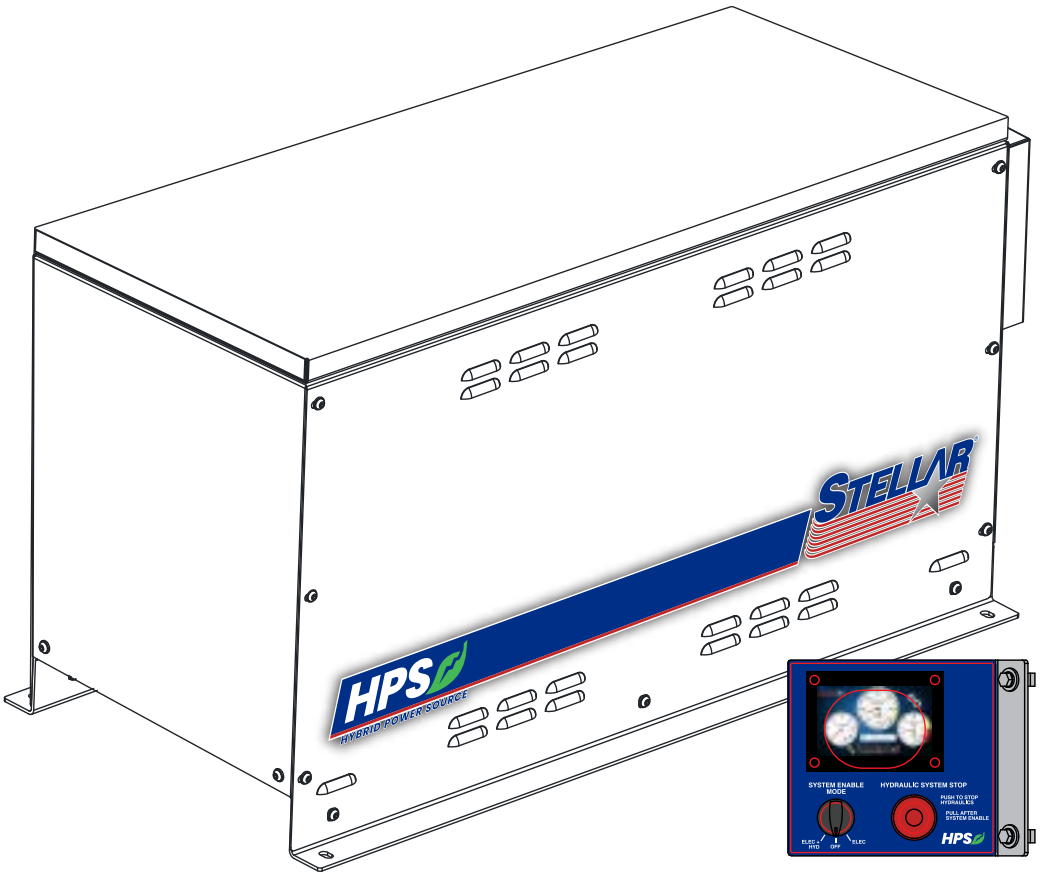
MODULAR HPS
Hybrid Power Source
Owner's Manual

Operation • Maintenance • Assembly & Schematics • Replacement Parts



HPS
HYBRID POWER SOURCE

Stellar Industries, Inc
740 North State Street
PO Box 169
Garner, IA 50438
800-392-3015
www.stellarindustries.com

Subject to Change without Notification.
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REV. 1
PN 145538

P65 Warning / Serial Tag / Warranty

⚠ WARNING

Operating, maintaining, and servicing a Stellar product may expose you to chemicals including, but not limited to, engine exhaust, carbon monoxide, phthalates, and lead. These chemicals are known to the State of California to cause cancer and birth defects (or other reproductive harm). To keep your exposure to a minimum, be sure to avoid breathing exhaust and service your Stellar product in a well-ventilated area while wearing gloves or washing your hands frequently. For more information, go to www.P65Warnings.ca.gov/passenger-vehicle.

www.p65warnings.ca.gov

NOTICE

Cold Weather Performance

Although clear data on cold weather performance from every steel manufacturer is not available for all types and thicknesses of steel, Stellar Industries is confident that the weldments on our products will operate to 100% of their intended purpose to temperatures down to -40° F / C.

It is recommended if Stellar manufactured equipment needs to be used in temperatures below -40° F / C, the operator should pull the unit into a climate-controlled area and allow the weldments to warm up to and then maintain a temperature above this level.

Record Serial Number

STELLAR

MODEL

SERIAL NO.

DATE

PATENT / IP INFORMATION:
www.stellarindustries.com/ip

MADE IN THE USA
by the Employee Owners of Stellar Industries PN 112060

For Technical Questions, Information, Parts, or Warranty, Call Toll-Free at

800-321-3741

Hours: Monday - Friday, 8:00 a.m. - 5:00 p.m. CST

Or email at the following addresses:

Technical Questions, and Information:	service@stellarindustries.com
Order Parts:	parts@stellarindustries.com
Warranty Information:	warranty@stellarindustries.com

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Chapter 1- Specifications

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Introduction

NOTICE

RECYCLING OF USED STORAGE PACKS

End of Life (EOL) lithium ion battery systems must be properly recycled. Do not landfill. Follow local regulations when recycling EOL and damaged lithium ion battery systems or contact Stellar Industries Customer Service Department.

Stellar Industries® power sources are designed to provide safe and dependable service for a variety of operations. With proper use and maintenance, these power sources will operate at peak performance for many years.

To promote this longevity, carefully study the information contained in this manual before putting the equipment into service. Though it is not intended to be a training manual for beginners, this manual should provide solid guidelines for the safe and proper usage of the power source.

Once you feel comfortable with the material contained in this manual, strive to exercise your knowledge as you safely operate and maintain the power source. This process is vital to the proper use of the unit.

A few notes on this manual:
A copy of this manual is provided with every power source and can be found in the hard plastic manual case that is installed on the chassis. A copy of this manual shall remain with the power source at all times.

Throughout the manual, three signal words will be used to bring attention to important items:

NOTICE *A NOTICE signal word indicates a practice not related to physical injury.*

⚠WARNING A WARNING signal word indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ DANGER A DANGER signal word indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Information contained within this manual does not cover all maintenance, operating, or repair instructions pertinent to all possible situations. Please be aware that some sections of this manual contain information pertaining to Stellar Industries® manufactured power sources in general and may or may not apply to your specific model.

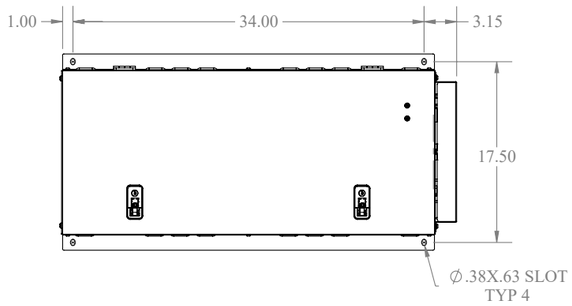
This manual is not binding. Stellar Industries reserves the right to change, at any time, any or all of the items, components, and parts deemed necessary for product improvement or commercial/production purposes. This right is kept with no requirement or obligation for immediate mandatory updating of this manual.

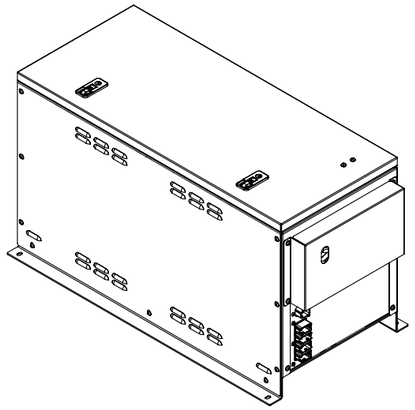
If more information is required or technical assistance is needed, or if you feel that any part of this manual is unclear or incorrect, please contact the Stellar Industries Customer Service Department by phone at 800-341-3741 or email at service@stellarindustries.com.

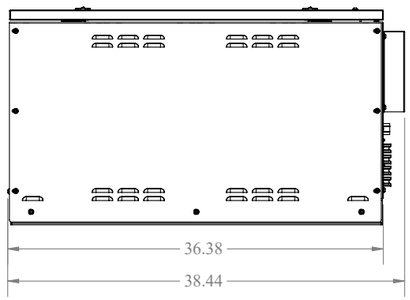
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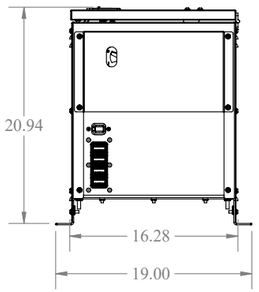
Battery Box Dimensions

Note: All dimensions in inches.

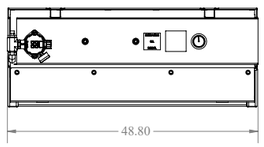


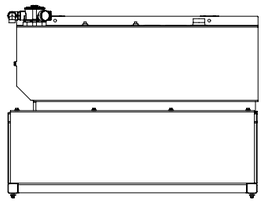


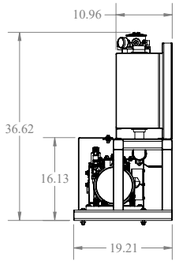


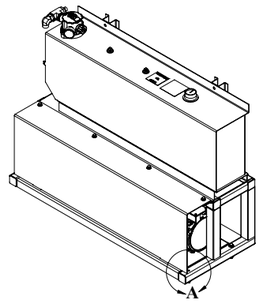


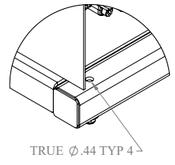
Hydraulic Stand Dimensions











DETAIL A
SCALE 1 : 5

Miscellaneous Information

System Specifications	
Output Capacity	
3-battery system	9.6kWh
4-battery system	12.6kWh
Hydraulic Output	14 GPM - Up to 3000 PSI
Hydraulic Reservoir	20 Gallon (integrated)
Dry Weight	
3-Battery system	263 lb
4-battery System	305 lb
Hydraulic Stand	455 lb
Dimensions Battery box (Length)	38"
Dimensions Hydraulic Stand (Length)	48.8”
Dimensions Battery box (Width)	16.0”
Dimensions Hydraulic Stand (Width)	19.2”
Dimensions Battery Box (Height)	21.0”
Dimensions Hydraulic Stand (Height)	36.6”
Recharging	110V Shore Power
	12V Chassis Alternator – DC-DC Converter
Recharge Time 3 battery system	Shore Power: 9 Hours , Chassis: 3.5 hrs*
Recharge Time 4 battery system	Shore Powr : 11.5 hrs Chassis: 4.5 hrs*
	*dependent on alternator and system configuration
Run Time	8 Hours (Based on 1330 Watt Hours of Demand)
Cold Weather	Internal Battery Heaters

Tables 1:Specifications

*Limits can vary by system and application. System specific ranges can be obtained by contacting your Stellar Industries representative. All HPS levels assume a 30º C ambient temperature.

Tables 01: HPS System Specifications

NOTICE

Cold Weather Performance

Although clear data on cold weather performance from every steel manufacturer is not available for all types and thicknesses of steel, Stellar Industries is confident that the weldments on our products will operate to 100% of their intended purpose to temperatures down to -40° F / C.

It is recommended if Stellar manufactured equipment needs to be used in temperatures below -40° F / C, the operator should pull the unit into a climate-controlled area and allow the weldments to warm up to and then maintain a temperature above this level.

Battery Pack Limits

The battery pack's lifetime is impacted in certain environmental conditions. It is not recommend to operate the system at, or beyond, limit levels. Table 02 indicates values that are typically associated with HPS systems. Actual values may vary based on application.

Condition	
Maximum Pack Voltage (100% SOC)	57.4V*
Nominal Pack Voltage (50% SOC)	51.4V*
Pack Shutdown Voltage (10% SOC)	42V*
High Temp Shutdown	140ºF* (60ºC)
High Temp Max Storage	113ºF* (45ºC*)
Low Temp Storage	-4º F* (-20O C*)
High Temp Max Operating	131ºF* (55ºC*)
Heater OFF Threshold	~59ºF** (~15ºC)
Pack Temp Operating Range (Charge)	41ºF – 113ºF (5ºC -- 45ºC)
Pack Temp Operating Range	-4ºF – 131ºF (-20ºC -- +55ºC)
Pack Temp Operating Range (Discharge)	-31F (-25C) with heater
Heater ON Threshold	41ºF** (5ºC)
Low Temp Shutdown	32ºF* (0ºC*)
Low Temp Min Storage	28ºF* (-2ºC*)

Tables 2: Battery Pack Information

Abbreviations and Definitions

AC - Alternating Current (also VAC)
AW - Anti-Wear
BMU - Battery Management Unit located inside an battery pack.
BOL - Beginning of Life, meaning when the product is new and unused.
CC - Constant Current
CV - Constant Voltage
DC - Direct Current (also VDC)
EOL - End of Life (meaning the point at which the End User determines the product no longer meets their needs or requirements)
HPS - Hybrid Power Source
IGN - Ignition
OCV - Open-Circuit Voltage is measured across the pack with no load attached.
SOC - State of Charge indicates a percent of total pack charge.
STP - Standard Temperature Pressure
V - Volts (Voltage)
VI - Viscosity Index
W - Watts (Wattage)

Tables 3: Abbreviaitons & Definitions

Chapter 2 - Operations

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HPS Operations - Display Screens

StartUp Screen

Once system is enabled via chassis key, or use upfitter switch, or control panel key turned to Elec or Elec+Hyd, to turn on the Stellar Display.

Initial Stellar screen will apear for several seconds:



Figure 1: Startup Screen - Display Screens

Main User Screen

After the StartUp Screen appears, the display will transition to the Main User Screen:

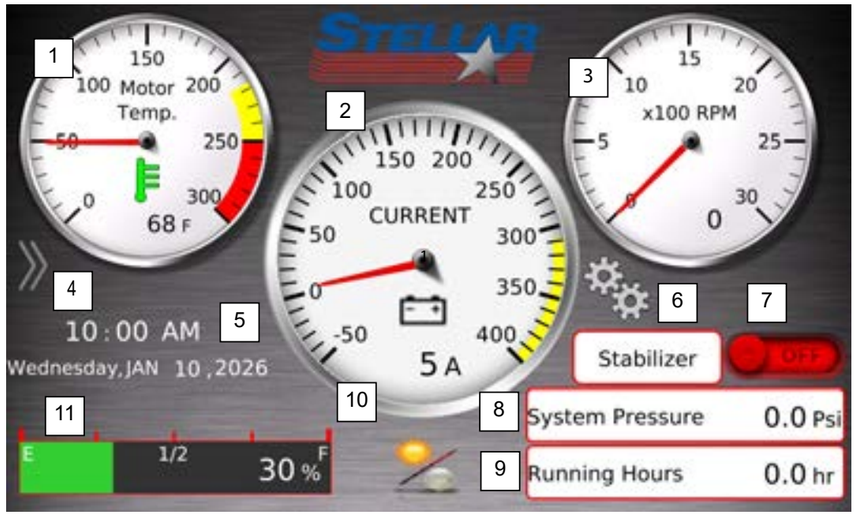


Figure 2: Main User Scree - Display Screens

1. Gauge: Hydraulic Motor Temperature
2. Gauge: Current from 48V battery box. If negative (-), that indicates battery is being charged.
3. Gauge: Displays RPM of hydraulic motor and pump
4. Flyout menu touch button.
5. Date and time
6. Hydraulic motor engaged. If grey, hydraulic system is off, if Green then hydraulic system is engaged.
7. Stabilizer: Touch button to toggle between On (Green) and Off (Red) for stabilizer.
8. Read Out: Hydraulic system pressure.
9. Hours that the Hydraulic System has been used.
10. Touch button to toggle between Light and Dark Mode for screen.
11. Battery State of Charge bar gauge expressed in Percent of capacity remaining**.**

Stabilizers On Screen



Figure 3: Stabilizer On Screen - Display Screens

Flyout Screen

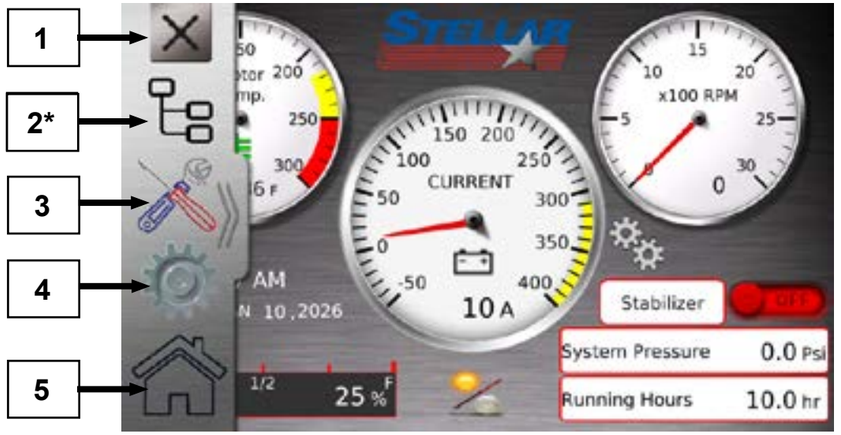


Figure 4: Flyout Screen - Display Screens

1. X: Closes Flyout menu.
2. File Icon: Takes user to information screens, starting with CAN connected devices.
3. Tool Icon: Takes user to information screens Flyout menu touch button.
4. Gear Icon: Enters Password screen for Settings review/update.
5. Home Icon: Closes Flyout menu.

***Tapping the file icon will open the CAN Communication Display Screen.**

CAN Communication Screen



Figure 5: CAN Communication Screen - Display Screens

1. X: Closes Flyout menu.
2. Arrow Right: Moves to next Info Screen
3. Devices and Status: No communication either means it is not on or used, or issue with CAN. Ok, means device is communicating to display properly. For system usage, Battery, M.C. and Converter all need to have OK status.

Battery Information Screen

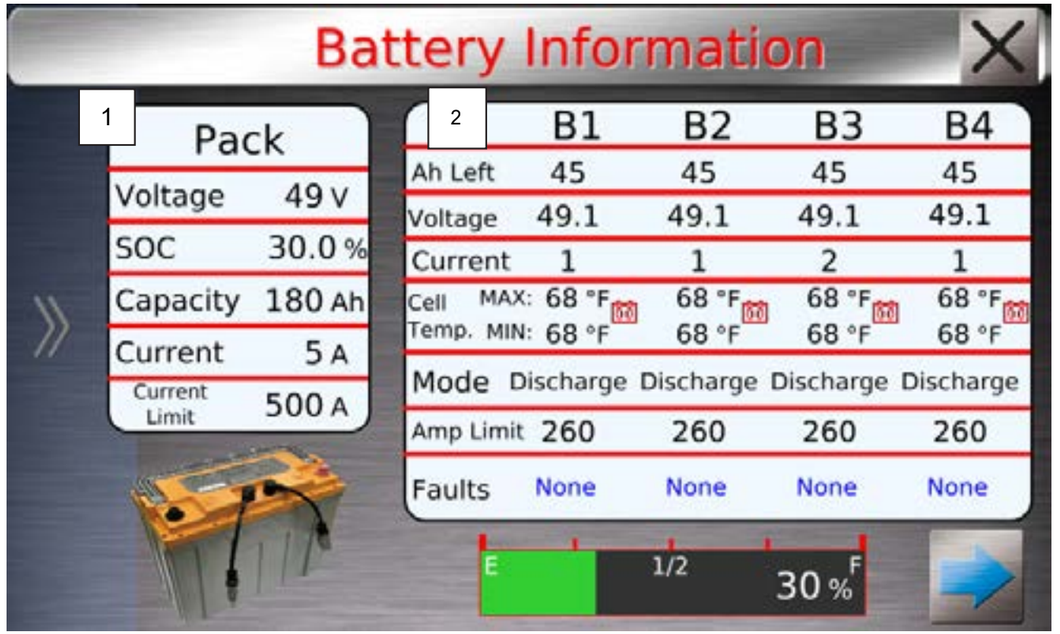


Figure 6: Battery Information - Display Screens

1. Pack Level information:
   a. Voltage: Rounded off voltage of the complete battery system.
   b. SOC: State of Charge of the system in % of capacity remaining.
   c. Capacity: Actual remaining Amp Hour value of pack.
   d. Current: Reported Current of each individual battery module.
   e. Current Limit: Max current the system can output.

2. Individual battery module information. Depending on configuration, it will show 3 or 4:
   a. AH Left: Capacity in Amp Hours of each battery module.
   b Voltage: Reported Voltage of each individual battery module.
   c .Current: Reported Current of each individual battery module.
   d. Cell Temp: Each battery module had several temperature sensors. This information reports the highest temperature measured and also the lowest per battery module. The Red box indicates that the battery heater is turned on for that module..
   e. Mode: Indicates what mode the battery is in: Module Balancing, Ship, Pre-Discharge, Standby, Discharge, Charge, Fault, Pre-Charge.
   f. Amp Limit: Amount of current each individual battery can supply. This varies on SOC, Temperature and other factors.
   g. Faults: Indicates any fault the battery module may have. None, High Temp, Low Temp, Over Current, Over Voltage, Short Circuit, Other charge Fault, MOSFET Temp, Severe Under voltage, COM AFE Failed, HW Second. OVP, 2nd OCP1, Pre-Charge Failed, Pack Parallel Error, Pre- Discharge Failed, Internal COM Failure.

Troubleshooting Screen

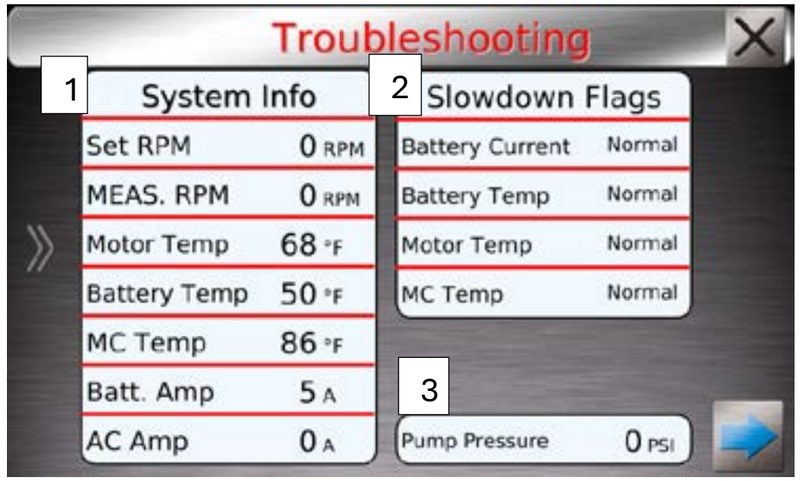


Figure 7: Troubleshooting Screen - Display Screens

1. System information:
   a. Set RPM: RPM value of the motor that the display is asking for.
   b. MEAS RPM: The actual measured RPM value.
   c. Motor Temp: Measured motor temperature in F/C
   d. Battery Temp: Warmest measured temperature in all battery modules.
   e. MC Temp: Measure temperature of the Motor Controller.
   f. Batt Amp: Measured current from battery system.
   g. AC Amp: AC current being used by hydraulic motor.

