



# GROUNDING IN THE COLD, COLD GROUND



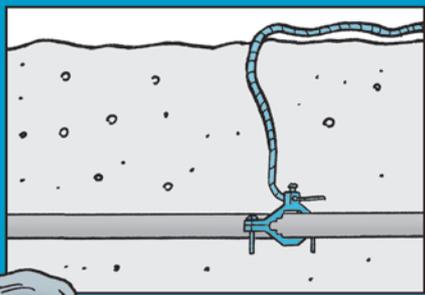
IN COLD GROUND, IT'S TOUGH TO GET A GOOD GROUND. FROZEN EARTH HAS LOW CONDUCTIVITY. STATIC BUILDUP INCREASES. BURROWING INTO FROZEN SOIL TO DRIVE HOME A GROUND ROD CAN BE NEXT TO IMPOSSIBLE.

BUT A GOOD GROUND IS STILL A **MUST**.

SO, NOW IS THE TIME TO ESTABLISH ANY GROUNDS YOU THINK YOU MIGHT NEED DURING THE WINTER MONTHS.

HERE ARE A FEW TIPS FOR GETTING THOSE GROUNDS IN PLACE...

**Try to ground to a buried metal object like an underground pipe.** That will save you a lot of digging or driving in frozen ground. However, the metal object has to be buried at least 2½ feet below the surface; cannot contain or transfer natural gas, gasoline, or other flammable liquids; must be all non-coated metal; and you must test its conductivity before you use it.



IF YOU **DO** HOOK UP TO A BURIED METAL OBJECT, MAKE SURE YOU CONNECT THE GROUNDING ELECTRODE CONDUCTOR TO THE OBJECT WITH A SOLID CONNECTION. A WRAP-AROUND OR TIE-IT-ON CONNECTION **WON'T** DO!

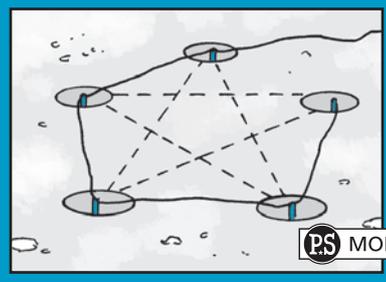


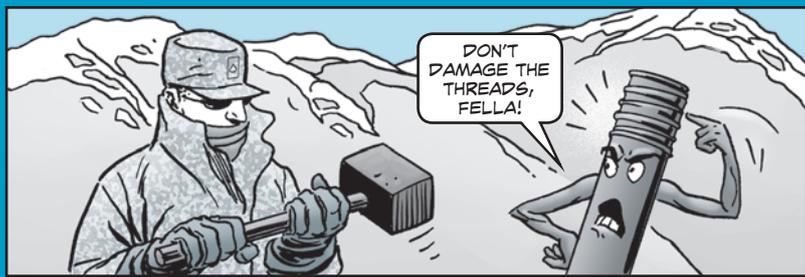
Use terminal lug, NSN 5940-00-271-9504, to connect conductor to gear

**If no buried metal object can be found, use your ground rods. Drive them in as far as you can.** If you use the 8-ft, 3-section rod, NSN 5975-00-878-3791, you can use slide hammer, NSN 5120-01-013-1676, to drive it in. If you're using the 6-ft, non-sectional rod, you'll have to use a sledge hammer to do the job.

- Drive head stud, NSN 5975-00-924-9927
- Couplings, NSN 5975-00-794-2523
- Slide hammer, NSN 5120-01-013-1676
- 8-ft, 3 section rod, NSN 5975-00-878-3791
- Clamp, NSN 5999-00-186-3912
- 6 ft, 1 section rod, NSN 5975-00-224-5260

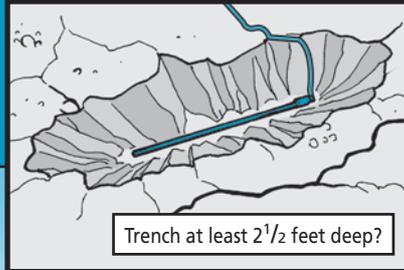
**If you cannot get the rods deep enough—below the frost line and to the water table—install a cluster of shorter rods.** Depending on the number of rods you have, you should install them around the perimeter of your shelter or generator in a triangle pattern. If you cannot install around the perimeter, use a star-pattern. The distance between rods should be 2-4 rod lengths.



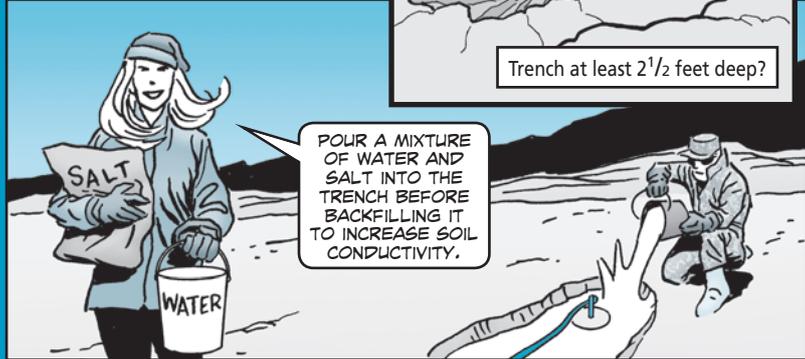


DON'T DAMAGE THE THREADS, FELLA!

Another option is to bury the rods horizontally. Dig a trench at least 2½ feet deep and six feet long. Install the ground rod horizontally or put at least 10 feet of copper 2 AWG bare wire in the trench.



Trench at least 2½ feet deep?



POUR A MIXTURE OF WATER AND SALT INTO THE TRENCH BEFORE BACKFILLING IT TO INCREASE SOIL CONDUCTIVITY.

It is very important in cold weather to bond equipment and shelters located within arms length of each other to eliminate any hazardous voltage that may develop between them. If the equipment is not bonded, that voltage can use you as the conductor if you touch both pieces of equipment at the same time.



Shelter bonding should be done by either running a bonding strap of at least 6 AWG between the two shelters' grounding terminals or between the two ground rods provided for each shelter.

When you can, locate your ground near a source of heat like a generator or vehicle exhaust. This will make it easier to drive a rod into the soil and keep the grounding strap free from snow cover.



REGARDLESS OF THE WEATHER, THERE ARE SOME GROUNDING FUNDAMENTALS THAT YOU SHOULD ALWAYS OBSERVE...

- The grounding electrode conductor should be as large as possible, and at least 6 AWG.
- The conductor should be copper.

—Run the conductor as straight and as short as possible in a downward direction. Do not run the conductor up and over obstacles.



—Minimize any twists, loops or sharp bends and remove all knots from the conductor.



MAKE SURE THE CONNECTION POINT IS NOT CORRODED AND THE CONNECTOR IS NOT LOOSE!

- Make sure the bonding surfaces are free of paint, corrosion, grease or dirt.
- Never twist or tie a ground wire around a ground rod. Use the bolt or clamp for a solid connection. If there is no bolt, then 24 tightly wound turns of stripped telephone wire or other bare wire should hold the strap in place. **This is a temporary measure only.** Get a clamp when you can.

—Think safety when installing ground rods: **Wear goggles and gloves!**



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