



OWNER'S MANUAL

MODEL:

**LEVEL 2, DUAL FUEL: UTILITY PIPELINE GAS
OR HIGH PRESSURE CNG
VERSION 1**

PUBLICATION DATE: 10/17/24

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SAFETY

NOTE

Illustrations are intended to be representative images and may not exactly match your machine. Some equipment and features not on your particular model can be purchased separately.



SAFETY GUIDELINES

VOLT VAULT EQUIPMENT



DANGER

Serious injury or loss of life can occur if this equipment is not operated and maintained in a safe manner.

Safety Responsibility

This equipment is designed in a manner which eliminates or minimizes potential hazards. To the best of our knowledge and ability, the equipment supplied meets or exceeds all applicable codes and standards regarding safety. However, some potential hazards may still exist, so we have strived to warn the user where potentially hazardous situations exist around the work area. These warnings consist of safety signs which are mounted on the equipment near the hazardous area. Potential hazards are also pointed out in the form of DANGER, WARNING, and CAUTION statements on the equipment and within the text of this manual. Refer to the “Safety Alerts” instruction for more information.

Ultimately, the safety of any equipment is a shared responsibility, dependent not only on the equipment manufacturer, but on the owner and user of that equipment as well.

Moving and Installation

This system must be installed in accordance with NFPA 52, NEC (NFPA 70), and all applicable codes and standards. These include federal, state, and local codes and standards that apply to the installation process. If unsure what these codes are, find out before beginning the installation.

It is recommended that a U.S. Energy service representative oversee the installation process. The following general guidelines are provided for reference only and must not be considered a substitute for assistance from U.S. Energy.

1. Only qualified personnel may handle, move, and install equipment. Permit only those personnel in the installation area who are directly involved in the installation process.
2. Wear personal protective equipment (PPE) when necessary, and make sure others involved in the installation are provided with it.
3. Make sure that proper lifting equipment is available, that it has the proper capacity for what is being lifted, and is in good working order. This includes cranes, hoists, straps, chains, etc.
4. Watch for obstructions.
5. Never walk, stand, crawl, or reach under equipment supported by a lifting device.
6. Keep hands and feet clear of skids and wheels of lifting equipment. Keep hands and feet clear of equipment platforms.
7. Equipment locations must provide sound footing, adequate lighting, and accessibility from all sides. Do not locate equipment near combustible or explosive material.
8. Keep work area clean. Remove debris from the area often, and do not allow tools or other materials to lay around.
9. Never defeat or remove any safety devices. They are provided for your protection and are there for a particular purpose.
10. Install any guarding which may have been removed for shipping purposes.

11. Before applying power to the system, walk around the site, making a visual inspection that all guards, interlocks, and other safety devices are properly installed and secured. Also make sure that all personnel are clear of system components.

Operation

Operator safety and the safety of others in the work area depends on the operator using common sense, good judgment, and reasonable care while operating the equipment. This manual and warning labels affixed to equipment provide notification of specific potential hazards.

The following instructions are guidelines only and should be considered a supplement to your company's comprehensive safety program. Your company's policy supercedes these guidelines if at any time the two contradict each other.

1. Read and understand the manual. If after reading the manual you have questions, get answers before working with the equipment.
2. Read and understand all of the DANGER, WARNING, and CAUTION statements in the manual and on the signs attached to the equipment.
3. Never deface or remove factory installed warning decals. If a decal ever becomes lost, damaged, or illegible, report this condition to a supervisor, and obtain a replacement decal from the manufacturer.
4. Keep the work area clean and uncluttered. Walking surfaces must always be free of debris to prevent a slipping or tripping hazard.
5. Store parts and tools in a designated location when not in use. Never leave them lying on or around the equipment.
6. Surfaces which will be touched by hand must be kept free of oil, grease, ink, or other contaminants. This is especially true of the operator controls such as push buttons and selector switches.
7. Personnel not required to be in the work area must be kept away. Never start the equipment unless you are absolutely certain that everyone in the area is clear of the equipment and aware that it is to be started. Refer to the lockout/tag out section of this manual for more information.
8. Before starting the equipment, ensure that all guards and other safety devices are in place. Never defeat a safety device for any reason. Check for warning tags on the equipment components and controls before starting.
9. Follow the manufacturer's recommended start-up procedure.
10. Keep body parts and clothing away from moving components. Never reach into equipment for any reason while it is in motion.
11. Know the locations of all emergency stop buttons.
12. Understand what will happen when you operate electrical push buttons and switches.
13. Never climb or work on equipment while it is operating, or allow others to do so, unless using approved, provided steps.
14. Perform all inspections and adjustments with caution and in accordance with the manufacturer's recommended procedures. Exercise extreme care whenever it is required to inspect or adjust the equipment while it is in motion. NEVER reach into the equipment for any reason while it is in motion.
15. Lockout/tagout the equipment in accordance with your company's policy as dictated by the OSHA guidelines for the task being performed.
16. Never operate or work around equipment if you are under the influence of alcohol, drugs, or medications that can make you less alert or affect your judgement.

Maintenance

Service and repair are important to the safe, reliable operation of equipment. The procedures recommended in this manual are effective methods for performing repairs. Do not use any procedure that is not recommended in this or other applicable equipment manuals.

1. Familiarize yourself with your company's safety and lockout/tagout policies. Never begin maintenance until you are sure what safety guidelines apply to the work you are going to perform.
2. Wear PPE whenever appropriate. Always wear industrial gloves and safety glasses when handling sharp, hot, or cold objects.
3. Be certain that you always use the proper tools and equipment for the task being performed. Regularly check these tools to be sure they are in good condition.
4. Keep the floor clean to avoid injuries from falling.
5. Always stop the equipment before cleaning, lubricating, adjusting, or repairing any driven equipment. Turn controls to the OFF position. Remove electrical power by locking out the main electrical disconnect in the OFF position.
6. Follow lockout/tagout procedures when servicing the equipment. Before restarting, remove tools and other objects from the equipment.
7. Do not remove guards while power is on. After maintenance work, be sure that all guards and other safety devices are installed and in proper working order.
8. Check safety devices often and before they fail. Practice preventative maintenance in accordance with the manufacturer's recommendations.
9. Qualified personnel must install and repair electrical equipment and verify electrical ground to avoid electrical shock, injury, or death to anyone using the equipment.
10. NEVER replace any circuit board or electrical module with the power on.
11. Electrical modifications and additions are prohibited. Any modification or addition to the electrical system may impair the functioning of the equipment and create a safety hazard.
12. Never use jumper wires to bypass circuits. This could activate equipment which could seriously injure persons in the immediate vicinity.
13. Never touch or repair components when they are hot or cold. If they must be handled, use insulated gloves and mechanical devices.
14. Always release pressure from pressurized systems before disassembling.
15. Do not attach or place paper, cardboard, photos, signs, string, wire, tinsel, tools, or hardware to or on equipment.

Electrical

This equipment uses electricity of a sufficient voltage which can result in serious injury or death if mishandled.

1. Permit only qualified electricians or technicians to work on electrical components whether the components are live or dead.
2. Know the location of all electrical shut-off boxes, disconnects, and similar devices.
3. Always assume an electrical circuit is live, or a component energized, until proven dead by proper testing.
4. Keep the equipment dry, especially in electrical areas. Never work on electrical components while standing in water or on wet or damp surfaces.
5. Always be alert for electrical components that are frayed, cut, loose, broken, or exposed. Repair or replace any such components before applying power to the equipment.
6. Before starting the equipment, make sure that all wires, motor plugs, cables, and similar devices are securely connected.
7. Never remove a lockout device or tag unless you installed it and have notified everyone in the work area that power is to be applied.
8. Be certain electric tools are correctly grounded. Ground electric power tools by the cord.
9. Do not pull on the cord to remove a power tool from an electrical outlet; grasp the plug instead.
10. Be sure that all electrical tools are in good operating condition and that the safety guards are in position.

Flammable and Hazardous Materials

1. Familiarize yourself with the flammable or hazardous materials used on your equipment, along with the potential dangers they present. Upon request, U.S. Energy can provide Material Safety Data Sheets (MSDS) for all hazardous materials used on the equipment.
2. Use approved cleaning solvents in a well-ventilated area. Avoid breathing fumes; some vapors can be fatal. Keep solvents away from open flames or sparks.
3. Do not use gasoline, paint thinner, or other highly volatile fluids for cleaning.
4. Follow safety precautions, warnings, and instructions for the material. Always read and observe the CAUTION labels on containers. Do not remove or deface container labels.
5. Never store a hazardous material in a container that is not clearly labeled.
6. Avoid contact with skin; cleaning solvents can cause various types of skin irritations. Wear recommended PPE.
7. Store hazardous materials in a safe place away from the work area. This includes rags and other items that may be contaminated with flammable or hazardous material.
8. Always dispose of hazardous materials in accordance with applicable local, state, and federal regulations.
9. Locate fire extinguishers where they are easily accessible and ready to use if a fire occurs. Carefully maintain records of fire extinguishers.
10. Inspect and recharge fire extinguishers to ensure fire extinguishing capabilities. Consult your fire extinguisher supplier or insurance engineer for recommendations on the type, size, and quantity.

Warning Tags and Decals

1. All warning tags and decals must be visible and legible to personnel. Replace any that are damaged, defaced, or missing.
2. Read and understand all of the DANGER, WARNING, and CAUTION statements attached to the equipment.

Body Protection (Maintenance Personnel Only)

1. Wear OSHA approved PPE. This includes hearing protection, safety glasses, steel toe shoes, and hard hats where the governing code requires. NEVER wear loose clothing, jewelry, or long hair around equipment.
2. Be careful when working near nip points and pinch points. Keep yourself, hair, clothing, and tools away from these hazards.

Intoxicants and Narcotics

Workers under the influence of intoxicants and/or narcotics are hazards to themselves and other employees and must never work on or around any equipment.

Safety Guards



Electrical shock or unexpected equipment movement can cause serious injury or death. For your safety, follow your company's lockout/tagout policy as required for each task.

Guards and locks are designed to protect persons from moving or heated parts. It is the responsibility of the equipment's owner to ensure guards and locks are in place while the equipment is in operation.

1. Guards and locks protect you from moving parts. Removing, tampering with the interlock, blocking it open, or reaching past a guard is extremely hazardous and must never be attempted.
2. Opening a guard or lock DOES NOT disconnect electrical power. To disconnect power, padlock the main disconnect in the OFF position. Work with extra care when guards and locks are removed.

