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INSTALLATION GUIDE

GUARDIAN®

GENERATOR READY KIT



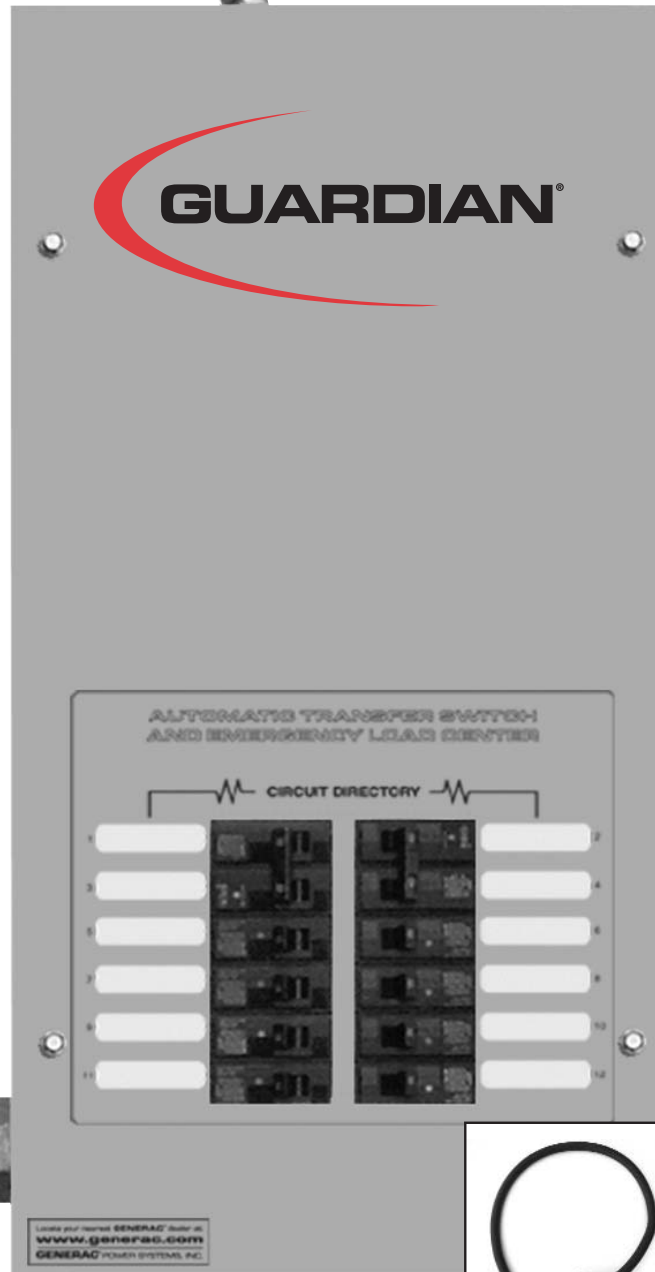
Install your Generator Ready Kit at the construction stage or to pre-existing homes. . .



Use your ULTRA SOURCE Portable generator for semi-automatic back-up power now. . .



...later install your GUARDIAN Home Standby for fully automatic back-up power!



5ft. Power Cord with NEMA 14-50 plug for **ULTRA SOURCE** Portable Generators

KIT INCLUDES: 100 AMP automatic transfer switch with built-in load center
5ft. power cord with 50 AMP plug • 30ft., 5ft. and 2ft. pre-wired conduits
External connection box • 5ft. DC signal harness

For ULTRA SOURCE Portables & GUARDIAN® Home Standby Generator Connections


PLEASE NOTE:

This installation guide is not a substitute for the “*Installation and Owner’s Manual*” that will be furnished with the GUARDIAN® Home Standby Generator you may purchase in the future. Please review the installation procedure again at the time of generator installation. This kit is not intended for use with the GUARDIAN® Liquid-Cooled product line. This kit is not suggested to be compatible with other generator manufacturer’s products.

INTRODUCTION

Thank you for purchasing this “Generator Ready” Kit for the GUARDIAN® air-cooled 12kW and 15kW automatic and ULTRA SOURCE portable generators. This kit will provide you the ability to pre-wire your home or business in anticipation of the eventual purchase of a GUARDIAN® home standby generator. The majority of the labor involved in the generator installation is in the wiring. If you are purchasing for new construction or retro-fitting in an existing home this kit will save you time and money in process. When the time comes to add your GUARDIAN® Automatic Home Standby Generator, all you have left is to connect the unit to the fuel source and install a wiring harness from the generator to the external connection box. Then, just add your starting battery and you have the ultimate automatic home standby generator system. **The GUARDIAN® is on duty.**


Four commonly used safety symbols accompany the **DANGER**, **WARNING** and **CAUTION** blocks. The type of information each indicates follows:

 **This symbol points out important safety information that, if not followed, could endanger personal safety and/or property of you and others.**

 **This symbol points out potential explosion hazard.**

 **This symbol points out potential fire hazard.**

 **This symbol points out potential electrical shock hazard.**

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

Generac cannot possibly 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 you use a procedure, work method or operating technique Generac does not specifically recommend, you must satisfy yourself that it is safe for you and others. You also must make sure the procedure, work method or operating technique that you choose does not render the equipment unsafe.

