DE600E-14	DECAL, MAINTENANCE LOCK
DE751	DECAL, EMERGENCY DOWN
DE601	DECAL, HY-BRID LOGO
DE603-7	DECAL, MODEL HB-P4.5
DE603-8	DECAL, MODEL HB-P5.0
DE746	DECAL, LANYARD ATTACHMENT
DE652	DECAL, WEBSITE
DE679	DECAL, HYDR FLUID
DE706	DECAL, UPR
DE718	DECAL, CE MARK
DE723	DECAL, WHEEL LOAD HB-P4.5
DE727	DECAL, KEEP
DE728	DECAL, CLEAR
DE729	DECAL, WHEEL LOAD HB-P5.0
DE730	DECAL, OL ALARM
DE731	DECAL, QR CODES
DE739	DECAL, LWR
DE740	DECAL, LWR PWR
DE742	DECAL, CAPACITY, 550#, 1P, I, WO/SO

7.2 | MAIN POWER/SAFETY CIRCUIT



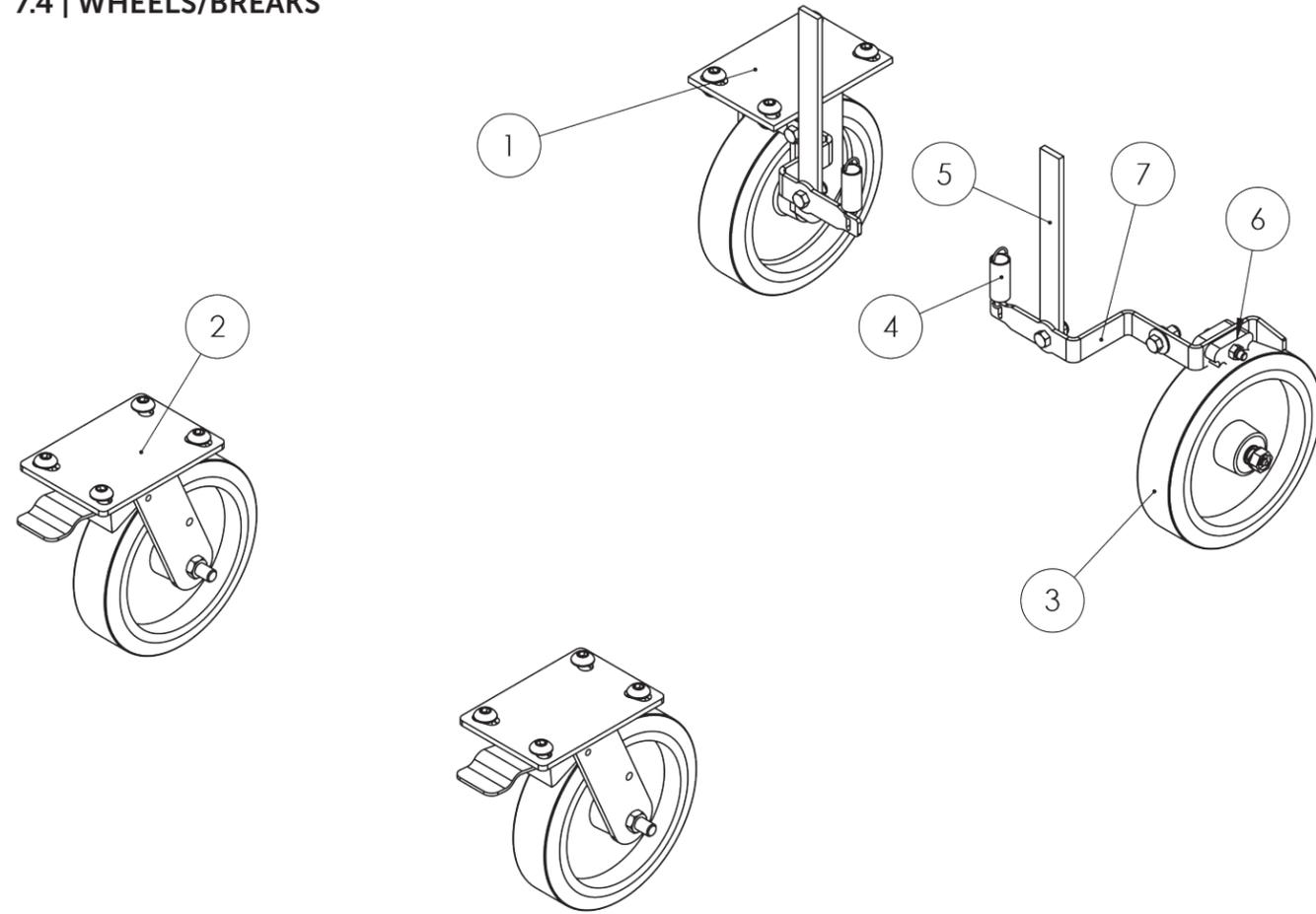
Item #	Part Number	Description
1	(ELEC-047-6)	Not available as a replacement part. Replace battery with 12V, Group 24 AGM Battery. Replacement weight must be minimum 22.7 kg (50 lb.)
2	HARD-684	Battery Strap
3	ELEC-634C	Battery Terminal Cover, Red
4	ELEC-634D	Battery Terminal Cover, Black
5	N/A	B+ Power Connection Location on Pump
6	ELEC-634D	Battery Terminal Cover, Black
7	ELEC-633-2	Master Power Switch
7	ELEC-633-3	Spare Key
8	N/A	B-"Ground" Connection Location on Pump
9	ELEC-639-4	Charger Cord (NEMA 5-15P/IEC-320 C-13)
10	ELEC-746	Battery Charger
11	ELEC-071-KIT	Emergency Stop Button with Contact Block
12	ELEC-610-4	Battery Volt Meter
13	144-21-010-51 144-21-010-53	Upper Control, HB-P4.5 Upper Control, HB-P5.0