SAFETY ALERTS

VOLT VAULT EQUIPMENT

Hazard Warnings

This equipment uses safety signs to alert operating and maintenance personnel to potential hazards. Equipment manuals also call attention to potential hazards with statements describing the hazard. Both the safety signs on the equipment and the warnings in the manuals use signal words to identify the seriousness of the potential hazard. These signal words are DANGER, WARNING, and CAUTION (refer to the hazard level descriptions to the right).

The meanings of the signal words and the level of potential hazards they represent must be clearly understood before attempting to operate or maintain the equipment.

If, at any time, a safety sign on the equipment becomes lost, damaged, or illegible, U.S. Energy will supply replacement signs at no charge. Contact the Customer Service Department at (262) 442-4576 to order replacement signs.



DANGER

A definitely hazardous situation that, if not avoided, will result in serious injury or death.



WARNING

A potentially hazardous situation that, if not avoided, could result in serious injury or death.



CAUTION

A potentially hazardous situation that, if not avoided, may result in minor injury (or machine damage).



This lockout/tagout procedure is intended for use only after first being approved by the owner of the machine identified by the model on the cover of this manual.

LOCKOUT/TAGOUT PROCEDURE

Machine Name: Volt Vault

Model Number: Level 2, Dual Fuel, Version 1

Prepared by: U.S. Energy

Date: 2024-02-16

Chemical Flow:	Electrical: X	Hydraulic:	Mechanical:
Compressed Gas: X	Spring:	Thermal:	Flammable Gas: X

Locks to be provided by others. Please follow your company's lockout/tagout procedures.

Notify all affected personnel and equipment owner that a lockout/tagout system is going to be utilized and the reason for it.

Operator shall be trained and shall wear proper personal protective equipment.

Before beginning lockout/tagout procedure, press the "DONE" button on the control console to stop the system.

Energy Type and Magnitude	Location of the Isolation Device	Procedure
Electrical: 120 VAC	Exterior Mounted Fused Disconnect	Turn handle of disconnect switch to the OFF position. With a lockout/tagout device, secure the handle in the OFF position.
Pipeline Connection	Site Connection	Close 1.5" ball valve at 1.5" NPT customer gas connection to secure in CLOSED position. Close incoming shut-off valve and with a lockout/tagout device, secure in CLOSED position.
24 VDC	Generator	Negative generator starting battery lead to be removed and secured in a locked-out position.
Flammable Gas: Explosive	Refer to Compressed Gas Isolation Device Locations	To remove flammable gas energy source, remove compressed gas energy source as described above. Purge out of service all gas lines prior to working on equipment. See Note 2.

Notes:

- After completing lockout/tagout, test for zero energy state by turning operational controls to the ON position and verifying no energy or electrical current is present and no flow is detected from purge valves. Return all controls to the OFF position.
- Read, understand, and follow proper purging guidelines. Reference AGA publication Purging Principles and Practices.
- After making repairs, remove all tools from the unit, reinstall all guards, clear all personnel, purge into service equipment (as needed), remove all lockout/tagout devices, and restore energy to the equipment.



OPERATION

NOTE

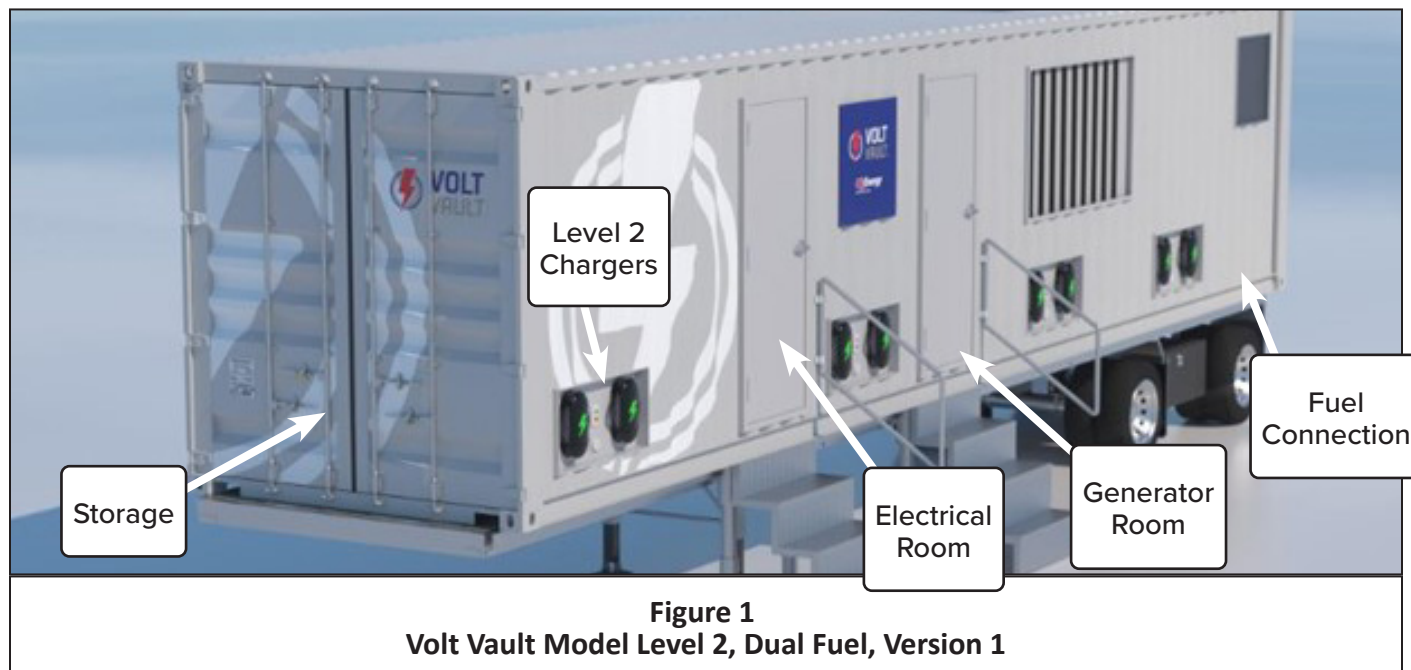
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INTRODUCTION

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1



The Volt Vault Version 2 system is designed to provide access to charging systems for electric vehicles. The system includes a natural gas-powered generator, multiple level 2 AC charging ports, and an electrical room. This is designed to be a stand-alone system for electric vehicle (EV) charging that can be run with or without connected utilities.

Utility Requirements

Pipeline natural gas (NG): 3,000,000 BTU/H (or 3,000 SCFH) at 2-5 PSI at the Volt Vault

Component Overview

The Volt Vault Version 2 includes (Figure 1):

- Container/Frame
- Electrical Room
- Charging Dispenser
- Generator Skid

The generator is powered by either:

- Compressed Natural Gas Storage Tanks
- Direct Pipeline Access

The electrical room may contain the following components:

- Automatic Transfer Switch
- Fused Disconnect
- Battery Packs
- Load Center
- Transformer
- Inverter
- Dispenser

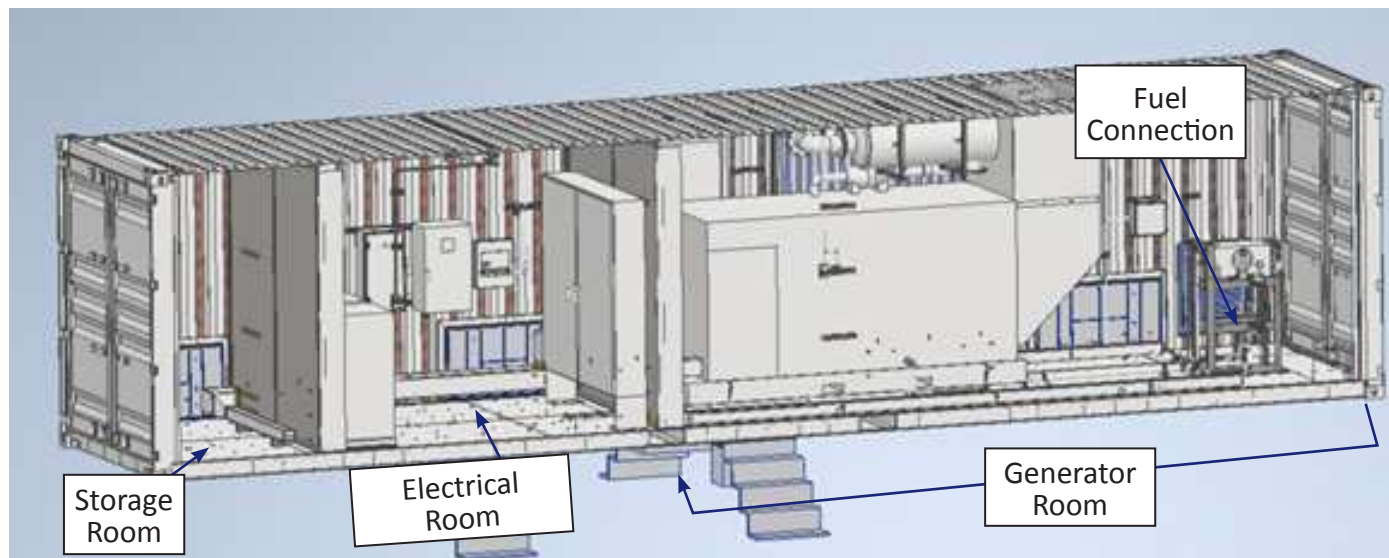


Figure 2
Volt Vault Model Level 2 - No Walls

Each of these items is described briefly in this introduction and in more detail in the “Equipment Overview” section of this manual.

Container Frame

The steel container frame consists of structural members to which other assembly components are mounted. It includes appropriate mounting plates, four lifting eyes, and two walls.

The container is mounted upright at the outside edges of the frame, and:

- Protects the electrical room and components from the weather.
- Provides the generator skid component ventilation.
- Provides access to the generator skid assembly components via removable walls.
- Provides interior lighting for maintenance.
- Can be locked for security.



