Everything you ever (or never) wanted to know about emergency power, lights and generators! (Part one)

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This is a past episode of the Emergency Preparedness "Tip o' da Week". To see the current episode or any past episodes, please follow this link.

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The material presented on this page is intended to help you to start thinking about what you can do today that might save your life some day. If nothing else, our "Tip o' da Week" might just make your life a bit easier when a disaster strikes. *If we prepare, we will survive!*

Now, for the...

Tip o'da Week

Everything you ever (or never) wanted to know about emergency power sources, and generators! (Part one)

Why do we have power outages?

Power outages can be caused in numerous ways, including, lightning and wind, tree limbs falling against power lines, overloaded circuits, dig-ins of underground electric tables, and equipment failures. Sometimes, power may be interrupted to rebuild, repair or maintain the electrical system in your area to minimize chances of on unplanned power outage in the future.

Before a power outage occurs, you need to have a few things ready. You will notice that they are the same items you need for just about any emergency. Power companies, like all utility companies, are quick to warn you to be prepared for loss of services for 72 hours.

The usual list, but many people forget!

- Flashlight with extra batteries
- Candles and matches
- Manual can opener
- Battery powered radio
- Wind up or battery powered clock
  (we wouldn't want to be late to work, would we?)

We have a hard time understanding why these items are always in short supply after a power outage. But then again, many people just don't get around to it. Please, get these supplies together. After the windstorm of 1995 (December 12, west coast USA), you couldn't find a candle, a flash light, or a set of batteries at a local hardware store if your life depended on it!

One of our local suppliers had a run on emergency supplies when the windstorm of 1995 hit Seattle. He sold several hundred flashlights and battery sets to help restock a local hardware store that ran out. About an hour later, he got another call for several hundred more from the same hardware store! They were selling like hot cakes! There are only so many of these items in any city at any given time. Get yours today while you're thinking about it!

The supplier mentioned above also sold about 1000 road flares to the local power company. You would think that the local power company would be ready for a small disaster like that one, but they weren't!

General notes about outages:

- Cold weather is especially hard on infants and the elderly. If you loose power in cold weather, dress in several layers of clothing and be sure to wear a hat and a pair of gloves. Keep the heat in.
- Use your hot water sparingly. Your hot water heater will hold its temperature for a day or so, but remember that every drop of hot water that you use is replaced with cold water at the inlet of the heater. If you use a few gallons of hot water, the temperature of the remaining water will decrease because of the cold water that replaces it. If possible, use the hot water from a location that is close to the heater so you don't waste hot water trying to get it to the 3rd floor when the heater is in the basement.
- If possible, keep doors and windows to your house closed. But remember that if you use your fireplace for heat, it will use valuable oxygen in the house, and will require infusions of fresh air from time to time.
- Keep the refrigerator and freezer doors closed as much as possible. We hope you have read the Tip O'da Week episode that dealt with the refrigerator. There are some great tips for keeping stuff cold in a power outage.
- If you have an electric garage door opener, please take a look at it to see how to over-ride the mechanism. You will need to know how to open it!

If you loose power:

Take a look at other houses in the neighborhood. Do they have power?

Sometimes power will be lost in a very localized area. Often, houses that are served by the same pole mounted power transformer will be dark, while houses next door are fully lit. They might be served by another leg on the local power grid. Your neighbors might be able to provide cold storage for items in your freezer if power is out for extended periods, or you might be able to provide cold storage for someone else in the neighborhood.

Turn off your main circuit breaker:

Know where the main breaker is located in your house. As soon as power is lost, kill the main breaker in your breaker panel. Often times when power is restored, there are several power "spikes" which can damage some of the more sensitive electronic equipment. Most modern equipment employs power supply technology that is less susceptible to these spikes, but older supplies may not fair as well. There are even better reasons to kill power which are discussed below:

Motors draw large amounts of initial start up current.

Once a motor starts spinning, the current requirements drop dramatically. The amount of start up current is partly dictated by the start up load on the motor, and the construction of the motor itself.

