

## Hy-Gain MK6 6-Meter Add-On Kit for HF Beam Antennas

### INTRODUCTION

The Hy-Gain MK-6 is a 6-meter add-on dipole kit that can be mounted on the driven element of any balun-fed HF rotatable dipole or multi-band beam – without affecting the HF antenna's performance. The MK-6 handles full-legal limit, yet adds less than one pound of weight and essentially no increase in wind-loading to your existing HF antenna.

The MK-6 is built to last. It uses 6063 T-6 aircraft strength aluminum rods and brackets, stainless steel hardware, and fiberglass insulators. And it can be added to your existing HF beam in less than an hour.

***WARNING: Improper installation and assembly can be hazardous! Read these instructions thoroughly before attempting to assemble, install or operate this product! High power transmitting devices produce voltages that can cause severe burns or other injuries.***

### SPECIFICATIONS

The MK-6 6-Meter add-on kit consists of a simple dipole assembly that easily mounts to the driven element of most HF beams. The HF beams must be direct-fed with coax cable, or a 1:1 balun that covers 6-meters. The MK-6 will NOT work with gamma-matched HF antennas.

#### Electrical Specifications

<u>Band</u>	<u>Power (Watts)</u>		
	<u>CW</u>	<u>SSB</u>	<u>2:1 SWR BW</u>
6m	1500	1500	600 KHZ

Note: While the MK-6 handles full legal limit, power may be limited by the frequency response and the power handling capability of the balun installed on the HF beam. An effective 20-6 meter balun can be built using 6-turns of your coax feedline wound 4"-6" in diameter. This coax balun should be placed within 12" of the dipole feed. Liberally coat any coax feed wires with Liquid Electrical Tape™ to weather-proof the coax feed.

#### Mechanical Specifications

Mounting Driven Element Diameter:	¾" to 1-1/2" diameter
Overall Length:	9 feet
Weight:	Less than 1-pound
Wind Load:	Less than 1 square foot

**TOOLS AND TIME REQUIRED FOR ASSEMBLY**

The estimated assembly time is less than one hour. Assembly requires the following hand tools:

- #2 Phillips screwdriver
- 5/16" nut driver for hose clamps.
- Small (4"-6") adjustable wrench OR 3/8" wrench for 6 meter stub nuts
- Safety glasses.

**MK-6 PARTS LIST**

As you unpack your antenna you should find the parts in the following list.

<u>Part Description</u>	<u>QTY</u>	<u>MFJ Part No.</u>
55" Threaded Rod (6M stub)	2	758-8253
Aluminum "L" Stabilizer Bracket	2	805-1796-7
Fiberglass Stabilizer Insulator	2	807-1796-6
Aluminum Stub Channel Bracket	2	808-1796-5
6-32 kep nut	6	705-0632S
6-32 x 3/8" screw	6	656-0375S
Hose clamp (#16)	4	745-3116S
10-32 hex nut	4	705-1032S
#10 lock washer	2	711-1037S-EX

For installation, you will need some items not supplied with the antenna installation kit:

- A pair of saw horses or equivalent to support your antenna during the kit installation.
- An Antenna Analyzer (MFJ-259B or similar), or SWR meter and transceiver

**SAFETY PRECAUTIONS:**

***WARNING! You can be killed if the antenna, feedline, or the equipment used to install the antenna accidentally contacts any utility lines. Never install an antenna near power lines!***

1. Be careful while climbing and carrying the antenna.
2. Mount the antenna high enough so that it is out of reach.
3. Make sure that the mast is sturdy enough to support the overall antenna weight and the wind loading.