Figure 3
Frame - Generator Mounting Plates

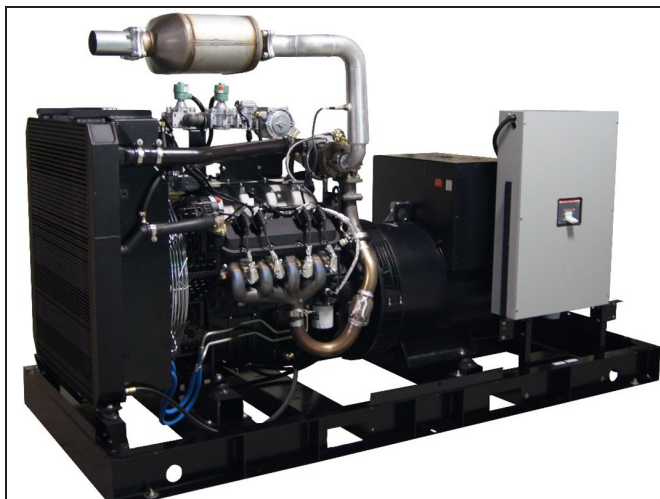


Figure 4
Gillette Generator

Generator

The Gillette™ Generator runs on either a utility pipeline or high pressure CNG fuel. Power from the generator is connected to the high voltage wire trough directly to the EV chargers. Power may also be directed to the inverter continuing on to the two onboard battery packs.



Figure 5
Level 2 AC Charger

Level 2 AC Charger

The IQ 50 EV Charger is a smart and reliable Level 2 charging station, providing energy management and custom scheduling using the Enphase App. An all-weather NEMA 4-rated enclosure allows for indoor or outdoor use, and the 25 ft charging cable provides flexible reach. Backed by a 5-year limited warranty and compatible with almost any EV, the IQ 50 EV Charger comes with a ruggedized, impact-resistant J1772 connector that stands up to everyday wear and tear.

NOTE: This is a replaceable unit and not repairable.

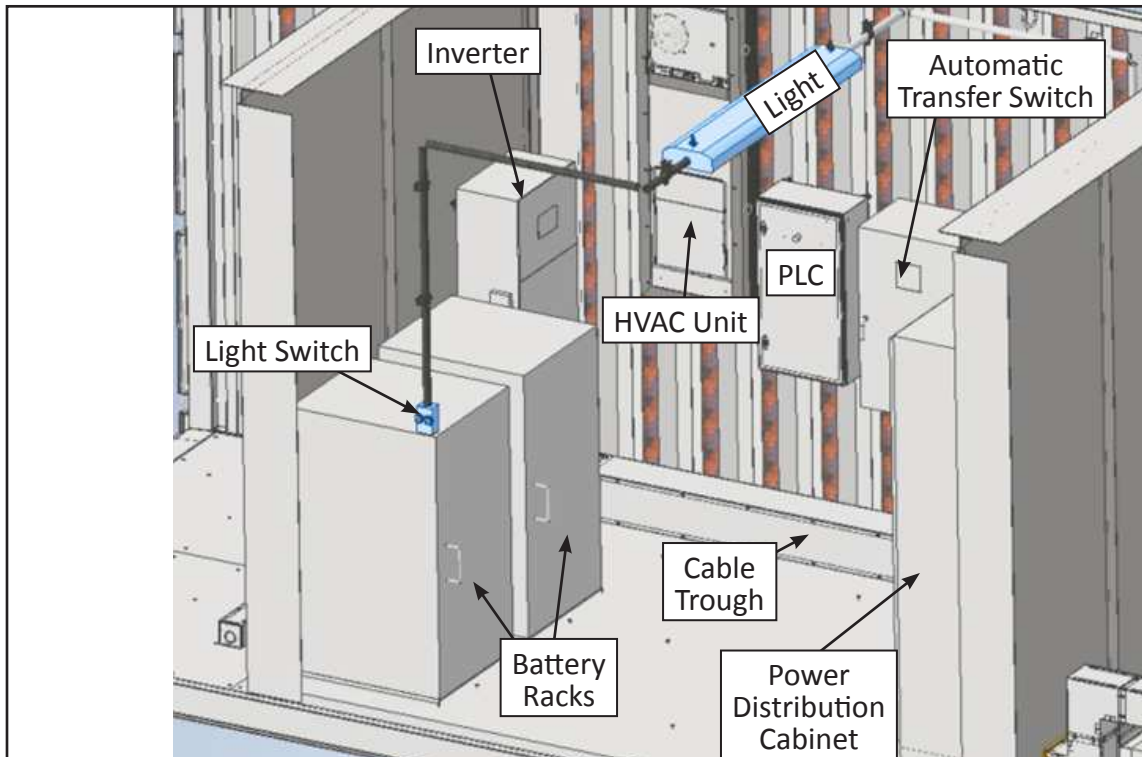


Figure 6
Electrical Room

Electrical Room

The electrical room may contain the following:

- Battery Racks
- Light and Switch
- Inverter
- HVAC Unit
- Programmable Logic Controller (PLC)
- Automatic Transfer Switch
- Power Distribution Cabinet
- Cable Trough

These are considered low-voltage components and may be powered by on-site utilities. In the event that on-site utilities are unavailable, the battery racks will power the electrical room. Battery racks are powered by the generator through the transformer. Each of the above components are discussed in more detail in the “Equipment Overview” section of this manual.

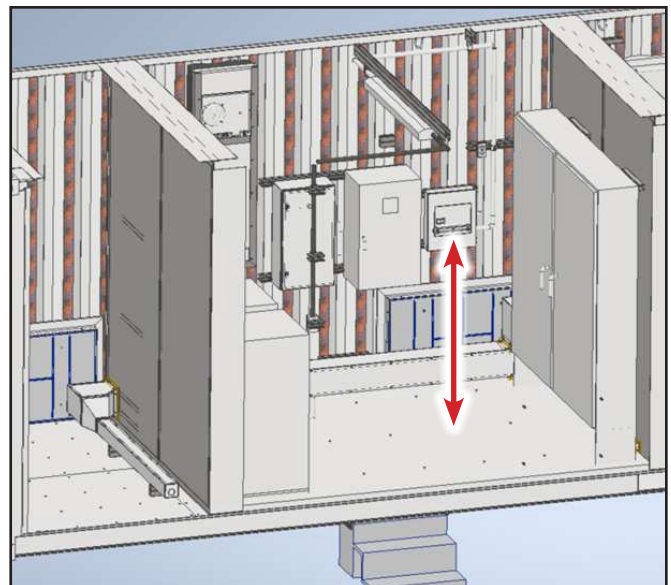


Figure 7
Electrical Room

NOTE: The red arrow shows where the load center is leader-ed out.

MODEL OPTIONS

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

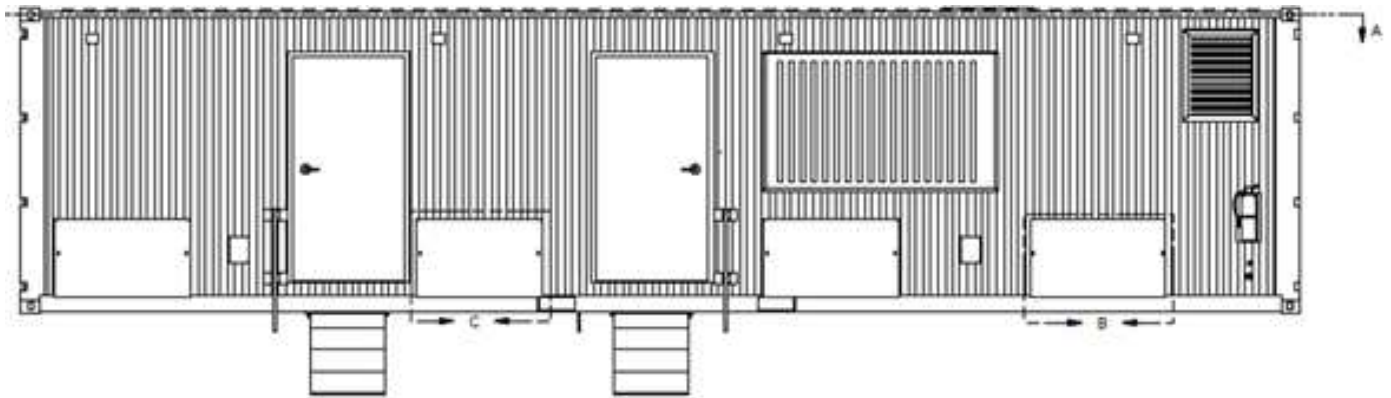


Figure 8
Volt Vault Dual Fuel

Model Options

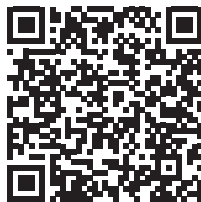
The following components are available based on system needs with utility and/or pipeline access.

Battery Rack EG4:2

The battery racks are connected in series and designed to be back-up power to the electrical room components in the event that direct low-voltage utilities are unavailable. These will power all low-voltage equipment found in the electrical room.

Refer to the manual in the “Vendor Literature” included with your Volt Vault Owner’s Manual for more detailed information regarding the battery racks.

Scan this QR code to be directed to the EG4 LL Battery Manual.



