

# MOSLEY Trap Master MODEL TA-33-M

- \* TA-33-M – Two Section Boom
- \* TA-33-MSP – Three Section MIL Boom

## Assembly Instructions

**Version**

**2011.2**

For assistance with assembly contact:  
Mosley Electronics, Inc. Technical Support  
636-583-8595  
[antenna@mosley-electronics.com](mailto:antenna@mosley-electronics.com)  
[www.mosley-electronics.com](http://www.mosley-electronics.com)



**SERIAL #**

*The high performance of your MOSLEY Antenna can only be achieved if the antenna is assembled in accordance with the instructions supplied. Substitution of materials or modification of design will materially lessen this performance.*

# MOSLEY TRAP MASTER MODEL TA-33-M

## Specifications

<b>Frequency, MHz</b>	28, 21, 14	
<b>Power Rating, watts CW</b>	1500	
<b>Power Rating, watts SSB</b>	2500	
<b>Power Rating, AM/FM</b>	600	
<b>Power Rating, RTTY/AMTOR</b>	600	
<b>VSWR at frequency</b>	1.0/1 to 1.4/1	
<b>Forward Gain, dBd 10 meters</b>	8.3	
<b>Forward Gain, dBd 15 meters</b>	7.3	
<b>Forward Gain, dBd 20 meters</b>	6.5	
<b>Front-to-Back Ratio, dB 10 meters</b>	20	
<b>Front-to-Back Ratio, dB 15 meters</b>	20	
<b>Front-to-Back Ratio, dB 20 meters</b>	20	
<b>Boom Length</b>	14 ft	4.27 m
<b>Maximum Element Length</b>	28 ft	8.53 m
<b>Turing Radius</b>	15.5 ft	4.72 m
<b>Mast Size hardware (equipped)</b>	1.5 in	3.81 cm
<b>Assembled weight</b>	37 lbs	16.78 kg
<b>Wind Surface Area</b>	5.7 sq ft	.530 sq m
<b>Wind Load, EIA Standard 80 MPH</b>	114 lbs	51.71 kg
<b>Warranty</b>	2	
<b>Recommended Coax</b>	Belden RG-8 / RG-213	
<b>Options (<a href="#">E-mail</a> for details.)</b>	12, 17, 30, 40 Meters	
<b>Options (<a href="#">E-mail</a> for details.)</b>	Convert to 4 Elements	

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## Warning Notices

### Installation Warning

**WARNING** - INSTALLATION OF THIS PRODUCT CLOSE TO ELECTRICAL POWER LINES IS DANGEROUS AND COULD BE FATAL. FOR YOUR SAFETY AND PROTECTION, BECOME FAMILIAR WITH AND FOLLOW THE INFORMATION BELOW.

Every year many people are permanently injured or killed through careless installation of communication antennas. These accidents can be avoided if proper information is obtained and simple safety precautions are observed. Antennas, such as this, are cumbersome and hard to handle after assembly. Installation of this assembly upon a supporting structure close to a power line could result in electrocution if accidental contact is made with it.

Choose the installation site of the antenna carefully. Determine the overall height of the complete antenna system; include the supporting structure's height (tower, slip-up mast, etc.), rotor (if needed) and the length of the antenna's longest element. The antenna system should be installed a minimum of ten feet over and above the collective height of the system itself, away from any electrical power line. If it is not possible to meet this criterion, it is suggested that professional help be obtained.

Determine the location of the electrical service, which is supplied to your location. Most power lines are installed above the ground from a pole to the house; however, in some cases power lines are buried beneath the ground surface. Solicit the assistance of your electric power company. Request that the electric service be shut off during installation time.

It is suggested that professional help is obtained, however, if non-professional help is used, be sure installation procedure has been determined and known by all parties. Be sure that safety equipment has been provided and is used. If during installation of the antenna system it begins to fall, do not try to prevent it, let it fall. If the assembly comes in contact with a power line, do not touch it, call the electric power company for assistance.

If any part of an antenna system comes in contact with an electrical service (supporting structure, guy lines, antenna, etc.), anyone that touches it will provide an electrical path directly to ground and may be electrocuted. If this happens, call for medical assistance, remove the victim using a non-conductive material (dry board, rope, dry tree limb, etc.), and apply artificial respiration. If a person comes in contact with electrical power

lines, directly or indirectly, and has been electrocuted – do not touch the victim yourself – you too will be electrocuted.

As previously stated, an assembled antenna is cumbersome and hard to handle. Install the antenna system only in good weather and under favorable conditions. Do not attempt to install an antenna during twilight hours, windy conditions or inclement weather such as rain, snow, etc. Unfavorable conditions greatly increase the chance of accidental mishap.

There may be other factors that are unique only to your installation. Using good judgment and common sense may prevent a serious accident, permanent injury or even death.

## Deburring Notice

During the manufacture of this antenna there are many aluminum chips made by drilling and sawing. It is too time consuming and costly to make a one hundred percent removal of those loose chips from the finished product.

