

MFJ-1797

10,12,15,17,20,30,40 METER
VERTICAL
ANTENNA

INSTRUCTION MANUAL

CAUTION: Read All Instructions
Before Operating Equipment

MFJ

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Introduction

Thank you for purchasing the MFJ-1797 vertical HF antenna. Your new antenna is composed of High strength 6063 aircraft aluminum for excellent rigidity and light weight. Silver plated wire with Teflon insulation is used on a fiberglass core to ensure low resistance and high power handling capability on each loading section.

Preparation

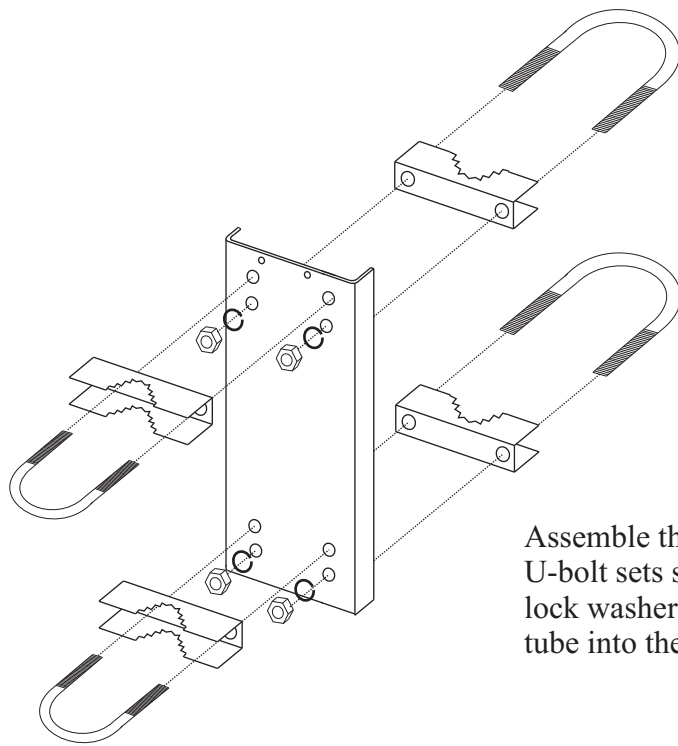
This antenna although it is not heavy, is large and cumbersome for one person to handle. It has lots of pointy rods that protrude in every direction. Safety glasses are recommended during the assembly and tuning. Assemble the antenna away from other people. Do not allow children in the assembly area. Only the people involved in the construction should be near. Assembly can be done by one person but when the antenna is to be mounted or moved, plan to have a friend to help. It is not wise to attempt to install any antenna without help. You will need some type of support on each end of the antenna while you are installing the spokes into the rings. Some of the spokes are four feet long. The antenna can not be on the ground after the spokes are in. Assembly and tuning of the antenna will take time so allow several hours for this. Don't rush. The more time you put into the antenna, the better the results will be.

WARNING

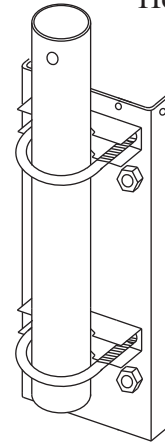
KEEP THIS ANTENNA
AWAY FROM POWER LINES

Never mount or move any antenna where it can come into contact with power lines. If this antenna comes into contact with power lines, it can KILL you. Never mount any antenna where if it fell it could come into contact with power lines.

Base Bracket Assembly

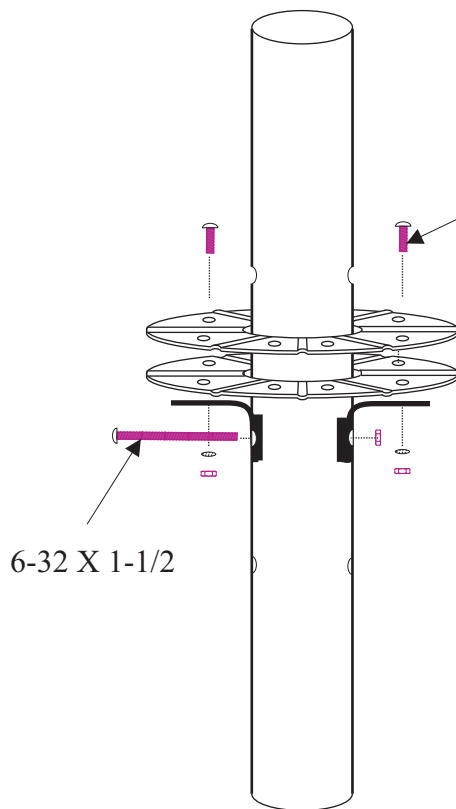


Holes on top



Assemble the mounting bracket as shown above using the 4 U-bolt sets supplied. Remove the pre-installed nuts and lock washers before inserting the U-bolts. Install the short tube into the bracket so that it is flush with the bottom.