EQUIPMENT OVERVIEW

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

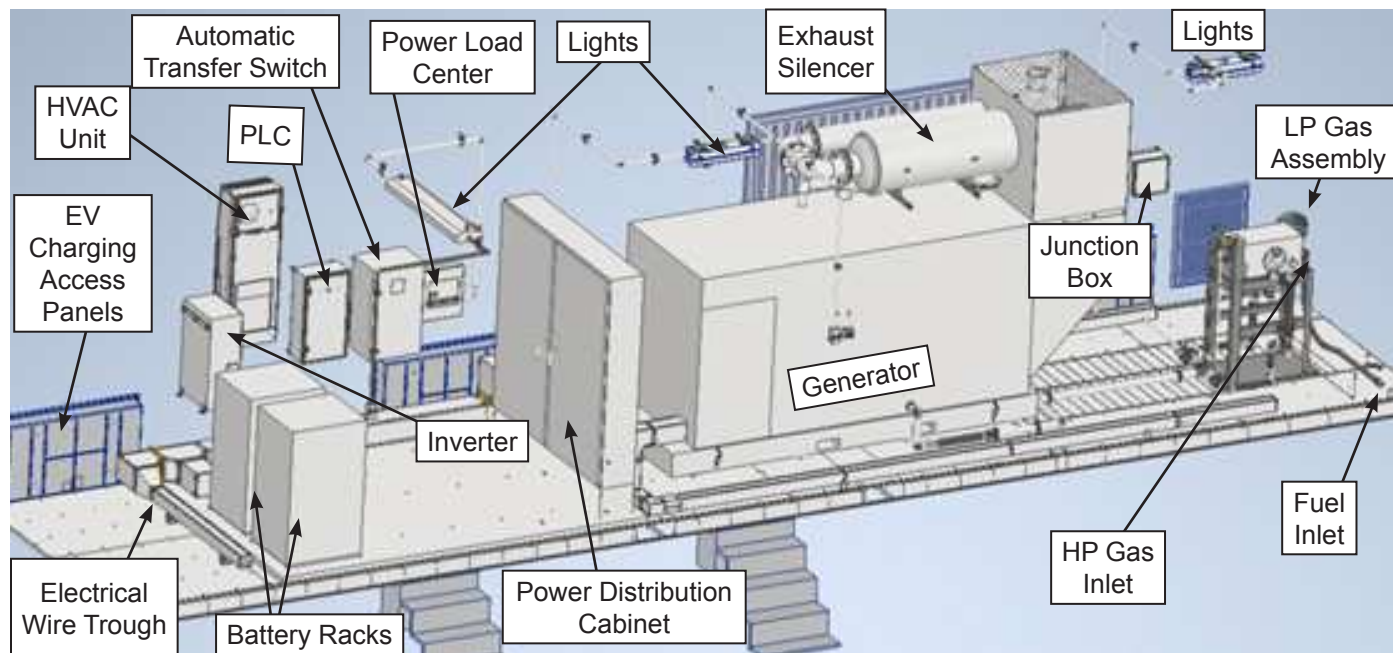


Figure 9
Volt Vault Level 2, Dual Fuel, Version 1 (No Walls)

Electrical shock can cause serious injury or death. For your safety, follow your company's lockout/tagout policy as required for each task.



The fused disconnect switch does not remove all electrical energy from within the electrical enclosure. DO NOT turn this switch off while the machine is moving. DO NOT open electrical enclosure doors while equipment is running.



1. Generator

The Gillette™ Generator runs on natural gas supplied either directly from a pipeline connection, high-pressure CNG tube trailer, or from the Lowpro Cart Wolf Pack. Power from the generator is connected to the high-voltage wire trough directly to the power distribution cabinet. Power is also directed to the inverter and continues on to the two onboard battery packs.

Scan this QR code to be directed to the Gillette Generator Manual.



2. Battery Rack EG4: 2

The battery racks are connected in series and designed to be back-up power to the electrical room components in the event that direct low-voltage utilities are unavailable. These will power all low-voltage equipment found in the electrical room.

Refer to the manual in the “Vendor Literature” included with your Volt Vault Owner’s Manual for more detailed information regarding the battery racks.

Scan this QR code to be directed to the EG4 LL Battery Manual.

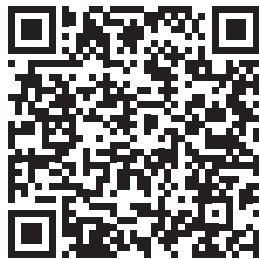


Figure 10
Transformer

3. Transformer (Optional)

The SquareD™ Dry-Type Transformer is used to step down the generator voltage from 480 (primary winding) to 120/240 (secondary winding) before being directed to the inverter.

Refer to the manual in the “Vendor Literature” included with your Volt Vault Owner’s Manual for more detailed information regarding the transformer.

Scan this QR code to be directed to the SquareD Transformer Manual.





Figure 11
Inverter

4. SolArk Inverter

The SolArk™ inverter converts the DC electricity from the battery banks or the transformer (by way of the generator) into AC electricity to power all components within the electrical room.

Refer to the manual in the “Vendor Literature” included with your Volt Vault Owner’s Manual for more detailed information regarding the inverter.

Scan this QR code to be directed to the SolArk Inverter Manual.



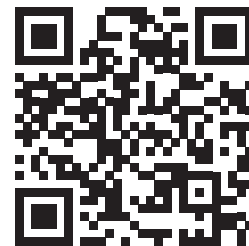
Figure 12
Automatic Transfer Switch

5. Automatic Transfer Switch

The Asco™ automatic transfer switch is designed to transfer the electrical load between the utility power and that coming from the inverter via the generator before going to the 100amp load center.

Refer to the manual in the “Vendor Literature” included with your Volt Vault Owner’s Manual for more detailed information regarding the inverter.

Scan this QR code to be directed to the Asco Transfer Switch Manual.



6. Fused Disconnect Switch

Disconnects all 3-phase electrical energy from the switch (load side). Electrical energy up to this switch (line side) remains connected. The electrical enclosure door cannot be opened unless this switch is in the OFF position. This switch also serves as an electrical lockout point if designated as such by your company's lockout/tagout policy.

7. Wall Mount Exhaust Fan and Louvers

Anytime the inside container temperature is higher than the high value set on the HVAC unit thermostat, the air conditioning turns on and supplies the room with cold air. Anytime the temperature is lower than the low value set on the HVAC unit thermostat, the heater will turn on and supply the room with warmer air.

8. 100 Amp Load Center

The load center receives electricity from the inverter and distributes it to the low-voltage components in the electrical room. The components and circuits are protected from overcurrent by use of the breakers and fuses.

9. Low-Voltage Wire Trough

The top wiring trough houses the low-voltage wire runs for power to the electrical room's low-voltage components: including the heater, exhaust fan, interior lights, PLC cabinet, and thermostat.

10. High-Voltage Wire Trough

The bottom wiring trough houses the high-voltage wire runs for power to the fast-charging dispenser.

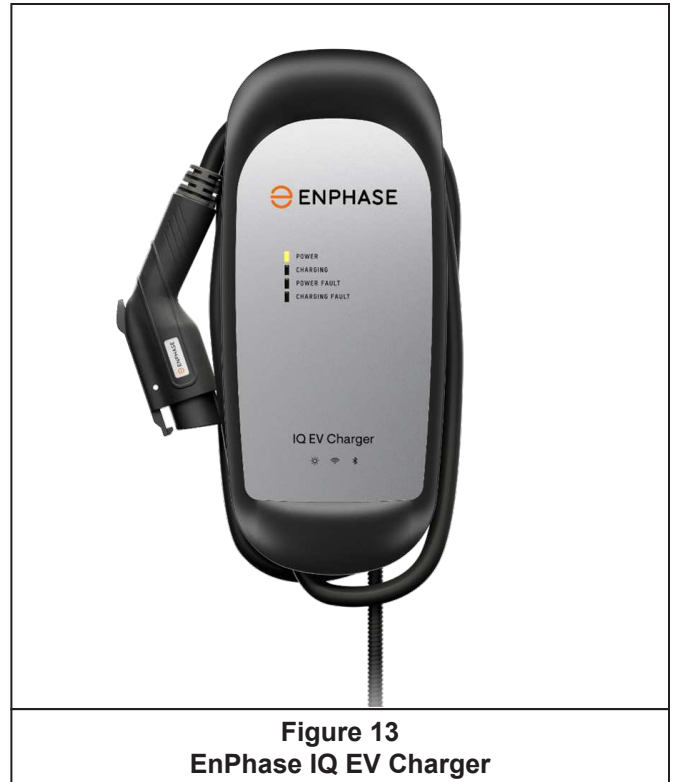


Figure 13
EnPhase IQ EV Charger

11. EnPhase IQ EV Charger

The EnPhase™ fIQ 50 EV Charger is a smart and reliable Level 2 charging station, providing energy management and custom scheduling using the Enphase App. An all-weather NEMA 4-rated enclosure allows for indoor or outdoor use, and the 25 ft charging cable provides flexible reach.

Refer to the manual in the “Vendor Literature” included with your Volt Vault Owner’s Manual for more detailed information regarding the inverter.

Scan this QR code to be directed to the EnPhase IQ EV Charger Manual.



12. Folding Handrail

The Locking Lend-A-Hand commercial handrail lets you steady yourself as you go up and down steps and ramps. The folding rail secures and locks in open position, as well as when folded flat, and includes:

- Manually operated steps make it easy to get into and out of the container
- Simply pull steps out for use and position back in place for travel
- Anti-slip design offers excellent traction
- Textured surface provides traction in wet or muddy conditions
- Rubber strips help to prevent slipping
- Aluminum step platforms are rustproof
- Lightweight construction makes extending and retracting the steps virtually effortless
- Grab handle eases use and keeps hands clear of moving parts
- Powder coated steel frame and linkages are corrosion resistant

Scan QR code for folding handrail instructions.



INSTALLATION

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

1. Install ground rod per National Electrical Code Section 250.53 “Installation of Grounding Electrode Systems”:
 - Rod, pipe, and plate grounding electrodes must meet the requisites of sections 250.53 (A)(1) through (3) and be free from nonconductive coatings.
 - Bury the rod, pipe, or plate’s upper end in a soil stratum with permanent moisture, if attainable, and submerge the electrode entirely unless the soil condition averts such installation – reference Section 250.53(A)(4) for options.
 - Moisture content is a typical approach to controlling soil resistivity. The electrode’s ground resistance, up to infinity, is substantial. The requirements in this section lessen the ground resistance by reducing the soil resistivity and increasing the electrode’s surface contacting the earth.
2. Complete fuel source hook-up (See page 23).
3. Check for gas leaks at all connection points.
4. Check gauges and meters to ensure fuel is flowing properly.

FUEL SOURCE VOLT VAULT MODEL LEVEL 2, DUAL FUEL, VERSION 1

Switching Between Fuel Supply Sources

NOTE: Generator must be off prior to switching fuel supply sources.

- The low-pressure piping assembly is labeled as such on the 2" pipe assembly, downstream from the larger of the two circular regulators.
- The high-pressure piping assembly is labeled as such on the 2" pipe assembly, downstream from the smaller of the two circular regulators.
- Each piping assembly has a 2" ball valve in line to the generator fuel inlet.
- Close the 2" ball valve on the piping assembly that will not be used.
 - » Ball valve handle will be perpendicular to the pipe axis.
- Open the 2" ball valve on the piping assembly that will be used.
 - » Ball valve handle will be in-line with the pipe axis.



Figure 14
Fuel Source Supply Valves

Fuel Hose Connection

NOTE: Wait until no natural gas is detected via device or odor prior to starting the generator.

