

Are You Making These Grounding Mistakes?



Not using the right type of grounding strap.

The ground strap must be as large as possible—at least 6 AWG. A flat-surface strap is much better than a round one since there is more surface area and current passes over the surface and not through the strap. The strap should be copper or copper-clad aluminum. The best strap is made of braided copper. If steel or stainless steel must be used, it should be only temporary and inspected often for corrosion.

Not paying attention to path impedance—resistance to current flow—when you lay out and attach the grounding strap.

Keep the ground strap as straight and as short as possible. Make sure there are no loops, kinks, knots or sharp bends.

Run the strap under or around obstacles, not over them. If an obstacle is in the way, remove it, or pick another spot for your ground rod.

The key is to make sure nothing increases the ground strap's impedance and causes failures.

Not attaching the grounding strap correctly to the ground rod.

The generator set's three-section ground rod, NSN 5975-00-878-3791, comes with a clamp for the ground strap. The shelter's 8-ft ground rod has a thumbscrew to do the job. Too often, the clamp is lost and the thumbscrew is broken. When this is the case, the ground strap is often tied or loosely wrapped around the rod. This does not provide the good connection that's needed to conduct the current down the rod and into the earth.

So, check your ground rods. Order replacements for missing clamps with NSN 5975-01-034-8882. For missing thumbscrews, a nut, bolt and washer should do the job, but a replacement clamp can be ordered with NSN 5999-00-496-5834. The clamp for the three-section rod is too narrow to use on the 8-ft rod.

If you're missing a clamp or thumbscrew and no replacement is handy, tie the ground strap to the rod with at least 24 tightly wound turns of stripped telephone wire or other bare wire. Use this as a temporary fix until a clamp or screw can be found.

Not driving the 8-ft ground rod, NSN 5975-00-296-5324, beneath the soil surface.

Before you drive the rod into the ground, dig a hole about 18 inches square and 8 inches deep. Then drive the top of the rod to about 3 inches above the bottom of the hole. Keeping the top of the rod below the surface of the ground reduces dangerous voltages near the rod during a storm. And also keeps you from tripping over it.

After you attach the ground strap to the rod, fill the hole with water and let it soak in. Then fill the hole with dirt. Add water as often as needed to keep the soil moist around the rod. A good constant source of water is your air-conditioning unit. Run a tube from the air-conditioner drain to the rod area to keep the soil wet.

Just because the connection between the strap and the rod is out of sight doesn't mean it should be out of mind. Check it every day to make sure it stays connected and tight. People walking around the ground can unintentionally pull the strap loose. Unless you check it regularly, you won't know if you're still grounded.

If rocky or frozen ground stops you from driving a ground rod deep enough, consider other forms of grounding or multiple ground rods. See TC 11-6 or FM 5-424 to learn how.



Not wearing safety goggles when driving ground rods.

Safety goggles protect your eyes from flying metal chips. Don't think for a minute that a piece of metal won't chip and fly off while you're doing the hammering. Lucky Larson thought that, and now he's called One-Eyed Willie.

