

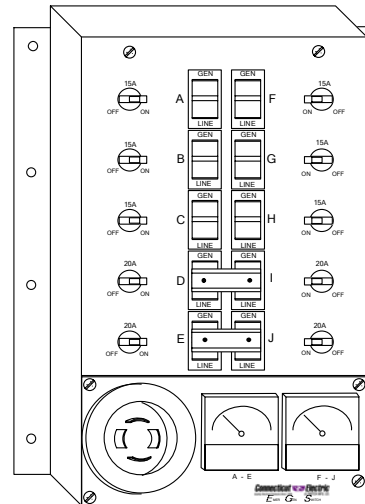
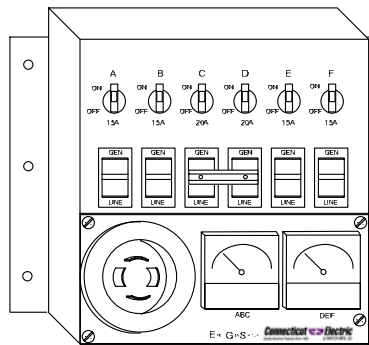
Connecticut Electric

Quality Electrical Products • Since 1906

EmerGen Switch[®] Manual Transfer Switch

OWNER'S MANUAL AND INSTALLATION INSTRUCTIONS

For Models 6-5001HR, 6-7501HR, 10-7501HR
Convertible Indoor / Outdoor Manual Transfer Switch
Suitable for "Hard Wire" installations



**PLEASE READ THIS MANUAL IN ITS ENTIRETY
BEFORE INSTALLING AND/OR OPERATING YOUR
EmerGen Switch[®]
RETAIN THIS MANUAL FOR FUTURE REFERENCE**

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Engineering & Distribution: 596 Broadway, Anderson, IN 46012. Phone 1 (800) 730-2557. Fax (765) 608-5030
West Coast Distribution: 5508 128th Street East, Puyallup, WA 98373. Phone 1 (800) 472-3819. Fax (253) 471-9540

Your new EmerGen Switch will provide you with a way to safely utilize your generator power through your existing electrical wiring during a power outage. You'll install your switch next to your home's electrical panel load center and then you'll connect circuit breaker wires to the transfer switch's circuits. Once you power up your portable generator, you will manually turn on each switch and that generator energy is transferred as electrical power and goes through the house circuits you have previously chosen.

Your EmerGen Switch is easy for a licensed electrician or qualified professional to install, safe for a homeowner to operate, and will work with 120/240V single phase AC generators, factory equipped with NEMA type receptacles L14-20R or L14-30R , depending on the size EmerGen Switch you have chosen.

Your EmerGen Switch cannot permit connection to both utility and generator power at the same time.

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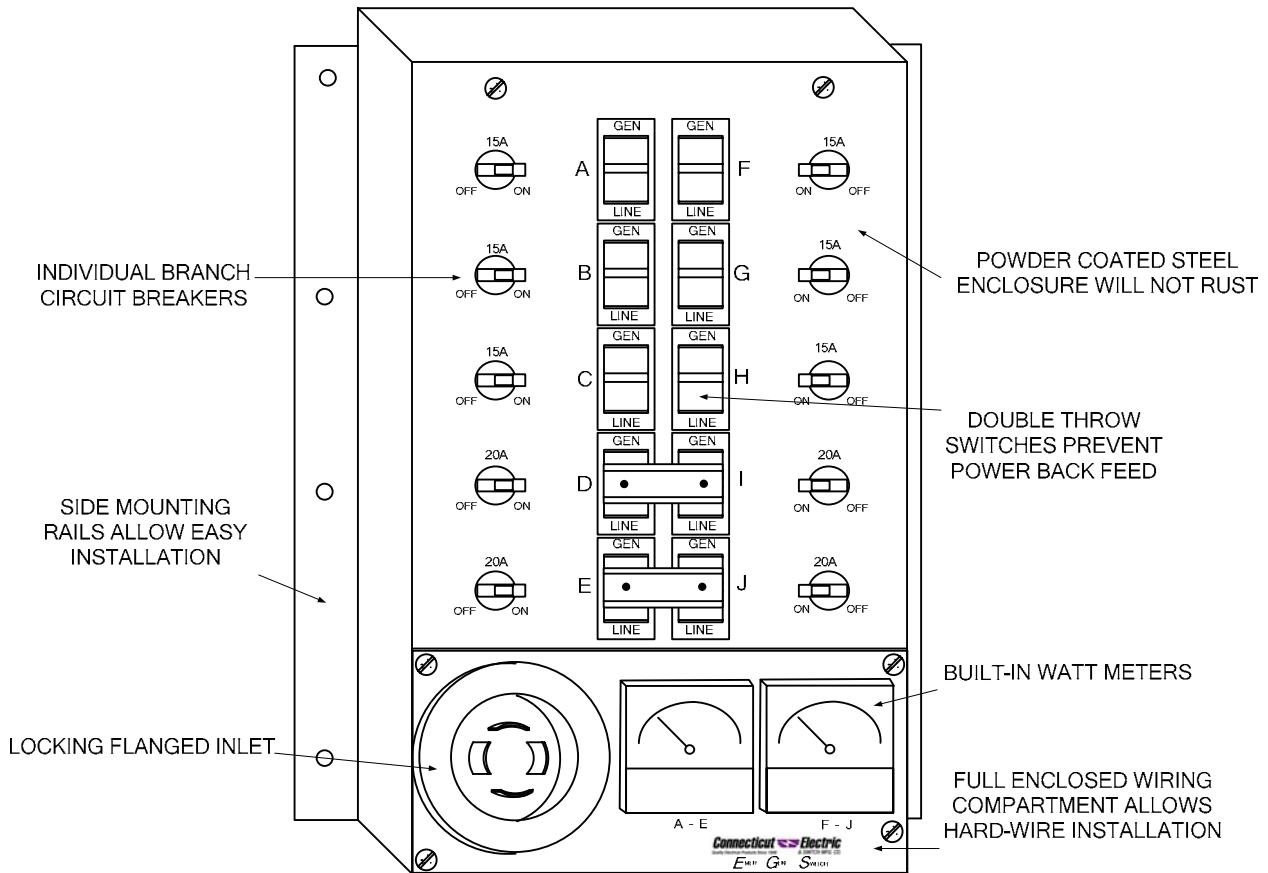
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Warning:

Improper installation of this transfer switch could cause damage or personal injury by electrocution or fire. Installation must be performed by a licensed electrician or qualified professional in accordance with applicable electrical codes.

Specifications

Model Number	For use with 125/250V Generator Receptacle	Maximum Combined Loads at 250VAC	Total Circuits	Number of 15 amp circuits	Number of 20 amp circuits	Power Inlet
6-5001HR	L14-20 (20A)	20 Amps	6	4	2	L14-20
6-7501HR	L14-30 (30A)	30 Amps	6	4	2	L14-30
10-7501HR	L14-30 (30A)	30 Amps	10	6	4	L14-30



SAFETY INFORMATION

1. The National Electrical Code states the connection of a generator to any electrical circuit normally powered by an electrical utility, must be by means of an approved transfer switch so as to isolate the electrical circuit from the utility system when the generator is operating. Your EmerGen Switch is approved by a Nationally Recognized Testing Laboratory to accomplish the isolation this code is requiring.
2. A licensed electrician or qualified professional must install this EmerGen Switch according to local code.
3. To reduce the risk of electrical shock, the MAIN circuit breaker in the load center must be in the OFF position during the course of installation.

GENERATOR

1. The portable generator used with your EmerGen Switch, must be operated outside of any building.
2. Always plug the power cord set into your generator and into the EmerGen Switch before starting the generator and always shut the generator down before detaching the power cord set.
3. Do not overload your generator or its circuit breakers will trip. Using the EmerGen Switch's built-in watt meters, you can balance the loads to avoid impeding your generator's performance.

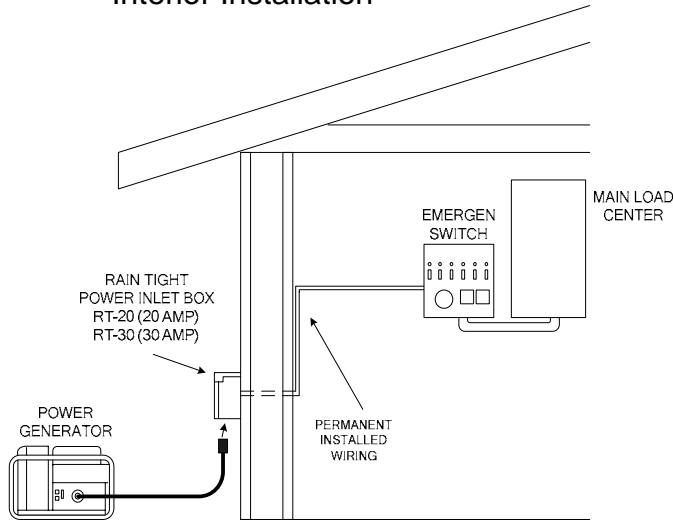
INSTALLATION PREPARATION

1. Decide which circuits will be powered by the generator during a power outage. The recommended circuits include the fireplace fan or furnace fan (gas or fuel only), sump pump, refrigerator, freezer, one lighting or kitchen appliance circuit, and perhaps one lighting circuit elsewhere. Most well pumps are 240V—or any other 240V appliance—will utilize two EmerGen Switch circuits. (C&D on the 6 circuit models or D&I or E&J on the 10 circuit models). **NOTE—ONLY 15A AND 20A CIRCUITS CAN BE CONNECTED TO THE EMERGEN SWITCH!**
2. Identify the load center circuits you've determined are 15 amps or less. Designate each EmerGen Switch circuit that will be used. Identify the load center circuits that are 20 amps. Designate these circuits for use on the 20 amp EmerGen Switch circuits. **ANY CIRCUITS GREATER THAN 20A CANNOT BE CONNECTED!**