ELECTRICAL HAZARDS


- Utility power delivers extremely high and dangerous voltages to the transfer switch as does the standby generator when it is in operation.
- Do not handle any kind of electrical device while standing in water, while barefoot, or while hands or feet are wet. **DANGEROUS ELECTRICAL SHOCK MAY RESULT.**
- In case of accident caused by electric shock, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. **AVOID DIRECT CONTACT WITH THE VICTIM.** Use a non-conducting implement, such as a rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and get immediate medical help.
- Never wear jewelry when working on this equipment. Jewelry can conduct electricity resulting in electric shock, or may get caught in moving components causing injury.

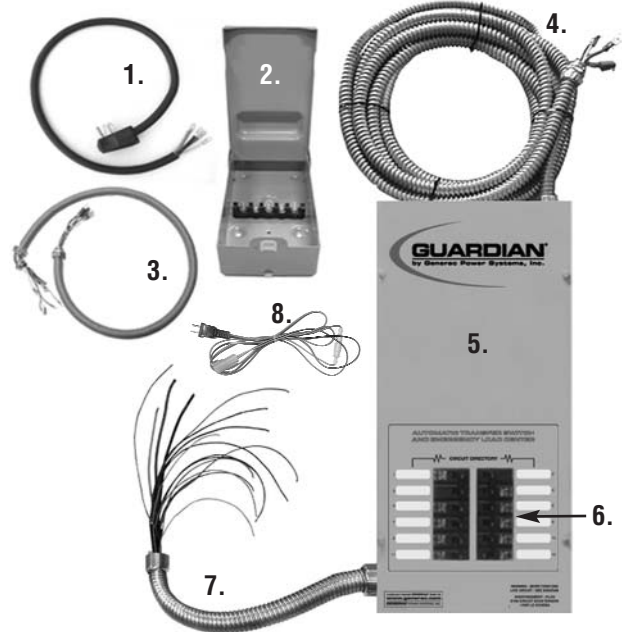
GUARDIAN[®]

GENERATOR READY KIT

MAKES A HOME GENERATOR READY!

KIT INCLUDES:

- 1. 50 AMP PLUG ON 5FT. POWER CORD**
Use with ULTRA SOURCE portable generator.
- 2. THE EXTERNAL CONNECTION BOX**
Located outside the home nearest the incoming gas service. For connection to generator controls and main line circuit breaker.
- 3. 5' PRE-WIRED LIQUID TIGHT CONDUIT**
For connection between Guardian air-cooled standby generator controls and main line circuit breaker to external connection box.
- 4. 30' FLEXIBLE CONDUIT**
Pre-wired from the automatic transfer switch with built-in emergency load center for connection to the external connection box.
- 5. PRE-WIRED AUTOMATIC TRANSFER SWITCH* AND**
- 6. EMERGENCY LOAD CENTER WITH 12 CIRCUITS** 
Installed within 1 foot of the home's main distribution panel. This transfer switch will provide smooth and safe transition between utility and generator power. Eliminates the need to run extension cords. **When used with a portable generator the transfer from utility to generator power will require that some manual connections are performed by the user. (See page 7)*
- 7. 2' PRE-WIRED CONDUIT FOR EASY CONNECTION TO THE HOME'S MAIN DISTRIBUTION PANEL**
- 8. 5' DC SIGNAL HARNESS**
Use with ULTRA SOURCE portable generator.
- 9. 12 UL LISTED WIRE NUTS (not shown)**



TOOLS REQUIRED:

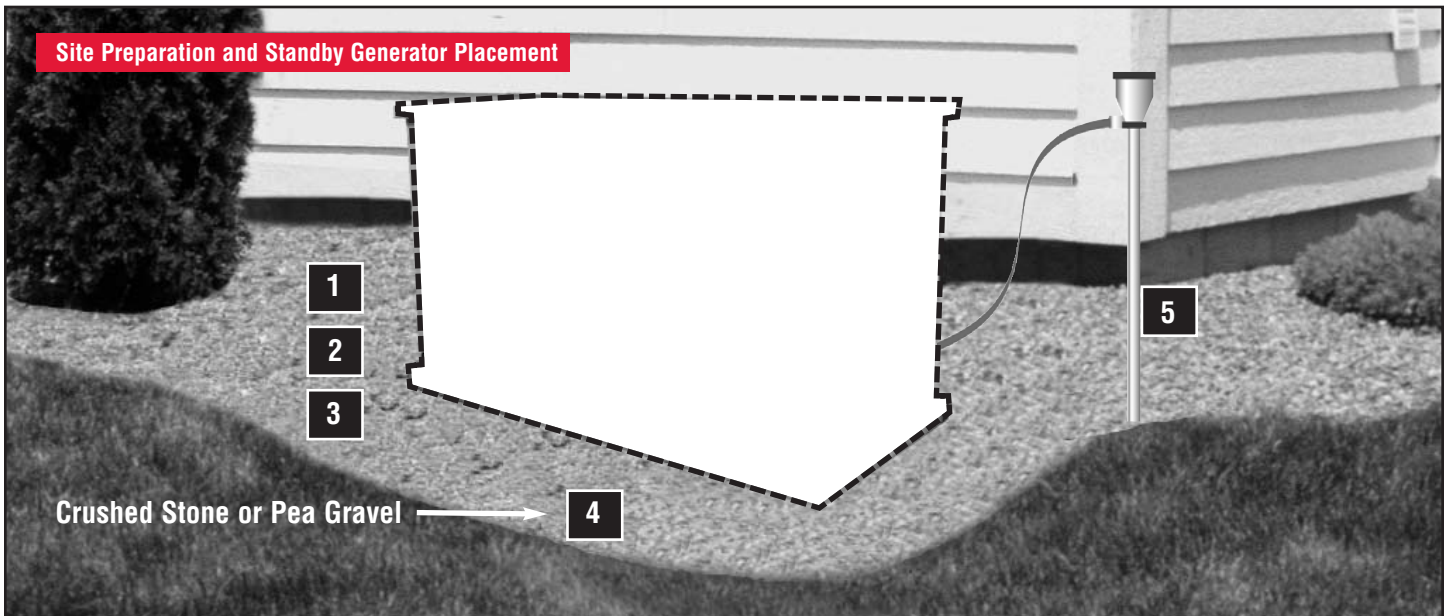
Drill, drill bits, hole saw (type and length will be determined by the materials you will be drilling and cutting), open-end wrenches or adjustable wrenches, socket wrenches or nut drivers, standard and Phillips screwdrivers, sledge hammer, level, pencil, channel-lock pliers, spade shovel, rake and safety goggles.



ITEMS YOUR MUST PURCHASE:

- 70 AMP double pole circuit breaker (must be the same type as in your main electrical distribution panel)
- Ground rod with grounding strap
- Crushed stone or pea gravel (approximately 10-12 cubic feet)*
- Black poly-film or other vegetation blocking fabric*
- Silicone caulk
- Fasteners (to mount connection box and automatic transfer switch)
- Power cord clamp (to secure cord at the external connection box)

**Only required when a GUARDIAN Home Standby generator is be installed.*



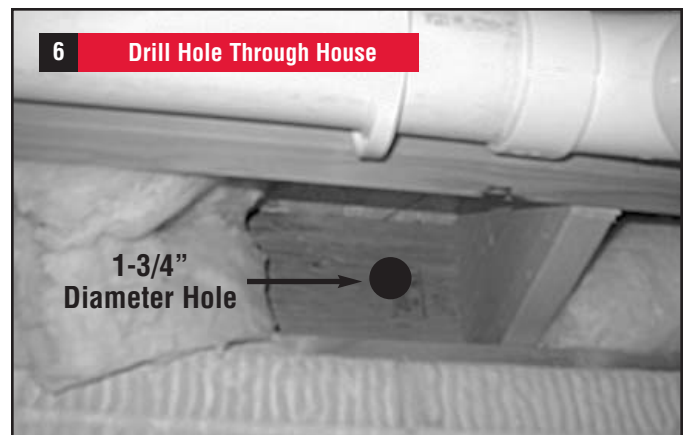
1. PLAN THE LOCATION OF YOUR GENERATOR.

NOTE: Do not place the generator directly under a window.

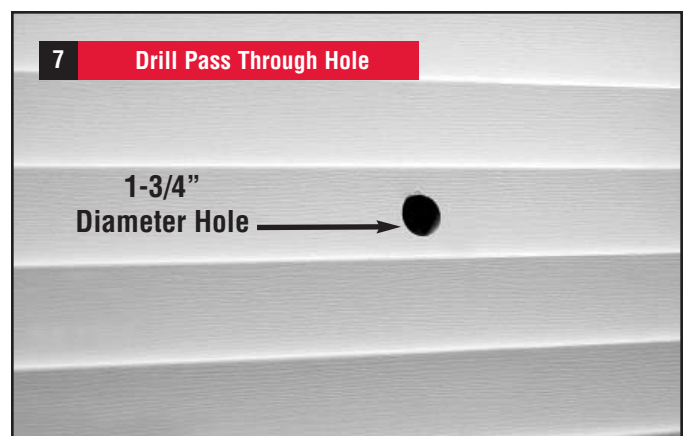
Select an area outside of your home nearest your incoming gas service. Determine where the generator will be placed outside of the home. Arrange for fuel piping with shut-off valve to be run to this location. Keep in mind that GENERAC® recommends placement no closer than 3 feet to any structure. **Local codes may dictate placement farther from a structure.** The 3/4" fuel inlet is located 6 inches in from the rear of the unit on the right side if facing the unit from the front. The fuel inlet is 10.2 inches above ground.

