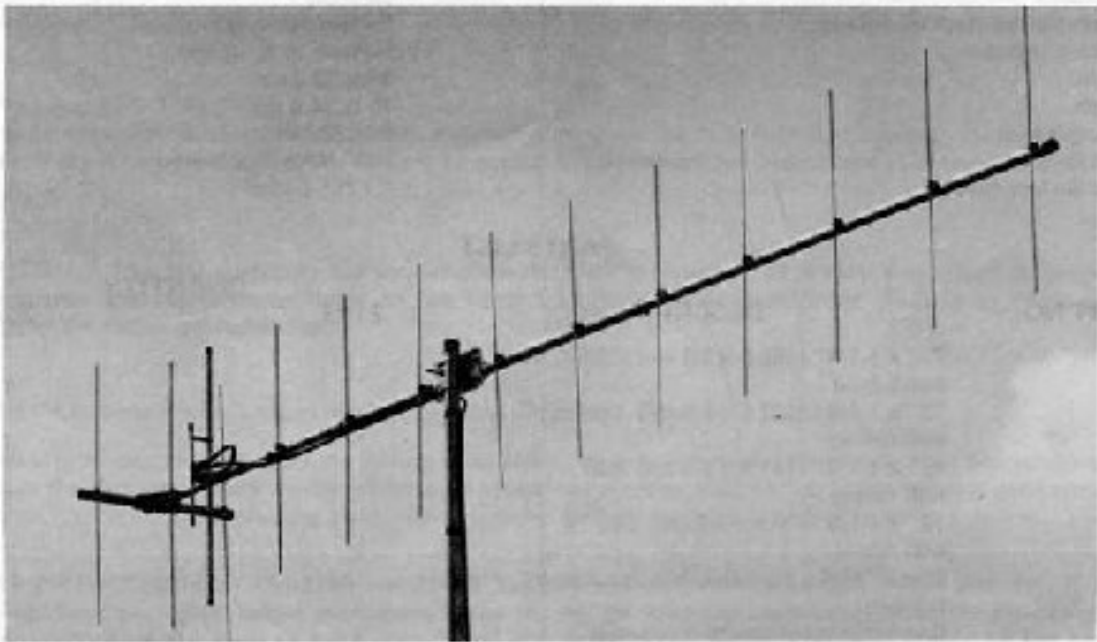


ASSEMBLY AND INSTALLATION INSTRUCTIONS



Cushcraft
CORPORATION

Jr. Boomer

2 Meter Yagi 214B-214FB

FORM 214B879

SPECIFICATIONS

	214B	214FB
Frequency Range	144-146 MHz.	144.5-148 MHz.
Longest Element	40 3/16" (102 cm)	39 1/2" (100 cm)
BOTH MODELS		
Forward Gain	15.2 dBd	
Front to Back Ratio	24 dB	
E-Plane beamwidth	2 x 17°	
H-Plane beamwidth	2 x 18°	
Side lobe attenuation	greater than 60 dB	
SWR less than	1.2:1 typical	
Impedance	50 ohms	
Recommended stacking distance (boom to boom)	E-Plane 10 ft. (3.1m) H-Plane 10 ft. (3.1m)	
Weight	8 lbs. (3.6 kg)	
Length	15 ft. (4.6 m)	
Tuning Radius	9 ft. (2.7M)	
Wind Survival	100* MPH (160*km/h)	
Wind Surface Area	1.7 ft. ² (.16m ²)	

PARTS LIST

PART NO.	DESCRIPTION	214B	QUANTITY	214FB
BA	72" x 1 1/4" (182.9 x 3.2 cm) .058 wall tubing	1		1
BB	72" x 1 1/8" (182.9 x 2.9 cm) .058 wall tubing	1		1
BC	48" x 1 1/8" (121.9 x 2.9 cm) .058 wall tubing	1		1
BR	12" x 1 1/8" (30.5 x 2.9 cm) .058 wall tubing	2		2
BS	3" x 5" (7.6 x 12.7 cm) reflector support brackets	2		2
DC	Connector bracket with connectors	1		1
ED	38" x 1/2" (96.5 x 1.3 cm) .049 wall tubing	1		
ED	37 1/4" x 1/2" (94.6 x 1.3 cm) .049 wall tubing			1
ET	6" x 3/8" (15.2 x .95 cm) .028 wall tubing	2		2
FF	4" x 6" (10.2 x 15.2 cm) formed mounting plate	1		1
HI	Coaxial balun with vinyl boots	1		1

ELEMENTS:

Bundled together 3/16" solid aluminum rod with cutting tolerance of 1/16" (1.59mm).