7.3 | ELEVATE/LOWER CIRCUIT PARTS



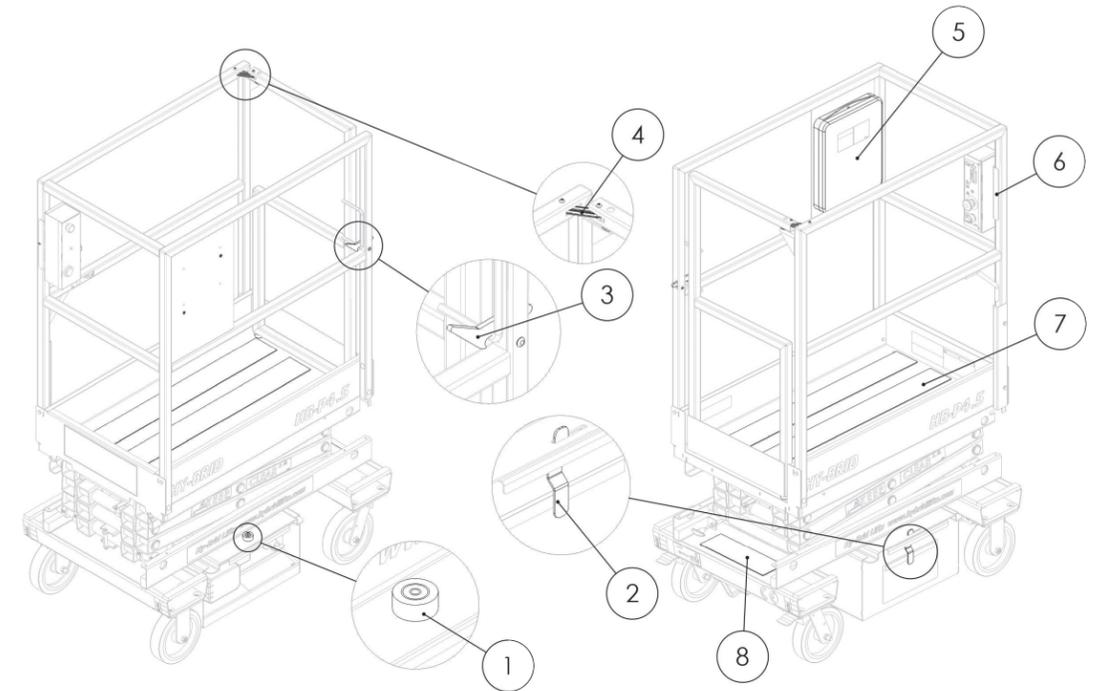
Item #	Part Number	Description
1	ELEC-602-KIT	Enable Switch
2	ELEC-635	Alarm
3	ELEC-002A-KIT	Up/Down Rotary Switch
4	ELEC-636	Overload Indicator Light
5	ELEC-632	Time Delay Relay
6	144-21-011-51-K	Manifold Block Assembly
7	HYDR-007-2F	Down Valve & Coil
7	HYDR-007-2E-5	Down Valve
7	HYDR-007-2E-6	Down Valve Coil (12V)
8	WHEE-605-P	Shaft Spacer
9	LAS-M115	Emergency Down Lever
10	HARD-650	7/16 Shaft Collar
11	HYDR-044-FL3	Hirschmann Connector with Diode
12	144-21-012-51-K	Hydraulic Cylinder
13	HARD-644-06	Emergency Down Cable
13	HARD-644-07	Emergency Down Cable, Handle only
14	HYDR-674	Start Solenoid (12 V)
15	HYDR-665	Up Valve
15	HYDR-673	Up Valve Coil
16	HYDR-050-7	Hydraulic Pump
17	(HYDR-032)	Hydraulic Fluid: Not available as a replacement part. Replace with Flomite #150, Dexron II, Mobil-DTE 2, or equivalent.
18	ELEC-123-5	Armguard/Overload Switch
19	HARD-022	Retaining Ring, 1.25"
Not called out	HYDR-677	Hydraulic Fitting
Not called out	HYDR-022-3	Low Pressure Hydraulic Line
Not called out	HYDR-600-5	Hydraulic Hose