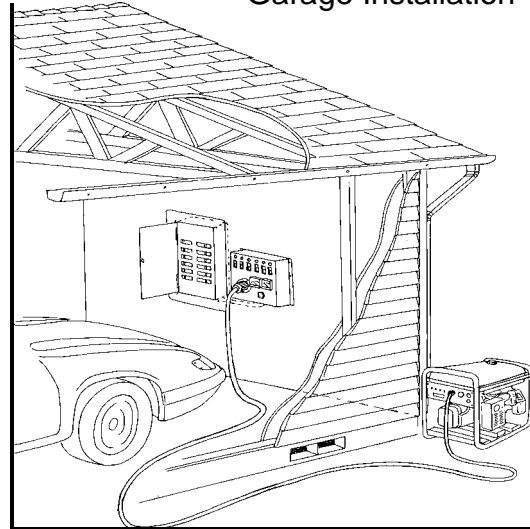
Note: If a circuit you have selected is a GFCI or AFCI circuit breaker, it will not be a GFCI or AFCI circuit while it is powered by the generator.

TYPICAL INSTALLATIONS

Interior Installation



Garage Installation



Appliance	Running Wattage	Start-Up Wattage
Furnace Fan (gas or fuel)		
1/8 Horsepower	300	500
1/6 Horsepower	500	750
1/4 Horsepower	600	1000
1/3 Horsepower	700	1400
1/2 Horsepower	875	2350
Well Pump		
1/3 Horsepower	750	1400
1/2 Horsepower	1000	2100
Sump Pump		
1/3 Horsepower	800	1300
1/2 Horsepower	1050	2150
Light Bulbs (incandescent)	as marked	0
Refridgerator or Freezer	700	2200
Garage Door Opener		
1/4 Horsepower	550	1100
1/3 Horsepower	725	1400
Microwave Oven (600 watt)	600	800
Television	300	0
Coffe Maker (typical)	1750	0
Dehumidifier	650	800
Portable Heater	1000 - 1500	0
Water Heater	3500	0

WATTAGE REQUIREMENTS

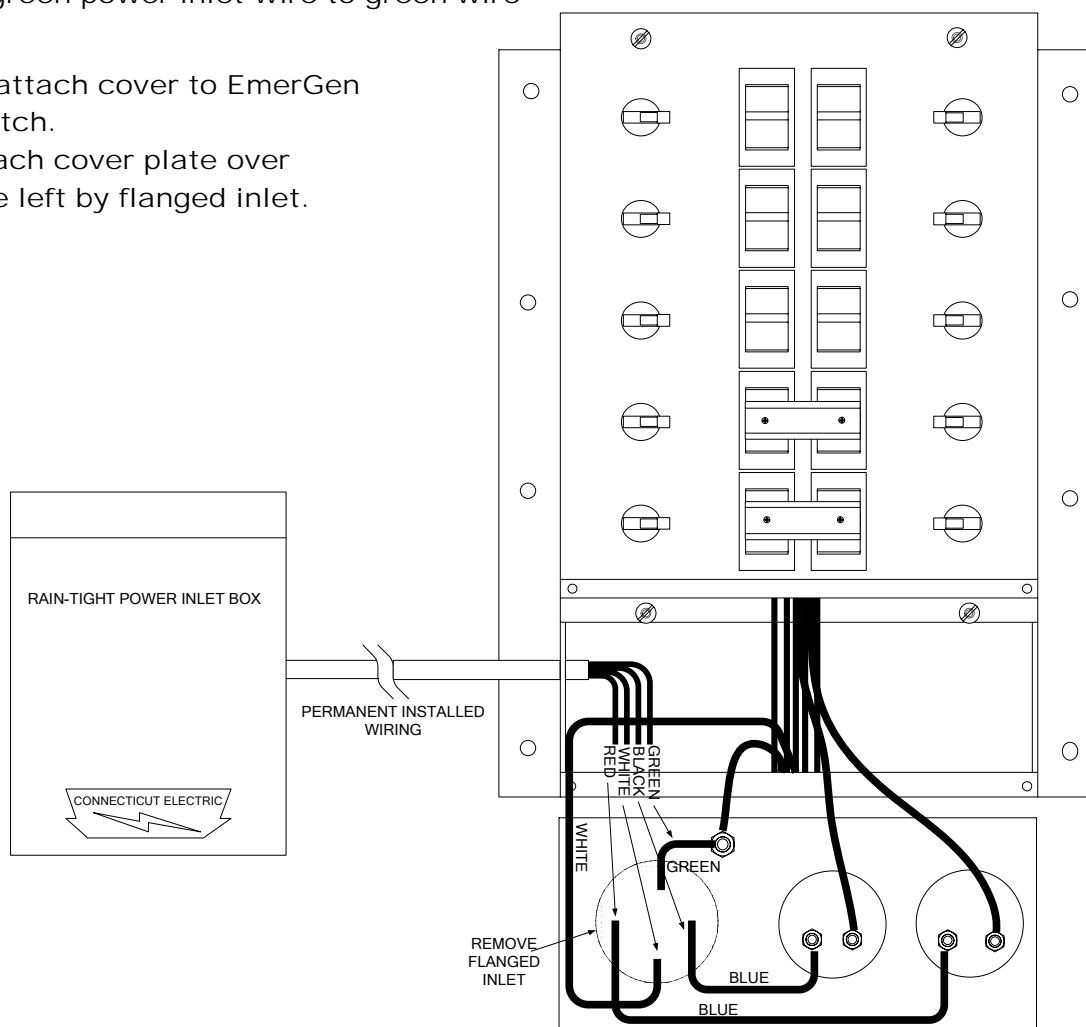
1. Most appliances and motors have current ratings noted directly on the units. Light bulb wattages are noted on the bulb.
2. Some electrical motors surge in power when first started. Your EmerGen Switch has watt meters so you can monitor the flow of these start-up surges without impeding your generator's performance.
3. Load balance is obtained by the pre-determination of chosen circuits. Try to distribute loads with similar wattage requirements equally on the left and right sides of the EmerGen Switch. Example: place the refrigerator on circuit A and the freezer on circuit F. Attempt to balance loads to within 1000W on each side.

