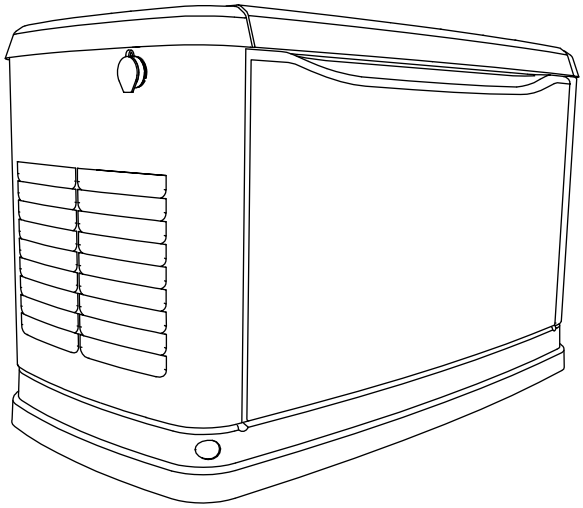
GENERAC®

Installation Guidelines

PWRgenerator™ Air-Cooled Generators

9 kW



⚠WARNING

Loss of life. This product is not intended to be used in a critical life support application. Failure to adhere to this warning could result in death or serious injury. (000209b)

Register your Generac product at:
WWW.GENERAC.COM
1-888-GENERAC
(888-436-3722)

SAVE THIS MANUAL FOR FUTURE REFERENCE

Use this page to record important information about this generator.

Model:	
Serial:	
Prod Date Week:	
Volts:	400VDC
Amps:	22.5A
Engine Speed:	2,300 rpm
Controller P/N:	

Record the information found on the unit data label on this page. For the location of the unit data label, see the owner's manual. The unit has a label plate affixed to the inside partition, to the left of the control panel console.

Always supply the complete model and serial numbers of the unit when contacting an Independent Authorized Service Dealer (IASD) about parts and service.

Operation and Maintenance: Correct maintenance and care of the generator ensures a minimum number of problems and keeps operating expenses at a minimum. It is the operator's responsibility to perform all safety inspections, to verify all maintenance for safe operation is performed promptly, and to have the equipment inspected periodically by an IASD. Normal maintenance, service, and replacement of parts are the responsibility of the owner/operator and are not considered defects in materials or workmanship within the terms of the warranty. Individual operating habits and usage may contribute to the need for additional maintenance or service.

When the generator requires servicing or repairs, Generac recommends contacting an IASD for assistance. Authorized service technicians are factory-trained and are capable of handling all service needs. To locate the nearest IASD, please visit the dealer locator at: ***www.generac.com/Dealer-Locator***.

⚠WARNING

CANCER AND REPRODUCTIVE HARM

www.P65Warnings.ca.gov.

(000393a)

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Introduction

Thank you for purchasing this PWRgenerator, a compact, high performance, air-cooled, engine-driven generator. It is designed to automatically supply direct current (DC) electrical power to the Generac PWRcell Clean Energy System for the purpose of charging storage batteries during utility outages or periods of low solar output.

This unit is factory installed in an all-weather, metal enclosure intended exclusively for outdoor installation. This generator will operate using either vapor withdrawn liquid propane (LP) or natural gas (NG).

NOTE: This unit is specifically designed as a backup power source and to communicate with the PWRcell inverter. PWRgenerator will charge PWRcell batteries when solar cells through PVLink™ and utility power are not sufficient to maintain minimum battery state of charge.

NOTE: California Residents: This unit may only be utilized as an emergency backup power source, use only when grid power is unavailable.

The information in this manual is accurate based on products produced at the time of publication. The manufacturer reserves the right to make technical updates, corrections, and product revisions at any time without notice.

Read This Manual Thoroughly

⚠WARNING

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury. (000100a)

If any section of this manual is not understood, contact the nearest Independent Authorized Service Dealer (IASD) or Generac Customer Service at 1-888-436-3722 (1-888-GENERAC), or visit ***www.generac.com*** for starting, operating, and servicing procedures. The owner is responsible for correct maintenance and safe use of the unit.

This manual must be used in conjunction with all other supporting product documentation supplied with the product.

SAVE THESE INSTRUCTIONS for future reference. This manual contains important instructions that must be followed during placement, operation, and maintenance of the unit and its components. Always supply this manual to any individual that will use this unit, and instruct them on how to correctly start, operate, and stop the unit in case of emergency.

Safety Rules

The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The alerts in this manual, and on tags and decals affixed to the unit, are not all inclusive. If using a procedure, work method, or operating technique that the manufacturer does not specifically recommend, verify that it is safe for others and does not render the equipment unsafe.

Throughout this publication, and on tags and decals affixed to the unit, DANGER, WARNING, CAUTION, and NOTE blocks are used to alert personnel to special instructions about a particular operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Alert definitions are as follows:

⚠DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

(000001)

⚠WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

(000002)

⚠CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

(000003)

NOTE: Notes contain additional information important to a procedure and will be found within the regular text of this manual.

These safety alerts cannot eliminate the hazards that they indicate. Common sense and strict compliance with the special instructions while performing the action or service are essential to preventing accidents.

How to Obtain Service

When the unit requires servicing or repairs, contact Generac Customer Service at 1-888-GENERAC (1-888-436-3722) or visit ***www.generac.com*** for assistance.

When contacting Generac Customer Service about parts and service, always supply the complete model and serial number of the unit as given on its data decal located on the unit. Record the model and serial numbers in the spaces provided on the front cover of this manual.

General Hazards

⚠DANGER

Automatic start-up. Disconnect power and render unit inoperable before working on unit. Failure to do so will result in death or serious injury.

(000750)

⚠WARNING

Electrocution. Potentially lethal voltages are generated by this equipment. Render the equipment safe before attempting repairs or maintenance. Failure to do so could result in death or serious injury.

(000187)

⚠WARNING

Loss of life. This product is not intended to be used in a critical life support application. Failure to adhere to this warning could result in death or serious injury.

(000209b)

⚠WARNING

Accidental Start-up. Disconnect the negative battery cable, then the positive battery cable when working on unit. Failure to do so could result in death or serious injury.

(000130)

⚠WARNING

Equipment damage. Only qualified service personnel may install, operate, and maintain this equipment. Failure to follow proper installation requirements could result in death, serious injury, and equipment or property damage.

(000182a)

⚠WARNING

Equipment damage. This unit is not intended for use as a prime power source. It is intended for use as an intermediate power supply in the event of temporary power outage only. Doing so could result in death, serious injury, and equipment damage.

(000247a)

⚠WARNING

Electric shock. Only a trained and licensed electrician should perform wiring and connections to unit. Failure to follow proper installation requirements could result in death, serious injury, and equipment or property damage.

(000155a)

⚠WARNING

Moving Parts. Do not wear jewelry when starting or operating this product. Wearing jewelry while starting or operating this product could result in death or serious injury.

(000115)

⚠WARNING

Moving Parts. Keep clothing, hair, and appendages away from moving parts. Failure to do so could result in death or serious injury.

(000111)

⚠WARNING

Hot Surfaces. When operating machine, do not touch hot surfaces. Keep machine away from combustibles during use. Hot surfaces could result in severe burns or fire.

(000108)

⚠WARNING

Equipment and property damage. Do not alter construction of, installation, or block ventilation for generator. Failure to do so could result in unsafe operation or damage to the generator.

(000146)

⚠WARNING

Risk of injury. Do not operate or service this machine if not fully alert. Fatigue can impair the ability to operate or service this equipment and could result in death or serious injury.

(000215a)

⚠WARNING

Environmental Hazard. Always recycle batteries at an official recycling center in accordance with all local laws and regulations. Failure to do so could result in environmental damage, death, or serious injury.

(000228)

⚠WARNING

Injury and equipment damage. Do not use generator as a step. Doing so could result in falling, damaged parts, unsafe equipment operation, and could result in death or serious injury.

(000216)

- Inspect generator regularly, and contact the nearest IASD for parts needing repair or replacement.

Exhaust Hazards

⚠DANGER

Asphyxiation. Running engines produce carbon monoxide, a colorless, odorless, poisonous gas. Carbon monoxide, if not avoided, will result in death or serious injury.

(000103)

⚠WARNING

Equipment and property damage. Do not alter construction of, installation, or block ventilation for generator. Failure to do so could result in unsafe operation or damage to the generator.

(000146)

⚠WARNING

Asphyxiation. Always use a battery operated carbon monoxide alarm indoors and installed according to the manufacturer's instructions. Failure to do so could result in death or serious injury.

(000178a)

- Generator must be installed and operated outdoors only.

Electrical Hazards

⚠DANGER

Electrocution. Contact with bare wires, terminals, and connections while generator is running will result in death or serious injury.

(000144)

⚠DANGER

Electrocution. Never connect this unit to the electrical system of any building unless a licensed electrician has installed a PWRcell inverter. Failure to do so will result in death or serious injury.

(000753)

⚠DANGER

Electrocution. Verify electrical system is properly grounded before applying power. Failure to do so will result in death or serious injury.

(000152)

⚠DANGER

Electrocution. Do not wear jewelry while working on this equipment. Doing so will result in death or serious injury.

(000188)

⚠DANGER

Electrocution. Water contact with a power source, if not avoided, will result in death or serious injury.

(000104)

⚠DANGER

Electrocution. In the event of electrical accident, immediately shut power OFF. Use non-conductive implements to free victim from live conductor. Apply first aid and get medical help. Failure to do so will result in death or serious injury.

(000145)

Fire Hazards

⚠WARNING

Fire hazard. Do not obstruct cooling and ventilating airflow around the generator. Inadequate ventilation could result in fire hazard, possible equipment damage, death or serious injury.

(000217)

⚠WARNING

Fire and explosion. Installation must comply with all local, state, and national electrical building codes. Noncompliance could result in unsafe operation, equipment damage, death, or serious injury.

(000218)

⚠WARNING

Fire hazard. Use only fully-charged fire extinguishers rated "ABC" by the NFPA. Discharged or improperly rated fire extinguishers will not extinguish electrical fires in automatic standby generators.

(000219)

⚠WARNING

Electrocution. Refer to local codes and standards for safety equipment required when working with a live electrical system. Failure to use required safety equipment could result in death or serious injury.

(000257)

⚠WARNING

Risk of Fire. Unit must be positioned in a manner that prevents combustible material accumulation underneath. Failure to do so could result in death or serious injury. (000147)

Comply with regulations the Occupational Safety and Health Administration (OSHA) has established, or with equivalent standards. Also, verify that the unit is applied, used, and maintained in accordance with the manufacturer's instructions and recommendations. Do nothing that might alter safe application/usage and render the unit in noncompliance with the aforementioned codes, standards, laws, and regulations.

Explosion Hazards

⚠DANGER

Explosion and fire. Fuel and vapors are extremely flammable and explosive. No leakage of fuel is permitted. Keep fire and spark away. Failure to do so will result in death or serious injury. (000192)

⚠DANGER

Explosion and fire. Connection of fuel source must be completed by a qualified professional technician or contractor. Incorrect installation of this unit will result in death, serious injury, and property and equipment damage. (000151a)

⚠DANGER

Risk of fire. Allow fuel spills to completely dry before starting engine. Failure to do so will result in death or serious injury. (000174)

⚠WARNING

Risk of Fire. Hot surfaces could ignite combustibles, resulting in fire. Fire could result in death or serious injury. (000110)

Battery Hazards

⚠DANGER

Electrocution. Do not wear jewelry while working on this equipment. Doing so will result in death or serious injury. (000188)

⚠WARNING

Explosion. Do not dispose of batteries in a fire. Batteries are explosive. Electrolyte solution can cause burns and blindness. If electrolyte contacts skin or eyes, flush with water and seek immediate medical attention. (000162)

⚠WARNING

Explosion. Batteries emit explosive gases while charging. Keep fire and spark away. Wear protective gear when working with batteries. Failure to do so could result in death or serious injury. (000137a)

⚠WARNING

Electrical shock. Disconnect battery ground terminal before working on battery or battery wires. Failure to do so could result in death or serious injury. (000164)

⚠WARNING

Risk of burns. Batteries contain sulfuric acid and can cause severe chemical burns. Wear protective gear when working with batteries. Failure to do so could result in death or serious injury. (000138a)

⚠WARNING

Risk of burn. Do not open or mutilate batteries. Batteries contain electrolyte solution which can cause burns and blindness. If electrolyte contacts skin or eyes, flush with water and seek immediate medical attention. (000163a)

⚠WARNING

Environmental Hazard. Always recycle batteries at an official recycling center in accordance with all local laws and regulations. Failure to do so could result in environmental damage, death, or serious injury. (000228)

Always recycle batteries in accordance with local laws and regulations. Contact your local solid waste collection site or recycling facility to obtain information on local recycling processes. For more information on battery recycling, visit the Battery Council International website at: ***http://batterycouncil.org***.

General Rules

⚠DANGER

Loss of life. Property damage. Installation must always comply with applicable codes, standards, laws and regulations. Failure to do so will result in death or serious injury. (000190)

⚠WARNING

Equipment damage. Only qualified service personnel may install, operate, and maintain this equipment. Failure to follow proper installation requirements could result in death, serious injury, and equipment or property damage. (000182a)

⚠WARNING

Electrocution. Refer to local codes and standards for safety equipment required when working with a live electrical system. Failure to use required safety equipment could result in death or serious injury. (000257)

⚠WARNING

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury. (000100a)

- Follow all safety precautions in the owner's manual, installation guidelines manual, and other documents included with the equipment.
- Never energize a new system without opening all disconnects and breakers.
- Always consult local code for additional requirements for where unit is being installed.
- Incorrect installation can result in personal injury and damage to the unit. It may also result in the warranty being suspended or voided. All instructions listed below must be followed including location clearances and pipe sizes.

Before You Begin

- Contact local inspector or city hall to be aware of all federal, state, and local codes which could impact installation. Secure all required permits before installing.
- Fully comply with all relevant NEC, NFPA, and OSHA standards, as well as all federal, state, and local building and electric codes. This unit must be installed in accordance with current NFPA 37 and NFPA 70 standards, and any other federal, state, and local codes for minimum distances from other structures.
- Verify capacity of NG meter or LP tank in regards to providing sufficient fuel for both the unit and other household and operating appliances.

Standards Index

⚠WARNING

Loss of life. This product is not intended to be used in a critical life support application. Failure to adhere to this warning could result in death or serious injury. (000209b)

Strictly comply with all applicable national, state, and local laws, as well as codes or regulations pertaining to the installation of this engine-generator power system. Use the most current version of applicable codes or standards relevant to the local jurisdiction, generator used, and installation site.

NOTE: Not all codes apply to all products and this list is not all-inclusive. In the absence of pertinent local laws and standards, the following publications may be used as a guide (these apply to localities which recognize NFPA and ICC).

1. National Fire Protection Association (NFPA) 70: The NATIONAL ELECTRIC CODE (NEC) *
2. NFPA 10: Standard for Portable Fire Extinguishers *
3. NFPA 30: Flammable and Combustible Liquids Code *
4. NFPA 37: Standard for Stationary Combustion Engines and Gas Turbines *
5. NFPA 54: National Fuel Gas Code *
6. NFPA 58: Standard for Storage and Handling Of Liquefied Petroleum Gases *
7. NFPA 68: Standard On Explosion Protection By Deflagration Venting *
8. NFPA 70E: Standard For Electrical Safety In The Workplace *
9. NFPA 110: Standard for Emergency and Standby Power Systems *
10. NFPA 211: Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances *
11. NFPA 220: Standard on Types of Building Construction *
12. NFPA 5000: Building Code *
13. International Building Code **
14. Agricultural Wiring Handbook ***
15. Article X, NATIONAL BUILDING CODE
16. ASAE EP-364.2 Installation and Maintenance of Farm Standby Electric Power ****
17. ICC:IFGC

This list is not all-inclusive. Check with the Authority Having Local Jurisdiction (AHJ) for any local codes or standards which may be applicable to your jurisdiction. The above listed standards are available from the following internet sources:

* ***www.nfpa.org***

** ***www.iccsafe.org***

*** ***www.rerc.org*** Rural Electricity Resource Council P.O. Box 309 Wilmington, OH 45177-0309

**** ***www.asabe.org*** American Society of Agricultural & Biological Engineers 2950 Niles Road, St. Joseph, MI 49085

Section 2: Unpacking and Inspection

General

NOTE: Carefully inspect contents for damage after unpacking. Unpack and inspect unit immediately upon delivery to identify any damage which may have occurred in transit. Any claims for shipping damage need to be filed as soon as possible with freight carrier. This is especially important if unit will not be installed for a period of time.