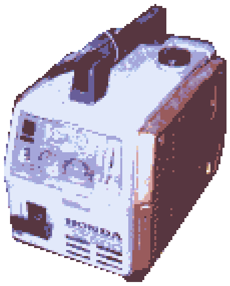
Let's take a belt driven drill press as an example. If the drill bit speed is set to a slow speed, the chuck reaches its final speed a short time after power is applied to the motor. If the drill speed is set to the high setting, you can hear the drill press "wind up" until the final speed is obtained. The reason is that the drill press belt, pulleys and other mechanics have some resting inertia that the motor must overcome in order to get the works spinning. This resting inertia is larger when the gearing ratio is larger as in this example. If you were to measure the startup current for both cases, you would find a huge increase in start up current when there is more of a load on the motor (more resting inertia).

An example is an 1/8 horse power furnace motor used in many Natural gas heaters. The running current is 300 Watts, but the start up current is nearly 500 Watts. That means that you need about 70% more power to start the motor than you need to keep it running once it has been placed into motion. The same holds true for all motors. In some cases you need even more power to start a motor based on the initial load. A good estimate of the initial start current is to double the run current.

Here is a little story to help illustrate the need to turn off your main circuit breaker after power is lost.

Lets pretend that I run a toy power station. My station can supply 10 Watts of peak power. I have 6 customers who each use 1 Watt of power. I have a 4 Watt power reserve available for when I get more customers, or when one of my customers buys a new device that requires more power.

Like in the real world, all my customers need power at the same time. They all get up at 6 AM. They all start their toy coffee pot at 7 AM, and they all go to work at 8 AM. Nobody needs my power in the middle of the day, but they all get home at 6 PM and cook dinner in their Betty Crocker ovens. At 7 PM they all turn on their toy televisions to watch re-runs of the Simpsons.



What if the toy coffee pots are run by a toy motor that consumes 1 Watt of power?

Hint: remember that motors need twice the run power to get started (start up current).

Well, if everyone starts their motor powered toy coffee pots at 7 AM, the initial start up current needed by my 6 customers is ... 2 watts(start up) x 6(customers) = 12 Watts!

Guess what. My toy power station just tripped the circuit breaker, and nobody gets power! One of my customers must turn off the coffee pot! What happens then? Well, if one customer bows out, the remaining power needs are.... 2 Watts (start up) x 5 (customers) = 10 Watts. Now power can be restored. After the motors start running, the current demand returns to one Watt per customer for a total of...1 Watt(running) x 5(customers) = 5 Watts total. My power station can deliver 10 Watts, so there are now 5 extra Watts available. My last customer can then turn on his/her toy motor powered coffee pot and the new current is....1 Watt(running) x 5(customers) + 2 Watt(start up) x 1 (customer) which is equal to 7 Watts! Guess what again. Everyone still has power!

I know the example above is a bit silly, but I think it well illustrates the problem. Think about the real life application:

- When power is lost, all the switches in your house (for lights and such) and all the appliances that were on are sitting there ready to consume juice when power returns.
- You might even have turned on more light switches thinking that power was only lost in one room. Did you remember to turn them back off?
- If power is off for some time, the house may cool off, and the furnace thermostat might trigger to start the heater. Remember, power is still off, so the furnace motor will be sitting there ready to consume more start up current.
- The contents of the refrigerator and freezer might have warmed up, so the refrigerator thermostat might also have triggered. The motor will be sitting ready to eat more start up current.
- By this time, the water in the hot water heater might have cooled down enough to cause the water heater thermostat to trigger. The water heater element will be sitting ready to consume more power! Although the heater should keep the water warm for a day or so, we needed to stress the point!

Get the picture? Your house will need much more initial current to get everything going again. Imagine the power demands placed on the equipment at the power company when every customer needs more power than they normally do, and at the same time! Remember that everyone is out of power, and everyone has the same start up power needs! When the main switches at the power company are re-energized, it is highly likely that a breaker will trip, or a power surge (high demand over a short period of time) will cause a spike on the line.

About generators:

In part two of this series, we will talk about generators in detail. Here are some topics we will discuss:

- Do I need 120 Volt or 240 Volt?
- How much power do I need?
- How much will it cost?
- How do I hook it up?

