MFJ-1838

6,10,12,15,17,20,30,40 METER
HD
COBWEB ANTENNA

INSTRUCTION MANUAL

CAUTION: Read All Instructions
Before Operating Equipment

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Introduction

Thank you for purchasing the MFJ-1838 eight band HF antenna. You new antenna is composed of High strength material for excellent rigidly and light weight. The MFJ-1838 is compact and excellent for restricted space or portable installations. The antenna is omnidirectional enough to not require a rotator. It has good bandwidth and minimum SWR on all five bands. It can be mounted on tripod for temporary locations or any mast 1-3/4 diameter or smaller for permanent installation.

Preparation

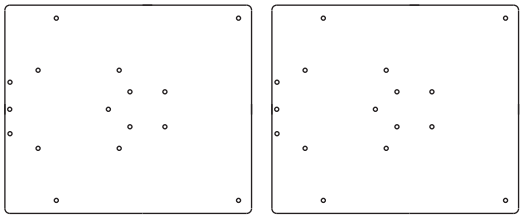
This antenna although it is not heavy, might be cumbersome for one person to handle.
It is a good idea to have a temporary mast about 6 feet off the ground to hold the antenna while you are working on it. If you don't have a mast available, saw horses other support can be used.
The antenna support arms can be installed on a flat surface like a garage floor if needed. The antenna assembly will go quickly and is fairly easy but take your time anyway. As with all antennas, safety glasses are recommended during the assembly and tuning. We don't want you to "Poke your eye out". Pick a clear open spot and 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. If you plan to assemble the antenna over grass, be prepared to go on a lawn safari to find the hardware that you drop. It's not a question of if, but when you drop something. A few extra parts have been included in the parts pack for just such a adventure. Assembly can be done by one person but when the antenna is to be mounted or moved, plan to have a friend help. It is not wise to attempt to install any antenna without help. Don't rush. The more time you put into the antenna, the happier you will be with the results.

WARNING

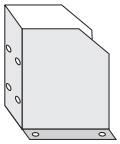
KEEP THIS ANTENNA
AWAY FROM POWER LINES

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.

In the box



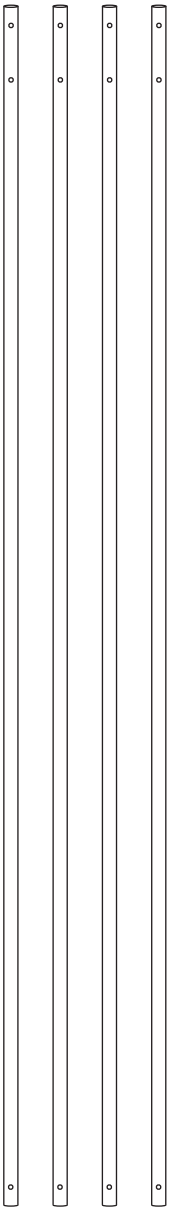
2 mounting plates



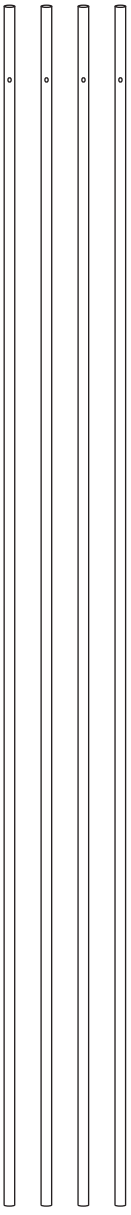
1 mounting bracket

1 u-bolt bracket

4 x 1-1/4” element arms



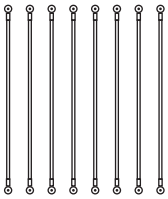
4 x 1” element arms



1 feed arm

1 support arm

8 insulators



1 matching box

Parts pack

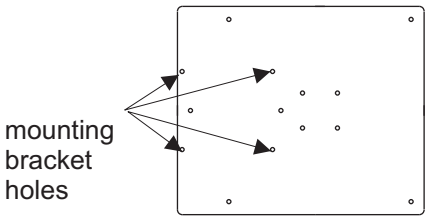
1 roll of element wire for each band

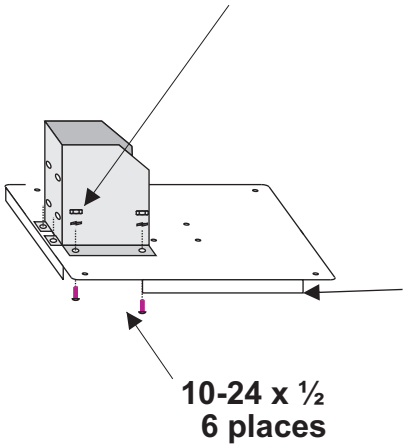
10 12 15 17 20 30 40

1 bundle of dacron rope

Assembly

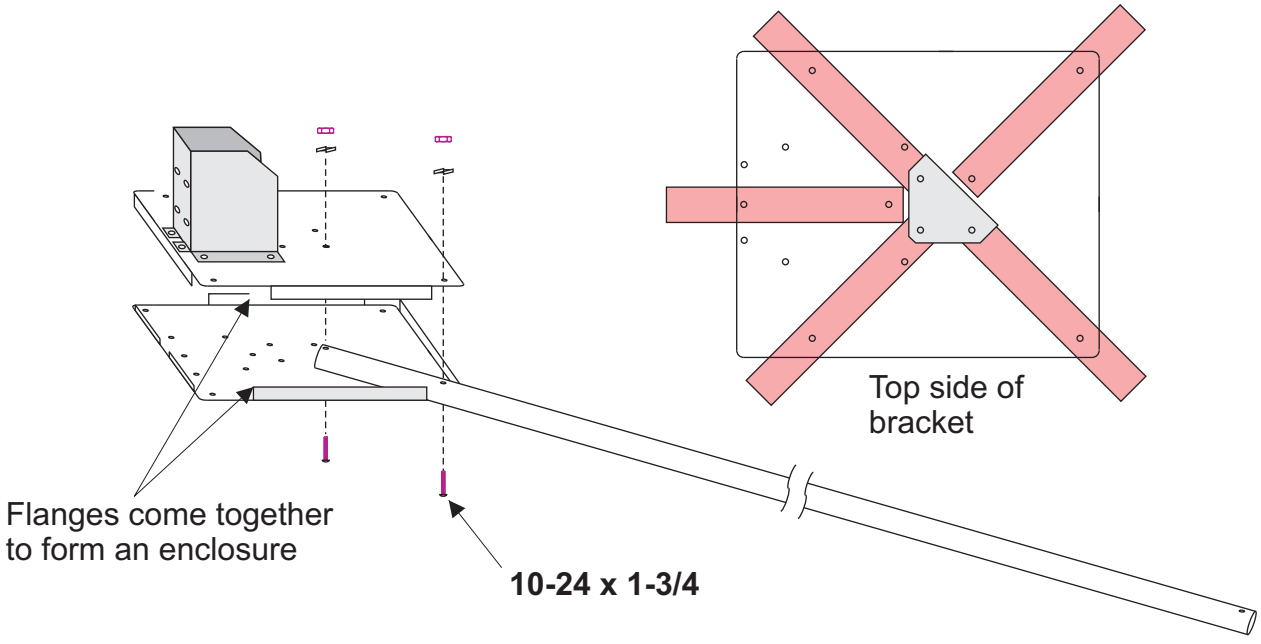
Select one of the two mounting plates. Install the mount bracket onto the plate using four 10-24 x ½ bolts split washers and nuts. Make sure the nuts are on the bracket side.