HARD-WIRE INSTALLATION

Your EmerGen Switch has a factory installed generator power inlet. You can hard-wire your EmerGen Switch to a remote rain-tight power inlet box. This procedure is required for outdoor installation.

1. Remove the four screws securing the wiring compartment cover.
2. Remove the four wires from the attached flanged inlet.
3. Remove the flanged inlet from the cover by removing the three screws that secure it.
4. Remove a knockout in the EmerGen Switch wiring compartment and insert wire from remote power inlet box using an appropriate wire clamp.
5. Connect the four incoming wires from the remote rain-tight power inlet box as follows:
 - a) red power inlet wire to blue wire
 - b) black power inlet wire to other blue wire
 - c) white power inlet wire to white wire
 - d) green power inlet wire to green wire

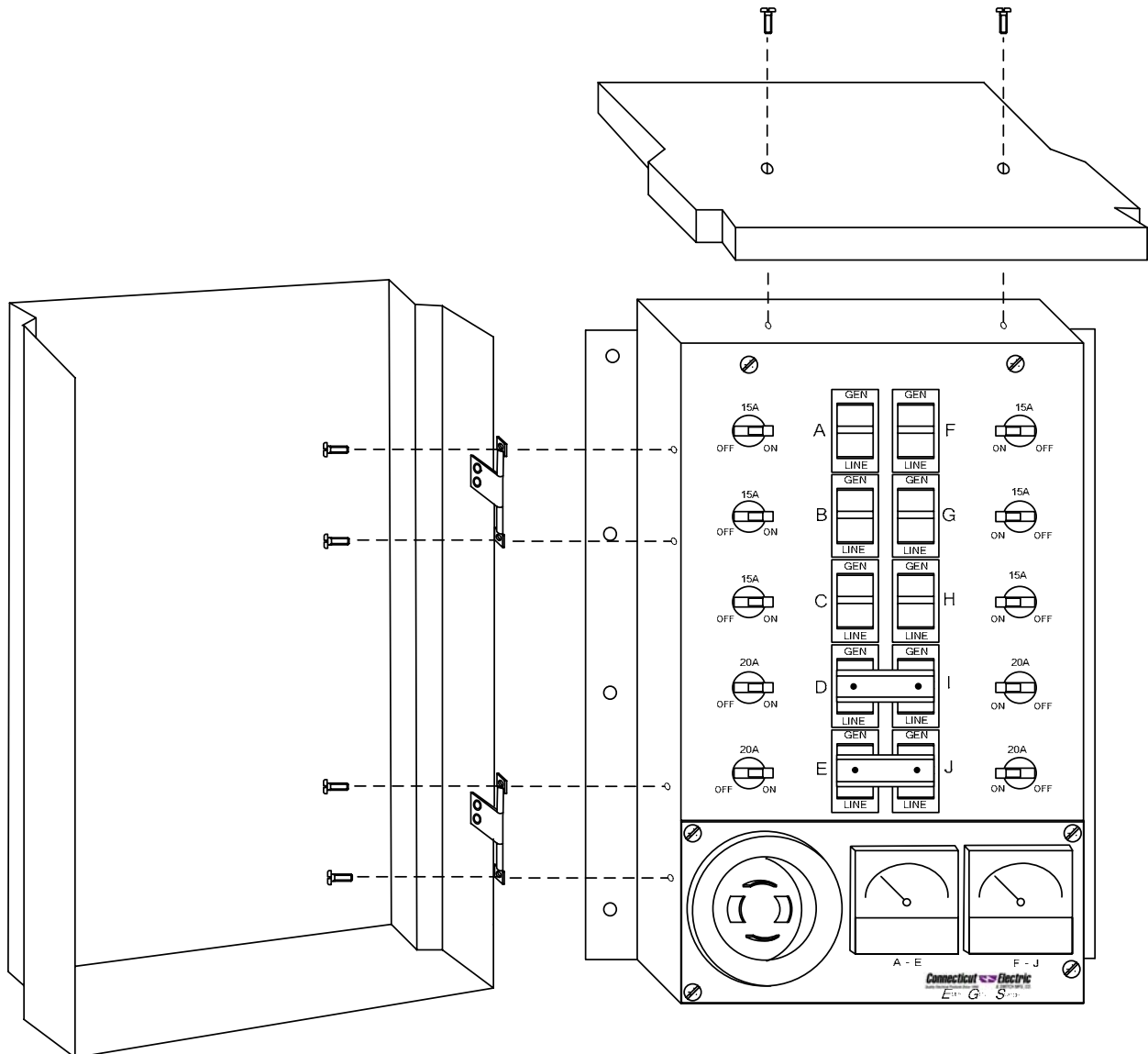
6. Re-attach cover to EmerGen Switch.
7. Attach cover plate over hole left by flanged inlet.



