

Introduction

- ❖ This document describes assembly of the WRTC2014 TX38 tribander. The antenna was color-coded and partially assembled by the manufacturer for quick assembly at the WRTC sites, so the assembly procedure differs from that described in the TX38 manual.
- ❖ You will need these items:
 - ❖ Two sawhorses (optionally work on the ground)
 - ❖ Tarp (optionally prepare to search on the ground for dropped hardware)
 - ❖ Hex wrenches: 5/32" 9/64" 7/64"
 - ❖ Nut drivers: 7/16" 11/32" 5/16"

Packaging

The TX38 is packaged as two components, a bundle of three boom sections and a cardboard shipping tube containing elements and a bag of hardware and other parts.

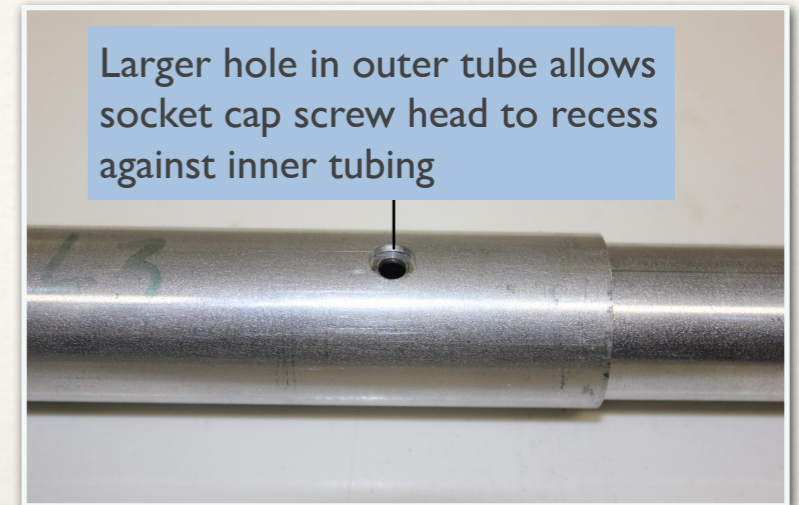


Assembly Steps

- ❖ Unpack the shipping tube and identify hardware
- ❖ Assemble boom
- ❖ Mount driver element center sections
- ❖ Mount parasitic element center sections
- ❖ Add element tips
- ❖ Check assembly
- ❖ Test SWRs

Things You Need To Know

- ❖ The tribander is partially assembled. Do *not* undo hardware that is painted red. Do *not* remove the element mounting plates from the boom.
- ❖ Element joints and boom joints are color coded.
- ❖ Element-to-boom plates are color coded with the color of the corresponding element.
- ❖ Element sections are joined with a socket head screw. The joints are pre-drilled with a small hole on one side and a larger hole on the other side of the outer tube. *The head of the socket head screw must nest inside the larger hole in order to make a reliable electrical connection.*