Radial Bracket Assembly

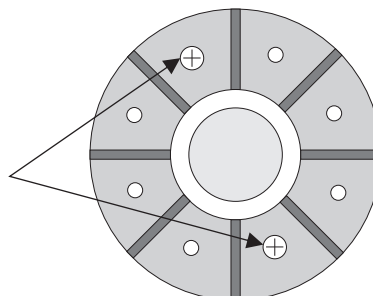


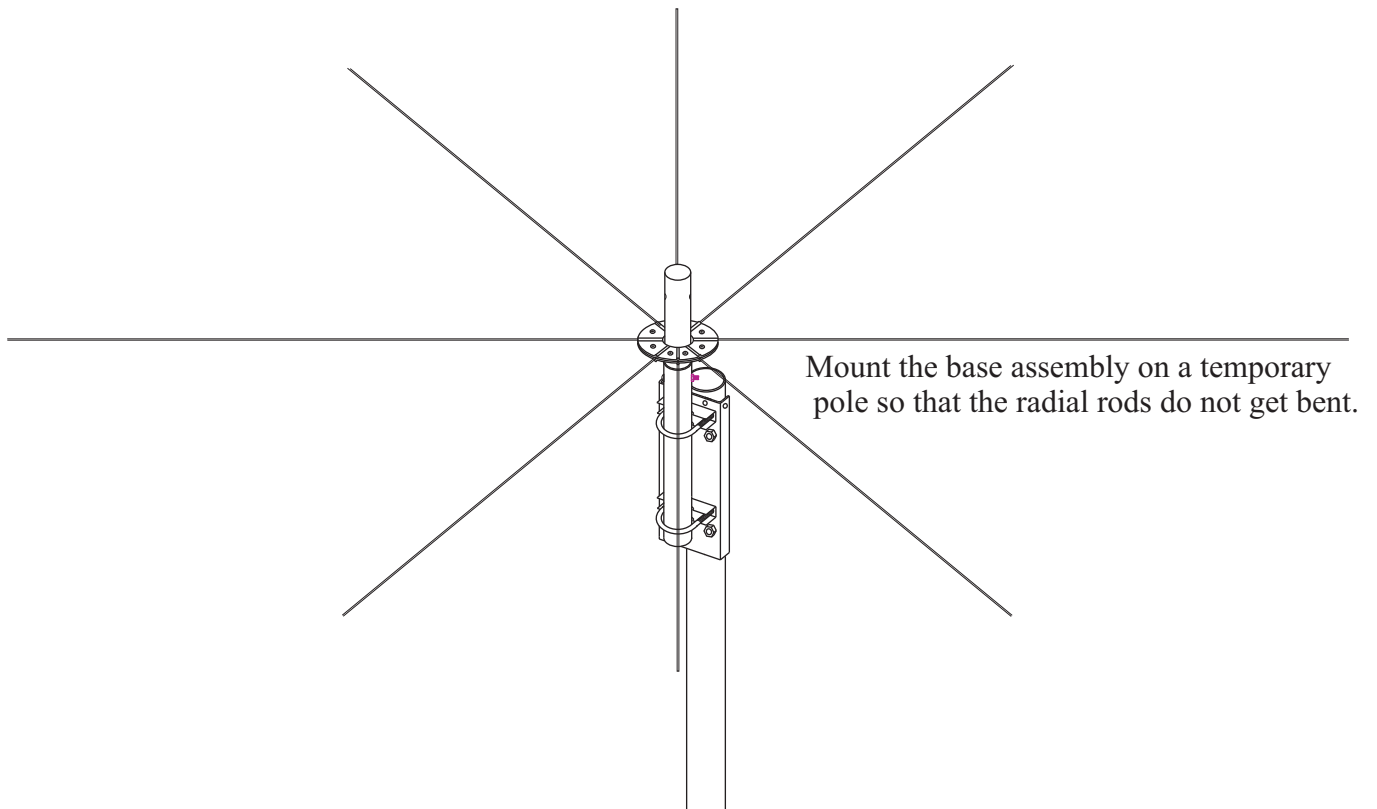
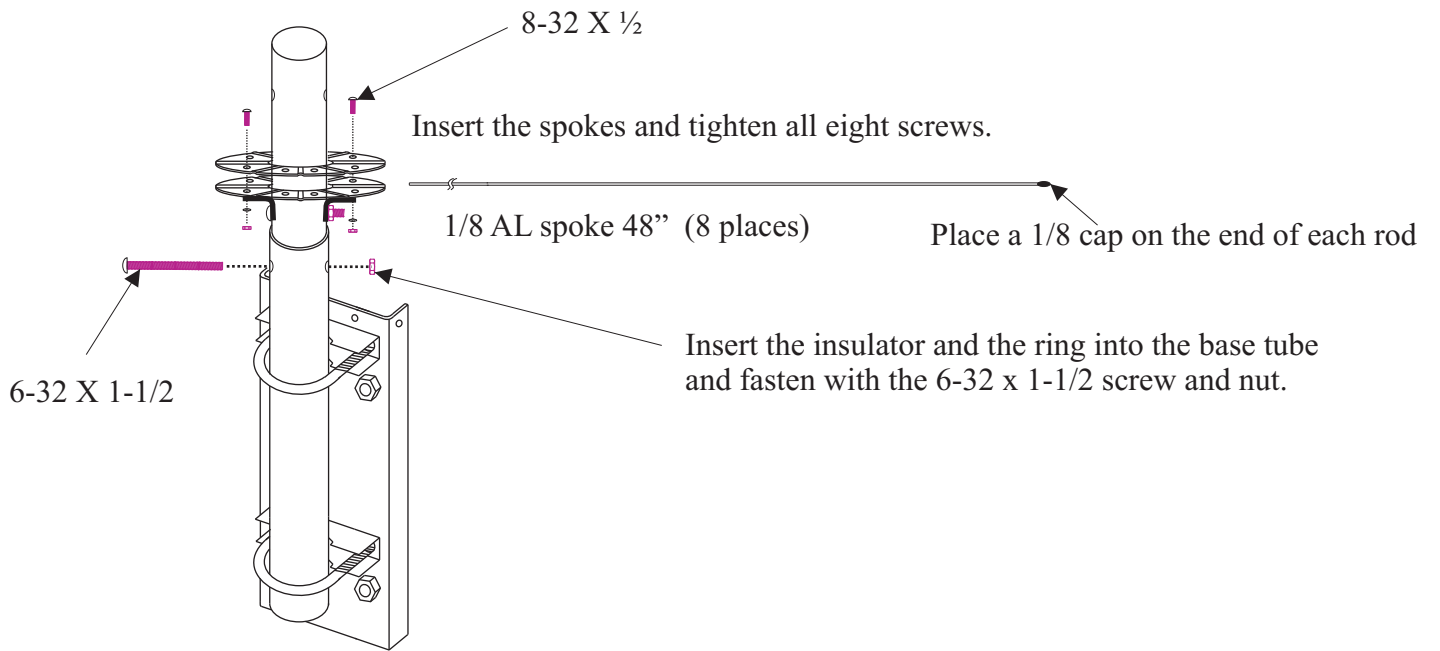
8-32 X 1/2

