

# ***Hy-Brid Lifts™***

***by Custom Equipment***



## **MAINTENANCE AND TROUBLESHOOTING MANUAL**

Hy-Brid Lifts

Models

HB 1030CE

HB1430CE

Self-Propelled  
Aerial Work Platform

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*Revision Table:*

*Revision A (01/14/2010): Initial Release*

*Revision B (04/08/2010): Revised Cover, p.33-38 Part Numbers for replacement parts*

*Revision C (06/15/2010): Revised pages 2, 3, 9-11, added p.12, revised p. 34: Added stability testing information, revised inspection checklists*

*Revision D (07/21/2010): Revised pages 3, 15, 37-38*

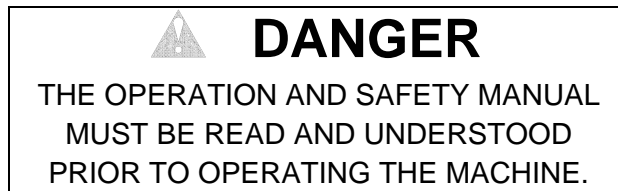
*Revision E (11/15/2010): Revised pages 3, 9*

***Original instructions are written in English***

***Foreword***

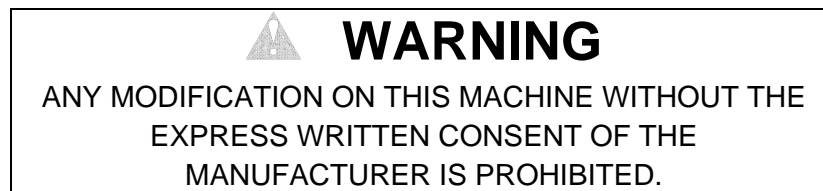
The purpose of this Maintenance Manual is to provide qualified service personnel with information for servicing and maintaining Hy-Brid Lifts. All information in this manual must be read and understood before any attempt is made to service this machine.

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 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.



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](http://www.hybridlifts.com)**

## Safety

### Safety Symbols

 <b>DANGER</b> FAILURE TO FOLLOW THIS WARNING WILL CAUSE DEATH OR PERSONAL INJURY.	"DANGER" indicates an imminently hazardous situation, which, if not avoided, <i>will</i> result in death or serious injury.
 <b>WARNING</b> FAILURE TO FOLLOW THIS WARNING MAY CAUSE DEATH OR PERSONAL INJURY.	"WARNING" indicates a potentially hazardous situation, which, if not avoided, <i>could</i> result in death or serious injury
 <b>CAUTION</b> FAILURE TO FOLLOW THIS WARNING MAY CAUSE INJURY OR DAMAGE EQUIPMENT	"CAUTION" indicates a potentially hazardous situation which, if not avoided, <i>could</i> result in minor or moderate injury or damage to equipment

### General Rules and Precautions

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

Vibration does not create significant hazards on this machine.

**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 EN: 280 requirements, 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 EN: 280 If you come across a situation that you think might be unsafe, stop the platform and request further information from qualified sources before proceeding.**

**WARNING**  
MAINTENANCE INFORMATION IS FOR USE BY TRAINED PERSONNEL ONLY

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

## 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.

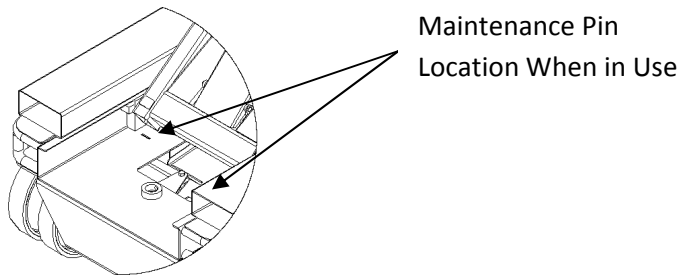


Figure 1: Maintenance Lock Pin Use

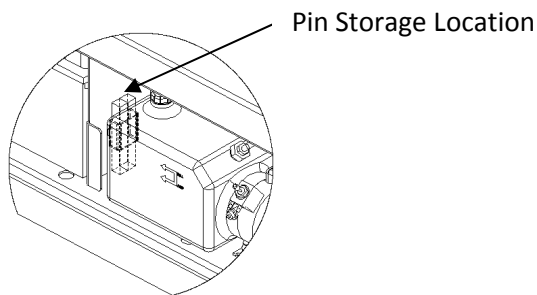


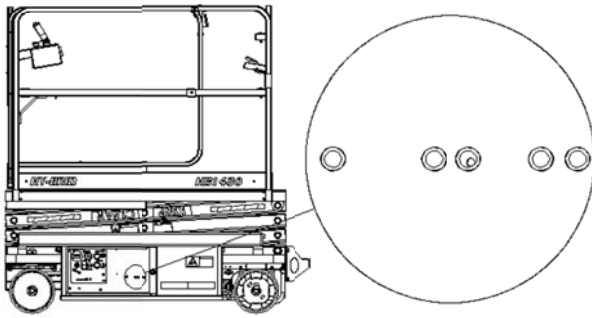
Figure 2: Maintenance Lock Pin Storage

## Maintenance

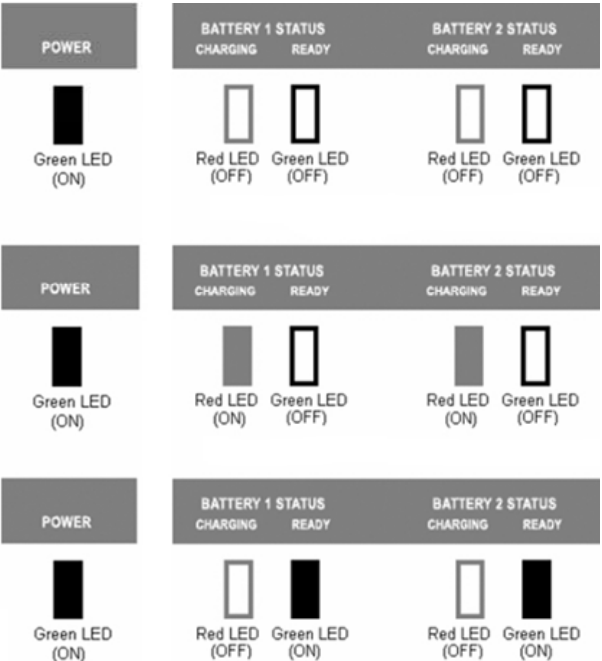
### **WARNING**

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.



**Figure 4: Battery Charger LED Display**



This display indicates that power is on but there is no connection to a battery. The charger must see approximately 5 volts on a battery to deliver d/c current.

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

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

## WARNING

DO NOT OPERATE UNIT WHILE CHARGING.  
DO NOT DISABLE CHARGER INTERLOCK.

## CAUTION

NEVER ADD ACID TO BATTERY!

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
Front Wheels	Teflon Spray	Quarterly
Lower Slider Block Channel	Teflon Spray	As needed to prevent chatter when fully loaded



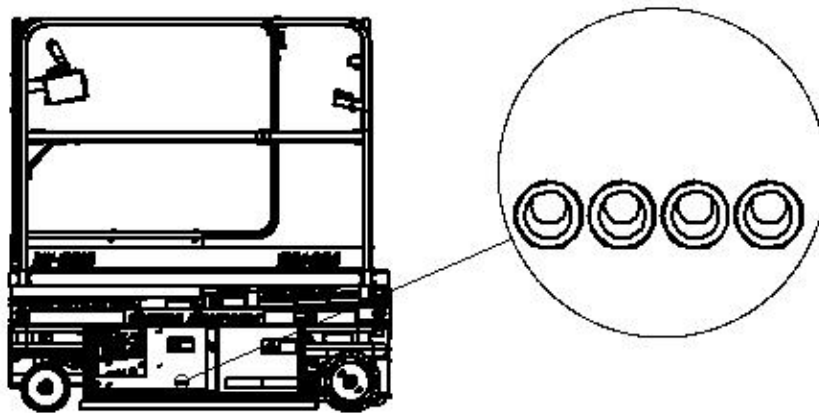


Figure 4: Battery Charger LED Display

	50%	75%	100%	GEL
Charger LED Display Charging State				
0 to 50% charged	Blinking	Off	Off	NA
50% to 75% charged	On	Blinking	Off	NA
75% to 100% charged	On	On	Blinking	NA
100% charged	On	On	On	NA
Charge for flooded type batteries	NA	NA	NA	Off
Charge for Sealed type batteries	NA	NA	NA	On
Abnormal Cycle	Off	Off	Blinking	NA



## WARNING

DO NOT OPERATE UNIT WHILE CHARGING.  
DO NOT DISABLE CHARGER INTERLOCK.



## CAUTION

NEVER ADD ACID TO BATTERY!

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
Front Wheels	Teflon Spray	Quarterly
Lower Slider Block Channel	Teflon Spray	As needed to prevent chatter when fully loaded

## 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.

## Other Procedures

### Setting the Tilt Sensor

1. Verify that unit is powered (red or green LED illuminated/blinking).
2. Zero unit (teach unit home/level position).
  - a. Operate tilt platform until it has reached the desired home position (level).
  - b. Press and hold the button on top of the module for 5 seconds (both LEDs will be OFF).
  - c. Red and Green LEDs will now FLASH. User now has 5 seconds to “program”
  - d. Press and release button 3 times within 5 second period.
  - e. Red and Green LEDs will turn on solid for 2 seconds, indicating position is being learned.

### Voltage Test Points

Contact technical assistance for more detail.

## Stability Testing

The HB1430CE & HB1030CE 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 HB1030CE, the test weight/pull force is 52 kg/115 lb. For the HB1430CE, the test weight is 55.3 kg/122 lb.

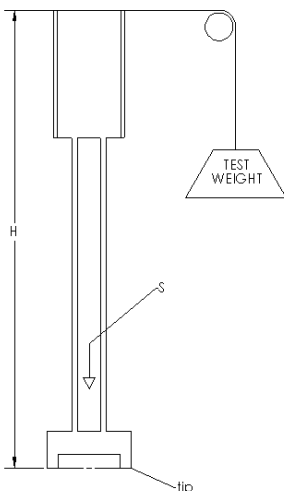


Figure 5: Stability Test, Equivalent

## Inspection and Regular Maintenance Checklists



### CAUTION

FAILURE TO PERFORM INSPECTIONS AND PREVENTIVE 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)

**Monthly Battery Maintenance**

**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, 20h per week, 5 load cycles per h).

### Monthly Battery Care



### 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.

MODEL NUMBER \_\_\_\_\_ 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	Y	N	R
Monthly Battery Care:			
1. Remove battery cabinet cover.			
2. Remove battery caps and check fluid level.			
3. Fill each cell (if needed) to split ring with distilled water.			
4. Reinstall caps.			
5. 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.			
6. Coat terminals with a commercially available coating.			

DATE \_\_\_\_\_ INSPECTED BY \_\_\_\_\_

## Prestart Inspection Checklist



### WARNING

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

MODEL NUMBER \_\_\_\_\_ SERIAL NUMBER \_\_\_\_\_

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	Y	N	R
<i>Visual Inspections</i>			
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 wheel axle retaining rings and set screw in rear wheel are tight.			
Check that all snap rings are secure in grooves on pivot pins.			
<i>Functional Tests</i>			
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) Drive/Steer & Up/Down Mode Button (Selects drive/steer or elevate mode) Joystick & Thumb Rocker Switch (Return to neutral, drives forward & reverse, elevates & lowers) Drive Enable Trigger (Must be activated to drive) Horn Diagnostic Display (Displays tilt, overload)			
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) Up/Down Rocker Switch (Elevates, Lowers) Alarm (Not damaged, sounds for descent, overload) LED (Flashes when overloaded)			
Wheels: Front and rear wheels rotate freely.			
Drives in slow speed when elevated.			
Brakes: Machine stops when joystick released.			
Pothole guards deploy and lock when platform is raised.			
Lift does not elevate when pothole guards are blocked.			

