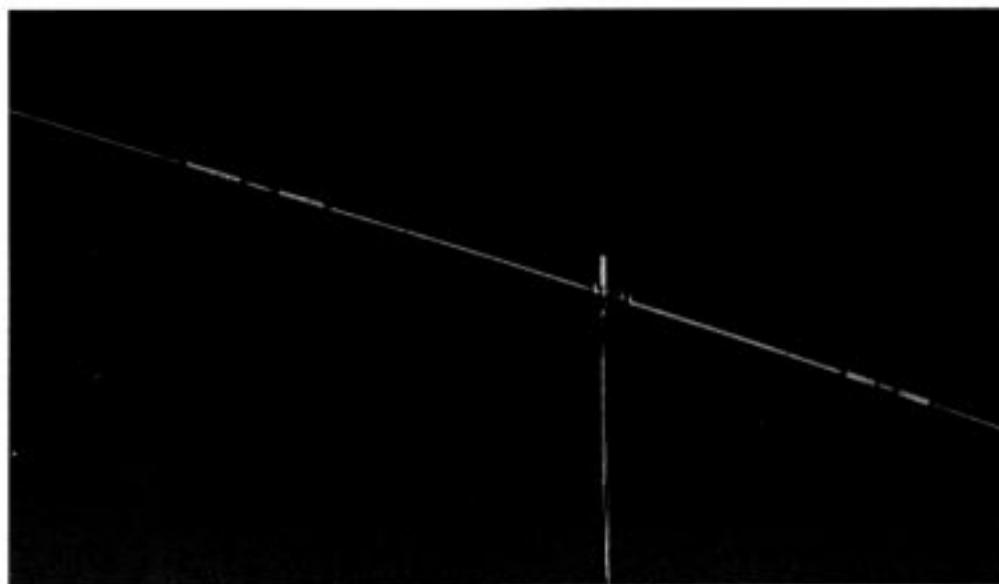




# **WORLD RANGER ROTATABLE DIPOLE 4, 10, 15, 20, 40 METER**



Your Cushcraft Rotatable Dipole is designed and manufactured to give top performance and trouble free service. The antenna will perform as specified if the instructions and suggestions are followed and care is used in assembly and installation. When checking the tubing received with your antenna package using the parts list, it is easiest to identify the various dimensions of tubing by separating them into groups of the same diameter and length.

## MASTING

The mast mount bracket will accommodate up to a 2 1/8 in. OD (5.34 cm) mast.

## ROTATOR

A good antenna rotator will provide the best service and longest life.

## LOCATION

Location of the antenna is very important. Surrounding objects such as trees, power lines, other antennas, etc. will seriously reduce efficiency. To minimize the effects of surrounding objects, mount the antenna as high and in the clear as possible. If metal guy wires are used, they should be broken with strain insulators. **WARNING: THE ANTENNA IS AN ELECTRICAL CONDUCTOR. CONTACT WITH POWER LINES CAN RESULT IN DEATH, OR SERIOUS INJURY. DO NOT INSTALL THIS ANTENNA WHERE THERE IS ANY POSSIBILITY OF CONTACT WITH OR HIGH VOLTAGE ARC-OVER FROM POWER CABLES OR SERVICE DROPS TO BUILDINGS. THE ANTENNA, SUPPORTING MAST AND/OR TOWER MUST NOT BE CLOSE TO ANY POWER LINES DURING INSTALLATION, REMOVAL OR IN THE EVENT PART OF THE SYSTEM SHOULD ACCIDENTALLY FALL. FOLLOW THE GUIDELINES FOR ANTENNA INSTALLATIONS RECOMMENDED BY THE U.S. CONSUMER PRODUCT SAFETY COMMISSION AND LISTED IN THE ENCLOSED PAMPHLET.** Plan your installation carefully. If you use volunteer helpers be sure that they are qualified to assist you. Make certain that everyone involved understands that you are the boss and that they must follow your instructions. If you have any doubts at all employ a professional antenna installation company to install your antenna.