For now, here are some general notes:

- The smaller the better. Run time is a major concern. If you don't have power in your neighborhood, your local gas station won't either. No power, no way to pump gas at the gas station! The gas supply on hand must last as long as possible.
- All generators manufacturers rate their generators fuel consumption based on running with a load that is 1/2 the rated capacity. It's a bit misleading, but they all do it! Remember the fuel usage numbers shown below are for 1/2 the rated continuous load!
- To get a generator that has 240 Volt output requires an 8 horse power motor in most cases. Try to limit your generator choice to a 5 horse power or smaller which implies a 120 volt only unit.
- Generators with 12 VDC output in addition to 120 VAC cost about $100-$150 more than AC only units. What you are really paying for is an extra set of coils in the generator, and support electronics to rectify and regulate the DC power.

In Brief:

- Quiet is expensive! Loud is cheap!
- Long run time means low power output. High power means short run time!
- 230 volt output means 8 Horse power or larger with most brands, and short run time (small hours per gallon).

Do I need a generator?

The key is to evaluate what you really need to power in an emergency.

Take a look at the table we have provided below. A few things should come to mind:
(This table might look messed up if you are not using Netscape)

Your electric range and stove are the largest consumer of your limited emergency resources. Next on the list is Electric heat, the electric hot water heater and the close dryer. All these items require lots of power. Also note that these are the only items in your house that require 230 Volts.

Most Gas heaters only require 120 Volts to run the blower motor, and control electronics.

What do you really need to power? All you really need to power is a lamp or two, a TV, or radio, the refrigerator, and a microwave oven. None of these items require a large amount of power, but they do if you want to power all of them at the same time.

Look at the total:

```
Item:                         Watts:

Lamps (2 60 Watt bulbs)       120
TV (color)                    115
Radio                          75
Refrigerator                  425
  start up current (+70%)     290
Microwave                     650
Gas furnace blower 1/8 HP     300
```

```
  start up current (+70%)      210
                              -----
                              2185 Watts
```

Notice that it looks like the microwave is the largest user of power, but remember that the refrigerator uses about 70% more power on initial start up as discussed above. That means that for a short period of time, the refrigerator uses 425+290 Watts. That's 715 Watts all by itself (at startup). The same is true for the furnace motor which will use 510 Watts at start up.

From the above, notice that you would need a 2200 Watt (3000 Watt peak) generator to be able to run all that stuff! That size generator uses a 5 horse power motor and runs for about an hour on a gallon of gas. Remember that gas will be impossible to get in an emergency! Is it worth using a gallon of gas so all the above items can be used at the same time for an hour?

A better approach would be to use the generator to power just the items you really need on at the same time.

Think about the following:

If you limit the number of items you want powered, you can use a smaller generator. Below are some suggested groups. Assume it is night time and you need a light on.

```
Group including 60W light   Watts:    Reason:

TV (color) and light          175     Entertainment / News
Refrigerator and light        775     Preventing food spoilage
(start up current included)
Microwave and light           710     Cooking / food prep
Furnace blower and light      570     Heat
(start up current included)
```

From the above, you will see that if you can do without entertainment while you cook dinner, or if you cool down the items in your freezer before you heat the house, you can get away with using a 1000 Watt generator which will run for about 3 hours on a gallon of gas.

It's all a game in tradeoffs!

- 120V or 240V
- Power verses run time
- Generator motor size verses fuel consumption
- Cost verses noise

Wattage requirements for home items:

Electric heat and hot water are the biggest users of energy.
Reducing your dependence on these will enable you to use a smaller generator.

Heating systems and Major appliances		Household appliances	
Electric heat	4,000-6,000	Fry pan	1,160
Pellet stove	600-1,000	Iron	1,100

Gas and oil heat fan	500	Toaster	1,100
Heating systems and Major appliances		Lawn mower	1,000
		Coffee maker	850
Range	12,000	Hair dryer	700
Hot water heater	4,500	Vacuum cleaner	700
Clothes dryer	4,350	Blender	290
Space heater	1,300	Blanket	170
Dishwasher	1,190	Stereo	160
Microwave	650	Sewing machine	100
Refrigerator	425	Radio	75
Washing machine	375	Crock pot	70
Color TV	115	Light bulb (60W)	60
Black and white TV	75	Clock	2

(This table might look messed up if you are not using Netscape)

Another emergency power option:

DC to AC power converters:

These converters provide 120 VAC power from 12 volt DC power found in cars, motor homes and batteries. Smaller units plug into cigarette lighter outlets, and larger units are typically hard wired into a vehicle charging system, or to a battery bank (multiple batteries wired in parallel for higher current capacity).

