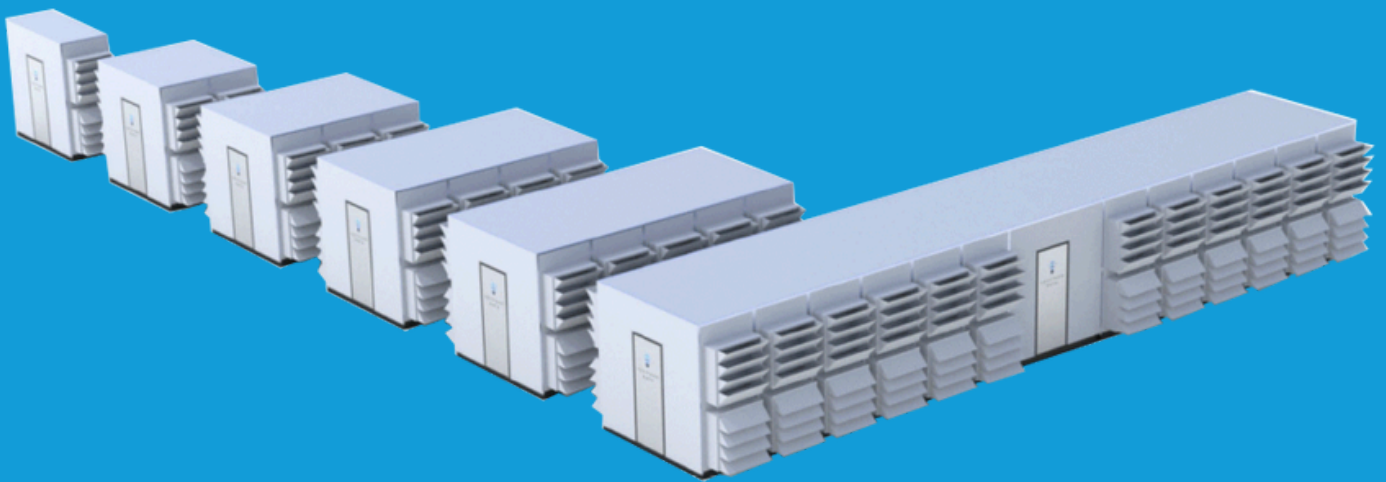


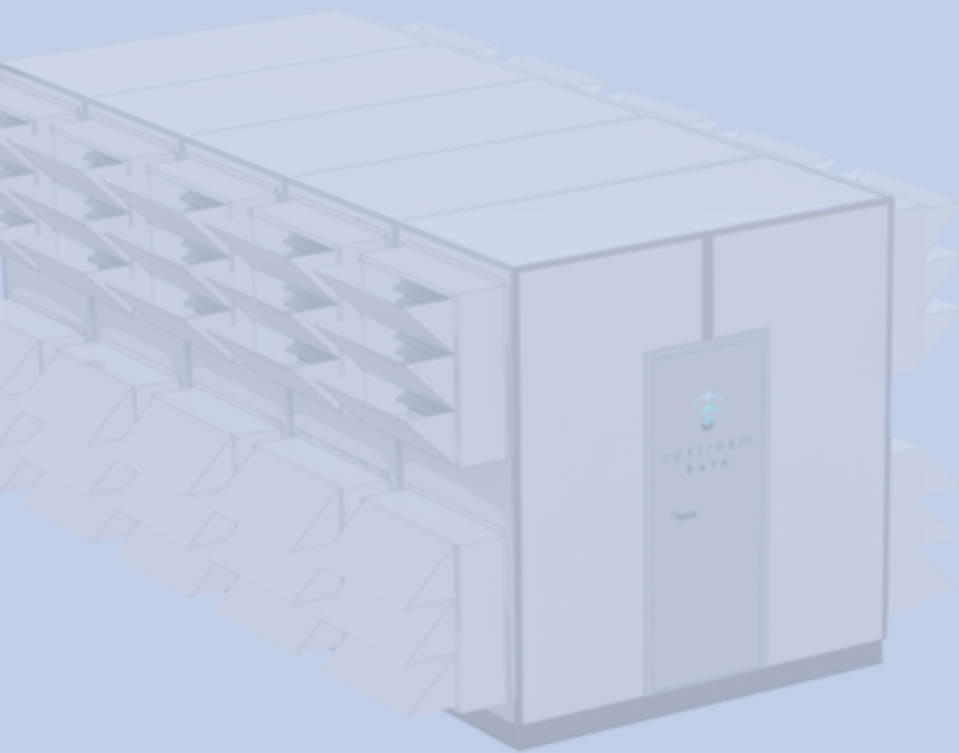
Hash Generator
Hash Hut
Container
Cube

LoadCenter User Guide



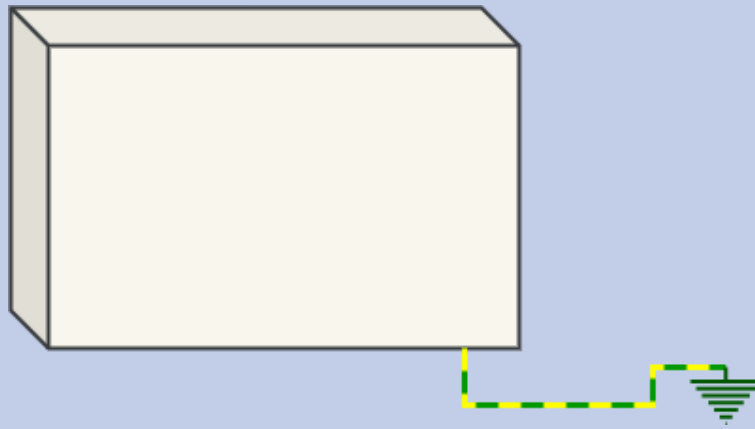
upstream **DATA**

Grounding	3
Prior to Operation	4
Hash Generators	10
Engine	12
Hash Hut	16
Loadsync	18
Contact	20



Grounding

As with all electrical equipment and devices, the loadcenter regardless of model or size, **must** be properly grounded. Please refer to local electrical codes for correct bonding size and type. Failure to correctly ground equipment can result in **serious damage** to persons or property and may void warranty.



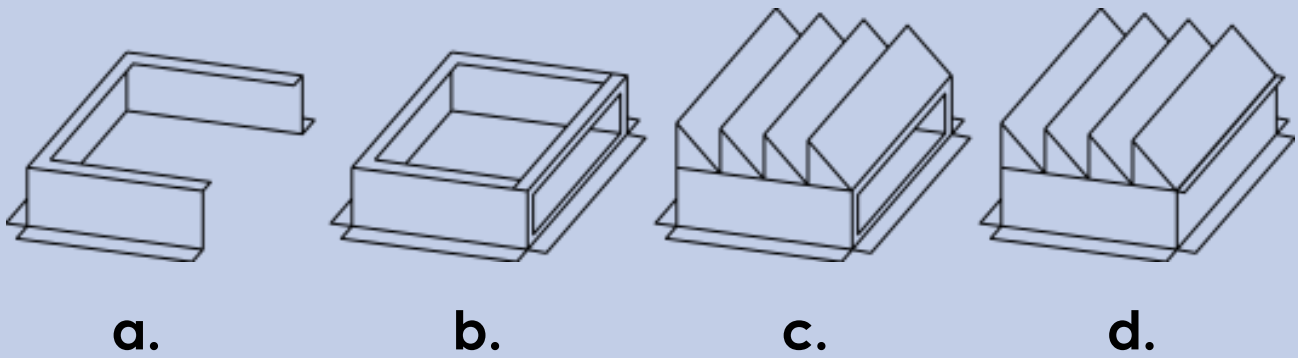
Prior to Operation

Remove shipping protection from the outside of building. Ensure that the dampers are not obstructed. Check that intakes are free and that the blue filter is relatively clean. Check for any exterior damage. For optimal performance of the loadcenter, Upstream Data suggests orienting the building parallel to prevailing wind directions. For optimized cooling we also suggest placing the unit on piles, or raised framework. If you are placing multiple units next to each other, we would suggest 8' -10' between outside walls.

The deflectors come disassembled due to space constraints of packaging them inside the huts. On receiving them, they will need to be assembled, using tek screws and an impact. To assemble them, follow this process :

(Reminder to use gloves and PPE when working around sharp metal edges)

- a.** Lay the outer casing out flat, with the flanges for screwing facing down. Put the sliding heat recirculation holder in place inside of it. The slot for the heat recirculation slider should be just outside of the metal of the casing.
- b.** Screw the casing and slider holder together to attach them.
- c.** Add the deflectors, starting at the bottom. They should all face away from the slider. Screw these to the casing to secure them. Some use 5 sections and some will use 4.
- d.** Insert the heat deflector slider.

