

## Generator Safety

Generators are a mainstay for prolonged EMCOMM work, but they can be dangerous if not handled with respect.

Since generators produce the common house voltage of 120 Volts, the normal precautions with regards to this voltage must be taken. The generator must be grounded with a ground rod driven into the ground. Use extension cords in good working order and are the appropriate size for the current being carried. Make sure that you use the minimum lengths possible. There have been some cases where people fashioned extension cords out of Romex, which is the cabling used to wire houses. Romex is inappropriate for extension cord service since Romex consists of solid conductors which break when repeatedly flexed. Do not attempt to defeat the circuit breakers and/or fuses in the generator. If the overcurrent protection is tripping, then there is a problem that needs to be corrected. The overcurrent protection is there to prevent a fire hazard. I strongly recommend the use of Ground Fault Circuit Interrupters or GFCI's. GFCI's detect current leakage which can cause an electrocution. GFCI's are required for outlets either outdoors or within 6 feet of water by the National Electric Code or NEC.

If configuring a permanent installation, a licensed electrician should be consulted. An improper installation can pose a electrocution hazard for not only the occupants of the house, but also to linemen working on the powerlines after an event since the generator will "backfeed". Backfeed is when the generator energizes the transformer servicing your residence and in turn the transformer energizes the main branch circuit. This is very dangerous to the linemen working on this circuit.

If using a portable generator to power appliances in a temporary fashion, do not connect the generator directly to house wiring to prevent backfeed.

Generators can also pose a burn hazard due to the fact that they are powered by internal combustion engines. The exhaust muffler is the hottest portion of the generator, but any portion of the generator poses a burn hazard. Caution is advised while working around a hot generator, and leather gloves should be used to protect the hands. The gloves will only increase the time between contact and injury. Remember that leather gloves are **not** insulating so they do not protect against electrocution. The gloves linemen use are rubber with leather coverings so the rubber does not get damaged by splinters or other sharp objects.

Since generators contain moving parts, **do not** remove any shielding and **do not** allow any body part to get close to any moving parts. These moving parts can cause severe injuries requiring extensive medical care.

**NEVER** run a generator inside an enclosed space such as a garage. One of the byproducts of combustion is carbon monoxide, which a colorless, odorless, and tasteless gas. It is also extremely toxic. Nine of the indirect fatalities caused by Rita were due to carbon monoxide poisoning.

Gasoline is **extremely** flammable and in the right circumstances is **explosive**. **One gallon of gasoline properly vaporized is as powerful as 70 pounds of dynamite**. **NEVER** smoke or

allow open flames and/or sparks around gasoline. Also remember that gasoline vapors are heavier than air and will drift from the leak to a point of ignition and flash back to the leak. **This is extremely dangerous. NEVER** fill a generator while it is running since the hot muffler under the right conditions can cause a fire. The proper extinguisher for a generator is a Class BC at minimum. A Class B extinguisher is intended to fight liquid based fires such as gasoline while Class C extinguishers are intended to fight electrical fires. **Water should NEVER be used on a generator fire due to both the electrocution hazard and the fact that gasoline floats on water. This will only spread the fire.** As in all fires, **ALWAYS** keep an escape route ready in case the fire becomes uncontrollable and **NEVER** turn your back on a fire.