

Planning for Emergencies

Richard Daggett, Polio Survivors Association

With editorial assistance by Mary Atwood

As we approach the Holiday season we also approach unpredictable weather. In this newsletter we are updating information about ensuring an electric supply if you have an interruption in your normal electric service. As we age, a significant number of polio survivors are now using night time breathing assistance; C-Pap, bi-level, oxygen concentrator, etc. Imagine if your electricity was interrupted during the night. What would you do? These two articles might help you plan ahead.

Battery Back-Up

First, you need to know if your breathing equipment is designed to use 12-volt battery back-up. There should be a connection for a 12-volt adaptor on the back or on one side of your breathing equipment. If you cannot find one, consult your owner's manual, call your medical equipment provider, or look for your model's specifications online. Most equipment will have this connection. After you determine if your equipment will operate on battery power, you will need the following:

- A 12-volt power adaptor for your machine, specific to the make and model
- A Deep-Cycle Battery
- A Battery Clip Adaptor
- A Battery Charger

If your breathing equipment is set up to run on 12-volt power, you will need to order the adapter for your specific machine from your medical equipment company or from an online store, making sure the one you order is meant for use with your specific make and model.

Costs for these will vary widely but are not expensive. This adaptor will allow you to plug your breathing equipment into the auxiliary power outlet in your car, or connect it to a separate 12-volt battery.

Next you will need to purchase a deep cycle battery. This is not the same as an automobile battery. An automobile battery is designed to deliver quick bursts of

energy. You need this to start your car. The deep cycle battery has less instant energy, but greater long-term energy. You need this to operate your breathing equipment. The cost for a battery of this type will vary greatly, depending on the type and size you want. A deep cycle, sealed, Group 27 gel-type battery is best. This battery will run most equipment for 3 to 4 days if used only at night.

The cost for a battery clip adaptor is minimal and can be purchased from almost any auto or hardware store. I think it is better to buy a 12-volt auxiliary outlet (cigarette lighter socket pictured at right) and have terminals soldered to the battery end of the wires. They will be less likely to come off inadvertently or cause a short circuit.



The next thing you will need is a battery charger designed for your type of battery. You will want to read the suggested charging rate on your battery before you choose a battery charger as some chargers allow for variable rates and some do not. You want a charger that will maintain a charge without over charging.

The cost for a good, long-lasting battery and the rest of the equipment required will be \$500 or less, with the battery being the largest investment. Remember that battery cost is directly related to the size and useful life of the battery. You will want to think of this as an investment in your health. Some of the larger batteries will run your breathing equipment for three to four days, if used at night, and give you from 5-7 years of useful life if properly charged. You can also use multiple batteries to provide for longer power outages.

Some breathing aids will not accept any 12-volt adapter. If this is the case you can purchase a 12-volt to 120-volt inverter. This electronic voltage converter changes 12-volt battery current to 120-volt household current. I recommend an inverter that produces a true sine wave. Ask your retailer about this. It is safer for your equipment. The other equipment you need is the same; deep cycle battery, battery charger, etc.

If you have experienced power outages or think you might, installing a battery backup system is a very good idea. With a fully-charged battery beside your bed, you can be at ease knowing that you can sleep through the night.

Choosing a Generator

If your breathing equipment does not operate well with battery power, or you want enough electricity to operate some lights and small appliances, a generator might be something to consider. This might be even more important if you anticipate lengthy power outages.

Generators produce AC voltage, the same type of voltage available in your home from your electric company. The amount of power that a generator can produce is rated in watts. The higher the wattage output, the more appliances and lights you can operate.

The tag on the generator indicates the maximum number of watts the generator can provide and the rated watt output. A generator should never operate at maximum output for more than a few minutes. Rated output is a more reliable measure of a generator's capability and is the power produced for long periods. Typically, the rated power is 90% of the maximum power.

To determine the amount of “rated power” you will need, you must consider the “load” need- ed. There are two types of load: resistive and reactive. In simple terms, a resistive load is a light bulb, a toaster, etc. A reactive load is an electric motor, such as in an air conditioner, refrigerator, ventilator, etc.