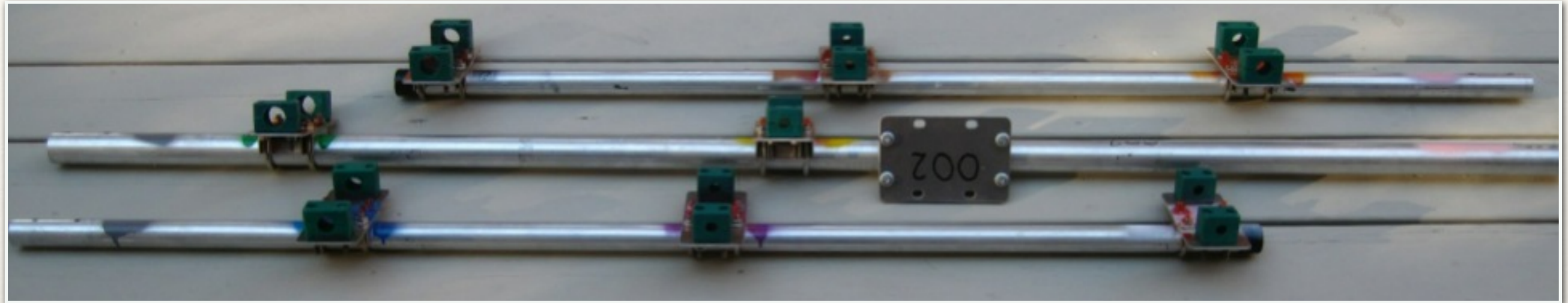


Unpack Shipping Tube

- ❖ The shipping tube contains:
 - ❖ Eight element tubing bundles.
 - ❖ Large bag of components:
 - ❖ Feed point choke
 - ❖ 2 phasing lines
 - ❖ Small bag of hardware:
 - ❖ 2 boom to mast muffler clamps
 - ❖ Three sizes of screws and lock nuts:
 - ❖ 4 large $\frac{1}{4}$ -20 x 2" for boom joints
 - ❖ 4 medium 8-32 x 1- $\frac{1}{4}$ " socket head screws for 20m mid-element sections
 - ❖ 16 small 6-32 x $\frac{3}{4}$ " socket head screws for element tips
- ❖ Lay a tarp under the assembly area to capture dropped hardware.



Assemble Boom

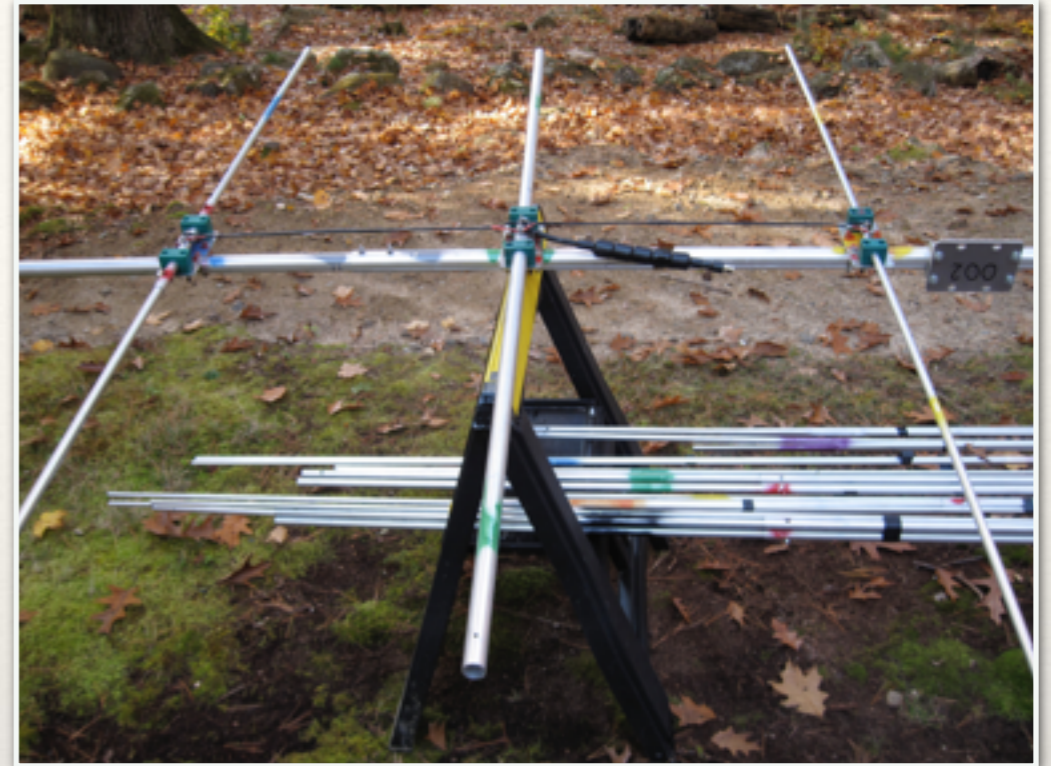


- ❖ The element-to-boom plates are on top of the boom during assembly, and below the boom when mounted on the mast.
- ❖ Join the three boom sections at the PINK and GRAY joints using the large $\frac{1}{4}$ -20 screws and lock nuts. Tools: $\frac{5}{32}$ " hex screwdriver, $\frac{7}{16}$ " nut driver (brown).



