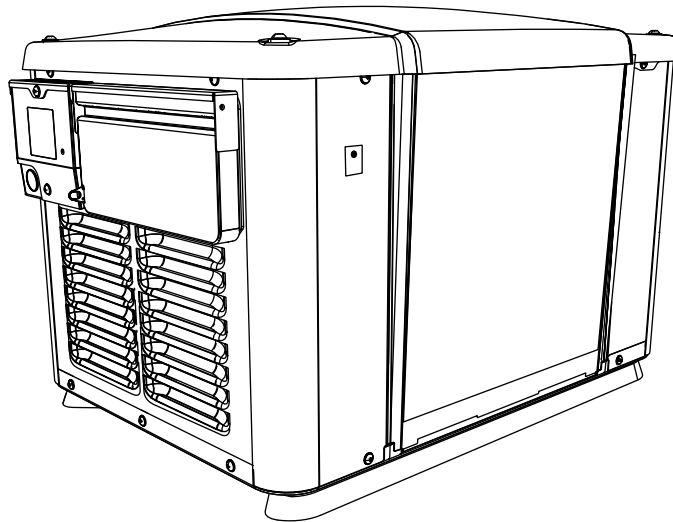


## *Installation Guidelines* *60 Hz Air-Cooled Generators*

7.5 kW PowerPact™



### **WARNING**

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. (000209a)

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

Para español , visita: <http://www.generac.com/service-support/product-support-lookup>

Pour le français, visiter : <http://www.generac.com/service-support/product-support-lookup>

**SAVE THIS MANUAL FOR FUTURE REFERENCE**

---

**Use this page to record important information about your generator set.**

Model:	
Serial:	
Prod Date Week:	
Volts:	
LPV Amps:	
NG Amps:	
Hz:	
Phase:	
Controller P/N:	

Record the information found on your unit data label on this page. The unit has a label plate affixed to the inside partition, above the battery access panel as shown in [Figure 2-2](#). For directions on how to open the top lid and remove the front panel, see the Owner's Manual.

When contacting an independent authorized service dealer about parts and service, always supply the complete model number and serial number of the unit.

**Operation and Maintenance:** Proper 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 checks, to make sure that all maintenance for safe operation is performed promptly. Generac recommends that the equipment be checked periodically by an Independent Authorized Service Dealer. Normal maintenance, service and replacement of parts are the responsibility of the owner/operator and, as such, 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 Independent Authorized Service Dealer for assistance. Authorized service technicians are factory-trained and are capable of handling all service needs. To locate the nearest Independent Authorized Service Dealer, please visit the dealer locator at:

[www.generac.com/Service/DealerLocator/](http://www.generac.com/Service/DealerLocator/).

---

**! WARNING**

California Proposition 65. Engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm. (000004)

---

**! WARNING**

California Proposition 65. This product contains or emits chemicals known to the state of California to cause cancer, birth defects, and other reproductive harm. (000005)

---

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# Section 1: Safety Rules & General Information

## Introduction

Thank you for purchasing this compact, high performance, air-cooled, engine-driven generator. It is designed to automatically supply electrical power to operate critical loads during a utility power failure.

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

**NOTE:** When sized properly, this generator is suitable for supplying typical residential loads such as induction motors (sump pumps, refrigerators, air conditioners, furnaces, etc.), electronic components (computer, monitor, TV, etc.), lighting loads and microwaves.

## 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 portion of this manual is not understood, contact the nearest Independent Authorized Service Dealer for starting, operating and servicing procedures.

This manual must be used in conjunction with the appropriate Owner's Manual.

**SAVE THESE INSTRUCTIONS:** The manufacturer suggests that this manual and the rules for safe operation be copied and posted near the unit installation site. Safety should be stressed to all operators and potential operators of this equipment.

Throughout this publication and on tags and decals affixed to the generator, DANGER, WARNING, and CAUTION 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. Their 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 provide additional information important to a procedure or component.

These safety warnings cannot eliminate the hazards they indicate. Observing safety precautions and strict compliance with the special instructions while performing the action or service are essential to preventing accidents.

The operator is responsible for proper and safe use of the equipment. The manufacturer strongly recommends that if the operator is also the owner, to read the Owner's Manual and thoroughly understand all instructions before using this equipment. The manufacturer also strongly recommends instructing other users to properly start and operate the unit. This prepares them if they need to operate the equipment in an emergency.

## How to Obtain Service

When the generator requires servicing or repairs, Generac recommends contacting an Independent Authorized Service Dealer (IASD) for assistance. Service technicians are factory-trained and are capable of handling all service needs. For assistance locating a dealer, go to [www.generac.com/Service/DealerLocator/](http://www.generac.com/Service/DealerLocator/).

When contacting an IASD about parts and service, always supply the complete model number and serial number of the unit as given on its data decal, which is located on the generator. Refer to [Figure 2-2](#) for decal location. Record the model number and serial numbers in the spaces provided on the inside front cover of this manual.

## Safety Rules

Study these SAFETY RULES carefully before installing, operating or servicing this equipment. Become familiar with this Installation Manual and with the unit. The generator can operate safely, efficiently and reliably only if it is properly installed, operated and maintained. Many accidents are caused by failing to follow simple and fundamental rules or precautions.

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

**General Hazards**



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)



Automatic start-up. Disconnect utility power and render unit inoperable before working on unit. Failure to do so will result in death or serious injury. (000191)



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. (000209a)



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. See individual unit specifications for required maintenance and run times pertaining to use. (000247)



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)



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)



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



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 damage to equipment or property. (000155)



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)



Moving Parts. Keep clothing, hair, and appendages away from moving parts. Failure to do so could result in death or serious injury. (000111)



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)



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)



Risk of injury. Do not operate or service this machine if not fully alert. Fatigue can impair the ability to service this equipment and could result in death or serious injury. (000215)



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 the generator regularly, and contact the nearest independent authorized service dealer 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**

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)

Adequate, unobstructed flow of cooling and ventilating air is critical to correct generator operation. Do not alter the installation or permit even partial blockage of ventilation provisions, as this can seriously affect safe operation of the generator. The 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 an approved transfer switch. Failure to do so will result in death or serious injury.

(000150)

**⚠ DANGER**

Electrical backfeed. Use only approved switchgear to isolate generator when electrical utility is the primary power source. Failure to do so will result in death, serious injury, and equipment damage.

(000131a)

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

(000144)

**⚠ 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**

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)



**⚠️ WARNING**

Risk of electrocution. Refer to NFPA 70E for safety equipment required when working with a live electrical system. Failure to use required safety equipment could result in death or serious injury. (000221)



**⚠️ 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. Also, verify that the generator is installed in accordance with the manufacturer's instructions and recommendations. Following proper installation, do nothing that might alter a safe installation 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**

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



**⚠️ 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)

**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)

**⚠️ DANGER**

Electrical backfeed. Use only approved switchgear to isolate generator when electrical utility is the primary power source. Failure to do so will result in death, serious injury, and equipment damage. (000131a)

**⚠️ WARNING**

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

- Follow all safety precautions in the Owner's Manual, Installation Guidelines manual and other documents included with your equipment.
- Refer to NFPA 70E for safety equipment required when working with a live system.
- Never energize a new system without opening all disconnects and breakers.
- Always consult your local code for additional requirements for the area in which the unit is being installed.

Improper installation can result in personal injury and damage to the generator. It may also result in the warranty being suspended or voided. All the instructions listed below must be followed including location clearances and pipe sizes.



## Before You Begin

- Contact the local inspector or City Hall to be aware of all federal, state and local codes that could impact the installation. Secure all required permits before starting the job.
- Carefully read and follow all of the procedures and safety precautions detailed in the installation guide. If any portion of the installation manual, technical manual or other factory-supplied documents is not completely understood, contact an Independent Authorized Service Dealer for assistance.
- Fully comply with all relevant NEC, NFPA and OSHA standards as well as all federal, state and local building and electric codes. As with any generator, this unit must be installed in accordance with current NFPA 37 and NFPA 70 standards as well as any other federal, state, and local codes for minimum distances from other structures.
- Verify the capacity of the natural gas meter or the LP tank in regards to providing sufficient fuel for both the generator and other household and operating appliances.

## NEC Requirements

Local code enforcement may require that Arc Fault Circuit Interrupters (AFCIs) be incorporated into the transfer switch distribution panel. The Transfer Switch provided with this generator has a distribution panel that will accept AFCIs (pre-wired transfer switches only).

Siemens Part No. Q115AF - 15A or Q120AF - 20A can be obtained from a local electrical wholesaler and will simply replace any of the single pole circuit breakers supplied in the pre-wired transfer switch distribution panel.

## Standards Index



### ⚠ WARNING

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. (000209a)

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 IBC).

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 \*\*\*\*

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](http://www.nfpa.org)

\*\* [www.iccsafe.org](http://www.iccsafe.org)

\*\*\* [www.nerc.org](http://www.nerc.org) Rural Electricity Resource Council P.O. Box 309 Wilmington, OH 45177-0309

\*\*\*\* [www.asabe.org](http://www.asabe.org) American Society of Agricultural & Biological Engineers 2950 Niles Road, St. Joseph, MI 49085

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## Section 2: Unpacking and Inspection

### General

**NOTE:** After unpacking, carefully inspect the contents for damage. It is advised to unpack and inspect the unit immediately upon delivery to detect any damage that may have occurred in transit. Any claims for shipping damage need to be filed as soon as possible with the freight carrier. This is especially important if the generator will not be installed for a period of time.

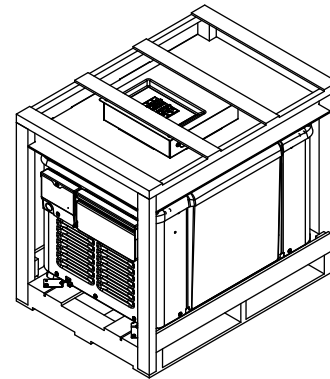
- This standby generator set is ready for installation and has a weather protective enclosure that is intended for outdoor installation only.
- This UL listed standby generator set may be packaged with an automatic transfer switch with built-in load center. The combination transfer switch and load center may be pre-wired with a two foot and 30 foot conduit. The prewired switch is rated for indoor use only. Circuit breakers for emergency circuit connections are included.
- This UL listed, 2-pole switch is rated at 35 amps, rated at 250 volts maximum.
- If any loss or damage is noted at time of delivery, have the person(s) making the delivery note all damage on the freight bill or affix their signature under the consignor's memo of loss or damage.
- If a loss or damage is noted after delivery, separate the damaged materials and contact the carrier for claim procedures.
- "Concealed damage" is understood to mean damage to the contents of a package that is not evident at the time of delivery, but is 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
- Pliers
- Needle Nose Pliers (for fuel conversion)
- 4mm and 6mm Allen wrenches
- 3/16 Allen wrench (test port on fuel regulator)
- Manometer (for fuel pressure checks)
- Meter capable of measuring AC/DC Voltage and Frequency

### Unpacking

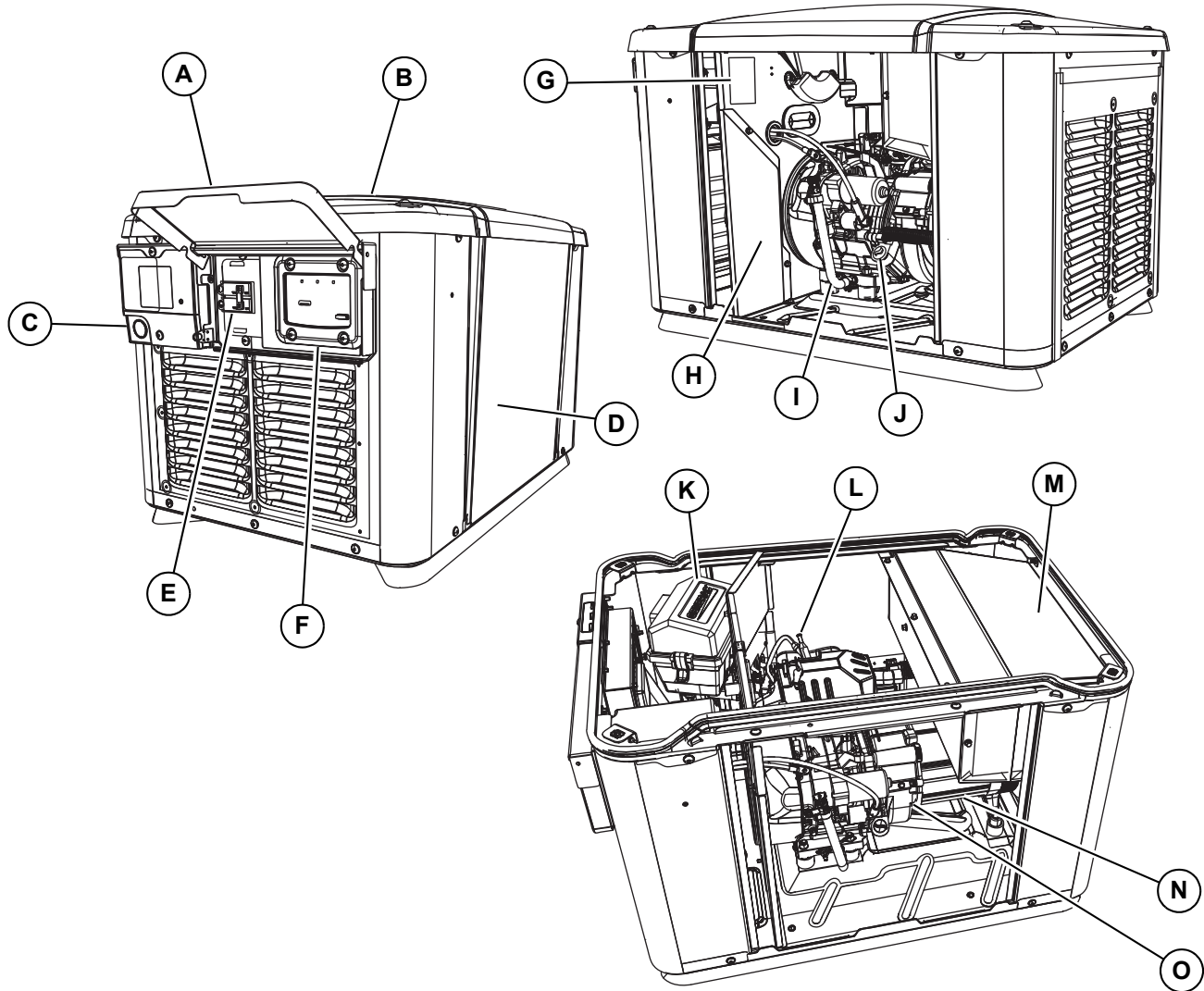
1. Remove cardboard carton.
2. If equipped, the optional transfer switch will be visible on top of the generator.
3. Remove the wood frame. Lift the transfer switch, if present, off the generator.