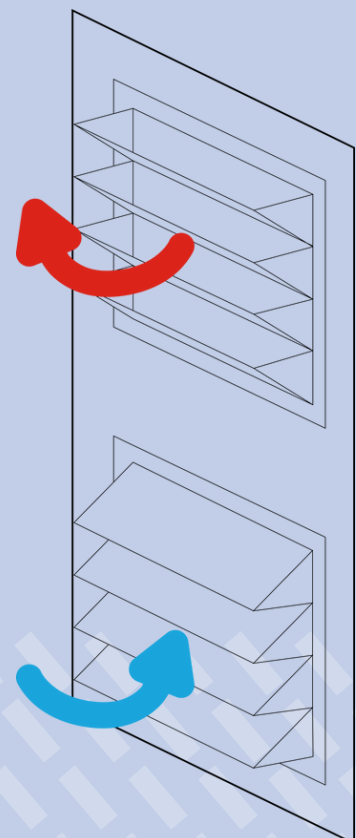


In locations where the use of recirculation will not be used, it is recommended to fully seal the moving sliders to avoid unwanted heat from re-entering the loadcenter.

The deflectors must be mounted as the picture shows below on V2 units. Incorrect orientation will result in thermal issues inside the loadcenter. On larger models and buildings the deflectors will come with 5 sections in picture **c**.

On older versions of the building the unit will come supplied with pieces for the intake and exhaust sections.

On units labelled V3 and newer the buildings now come with a built-in foldable intake and exhaust. Some previous iterations come with just a foldable intake and only the exhaust section will need to be constructed and added to the unit.



If supplied with a modem package :

The package will include a 25ft co-ax cable that will need to be entered through the 1" nipple and threaded on to the lightning arrestor mounted to the wall. You will receive a mast and signal booster antenna. Construct the antenna and mast and mount it to the strut holding the main distribution panels with the included pipe clamps. You may have to connect the cable to the antenna before mounting it depending on the height of mast.

For customers in Canada, the modem will be configured and sim pre-installed. To obtain the static IP address assigned to the sim card you can reach out to Upstream Data at < monitoring@upstreamdata.ca > or by connecting to the modem directly and accessing that information through the interface. Note that this will only be possible with power to the modem. This can be done with either power to the unit or by moving the modem to a location with power.

To access the interface directly you will need to contact us at < monitoring@upstreamdata.ca > and ask for your login information. Once done, type **192.168.1.1** into the web browser of a connected computer.



Apply the username and password provided to access the main page of the interface.

The system summary page will be displayed after logging in. After the sim card has made connection, the static IP address will be displayed in the red box



Starlink

All models are compatible with the use of Starlink. Upstream recommends the use of Starlink in extremely remote areas.

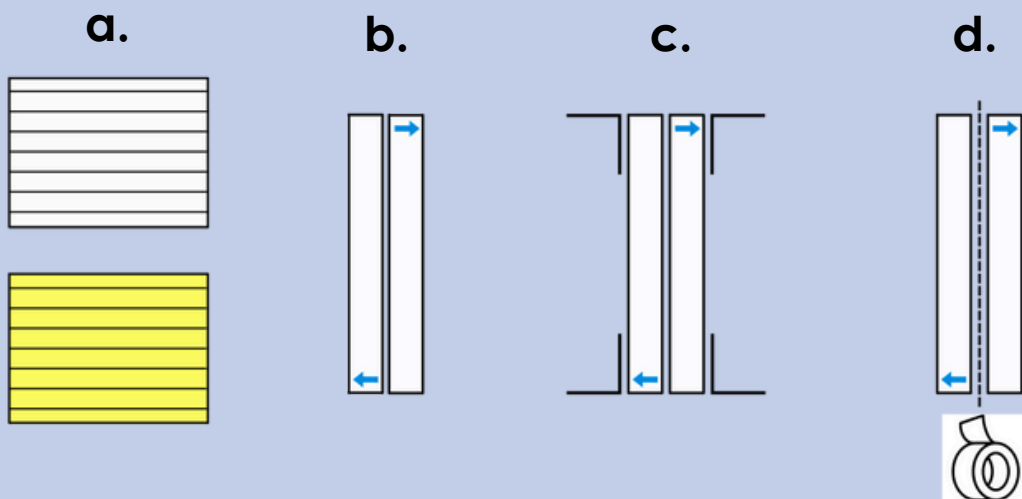
If you plan on running management software in parallel with Loadsync and are in an area where your ISP charges for high data usage we also recommend using Starlink.

