



MAINTENANCE AND TROUBLESHOOTING MANUAL

Hy-Brid Lifts Model HB-P830

Push-Around Aerial Work Platform

Table of Contents

Safety	5
Safety Symbols	5
General Rules and Precautions	5
Safety Guidelines	
Maintenance Lock	
Maintenance	7
Battery Maintenance	7
Charging the Battery	7
Lubrication	
Components requiring adjustment	
Examination, repair, replacement of limited life components	8
Safety devices and systems requiring checks	
Storage	
Major Alterations or Repairs	
Inspection and Regular Maintenance Checklists	
Monthly Battery Care	9
Prestart Inspection	
Frequent Inspection Checklist	11
Pre-Delivery/Annual Inspection Checklist	12
Technical References	
Hydraulic Schematic	
Electrical Schematic	
Wiring Diagrams	
Wiring Diagram	
Lower Controls Wiring Diagram	
Upper Controls Wiring Diagram	20
Troubleshooting Flowcharts	
Troubleshooting Flowchart	
Troubleshooting Flowchart—Elevate & Lower Circuit	24
Replacement Parts	
Safety and Control Decals	

Main Power/Safety Circuit
Elevate/Lower Circuit
Wheels/Brakes
Covers/Other
Warranty

Revision Table:

Revision A (08/06/2010): Initial Release Revision G (6/7/2012): Revised Pages 3, 29 Revision H (10/24/2012): Revised Logos

 27
 29
 29
 30

Original instructions are written in English

Foreword

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.



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.

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

Custom Equipment, Inc. 2647 Hwy 175 Richfield, WI 53076 USA Phone: 262-644-1300 Fax: 262-644-1320 www.hybridlifts.com

Safety

Safety Symbols

DANGER FAILURE TO FOLLOW THIS WARNING

WILL CAUSE DEATH OR PERSONAL INJURY.

WARNING

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

CAUTION

FAILURE TO FOLLOW THIS WARNING MAY CAUSE INJURY OR DAMAGE EQUIPMENT

General Rules and Precautions

Custom Equipment, Inc. designed the Hy-Brid Lift push-around scissor lift to be safe and reliable. It is intended for elevating personnel, along with their necessary tools and materials to overhead work locations.

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, Inc. conforms to specified American National Standards Institute ANSI/SIA A92.3 Standard, it is the responsibility of the owner to instruct operators with the safety requirements made not only by Custom Equipment, Inc., but by the various safety boards in your area, as well as additional requirements set forth by ANSI A92.3. 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

WARNING NEVER REACH BETWEEN SCISSORS LINKS OR PROP UP PLATFORM UNLESS MAINTENANCE PINS ARE IN PLACE.

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

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

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

WARNING

Safety Guidelines

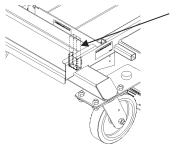
Maintenance Lock

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.



Maintenance Pin Location When in Use

Figure 1: Maintenance Lock Pin Use



Pin Storage Location

Figure 2: Maintenance Lock Pin Storage

WARNING

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

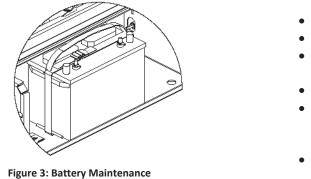
- Never work under an elevated platform until maintenance locks have been engaged.
- Remove all rings, watches, and jewelry when performing any maintenance. •

- 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.

Maintenance

Battery Maintenance

This unit is equipped with a deep cycle 12-volt 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.





Charging the Battery

This unit is equipped with a deep cycle 12-volt 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. **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.

- Park the machine on a level surface.
- Plug charger into AC outlet until charged.
- battery charge.

The charger will not begin charging on severely discharged batteries.

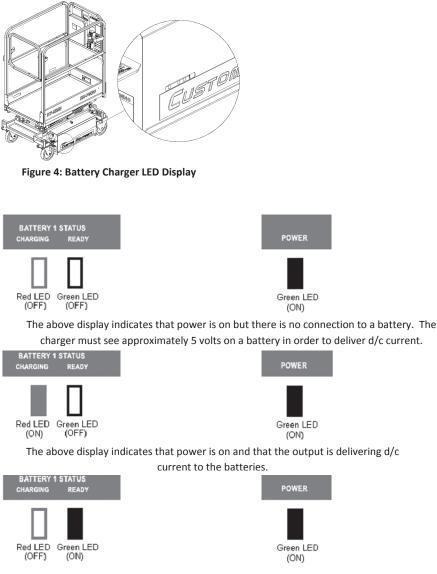
- Remove battery cabinet cover.
 - Remove battery caps and check fluid level.
- Fill each cell (if needed) to split ring with distilled water.
 - Reinstall caps.
 - Wash all dirt, debris, acid, etc., off battery whenever corrosion is detected. Use a solution of 5-tsp. baking soda per quart of warm water.
- Coat terminals with a commercially available coating.

	A CAUTION
Э.	NEVER ADD ACID TO BATTERY!

WARNING

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

• For best battery life, leave charger plugged in until machine will be used again. The charger will maintain the



The above display indicates that power is on and that the output is finished charging and is in a float maintenance mode.

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.