001113

**Figure 2-1. Crated Generator**

4. There are four fasteners securing the top lid. Remove the four Allen fasteners and lift the top lid from the generator enclosure.
5. Once the lid is open, remove the front panel by lifting it up and out. Also open the door covering the customer connection area.
6. Perform a visual inspection for any hidden freight damage.



001037

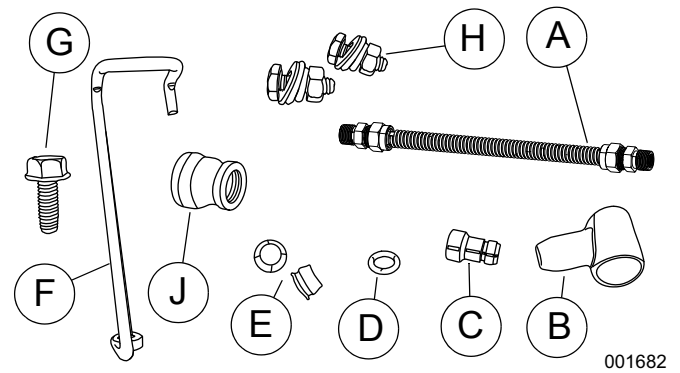
**Figure 2-2. Inspect for Damage**

- |                            |                         |                      |
|----------------------------|-------------------------|----------------------|
| A. Controller Lid          | F. Control Panel        | K. Air Box           |
| B. Top Lid                 | G. Data Label           | L. Spark Plug        |
| C. Customer Connection Box | H. Battery Access Panel | M. Exhaust Enclosure |
| D. Front Panel             | I. Oil Drain Hose       | N. Alternator        |
| E. Circuit Breaker         | J. Oil Fill / Dipstick  | O. Starter Motor     |

## Parts Shipped Loose

Parts shipped loose are located in a clear plastic bag inside the unit, in front of the engine or under the alternator. The flex fuel line (A) is tied to either the battery wires or the alternator can.

- Flex Fuel Line (A)
- Battery Terminal Cap (B)
- LP Fuel Jet (C)
- Fuel Jet O-ring (D)
- Decal - Service Entrance (Not Shown)
- Decal - Warning (Not Shown)
- MLCB Terminal Caps (E)
- Owner's and Installation Manual (Not Shown)
- Battery Bracket (F)
- M6 x 1 16mm Thread Forming Screw (for Battery Bracket) (G)
- 2 sets of Bolts, Nuts and Washers (for connecting battery cables) (H)
- Reducer coupling FNPT 3/4" to 1/2" (J)

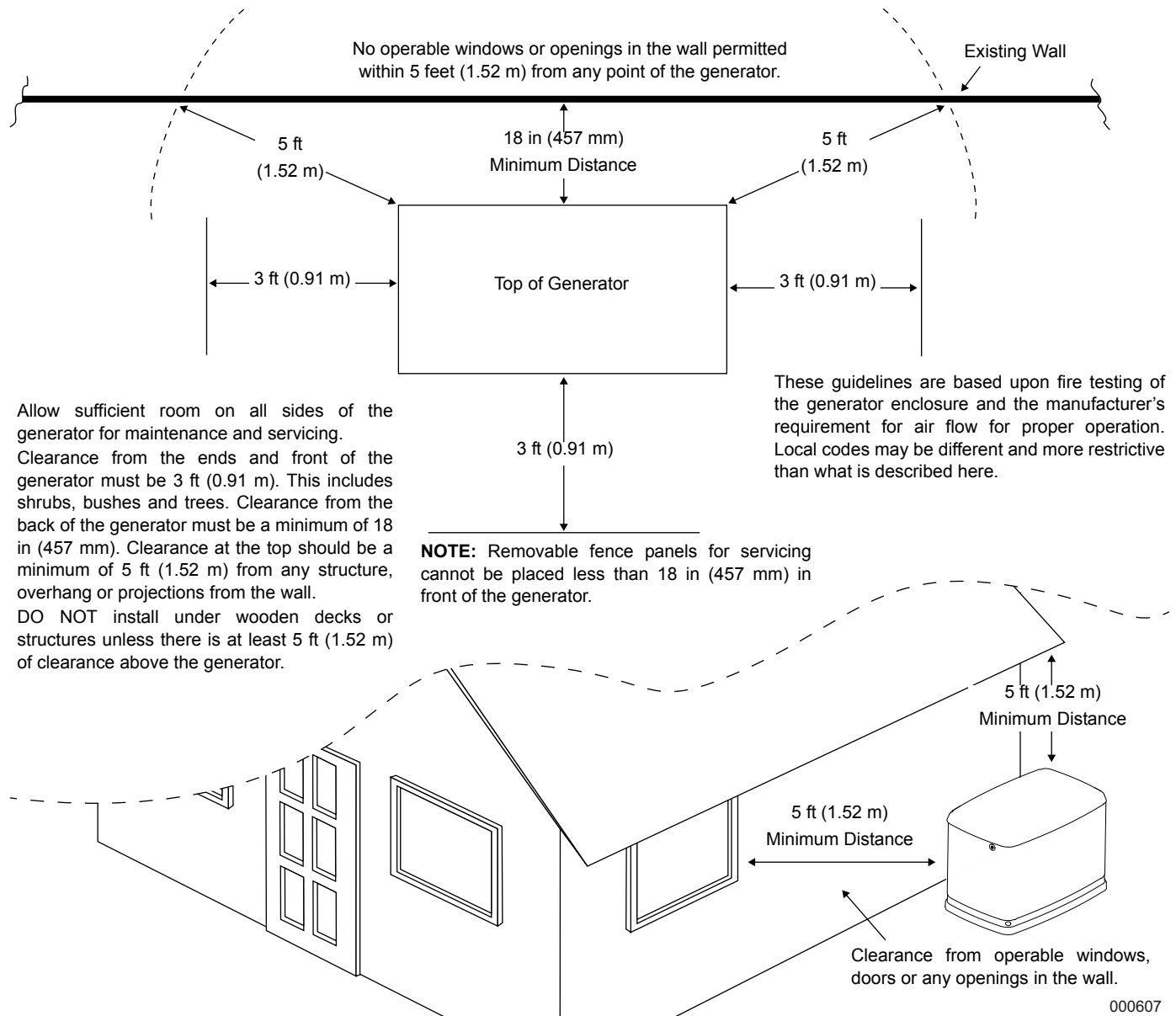


**Figure 2-3. Parts Shipped Loose**

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# Section 3: Site Selection and Preparation

## Site Selection



**Figure 3-1. Installation Guidelines**

Install the generator set, in its protective enclosure, outdoors, where adequate cooling and ventilating air is always available (**Figure 3-1**). Consider these factors:

- The installation of the generator must comply strictly with NFPA 37, NFPA 54, NFPA 58 and NFPA 70 standards.
- Install the 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 to protect the unit.

- Install the generator on high ground where water levels will not rise and endanger it. It should not operate in or be subjected to standing water.
- Allow sufficient room on all sides of the generator for maintenance and servicing. This unit must be installed in accordance with any codes that are in place in your country or local jurisdiction for minimum distances from other structures.
- Clearance from the ends and front of the generator must be 3 ft (0.91 m). This includes shrubs, bushes and trees. Clearance from the back of the generator must be a minimum of 18 in (457 mm).

Clearance at the top should be a minimum of 5 ft (1.52 m) from any structure, overhang or projections from the wall.

- DO NOT install under wooden decks or structures unless there is at least 5 ft (1.52 m) of clearance above the generator.
- Install the unit where rain gutter downspouts, roof run-off, landscape irrigation, water sprinklers or sump pump discharge do not flood the unit or spray the enclosure, including any air inlet or outlet openings.
- Install the unit where services will not be affected or obstructed, including concealed, underground or covered services such as electrical, fuel, phone, air conditioning or irrigation. This could affect Warranty Coverage.
- Where strong prevailing winds blow from one direction, face the generator air inlet openings to the prevailing winds.
- Install the generator as close as possible to the fuel supply to reduce the length of piping. REMEMBER THAT LAWS OR CODES MAY REGULATE THE DISTANCE AND LOCATION. In the absence of local codes regarding placement or clearance, we recommend following these guidelines.
- Install the generator as close as possible to the transfer switch. REMEMBER THAT LAWS OR CODES MAY REGULATE THE DISTANCE AND LOCATION.
- The generator must be installed on a level surface. The generator must be level within 0.5 in (13 mm) all around.
- The generator is typically placed on pea gravel, crushed stone or a concrete pad. Check local codes to see what type is required. If a concrete pad is required, all applicable codes should be followed.

### Installation Guidelines for Stationary Air-Cooled Generators

The National Fire Protection Association has a standard for the installation and use of stationary combustion engines. That standard is NFPA 37. Its requirements limit the spacing of an enclosed generator set from a structure or wall ([Figure 3-1](#)).

NFPA 37, Section 4.1.4, Engines Located Outdoors: Engines, and their weatherproof housings if provided, that are installed outdoors shall be located at least 5 ft (1.52 m) from openings in walls and at least 5 ft (1.52 m) from structures having combustible walls. A minimum separation shall not be required where the following conditions exist:

1. The adjacent wall of the structure has a fire resistance rating of at least 1 hour.

2. The weatherproof enclosure is constructed of noncombustible materials and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure.

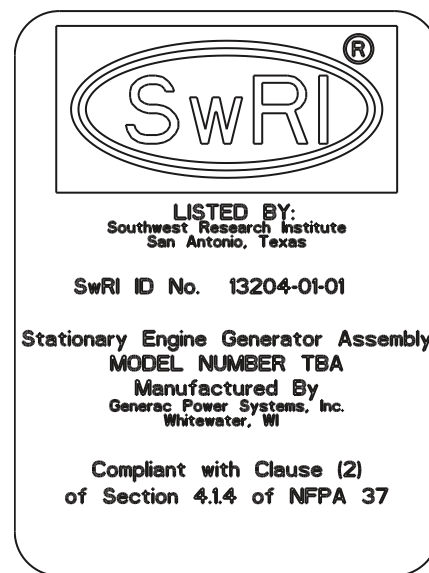
### Annex A — Explanatory Material

A4.1.4 (2) Means of demonstrating compliance are by means of full scale fire test or by calculation procedures.

Because of the limited spaces that are frequently available for installation, it has become apparent that exception (2) would be beneficial for many residential and commercial installations. With that in mind, the manufacturer contracted with an independent testing laboratory to run full scale fire tests to assure that the enclosure will not ignite combustible materials outside the enclosure.

**NOTE: Southwest Research Institute testing approves 18 in (457 mm) installation minimum from structure. Southwest Research is a nationally recognized third party testing and listing agency.**

The 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 generator enclosure would not pose any ignition risk to nearby combustibles or structures, with or without fire service personnel response.



**Figure 3-2. Southwest Research Institute Decal**

The Southwest Research Institute Decal is located inside the generator, next to the generator's data decal.

<http://www.swri.org/4org/d01/fire/listlab/listprod/director.htm>



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 to a stationary wall or building. 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 would include 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 3-1](#) and the installation drawing within the Owner's Manual for details.



**▲ 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)

**▲ DANGER**

Automatic start-up. Disconnect utility power and render unit inoperable before working on unit. Failure to do so will result in death or serious injury.  
(000191)

If the generator is not set to the OFF mode, it can crank and start as soon as the battery cables are connected. If the utility power supply is not turned off, sparking can occur at the battery posts and cause an explosion.