Use two holes opposite each other to mount the brackets that hold the ring in place. Fasten the brackets to the center hole in the fiberglass insulator using a 6-23 x 1-1/2 bolt and nut. Leave the screws loose so that the rods may be installed next.

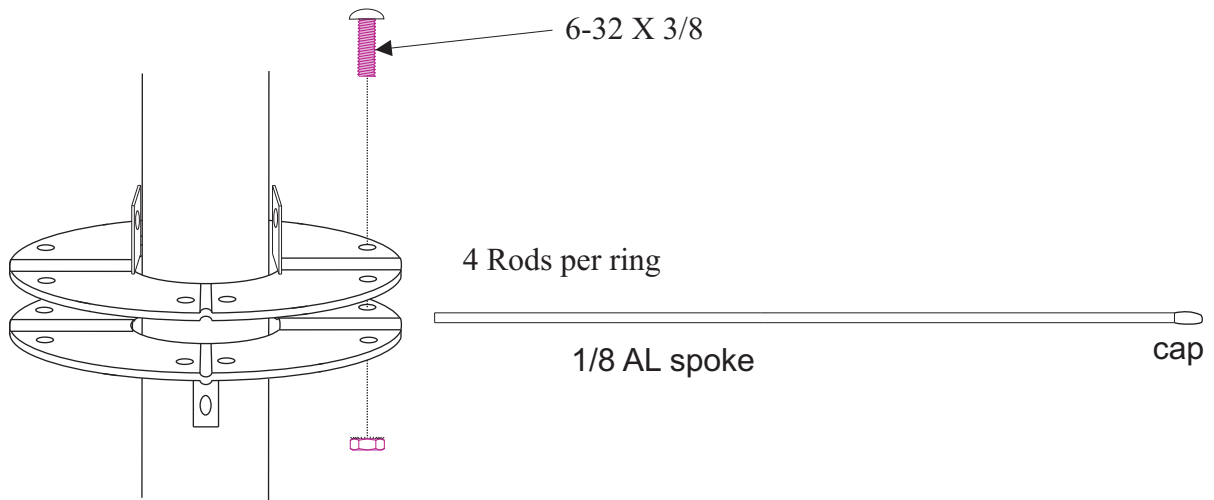
6-32 X 1-1/2

Mounting holes

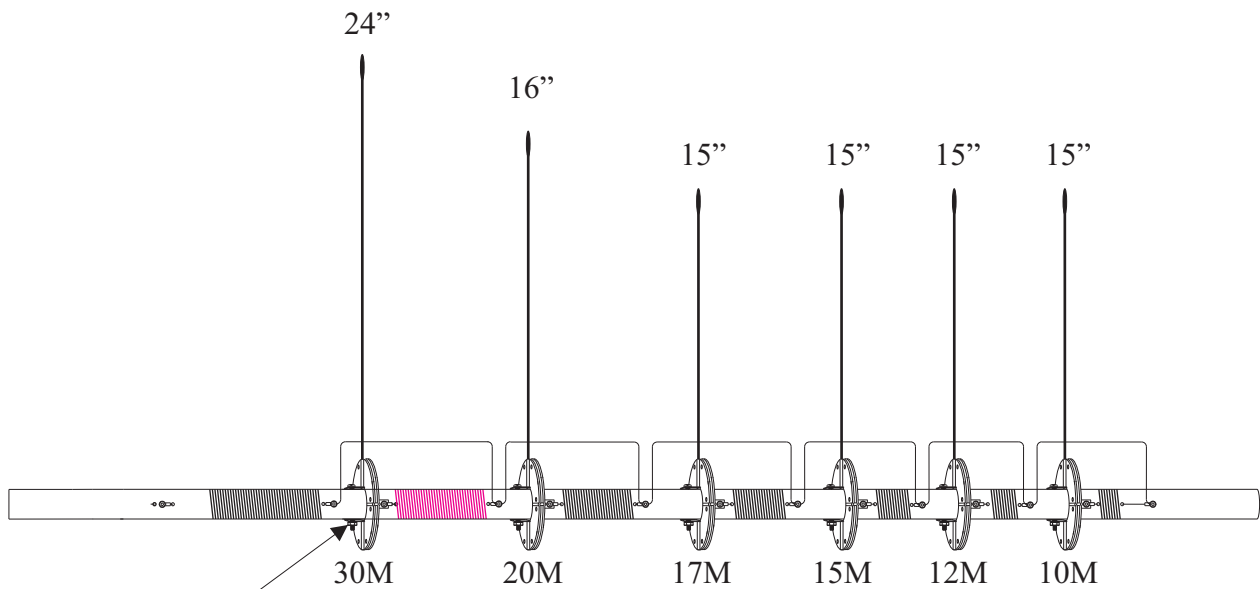




Capacitance Hat Assembly

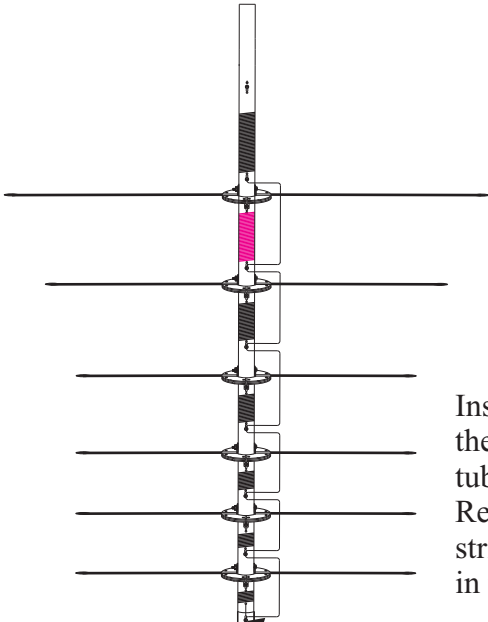


Install the spokes into the loading coil as shown. Use the 6-32 x 3/8 screws and lock nuts to hold them in place. You may place the caps on the ends of the rod if you want to but some of them will have to be removed when you tune the antenna. There are 4 different rod lengths for the loading coil. Each ring gets 4 rods.

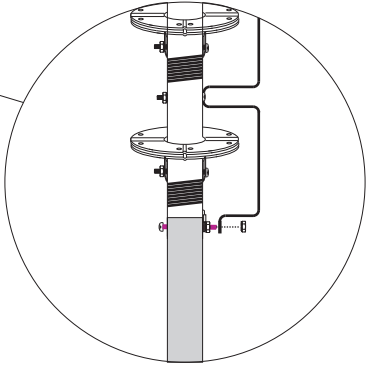


You may loosen the radial ring mounts to make it easier to align the ring holes when inserting the rods. Tighten them back when all four rods are in.