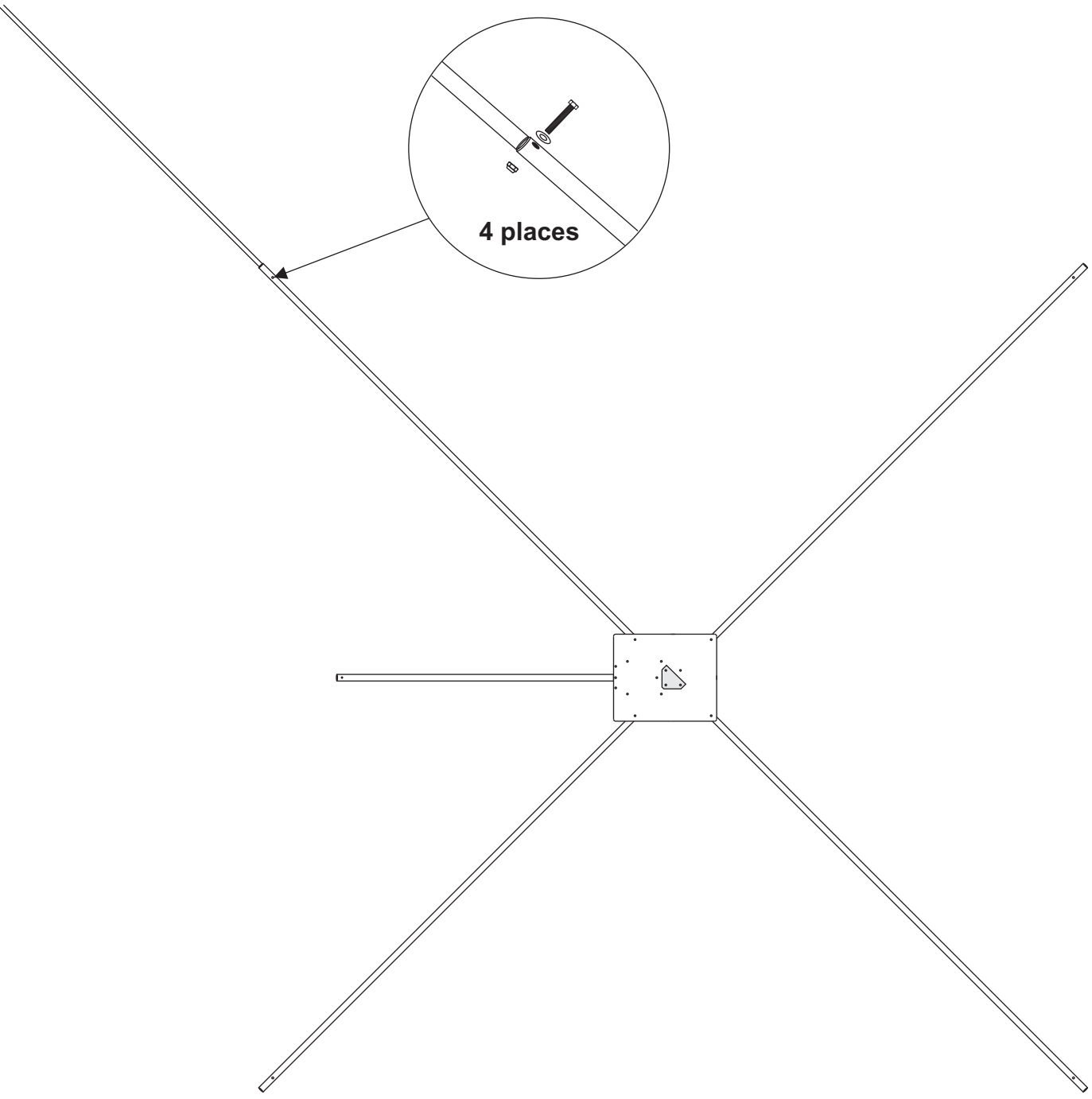


Support arms

Select one of the four larger (1-1/4") element arms. Install the arm between the two plates using two 10-24 x 1-3/4 inch bolts, split washer and nuts. If you Wish to use the top support arm, now is when you need to install the u-bolt bracket on the top plate using the same bolts that hold the arms in and the plates together. Pick any 3 of the 4 holes used to mount the end of the element tubes. Snug the nuts but do not tighten. If you do not do this now, you can still do it later, but you will have to remove three of the bolts that hold the element tubes in the bracket.
Install the remaining three and the shorter feed tube (has mount holes) in the same manner.

