

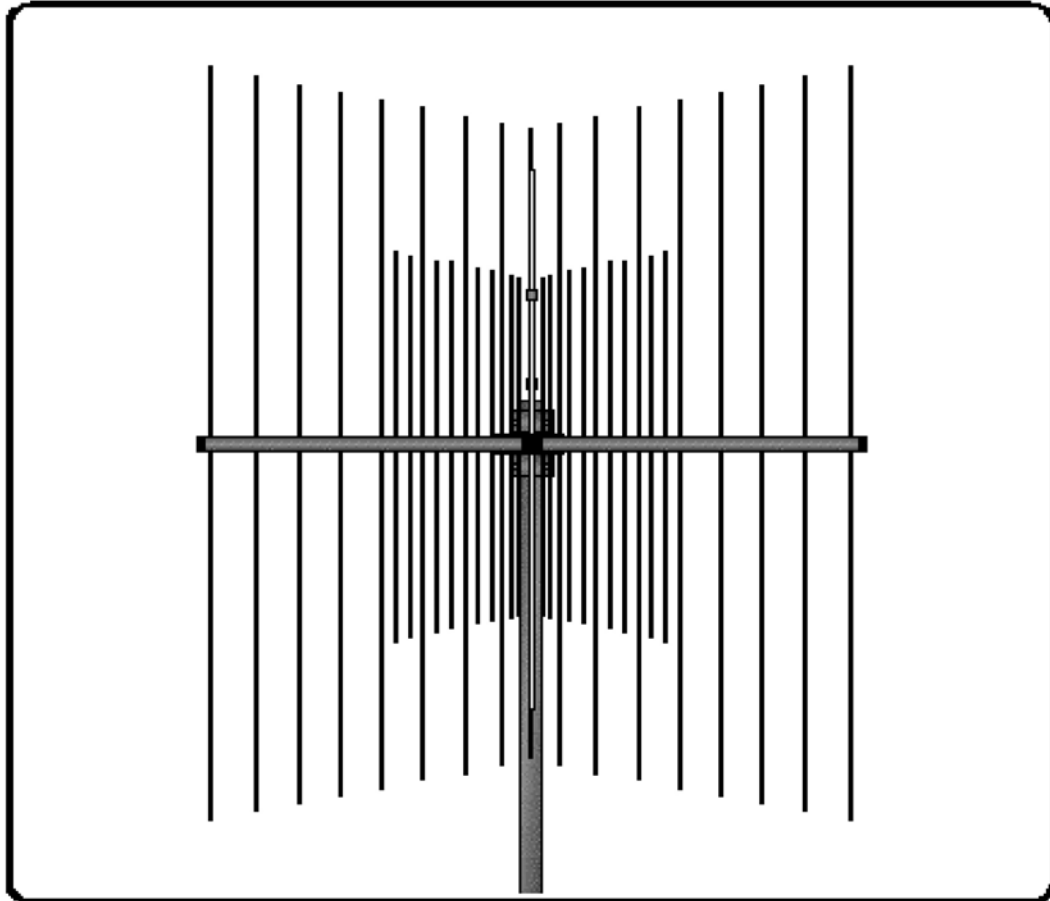
# ← Arrow Antenna →



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**Corner Reflector for 146 & 440 MHz**

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### **Model**

**CR 146/440**

We don't invent antennas.  
We simply build them better.

