

# MANUAL TRANSFER SWITCH

## Congratulations !

On the purchase of your new EmerGen Switch®, another Gould premium quality product.

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 (EmerGen switch model 6-5000) or L14-30R (model 6-7500).

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

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## **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. Your EmerGen Switch is for indoor use only.**
- 3. A licensed electrician or qualified professional must install this EmerGen Switch according to local code.**
- 4. 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.**

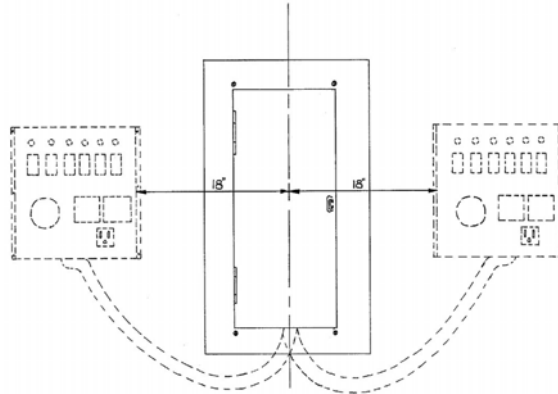
## **INSTALLATION PREPARATION**

- 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).**
- 2. Identify the load center circuits you've determined are less than 15 amps. Designate each EmerGen Switch circuit that will be used.**

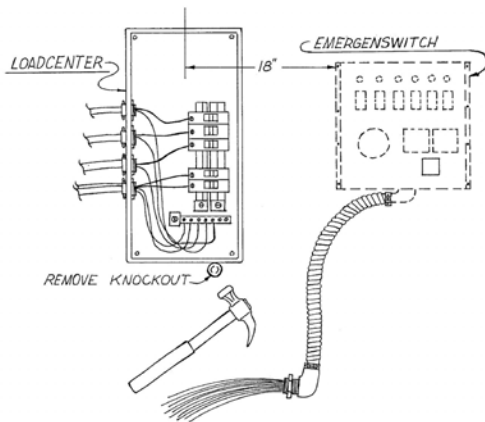
**Note: If a circuit you have selected is a GFCI circuit breaker, it will not be a GFCI circuit while it is powered by the generator.**

## INSTALLATION INSTRUCTIONS

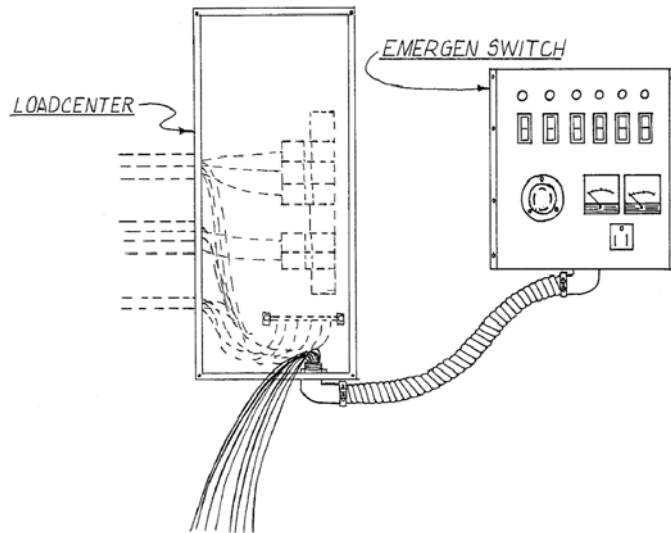
**1. Determine where you want your EmerGen Switch located, either to the left or right of the load center. The switch should be approximately 18" from the center of the load center, making sure that there is plenty of room to properly connect the flex conduit whip.**



**2. TURN OFF POWER.** The main circuit breaker in your load center 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 3/4" knockout to remove.**



**4. Insert the wires from the flex conduit up through the knockout; take 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.**

**5. 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 to the wall, follow instructions included with the Flush Cover Kit.**