If these devices are intended to provide emergency power from a battery (or bank of batteries), you must remember that they will draw power out of the battery at a rate that is in proportion to the amount of power required at their output. If power is not added back into the system, they can provide AC power for only a short period of time.

Lets look at how power conversion works:

Assuming that these converters are 100% efficient in converting from DC to AC, they can only produce as much output power as they consume on the input. If you take the example converter above, the rated output is 140 Watts (200 Watts peak). Power is a function of voltage and current given by the equation...

Power = Current x Voltage.

So if we have a load that requires 140 Watts out at 120 volts, the output current is 140W/120V=1.17 Amps. For 140 Watts to be available at the output, and assuming we convert 100% of the input power to output power (in actuality, most units are only 90% efficient), that means we need...140W/12V=11.7 Amps from the 12 volt DC source!

If you have ever left your headlights on in your car, you know that your battery will die by the end of the day. Your head lamps require about 10 Amps. I hope you see that powering 120 volt items from a battery using a power converter is impractical for more than a few hours unless additional power is put back into the battery. Lots of power can be put back into a battery from the charging system of a car, but a car engine, with its hundred+ horse power, is a bit over kill for charging batteries!

Another solution to providing a large amount of DC power to the converter would be to use an alternator from a car, and a small gas powered motor. This combination can deliver over 780 watts (with a 65 amp alternator).

See our new Tip O'da Week episode for more details.

Some other notes about converting power in general:

There are really only a few devices in the world that require 120 Volts AC. Most of them are motors, heating coils etc.! They have been designed to run on that power for a variety of reasons that we will not go into here. Just about everything else on the planet converts the 120 Volts internally to what ever the electronics need! Take your computer as an example. You put 120 Volts in, but inside the computer, you will only find DC voltages like + 5, 12 and -5, -12 (3.3 with some fast processors). The point is that just about everything in the world plays the power conversion game and most items waste power in the form of heat just converting it all!

The key is to use a device that is intended to run on the power source you have, or plan to have. If you plan to power a TV on batteries like D cells, or your car battery, then buy one that holds D cells, or has a 12 volt cigarette lighter input. You can still run it on wall current (when local power is available) with the adapter that comes with it, but if you need to run it off battery, you can!

The point I'm trying to make:

When you buy a new item, think about whether you want to use it in an emergency. If so, try to find a version of the item that supports several power sources. A great example is an emergency radio that we sell.

Emergency power loss lights

I installed power failure lights in every room and hallway. My ideal was to provide escape lighting if the house were to collapse in an earthquake.

These little lights go on when the power goes off. The way I figured, even if the walls collapse, there would be light to help us find our way through the debris to safety. It never occurred to me how useful they would be in a normal power outage!

In The windstorm of 1995 (December) I was testing the small generator just before the large winds were about to hit. The generator was sitting there running when the entire neighbor hood went black! I looked up at the house, and saw light in the kitchen, and light in the basement! It was dim by normal standards, but was brighter than the rest of the neighborhood. I went into the house, and realized that all the light was coming from the 1/2 dozen emergency power failure lights through out the house! Every room was list up! The Christmas tree was dark, but the rest of the house was navigable!

I pulled one of the lights out of the wall and used it as a flashlight. I went in search of the 50 foot extension cord for the generator, and the candles and such. In a few minutes I had the generator hooked up to the TV, the antenna amplifier, and the floor lamp. Presto, and Bryan said "let there be light"!

The December 1995 power outage made a real believer in those silly little power failure lights! I hope I never need them for the disaster that I intended to use them in, but they sure worked well for a normal power outage!

Everything you ever (or never) wanted to know about emergency power, lights and generators! (Part 2)

[See More Tips]

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(Part one may be viewed from this link.)

In the last episode we talked about generators. If you have decided that you need one, we're sure you have a few questions like:

- What will one cost?
- How do I hook one up?