DATE \_\_\_\_\_ INSPECTED BY \_\_\_\_\_

## Frequent Inspection Checklist



# 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.

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.

Description	Y	N	R
<i>Visual Inspections</i>			
Perform all 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.			
Check electrical motor brushes (every 150 hours)			
Verify that maintenance and inspection records are up to date.			
<i>Functional Tests</i>			
Perform all checks on the Pre-Start Inspection Checklist.			
Functions operate smoothly.			
Functions operate over full range of motion.			
Elevated and Lowered drive speeds do not exceed specifications listed in Operators manual.			
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 \_\_\_\_\_

## Pre-Delivery/Annual Inspection Checklist



# 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 12 MONTHS.

MODEL NUMBER: HB1030CE or HB1430CE 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.

Check	Y	N	R	Check	Y	N	R
<b>Base:</b>							
Inspect slide tracks for damage				<b>Decals:</b>			
Steering actuator pinned				Legibility			
All frame bolts tight				Correct capacity noted			
Pump Secure				Proper placement quantity			
Tie Rod secure				<b>Wiring:</b>			
DC motor secure				Switches secure			
Battery Hold Downs Secure				Contact(s) secure			
Batteries Fully Charged				Tight on terminals (No loose wiring)			
Counterweights secured				<b>Functions:</b>			
Wheels: Snap Rings Secure				Drive, Lift, Steer Functions Operational			
Wheels: Bolts/Nuts Tight				Emergency Stop Breaks Circuits			
Maintenance Locks: Pins in cabinet				Slow Speed limit switch Set properly			
All Shields/Guards in place				Emergency Down Operational			
Hydraulic Oil Level 1" from top				Pothole guards deploy when platform			
Check all hydraulic hoses for leaks				Pothole interlock functions correctly			
Check all hydraulic fittings for leaks				<b>Brakes: Operational</b>			
<b>Scissors:</b>				Tilt sensor Functional			
Broken Welds				Warning Horn Alarms			
Bent Beam Members				Motion Alarms Functional			
All rollers Turn Freely				Hour meter operational			
Ret. Rings Secure On Pivots				Battery indication operational			
Broken welds				Verify Overload Calibration			
<b>Platform:</b>				Battery Charger Secure/Operational			
All rails in place/secure							
No bent rails							
No broken welds							
110V outlet safe/working (if installed)							
Entrance gate Closes Freely							
Operator/Service Manual Included							
Cables in place/secure							
Extending platform extends freely							
Extending platform Locks in Stowed Position							
Extending platform Locks in Extended Position							
Comments:							

DATE \_\_\_\_\_ INSPECTED BY \_\_\_\_\_

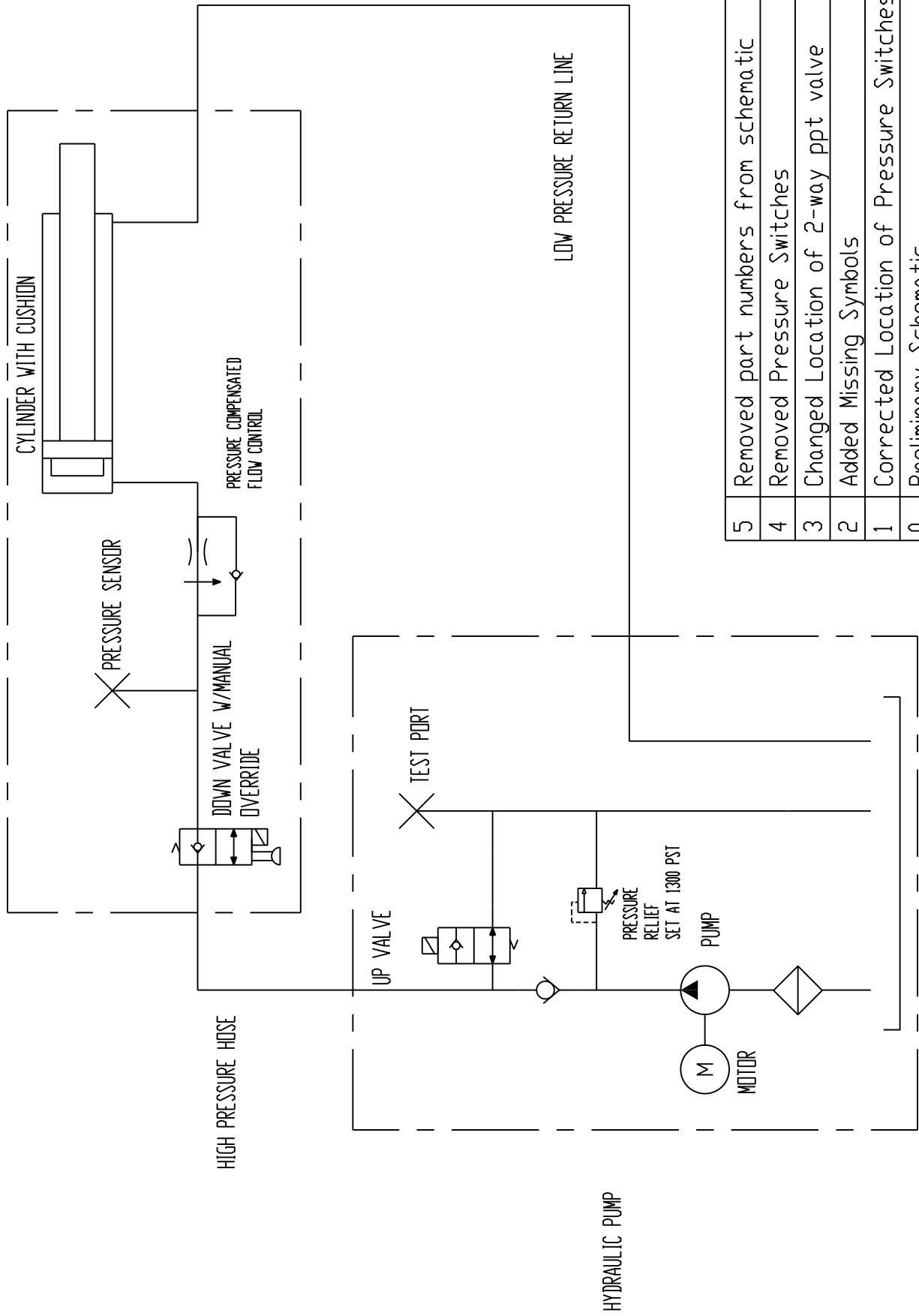
## Technical References

### Platform Control Error Display

Display	Description
01	System initialization error
02	System communication error
03	Invalid option setting
11	Free wheel switch on motor is open
12	Chassis Up or Down ON at power-up
18	Pothole guard error
31	Pressure Sensor Fault
32	Angle Sensor Fault
42	Platform Left Turn Switch ON at power-up
43	Platform Right Turn Switch ON at power-up
46	Platform Joystick Enable Switch ON at power-up
47	Platform Joystick not in neutral at power-up
54	Lift Up Coil Fault
55	Lift Down Coil Fault
58	Brake Fault
60	Motor Fault
61	Motor Controller Fault
62	Temperature Fault
63	Charger Fault
64	Motor Controller Fault
68	Low Voltage Fault
80	Over 80% Load
90	Over 90% Load
99	Over 100% Load
OL	Overloaded Platform
LL	Machine Tilted beyond safe limits

### Platform Control Battery Monitor

Display	Battery Percent	Description
-- -- --	90	Percent of Battery Charge
- -- --	70	Percent of Battery Charge
- - --	50	Percent of Battery Charge
- - -	30	Percent of Battery Charge
- - -	20	Charge Battery
-	10	Very Low Charge



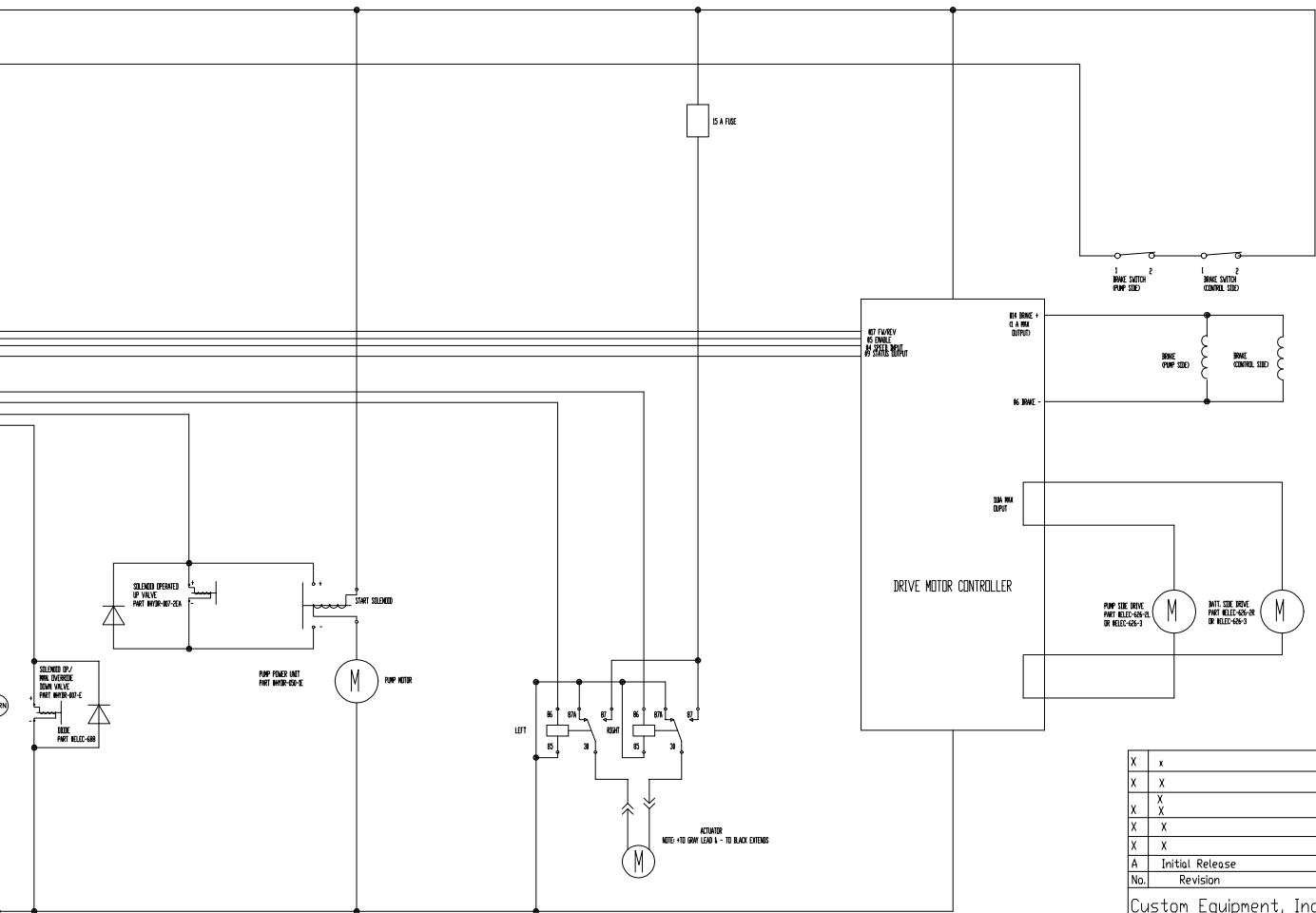
5	Removed part numbers from schematic	7/22/10
4	Removed Pressure Switches	4/2/07
3	Changed Location of 2-way ppt valve	09/28/06
2	Added Missing Symbols	09/13/06
1	Corrected Location of Pressure Switches	09/07/06
0	Preliminary Schematic	09/06/06
No.	Revision	Date
Custom Equipment, Inc.		
West Bend, WI 53095		
Phone: (262) 334-0756		
Hydraulic Schematic HB1030CE-HB1430CE		

DO NOT SCALE	A-Size
Part No: HSHBE	Date:

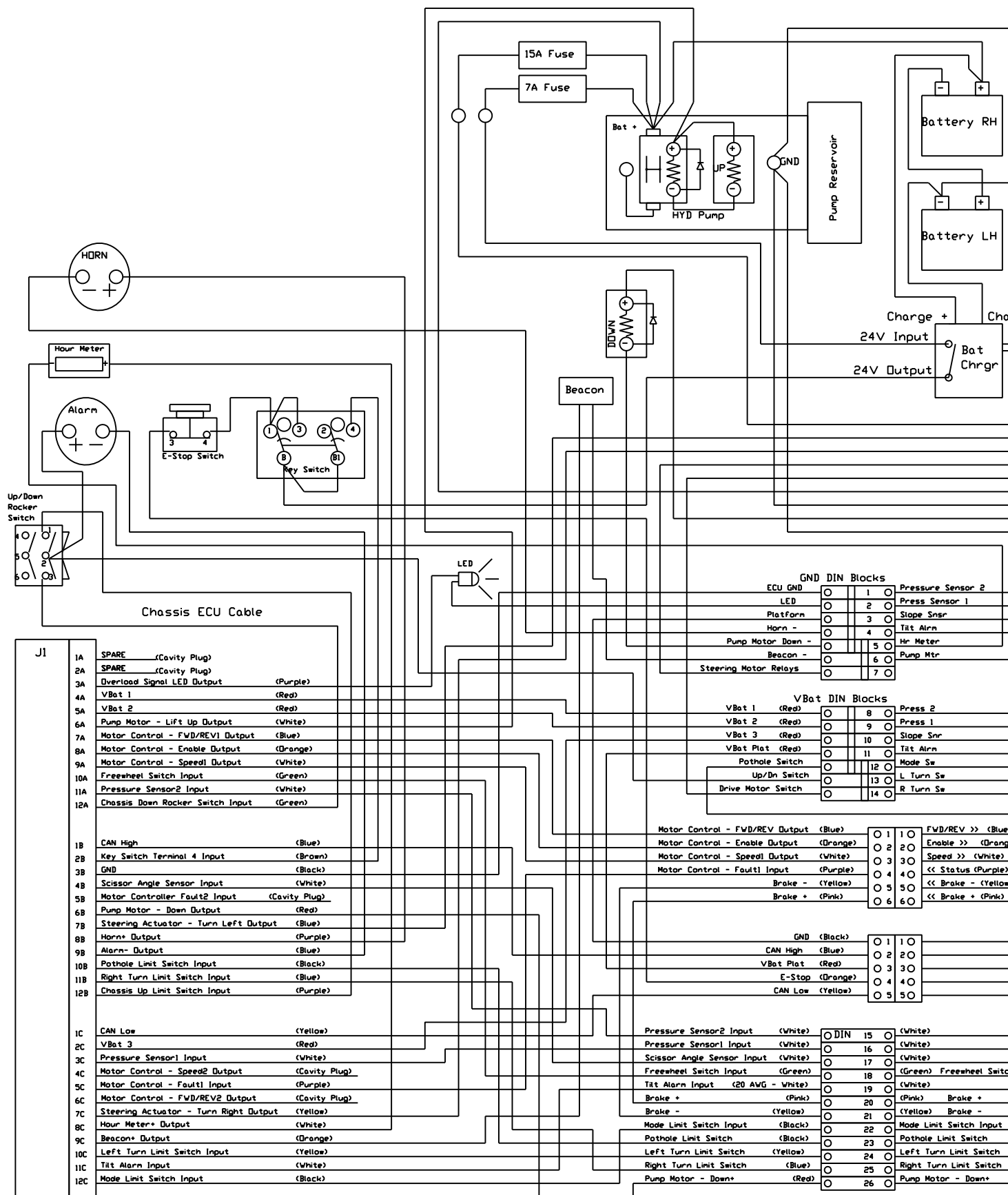


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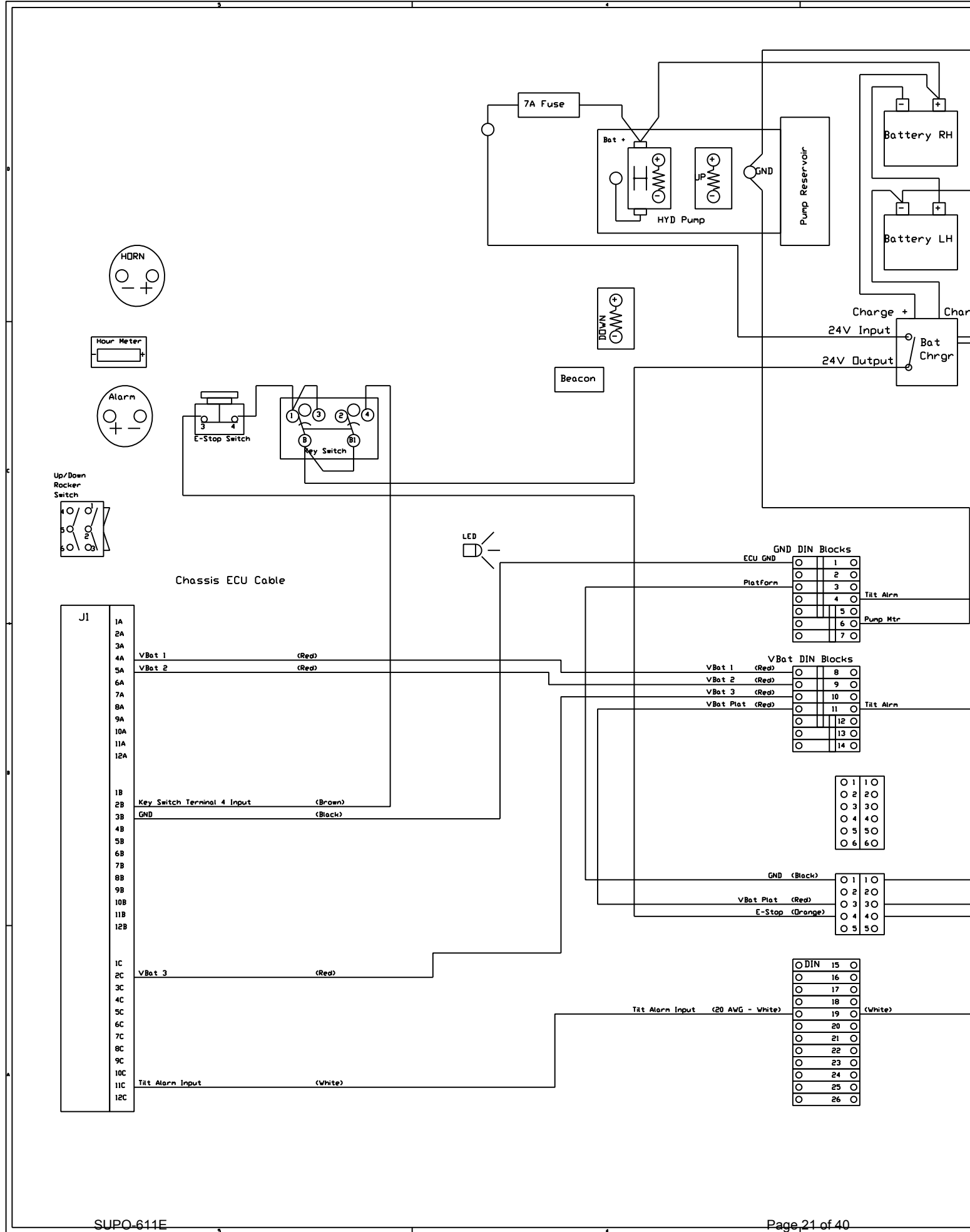


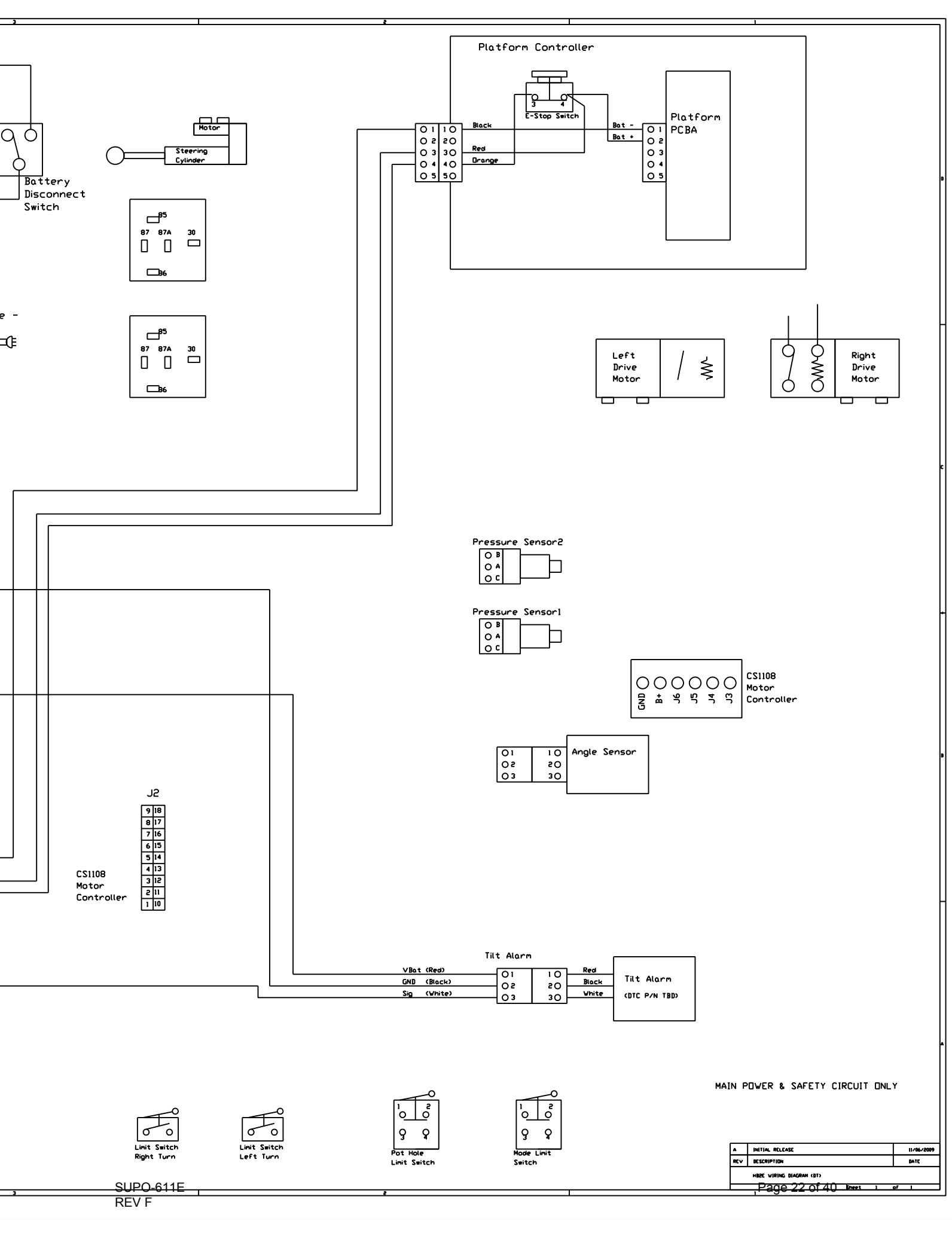


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A	Initial Release	12/07/09
No.	Revision	Date Effective
Custom Equipment, Inc.		Vest Bend, WI 53095
Phone: (262) 334-0756		
WIRING SCHEMATIC: HBCE		
Part No: WSHB2E		Date:

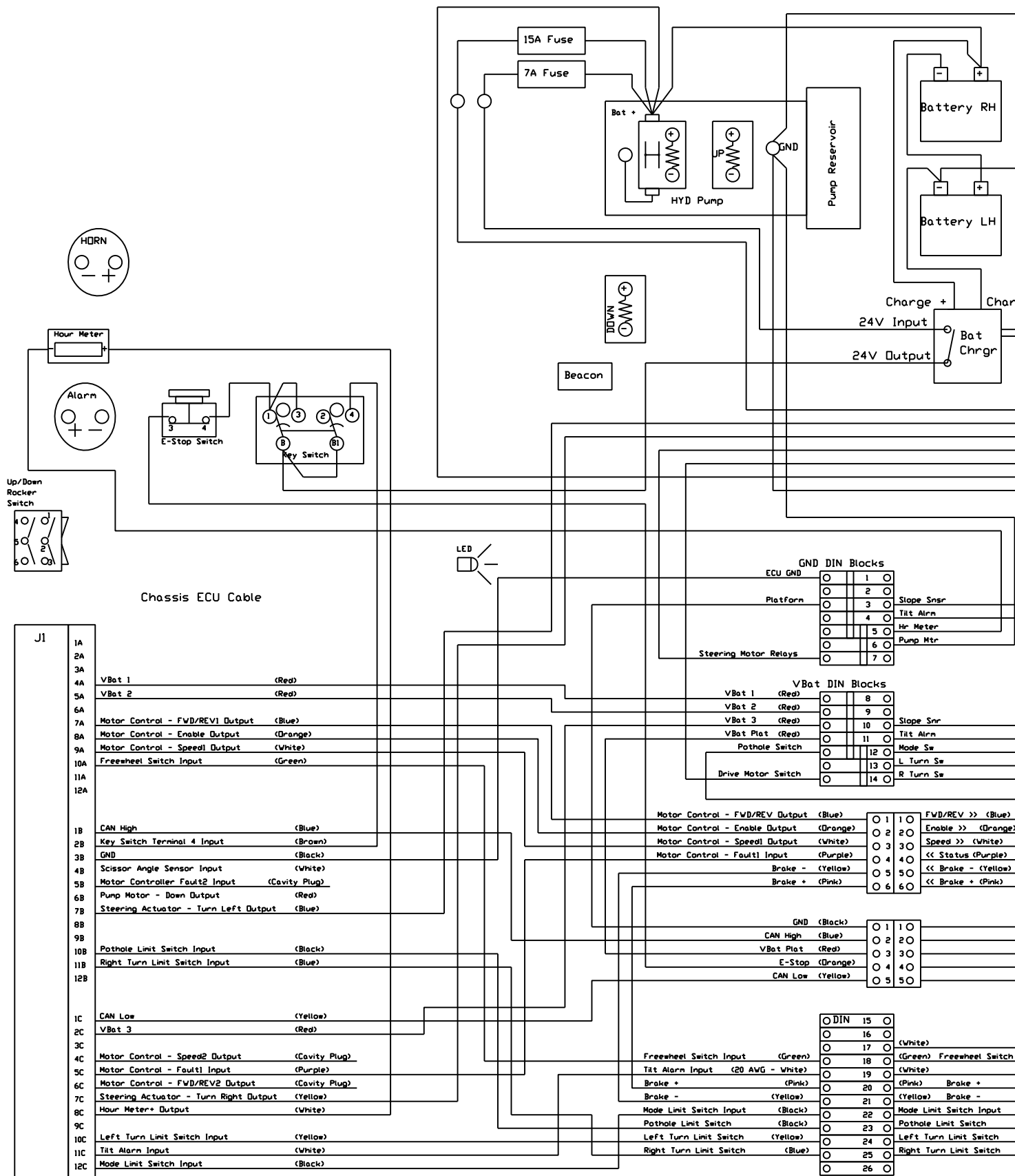




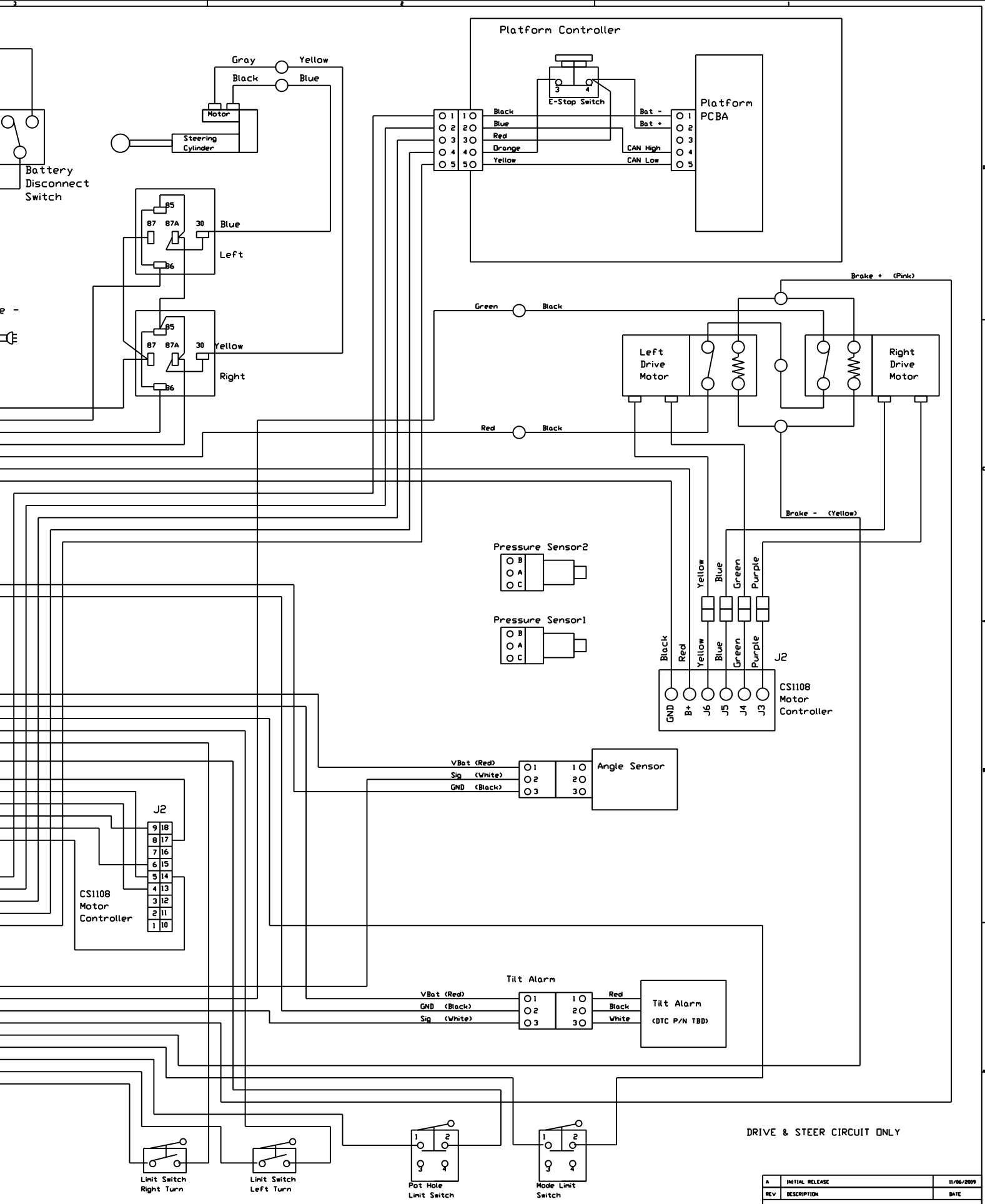




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HBEE WIRING DIAGRAM (BT)		
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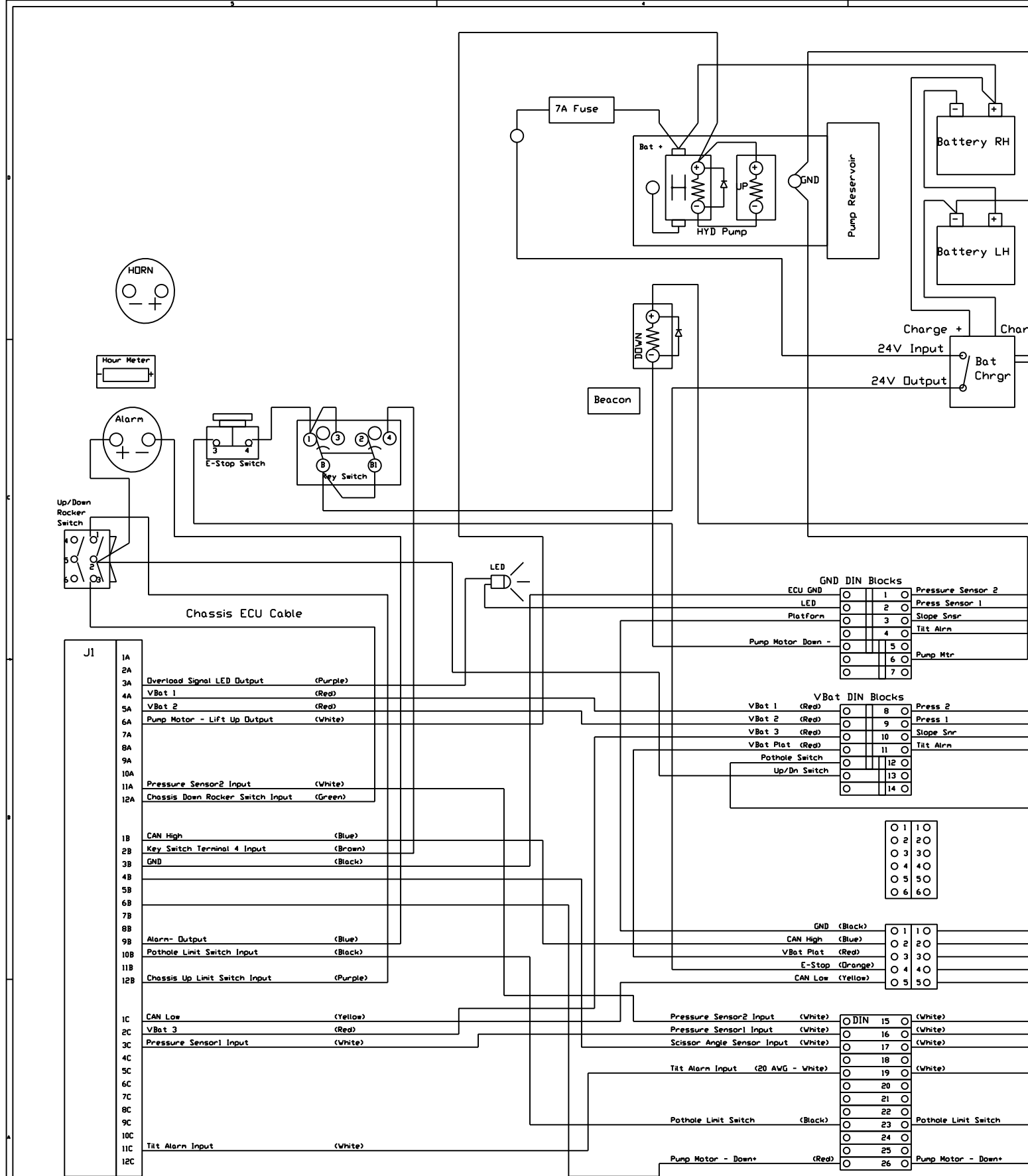