NOTE: When using high-pressure fuel connection (3,600 PSI is the max at 60°F):

The ball valve downstream of the low-pressure regulator (larger regulator body) shall be closed for the following operations:

- Open the 3/4" ball valves at the generator coolant supply and return ports (follow the blue coolant hoses back to the generator).
- Open the 3/4" ball valves on the blue coolant supply and return hoses at the FMM.



Figure 15
FMM Coolant Valves

- Open the 2" ball valve on the high-pressure piping system to allow gas to travel to the generator fuel inlet.
- Connect high-pressure supply hose assembly to Volt Vault at the #8 (1/2") male JIC fuel port on the exterior of the unit. No pipe thread sealant is required for this connection.



Figure 16
Fuel Management Model Defuel Valve

- With both doors open to the generator compartment, turn the defuel valve on the Fuel Management Module (FMM) to “VENT”.
- Slowly open and then close the fuel supply valve to allow natural gas to purge air from the supply line.
- Using a natural gas detector, monitor the vent area for natural gas.
- Using soapy water spray, check all hose/pipe fitting connections for leaks. Tighten any fit-

tings where bubbles arise and eliminate all leak points.

NOTE: JIC flex-hose connections shall not have thread sealant applied.

- Cycle the FMM defuel valve back and forth between “ON” and “VENT” until natural gas is detected at the FMM.
- Once natural gas is detected, turn the defuel valve from “VENT” to “OFF”.
- Adjust the second stage regulator output pressure as required to achieve 10-11 in-WC of outlet pressure.

NOTE: See “Regulator Setpoint Instructions” on page 26.

- Remove the plug and slightly loosen the 3/4" valve connection at the bottom of the regulator tree to allow the gas to purge the low-pressure plumbing to that point.
- Once natural gas is detected, close the 3/4" valve and secure the pipe plug connection.
- Proceed to Volt Vault startup instructions.

When Using Low-Pressure “Utility Pipeline” Fuel Connection (2-5 PSI Pipeline Pressure)

NOTE: The ball valve downstream of the second stage regulator on the high-pressure piping system shall be closed for all operations in this section below.

- Confirm all (4) $\frac{3}{4}$ ” ball valves are closed on the coolant lines running between the generator and the FMM on the high-pressure fuel system.
- Connect utility fuel supply hose assembly to Volt Vault at the #24 (1-1/2”) MJIC fuel port per US-Energy dwg VV1184. No pipe thread sealant is required for this connection.
- Using an adapter fitting, connect the 1-1/2” utility fuel supply hose to the low-pressure utility gas supply stub.
 - » This will likely be an NPT threaded connection. The fuel supply pipe-to-adapter connection, when NPT threads are present, shall have natural gas approved pipe thread sealant applied per manufacturer instructions.
 - » Various size NPT to JIC adapters are included with Volt Vault.
- Confirm both man doors are still open to the generator room.
- Open the fuel supply valve to allow natural gas to enter the system.
- Using soapy water spray, check all hose/pipe fitting connections for leaks. Tighten any fittings where bubbles arise and eliminate all leak points.

NOTE: JIC flex-hose connections shall not have thread sealant applied.

- Adjust low-pressure regulator as required to achieve 10-11 in-WC of outlet pressure.

NOTE: See “Regulator Setpoint Instructions” on page 26.

- Remove the plug and slightly loosen the $\frac{3}{4}$ ” valve connection at the bottom of the regulator tree to allow the gas to purge the low-pressure plumbing to that point.
- Using a natural gas detector, monitor the vent area for natural gas.
- Once natural gas is detected, close the $\frac{3}{4}$ ” valve and secure the pipe plug connection.
- Proceed to Volt Vault startup instructions.

REGULATOR SETPOINT INSTRUCTIONS

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

- Confirm no leaks in the hose or piping assembly.
- With the fuel supply valve fully open, observe the static outlet pressure on the regulator using the pressure gauge downstream.
- If the outlet pressure is outside the range of 10-11 in-WC:
 - » Use adjustable jaw pliers to unscrew the cap on the stem of the regulator body.



Figure 17
Low-Pressure Regulator Cap to be Removed

- » Use a socket & ratchet to turn the spring plate for low-pressure regulator and a slotted head screwdriver for high-pressure regulator adjustment, if needed.
- » Watch the dial indicator on the pressure gauge and adjust the spring plate until the pressure gauge reads 10-11 in-WC.



Figure 18
High-Pressure Regulator Cap to be Removed

- Once the target static outlet pressure is reached, gas is not detected in the generator room, and all other preliminary tasks to generator startup are complete, start the generator.
- The generator may take 1-2 minutes to fire while the remaining piping is purged of air and replaced with natural gas. This is normal during initial startup.
- Once the generator is running, confirm that the outlet pressure of the regulator is still 10-11 in-WC.
- Adjust the spring plate as necessary to achieve 10-11 in-WC while the generator is running.
- Replace the cap on the regulator stems.
- The regulator outlet pressure is now properly set.

COLD START-UP AND CHARGING VOLT VAULT MODEL LEVEL 2, DUAL FUEL, VERSION 1

Exterior Miscellaneous

1. Install fire extinguisher bracket plate and fire extinguisher using the 7/32" allen wrench found in the provided disaster relief storage kit.
2. Install Volt Vault fuel hose at container interface (high-pressure shown below).
3. With one wrench on the bulkhead nut, use another wrench to tighten the nut on the hose and container adapter and place the respective cap in disaster relief box. Reference fuel hose hookup procedure and fuel source swap procedures.
4. After hookup procedure is completed, verify respective fuel source supply valve in the generator room is opened. The valve on the right is shown closed below; the valve on the left is shown in the open configuration.



Figure 19
Fuel Source Bulkhead Inlet Fittings

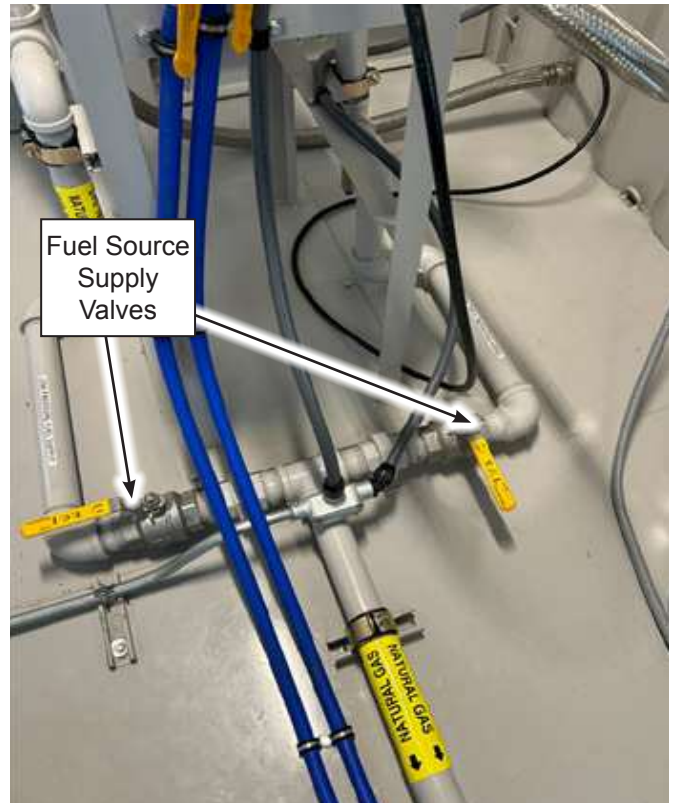


Figure 20
Fuel Source Supply Valves

Exterior Grounding

1. Install exterior grounding cable from Volt Vault exterior grounding block shown below, which is located right next to the crank for the trailer landing gear, using the 5/16" allen wrench provided in the disaster relief area. Verify system is grounded in accordance with NEC and NFPA 70.



Figure 21
Exterior Grounding Block

Electrical Room Component Start Up Instructions

1. Open the hotel power EG4 battery rack doors, and prepare to turn batteries on. This is to be done sequentially, starting with battery 12, and reverse order back to #1 (or vice versa). [Right battery rack is battery numbers 1-6, top to bottom. Left rack is numbers 7-12].

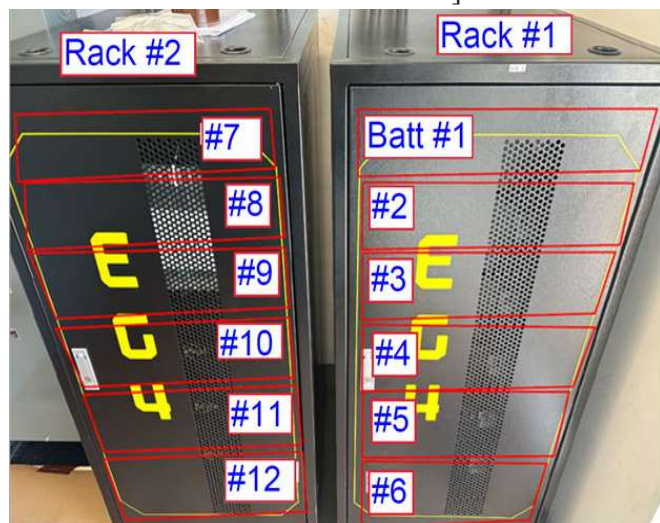


Figure 22
Battery Rack

2. Turn on computers on each battery (power on / off button) again starting at battery 12 and working back to 1 sequentially, or vice versa. Verify screens power up and status lights' steady state is green.



Figure 23
Hotel Power Battery Racks

3. Next prepare to close (turn on) main breakers on batteries. Again, do this sequentially, starting with battery 12, and reverse order back to #1 (or vice versa).



Battery buss bars and posts where wires are connected will be energized after this step. Do not touch any cables or terminations. Simply flip blue main breakers to the ON position.



