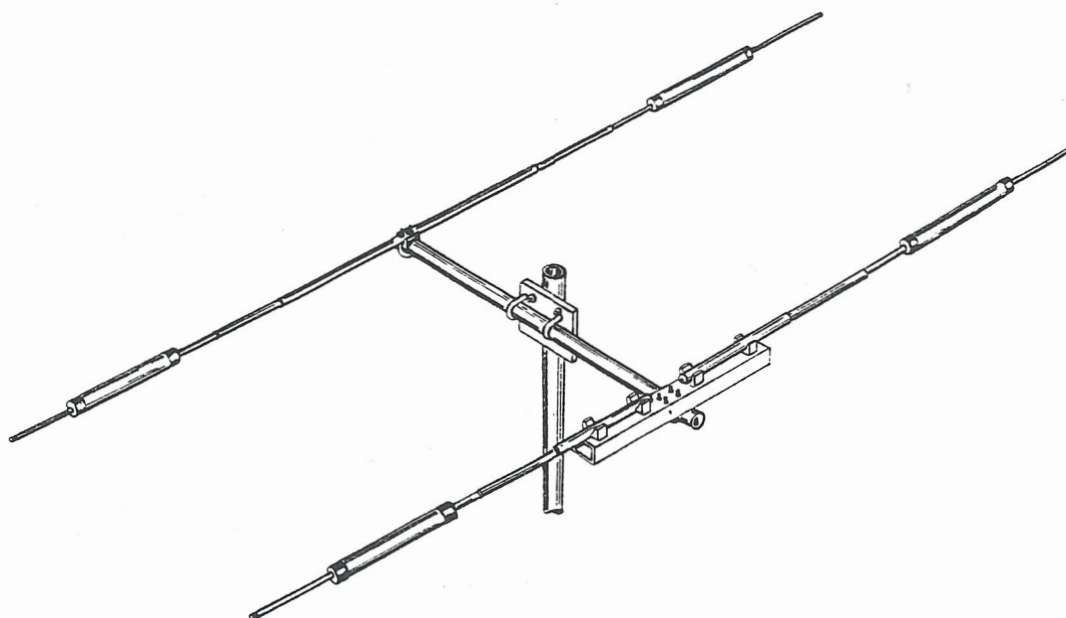


ASSEMBLY INSTRUCTIONS
FOR
MOSLEY TWO ELEMENT
TRI-BAND BEAM ANTENNA
TRAP MASTER MODEL TA-32M



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.

PARTS LIST		
Part	Quan.	Description
1	1	Element Support
2	4	Insulators
3	8	10-32 x 1 1/4" long Screws
4	12	No. 10 Lock washers (internal)
5	4	10-32 x 1 1/4" long Screws
6	2	1" OD Element (coded Blue)
7	2	7/8" OD Elements (coded Blue)
8	2	Trap Assemblies (coded Blue)
9	2	5/8" OD Elements (coded Blue)
10	4	5/8" ID Element CaPlugs
11	12	No. 7 Sheet Metal Screws
12	7	U-Bolts
13	6	Clamping Blocks, 1 No. 40 and 5 No. 43
14	14	1/4" Lock washers
15	14	1/4-20 Nuts
16	2	Solder Lugs
17	1	1-1/8" OD Element (Brown)
18	2	1" OD Element (coded Brown)
19	2	7/8" OD Elements (coded Brown)
20	2	Trap Assemblies (coded Brown)
21	2	5/8" OD Elements (coded Brown)
22	1	Mast Plate
23	1	Boom
24	1	Grounding Strap
25	2	1" CaPlugs
26	2	1 1/2" CaPlugs

ASSEMBLY

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.

Read Directions Carefully!

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

For proper matching, use 52 ohm coax, RG-8/U is recommended.

