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Manual Transfer Switch

MODEL:SP-ZH352510(30A-6)

/SP-ZH352510(30A-10)

/SP-ZH352510(50A-10)

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"Save Half", "Half Price" or any other similar expressions used by us only represents an estimate of savings you might benefit from buying certain tools with us compared to the major top brands and does not necessarily mean to cover all categories of tools offered by us. You are kindly reminded to verify carefully when you are placing an order with us if you are actually saving half in comparison with the top major brands.

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(The picture is for reference only, please refer to the actual object)

NEED HELP? CONTACT US!

Have product questions? Need technical support? Please feel free to contact us:

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This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves a clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

	Warning-To reduce the risk of injury, user must read instructions manual carefully.
	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. Inspection of the installation by the local inspection authority is required. Inspection records should be kept for insurance claims.
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)This device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.

WARNINGS&CAUTION

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.
2. A licensed electrician or qualified professional must install this VEVOR 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 VEVOR transfer switch, must be operated outside of any building.
2. This product is suitable only for use with a generator with floating neutral.
3. Warning: Follow generator manufacturer’s instructions for removing bond between generator neutral and frame.
4. Always plug the power cord set into your generator and into the power inlet box before starting the generator and always shut the generator down before detaching the power cord set.
5. Do not overload your generator or its circuit breakers will trip. Using the VEVOR transfer 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 VEVOR transfer Switch circuits. (C&F on the 6 circuit models or D&I and E&J on

the 10 circuit models).
2. Identify the load center circuits you've determined are 15 amps or less. Designate each VEVOR transfer switch circuit that will be used. Identify the load center circuits that are 20 amps. Designate these circuits for use on the 20 amp VEVOR transfer Switch circuits.
3. (SP-ZH352510(50A-10) models only) Identify the 30 amp circuit that will be used.
4. When the transfer switch is connected to branch circuits with AFCI or GFCI breakers,the AFCI or GFCI protection will be lost when,and only when, the toggle switch in the transfer switch is in the GEN position.To get AFCI or GFCI protection when running on generator power,install the appropriate breakers in the transfer switch.

VEVOR is not responsible for damage or injury caused by incorrect installation of this transfer switch.

SWITCH SPECIFICATION INTRODUCTION

Your new VEVOR transfer 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 VEVOR transfer 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 a NEMA L14-30(30 amp models) or NEMA CS6375 (50 amp model) receptacle.

Your VEVOR transfer switch cannot permit connection to both utility and generator power at the same time eliminating the possibility of back feeding.

SPECIFICATION SHEET:

Model#	SP-ZH352510 (30A-6)	SP-ZH352510 (30A-10)	SP-ZH352510 (50A-10)
Max.total watts	7500W	7500W	12500W
Watt meter quantity	2	2	2
Watt meter Max power	3750W	3750W	6250W
Max.single-pole circuits	6	10	10
Number of 15Amp circuits	4	6	4
Number of 20 Amp circuits	2	4	4
Number of 30 Amp circuits	N/A	N/A	2
Max.double-pole and multi-wire circuits	1	2	2
#of handle ties provided	1	2	2
Max.combined loads@125VAC	60A	60A	100A
Max.combined loads@250VAC	30A	30A	50A
Accessories	①1-1/4inch PVC conduit(16inch length)*1pcs; ②L14-30 outdoor power inlet box*1pcs.	①1-1/4inch PVC conduit(16inch length)*1pcs; ②L14-30 outdoor power inlet box*1pcs	①1-1/4inch PVC conduit(16inch length)*1pcs; ②CS6375 outdoor power inlet box*1pcs.

PRODUCT DIAGRAM:

- Powder coated steel enclosure--meet NEMA 3R protection level,meet indoor and outdoor dustproof and waterproof working environment.
- Mini breakers--Each transfer switch circuit has a 1-in interchangeable circuit breaker that protects the branch circuit when the circuit selector switch is in the GEN position. In the LINE position, each branch circuit is protected by the breaker in the load center.
- Circuit selector switches--These switches allow you to select either GEN (generator) or LINE (utility) as the power source for the branch circuits that have been wired through the transfer switch. The OFF position is generally not used, as a switch in the OFF position removes that branch circuit from both utility and generator power.
- Handle ties--Handle ties are used for 240-volt circuits or multi-wire branch circuits. They may be removed for 120-volt circuits. See page 6 for instructions on removing and adding handle ties.