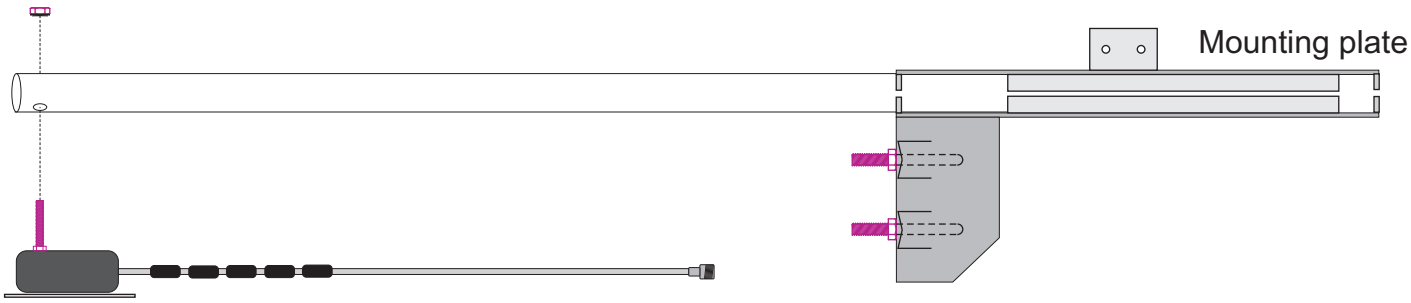


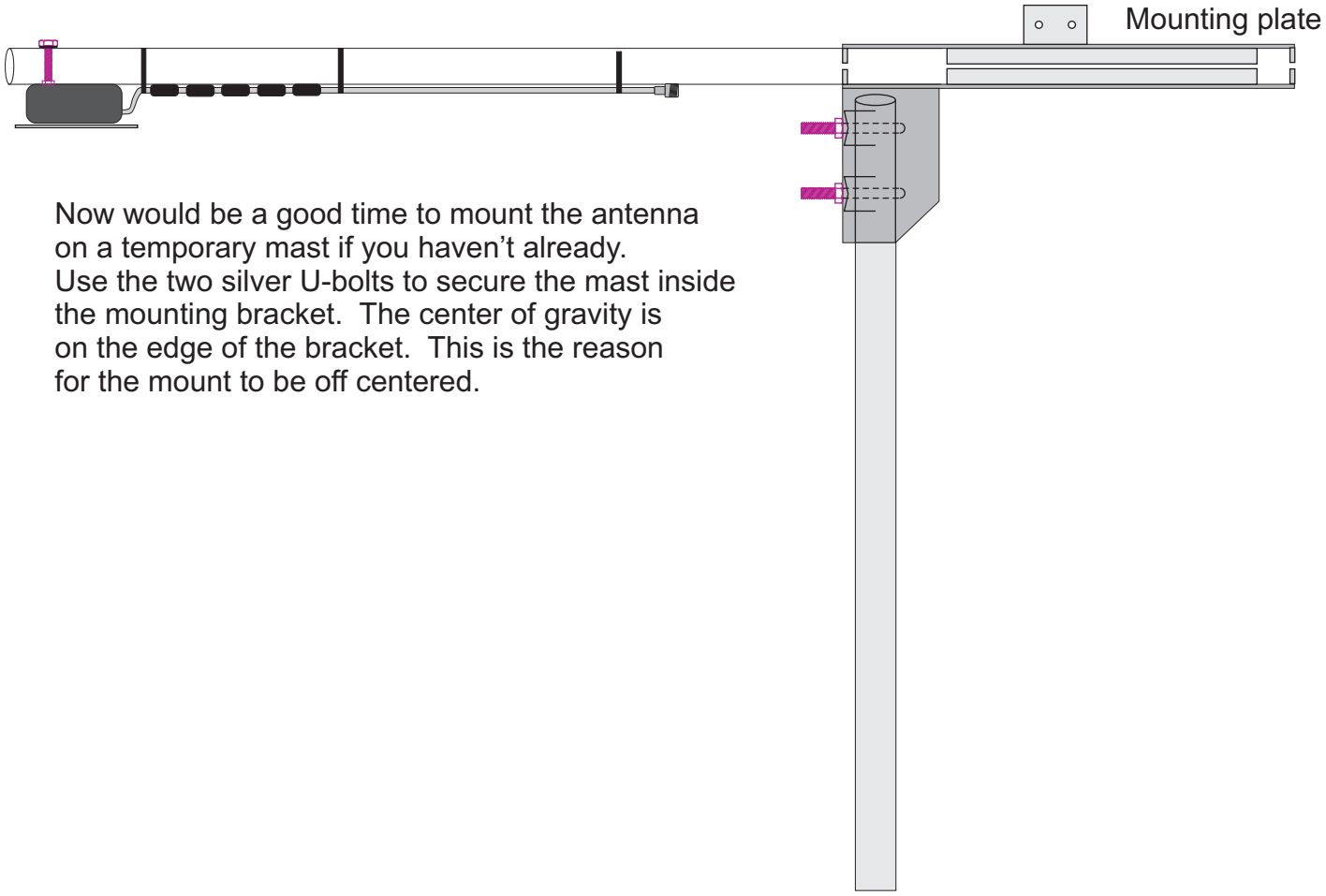
Install the smaller one inch tubes into the larger tubes. Align the holes and install the 1/4-20 bolt, washer and nylon lock nut as shown.



Matching box

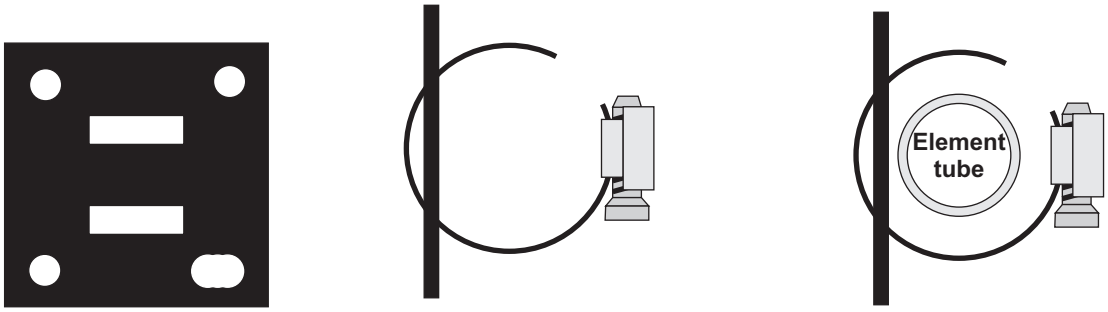
The matching box can now be mounted to the feed arm. Use the 6-32 nylon locking nut to secure it to the tube. Use the nylon ties to route the coax along the tube back towards the mounting plates.



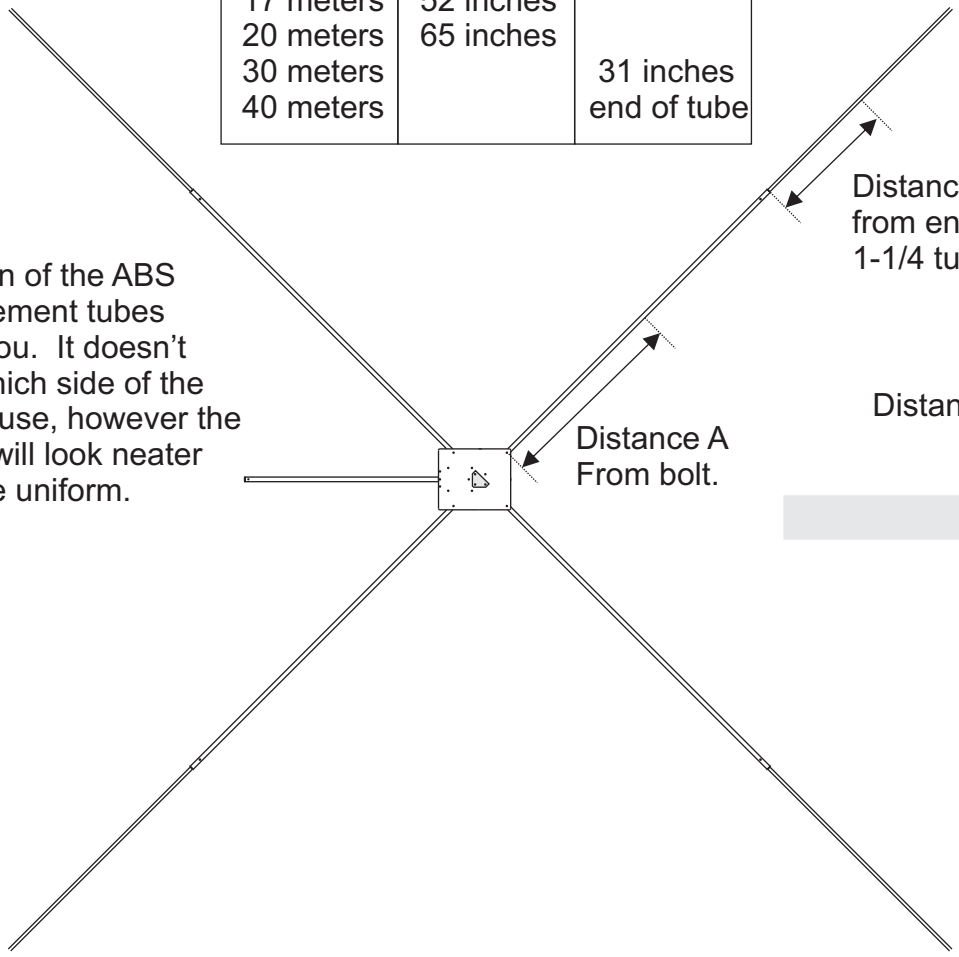


Now would be a good time to mount the antenna on a temporary mast if you haven't already. Use the two silver U-bolts to secure the mast inside the mounting bracket. The center of gravity is on the edge of the bracket. This is the reason for the mount to be off centered.

