

*Like to experiment with antennas? This little project can turn your backyard into a mini-test range and provide hours of fun as you learn about antennas.*

## Build Your Own Rotatable Antenna Mount For Measuring Antenna Field Patterns

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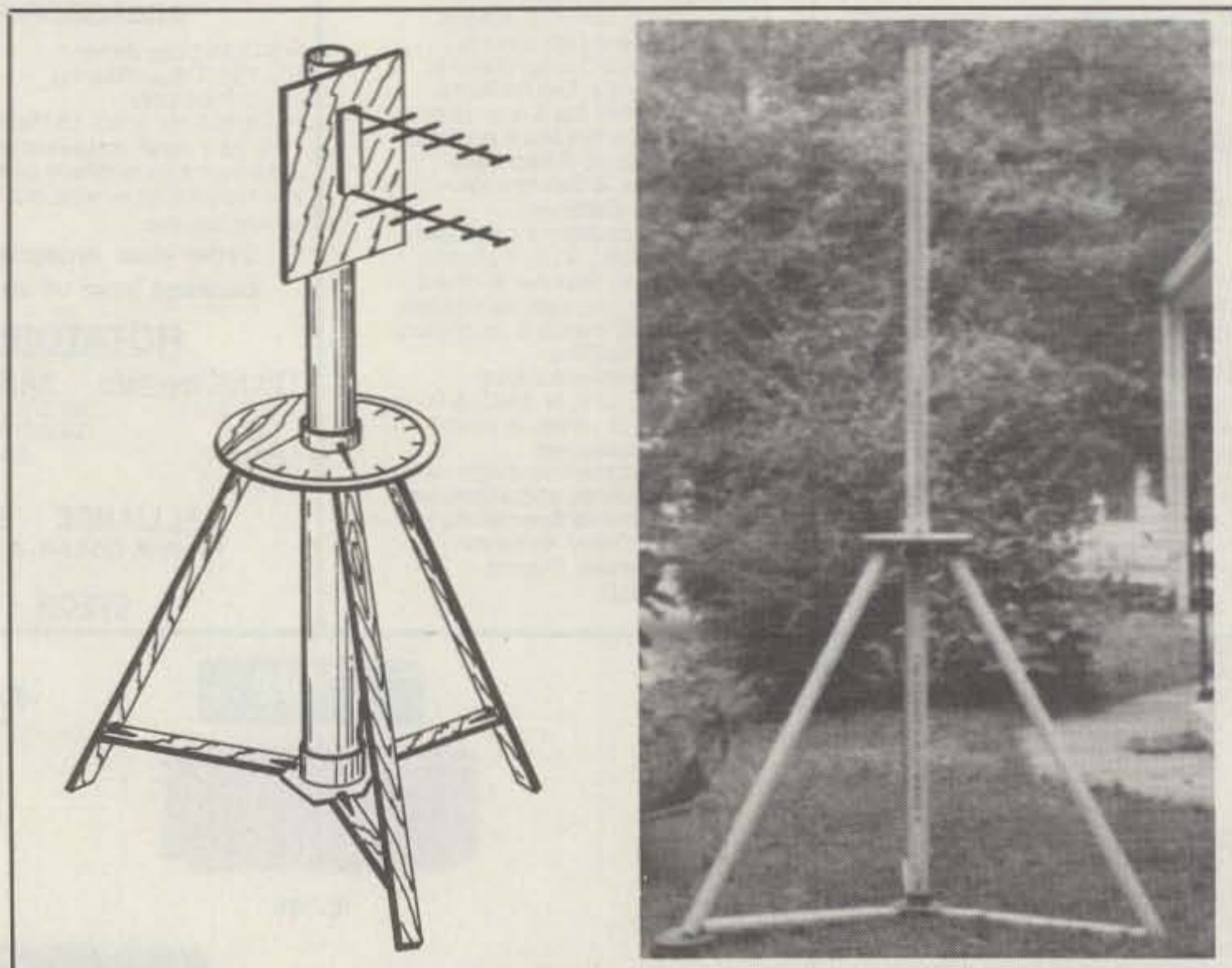
**A**t one point I wanted a low-cost, rotatable antenna mount for measuring field patterns using a signal generator, RF amplifier, and field strength meter. Such a stand is desirable for anyone experimenting with small, high-frequency directional antennas. The mount described here costs approximately \$30 to build and was constructed in a few hours from parts that were purchased from a hardware store.

### Construction

Two pieces of PVC pipe are used, one slightly larger (2½ inch) than the other (2 inch) to enable one pipe to rotate inside the other. The protractor mounted on the stationary bottom pipe enables the user to determine the azimuth angle between the antenna and the field strength meter.