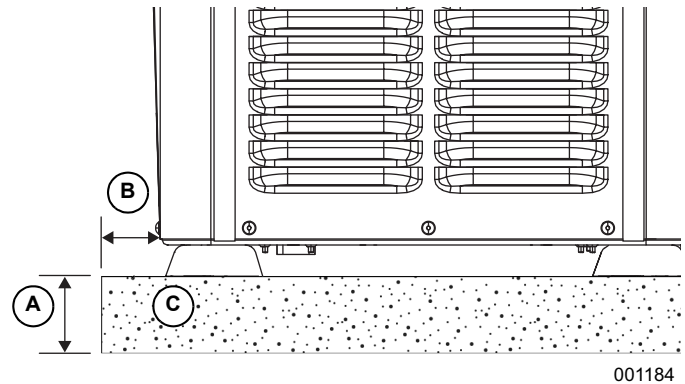
## Site Preparation

- Locate the mounting area as close as possible to the transfer switch and fuel supply.
- Leave adequate room around the area for service access (check local code), and place high enough to keep rising water from reaching the generator.
- Choose an open space that will provide adequate and unobstructed airflow.
- Place the unit so air vents won't become clogged with leaves, grass, snow or debris. Make sure exhaust fumes will not enter the building through eaves, windows, ventilation fans or other air intakes (see [Site Selection](#)).
- Select the type of base, such as but not limited to gravel or concrete, as desired or as required by local laws or codes. Verify your local requirements before selecting.

### Material Sufficient for Level Installation

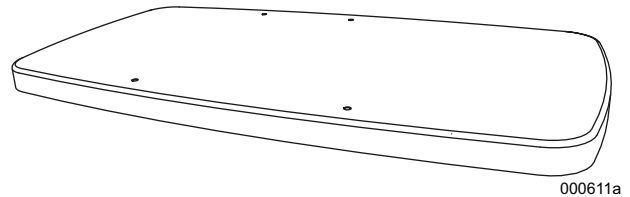
- Dig a rectangular area approximately 5 in (127 mm) deep [A] and about 6 in (152 mm) longer and wider [B] than the footprint of the generator. Fill

with 4 in (102 mm) of pea gravel [C], crushed stone or any other non-combustible material sufficient for level installation. Compact and level the material. A concrete pad can be poured if desired or required. The pad should be 4–5 in (102–127 mm) thick and extend 6 in (152 mm) beyond the outside of the generator in all directions.



**Figure 3-3. Compacted Gravel Pad**

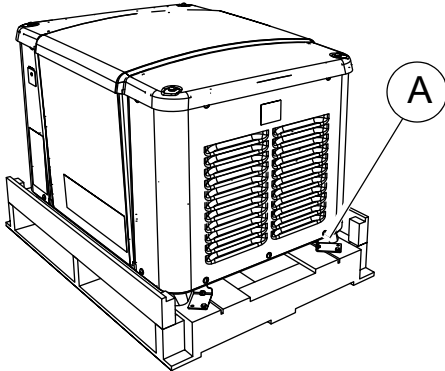
**NOTE:** If a concrete pad is required, follow all applicable Federal, State or local codes.



**Figure 3-4. Poured or Pre-formed Concrete Pad**

### Transportation Recommendations

1. Use a two wheeled hand cart or metal rails to carry the generator (including the wooden pallet) to the installation site. Place cardboard between the hand cart and the generator to prevent any damage or scratches to the generator.
2. Remove bolts from the pallet brackets (A).



001121

**Figure 3-5. Generator on Pallet**

3. Lift the generator from the wooden pallet.

**NOTE:** Be extremely careful when removing the generator from the pallet. Dragging it off the pallet WILL damage the base!

4. Unhook and remove the brackets from the generator.

## Section 4: Generator Placement

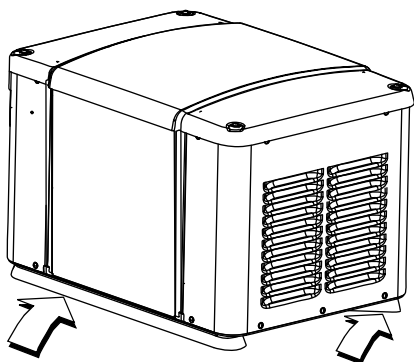
### Generator Placement

This generator comes with two composite pads. These composite pads elevate the generator and help prevent water from pooling around the bottom of the generator (**Figure 4-1**). Therefore, they should not be removed from the generator under ANY circumstances.

The generator with composite pads can be placed on 4 in (102 mm) of pea gravel that is compacted or on a concrete pad. Check local codes to see what type of site base is required. If a concrete pad is required, all federal, state and local codes should be followed. Place the generator and position correctly as per the dimensional information given in **Site Preparation**.

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

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

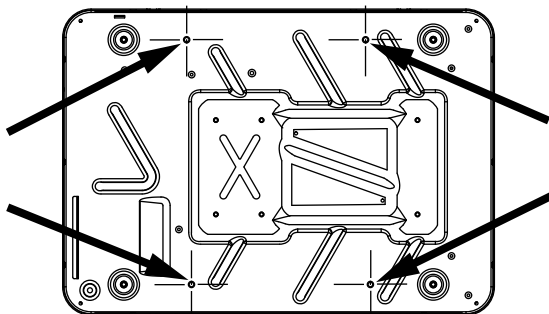


001119

**Figure 4-1. Composite Pads**

**NOTE:** When mounting the generator to concrete, there are four mounting holes inside the generator enclosure for securing the generator. DO NOT remove the composite pads while mounting the generator to concrete. See **Figure 4-2**.

The use of 5/16" (or M8) lag bolts is recommended (not supplied) for securing the generator to a concrete pad.



001122

**Figure 4-2. Mounting Hole Location**

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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:** Natural gas (NG) is lighter than air and will collect in high areas. Liquid propane (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 the vapors formed above the liquid fuel in the storage tank.

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

**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<sup>3</sup> (37.26 MJ/m<sup>3</sup>) for natural gas; or at least 2,500 BTU/ft<sup>3</sup> (93.15 MJ/m<sup>3</sup>) for LP gas.

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

### Fuel Pressure

Required fuel pressure for natural gas is 5–7 inches water column (9–13 mm mercury). Required fuel pressure for liquid propane vapor is 10–12 in H<sub>2</sub>O (19–22 mm HG).

**NOTE:** The primary regulator for the propane supply is NOT INCLUDED with the generator.

**NOTE:** All pipe sizing, construction and layout must comply with NFPA 54 for natural gas applications and NFPA 58 for liquid propane applications. Once the generator is installed, verify fuel pressure NEVER drops below the required specification. For further information regarding NFPA requirements refer to the NFPA website at [www.nfpa.org](http://www.nfpa.org).

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

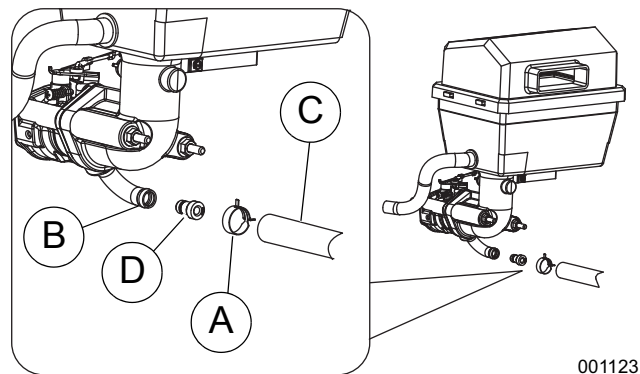
Piping strength and connections should be given special consideration when installation takes place in areas at risk for; flooding, tornadoes, hurricanes, earthquakes, and unstable ground.

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

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

## Fuel Conversion

1. Remove the four 6mm Allen head fasteners and lift the top lid from the generator enclosure.
2. Remove the two 4mm Allen head fasteners. Lift and remove the rear panel.



001123

**Figure 5-1. Fuel Conversion**

3. See Figure 5-1. Use a pliers to squeeze the hose clamp (A) and slide from the fuel inlet (B).
4. Remove the hose (C) from the fuel inlet.
5. Remove the NG fuel jet (D) from the fuel inlet. If the nozzle is found to be inside the hose, remove it with a needle nose pliers.
6. Locate the LP fuel jet (supplied). It has a smaller inside diameter than the NG jet.
7. Insert the LP fuel jet into the end of the fuel inlet.
8. Reinstall the hose on the fuel inlet. Secure the hose with the clamp.
9. Verify the hose has not been kinked in any way.
10. Reinstall the rear access panel by hooking it on the top of the unit. Check to make sure that the alternator bellow is completely secure around the frame provided on the access panel. Attach the panel firmly to the unit with the two shorter Allen screws.
11. Reinstall the top lid firmly with the four long Allen screws.

## Fuel Consumption

Generator	Natural Gas		LP Vapor	
	1/2 Load	Full Load	1/2 Load	Full Load
6 / 7.5 kW	73 / 2.07	117 / 3.31	0.87 / 3.29 / 31.6	1.42 / 5.37 / 51.6

\* Natural gas is in ft<sup>3</sup>/h / cm<sup>3</sup>/h

\*\* LP is in gal/h / l/h / ft<sup>3</sup>/h

\*\*\* Values given are approximate. Use the appropriate spec sheet or Owner's Manual for specific values.

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

**NOTE:** The gas supply and pipe MUST be sized at 100% load BTU / Megajoule rating.

Always refer to the Owner's Manual for the proper BTU, Megajoule and required gas pressures:

- Natural Gas:

$$\text{BTU} = \text{ft}^3/\text{h} \times 1000$$

$$\text{Megajoules} = \text{m}^3/\text{h} \times 37.26$$

- Liquid Propane Vapor

$$\text{BTU} = \text{ft}^3/\text{h} \times 2500$$

$$\text{Megajoules} = \text{m}^3/\text{h} / \text{hour} \times 93.15$$

## Fuel Line Sizing

Selecting the correct size fuel line is crucial to the proper operation of the unit. The generator inlet size has no bearing on the size gas pipe to be used.

For further information refer to NFPA 54 for NG or NFPA 58 for LP.

Measure the distance from the generator to the gas source.

**IMPORTANT NOTE:** The generator should be plumbed directly from the source, not off the end of an existing system.

**NOTE:** When measuring the pipe length, add 2.5 ft (0.76 m) for every angle or bend in the pipe to the overall required length of pipe needed.

### Natural Gas Pipe Sizing

To properly use this chart, find the kW rating of the generator in the left column, and trace to the right. The number to the right is the maximum length (measured in feet / meters) allowed for the pipe sizes on top. The pipe sizes are measured by inside diameter (ID) to include any fittings, valves (must be full flow), elbows, tees or angles.

**Table 5-1. Natural Gas Pipe Sizing**

Pipe Size					
kW	0.75 in (19 mm)	1 in (25 mm)	1.25 in (32 mm)	1.5 in (38 mm)	2 in (51 mm)
6	50 ft. (15 m)	150 ft. (16 m)	600 ft. (183 m)	—	—
For 5–7 in. of water column (9–13 mm mercury).					

### LP Vapor Pipe Sizing

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

**NOTE:** Pipe sizes are using a second stage regulator.

**NOTE:** The minimum LP tank size is 250 gallons (946 L), unless unit calculations dictate use of a larger tank. Vertical tanks, which are measured in pounds (or kilograms), will not usually meet the minimum tank size requirement. A 1050 lb (476 kg) vertical tank size minimum is required.

**Table 5-2. LP Vapor Pipe Sizing**

Pipe Size			
kW	0.75 in (19 mm)	1 in (25 mm)	1.25 in (32 mm)
7.5	165 ft. (50 m)	450 ft. (137 m)	—

## Summary

Incorrect gas pipe sizing is one of the most commonly made mistakes. A properly sized gas pipe is critical to the proper operation of the generator. The generator inlet size has no bearing on the proper gas pipe size.

The gas supply and pipe **MUST** be sized at 125% Load BTU / megajoule rating.

## Installing and Connecting Gas Lines

Both natural gas and LP vapor are highly combustible substances, so strict adherence to all safety procedures, codes, standards and regulations is essential.

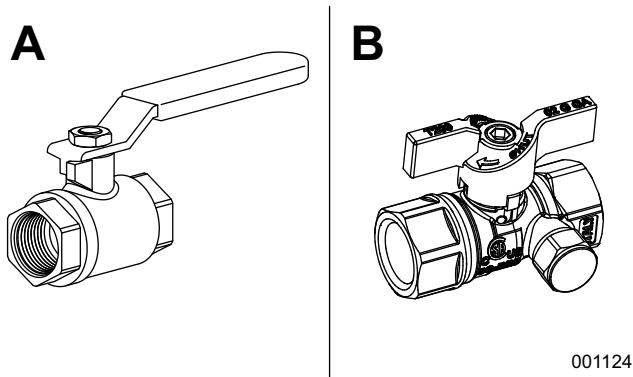
Gas line connections should be made by a certified plumber familiar with local codes. Always use AGA-approved gas pipe and a quality pipe sealant or joint compound.

Verify the capacity of the natural gas meter or the LP tank in regards to providing sufficient fuel for both the generator and other operating appliances.

### Shutoff Valve

Most applications will require an external manual full flow shut-off valve on the fuel line. The valve must be easily accessible. See **A** in Figure 5-2 and Figure 5-3.

**NOTE:** Local codes determine the proper location.



**Figure 5-2. Accessory Valve with Manometer Port**

**NOTE:** **Figure 5-2** (B) illustrates a fuel shut-off valve with a manometer port for making fuel pressure checks. This accessory valve permits making pressure checks without going into the generator enclosure.

Valves available through Generac and Independent Authorized Service Dealers:

- 1/2" ball valve, part number 0K8752
- 3/4" ball valve, part number 0K8754

### Flexible Fuel Line

When connecting the gas line to the generator, use UL Listed or AGA-approved flexible fuel line in accordance with local regulations. See **C** in Figure 5-3.

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. It is important that the line be installed with as few bends as possible. The flexible fuel line should be horizontal and plumbed parallel to the back of the generator.