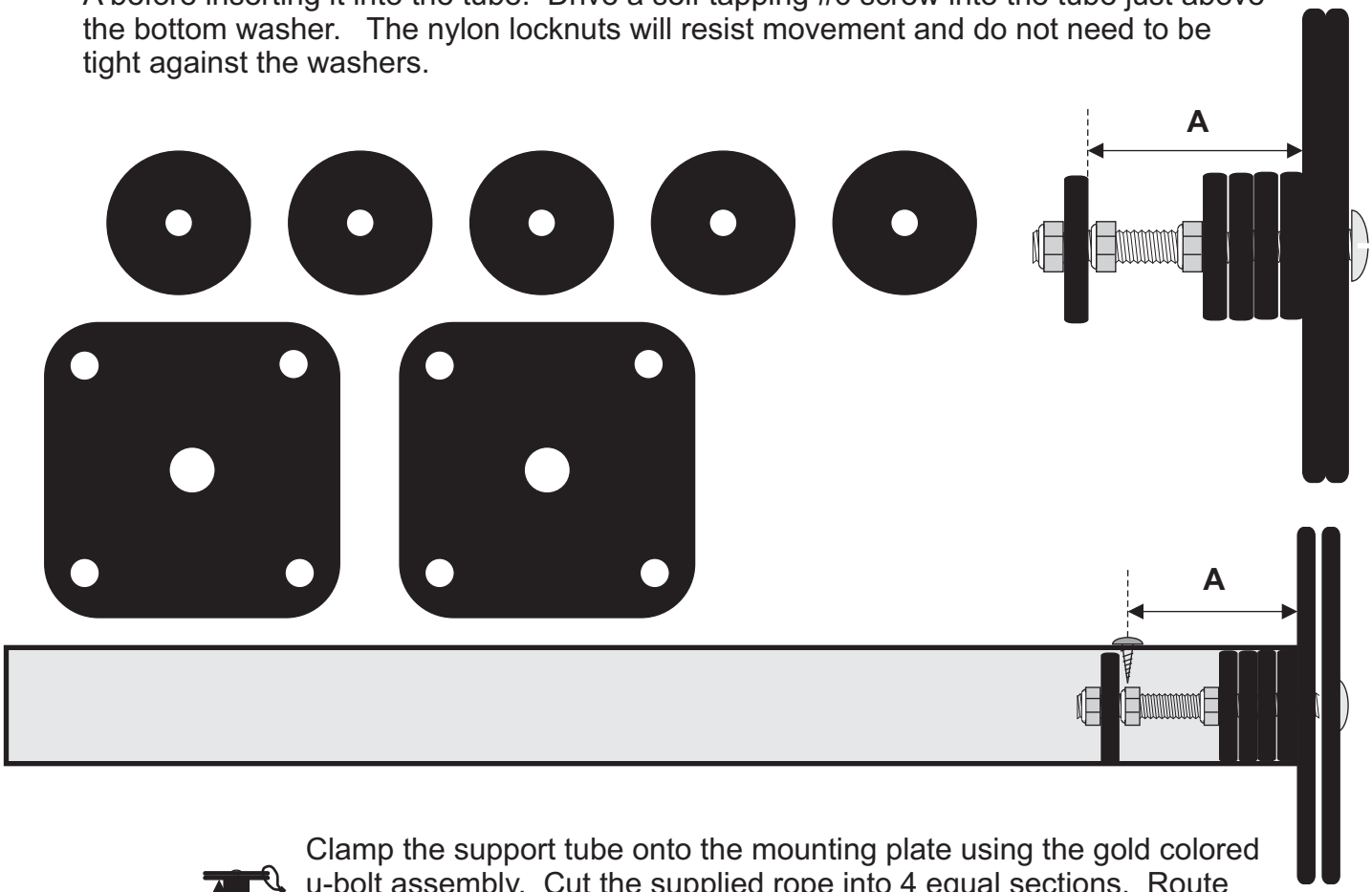
The wire guides are assembled as shown below. Use a 5/16 nut driver or a flat head screwdriver to unscrew hose clamp and insert band through the two slotted holes. Note that one hole in the ABS plastic is larger than the rest. This is to allow an eylet to pass through the hole if needed. This hole will not be used for this antenna so turn it so it is on bottom or toward the outer edge of the antenna. Put the hose clamp band around the element and restart the band in the screw housing by slowly turning the screw while inserting. Placement of the clamps Is shown by distance A and B in the diagram. These distances are not absolute. Final adjustments may change them.



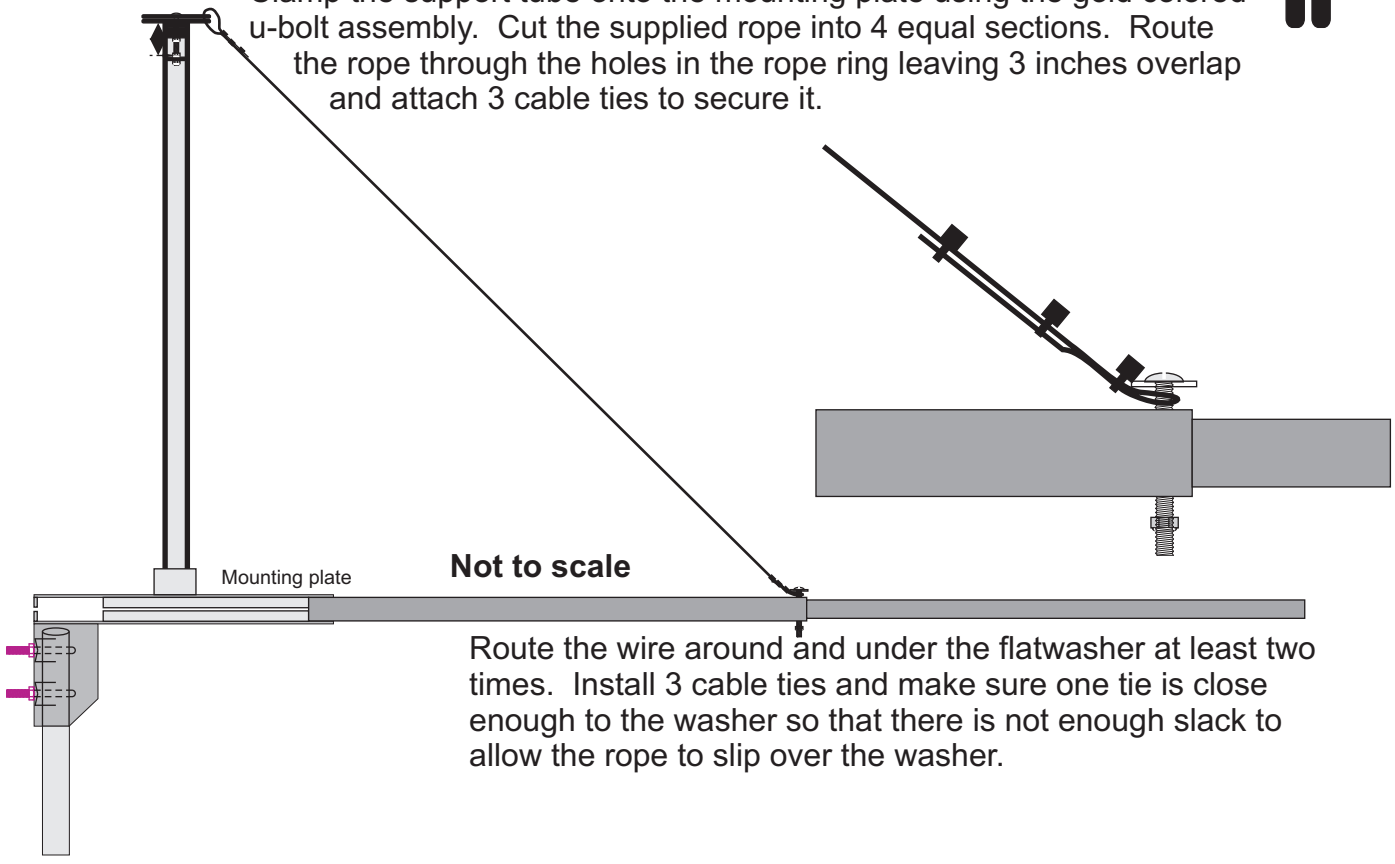
	A	B
6 meters	24 inches	
10 meters	30 inches	
12 meters	36 inches	
15 meters	44 inches	
17 meters	52 inches	
20 meters	65 inches	
30 meters		31 inches
40 meters		end of tube