- Analog watt meters--These meters indicate the total load,in watts, on each column of the generator when the generator is supplying power as follows:

The left meter measures the load on	
A, B, C	6-circuit
A, B, C, D and E	10-circuit

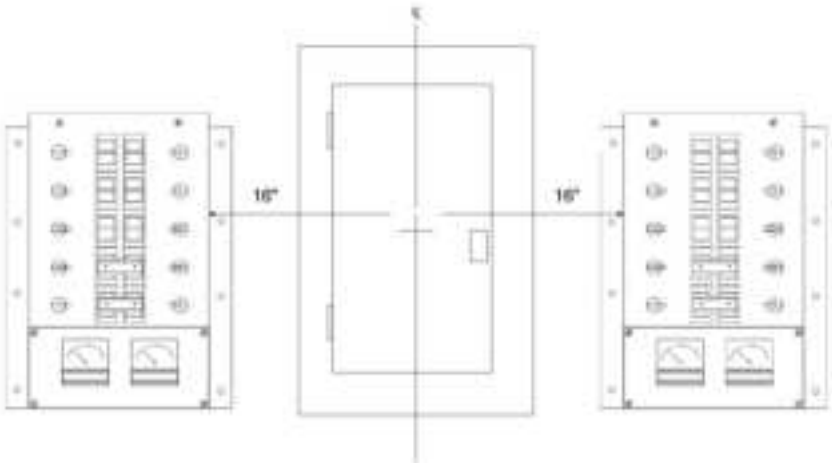
The right meter measures the load on	
D, E, and F	6-circuit
F, G, H, I, and J	10-circuit

for 10-circuit switch example:the left meter connect with X live wire from generator,it indicate the left colume A,B,C,D,E total load.then the right meter connect with Y live wire from generator,it indicate the right colume F,G,H,I,J total load.

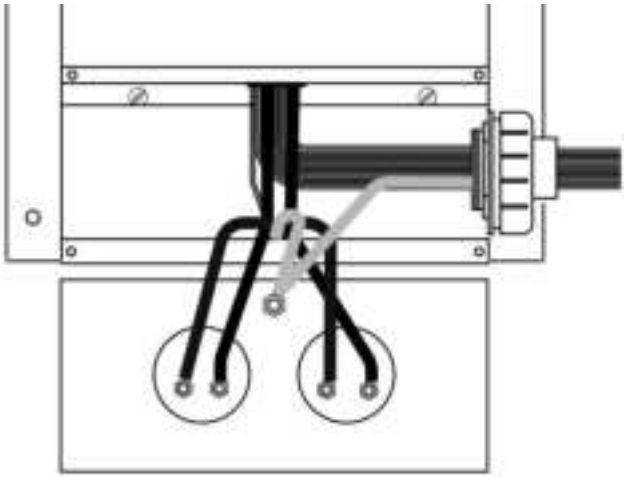
- 1-1/4 NPT PVC Fitting--keep utility power input cable and appliance output cable.
- 1/2 NPT PVC Fitting--keep generator input cable.

INSTALLATION INSTRUCTION

1. Determine where you want your VEVOR transfer switch located, either to the left or right of the load center. If the VEVOR transfer switch is to be located to the right of the load center, you will need to relocate the wire bundle out the left side.The switch is factory assembled with the wire bundle exiting right.



2. To relocate the wire bundle, open the front cover by removing the four screws. remove the stopper on the left side. Remove conduit fitting and carefully remove wire bundle and route through the jam nut and through the hole on the left side. Slide conduit fitting over leads and secure with jam nut.