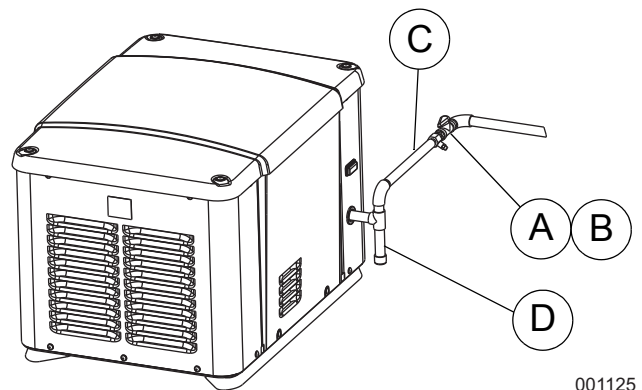


Equipment damage. Do not bend flexible fuel line. Bends in fuel line restrict fuel flow and reduce ability to absorb vibration.

(000205)

### Sediment Trap

Some local codes require a sediment trap. Install the recommended sediment trap as illustrated. See **D** in Figure 5-3.



**Figure 5-3. Gas Line Connections**



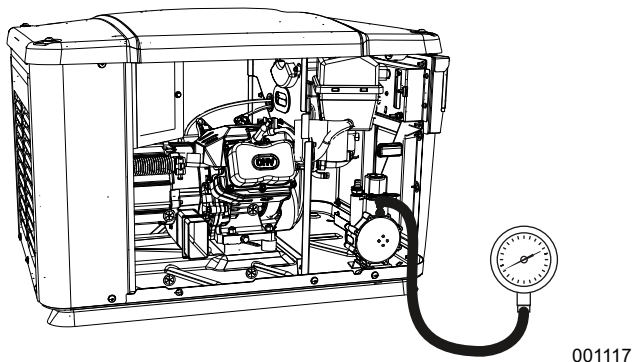
## Checking Gas Line Connections

1. Remove top lid and rear panel.
2. Check for leaks by spraying all connection points with a non-corrosive gas leak detection fluid. You should not see the solution be blown away or form bubbles.
3. Check gas pressure at the regulator in the generator by following these steps.
  - Close gas supply valve.
  - Remove the top gas pressure test port from the regulator (see [Figure 5-4](#)) and install the gas pressure tester (manometer).
  - Open the gas supply valve and verify the pressure is within the specified values.

**NOTE:** Gas pressure can also be tested at the manometer port on the fuel shut-off valve shown in [Figure 5-2](#).

**NOTE:** See [Fuel Requirements and Recommendations](#) for proper fuel pressure specifications. If the gas pressure is not within specifications, contact the local gas supplier.

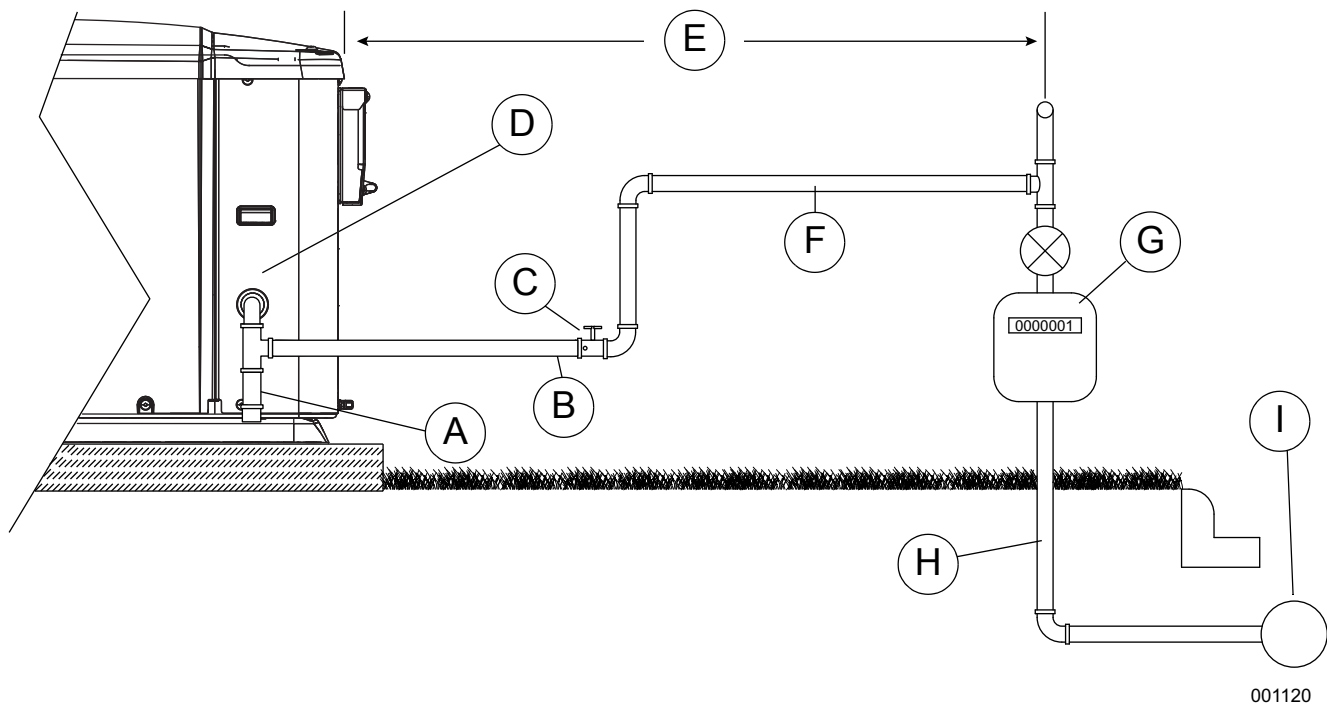
4. Close gas valve when completed.



**Figure 5-4. Checking Pressure with Manometer**

5. Reinstall the rear access panel by hooking it on top of the unit. Verify the alternator bellows is completely secure around the frame provided on the access panel. Attach the panel firmly to the unit with the two shorter Allen screws.
6. Reinstall the top lid firmly with the four long Allen screws.

## Natural Gas Vapor Installation (typical)

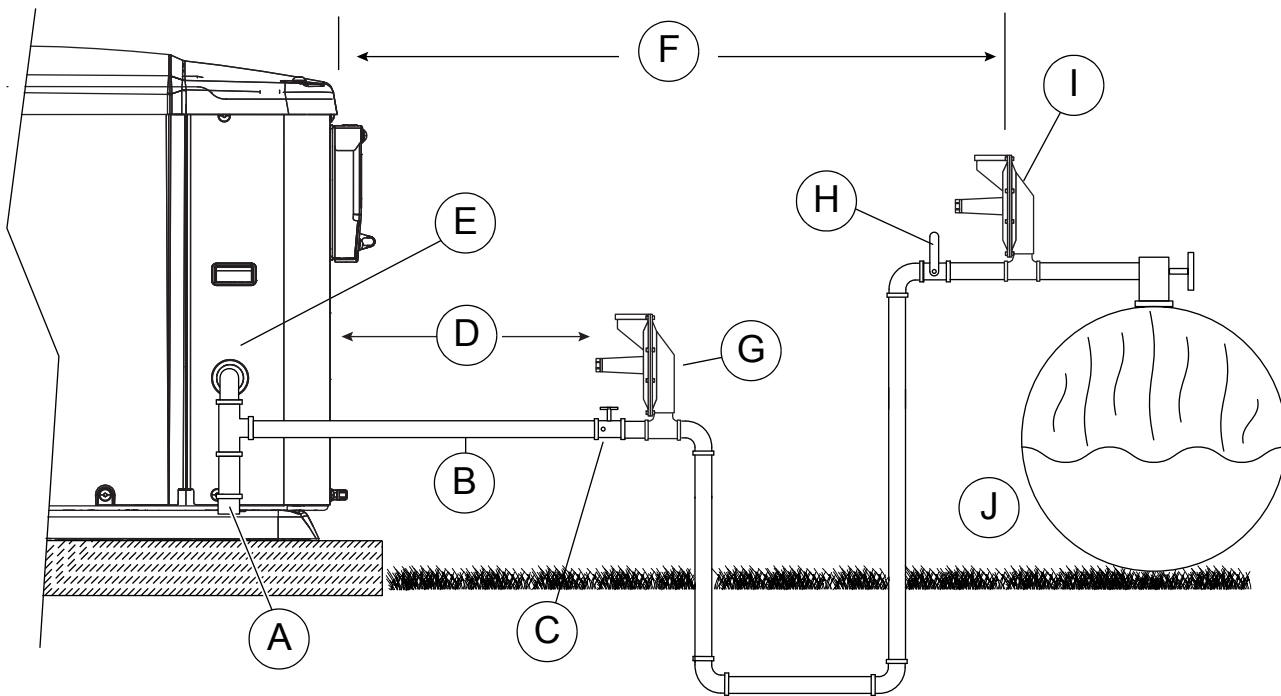


001120

<p>NG BTU = ft<sup>3</sup>/h X 1000                  Megajoules = m<sup>3</sup>/h X 37.26</p>	
A.	Sediment Trap
B.	Flexible Fuel Line
C.	Manual Shut Off Valve With Pressure Port
D.	BTU and Pressure Decal
E.	Check Distance with Gas Provider
F.	Fuel Pressure: 5–7 in. (9–13 mm) Water Column
G.	Size Gas Meter for Generator Load Plus All Appliance Loads
H.	For Underground Installations, Verify Piping System for Code Compliance
I.	Gas Main

**Figure 5-5. Natural Gas Vapor Installation (typical)**

## LP Vapor Installation (typical)



001118

$$\text{LP BTU} = \text{ft}^3/\text{h} \times 2500$$

$$\text{Megajoules} = \text{m}^3/\text{h} \times 93.15$$

A.	Sediment Trap
B.	Flexible Fuel Line
C.	Manual Shut Off Valve With Pressure Port
D.	Check Distance with Regulator Manufacturer
E.	BTU and Pressure Decal
F.	Check Distance with Gas Provider
G.	Secondary Fuel Pressure Regulator
H.	Manual Shut Off Valve
I.	Primary Fuel Pressure Regulator Per LP Provider
J.	Size fuel tank large enough to provide required BTUs for generator and ALL connected appliance loads. Be sure to correct for weather evaporation.

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

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# Section 6: Electrical Connections

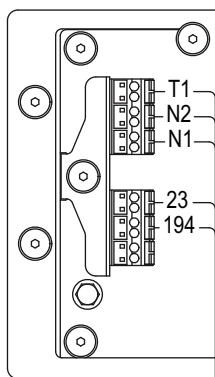
## Control Wiring

Control Wire Recommended Length and Size	
Maximum Wire Length	Recommended Wire Size
1–115 ft (1–35 m)	No. 18 AWG
116–185 ft (36–56 m)	No. 16 AWG
186–295 ft (57–89 m)	No. 14 AWG
296–460 ft (90–140 m)	No. 12 AWG

Control Panel Connections		
Terminal Numbering Decal	Wire Numbers	
A	YELLOW #1 & #2	N1 & N2—240 VAC—Sensing for Utility Dropout and Pickup
B	BLUE #3	T1—Fused 120VAC for Battery Charger (see NOTE)
C*	BLACK #3	0—DC (–) Common Ground Wire
D	RED #4	194—DC (+) 12 VDC for Transfer Controls
E	WHITE #5	23—Transfer Control Signal Wire

**NOTE:** T1 must be connected to keep battery charged whether unit is running or not.

\* Required if generator is paired with a Generac Smart Power management transfer switch.



001131

**Figure 6-1. Control Wiring**

**NOTE:** Control wiring must be in accordance with local jurisdiction and codes.

1. Remove the plug from the field connection box.
2. Remove the two Allen screws to remove the electrical access panel. The access panel will hang off of the grounding wire.

**NOTE:** Do not pull the panel. This will cause the ground wire to detach from the grounding bus bar.

3. Install the conduit and Main AC and Control Wires between the generator and the transfer switch (Figure 6-2). Route the conduit through a NEMA 3 rated external connection box (not supplied).

**NOTE:** The Electrical access panel is grounded to the ground bar through a grounding wire. Verify the integrity of this connection before closing the panel back.

**NOTE:** This wiring can be run in the same conduit if the appropriate insulation rated wire is used.

4. Seal the conduit at the generator and in compliance with any codes.
5. Strip the insulation from the ends of the wires. Do not remove excessive insulation.
6. To connect the control wires, push down on the spring loaded connection point with a flat head screwdriver, insert wire and release.