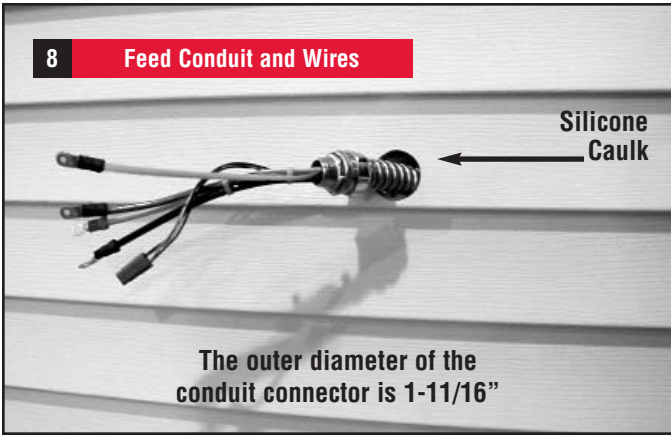
2. Clear an area **5-1/2** feet by **5** feet of grass and vegetation to a depth of **5** inches. This includes the distance the generator should be set away from a structure (**3 feet**) and **6** inches beyond the width and length of the generator mounting pad (**48" L x 24" W**).
3. Lay black poly-film to cover the area.
4. Fill the area to ground level with pea gravel or crushed stone.
5. Drive an 8-foot grounding rod into the ground to grade. Make sure grounding rod and strap are not exposed above ground level. (NEC code applies to grounding method.)
6. Determine where the flexible conduit will pass through the house from inside to outside. When you are certain you have clearance on each side of the wall, drill a small pilot hole through the wall to mark the location.

Drill a 1-3/4" diameter hole through the sheathing and siding with hole saw.

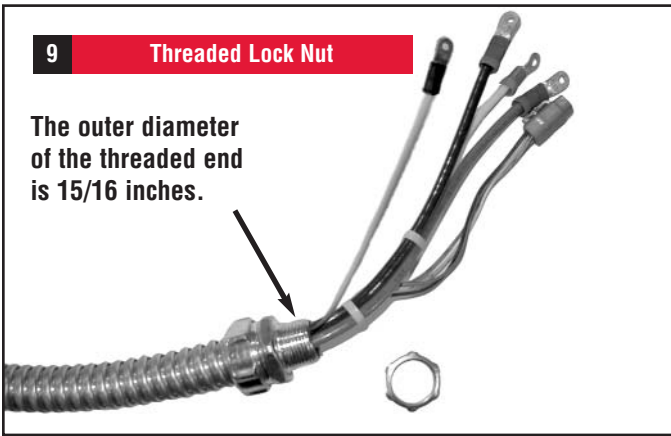


7. While adhering to all local electrical codes, route the 30 foot conduit along ceiling/floor joists and wall studs to the location where the conduit will pass through the wall to the exterior of the house.

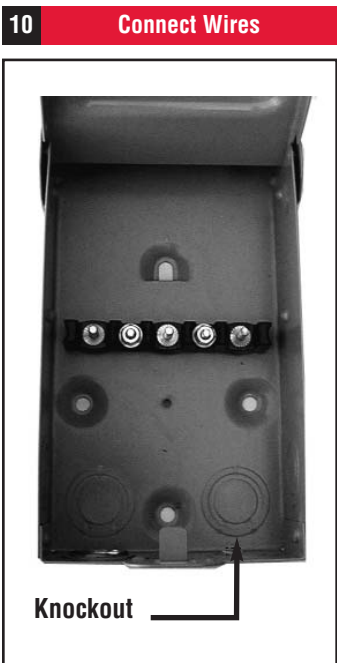




8. From the inside of the house, feed the end of the 30-foot conduit (INCLUDED and pre-wired from transfer switch) through the wall to outside.

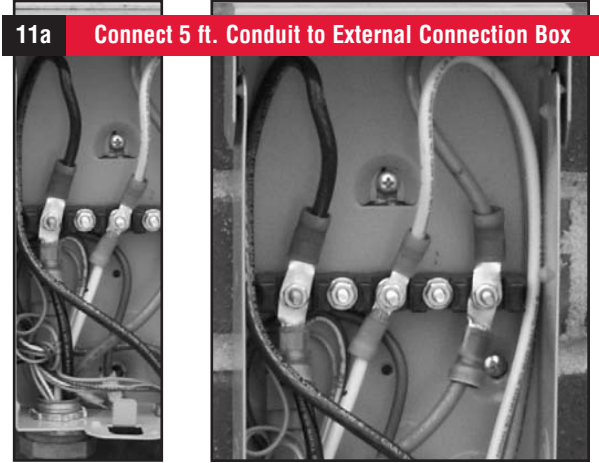


9. Remove the threaded lock nut from the conduit coupling.



10. Remove the knock out in the lower right corner of the external connection box. From the rear of the connection box, feed wires & 4-pin plug into box. Slip the lock nut over wires and plug and tighten securely onto conduit coupling. Connect the black, red, and white wires to matching wires on threaded lugs and tighten securely. Fasten the green ground wire securely to the lug on the bottom of the box. The male end of the 4-pin plug is not connected at this time.