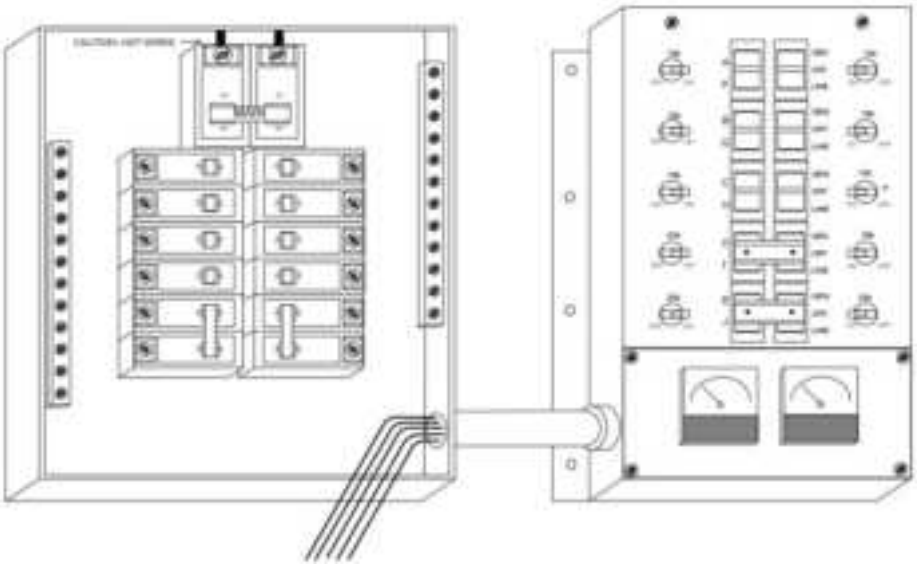


3. Re-fix the stopper on the hole of the right side.

4. TURN OFF POWER. The main circuit breaker,or service disconnect,to 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.

5. Identify the appropriate knockout to remove in the load center. 1-1/4” trade size is installed from the factory.



6. Trim the supplied conduit to the desired length and slide over the VEVOR transfer switch wires. Attach to the fitting on the VEVOR transfer switch.

Slide the supplied fitting over the wires and attach to the conduit.

7. Insert the wires from the conduit through the knockout, taking care not to nick or gouge the wires on the metal edge. Slide the lock nut over the loads and tighten securely onto the conduit fitting.

8. Without over-manipulating the flex conduit, secure your VEVOR transfer switch to the wall with fasteners appropriate for the wall's construction.

WIRING THE VEVOR SWITCH TO THE LOAD CENTER

Determine which circuits will be used during an emergency. The residential wattage requirement chart on the inside front cover of this manual may be used as a guide, but actual appliance wattages may vary. If a selected circuit is part of a multi-wire branch circuit, ensure the other branch circuit that shares the neutral is also connected to the transfer switch. The two circuits must be connected to opposing legs (phases) of the generator power and a handle tie must be installed on the switch handles so that both legs are transferred at the same time.

Warning: Failure to properly install a multi-wire branch circuit could result in overloading the neutral wire.

The maximum number of circuits available and those that can be used for multi-wire branch circuits depends on the model of the transfer switch as follows:

Model	Max	Available for multi-wire branch circuits
SP-ZH352510(30A-6)	6	Any two adjacent circuits. (A-D or B-E or C-F)
SP-ZH352510(30A-10) SP-ZH352510(50A-10)	10	Any two adjacent circuits. (A-F or B-G or C-H or D-I or E-J)

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 VEVOR 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 Switch. Example for 10 circuit switch: place the refrigerator on circuit A and the freezer on circuit F. Attempt to balance loads to within 1000W on each side.

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
Refrigerator 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
Coffee Maker (typical)	1750	0
Dehumidifier	650	800
Portable Heater	1000-1500	0
Water Heater	3500	0

TOOLS REQUIREMENT:

1. Electric drill
2. Screwdriver
3. Wire cutters/stripper
4. Hammer
5. Four anchors and screws
6. Yellow wire connectors:6 or 10pcs(depending on the model)
7. Red wire connectors(4pcs) for the 20A and 30A hard-wire models

INSTALLING 120-VOLT CIRCUITS:

1. From your plan, locate the circuit breaker that is to be connected to the VEVOR transfer 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.