214B			214FB		
Element No.	Length		Element No.	Length	
	in.	cm		in.	cm
1,2	38 3/4	98.4	1,2	38	96.5
3	40 3/16	102.1	3	39 1/2	100.3
5	37 7/16	95.1	5	36 7/8	93.7
6	36 9/16	92.9	6	36	91.4
7	36 1/16	91.6	7	35 1/2	90.2
8	35 9/16	90.3	8	35	88.9
9-12	35	88.9	9-12	34 7/16	87.5
13	35 9/16	90.3	13	35	88.9
14	36 1/16	91.6	14	35 1/2	90.2

PARTS PACKAGE
214B 214FB

PART NO.	DESCRIPTION	QUANTITY
25	7/8" (2.2cm) Formed Aluminum Bracket	14
28	Aluminum Half Washer	14
10	No. 8 Internal Tooth Lock Washer	43
104	1/4" (.64cm) Stainless Steel Flat Washer	4
84	1/4" (.64cm) Stainless Steel Lock Washer	4
119	5/16" (.79cm) Stainless Steel Lock Washer	4
9	8-32 x 5/8" (1.6cm) Stainless Steel Machine Screw	4
123	8-32 x 1 1/2" (3.8cm) Stainless Steel Machine Screw	8
120	8-32 x 2" (3.0cm) Stainless Steel Machine Screw	13
132	8-32 x 2 1/2" (6.4cm) Stainless Steel Machine Screw	1
11	8-32 Stainless Steel Hex Nut	29
85	1/4" (.64cm) Stainless Steel Hex Nut	4
118	5/16" (.79cm) Stainless Steel Hex Nut	4
77	3/8" Plastic Cap	2
53	1/2" Plastic Cap	2
131	1 1/8" Plastic Cap	4
121	2 1/8" x 3" (5.5 x 7.6cm) Stainless Steel U-Bolt	2
122	1 1/2" x 3" (3.8 x 7.6cm) Stainless Steel U-Bolt	2
124	Connector Strap	1
138	T-Match Strap	2
115	Vinyl Boot	1
116	Silicone Package	1
HSS-10	1 3/8" (3.5cm) Stainless Steel Worm Clamp	2
	Cushcraft Assembly Instruction Sheet	1

Your Cushcraft antenna is manufactured to give top performance and trouble free service. The antenna will perform as specified, if the instructions and suggestions are followed, and if care is used in assembly and installation.

MASTING: The 214B, 214FB mast mount bracket will take up to a 2" O.D. mast. Before deciding on the location and height of your antenna you should check with your local building department for zoning and building regulations pertaining to antenna installations.

ROTATOR: Use a good quality rotator designed for use with amateur radio antenna installations.

LOCATION: Location of the antenna is very important. Surrounding objects such as trees, power line, 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: THIS 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.

ASSEMBLY INSTRUCTIONS

Boom Assembly 214B 214FB

Assemble the boom as shown in Figure 1. The boom sections are aligned with 8-32 machine screws. The sections are held securely in position with the HSS-10 telescope clamps. The trigon reflector assembly mounts on section BC, as illustrated.

Assemble the T-match to the dipole as illustrated in Figure 2. The sliding strap positions are marked on tube ED. The flattened end of tube ET attaches to a connector as illustrated. The connecting strap (No. 124) must be attached as shown between the upper and lower connector. The feed line is connected to the upper connector and the balun to the two lower connectors. Mount the dipole to the boom position illustrated in Figure 4.

When connecting the balun, coat the outside of the aluminum connector threads and the PL-259 with the silicone grease provided. Do not coat the connector center pin and socket with silicone. Slide the vinyl boots over the connectors and against the plate for a good weather-tight connection, Figure 6.