- This standby generator is ready for installation with a factory supplied and pre-mounted base pad and has a weather protective enclosure intended for outdoor installation only.
- If any loss or damage is noted at time of delivery, have delivery person(s) note all damage on the freight bill, or affix their signature under consignor's memo of loss or damage.
- If a loss or damage is noted after delivery, separate damaged materials and contact freight carrier for claim procedures.
- "Concealed damage" is understood to mean damage to contents of a package not evident at time of delivery, but discovered later.

Required Tools

- General SAE and Metric hand tools
  - Wrenches
  - Sockets
  - Screwdrivers
- Standard electrician's hand tools
  - Drill and bits for mounting and routing conduits
- 4 mm hex key (for access to customer connections)
- 3/16 in hex key (test port on fuel regulator)
- Manometer (for fuel pressure checks)
- Meter capable of measuring DC voltage
- Torque wrenches

Unpacking

Proceed as follows to unpack unit:

1. Remove outer shipping carton.
2. See ***Figure 2-1***. Remove wood frame.

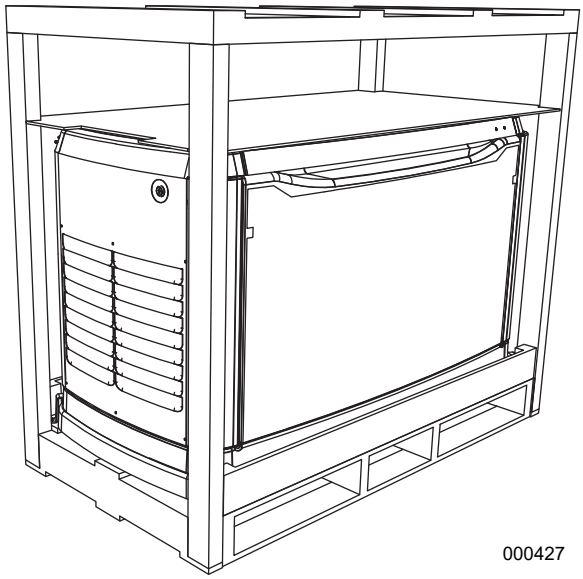


Figure 2-1. Crated Generator

3. See ***Figure 2-2***. Lid will be locked. A set of keys is attached to the cardboard sheet on top of unit. An additional set is attached to the pallet bracket on the front intake end of the generator. Remove keys from cardboard and pallet bracket.

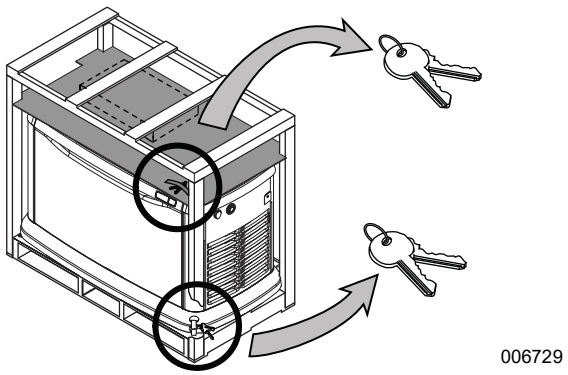


Figure 2-2. Keys As Shipped

NOTE: The enclosed keys provided with this unit are intended for service personnel only.

IMPORTANT NOTE: DO NOT perform next step until generator has been transported to installation site.

4. See ***Figure 2-3***. Remove bolts and pallet brackets (A). Exercise caution when removing generator. Dragging it off pallet will damage base. The unit must be lifted from wooden pallet to remove.

NOTE: Bolts and pallet brackets are provided only for shipping purposes and can be discarded after removal.

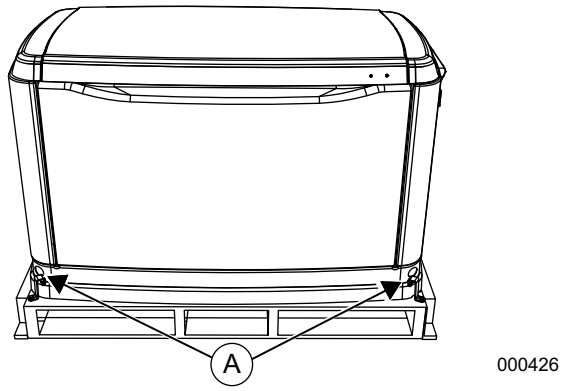


Figure 2-3. Pallet Bracket Locations

Opening the Lid

Proceed as follows to open enclosure lid:

1. Use keys to open generator lid.
2. See ***Figure 2-4***. Two locks (A) secure lid; one on each side. Press down on lid above side lock, and unlock latch to correctly open lid.

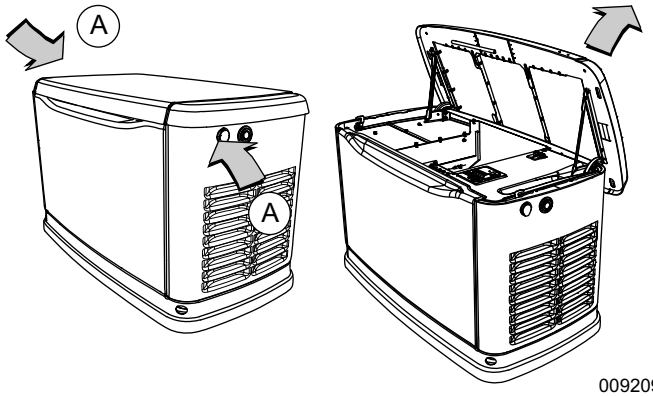


Figure 2-4. Opening the Lid

3. Repeat for other side. The lid may appear stuck if pressure is not applied from the top.

NOTE: Always verify side locks are unlocked before attempting to lift the lid.

Enclosure Panel Removal

Generator installation requires removal of front panel and intake side panel. The following procedures outline the removal process. Remove these panels when necessary.

Front Access Panel Removal

See ***Figure 2-5***. Remove front access panel (A) by lifting it straight up and out once lid is open.

Always lift front access panel straight up before pulling it away from enclosure. Do not pull panel away from enclosure before lifting up (B).

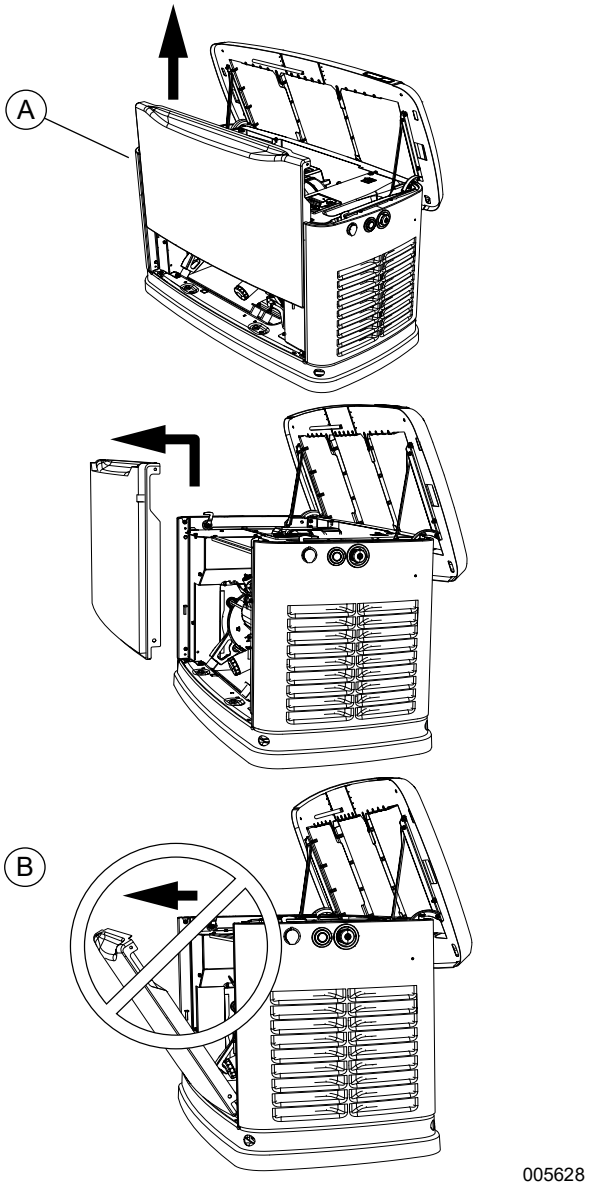


Figure 2-5. Remove Front Access Panel

Intake Side Panel Removal

See ***Figure 2-6***. Intake side panel (C) must be removed to access battery compartment, solenoid valve assembly, and sediment trap.

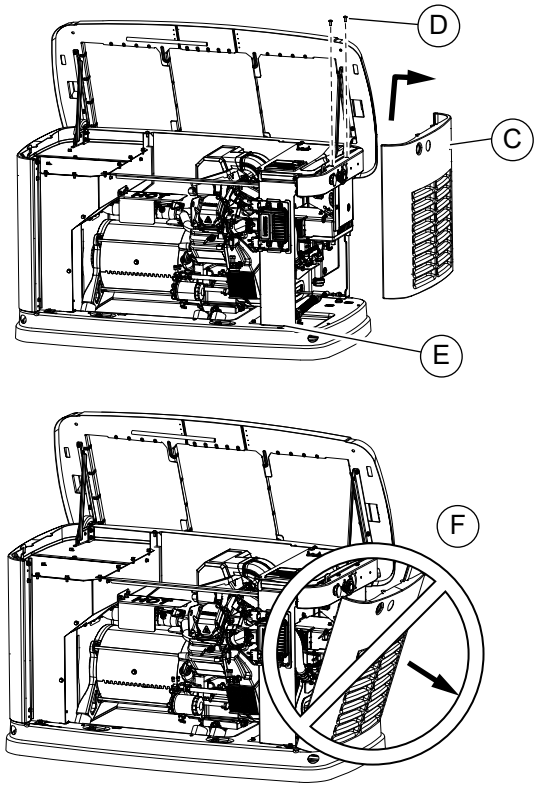


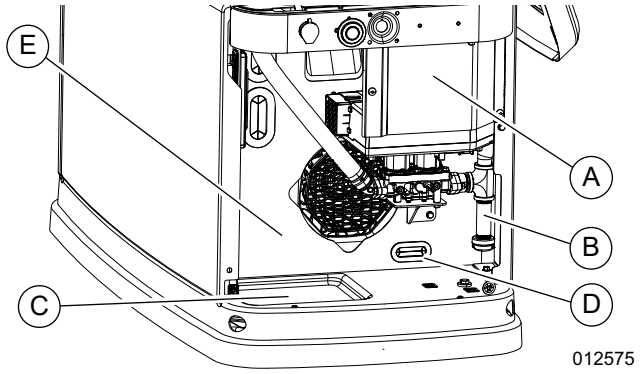
Figure 2-6. Remove Intake Side Panel

1. Raise lid and remove front panel.
2. Use 4 mm hex key to remove two mounting screws (D) and L-bracket screw (E).
3. Lift intake side panel up and away from generator.
4. Inspect for any hidden freight damage. Contact freight carrier if damage is present.

NOTE: Always lift intake side panel straight up before pulling away from enclosure. Do not pull panel away from enclosure before lifting up (F).

Customer Connections and Loose Parts

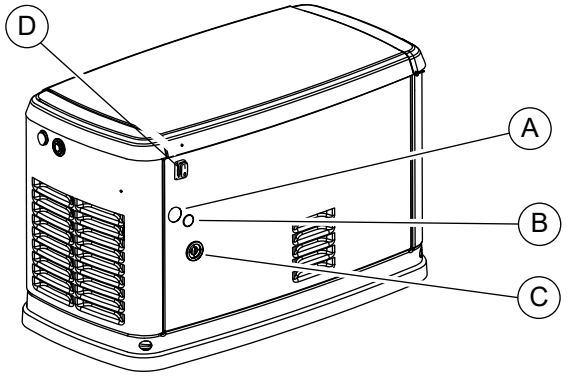
See ***Figure 2-7*** and ***Figure 2-8*** for customer connections and loose parts location. ***Figure 2-10*** illustrates parts shipped loose.



A	Customer electrical connection area (behind access panel)
B	Sediment trap
C	Battery compartment (battery not supplied)
D	Positive (+) and negative (-) battery cables
E	Location of “Loose Shipped Parts”

Figure 2-7. Customer Connection Area and Loose Parts Location

Rear Connections



A	DC REbus output conduit hole
B	120VAC input for heater conduit hole (optional accessory)
C	Fuel connection hole
D	Generator emergency shutdown switch

Figure 2-8. Rear Connections

Generator Main Line Circuit Breaker (Generator Disconnect)

See ***Figure 2-9***. The 2-pole main line circuit breaker (MLCB) (generator disconnect) (A) is rated according to relevant specifications.

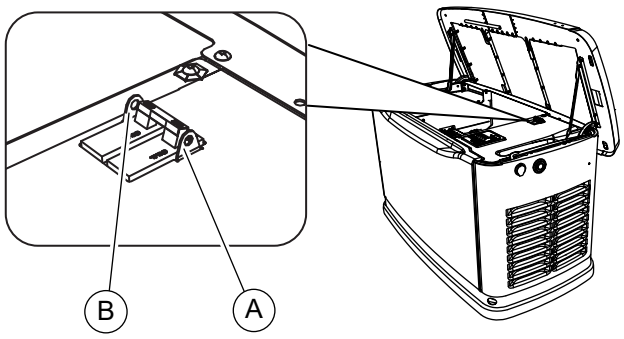
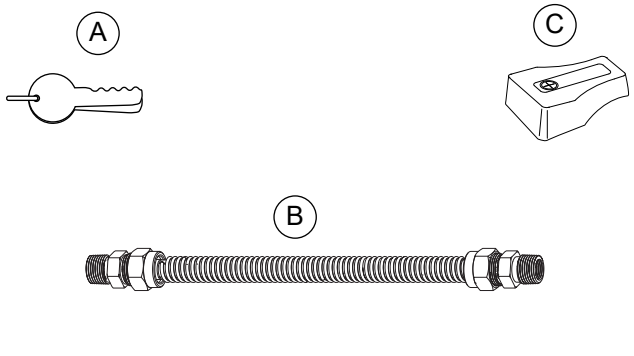


Figure 2-9. Generator Main Line Circuit Breaker (MLCB)

Generator MLCB (generator disconnect) can be locked in OFF (OPEN) position for security during maintenance. Use an appropriately-sized padlock (not included) with a shackle long enough to pass through both lock tabs (B).

NOTE: DO NOT leave generator MLCB (generator disconnect) locked in the open (OFF) position during normal generator operation. Leaving the generator MLCB (generator disconnect) in OFF (OPEN) position will prevent generator from powering structure when placed in AUTO mode.

Parts Shipped Loose



A	Keys
B	Flexible fuel line
C	Battery terminal cap
D	Decal—Service entrance warning (not shown)
E	Owner's and Installation manuals (not shown)

Figure 2-10. Parts Shipped Loose

Generator Emergency Shutdown Switch

⚠CAUTION

Equipment Damage. The emergency shutdown switch is not to be used to power down the unit under normal operating circumstances. Doing so will result in equipment damage. (000399a)

All generators are equipped with an external means of shutting down the generator which complies with the latest NEC code requirement. The primary generator shutdown sequence is described in ***Control Panel Startup / Testing***.

See ***Figure 2-11***. A generator emergency shutdown switch is provided on the exterior of the generator back panel. This switch shuts down the generator and disables restarts.

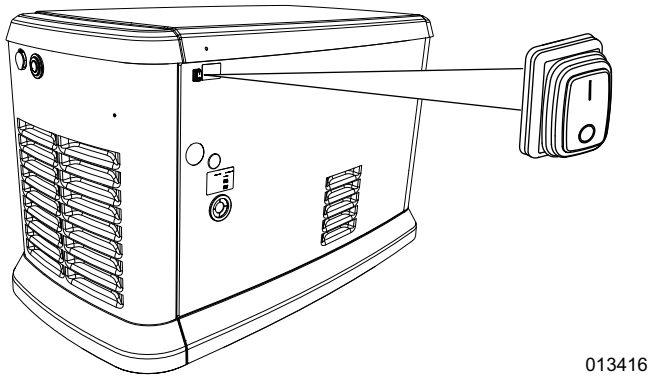


Figure 2-11. Emergency Shutdown Switch

NOTE: Whenever possible, perform primary shutdown procedure before disabling generator with emergency shutdown switch.