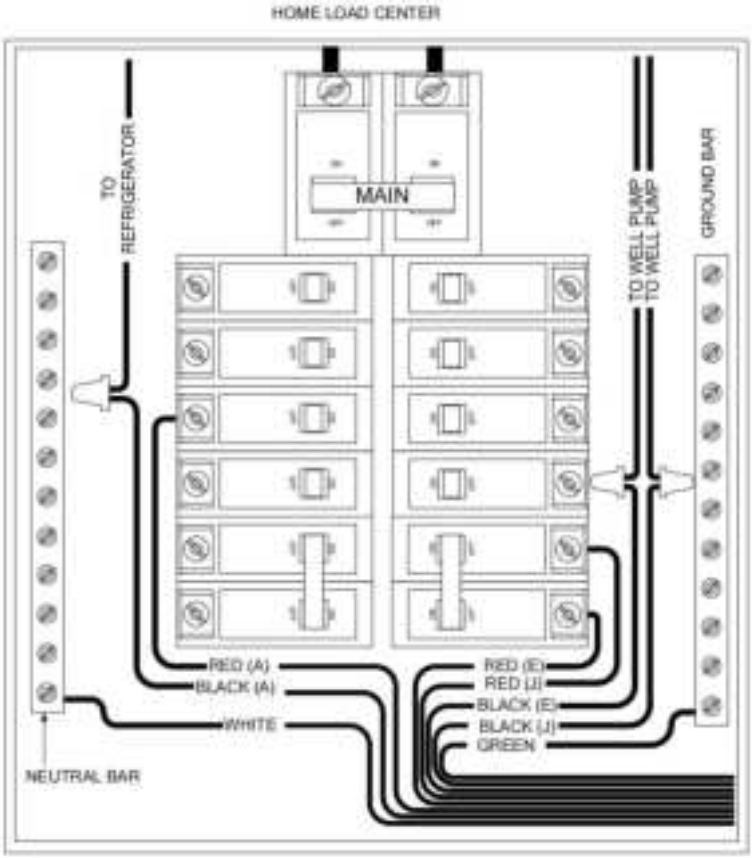
WARNING: Transfer switch circuits with 20 amp breakers must be installed to circuits using 20 amp circuit breakers in your load center. Transfer switch circuits with 15 amp breakers can be installed on either 15 or 20 amp circuit breakers in the load center.
ONLY 30 AMP CIRCUITS FROM YOUR LOAD CENTER SHOULD BE INSTALLED ON 30 AMP CIRCUITS ON THE TRANSFER SWITCH. (SP-ZH352510(50A-10) ONLY)

2. Find both the red and black VEVOR transfer switch wires labeled “A”. Using good workmanship, route both of these wires close to the selected circuit breaker.

a) The red VEVOR transfer switch “A” wire is trimmed,stripped and installed into the circuit breaker,securely tightening the breaker lug.

b) The black VEVOR transfer 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 VEVOR transfer switch “A” wire, insert both wires into an approved wire connector and fasten together. Push the wires back into the wiring compartment of the load center.



d)Repeat step 2 for each of the remaining considering the following:

• See the following section for 240-volt circuits and the removal of handle ties if 240- volt circuits are not required.

• Remember to "balance the load"—dividing the appliances requiring higher wattage between the left and right sides of the transfer switch.

INSTALLING 240-VOLT CIRCUITS:

VEVOR transfer 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 VEVOR transfer switch circuits for 240 volt operation have a handle tie installed that ties two circuit selector switches together in the following positions:

6 Circuit Model - Circuits C & F
10 Circuit Models - Circuits D & I, Circuits E & J

WARNING:Circuits used for multi-wire branch circuits are not available for 240-volt circuits.

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 SP-ZH352510(50A-10) and a 2-pole 20A well pump circuit in the load center will be used.

a) Turn off the double-pole breaker in the load center.

b) Loosen the screws that secure each wire to each circuit breaker. Disconnect the wires from the circuit breakers.