We suggest you remove any loose chips from the inside and outside of parts before assembly. Especially check where the U-bolt holes go through a tubular part. Remove aluminum burrs from the inside and outside of all tubing ends with the aid of a file and small pocketknife. The removal of these burrs at the ends will make the telescoping of tubing sections easier.

Trap assemblies have been cleaned one hundred percent on the inside. It is not necessary for you to disassemble these for cleaning or testing. It may be necessary for you to remove burrs from the ends of small tubing extending from both ends of the traps. When doing so, be careful that aluminum chips do not get within the trap assemblies by way of the inside of the small tube at both ends of the trap assemblies.

## Coil/Trap Notice

**Inspect coil/trap assemblies for concealed damage before beginning assembly. Damage can occur through improper handling while in transit.**

### TRAP ASSEMBLIES ONLY

- Slide back the trap seal to expose the terminating wire on each half of the trap assembly.
- Make sure the wire is intact and not damaged.
- Return the trap seal to cover the trap termination screw.

If you find a coil/trap has been damaged, please contact the shipping company and Mosley immediately. Be sure to retain all packaging materials during the claims process.

## Assembly Cautions

Make sure that before attempting to sleeve ANY of the pieces of tubing together you check to see that all tubing pieces are DEBURRED!

In building the antenna we have removed the majority of the burrs, however, due to the number of pieces of tubing, the cost of labor, the time consumption; some pieces may still have a few remaining burrs. Double-check the pieces before trying to put them together!

The tubing Mosley uses is made for us and the telescoping tolerances are very close. If you would try and force a piece of tubing to sleeve, which is not deburred, it will SEIZE. If this would happen you aren't going to get them apart.

This is a beautiful beam; we have put a lot of time and pride into it, take a few minutes and check the pieces. NOTE: PENATROX, (Mosley Anti-Corrosion Compound) should be applied in a light layer/film between coupled sections of tubing to prevent formation of high resistance and seizing of aluminum.

Trap Assemblies are color coded on one end of the trap tubing.



THIS COLOR-CODE MUST ALWAYS GO TOWARD THE BOOM. REVERSAL OF THE TRAPS WILL CAUSE HIGH S.W.R. AND OTHER MALFUNCTIONS.

Mark the color-coded ends of the traps by placing masking tape on the metal trap cover and note the side and color on the trap. This will solve any problems if the color code comes off when sanding or placing the penatrox on the trap tubing.

THE TRAPS CAN PHYSICALLY GO INTO THE 7/8" CONNECTING PIECE EITHER WAY, BUT WILL ONLY WORK PROPERLY WITH THE COLOR CODES TOWARD THE BOOM!

The various pieces of tubing used on the antenna elements are also color coded on one end. This end always goes in toward the boom.

Debur tubing and use the enclosed Mosley Anti-Corrosion Compound.

Mount all elements on TOP SIDE of Boom!

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Do not over tighten fasteners.

Try to avoid using power tools where possible. Drill holes in element sections are precision drilled to allow the fastener to cut into the tube making a better electrical connection. Over tightening will cause stripping of the drill or tapped hole.

Be sure to tighten u-bolt legs equally.

Tightening one leg of a u-bolt before the other will give a false tight.

Follow all safety procedures in assembly and rising of this beam.

When installing the antenna, make sure the tower; all other associated hardware, and components are rated correctly for this antenna!

Avoid power lines and other electrical hazards!

Make sure you and the people helping you use good judgment and follow all safety rules, which would apply.

Before beginning assembly, start by grouping all element sections and traps according to color code.

Review the drawings and READ the instructions before starting assembly.

If you have questions or concerns, please contact us before the final installation of your Mosley antenna system.

## **Parts List**

The high performance of your Mosley TA-33-M can only be achieved if this beam is assembled in accordance with the instructions in this manual. Substitutions of materials or modification of design will greatly lessen its performance. We recommend that you read through the assembly instructions and familiarize yourself with each step before assembling your antenna.

Missing or damaged parts will be replaced or repaired free of charge. Mosley Electronics, Inc. will provide replacement parts for only those items purchased within the last 90 days. If this product has not been purchased within 90 days, we are under no obligation to provide parts or merchandise free of charge.