Do I need to take out a second mortgage?

The Data below is far from complete, but will give you an idea of the tradeoffs between power, run time, and volume levels.

Watts: Rating	Watts out: Continuous	Run time/gal:	Motor Size:	Volts:	Amps:	$	Brand:	Model:	Note:
1000	900	3.8 hour/gal	?	120,12	7,8	$ 700	H	EX1000	X Q
1400	?	?	?	120,12	? ,8	$ 750	H	EG1400	X Q
1750	1400	5.5 hour/gal	3 Horse	120,12	14,15	$ 550	C	1750	X
1800	1400	?	5.5 Horse	120,12	12,8	$ 900	H	EM1800	X
2500	2100	3.0	5.5	120,12	17,8	$ 950	H	EG2500	X
2500	2300	3.1	5.5 Horse	120,12	17,8	$1100	H	EM2500	X

3000	2250	1.1	5	Horse	120	19	$ 350	C	2250	L	
3500	3000	2.1	8	Horse	120,240	29,14	$1200	H	EG3500	X	
4000	3250	3.0	6	Horse	120,240	27,13	$ 700	G	G4000		
5000	4000	3.4	7.8	Horse	120,240	33,17	$ 850	G	G4000XL	ER	X
5000	4000	?	8	Horse	120,240	33,16	$ 450	C	4000	L	
5000	?	0.8	11	Horse	120,240	21,8	$2100	H	EM5000	ER	X
5750	4600	1.3	9	Horse	120,240	38,19	$ 600	C	4600ER	ER	
6250	5000	0.83 Hour/gal	10	Horse	120,240	41,20	$ 650	C	5000	L	
6250	5000	0.75 hour/gal	10	Horse	120.240	41,20	$1000	C	5000ER	ER	X

C=Coleman Powermate
H=Honda
G=Generac
ER=Extended run, 5 gal tank
X=extras like low oil shutdown, quieter, electric start, etc. Hard to tell the whole story!
Q=quiet
L=loud!

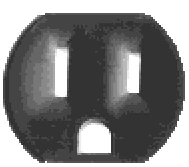
We have not included data for Generators exceeding 10 Horse power.

From the above data and personal experience:

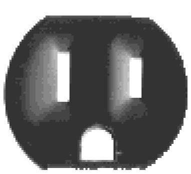
- Quiet is expensive! Loud is cheap!
- Long run time means low power output. High power means short run time!
- 230 volt output means 8 Horse power or larger with most brands, and short run time (small hours per gallon).

Notes from previous tip for review:

- The smaller the better. Run time is a major concern. If you don't have power in your neighborhood, your local gas station won't either. No power, no way to pump gas at the gas station! The gas supply on hand must last as long as possible. The key is to evaluate what you *really* need to power in an emergency.
- All generator manufacturers rate their generator's fuel consumption based on running with a load that is 1/2 the rated capacity. It can be misleading, but they all do it! Remember the fuel usage numbers shown below are for 1/2 the rated continuous load!
- To get a generator that has 240 Volt output requires an 8 horse power motor in most cases. Try to limit your generator choice to a 5 horse power or smaller, which implies a 120 volt only unit.



- Generators with 12 VDC output in addition to 120 VAC cost about $100-$150 more than AC only units. What you're really paying for is an extra set of coils in the generator, plus the support electronics to rectify and regulate the DC power. Is it worth the money to have a gas powered battery charger?



How to hook one up:

First off, if you have ever taken a look at a generator you will find an outlet like shown. It looks exactly like your wall outlet doesn't it? In fact, it is! If the generator is a 240 volt model, it will also have a another outlet for the 240 volt power. The generator will also have a circuit breaker with a push-button reset.

Notice that the plug on the generator is intended to have devices plugged into **it**. Also notice that it is a **socket**, meaning that the connections are protected from accidental contact. The rule is that if power can be supplied at a connection, the **supplying connector is a socket**. Notice that on your appliances, the connector is a plug (since it doesn't **supply** power).

How do you get the power from the generator to items in the house?

There are only two safe ways I know of to get the power into your house.

1. Use a heavy gage extension cord.
2. Have a transfer switch and sub panel installed.

The easiest way is to use an extension cord. But there are two critical notes you need to know about using extension cords.