**NOTE:** No wire insulation should be in the connection point; only bare wire.

## Main AC Wiring

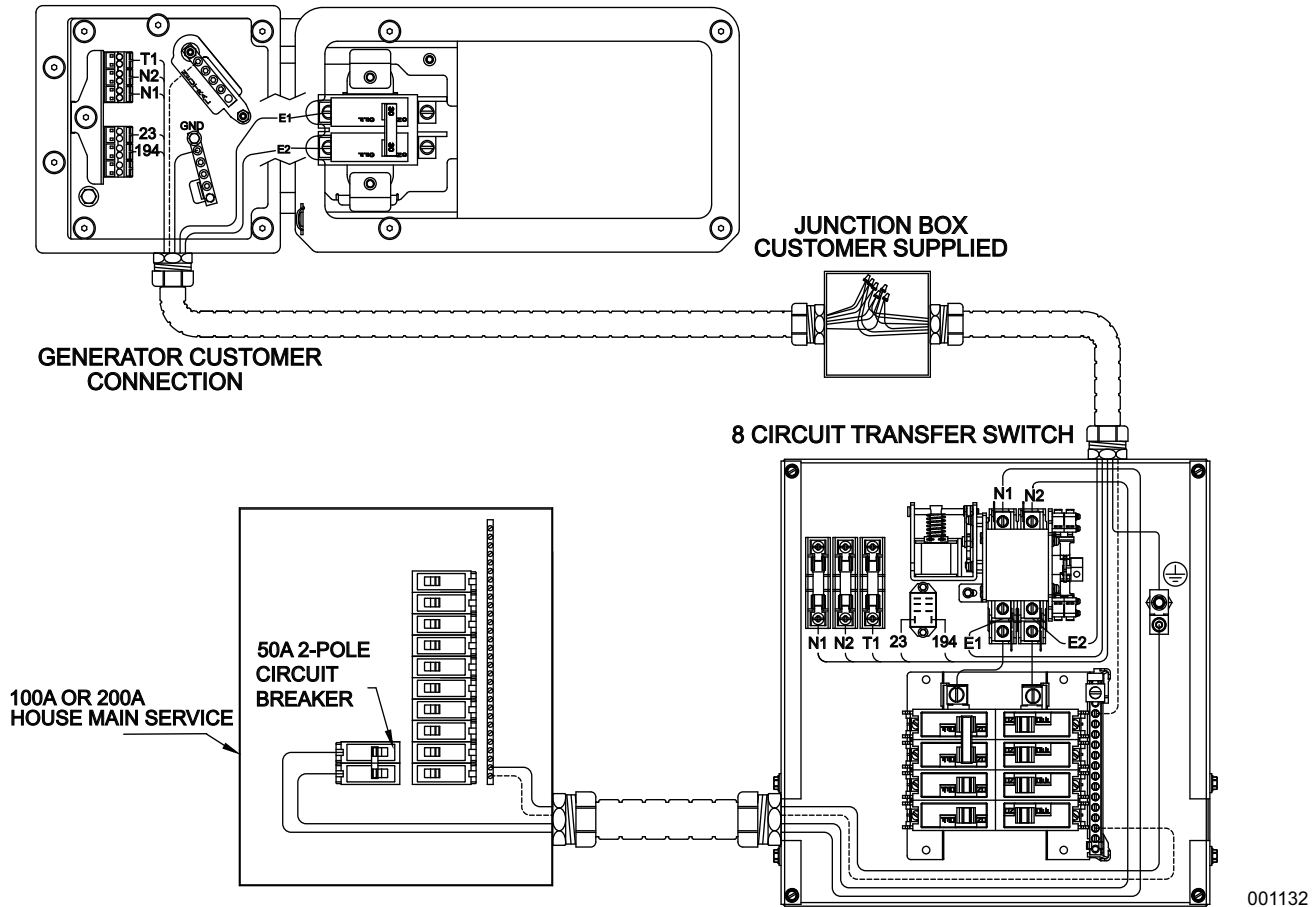


Figure 6-2. Main AC Wiring

**NOTE:** Main AC wiring must be in accordance with local jurisdiction and codes.

1. Strip the insulation off the wire ends. Do not remove excessive insulation.
2. Open the controller access panel and latch it. Loosen the lugs of the Main Breaker through the access holes.
3. Insert a power wire (E1 or E2) into the bottom lug of the Main Breaker. Torque to the proper specification.
4. Connect the Neutral wire to the Neutral bar and torque to the required specification. See Figure 6-2.
5. Connect the Ground wire to the Ground bar and torque to the required specification. See Figure 6-2.
6. Plug the breaker access hole with the cap plugs provided (see [Figure 2-3](#)).
7. Unlatch the controller access panel by pulling towards you and then close the lid.
8. Confirm the integrity of the ground wire connection between the electrical access panel and the ground lug while closing the customer connection box using the two short Allen screws.

**NOTE:** Neutral Bonding - For installations that require the neutral to be bonded to the ground, this is to be done on the customer connections terminals inside the generator. Connect a suitably sized wire from the neutral bar to the ground bar. This is normally required when the generator is the source in a separately derived system. It is not required when the generator is a backup source in a utility supplied electrical system with a 2-pole transfer switch. See Figure 6-1.

**NOTE:** Torque all wiring lugs, bus bars and connection points to the proper torque specifications. Torque specifications for the Main Line Circuit Breaker (MLCB) can be found on a decal located on the inside of the electrical access panel.

### Utility Service Circuit Breaker (not supplied)

This switch is listed for use with the following one inch breakers:

- Siemens\*
- Murray\*
- Eaton
- Square D

\*Including GFCI, AFCI and tandem breakers up to 50 amps.

**NOTE:** For branch circuits over 50 amps, only listed Siemens or Murray circuit breakers should be used.

## Battery Requirements

Group U1, 12V, minimum 300 CCA (Generac Part No. 0D4575).

## 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. 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

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

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)

Fill the battery with the proper electrolyte fluid if necessary and have the battery fully charged before installing it.

Before installing and connecting the battery, complete the following steps:

1. Verify that the generator has been turned OFF.
2. Turn off utility power supply to the transfer switch.
3. Remove the 7.5A fuse from the generator control panel.

Battery cables were factory connected at the generator. See [Figure 6-3](#). Connect cables to battery posts as follows:

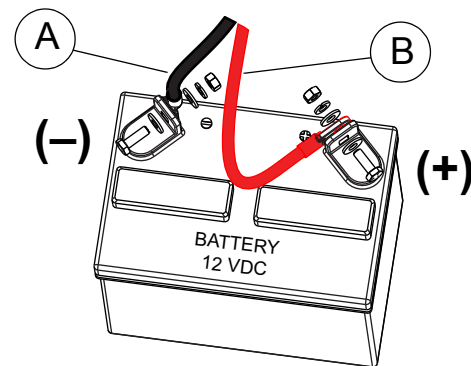


### ⚠ WARNING

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)

4. Connect the red battery cable (from starter contactor) to the battery post indicated by a positive, POS or (+), using the fastener set provided (see [Figure 2-3](#)).
5. Connect the black battery cable (from frame ground) to the battery post indicated by a negative, NEG or (-), using the fastener set provided.
6. Install the red battery post cover (included). See [Figure 2-3](#).

**NOTE:** Dielectric grease should be used on battery posts to aid in the prevention of corrosion.



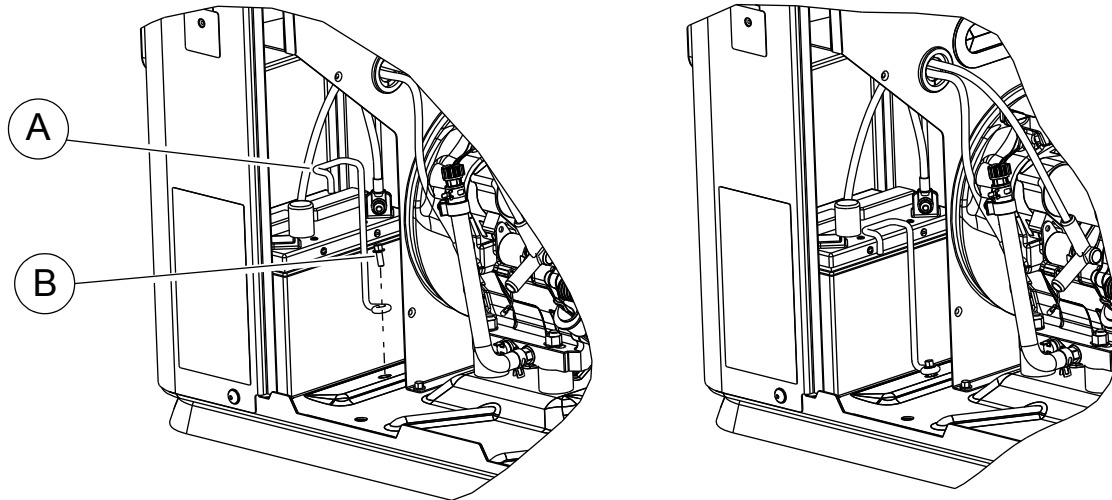
001126

- A. Negative (-) Black lead from frame  
B. Positive (+) Red lead from starter contactor

**Figure 6-3. Battery Cable Connections**

**NOTE:** In areas where temperatures fall below 32 °F (0 °C), it is recommended that a pad type battery heater be installed to aid in cold climate starting. This is available as a cold weather kit through an Independent Authorized Service Dealer.

7. See [Figure 6-4](#). Install the battery bracket (A) and screw (B). The installed bracket is shown on the right side of the figure.



001134

**Figure 6-4. Battery Installation**

8. Install the 7.5 Amp ATO® fuse in the generator control panel.
9. Assemble the battery access panel with the 2 hex head screws and tighten securely.
10. Assemble the front door by hooking it to the base and aligning the slots to the hooks on the top of the enclosure.
11. Assemble the top lid with the 4 Allen screws and secure it in place.

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/Start-Up/Testing

## Control Panel Interface

**DANGER**

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

(000191)

Before performing any maintenance on the generator:

- Set generator to OFF mode.
- Remove fuses.
- Disconnect battery cables to prevent accidental start up.

Disconnect the cable from the battery post indicated by a NEGATIVE, NEG or (–) first, then remove the POSITIVE, POS or (+) cable. When reconnecting the cables, connect the POSITIVE cable first, the NEGATIVE cable last.

## Control Panel

The Control Panel is located under the Controller Lid. Open the Controller Lid to access the control panel (F in [Figure 2-2](#)).

See Figure 7-1. The Auto/Off/Manual Interface located on the Control Panel has the following features:

- Alarm LEDs (A)
- Warning LEDs (B)
- Operation Mode Buttons and LEDs (C)

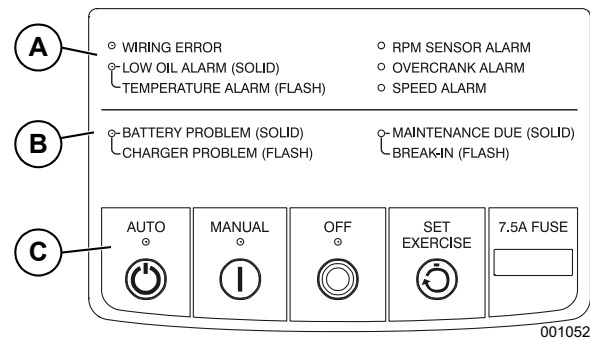


Figure 7-1. Generator Control Panel and LEDs

## Using the Auto/Off/Manual Interface

Button	Description of Operation
<b>AUTO</b> (GREEN)	Selecting this button activates fully automatic system operation. It also allows the unit to automatically start and exercise the engine every seven days with the setting of the exercise timer (see <a href="#">Setting The Exercise Timer</a> ).
<b>MANUAL</b> (BLUE)	This button will crank and start the generator. Transfer to standby power will not occur unless there is a utility failure.
<b>OFF</b> (RED)	This button shuts down the engine and also prevents automatic operation of the unit.
<b>SET EXERCISE</b> (GREY)	Used to establish generator exercise time. Hold the button for 3 seconds at the new exercise time desired. <b>NOTE:</b> Exercise time can only be set at the time you wish exercise to actually take place.

**NOTE:** Loss of utility power will cause either the AUTO or OFF or MANUAL button to flash depending on which mode the generator is in at the time of utility loss.

## Generator Set-up

When battery power is applied to the generator during the installation process, the controller will light up. However, the generator still needs to be activated before it will automatically run in the event of a power outage.

### Generator Activation

To receive the activation code, you must have the unit serial number and go to: [www.generac.com](http://www.generac.com), “Service & Support” Tab and then “Activate Your Home Standby” under the “Generac Owners” list. You can also receive an activation code by calling 1-888-9ACTIVATE (1-888-922-8482).

Activating the generator is a simple, one-time process that is guided by the controller screen prompts. Once the product is activated, the controller screen will not prompt you to activate again, even if you disconnect the generator battery, fuse and battery charge circuit (T1 60 Hz).

The activation code consists of a sequence of six (6) button presses using the AUTO, OFF and SET EXERCISE buttons. See *Figure 7-1*. These MUST be entered in the exact and correct sequence in order to activate the generator.

After obtaining your activation code, please complete the following steps at the generator’s control panel:

1. Begin by holding the OFF button for 3 seconds. All the LEDs will flash twice telling you that the activation mode has begun.

**NOTE:** You now have 20 seconds to correctly enter the press sequence or the unit will “time out” and not accept the activation code. If this occurs, you must begin the activation sequence again.

2. Enter the activation code by pressing the AUTO, OFF and SET EXERCISE buttons in the 6 press sequence you were given. (Example: AUTO / OFF / OFF/ SET EXERCISE / SET EXERCISE / SET EXERCISE). The yellow maintenance LED will blink each time a button is pressed.
3. If the sequence is INCORRECTLY entered, the AUTO / OFF / MANUAL buttons will flash 3 times together. Return to Step 2 and continue.
4. If the sequence is CORRECTLY entered, all the LEDs will scroll from bottom to top 5 times. The OFF button will light. The activation process has been performed successfully and the generator is ready to operate.