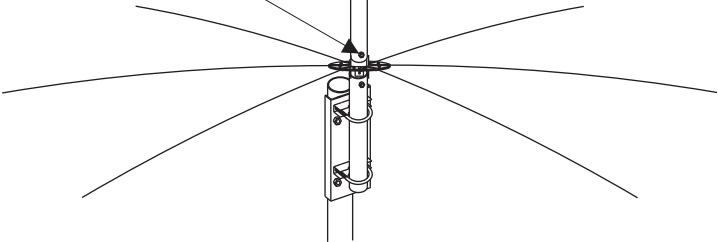
Main Radiator Assembly



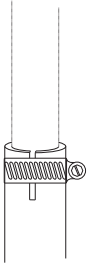
Install the loading coil on top of the antenna by removing the first screw at the bottom and sliding the coil inside the tube. Align the hole in the tube with the hole in the coil. Re-install the screw with the wire eyelet and the jumper strip on top of the tube. The 10 meter rods are not shown in the diagram.



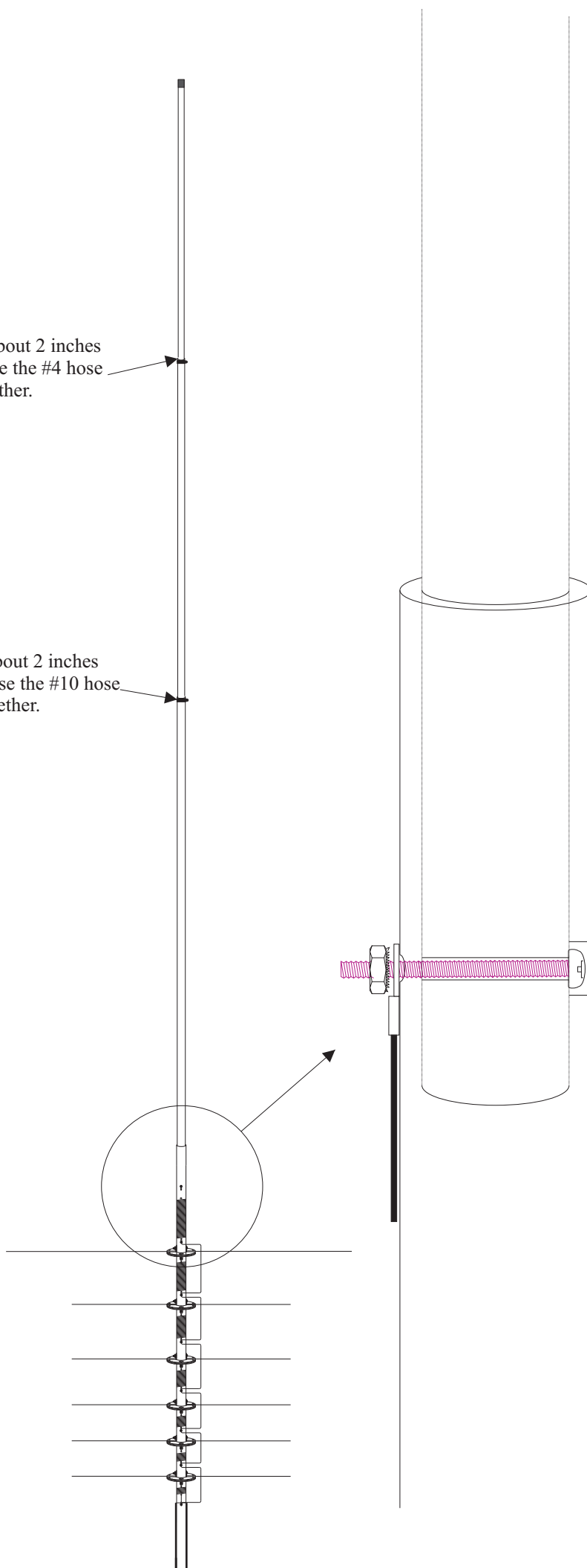
Install the main radiator to the fiberglass insulator using a 1-1/2 6-32 screw and nut. Align the top hole in the fiberglass insulator with the hole in the mast tube. Insert the screw and tighten the nut hand tight only.



Slide the 7/16 inch tube about 2 inches into the 5/8 inch tube. Use the #4 hose clamp to fasten them together.