NOTE: Step 11a and 11b should be performed only if using this kit with a Guardian air-cooled automatic standby generator (12kW & 15kW) only. Do not install the 5ft. pre-wired conduit if you are using the ULTRA SOURCE portable generator for back up power.



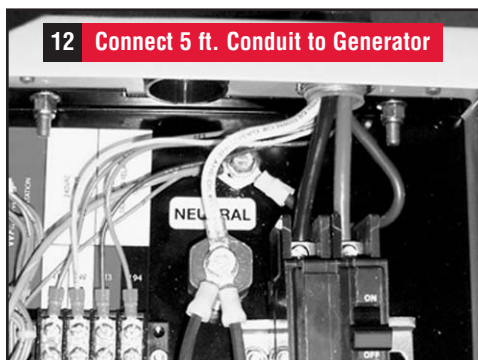
11a. Remove the knock out at the bottom left of the external connection box. Remove the threaded lock nut from the conduit coupling. From the bottom of the box, feed the wires and 4-pin plug into the box. Slip the lock nut over wires and plug and tighten securely onto conduit coupling. Connect wires (Black, red and white) to the lugs with matching wires and tighten securely. Connect the 4-pin plug together with its mating end. Connect the ground wire (green) to the ground lug at the bottom of the box and tighten to ensure good contact with metal box.

11b. Using appropriate fasteners, mount external connection box over pre-drilled hole to fully conceal the hole. (Seal around the hole and conduit with silicone caulk from both outside and inside of house.)



--- ⚠ WARNING ⚠ ---

The external connection box must be locked to ensure safety and to discourage tampering.



Level the transfer switch and mark the mounting holes. Drill the appropriate size pilot holes. Mount the transfer switch to mounting surface with the appropriate fasteners.

⚠ DANGER: Although you may choose to perform electrical connections yourself, Generac Power Systems, Inc. recommends that a licensed electrician or individual with complete knowledge of electricity perform the procedures in sections 14 and 15.

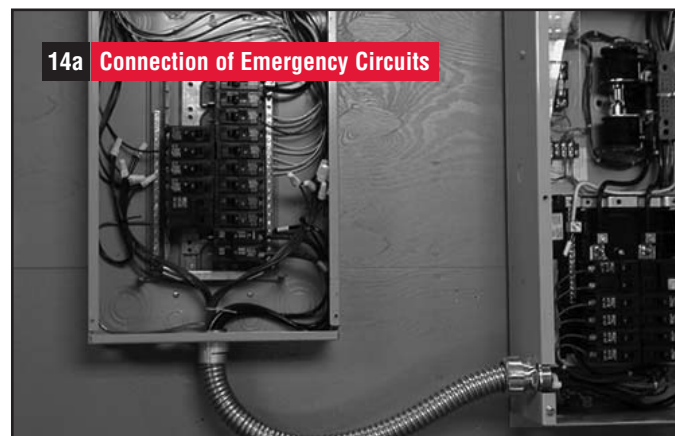
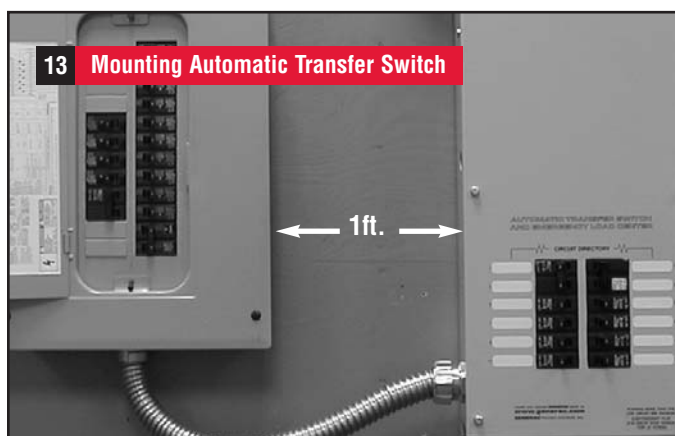
⚠ DANGER: Switch service main circuit breaker to “off” or open position prior to removal of cover or removal of any wiring of the main electrical distribution panel. The wires connected to the service main circuit breaker remain live or “hot”. Avoid contact with these wires and the service main circuit breaker connection lugs.



- Access wiring connections for installation of 5 foot harness at the generator. To gain access to wiring connections and the circuit breaker you must remove the cover plate (black) above the control panel which is attached with 4 fasteners. To aid in removal it may be necessary to remove the hinge anchor bolt from the lower connection point just above the cover plate. Remove the 4 plate fasteners and remove cover plate.