A network cable will come pre-installed to connect to their modem, along with a power adapter cord to power the Starlink system with the UPS.



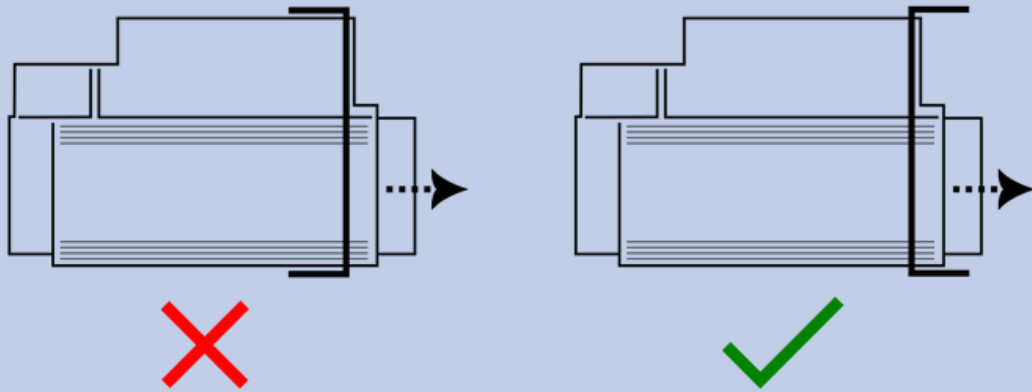
For V1 models a second interior stage of filtration utilized a modular filter box. On larger models the individual filters will need to be installed into the modular boxes below each miner rack.

- a.** Select the correct filter for conditions. White filters are used for winter conditions and help to filter snow and ice. In summer months or hot climates the yellow fiberglass filters should be used.
- b.** Find the air flow arrows on the ends of the filters. When installed in a pair the arrows should face outward.
- c.** Slide the filters into the sheet metal brackets attached to the box.
- d.** Seal between the filters with tape. Follow the dotted line below as reference.



Contact Upstream Data for replacement filters.

All models will come with laser cut inserts for the shelves. These inserts simply need to be slid to the back of the shelf and will seal without mounting hardware. **For Whatsminer's, pass the ASIC and PSU exhaust through the cutout to complete the installation. Antminer models will just sit up against the insert.**



Hash Generators

Prior to start up ensure that the correct size gas line is being used and has been inspected and approved for use. Check pressure's are good and all manifolds are correctly set. Check that all gauges function properly. Check for loose or damaged components that could have occurred during shipping. Uncap and assemble exhaust.

Check coolant levels and add 50/50 premix (as) required. Check engine oil levels and add **15W-40 low ash oil** if needed. Make sure the fuel system is connected properly. Ensure minimum of 5 PSI, maximum of 25 PSI on fuel line(will require little joe or equivalent regulator to regulate PSI). Ensure you have 6-8 Oz (8-12 In W.C) after the regulator. It is recommended that the fuel line be purged of air at this time. It would also be a good time to double check for any leaks. Connect battery cables and make sure posts are tightened and secured. Open 1 1/4" or 2" gas valve at the rear of the engine.

When all checks are done and the motor needs to be started, move to the start-up section of the guide.

If you would like an Upstream mechanic to double check the process over the phone during start up please phone us at **1(639)536-3390** to schedule on call help.

Start up

Ensure that all electrical circuit breakers are in the open position. This includes all breakers in auxiliary panels and anything controlling load devices downstream of line power.

If equipped with a **DYNAGEN** press off on the panel and then hit run. Allow the engine to warm to operating temperature. Check fuel pressures again. When the engine has hit its operating RPM, check for stability. When full load is achieved check fuel pressures for a final time and adjust at household regulator if needed (any lower than 5 Oz will cause premature failure).

If the engine is equipped with a different controller, perform the necessary steps it has outlined to achieve the same results as those above.

In order to add load safely and responsibly, turn the breakers that control the PDU's (found in the main distribution panel) to the on position. Turn any Auxiliary breakers to the on position. If your distribution panel does not have an exterior handle, change the MAIN breaker in the bottom of the panel to the on position. If the panel does have a handle, close the door and move the handle to the on position.

