SINGLE POINT STATION GROUNDING SCHEME

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How many times have you been “Bitten” or burned by R.F.? The following information will be good help for you.

1) How many pieces of equipment do you have? This includes radios, power supplies, amplifiers, tuners, SWR/Watt meters, ETC. You will need to install an aluminum bar 1/8” thick and 3” wide X 12” long. Install several #10 S.S. machine screws in the bar, lock washers and nuts. This bar will mount on the rear of your radio bench and it will be the only point the equipment frame grounds will be connected to. The wires from the equipment should be no smaller than # 12 AWG stranded/insulated copper and should go between the equipment frame and the bar. The ground wires from the equipment to the bar should be terminated with compression ring lugs.

2) Any external power supplies? Each power supply needs to be grounded the same way as the other equipment with the same size wire to the aluminum bar.

3) Do you have a metal pole or tower for mounting antennas? If the poles are more than 10’ apart, they need to be bonded together with AWG #4 stranded copper insulated wire. If they are more than 10’ apart, each pole needs it’s own ground rod.

4) Are your radio(s) located next to an outside wall? Provide a wall through fitting for all coax and ground wiring, the ground wire that connects the aluminum bar inside to the outside should be no smaller than AWG #4 insulated.

5) How many antennas do you have and what type? Each antenna will need it’s own coax lightning/surge protector mounted on an aluminum bar, 1/8” thick X 3” wide X 12” long attached to the outside wall of the house and the AWG #4 wire from the equipment bench ground bar connects to the aluminum bar on the outside wall of the house. An AWG #4 wire connects from the lightning/surge suppressor aluminum mounting bar to the nearest ground rod.

6) Is the ground at your QTH Sandy Loam, rock or clay? If the ground is either clay or sandy loam, it probably has an acid content like about 75% of the ground in Clark County, Washington. The ground rods should be galvanized not copper plated. The acid in the ground will remove the copper plating in a few months so don’t get the spendy rods.

7) Do you have or plan to have lightning/static suppression? As far as lightning/surge protection, I recommend the equipment made by Industrial Communications Engineers, LTD, at (www.iceradioproducts.com). Their equipment has tuned circuits inside that continually bleed off static. I have used these units for over 30 years and have had 2 direct hits with NO damage to any equipment. They run around $40.00 each and are good insurance against equipment damage.

8) Are you using any kind of antenna tuner? The antenna tuners need to be connected to the ground bar behind the operating desk the same way as the radio equipment with the same size wire.

9) Do you use or plan to use a linear amplifier(s)? If so, ground them the same as the radio(s). The ground rod needs to be no closer than 3’ from the house foundation and/or the antenna support structure. The ground wire from the ground rod should be no smaller than AWG #4 insulated. All ground rod to ground wire connections need to be made using “Acorn” clamps. If you have more than 1 pole/tower, start at the most distant structure and run a ground wire from it’s ground rod to the next structure and continue to the next structure and it’s ground rod and run 1 AWG #4 wire from the last ground rod to the outside aluminum bar. (Do not run multiple ground wires, only a single wire from each device). You don’t want to create a ground loop. Don’t rely on the ground pin on the AC plug to be a good R.F. ground, it is not, also, the shield braid on coax cable is not a good R.F./equipment ground, it cannot handle the heavy ground currents that arise from the high EMP’s (Electro-Magnetic Pulses) created by thunderstorms/lightning.

This procedure is what I used in all the power generation, transmission, distribution and communications systems I directed on the Alaskan Pipeline during it's construction and in the power/communication systems in and around Washington and Oregon. I learned this method while employed at Westinghouse Electric Corp. at their training facility in Green Tree, PA.

The enclosed information will adequately protect your equipment.

If you feel you want a "Top-Of-The-Line" Ground System, let me know.

If you have any questions, feel free to ask.