### **Repair Parts for Your Mosley Antenna System...**

Mosley stocks replacement parts for any antenna we ever produced. Some items may be limited in quantity, but replacements can be fabricated. It is recommended that all

replacement parts be ordered by part number, color coding, description and the form number of the instruction manual used. This will insure that you receive the proper parts. Prices for replacement parts will be given on request. For part availability or a price quote, please send your inquiry to:

Mosley Electronics, Inc.  
636-583-8595  
[antenna@mosley-electronics.com](mailto:antenna@mosley-electronics.com)  
[www.mosley-electronics.com](http://www.mosley-electronics.com)

## Tubing

Part Number	Item #	Description	Qty
TT112-84D	23	Boom section, 1-1/2" x 84", double wall	2
TT114-12	25	Boom splice, 1-1/4" x .058 x 12"	1
TT118-72	17	Element stiffener, 1-1/8" x .058 x 72"	2
TT1-72C	18	Element common, 1" x .058 x 72"	4
TTI-72R	6	Radiator section, 1" x .058 x 72"	2
TT78-54	19	Element section, 7/8 x .058 x 54" BROWN	2
TT78-36	7	Element section, 7/8 x .058 x 36" BLUE	2
TT78-36	19	Element section, 7/8 x .058 x 36" BLACK	2
TT58-33	21	Element section, 5/8" x 33" BROWN	2
TT58-33	9	Element section, 5/8" x 33" BLUE	2
TT58-33	21	Element section, 5/8" x 33" BLACK	2

## Traps

Part Number	Item #	Description	Qty
A-TA1423-BLACK	20	Trap assembly, 14 - 23 coded BLACK	2
A-TA1424-BLUE	8	Trap assembly, 14 - 24 coded BLUE	2
A-TA1525-BROWN	20	Trap assembly, 15 - 25 coded BROWN	2

## Plates and Supports

Part Number	Item #	Description	Qty
A-ES-1001-112	1	Element support, drilled 1-1/2" OD boom	1
A-MP1030	22	Mast plate for 1-1/2" mast mount	1

## Hardware (A-HDWTA33M)

Part Number	Item #	Description	Qty
A-1002	2	Small insulator black, 10-32 tap	4
UB-1018	12	u-bolt, ¼-20 x 1-1/2" s/s	10
CB1037	27	Clamping block, plastic #43	7
EM1038	13	Element mount, aluminum #40	2
PC1016	10	Protective cap, 5/8" OD	6
PCF1035	28	Protective flat cap, 1-1/4" ID	2
PCF1036	26	Protective flat cap, 7/8" ID	2
1034	24	Ground strap, aluminum	1
A-1123		Anti-Corrosion Compound	1
FLWIT1004	4	Lock washer, #10	12
FMS1003	3	Machine screw, 10-32 x 1-1/4"	8
FMS1005	5	Machine screw, 10-32 x 1-3/4"	4
FSMS1017	11	Sheet metal screw, #8 x ½"	19
FHN1020	15	Hex nut, ¼-20	20
FLWIT1019	14	Lock washer, ¼"	20
FSL1021	16	Solder lug	2

## Other Parts (Factory Assembled)

Part Number	Item #	Description	Qty
TS1014		Trap seal, 2"	12
FTCS5071		Trap screw, thread cutting type 'F'	12

## Element Assembly

### Read Directions Carefully!

Begin assembly by grouping all element and coil sections according to color code.

**CAUTION:** Coil Assemblies are color coded on one end only; this color should ALWAYS be nearest the boom. Reversal of traps will cause high SWR and other malfunction of beam.



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Insert Blue color coded end of trap assembly (item 8) into element section (item 7) and secure with screw (item 11).

Insert Blue color coded end of element section (item 9) into end of trap assembly (item 8) and secure with screw (item 11).

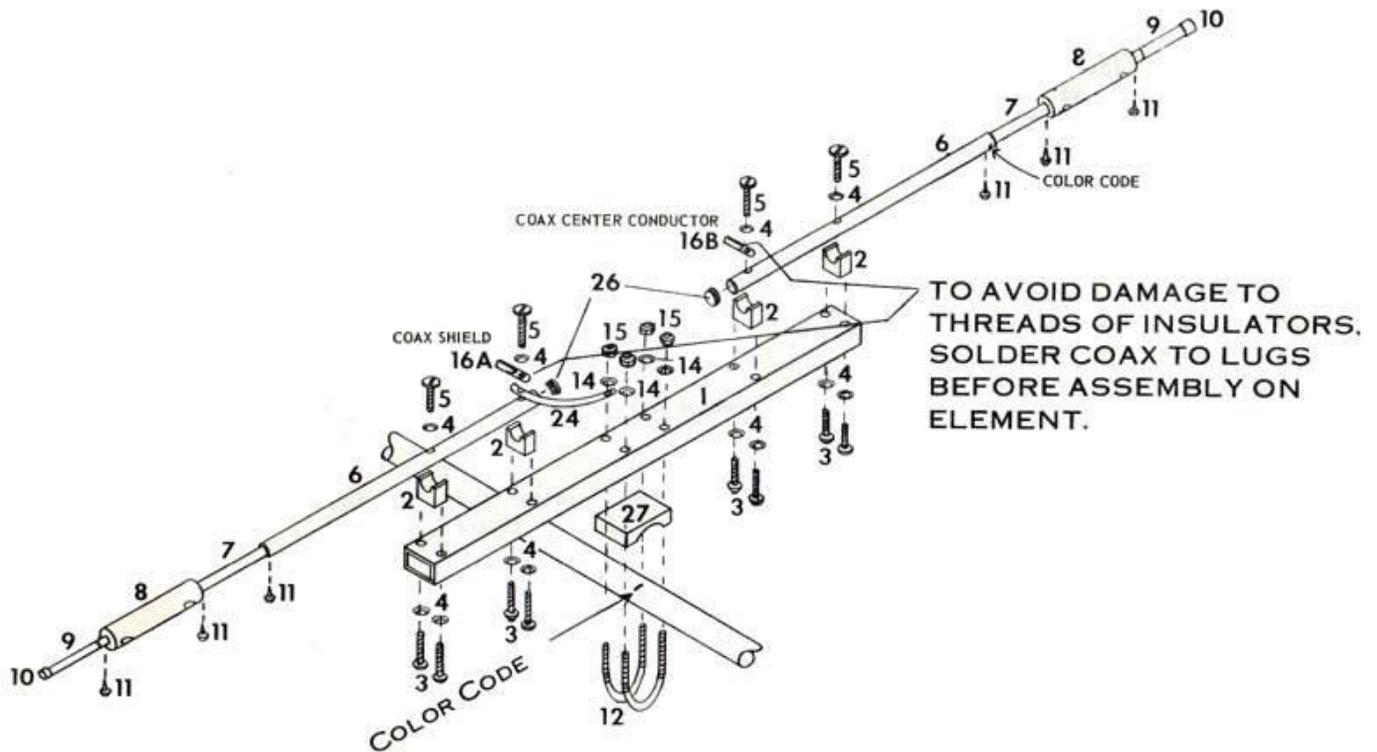
Place caplug (item 10) over outer ends of element sections (item 9) and press flat cap (item 26) into inboard ends of radiator elements (item 6).