4. Close (turn on) the main load center circuit breaker at the bottom of the load center inside cover.



Figure 24
Main Battery Disconnects



Figure 25
Main Load Center Circuit Breaker

5. Turn inverter power button on (left side of inverter, letter H below).

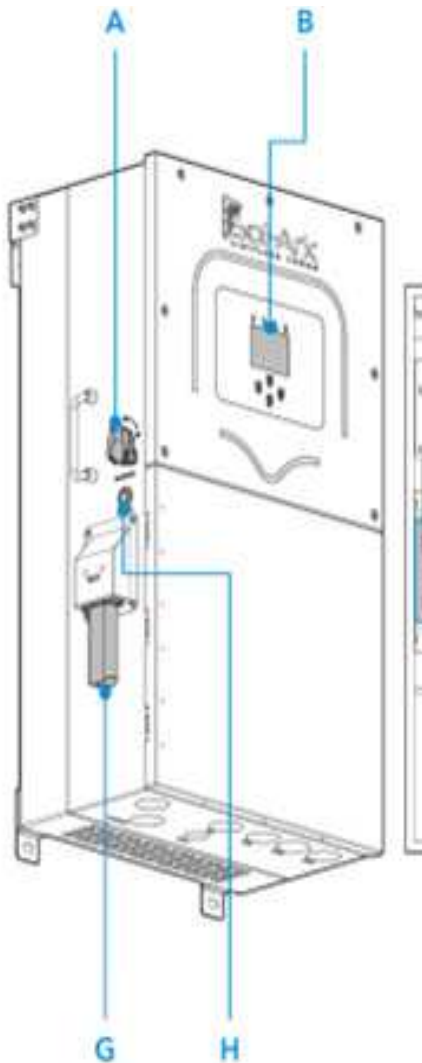


Figure 26
Inverter

6. Verify inverter DC solar switch is off (also left side of inverter, letter A in the above).

7. Open the lower door panel of the SolArk inverter using three latches on right side of inverter. Caution, at this time, battery rack cables are capable of sending electricity to the inverter.



Figure 27
Inverter Lower Door Panel

8. Close both battery bank main breakers inside inverter simultaneously. Verify that after a short delay, the inverter touch screen indicates the battery rack voltage/state of charge.

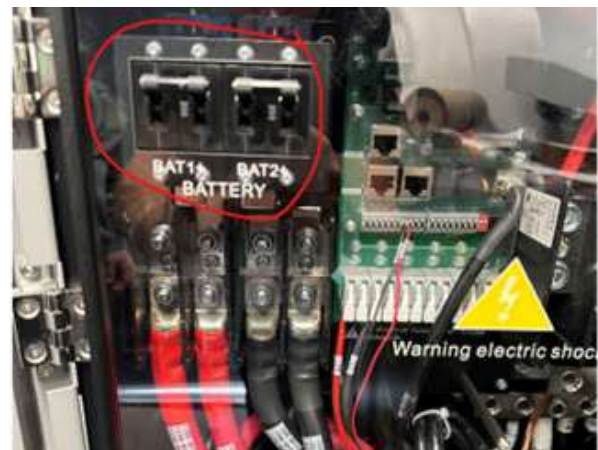


Figure 28
Battery Bank Breaker Inside of Inverter

9. Close (turn on) the inverter load breaker inside inverter.



Figure 29
Outgoing Load Breaker Inside of the Inverter

10. Close grey inverter cover, and latch it three times on right side.
11. After a short delay, the electrical room should be energized from the EG4 batteries, and the light switch, HVAC, ATS, PLC, etc. should be powered on. Wait for at least one minute after confirmation of electrical room power before completing the next step.

On the generator itself, on the left side of the engine when standing at the generator controller (rear) and looking at the radiator:

12. Turn red battery disconnect dial to ON position.

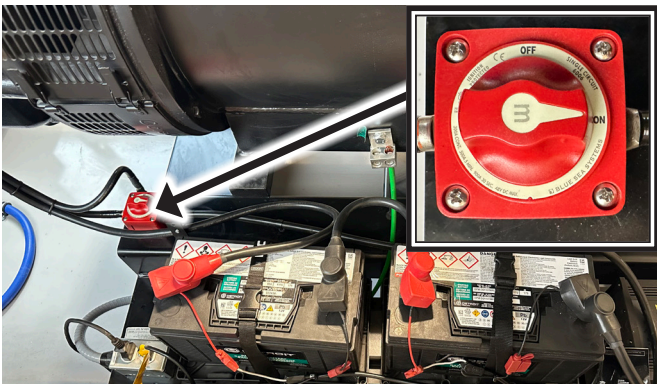


Figure 30
Battery Disconnect Switch

13. When the generator room is clear of personnel, all preceeding steps have been completed in this start up section, and surrounding site is clear from hazards, prepare to ready the controller for the generator into auto mode:
14. Press the red “STOP” button to put the generator in stop mode.



Figure 31
Generator Controls

15. Verify no errors are present at the controller status screen.
16. Press the “AUTO MODE” button to place the generator in auto mode, so it can respond to the PLC signal.

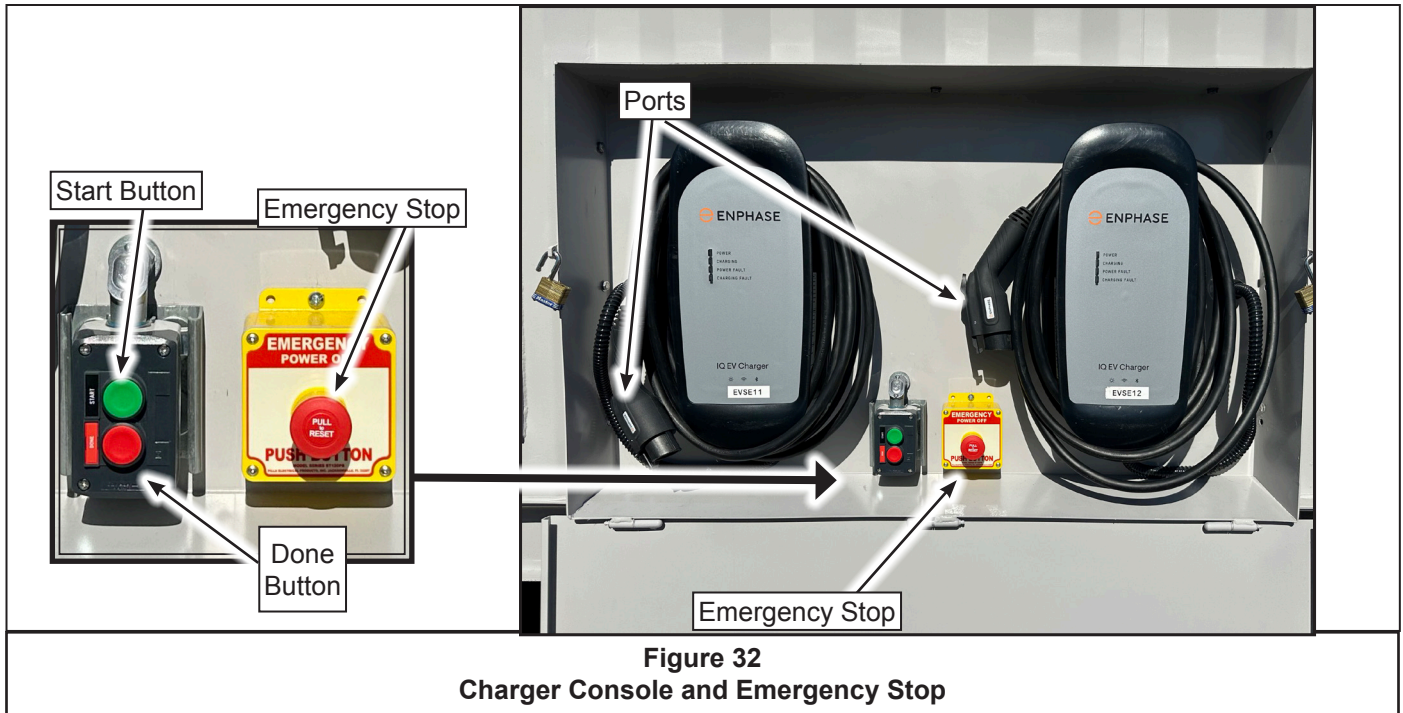


Figure 32
Charger Console and Emergency Stop

Starting the Generator When Ready to Charge

1. Press the “START” button on the control console.
2. Allow the generator two minutes to start and the EV charger power status lights to glow amber.
3. Plug in the charging port to the EV securely.
4. EV charger charging status light will glow green and indicate a good connection and charging status. This indicates a charging session has started.

NOTE: The speed of charge is primarily set by: EV’s battery architecture (higher voltage = faster charge), EV’s battery “State of Charge” (how full the battery is), EV charging dispenser total kW rating as well as cable amperage rating, and environmental factors.

5. Once desired charging level is achieved, stop the charging session by unplugging the charging connector from the EV and replace in the exterior charger mounting boxes.
6. If done with Volt Vault system,
 - a) Press “DONE” button on the console and the full Volt Vault system will shut down automatically.
 - b) If another EV is currently charging or needs to charge, no further action is needed. Vacate the space in front of Volt Vault so another EV can use it.

EMERGENCY RESPONSE KIT

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

How to Use the Emergency Response Kit

Volt Vault's emergency response kit includes the following PPE items for customer safety during setup and operation. This list is not a complete representation of what may be needed at any specific site; the customer is encouraged to fill out the emergency response room on Volt Vault as their needs require. Extra space for storage can be found in both the large tote as well as the tool chest. The customer may add any mounting brackets/hardware they deem necessary but shall not penetrate the electrical room bulkhead.

- (2) Wheel chocks – 6" w x 5-3/4" t, 30,000# max weight each pair
- (1) Plastic tool chest – 37" w x 14" t x 17-1/2" d
 - » For first aid, PPE, and tool storage
- (1) Collapsible tote – 48" L x 45" w x 34" t
 - » For fuel hose, fittings, and adapter storage
- (24) Traffic cones – 15-1/4" x 15-1/4" x 28" T with reflective bands
 - » For setting a protective perimeter around Volt Vault and the fuel hose assembly
- (4) Ø1-1/2" Low-pressure natural gas hose x 50' – FJIC swivels both ends
 - » For fuel delivery from utility gas pipe stub
- (4) Steel hose fitting - nipple – 1-1/2" MJIC x 1-1/2" MJIC
 - » For connecting 50' hose sections
- (4) Various NPT to JIC reducing adapters
 - » For adapting to utility pipe stub
- (200 FT) #2 THHN wire – green
 - » Grounding cable
- (1) Collapsible ladder
 - » For entering and exiting the emergency response kit room
- (4) Leather glove pair – large
- (10) Nitrile coated glove pair - large
- (2) Adjustable wrenches
 - » For making hose/adapter connections
- (1) Natural gas pipe dope – 3,000 PSI max - paste with brush
 - » For NPT fuel connections
- (1) Portable electronic natural gas detector
 - » For use when purging fuel system of air
- (1) Micro-bubble solution
 - » For soapy-water test for leaks in hose/piping assembly
- (2) Headlamps – hardhat compatible – 600 lumens
- (1) Splitting axe – 36" handle x 6.3lbs
 - » For clearing debris, can be used as a dead-blow
- (1) First aid kit

Upon Arrival at the Volt Vault Deployment Site:

- With the semi still attached to the trailer:
 - » Open rear container doors to expose the emergency response kit.
 - » Locate the orange wheel chocks in either the hose storage tote or the toolbox.
 - » Chock trailer wheels using all the provided wheel chocks.
- Level trailer using the integrated jacks.