## Model CR 146/440 Parts List

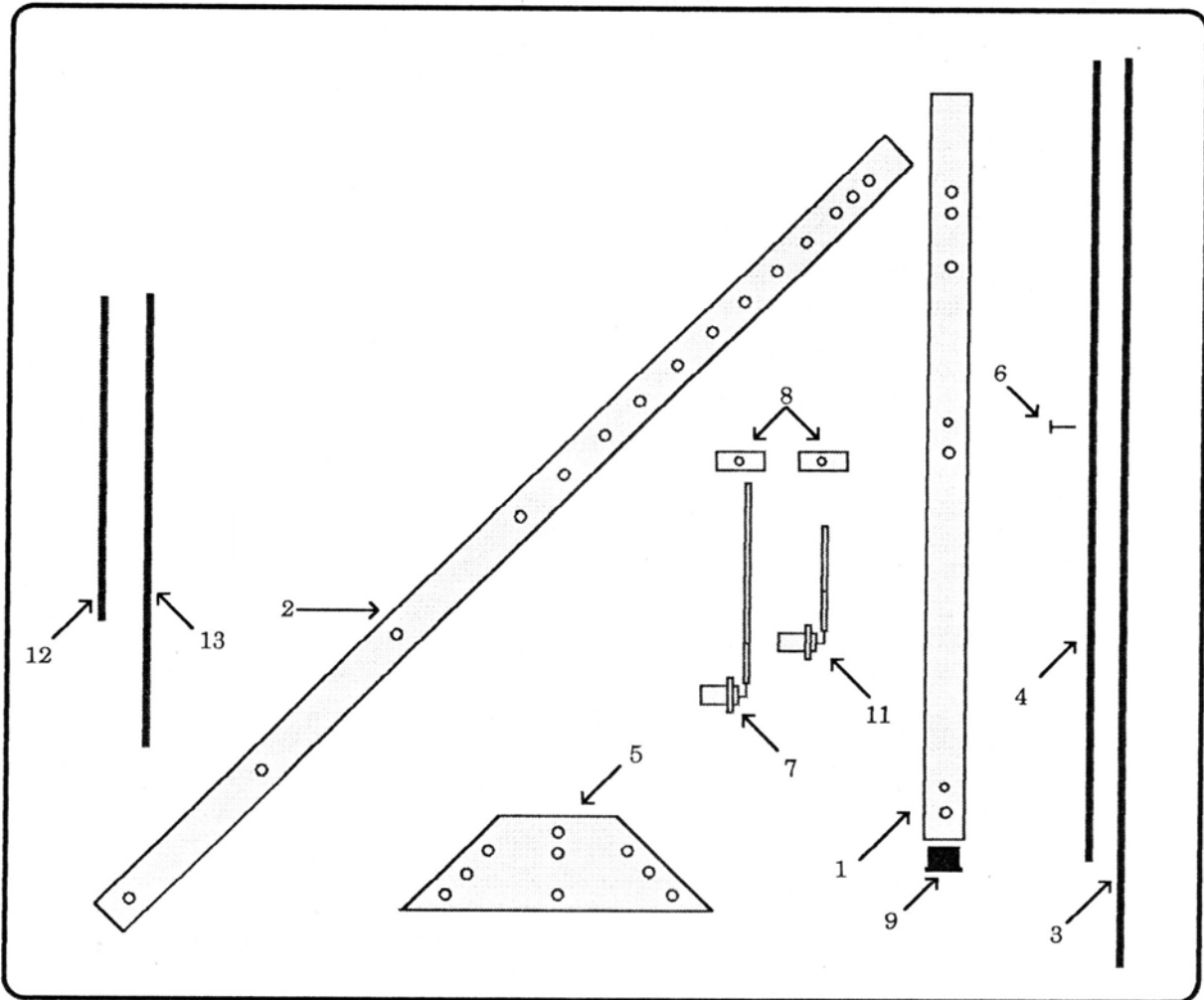


Fig #	Part Number	Part Description	Qty Req.	Price Each
1	CR146/44001	Center Boom 1" X 32.5"	1	\$22.00
2	CR146/44002	Reflector Boom 1' X 48"	2	\$24.00
3	CR146/44003	146 Reflector Element 1/4" x 48"	17	\$6.25
4	146S03	Driven Element 1/4" x 39.5"	1	\$6.00
5	CR146/44005	Assembly Plate (trapezoid shaped 2" x 3" x 3/16" angle)	2	\$15.00
6	146S06	4-40 x 3/4" Stainless Screw	34	\$0.50
7	146S07	146 Gamma Match Assembly (8" Aluminum, 3" Copper, 3.25" tube)	1	\$12.00
8	146S08	Shorting Bar Assembly	1	\$12.00
9	146S09	Plastic End caps for Booms	6	\$0.25
11	CR440 07	440 Gamma Match Assembly (3" Aluminum, 2.25" Copper, 2" tube)	1	\$12.00
12	CR440 004	440 Driven Element 1/4 x 13"	1	\$5.00
13	CR440 003	440 Reflector Element 1/4" x 16"	16	5.00
n/a		1/4-20 x 1.75" Stainless bolts with nuts and lock washers	4	\$1.00
n/a		U-bolts, lock washers & nuts	2	\$5.00
n/a		U-channels with holes for u-bolts.	2	\$2.00

## **Assembly Instructions**

**Tools Required:** #1 Philips screw driver and 2 @ 7/16" wrenches.

1. Unwrap all parts.
2. Remove strapping tape from ends of reflector booms.
3. Open the #4-40 x 3/4" screws. Screw these into the center of each reflector element with your fingers before inserting the element into the boom. This is to ensure that all the elements are threaded properly and the screws start easy. Remove screws from elements.