## MOUNTING

Several antennas may be mounted on the same mast. Short VHF/UHF Beams should be mounted at least 5 feet from your Rotatable Dipole. Beams with similar boom lengths should be mounted one half the boom length from each other, if practical.

Vertical antennas such as the Ringo may be placed a few feet above your Rotatable Dipole. If metal guy wires are used, they should be broken with strain insulators.

## SYSTEM GROUNDING

Direct grounding of the antenna, mast, and tower is very important. This serves as protection from lightning-strikes and static buildup, and from high voltage which is present in the radio equipment connected to the antenna. A good electrical connection should be made to one or more ground rods (or other extensive ground system) directly at the base of the tower or mast, using at least 10AWG ground wire and non-corrosive hardware. For details and safety standards, consult the National Electrical Code. You should also use a coaxial lightning arrester like the Blitz Bug in your feedline.

## ELEMENT ASSEMBLY

Lay out the element pieces for your rotatable dipole. Slide the 1 1/4" x 3 1/4" (3.2 x 8.3 cm) sleeve over the drilled end of EA (fig. 1). Insert the 5" (12.7 cm) fiberglass insulator into the drilled end of EA. Secure it using machine screws (123), lockwashers (10), and nuts (11) (fig. 2). Tighten these firmly. Assemble the mount assembly over the fiberglass insulator and sleeve using figure 3. Prepare your feedline as shown. The coaxial balun consists of approximately 8 turns of your feedline in a coil approximately 6 inches (15 cm) in diameter.

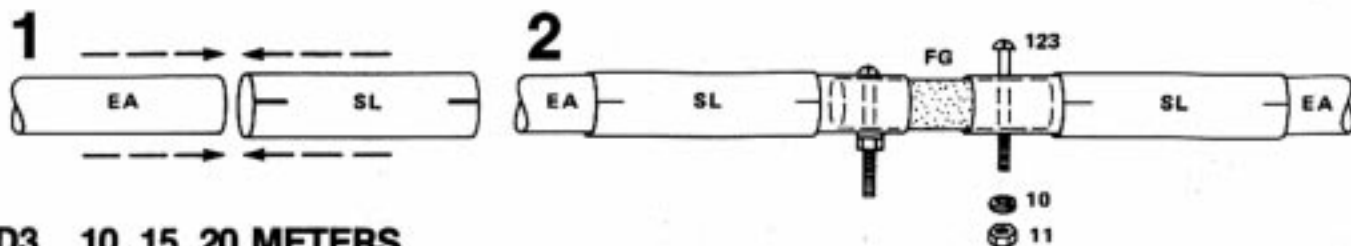
Assemble the rest of the element using figure 4. Each piece of tubing should be inserted into the next larger piece and secured with a clamp. The arrows on the traps should point toward the mount. Use the dimensions shown to set the element lengths.

## FINAL CHECK

Now recheck your antenna dimensions. Your antenna is now ready for installation on your support. Note: checking the VSWR near the ground will provide erroneous results. The antenna must be in a working position for a good VSWR test.