RADIATOR ASSEMBLY - Color coded BLUE

Loosely install Insulators (part 2) to Element Support (part 1) with Screws (part 3) and Lock washers (part 4). Place Element Section (part 6) into "V" of Insulator (part 2) so that screw hole on Blue color coded end of Element (part 6) is facing DOWN. This is important to assure proper position of Trap Assemblies that are provided with breather holes and should face DOWN. Place Screws (part 5) through Washers (part 4) and secure to

outermost Insulators (part 2). Place Screw (part 5) through Lock washer (part 4), Solder Lug (part 16A), Ground Strap (part 24), Element (part 6) and secure to Insulator (part 2). Insert Screw (part 5) through Lock washer (part 4), Solder Lug (part 16B), Element (part 6) and secure all insulators.

Insert Blue color coded end of Element Section (part 7) into corresponding color coded end of Element Section (part 6). Align holes according to Frequency Chart and secure with Screws (part 11). Insert Blue color coded end of Trap Assembly (part 8) into Element Section (part 7) and secure with Screw (part 11). Insert Blue color coded end of Element Section (part 9) into end of Trap Assembly (part 8) and secure with Screw (part 11). Place Element CaPlug (part 10) over outer end of Element Sections (part 9). Press CaPlug (part 25) into inner ends of Element Section (part 6). See drawing for instructions.

ATTACHING RADIATOR TO BOOM:

Loosely install two U-Bolts (part 12) to Element Support (part 1) with Lock washers (part 14) and Nuts (part 15). At this time attach Ground Strap (part 24) to one of the U-Bolts. Place Radiator Support (part 1) directly over Blue color code on Boom (part 23). Install Clamping Block (part 13) between Element Support (part 1) and Boom (part 23). Secure with Nuts and Lock washers.

REFLECTOR ASSEMBLY - Color coded BROWN

Element Sections (parts 18) are to be assembled into Element Section (part 17) so that holes line up for assembly of U-Bolt. Without removing U-Bolt match Brown color coded end of Element Section (part 19) with corresponding color of Element Section (part 18) according to Frequency Chart. Insert and secure with Screw (part 11). Insert Brown color coded end of Trap Assembly (part 20) into Element Section (part 19), secure with Screw (part 11). Make certain breather holes in Trap Assemblies face down. Insert Brown color coded Element Section (part 21) into end of Trap Assembly (part 20) and secure with Screw (part 11). Place Caplugs (part 10) over outer ends of Element Sections (part 21).

ATTACHING REFLECTOR TO BOOM:

Note that radius of grooves on Clamping Block (part 13A) conforms with radius of Boom (part 23) and Element (part 17). Place Element Clamping Block between U-Bolt (part 12) of Reflector Element and against Element (part 17). Place U-Bolt over Boom (part 23) and center on top of Brown color code. Secure with Lock washers (part 14) and Nuts (part 15).

BOOM TO MAST PLATE:

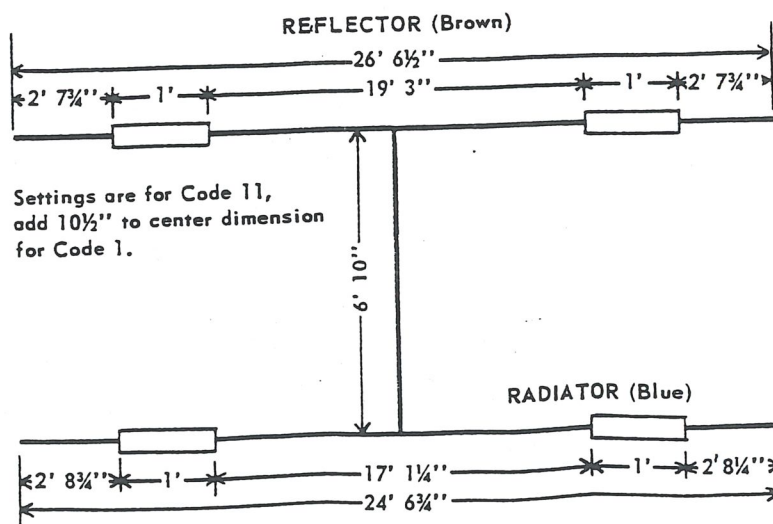
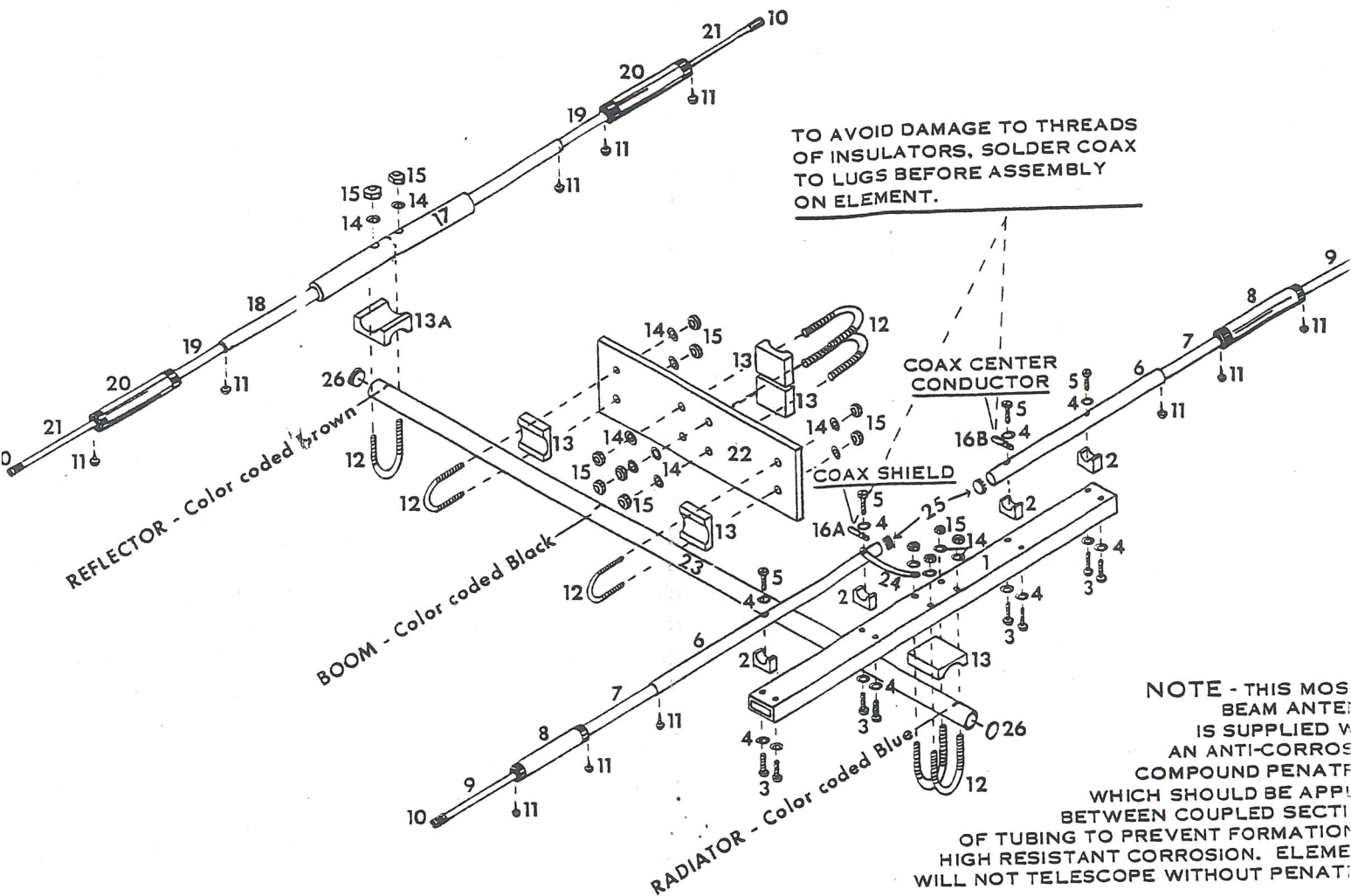
The Black mark on Boom is to indicate center of the Mast Plate (part 22). Secure Mast Plate by means of U-Bolts (part 12), U-Bolt Element Clamping Blocks (part 13), Lock washers (part 14) and Nuts (part 15) in the same manner as on the Elements. The remaining U-Bolts and hardware are to be used to clamp your mast section to the Mast Plate. Press CaPlug (part 26) into ends of Boom.