### **Reflector Booms Assembly**

4. Insert a reflector element in a 1/4" hole in a reflector boom. Fix the element in place by inserting a 4-40 x 3/4" screw through the small hole in the side of the boom and screwing it into the element as shown. When screw is snug, turn 1/4 turn more only. (See Assembled Reflector Boom for element layout.
5. Repeat step 7 for all reflector elements in both reflector booms.

### **Center Boom Assembly**

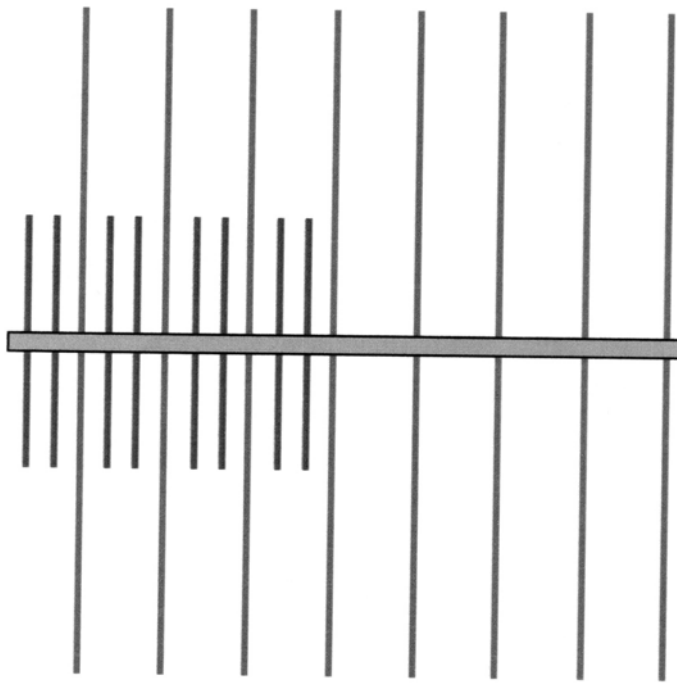
6. Remove the connector from the center boom (4 screws). Turn the connector 90 degrees and reinstall with the copper rod sticking out through the rubber grommet in the boom. Repeat for other connector.
7. Insert driven elements in a 1/4" hole in center boom. Fix the element in place by inserting a 4-40 x 3/4" screw through the small hole in the side of the boom and screwing it into the element as shown. When screw is snug, turn 1/4 turn more only. Repeat for other driven element.
8. Insert a reflector element in a 1/4" hole in the center boom. Fix the element in place by inserting a 4-40 x 3/4" screw through the small hole in the side of the boom and screwing it into the element as shown. When screw is snug, turn 1/4 turn more only.

### **Gamma Match Assembly**

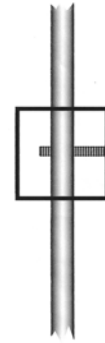
9. Slide gamma match plastic tube over the copper rod and insert the plastic tube through the rubber grommet at least 1/8".
10. Slide the aluminum gamma match tube over the plastic tube.
11. Loosen the screw on the shorting bar and slide the shorting bar over the driven element and aluminum tubes. Position the shorting bar and aluminum tube as shown in the Gamma Match Setting figure.

### **Main Assembly**

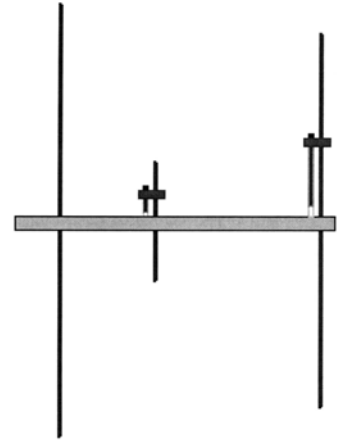
12. Ensure that the reflector booms have the element securing screws on the outside of the boom.
13. Ensure the gamma match stub is up on the center boom.
14. This is easier with some extra hands to help. Slide the assembly plates (top & bottom) over the all the rear reflector elements simultaneously.
15. Bolt the assembly plates together using 1/4-20 x 1 3/4" bolts.