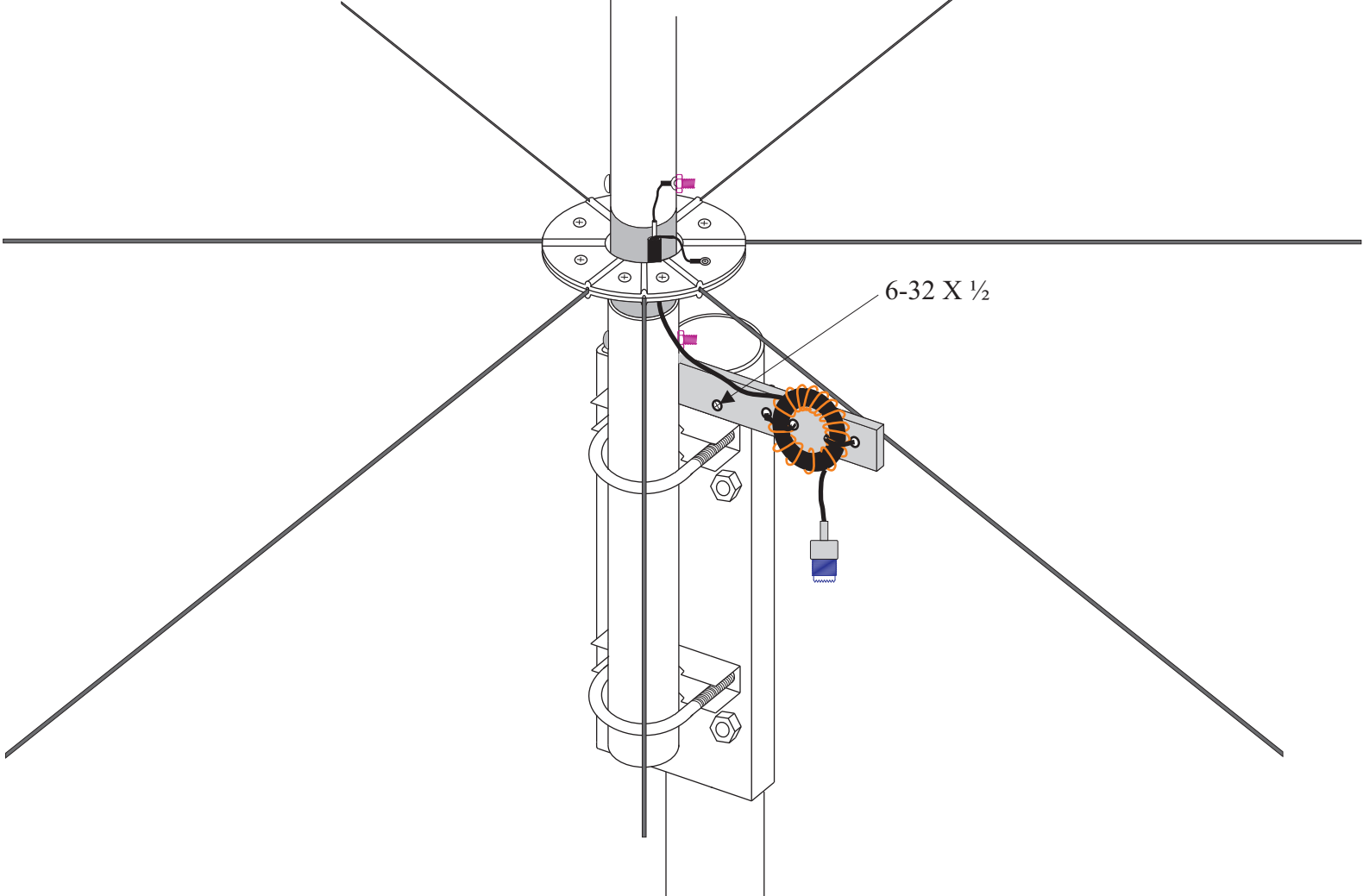


Slide the 5/8 inch tube about 2 inches into the 3/4 inch tube. Use the #10 hose clamp to fasten them together.



Remove the screw from the top of the loading coil holding the wire eyelet in place. Insert the 3/4 inch tube into the top of the loading coil. Align the hole in the Aluminum tube with the hole the screw was in. Replace the screw with the screw head on the side with the larger hole. allow the screw head to pass through the fiberglass and contact the aluminum. Replace the lock nut and tighten.

Larger hole, screw must contact aluminum tube. There are several other holes in the fiberglass that will not be used.