Continue downstream of the main breakers by following the steps below :

Make sure all fan switches located on the fan pods are turned on.

V2/V3 models come equipped with an auxiliary panel housing breakers for lights, receptacles, VFD and IPC power. Turn the breakers on, close the door to the panel and turn the main handle to the on position. All equipment inside the unit will now be live.

Engine

*Perform First oil change and comprehensive inspection after first 500 hours of operation *

5.7L GM

Preventative Maintenance Schedule				
Event #	Maintenance Event	Daily	Interval (Hours)	Interval
			2500	6 Months
1	Check Engine Oil Level	X		
2	Check Engine Coolant Level	X		
3	Monitor Oil Pressure/Engine Temperature/12V System/ Gen Phase Balancing/ Gen Voltage	X		
4	Check Operating Condition (hose/clamp/pipe/belt/harness)	X		
5	Change Oil and Filter (sample)		X	
6	Spark Plugs/Cap, Rotor and Wires(Check/Replace)		X	
7	Check Air Filter(Inspect/Replace)		X	X
8	Replace Breather Filter(Inspect/Replace)		X	
9	Belts, Pipes, Clamps & Hoses (Inspect/Replace)		X	
10	Check Ignition System		X	
11	Check Coolant Condition (Sample)			X
12	Inspect Water Pump		X	
13	Test Batteries & Alternator			X
14	Replace Coolant	Every 2 Years		

***Perform First oil change and comprehensive inspection after first 500 hours of operation ***

6.7LT PSI

Preventative Maintenance Schedule – Non-Emergency						
Event Number	Maintenance Event	Weekly	Interval (Hours)		Interval	
			The first 50hours	500	1500	6 months
1	Check Engine Oil Level	X	X			
2	Check Engine Coolant Level	X	X			
3	Check Oil Pressure	X	X			
4	Check Overall Operating Condition (hose/clamp/pipe/belt/harness/connector)	X	X			
5	Change Oil and Oil Filter * (Sample)#			X		
6	Check/Adjust Valve Lash##			X		
7	Spark Plugs (Check/Adjust/Replace)				X	
8	Check Air Filter (Inspect/Replace)			X		
9	Replace Breather Filter				X	
10	Belts, Pipes, Clamps and Hoses (Inspect/Replace)		X	X		
11	Check Ignition System (Plug Wires/Coils)			X		
12	Check Coolant Condition * (Sample)					X
13	Inspect Water Pump					X
14	Test Batteries & Alternator					X
15	Inspect Turbocharger (6.7L Turbo only)					X
16	Replace Coolant	Every 2 Years				

***Perform First oil change and comprehensive inspection after first 500 hours of operation ***

11LT PSI / 22LT MESA

Page 1 of 2		PSI POWER SYSTEMS ENGINE MAINTENANCE GUIDELINES						
56100027 Revision: 4 2023-04-11		Service Intervals						
PRIME POWER 8.1L NA, 8.1L Turbo, 11L, 14L, 18L, 22L		Initial 50 Hour Service ¹	Daily	Every 250 Hrs	Every 750 hrs	Every 8,760 hrs or annually	Every 24,000 hrs (Top End)	Every 48,000 hrs (Overhaul)
Check for fluid leaks		X	X					
Check engine oil level		X	X					
Check coolant level		X	X					
Inspect drive belts for tension, cracks, splits, or glazing		X		X				
Inspect air cleaner filter element, replace as needed		X		X				
Sample engine oil as needed ²		X ²		X ²				
Sample engine oil as needed ²		X ²		X ²				
Change engine oil and filter ²		X ²			X ²			
Inspect all vacuum lines and fittings for cracks, breaks or hardening		X			X			
Inspect automatic belt tensioners, replace if necessary		X			X			
Inspect coolant hoses for cracks, swelling or deterioration		X			X			
Inspect Fuel Shut-off Valves for leaks and proper operation		X			X			
Inspect gas piping and hoses for leaks or damage		X			X			
Inspect air induction piping for leaks		X			X			
Inspect intake manifold for vacuum leaks		X			X			
Inspect exhaust manifold for leaks		X			X			
Inspect exhaust piping for leaks		X			X			
Inspect O ₂ sensors and harness for damage/performance		X			X			
Inspect catalyst for mechanical damage and performance		X			X			
Clean debris from radiator core		X			X			
Measure intake and exhaust valve clearance, reset as necessary		X			X			
Tighten all hose clamps on CAC piping boots		X			X			
Drain LPL vaporizer oil build up (if LP fuel system is installed)		X			X			
Inspect ignition coils, coil boots, and harness					X			
Replace spark plugs					X			
Check CCV filter, Replace if crankcase pressure is above barometric					X			
Drain, flush, and replace engine coolant ²						X ²		
Inspect O ₂ sensor performance, replace if necessary ³						X ³		
Inspect catalyst performance, replace if necessary ³						X ³		
Replace fan and water pump belts						X		
Replace ignition coils and boots						X		
Replace throttle bodies						X		
Replace crankcase ventilation impactor (11L only)						X		
Replace coolant pumps							X	
Replace thermostats, gaskets and O-rings							X	
Replace fuel mixers							X	
Replace EPRs							X	
Replace fuel lock-off valves							X	
Replace cylinder heads							X	
Replace rocker arm assemblies							X	
Replace turbocharger assembly							X	
Replace crankcase ventilation assembly							X	
Replace piston and connecting rod assemblies and cylinder liners								X
Replace crankshaft assembly, bearings and seals								X