2. Slow Down Flags – If flag is other than Normal, this will cause the hydraulic system to run at a slower RPM to protect system components:
   a. Flags: Normal, Half Speed, Slow Speed, Warm Up.

3. Pump Pressure: PSI value.

Converter Information Screen

Note: DC-DC Displays setting of Bi-Directional converter supplies chassis with 12V when HPS system is enabled, or provides charging current to 48V batteries when the truck is running.

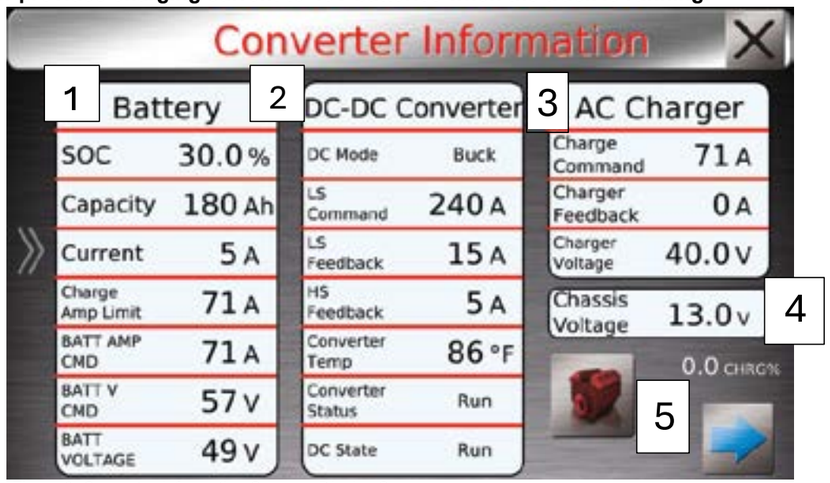


Figure 8: Converter Information Screen - Display Screens

1. Battery Window:
   a. SOC: State of Charge of the system in % of capacity remaining.
   b. Capacity: Actual remaining Amp Hour value of pack.
   c. Current: Value of current system is currently supplying or receiving.
   d. Charge AMP Limit: Max current value to charge 48V battery.
   e. BATT AMP CMD: Current value set by Converter to charge 48V battery .
   f. BATT V CMD: Charge Voltage setting set by Converter.
   g. BATT Voltage: Measured Voltage of the battery system.

2. DC-DC Converter Window:
   a. DC Mode: Regulation topology of the Converter. Buck, Boost, Pre-Charge.
   b. LS Command: Current value set by Converter for 12V.
   c. LS Feedback: Measured current on 12V.
   d. HS Feedback: Measured current on 48V.
   e. Converter Temp: Measured temperature of Converter.
   f. Converter Status: Either Stop or Run.
   g. DC State: Either Stop or Run.

3. AC Charger- shore power:
   a. Charge Command: Charge Current setting for 48V.
   b. Charger Feedback: Measured charge current.
   c. Charger Voltage: Voltage Setpoint for Charging.
4. Chassis Voltage: This is the current measured voltage of the chassis electronics. If the HPS system is enabled, this voltage is supplied by the HPS Converter. If the truck chassis is running, this is the voltage from the chassis Alternator or battery.

5. Engine symbol and CHG%: This is special application and only used if extra hardware has been installed to communicate directly with the chassis engine controller.

DC-DC Converter Fault Screen

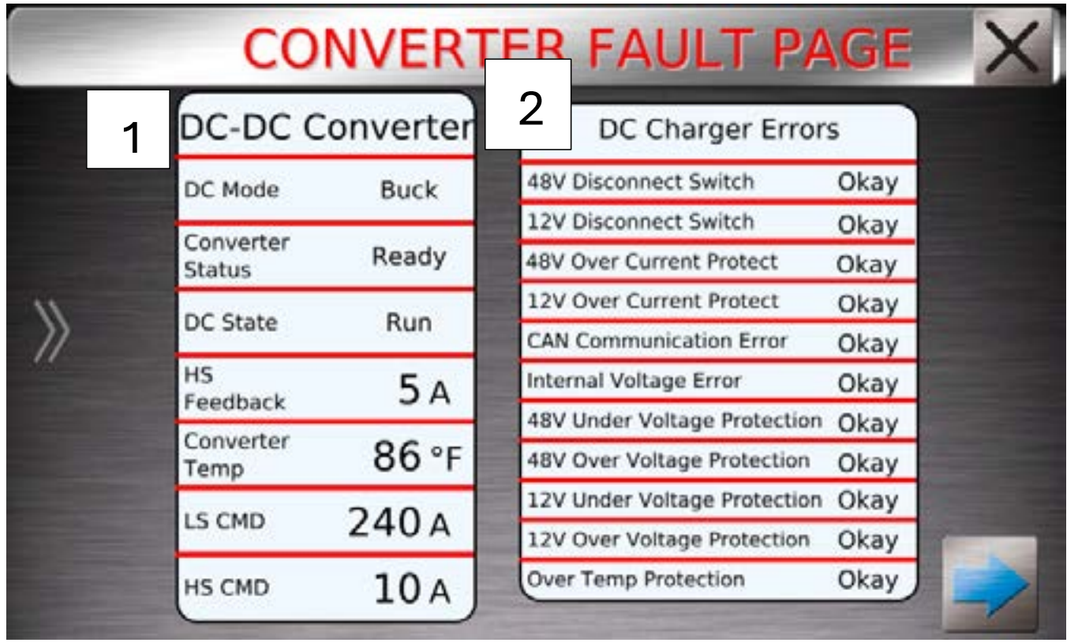


Figure 9: DC-DC Converter Fault Screen - Display Screens

1. DC-DC Converter Screen:
   a. DC Mode: The status of the Converter, Initialize, Buck, Boost, Pre-Charge, Error.
   b. Converter Status: Not Ready or Ready.
   c. DC State: Stop or Run.
   d. HS Feedback: Measured current on 48V
   e. Converter Temp: Measured temperature of Converter
   f. LS CMD: Current value set by Converter for 12V
   g. HS CMD: Current value set by Converter for 48V

2. DC Charger Errors:
   a. Flags: Status will be Okay – functioning normally, or Error.

Note: See “HPS Display Screen Troubleshooting” on page 21

System IO Screen

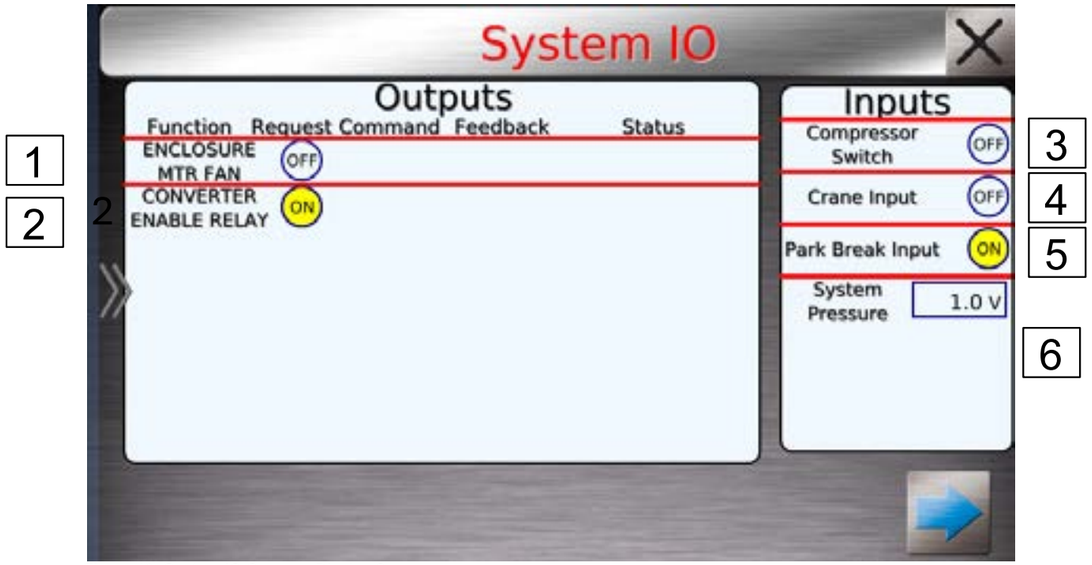


Figure 10: System IO Screen - Display Screens

1. Enclosure Mtr Fan: Indicates if motor controller fan in hydraulic stand is On or Off. Fan will turn on when motor controller temperature is above set limit.
2. Converter Enable Relay: Indicates if power relay to hydraulic motor is On or Off.
3. Compressor Switch: Indicates if air compressor is On (running) or Off.
4. Crane Input: Indicates if the Crane is currently in use (On) or not being used (Off).
5. Park Break Input: Indicates if Park Break is engaged, On.
6. System Pressure: Measured voltage of the hydraulic fluid pressure sensor.

Statistics View Screen

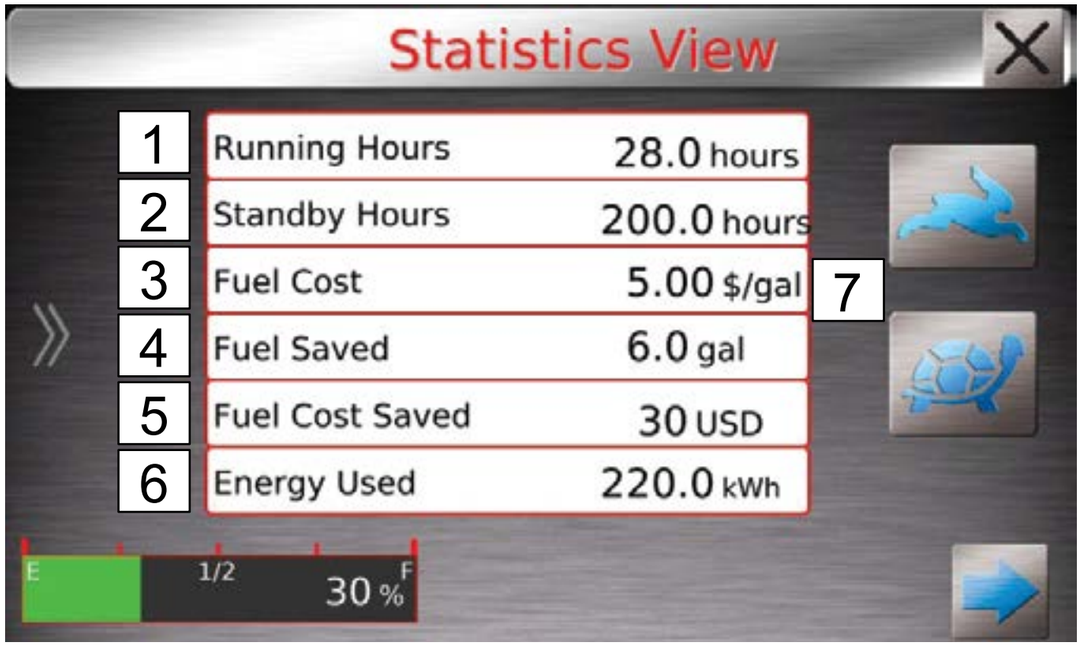


Figure 11: Statistics View - Display Screens

1. Running Hours: Total number of hours of usage for hydraulics, crane, compressor or stabilizers.
2. Standby Hours: Hours that the system has been enabled.
3. Fuel cost: Current value of fuel.
4. Fuel Saved: Estimated fuel savings based on usage hours.
5. Fuel Cost Saved: Estimated cost savings.
6. Energy Used: kWh used by system.
7. Fuel Cost adjustment in $0.10 increments. Touching Rabbit increases, touching Turtle decreases.

NOTE: Statistic View Window: shows information on usage and savings.

Hours View Screen

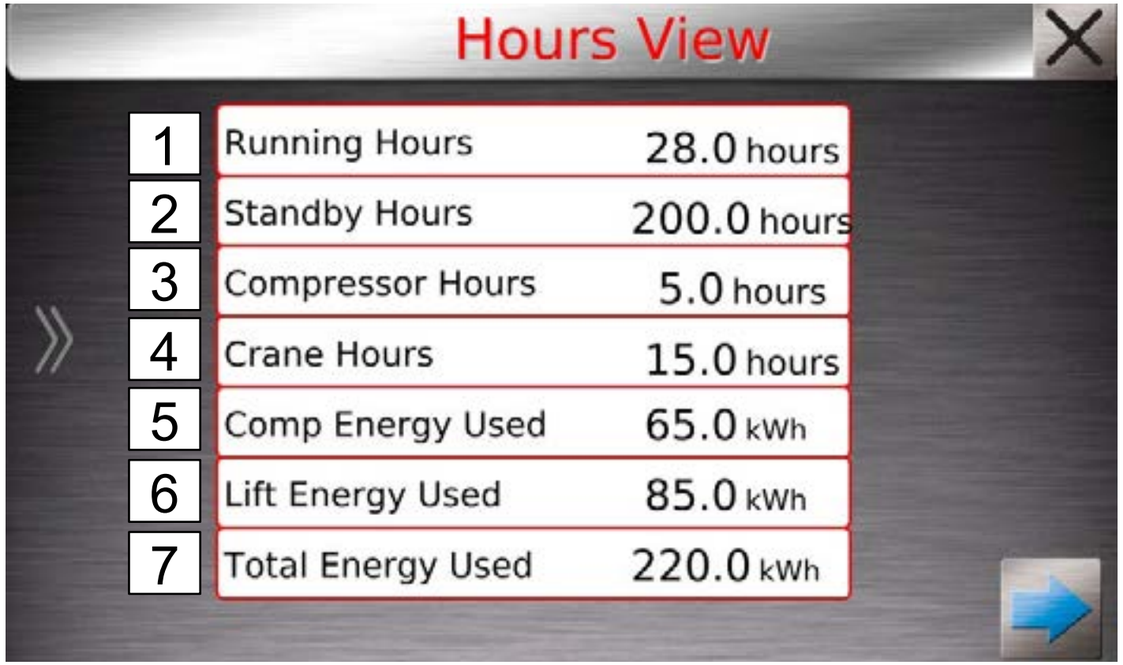


Figure 12: Hours View Screen - Display Screens

1. Running Hours: Total number of hours of usage for hydraulics, Crane, compressor or stabilizers.
2. Standby Hours: Hours that the system has been enabled.
3. Compressor Hours: Hours that the compressor has been on.
4. Crane Hours: Hours that the crane has been used.
5. Comp Energy Used: Amount of energy that the compressor has used.
6. Lift Energy: Amount of energy the crane has used.
7. Total Energy used: Combination of compressor, crane, stabilizers and standby energy used.

Battery Heater Enabled Screen

1



Figure 13: Battery Heater Enabled - Display Screens

1. Battery Heater On: Indicator when batteries are below temperature threshold. Also, Too Cold to Charge shows up in the SOC bar.

Password Screens

1

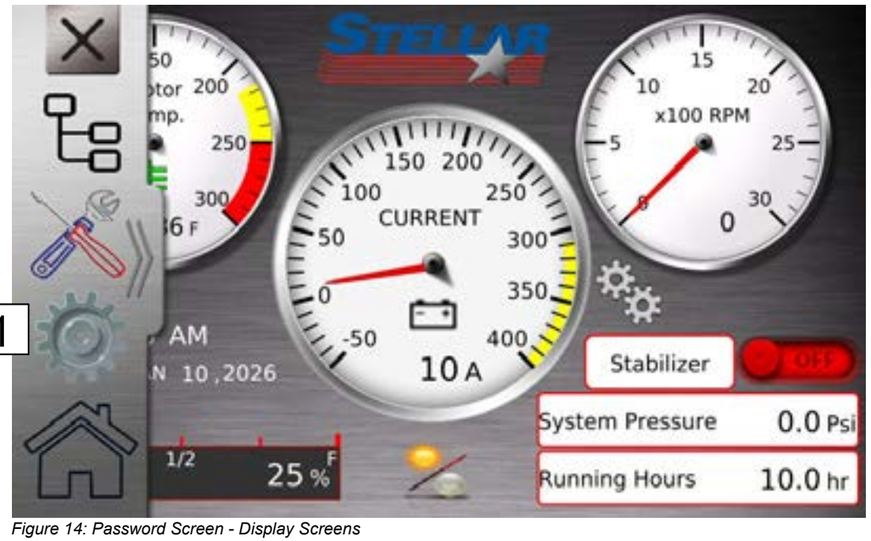


Figure 14: Password Screen - Display Screens

1. Gear: Touching this will take user to Password screen.

Dark / Light Modes

Day Mode:



Figure 15: Day Mode - Display Screens

Dark Mode:



Figure 16: Dark Mode - Display Screens

Note:
To toggle between Day Mode and Dark Mode, touch the Sun / Moon icon on the screen.

Cautions & Warnings On / Off



Figure 17: Cautions & Warnings On / Off - Display Screens

1. Hide or Show Warnings: Touch Button to toggle between having warnings / cautions visible or hidden.

HPS Display Screen Troubleshooting

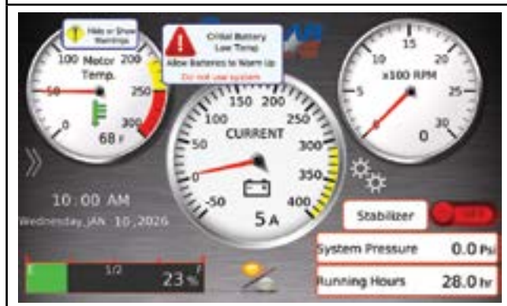
DISPLAY SCREEN	ISSUE
	**CAUTION:** Low Battery Temp Slow speed Only. System will run but at a slower RPM than normal operation on crane and stabilizers. Compressor will not run.
	**WARM UP:** When hydraulic system is cold, a warm up cycle is suggested. Pressing the Touch To Toggle Warmup will start or stop the warm up cycle. The Hydraulics will run a continuous cycle circulating fluid. This will automatically turn off once the proper temperature is reached or can be turned off by user. Note: using this will consume power, suggested to run truck to supply charge current while this is initiated.
	**SYSTEM OVER CURRENT STATE**: A condition has happened to create a large current draw from the HPS system. Follow steps on the display.
	**CRITICAL BATTERY LOW TEMP:** Batteries are very cold. Allow battery heater to warm batteries up until this warning goes away.

Table 4: Troublshooting, HPS Display Screen

HPS Display Screen Troubleshooting - Continued

Display Screen	ISSUE
	**BATTERY TEMP HIGH:** Batteries are getting hot due to extreme use. The hydraulics will operate in slower speed and compressor will not function.
	**BATTERY STATE OF CHARGE CRITICAL:** Batteries are close to depletion. Some functions are turned off to conserve power for hydraulic usage.
	**LOW BATTERY STATE:** Batteries have been depleted and need to be charged to operate system again. Turn on truck or apply shore power.
	**MOTOR CONTROLLER ALARM:** An issue has happened with the hydraulic motor controller. Turn off system fully and then turn back on. If issue persists, contact: **Stellar Customer Service** **1-800-321-3741**

Table 5: Troublshooting, HPS Display Screen

HPS Display Screen Troubleshooting - Continued

DISPLAY SCREEN	ISSUE
	**MOTOR OVER TEMP:** Hydraulic motor is too hot and has been disabled to prevent any damage. Allow to cool and then resume operation.

Table 6: Troublshooting, HPS Display Screen

Component Information

⚠ WARNING

- HPS power distribution devices, or systems, should not be disassembled or serviced by anyone other than a qualified technician.
- Components and devices inside the HPS unit or other points in the system should not be opened or modified. Only qualified approved technician should perform service work on an HPS system.
- In the event of a cell venting, hot and potentially harmful materials may be expelled from the pack.

HIGH POWER ALTERNATORS - 200 AMP

Under the Hood:

The HPS system has the ability to charge by drawing current from the chassis alternators when the engine is running. It is recommended that the chassis has dual high power alternators installed that can supply 200+ Amps. Alternators with less output can still charge the HPS system, but it will be at a low rate.

Component Information - Inside HPS Battery Box

Inside the HPS Battery Box:

Access the internal components of the HPS unit by depressing the buttons on the two latches and raise the lid. Always lower the lid when finished inspecting components inside the cabinet. Do not operate the HPS system with the lid in the OPEN position. The latches are lockable and keys have been included in the cab.

Battery Modules - (Figure 1) The battery modules are large format Li-ion battery packs. Note: Cover removed for clarity.

Bi-Directional Voltage Converter - (Figure 2) The 58V supply from the battery pack is converted to 12V to run the system electronics of the vehicle. The chassis 12V is converted to 58V to charge the batteries when the engine is running.

110V Charger - (Figure 3) The 110V charger will charge the 58V batteries when shore power is applied.

Relay and Fuse Box - (Figure 4) The relay and fuse box contains relays to control function of the system and protection fuses for signal level inputs / outputs.

Fuse Section: (Figure 5) fuses on the 58V power line used for input and output protection.