Generator will not start if emergency shutdown switch is OPEN (O). Controller displays an "Shutdown Switch" alarm, and red LED "Alarm" light illuminates until emergency shutdown switch is CLOSED (I) and alarm is cleared by pressing OFF mode button, and then ENTER. Once cleared, generator can be placed back in AUTO or MANUAL.

Section 3: Site Selection and Preparation

Site Selection

Site selection is critical for safe generator operation. It is important to discuss these factors with the installer when selecting a site for generator installation:

- Carbon monoxide
- Fire prevention
- Fresh air for ventilation and cooling
- Water ingress prevention
- Proximity to utilities
- Suitable mounting surface
- Readily accessible for maintenance, repair, and first responders

The following pages describe each of these factors in detail.

NOTE: The term “structure” is used throughout this section to describe the home or building where generator is being installed. Illustrations depict a typical residential home. However, instructions and recommendations presented in this section apply to all structures regardless of type.

Carbon Monoxide

⚠DANGER

Asphyxiation. Running engines produce carbon monoxide, a colorless, odorless, poisonous gas. Carbon monoxide, if not avoided, will result in death or serious injury.

(000103)

IMPORTANT NOTE: Move to fresh air immediately and seek medical attention if you feel sick, dizzy, or weak while the generator is running or after it stops.

Generator exhaust contains carbon monoxide (CO)—a poisonous, potentially lethal gas that cannot be seen or smelled. The generator must be installed in a well ventilated area away from windows, doors, and openings. The selected location should not allow exhaust gases to be drawn into structures where people or animals may be present.

Carbon Monoxide Detectors

See ***Figure 3-1***. CO detectors (K) must be installed and used to monitor for CO and to warn individuals about the presence of CO. CO detectors must be installed and tested in accordance with the CO detector manufacturer’s instructions and warnings. Contact local building inspection department for any applicable requirements concerning CO detectors. See NFPA 72, National Fire Alarm and Signaling Code, and Section R315 in the ICC International Residential Code for more information.

IMPORTANT NOTE: Common smoke alarms do NOT detect CO gas. Do not rely on smoke alarms to protect residents or animals from CO. The only way to detect CO is to have functioning CO alarms.

Potential CO Entry Points

See ***Figure 3-1***. Generator exhaust can enter a structure through large openings, such as windows and doors. However, exhaust and CO can also seep into the structure through smaller, less obvious openings.

Protect the Structure

Verify structure itself is correctly caulked and sealed to prevent air from leaking in or out. Voids, cracks, or openings around windows, doors, soffits, pipes, and vents can allow exhaust gas to be drawn into the structure.

Some examples of potential entry points are described and included in, but not limited to, the accompanying table.

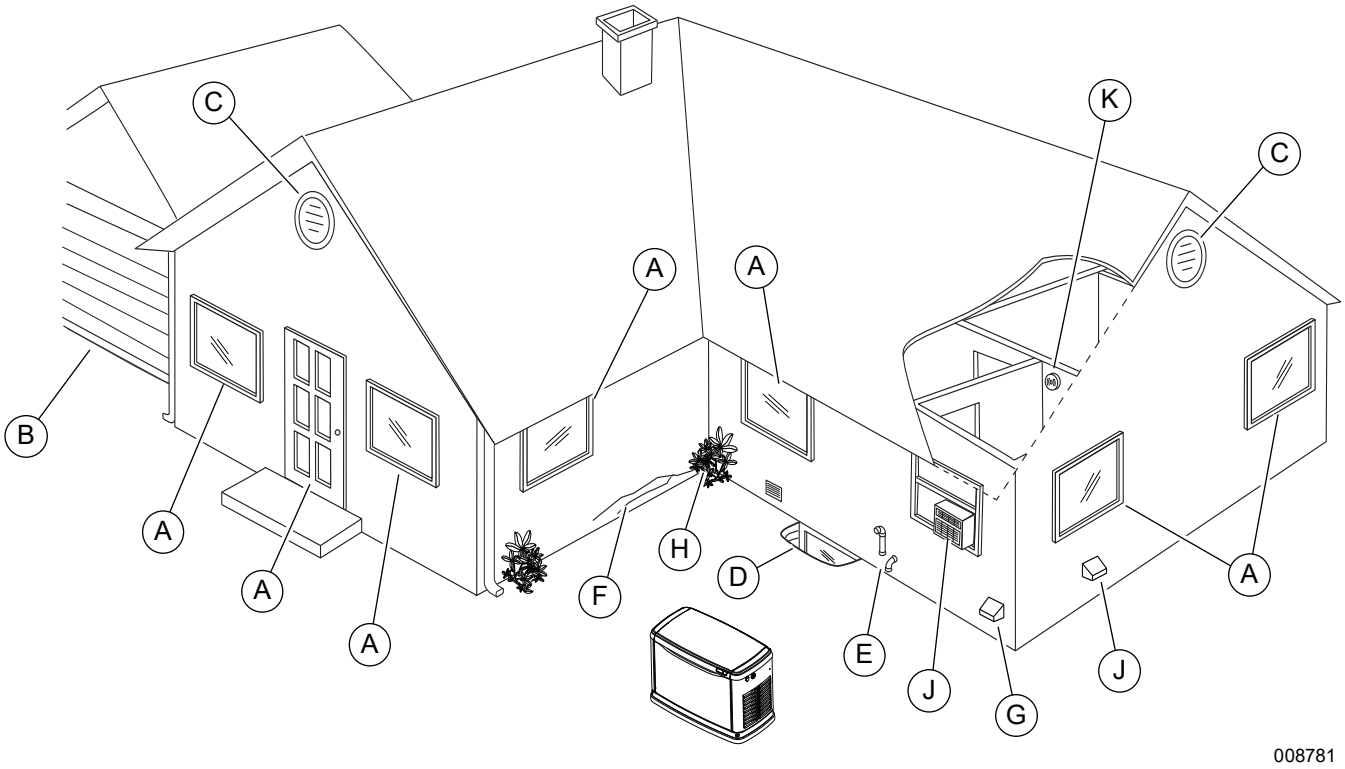


Figure 3-1. Carbon Monoxide—Potential Entry Points

ID	Entry Point	Description / Comments
A	Windows and doors	Architectural details which can be (or are) opened to admit fresh air into the structure.
B	Garage door	CO can leak into garage if door is open, or does not seal correctly when closed.
C	Attic vent	Attic vents, ridge vents, crawl space vents, and soffit vents can all admit generator exhaust.
D	Basement windows	Windows or hatches allowing ventilation to or from lower level of a structure.
E	Furnace intake / exhaust vent	Air intake and exhaust pipes for furnace.
F	Wall cracks	Includes (but not limited to) cracks in wall, foundation, mortar, or air gaps around doors, windows, and pipes. See ***Protect the Structure***.
G	Dryer vent	Exhaust duct for clothes dryer.
H	Airflow restrictions	Structural features, including but not limited to: corners, alcoves, fences, courtyards, and areas with heavy vegetation can restrict correct airflow around unit. Exhaust gases can be collected in these areas.
J	HVAC components	Do not direct generator discharge into HVAC components, including but not limited to: make up air systems, AC condensers, and window AC units. **IMPORTANT NOTE: Mechanical and gravity outdoor air intake openings for HVAC supply air systems shall be located according to Section 401 in the ICC Mechanical Code. See ICC Mechanical Code for any additional requirements.**

Fire Prevention

The generator must be installed at a safe distance away from combustible materials. Engine, alternator, and exhaust system components become very hot during operation. Fire risk increases if unit is not correctly ventilated, is not correctly maintained, operates too close to combustible materials, or if fuel leaks exist. Also, accumulations of flammable debris within or outside the generator enclosure may ignite.

Distance Requirements

See ***Figure 3-2***. Minimum clearances must be maintained around the generator enclosure. These clearances are primarily for fire prevention, but also to provide sufficient room for removing front and end panels for maintenance purposes.

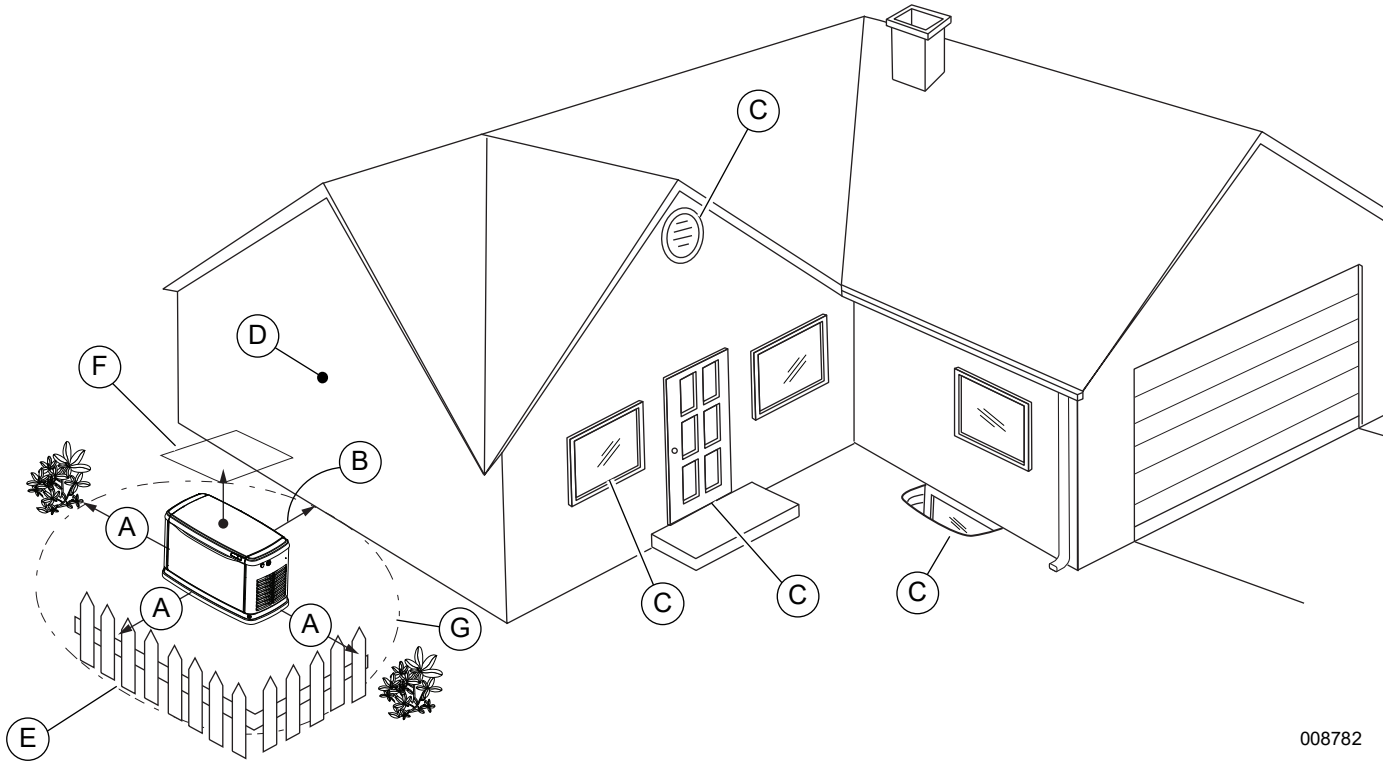


Figure 3-2. Generator Distance Requirements

ID	Description	Definition
A	Front and end clearance	Minimum clearance from the front and ends of generator must be 3 ft (0.91 m). This includes shrubs, bushes, and trees.
B	Rear clearance	Fuel and electrical connections are made here. 18 in (457 mm) minimum clearance per SwRI testing, labeling, and listing, unless state or local codes dictate otherwise.
C	Windows, vents, and openings	No operable windows, doors, vents, window wells, or openings in the wall are permitted closer to any point of the generator than what is permitted by locally adopted codes. See ***Fire Codes, Standards, and Guidelines*** for more information.
D	Existing wall	The generator should not be placed closer to existing walls than what is permitted by locally adopted codes, while abiding by the front, end, and rear clearances listed above.
E	Removable fence	A removable barrier (non-permanent; without footings) installed as a visual surround. Removable fence panels for servicing cannot be placed less than 3 ft (0.91 m) in front of the generator.
F	Overhead clearance	5 ft (1.52 m) minimum distance from any structure, overhang, or projections from wall.
G	Maintenance and servicing	Maneuvering space around generator for performing routine maintenance tasks such as battery replacement and engine service. Do not attempt to conceal generator with shrubs, bushes, or plants. See NEC Article 110.26 for more information.

Fire Codes, Standards, and Guidelines

Generator installation must comply strictly with ICC IFGC, NFPA 37, NFPA 54, NFPA 58, and NFPA 70 standards. These standards prescribe the minimum safe clearances around and above the generator enclosure.

NFPA 37

NFPA 37 is the The National Fire Protection Association's standard for the installation and use of stationary combustion engines. Its requirements limit the spacing of an engine generator to a minimum of 5 ft (1.5 m) from an opening in a structure or a structure having combustible walls, and require the engine generator to be located where it is readily accessible for maintenance, repair, and first responders. The standard contains an exception which allows an engine generator to be closer to a combustible wall when approved testing demonstrates a fire originating at the engine does not ignite the combustible structure.

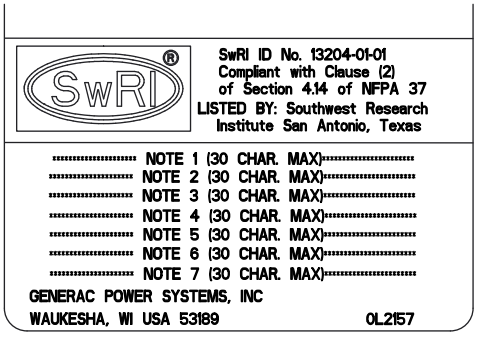


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Figure 3-3. Southwest Research Institute Marking

NOTE: The Southwest Research Institute (SwRI) is a nationally recognized third party testing and listing agency. SwRI testing certifies a reduction of the minimum clearance from the engine generator to a structure having combustible walls.

The test criteria was to determine the worst case fire scenario within the generator and to determine the ignitability of items outside the engine enclosure at various distances. The enclosure is constructed of non-combustible materials, and the results and conclusions from the independent testing lab indicated that any fire within the engine generator enclosure would not pose any ignition risk to nearby combustibles or structures.

Based on this testing and the requirements of NFPA 37, Sec 4.1.4, the guidelines for installation of the generators listed above are changed to 18 in (457 mm) from the back side of the generator and 3 ft (914 mm) from the front and ends of the generator to a structure having combustible walls. This offset reduction does not apply to clearances from openings in the structure. For adequate maintenance and airflow clearance, the area above the generator should be at least 5 ft (1.52 m) with a minimum of 3 ft (0.91 m) at the front and ends of the enclosure. This includes trees, shrubs, and bushes. Vegetation not in compliance with these clearance parameters could obstruct air flow. In addition, exhaust fumes from the generator could inhibit plant growth. See ***Figure 3-2*** and the accompanying descriptions.

Generator Maintenance

Regular maintenance is crucial for minimizing exhaust emissions and reducing the risk of fire or equipment failure. For example:

- A dirty air filter or low engine oil level may cause engine to overheat.
- Incorrect spark plug gaps may cause engine backfiring and incomplete combustion.

IMPORTANT NOTE: See Maintenance section of generator owner's manual to view a table of scheduled maintenance tasks and procedures. Perform all maintenance tasks as directed.

Fresh Air for Ventilation and Cooling

Install unit where air inlet and outlet openings will not become obstructed by leaves, grass, snow, etc. If prevailing winds will cause blowing or drifting, consider using a windbreak at a safe distance to protect the unit.

Water Ingress Avoidance

- Select a location on high ground where water levels will not rise and flood the generator. This unit should not operate in, or be subjected to, standing water.
- Install unit where rain gutter downspouts, roof runoff, landscape irrigation, water sprinklers, or sump pump discharge does not flood unit or spray enclosure, including any air inlet or outlet openings.
- Excess moisture can cause excess corrosion and decrease life expectancy of the unit.