Balun Assembly

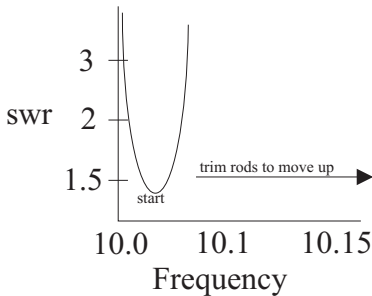
Wrap the coax supplied around the ferrite core as many times as you can. This will be about 13 passes. Leave enough on the eyelet side to attach to the main tube as shown. Feed the coax under the ring and attach the center conductor the mast using the bolt and nut already there. Attach the shield of the coax to the radial ring using one of the bolts that hold in the rods. Attach the balun support to the mast place using two 6-32 x 3/8 inch screws and nuts. Strap the balun to the support using the cable ties supplied. Route each tie over each side of the balun and through the two holes on either side. Pull the ties snug but not extremely tight. Your feed line will attach to the PI259 on the balun using the supplied barrel connector. Support your feed line to the mast so that it does not put strain on the connector when mounted.

TUNING THE ANTENNA

This antenna is tuned by trimming the capacitance hats for each band at the top of the mast. 40 meters is the only one that is tuned by the length of the whip on top of the antenna. With the whip fully extended, the swr dip will be around 6.9-7.0 Mhz.

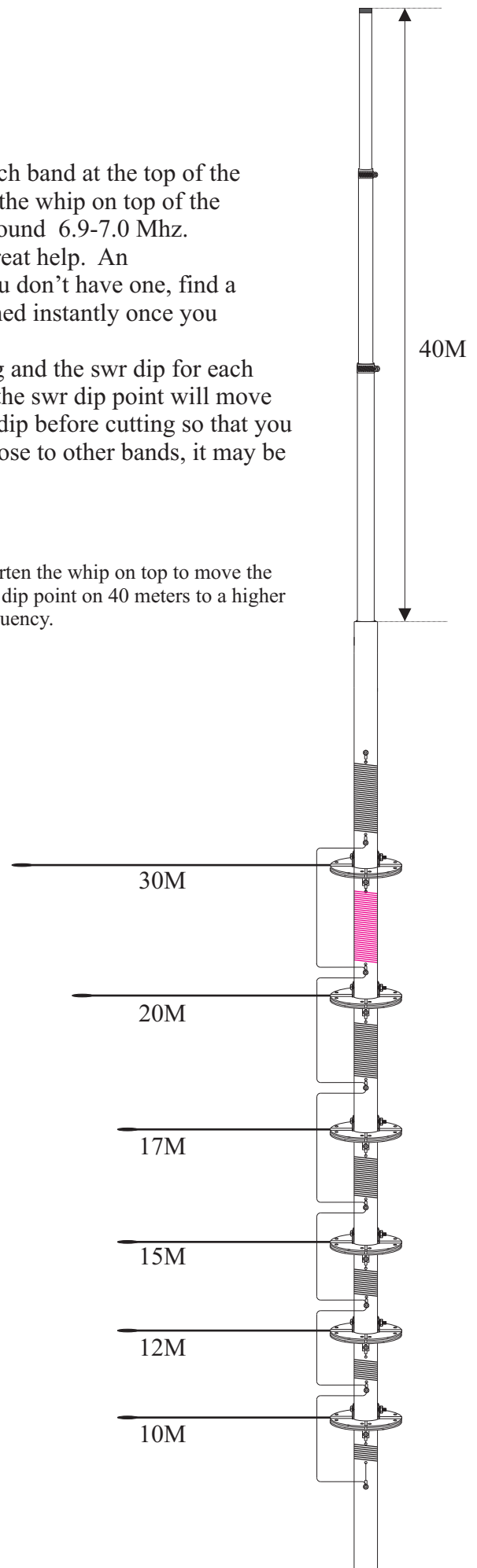
A temporary mast that can be raised and lowered will be of great help. An analyzer such as the MFJ-259 will also be very helpful. If you don't have one, find a friend that does. The ability to know where the antenna is tuned instantly once you raise it will save a lot of time.

The rods for each band have been cut so that they are too long and the swr dip for each band will be below that band. You will trim each rod so that the swr dip point will move up into the band to the point you desire. Try to identify each dip before cutting so that you don't cut the wrong rod for that dip. If some dip points get close to other bands, it may be confusing which one is which.



Shorten the whip on top to move the swr dip point on 40 meters to a higher frequency.

Raise the antenna at least 6 feet off the ground when checking the swr dip point. If you have the antenna too close to the ground when tuning, the dip point will move when you mount it in its final location. Only one rod is shown here. Each band has 4 rods. You may trim each rod evenly or just two opposite each other. Trimming all 4 will have greater affect than trimming just 2. Its up to you but however you do it, go slowly and take your time. Your almost finished but don't rush the tuning. If you installed the tips on the rods earlier, you will have to remove them when cutting. Start off cutting small so you can get an idea of how much it takes to move the swr dip point a certain distance. It will be little different for each band. Once you are happy with where the swr dip point is, reinstall the tips and move on to the next band. A few extra rods are in the box just in case any mistakes are made. Start with the 10 meter band and move



Antenna Mast

The recommended support mast for the MFJ-1797 is steel water pipe between the sizes of 1-3/4" OD to 1-1/4" OD and with a length that will place the antenna base at a safe height. The MFJ-1797 is designed to operate at a height of 10 or more feet for proper performance. Placement on the side of a house or garage at eaves level is acceptable as long as the rods will not be in contact with anything.