12V Breaker: (Figure 6) A current protecion device used on the 12V system. (Found outside of battery box)

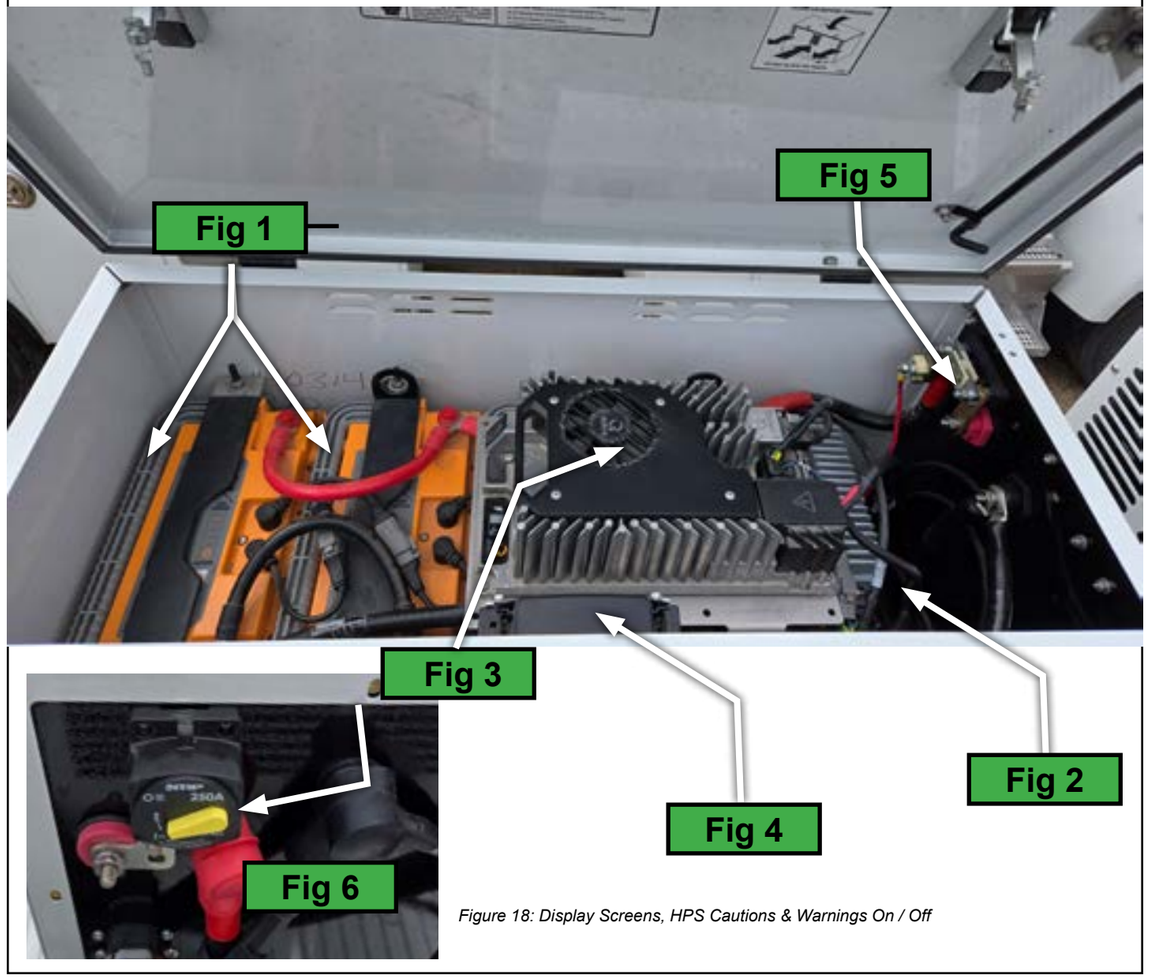


Figure 18: Display Screens, HPS Cautions & Warnings On / Off

Component Information - Inside HPS Hydraulic Stand

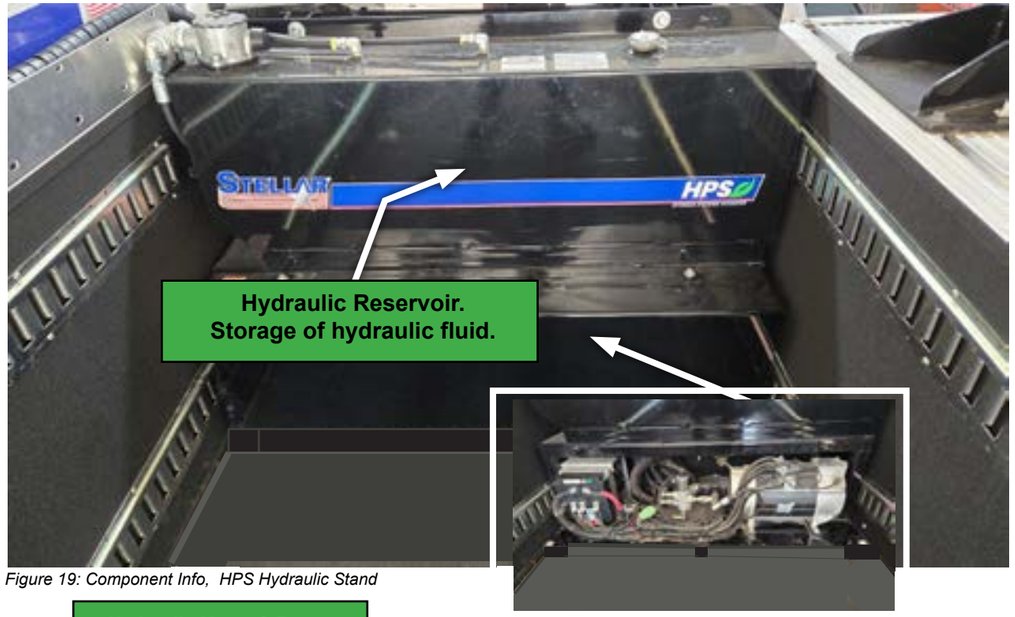


Figure 19: Component Info, HPS Hydraulic Stand

Figure 20 Component Info, HPS Hydraulic Stand

Figure 21:Component Info, HPS Hydraulic Stand

Component Information - On the Truck Body

On the Truck Body

Shore Power Connection - (Figure 23) For more information on Shore Power See “Charging” on page 31.



Figure 22:Component Info, HPS Shore Power Connection

Energy Pack Safety Recommendations

⚠ WARNING

1. Misusing an HPS battery pack may cause it to overheat or ignite and cause serious injury. Make sure to follow the safety rules listed below:

   - Never short-circuit the power terminals of an battery pack.
   - Do not reverse the polarity, or mix positive and negative connections, of the battery pack system or connected devices
   - Do not overcharge, or over-discharge, the battery pack system
   - Do not disassemble the battery pack pack system
   - Do not submerge the battery pack pack system
   - Do not incinerate the battery pack pack system
   - Do not use the battery pack pack without its Battery Management Unit (BMU) fully functional
   - Do not subject the battery pack pack to excessive mechanical stresses (vibration, dropping, crushing, etc.)
   - Do use the battery pack pack only in accordance with the guidelines set forth in this manual
   - Do operate the battery pack pack only within the recommended limits for temperature, voltage, current, SOC, and other environmental conditions

2. Do not operate the HPS system if the battery pack pack exhibits soot, scorching, or other evidence of thermal excursion.
3. Do not place the battery pack pack on, in, or near fires, or other high-temperature locations (>140°F [>60°C]). This includes intensive sunlight. Doing so may cause the battery pack pack to overheat and may result in a loss of performance and/or a shortened life expectancy.

Operating HPS System

Turning On HPS Unit

1. Place truck transmission in PARK.
2. Turn ignition key to OFF position.
3. Disconnect shore power charging cord from truck chassis.
4. Turn upfitter switch ON, or turn ignition key to On, vehicle not started, to enable HPS system.

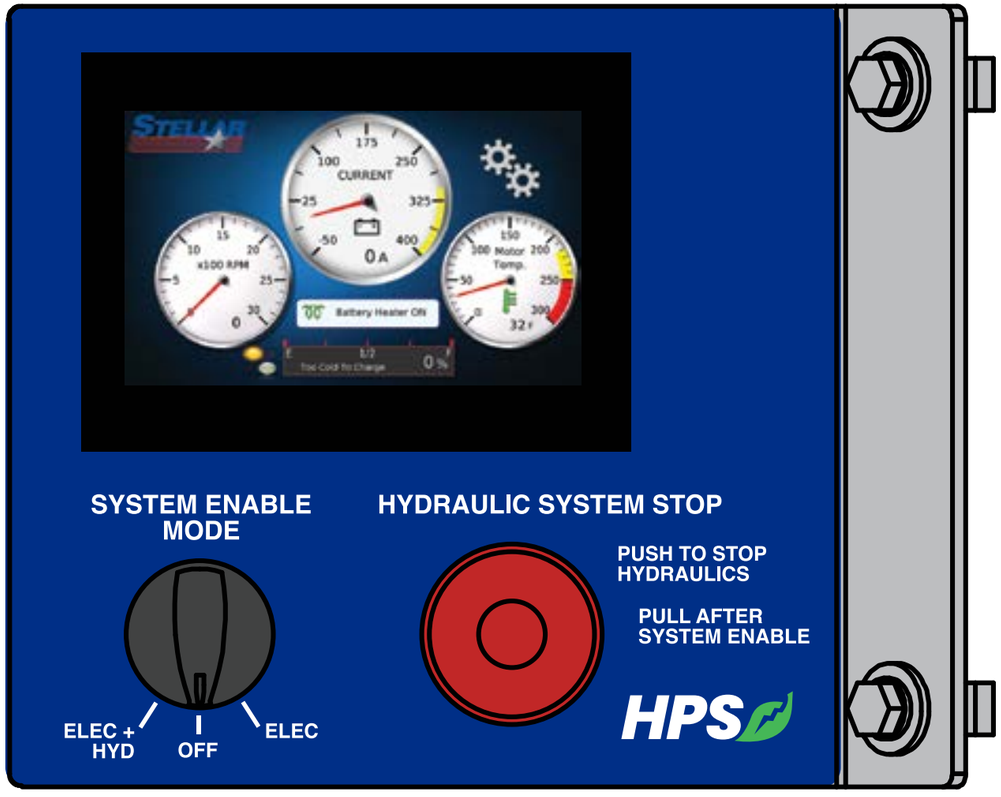


Figure 23:Operating System, Turning on Unit

Note:
Different installations may have alternate methods. If questions, please contact:

Stellar Industries Customer Service
1-800-341-3741

Activating HPS-Powered Accessories

1. Ensure the truck is in a key OFF state, and depress the parking brake.
2. Verify the HPS is ON by following the process in “Turning On HPS Unit”.
3. At the HPS display, turn the key switch to Hyd+Elec and pull out the M-stop..
4. Wait 5 seconds for system to initialize. The contactor will make a click sound as it turns on and power is applied to the electric motor.
5. The compressor and lights can be activated by controls on the E-Link™ panel in the cab or the PDM switch panel in the crane compartment. Refer to Remote Control operation instruction in your Crane Operation Manual. (Click here for Manual Lookup Tool)

NOTICE

Since the Main Power switch on the HPS Control Panel acts like a “PTO” switch, the PTO switch is no longer selectable on the E-Link™ control panel or PDM switch panel.

6. To operate the stabilizers, first activate the Stabilizer Power Button on the display. Operate the stabilizers as normal, then return the Stabilizer Power button to the OFF position.
7. The crane can be operated as normal with the remote.
8. When finished, press M-stop plunger and turn key switch to OFF position.
9. To shut down the system, turn off upfitter switch, or ignition key..

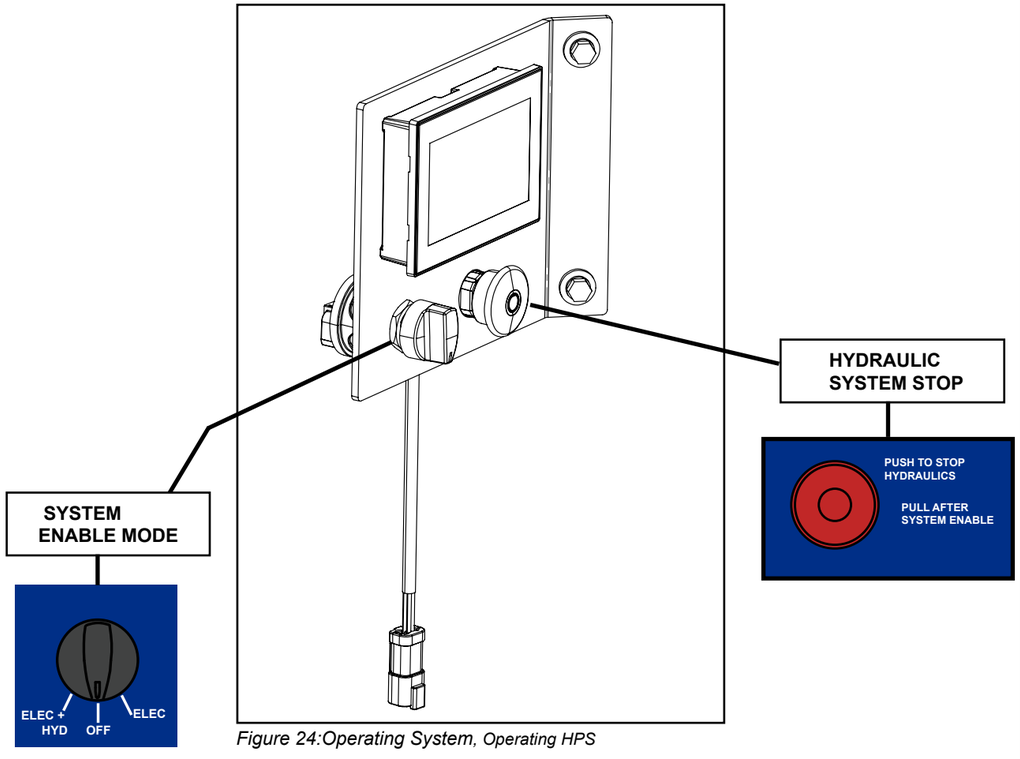


Figure 24:Operating System, Operating HPS

Charging

⚠ WARNING

RISK OF ELECTRICAL SHOCK, FIRE, AND EXPLOSION

- **DO NOT** exceed maximum rated voltage or current specifications for the Modular HPS.
- **Only** use manufacturer approved charging modules for Lithium-ion batteries.
- **Ensure adequate ventilation**; do not cover or obstruct cooling vents during active charge cycles.
- **Disconnect** input power source before servicing.
- **STOP CHARGING IMMEDIATELY** if batteries become ecessively hot.

Shore Power Charging

1. Place the HPS into an OFF state by making sure key switch on the display is OFF, M-stop is pushed in and truck key is OFF with upfitter switch also turned OFF.
2. Plug a properly rated AC line cord into the Shore Power charging port on the truck body located on the driver’s side behind the cab. Plug the other end of the cord into an outlet rated for 15 Amps circuit branch current. No other appliance should be plugged into this AC branch or it may overload the circuit and blow circuit breaker or panel fuse, or cause the system to charge slower.
3. To view charging status at the display, turn key switch to ELEC. At the bottom of the display will be a charge status indicator showing system “charging” and percent full. Turn Key switch OFF when done viewing.
4. Once the HPS has fully charged, approximately 8-10 hours from empty, remove the AC line cord from the AC outlet, then remove from the Shore Power charging port on the truck body.



Figure 25: Charging, Shore Power

Chassis Charging

NOTICE

The battery pack will automatically charge while the truck is driving down the road. During roadway charging, you do not have to activate the Charge Rate Switch.

Chassis Charging

1. While truck is parked, charging of the HPS system can happen from idling.
2. Make sure the truck is in Park and parking brake is engaged. Turn on ignition, starting the truck.
3. If the truck is equipped with High Idle switch, turn it to ON position.
4. To view charge status, look at bottom left corner of display. The SOC bar will indicate Percent of Charge and charging.
5. When the SOC bar indicates FULL, or there is a sufficient amount of charge in the HPS system, the charging can be stopped.
6. Put High Idle switch back to OFF.
7. Turn off the ignition to the truck.



Figure 26: Charging, Chassis

Status of Charge Gauge

Note: The SOC gauge is used to display the State of Charge (SOC) for the pack:

FULL CHARGE



Figure 27: Status of Charge, Full Charge

50% CHARGE



Figure 28: Status of Charge, 50% Charge

LOW CHARGE

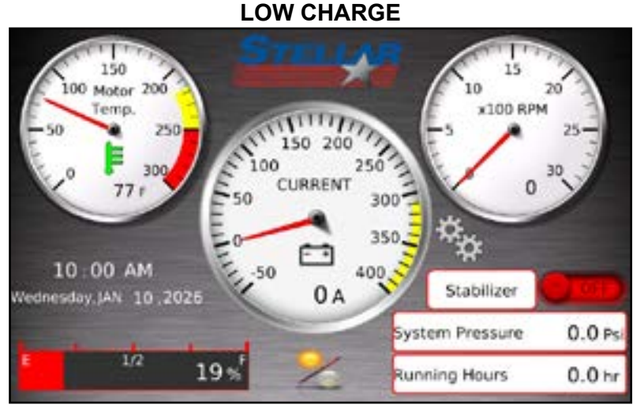


Figure 29: Status of Charge, Low Charge

System Operation and Recharging

NOTICE

The alternator may not always be ON while the vehicle is running. If the battery pack is above a set State of Charge (SOC) the alternator will be OFF until the pack controller determines it is appropriate to turn on the alternator.

Charging Options and Safe Charging:

HPS battery packs are designed to safely charge when using approved power distribution devices. Charging devices include alternators, inverter / chargers, shore power, and generators. No additional charging devices should be connected to the HPS system. Doing so could cause a potentially unsafe condition and / or could damage your system.

Recharging And Operation While Driving:

While the vehicle is being driven, the alternator will charge the HPS system automatically. No changes to the HPS system, or vehicle, settings are required.

Recharging And Operation From Shore Power:

When plugged into shore power the inverter / charger is designed to automatically recognize and sample incoming power. After initial plug in, the system will sample incoming power for a few seconds to ensure uniformity requirements are met. If incoming power meets the requirements, the system will automatically feed power to the vehicle and begin charging the battery pack.

If the system does not transfer power and begin charging, the cause can be due to poor quality incoming power. This feature protects the vehicle from brown-outs due to insufficient power, a common occurrence when large numbers of vehicles are tied to one shore power source. If the battery pack still has remaining energy, the vehicle systems should remain operational.

System Storage

⚠ WARNING

If an HPS power system is stored in deep sleep in a low charge state for an extended amount of time, permanent damage to the battery pack may result.

Note: Neglecting system maintenance and allowing the battery pack to come to this state will result in voiding the warranty for the battery pack.

⚠ WARNING

Failure to turn off the energy pack will prevent the packs from entering deep sleep mode. Even with no loads on the system this will cause the pack to deplete faster, which can cause permanent damage to the battery pack. The depletion rate accelerates further under cold conditions when the automatic heater engages.

System Storage and Deep Sleep

When not in use for prolonged periods of time, the HPS battery packs will automatically go into a deep sleep mode. For the battery packs to go into deep sleep mode, the HPS system must be in an OFF state.

DEEP SLEEP STORAGE:

1. To enter deep sleep mode, make sure Control panel key switch is in the OFF position, M-stop button is pushed in, and upfitter switch is in the OFF position. Remove key from vehicle ignition.
2. The default for going into deep sleep is set for 5 days of no usage. This can be changed to other values. Please contact Stellar Customer Service (1-800-321-3741) for further information.
3. To get the HPS system batteries out of deep sleep, any of the following methods can be used.
    a. Plug in shore power.
    b. Turn on upfitter switch.
    c. Start vehicle engine.
4. If the HPS system will be put into a prolonged storage, it is recommended that the HPS batteries be charged to a full state before going into storage.

System Temperature Limits

For optimal performance and to maximize system life, it is important that the battery pack remain within temperature limits. The temperatures below are defined from within the pack, and are automatically **measured by the system.**

Cold Temperature Operation and Storage

For normal system operation, the battery pack internal temperature must remain above the Minimum Operating Temperature. Below this temperature, the battery pack may enter a protection mode to prevent further charging or discharging. In most cases, low temperature storage will not harm the system; however, the battery pack should not be exposed to temperatures below the Absolute Minimum Temperature. A breakdown of these temperatures is shown in Table 6.

Minimum Operating Temperature*	-4ºF (-20ºC)
Absolute Minimum Temperature	140º (60ºC)
3 Month Storage Temp Range *	-4ºF – 113ºF (-20ºC – +45ºC)
Maximum Operating Temperature*	131ºF (55ºC)
Absolute Maximum Temperature	-31º (-20ºC)

Table 6: System Temperature Limits

*Exact temperatures can vary based on specific system implementation.

Operation of the HPS system in cold environments is possible when the system is continually running. Internal self-heating will often maintain sufficient temperature inside the pack. Also, the battery packs are equipped with internal heaters that will engage automatically when the temperature falls below -10ºC, as long as the HPS system is enabled.

High Temperature Operation and Storage

The battery pack is designed with passive cooling at temperatures above the Absolute Maximum Temperature, The battery pack will enter a protection mode and turn off power to the HPS system. Storage of the battery pack at elevated temperatures is not recommended as it will reduce the lifetime and capacity of the battery pack.

Temperature Reporting

The battery pack monitors maximum and minimum cell temperatures. This allows the pack to enter a protective shutdown mode should the temperatures experienced by the pack exceed a safe range.

Heating Elements

For system heater in cold environments, the battery pack is equipped with a heating element in the form of a heater. The heating element will operate if the system is enabled. There must be sufficient energy available from the energy pack to power the heating pads. If the pack has been in cold storage, applying either chassis or shore charging will activate the heating element, if needed. When the pack reaches operational temperature, the battery pack will automatically activate and provide power.

Vent Gas Conditions and Characteristics

⚠ WARNING

Cell venting releases potentially harmful gases that are hot and flammable. Avoid interaction with the pack venting area if the pack has been exposed to a condition that may cause venting.

The battery pack is equipped with a vent port in the pack housing to relieve pack pressure in the case of cell venting. The likelihood of cell venting is very low; however, this vent is a part of the safety system.

CONDITIONS THAT COULD CAUSE CELL VENTING

- Overheating of the battery pack beyond battery pack limits.
- Overcharging the battery pack beyond battery pack limits.
- Crush / penetration of the cell.
- Cell internal short-circuit.

The HPS system and battery pack monitor conditions that may lead to venting and will incorporate control parameters to mitigate these events.

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Chapter 3 - Maintenance

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Energy Pack Maintenance 40
Scheduled HPS System Maintenance 41
Hydraulic Oil / Filter Maintenance 41
General Maintenance 42

General Maintenance Guidelines

⚠ WARNING

Do not attempt to service HPS System components. Only qualified technicians can service these components. Any attempt to service a system by unapproved personnel could cause damage to the system, voiding of the warranty, injury or harm.

Maintenance is an important part of extending the life of any Stellar Industries Accessory. Performing key maintenance items on a scheduled program will prevent unnecessary downtime.

Before performing any maintenance to the HPS unit, consider the following:

- Place all controls in the OFF position and secure operating features from inadvertent motion. Follow all company directed lockout / tagout procedures.
- Turn OFF12V breaker on battery box by placing arm in OFF position.
- Before any service or repair is performed, disengage the hydraulic power source and SHUT OFF engine.
- Allow systems to cool before performing any maintenance.
- Before performing any maintenance on electrical components, disconnect the power source.
- Before performing any maintenance on hydraulic components, relieve hydraulic oil pressure from all hydraulic circuits. Move pedals and control levers repeatedly through their operating positions to relieve all pressures.
- **⚠WARNING** Do not disconnect hydraulic hoses while there is still pressure in those components.
- Replace parts with Stellar Industries approved parts only.
- Label or tag parts when disassembling.
- Immediately repair or have repaired any components found to be inadequate.