- If semi tractor is not staying with the trailered Volt Vault unit, the semi may detach from the trailer at this point.
- Remove the ladder from its wall mount to make access to the emergency response kit safer and easier.
- Verify there is a customer installed ground rod, or common earth grounding location, established within 200ft of Volt Vault and in accordance with NEC.
- Connect the supplied #2 green grounding wire from Volt Vault to the grounding rod.
- Confirm that the decanting post/assembly (if supplied for high-pressure fuel delivery) is grounded and the connections are secure.

When Using Low-Pressure Utility Fuel Supply:

- Located in the collapsible 45" x 48" plastic tote, there are (4) 50' hose sections (200 total assembled length) to deliver fuel from a utility pipeline connection to the Volt Vault unit at the required pressure.
- Remove the necessary number of hose sections and corresponding adapter fittings to sufficiently bridge the span between the utility supply stub and the Volt Vault fuel inlet port.
- Use the (2) adjustable wrenches in the plastic tool chest to assemble the hose sections/fittings/adapters.
- With the valve closed on the utility gas supply stub, assemble the hoses and connect to the 1-1/2" MJIC inlet port on the Volt Vault.
- Remove the safety cones from the response kit and line any exposed sides of the Volt Vault, as well as the hose assembly, with the cones to prevent accidents or damage to the system.
- Follow the steps for low-pressure fuel connection.

When Using a Mobile Pipeline (High-Pressure) Fuel Supply:

- Confirm that decanting assembly from mobile pipeline has a vent feature to depressurize the hoses prior to disassembly.
- Install the fuel supply hose to the #8 (1/2") MJIC fitting on Volt Vault.
- Remove the safety cones from the response kit and line any exposed sides of the Volt Vault, as well as the hose assembly, with the cones to prevent accidents or damage to the system.
- Follow instructions for the high-pressure fuel connection.

DISASSEMBLY/PACKAGING FOR FRIEGHT INSTRUCTIONS

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

On the generator itself, on the left side of the engine when standing at the generator controller (rear) and looking at the radiator:

1. Turn red battery disconnect dial to OFF position. This means that the generator can no longer turn on.

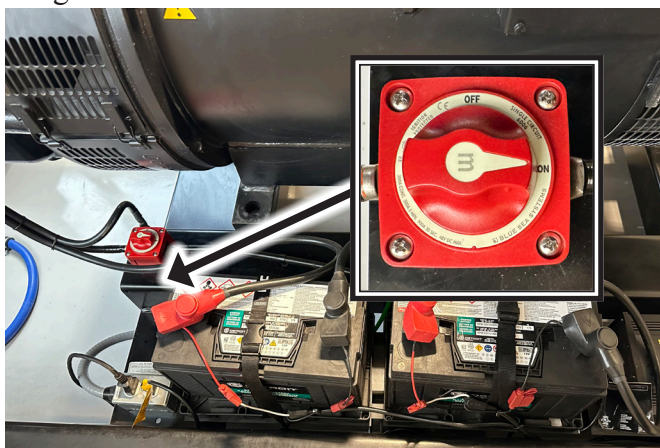


Figure 33
Battery Disconnect Dial

Electrical Room Component Shut Down Instructions

NOTE: This kills power to the electrical room including the light, so have something prepared to prop the door open for natural light.

1. Open (turn off) the main load center circuit breaker at the bottom of the load center inside cover. (Figure 34)

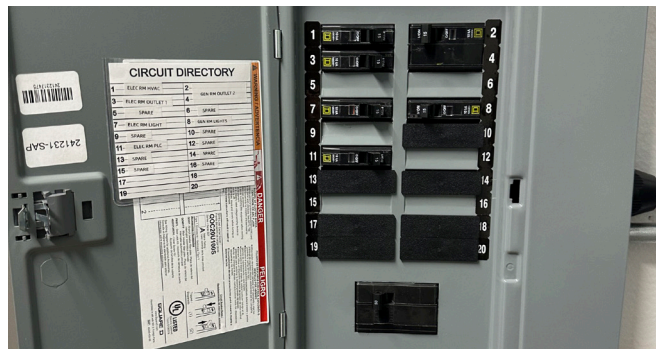


Figure 34
Main Load Center Circuit Breaker

2. Open the lower door panel of the SolArk inverter using three latches on right side of inverter. Caution, at this time, battery racks are still sending electricity to the inverter.



Figure 35
SolArk Inverter

3. Open both battery bank main breakers inside inverter simultaneously. Verify that the inverter touch screen no longer senses the battery rack voltage.

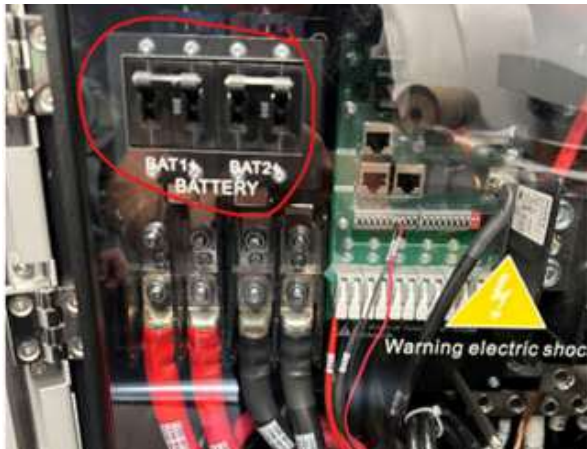


Figure 36
Battery Bank Breaker Inside of Inverter

4. Open (turn off) the inverter load breaker inside inverter.



Figure 37
Outgoing Load Breaker Inside of the Inverter

5. Close lower grey inverter cover and latch it three times on right side.
6. Turn inverter power button off (left side of inverter, letter H in the figure to the right).

7. Verify inverter DC solar switch is off (also left side of inverter, letter A in the figure below).

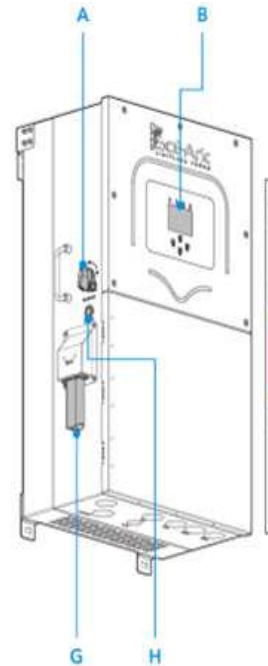


Figure 38
Inverter Diagram

8. Open the hotel power EG4 battery rack doors, and prepare to open main breakers on batteries. Do this sequentially, starting with battery 12, and reverse order back to #1 (or vice versa). [Right battery rack is battery numbers 1-6, top to bottom. Left rack is numbers 7-12].

**CAUTION**

Battery bus bars and posts where wires are connected are still 'hot' and electrified. Do not touch any cables or terminations. Simply flip blue main breakers to the OFF position.



Figure 39
EG4 Battery Rack



NOTE: Figure 40 shows the main battery disconnects that flip to the OFF position.

9. Shut off computers on each battery (power on /off button) again starting at battery 12 and working back to 1 sequentially. Verify screens power down / off (Figure 40).



Figure 40
Main Battery Disconnects

Exterior Grounding

1. Remove exterior grounding cable from Volt Vault's exterior grounding block shown below, which is located right next to the crank for the trailer landing gear, using 5/16" allen wrench provided in disaster relief storage area.



Figure 41
Exterior Grounding Block

2. Verify both fuel source supply valves in the generator room (identified below) are closed. The valve on the right is shown closed below; the valve on the left is shown in an open configuration.
3. Vent any remaining natural gas in the supply line via loosening an exterior fitting connection.

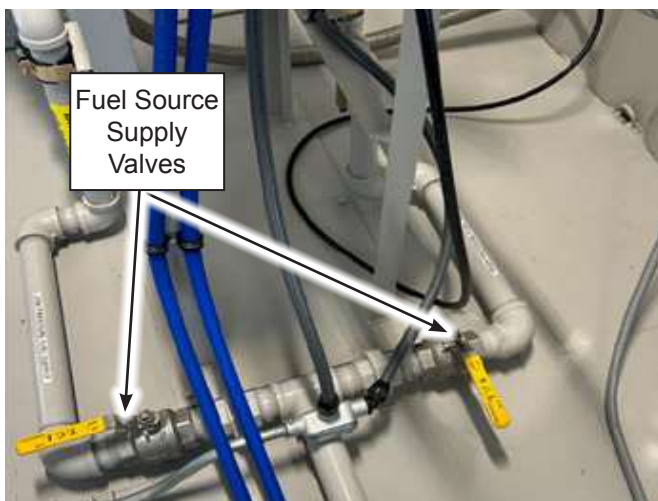


Figure 42
Fuel Source Supply Valves

To Remove Volt Vault Fuel Hose at Container Interface

1. With one wrench on the bulkhead nut, use another wrench to loosen the nut on the hose and replace container adapter with stainless steel cap that is in disaster relief box.



Figure 43
Fuel Connection

Exterior Miscellaneous

1. Remove fire extinguisher using the 7/32" allen wrench in the disaster kit storage room and then remove the four socket head screws that mount the plate to the container.

Removal of Volt Vault Container Unit From Chassis Trailer

1. Remove green (internal) grounding cable from Volt Vault exterior grounding block (shown below) using the 5/16" allen wrench provided in the disaster relief storage area, which is located right next to the crank for the trailer landing gear, using allen wrench. This green internal grounding cable runs up through the floor into the generator compartment and grounds the entire Volt Vault system. The cable will need to be pulled back into generator compartment prior to unit getting removed from trailer.
3. There are four pins that lock the Volt Vault container to the chassis trailer. The two on the front of the unit are locked in position with a key found in the electrical room.
4. The two pins on the rear of the unit are locked in position with a stainless braided cable and crimp. This stainless cable will need to be cut.