### Attaching Radiator to Boom

Loosely install two u-bolts (item 12) to element support (item 1) with lock washers and nuts (items 14 and 15). At this time attach ground strap (item 24) to one of the u-bolts.

Place support (item 1) directly over Blue color code on boom (item 23).

Install clamping block (item 27) between element support (item 1) and boom (item 23). Secure with nuts and lock washers (items 14 and 15). **NOTE:** Element is mounted on TOP of the boom.



## Assembly of Parasitic Elements (Director - BLACK & Reflector - BROWN)

### Director Assembly – Color Coded BLACK

Element sections (items 17 & 18) are joined together at the center by the u-bolt (item 12).

Match black color coded end of element section (item 18) with corresponding color of element section (item 17) insert and secure loosely with u-bolt (item 12).

Apply the Mosley Anti-Corrosion Compound on the overlapping pieces as you assemble.

Match black color coded end of element section (item 19) with corresponding color of element section (item 18) according to frequency chart.

Insert and secure with screw (item 11).

Insert Black color coded end of trap assembly (item 20) into element section (item 19), secure with screw (item 11). **Make certain breather holes in trap assemblies face down.**

Insert Black color coded element section (item 21) into end of trap assembly (item 20) and secure with screw (item 11).

Place caplugs (item 10) over outer ends of element sections (item 21).

### Attaching Director to Boom

Note that the radius of grooves on clamping block (item 13) conforms with radius of boom (item 23) and element (item 17).

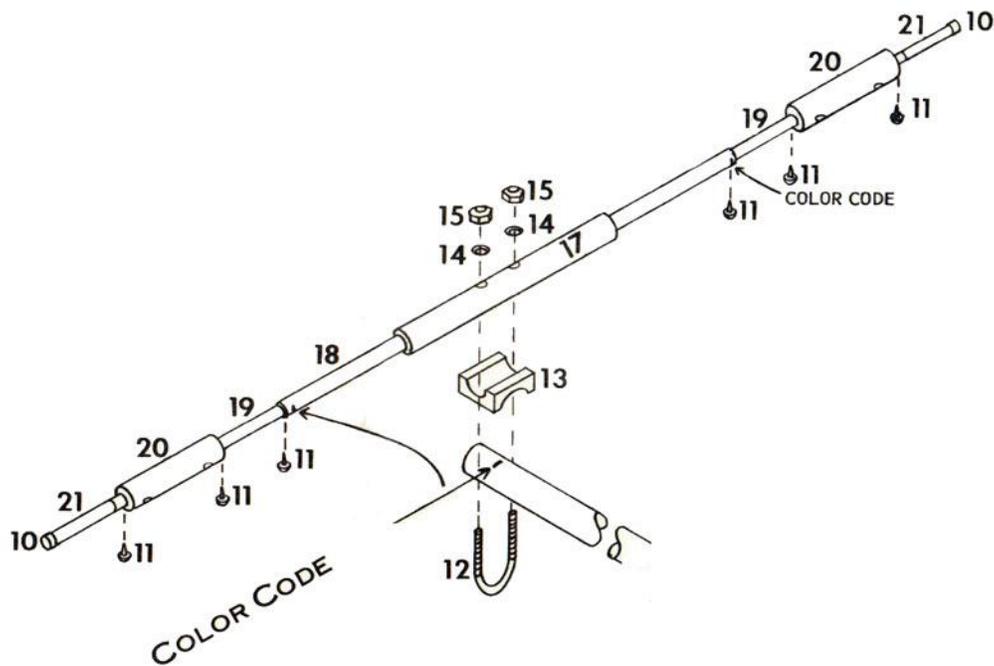
Insert clamping block (item 13) between u-Bolt (item 12) and element section (item 17).