Lubrication

Item	Specification	Frequency of Lubrication
Wheels	Teflon Spray	Quarterly

Components requiring adjustment

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

Examination, repair, replacement of limited life components

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

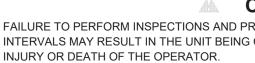
Safety devices and systems requiring checks Check safety functions as part of daily inspection. Check that the electromagnetic brakes are holding. Storage

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

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.

Inspection and Regular Maintenance Checklists

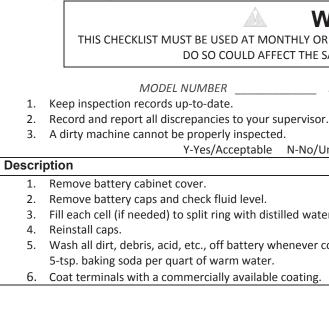


Regular inspection and conscientious maintenance is important to efficient economical operation of this machine. It will help to assure that equipment will perform satisfactorily with a minimum of service and repair. Make checks at the stated intervals or more frequently if required by local operating conditions. The following inspection checklists are required and included in this manual: **Pre-Start** (Required before operation at each work shift)

Monthly Battery Maintenance

Frequent (Required at intervals not more than three months) **Pre-Delivery/Annual** (Required at intervals not more than twelve months)

Monthly Battery Care



DATE _____ INSPECTED BY __

CAUTION

FAILURE TO PERFORM INSPECTIONS AND PREVENTITIVE MAINTENANCE AT RECOMMENDED INTERVALS MAY RESULT IN THE UNIT BEING OPERATED WITH A DEFECT THAT MAY RESULT IN

WARNING

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

SERIAL NUMBER

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

	Υ	Ν	R
ater.			
er corrosion is detected. Use a solution of			
ng.			

Prestart Inspection

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 HB-P830 SERIAL NUMBER_____

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

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

Description	Υ	Ν	R
Visual Inspections			
Check that there are no damaged, dented, or bent structural members.			
There are no loose or missing parts.			
Check that warning and instructional labels are legible and secure. Ensure that load capacity is clearly			
marked.			
Check the platform rails and safety gate for damage.			
Platform and base controls are not missing, damaged, or disconnected.			
Electrical cables and wires are not torn, frayed, or disconnected.			
Hydraulic hoses are not torn or loose, and there are no leaks. Check that hoses and the cables have no			
worn areas or chafing.			
Check the hydraulic fluid level with the platform fully lowered.			
Check the tires for damage.			
Check that all snap rings are secure in grooves on pivot pins.			
Functional Tests			
Gate closes automatically and latches (alignment can be adjusted with screw on toe board or railing if			
necessary).			
Platform Controls: Check all switches and push buttons for proper operation.			
Emergency Stop (Stops all movement)			
Up/Down Controls (Elevates, Lowers, Enable button must be pressed)	—		
Base Controls: Check all switches and push buttons for proper operation.			
Emergency Stop (Stops all movement) Key Switch (Selects Platform Control, Ground Control, or Off)			ĺ
Up/Down Rocker Switch (Elevates, Lowers)			
Wheels: Front and rear wheels rotate freely.	+		<u> </u>
	+-		┣──
Brakes engage and hold when platform elevated.			

DATE _____ INSPECTED BY _____

Frequent Inspection Checklist



MODEL NUMBER HB-P830 SERIAL NUMBER

A

- 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.

Description
Visual Insp
Perform all checks on the Pre-Start Inspection Checklist.
Inspect the condition of hydraulic fluid in reservoir. Oil shou
Inspect the entire machine for signs of damage, broken welc
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 da
Function
Perform all checks on the Pre-Start Inspection Checklist.
Functions operate smoothly.
Functions operate over full range of motion.
Emergency Lowering—Manual override functions properly.
Ground Controls override platform controls.
Check that the platform does not drift down with a full load.
Wheels lubricated if needed.
Comments:

DATE _____ INSPECTED BY

WARNING

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.

	Υ	Ν	R
pections			
uld have a clear amber color.			
ds, loose bolts, or improper repairs. (Check			
ate.			
al Tests	•		

Pre-Delivery/Annual 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 12 MONTHS.

MODEL NUMBER: HB-P830 SERIAL NUMBER_

- Check each item listed below.
- Use proper operating, service, and maintenance manual for specific information and settings ٠
- If an item is found to be unacceptable make the necessary repairs and check the "repaired" box. ٠
- When all items are "acceptable", the unit is ready for service. ٠