7.4 | WHEELS/BREAKS



Item #	Part Number	Description
1	144-21-031-50-K	Rigid Caster Assembly
2	WHEE-713-5	Swivel Caster Assembly
3	WHEE-706-KIT WHEE-002-1 WHEE-002-2	Wheel 29.32 cm (8") Bearing Kit Axle Kit
4	HARD-690	Spring
5	1000131402	Brake Actuator
6	143-01-028-02	Brake Cam
7	144-01-014-02	Brake Lever

7.5 | COVERS/OTHER



Item #	Part Number	Description
1	HARD-086	Level
2	1000132101	Cabinet Latch
3	1000307601	Gate Latch
	HARD-649 SCREW-1100	Gate Latch Mounting Hardware: 1/4 X 1.25 Barrel Screw #10-24 #10-24 X 1/2 Screw
4	HARD-606-2	Gate Spring
	HARD-649 SCREW-1100	Gate Spring Mounting Hardware: 1/4 X 1.25 Barrel Screw #10-24 #10-24 X 1/2 Screw
5	HARD-603	Manual Box
6	HARD-067-2	Upper Control Fastener
7	MISC-031-05	Anti-Slip Tape,375 in. / 95 cm
8	MISC-031-02	Anti-Slip Tape,12 in. / 31 cm

LIMITED 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:

Limited Product Warranty

For a period of 24 months from the date that a new product manufactured by the Company ("Product") is delivered to the 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

Extended Structural and Chassis Warranty

For a 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 damage 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;

Damage to any equipment or parts not manufactured 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 WARRANTY REMEDIES

Exclusive Repair or Replace 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 implied warranty of merchantability, non-infringement of proprietary or third-party rights or fitness for a 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 in contract or tort (including negligence and strict liability) or otherwise, even if the company has been specifically advised of the possibilities of such damages.

Version 1.15.16

HY-BRID LIFTS™

BY CUSTOM EQUIPMENT LLC

Push-Around Aerial Work Platform
Maintenance & Troubleshooting Manual
HB-P4.5/HB-P5.0

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

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