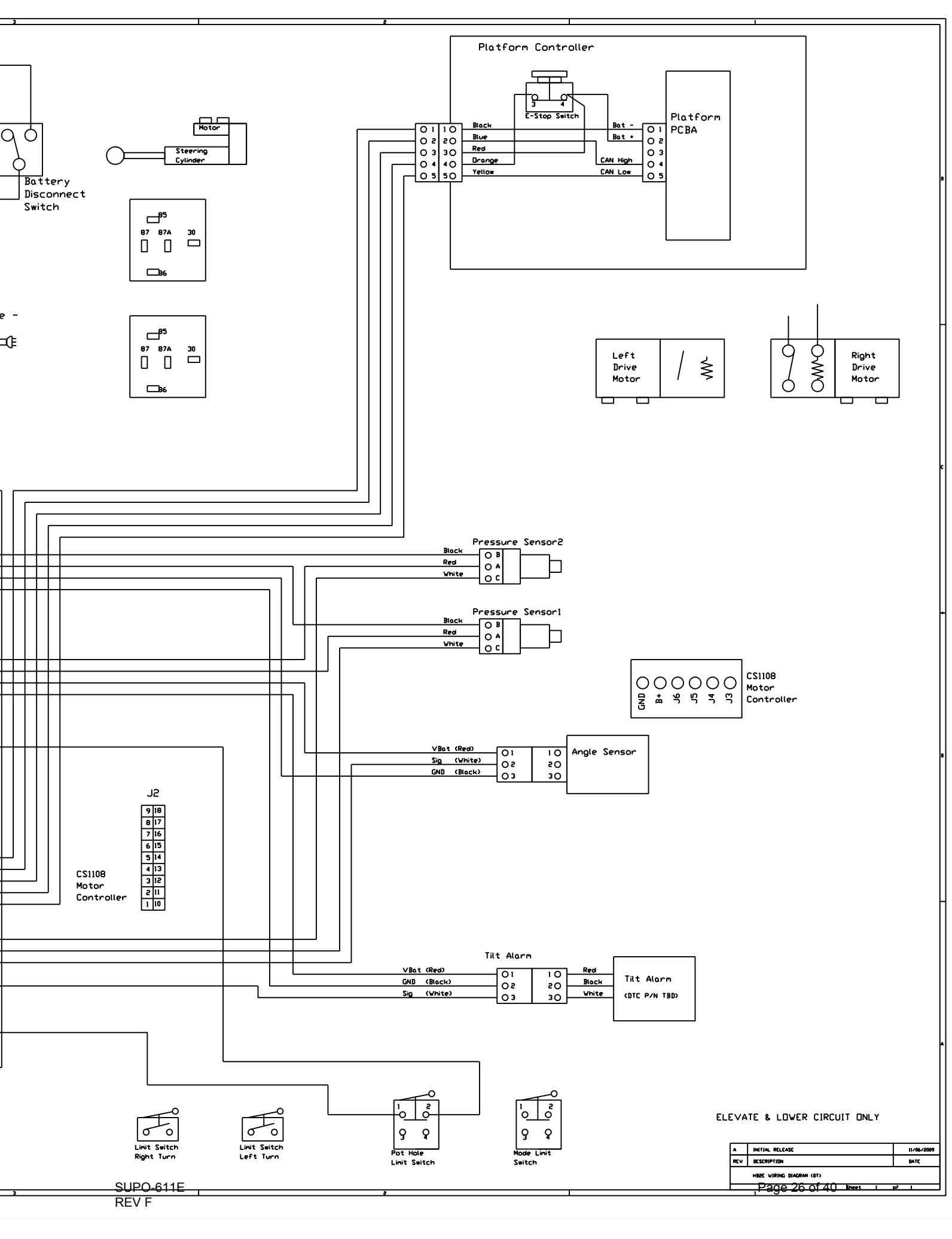




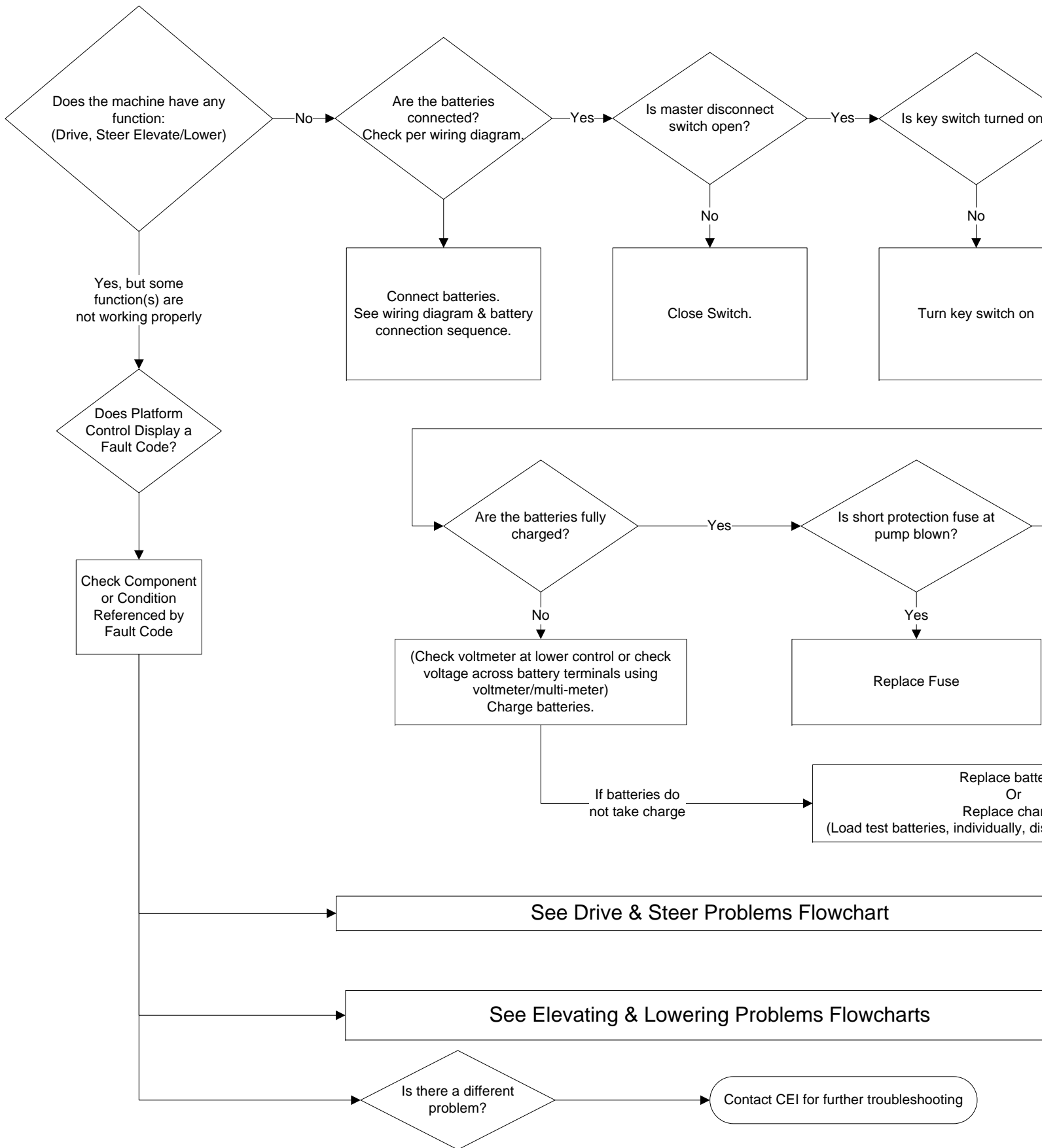
DRIVE & STEER CIRCUIT ONLY

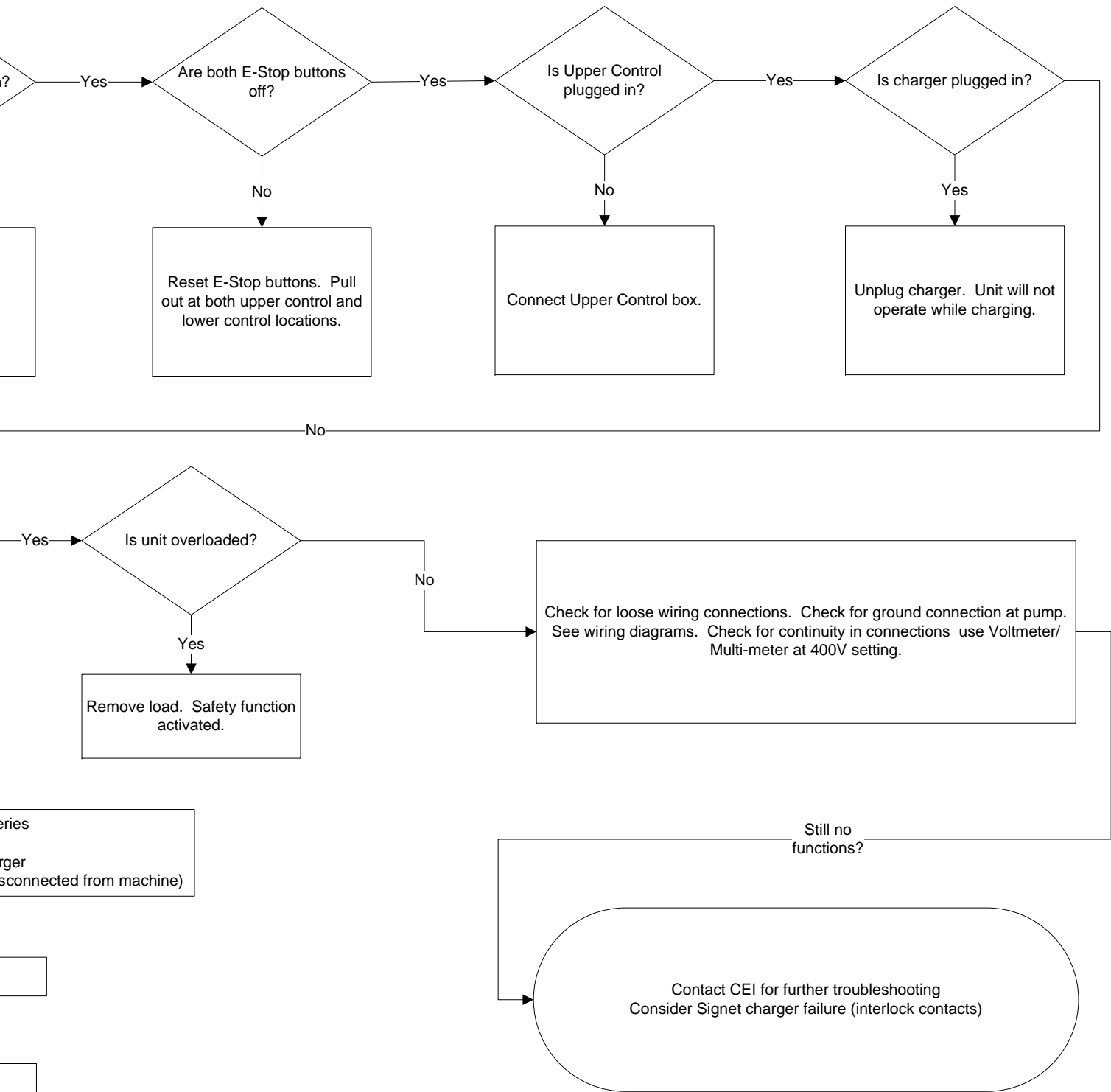
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HBRE WIRING DIAGRAM (BT)		
Page 24 of 40		