Follow the same procedure for your 50 ohm coaxial feed cable and be sure to slide the vinyl boot over the cable before attaching the PL-259 connector.

Element Assembly 214B 214FB

The solid rod elements are bundled together. Follow Figure 4 and the parts list when attaching the fourteen elements to the boom. Double check to be sure the correct length element has been mounted at each element location.

CAUTION! The last directors are longer than the middle directors. It is very important to properly position the elements as listed in the Parts List, in their correct order. Failure to do so will result in degraded performance.

Mount the antenna to your support mast as illustrated in Figure 5. Tighten the U-Bolts.

If you plan to mount the antenna the vertical polarization, do not let a conductive support mast pass completely through the elements. Locate the top of the mast approximately even with the top of the boom-to-mast mounting plate. Center the mast mounting plate midway between element numbers 7 and 8 as shown in Figure 4.

TUNE UP PROCEDURE: The 214B and 214FB Yagis do not normally require tuning after assembly. If you wish to check the VSWR before installation, please observe the following procedures. Mount the antenna clear of surrounding objects. Keep all metal obstructions such as guy wires and other antennas at least 25 feet away.

Attach a good quality SWR bridge in the coaxial cable as close to the antenna as possible and note the VSWR at your operating frequency. Move the sliding straps on either side of the driven element out towards the end of the dipole by an equal amount of 1/4". Check the VSWR. If the VSWR deteriorated, move the straps back to their original position with go 1/4" beyond towards the center of the driven element. Check the VSWR again. If the reading improved, keep moving both straps equally in the same direction until no further improvement is observed. Tighten all connections on the T-Match/Driven element assembly.

Do not attempt to tune this Yagi by other methods. Ground effects will nullify any adjustments and degraded performance will result.