Place assembled Director Element with clamping block (item 13) on boom.

Align U-Bolt with color code on boom and secure.

**NOTE:** Element is mounted on TOP of the boom.

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## Reflector Assembly – Color Coded BROWN

To assemble Reflector, follow same instructions as in the Director Assembly, substituting Brown for Black color code.

## Attaching Reflector to Boom

To attach Reflector Element to boom, follow same instructions as in the Director Assembly, substituting Brown for Black color code.

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Mosley Electronics, Inc. Technical Support  
636-583-8595  
[antenna@mosley-electronics.com](mailto:antenna@mosley-electronics.com)  
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## Boom Assembly

### Note

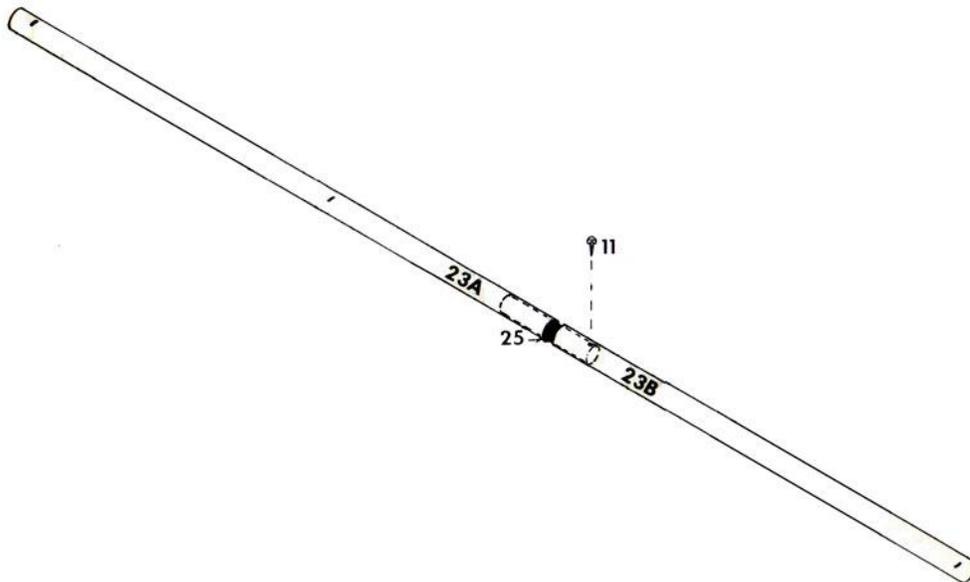
Elements are mounted on TOP of the boom.

All element assemblies must be on the same plane for proper performance.

### Standard 2 Section Boom Assembly

Insert boom splice (item 25) into boom section with drill hole (item 23), align screw holes and secure with screw (item 11).

Join both sections of boom assemblies (item 23) together by fitting over boom splice (item 25).



Press flat cap (item 28) into inboard ends of boom sections (item 23).

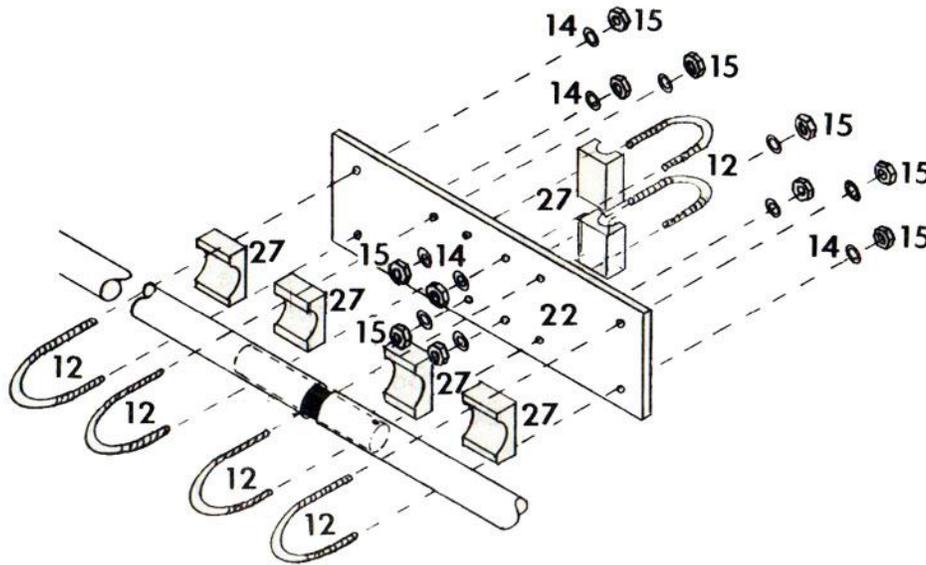
## Mast Plate Assembly

Place two u-bolts (item 12) around section of boom assembly (item 23A) around clamping blocks (item 27) and into holes in mast plate (item 22).