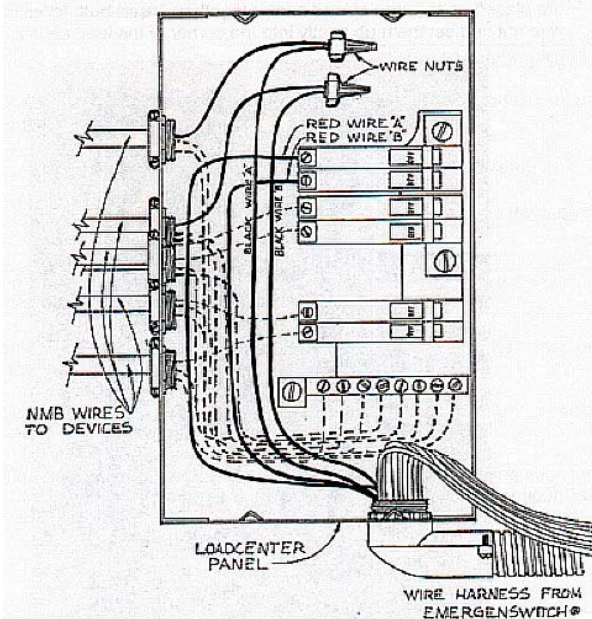
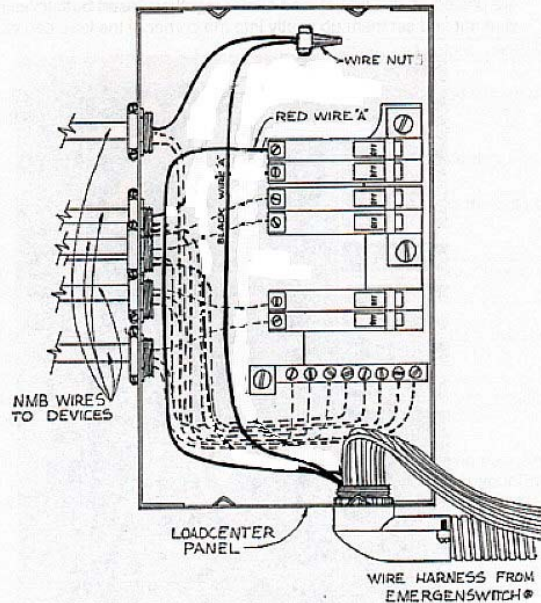
## Wiring the EmerGen Switch to the Load Center

1. From your plan, locate the circuit breaker that is to be connected to the EmerGen Switch circuit "A". Turn that circuit breaker to the OFF position. Loosen the lug securing the wire and remove the wire.

**WARNING:** Your generator must be properly grounded and the neutral un-bonded at the generator. Please refer to the generator manual for grounding instructions. It is always recommended that users always disconnect the generator plug from the EmerGen Transfer Switch when not in use.

2. 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.

- a) The red EmerGen Switch "A" wire is trimmed, stripped and installed into the circuit breaker, securely tightening the breaker lug.
- b) 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.
- c) 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.



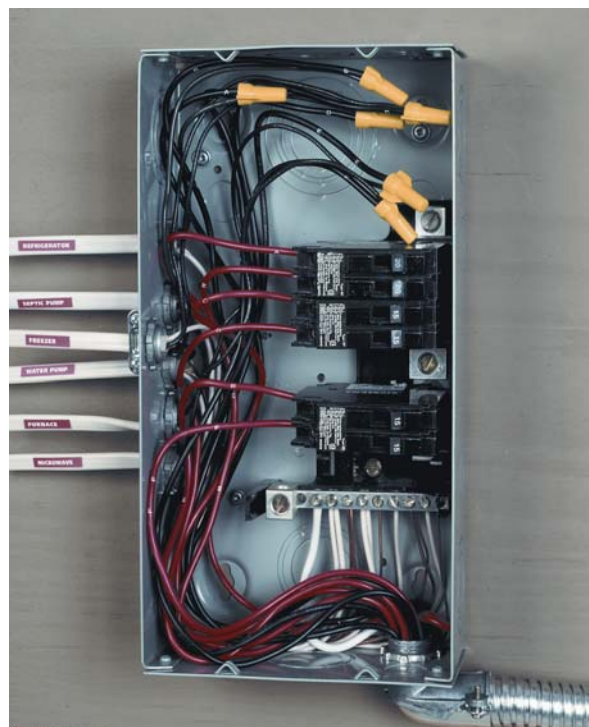
3. Repeat step 2 for each 120 volt circuit. See the following section for the installation of 240 volt circuits.