## Before Initial Start-up

**NOTE:** These units have been run and tested at the factory prior to being shipped.

### CAUTION

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

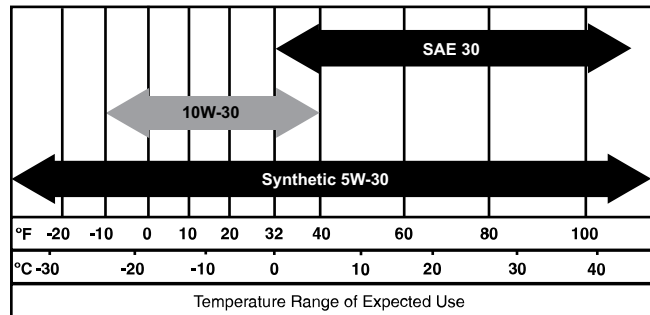
(000135)

**NOTE:** This unit comes filled with 30 weight organic oil from the factory. Check the oil level and add the appropriate viscosity and amount if necessary.

**NOTE:** Do not use or add synthetic oil until the generator has operated for a minimum of 50 hours.

### Engine Oil Recommendations

To maintain the warranty, engine oil must meet minimum American Petroleum Institute (API) Service Class SJ, SL, or better. Use no special additives. Select the appropriate viscosity oil grade according to the expected operating temperature. Synthetic oil also can be used in the appropriate weight as standard.



000399

**Figure 7-2. Recommended Oil Based on Temperature**

- SAE 30 above 32 °F (0 °C)
- SAE 10W-30 between 40 ° and -10 °F (4 ° and -23 °C)
- Synthetic SAE 5W-30 for all temperature ranges

**Before starting, complete the following:**

1. Verify that the generator is OFF.
2. Set the generator main circuit breaker to OFF or OPEN.
3. Turn off all breakers that will be powered by the generator.
4. Check the engine crankcase oil level and, if necessary, fill to the dipstick FULL mark with the recommended oil. Do not fill above the FULL mark.
5. Check the fuel supply. Gaseous fuel lines must have been properly purged and leak tested in accordance with applicable fuel-gas codes. All fuel shutoff valves in the fuel supply lines must be open.

During initial start up only, the generator may exceed the normal number of start attempts and experience an “OVERCRANK” fault. This is due to accumulated air in the fuel system during installation. Reset the control board by pushing the OFF button twice, and restart up to two more times if necessary. If unit fails to start, contact an Independent Authorized Service Dealer for assistance.

**Setting The Exercise Timer**

This generator is equipped with an exercise timer. Once set, the generator will start and exercise every seven days, on the day of the week and at the time of day specified. During this exercise period, the unit runs for approximately 12 minutes and then shuts down. Transfer of loads to the generator output does not occur during the exercise cycle unless utility power is lost.

**NOTE:** The exercise timer does not correct for daylight savings time.

**NOTE:** The exerciser will only work in the AUTO mode, and will default to exercise weekly at the time the Control Panel was last powered on, unless this procedure is performed. The exercise function will need to be reset every time the 12 volt battery and T1 power to the generator are disconnected and then reconnected, and/or when the fuse is removed and T1 power is removed from the generator.

1. Place the generator in the AUTO mode.
2. Hold the SET EXERCISE Button for 3 seconds. The generator will start, run an exercise cycle, and confirm the setting. The exercise time must be established at the time you wish the exercise to take place.
3. The exercise time is now established. The generator will exercise each week at this time.

To CHANGE the exercise time once it has been set, hold the SET EXERCISE button on the generator for three (3) seconds at the time you wish the new exercise time to take place.

**Check Manual Transfer Switch Operation**

Refer to the “Manual Transfer Operation” section of the Owner’s Manual for procedures.



**⚠ 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)

## Electrical Checks



**⚠ DANGER**

Electrocution. High voltage is present at transfer switch and terminals. Contact with live terminals will result in death or serious injury.

(000129)

Complete electrical checks as follows:

1. Verify that generator is OFF.
2. Set the generator main circuit breaker to OFF or OPEN.
3. Turn OFF all circuit breakers/electrical loads that will be supplied by the generator.
4. Turn on the utility power supply to the transfer switch using the means provided (such as a utility main line circuit breaker).
5. Use an accurate AC voltmeter to check utility power source voltage across transfer switch terminals N1 and N2. Nominal line-to-line voltage should be 240 volts AC. If voltage is not correct, verify AC output and wiring from utility source to N1 and N2 lugs at transfer switch.
6. Check utility power source voltage across terminals N1 and the transfer switch neutral lug; then across terminal N2 and neutral. Nominal line-to-neutral voltage should be 120 volts AC (if wired with a neutral). If voltage is not correct, verify AC output and wiring from utility source to N1 and N2 lugs at transfer switch.
7. When certain that utility supply voltage is compatible with transfer switch and load circuit ratings, turn OFF the utility power supply to the transfer switch.
8. On the generator panel, push the MANUAL button. The engine should crank and start.
9. Let the engine warm up for about five minutes to allow internal temperatures to stabilize. Then, set the generator main circuit breaker to ON or CLOSED.
10. Connect an accurate AC voltmeter and a frequency meter across transfer switch terminal lugs E1 and E2. At no load, voltage should be 236–240 at a frequency of 62–63 Hz. If voltage is not correct, verify that the MLCB is closed and verify AC output and frequency (Hertz or Hz) at the MLCB. Also verify wiring from generator to E1 and E2 lugs at transfer switch.
11. Connect the AC voltmeter test leads across terminal lugs E1 and neutral; then across E2 and neutral (if wired with a neutral). In both cases, voltage reading should be 118–120 volts AC. If voltage is not correct, verify that the MLCB is closed and verify AC output between the E1 and E2 of the MLCB and Neutral at the generator.

12. Verify wiring from generator to E1, E2 and Neutral lugs at transfer switch.
13. Set the generator main circuit breaker to OFF or OPEN.
14. Push the generator OFF button. The engine should shut down.

**NOTE:** It is important not to proceed until certain that generator AC voltage and frequency are correct and within the stated limits.

## Generator Tests Under Load

To test the generator set with electrical loads applied, proceed as follows:

1. Verify that the generator is OFF.
2. Turn OFF all breakers/electrical loads that will be powered by the generator.
3. Turn OFF the utility power supply to the transfer switch, using the means provided (such as a utility main line circuit breaker).



**⚠ 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)

4. Manually set the transfer switch to the STANDBY position, i.e., load terminals connected to the generator's E1/E2 terminals. The transfer switch operating lever should be down.
5. Push the generator MANUAL button. The engine should crank and start immediately.
6. Let the engine stabilize and warm up for a few minutes.
7. Set the generator main circuit breaker to ON or CLOSED. Loads are now powered by the standby generator.
8. Turn ON the circuit breaker/electrical loads that are powered by the generator one by one.
9. Connect a calibrated AC voltmeter and a frequency meter across terminal lugs E1 and E2. Voltage should be approximately 240 volts and frequency should be 60 Hz. If the voltage and frequency are rapidly dropping as the loads are applied, the generator may be overloading or there may be a fuel issue. Check amperage value of loads and/or fuel pressure.
10. Let the generator run at full rated load for 20–30 minutes. Listen for unusual noises, vibration or other indications of abnormal operation. Check for oil leaks, evidence of overheating, etc.
11. Verify gas pressure while under full load.

12. When testing under load is complete, turn OFF electrical loads.
13. Set the generator main circuit breaker to OFF or OPEN.
14. Let the engine run at no-load for 2–5 minutes.
15. Push the generator OFF button. The engine should shut down.

## Checking Automatic Operation

To check the system for proper automatic operation, proceed as follows:

1. Verify that the generator is OFF.
2. Install front cover of the transfer switch.
3. Turn ON the utility power supply to the transfer switch, using the means provided (such as a utility main line circuit breaker).

**NOTE:** Transfer switch will transfer back to utility position.

4. Set the generator main circuit breaker to ON or CLOSED.
5. Push the generator AUTO button. The system is now ready for automatic operation.
6. Turn OFF the utility power supply to the transfer switch.

With the generator ready for automatic operation, the engine should crank and start when the utility source power is turned OFF after a five (5) second delay (factory default setting). After starting, the transfer switch should connect load circuits to the standby side after a six (6) second delay (or a 30 second delay in cold weather).

**NOTE:** The transfer delay may change depending on environmental conditions. Refer to “Utility Failure” in the Owner’s Manual for more information.

Let the system operate through its entire automatic sequence of operation.

**NOTE:** Loss of utility power will cause either the AUTO or OFF or MANUAL button to flash depending on which mode the generator is in at the time of utility loss.

With the generator running and loads powered by generator AC output, turn ON the utility power supply to the transfer switch. The following should occur:

- After approximately 15 seconds, the switch should transfer loads back to the utility power source.
- Approximately one minute after re-transfer, the engine should shut down.

## Installation Summary

1. Verify the installation has been properly performed as outlined by the manufacturer and that it meets all applicable laws and codes.
2. Test and confirm proper operation of the system as outlined in the appropriate Installation and Owner’s Manuals.
3. Educate the end user on the proper operation, maintenance and service call procedures.

## Shutting Generator Down While Under Load

**IMPORTANT NOTE:** To turn the generator off during utility outages to perform maintenance, or conserve fuel, follow these steps:

**To turn the generator OFF (while running in AUTO and online):**

1. Turn the main utility disconnect OFF.
2. Turn the main line circuit breaker (MLCB) on the generator to OFF (OPEN).
4. Turn the generator OFF.

**To turn the generator back ON:**

1. Put the generator back into AUTO and allow to start and warm-up for a few minutes.
2. Set the MLCB on the generator to ON.

The system will now be operating in automatic mode. The main utility disconnect can be turned ON (CLOSED). To shut the unit off, this complete process must be repeated.

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# Section 8: Troubleshooting

## Troubleshooting Guide

Problem	Cause	Correction
Engine will not crank.	<ol style="list-style-type: none"> <li>1. Fuse blown.</li> <li>2. Loose, corroded or defective battery cables.</li> <li>3. Defective starter contact.</li> <li>4. Defective starter motor.</li> <li>5. Dead battery.</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct short circuit condition by replacing 7.5 Amp fuse in generator control panel.</li> <li>2. Tighten, clean or replace as necessary.*</li> <li>3. *See #2.</li> <li>4. *See #2.</li> <li>5. Charge or replace battery.</li> </ol>
Engine cranks but will not start.	<ol style="list-style-type: none"> <li>1. Out of fuel.</li> <li>2. Defective fuel solenoid (FS).</li> <li>3. Defective spark plug(s).</li> <li>4. Valve clearance out of adjustment.</li> <li>5. Cold weather condition</li> </ol>	<ol style="list-style-type: none"> <li>1. Replenish fuel / Turn on fuel valve.</li> <li>2. *</li> <li>4. Clean, re-gap or replace plug(s).</li> <li>5. Reset valve clearance.</li> <li>6. Install recommended cold weather kit.</li> </ol>
Engine starts hard and runs rough.	<ol style="list-style-type: none"> <li>1. Air cleaner plugged or damaged.</li> <li>2. Defective spark plug(s).</li> <li>3. Fuel pressure incorrect.</li> <li>4. Wrong fuel jet used</li> </ol>	<ol style="list-style-type: none"> <li>1. Check / replace air cleaner.</li> <li>2. Clean, re-gap or replace plug(s).</li> <li>3. Confirm fuel pressure to regulator is 10–12 in. water column (19–22 mm mercury) for LP, and 5–7 in. water column (9–13 mm mercury) for natural gas.</li> <li>4. Change the fuel jet to the recommended part for the fuel used.</li> </ol>
Generator is set to OFF, but the engine continues to run.	<ol style="list-style-type: none"> <li>1. Controller wired incorrectly</li> <li>2. Defective control panel.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair wiring.*</li> <li>2. Replace control panel.*</li> </ol>
No AC output from generator.	<ol style="list-style-type: none"> <li>1. Main line circuit breaker is in the OFF (or OPEN) position.</li> <li>2. Generator internal failure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset circuit breaker to ON (or CLOSED).</li> <li>2. *</li> </ol>
No transfer to standby after utility source failure.	<ol style="list-style-type: none"> <li>1. Main line circuit breaker is in the OFF (or OPEN) position.</li> <li>2. Defective transfer switch coil.</li> <li>3. Defective transfer relay.</li> <li>4. Transfer relay circuit open.</li> <li>5. Defective control logic board.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset circuit breaker to ON (or CLOSED) position.</li> <li>2. *</li> <li>3. *</li> <li>4. *</li> <li>5. *</li> </ol>
Unit consumes large amounts of oil.	<ol style="list-style-type: none"> <li>1. Engine overfilled with oil.</li> <li>2. Engine breather defective.</li> <li>3. Improper type or viscosity of oil.</li> <li>4. Damaged gasket, seal or hose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust oil to proper level.</li> <li>2. *</li> <li>3. See <b><i>Engine Oil Recommendations</i></b>.</li> <li>4. Check for oil leaks.</li> </ol>
* Contact an Independent Authorized Service Dealer for assistance.		

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# Section 9: Quick Reference Guide

## System Diagnosis

To clear an active alarm, press the ENTER button twice and then press AUTO. If the alarm reoccurs, contact an Independent Authorized Service Dealer.