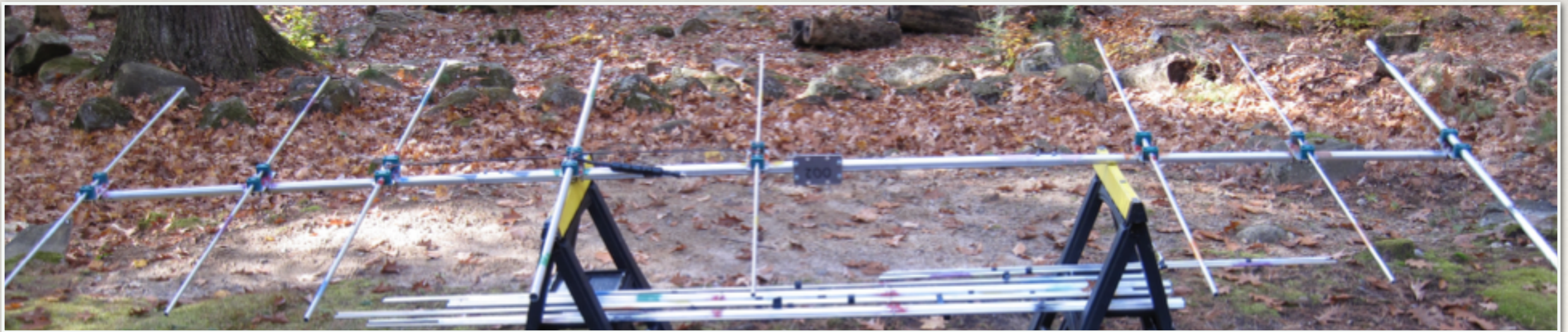
Mount Driver Center Sections

- ❖ To mount a pre-assembled driver element center section:
 - ❖ Remove green blocks from plate.
 - ❖ Place the blocks around the center of the section, centering insulated splice section between the blocks.
 - ❖ Reattach the blocks to the plate.
 - ❖ Do one element at a time to avoid mixing up the blocks; they are not interchangeable.
 - ❖ Tools: 5/32" hex screwdriver, 7/16" nut driver (brown).
- ❖ Mount the YELLOW element center (10m driver).
- ❖ Mount the GREEN element center (20m driver).
- ❖ Mount the BLUE element center (15m driver).
- ❖ Attach the choke to the GREEN element feed point with the coax connector towards the YELLOW element. Tape the choke to the boom. Tools: 11/32" nut driver (green).
- ❖ Attach the phasing lines between the YELLOW and GREEN elements and between the GREEN and BLUE elements. All phasing line red terminals must be on the same side of the boom.



Mount Parasitic Center Sections

- ❖ Parasitic element center sections can be slid into loosened green mounting blocks. The sections have reference marks to be centered between the blocks. Orient the sections so that the larger of the holes at the ends faces downward. Tools: 5/32" hex screwdriver, 7/16" nut driver (brown).
- ❖ Mount the BLACK element center (20m reflector).
- ❖ Mount the BROWN element center (10m reflector).
- ❖ Mount the ORANGE element center (15m reflector).
- ❖ Mount the VIOLET element center (10m first director).
- ❖ Mount the WHITE element center (10m second director).