Proximity to Utilities

- Contact local utility providers and verify proposed site selection meets all required utility placement requirements before installation. This could affect warranty coverage.
- Remember, laws and or codes may regulate distance and location of unit to specific utilities.
- It is recommended to pick a location where the generator is as close as possible to the transfer switch and the fuel supply, while verifying the site location conforms to the rest of the Site Selection section.

Verify Wi-Fi Range (If Applicable)

See wireless communication accessory manual shipped with the unit if planning to use the Wi-Fi feature.

Transportation Recommendations

Use a suitable cart or equipment to carry generator, including wooden pallet, to installation site. Place cardboard between cart and generator to prevent any damage or scratches to generator.

Do not lift, carry, or move generator by grasping the louvers. Doing so may bend or damage the sheet metal.

Suitable Mounting Surface

Select non-combustible base type as desired or as required by local laws or codes. The generator is typically approved to be placed on pea gravel, crushed stone, a concrete base pad, or an approved composite base pad. Follow all applicable codes if a concrete base pad is required. Verify any base pad meets or exceeds local codes and requirements for wind ratings.

See ***Figure 3-4***. Prepare a rectangular area approximately 5 in (127 mm) thick (A) and approximately 3 in (76.2 mm) longer and wider (B) than the footprint of the generator on all sides when using pea gravel or crushed stone.

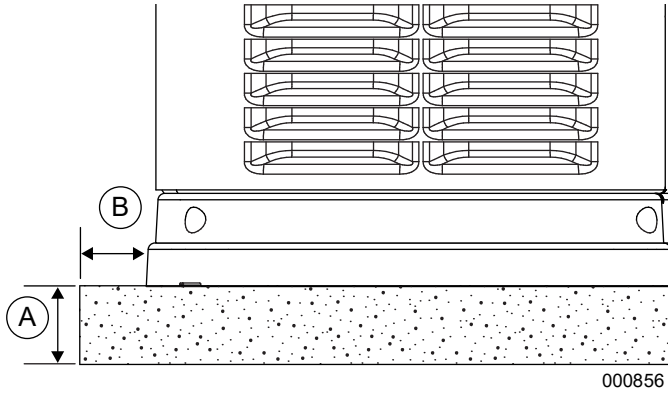

Figure 3-4. Pea Gravel or Crushed Stone

Concrete base pads must be appropriately sized in accordance with national, state, or local building codes.

Verify surface where generator will be mounted is compacted, leveled, and will not erode over time. Generator must be level within 0.5 in (13 mm) all around.

Recommended concrete base pads: 10000007852 – 3 in (76.2 mm), 10000007848 – 4 in (102 mm).

Placement on Roofs, Platforms, and Other Supporting Structures

Where required to place generator on a roof, platform, deck, or other supporting structure, generator must be placed in accordance with the requirements in NFPA 37, Section 4.1.3. See ***Fire Codes, Standards, and Guidelines*** for permissible clearance reductions. Surface beneath the generator and beyond must be noncombustible to a minimum distance of 12 in (30.5 cm). Contact local building inspection department or fire department to determine which noncombustible materials are approved for installation.

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Section 4: Generator Placement

Generator Placement

See ***Figure 4-1***. All air-cooled generators come with an integrated composite pad. This integrated composite pad elevates the generator and helps prevent water from pooling around the base.

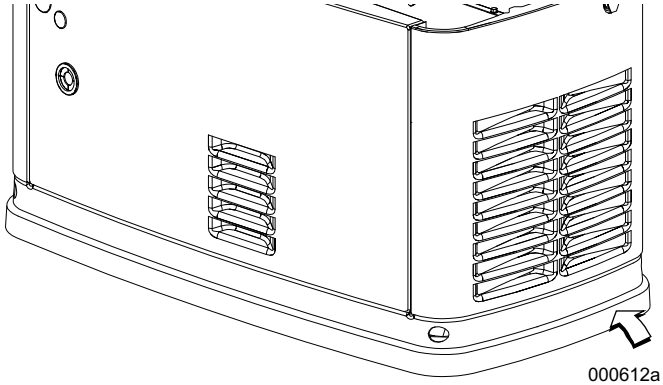

Figure 4-1. Integrated Composite Pad

The integrated composite pad allows the generator to be placed on different types of manufacturer approved surfaces:

- on 5 in (127 mm) of compacted pea gravel or crushed stone
- on a concrete pad

See local codes to verify what type of site base is required. If a concrete pad is required, all federal, state, and local codes must be followed. Place generator, with integrated composite pad attached, and position correctly as per dimensional information given in ***Site Selection and Preparation***.

NOTE: Generator must be level within 0.5 in (13 mm).

NOTE: See ***Figure 4-2***. DO NOT remove integrated composite pad for mounting generator to concrete. The integrated composite pad is pre-drilled to accommodate mounting bolts.

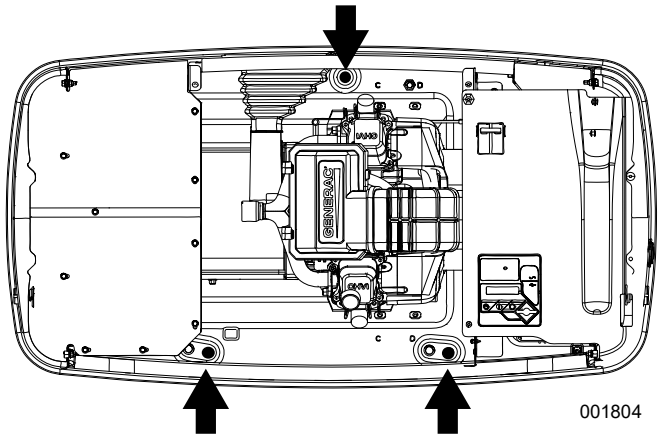

Figure 4-2. Mounting Hole Locations

Three mounting holes are available if codes require securing generator to concrete. Mounting holes are located inside the generator compartment—two in front and one in back.

Three 3/8 in (or M10) lag bolts (not supplied) are recommended for securing the generator to a concrete pad.

NOTE: The top of the generator carton has a template which can be used to mark the concrete pad to pre-drill the mounting holes.

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Section 5: Fuel Conversion / Gas Connections

Fuel Requirements and Recommendations

⚠DANGER

Explosion and fire. Fuel and vapors are extremely flammable and explosive. No leakage of fuel is permitted. Keep fire and spark away. Failure to do so will result in death or serious injury. (000192)

NOTE: NG is lighter than air and will collect in high areas. LP gas is heavier than air and will settle in low areas.

LP gas should only use a vapor withdrawal system. This type of system uses vapors formed above liquid propane in the storage tank.

The unit will run on NG or LP gas, but has been factory-configured to run on NG.

NOTE: Should the primary fuel need to be changed to LP gas, the fuel system needs to be reconfigured. See ***Fuel Conversion*** for instructions on converting the fuel system.

BTU Content

Recommended fuels should have a BTU content of at least 1,000 BTU/ft^3 (37.26 MJ/m^3) for NG; or at least 2,500 BTU/ft^3 (93.15 MJ/m^3) for LP gas.

NOTE: BTU fuel content information is available from fuel supplier.

Fuel Pressure

Required fuel pressure for NG is 3.5–7.0 in water column (0.87–1.74 kPa) at generator fuel inlet. Required fuel pressure for LP gas is 10–12 in water column (2.49–2.99 kPa) at generator fuel inlet.

NOTE: The primary regulator for LP gas supply is NOT INCLUDED with generator. Where a secondary fuel regulator is required to be installed, a fuel regulator approved for use on an engine must be installed.

NOTE: All pipe sizing, construction, and layout must comply with NFPA 54 for NG applications and NFPA 58 or ICC IFGC. Verify fuel pressure NEVER drops below required specification once generator is installed. See the NFPA website at ***www.nfpa.org*** for further information regarding NFPA requirements.

Always contact local fuel suppliers or fire marshal to verify codes and regulations for correct installation. Local codes will mandate correct routing of gaseous fuel line piping around gardens, shrubs, and other landscaping.

Piping strength and connections should be given special consideration for installations in areas at risk for flooding, tornadoes, hurricanes, earthquakes, and unstable ground.

IMPORTANT NOTE: Use an approved pipe sealant or joint compound on all threaded NPT fittings.

NOTE: All installed gaseous fuel piping must be purged and leak tested prior to initial startup in accordance with local codes, standards, and regulations.

Fuel Conversion

Proceed as follows to convert from NG configuration to LP gas:

1. Open enclosure lid.
2. Verify generator is in OFF mode.
3. Use arrow keys to select SUB MENU from main screen. Press ENTER when SUB MENU is flashing.
4. Use arrow keys to select EDIT menu and press ENTER.
5. Use up arrow key to select FUEL SELECT menu.
6. Press ENTER to change fuel selection.
7. Use the arrow keys to toggle selection from NG to LP. Press ENTER to select LP.
8. Press ESCAPE to back out of the sub menus.
9. Set unit to AUTO.

The fuel selection has been changed from NG to LP.

NOTE: The fuel selection (LP/NG) must be entered on the controller during initial startup using the ***Install Wizard Menu Map*** navigation menu, or in EDIT menu under “Fuel Selection.”

Fuel Consumption

Generator	Natural Gas*		Propane**	
	1/2 Load	Full Load	1/2 Load	Full Load
9 kW	2.3 / 67.0	3.6 / 126.0	0.8 / 3.0 / 28.8	1.2 / 4.5 / 43.2

* Natural gas is in m^3/h / ft^3/h

** Propane is in gal/h / L/h (LP) / ft^3/h (LPV)

*** Values given are approximate

These are approximate values. Use the appropriate spec sheet or fuel data decal for specific values.

Verify gas meter is capable of providing enough fuel flow to include household appliances and all other loads.

NOTE: The fuel supply and pipe MUST be sized at 100% load BTU/h (Megajoule/h) rating.

Always see fuel data label for the correct BTU/h or Megajoule/h, and required fuel pressures:

– Natural Gas:

BTU/h = ft^3/h x 1000

Megajoules/h = m^3/h x 37.26

– Liquid Propane Vapor:

BTU/h = ft^3/h x 2500

Megajoules/h = m^3/h x 93.15

Fuel Line Sizing

Selecting the correct size fuel line is crucial to correct operation of the unit.

IMPORTANT NOTE: Generator inlet size DOES NOT dictate size of gas pipe to be used!

For further information, see NFPA 54 for NG, or NFPA 58 or ICC IFGC.

Measure distance from generator to fuel source on a low pressure gas system.

IMPORTANT NOTE: PWRgenerator must be the first gas appliance plumbed directly off the point of delivery of the low pressure system. PWRgenerator cannot be plumbed off of the end of a low pressure gas piping system.

Natural Gas Pipe Sizing

To determine correct NG pipe size, find the kW rating of generator in the left column, and trace to the right. The number to the right is maximum length (measured in ft / m) allowed for the pipe sizes on top. Pipe sizes are measured by trade size diameter to include any fittings, valves (must be full flow), elbows, tees, or angles.

NOTE: See Table B.3.2 in NFPA 54 or Table A.2.2 in the ICC IFGC, Equivalent Lengths of Pipe Fittings and Valves for the correct values to be added to overall fuel piping length. Tables are based on schedule 40 black pipe. If installing any other piping system, follow pipe sizing charts for selected piping system.

Table 5-1. NG Pipe Sizing

Pipe Size (in / mm)	For 5–7 in Water Column (1.24–1.74 kPa)					For 3.5–5 in Water Column (0.87–1.24 kPa)			
	Allowable Pipe Distances (ft / m)								
	0.5 / 13	0.75 / 19	1 / 25	1.25 / 32	1.5 / 38	0.75 / 19	1 / 25	1.25 / 32	1.5 / 38
9 kW	10 / 3.1	60 / 18.3	200 / 61	750 / 228.6	—	20 / 6.1	60 / 18.3	175 / 53.3	—

LP Gas Pipe Sizing

To determine correct LP gas pipe size, find the kW rating of generator in the left column, and trace to the right. The number to the right is maximum length (measured in ft / m) allowed for pipe sizes on top. Pipe sizes are measured by trade size diameter to include any fittings, valves (must be full flow), elbows, tees, or angles. See Table B.3.2 in NFPA 54 or Table A.2.2 in the ICC IFGC, Equivalent Lengths of Pipe Fittings and Valves for the correct values to be added to overall fuel piping length.

NOTE: Pipe sizes are from the outlet of the second stage regulator to the fuel shutoff valve. Table is based on schedule 40 black pipe. If installing any other piping system, follow the pipe size charts for the selected piping system.

NOTE: Recommended minimum LP tank size is 250 gal (946 L). Contact LP provider to correctly size LP tank to generator. Vertical tanks, which are measured in pounds (or kilograms), are permitted if correctly sized for the generator. Do not connect generator to a 20 or 30 lbs LP tank.

Table 5-2. LP Gas Pipe Sizing

Pipe Size (in / mm)	For 10–12 in Water Column (2.49–2.99 kPa)			
	Allowable Pipe Distances (ft / m)			
	0.5 / 13	0.75 / 19	1 / 25	1.25 / 32
9 kW	30 / 9.1	175 / 53.3	400 / 121.9	—

Installing and Connecting Fuel Lines

⚠ DANGER

Explosion and fire. Fuel and vapors are extremely flammable and explosive. No leakage of fuel is permitted. Keep fire and spark away. Failure to do so will result in death or serious injury. (000192)

IMPORTANT NOTE: NG and LP gas are highly volatile substances. Strictly adhere to all safety procedures, codes, standards, and regulations.

Fuel line connections should be made by a certified contractor familiar with local codes. Always use AGA-approved gas pipe and a quality pipe sealant or joint compound.

Verify capacity of NG meter or LP tank to provide sufficient fuel for both the generator and other operating appliances.

Fuel Shutoff Valve

See ***Figure 5-1***. The generator will require an external manual fuel shutoff valve (A) on the fuel line.

NOTE: Fuel shutoff valve must be installed at a readily accessible location, and within 6 ft (1.8 m) of generator fuel inlet.

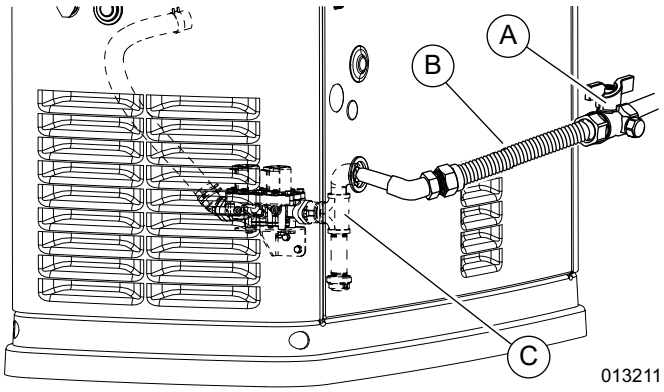


Figure 5-1. Sediment Trap, Fuel Shutoff Valve with Manometer Port, and Flexible Fuel Line

Figure 5-2 illustrates a fuel shutoff valve with a manometer port for making fuel pressure checks. This optional accessory fuel shutoff valve permits making pressure checks for diagnostic purposes without going into the generator enclosure.

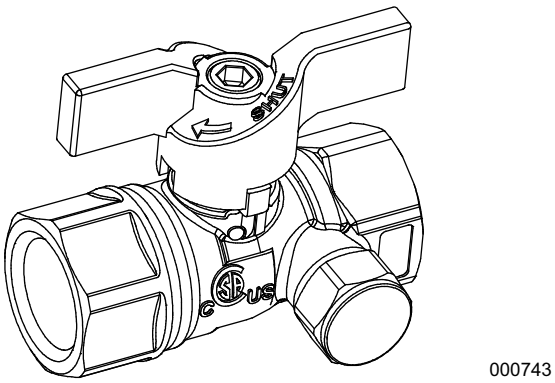


Figure 5-2. Fuel Shutoff Valve with Manometer Port

Fuel shutoff valves available through a local IASD:

- 1/2 in ball valve, part number 0K8752
- 3/4 in ball valve, part number 0K8754
- 1 in ball valve, part number 0K8184
- 1-1/4 in ball valve, part number 0L2844
- 1-1/2 in ball valve, part number 0L2845

Flexible Fuel Line

See ***Figure 5-1***. When connecting flexible fuel line (B) to generator, use a listed assembly meeting the requirements of ANSI Z21.75/ CSA 6.27—Connectors for Outdoor Gas Appliances and Manufactured Homes or AGA-approved flexible fuel line in accordance with local regulations.