Extension cord notes:

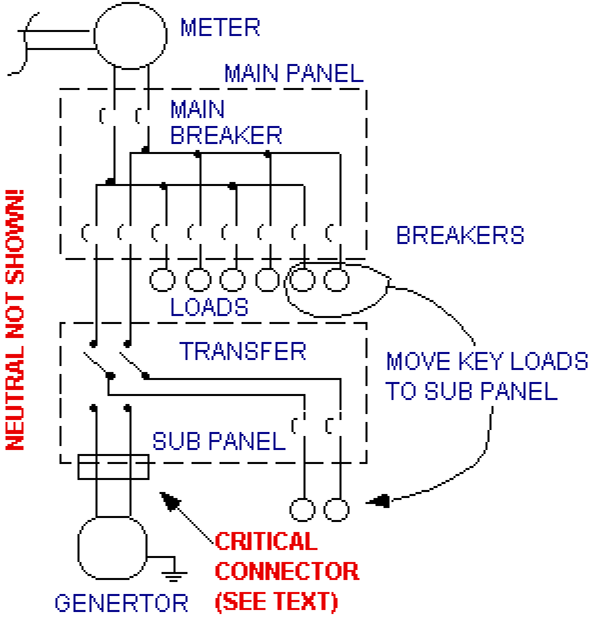
1. Wire has resistance. The resistance per foot depends on the construction of the wire (number and size of strands). The maximum amount of current that can be provided by an extension cord depends on the type of insulation used in the construction of the cord, and the number of conductors in the cord.
2. Because current is passed through the resistance in the wire, voltage across the wire drops. This voltage drop should be kept to under 2%. If the voltage drop is greater than 2%, efficiency of the appliance is severely decreased (and can also result in damage to some equipment). Larger wire size, or decreased current requirements can reduce the voltage drop.

Lets forget the details for a moment to examine the table below:

Max length of wire in feet for 120 volt, 2% max voltage drop allowed						
Current and power for 120 VOLT		**Max extension cord length for given wire size**				
Amps	**Watts**	**#14**	**#12**	**#10**	**#8**	**#6**
1	120	450	700	1100	1800	2800
5	600	90	140	225	360	575
10	1200	45	70	115	180	285
15	1800	30	47	75	120	190
20	2400	NO!	36	57	90	140

(The data above might look messed up if you are not using Netscape)

Max length of wire in feet for 240 volt, 2% max voltage drop allowed						
Current and power for 240 VOLT		**Max extension cord length for given wire size**				
Amps	**Watts**	**#14**	**#12**	**#10**	**#8**	**#6**
1	240	900	1400	2200	3600	5600



5	1200	180	285	455	720	1020
10	2400	90	140	225	360	525
15	3600	60	95	150	240	350
20	4800	NO!	70	110	180	265

(The data above might look messed up if you are not using Netscape)

From the above tables, a few things should be pointed out:

Voltage drop can be calculated using Ohm's Law which is given by... Voltage drop = Current (amps) x Resistance (Ohms).

Let's take an example where you might want to use a 200 foot, 14 gage extension cord to run a 1000 Watt flood lamp:

- Current = 1000 watts / 120 volts = 8.33 Amps
- Resistance of #14 wire = 0.00258 ohms/foot x 200 feet = 0.516 ohms
- Voltage drop = 8.33 amps x 0.516 ohms = 4.29 volts
- Percent drop = 4.29 volts / 120 volts = 3.6 %

A 3.6% voltage drop is above our recommended 2% max voltage drop given in the table above (for 120 volt). Either the wattage of the lamp must be reduced, or a larger size wire (12 gage) must be used. The larger size wire has less resistance per foot, so the voltage drop will be less.

The House wiring and generator connection:

The only safe way to power items in your house without using an extension cord is to have a Double Pole Double Throw (DPDT) transfer switch and sub panel installed. It's an expensive proposition, but is the only legal way to connect a generator to your house wiring!

The diagram shows the addition of the DPDT transfer switch. Note that the loads you have determined to be necessary in an emergency must be moved from the main breaker to the sub panel. When the transfer switch is in the normal position, power is routed through the switch to the circuits attached to the sub panel.