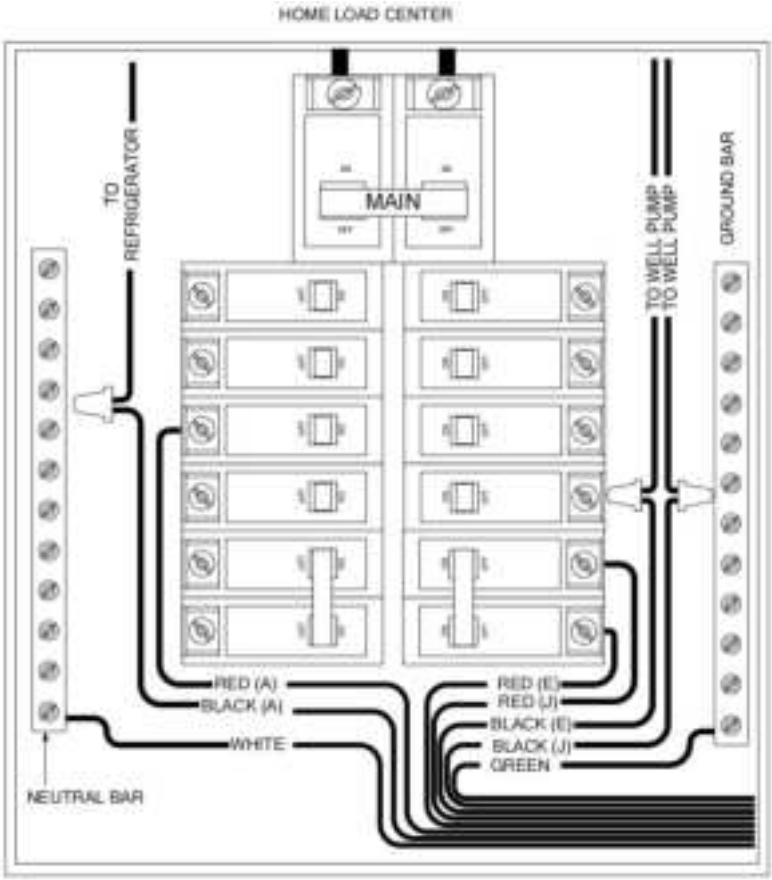
c) The red VEVOR transfer switch “E” wire is trimmed, stripped and securely installed into one side of the 2 pole circuit breaker.

d) The black VEVOR transfer 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 an approved connector and fasten together. Push the wires back into the wiring compartment of the load center.

e) The red VEVOR transfer switch “J” wire is trimmed, stripped and securely installed into the remaining side of the 2 pole circuit breaker.

f) The black VEVOR transfer 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 an approved wire connector and fasten together. Push the wires back into the wiring compartment of the load center.

g) Be sure that a handle tie is connected between the E & J circuit selector switches.



COMPLETING THE INSTALLATION:

1. When the preceding steps have been completed for all desired circuits, the VEVOR transfer 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 in the neutral bar and tighten securely.

2. The VEVOR transfer 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 in the ground bar and tighten securely.

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

4. All VEVOR switches should be in the “Line” position. The “Off” position is generally not used.

5. Fill out the chart supplied with your VEVOR transfer switch describing each emergency circuit and corresponding circuit breaker. Place this label on or near your VEVOR transfer switch for easy reference.

VEVOR Manual Transfer Switch		
VEVOR Circuit	Circuit No.at Load Center	Circuit Description
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		

WIRING THE VEVOR SWITCH TO THE GENERATOR

Wiring the generator to the VEVOR switch will require the use of an outdoor Power Inlet box, an electrical junction box and some permanent wiring.

Mount an electrical junction box six (6) inches below the transfer switch. route the switch input wires through 1/2” Type B conduit and into the junction box. use an appropriate 1/2” fitting to secure the conduit to the junction box.