Be certain mast plate is at right angle to elements. Secure with nuts and lock washers (items 14 and 15).

Place two u-bolts (item 12) around section of boom assembly (item 23B), around clamping blocks (item 27), into mast plate (item 22) and secure with lock washers and nuts (items 14 and 15).

The two remaining clamping blocks and hardware are for attaching beam to your mast.

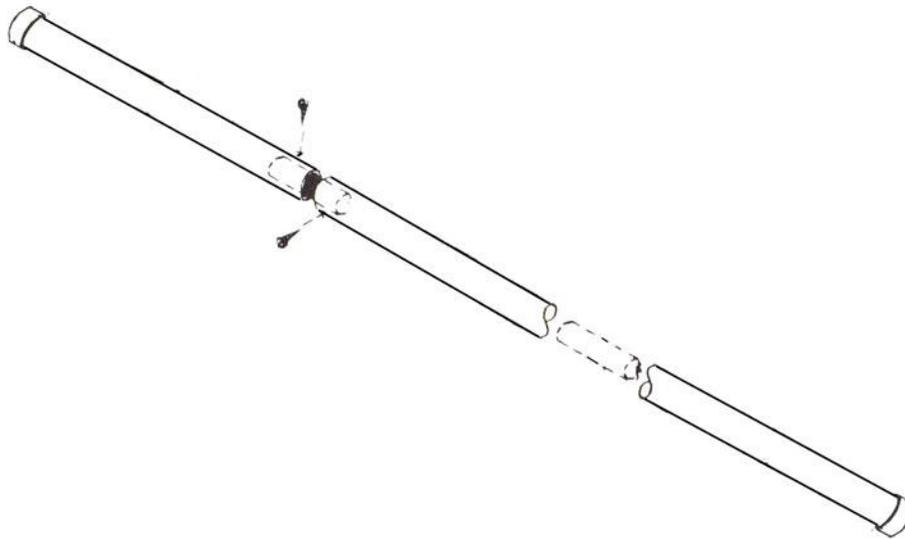


## Optional 2" OD Mast Mounting Hardware

Part Number	Item #	Description	Qty
A-MP1030-2		Mast plate, A-MP1030, drilled for 2" mast	1
A-UB-1187		u-bolt, 5/16-18 x 2" s/s	2
FHN1189		Hex nut, 5/16-18	2
FLWIT1188		Lock washer, 5/16"	2
CB1191		Clamping block, aluminum #47	2

## Optional 3 Section Boom Assembly – TA-33-MSP

Part Number	Item #	Description	Qty
TT112-84D		Boom section, 1-1/2" x 60", double wall	2
TT114-12		Boom section, 1-1/2" x 48", double wall	1
TT114-18		Boom splice, 1-1/4" x .058 x 18"	2
FB1218		Hex bolt, 1/4-20 x 1-3/4"	8
FHN1020		Hex nut, 1/4-20	8
FLWIT1019		Lock washer, 1/4"	8



Addendum for 3 section boom, TA-33-MSP.

Insert a matching section of boom with matching numbered splice.

Example: 1 1 1

When properly aligned the boom joint holes will line up.

Secure with bolt, nut, and lockwasher.

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[www.mosley-electronics.com](http://www.mosley-electronics.com)

## Attaching Coax

### Preparing Coax

To attach 1021 solder lug (item 16) to coax, strip back the braid only **2-1/2" to 3"** and make a twisted lead out of the braided wire side.

Solder the 1021 solder lug (item 16) 1/4" down from the end of this braided leg.

Trim back the insulation of the center of the coax a 1/4" and solder the 1021 lug (item 16).

Tape the "Y" between the 2 leads with a good 3M All Weather type tape and also tape up each leg to the 1021 solder lug (item 16). If this is done correctly, with a good tape, nothing else is needed to seal the coax.

The above step needs to be done so it can be ready when attaching to the radiator.

### Using an RF Choke

A lot of Amateurs confuse a Balun and a Choke. They are not the same.

If you are experiencing some RF down your feed line or if you want to insure you will not have RF down your feed line then a simple RF Choke made with your coax will work well.

This choke can be made by coiling 5 turns of your feed line in a 6" INSIDE diameter right at the connection of the feed line to the RADIATOR.

This coil is just a loop of your feed line rolled up like a rope or a garden hose in the size mentioned. This coil is then taped within 6 to 8 inches after the connection point to the radiator at the boom.