Flexible fuel line must not be connected directly to generator fuel inlet. Always connect flexible fuel line to an approved gas fitting.

The purpose of flexible fuel line is to isolate vibration from the generator to reduce possibility of a gas leak at one of the connection points. Installation of a flexible fuel line is a fuel gas code and installation requirement.

NOTE: Follow all installation instructions and warnings provided with the flexible fuel line. Do not remove any labels or tags. Flexible fuel line must be installed horizontally, and must be installed between fuel shutoff valve and generator fuel inlet.

Sediment Trap

See ***Figure 5-1***. Some local codes require a sediment trap (C). The PWRgenerator fuel system has an integrated sediment trap.

The sediment trap must be cleaned periodically according to local codes. See owner's manual for more information.

Checking Fuel Line Connections

Checking Fuel Pressure

Proceed as follows to check fuel pressure at fuel solenoid valve in the generator.

1. Close fuel supply valve.
2. See ***Figure 5-3***. Remove inlet side fuel pressure test port from fuel solenoid valve and install fuel pressure tester (manometer).

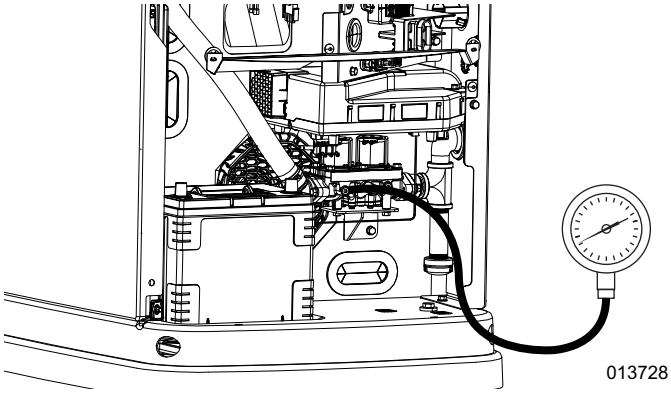


Figure 5-3. Checking Pressure with Manometer

3. Open fuel supply valve and verify fuel pressure is within specified values.
4. Record static fuel pressure: _____

NOTE: Fuel pressure can also be tested at the manometer port on fuel shutoff valve shown in ***Figure 5-1***.

NOTE: See Fuel Data Decal or spec sheet for correct fuel pressure specifications. If fuel pressure is not within specifications, contact local fuel supplier.

5. Close fuel valve when completed, but keep manometer connected for future tests of generator while starting, running, and under loads.

Performing Fuel System Leak Test

⚠ DANGER

Explosion and fire. Fuel and vapors are extremely flammable and explosive. No leakage of fuel is permitted. Keep fire and spark away. Failure to do so will result in death or serious injury. (000192)

All products are factory-tested before shipping to verify the performance and integrity of the fuel system. However, it is important to perform a final fuel system leak test before starting the generator. The entire fuel system should be tested from supply to fuel solenoid valve.

See ***Figure 5-4***. Perform a final fuel system leak test after generator installation. The test will identify possible leaks at all connection points (A).

It is best practice to perform a fuel system leak test during normally-scheduled maintenance.

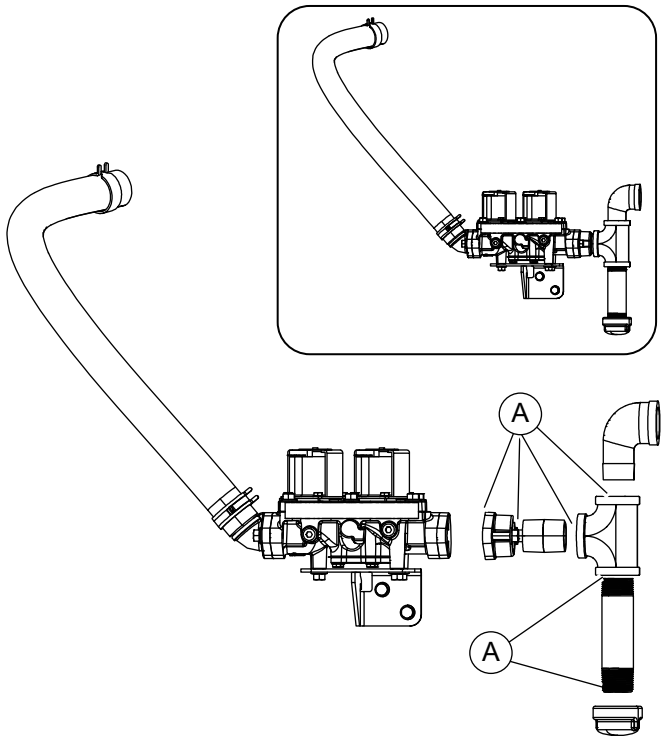
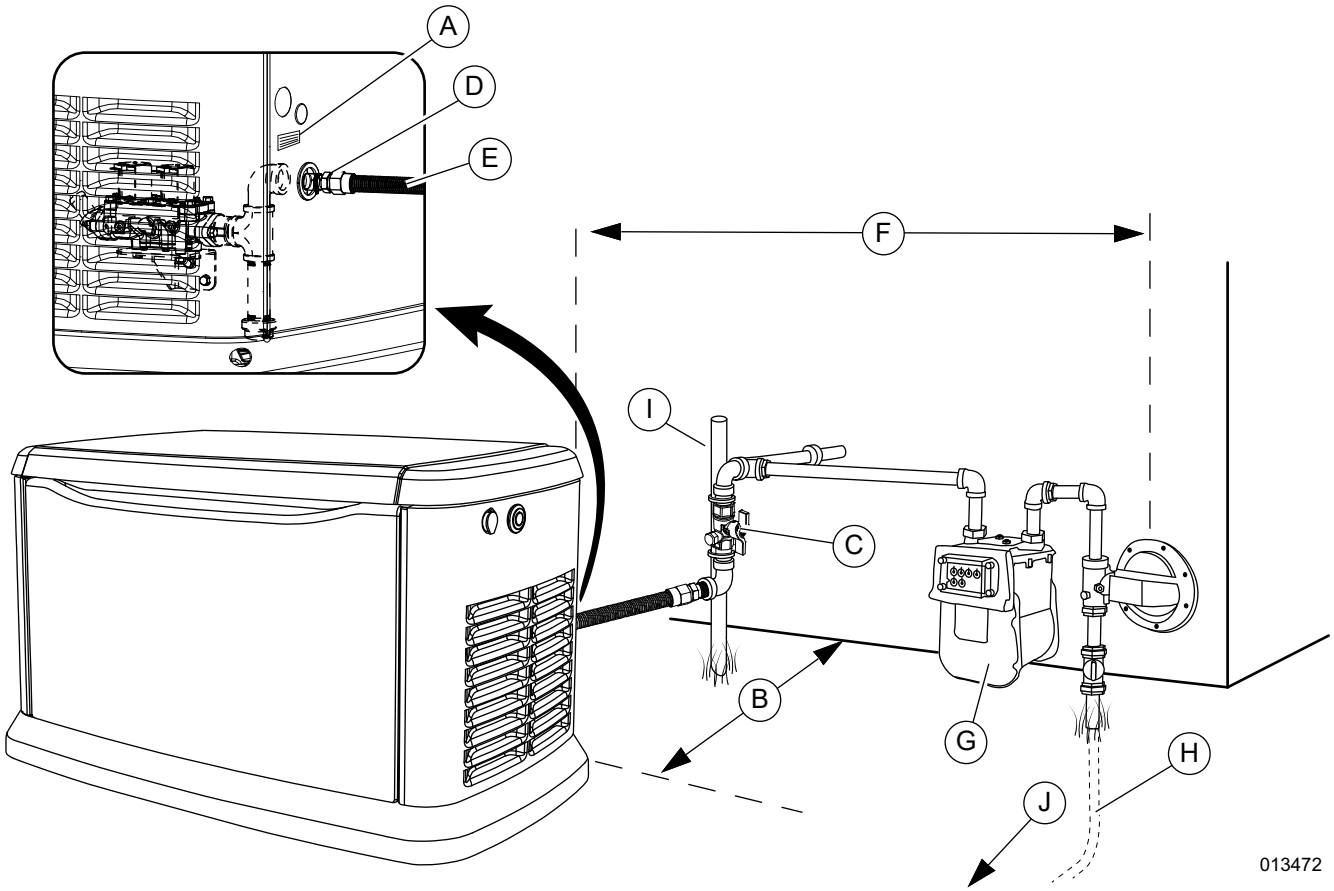


Figure 5-4. Connection Points to Leak Check

Inspect for leaks by spraying all connection points with a non-corrosive gas leak detection fluid. The solution should not be blown away or form bubbles.

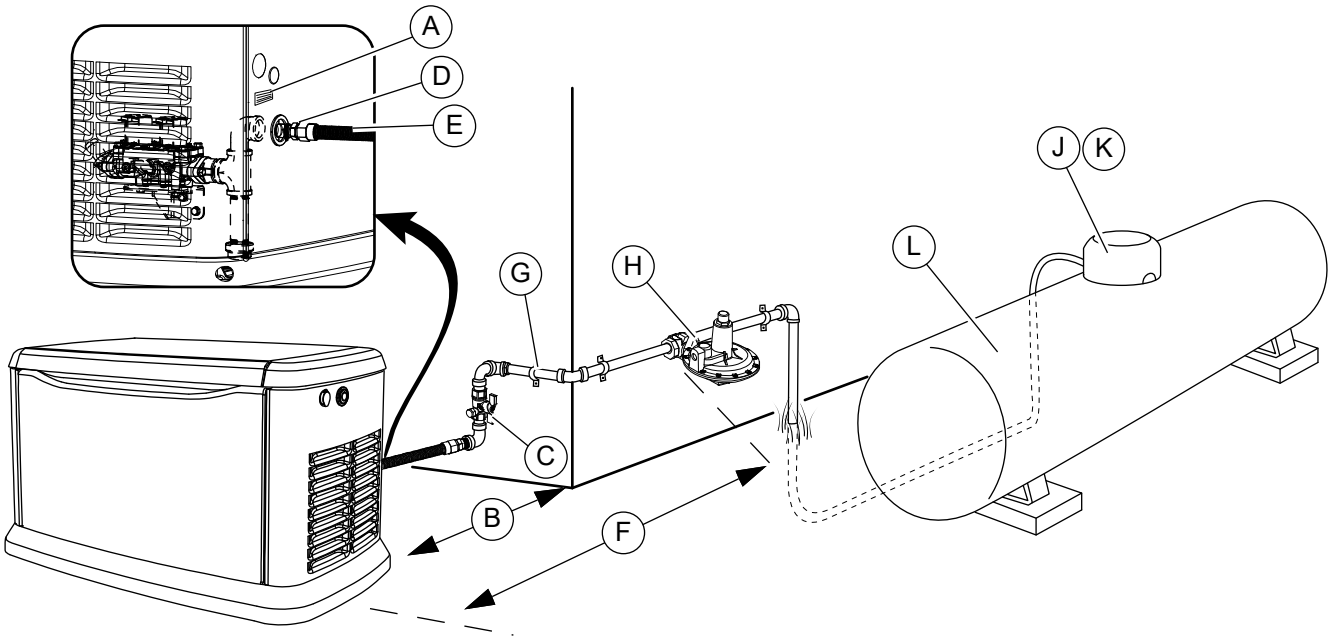
Natural Gas Installation (Typical)



NG BTU/h = ft^3/h X 1000	Megajoules/h = m^3/h X 37.26
A	Fuel data decal
B	Minimum distance from rear obstruction—see ***Distance Requirements***
C	Manual fuel shutoff valve (pressure port optional) Must be located no more than 6 ft (1.83 m) away from fuel inlet
D	Pipe fittings (field supplied)
E	Flexible fuel line
F	Verify clearance with gas provider. Regulator should be a minimum of 5 ft (1.5 m) from generator. Local codes and regulator manufacturer may have further clearance requirements.
G	Size gas meter for generator operating at FULL load plus all appliance loads
H	For underground installations, verify piping system for code compliance
I	Reinforcing rod with clamps
J	To gas main

Figure 5-5. Natural Gas Installation (typical)

LP Gas (Vapor) Installation (Typical)



LPG BTU/h = ft^3/h X 2500	Megajoules/h = m^3/h X 93.15
A	Fuel data decal
B	Minimum distance from rear obstruction—see ***Distance Requirements***
C	Manual fuel shutoff valve (pressure port optional) Must be located no more than 6 ft (1.83 m) away from fuel inlet.
D	Pipe fittings (field supplied)
E	Flexible fuel line
F	Verify minimum distance requirements for regulator vent according to local gas codes. Regulator should be a minimum of 5 ft (1.5 m) from generator. Local codes and regulator manufacturer may have further clearance requirements.
G	Clamp
H	Secondary fuel pressure regulator
J	Manual shutoff valve
K	Primary fuel pressure regulator
L	Fuel tank—sized large enough to provide required MJ/BTU for generator operating at FULL load and ALL connected appliance loads. Be sure to correct for weather evaporation.

Figure 5-6. LP Gas (Vapor) Installation (typical)

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Section 6: Electrical Connections

Generator Connections

See ***Figure 6-1***. The electrical wiring enclosure is located behind an access panel on intake end of unit. Remove intake side panel as directed in ***Intake Side Panel Removal***, and then remove access panel. Connect wires according to diagram and tables.

1. Remove main wiring knock-out plugs from back of generator.
2. Using appropriate conduit entry, install conduit and main DC wires between generator and PWRcell Inverter.
3. Close unused conduit entry with a NEMA 3R rated plug (field-supplied).

NOTE: DC positive and negative conductors must be a minimum of #8 AWG copper, rated 140 °F (60 °C) or 167 °F (75 °C), and are to be rated for minimum 600V. See instruction manual of the specific engine generator for wiring connection details.

Control Wiring

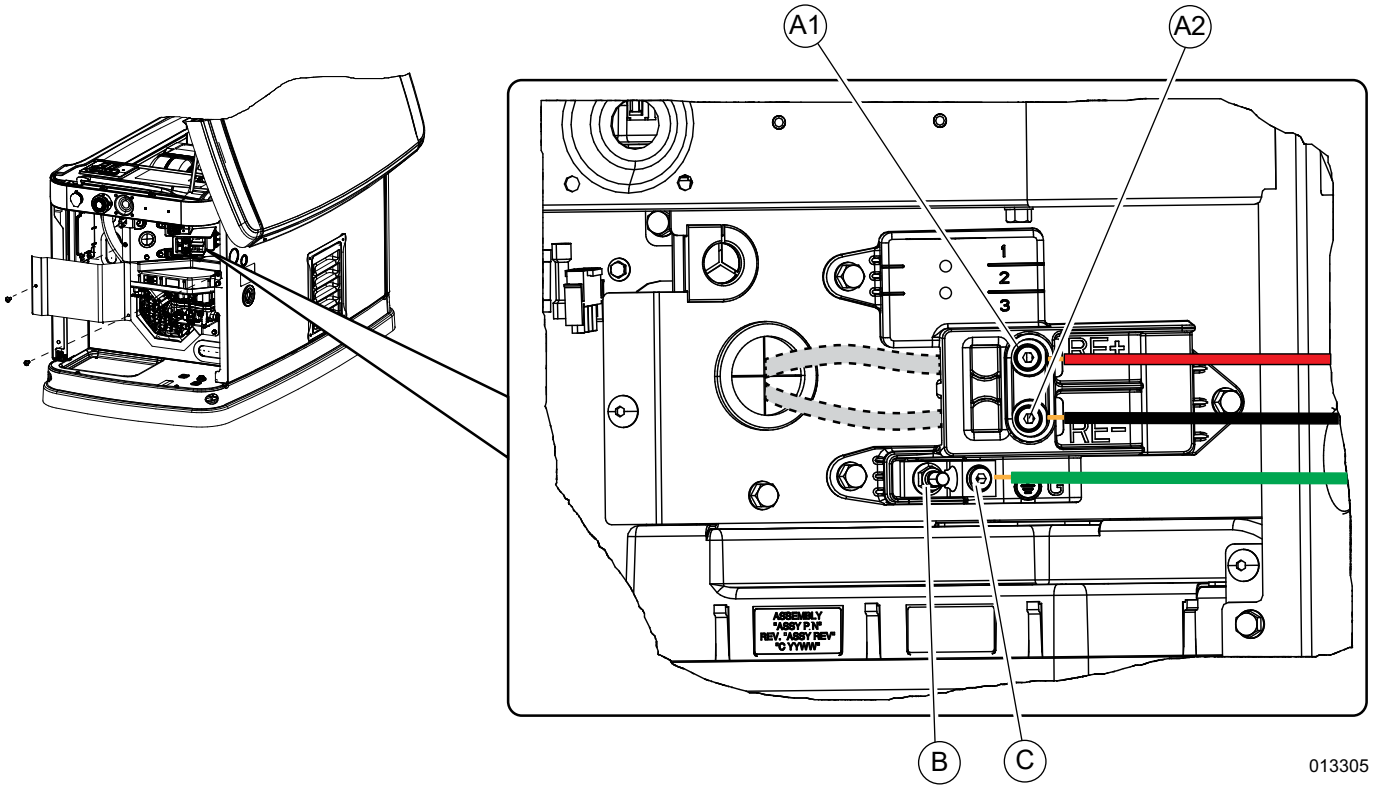


Figure 6-1. Electrical Wiring Connections

Table 6-1. Electrical Wiring Connection Points	
ID	**Description**
A1	Power lug RE+
A2	Power lug RE-
B	Ground stud
C	Ground lug

Table 6-2. Customer Wiring Connections	
Terminal Identification	**Wire Description**
REbus Positive (DC)	REbus RED positive wire
REbus Negative (DC)	REbus BLACK negative wire

Table 6-3. REbus and Ground Connections (Copper Conductors)		
See national and/or local codes to verify correct wire sizes.		
Description	**Conductor Range**	**Torque Spec**
Power wire terminals	6 to 8 AWG	120 **in-lbs** (13.56 Nm)
Large ground lug	4 to 14 AWG	120 **in-lbs** (13.56 Nm)

Main DC Wiring

NOTE: Main DC wiring must be in accordance with local jurisdiction and codes. See Article 215.12(C)(2) in the NEC for correct identification for DC Feeder conductors.