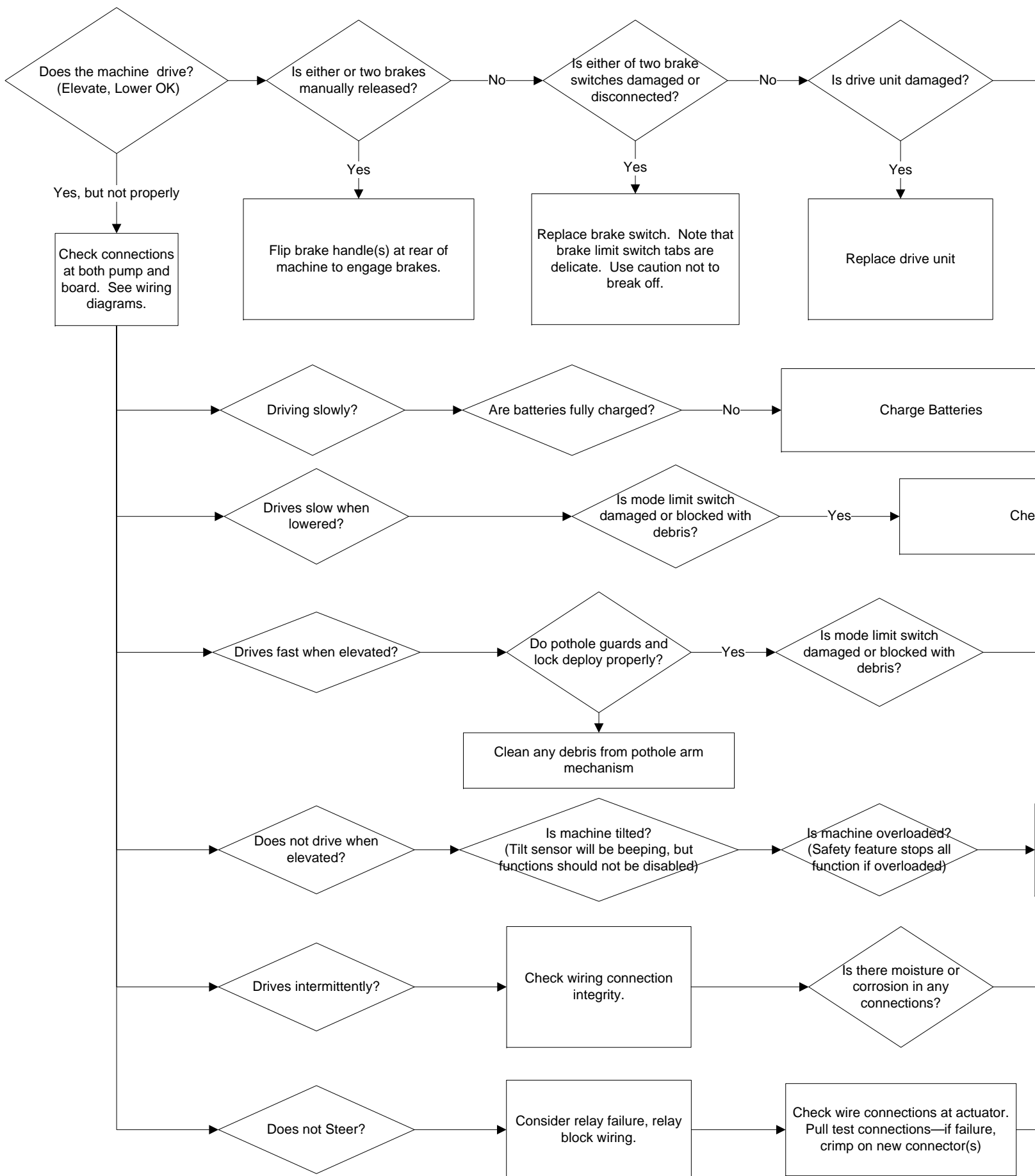


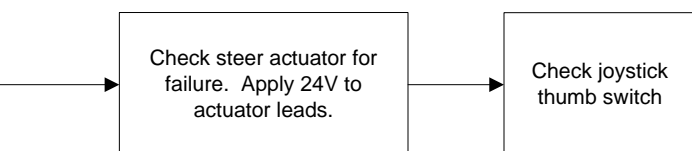
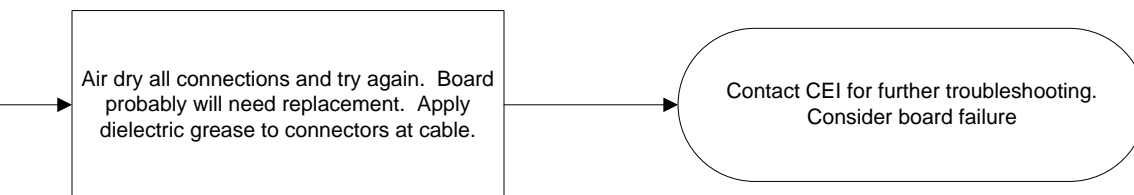
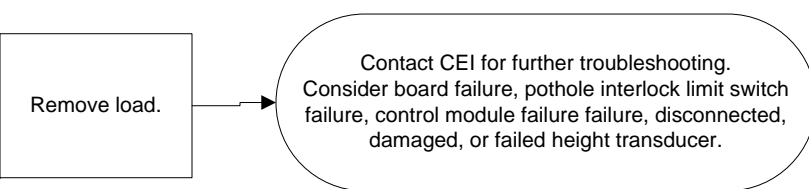
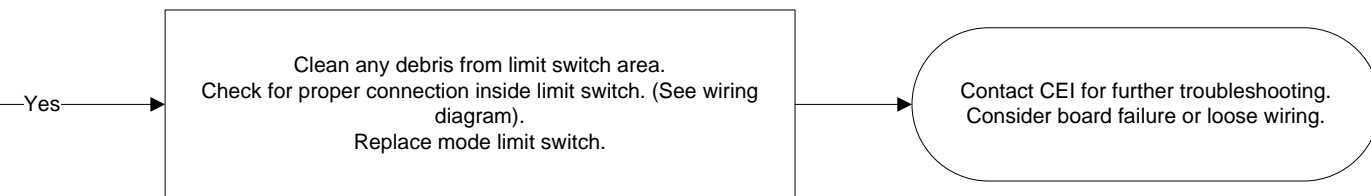
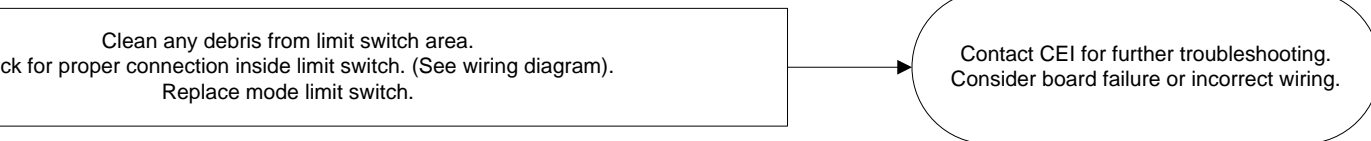
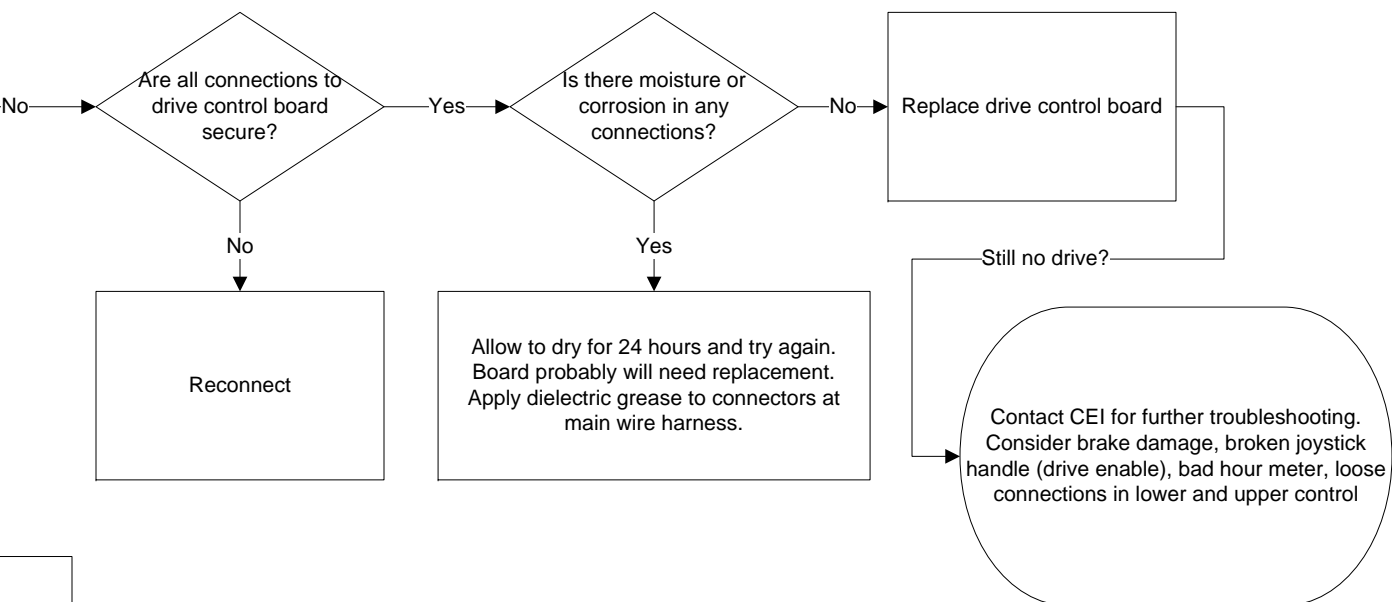
A	INITIAL RELEASE	11/06/2009
REV	DESCRIPTION	DATE
HBRE WIRING DIAGRAM (BT)		
Page 26 of 40		



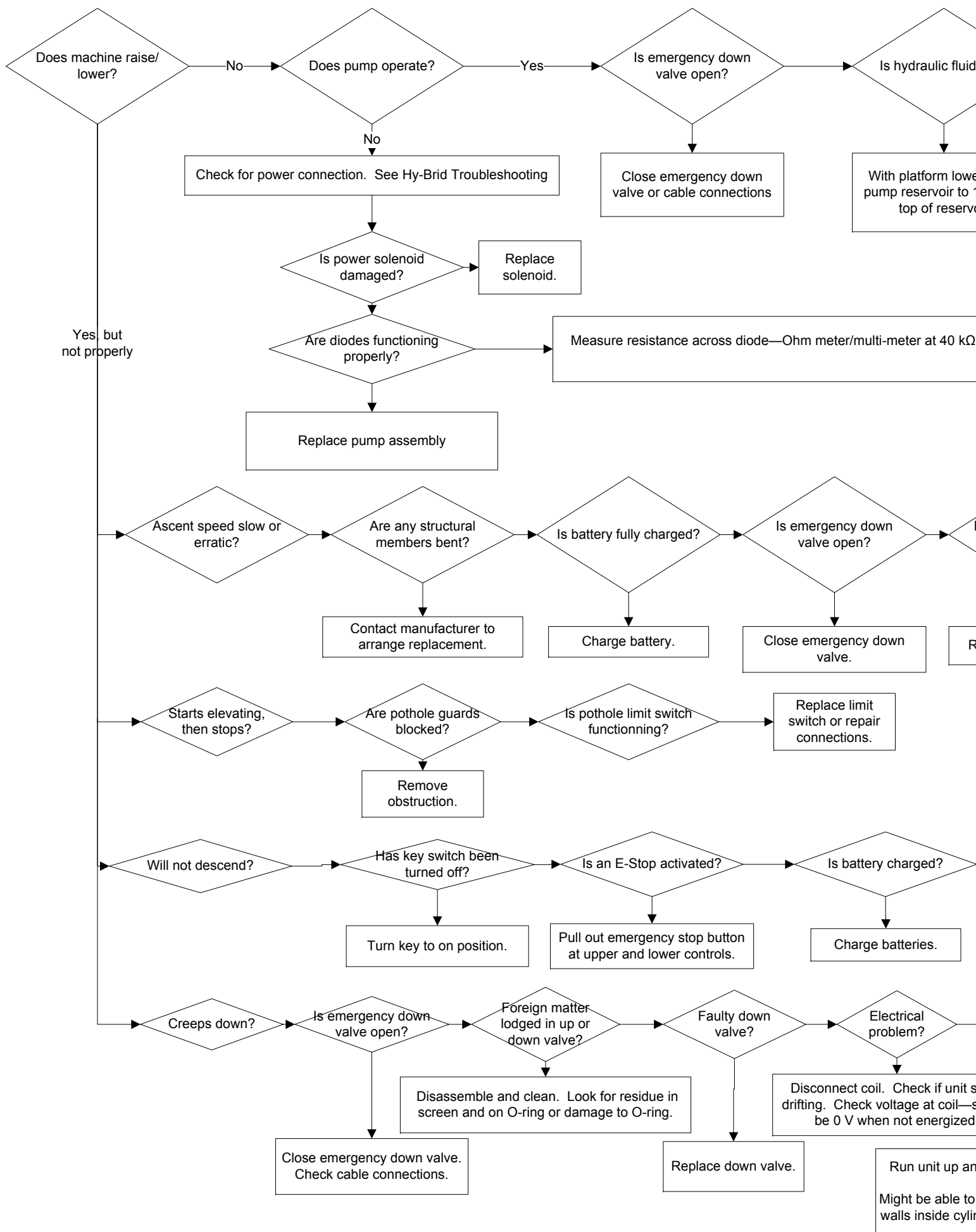


SUPO-611E Hy-Brid Troubleshooting Flowchart  
Revision A: Initial Release 01/14/2010