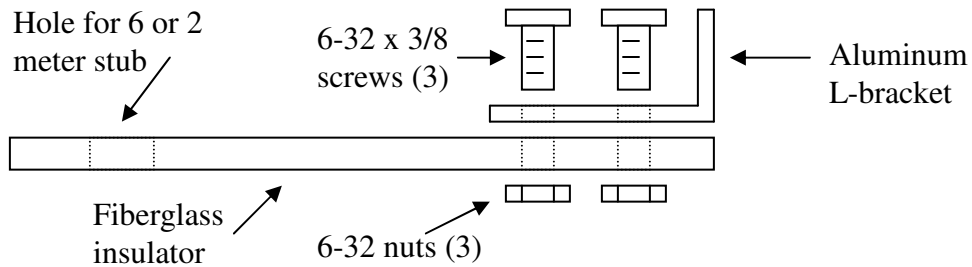
**ASSEMBLY and INSTALLATION PROCEDURE**

Refer to the figures in this manual during assembly. Assembly consists of installing the 6-meter dipole elements to the driven element of your HF beam. HF band operation will not be affected when the 6-meter kit is added to your antenna. After the MK-6 is installed on your HF beam, it must be adjusted for the desired resonant frequency.

**WARNING:** Wear safety glasses whenever working with any antenna, as antenna elements can cause injury.

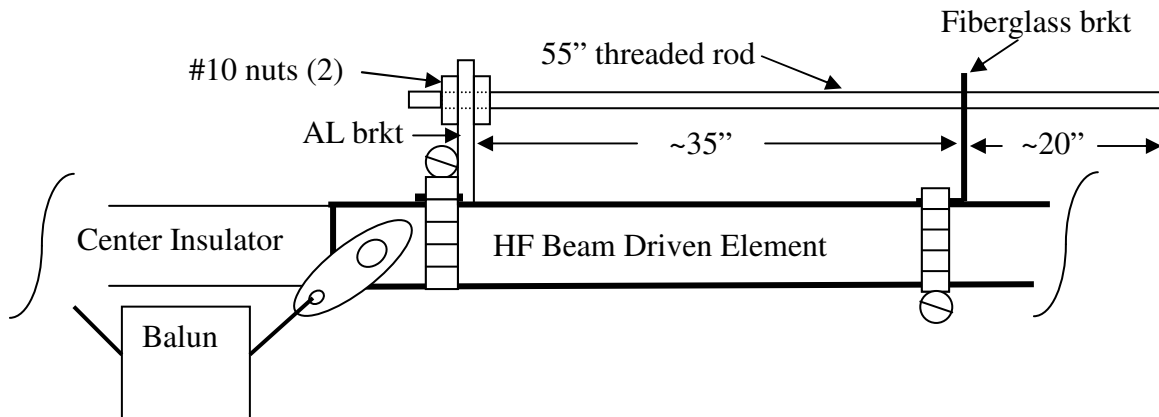
**Step-By-Step Procedure**

- 1) Refer to the parts list and verify that all parts are available.
- 2) Gather the following tools:
  - 5/16" nut driver for #6 nuts and hose clamps.
  - Small (4"-6") adjustable wrench OR 3/8" wrench for 6 meter stub nuts
  - Safety glasses.
- 3) Assemble the two small "L" brackets to the two long fiberglass insulators with 6-32 x 3/8" screws (3 each) and the 6-32 keps nuts (3 each) as shown in Figure 1.



**Figure 1**

- 4) Open up two hose clamps and install them over the HF beam's driven element as close to the inside ends of the driven element as possible. Clamp the two aluminum stub channel brackets (one on each radiator) as shown in Figure 2.



**Figure 2: Typical 6 meter stub assembly and mounting on HF Beam Driven Element**

- 5) Open up the remaining two hose clamps (one on each radiator), clamp the fiberglass insulators so as to support the 55" threaded rods. Position the insulators as shown in Figure 2.
- 6) Mount the two stubs by threading a 10-32 x 3/8" nut 1/2" near the end of the threads. Add a second nut and lockwasher to sandwich the bracket between the two nuts, leaving no more than 1/4" of threaded rod exposed beyond the aluminum bracket. See Figure 2.
- 7) Tune the antenna as discussed in the next section.
- 8) Mount the antenna in the final location. Slight re-tuning may be necessary.