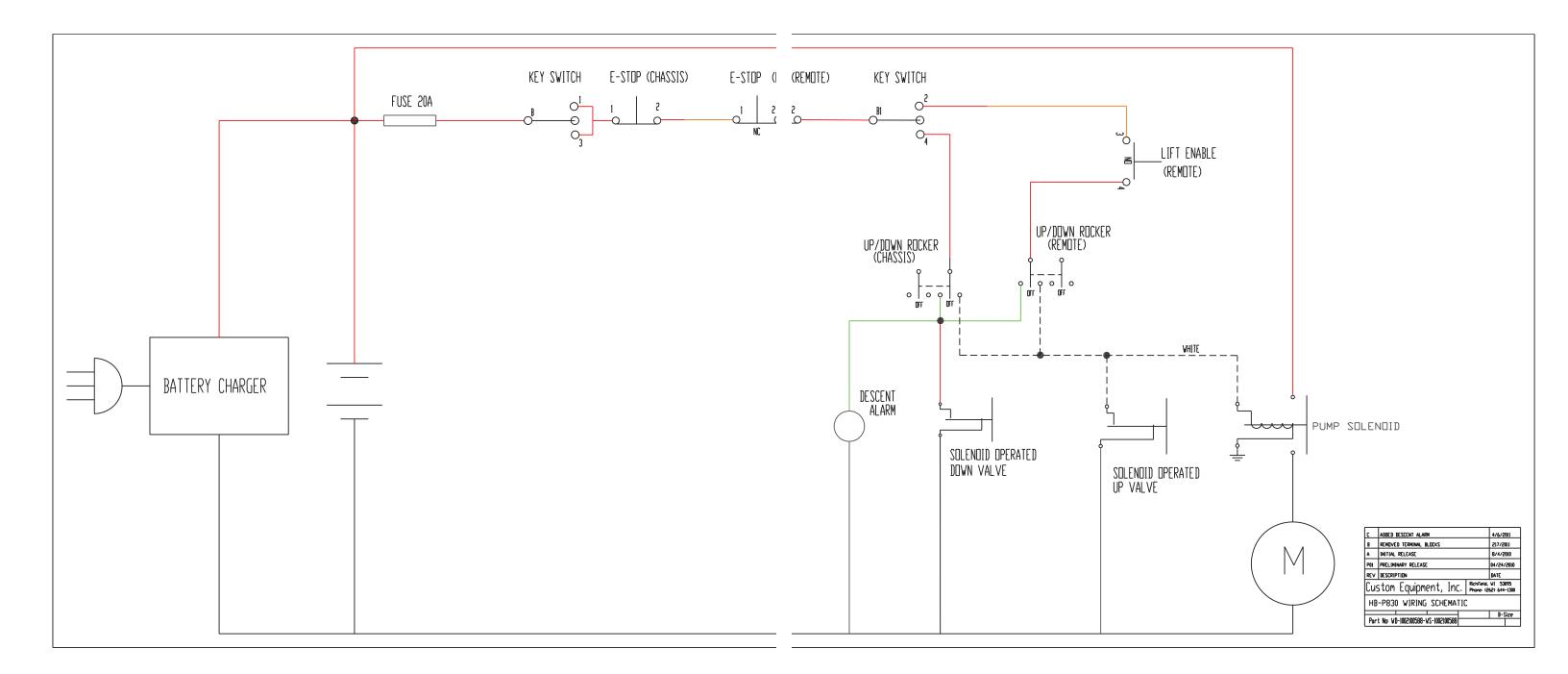
Check	Y	Ν	R	Check	Y	Ν	R
Base:							
Inspect slide tracks for damage				Decals:			
All frame bolts tight				Legibility			
Pump Secure				Correct capacity noted			
DC motor secure				Proper placement quantity			
Battery Hold Downs Secure				Wiring:			
Batteries Fully Charged				Switches secure			
Counterweights secured				Contactor(s) secure			
Wheels: Grease Casters				Tight on terminals (No loose wiring)			
Wheels: Bolts/Nuts Tight				Functions:			
Maintenance Locks: Pins in storage location				Elevate/Lower Operational			
All Shields/Guards in place				Emergency Stop Breaks Circuits			
Hydraulic Oil Level 1" from top				Emergency Down Operational			
Check all hydraulic hoses for leaks				Battery Charger Secure/Operational			
Check all hydraulic fittings for leaks				Brakes: Operational			
Scissors:				Bubble Level in Place			
Broken Welds							
Bent Beam Members							
All rollers Turn Freely							
Ret. Rings Secure On Pivots							
Broken welds							
Platform:							
All rails in place/secure							
No bent rails							
No broken welds							
Platform power outlet safe/working (if installed)							
Entrance gate Closes Freely							
Operator/Service Manual Included							
Cables in place/secure							