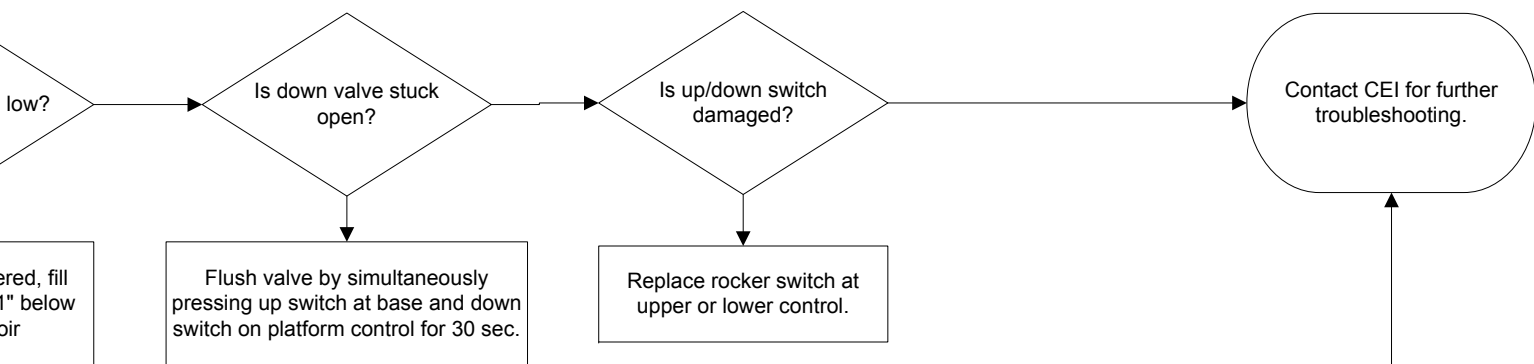




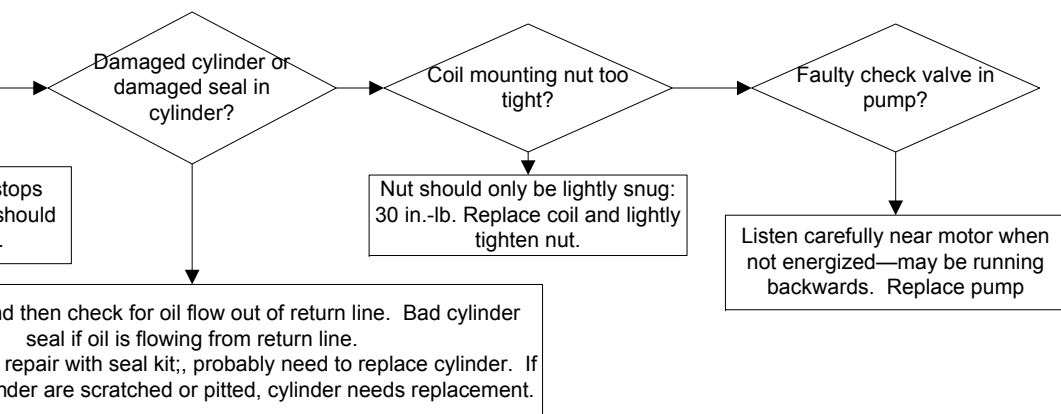
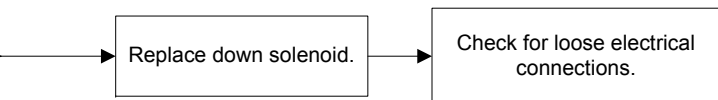
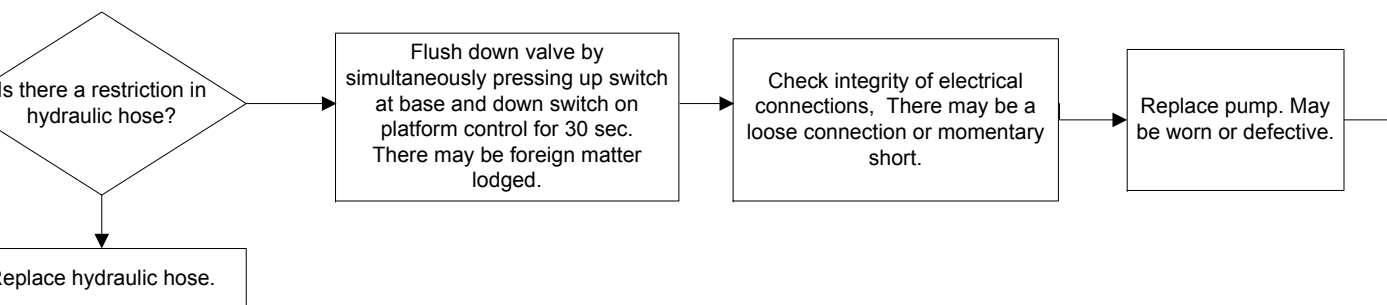
SUPO-611E Hy-Brid Troubleshooting Flowchart  
Drive & Steer Problems  
Revision A: Initial Release 01/14/2010







setting. With black lad on stripe side and red on other side, should get a resistance reading. Switch leads, no reading. Replace bad diode.



SUPO-611e Hy-Brid Troubleshooting Flowchart  
Elevate & Lower Problems  
Revision A: Initial Release 01/14/2010

## Replacement Parts



### CAUTION

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



### DANGER

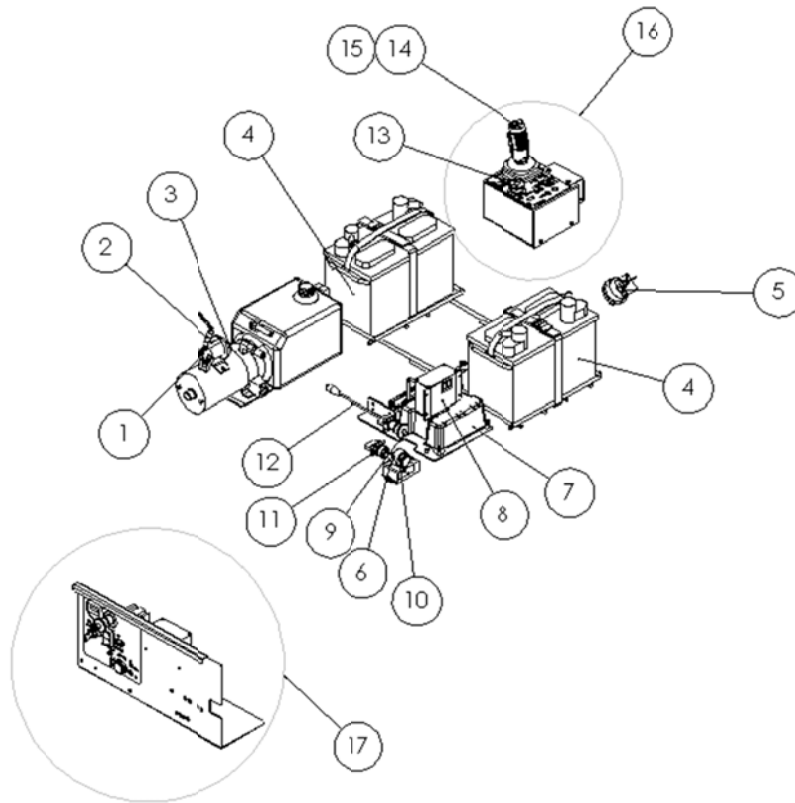
REPLACEMENT OF THE FOLLOWING COMPONENTS WILL AFFECT THE STRENGTH, STABILITY, OR SAFETY FUNCTION OF THE UNIT: BATTERY (ELEC-047), HYDRAULIC CYLINDER (HYDR-007-1 OR HYDR-041-2), DRIVE CONTROL BOARD (ELEC-903), AND ALL STRUCTURAL COMPONENTS.

Listed below are replacement parts that may be available and listed for reference. These represent current revisions. Refer to our website, [www.hybridlifts.com](http://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.

### Safety and Control Decals

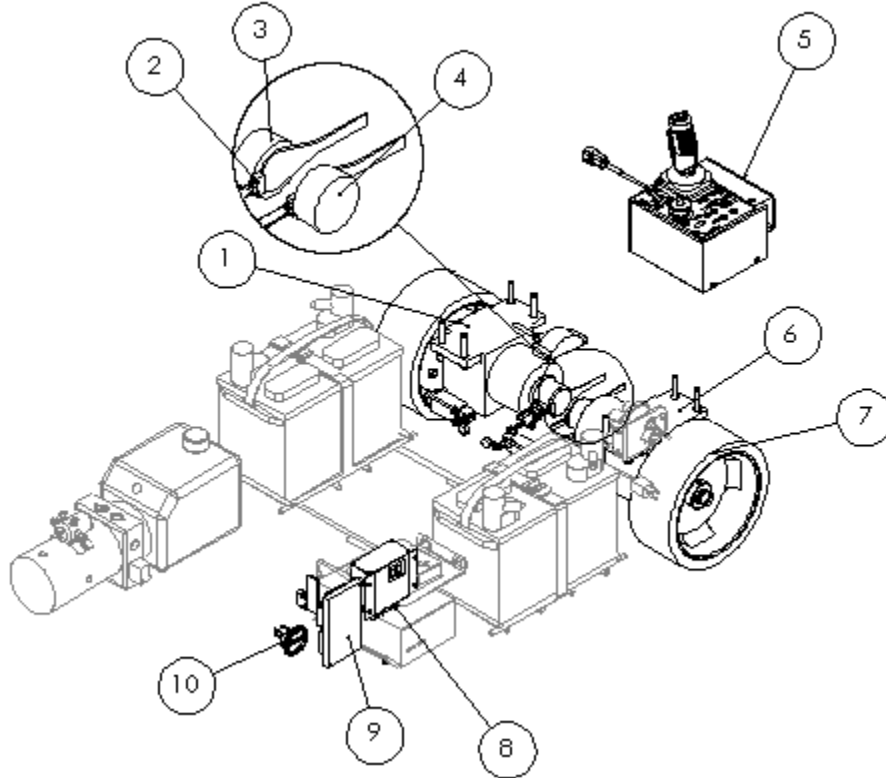
Refer to Operator's Manual for decal part numbers and locations.