For 2" OD masts Mosley Electronics manufactures Model AK-60 Mast Adapter Kit. This kit includes an aluminum angle, hardware and complete instructions.

FREQUENCY CHART				
ELEMENT	COLOR	BAND	CODE 1*	11**
Radiator	Blue	10M	28.1	28.8
Reflector	Brown	15M	21.050	21.3
		20M	14.050	14.275
* Best for CW ** Best for Phone				

NOTE: To order replacement parts from instruction sheet, refer to Form No. and Part No.

M·E·I — MOSLEY ELECTRONICS, INCORPORATED



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.

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.

Printed in U.S.A.

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.

Mosley Electronics Inc.

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 damaged part replaced free of charge for a period of two years from date of purchase.

**Pack carefully and return postpaid to Mosley Electronics, Inc.*



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

To validate guarantee, detach stub, fill out card below and return.

PLEASE PRINT OR TYPE

Your name:

Call letters: Tel:

Address:

City: State: Zip:

Antenna Model No. [redacted] TA-32-m

Date purchased:

Dealer name:

Dealer address:

GUARANTEE VOID UNLESS THIS REGISTRATION CARD IS RETURNED IMMEDIATELY

Keep this section for your record.

Antenna Model No.

Date of purchase

Dealer from whom purchased

Mosley Electronics, Inc. - 1325 Style Master Drive • Union, Missouri 63084

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Repair and Restore Your Mosley Beam

Refurbish one of these popular Yagi antennas.

Dick Sander, K5QY

Mosley beam traps and tuning are stable and consistent, making them very repairable. I've owned several Mosley Classic 33 and PRO 57B Yagis, and I've even converted an obsolete PRO 77 into a Classic 36. Once you understand their construction, you can easily test and repair them.

Mosley has been great with support and installation instructions. All Mosley parts can be purchased, but most traps can be repaired for minimal cost, making them an inexpensive beam antenna for ARRL Field Day or for your home. Mosley uses two resonant LC traps inside a 2-inch diameter by 12-inch-long tube. The capacitance between the coils and the tubing forms the C in the resonant LC trap. Figure 1 shows a cutaway view of the 12-inch tube containing a 10 meter and a 15 meter trap.

Checking, Measuring, and Repairing Traps

Traps for each frequency consist of a different number of turns, as listed in the assembly manual. You can check traps without disassembling them. First, use an ohmmeter to check continuity (near zero resistance) between the 2-inch tube and its adjacent element. Then use an LC meter (I use the L/C Meter IIB, connected as shown in Figure 2) to accurately measure the trap inductance. Label each trap with its number of turns and inductance. Table 1 lists the various inductances versus number of turns for the traps.

Remove the black weather caps, then remove the flathead screws that retain the



Figure 1 — Cutaway view shows a two-coil trap. The coils and tube capacitance form a resonant circuit, and the 2-inch outer tube is part of an element (usually for 15 meters).



coil. On stuck traps, I apply WD-40® to each end, and spray some into the drain holes, then wiggle the trap vigorously to remove it. Check each side to see which one removes more easily. After removing one of the traps, use a 1¼-inch O.D. piece of PVC tubing to drive out the stuck spool (see Figure 3). Use contact cleaner to remove the oil and dirt.

After a broken trap (see Figure 4) is removed and cleaned, place the end with the screws (or pop rivets) into a bench vice. I used instant-bond glue to repair broken spools, then used PVC tubing to hammer the spool together. Visually inspect the repaired trap for shorts between windings.

You can rewind a bad coil on an otherwise good spool (see Figure 5). You can also change from one Mosley model to another



Figure 2 — Connect an LC meter as shown to measure the trap inductance.