OUTDOOR INSTALLATION

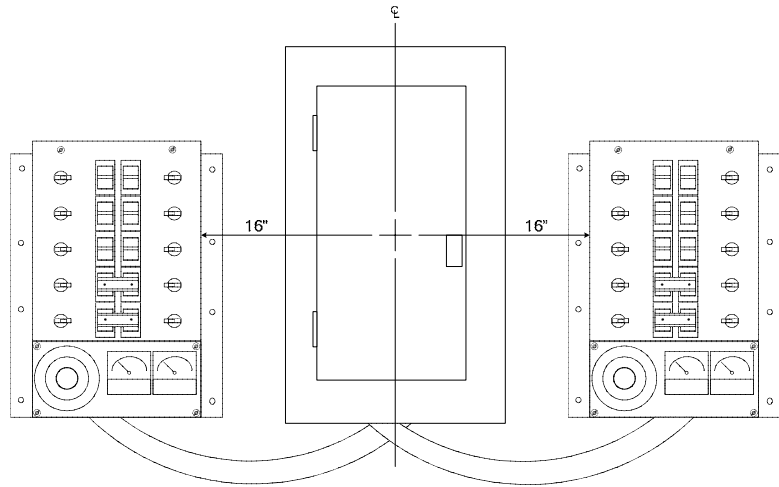
Your EmerGen Switch HR series manual transfer switch can be installed outdoors only when fitted with the RP6 or RP10 raintight door and hood. Follow the following steps to convert your EmerGen Switch HR for an outdoor installation.

1. THE EMERGEN SWITCH HR MUST BE HARD-WIRED FOR OUTDOOR INSTALLATION. See Hard-wire Installation Instructions.
2. Attach rain tight door and hood and door latch(s) as shown below. Ensure that all holes in the EmerGen Switch HR are filled with a screw to prevent water from entering chassis.

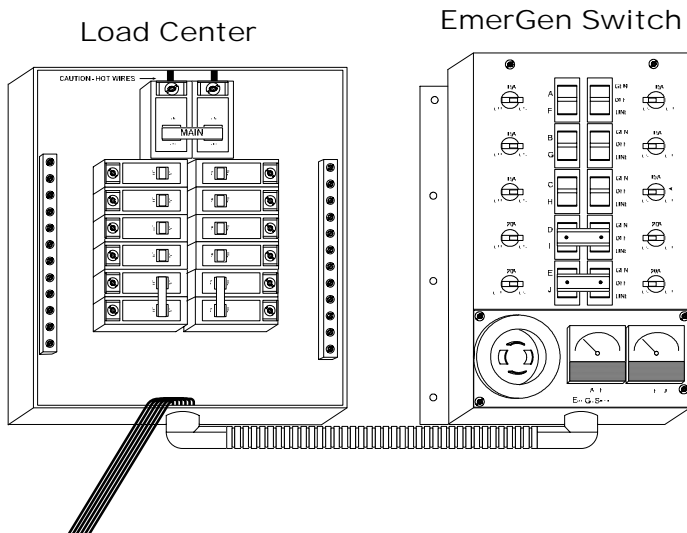


INSTALLATION INSTRUCTIONS

1. Determine where you want your EmerGen Switch located, either to the left or right of the load center. Make sure that there is plenty of room to properly connect the conduit whip.