NOTE: Raceway connections to the generator must be flexible. Ridged raceway connections to the generator are only permitted where approved expansion fittings are installed.

NOTE: Generator lugs are copper and rated at 167 °F (75 °C).

1. Strip insulation off wire ends. Do not remove excessive insulation.
2. See ***Figure 6-1***. Loosen lugs at ground (G) and power wire (mains) terminals (RE+, RE-).
3. Connect ground wire to ground lug and tighten to required specification. See ***Table 6-3***.
4. Insert power wires (RE+ and RE-) into their corresponding polarity lugs. Tighten to required specification.
5. Verify factory-installed ground array is correctly tightened to 25 **in-lbs** (2.82 Nm).
6. With DC breaker off, measure resistance and verify values between RE+ to RE- and to ground are greater than 10 kOhms.

NOTE: See PWRcell Inverter owner's manual for DC breaker wiring connections.

NOTE: Tighten all wiring lugs and connection points to the required torque specifications.

Conductors of AC and DC circuits, rated 1,000 volts nominal or less, shall be permitted to occupy the same equipment, cable, or conduit. All conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the equipment, cable, or conduit. See NEC 300.3(C)(1).

NOTE: Only bare wire should be inserted into each terminal. Do not insert any wire insulation into terminals.

NOTE: Damage caused by mis-wiring of the interconnect wires is not warrantable.

Service Entrance Decals

See ***Figure 2-10***. Locate service entrance-related decals in the loose parts bag.

- Place service entrance warning decal in an appropriate location according to instructions printed on the decal.

Battery Requirements

12 volts, Group 26R Wet Cell 540CCA minimum.

NOTE: Do not use external battery chargers.

Battery Installation

⚠WARNING

Explosion. Batteries emit explosive gases while charging. Keep fire and spark away. Wear protective gear when working with batteries. Failure to do so could result in death or serious injury.

(000137a)

⚠WARNING

Risk of burns. Batteries contain sulfuric acid and can cause severe chemical burns. Wear protective gear when working with batteries. Failure to do so could result in death or serious injury.

(000138a)

⚠WARNING

Explosion. Batteries emit explosive gases. Always connect positive battery cable first to avoid spark. Failure to do so could result in death or serious injury.

(000133)

⚠WARNING

Risk of burn. Do not open or mutilate batteries. Batteries contain electrolyte solution which can cause burns and blindness. If electrolyte contacts skin or eyes, flush with water and seek immediate medical attention.

(000163a)

- **(Unsealed 26R batteries only)**: Fill battery with the correct electrolyte fluid if necessary.
- Fully charge battery before installing it.

Complete the following steps before installing and connecting battery:

1. Verify generator is OFF.
2. Turn off REbus system connection by opening the 30A generator MLCB (generator disconnect).
3. See ***Figure 6-2***. Remove 15A fuse (A) from bottom of converter.

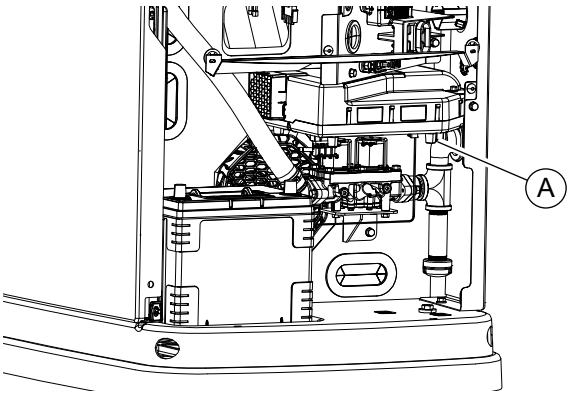


Figure 6-2. 15A Fuse Location

Connecting the Battery

⚠WARNING

Explosion. Batteries emit explosive gases. Always connect positive battery cable first to avoid spark. Failure to do so could result in death or serious injury. (000133)

⚠CAUTION

Equipment damage. Do not make battery connections in reverse. Doing so will result in equipment damage.

(000167a)

See ***Figure 6-3***. Battery cables (A, B) were factory connected at the generator.

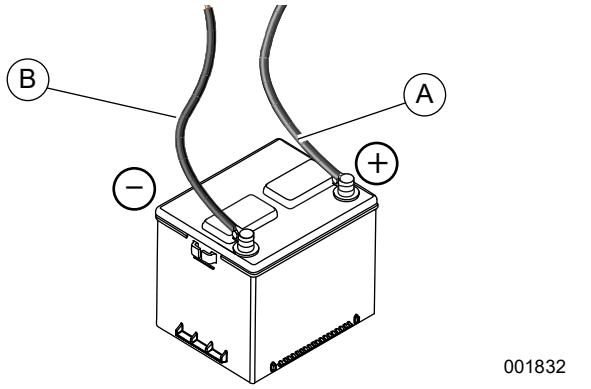


Figure 6-3. Battery Cable Connections

Proceed as follows to connect battery cables to battery posts:

1. Connect red positive battery cable (A: from starter contactor) to positive battery post. Tighten to 70 **in-lbs** (8 Nm).
2. Connect black negative battery cable (B: from frame ground) to negative battery post. Tighten to 70 **in-lbs** (8 Nm).
3. Install red battery post cover (shipped with loose parts).

NOTE: Apply dielectric grease to battery posts to prevent corrosion.

NOTE: In areas where temperatures fall below 0 °F (-18 °C), a pad type battery warmer is recommended to aid in cold climate starting. The battery warmer is available as part of a cold weather kit from any IASD.

A battery warmer is not necessary for AGM-style batteries.

Battery Disposal

⚠WARNING

Environmental Hazard. Always recycle batteries at an official recycling center in accordance with all local laws and regulations. Failure to do so could result in environmental damage, death, or serious injury. (000228)

Always recycle batteries in accordance with local laws and regulations. Contact your local solid waste collection site or recycling facility to obtain information on local recycling processes. For more information on battery recycling, visit the Battery Council International website at: ***http://batterycouncil.org***.

Section 7: Control Panel Startup / Testing

Control Panel Interface

The control panel interface is located under the enclosure lid. Verify both left and right side locks are unlocked before attempting to lift enclosure lid. Open lid as directed in ***Opening the Lid***.

Using the AUTO/MANUAL/OFF Buttons

Button	Description Of Operation
AUTO	Activates fully automatic system operation. Automatic operation allows unit to automatically start and exercise generator according to exercise timer settings (see ***Setting The Exercise Timer***).
OFF	Shuts down engine and also prevents automatic operation and exercise of unit.
MANUAL	Cranks and starts generator. Transfer to standby power will not occur unless there is a utility failure. Generator supplies power to REbus.

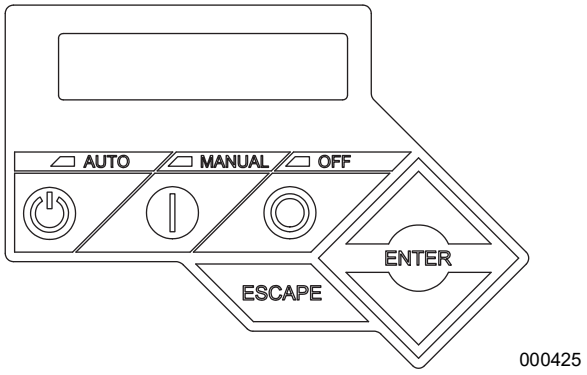


Figure 7-1. Generator Control Panel

Generator Setup

The controller illuminates when battery power is applied to the generator during the installation process. Generator must be activated before it will automatically run in the event of a power outage.

Activation

To activate the generator, go to ***www.activategen.com*** and follow the instructions.

Activation is a simple, one-time process. The generator will not prompt to activate again once the unit is activated, even if the generator battery, and fuse are disconnected.

Proceed as follows after activating generator on-line:

1. The display interface will launch Install Wizard upon first power-up of the generator.
2. Follow on-screen instructions on generator along with Quick Start Guide supplied with unit.
3. Follow on-screen instructions to complete the Install Wizard.

NOTE: See ***Figure 7-2***. If generator screen shows message shown below, press ESC and then ENTER to reset to Install Wizard.

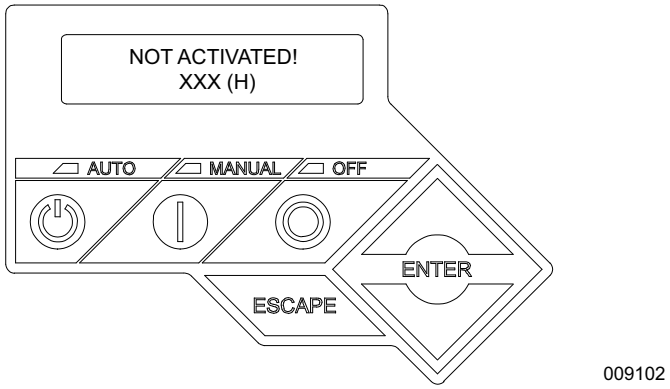
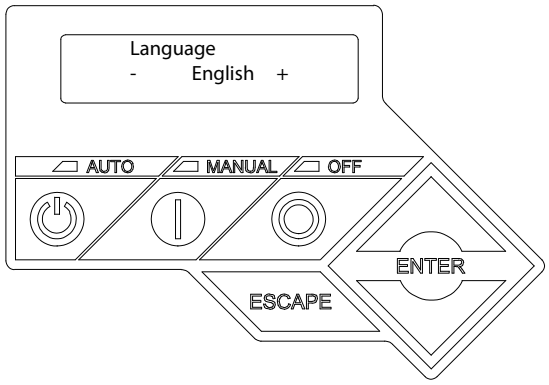
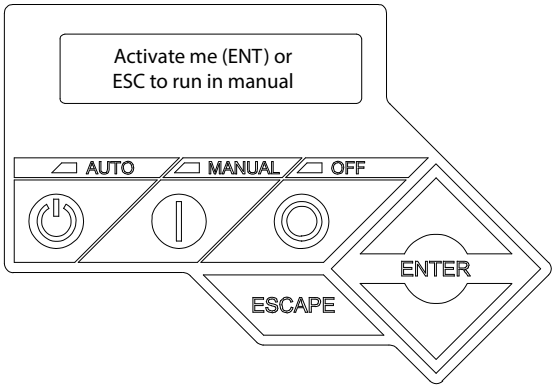
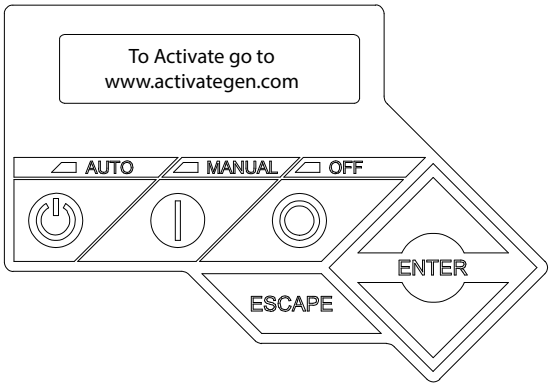
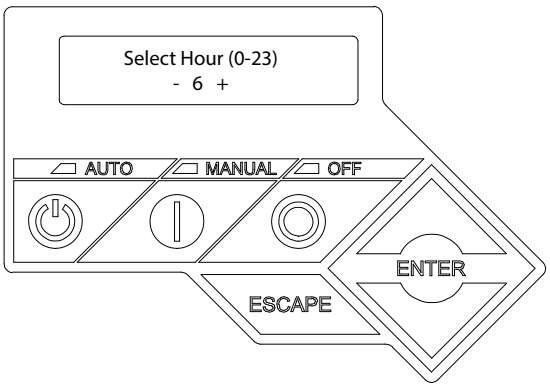


Figure 7-2. Not Activated Screen

NOTE: Generator can only be placed in AUTO mode after completing activation process.

Display Reads		Troubleshooting
 002227	Use arrow keys to scroll to desired language. Press ENTER to select.	Language can be changed later using the EDIT menu.
 002228	Press ENTER to begin activation process.	If ESCAPE is pressed instead of ENTER, generator will only run in manual mode (for test purposes) and NOT ACTIVATED will be displayed. Press ESC and then ENTER to reset Install Wizard.
 002229	If unit has not been activated, go to www.activategen.com If unit has been activated, press ESC and then ENTER.	
 002231	Activation is complete when this screen is displayed. Follow controller prompts to complete installation.	

Setting The Exercise Timer

This generator is equipped with a configurable exercise timer. There are two settings for the exercise timer:

- **Day/Time:** Generator will start and exercise for period defined, on day of week and at time of day specified. During this exercise period, unit runs for five minutes on all models, and then shuts down.
- **Exercise frequency (how often exercise will take place):** Can be set to Weekly, Biweekly, or Monthly. If Monthly is selected, day of the month must be selected from 1–28. Generator will exercise on that day each month. Transfer of loads to the generator output does not occur during exercise cycle unless utility power is lost.

NOTE: If the installer tests generator prior to installation, press ENTER button to skip setting up exercise timer.

NOTE: The exercise feature will operate only when generator is placed in AUTO mode, and will not work unless this procedure is performed.

Before Initial Startup

⚠CAUTION

Engine damage. Verify proper type and quantity of engine oil prior to starting engine. Failure to do so could result in engine damage.

(000135)

NOTE: The unit has been run and tested at the factory prior to being shipped and does not require any type of break-in.

NOTE: The unit comes filled with 5W-30 weight organic oil from the factory. Check oil level and add appropriate viscosity and amount of oil if necessary.

Install Wizard

See ***Figure 7-3***. The Install Wizard immediately appears upon initial startup. It allows users to input generator settings.

The Install Wizard starts every time DC power is removed and reapplied to generator.