Energy Pack Maintenance

Except for extended periods of storage, no specific maintenance is required for the service life of the battery pack. In the event the battery pack has a breach of container integrity, or has been submitted to abusive operating conditions (crush, short circuit, overcharge, over-discharge, submersion, evidence of combustion, exposure to fire, etc.), please contact your authorized Stellar Industries representative. Only approved technicians should service an HPS power distribution system.

NOTE: The battery pack should be turned on every three months to ensure it maintains a charge above Minimum Pack Voltage (10%, 48.7V), as read from the HPS Control Panel display.

Scheduled HPS System Maintenance

NOTICE

These recommendations are based on normal working parameters. If operating in less than favorable conditions...excessive dust, moisture, etc., check the filter gauge often for filter change notice.

Maintenance Operation	Daily	Weekly	Monthly	Hourly
Check hydraulic reservoir oil level	☐			
Drain and replace hydraulic oil*				6500
Replace hydraulic oil filter according to flow restriction gauge				
Tighten all hydraulic lines			6 months	

Table 7: HPS System Maintenance

*See initial Hydraulic System break-in procedure below.

Hydraulic Oil / Filter Maintenance

Stellar Industries recommends the first filter change to occur after the first 250 hours of service. The second, and every subsequent change, should occur after every 1,000 hours of service. By following these guidelines, the hydraulic oil should last up to 6,500 hours.

Operating Condition	Temperature Range	Hydraulic Oil Recommendation
Arctic Climate	Below -5˚F	High VI, low pour, ISO 22, AW hydraulic oil
Normal Service	-5˚F to 90˚F	High VI, low pour, ISO 32, AW hydraulic oil
Tropical Climate	Above 90˚F	ISO 46, AW hydraulic oil

Table 8: Hydraulic Oil / Filter Maintenance

General Maintenance

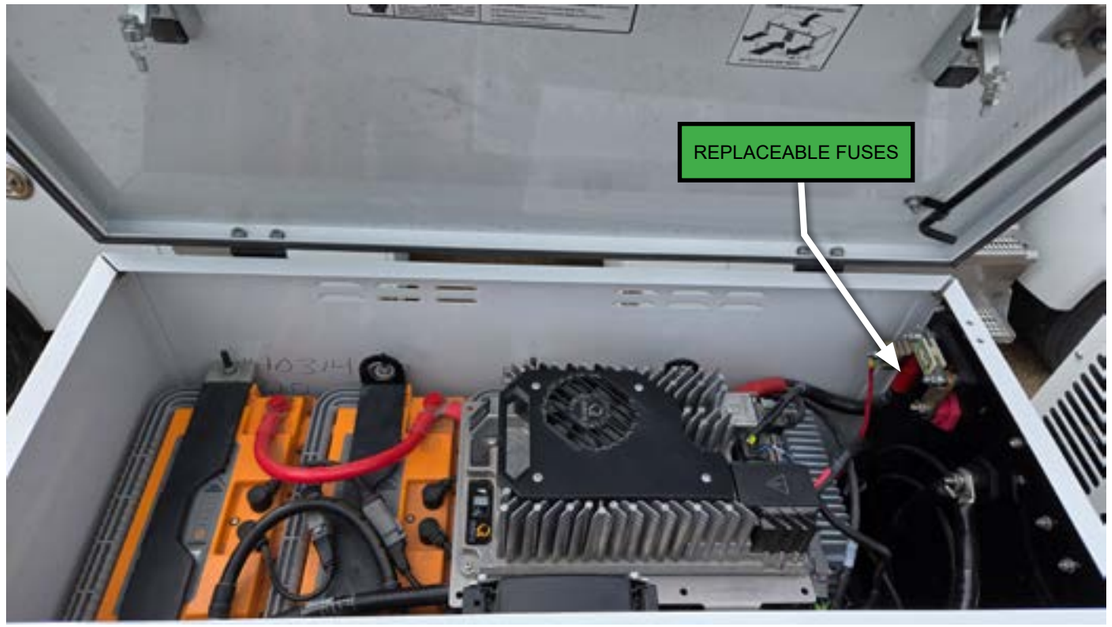


Figure 30: General Maintenance, Replace Fuses

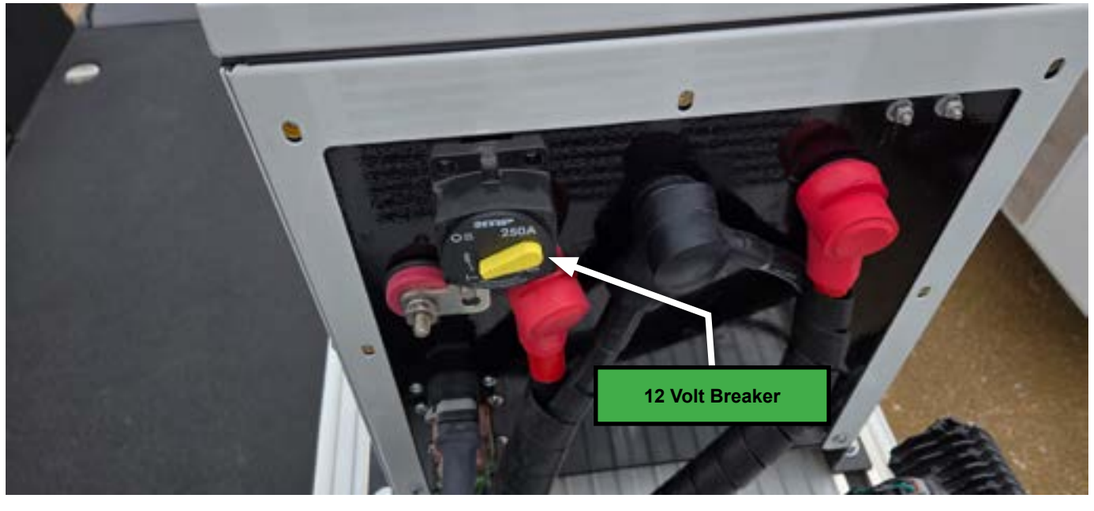


Figure 31: General Maintenance, Volt Breaker

Note: Cover removed for clarity.

General Maintenance - Continued

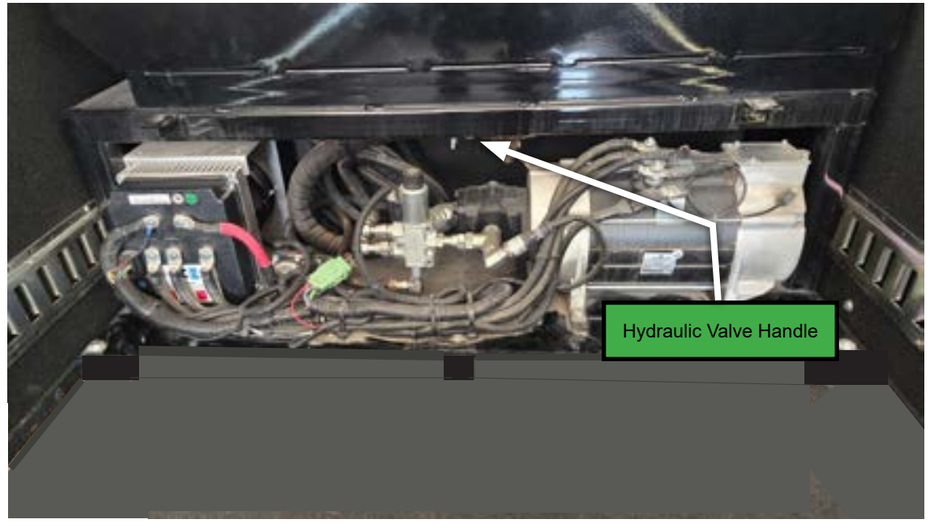


Figure 32: General Maintenance, Hydraulic Reservoir

Note: Close valve below hydraulic reservoir before changing hydraulic fluid or performing maintenance on the hydraulic system.

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Chapter 4 - Warnings & Faults

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Battery Box: Battery Faults

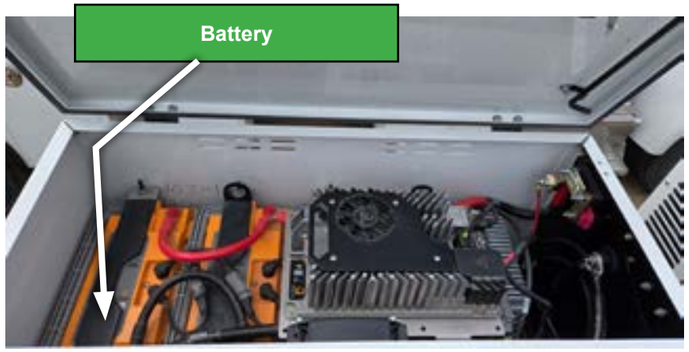


Figure 33: Battery Faults, Hydraulic Reservoir

NOTICE

Cold Weather Performance

Although clear data on cold weather performance from every steel manufacturer is not available for all types and thicknesses of steel, Stellar Industries is confident that the weldments on our products will operate to 100% of their intended purpose to temperatures down to -40° F / C.

It is recommended it Stellar manufactured equipment needs to be used in temperatures below -40° F / C, the operator should pull the unit into a climate-controlled area and allow the weldments to warm up to and then maintain a temperature above this level.



Figure 34Faults. Battery Temp High.

BATTERY TEMP HIGH:
Batteries are getting hot due to extreme use. The hydraulics will operate in slower speed and compressor will not function.



Figure 35: Faults. Battery State of Charge Critical..

BATTERY STATE OF CHARGE CRITICAL:
Batteries are close to depletion. Some functions are turned off to conserve power for hydraulic usage.



Figure 36: Faults.Low Battery State

LOW BATTERY STATE:
Batteries have been depleted and need to be charged to operate system again. Turn on truck or apply shore power.

Charger Status Display

Note:
Charge status and faults can be determined from the LED status indicator and digital display on the front of the charger.

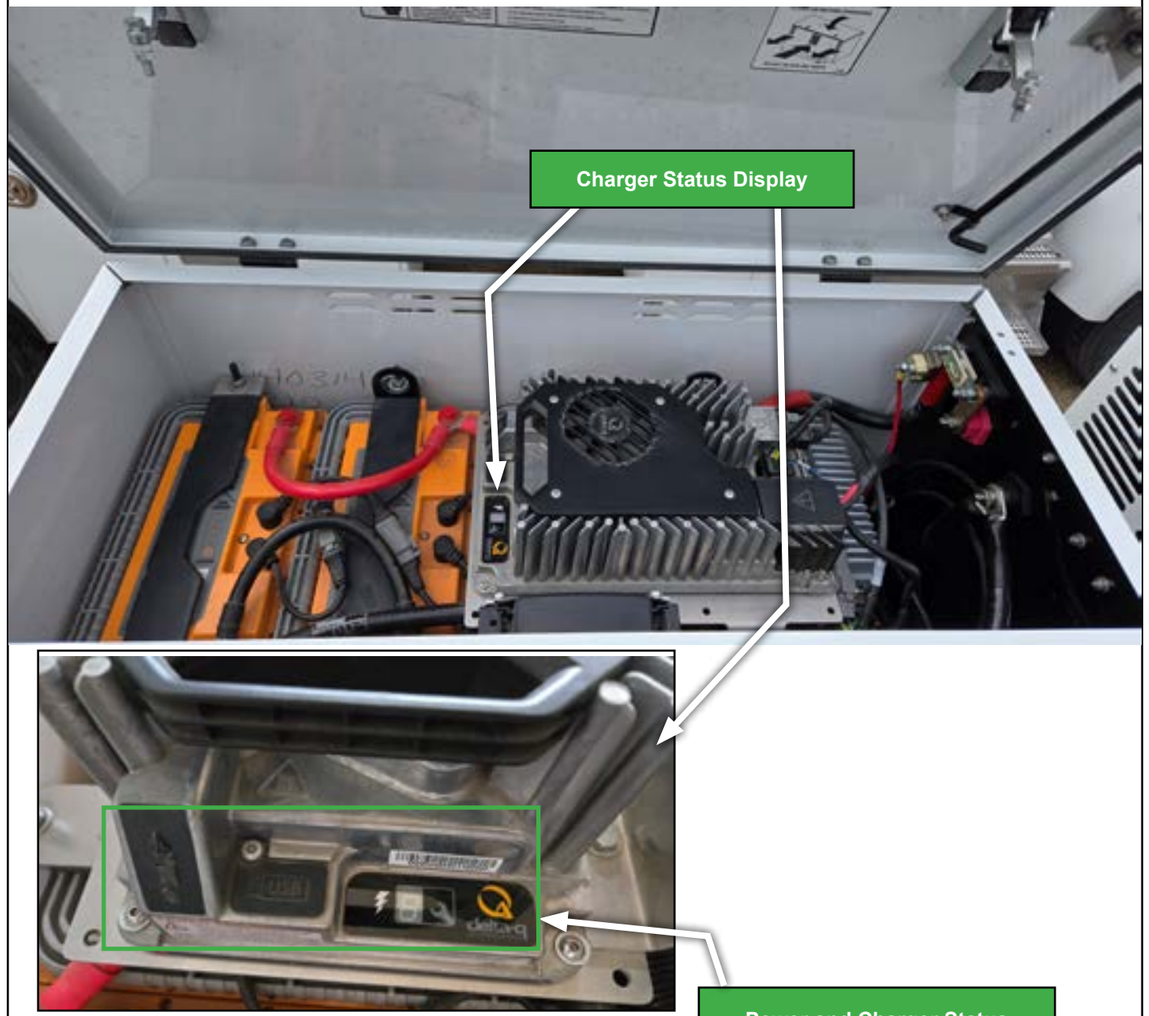


Figure 37: Warning & Faults, Charger Status

Charger Faults

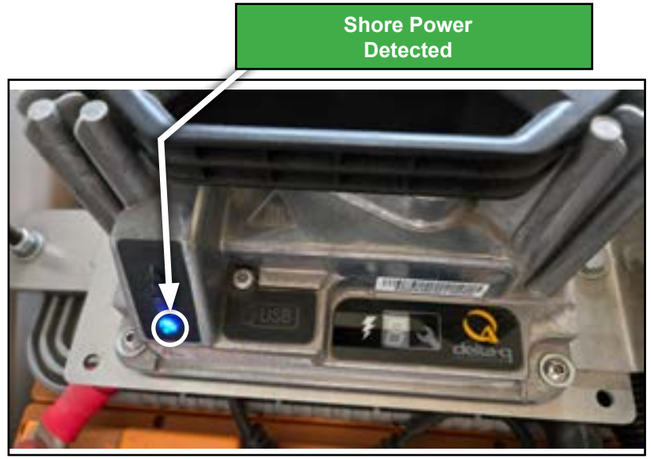


Figure 38 Faults, Charger Faults

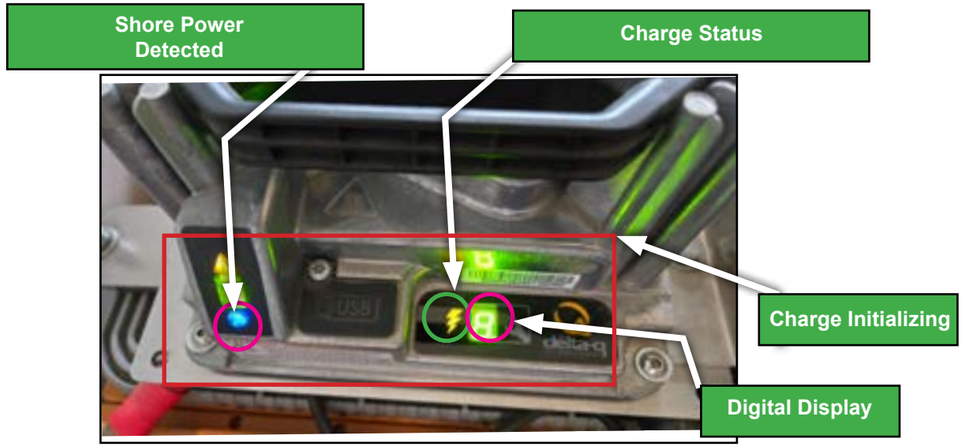


Figure 39: Faults, Charger Faults

- Charge Status: Lightning Bolt.
- Digital Display: Error Code - contact Stellar CS for Assistance: 800.321.3741
- Power On: All lights ON for System Power Up.
- Charge Initializing: Charger performing initialization and checking line voltage and battery status charging. Charge status flashes green and lightning bolt is solid while charging. Charge Status (lightning bolt) will turn solid green when battery charged.

Battery Fault Codes

The batteries can go into a fault mode if they are subject to usage out of the norm. The fault mode of the battery be determined by looking at the Indicator on top of the battery. A list of the faults is listed below, showing different LED patterns. **Note: each battery could have different or no fault codes when others do.**

Fault ID	LED Status	Description of Fault	Fix
F0		Over-temperature (cells)	Wait for temperature to drop into acceptable operating range
F1		Over-temperature (BMS)	Wait for temperature to drop into acceptable operating range
F2		Under-temperature (charge)	Wait for temperature to drop into acceptable operating range
F3		Over-current (recoverable)	If charging, power cycle charger; replace charger if problem persists. If discharging, battery will resume operation after discharge has been stopped.
F4		Over-current (permanent fault)	Disconnect and replace battery.
F5		Short-circuit	Check all connection point to battery system.
F6		Cell under-voltage during discharge only	Recharge battery.
F7		Cell over-voltage during charge only (primary)	Discharge battery down to 20% SOC and then recharge battery.
F8		Cell over-voltage during charge only (secondary)	Disconnect and replace battery.
F9		Safety under-voltage	Recharge battery.
F10		Cell pre-charge fault	Power cycle charger and replace charger if problem persists
F11		Charge fault	Power cycle charger and replace charger if problem persists.
F12		Under-temperature (discharge)	Wait for temperature to rise into acceptable operational range.
F13		Miscellaneous fault	Power cycle battery. Replace battery if problem persists
F14		Pre-discharge	Enable the battery without load and check if fault goes away. If fault is not present, reconnect to system. If fault persists, disconnect and replace battery.
F15		Permanent fault	Disconnect and replace battery.

Tables 9: Battery Fault Codes

Recommended Spare Parts List

REPLACEMENT PARTS BATTERY BOX - PN 140263		
STELLAR PN	**DESCRIPTION**	
36453	RELAY SPDT 35A MICRO 5P 280	
72976	RELAY SPST 12V 20A ULTRA ISO MICRO	
139769	FUSE 500A CNN 48V	
147268	FUSE 80A MRBF 58VDC	
151153	FUSE 5A 58V BLADE MINI TAN	0997005.WXN576-0997005.WXN
151154	FUSE 10A 58V BLADE MINI RED	0997010.WXN576-0997010.WXN
151155	FUSE 15A 58V BLADE MINI BLUE	0997015.WXN576-0997015.WXN
REPLACEMENT PARTS DISPLAY - PN 140212		
140478	DISPLAY 5IN TOUCHSCHREEN HSS	
140479	KEY START HSS	
140480	M-STOP HSS	

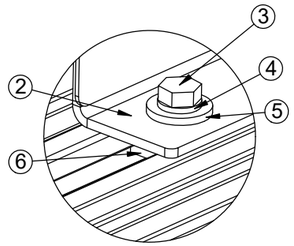
Tables 7: Recommended Spare Parts List

Chapter 5 - Assemblies

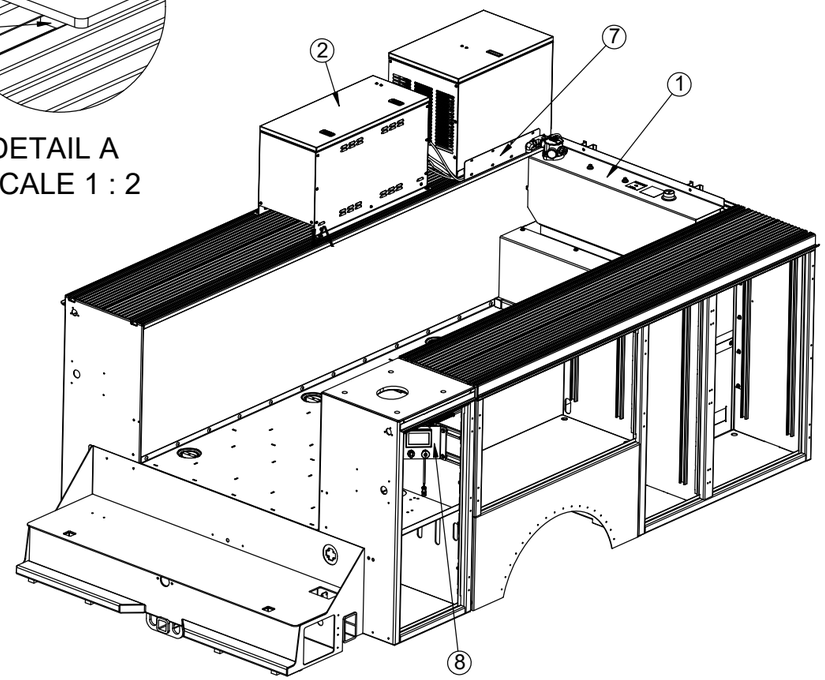
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Mech PKG 3X48 Sidepack HPS - PN 150686



