

Hy-gain

PORTABLE REEL TAPE
DOUBLET ANTENNA
for 3.5 through 30 MHz

MODEL H-4000

INSTALLATION & OPERATION INSTRUCTIONS

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1.1 DESCRIPTION AND APPLICATION

The Hy-Gain Model H-4000 is a highly portable, compact, doublet antenna system that exhibits outstanding performance on both transmit and receive at any discrete frequency within the 3.5 thru 30 MHz range. The Model H-4000 employs two stainless steel tape elements which reel out of an injection molded, high impact, ABS plastic housing to form a full one-half wave-length antenna installation. The tape elements are calibrated in meters for ease of reference in establishing the distance each

should be extended for desired frequencies. A "frequency-to-length" conversion chart, correlated with the tape calibrations is an integral part of the antenna housing. Twenty-five feet lengths of high strength polypropylene rope attached to the end of each tape provide a means for securing the extended elements. The antenna is center fed with a 52 ohm coaxial cable. For ready portability, the stainless steel tape elements rewind into the compact antenna housing using attached hand cranks.



Figure 1. Typical H-4000 Antenna Installation



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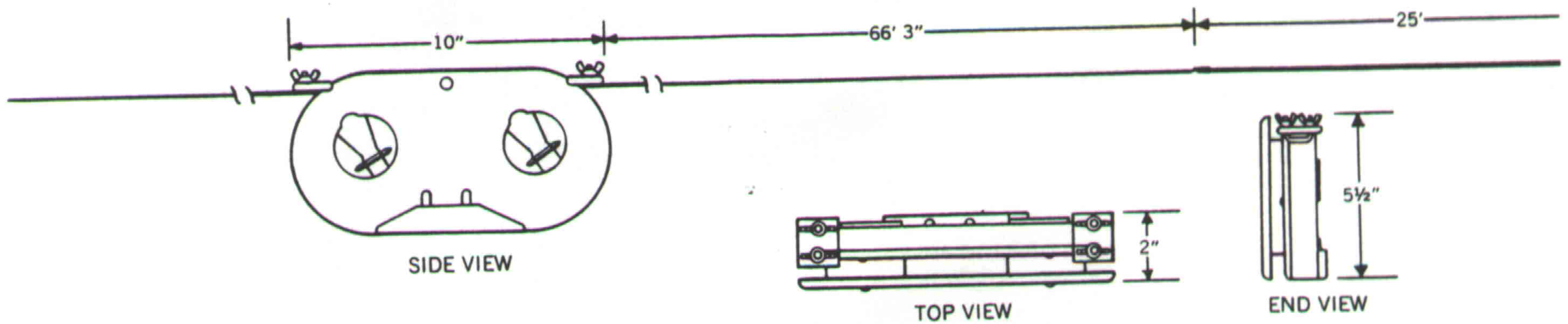


Figure 2. H-4000 Antenna, Parts Location

2.1 TECHNICAL CHARACTERISTICS

Operating Frequency.....	3.5 thru 30 MHz
Feed System.....	52 ohm coaxial cable
Polarization.....	Horizontal
Radiation Pattern.....	Typical Dipole
Power Handling Capabilities.....	2 KW CW; 3 KW P.E.P.
VSWR.....	Less than 2:1 relative to 50 ohms with standard height variations
Input Impedance.....	52 ohms unbalanced
Weight.....	3 1/2 Lbs.
Dimensions (Retracted).....	10" x 5 1/2" x 2"
Dimensions (Extended).....	Maximum of 132 ft. at lowest frequency

3.1 INSTALLATION AND REMOVAL

3.1.1 Installation

The Model H-4000 should be installed clear of surrounding objects and as high above the ground as possible. The dimensions given in Table I were derived at using a height of 60 feet with zero effect from surrounding objects. The transport (See Figure 2) may be supported by whatever structure available. Height above ground is most critical at the center of the antenna. If feasible attach the center of the antenna to the highest point available. The tape elements may then be attached to any other available structure. The tape elements should be, as near as possible, the same height above ground. If the tape elements are attached to flexible objects, such as trees, adequate slack should be present in the tape elements to allow for flexing.

Perform the following steps to properly adjust the antenna.

- a. Refer to Table I for the proper length at the desired frequency.
- b. Adjust the tape elements to the length obtained from Table I.

The H-4000 is adjusted by loosening the wing nuts on each end of the tape transport and pulling the tapes out to the desired length.

NOTE

TO OBTAIN THE CORRECT LENGTH FOR A FREQUENCY NOT LISTED IN TABLE I, INTERPOLATE BETWEEN THE TWO NEAREST GIVEN FREQUENCIES.

CAUTION

TIGHTEN THE TAPE SECURING WING NUTS ONLY ENOUGH TO PREVENT SLIPPAGE OF THE TAPE ELEMENTS. EXCESSIVE TIGHTENING MAY DAMAGE THE TAPE. UNDER NORMAL CONDITIONS, FINGER TIGHT IS ADEQUATE.

Surrounding objects may decrease the operating efficiency of the antenna. To increase the efficiency perform the following steps:

- a. Insert a directional wattmeter or a similar standing wave ratio measuring device in the coaxial feedline.
 - b. Measure the SWR above and below the desired operating frequency.
 1. If the lowest SWR exists above the desired operating frequency, lengthen the antenna elements correspondingly.
 2. If the lowest SWR exists below the desired operating frequency, shorten the antenna elements correspondingly.

NOTE

ADJUST THE TAPE ELEMENTS IN INCREMENTS OF ONE CENTIMETER UNTIL A MINIMUM SWR IS OBTAINED.