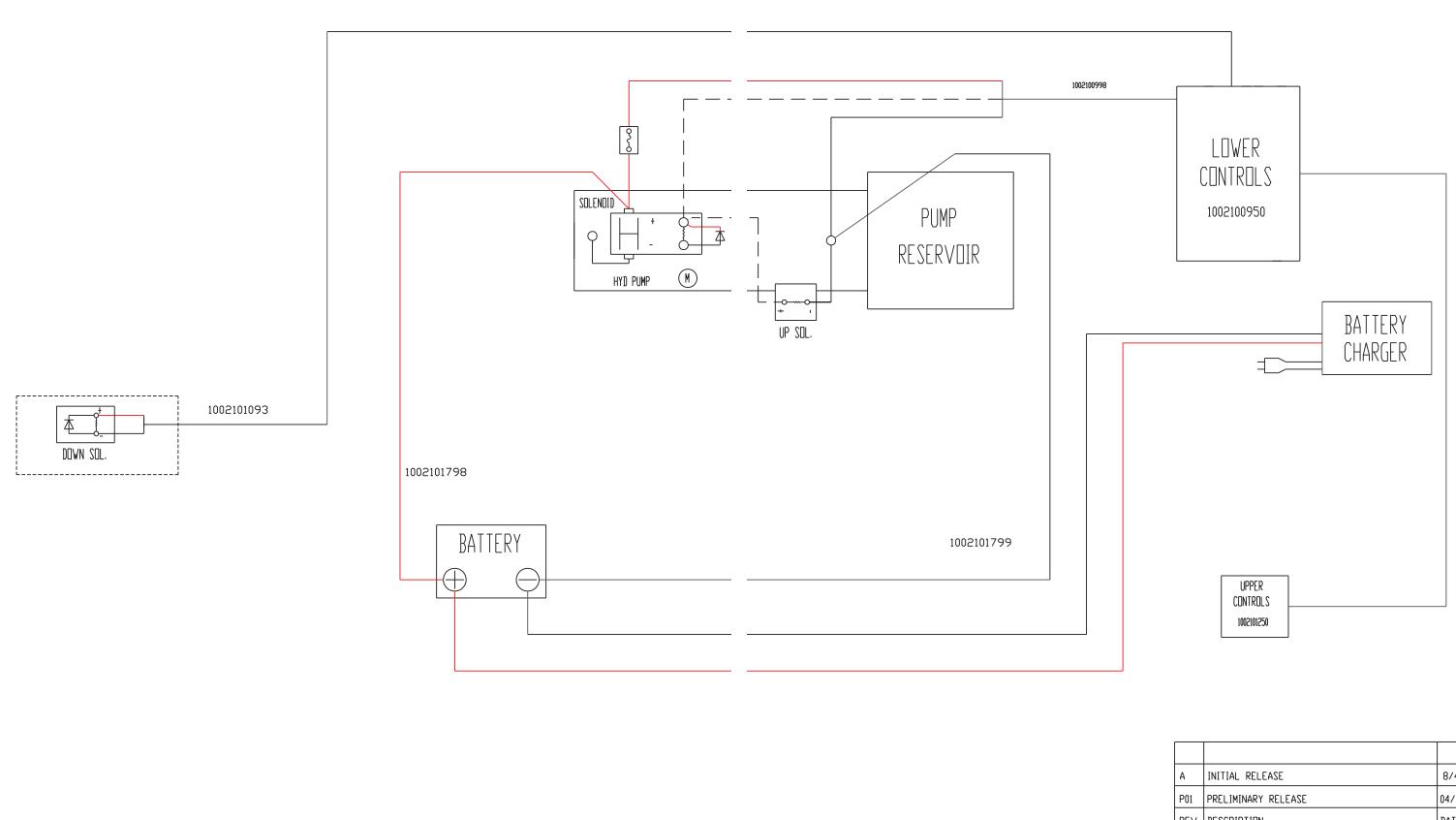
DATE _____ INSPECTED BY __

____ CYLINDER WITH CUSHIDN Pressure compensated Flow control DDWN VALVE W/MANUAL DVERRIDE test port P UP VALVE HIGH PRESSURE HDSE No: HS-HB-P830 Part Part #SUPO-615

REV H

HYDRAULIC PUNP MITTIR RELIEF		
	– a initial release	05/21/2010
	No. Revision	Date
[Wedding Talerances: .X = ± .060 .XX = ± .030 .XXX =		+ D T 1 1 E 200E
.030 .XX = ± .015	.XXX = ± .005 uustom Equipment, Inc. ₩e	WEST BENG, WI JJUJJ
Dart No: HS-HB-P830 Date: 5/3/10 A-Sizel	300E Hydraulic Schematic HS-HB-P830	-P830