## Main Power/Safety Circuit



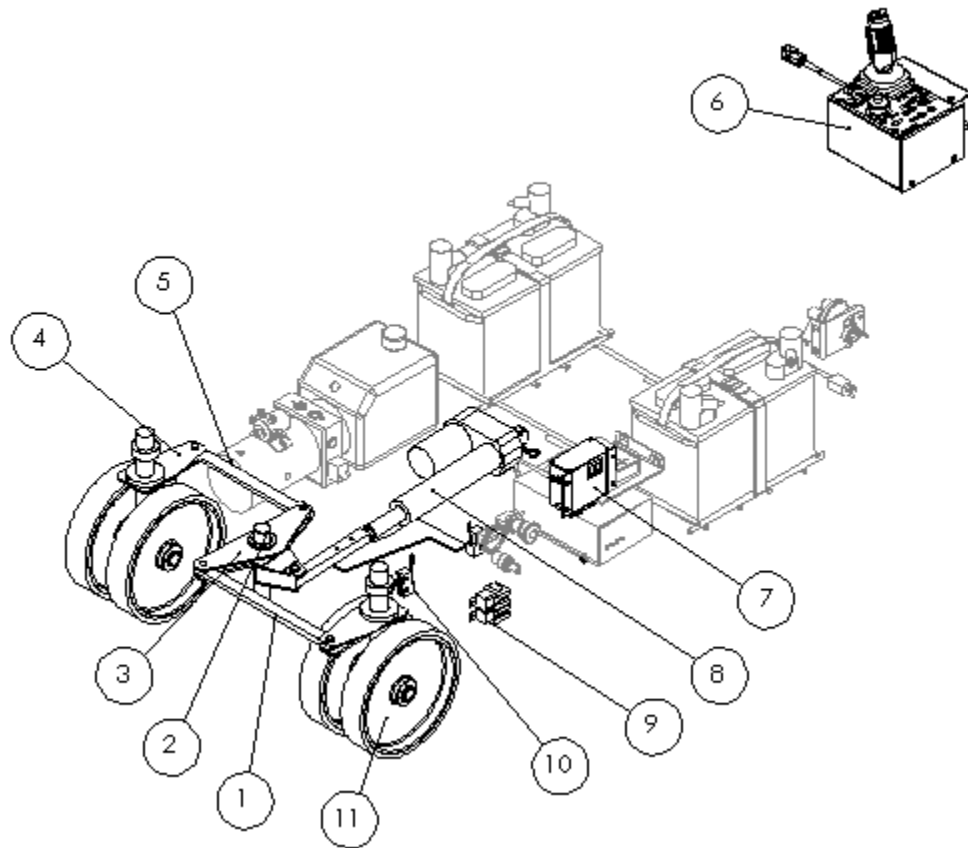
Item #	Description	Part #
1	B+ Power Connection Location on Pump	NA
2	Fuse	ELEC-670-2
3	B-"Ground" Connection Location on Pump	NA
4	Battery	(ELEC-047)
	Battery Tray	HB-0001-P
	Battery Strap	HARD-054
5	Master Power Switch	ELEC-633-KIT
		ELEC-633-1
6	Tilt Sensor	ELEC-829
7	Battery Charger	ELEC-747
8	Control Module	SUBA8350E
9	Emergency Stop Switch	ELEC-071-KIT
10	Tilt Alarm	ELEC-635-2
11	Key Switch	ELEC-073E
	Spare Key	ELEC-073EKEY
12	Main Wire Harness	SUB A13006E
13	Emergency Stop Switch	ELEC-071-KIT
14	Joystick	ELEC-601-100
15	Control Module, Upper	SUB A9350E
16	Upper Control Assembly	SUBA9003E
17	Lower Control Assembly	SUB A8003E
(Not Pictured)	Battery Charger Cord	ELEC-639-11
(Not Pictured)	Battery Cables	ELEC-641-100 & 1002101650

## Drive Circuit Parts



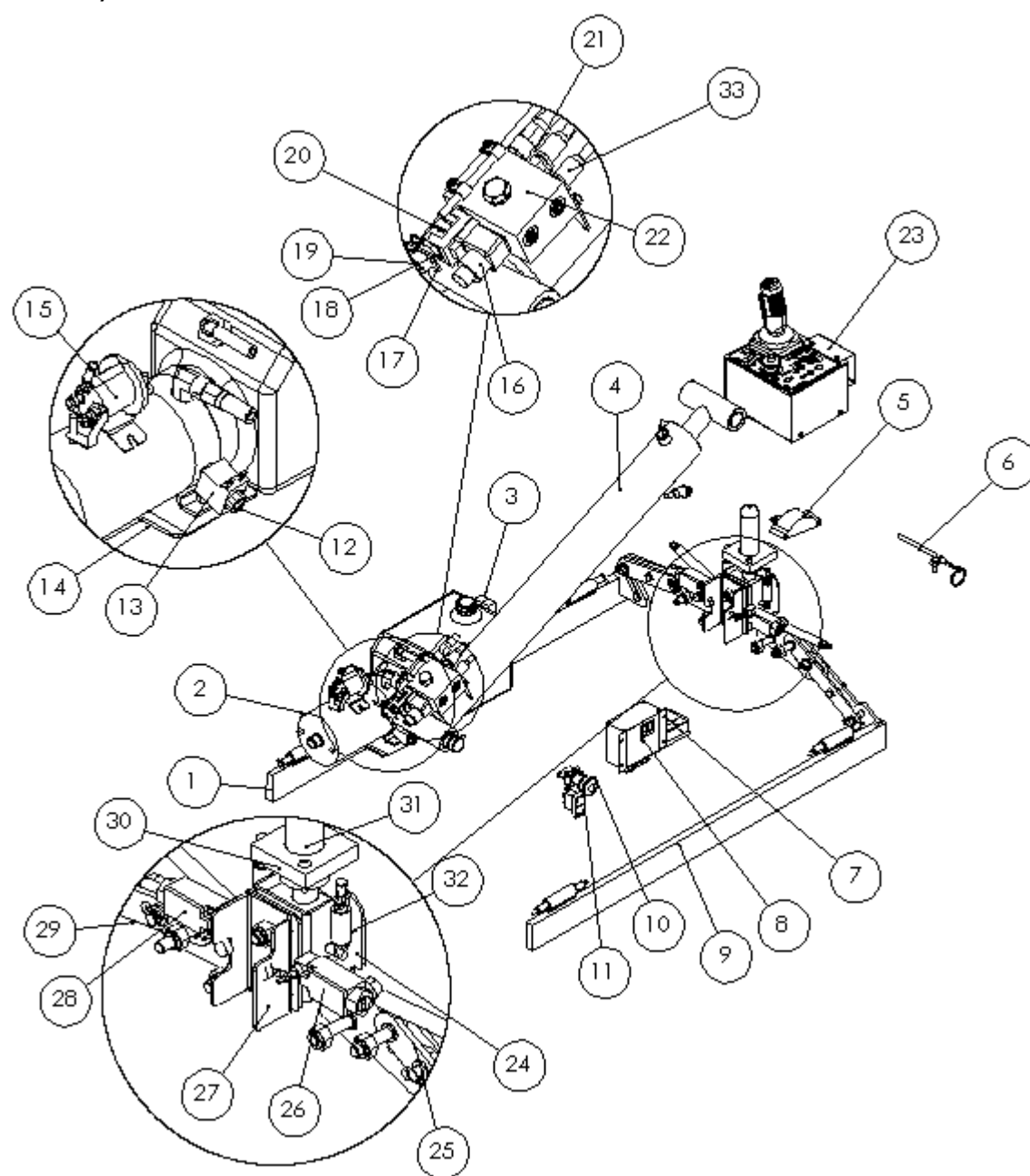
Item #	Part #	Description
1	ELEC-626-3R	Electric Drive Motor (Right/Control Side)
2	ELEC-627-4	Brake Micro switch
3	ELEC-627-3R	Brake (Left)
4	ELEC-627-3L	Brake (Right)
5	SUBA9003E	Platform Control Assembly
6	ELEC-626-3L	Electric Drive Motor (Left/Control Side)
7	WHEE-600-1	10" x 4" Wheel
8	SUBA8350E	Base Control Module
9	SUB 904	Drive Control Board (specific to this model/series only)
10	ELEC-610-1	Hour Meter

## Steer Circuit Parts



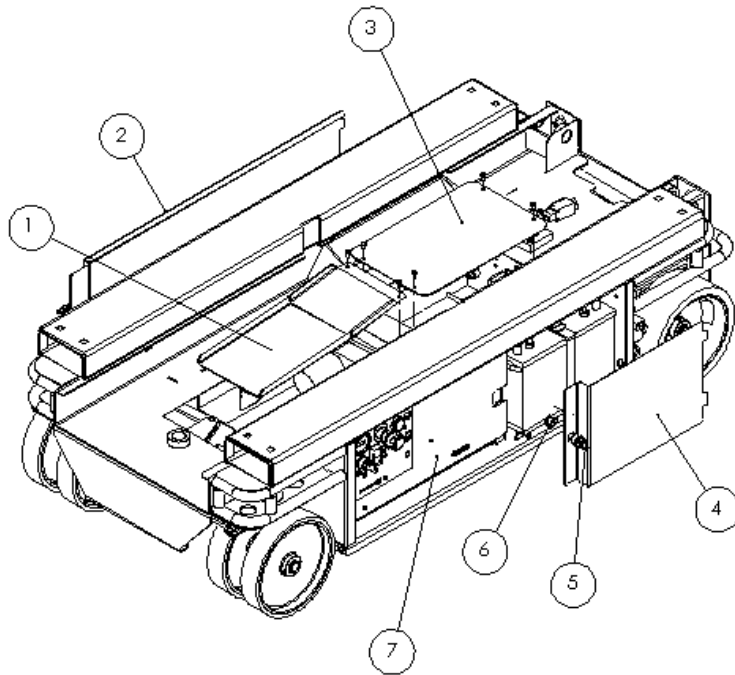
Item #	Part #	Description
1	HB-ST-2-A-P	Tie Rod-Long
2	PB-0018-P	Center Steer Pin
3	HB-ST-4-B-PC	Center Steer Weldment
4	PB-0021-P	Caster
5	HB-ST-3-A-P	Tie Rod-Short
6	SUB A9003E	Platform Controls Assembly
7	SUBA8350E	Lower Control Module
8	SUB A29-KIT	Steer Actuator Assembly
9	ELEC-631	Relay
10	ELEC-624	Limit Switch
11	WHEE-604	10" X 2" WHEEL
(Not Pictured)	(No Part #)	7A ACG Fuse

# Elevate/Lower Circuit Parts



Item #	Part #	Description
1	HB-PH-21-R-PC	HB2-Pothole Bar-R (For 10" Front Wheel Models)
2	HYDR-050-1E	Hydraulic Pump
(Not Pictured)	(HYDR-032)	Hydraulic Fluid Not available as a replacement part. Replace with Flomite #150, Dexron II, Mobil-DTE 2, or equivalent.
3	HB-ML-P	Maintenance Lock Pin
4	(Varies by Model) 1022100450 1022100550	Hydraulic Cylinder (For 10' Models) Hydraulic Cylinder (For 14' Models)
5	ELEC-647	Angle Transducer
6	HARD-644 HARD-644-01	E-Down Cable (1430) E-Down Cable (1030)
7	ELEC-829	Tilt Sensor
8	SUB A8305E	Lower Control Module
(Not Pictured)	ELEC-635-2	Beeper
9	HB-PH-21-L-PC	HB2-Pothole Bar-L (For 10" Front Wheel Models)
10	ELEC-071-KIT	E-Stop
11	ELEC-133B	Rocker Switch
12	HYDR-665	Up Valve
13	HYDR-664	18V Coil
14	1020100201	Pump Mount Plate
15	HYDR-666	24V Solenoid
16	HYDR-044-FL3	Hirschmann Connector w/suppression Diode
17	LAS-M115	E-Down Valve Actuator
18	WHEE-605	Spacer
19	HARD-650	1/16 Shaft Collar
20	HYDR-007-2E	Down Valve & Coil
21	(Varies by Model) HYDR-600 or HYDR-600-6	Hydraulic Hose
22	HYDR-626	Flow Control
23	SUBA003E	Upper Control Assembly
24	HB-PH-7-P	PH Lock Weldment
25	LAS-M220-P	Pothole Arm
26	ELEC-623-2	Limit Switch
27	LAS-M222-P	Limit Switch Plate
28	ELEC-623-2	Limit Switch
29	1000105902	PH Pick-Up Arm
30	HB-PH-13	Guide Block
31	HB-PH-20	Pothole Guard Actuator
32	HARD-072	Spring
33	ELEC-648	Pressure Transducer

## Covers/Other



Item #	Part #	Description
1	LAS-M231-PC	Cover, Front
2	LAS-M246-PC	Cover, Pump Side
3	LAS-M230-PC	Cover, Rear
4	LAS-M226-PC	Cover, Battery, Control Side
5	HARD-633B	Cabinet Latch Handle
6	HARD-633C or HARD-633E	Cabinet Latch Cam
7	SUB A8003E	Lower Control Assembly



## Warranty

### LIMITED WARRANTY – Warranty Statement --Outside North America

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 24 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. Custom Equipment's warranty policy requires that ALL warranty claims parts be held for inspection for up to six months or returned to us in a timely fashion if requested. Parts will be requested when we will be returning these parts to our vendor for credit.

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.

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 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.