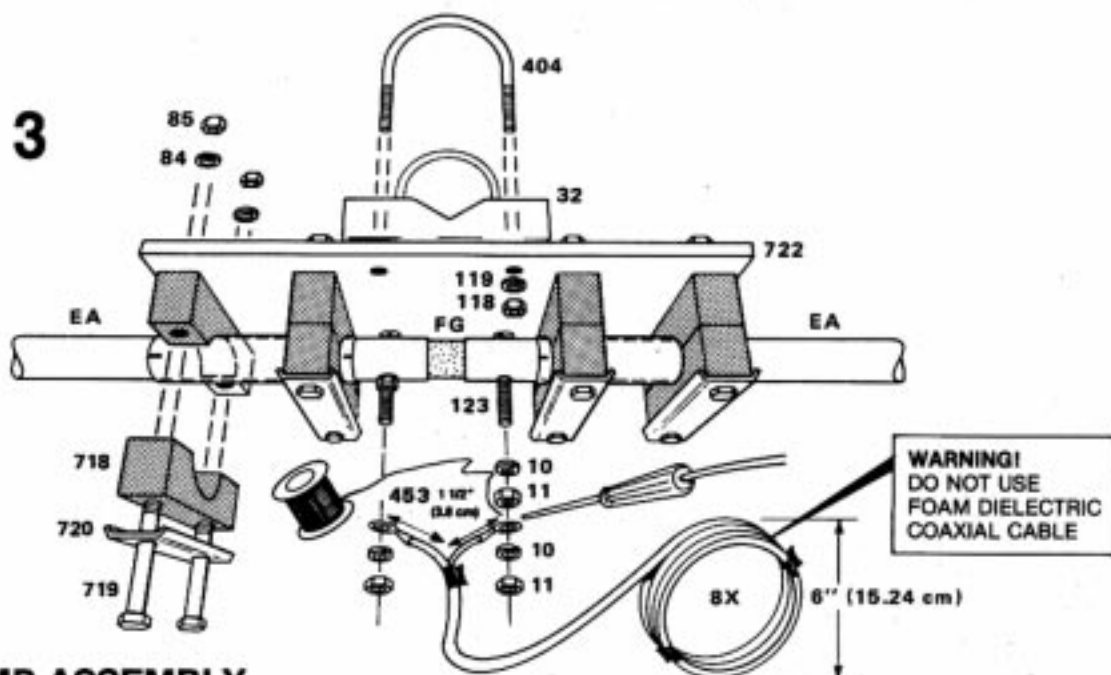
## WORLD RANGER DIPOLE SPECIFICATIONS

|                                  | D40           | D4                       | D3          | DW3          |
|----------------------------------|---------------|--------------------------|-------------|--------------|
| BAND, METERS                     | 40            | 10, 15, 20, 40           | 10, 15, 20  | 12, 16, 30   |
| BANDWIDTH AT 2:1 SWR, KHz        | 200           | 350 +<br>125 KHz on 40 m | 500 +       | Entire Band  |
| SWR AT RESONANCE                 | 1.5 to 1      | 1.5 to 1                 | 1.5 to 1    | 1.5 to 1     |
| POWER RATING; WATTS PEP          | 2000          | 2000                     | 2000        | 2000         |
| LENGTH, Ft. (M)                  | 42.25 (12.88) | 35.8 (10.92)             | 25.8 (7.86) | 34.0 (10.37) |
| MAST DIAMETER MAX in. (cm)       | 2 (5)         | 2 (5)                    | 2 (5)       | 2 (5)        |
| WIND LOAD, Ft. (m <sup>2</sup> ) | 1.3 (.12)     | 1.3 (.12)                | .9 (.08)    | .9 (.08)     |
| WEIGHT, Lb. Kg.                  | 12 (5)        | 13 (6)                   | 9 (4)       | 11 (5)       |



### D3 10, 15, 20 METERS

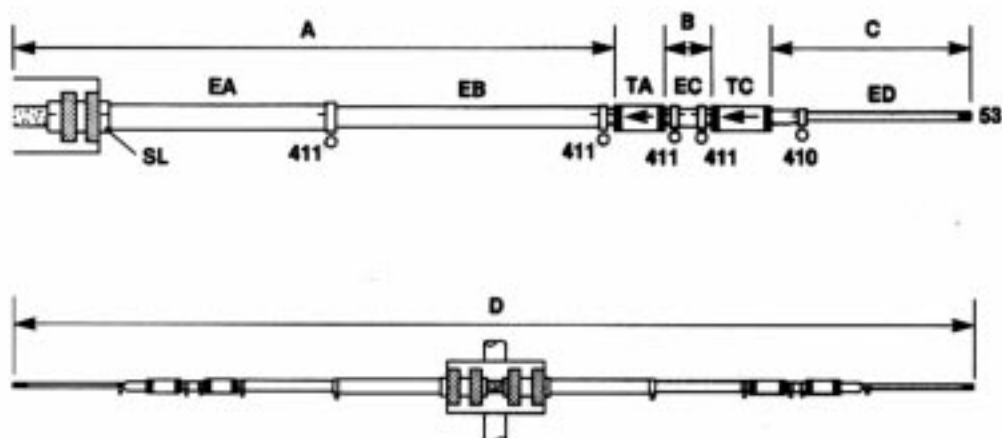
| STOCK NO. | KEY | DESCRIPTION     | SIZE                          | QUANTITY |
|-----------|-----|-----------------|-------------------------------|----------|
| —         | SL  | Sleeve          | 1 1/4 x 3 1/4" (3.2 x 8.3 cm) | 2        |
| 010123    | 123 | Machine Screw   | 8-32 x 1 1/2" (3.8 cm)        | 2        |
| 010010    | 10  | Lockwasher      | #8                            | 2        |
| 010011    | 11  | Nut             | 8-32                          | 2        |
| —         | FG  | Insulator       | 5" (12.7 cm)                  | 1        |
| —         | EA  | Aluminum Tubing | 1 1/8 x 48" (2.9 x 121.9 cm)  | 2        |