Assemble the rope ring support as shown. Two of the square pieces are used for greater strength. The assembly will fit snug into the support tube. Measure distance A before inserting it into the tube. Drive a self tapping #6 screw into the tube just above the bottom washer. The nylon locknuts will resist movement and do not need to be tight against the washers.

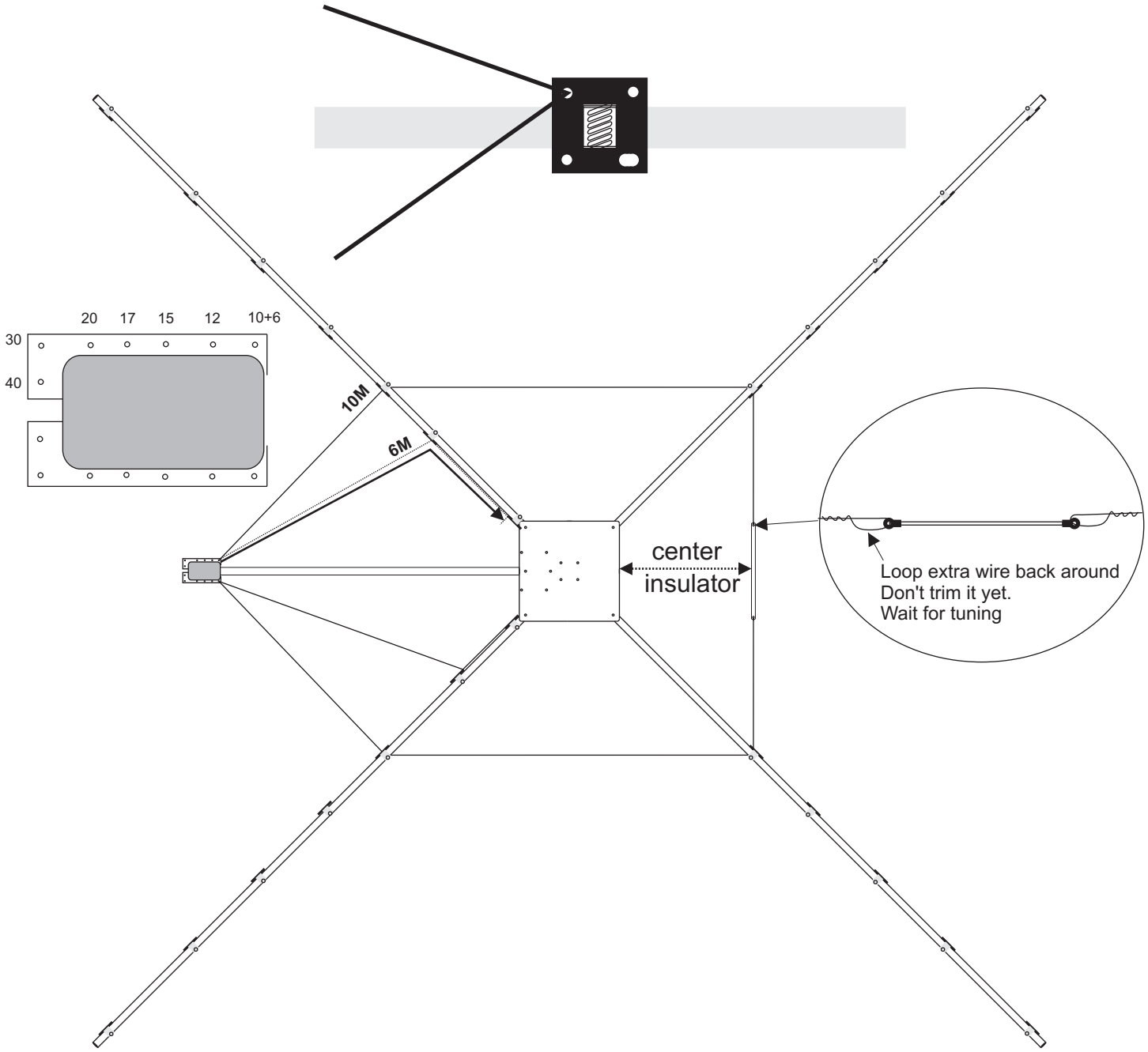


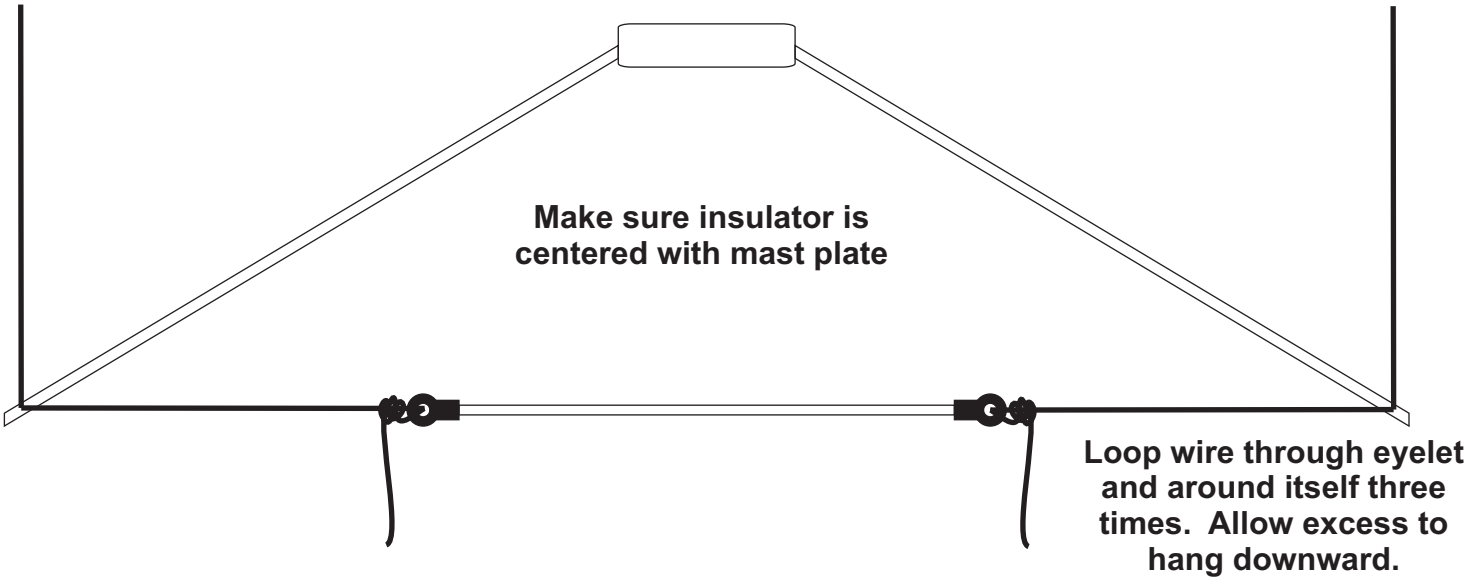
Clamp the support tube onto the mounting plate using the gold colored u-bolt assembly. Cut the supplied rope into 4 equal sections. Route the rope through the holes in the rope ring leaving 3 inches overlap and attach 3 cable ties to secure it.