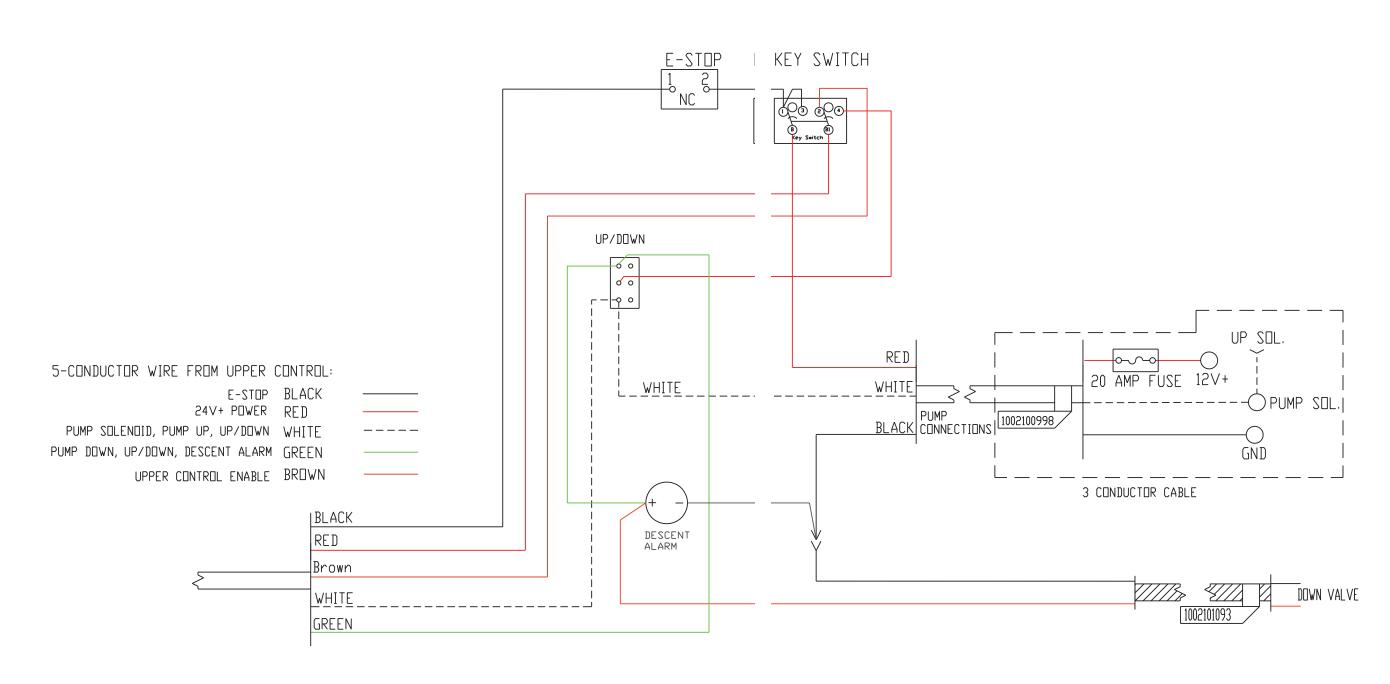




Part #SUPO-615
REV H

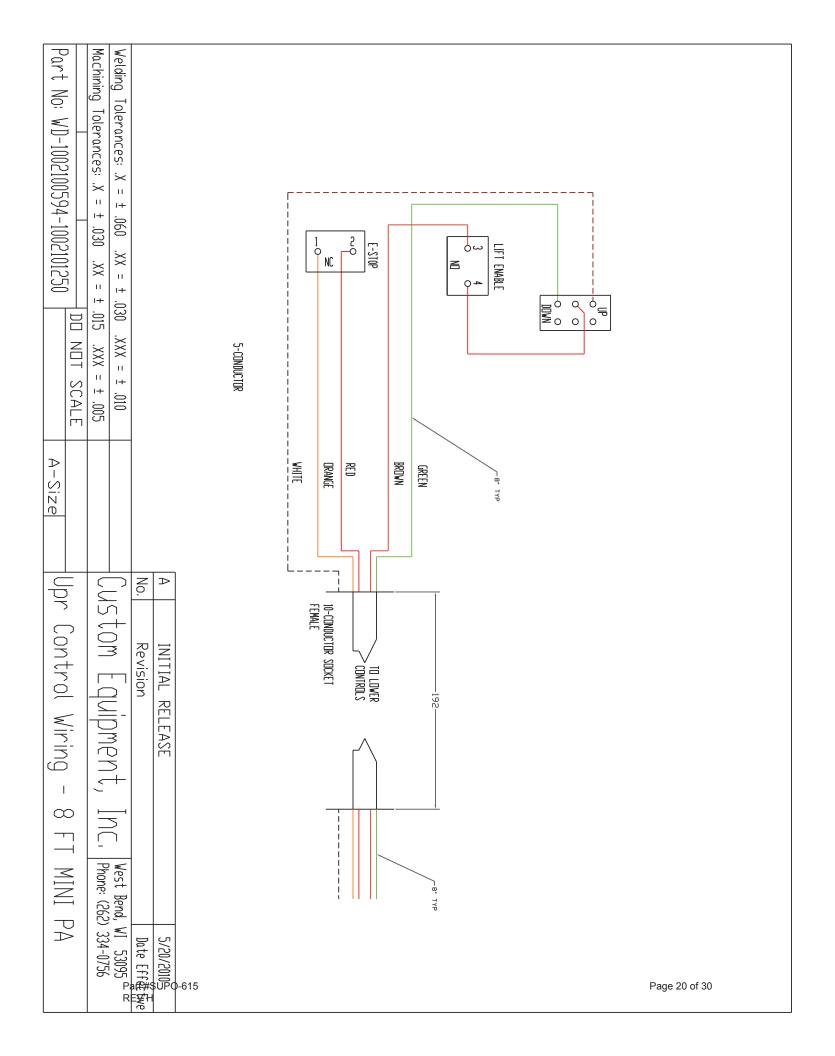
DDNDTSCALEHY-BRIDPart #SUPD-615
Werding Tolerances: .X = ± .060.XX = ± .030.XX =REVMachining Tolerances: .X = ± .030.XX = ± .015.XXX

	А	A INITIAL RELEASE			
	P01	PRELIMINARY RELEASE		04/24/2010	
	REV	DESCRIPTION		DATE	
	Cus	WI 53095 62)644-1300			
ID LIFTS	НB	-P830 WIRING DIAGRAM			
= ± .010		Page 17 of	f 30	B-Size	
X = ± .005	Part	t No: WD-1002100188-WD-1002100188			