DETAIL A
SCALE 1 : 2



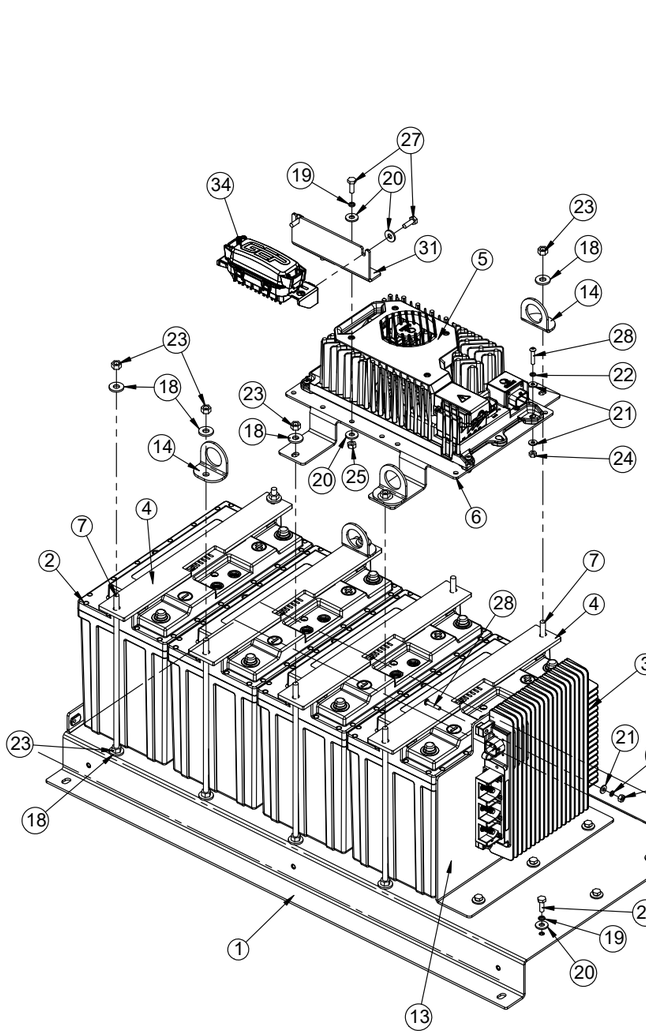
NOTES:
1. MECH BODY AND COMPRESSOR SHOWN FOR REFERENCE ONLY

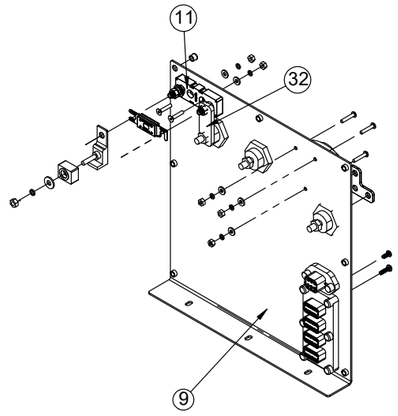
Mech PKG 3X48 Sidepack HPS - PN 150686 Parts List

PN 150686			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140208	HPS LOADBED ASM MOTOR/PUMP/RSRVR	1
2	144511	BATTERY BOX ASM HPS 3X48	1
3	C0922	CAP SCR 0.31-18X1.00 HHGR5	4
4	0522	WASHER 0.31 LOCK	4
5	0343	WASHER 0.31 USS FLAT	4
6	76253	NUT STRUT CHANNEL .31X1.63	4
7	145603	BRKT J CHANNEL HOSE ROUTING HPS / 40P	1
8	150685	CONTROL PANEL ASM HPS 3X48	1
REV.A 20261027			

ITEMS NOT SHOWN		
PART	**DESCRIPTION**	**QTY**
144742	WIRE HRNS HPS HYDRAULIC CTRL	1
144743	WIRE HRNS HPS DISPLAY MAIN CTRL	1
144744	WIRE HRNS HPS DISPLAY MAIN	1
144745	WIRE HRNS HPS USB CABLE	1
58713	WIRE 4/0 (RM) BLK EPDM SAE J1127 UL CLASS K	20 FT
59342	TERML LUG 0.38 4/0 PLTD COPPER	4
15220	HEAT SHRINK 0.75 ADH BLK 3:1 4FT HEAVY WALL	0.5 FT
17221	HEAT SHRINK 0.75 ADH RED 3:1 4FT HEAVY WALL	0.5 FT
4044	HOSE PROTECTOR 0.75 AS-B-19	9 FT
147179	RELAY ASM HPS CPRSR FAN CTRL	1
147180	WIRE HRNS HPS ADAPTER MECH INPUT	1
147859	WIRING KIT HPS 120VAC SHORE POWER NEMA 5-20P	1

Battery Box Chassis HPS - PN 142001



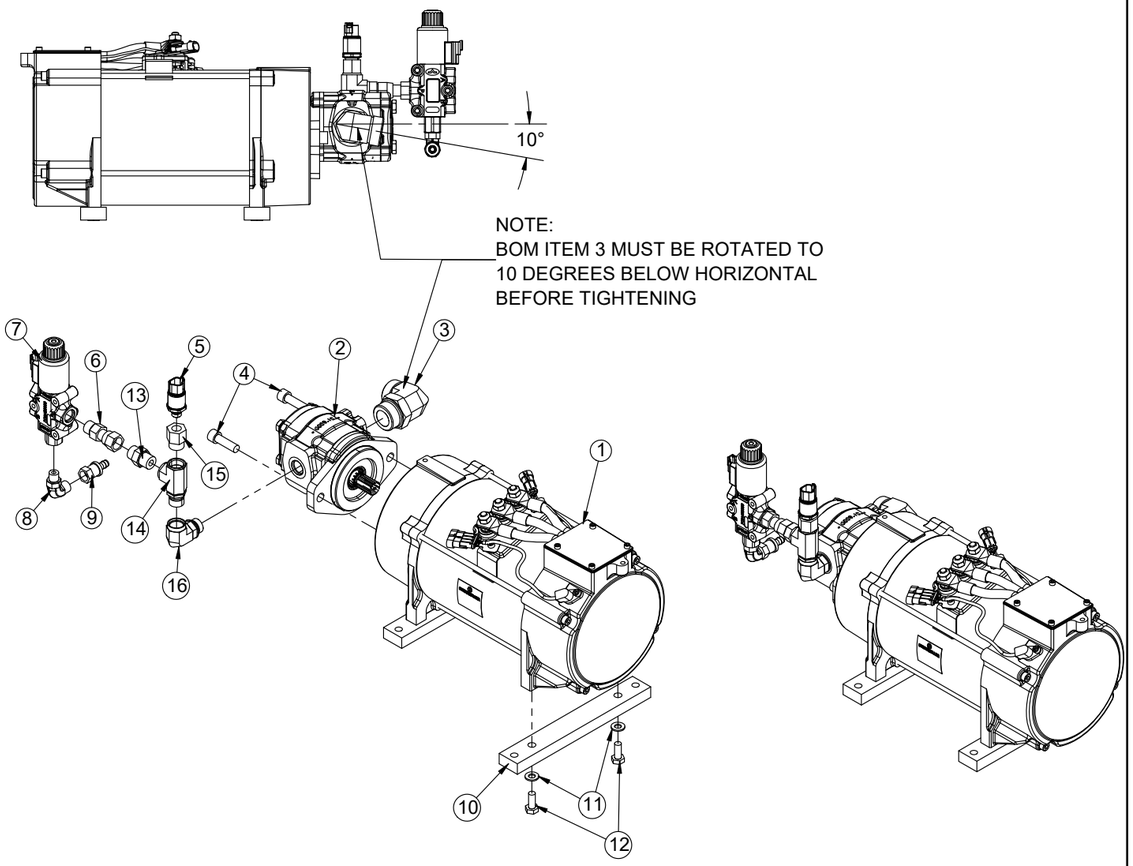


BACK SIDE OF PANEL BULKHEAD (ITEM 9)
(SHOWN FOR REFERENCE)

Battery Box Chassis HPS - PN 142001 Parts List

PN 142001			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140258	BASE WLDMT BATTERY BOX MOUNT	1
2	140122	BATTERY 48V HPS	4
3	139765	VOLTAGE CONVERTER 48/12VDC 3KW	1
4	140261	FLAT AL 0.25X2.00X15.38 BATTERY BOX	4
5	139764	BATTERY CHARGER 48V/1.2KW @110VAC	1
6	145298	BRKT CHRGR/CONVERTER BATTERY BOX SHORT	1
7	30453	ROD 0.31-18 THRD B7 X 12.50	8
8	140129	CONNECT 48P RCPT DT BULKHEAD	1
9	140262	PANEL BULKHEAD HPS BATTERY BOX	1
10	97231	STUD BAT FEED-THRU RED 0.38-16 550A	2
11	139767	FUSE HOLDER ANL/ANN	1
12	97232	STUD BAT FEED-THRU BLK 0.38-16 550A	1
13	140259	PANEL DIVIDER FUSE BUS BAR MNT BATTERY BOX	1
14	140322	BRKT BATTERY BOX LIFT POINT	4
15	142005	CONNECT 6P RCPT ATP PNL MNT BLK SELF-TAP	1
16	142008	CIRCUIT BREAKER 250A 48VDC SWITCH SRFMNT	1
17	142006	BUS BAR 8793B	1
18	0343	WASHER 0.31 USS FLAT	16
19	0521	WASHER 0.25 LOCK	9
20	0340	WASHER 0.25 USS FLAT	13
21	D0178	WASHER #10 SAE FLAT	17
22	6803	WASHER #10 LOCK	13
23	0534	NUT 0.31-18 HHGR5	16
24	D1487	NUT #10-24 HH	13
25	0533	NUT 0.25-20 HHGR5	3
26	19589	NUT SERT 0.25-20X0.38 OD	7
27	0479	CAP SCR 0.25-20X0.75 HHGR5	10
28	8330	CAP SCR #10-24X1.00 BTNHD SS	11
29	D1179	CAP SCR #10-24X1.00 FHSH SS	2
30	-	OIL-RESISTANT BUNA-N O-RING - 9452K403	1
31	145693	BRKT RELAY MODULE HPS	1
32	142004	BUSBAR LINK 0.38 HOLES 2.00 C-C	1
33	139769	FUSE 500A 80VDC ANN	1
34	-	RELAY/FUSE BOX PDM-R-SERIES-A-HOUSING-SA	1
35	147267	FUSE HOLDER MRBF 0.25-20X1.25 STUD 0.38 MNT HOLE	1
36	147268	FUSE 80A MRBF 58VDC	1
37	-	SCREW M5X0.8 18MM	6
38	-	SCREW M5X0.8 12MM	2`
REV. D - 20261102			

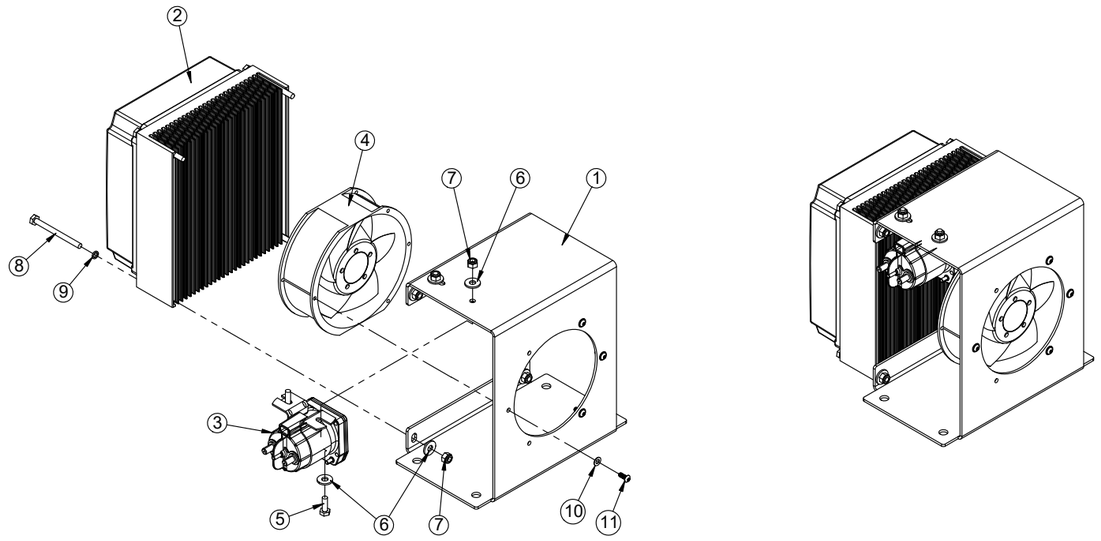
Motor Pump Asm HPS 10kw Hyd Pump - 146534



Motor Pump Asm HPS 10kw Hyd Pump - 146534 Parts

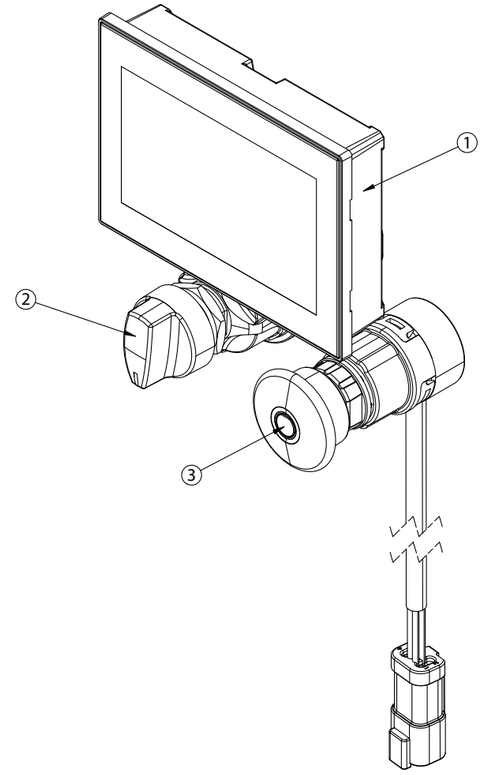
PN 146534			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	139758	MOTOR ELECTRIC 10KW HPS	1
2	139759	PUMP HYD GEAR SINGLE HPS	1
3	64276	FTG 20-20 MFS-MAORB 90	1
4	62484	CAP SCR 12MMX40MM SH	2
5	139763	TRANSDUCER HPS	1
6	19917	FTG 8-8 FFSS-MORB STRAIGHT	1
7	139760	VALVE SELECTOR 3 WAY 2 POSITION 16GPM ELECTRIC	1
8	C0338	FTG 6-6 MFS-MAORB 90	1
9	52474	FTG HOSE 6-6 FFSS-PL SHORT	1
10	140209	FLAT MOTOR MNT HPS	2
11	C6353	WASHER 0.38 SAE FLAT YELLOW GR8	4
12	138717	CAP SCR M10-1.5X25MM GR8.8 YZ	4
13	C2252	FTG 8-10 MFS-MORB STRAIGHT	1
14	76709	FTG 10-10-10 MAORB-FORB-FORB TEE	1
15	C1111	FTG 10-6 MORB-FORB STRAIGHT REDUCER	1
16	60504	FTG 10-10 MAORB-FORB 90	1
REV. B - 20260609			

Motor Controller Asm HPS w Fan - 146535



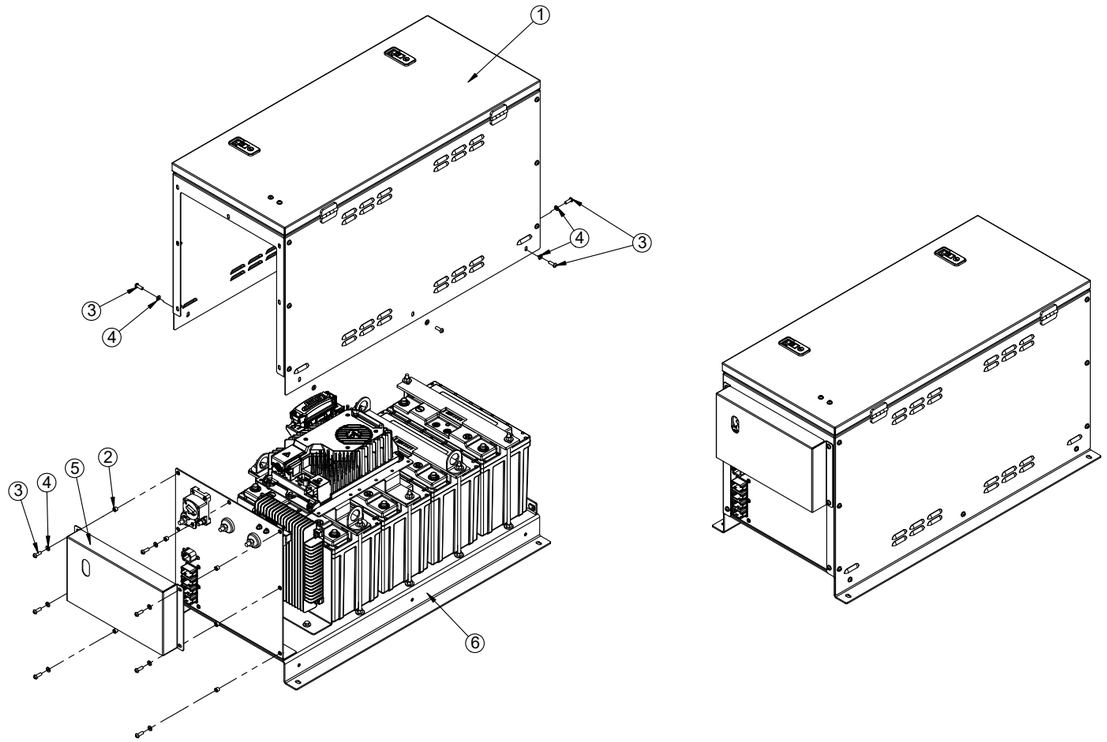
PN 146535			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140131	BRKT MOTOR CNTRL/FAN HPS	1
2	139761	MOTOR CONTROLLER HPS	1
3	139762	CONTACTOR 48V 225A HPS	1
4	146149	FAN 6.73X2.00 PULL 48V MS1751-H	1
5	0479	CAP SCR 0.25-20X0.75 HHGR5	2
6	D0917	WASHER 0.25 FLAT SS	8
7	0333	NUT 0.25-20 HHGR5 NYLOC	6
8	0482	CAP SCR 0.25-20X3.00 HHGR5	4
9	0521	WASHER 0.25 LOCK	4
10	137054	WASHER #10 SAE FLAT SS	4
11	-	SCREW #10-32X0.50 BTNHD	4
REV. B 20261102			

Control Panel Kit - 147620



PN 147620			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140478	DISPLAY 5IN TOUCHSCREEN HSS	1
2	140479	KEY START HSS	1
3	140480	M-STOP HSS	1
REV. B 20261102			

Battery Box Asm - PN 140263



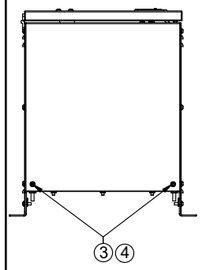
PN 140263			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140264	SHROUD ASM BATTERY BOX HPS	1
2	19589	NUT SERT 0.25-20X0.38 OD	7
3	C6021	CAP SCR 0.25-20X0.75 BTNHD SS	15
4	19592	WASHER 0.25 FLAT NYLON	15
5	140487	COVER BATTERY BOX HPS	1
6	142001	BATTERY BOX CHASSIS HPS 4X48	1
REV. B - 20260904			

ITEMS NOT SHOWN		
PART	**DESCRIPTION**	**QTY**
148126	DECAL KIT HPS BATTERY BOX	1

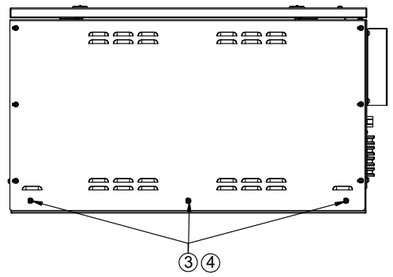
Battery Box Asm - continued

NOTES
1. ALL HARDWARE LOCATIONS SHOWN

REAR

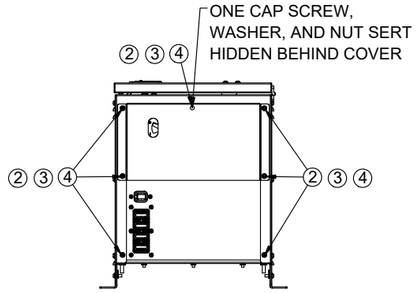


SIDE



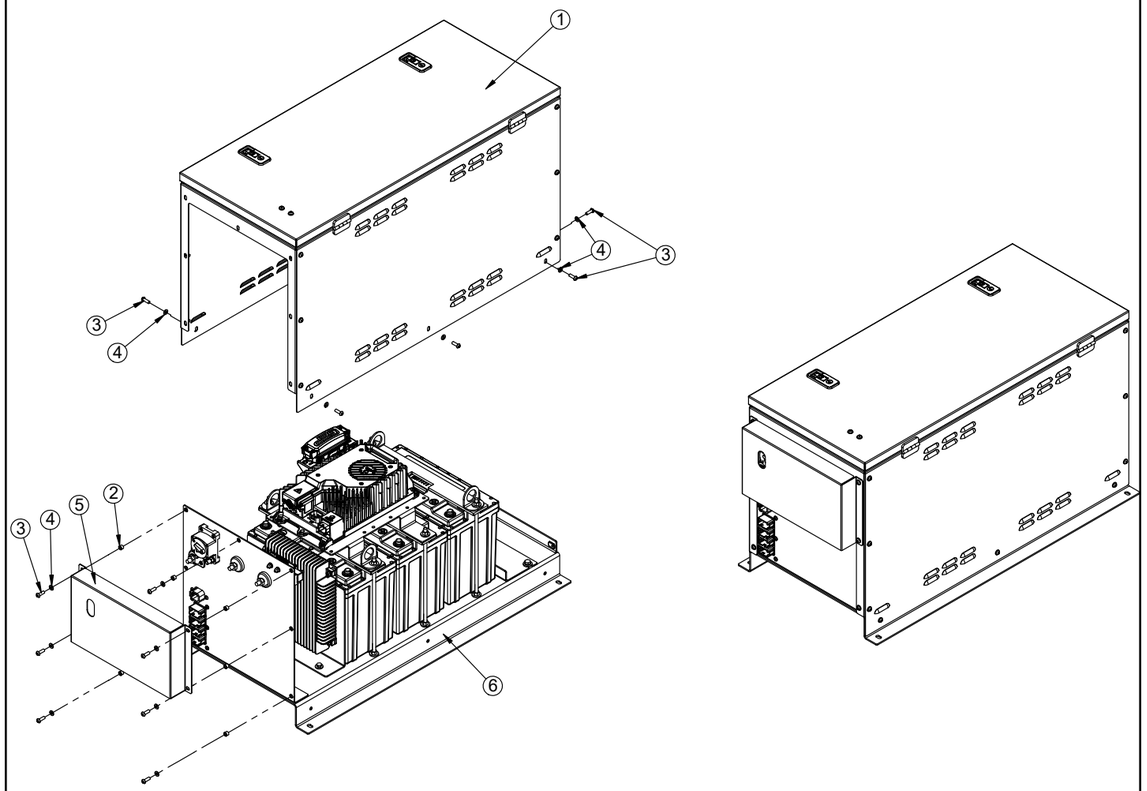
SAME ON OPOSITE SIDE

FRONT



ITEM	PART	DESCRIPTION	QTY
1	140264	SHROUD ASM BATTERY BOX HPS	1
2	19589	NUT SERT 0.25-20X0.38 OD	7
3	C6021	CAP SCR 0.25-20X0.75 BTNHD SS	15
4	19592	WASHER 0.25 FLAT NYLON	15
5	140487	COVER BATTERY BOX HPS	1
6	142001	BATTERY BOX CHASSIS HPS 4X48	1