*Perform First oil change and comprehensive inspection after first 500 hours of operation *

11LT PSI / 22LT MESA Cont.

Page 2 of 2 PSI POWER SYSTEMS ENGINE MAINTENANCE GUIDELINES							
56100027 Revision: 4 2023-04-11		Service Intervals					
PRIME POWER 8.1L NA, 8.1L Turbo, 11L, 14L, 18L, 22L	Initial 50 Hour Service ¹	Daily	Every 250 Hrs	Every 750 hrs	Every 8,760 hrs or annually	Every 24,000 hrs (Top End)	Every 48,000 hrs (Overhaul)
Replace camshaft, bearings, seals, lifters, pushrods, and timing gears							X
Replace oil pump							X
Replace exhaust manifold assembly and gaskets							X
Replace front accessory drive pulleys, idlers and seals							X

***Perform First oil change and comprehensive inspection after first 500 hours of operation ***

13LT PSI

PSI POWER SYSTEMS ENGINE MAINTENANCE GUIDELINES								
56100094 Revision: 1 2023-04-01	Service Intervals - PRIME							
4.5L, 6.7LNA/T, 10LNA/T & 13LTHO Prime	Initial 50 Hour Service 1	Daily	Every 250 hrs	Every 750 hrs	Every 1,500 hrs	Every 8,000 hrs	Every 16,000 hrs	Every 24,000 hrs (Overhaul)
Check for fluid leaks	X	X						
Check engine oil level	X	X						
Check coolant level	X	X						
Inspect drive belts for tension, cracks, splits, or glazing	X		X					
Inspect air cleaner filter element, replace as needed	X		X					
Sample engine oil as needed ²	X ²		X ²					
Change engine oil and filter ²	X ²			X ²				
Grease signal generator (NLGI Gr.2)	X			X				
Inspect all vacuum lines and fittings for cracks, breaks or hardening	X			X				
Inspect automatic belt tensioners, replace if necessary	X			X				
Inspect coolant hoses for cracks, swelling or deterioration	X			X				
Inspect Fuel Shut-off Valves for leaks and proper operation	X			X				
Inspect gas piping and hoses for leaks or damage	X			X				
Inspect air induction piping for leaks	X			X				
Inspect intake manifold for vacuum leaks	X			X				
Inspect exhaust manifold for leaks	X			X				
Inspect exhaust piping for leaks	X			X				
Inspect O ₂ sensors and harness for damage/performance	X			X				
Inspect catalyst for mechanical damage and performance	X			X				
Clean debris from radiator core	X			X				
Measure intake and exhaust valve clearance, reset as necessary	X			X				
Tighten all hose clamps on CAC piping boots	X			X				
Drain LPL vaporizer oil build up (if LP fuel system is installed)	X			X				
Inspect ignition coils, coil boots, and harness				X				
Inspect crankcase ventilation filter, replace if required				X				
Replace spark plugs				X				
Replace fan belt and water pump belt					X			
Drain, flush, and replace engine coolant ²						X ²		
Inspect O ₂ sensor performance, replace if necessary ³						X ³		

***Perform First oil change and comprehensive inspection after first 500 hours of operation ***

13LT PSI Cont.