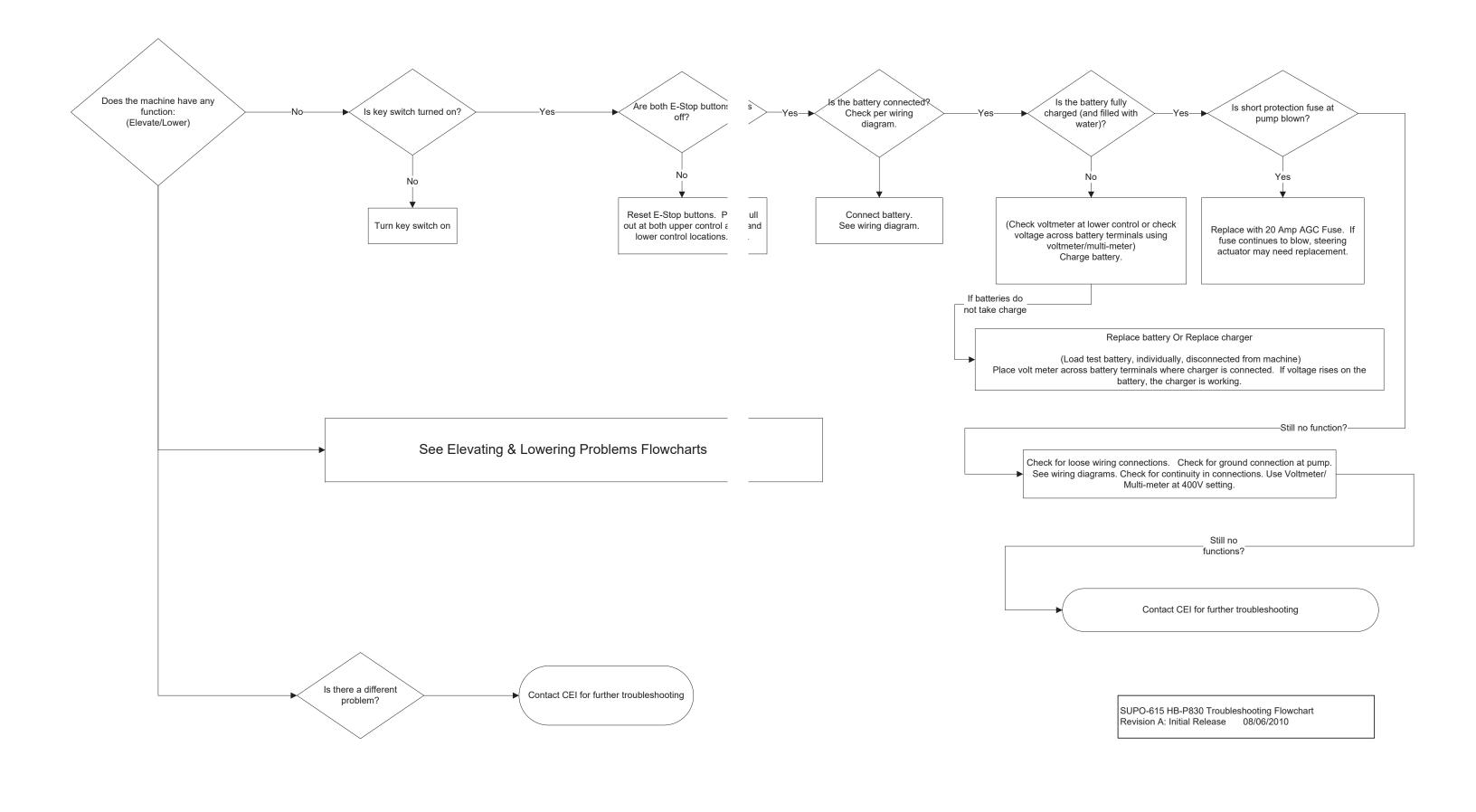


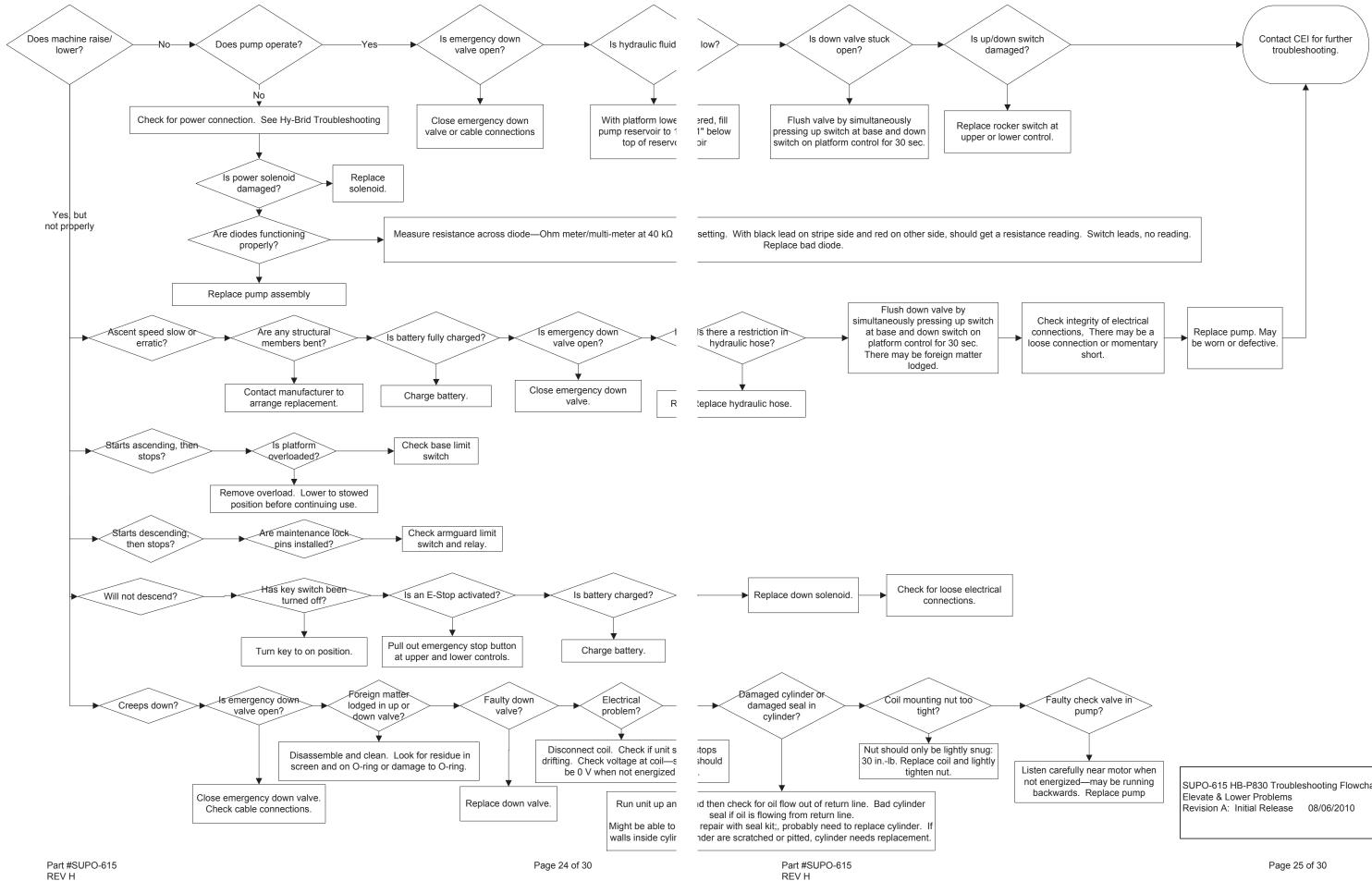
DO NOT SCALE HY-BRI Part #SUPO-615 REV Machining Tolerances: .X = ± .060 .XX = ± .030 .XXX Machining Tolerances: .X = ± .030 .XX = ± .015 .XXX

	С	ADDED DESCENT ALARM	4/6/2011	
	В	REM⊡∨ED TERMINAL BLOCKS	2/17/2011	
	А	INITIAL RELEASE	8/4/2010	
	P01	4/26/2010		
	REV	DESCRIPTION	DATE	
	Cus	Custom Equipment, Inc. Richfield, Phone: (26		
RID LIFTS	PU	SH ARDUND LOWER CONTROL WI	RING	
(= ± .010		Page 19 of 30	B-Size	
(X = ± .005	Pa	rt No: WD-1002100588-1002100950		
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SUPO-615 HB-P830 Troubleshooting Flowchart

Replacement Parts

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

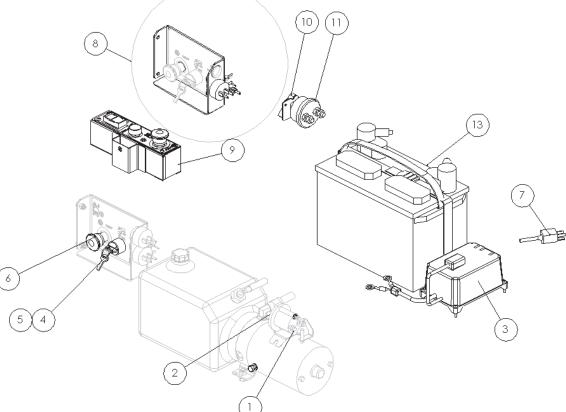
DANGER

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, <u>www.hybridlifts.com</u> 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.