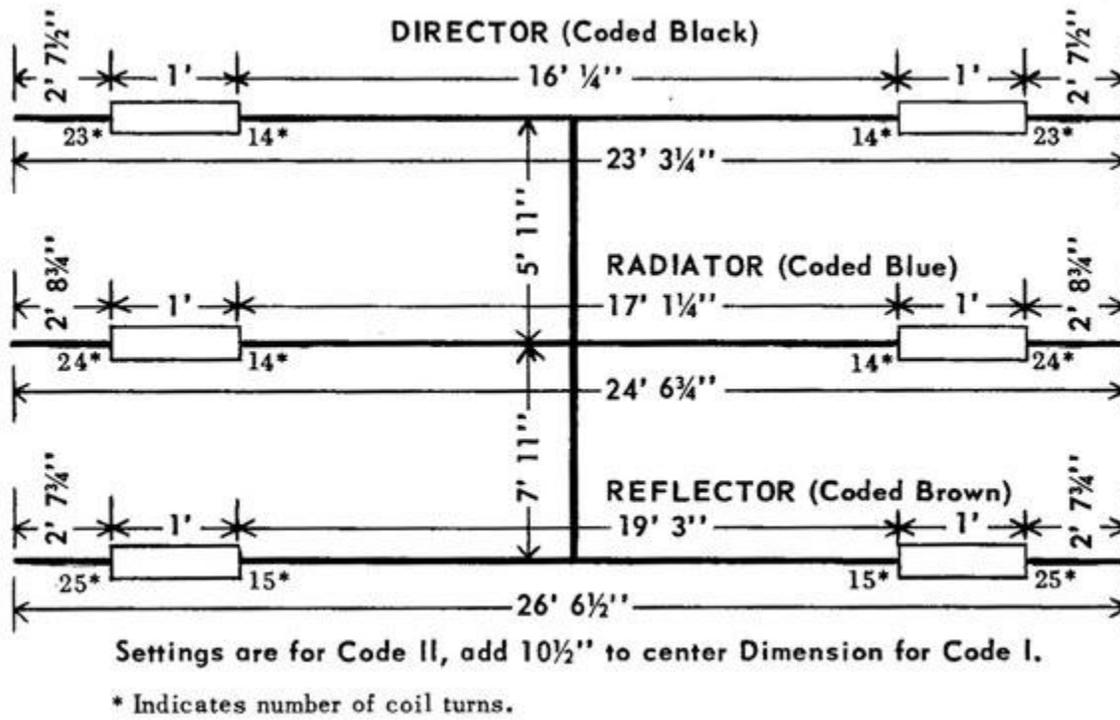
If your beam has 30 or 40 meters on it, then the choke would be 10 turns with a 10" INSIDE diameter.

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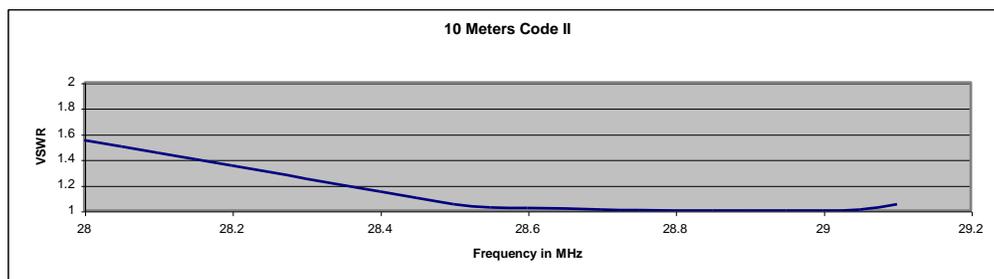
## Final Check

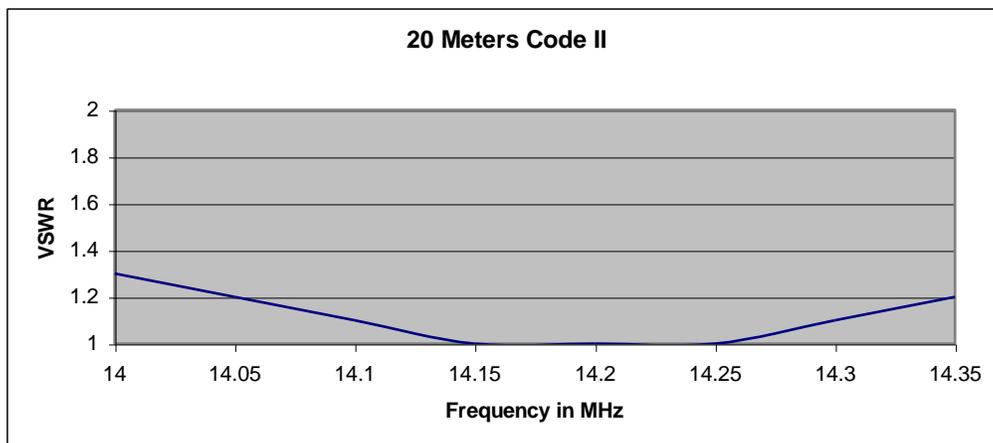
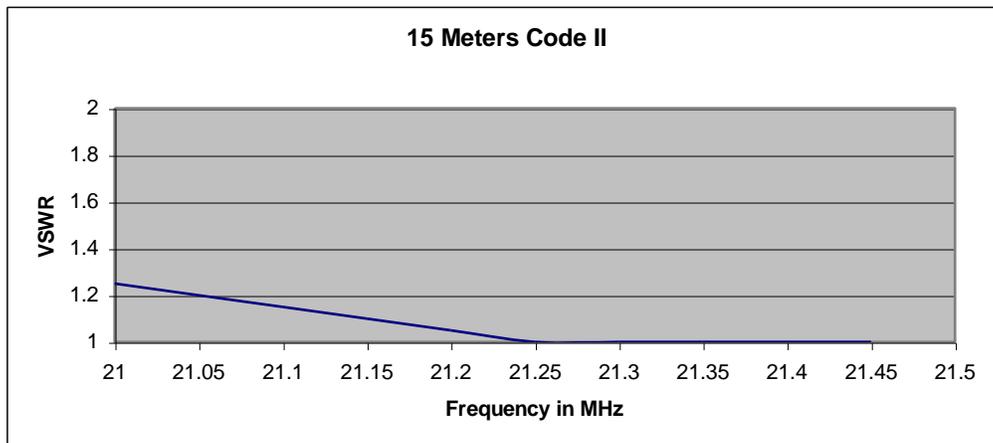
Assembly is complete. Check all elements and connections one last time.