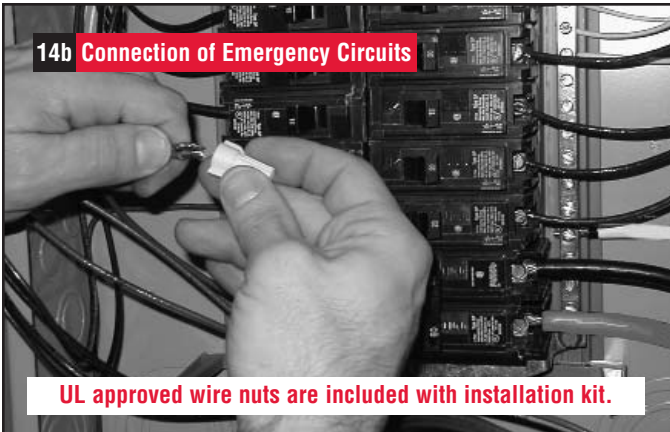
Remove the small black cap (covering 1-1/16” diameter hole) from back of enclosure. Remove threaded lock nut from conduit coupling (with 90° elbow) and wires. Feed wires into 1-1/16” diameter hole. Place threaded lock nut over wires and onto conduit coupling. Tighten securely with screwdriver and hammer to ensure lock nut is tight. Connect power lead wire (black) to rear inside lug. Connect neutral wire (white) to terminal connection (N). Place ground wire (green) under hold down bolt and tighten ensuring good contact with metal base plate. Connect sensing wires to terminal strip as follows: Blue - N1, Yellow - N2, Brown - 23 and Orange - 194.

NOTE: Balance must be maintained when moving circuit locations from main electrical distribution panel to emergency load center. Circuit breaker positions alternate buss bars vertically. Circuits sharing a neutral wire should either be moved together to adjacent positions in emergency load center or not moved. If you are unsure of proper procedure or if your installation differs from that described in this guide, consult a licensed professional at this time.



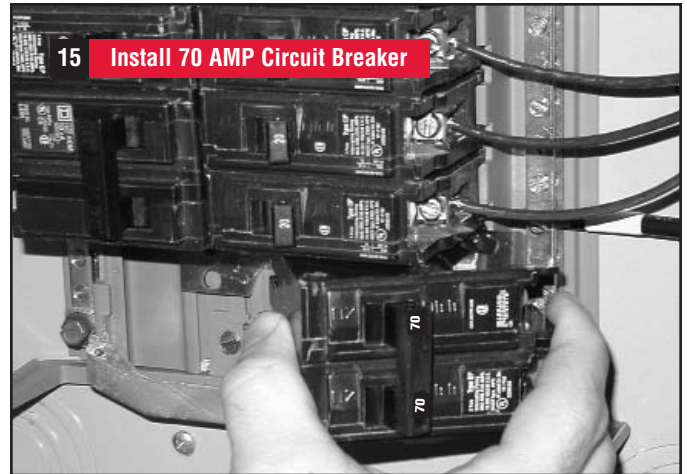
- Locate automatic transfer switch with built-in emergency load center within one foot of main distribution panel. The automatic transfer switch can be located to the left or right of main distribution panel. Hold transfer switch against the mounting surface.

- Remove the main electrical distribution panel cover. Remove appropriate size knockout from the bottom or side of the main panel. (A 2-foot flexible conduit is pre-wired from the transfer switch with built-in load center). Remove threaded lock nut from conduit coupling. Feed all wires through knockout into main panel. Slip lock nut over wires and tighten securely onto conduit coupling.



NOTE: Circuits to be moved must be protected by same size breaker. For example, a 15 amp 120 volt circuit in emergency load center will replace a 15 amp 120 volt circuit in main electrical distribution panel.

14b. In your main panel, remove the black (hot) wire from a circuit breaker that protects a circuit you want to have powered in the event of a power failure. Wire nut the black wire to the matching circuit lead wire from the emergency circuit breaker in the load center in the transfer switch. (All circuit wires are color coded and labeled for easy identification). Repeat this process with the remaining circuits to be powered by the generator. White wires (neutral) in your main distribution panel should remain connected to neutral bar. It is not necessary to move them. The load center in the transfer switch supplies the following circuits: (5) 15A/120V, (3) 20A/120V, (1) 20A/240V and (1) 30A/240V.



15. Install the 70 Amp double pole circuit breaker that you have purchased into main electrical distribution panel. This circuit breaker **must be compatible with your main electrical distribution panel.** It may be necessary to reposition remaining circuit breakers or remove circuit breakers that have been disconnected to accommodate the insertion of the 70 Amp double pole circuit breaker. Connect white wire to the main distribution panel neutral bar. Connect solid green wire to main electrical panel ground bar. Connect the black and red wires to the 70 Amp double pole circuit breaker.