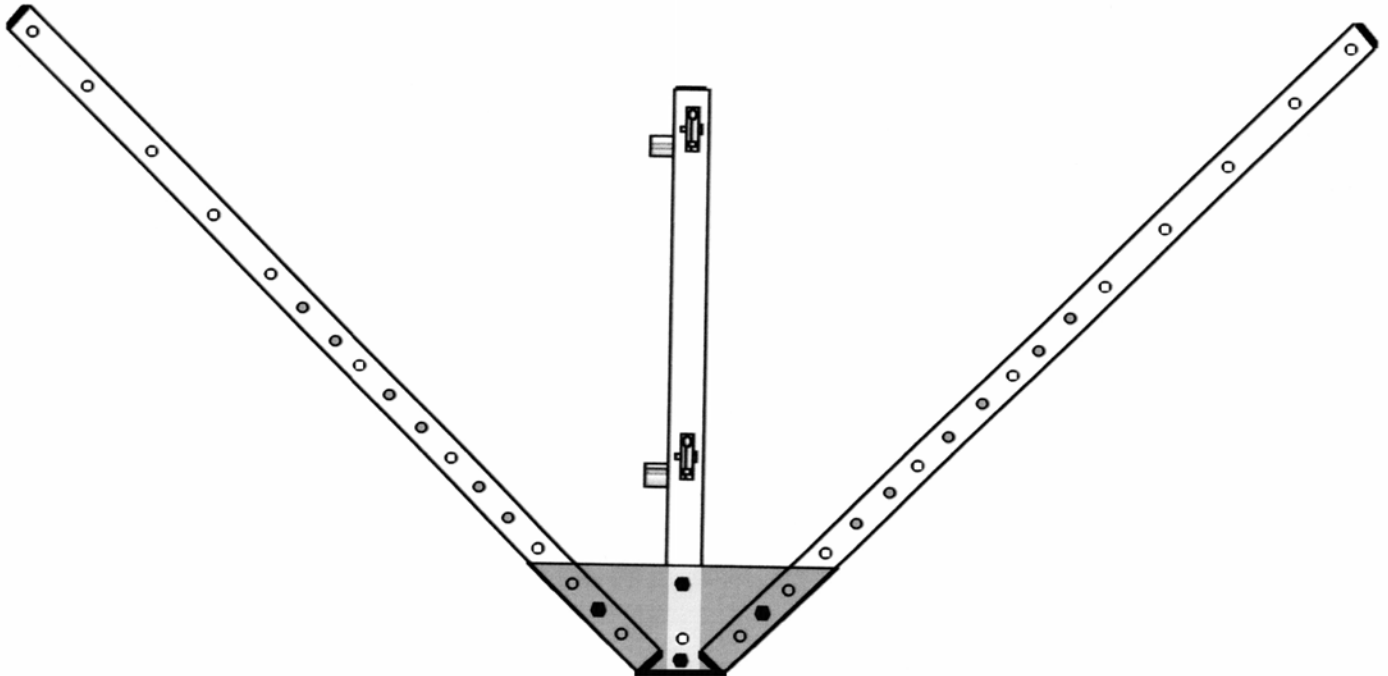
**Assembled Reflector Boom**



**4-40 x  $\frac{3}{4}$ "  
Screw  
Holding  
Element in  
Boom**



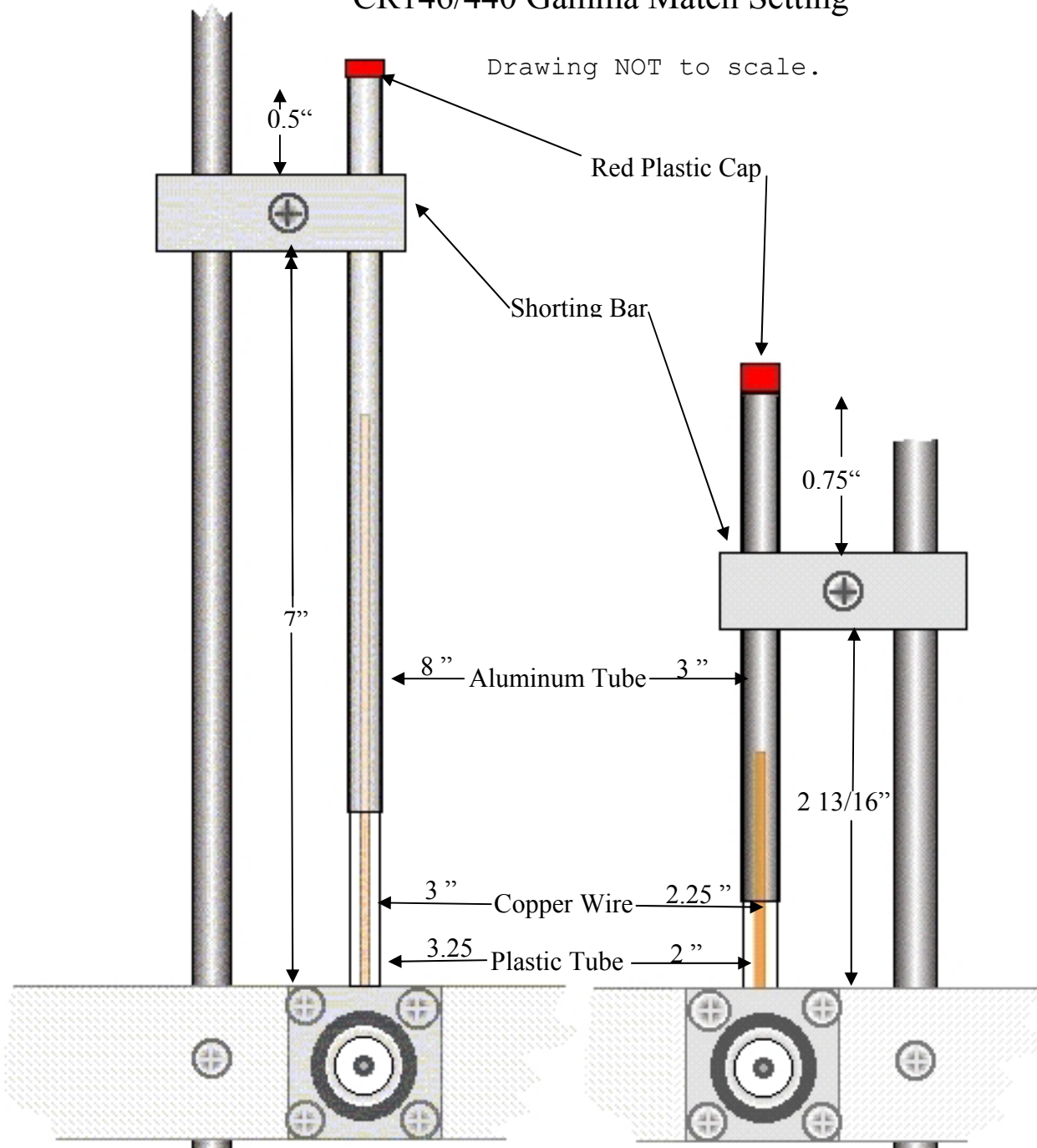
**Assembled Center  
Boom**



**Assembled Top View (Open holes have 48" elements. Grey holes have 16" elements. Black holes have bolts.)**

# CR146/440 Gamma Match Setting

Drawing NOT to scale.



Be sure the plastic tube is inserted about 1/8" or more into the rubber grommet in the boom. The aluminum tube will slide up or down on the plastic to get the correct SWR measurement. (Plus or minus 1/4" for best SWR.)

2m Driven Element 39 1/2"

440 Driven Element 13"

# CHECKLIST FOR OUR SHIPPING DEPARTMENT

CR146/440

- \_\_\_ N connector      \_\_\_ SO-239 Connector
- \_\_\_ 2 Connector replacement signs.
- \_\_\_ 1" x 32.5" Center Boom
- \_\_\_ 2 @ 1" x 48" Reflector Booms
- \_\_\_ 35 Element holes
- \_\_\_ 35 Set screw holes
