

CHAPTER SIX: GROUNDING PROCEDURES

The National Electrical Code (NEC) requires that every antenna installation be grounded. Also many areas have local antenna-grounding codes. Be sure that you are familiar with all of the grounding and other antenna regulations in your area.

Grounding an antenna is not just the law, it is good common sense. Because the antenna is usually the highest point on the house, it is highly susceptible to lightning strikes.

Grounding the Mast

The NEC requires that the antenna mast and mount be grounded directly. No splices or connections are allowed in the ground wire between the mast and the ground rod.

First, attach one end of a No. 8 or No. 10 copper or aluminum ground wire to the antenna mast (Figure 6-1). One of the bolts on the mount can be used as a fastening point. Masts that are painted or coated must have their coating scraped off around the area where they contact the mount. This will ensure an electrical connection between the mast and the mount. It is vital to get a good, solid connection. (Once the mast is attached to the mount, any scraped off portion that is exposed should be recoated with paint or other sealant.)

Next, run the ground wire to ground as directly as possible. Standard wire staples can be used to secure the ground wire against the side of the house. Avoid making 90° or sharper turns with the ground wire. A lightning charge has difficulty making such a turn and therefore may discharge into the house. Make ground wire bends as smooth and as gradual as possible.

The ground wire must be connected to a ground rod (Figure 6-2). Water pipes or plumbing fixtures are not acceptable. A good copper-coated steel ground rod driven at least 3 feet into the ground is required. Special clamps that provide a solid connection between the ground wire and ground rod should be used.

Grounding the Transmission Line

It is not just the height of an antenna that makes it susceptible to lightning strikes. Antennas and transmission line can accumulate static electrical charges that also increase the chances of lightning hitting an installation. To properly “draw off” this static electricity, a small device known as an antenna discharge unit (Figure 6-3) must be included on the installation. The antenna discharge unit (also called a “lightning arrester”) is connected to the transmission line at a point close to where the transmission line enters the

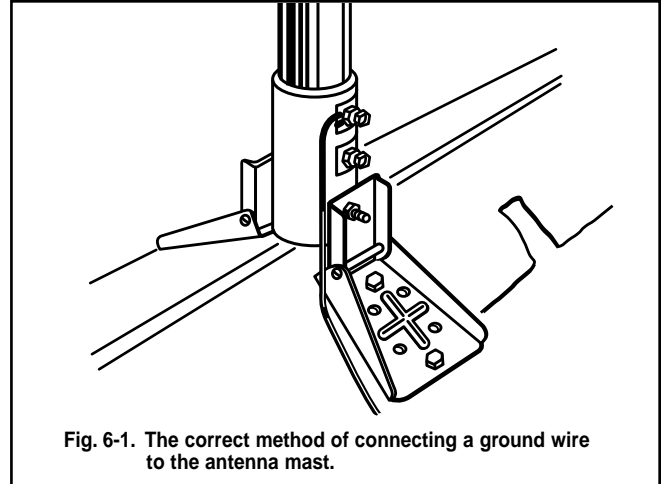


Fig. 6-1. The correct method of connecting a ground wire to the antenna mast.

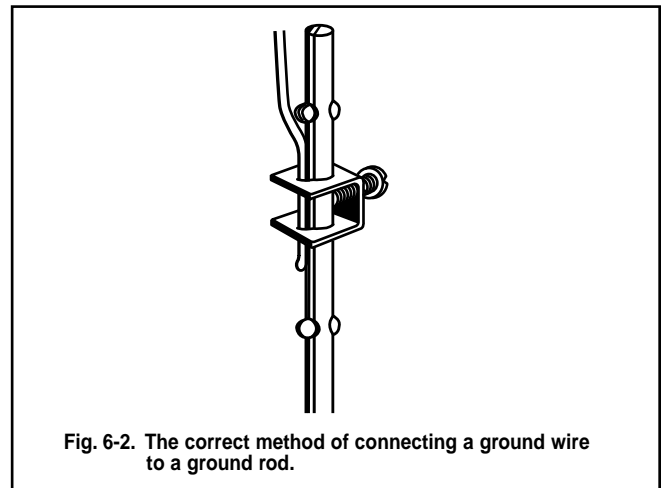


Fig. 6-2. The correct method of connecting a ground wire to a ground rod.

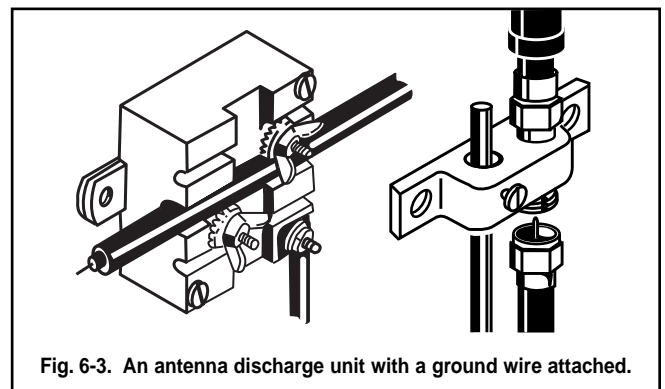


Fig. 6-3. An antenna discharge unit with a ground wire attached.

house. One end of a ground wire is attached to the discharge unit. The other end of the wire is connected directly to the ground rod.

Installation of the antenna discharge unit is very easy, and detailed instructions come with each unit.

An antenna installation is not adequately grounded unless both a mast ground and an antenna discharge unit are installed correctly.