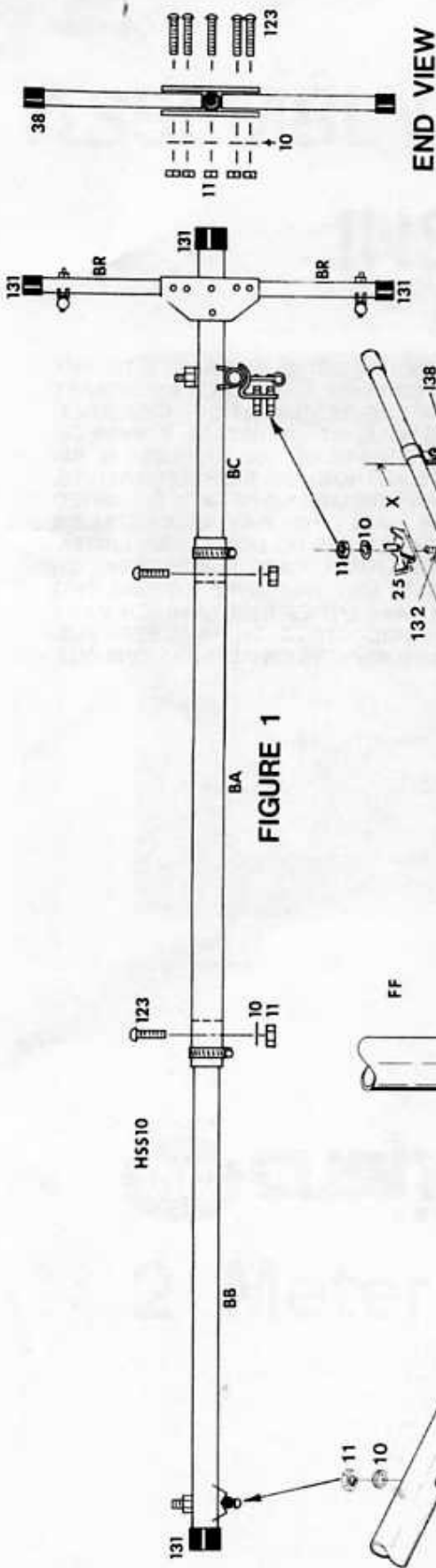


FIGURE 1

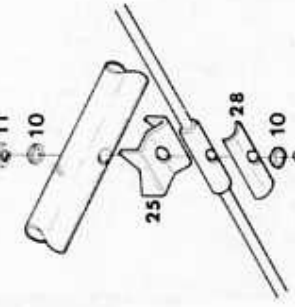


FIGURE 3

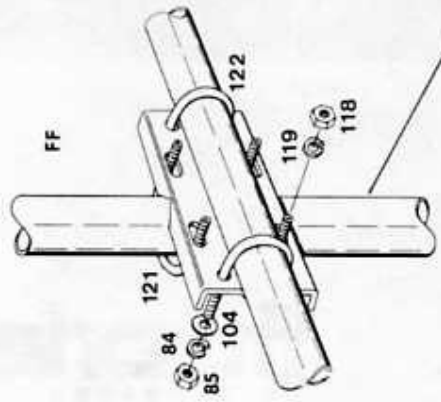


FIGURE 5

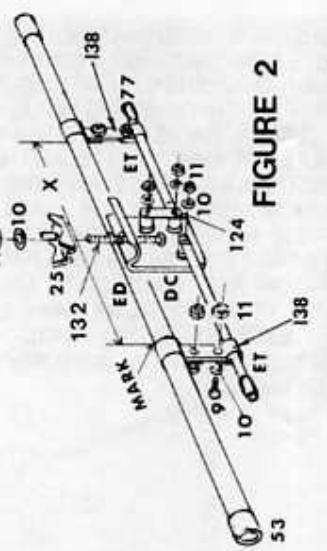


FIGURE 2



FIGURE 6

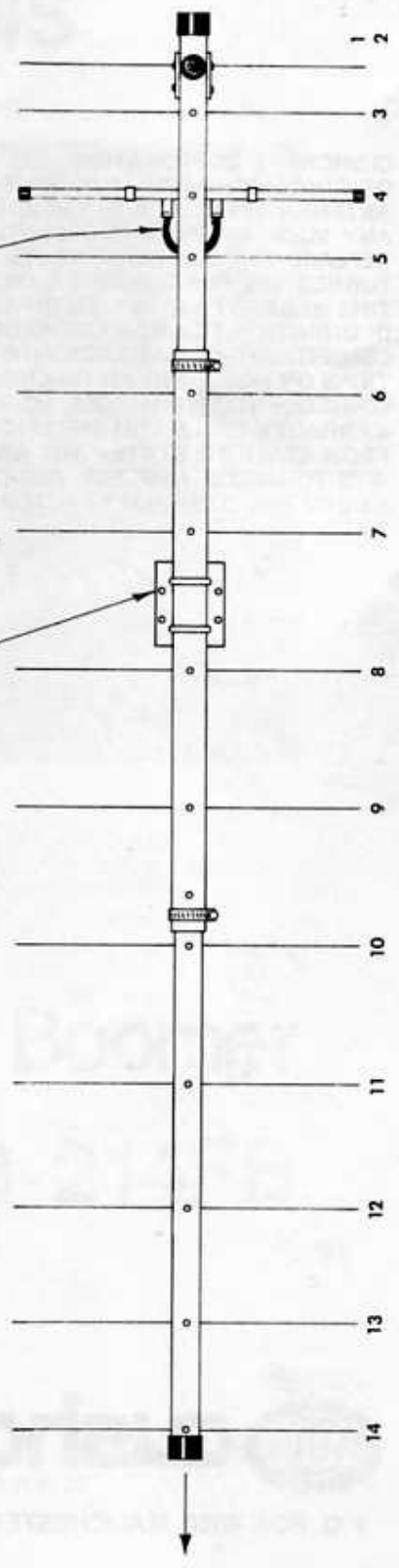
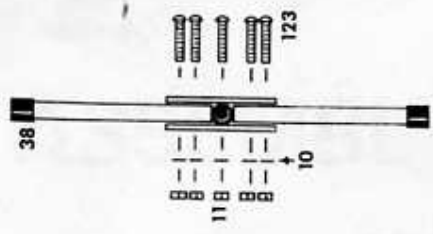


FIGURE 4

MODEL 214FB
 DIMEN X 6.516" (165.0 cm) 7.316" (183.3 cm)

END VIEW



LIMITED WARRANTY

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