**YOUR GUARDIAN[®]
GENERATOR READY KIT
IS NOW INSTALLED!**

OPTIONAL USE WITH A PORTABLE GENERATOR

An added feature of the GUARDIAN® Generator Ready Kit is the ability to hook up a GUARDIAN® ULTRA SOURCE portable generator. Included in the kit is a 5 foot electrical power cord and a 5 foot DC signal harness. The power cord contains 4 wires (black & red), neutral (white) and ground (green) wires. At one end are the terminal connectors. At the other end is the male connector (NEMA 14-50) which plugs into the GUARDIAN® ULTRA SOURCE portable generator's control panel. To install this option, insert the terminal wire end of the power cord into the bottom of the external connection box through the conduit clamp (not included) from the outside. Allow about an inch of the power cord insulation to enter beyond the clamp to the inside of the box. Tighten clamp securely. Attach ground wire (green) to the bottom of the box using the supplied ground screw and pre-drilled hole. Connect red, black and white wires each to separate lug posts. Make sure hold down nuts are tightened securely. The 5 foot DC signal harness allows semi-automatic transfer switch operation. You simply attach the four-pin plug to its mating plug within the external connection box. At the other end is a V-type connector that plugs into the 12-volt DC receptacle on the portable generator control panel. Instructions for these items are detailed on the following page (Page 8).

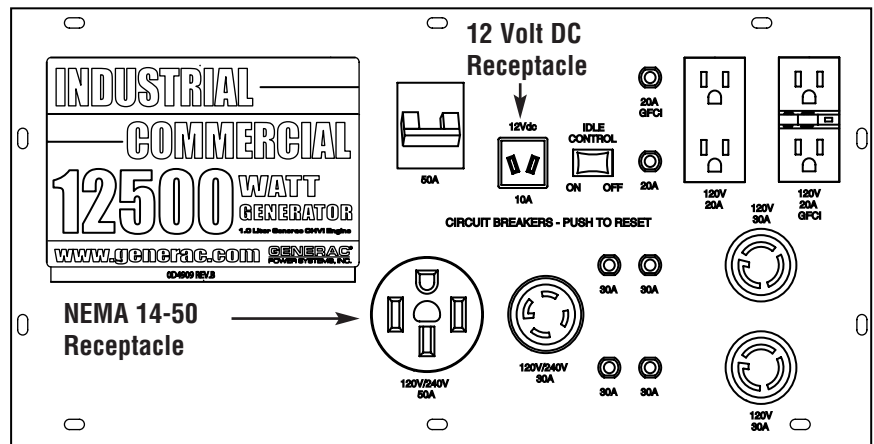


CAUTION: If you are connecting the 5 foot power cord after the 30 foot conduit has been connected inside of the external connection box you must match the black, red and white wires to the lugs of the wires previously placed. (For example: black to black; red to red, etc.) Failure to match wires may result in damage to generator and house wiring.

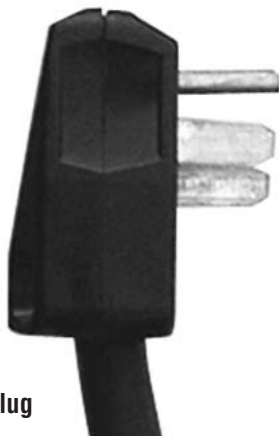
5 FOOT DC SIGNAL HARNESS



ULTRA SOURCE PORTABLE GENERATOR CONTROL PANEL



50 AMP POWER PLUG

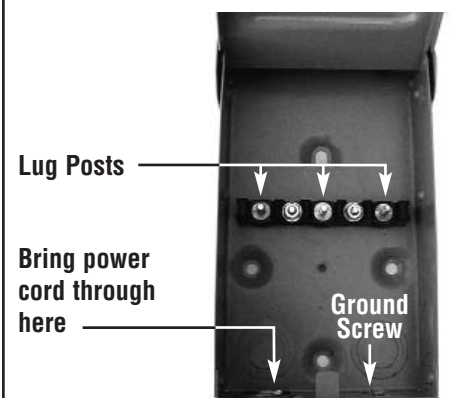


**NEMA
14-50 Plug**

5 FOOT POWER CORD WITH PLUG



EXTERNAL CONNECTION BOX



MANUAL TRANSFER OPERATION USING GUARDIAN® PORTABLE GENERATOR

TRANSFER TO GENERATOR POWER SOURCE WHEN UTILITY POWER FAILS

1. Set the generator's 50 amp circuit breaker to its **OFF** (or open) position.
2. Insert the NEMA 14-50 plug (from the power cord that you have installed) into the mating receptacle on the generator control panel.
3. Start the generator.
4. Let the engine stabilize and warm up for a few minutes.
5. Insert the V-type plug (on the DC signal harness you have connected within the external connection box) into the 12 volt DC receptacle on the generator control panel. The insertion of this plug will send a signal to the transfer switch to shift the contactor to the standby position.
8. Set the generator's 50 amp circuit breaker to its' **ON** (or closed) position to send the generator power to the load center in the transfer switch.

Choose a lamp or light fixture located in a frequently occupied area of the house as a signal light to tell you when utility power has returned. This light should be on a utility powered circuit only so it operates independent of the generator.