Generally, PVC is available in either 10

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*The completed unit doesn't take up much room.*



*A plywood disc of any convenient dimension makes the top portion of the stand.*



*The protractor layout comes from a dime-store protractor enlarged on a copying machine. The pointer is discussed in the text.*

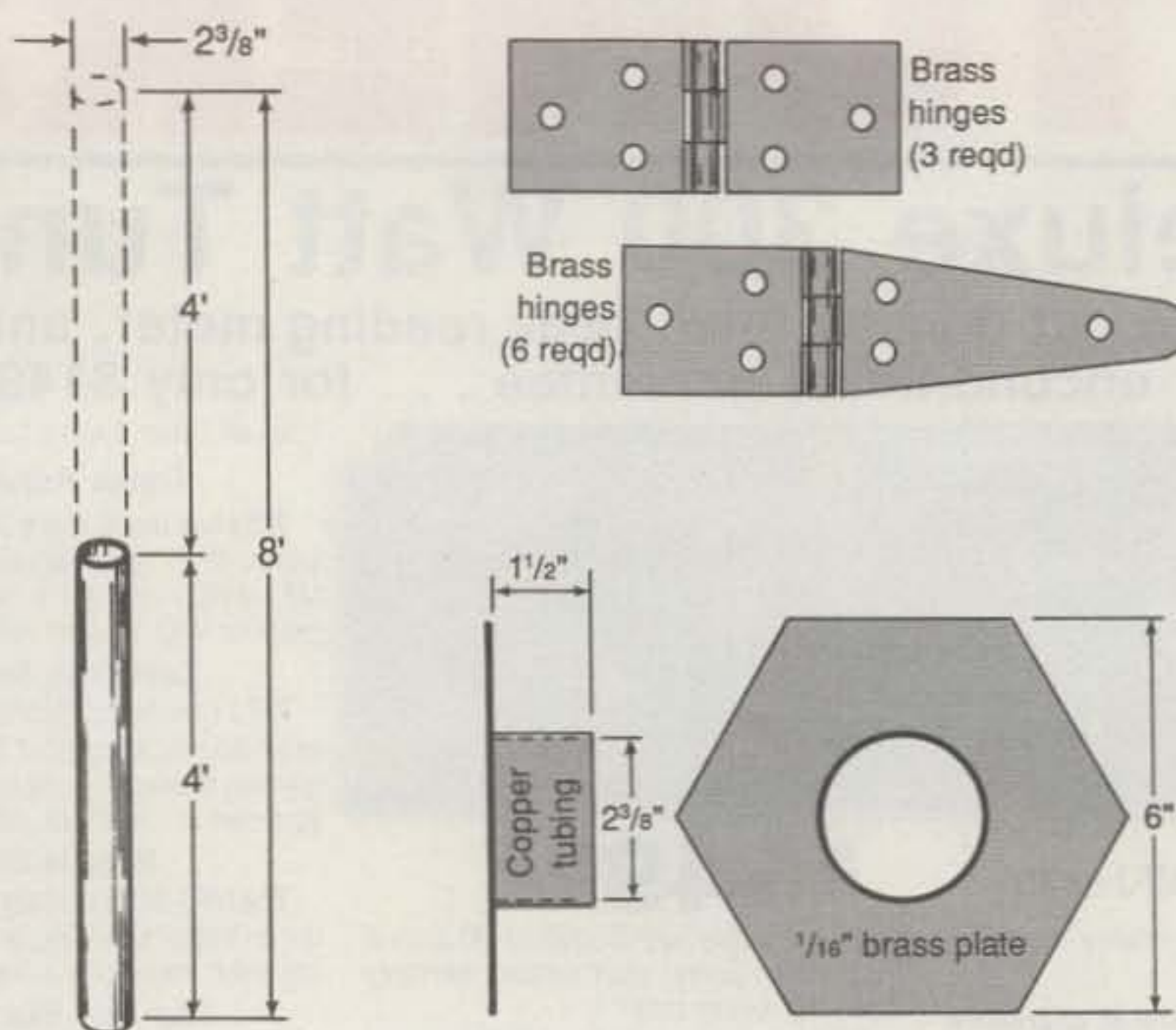
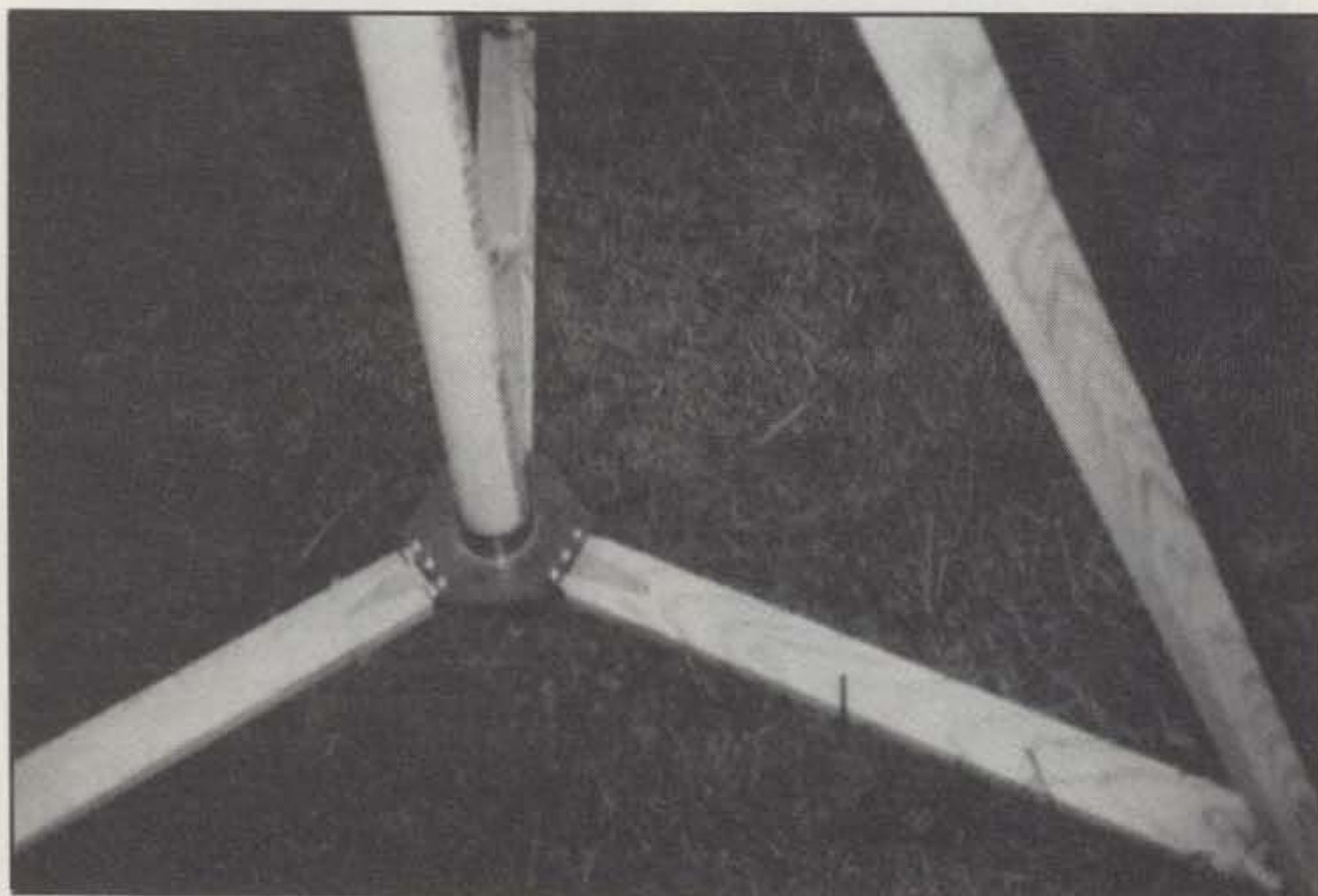
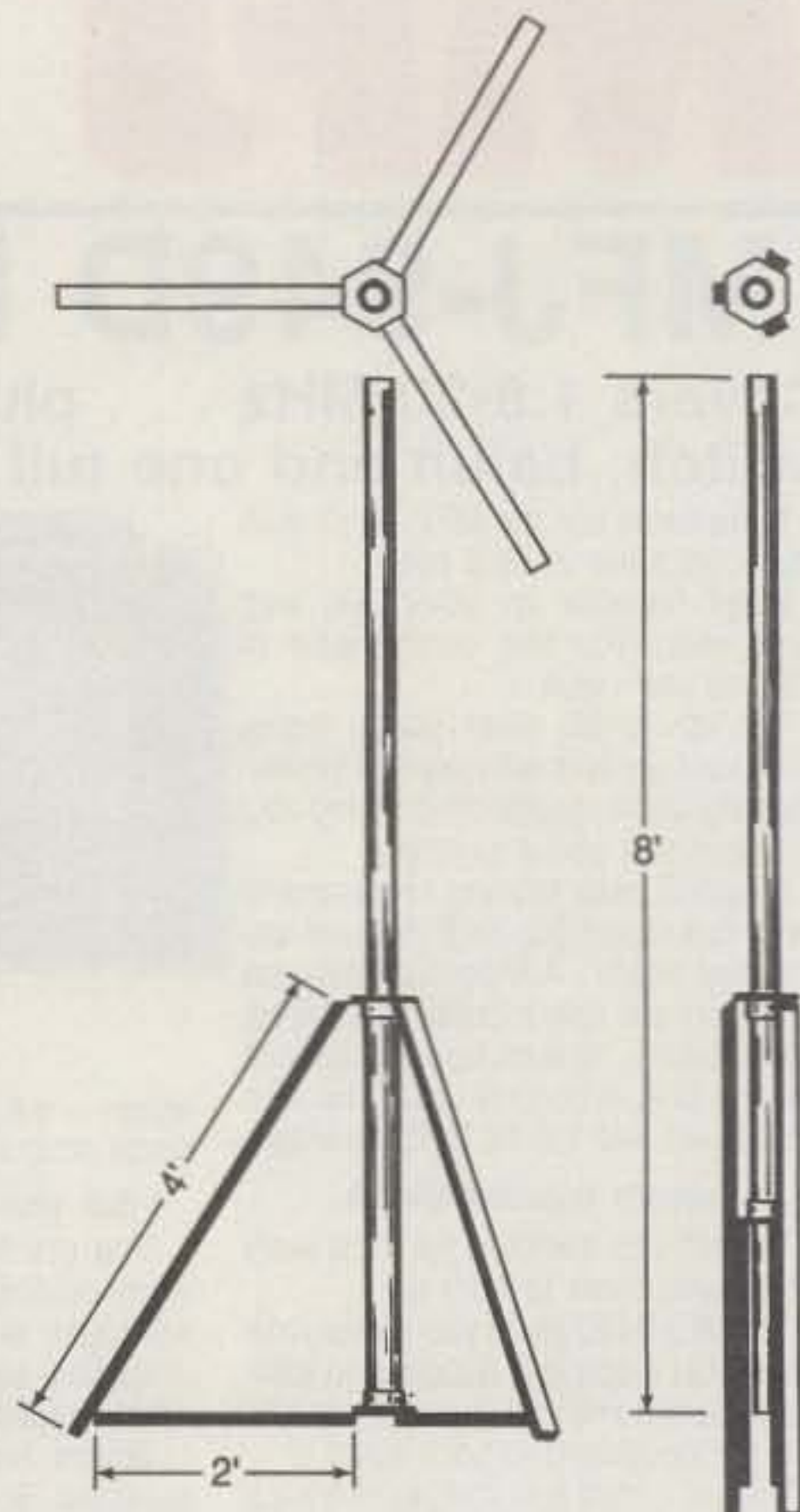