**Table 9-1. System Diagnosis**

Active Alarm	LED	Problem	Things to Check	Solution
NONE	GREEN	Unit running in AUTO but no power in house.	Check MLCB.	Check MLCB. If it is in the ON position, contact an Independent Authorized Service Dealer.
HIGH TEMPERATURE	RED	Unit shuts down during operation.	Check the LED's / Screen for alarms.	Check ventilation around the generator, intake, exhaust and rear of generator. If no obstructions exist, contact an Independent Authorized Service Dealer.
RPM SENSE LOSS	RED	Unit was running and shuts down, attempts to restart.	Check the LED's / Screen for alarms.	Clear alarm and remove household loads from the generator. Put back in AUTO and restart. If generator does not start, contact an Independent Authorized Service Dealer.
NOT ACTIVATED	NONE	Unit will not start in AUTO with utility loss.	See if screen says unit not activated.	Refer to <a href="#">Generator Activation</a> .
LOW OIL PRESSURE	RED	Unit will not start in AUTO with utility loss.	Check the LED's / Screen for alarms.	Check oil level / add oil per Owners Manual. If oil level is correct, contact an Independent Authorized Service Dealer.
RPM SENSE LOSS	RED	Unit will not start in AUTO with utility loss.	Check the LED's / Screen for alarms.	Clear alarm. Using the control panel, check the battery by navigating to the BATTERY MENU option from the MAIN MENU. If it states battery is GOOD, contact an Independent Authorized Service Dealer. If it states CHECK BATTERY, replace the battery.
OVERCRANK	RED	Unit will not start in AUTO with utility loss.	Check the LED's / Screen for alarms.	Check fuel line shutoff valve is in the ON position. Clear alarm. Attempt to start the unit in MANUAL. If it does not start or starts and runs rough, contact an Independent Authorized Service Dealer.
NO LEDs LIT	None	Unit will not start in AUTO with utility loss.	Check the LED's / Screen for alarms.	Check ATO 7.5 Amp ATO® fuse. Replace with same type fuse if bad. Contact Independent Authorized Service Dealer if fuse is good.
OVERSPEED UNDERSPEED	RED	Unit will not start in AUTO with utility loss.	Check the LED's / Screen for alarms.	Contact Independent Authorized Service Dealer.
UNDERVOLTAGE	RED	Unit will not start in AUTO with utility loss.	Check the LED's / Screen for alarms.	Contact Independent Authorized Service Dealer.
MISWIRE	RED	Unit will not start in AUTO with utility loss.	Check the LED's / Screen for alarms.	Contact Independent Authorized Service Dealer.
BATTERY PROBLEM	YELLOW	Yellow LED illuminated in any state.	Check the screen for additional information.	Contact Independent Authorized Service Dealer.

**Table 9-1. System Diagnosis (Continued)**

Active Alarm	LED	Problem	Things to Check	Solution
CHARGER WARNING	YELLOW	Yellow LED illuminated in any state.	Check the screen for additional information.	Contact Independent Authorized Service Dealer.
BREAK-IN MAINTENANCE DUE		Control panel indicates break-in maintenance due.	Check the screen for additional information.	Perform break-in maintenance. Clear Maintenance Due light.
1 YEAR / 100 HOUR MAINTENANCE DUE		Control panel indicates scheduled maintenance due.	Check the screen for additional information.	Perform scheduled maintenance. Clear Maintenance Due light.
NONE		Utility present. Active mode LED (AUTO/MANUAL/OFF) is flashing.	Check utility sense lines / utility disconnect.	Contact Independent Authorized Service Dealer. Close utility disconnect.

## Section 10: Accessories

Performance enhancing accessories are available for air-cooled generators.

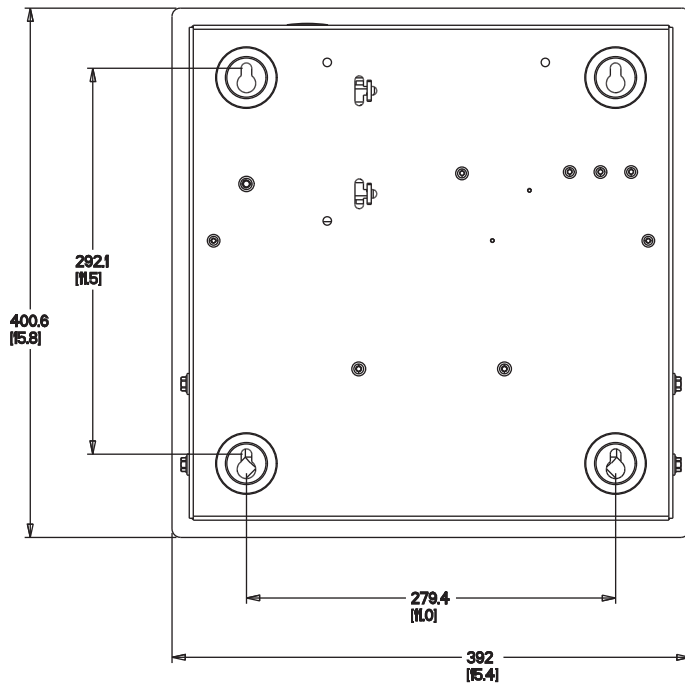
Accessory	Description
Cold Weather Kit	Recommended in areas where temperatures fall below 32 °F (0 °C).
Scheduled Maintenance Kit	Includes all pieces necessary to perform maintenance on the generator along with oil recommendations.
Mobile Link™ (USA Only) 006463-0	Provides a personalized web portal that displays the generator status, maintenance schedule, event history and much more. This portal is accessible via computer, tablet or smart phone. Sends emails and/or text notifications the moment there is any change in the generator's status. Notification settings can be customized to what type of alert is sent and how often. For more information, visit <a href="http://www.MobileLinkGen.com">www.MobileLinkGen.com</a> .
Touch-Up Paint Kit	Very important to maintain the look and integrity of the generator enclosure. This kit includes touch-up paint and instructions.
Wireless Local Monitor 006664-0	Completely wireless and battery powered, the Wireless Local Monitor provides you with instant status without ever leaving the house. Status lights (red, yellow and green) alert owners when the generator needs attention. Magnetic backing permits refrigerator mounting and gives a 600 foot line of sight communication.
Extended Warranty Coverage (Available only in U.S. and Canada)	Extend your generator warranty coverage by purchasing extended warranty coverage. Covers both parts and labor. Extended coverage can be purchased within 12 months of the end-users purchase date. This extended coverage is applicable to registered units and end-user proof of purchase must be available upon request. Available for Generac®, Guardian® and Centurion® products. Not available for Corepower™ and EcoGen™ products or all international purchases.

Contact an Independent Authorized Service Dealer or visit [www.generac.com](http://www.generac.com) for additional information on accessories and extended warranties.

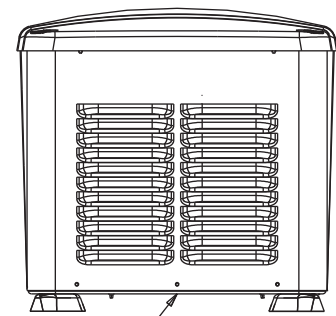
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# Section 11: Diagrams

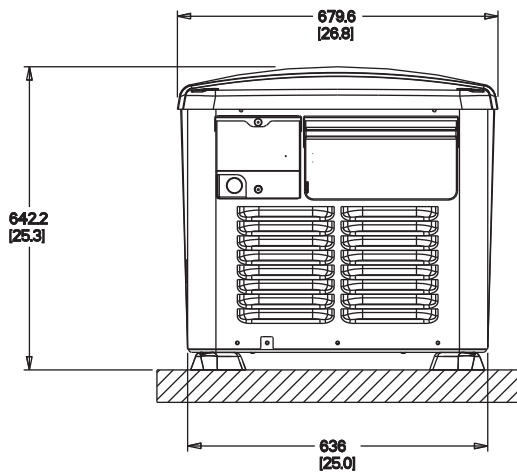
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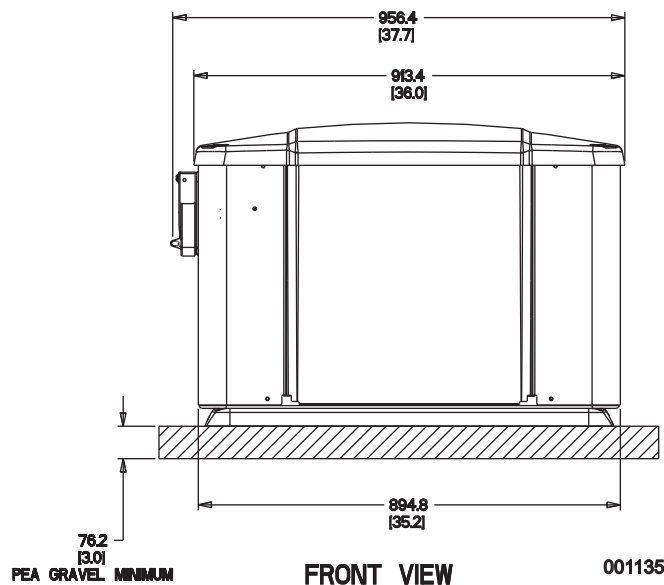
**TRANSFER SWITCH  
(IF SUPPLIED)**



**LIFT UNIT BY CENTER  
CLEAR FROM MOUNTING FEET**

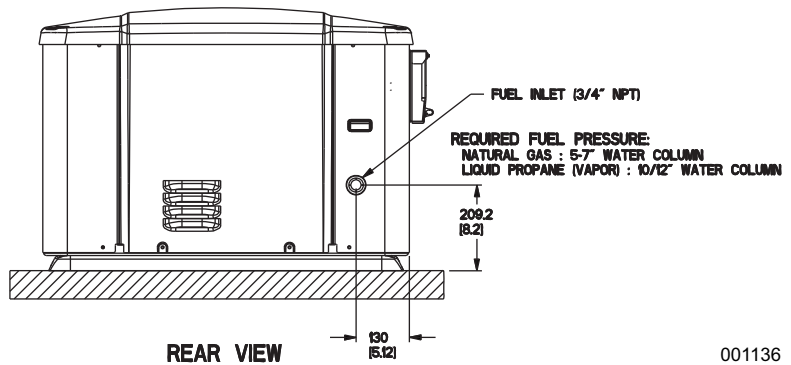
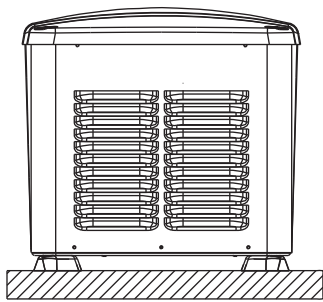
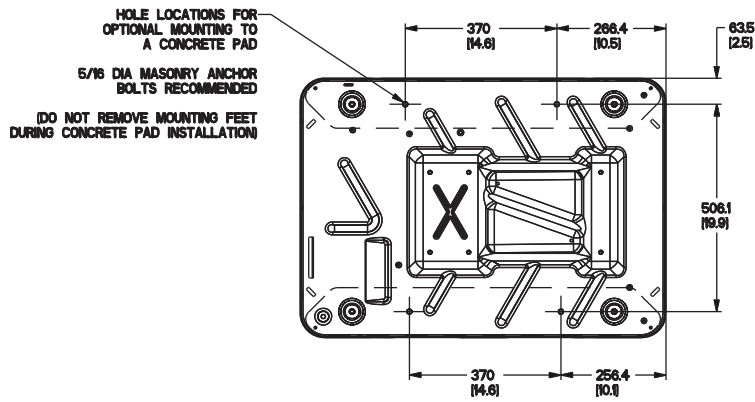
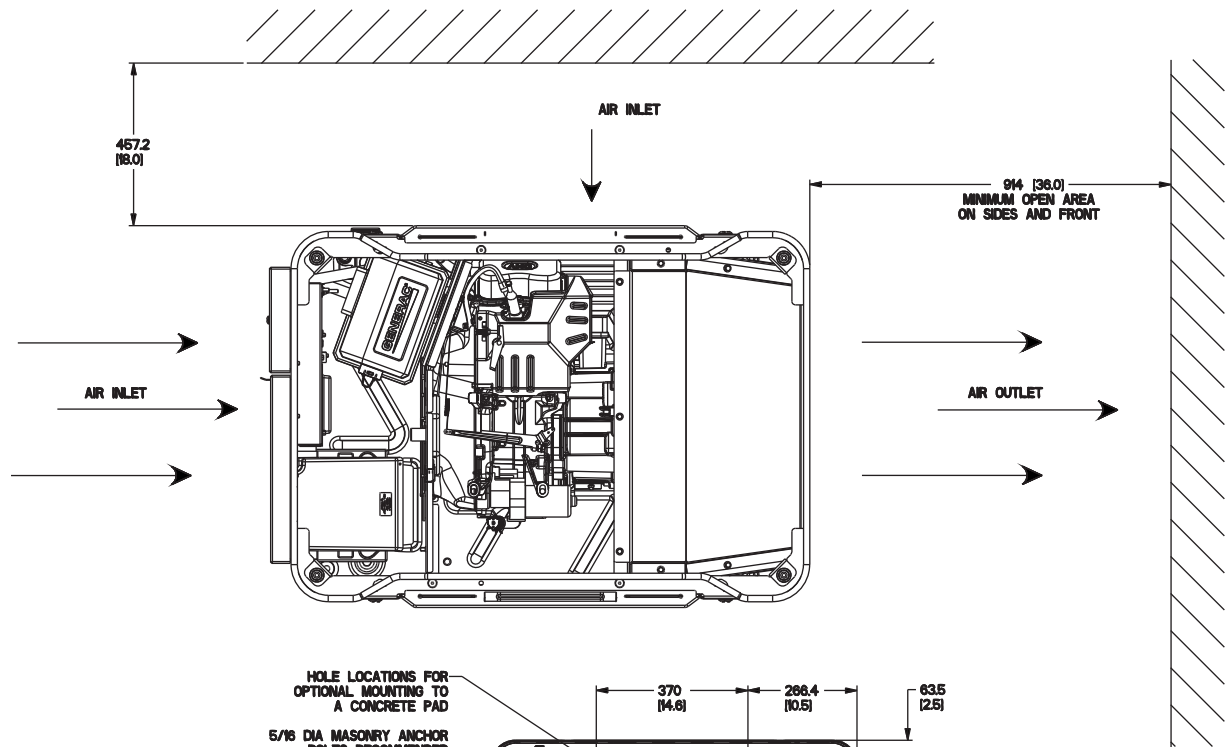