Battery Box Asm 3x48 - PN 144511



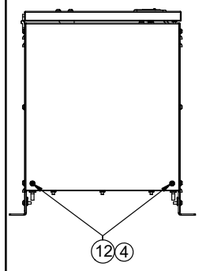
PN 144511			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140264	SHROUD ASM BATTERY BOX HPS	1
2	19589	NUT SERT 0.25-20X0.38 OD	7
3	C6021	CAP SCR 0.25-20X0.75 BTNHD SS	15
4	19592	WASHER 0.25 FLAT NYLON	15
5	140487	COVER BATTERY BOX HPS	1
6	144510	BATTERY BOX CHASSIS HPS 3X48	1
REV. B -20261102			

ITEMS NOT SHOWN		
PART	**DESCRIPTION**	**QTY**
148126	DECAL KIT HPS BATTERY BOX	1

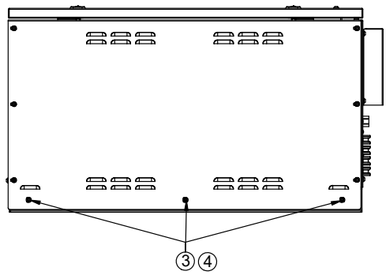
Battery Box Asm 3x48 - PN 144511 - Continued

NOTES
1. ALL HARDWARE LOCATIONS SHOWN

REAR

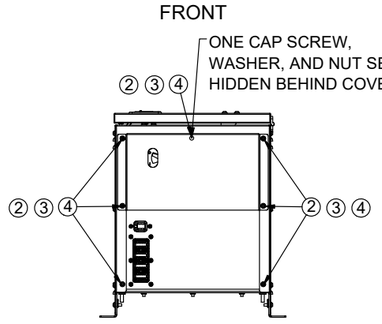


SIDE



SAME ON OPOSITE SIDE

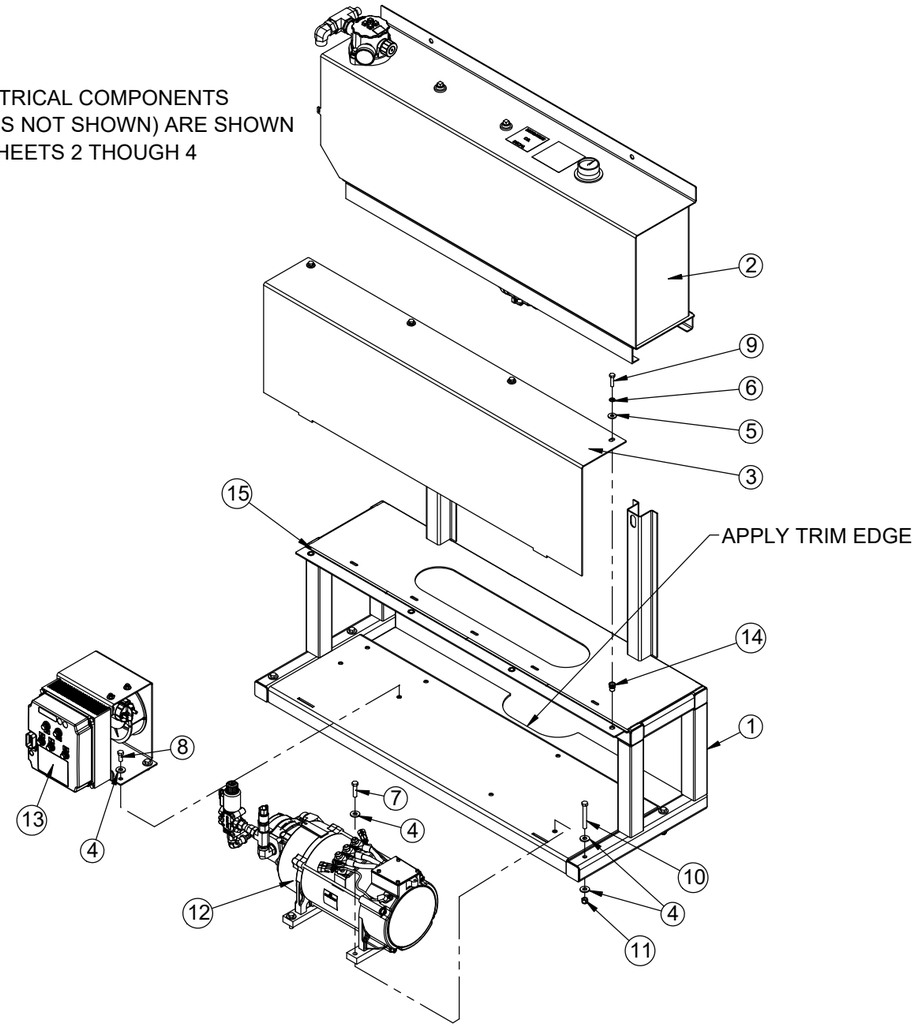
FRONT



PN 144511			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140264	SHROUD ASM BATTERY BOX HPS	1
2	19589	NUT SERT 0.25-20X0.38 OD	7
3	C6021	CAP SCR 0.25-20X0.75 BTNHD SS	15
4	19592	WASHER 0.25 FLAT NYLON	15
5	140487	COVER BATTERY BOX HPS	1
6	144510	BATTERY BOX CHASSIS HPS 3X48	1
REV. B 20261102			

HPS Loadbed Asm Motor / Pump / Rsrvr - PN 140208

NOTES:
1. ELECTRICAL COMPONENTS (ITEMS NOT SHOWN) ARE SHOWN ON SHEETS 2 THOUGH 4



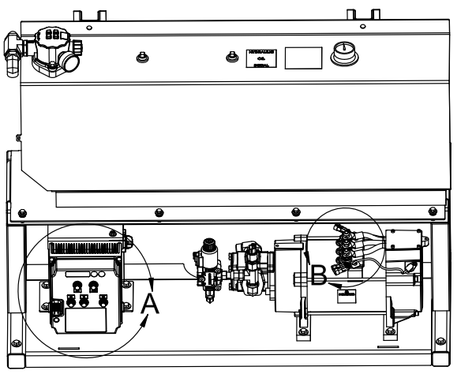
Loadbed Asm Motor / Pump / Rsrvr - PN 140208 Parts

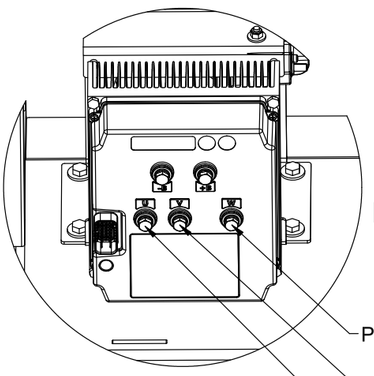
PN 140208			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	140123	RISER WLDMT MOTOR/PUMP/RSRVR HPS	1
2	114826	RSRVR ASM 20GAL BULKHEAD MNT V3	1
3	140205	COVER RISER MOTOR/PUMP HPS	1
4	0346	WASHER 0.38 USS FLAT	16
5	0343	WASHER 0.31 USS FLAT	4
6	0522	WASHER 0.31 LOCK	4
7	0345	CAP SCR 0.38-16X1.50 HHGR5	4
8	47258	CAP SCR 0.38-16X0.88 HHGR5	4
9	0485	CAP SCR 0.31-18X1.25 HHGR5	4
10	C0949	CAP SCR 0.38-16X3.00 HHGR5	4
11	0347	NUT 0.38-16 HHGR5 NYLOC	4
12	146534	MOTOR PUMP ASM HPS 10KW MOTOR SINGLE GEAR HYD PUMP	1
13	146535	MOTOR CONTROLLER ASM HPS WITH FAN	1
14	78005	NUT SERT AL 0.31-18 GRIP RANGE 0.150-0.312	4
15	17162	WEATHERSTRIP RIBBED 0.38X0.13	4
REV. C 20261102			

ITEMS NOT SHOWN		
PART	**DESCRIPTION**	**QTY**
1120	HOSE SUCT 1.25 100R4 BRD	2 FT
C0075	HOSE CLAMP HC-125	1
51277	FTG HOSE 20-20 FFSS-CRP SHORT	1
C4676	HOSE PL 0.38 MULTIPURPOSE BLACK	4 FT
C4739	TRIM EDGE 0.38X0.63 AL (RM)	2 FT
129144	TERML LUG 0.31 2/0 PLTD COPPER	2
57971	TERML LUG 0.38 2/0 PLTD COPPER	2
17221	HEAT SHRINK 0.75 ADH RED 3:1 4FT HEAVY WALL	0.5 FT
15220	HEAT SHRINK 0.75 ADH BLK 3:1 4FT HEAVY WALL	0.5 FT
59351	WIRE 2/0 (RM) BLK EPDM SAE J1127 UL CLASS K	33 FT
4043	HOSE PROTECTOR 0.50 AS-B-17 WIDTH 2.25	15FT
146536	WIRE HRNS HPS HYD POWER UNIT CONTROL	1
146537	CABLE ASM HPS POWER 10KW MOTOR	1

Loadbed Asm Motor / Pump / Rsrvr - continued

NOTES:
1. CONNECT MATCHING PHASES OF MOTOR CONTROLLER AND MOTOR USING PN 146537
2. CIRCUIT 10221 IS PHASE U
3. CIRCUIT 10231 IS PHASE V
4. CIRCUIT 10241 IS PHASE W
5. MOTOR CONTROLLER: 5/16" LUGS
6. MOTOR: 3/8" LUGS





MOTOR CONTROLLER CONNECTIONS (5/16" LUGS)

PHASE W, CABLE LABELED 10241

PHASE V, CABLE LABELED 10231

PHASE U, CABLE LABELED 10221

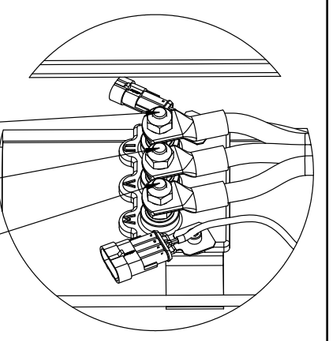
DETAIL A
SCALE 1 : 6

MOTOR CONNECTIONS (3/8" LUGS)

PHASE U, CABLE LABELED 10221

PHASE V, CABLE LABELED 10231

PHASE W, CABLE LABELED 10241

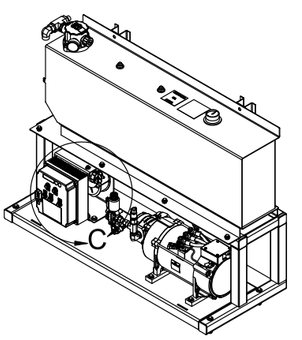


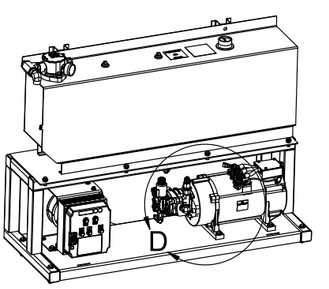
DETAIL B
SCALE 1 : 4

Loadbed Asm Motor / Pump / Rsrvr - continued

NOTES:
1. CONNECT HRNS 146536 TO HYDRAULIC STAND COMPONENTS USING CONNECTOR DESIGNATION LABELS ON HRNS
2. CONNECT CNJ1 TO HPS HYDRAULIC CNTRL HRNS (PN 144742, NOT SHOWN)

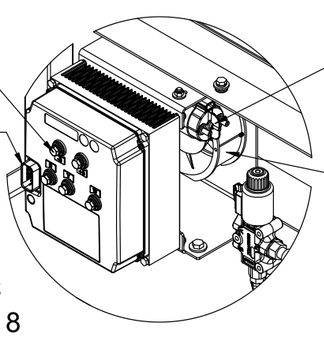
HRNS 146536 CONNECTOR DESIGNATIONS	
DESIGNATION	DESCRIPTION
CNJ1	CONNECT 12P RCPT DT04-12PC-BE02
CNP1	CONNECT 2P PLUG DT06-2S-EP04
CNP2	CONNECT 2P PLUG DT06-2S-EP04
CNP3	CONNECT 3P PLUG DT06-3S-EP04
CNP4	CONNECT 2P PLUG AMP SUPERSEAL 282080-1
CNP5	CONNECT 4P PLUG AMP SUPERSEAL 282088-1
CNP6	CONNECT 23P PLUG AMPSEAL BLK
CNP7	CONNECT 2P PLUG DT06-2S-EP06 BLK
RT1	TERML RING 0.31 22-18GA





CONNECT RT1 TO -B STUD

CONNECT CNP6



CONNECT CNP7 TO CONTACTOR PIGTAIL (BLACK 2 PIN CONNECTOR)

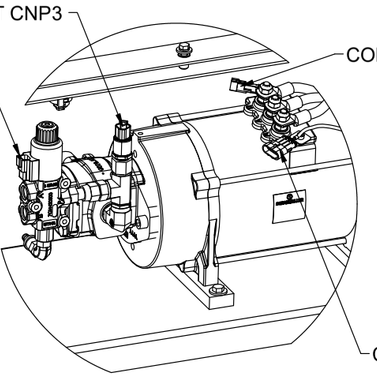
CONNECT CNP1 TO FAN PIGTAIL (GRAY 2 PIN CONNECTOR)

DETAIL C
SCALE 1 : 8

CONNECT CNP3

CONNECT CNP4

CONNECT CNP2

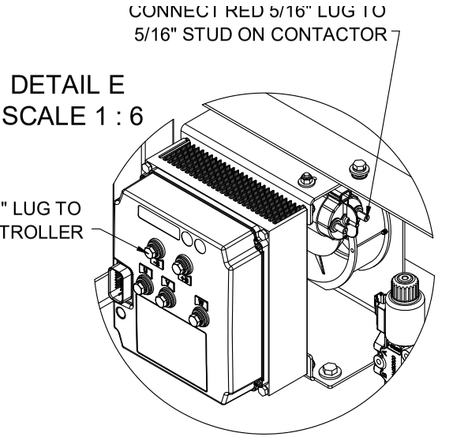


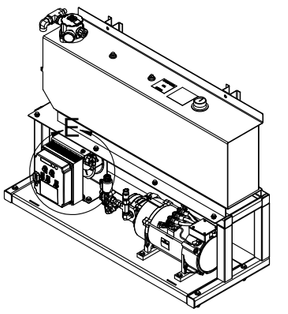
CONNECT CNP5

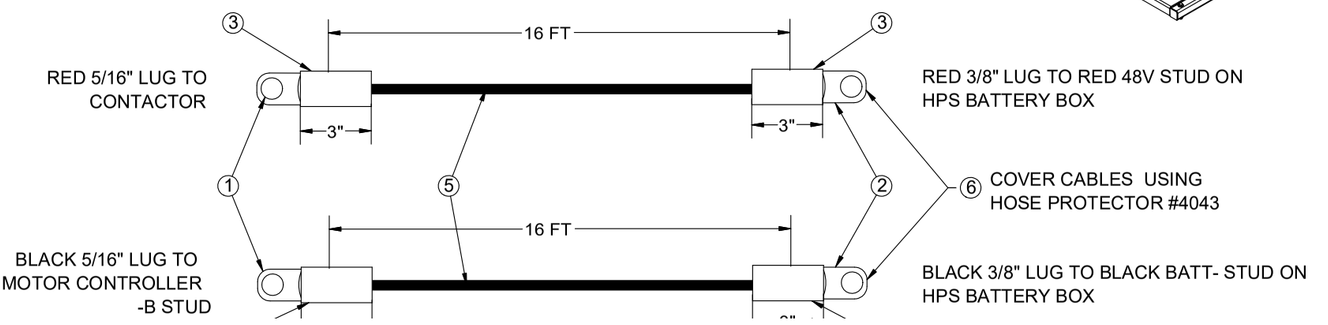
DETAIL D
SCALE 1 : 8

Loadbed Asm Motor / Pump / Rsrvr - continued

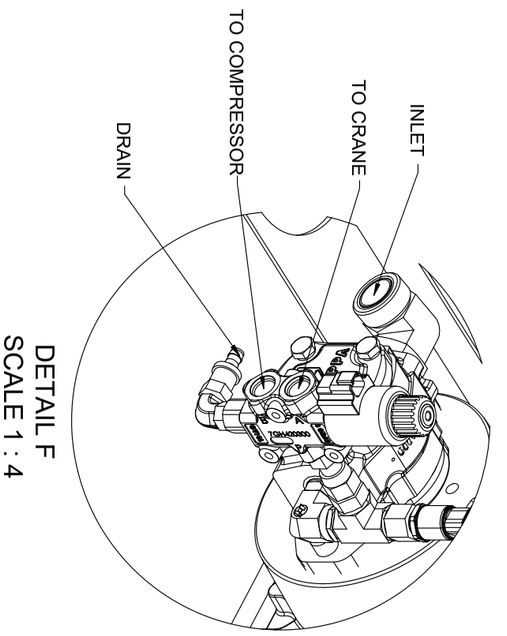
1. CONSTRUCT HPS HYDRAULIC STAND POWER CABLES AS SHOWN
2. CONNECT 5/16" LUG SIDE OF CABLES AS SHOWN IN DETAIL VIEW E
3. CONNECT 3/8" LUG SIDE OF CABLES TO HPS BATTERY BOX (48V, RED, 0V, BLACK, NOT SHOWN)

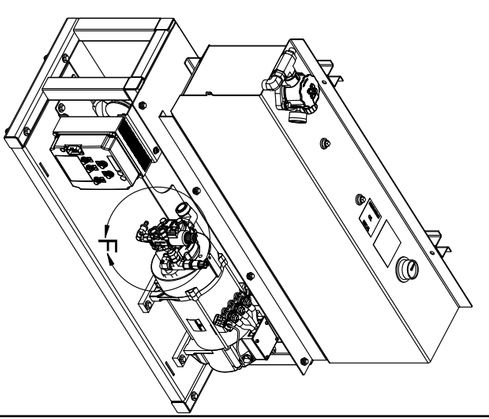




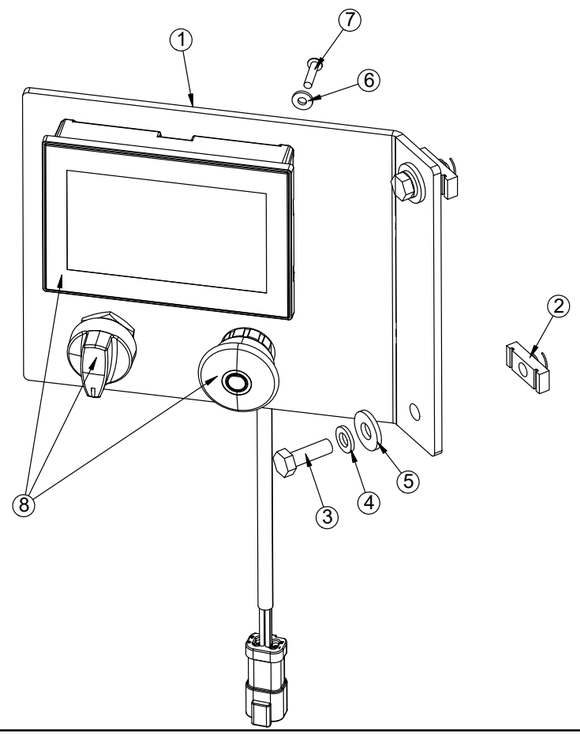


ELECTRICAL COMPONENTS			
ITEM	**PART**	**DESCRIPTION**	**QTY**
1	129144	TERML LUG 0.31 2/0 PLTD COPPER	2
2	57971	TERML LUG 0.38 2/0 PLTD COPPER	2
3	17221	HEAT SHRINK 0.75 ADH RED 3.1 4FT HEAVY WALL	0.5 FT
4	15220	HEAT SHRINK 0.75 ADH BLK 3:1 4FT HEAVY WALL	0.5 FT
5	59351	WIRE 2/0 (RM) BLK EPDM SAE J1127 UL CLASS K	32 FT
6	4043	HOSE PROTECTOR 0.50 AS-B-17 WIDTH 2.25	15 FT





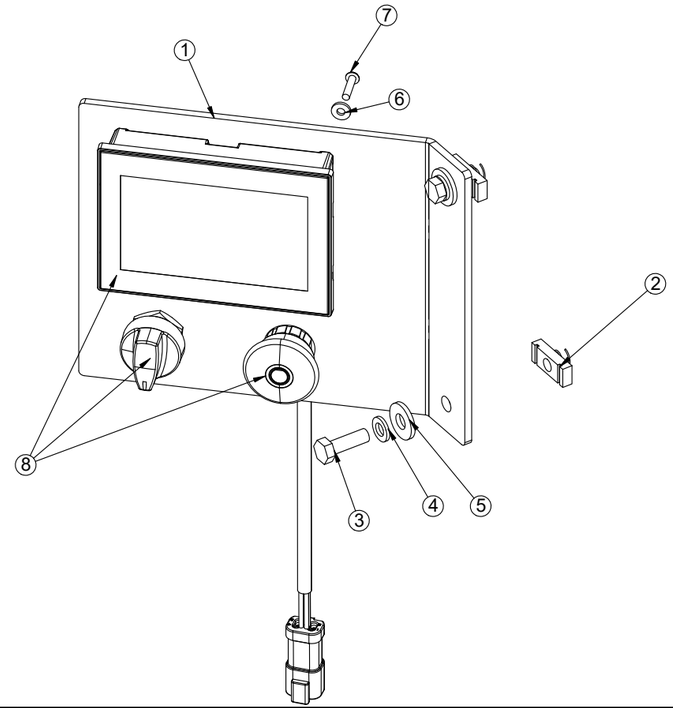
Control Panel Asm HPS 3X48 - 150685



ITEM	PART	DESCRIPTION	QTY
1	140211	BRKT CONTROL PANEL, START/STOP HPS	1
2	138437	NUT STRUT CHANNEL .31X1.63 W/SPRING	2
3	C0922	CAP SCR 0.31-18X1.00 HHGR5	2
4	0522	WASHER 0.31 LOCK	2
5	0343	WASHER 0.31 USS FLAT	2
6	5290	WASHER #8 SAE FLAT	4
7	22183	SCREW #8-32X0.75 BTNHD SS	4
8	147620	CONTROL PANEL KIT HPS	1
REV. B 20261027			

