

INTRODUCTION

The **MFJ-1748** End Fed Zepp is an end-fed wire antenna that, when properly erected and fed with balanced feedline through an antenna tuner, will be usable on all amateur bands from 80 to 10 Meters. This antenna will handle 1500 watts of RF power (with a suitable antenna tuner). Its total length is approximately 135 feet.

The name “Zepp” harkens to the days of dirigibles, or Zeppelins, which used trailing wire antennas that, by definition, had to be fed at one end.

The antenna is 135 feet long, a half-wavelength at 3.5 MHz (for convenience, think of the center of the 80 Meter band as roughly 130 feet, and 4.0 MHz as about 125 feet). End-feeding a half wavelength of wire on 80 meters has certain mechanical advantages over center-feeding the same length of wire. It can be erected in limited space situations where a 135-foot centerfed antenna is not possible.

The disadvantage of end feeding is that *tuning is related to feedline length*. The general rule of thumb is that feedlines that are a multiple of a quarter-wavelength for any given frequency band may present tuning difficulties on that band. If you need to add feedline to this antenna, feedline lengths near 65 feet, 130 feet, and so on, should be avoided for ease of tuning on the 80 meter band.

Note these approximate quarter wavelengths, in feet:

80 Meters – 65	17 Meters – 12
60 Meters – 48	15 Meters – 8
40 Meters – 32	12 Meters – 7
30 Meters – 28	10 Meters – 6
20 Meters – 16	

Clearly, there is no magic length of feedline that will avoid being a multiple of at least one of these lengths! In some cases, the end-fed zepp may tune better at one end of an amateur band than at the other. As with every antenna, the zepp will always work best as far away as possible from any metallic objects.

In addition, care should be taken to route the feedline vertically away from the feed point as far as possible, and also to keep the feedline away from metallic objects. These considerations are of somewhat greater importance for an end-fed antenna than they are for a centerfed antenna. Also, as with all antennas, the higher this antenna is above ground, the less it will be affected by surrounding objects and terrain.

With a suitable antenna tuner, this antenna can be used on 160 Meters, by tying the two sides of the feedline together *at the tuner*, and feeding the system as a long wire.

Some may find it strange that in this antenna one side of the feedline is connected to nothing at the antenna end. This antenna works because, while the impedance at that point (where the feedline stops in dead air) is *infinitely* high, the impedance at the other feed point is *very* high, especially at the design frequency, in this case 80 Meters. So, the feedline is reasonably “balanced,” since it sees a “high” impedance on both sides at the antenna feedpoint.

When the antenna is used at frequencies higher than the design frequency, in some cases the feedline will become somewhat less balanced, resulting in radiation from the feedline (RF in the shack).

A detailed discussion of antennas of this type can be found in *ANTENNAS From the Ground Up*, by L.B. Cebik, W4RNL, published by MFJ Enterprises, and also in the *ARRL Antenna Book*.

Assembly

This antenna comes assembled and ready to install using rope(s) for attaching to support structures. The length of the antenna wire provided is 135 feet. Operators interested exclusively in operation above 3.750 MHz may obtain slightly smoother tuning by shortening the antenna. However, it is best to first erect the antenna with the full length of wire provided, experiment with tuning, then decide whether or not to prune it.

Installation

The best location for this antenna is as high and far away as possible from utility wires, other antennas, and other structures. It is impossible to find a perfect location, so the best compromise must be accepted. In order to perform textbook-fashion the antenna must be installed as a *horizontal antenna*, as level as possible.

Suspend the antenna with at least a 50-pound working load nylon rope or equivalent strength weather resistant non-metallic rope. Never use wire or wire core rope to support the ends of any antenna. Attach the rope to the end insulators through the empty holes. The antenna should be at least 35 feet above ground to give acceptable performance and as high as possible for the best overall performance. The feedline should drop vertically from the horizontal section of the antenna as far as is practical.

If you are using trees for end supports, be sure to allow enough slack or use some type of pulley and counterweight system to prevent the antenna or rope from breaking when the trees sway in the wind. It is also possible to use masts, towers, or other tall structures for supports. Try to keep the ends of the antenna at least five feet from metallic supports.

Maintenance

This antenna is made of heavy duty materials and should withstand normal climates for many years. General Electric makes a pure silicone grease called "*silicone dielectric compound*" that can be applied *sparingly* to the connections at the antenna's center insulator. This is the same type of sealer that commercial antenna installers and CATV companies use with great success.

A less desirable but adequate sealer is the automobile seam sealer commonly marketed as "coax seal," a pliable black sealing compound.

Technical Assistance

If you have any problem with this unit first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by reading the manual you may call *MFJ Technical Service* at **662-323-0549** or the *MFJ Factory* at **662-323-5869**. You will be best helped if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions by mail to MFJ Enterprises, 300 Industrial Park Road, MS 39759; by FAX to **662-323-6551**; or by email to techinfo@mfjenterprises.com. Send a complete description of your problem, an explanation of exactly how you are using your unit, and a complete description of your station.

WARNINGS: Always mount antennas out of the reach of adults and children. Contact with any part of this antenna can cause RF burns or other injuries.

Constructing or erecting antennas where they can contact electrical power lines can result in injury or death.