**LEFT SIDE VIEW**



**FRONT VIEW**

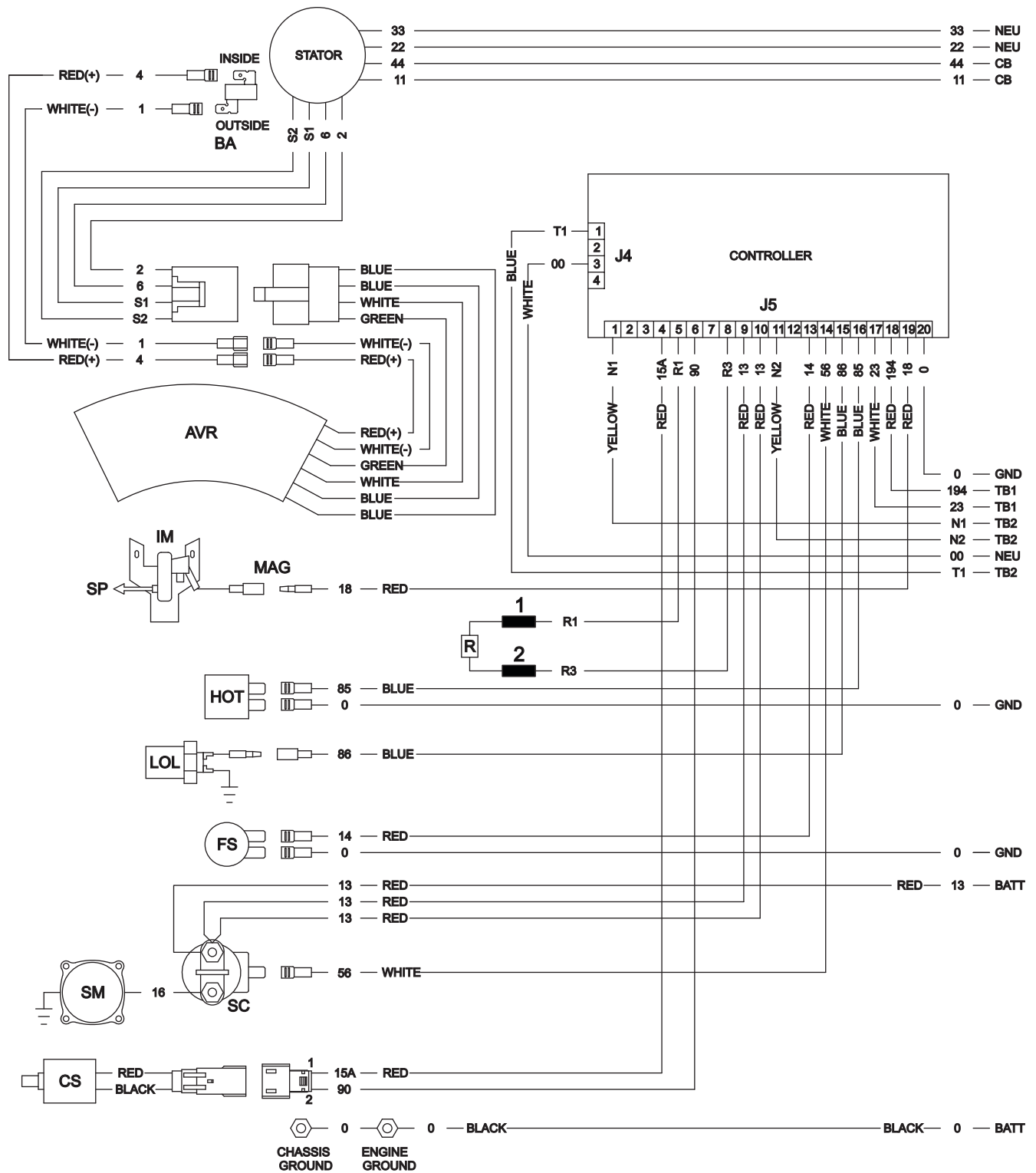
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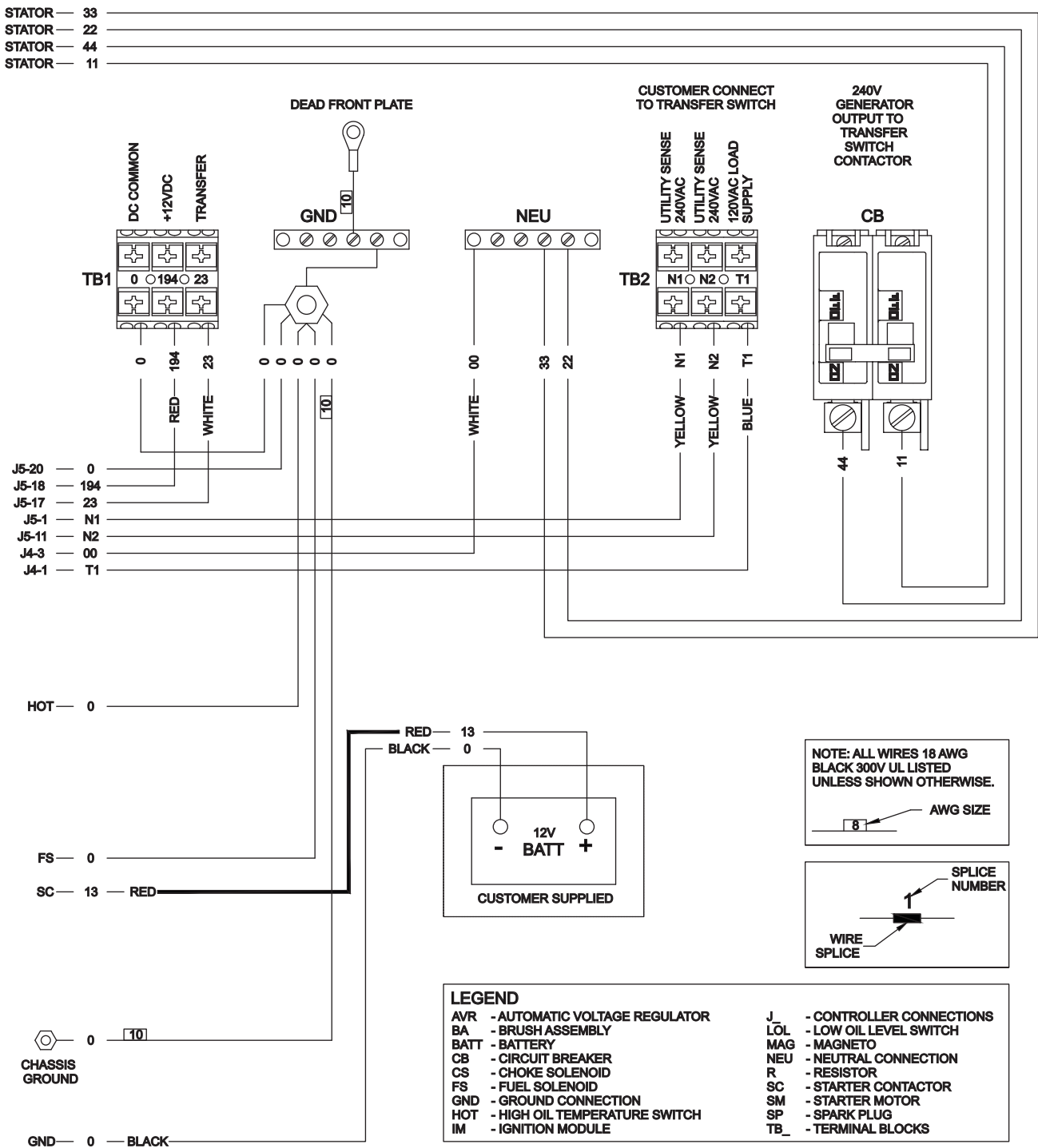


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# Wiring Diagram

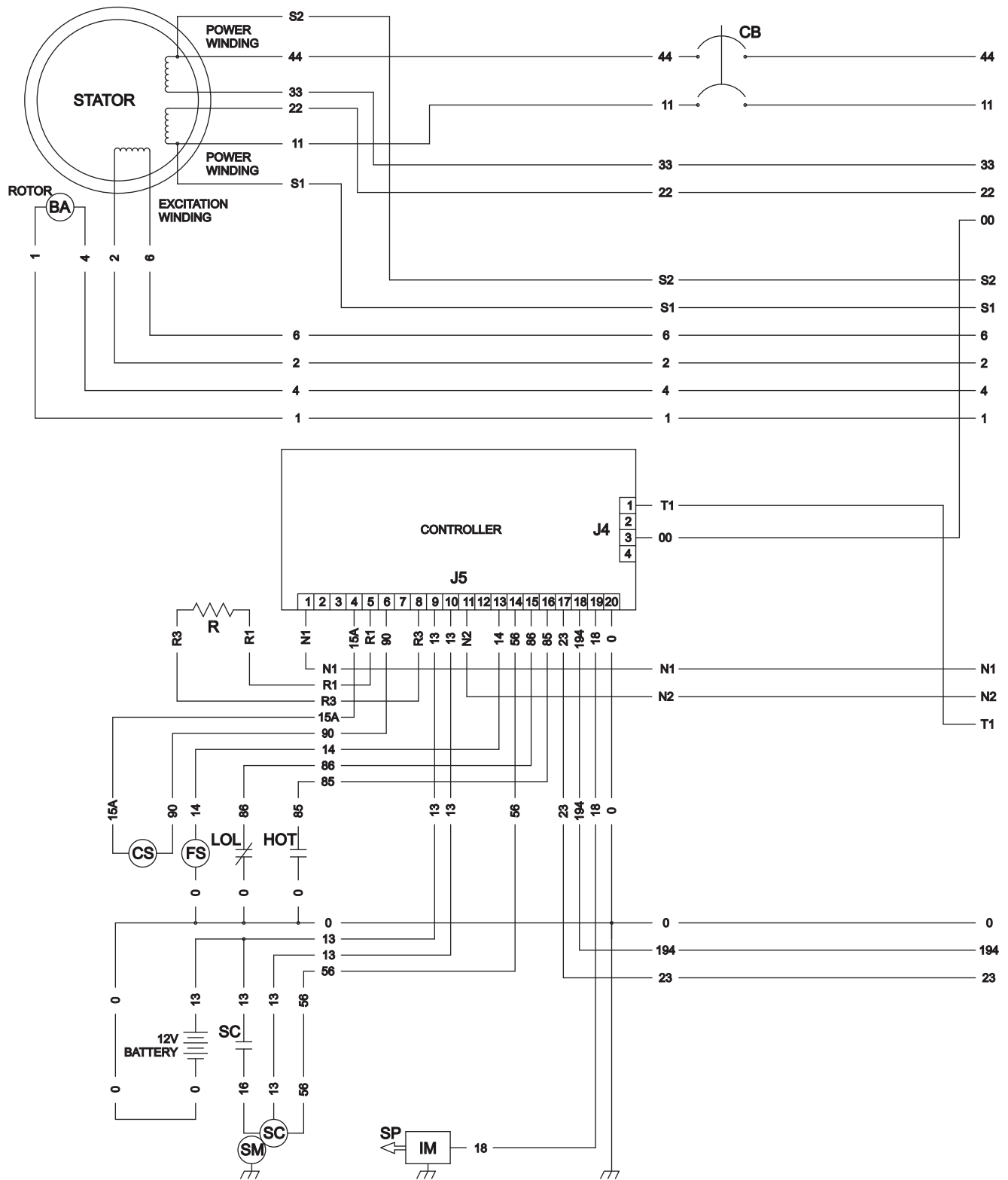
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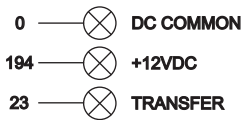
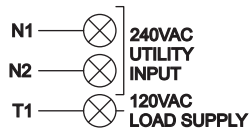
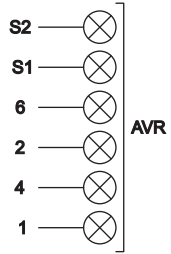
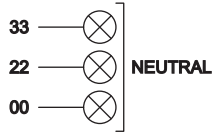
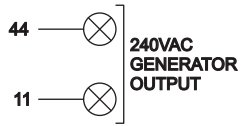






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LEGEND			
AVR	- AUTOMATIC VOLTAGE REGULATOR	J_	- CONTROLLER CONNECTIONS
BA	- BRUSH ASSEMBLY	LÖL	- LOW OIL LEVEL SWITCH
CB	- CIRCUIT BREAKER (MAIN OUTPUT)	R	- RESISTOR
CS	- CHOKE SOLENOID	SC	- STARTER CONTACTOR
FS	- FUEL SOLENOID	SM	- STARTER MOTOR
HOT	- HIGH OIL TEMPERATURE SWITCH	SP	- SPARK PLUG
IM	- IGNITION MODULE		



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