Figure 44
Exterior Grounding Block

2. Unbolt the three external stair assemblies and mounting brackets from the plates that are welded to the container (if the container is getting set flat on the ground and not on piers or pilings). Similar note for the folding handrail. Unbolt these from the container if the unit is not getting relocated to piers or pilings and will sit flat on adjacent ground.



MAINTENANCE

NOTE

Illustrations are intended to be representative images and may not exactly match your machine. Some equipment and features not on your particular model can be purchased separately.



PREVENTIVE MAINTENANCE

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

NOTE: Many components that are part of the Volt Vault system are purchased from manufacturers and incorporated into the system. Materials found in the “Vendor Literature” section of the Volt Vault Owner’s Manual should be consulted for preventive maintenance of these components.

Preventive maintenance can help prevent costly downtime. A preventive maintenance schedule follows on the remaining pages of this instruction manual. Some items make an assumption that the system has cellular or internet connection to allow remote diagnostics.

There are some important requirements for preventive maintenance:

- The mechanic must be skilled in all aspects of system maintenance.
- All fluids drained from the equipment must be drained into approved containers and must be disposed of properly.



CAUTION

When performing maintenance, personal protective equipment (PPE) must be used as specified by your company’s policies/procedures.

**WARNING**

System maintenance presents various hazards and potential hazards. The lockout/tagout procedure must be followed prior to performing maintenance on any part of the system.

Volt Vault Preventive Maintenance (PM) Schedule

NOTE: Unless otherwise noted, see manuals and/or other documentation in the Volt Vault Owner's Manual for PM information/instructions. Click the appropriate item on the Owner's Manual HOME PAGE list or open the VENDOR LITERATURE & QA DOCUMENTATION folder.

Major Component	Item To Be Checked
Daily Checks	
System	Check hoses for wear/damage
	Check for leaks, unusual sounds, etc.
Monthly Checks	
System	All daily maintenance
	Check piping and clamps for looseness
	Check skid mounting bolts
	Check and clean radiator exterior surface for dirt or debris
	Perform soapy water leak test on all natural gas connection points
8,000/16,000 Hour Checks	
System	All daily maintenance
	Check piping and clamps for looseness
	Check skid mounting bolts
	Check and clean radiator exterior surface for dirt or debris

PRIME POWER AND CONTINUOUS DUTY ENGINE MAINTENANCE GUIDELINES							
The actual operating hours should be established through careful and consistent servicing and analysis of engine performance and oil quality.							
	Interval Hours						
	Daily	First 50*	250 hr oil and filter change	750 hr. Service "A"	8000 hr. Annual Service	24000 hr. Service "B"	48000 hr. Service "C"
General Maintenance Section							
Visual check for fluid leaks (or monitoring)	X	X	X	X	X	X	X
Check engine oil level (or monitoring)	X	X	X	X	X	X	X
Check coolant level (or monitoring)	X	X		X	X	X	X
General Maintenance Section							
Sample engine oil as needed		X	X	X	X	X	X
Change engine oil and filter**		X	X	X	X	X	X
Inspect/replace crankcase ventilation filters		X		X	X	X	X
Inspect drive belts for tension, cracks, splits, or glazing		X		X	X	X	X
Inspect electrical system and harnesses for cuts, abrasions or wear		X		X	X	X	X
Inspect all vacuum lines and fittings for cracks, breaks or hardening		X		X	X	X	X
Check and adjust intake and exhaust valve clearance		X		X	X	X	X
Grease fan tensioner pulley		X		X	X	X	X
Engine Coolant Section							
Clean debris from radiator core		X		X	X	X	X
Drain flush and replace engine coolant					X	X	X
Replace coolant pump						X	X
Replace thermostat assembly, gaskets and O-rings						X	X
Inspect coolant hoses for cracks, swelling or deterioration		X		X	X	X	X
Engine Ignition System							
Inspect ignition coils and harness				X	X	X	X
Replace spark plugs				X	X	X	X
Replace ignition coils					X	X	X
Fuel System Maintenance							
Inspect/replace air cleaner filter element as needed		X		X	X	X	X
Inspect Shut-off Valve for leaks and closing		X		X	X	X	X
Inspect gas piping and hoses for leaks or damage		X		X	X	X	X
Check air induction for leaks		X		X	X	X	X
Check manifold for vacuum leaks		X		X	X	X	X
Replace mixer						X	X
Replace throttle body						X	X
Replace EPR						X	X
Drain LPL vaporizer oil build up		X		X	X	X	X
Engine Exhaust System							
Inspect exhaust manifold for leaks		X		X	X	X	X
Inspect exhaust piping for leaks		X		X	X	X	X
Inspect HEGO sensors and harness for damage/performance		X		X	X	X	X
Inspect catalyst for mechanical damage and performance		X		X	X	X	X
Engine Overhaul							
Service B							
Replace cylinder heads						X	X
Inspect rocker arms, replace as needed						X	X
Replace turbocharger assembly						X	X
Service C							
Replace piston assemblies and bearings							X
Replace crankshaft assembly, bearings and seals							X
Replace camshaft, bearings, seals and timing gears							X
Replace exhaust manifold assembly and gaskets							X
Replace front accessory drive pulleys, idlers and seals							X
* First 50 hours only							
**ACTUAL OIL LIFE AND CHANGE INTERVAL IS DETERMINED THROUGH ENGINE OIL SAMPLING AND ANALYSIS							

STORAGE

VOLT VAULT

MODEL LEVEL 2, DUAL FUEL, VERSION 1

One to Six Months

If the engine or machine is to be placed in storage for a period of one to six months, it is recommended that the following steps be followed:

- Protect the air cleaner inlet from water entry
- Protect the exhaust outlet or muffler outlet from water entry
- Check the coolant protection and top off radiator
- Store indoors, if possible

For Extended Periods

Follow the above recommended procedures, plus do the following:

- Drain the engine crankcase and refill with recommended oil
- Change the oil filter
- Disconnect and remove the battery
- Clean exterior surface of the engine
- If the engine is equipped with an automotive type clutch or PTO clutch, make sure that the clutch is disengaged

Removing the Engine from Extended Storage

When removing the engine from extended storage:

- Install a fully charged battery
- Remove all protective coverings from the air inlet, air cleaner, exhaust, and muffler openings
- Check the coolant level in the radiator and verify the protection level of the coolant
- Check the engine oil level
- Start the engine and allow it to run at slow idle. Verify engine oil pressure
- Run the engine at idle until the coolant temperature approaches 120°F (49°C)
- Shut the engine down, drain the oil, change the oil filter, and re-fill with the recommended grade of oil



Page ____ of ____

Serial No.

[illegible]

TROUBLESHOOTING

NOTE

Illustrations are intended to be representative images and may not exactly match your machine. Some equipment and features not on your particular model can be purchased separately.



TROUBLESHOOTING

VOLT VAULT

MODEL - LEVEL 2, DUAL FUEL, VERSION 1

Introduction

NOTE: Many components that are part of the Volt Vault are purchased from manufacturers and incorporated into the system. Materials found in the “Vendor Literature” section of the Volt Vault Owner’s Manual should be consulted when troubleshooting these components.

Restart Sequence

1. Press the “DONE” button on the control console to power down the generator and turn off the dispenser.
2. Wait one minute and then turn the system back on using the “START” button on the control console.

Error Clearing at the Generator Control

If the Volt Vault generator stops unexpectedly, inspect the generator controller for an error message.

1. If an error is present, first silence horn alarm.
2. Next acknowledge the alarm, making note of the controller display readout. Use up and down arrows to log errors present.



Figure 45
Generator Controls

3. Once the error has been cleared and remedied, press the red “STOP” button to put the generator in stop mode.
4. Once ready for the generator to turn back on and container and surrounding area is clear, press the “AUTO MODE” button to place the generator back in auto mode, so it can respond to the PLC signal.
5. Call U.S. Energy customer support if concerning or additional help needed (262) 442-4576.
6. Note red “STOP” button kicks controller out of both manual and auto mode.

Logic Behind Automatic Start / Stop Without Start Button Press

Note: Caution, generator can start automatically at any time while in auto mode.

Above and beyond the start / stop logic of the on-demand features of the Volt Vault, the inverter within the electrical room can also control the start / stop of the generator based on the state of charge of the hotel batteries.

When the hotel power batteries reach a state of charge of 50%, the inverter sends a start request to the generator. Once online, the generator will start to charge the hotel batteries until they reach a state of charge of 95%. This duration will depend on exterior ambient temperature and the electrical load on the system at this time, mainly whether the HVAC unit is on or off and heating or cooling.

NOTE: If the hotel batteries are low by the inverter standards, pressing the “DONE” button on the charger mounting box won’t turn off the generator until the batteries are topped off.

**CAUTION**

Emergency Stop button is for emergency events only.

1. Any issues with these steps should first be addressed in the technical manual.
2. If issues persist, call U.S. Energy customer service: (262) 442-4576

Logic Behind Security Scheme

Inside the electrical room there is a three-ring magnetic binder on the face of the PLC cabinet that houses all the auxiliary keys for the unit. (All man door dead bolts are keyed alike, as are all man door lever latches and folding handrails locks).

Recommended procedure for locking unit prior to shipment:

1. Lock rear container doors for disaster relief kit, and place key on electrical room magnetic key holder.
2. Lock all eight charger mounting boxes, and place key on electrical room magnetic key holder.
3. Verify exterior non-fused disconnect box is closed and locked, and place key on electrical room magnetic key holder.
4. Close both man doors to generator compartment, locking both the dead bolt and lever latch from the outside.
5. Fold handrail over said man doors, locking the handrail into the folded position.
6. Close man doors to electrical room compartment, locking both the dead bolt and lever latch from the outside.
7. Fold handrail over said man door, locking the handrail into the folded position.
8. One copy of **each** of the three keys needs to be kept outside the electrical room based on this procedure to unlock the unit upon arrival to site:
 - a) Man door dead bolt key
 - b) Man door lever latch key
 - c) Folding handrail key

These keys are found in a key storage box nearest the chassis trailer landing gear crank.