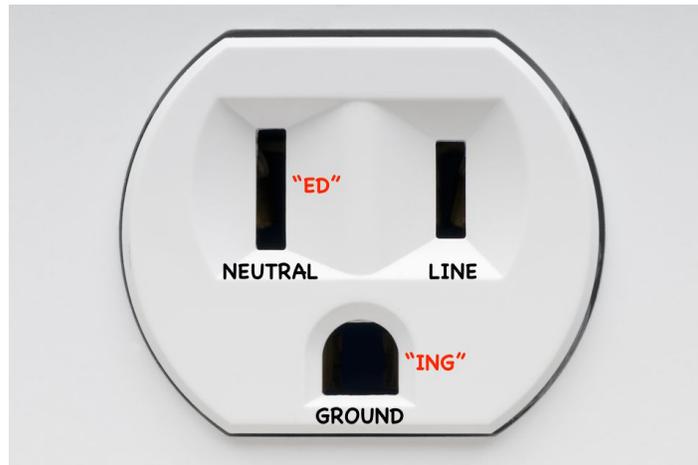
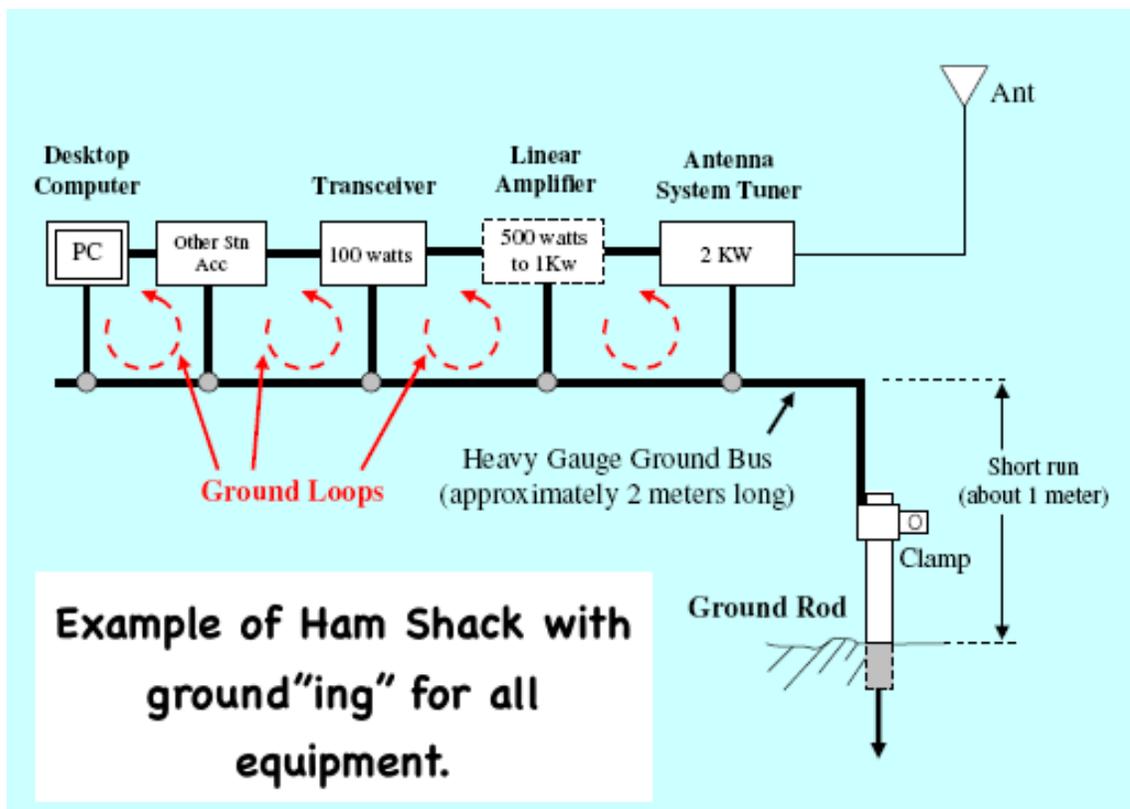


The National Electric Code uses the terms “grounded” and “grounding” when referring to wires and connectors. Grounded and Grounding are not the same, and the difference must be understood in order to resolve ground loop issues.

The NEMA 5-15 (Type B) plug carries the grounding and the grounded conductors.



Ground loop noise can not be attributed to the ground"ed" wire. Ground loops are a ground"ing" problem. Isolation transformers and UPS gear are not a solution because the NEC requires that the ground"ing" be carried through end to end.



In this example, the grounded power connection for each piece of equipment provides a separate path to a different grounding rod at the electrical panel, (power connections not shown). The issue could be exasperated by powering equipment from different circuits.

Why? Every electrical circuit has a different resistance and ground potential. Electrical wiring has natural and induced inductance and capacitance based on length and proximity. These differences may be very small, but this differential can and will produce unwanted noise especially when RF is thrown into the mix.

A solution to ground loops may not be practical in a ham shack environment unless the ham shack is purpose built. All radio equipment and computer equipment should be single pointed grounded. The example shows multi-point.

If possible, the electrical ground at the circuit breaker distribution should be close to the ham shack equipment ground rod. The two ground rods should then be tied together. Further ground tie-ins should include the tower and coaxial cable entry points.

It is not possible to cover the subject in two pages - my purpose was to show ground loop issues associated with “grounded” versus “grounding”. If this difference is understood, ground loop issues can be resolved.