Add Element Tips

- ❖ Add 2 BLACK (20m reflector) mid-element sections:
 - ❖ Nest the section ends with two small holes into the center section.
 - ❖ Orient the mid-element sections so that the larger holes at the outer ends face downward.
 - ❖ Secure with medium 8–32 x 1–1/4" socket head screws, nesting the heads of the socket head screws inside the larger holes of the center sections.
 - ❖ Tools: 9/64" hex screwdriver, 11/32" nut driver (green).
- ❖ Repeat the steps above for the 2 GREEN (20m driver) mid-element sections.
- ❖ Add 16 element tips to each of the eight elements:
 - ❖ Use color codes to associate tips with elements.
 - ❖ Secure with small 6–32 x 3/4" socket head screws, nesting the heads of the socket head screws inside the larger holes at the ends of the inner element sections.

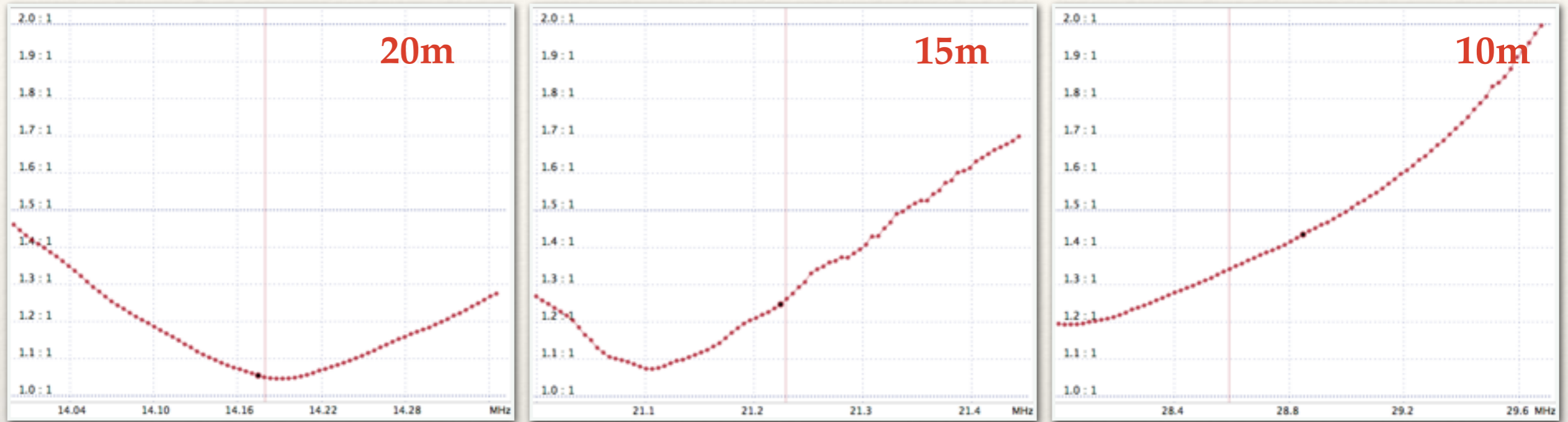
Check Assembly

- ❖ Confirm that element joint socket head screws are installed correctly.
- ❖ Inspect for loose hardware.
- ❖ Measure tip-to-tip lengths. Dimensions may vary from table by $\pm 1/2$ ".

Tip to Tip Dimensions

Element Number	Color Code	Element	Length
1	Black	20m Reflector	36' 7.0"
2	Brown	10m Reflector	17' 6.0"
3	Orange	15m Reflector	23' 3.0"
4	Yellow	10m Driver	16' 9.5"
5	Green	20m Driver	34' 7.0"
6	Blue	15m Driver	22' 4.5"
7	Violet	10m Director	15' 5.0"
8	White	10m Director	15' 2.0"

Test SWRs



- ❖ Use an antenna analyzer to confirm that your TX38 has rational SWRs. The charts here show SWR curves for a TX38 at the WRTC test installation.
- ❖ If the TX38 SWRs look bad on all bands, verify that the choke is connected to the middle (GREEN) driven element.
- ❖ If the TX38 SWRs look bad on some bands, check the element dimensions and the installation of element joint screws.