2. **TURN OFF POWER.** The main circuit breaker in your load center (typically located at the top) should be switched to the OFF position. **CAUTION—THIS DOES NOT AFFECT THE WIRES ON THE LINE SIDE OF THE MAIN BREAKER—THEY WILL REMAIN LIVE!** Remove the cover of the load center.



3. Identify the appropriate knockout to remove. 1" trade size for the 6 circuit models, 1-1/4" for the 10 circuit model.

4. Trim the conduit to the desired length and slide over the EmerGen Switch wires. Attach to the 90 degree fitting at the EmerGen Switch. Slide the supplied fitting over the wires and attach to the free end of the conduit.

5. Insert the wires from the flex conduit up through the knockout, taking care not to nick or gouge the wires on the metal edge. Tighten the locknut securely onto the load center. The wires can hang freely.

6. Without over-manipulating the flex conduit, secure your EmerGen Switch to the wall with fasteners appropriate for the wall's construction. If you are mounting this unit flush in the wall, follow instructions included with the Flush Cover Kit.

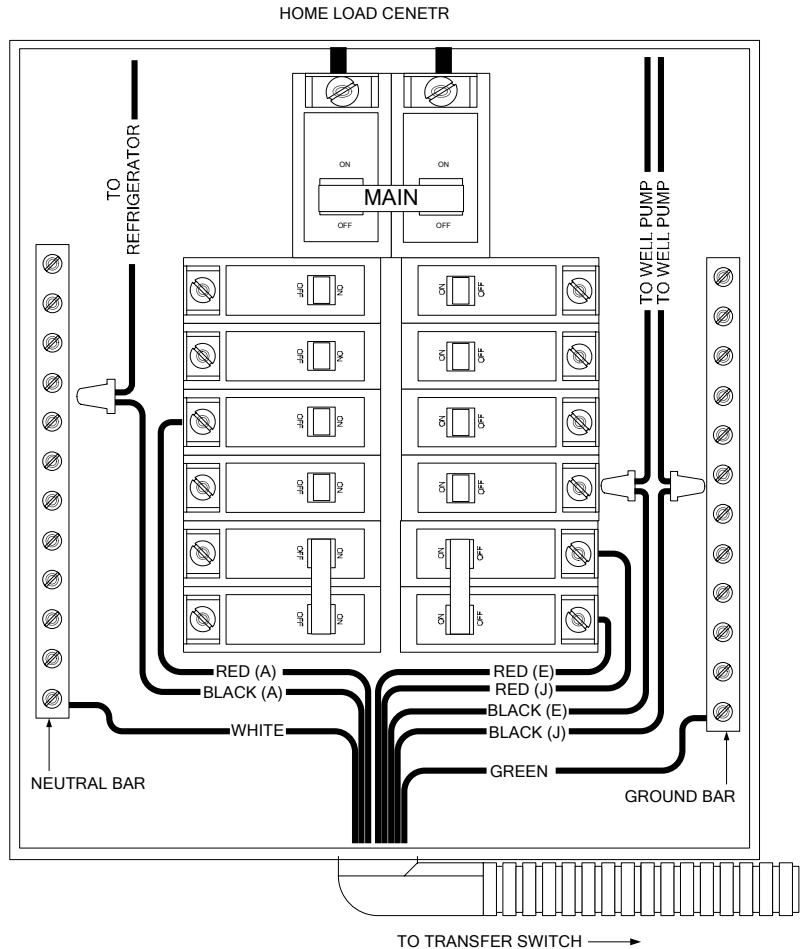
WIRING THE EMERGEN SWITCH TO THE LOAD CENTER

- From your plan, locate the circuit breaker that is to be connected to the EmerGen Switch circuit "A". We will use the refrigerator circuit for this example. Turn that circuit breaker to the OFF position. Loosen the lug securing the wire and remove the wire.

WARNING: Transfer switch circuits with 20 amp breakers must be installed to circuits using 20 amp circuit breakers in your load center. Transfer switch circuits with 15 amp breakers can be installed on either 15 or 20 amp circuit breakers in the load center.
DO NOT INSTALL ANY TRANSFER SWITCH CIRCUIT ON BRANCH CIRCUITS GREATER THAN 20 AMPS.

- Find both the red and black EmerGen Switch wires labeled "A". Using good workmanship, route both of these wires close to the selected circuit breaker.