Safety and Control Decals

Refer to Operator's Manual for decal part numbers and locations.



ltem #	Part #	Description
1	NA	B+ Power Conn
2	NA	B-"Ground" Cor
3	ELEC-746	Battery Charger
4	ELEC-073E	Key Switch
5	ELEC-073-1	Spare Key
6	ELEC-071-KIT	Emergency Stop
7	ELEC-639-1	Charger Cord (N
8	1002100950	Lower Control A
9	1002101250	Upper Control A
10	ELEC-071-KIT	Emergency Stop
11	(ELEC-047)	Not available as
		Group 27 Deep
		minimum 50 lb.
(Not Pictured)	1002101750	Battery Cable K
(Not Pictured)	(No Part #)	7A AGC Fuse

Main Power/Safety Circuit

nection Location on Pump Innection Location on Pump

p Button with Contact Block

NEMA 5-15P/IEC-320 C-13)

Assembly

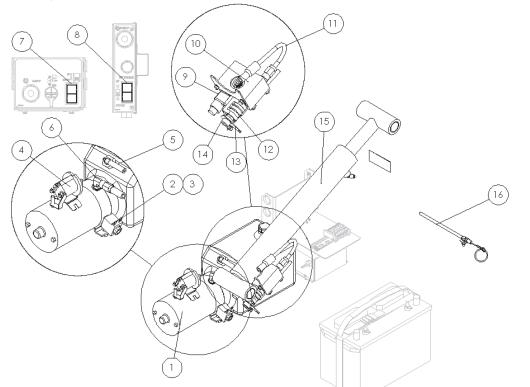
Assembly

p Button with Contact Block

as a replacement part. Replace batteries with 12V, o Cycle Marine Battery. Replacement weight must be