ITEMS NOT SHOWN		
PART	DESCRIPTION	QTY
150683	FIRMWARE HPS DISPLAY 3X48	1
148143	DECAL HPS CONTROL PANEL OVERLAY	1

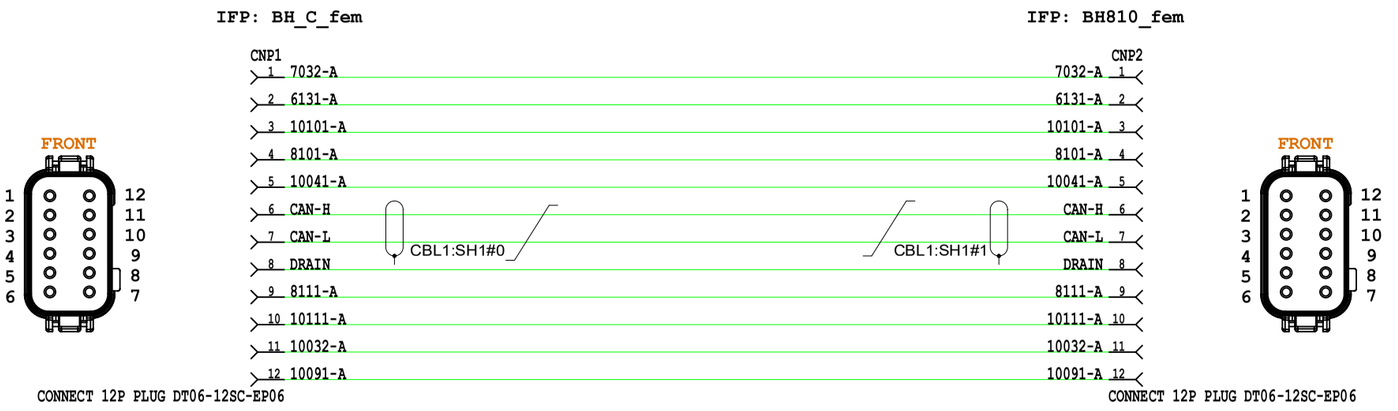
Control Panel Asm - PN 140212



PN 140212			
ITEM	PART	DESCRIPTION	QTY
1	140211	BRKT CONTROL PANEL, START/STOP HPS	1
2	138437	NUT STRUT CHANNEL .31X1.63 W/SPRING	2
3	C0922	CAP SCR 0.31-18X1.00 HHGR5	2
4	0522	WASHER 0.31 LOCK	2
5	0343	WASHER 0.31 USS FLAT	2
6	5290	WASHER #8 SAE FLAT	4
7	22183	SCREW #8-32X0.75 BTNHD SS	4
8	147620	CONTROL PANEL KIT HPS	1
REV. D 20261027			

ITEMS NOT SHOWN		
PART	DESCRIPTION	QTY
150684	FIRMWARE HPS DISPLAY 4X48	1
148143	DECAL HPS CONTROL PANEL OVERLAY	1

Wire Harness HPS Hydraulic Cntrl - PN 144742



Wire Harness HPS Hydraulic Cntrl - PN 144742 continued

NOTES:

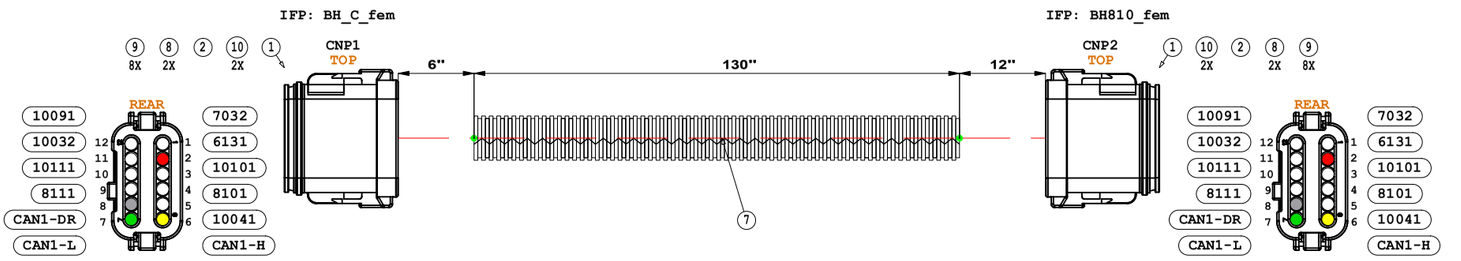
- CIRCUIT NUMBERINGS ARE FROM IFP
- CIRCUITS CAN1-H AND CAN1-L ARE A TWISTED PAIR

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	7032	7032-A	AWG 14	CNP2:1
2	6131	6131-A	AWG 18	CNP2:2
3	10101	10101-A	AWG 18	CNP2:3
4	8101	8101-A	AWG 18	CNP2:4
5	10041	10041-A	AWG 18	CNP2:5
6	CAN1-H	CAN-H	AWG 18	CNP2:6
7	CAN1-L	CAN-L	AWG 18	CNP2:7
8	CAN1-DR	DRAIN	AWG 18	CNP2:8
9	8111	8111-A	AWG 18	CNP2:9
10	10111	10111-A	AWG 18	CNP2:10
11	10032	10032-A	AWG 18	CNP2:11
12	10091	10091-A	AWG 18	CNP2:12

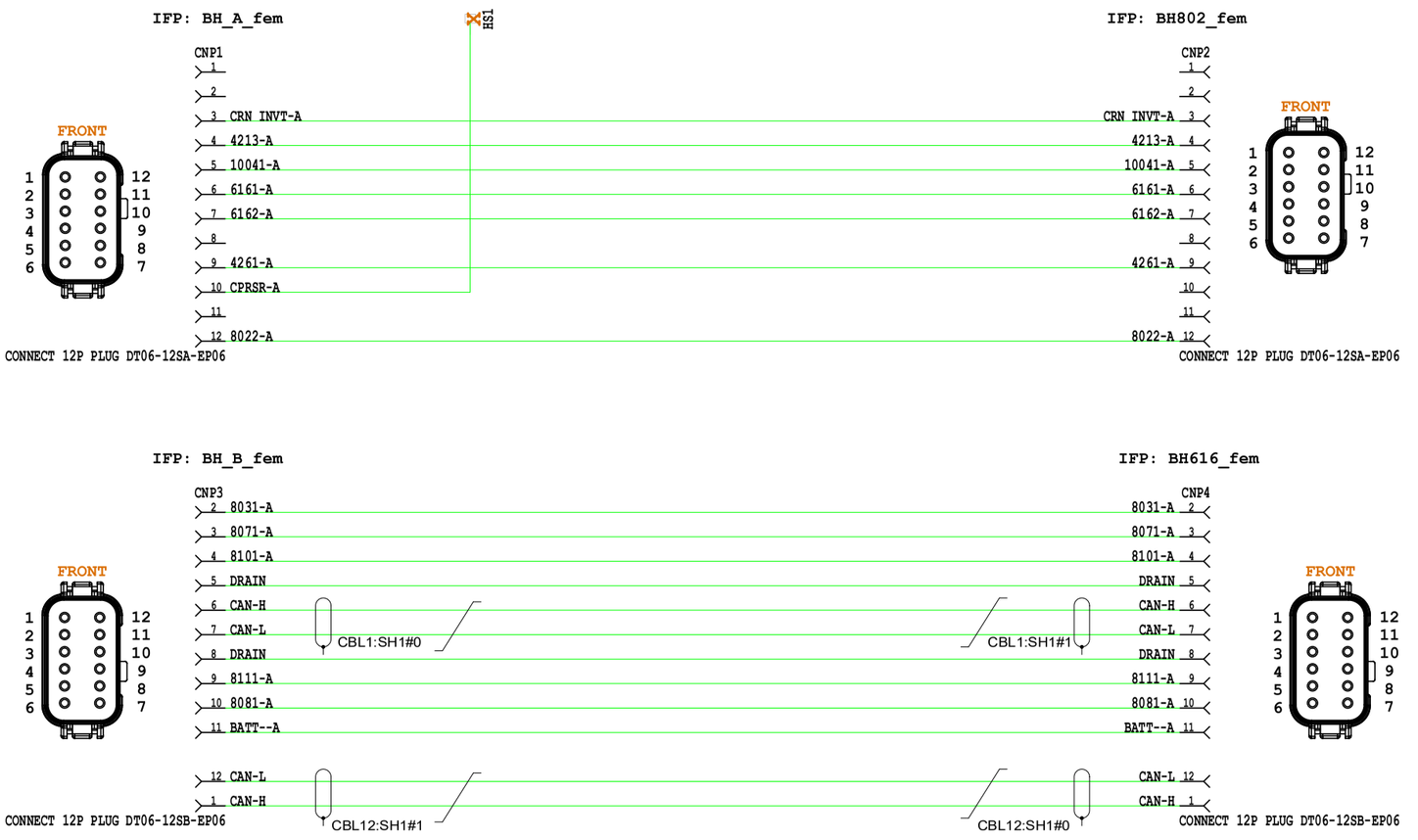
CNP1 DT06-12SC-EP06

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	7032	7032-A	AWG 14	CNP1:1
2	6131	6131-A	AWG 18	CNP1:2
3	10101	10101-A	AWG 18	CNP1:3
4	8101	8101-A	AWG 18	CNP1:4
5	10041	10041-A	AWG 18	CNP1:5
6	CAN1-H	CAN-H	AWG 18	CNP1:6
7	CAN1-L	CAN-L	AWG 18	CNP1:7
8	CAN1-DR	DRAIN	AWG 18	CNP1:8
9	8111	8111-A	AWG 18	CNP1:9
10	10111	10111-A	AWG 18	CNP1:10
11	10032	10032-A	AWG 18	CNP1:11
12	10091	10091-A	AWG 18	CNP1:12

CNP2 DT06-12SC-EP06



Wire Harness HPS Display Main Cntrl - PN 144743



Wire Harness HPS Display Main Cntrl - PN 144743 - continued

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1				
2				
3	CRN INVT	CRN INVT-A	AWG 18	CNP2:3
4	4213	4213-A	AWG 18	CNP2:4
5	10041	10041-A	AWG 18	CNP2:5
6	6161	6161-A	AWG 18	CNP2:6
7	6162	6162-A	AWG 18	CNP2:7
8				
9	4261	4261-A	AWG 18	CNP2:9
10	CPRSR	CPRSR-A	AWG 18	HS2:1
11				
12	8022	8022-A	AWG 18	CNP2:12

CNP1 DT06-12SA-EP06

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	CAN2-H	CAN-H	AWG 18	CNP4:1
2	8031	8031-A	AWG 18	CNP4:2
3	8071	8071-A	AWG 18	CNP4:3
4	8101	8101-A	AWG 18	CNP4:4
5	CAN2-DR	DRAIN	AWG 18	CNP4:5
6	CAN1-H	CAN-H	AWG 18	CNP4:6
7	CAN1-L	CAN-L	AWG 18	CNP4:7
8	CAN1-DR	DRAIN	AWG 18	CNP4:8
9	8111	8111-A	AWG 18	CNP4:9
10	8081	8081-A	AWG 18	CNP4:10
11	BATT-	BATT--A	AWG 18	CNP4:11
12	CAN2-L	CAN-L	AWG 18	CNP4:12

CNP3 DT06-12SB-EP06

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1				
2				
3	CRN INVT	CRN INVT-A	AWG 18	CNP1:3
4	4213	4213-A	AWG 18	CNP1:4
5	10041	10041-A	AWG 18	CNP1:5
6	6161	6161-A	AWG 18	CNP1:6
7	6162	6162-A	AWG 18	CNP1:7
8				
9	4261	4261-A	AWG 18	CNP1:9
10				
11				
12	8022	8022-A	AWG 18	CNP1:12

CNP2 DT06-12SA-EP06

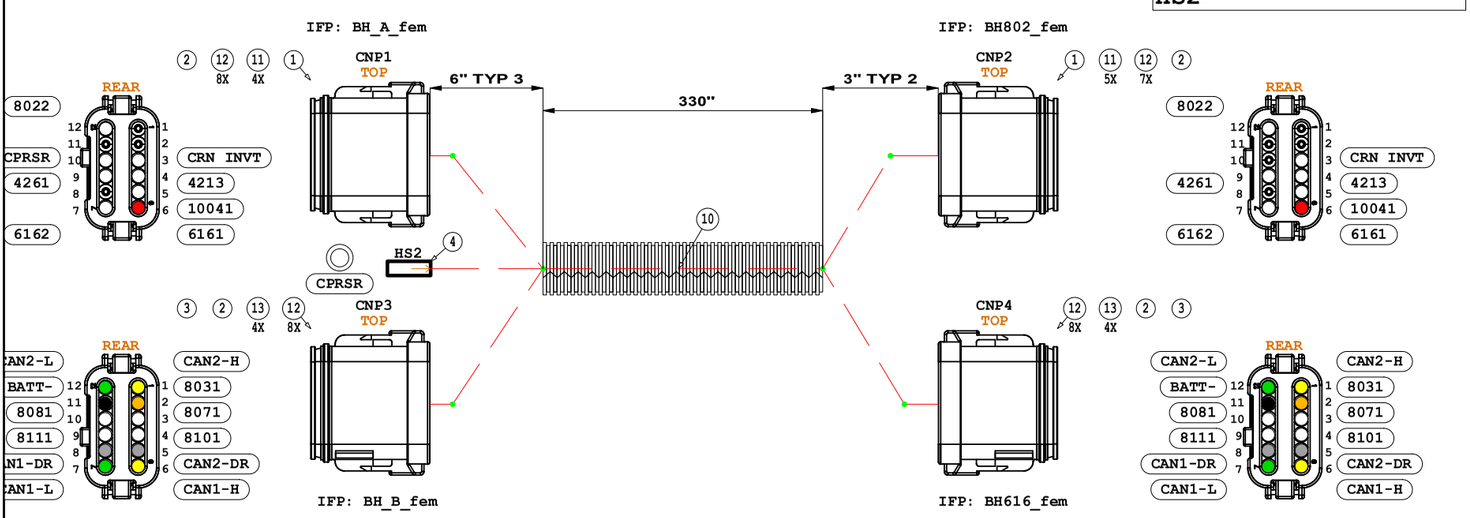
PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	CAN2-H	CAN-H	AWG 18	CNP3:1
2	8031	8031-A	AWG 18	CNP3:2
3	8071	8071-A	AWG 18	CNP3:3
4	8101	8101-A	AWG 18	CNP3:4
5	CAN2-DR	DRAIN	AWG 18	CNP3:5
6	CAN1-H	CAN-H	AWG 18	CNP3:6
7	CAN1-L	CAN-L	AWG 18	CNP3:7
8	CAN1-DR	DRAIN	AWG 18	CNP3:8
9	8111	8111-A	AWG 18	CNP3:9
10	8081	8081-A	AWG 18	CNP3:10
11	BATT-	BATT--A	AWG 18	CNP3:11
12	CAN2-L	CAN-L	AWG 18	CNP3:12

CNP4 DT06-12SB-EP06

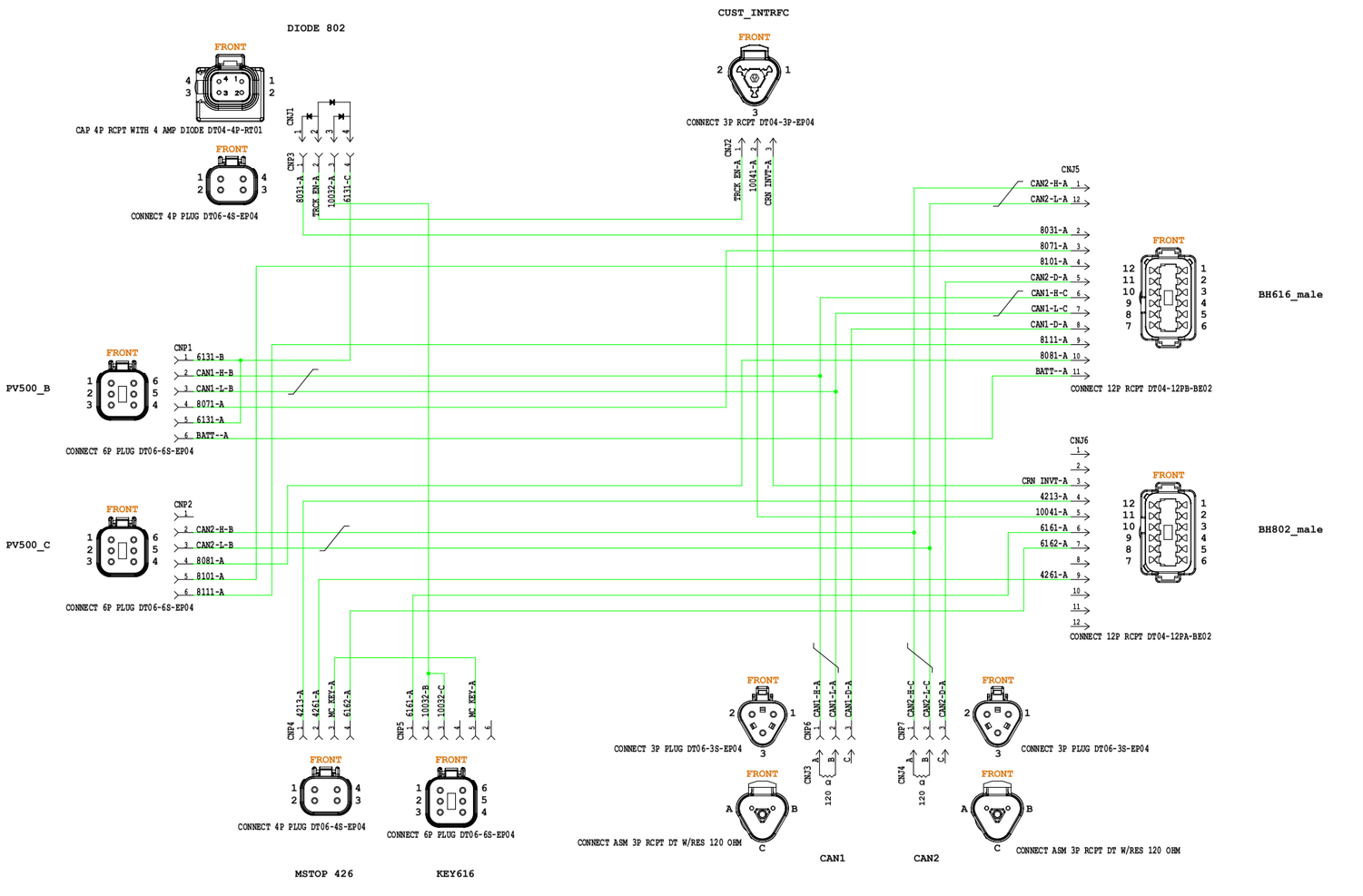
:
CUIT NUMBERINGS ARE FROM IFP
CUITS CAN1-H AND CAN1-L ARE A TWISTED PAIR
CUITS CAN2-H AND CAN2-L ARE A TWISTED PAIR

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	CPRSR	CPRSR-A	AWG 18	CNP1:10

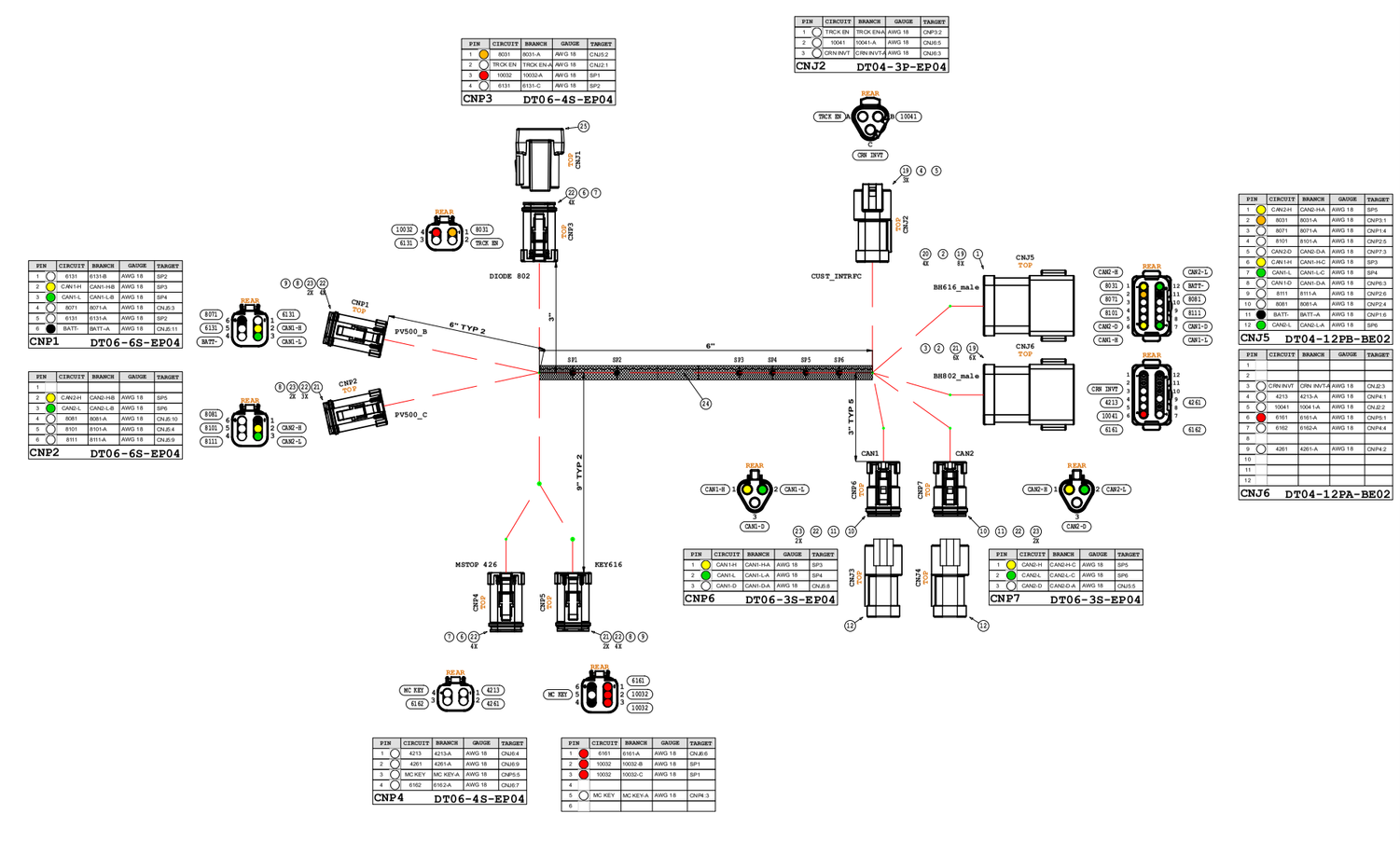
HS2



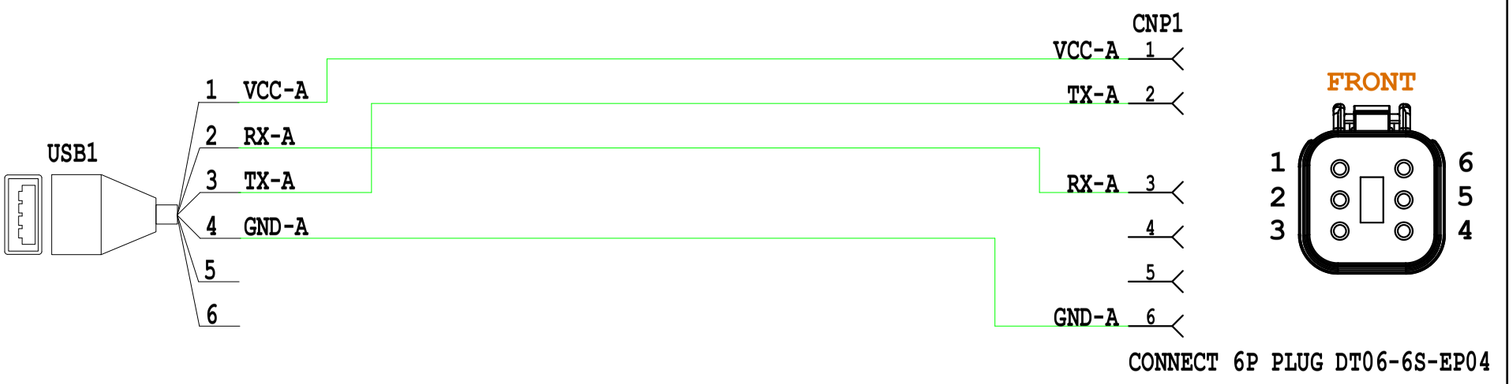
Wire Harness HPS Display Main - PN 144744