- The red EmerGen Switch "A" wire is trimmed, stripped and installed into the circuit breaker, securely tightening the breaker lug.
- The black EmerGen Switch "A" wire and the hot wire from the circuit breaker (removed in step 1) are placed up the side of the load center together.
- After removing 5/8" of the insulation from the black EmerGen Switch "A" wire, insert both wires into a yellow wire connector. Twist the connector tightly and push the wires back into the wiring compartment of the load center.



- Repeat step 2 for each 120 volt circuit. See the following section for the installation of 240 volt circuits.

INSTALLING 240 VOLT (2 POLE) CIRCUITS

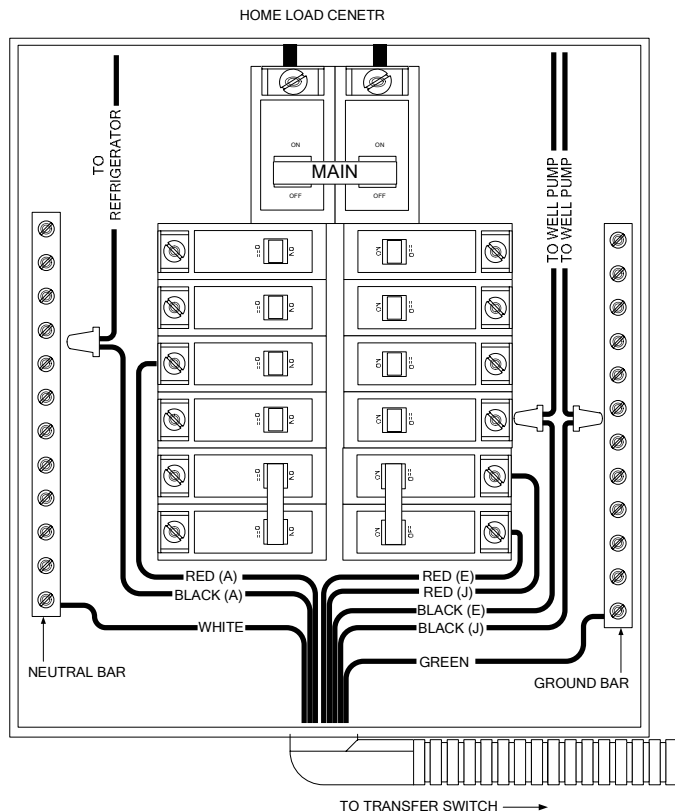
EmerGen Switch products provide circuits for the connection of 240 volt appliances that are connected to 2 pole branch circuit breakers in your load center. These EmerGen Switch circuits for 240 volt operation have a handle tie installed that ties two circuit selector switches together in the following positions:

- Models 6-5001HR & 6-7501HR Circuits C & D
- Model 10-7501HR Circuits D & I, Circuits E & J

If you do not wish to use the designated circuits as 2 pole circuits, simply remove the handle tie by removing the two screws.

For the purpose of this example, circuits E & J of model 10-7501HR and a 2-pole 20A well pump circuit in the load center will be used.

- a) The red EmerGen Switch "E" wire is trimmed, stripped and securely installed into one side of the 2 pole circuit breaker.
- b) The black EmerGen Switch "E" wire and one of the hot wires from the circuit breaker are placed up the side of the load center. Insert both wires into a yellow wire connector and twist tightly. Push the wires back into the wiring compartment of the load center.
- c) The red EmerGen Switch "J" wire is trimmed, stripped and securely installed into the remaining side of the 2 pole circuit breaker.
- d) The black EmerGen Switch "J" wire and the remaining hot wire from the circuit breaker are placed up the side of the load center. Insert both wires into a yellow wire connector and twist tightly. Push the wires back into the wiring compartment of the load center.



COMPLETING THE INSTALLATION

- 1) When the preceding steps have been completed for all desired circuits, the EmerGen Switch white (neutral) wire needs to be installed.
 - a. Select any unused hole on the neutral bar in the load center.
 - b. Cut and strip the wire appropriately. Insert the wire into the hole and tighten securely.

- 2) The EmerGen Switch green (ground) wire needs to be installed into an unused hole in the ground bar in the load center.
 - a. Select an unused hole in the ground bar in the load center.
 - b. Cut and strip the wire appropriately. Insert the wire into the hole and tighten securely.

NOTE: If no separate Ground Bar exists, connect the green wire to an unused position in the Neutral bar.

- 3) Replace the load center cover. All circuit breakers can now be turned on including the MAIN circuit breaker.

- 4) All EmerGen switches should be in the "Line" position. The "Off" position is generally not used.

- 5) Fill out the chart supplied with your EmerGen Switch describing each emergency circuit and corresponding circuit breaker. Please this label on or near your EmerGen Switch for easy reference.