## **FREQUENCY AND SWR ADJUSTMENT**

An SWR analyzer such as the MFJ-259B or equivalent is highly recommended when tuning the MK-6. While a transceiver and SWR meter can be used, an SWR analyzer will significantly decrease the time and effort necessary to tune the antenna.

The entire antenna must be accessible during tuning and testing. Because of the non-criticality of 6-meter tuning, final tuning of the 6-meter resonant frequency can be made with the antenna mounted 5-6 feet above ground. During tuning, feed the antenna with a reasonably short length of good quality 50 ohm coaxial cable to ensure proper results. If using a transceiver and SWR meter, set the transceiver to the lowest power possible when making measurements.

### **Tuning the Antenna**

- 1) This is a good time to adjust the resonant frequency of your HF antenna, as well as adjust the resonant frequency on 6-meters. The SWR should be below 2:1 at resonance on each band.
- 2) The six meter band is tuned by lengthening or shortening the threaded portion of the stubs. This adjustment is very coarse. If the frequency is still too low with the stub element extension at a minimum, the unthreaded ends of the stubs can be trimmed.

**NOTE:** The six meter stub covers 50 to 54 MHz. Resonance at 50.15 MHz (popular SSB part of the band) typically requires the full 55-inch stub lengths (flat side of aluminum mounting bracket to end of stub).

## **MAINTENANCE**

Your Hy-Gain MK-6 6-meter add-on kit is constructed of heavy duty non corrosive aluminum, stainless steel, and fiberglass materials and should withstand normal climates for many years. No maintenance should be necessary.

**TECHNICAL ASSISTANCE**

If you have any problem with the MK-6, first verify that you have assembled, installed and tuned it correctly. If your problem is not solved by following the manual you may call Hy-Gain toll-free at 1-800-647-TECH (8324) or FAX to 601-323-6551, or TELEX 53 4590 MFJ STKV. Outside of the continental U.S.A. 601-323-5869. Please have your manual and all information on your station handy so you can answer any questions the technicians may ask. You can also send questions to Hy-Gain, P.O. Box 494, Mississippi State, MS 39762. Send a complete description of your problem, an explanation of exactly how you are using your unit and a complete description of your station.

**FULL 12 MONTH WARRANTY**

Hy-Gain warrants to the original owner of this product, if manufactured by Hy-Gain and purchased from an authorized dealer or directly from Hy-Gain to be free from defects in material and workmanship for a period of 12 months from date of purchase provided the following terms of this warranty are satisfied.

- 1) The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of the warranty claim and submit the original or machine reproduction of such proof of purchase to Hy-Gain at the time of warranty service. Hy-Gain shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, or forgery shall be cause to void any and all warranty terms immediately.
- 2) Hy-Gain agrees to repair or replace at Hy-Gain's option without charge to the original owner any defective product provided the product is returned postage prepaid to Hy-Gain with a personal check, cashiers check, or money order for **\$7.00** covering postage and handling.
- 3) Hy-Gain will supply replacement parts free of charge for any Hy-Gain product under warranty upon request. A dated proof of purchase and a **\$5.00** personal check, cashiers check, or money order must be provided to cover postage and handling.
- 4) Under no circumstances is Hy-Gain liable for consequential damages to person or property by the use of any Hy-Gain products.
- 5) **Out-of-Warranty Service:** Hy-Gain will repair any out-of-warranty product provided the unit is shipped prepaid. All repaired units will be shipped COD to the owner. Repair charges will be added to the COD fee unless other arrangements are made.
- 6) This warranty is given in lieu of any other warranty expressed or implied.
- 7) Hy-Gain reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.
- 8) All Hy-Gain products to be serviced in-warranty or out-of-warranty should be addressed to **Hy-Gain, 921A Louisville Road, Starkville, Mississippi 39759, USA** and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase.
- 9) This warranty gives you specific rights, and you may also have other rights which vary from state to state.