TRANSFER BACK TO UTILITY POWER SOURCE

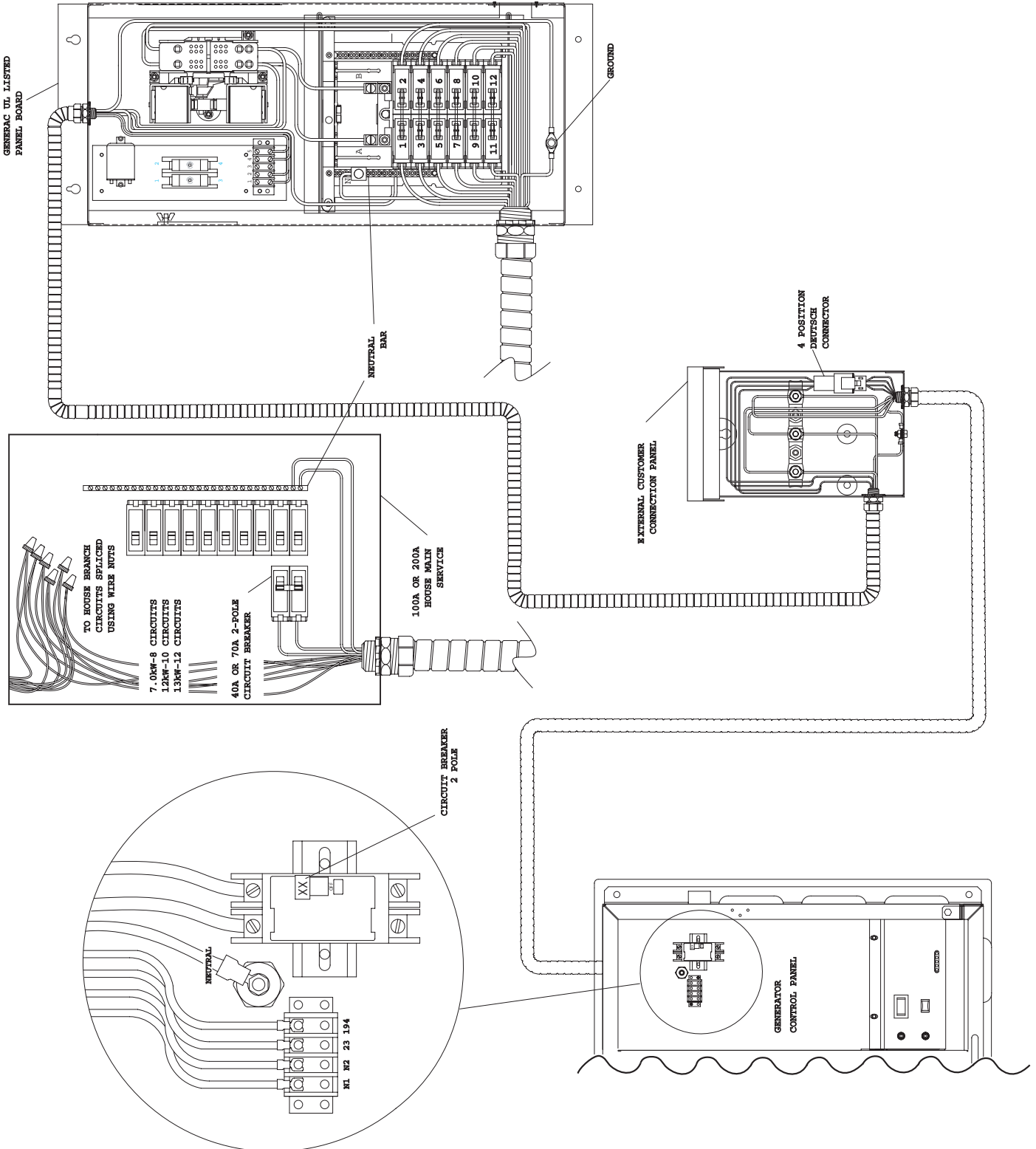
When utility power has been restored, you will want to transfer back to that source and shut down the generator. This can be accomplished as follows:

1. Set the generator's 50 amp circuit breaker to its **OFF** (or open) position.
2. Remove the V-type plug (on the DC signal harness that was connected within the external connection box) from the 12 volt DC receptacle on the generator control panel. The removal of this plug will send a signal to the transfer switch to shift the contactor back to the utility position and allow the circuits of the home to again be powered by the incoming utility.
3. Let the engine run for a minute or two at no-load to stabilize the internal temperatures.
4. Turn off the generator.

After utilizing the 5 ft. electrical power cord and 5 ft. DC signal harness for operation with the GUARDIAN® ULTRA SOURCE portable generator you must disconnect and remove them. Open the external connection box. Remove the fasteners holding the Black, Red, White, and Green wires in place. Remove wires from threaded lugs and from under ground screw. Replace fasteners and ground screw. Loosen the cable clamp and slide the power cord out of the external connection box. Disconnect the 4-pin plug from its mating half within the external connection box. Store the power cord and the DC signal harness with your GUARDIAN® ULTRA SOURCE portable generator.

INSTALLATION DRAWING

AUTOMATIC TRANSFER SWITCH CONNECTED TO THE EXTERNAL CONNECTION BOX AND HOME'S MAIN ELECTRICAL DISTRIBUTION PANEL. CONNECTION OF EXTERNAL BOX TO GENERATOR CONTROLS AND MAIN LINE CIRCUIT BREAKER.



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