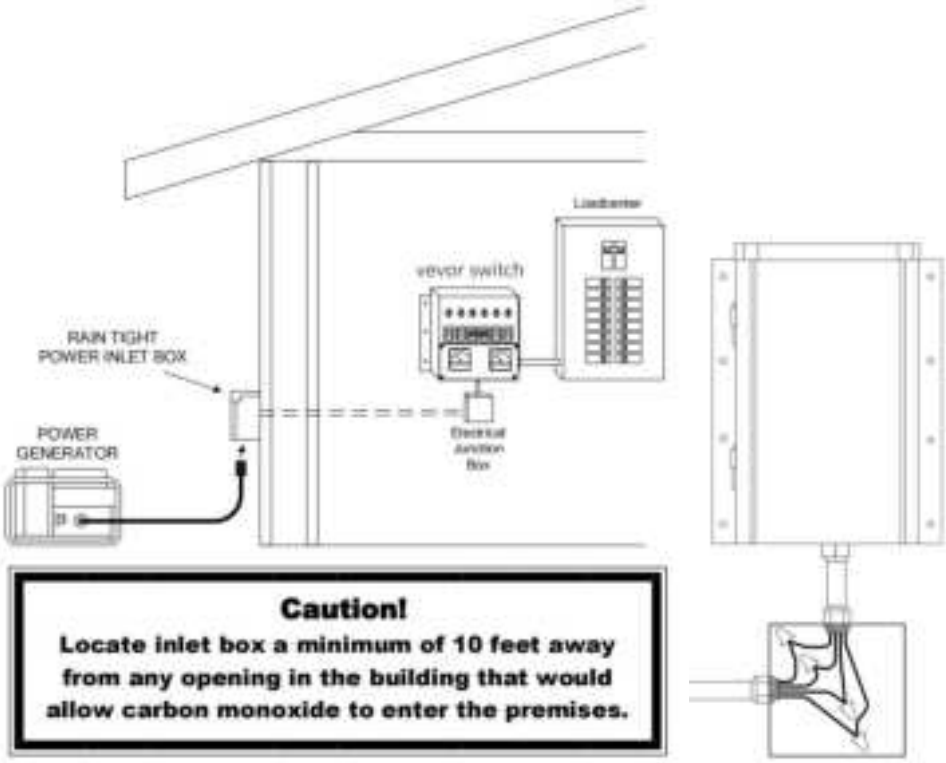
Install four conductor (Hot, Hot, Neutral, Ground)permanent wiring between the junction box and power inlet box according to local code requirements.

Connect the VEVOR switch input wires to your permanent wiring as follows:

1. blue (1) to red (hot)
2. blue (2) to black (hot)
3. white to white (neutral)
4. green to ground

Use an appropriate wire connectors to make the connections.

Check your local electrical codes for grounding and bonding requirements for the junction box.



TRANSFERRING FROM UTILITY POWER TO GENERATOR POWER

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. Keep the EGS circuit breakers set in the ON position at all times.
2. When testing and/or switching to generator power after a power outage,
ensure all switches are in the “LINE” position.
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 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 VEVOR transfer 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.
6. Test generation and transfer switch regularly to ensure proper operation.

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

TRANSFERRING FROM GENERATOR POWER TO UTILITY POWER

1. Return all circuit selector switches to the LINE position.
2. Follow the procedures in the generator owner's manual to turn off the generator.
3. Unplug the power cord.

Notes on Models Without Watt Meters:
Check the nameplate on each appliance or motor and note the load for each. Determine the total running wattage of your generator. During an emergency situation with the generator running, the circuit selector switches should be in the OFF or LINE position when a particular load is not needed. Failure to limit the total load to the total running wattage may cause the generator to stall or create an undervoltage condition that could damage an appliance motor.

TROUBLE SHOOTING

Problem	Cause	Solution
Gen.running but no output available.	1.**Generator circuit breaker has tripped.** 2.Poor connection or defective **cord set.** 3.Connected device is bad. 4.Fault in generator.	1.Reset circuit breaker. 2.Check and repair. 3.Select a different load or appliance in good condition. 4.Contact a qualified professional.
Generator runs good but bogs down when loads are connected.	1.Short circuit in a connected **load.** **2.Generator is overloaded.**	1.Disconnect shorted electrical load. 2.Review load power requirements and rearrange.
Switches not working with gen. power.	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.	1.Move switches to GEN position. 2.Reset circuit breaker. 3.Check and repair. 4.Select a different load or appliance in good condition. 5.Contact a qualified professional.
Appliances do not operate after utility power is restored.	1.Switches are in GEN or OFF **position.** 2.Circuit breaker tripped.	1.Move switches to LINE **position.** 2.Reset circuit breaker.
Only some loads work on generator power.	1.Circuit breaker tripped. 2.Switch on generator in 120V **position.** 3.Poor connection or defective **cord set.**	1.Reset circuit breaker. 2.Move generator switch to 120/240V position. 3.Check and repair.
GFCI breaker on generator trips when connected to switch	1.Neutral/**Ground bond in generator**	1.The VEVOR switch will not function with a GFCI protected **generator output.**

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