- \_\_\_ 2 Black gromet(s) in boom adjacent to connector hole.
- \_\_\_ 6 Black end caps.
- \_\_\_ 35 @ #4 - 40 X 3/4" Element Screws (Stainless)
- \_\_\_ 8 @ 4-40 x 1/4" connector screws (Stainless)
- \_\_\_ 2m Gamma Match Assembly  
(3.25" Plastic – 8" Aluminum & 3" Copper on SO-239 Connector) – Far end of center boom.
- \_\_\_ 70cm Gamma Match Assembly  
(2" Plastic – 3" Aluminum & 2.25" Copper on N Connector)  
Near middle of center boom.
- \_\_\_ 2 Solid Shorting Bar Assemblies (3 piece)
- \_\_\_ 17 Reflector Elements 1/4" X 48"
- \_\_\_ 16 Reflector Elements 1/4" x 16"
- \_\_\_ 2m Driven Element 1/4" X 39.5"
- \_\_\_ 70cm Driven Element 1/4" x 13"
  
- \_\_\_ 2 Corner Reflector Mounting Brackets (2" x 3" x 3/16"  
trapezoid shaped)
- \_\_\_ 2 U-bolts with nuts and lock washers
- \_\_\_ 2 U-channel pieces with holes for u-bolts.
- \_\_\_ 4 bolts, nuts & flat washers 1/4-20 x 1.75"