## 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 included with the switch that ties two circuit selector switches C & D together. If you do not wish to use the designated circuits as 2 pole circuits, simply remove the handle tie by removing the two screws.**

- a) **The red EmerGen Switch “C” wire is trimmed, stripped and securely installed into one side of the 2 pole circuit breaker.**
- b) **The black EmerGen Switch “C” 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 “D” wire is trimmed, stripped and securely installed into the remaining side of the 2 pole circuit breaker.**
- d) **The black EmerGen Switch “D” 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.**

**Note: For this example, a 125 amp panel is used for illustration purpose only**



## Completing the Installation

- 1) **When the preceding steps have been completed for all desired circuits, the EmerGen Switch white (neutral) wire(s) 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(s) 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.**
  
- 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. Place this label on or near your EmerGen Switch for easy reference.**

<b>EmerGen Switch</b>		
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 connecting circuits to 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).**
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 (some connectors do not twist). Align the female socket of the cord set into your EmerGen Switch, 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.**
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. 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 only 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 switch with the tripped breaker to the “OFF” position.**
- c. **Reset the breaker by pressing it in, making sure it stays in.**
- 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
<b>Generator is running but no AC output is available.</b>	<ol style="list-style-type: none"> <li><b>1. Generator circuit breaker has tripped.</b></li> <li><b>2. Poor connection or defective cord set.</b></li> <li><b>3. Connected device is bad.</b></li> <li><b>4. Fault in generator.</b></li> </ol>	<ol style="list-style-type: none"> <li><b>1. Reset circuit breaker.</b></li> <li><b>2. Check and repair.</b></li> <li><b>3. Select a different load or appliance that is in good condition.</b></li> <li><b>4. Contact a qualified professional.</b></li> </ol>
<b>Generator runs good but bogs down when loads are connected.</b>	<ol style="list-style-type: none"> <li><b>1. Short circuit in a connected load.</b></li> <li><b>2. Generator is overloaded.</b></li> </ol>	<ol style="list-style-type: none"> <li><b>1. Disconnect shorted electrical load.</b></li> <li><b>2. Review load power requirements and rearrange.</b></li> </ol>
<b>Switches are not working with generator power.</b>	<ol style="list-style-type: none"> <li><b>1. Switches are in OFF or LINE position.</b></li> <li><b>2. Generator circuit breaker has tripped.</b></li> <li><b>3. Poor connection or defective cord set.</b></li> <li><b>4. Connected device is bad.</b></li> <li><b>5. Fault in generator.</b></li> </ol>	<ol style="list-style-type: none"> <li><b>1. Move switches to GEN position.</b></li> <li><b>2. Reset circuit breaker.</b></li> <li><b>3. Check and repair.</b></li> <li><b>4. Select a different load or appliance that is in good condition.</b></li> <li><b>5. Contact a qualified professional.</b></li> </ol>
<b>Appliances do not operate after utility power is restored.</b>	<ol style="list-style-type: none"> <li><b>1. Switches are in GEN or OFF position.</b></li> <li><b>2. Circuit breaker tripped.</b></li> </ol>	<ol style="list-style-type: none"> <li><b>1. Move switches to LINE position.</b></li> <li><b>2. Reset circuit breaker.</b></li> </ol>
<b>Only some loads work on generator power.</b>	<ol style="list-style-type: none"> <li><b>1. Circuit breaker tripped.</b></li> <li><b>2. Poor connection or defective cord set.</b></li> </ol>	<ol style="list-style-type: none"> <li><b>1. Reset circuit breaker.</b></li> <li><b>2. Check and repair.</b></li> </ol>
<b>GFCI breaker on Honda generator trips when connected to switch</b>	<ol style="list-style-type: none"> <li><b>1. Neutral / Ground bond in generator</b></li> </ol>	<ol style="list-style-type: none"> <li><b>1. Contact Honda dealer for alteration.</b></li> </ol>