Resistive loads are easy to measure. If you want to light four 100 watt light bulbs, you will need a generator that is rated at 400 watts. Reactive loads are more difficult, because these require varying degrees of power. When they start, they may require up to three times more power, but when they are running (although doing no work), they require much less power.

You can purchase relatively inexpensive, recoil start generators rated as low as 400 watts – enough to provide light, but not much else. An 800 watt generator should be enough to operate most modern breathing equipment, and if you are looking for an emergency backup generator this is probably the minimum size you should consider. One major disadvantage to this size generator is that it is available only with a recoil starter. You must pull on a cord to start it, like a lawn mower, and this requires upper arm strength. Recoil starters are standard on less expensive generators, even if they have a higher-rated output. These smaller generators can be found at many home and garden supply centers. Common brands are Coleman,

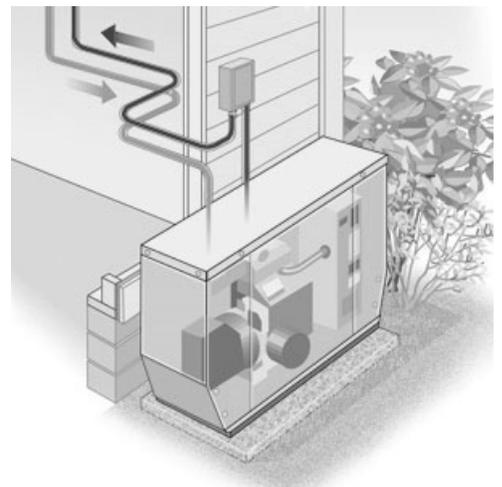
Honda, and Generac.

Higher-rated and more expensive generators can be started with the push of a button. A good choice might be one of the units made by Onan, Kohler, or Generac. These are built better, run more quietly, and will last longer over time than an inexpensive unit.

With larger generators, you can choose gasoline, LPG (liquid petroleum gas), or natural gas as the fuel to power them. Gasoline-fueled units are more common and have a larger choice of watt ratings. The main drawback to gasoline-fueled units is fuel storage. Gasoline is hazardous to store. It is also dirtier, and the smell can be invasive. LPG and natural gas fueled units are cleaner and safer, but their main drawback is the initial cost.

While electric generators are often advertised as “portable,” they are not – unless they are very small units. Even small generators weigh quite a bit. They are not something you can throw in the trunk of your car.

Consider your generator to be a permanent fixture. It will be more convenient if the generator is wired to one or more electrical outlets in your home. A transfer switch must be used when connecting it to a building's electrical system. The transfer switch isolates selected circuits in the home from the utility power. It will add to the cost, but it is essential for safety. All of the connections for backup and stand-by power to a building's electrical system must be made by a qualified electrician and must comply with all applicable laws and building codes.



My advice is to buy the largest unit that is practical and that you can afford. Remember this will probably be a lifetime investment. If you use any kind of powered life support equipment, i.e., ventilator, bi-level pressure system, oxygen concentrator, etc., a reliable electrical source is not a luxury, it is a necessity for safety and peace of mind. I also suggest you purchase a unit made by a company with a good reputation and widely available service, such as Onan, Kohler, or Generac.

My generator is a Kohler natural gas fueled unit with a rating of 8000 watts. It is hard-wired into most of my home. I have a transfer switch that automatically starts the generator and transfers the electricity to the generator if the regular outside service is interrupted. I use a ventilator most of the time, and knowing that I have reliable standby electrical power provides a real sense of security.

If you have a question about these issues, please send your question to the e-mail or postal addresses printed below the copyright information.

© Copyright 2014 by Rancho Los Amigos Post-Polio Support Group

All rights reserved. No parts may be used in other newsletters, posted online, reproduced or transmitted in any form without prior written permission.

Please submit your request to RanchoPPSG@hotmail.com or mail to:
RanchoPPSG, 12720 La Reina Avenue, Downey CA 90242