Route the wire around and under the flatwasher at least two times. Install 3 cable ties and make sure one tie is close enough to the washer so that there is not enough slack to allow the rope to slip over the washer.

Each band has a single wire with eyelets on each end. Start with the 10 meter wire and each band after that will be the same procedure. Unroll the wire and find the center by folding in half. Have someone hold the ends with eyelets or hook them over something. Be careful not to kink the wire. If it does kink, simply bend it back straight. Once you find the center and cut it there. Attach the eyelet end to the match box using the 6-32 x 5/16 screws and lock nuts. Tighten them securely. Thread the other end though the abs insulators. You will have too much wire when you reach the other side. Thread the wire ends through the insulator eyelets and center the insulator between the element arms. Fold the wire back on itself to keep it there for later.
Repeat this for the rest of the bands. Do not attempt to tune any band until all the wires are in place. 6 meters may be left off if desired. The 6 meter element is routed differently as shown in the diagram. It makes a diamond shape and a small amount of wire should hang off the end for tuning. The 6 meter element wire will share the eyelet location with the 10 meter wire.

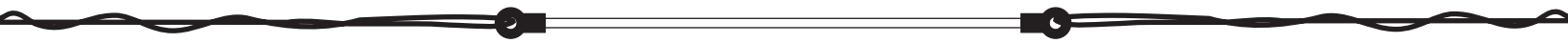




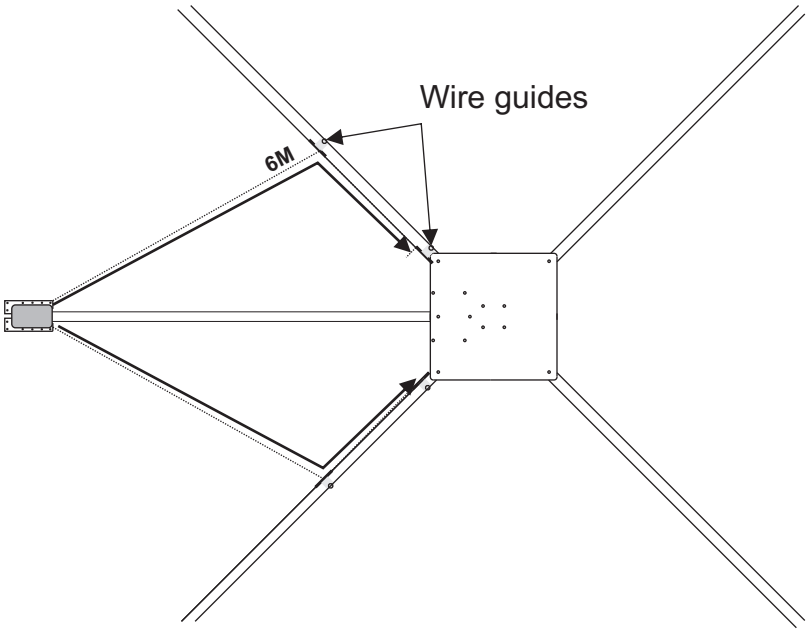
Looping the wire around itself tightly is more than enough to hold the wire in place on the insulator. Do not try to tension the wires to remove all the sag. Sag in the wires will not affect the operation of the antenna and it will prevent stress on the antenna parts. Too much sag is when the different band wires are allowed to contact each other.

Tune the antenna while it is at least 6 ft off the ground for 6-20 meters. For 30 and 40, it should be at least 12 ft off the ground. The operating frequency will increase as you raise the antenna higher off the ground. This will be more noticeable on 30 and 40. 6-20 may only shift slightly when raised. Initial tuning should be done below the band. You can always trim more wire off but it can't be added without a soldering iron.

Tuning the antenna is done by trimming the wires that are left hanging from the insulator. You will have more wire than is needed so a lot may be left hanging from the insulator. Check for an SWR dip on each band to see how close you are to the desired frequency. You should be well below the band with the amount of wire supplied. If you have trouble determining which dip is associated with which band, fold one set of wire ends back on themselves effectively shortening the wire to its shortest possible length. The SWR dip that is associated with that wire will move up in frequency. When the wires are folded back, it will be the same as if you have cut the entire hanging amount off. You can use this to adjust the wire guides so that when the wires are cut completely, the antenna will be tuned to the top of the band. This will make the amount of wire hanging from the insulators as short as possible.



Just a few inches of wire is ideal to hang off the insulators.
Adjusting the wire guides outward on the spreaders will increase the size of the loop and reduce the amount of wire needed to hang from the insulator. This may take a little trial and error to get it just right. Take your time and you will be happy with the results. If you tune the antenna and have to much wire hanging off the insulator, simply unwrap the wire and move it so an acceptable amount is hanging off. Move the wire guides to remove the additional slack in the wire that was created. Check the SWR again to make sure its still in place. Remember to keep the insulator centered so that wires on both sides are the same length. If the wire lengths on each side are different, The SWR dip will not be as sharp and may be higher than desired. This tuning procedure should start with the 10 or 6 meter wire and move to 40.



6 meters should be tuned the same way except the ends of the wire terminate at one of the wire guides. Loop the wire around one of the holes of the wire guide and leave some hanging off. The wire guide next to the mast plate can be moved where needed to make the 6 meter element as long or as short as needed.