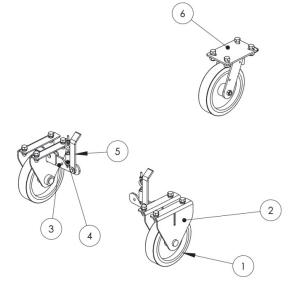
it

Elevate/Lower Circuit



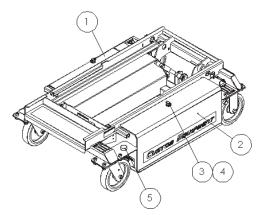
	*
Part #	Description
HYDR-050-4	Hydraulic Pump
(HYDR-032)	Hydraulic Fluid: Not available as a replacement part. Replace with
	Flomite #150, Dexron II, Mobil-DTE 2, or equivalent.
HYDR-665	Up Valve
HYDR-673	10V Coil
HYDR-674	12V Soleniod
HYDR-022-3	Low Pressure Hydraulic Line
HYDR-600-5	Hydraulic Hose
ELEC-133B	Rocker Switch
ELEC-133B	Rocker Switch
HYDR-044-FL3	Hirschmann Connector with Diode
HYDR-625	Pressure Compensated Flow Control
HYDR-600-5	Hydraulic Hose
HYDR-007-2F	Down Valve & Coil
LAS-M115	E-Down Valve Actuator
HARD-650	1/16 Shaft Collar
1002100353	Hydraulic Cylinder
HARD-644	Emergency Down Cable
HARD-022	Retaining Ring, 1.25"
	HYDR-050-4 (HYDR-032) HYDR-665 HYDR-673 HYDR-674 HYDR-022-3 HYDR-600-5 ELEC-133B ELEC-133B ELEC-133B HYDR-044-FL3 HYDR-625 HYDR-600-5 HYDR-007-2F LAS-M115 HARD-650 1002100353 HARD-644

Wheels/Brakes



Item #	Part #	Description
1	WHEE-706, WHEE-708, HARD-001-2	Wheel (8"), Raceway, & DU Bearing
2	1000114707&12/1000116207&12	Caster Sides
3	1000115802	Brake Weldment
4	HARD-668	Spring
5	1000116002	Brake Actuator
6	WHEE-713	Swivel 8" Caster with brake

Covers/Other



Item #	Part #	Description
1	1000510401	Cover, Left
2	1000510301	Cover, Right
3	HARD-633B	Cabinet Lato
4	HARD-633E	Cabinet Lato
5	HARD-086	Level



t		
ch Handle		
ch Cam		

Warranty

<u>LIMITED WARRANTY</u> – Warranty Statement—North America Only

Custom Equipment, Inc. (the "Company") warrants that all new units of equipment manufactured and sold by it conform to the Company's latest published specifications. Also, that all purchased components and sub-assembled parts and assemblies shall be free from defect in material and/or workmanship for a period of 12 months from the date a new unit is placed into service, with the exception of batteries which are covered by the battery manufacturer for a period of ninety (90) days (pro-rated for one (1) year) on batteries. Further, that all structural components manufactured, purchased, and installed by Custom Equipment, Inc. shall be free of any defect in material and/or workmanship for a period of 60 months from the date a new unit is placed into service.

If the equipment owner/end-user experiences a failure or deficiency within the specified warranty period they must promptly notify an authorized Dealer service repair facility.

During the Warranty period, Custom Equipment, Inc. reserves the right to replace, repair, exchange, or to provide a new, used, or rebuilt component, assembly, sub-assembly, or weldment at their discretion, dependent upon circumstance, situation, and/or availability. For battery warranty, call the number listed on the battery for further instructions.

This Warranty Policy does NOT cover damage caused by; shipment, misuse of unit (includes operation beyond Factory established limits, loads, and/or specifications), failure to properly service and maintain the unit in accordance with the Company's manuals or Factory Service Bulletins. Custom Equipment, Inc. DOES NOT accept any responsibility for alterations or modifications to the unit, or, damages caused by any natural disasters (such as fire, flood, wind and lightning).

THE PREVIOUS WARRANTY STATEMENT IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

If field repair or parts replacement is necessary on any warranted components, Custom Equipment, Inc. will reimburse Authorized Dealers for direct labor costs incurred according to the Company's current authorized Field Service Rate (FSR) and/or any established '*Flat Rate Guides*'. Custom Equipment does not pay labor on any consumable items such as batteries, brakes, or tire wear. In no event shall the Company be liable for any indirect, incidental, consequential, or special damage (including without limitation to loss of profits, loss of revenue, cost of capital, cost of substitute equipment, downtime, examination fees, claims of third parties, and injury to person or property) based upon any claim of breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory. This limited warranty statement recognizes the risks and limitations of product failure between Custom Equipment, Inc. and the Buyer.

This written warranty is also understood to be the complete and exclusive agreement between the parties, superseding all prior agreements, oral or written and all other communications between the parties relating to the subject matter of this warranty. No employee, agent or distributor of the Company, or any other person is authorized to state or imply any additional warranties on behalf of the Company, nor to assume for the Company any other liability in connection with any of its products, unless made in writing, dated, and signed by an officer of the Company.