### MOUNT CLAMP ASSEMBLY

| STOCK NO. | KEY | DESCRIPTION     | SIZE                          | QUANTITY |
|-----------|-----|-----------------|-------------------------------|----------|
| 010719    | 719 | Machine Screw   | 1/4-20 x 3" (7.6 cm)          | 8        |
| 010084    | 84  | Lock Washer     | 1/4" (.64 cm)                 | 8        |
| 010085    | 85  | Nut             | 1/4-20                        | 8        |
| 010010    | 10  | Lock Washer     | #8                            | 2        |
| 010011    | 11  | Nut             | 8-32                          | 2        |
| 190722    | 722 | Mount Plate     | 4 x 10" (10.2 x 25.4 cm)      | 1        |
| 190720    | 720 | Backing Plate   | 1 1/4 x 3 1/2" (3.2 x 8.9 cm) | 4        |
| 190032    | 32  | U-Bolt Bracket  | 3 1/2" (8.9 cm)               | 2        |
| 010404    | 404 | U-Bolt          | 2 1/8 x 3" (5.4 x 7.6 cm)     | 2        |
| 010118    | 118 | Nut             | 5/16" (.8 cm)                 | 4        |
| 010119    | 119 | Lock Washer     | 5/16" (.8 cm)                 | 4        |
| 100453    | 453 | Terminal        | 12-10 AWG                     | 2        |
| 170718    | 718 | Insulator Block | 2 1/2 x 3/4" (6.4 x 1.9 cm)   | 8        |

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|                                                                                   |       | A                   | B                 | C              | D                    |
|-----------------------------------------------------------------------------------|-------|---------------------|-------------------|----------------|----------------------|
|  | CW    | 87 1/2"<br>222.3 cm | 6"<br>15.2 cm     | 38"<br>96.5 cm | 25' 9 1/2"<br>788 cm |
|  | MID   | 83 1/2"<br>212.1 cm | 6"<br>15.2 cm     | 38"<br>96.5 cm | 25' 1 1/2"<br>768 cm |
|  | PHONE | 80 3/4"<br>205.1 cm | 5 1/2"<br>14.0 cm | 38"<br>96.5 cm | 24' 7"<br>749.0 cm   |

### D 3 ELEMENT

| STOCK NO. | KEY | DESCRIPTION       | SIZE                       | QUANTITY |
|-----------|-----|-------------------|----------------------------|----------|
| 050053    | 53  | Black Plastic Cap | 1/2" (1.3 cm)              | 2        |
| 030411    | 411 | Worm Clamp        | 1 1/8" (2.9 cm)            | 8        |
| 030410    | 410 | Worm Clamp        | 1" (2.5 cm)                | 2        |
| 290326    | 326 | Warning Label     | —                          | 1        |
| —         | EB  | Aluminum Tubing   | 1 x 48" (2.5 x 121.9 cm)   | 2        |
| —         | EC  | Aluminum Tubing   | 1 x 5 1/4" (2.5 x 13.3 cm) | 2        |
| —         | ED  | Aluminum Tubing   | 1/2 x 36" (1.3 x 91.4 cm)  | 2        |
| —         | TA  | Trap              | 11" (27.9 cm)              | 2        |
| —         | TC  | Trap              | 12" (30.5 cm)              | 2        |



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