PART #	DESCRIPTION	QTY
737-1838	Aluminum Mast plate	2
811-1838-1	1-1/4 x 72 inch fiberglass tube	4
811-183-2	1 x 72 inch Fiberglass tube	1
735-1838-UB	Support mast bracket	2
811-1838-3	1-1/4 x 39 fiberglass tube (match box mount)	4
811-1838-4	1-1/4 x 33 inch Fiberglass tube (support tube)	1
10-1838-1	Matching Box	1
735-1838	Mast Mounting bracket	1
13-1838-6	6 meter wire assembly	1
13-1838-10	10 meter wire assembly	1
13-1838-12	12 meter wire assembly	1
13-1838-15	15 meter wire assembly	1
13-1838-17	17 meter wire assembly	1
13-1838-20	20 meter wire assembly	1
13-1838-30	30 meter wire assembly	1
13-1838-40	40 meter wire assembly	1
13-1838-SR	Dacron Support Rope	
13-1838-FI	Insulator	7

17-1838-1 PARTS PACK

745-31116S	#16 Hose clamp	32
736-1848	ABS WIRE BRACKET	32
554071	10-24 HEX NUT	16
745-31116S	GOLD U-BOLT SET	1
566344	FLAT WASHER	4
561178	SPLITWASHER #10	16
500158	10-24 X ½ BOLT	6
656-0312S	6-32 X 5/16	16
705-0632S-K	6-32 KEEPNUT	18
736-1845-W	ABS WASHER	5
662-3250S	1/4-20 X 3-3/4 BOLT	1
736-1835-RR	ROPE RING	2
745-2149B	ABS CABLE TIE	30
745-31116S	STAINLESS U-BOLT SET	2
014388	10-24 NYLON NUT	4
705-0632-NL	6-32 NYLON NUT	1
500321	10-24 X 1-3/4 BOLT	14
705-2520S-NL	1/4-20 NYLON LCK NUT	3
656S-0375S-A	#6 self taping screw	1

Antenna Mast

The recommended support mast for the MFJ-1838 is steel water pipe between the sizes of 1-1/2" OD to 2" OD and with a length that will place the antenna base at a safe height. The MFJ-1838 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 wires will not be in contact with anything.

Antenna Grounding

Although the MFJ-1838 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.

GENERAL INSTALLATION INSTRUCTIONS FOR MAST MOUNTED ANTENNAS

1. Assemble your new antenna on the ground at the installation site. Keep separate assembly instructions that come with it. Large CB and Amateur beams may have to be finally assembled on the tower or mast.

2. On the ground, clamp the antenna to mast and connect the coaxial cable to the antenna.

3. To insure that the mast does not fall the "wrong way" it it should get away during the installation or takedown, durable non-conductive rope should be secured at each two foot level as the mast is raised. The boss stands in a position where he can yank or pull the ropes if the need arise to deflect the falling mast away from hazards (such as power lines) into a "safe fall" (such as a yard or driveway). The ropes are tied taut at the base of the mast after installation and in place at the various levels.

4. Install selected mounting bracket.

5. If you are going to use guy wire installation instead of a mounting bracket:
   - install guy anchor bolts
   - estimate length of guy wire and cut
   - attach a mast using guy ring

6. Carefully take antenna and mast assembly to mounting bracket and insert. Tighten camp bolts. In case of guyed installation, it will be necessary to have at least a second person hold the mast upright while the guy wires are attached and tightened to the anchor bolts.

7. Install self-adhering "DANGER" label packaged in antenna hardware kit at eye level on your mast.

8. Install ground rod to drain off static electricity build-up and connect ground wire to mast and ground rod. Use special ground rods, not a spare piece of pipe.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS

1. Use No.10 AWG copper or No. 8 AWG or larger copper-clad steel or bronze wire, as ground wires for both mast and lead-in. Securely clamp the wire to the bottom of the mast.

2. Secure lead-in wire from antenna to antenna discharge unit and mast ground wire to house with stand-off insulators spaced from 4 feet (1.2 meters) to 6 feet (1.8 meters) apart.

3. Mount antenna discharge unit as close as possible to where the lead-in wire enters the house.

4. Drill a hole in wall (CAREFUL!There are wires in that wall.)near your set just large enough to permit entry of cable.

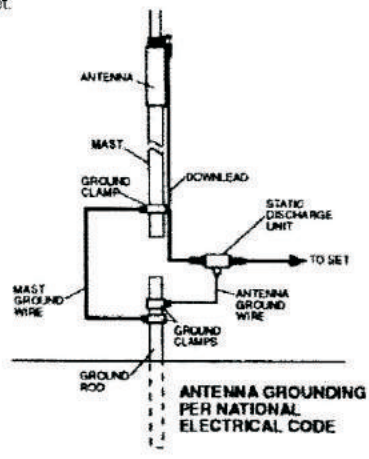
5. Push cable through hole and form a rain drip loop close to where it enters the house.

6. Put small amount of caulking around cable where it enters house to keep out drafts.

7. Install static electricity discharge unit.

8. Connect antenna cable to the set.

You should not attempt to raise a mast in excess of 30 feet in height/length (not including the antenna proper) in a fully-extended condition. Thirty to fifty foot tubular masts must be elevated, a section at a time, with the base or outer section secured in place with guy wires. GET PROFESSIONAL HELP.



ANTENNA GROUNDING PER NATIONAL ELECTRICAL CODE

WARNING

INSTALLATION OF THIS PRODUCT NEAR POWER LINES IS DANGEROUS. FOR YOUR SAFETY, FOLLOW THE ENCLOSED INSTALLATION DIRECTIONS.

HOW TO INSTALL YOUR OUTDOOR ANTENNA SAFELY IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE U.S. CONSUMER PRODUCT SAFETY COMMISSION

YOU, YOUR ANTENNA, AND SAFETY

Each year hundreds of people are killed, mutilated or receive severe permanent injuries when attempting to install an antenna. In many of these cases, the victim was aware of the danger of electrocution, but did not take adequate steps to avoid the hazard.

For your safety, and to help you achieve a good installation, please **READ** and **FOLLOW** the safety precautions below. **THEY MAY SAVE YOUR LIFE!**

1. If you are installing an antenna for the first time, please, for your own safety as well as others, seek PROFESSIONAL ASSISTANCE. Consult your dealer. He can explain which mounting method to use for the size and type antenna you are about to install.

2. Select your installation site with safety, as well as performance, in mind. (Detailed information on Site Selection appears in a separate section of this booklet.) **REMEMBER:** ELECTRIC POWER LINES AND PHONE LINES LOOK ALIKE. FOR YOUR SAFETY, ASSUME THAT ANY OVERHEAD LINES CAN KILL YOU.

3. Call your electric power company. Tell them your plans and ask them to come look at your proposed installation. This is a small inconvenience considering **YOUR LIFE IS AT STAKE.**

4. Plan your installation procedure carefully and completely **before** you begin. Successful raising of a mast or tower is largely a matter of coordination. Each person should be assigned to a specific task, and should know what to do and when to do it. One person should be designated as the "boss" of the operation to call out instructions and watch for signs of trouble.

5. When installing your antenna, **REMEMBER:**
   DO NOT use a metal ladder. **DO NOT** work on a wet or windy day. **DO** dress properly -shoes with rubber soles and heels, rubber gloves, long sleeve shirt or jacket.

6. If the assembly starts to drop, get away from it and let it fall. Remember, the antenna, mast, cable and metal guy wires are all excellent conductors of electrical current. Even the slightest touch of any of these parts to a power line complete an electrical path through the antenna and the **installer-THAT'S YOU!**

7. If any part of the antenna system should come in contact with a power line-DON'T **TOUCH** IT **OR TRY TO REMOVE** IT **YOUR SELF. CALL YOUR LOCAL POWER COMPANY.** They will remove it safely.

   If an accident should occur with the power lines call for qualified emergency help immediately.