## Antenna Layout



## SWR Curves





## Suggestions

### Checking Antenna Before Final Installation

If you wish to check antenna on the ground it needs to be at least 10 to 12 feet, off the ground in a horizontal position.

Do not put reflector on ground or use other methods of checking.

A 10 to 12 foot wooden stepladder is a good structure to do a sample check.

Due to the high "Q" of the antenna it will couple with ground, artificial or real.

This type of check will allow you to see that the antenna is trying to dip and does possess a SWR curve. However, due to its nearness to ground this curve might be shifted lower infrequency and not totally bottom out to 1:1. This is normal.

A problem would be indicated if all bands are showing in excess of 2:1 with no dip of any kind.

## **Watch Out for Artificial Ground**

Artificial ground is presented to an antenna through various means. Guy wires up under the antenna, rooftop, and other resonant antennas near by are the most common.

The antenna should be at least, a 1/4 wave length from any artificial ground at the lowest operating frequency of the antenna. Remember this is a minimum.

To break up guy wires use an insulator every 4' for the first 16' or non-metallic guys. This will give a non-resonant length under the antenna and help its performance.

A sign of artificial ground will be a shift lower in frequency of the SWR curves and possibly a dip that doesn't reach 1:1 at its lowest point.

Also, the SWR will rise at a faster rate when tuning to the higher portions of the band.

If you need any assistance with this type of a problem, please give us a call and we will be glad to discuss your installation with you.

## **Use of a Balun or Not**

We do not require the use of a balun. It is not needed.

## **Stacking**

We recommend an 8 to 12 foot separation between the Mosley and any other beam on the same mast.

## Product Support

### Technical Support

If you have questions about this product, or if you experience difficulties during the installation, please contact Mosley at 636-583-8595. You can also e-mail us at: [antenna@mosley-electronics.com](mailto:antenna@mosley-electronics.com) For best service, please take a few minutes to review this manual before you call.

### Warranty

The manufacturer warrants this antenna to be free from defects in material and workmanship. Any damage occurring through normal use of the antenna and due to defective material or workmanship will be repaired or the damage \*part replaced free of charge for a period of two years from the date of purchase.

\*Pack carefully and return postpaid to:

Mosley Electronics, Inc.  
1325 Style Master Drive  
Union, MO 63084

THIS GURANTEE APPLIES ONLY TO THE ORIGINAL OWNER REGISTERED ON FILE. ANY MERCHANDISE THAT HAS BEEN REPAIRED BY AN UNAUTHORIZED PARTY, TAMPERED WITH OR ABUSED IS NOT COVERED BY THIS GURANTEE.

To validate guarantee, please fill out warranty card provided and return or register your warranty online at:

[www.mosley-electronics.com](http://www.mosley-electronics.com)

GUARANTEE VOID UNLESS REGISTRATION IS RETURNED OR FILED IMMEDIATELY  
UPON RECEIPT OF THIS ANTENNA

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[www.mosley-electronics.com](http://www.mosley-electronics.com)

## Receipt of Shipment

Before beginning assembly, we recommend thoroughly inspecting contents and taking inventory of all materials. This shipment left our dock in perfect condition. Upon arrival, please inspect for damage and incorrect quantity. Notify carrier immediately if discrepancies were not recorded upon delivery.

ANY DAMAGE TO CONTENTS SHOULD BE NOTED WITH THE CARRIER BEFORE CONTACTING MOSLEY. KEEP ALL BOXES AND PACKING MATERIALS UNTIL THE CLAIM PROCESS HAS BEEN COMPLETED.



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