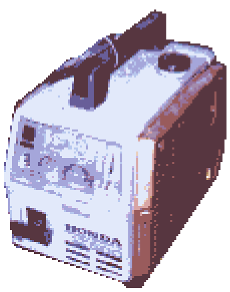
When power is lost and generator power is to be used, notice that the switch must be moved to the "generator as source" position. Once the switch is moved, the desired loads may get power from the generator connection. Even if main power is restored, the desired loads are isolated, and will continue to receive power from the generator until the switch is returned to the normal position.

Notice that there is a special connector shown on the diagram. This is the only place that you will find a plug with exposed contacts mounted on a piece of equipment in your house (except your computer). It is a connector that is panel mounted with a recessed set of male contacts (like a plug, not a socket). Remember from the text above that anything that can be the source of power has a **socket**. Since the opposite ends of the transfer switch are wire to connector and the source in the main breaker panel, the connector can never be delivered power from the main.

We are going to quickly mention a very dangerous method for connecting your generator to items in your house. Our intent is to discourage you from this practice!

Its called "back feeding", and is very dangerous for 3 reasons:

1. It requires that the home owner remembers to turn off the main breaker. Little details like that can easily be forgotten when an emergency occurs. More on this later.



2. It requires use of a very dangerous plug to plug cable! As mentioned above, a plug has exposed contacts, and the second it is inserted into a powered outlet, the other end of the cable would have exposed "live" contacts.
3. If the home owner forgets to kill the main breaker, the power will back feed to the pole-mounted transformer and will be stepped up to lethal voltages. A line man who wouldn't expect the line to be powered if he were working on line is sure to be killed by your generator! In addition, if power is returned while the main breaker is on and the generator is connected......ZAPPO!

The Webmaster's baby generator:

This unit, from my personal emergency supplies, is a 500 Watt Honda. It's an oldie, but a goodie. This is a VERY quiet model and it eats like a bird. The power output is low, but the operating hours per gallon of gas makes it look like a perpetual motion machine!

The cost of a small generator like this one is about $500-$600. You pay a high price for the low noise levels. Now, just to make you sick, I wanted to tell you what I paid for this generator. I bought it from a guy who had it sitting in his scrap pile behind his house. He told me that a friend gave it to him because it needed a new motor. He priced a new motor and decided it was going to cost too much. I bought it from him for $10, and took it home to determine what could be salvaged from it. I found that it had a large rust hole in the gas tank, the carburetor jets were clogged, and the float bowl was full of rust chunks. A few hours later, it was up and running!

Now this little generator is nothing fancy, and requires the user to adjust the output frequency when it is first started, but I think the inconvenience is worth the $490-$590 dollar savings!

Another used generator story (or two):

Several years ago, I was in a store looking at the Coleman 2250 generator, when an old man mentioned that he had a generator he wanted to sell. He was a Ham radio operator, and had used an old Heath 1000 Watt generator for emergency power for his Ham gear. He said he wanted $150 for it and I went over to take a look. I eventually decided that I wanted the 2250 Watt generator for several reasons, but the point is that you CAN find a deal on a used one if you try.

I remember Standing in the gas line in Princeville on the island of Kauai the morning that Hurricane Iniki was about to hit. A man pulled up in a truck and was trying to sell a generator to the folks in line for gas. There were no takers! After Iniki, the island was without power for 3 months. I wonder if that man sold his generator that morning and if he regretted it?

The Webmaster's other generator:

This is what I think is a "great buy", from the table above. It's a Coleman 2250, and runs for about 1 hour per gallon of gas. For about $350 on sale, it provides big bang for the buck. However, I use the small generator if at all possible. Fuel is a major concern, but sometimes you really need the juice. I sized this generator so I could run a 7 inch circular saw if needed for making emergency repairs to my house.

Notice the modifications that were necessary to keep the neighbors happy. This generator is VERY loud. You pay a premium price for silence, and although this is a great value ($/Watt), the stock unit will cause you (and your neighbors) to go deaf! What?

I added some pipes, and a small car muffler to help reduce the noise. Also note the addition of a set of wheels and "move handles." These additions added up to another $75 or so but were worth it!