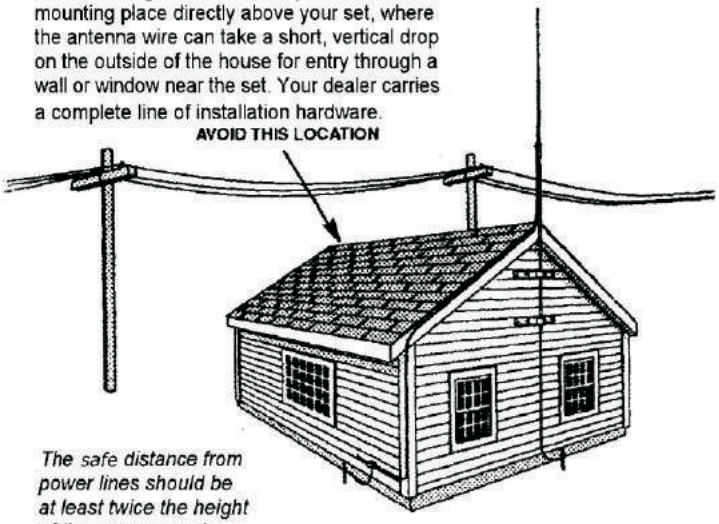
SITE SELECTION

Before attempting to install your antenna, think where you can best place your antenna for **safety** and performance.

To determine a safe distance from wires, power lines and trees:

1. Measure the height of your antenna.
2. Add this length to the length of your tower or mast, and then
3. Double this total for the minimum recommended safe distance.

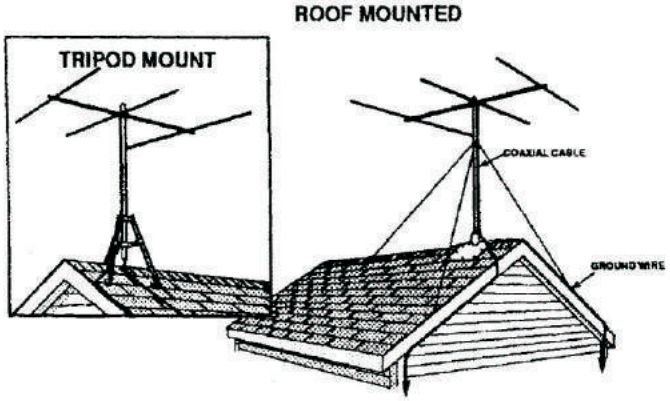
If you are unable to maintain this safe distance, STOP! GET PROFESSIONAL HELP. Many antennas are supported by pipe masts attached to the chimney, roof or side of the house. Generally, the higher the antenna is above the ground, the better it performs. Good practice is to install your antenna about 5 to 10 feet above the roof line and away from power lines and obstructions. Remember that FCC limits your antenna height to 60 feet. If possible, find a mounting place directly above your set, where the antenna wire can take a short, vertical drop on the outside of the house for entry through a wall or window near the set. Your dealer carries a complete line of installation hardware.



The safe distance from power lines should be at least twice the height of the antenna and mast combined.

CHOOSE A PROPER SUPPORT AND MOUNTING METHOD

However you decide to mount and support your antenna always make sure that safety is your first concern. Some of the more common installation methods are illustrated below.



ROOF MOUNTING

The swivel feature of "universal" type mounting brackets makes a convenient antenna mount for flat or peaked roofs. One clamp type bracket is used with 3 or 4 guy wires equally spaced around the mast and anchored to the roof or eaves by eyebolts. Apply roofing compound around the base of the bracket, screws and eyebolts for moisture sealing.

TELESCOPING MAST

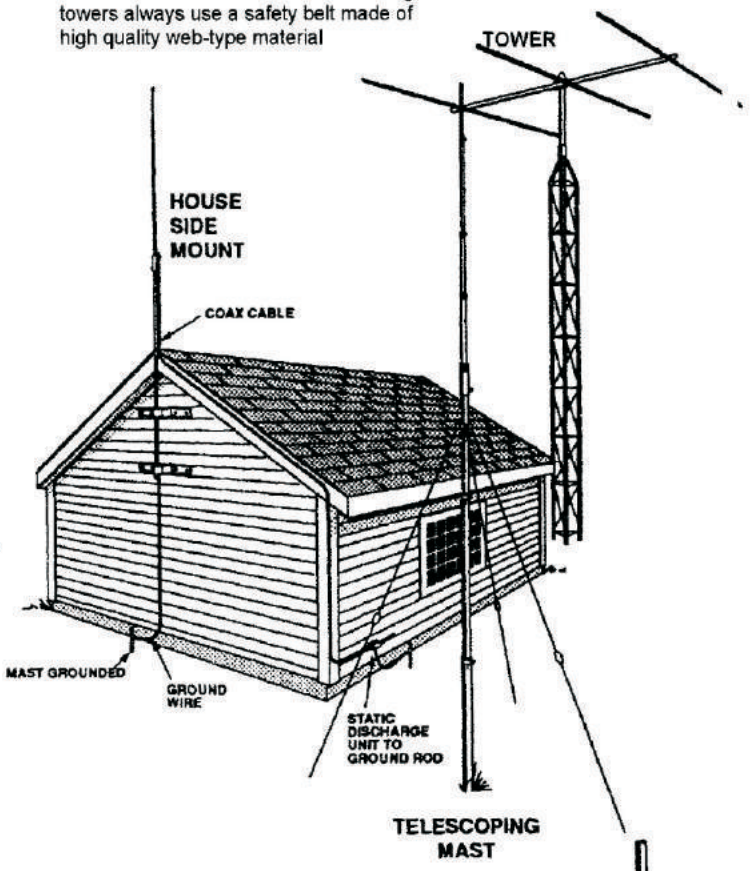
Guy wires should be equally spaced in at least three directions. Use at least three guy wires for each 10 foot section of mast.

SIDE OF HOUSE MOUNTING

The safe distance from power lines is at least twice the height of antenna and mast combined. Where roof overhang is not excessive, the side of the house provides a convenient mounting. Position the brackets over a stud if possible, one above the other, and space two or three feet apart. For metal siding, first mark mounting holes, then drill pilot holes through the siding to accept mounting screws.

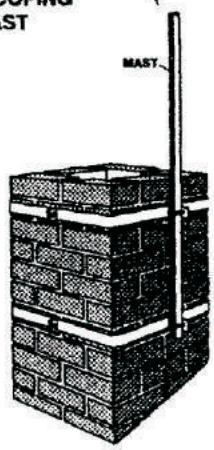
TOWER

Tower safety is paramount to a good installation and requires that you take location, tree growth, soil depth and proximity to buildings into consideration. Tower foundations must be securely based on a solid concrete/tower mounting plate. An alternative is to sink a 4-6 foot section of tower into a concrete base for an extremely rugged mount. Proper guying is essential to a safe weather-resistant installation that must handle severe wind loading and is best accomplished with preformed guy grips, torque brackets and turnbuckles. When working on towers always use a safety belt made of high quality web-type material



CHIMNEY MOUNTING

The chimney is often an easy and convenient mounting place. But the chimney must be strong enough to support the antenna in high winds. Do not use a chimney that has loose bricks or mortar. A good chimney mount makes use of a 5 or 10 foot, 1-114" diameter steel mast, and a heavy duty two strap clamp-type bracket. Install the upper bracket just below the top course of bricks, and the lower bracket two or three feet below the upper bracket. For maximum strength, space the brackets as far apart as possible.



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 unrepaired.

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.