PSI POWER SYSTEMS ENGINE MAINTENANCE GUIDELINES - Continued								
56100094 Revision: 1 2023-04-01	Service Intervals - PRIME							
4.5L, 6.7LNA/T, 10LNA/T & 13LTHO Prime	Initial 50 Hour Service 1	Daily	Every 250 hrs	Every 750 hrs	Every 1,500 hrs	Every 8,000 hrs	Every 16,000 hrs	Every 24,000 hrs (Overhaul)
Inspect catalyst performance, replace if necessary ³						X ³		
Replace ignition coils and boots						X		
Replace throttle bodies						X		
Replace coolant pumps						X		
Replace engine alternator						X		
Replace thermostats, gaskets and O-rings						X		
Replace cylinder heads						X		
Replace rocker arm assemblies						X		
Replace turbocharger assembly (if equipped)						X		
Replace cooling fan hub							X	
Replace unfiltered crankcase ventilation system, if applicable							X	
Replace oil coolers							X	
Replace camshaft, bearings, seals, lifters, pushrods, and timing gears							X	
Replace exhaust manifold assembly and gaskets							X	
Replace piston and connecting rod assemblies and cylinder liners							X	
Replace fuel mixers							X	
Replace EPRs							X	
Replace fuel lock-off valves							X	
Replace crankshaft assembly, bearings and seals								X
Replace oil pump								X
Replace front accessory drive pulleys, idlers and seals								X

Hash Hut

Whether the hash hut is being powered by an external generator or utility power, it is important to make sure all electrical connections have been checked and the system has been wired correctly.

As these systems require a neutral to work safely and correctly, please ensure that the neutral is properly bonded to earth at the correct location. This is extremely important in the case of utility power as it does take longer to disconnect from the grid. This has and will result in damage to components inside the unit.

Start up

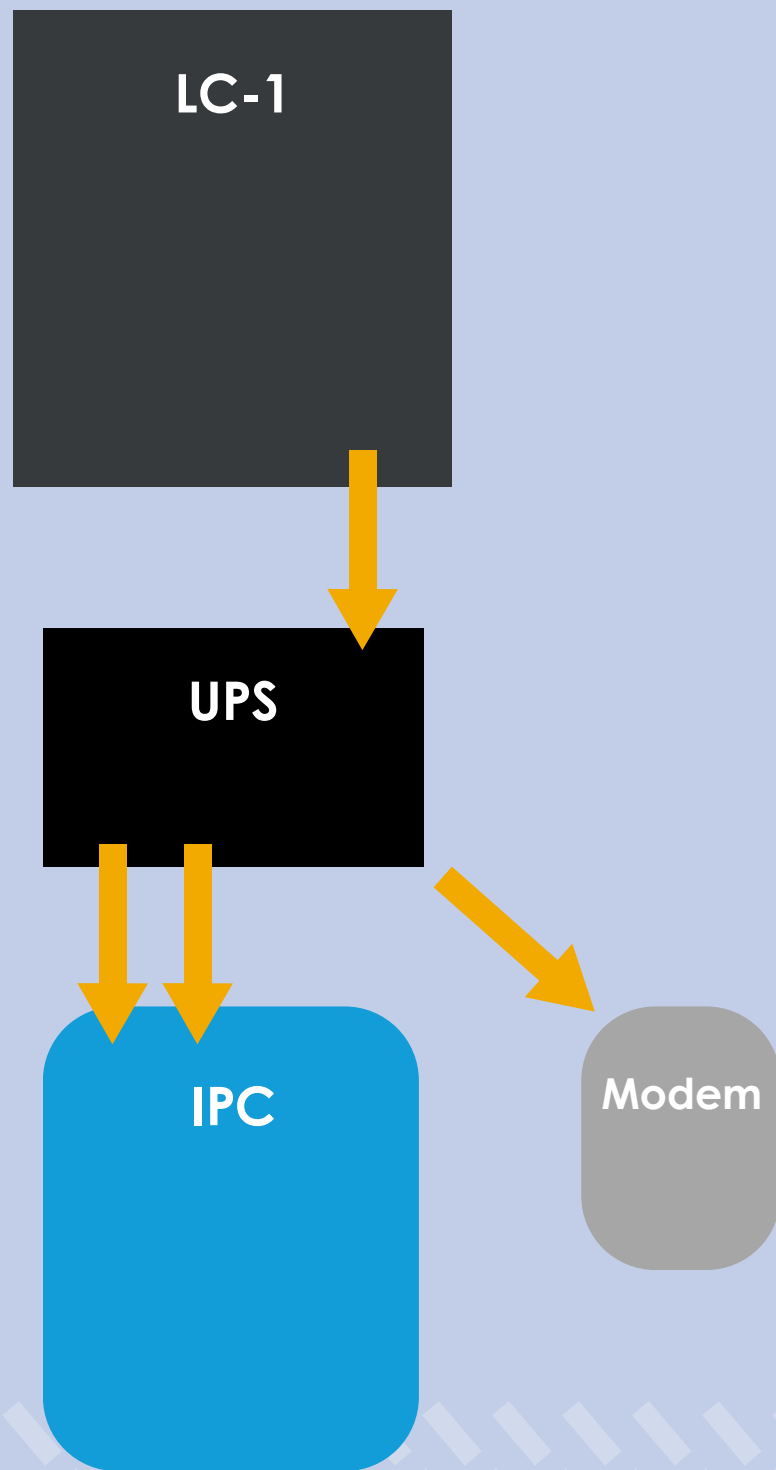
In order to add load safely and responsibly, turn the breakers that control the PDU's (found in the main distribution panel) to the on position. Turn any Auxiliary breakers to the on position. If your distribution panel does not have an exterior handle, change the MAIN breaker in the bottom of the panel to the on position. If the panel does have a handle, close the door and move the handle to the on position.