EmerGen Switch		
EGS Circuit	Circuit No. at Load Center	Circuit Description
A	8A	Freezer
B	5B	Rec Room Lights
C	2A	Barn Pump
D	3A	
E	4B	Lights
F	10B	Furnace Fan

OPERATION / TEST PROCEDURE

1. Switch positions should remain in the "LINE" position under normal utility power. The "OFF" position is generally not used. The "GEN" positions are used when utilizing your generator power source.
2. When testing and/or switching to generator power after a power outage, ensure all switches are in the "LINE" position. (There is no need to turn off any load center circuit breakers including the MAIN circuit breaker).
3. Plug your power cord set into your generator by aligning the male prongs with the female terminals of your generator's receptacle, push the connector in and twist clockwise to lock. Align the female socket of the cord set into your EmerGen Switch or remote power inlet box, push it in and turn clockwise to lock.
4. Move your generator outdoors before starting it up. Check to see that fluids and fuel are adequate and start your generator according to the manufacturer's instructions. Allow approximately 10 minutes for your generator to warm up.
5. At your EmerGen Switch, move one circuit to the "GEN" position, making a note of how much wattage is used on the watt meter. While monitoring the load, flip each circuit—one at a time—to the "GEN" position. You do not need to go "in order" and you want to balance the loads so that both meters read approximately the same. Attempt to balance the two meters to within 1000W of each other. Do not switch on more loads than your generator can supply.

Note: Wattage must not exceed the maximum printed on the meters.

LOAD MANAGEMENT

1. All circuits can be used simultaneously if your generator has sufficient wattage capacity. If an electrical load on the EmerGen Switch is exceeded by its capacity, the mini-breaker may trip.

To Reset:

- a. Eliminate the overload condition.
- b. Move the rocker switch with the tripped breaker to the "OFF" position.
- c. Reset the breaker by switching it to the OFF position and then to the ON position.
- d. Move the switch back to the "GEN" position. It should now operate properly. If it does not, you may need to contact an electrician or qualified professional.

Trouble Shooting

Problem	Cause	Solution
Generator is running but no AC output is available.	<ol style="list-style-type: none"> 1. Generator circuit breaker has tripped. 2. Poor connection or defective cord set. 3. Connected device is bad. 4. Fault in generator. 	<ol style="list-style-type: none"> 1. Reset circuit breaker. 2. Check and repair. 3. Select a different load or appliance that is in good condition. 4. Contact a qualified professional.
Generator runs good but bogs down when loads are connected.	<ol style="list-style-type: none"> 1. Short circuit in a connected load. 2. Generator is overloaded. 	<ol style="list-style-type: none"> 1. Disconnect shorted electrical load. 2. Review load power requirements and rearrange.
Switches are not working with generator power.	<ol style="list-style-type: none"> 1. Switches are in OFF or LINE position. 2. Generator circuit breaker has tripped. 3. Poor connection or defective cord set. 4. Connected device is bad. 5. Fault in generator. 	<ol style="list-style-type: none"> 1. Move switches to GEN position. 2. Reset circuit breaker. 3. Check and repair. 4. Select a different load or appliance that is in good condition. 5. Contact a qualified professional.
Appliances do not operate after utility power is restored.	<ol style="list-style-type: none"> 1. Switches are in GEN or OFF position. 2. Circuit breaker tripped. 	<ol style="list-style-type: none"> 1. Move switches to LINE position. 2. Reset circuit breaker.
Only some loads work on generator power.	<ol style="list-style-type: none"> 1. Circuit breaker tripped. 2. Poor connection or defective cord set. 	<ol style="list-style-type: none"> 1. Reset circuit breaker. 2. Check and repair.
GFCI breaker on Honda generator trips when connected to switch	<ol style="list-style-type: none"> 1. Neutral / Ground bond in generator 	<ol style="list-style-type: none"> 1. Contact Honda dealer for alteration.

Product Warranty

Every EmerGen Switch is guaranteed against mechanical or electrical failure due to manufacturing defects for a period of one year from the date of purchase.

Connecticut Electric warrants to the purchaser that this product will be free from defects in material and workmanship and will be of the kind and quality designated. This warranty shall apply only to defects appearing within one year of the original date of purchase.

Defective products are to be returned to the place of purchase for an exchange or refund.

Connecticut Electric will not be liable for any loss, damage, incidental or consequential damage of any kind, whether based upon warranty contact, or negligence, and/or arising in connection with the sale, use, installation or repair of this product. Connecticut Electric's maximum liability shall not, in any case, exceed the contract price for the products claimed to be defective or unsuitable.

This warranty does not extend to any product manufactured by Connecticut Electric which has been subjected to misuse, neglect, accident, improper installation or use in violation of instructions furnished.

This warranty does not extend to or apply to any unit which has been repaired or altered, either to the product or to the components manufactured by any other supplier other than Connecticut Electric.