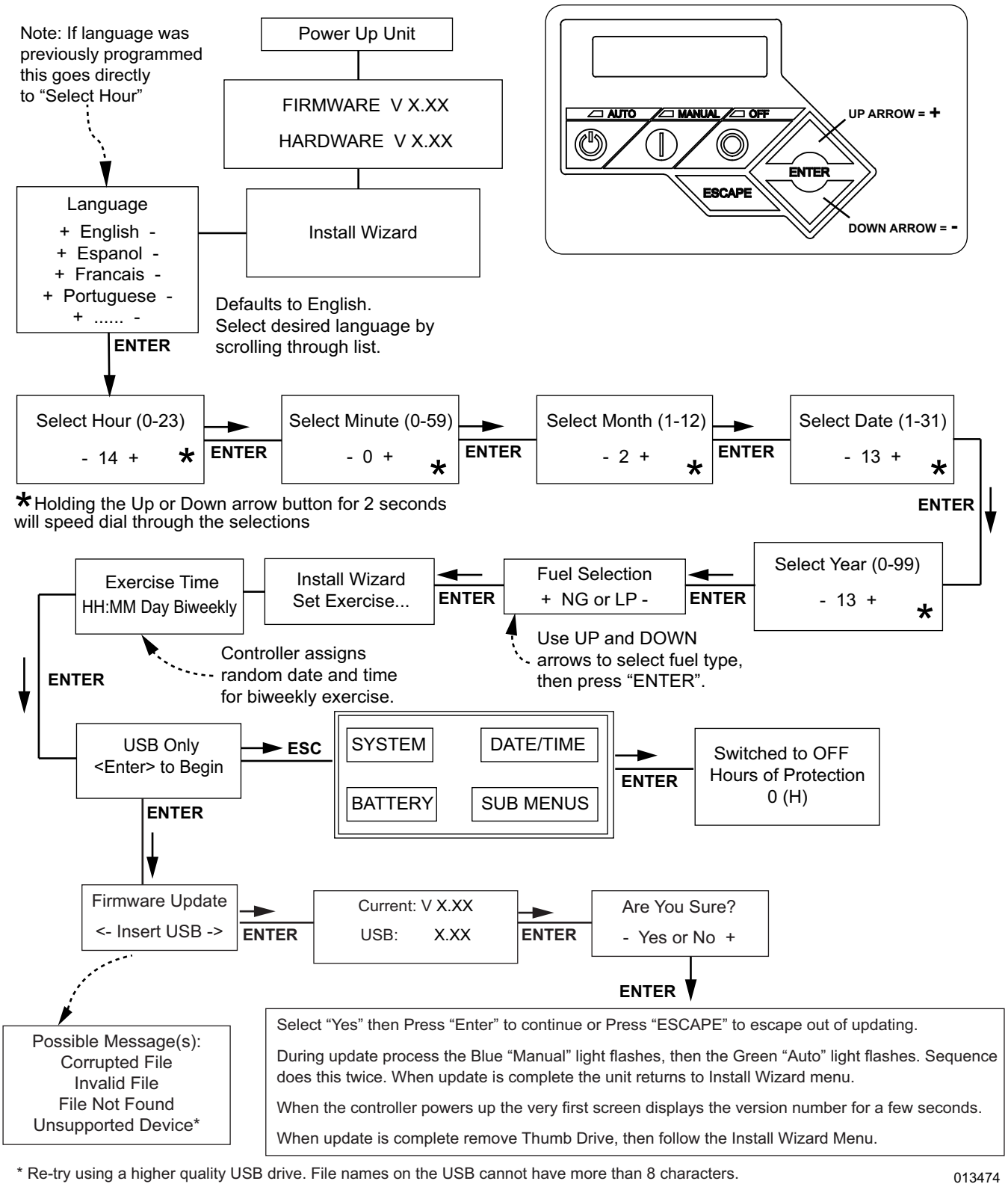


Figure 7-3. Install Wizard Menu Map

Commissioning with PWRcell

See documents included with PWRcell Inverter and PWRgenerator for complete system commissioning.

NOTE: PWRgenerator must not be coupled to multiple PWRcell Inverters. See documents included with PWRcell Inverter for PWRgenerator installations with multiple PWRcell Inverters.

Proceed as follows to commission the PWRgenerator:

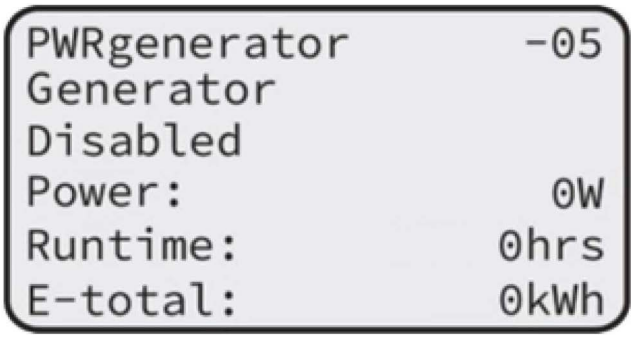
1. Complete PWRcell Inverter commissioning up to "Enable REbus Devices."
2. Verify PWRcell Inverter is disabled. Set PWRcell DC disconnect to ON at PWRcell Inverter.
3. Enable PWRcell Inverter from the device page at PWRcell Inverter control panel.

NOTE: Enabling PWRcell Inverter builds voltage on REbus, allowing for device communications.

Configuring PWRgenerator

Proceed as follows to configure PWRgenerator:

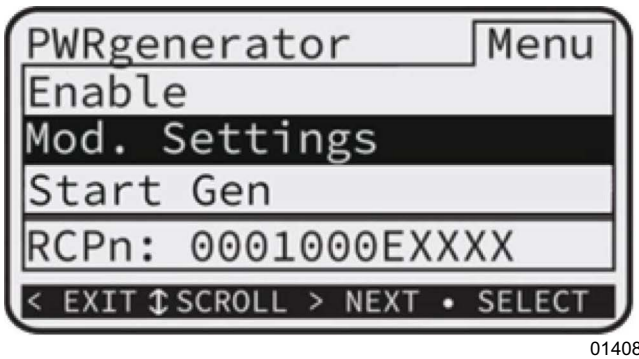
1. See ***Figure 7-4***. Navigate to PWRgenerator device page using left or right arrow buttons on PWRcell Inverter control panel. Press center button to access submenu.



014088

Figure 7-4. PWRgenerator Device Page

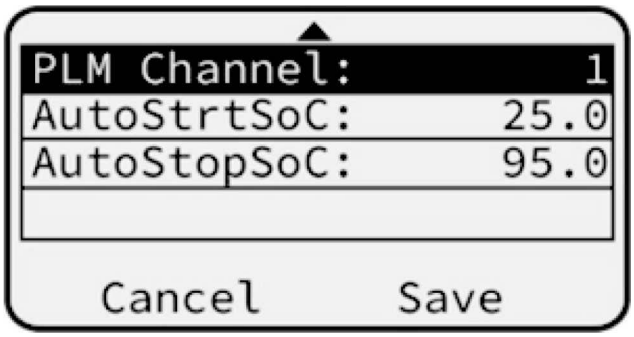
2. See ***Figure 7-5***. Select "Mod. Settings" to access PWRgenerator settings.



014089

Figure 7-5. Mod. Settings

3. See ***Figure 7-6***. Use up and down arrow buttons to configure PWRgenerator settings. Press center button to select desired setpoint. See ***Table 2*** for PWRgenerator setting descriptions.



014090

Figure 7-6. PWRgenerator Settings

NOTE: See PWRcell Inverter owner's manual for PLM channel programming information.

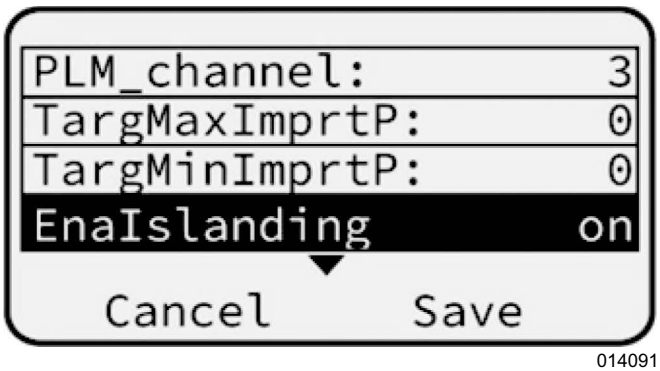
NOTE: Using the left arrow button while configuring settings will exit the settings menu without saving changes.

4. Use down arrow button to scroll to bottom of setting menu. Use right arrow button to highlight Save, then press center button to save before exiting "Mod. Settings" sub menu.
5. Verify changes were saved.

Verifying Island Mode is Enabled

Proceed as follows to verify Island Mode is enabled:

1. Navigate to PWRcell Inverter device page using right arrow button and press center button.
2. Select "Mod. Settings" to access PWRcell Inverter settings.
3. See ***Figure 7-7***. Verify "EnaIslanding" is set to ON (default).



014091

Figure 7-7. Island Mode Enabled

NOTE: Island Mode must be enabled for system to provide backup power during power outages.

Enabling PWRgenerator

Proceed as follows to enable PWRgenerator:

1. Set generator MLCB (generator disconnect) to ON (CLOSED).
2. Set PWRgenerator to AUTO using PWRgenerator control panel. PWRgenerator will be automatically enabled when transitioned from OFF to AUTO.
3. Navigate to PWRgenerator device page on PWRcell Inverter control panel.
4. Verify status is “Standby.”

Proceed as follows if PWRgenerator needs to be manually enabled at inverter control panel:

1. Navigate to PWRgenerator device page and press center button.
2. Select “Enable” and press center button. Use right arrow key and press center button to confirm.
3. Verify on PWRgenerator device page PWRgenerator status reads “Standby.”

PWRgenerator States and Settings

The PWRgenerator device page on the PWRcell Inverter control panel allows users to view current operating status of the PWRgenerator, manually change the operating state, and view or alter configurable settings. See ***Table 1*** for a detailed list of states which may be displayed on PWRgenerator device page. See ***Table 2*** for a detailed list of PWRgenerator settings found in “Mod Settings” menu of PWRgenerator device page.

TABLE 1. PWRgenerator States

Setting	Description
STANDBY	PWRgenerator is enabled and set to AUTO at generator control panel. When generator control panel moves from OFF to AUTO, PWRgenerator state at PWRcell Inverter control panel should automatically be changed to STANDBY. PWRgenerator does not produce power when in STANDBY.
CONNECTING GENERATOR	Generator start conditions have been met and PWRgenerator has begun its standard startup sequence. PWRgenerator will progress to a RUNNING state when startup sequence is complete.
RUNNING	PWRgenerator is running and is generating power.
DISCONNECTING GENERATOR	Generator stop conditions have been met and PWRgenerator has begun its standard cool-down sequence. PWRgenerator will return to a STANDBY state when generator cool-down is complete.
DISABLED	PWRgenerator is not enabled. See ***Enabling PWRgenerator*** for further details.

TABLE 2. PWRgenerator Settings

Setting	Description
AutoStrtSoC	Battery state of charge (SoC) where PWRgenerator is prompted to start and deliver power. PWRgenerator must be in AUTO for this setpoint to have effect. • Default value is 25%.
AutoStopSoC	Battery SoC where PWRgenerator is prompted to stop delivering power and enter standby state. PWRgenerator must be in AUTO for this setpoint to have effect. • Default value is 95%.

Generator Tests Under Load

⚠ DANGER

Electrocution. Do not manually transfer under load. Disconnect transfer switch from all power sources prior to manual transfer. Failure to do so will result in death or serious injury, and equipment damage.

(000132)

Proceed as follows to test generator with electrical loads applied:

1. Verify generator is in OFF mode.
2. Set generator MLCB (generator disconnect) to OFF (OPEN).
3. Turn off all AC circuit breakers/electrical loads protected by PWRcell system.
4. Verify PWRcell Inverter DC disconnects to PWRcell Batteries and PWRgenerator are ON (CLOSED). Verify all other PWRcell DC disconnects are set to OFF (OPEN).
5. Turn off utility power to PWRcell Inverter to island system.

NOTE: AC power must be disconnected from PWRcell Inverter and line side of ATS to island the system if system is configured with a PWRcell ATS.

6. Press generator MANUAL button. The engine will crank and start immediately.
7. Verify fuel pressure while cranking. Record cranking fuel pressure:_____
8. Allow engine to stabilize and warm up for a few minutes.
9. Verify fuel pressure while running. Record running fuel pressure:_____
10. Set generator MLCB (generator disconnect) to ON (CLOSED). PWRcell Batteries can now be charged by the generator. Verify PWRcell Batteries are charging on the inverter control panel.
11. Turn on AC circuit breakers/electrical loads protected by PWRcell system one by one.
12. Use an accurate DC voltmeter to measure across RE+ to RE- at the customer connection terminals. Nominal value 400 volts. If voltage is rapidly dropping as loads are applied, generator may be overloading or there may be a fuel issue. Verify output current measurement of loads and/or fuel pressure.
13. Allow generator to run at full rated load for 10 minutes. Listen for unusual noises, vibration, or other indications of abnormal operation. Inspect for oil leaks, evidence of overheating, etc. Verify PWRcell Batteries are charging.
14. Verify fuel pressure while under full load. Record loaded fuel pressure: _____.
15. Turn off electrical loads when testing under load is complete.
16. Press generator OFF mode button. The engine will shut down.
17. Set generator MLCB (generator disconnect) to OFF (OPEN).
18. Turn on utility power supply to the PWRcell Inverter (40A circuit breaker in main distribution panel or automatic transfer switch breaker) to return to a grid connected state.
19. Set all other PWRcell DC disconnects to ON (CLOSED).

NOTE: If fuel pressure under full load is below minimum operating fuel pressure guideline, generator may not function correctly. The fuel pressure gauge needle should also remain steady while testing. A fluctuating fuel pressure gauge needle indicates gas piping may be undersized or restricted. It may also indicate a step-down gas regulator is too small, or too close to unit.

Checking Automatic Operation

Proceed as follows to check system for correct automatic operation:

1. Verify generator is OFF.
2. Set generator MLCB (generator disconnect) to ON (CLOSED).
3. Press generator AUTO button. The system is now ready for automatic operation.
4. Turn off utility power supply (40A circuit breaker in main distribution panel, or automatic transfer switch breaker) to PWRcell Inverter to island the system.

NOTE: If system is configured with a PWRcell ATS, AC power must be disconnected from PWRcell Inverter and line side of ATS to island the system. If system is configured with a protected loads subpanel, AC power is disconnected using the 2-pole 40A OCPD between inverter and point of interconnection to island the system.

The generator is ready for automatic operation. The engine will crank and start when PWRcell Inverter calls for power generation. Choose PWRgenerator from PWRcell Inverter device page if PWRcell Batteries are too high of an SoC for normal operation. See PWRgenerator Owner's Manual for more information. Start generator. Allow system to operate through entire automatic sequence of operation.

Installation Summary

1. Verify installation has been performed correctly as outlined by the manufacturer and that it meets all applicable laws and codes.
2. Test and verify correct operation of the system as outlined in the appropriate installation and owner's manuals.
3. Educate end-user on correct operation, maintenance, and service call procedures.

Shutting Generator Down While Under Load or During a Utility Outage

⚠DANGER

Automatic start-up. Disconnect power and render unit inoperable before working on unit. Failure to do so will result in death or serious injury.

(000750)

IMPORTANT NOTE: To avoid equipment damage, follow these steps, in order, during utility outages. Shutdowns may be required during utility outages to perform routine maintenance or to conserve fuel.

To turn generator OFF:

1. Disable generator in PWRcell Inverter device page submenu. Generator will enter 60 second cool-down. Allow cool-down to complete and generator to shut off.
2. Set generator MLCB (generator disconnect) to OFF (OPEN).
3. Set PWRcell Inverter DC disconnect for PWRgenerator to OFF (OPEN).
4. Press OFF button on generator controller.
5. Remove 7.5A fuse from controller.
6. See ***Figure 6-2***. Remove front and intake panels from unit, and remove 15A fuse (A) from converter.

To turn generator back ON:

1. Install 15A fuse and enclosure panels if maintenance was performed.
2. Install 7.5A fuse in controller.
3. Complete Install Wizard.
4. Verify generator MLCB (generator disconnect) and PWRcell Inverter DC disconnect circuit breaker are OFF (OPEN).
5. Set generator to AUTO mode at the controller.
6. Set PWRcell Inverter DC disconnect circuit breaker to ON (CLOSED).
7. Set generator MLCB (generator disconnect) to ON (CLOSED).

The system now operates in automatic mode.

NOTE: DO NOT leave generator MLCB (generator disconnect) in OFF (OPEN) with 15A fuse installed for more than two hours or starter battery will discharge.