Antenna Grounding

Although the MFJ-1797 is designed to operate efficiently without the requirement of an earth ground, SAFETY GROUNDING must still be provided to protect equipment, property and persons from the hazards of lightning strikes and other weather related electrical discharges. In addition the coaxial cable feeding the antenna should have the shield grounded to eliminate the risk of any indoor equipment failure from allowing hazardous voltages from appearing indoors and creating a shock hazard. The support mast should be grounded with a large diameter ground wire.

Additional protection can be accomplished by grounding the shield of the coax where it enters the building to a good earth ground or directly burying the cable in the earth for several feet before it enters the building. The coaxial cable should be totally disconnected from the station during threatening weather conditions for maximum lightning protection.

Customer Supplied Components

- Quality low-loss 50 ohm coax cable with PL-259 connectors
- VSWR Analyzer (MFJ-259B or equiv.) or HF transceiver with VSWR meter
- Mounting mast with required hardware to provide sturdy support

PART #	DESCRIPTION	QTY
810-1797-MT	1-1/8 X .058 X 5ft aluminum tube	1
810-1797-BT	1-1/8 X .058 X 10 inches aluminum tube	1
810-1797-FBI	1-1/4 X 10 inches Fiberglass Rod	1
173274	3/4 X .035 X 53-1/2 inches aluminum tube	1
173273	5/8 X .035 X 53-1/4 inches aluminum tube	1
173272	7/16 X .028 X 54 inches aluminum tube	1

810-1799-24	Aluminum Rod 1/8 inch x 24 inches	4
810-1797-16	Aluminum Rod 1/8 inch x 16 inches	4
810-0680-15	Aluminum Rod 1/8 inch x 15 inches	16
810-1799-48	Aluminum Rod 1/8 inch x 48 inches (Two Extra for tuning mistakes)	10

10-1797-1	Coax assembly 6ft	1
735-1795	Mast bracket	1
11-1797-C	Loading coil assembly	1

Parts Pack

656-0500S	6-32 X 1/2 inch screw	2
656-0375S	6-32 X 3/8 inch screw	60
705-0632S-K	6-32 Nut with lock washer	64
656-1500S	6-32 X 1-1/2 inch screw	4
010079	8-32 X 1/2 inch screw	8
010011	8-32 Nut	8
010010	#8 lock washer	8
455624	1/8 Rod tip cover	40
420-6138	Ferrite core	1
194174	Radial Ring	2
196242	Radial Ring mounting bracket	2
735-1797	Balun bracket	2
758-9199	U-Bolt assembly	4
745-2158B	Cable tie	4
745-3104S	Hose Clamp #4	1
745-3106S	Hose Clamp #6	1
455644	Tube Cap 7/16	1

12 MONTH LIMITED WARRANTY

MFJ Enterprises, Inc. Warrants to the original owner of this product, if manufactured by MFJ Enterprises, Inc. and purchased from an authorized dealer or directly from MFJ Enterprises, Inc. 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 MFJ Enterprises, Inc. at the time of warranty service. MFJ Enterprises, Inc. 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. MFJ Enterprises, Inc. agrees to repair or replace at MFJ's option without charge to the original owner any defective product under warranty, provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashiers check, or money order for \$7.00 covering postage and handling.
3. MFJ Enterprises, Inc. will supply replacement parts free of charge for any MFJ 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. This warranty is NOT void for owners who attempt to repair defective units. Technical consultation is available by calling (662) 323-5869.
5. This warranty does not apply to kits sold by or manufactured by MFJ Enterprises, Inc.
6. Wired and tested PC board products are covered by this warranty provided only the wired and tested PC board product is returned. Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, or cables, etc. sent to MFJ Enterprises, Inc. will be returned at the owner's expense unrepared.
7. Under no circumstances is MFJ Enterprises, Inc. liable for consequential damages to person or property by the use of any MFJ products.
8. Out-of-warranty Service: MFJ Enterprises, Inc. 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.
9. This warranty is given in lieu of any other warranty expressed or implied.
10. MFJ Enterprises, Inc. 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.
11. All MFJ products to be serviced in-warranty or out-of-warranty should be addressed to MFJ Enterprises, Inc., 300 Industrial Park 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.
12. This warranty gives you specific rights, and you may also have other rights, which vary from state to state.

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