Table 1
Inductances of the Traps

Number of turns	Left trap, μH	Right trap, μH
14	1.51	1.53
15	1.62	1.66
16½	1.76	1.74
23	2.51	2.50
25	2.78	2.76
26	2.90	2.94



Figure 3 — Drive out a stuck trap by using PVC tubing (left) as a driver. Two black end caps can be seen above the trap.

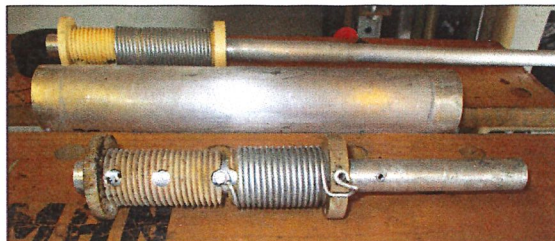


Figure 4 — A broken spool (foreground).



Figure 5 — A coil spool with new windings.

by rewinding traps to match the new model. When I converted an older PRO 77 to a Classic 36, I did it by rewinding two traps.

I had difficulty keeping the turns from touching when using #12 AWG solid copper wire, so I substituted #14 AWG wire, with good results. Older traps used a slot head screw to secure the coil, newer spools use a pop rivet. Drill out the pop rivet and replace it with a #6 metal screw. Wrap two turns of Teflon® tape to protect the coil from shorting between the turns and the screw.

I use all-new stainless steel hardware where old hardware is missing or damaged. Completely disassemble all of the tubing and use a fine sanding block to polish every element and component. Consult the as-

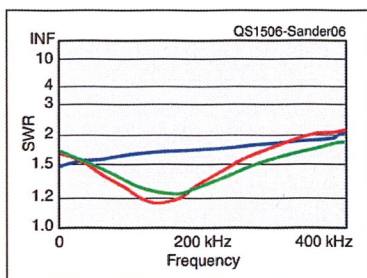


Figure 6 — VSWR measurement of the Yagi. Frequency is relative to the lower band edge of the 20 meter (red), 15 meter (green), and 10 meter (blue) bands.

sembly manual for proper dimensions, then reinstall the boom and elements. Double-check the traps and ensure that they are installed on the correct elements.

Results

The lead photo shows the Classic 36 that I converted from a discarded PRO 77 antenna. I hung it from a ladder to find the best balancing point. The Classic series incorporates a capacitive feed system that uses 87-inch-long #14 AWG wire in each leg of the driven element. I use the center conductor from RG-213 coax. The manual shows you how to tune your refurbished

antenna. After reassembly, I tested the performance with a nearby ham and front-to-back was typically 2 S-units. Figure 6 shows the VSWR for each band.

It's a lot of work to repair or convert a beam. It's my hope that details in this article give you the confidence to take on a major restoration project.

All photos by the author.

ARRL life member Dick Sander, K5QY, was first licensed in 1958. He holds an AAS degree in Industrial Electronics and a BA degree in Business. Dick retired from Rockwell/Alcatel Telecom after 25 years as a senior technical writer. He is listed on the DXCC #1 Honor Roll and earned 7B-DXCC and WAS while mobile. Dick is also an ARRL DXCC card checker. He models, designs, and builds antennas from 160 meter phased verticals to 440 MHz Yagis. You can reach him at 110 Starlite Drive, Murphy, TX 75094 and k5qy1@verizon.net or visit his website at www.k5qy.net.

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New Products

Adventure Tuner Kit from SOTabeams

The Adventure Tuner kit from SOTabeams is designed to be an easy-to-build bi-directional L network giving a wide range of matching options from 3.5 to 30 MHz. Power rating is 20 W maximum, 10 W continuous. The kit includes a laser cut and engraved front panel. Full instructions and photographs are available for download. A built and tested version is also available. Price: kit, about \$51; assembled, about \$83 (without tax for US/Canada). For more information and ordering details, visit www.sotabeams.co.uk.