Fig. 1—The components that make up the test stand. The items are commonly available at hardware stores and lumber yards. The hinges and mounting plates should be made of a non-ferrous material such as copper or brass.



The bottom simply bolts together. The stand is designed to be assembled easily for use. It can be disassembled quickly for storage.

foot or 20 foot lengths. Both pipes are cut to a length of 8 feet. The outer pipe (2½ inch) is also cut in half (i.e., into two 4 foot lengths). However, if the pipe is cut slightly above the top support adapter (and protractor), then a pointer will pass close to the protractor. Close proximity between pointer and protractor will enable an accurate azimuth reading.

The one-by-two legs and supports are standard lumber, and the hinges used to "tie them together" are made of brass to minimize any interference that ferrous metal might cause to the field pattern. The support adapters may be constructed of brass or plywood, but if it is convenient, use brass for these adapters for reasons of strength and longevity. Brass is

preferable to ½ inch plywood. The top adapter should be attached permanently to the PVC pipe. However, the bottom adapter should be pinned temporarily when in use.

### Antenna Mount Use

The mount is simple to use. It only requires that some ingenuity be demonstrated in mounting the various types of antennas that may be tested. To obtain the "true" radiation pattern for the antenna under test, it is important that the hardware used in mounting the antenna to the mast not interfere with the radiation pattern. Various types of hardware may be used. Generally, acceptable hardware is constructed of non-magnetic (preferably nonmetallic) materials—for example, nylon straps or plastic hardware. If the antenna weight or moment arm is such that metal hardware is indicated, then non-ferrous metals are preferable. The maximum weight that this antenna mount can safely support has not been tested. Therefore, proceed with caution if you are testing an antenna for the space station.

### Acknowledgments

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