Continue downstream of the main breakers by following the steps below :

Make sure all fan switches located on the fan pods are turned on.

V2/V3 models come equipped with an auxiliary panel housing breakers for lights, receptacles, VFD and IPC power. Turn the breakers on, close the door to the panel and turn the main handle to the on position. All equipment inside the unit will now be live.

The power cord coming from the LC-1 panel is used to power the UPS. All components of the IPC (Loadsync) will be powered using this battery, along with the modem.



Loadsync



<https://upstreamdata.com/loadsync/>

For a comprehensive overview of the features and functionality of Loadsync, please visit the link above.


Remote login credentials will be sent out when the unit is shipped. If you have not received that information please contact support.

All systems in the datacenter including: the intake fans, the pdu's and (engine) if connected are controlled via the Loadsync. Data as well as control is viewed from the Loadsync screen. All functionality provided locally is also supported remotely.

As multiple systems are connected and have to work properly, in some cases if the system appears to be working incorrectly, its important to hard reboot the entire Loadsync system.

Shutting off power to the unit will not properly reboot the system.

Because its running off the UPS (Backup Battery), when the main power is turned off the system will continue to run. Please shut off the UPS, or unplug all systems from the UPS for at least 10 seconds to correctly reboot the system.



VFD & Fans

The proper operation of the VFD and fans is crucial in the loadcenter's performance. As such, the instructions listed below must be followed and adhered to for normal and optimal operation of equipment.

The fan switches located on the fan pods are for maintenance of individual fans or emergencies only. For the normal shutdown of the fans please use the controlling VFD.

To perform maintenance or work on specific **fans** :

- Identify the specific fan(s) to be shut off: Determine the fan(s) that need to be temporarily shut off while allowing the others to continue operating.
- Shutting off specific fan(s): Use the motor starter(s) associated with the fan(s) to be shut off to interrupt the power supply, effectively stopping the motor and shutting off the selected fan(s). Verify that the fan(s) have come to a complete stop.
- Monitor the remaining fans: Ensure that the other fans continue to operate properly and maintain the desired airflow and system requirements.

Restoration and reactivation: When it's time to reactivate the previously shut-off fan(s), follow these steps in sequence:

- a.** Shut off the VFD controlling all the fans.
- b.** Allow power dissipation: Let the power in the system dissipate completely.
- c.** Turn on motor starter(s) that were shut off.
- d.** Turn on the VFD: After a sufficient amount of time has passed, turn the VFD back on, which will restore power to all the fans, including the previously shut-off fan(s).

Contact



Please contact our sales department for all sales inquiries :

sales@upstreamdata.ca

For concerns or questions regarding the loadcenter and its components please contact :

monitoring@upstreamdata.ca

To speak with a representative of Upstream Data directly call the number below :

1(639)536-3390 (24/7)

Visit the link below to contact us through our website

<https://upstreamdata.com/contact/>