Wire Harness HPS Display Main - PN 144744 - continued



Wire Harness HPS Display Main - PN 144745



Wire Harness HPS Display Main - PN 144745 - continued

NOTES:
- ATTACH HRNS LABEL TO WIRE/CABLE NEAR USB PORT (USB1)
- CIRCUIT NUMBERINGS ARE FROM IFP

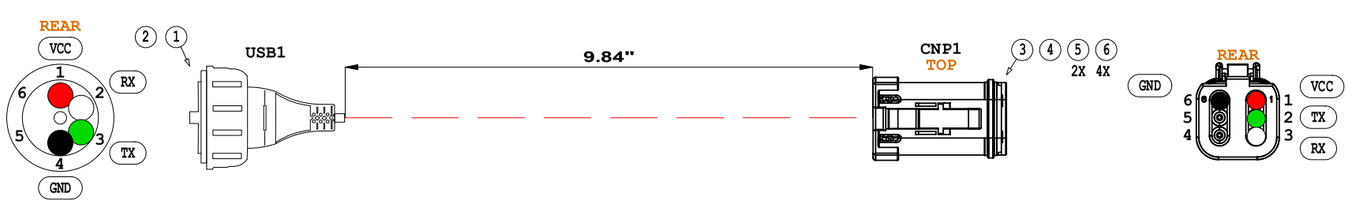
PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	VCC	VCC-A	AWG 22	CNP1:1
2	RX	RX-A	AWG 22	CNP1:3
3	TX	TX-A	AWG 22	CNP1:2
4	GND	GND-A	AWG 22	CNP1:6
5				
6				

USB1

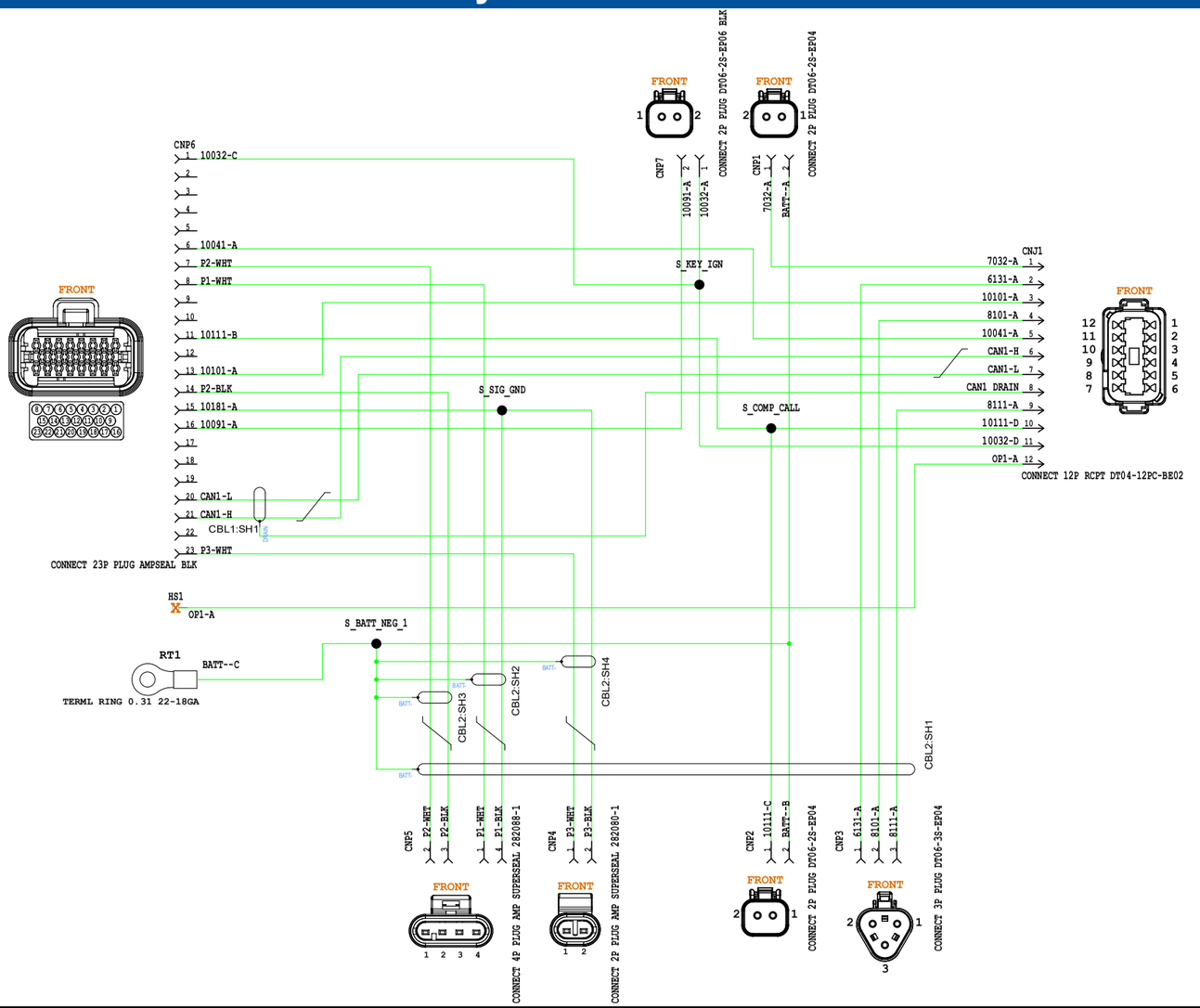
SCRUS-17-G-00.25-AMS-BC

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	VCC	VCC-A	AWG 22	USB1:1
2	TX	TX-A	AWG 22	USB1:3
3	RX	RX-A	AWG 22	USB1:2
4				
5				
6	GND	GND-A	AWG 22	USB1:4

CNP1 **DT06-6S-EP04**



Wire Harness HPS Hyd Power Unit Control - PN 146536



Wire Harness HPS Hyd Power Unit Control - PN 146536 - continued

NOTES:
- SPLICES ARE SHOWN FOR REFERENCE ONLY UNLESS SPECIFIED BY DIMENSION, MANUFACTURER MAY CHOOSE OPTIMAL LOCATION WITH APPROVAL FROM STELLAR INDUSTRIES ENGINEERING
- ATTACH HSNS PART NUMBER LABEL TO WIRE NEAR 12 PIN DT (CNJ1)
- CIRCUIT NUMBERINGS ARE FROM IFP
- CIRCUITS CAN1-H AND CAN1-L ARE A TWISTED PAIR

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	10032	10032-C	AWG 18	S_KEY_IGN
2				
3				
4				
5				
6	10041	10041-A	AWG 18	CNJ1.5
7	10161	P2-WHT	AWG 18	CNP5.2
8	10171	P1-WHT	AWG 18	CNP5.1
9				
10				
11	10111	10111-B	AWG 18	S_COMP_CALL
12				
13	10101	10101-A	AWG 18	CNJ1.3
14	10151	P2-BLK	AWG 18	CNP5.3
15	10181	10181-A	AWG 18	S_SIG_GND
16	10091	10091-A	AWG 18	CNP7.2
17				
18				
19				
20	CAN-L	CAN1-L	AWG 18	CNJ1.7
21	CANH	CAN1-H	AWG 18	CNJ1.6
22				
23	10211	P3-WHT	AWG 18	CNP4.1

CNP6 770680-1

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	OP1	OP1-A	AWG 18	CNJ1.12

HS1

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	BATT-	BATT--C	AWG 18	S_BATT_NEG_1

RT1 19054-0044

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	10032	10032-A	AWG 18	S_KEY_IGN
2	10091	10091-A	AWG 18	CNP6.16

CNP7 DT06-2S-EP06

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	7032	7032-A	AWG 18	CNJ1.1
2	BATT-	BATT-A	AWG 18	S_BATT_NEG_1

CNP1 DT06-2S-EP04

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	10111	10111-C	AWG 18	S_COMP_CALL
2	BATT-	BATT-B	AWG 18	S_BATT_NEG_1

CNP2 DT06-2S-EP04

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	6131	6131-A	AWG 18	CNJ1.2
2	8101	8101-A	AWG 18	CNJ1.4
3	8111	8111-A	AWG 18	CNJ1.9

CNP3 DT06-3S-EP04

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	10171	P1-WHT	AWG 18	CNP5.8
2	10161	P2-WHT	AWG 18	CNP5.7
3	10151	P2-BLK	AWG 18	CNP5.14
4	10181	P1-BLK	AWG 18	S_SIG_GND

CNP5 282088-1

PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	10211	P3-WHT	AWG 18	CNP6.23
2	10181	P3-BLK	AWG 18	S_SIG_GND

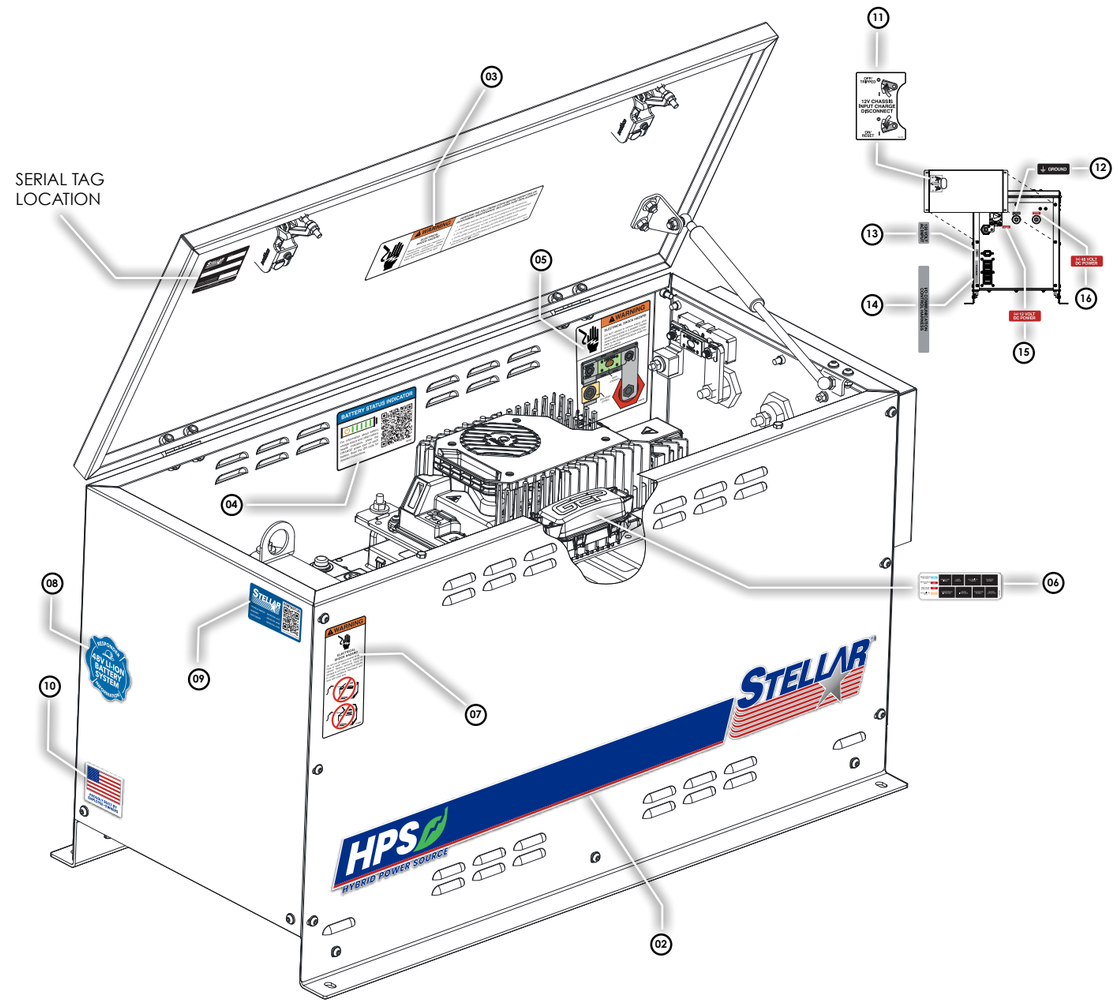
CNP4 282080-1

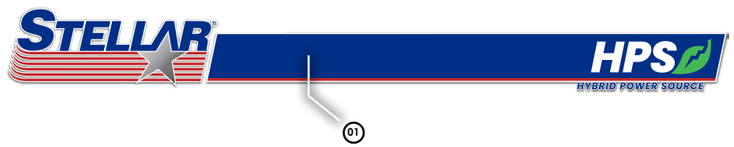
PIN	CIRCUIT	BRANCH	GAUGE	TARGET
1	7032	7032-A	AWG 18	CNP1.1
2	6131	6131-A	AWG 18	CNP5.1
3	10101	10101-A	AWG 18	CNP6.13
4	8101	8101-A	AWG 18	CNP5.2
5	10041	10041-A	AWG 18	CNP6.6
6	CANH	CAN1-H	AWG 18	CNP6.21
7	CAN-L	CAN1-L	AWG 18	CNP6.20
8	DRAIN	CAN1 DRAIN	AWG 18	
9	8111	8111-A	AWG 18	CNP5.3
10	10111	10111-D	AWG 18	S_COMP_CALL
11	10032	10032-D	AWG 18	S_KEY_IGN
12	OP1	OP1-A	AWG 18	HS1.1

CNJ1 DT04-12PC-BE02

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Decal Kit - PN 148126





BATTERY BOX DECAL KIT
PN 148126

IN CRANE COMPARTMENT



CONTROL PANEL OVERLAY -148143
(IN CONTROL PANEL ASSEMBLY)

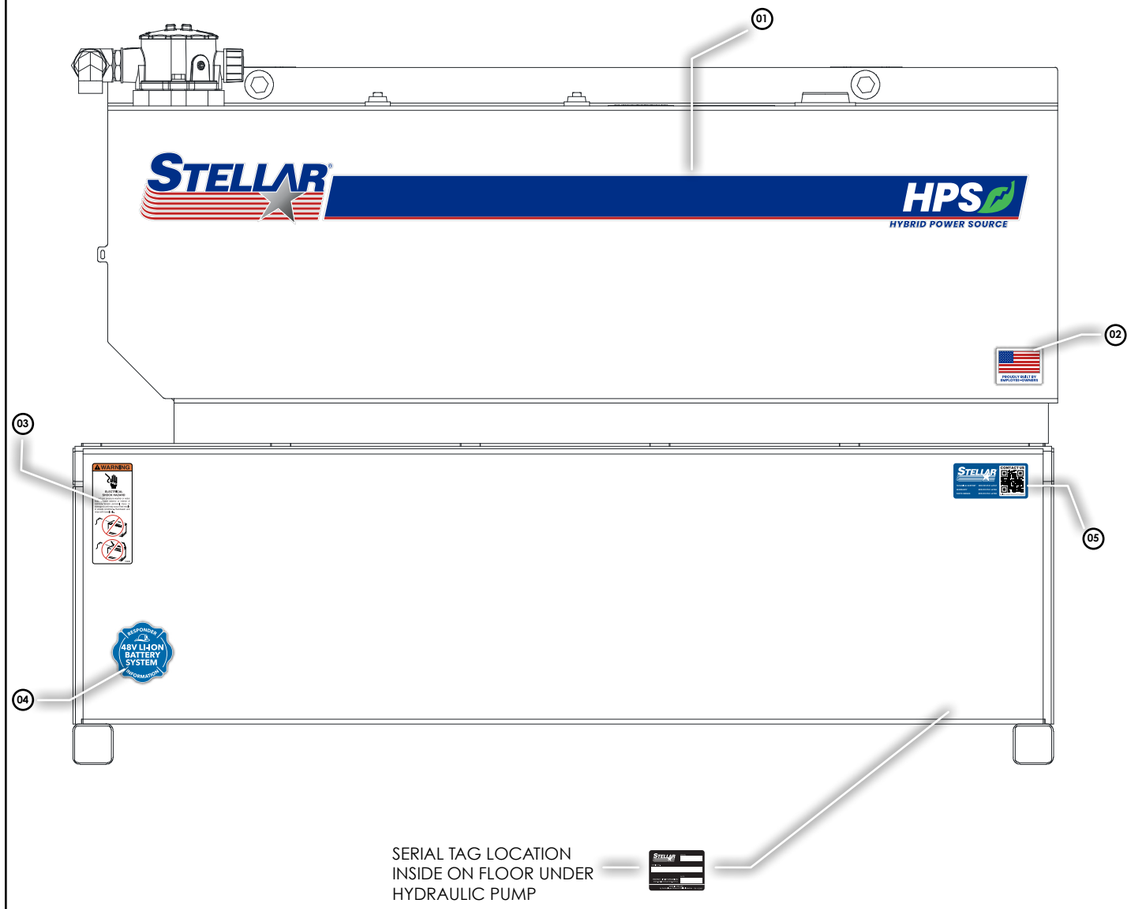
Decal Kit - PN 148126 Parts List

BATTERY BOX DECAL KIT - PN 148126

ITEM	PN	DESCRIPTION	LOCATION	QTY
01	148138	DECAL HPS BATTERY BOX LEFT ID	HINGE SIDE OF BATTERY BOX	1
02	148139	DECAL HPS BATTERY BOX RIGHT ID	LATCH SIDE OF BATTERY BOX	1
03	148133	DECAL HPS WARNING SHOCK HAZARD - BURN	UNDER BATTERY BOX LID	1
04	148137	DECAL HPS BATTERY BUTTON INSTRUCTION	REAR PANEL INSIDE BATTERY BOX	1
05	148135	DECAL HPS FUSE CONNECTION AND RATING	REAR PANEL INSIDE BATTERY BOX NEAR FUSE CONNECTIONS	1
06	148136	DECAL HPS FUSE AND RELAY BOX	UNDER LID OF FUSE BOX	1
07	115833	DECAL NOTICE NO PRESSURE WASH	LATCH SIDE OF BATTERY BOX	1
08	151156	DECAL HPS 48V LI ION BATTERY	BATTERY BOX END PANEL	1
09	4214	DECAL CONTACT STELLAR CUST SERV	BATTERY BOX END PANEL	1
10	35234	DECAL STELLAR MADE IN THE USA	BATTERY BOX END PANEL	1
11	148132	DECAL HPS 12V DISCONNECT	BATTERY BOX BULKHEAD TERMINAL SHIELD	1
12	148130	DECAL HPS GROUND POST	BATTERY BOX BULKHEAD	1
13	148127	DECAL HPS 120V INPUT	BATTERY BOX BULKHEAD	1
14	148131	DECAL HPS I/O BULKHEAD CONNECTION	BATTERY BOX BULKHEAD	1
15	148129	DECAL HPS 12VDC 300 AMP BULKHEAD	BATTERY BOX BULKHEAD	1
16	148128	DECAL HPS 48V 500 AMP BULKHEAD	BATTERY BOX BULKHEAD	1
17*	145539	DECAL HPS SHUTDOWN INSTRUCTIONS	CRANE COMPARTMENT OR NEAR CONTROL PANEL	1
18*	148140	DECAL HPS EMERGENCY FIRE PROCEDURE	CRANE COMPARTMENT OR NEAR CONTROL PANEL	1

* IN BAG WITH BATTERY BOX. INSTALL IN CRANE COMPARTMENT OR LEAVE IN BATTERY BOX FOR SHIPOUT ASSEMBLY.

Battery Box Decal Kit - PN 148141



BATTERY BOX DECAL KIT - PN 148141

ITEM	PN	DESCRIPTION	LOCATION	QTY
01	148142	DECAL HPS HYDRAULIC STAND ID	FRONT OF HYDRAULIC STAND TANK	1
02	35234	DECAL STELLAR MADE IN THE USA	FRONT OF HYDRAULIC STAND TANK	1
03	115833	DECAL NOTICE NO PRESSURE WASH	HYDRAULIC STAND MOTOR/PUMP COVER	1
04	151156	DECAL HPS 48V LI ION BATTERY	HYDRAULIC STAND MOTOR/PUMP COVER	1
05	4214	DECAL CONTACT STELLAR CUST SERV	HYDRAULIC STAND MOTOR/PUMP COVER	1



Subject to Change without Notification.
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