Section 8: Troubleshooting

Generator Troubleshooting

Problem	Cause	Correction
Engine will not crank	Blown fuse.	Correct short circuit condition by replacing 7.5 A fuse in generator control panel. Contact an IASD if fuse continues to blow.
	Loose, corroded, or faulty battery cables.	Tighten, clean, or replace as necessary.*
	Faulty starter contact.	
	Faulty starter motor.	
	Discharged battery.	Charge or replace battery.
Engine cranks but will not start	No fuel.	Replenish fuel / turn on fuel valve.
	High fuel pressure.	Check and adjust fuel pressure.
	Fuel selector in wrong position.	Set fuel type on controller to match fuel type supplied.
	Faulty fuel solenoid (FS).	Replenish fuel / turn on fuel valve.
	Faulty spark plug(s).	Clean; inspect spark plug gap; replace spark plug(s) if necessary.
Engine starts hard and runs rough	Air cleaner clogged or damaged.	Inspect and clean air cleaner.
	Faulty spark plug(s).	Clean; inspect spark plug gap; replace spark plug(s) as needed.
	Incorrect fuel pressure.	Confirm fuel pressure to regulator is 10–12 in water column (2.49–2.99 kPa) for LP, and 3.5–7.0 in water column (0.87–1.74 kPa) for NG.
	Fuel type entered on controller does not match fuel type supplied.	Set fuel type on controller to match fuel type supplied.
	Internal engine issue.	Contact an IASD for assistance.
Unit is set to OFF, but engine continues to run	Controller wired incorrectly.	Contact an IASD for assistance.
	Faulty control board.	
No DC output from generator	Generator MLCB (generator disconnect) is OFF (OPEN).	Set generator MLCB (generator disconnect) to ON (CLOSED).
	Generator internal failure.	Contact an IASD for assistance.
	Engine may be warming up. See ***Setting The Exercise Timer***.	Check controller screen to verify status.

Problem	Cause	Correction
Unit consumes large amounts of oil	Excessive engine oil.	Adjust oil to correct level.
	Faulty engine breather.	Contact an IASD for assistance.
	Incorrect type or viscosity of oil.	See Engine Oil Requirements in owner's manual.
	Damaged gasket, seal, or hose.	Inspect for oil leaks.
	Restricted air filter.	Replace air filter.
Power converter faults	PWRcell battery limitations.	Contact an IASD for assistance.
	PLM communication error.	
	Disconnected breakers.	
* Contact an IASD or visit ***www.generac.com*** for assistance.		

NOTE: IASD must have an active Tech ID and be air-cooled certified to perform any warrantable repairs and submit warranty claims related to air-cooled products.

Section 9: Quick Reference Guide

System Diagnosis

To clear an active alarm, press ENTER button twice and then press AUTO. If alarm reoccurs, contact an air-cooled certified IASD.

Active Alarm	LED	Problem	Actions	Solution
NONE	FLASHING GREEN	Unit running in AUTO but no power in house.	Check generator MLCB (generator disconnect).	Check generator MLCB (generator disconnect). If it is ON, contact an IASD.
HIGH TEMPERATURE	RED	Unit shuts down during operation.	Check LED's / Screen for alarms.	Inspect ventilation around generator, intake, exhaust, and rear of generator. If no obstructions are present, contact an IASD.
OVERLOAD REMOVE LOAD	RED	Unit shuts down during operation.	Check LED's / Screen for alarms.	Clear alarm and remove household loads from generator. Put back in AUTO and restart.
RPM SENSE LOSS	RED	Unit was running and shuts down, attempts to restart.	Check LED's / Screen for alarms.	Clear alarm and remove household loads from generator. Put back in AUTO and restart. If generator does not start, contact an IASD.
NOT ACTIVATED	NONE	Unit will not start in AUTO with utility loss.	Verify if screen says unit not activated.	See Activation section in owner's manual.
NONE	GREEN	Unit will not start in AUTO with utility loss.	Check HOME screen on PWRcell Inverter control panel for PV production and export from PWRcell Batteries.	Batteries and/or solar are providing power.
NONE	GREEN	Unit will not start in AUTO with utility loss.	Check screen for start delay countdown.	If startup delay is greater than expected, contact an IASD to adjust between 2 to 1500 seconds.
LOW OIL PRESSURE	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Check oil level and add oil as needed. If oil level is correct, contact an IASD.
RPM SENSE LOSS	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Clear alarm. Using control panel, check battery by navigating to BATTERY MENU option from MAIN MENU. If battery condition displays GOOD, contact an IASD. If control panel displays CHECK BATTERY, replace battery.
OVERCRANK	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Verify fuel line shutoff valve is ON. Clear alarm. Start unit in MANUAL. If it does not start, or starts and runs rough, contact an IASD.
LOW VOLTS REMOVE LOAD	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Clear alarm and remove household loads from generator. Put into AUTO and restart.
OVERSPEED	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Contact an IASD.
UNDERVOLTAGE	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Contact an IASD.
UNDERSPEED	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Contact an IASD.

Active Alarm	LED	Problem	Actions	Solution
OVERVOLTAGE	RED	Unit will not start in AUTO with utility loss.	Check LED's / Screen for alarms.	Contact an IASD.
SHUTDOWN SWITCH	RED	Unit will not start.	Check emergency shutdown switch(es).	Set emergency shutdown switch(es) to CLOSED (I).
LOW BATTERY	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Clear alarm. Using control panel, check battery by navigating to BATTERY MENU option from MAIN MENU. If battery condition displays GOOD, contact an IASD. If control panel displays CHECK BATTERY, replace battery.
BATTERY PROBLEM	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Contact an IASD.
CHARGER WARNING	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Contact an IASD.
LOW REBUS VOLTAGE WARNING	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Contact an IASD.
LOW REBUS VOLTAGE WARNING	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Set generator MLCB (generator disconnect) to ON (CLOSED). Contact an IASD if issue persists.
SERVICE A	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Perform SERVICE A maintenance. Press ENTER to clear.
SERVICE B	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Perform SERVICE B maintenance. Press ENTER to clear.
INSPECT BATTERY	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Inspect battery. Press ENTER to clear.

Section 10: Accessories

Performance enhancing accessories are available for air-cooled generators.

Accessory	Description
Cold Weather Accessories*— • Battery Pad Warmer • Oil Warmer • Breather Warmer ** each sold separately and require separate 120VAC wiring from structure*	• Recommended in areas where temperatures fall below 0 °F (-18 °C). • Recommended in areas where temperatures fall below 0 °F (-18 °C). • Recommended in areas where heavy engine icing occurs.
Scheduled Maintenance Kit	Includes all items necessary to perform complete routine maintenance on the generator, along with oil recommendations (oil not included).
Fascia Base Wrap	The fascia base wrap snaps together around the bottom of the new air-cooled generators. This offers a sleek, contoured appearance as well as offering protection from rodents and insects by covering the lifting holes located in the base. Requires use of the mounting pad shipped with the generator.
Touch-Up Paint Kit	If the generator enclosure is scratched or damaged, it is important to touch-up the paint to protect from future corrosion. The touch-up paint kit includes the necessary paint to correctly maintain or touch-up a generator enclosure.
Extended Warranty Coverage	Extend generator warranty coverage by purchasing extended warranty coverage. Covers both parts and labor. Extended coverage can be purchased within 12 months of end-users purchase date. This extended coverage is applicable to registered units. End-user proof of purchase must be available upon request. Available for Generac® and Guardian® products. Not available for Corepower™ or EcoGen™ products, or all international purchases.

NOTE: Contact an IASD or visit ***www.generac.com*** for additional information on accessories and extended warranties.

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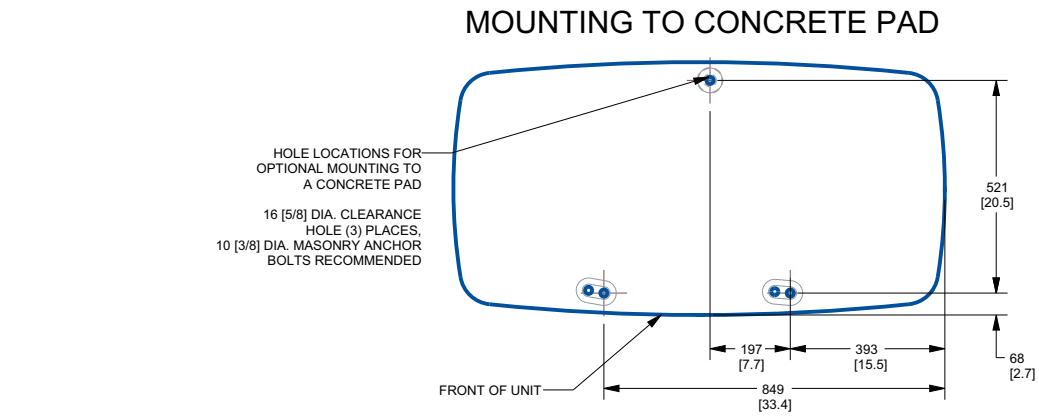
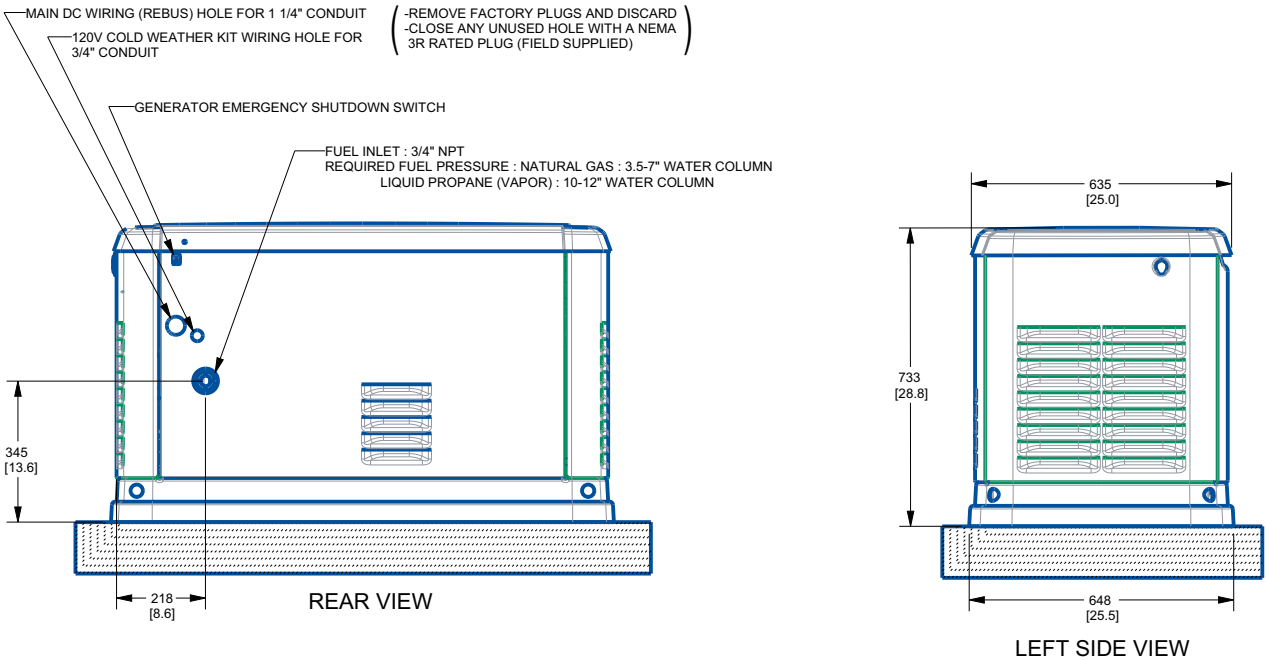
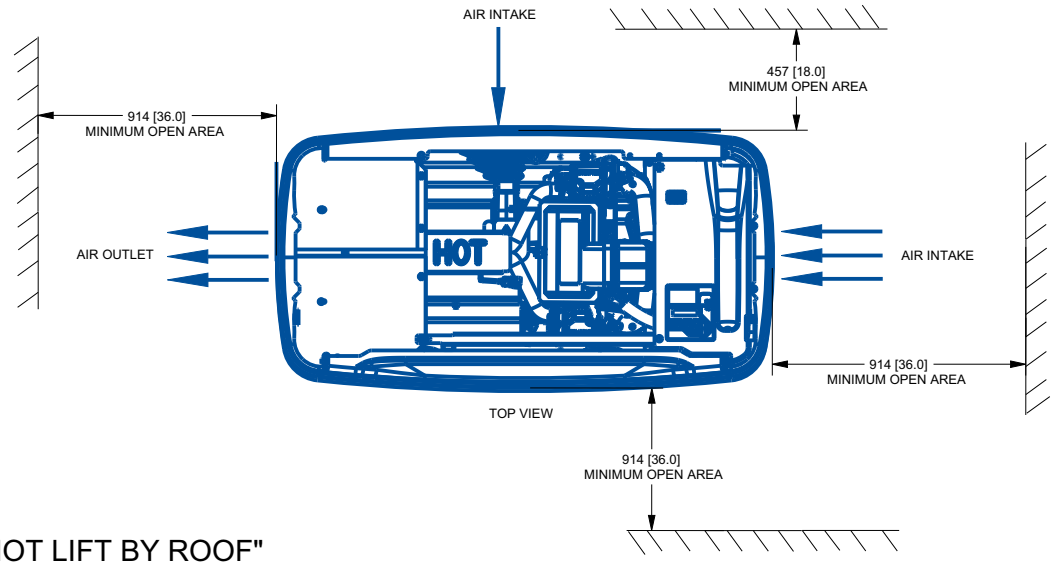
Section 11: Diagrams

Installation Drawing (A0001919138 rev B—1 of 2)

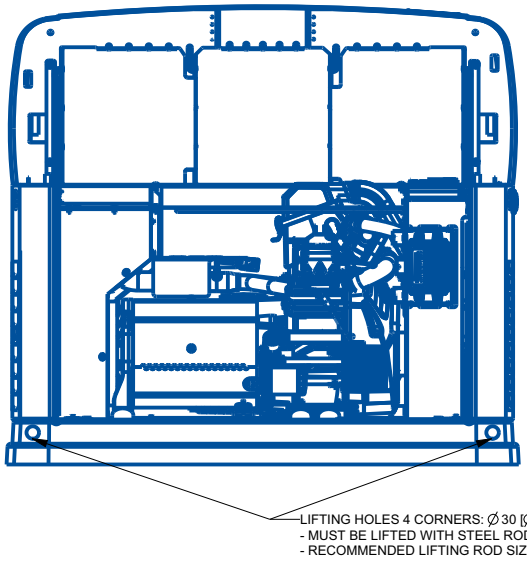


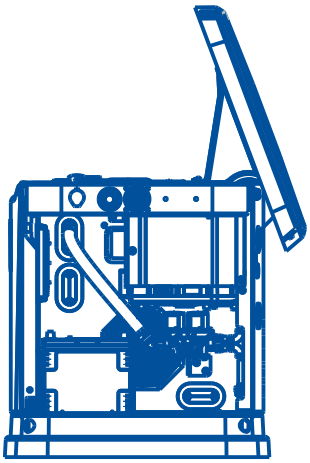


Installation Drawing (A0001919138 rev B—2 of 2)

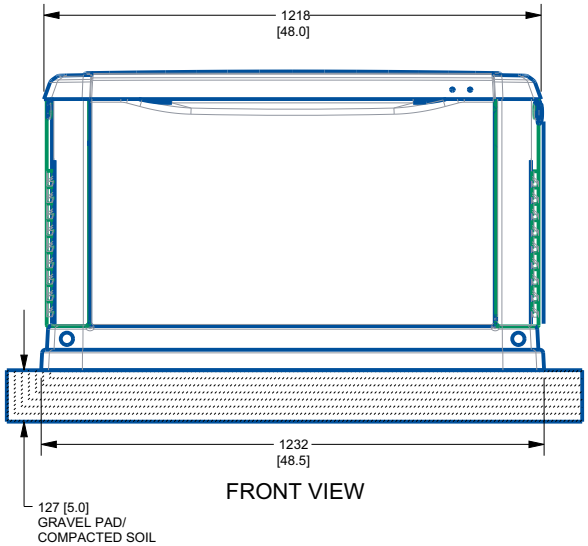


"DO NOT LIFT BY ROOF"

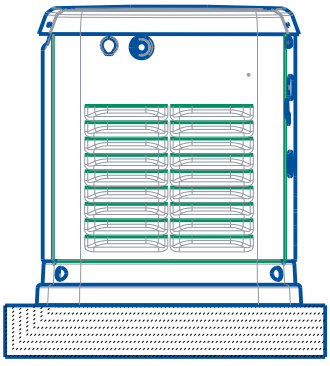




RIGHT VIEW
INTAKE PANEL REMOVED



FRONT VIEW



RIGHT SIDE VIEW

Part No. A0001472493 Rev. C 05/17/2023

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