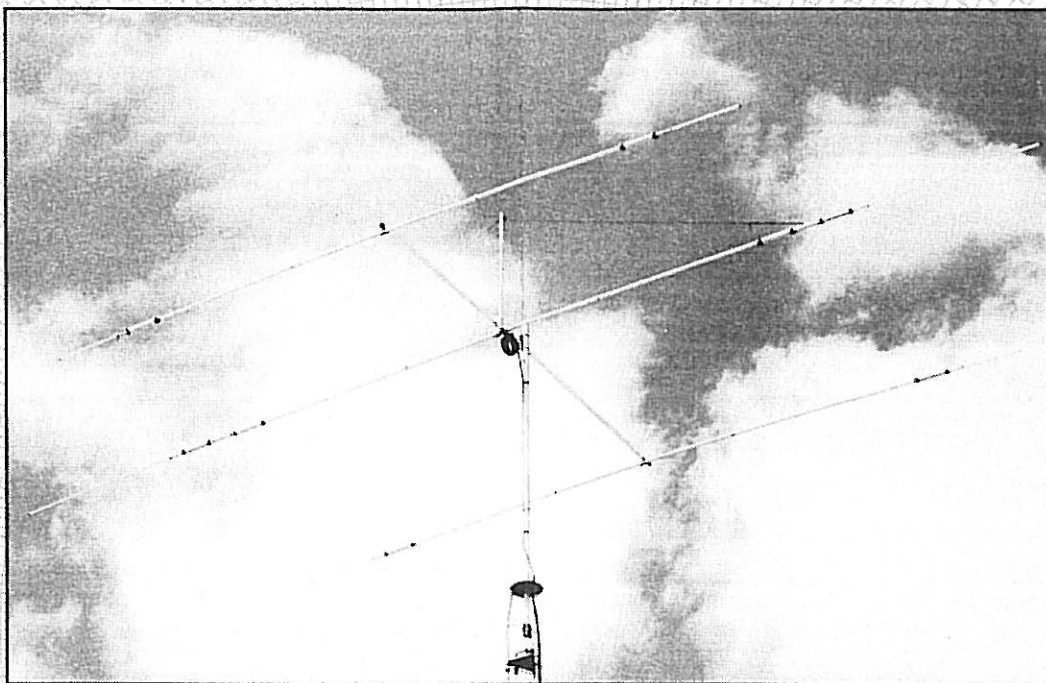


ASSEMBLY AND INSTALLATION



A103

30 METER ADD-ON KIT



951371(6/90)

Your Cushcraft add-on kit is designed and manufactured to give top performance and trouble free service. All hardware is stainless steel. The antenna will perform as specified if the instructions and suggestions are followed and care is used in assembly and installation. When checking the components received in your antenna package use the parts lists in each section. It is easiest to identify the various dimensions of tubing by separating them into groups of the same diameter and length. If you are unable to locate any tube or component, check the inside of all tubing. **IMPORTANT:** save the weight label from the outside of the carton. Each antenna is weighed at the factory to verify the parts count. If you claim a missing part, you will be asked for the weight verification label. There is a master parts list on page 3.

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 your 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 in charge 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

This add-on kit is designed to work with your A3WS WARC band 3 element Yagi. You should have a heavy duty mast and a good heavy duty antenna rotator in order to provide the best service and longest life. Often it is desirable to mount several antennas on one mast. To keep possible interaction to a minimum, place your antennas as far apart as possible.

SYSTEM GROUNDING

Direct grounding of the antenna, mast and tower is very important. This serves as partial 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. Cushcraft offers several different models, such as LAC-1, LAC-2 and the LAC-4 series.

ASSEMBLY

Assemble your antenna by following the directions and illustrations in steps 1 through 5. After the antenna is completely assembled, verify dimensions for accuracy. Check all traps to make sure that the arrows are pointed towards the boom. The drain holes must face the ground so that moisture will not build up in the traps. Return to the section below for final tuning.

TUNING PROCEDURE

THE ANTENNA MUST BE IN ITS FINAL WORKING POSITION FOR AN ACCURATE VSWR TEST. CHECKING THE VSWR NEAR THE GROUND WILL YIELD ERRONEOUS RESULTS.

Always use a good quality 50 Ohm feedline. The length of your feedline to the antenna is not critical but the longer the feedline, the greater the attenuation of the received and transmitted signals.

Insert a good VSWR meter between your transmitter and the feedline. Set your transmitter to your center operating frequency. Measure the VSWR. If it is too high, lengthen the tip of the driven element 1/2" (1.3 cm) on each end and check the VSWR. If it improves, repeat the procedure until the minimum VSWR is obtained. If it worsens, shorten the element tips 1/2" (1.3 cm) and check the VSWR. Repeat the procedure until the minimum VSWR is obtained.

MASTER PARTS LIST

KEY	PART #	DESCRIPTION	QTY	KEY	PART #	DESCRIPTION	QTY
10	010010	#8 stainless steel internal tooth lock washer	3	326	290326	Danger label	1
11	010011	8-32 stainless steel hex nut	3	405	010405	2" x 4" (5.1 x 10.2 cm) stainless steel U-bolt	1
26	190026	7/8" (2.22 cm) formed aluminum bracket	1	409	030409	7/8" (2.22 cm) stainless steel worm clamp	4
32	190032	3-1/2" (8.9 cm) U-bolt bracket	1	410	030410	1" (2.54 cm) stainless steel worm clamp	4
33	190033	3-1/2" (8.9 cm) U-bolt backing plate	1	411	030411	1-1/4" (3.17 cm) stainless steel worm clamp	1
38	050038	1" (2.54 cm) black plastic cap	1	FC		1" x 8" (2.5 x 20.3 cm) aluminum tube slotted both ends	2
44	321044	7/8" x 1" (2.22 x 2.54 cm) phenolic tube, drilled at center	1	FD		1/2" x 36" (1.27 x 91.4 cm) aluminum tube slotted one end	2
56	320056	5/16" x 1/4" (.8 x .6 cm) aluminum spacer	2	FG		3/8" x 36" (.95 x 91.4 cm) aluminum tube	2
72	010072	8-32 x 3/4" (1.9 cm) stainless steel round head slotted machine screws	2	FH		1-1/8" x 24" (2.9 x 61 cm) aluminum tube slotted one end, drilled for U-bolt	1
77	050077	3/8" (.95 cm) black plastic cap	2	FJ		1" x 24" (2.54 x 61 cm) aluminum tube drilled one hole one end	1
88	200088	1" (2.54 cm) throat clamp	2	FN		23' (7 m) black guy line	1
98	122098	1" x 10" (2.54 x 25.4 cm) fiberglass insulator	1	TM		17 meter trap	2
118	010118	5/16" (.8 cm) stainless steel hex nut	2				
119	010119	5/16" (.8 cm) stainless steel lock washer	2				
232	010232	8-32 x 2-1/2" (6.35 cm) stainless steel round head screw	1				

FIGURE A

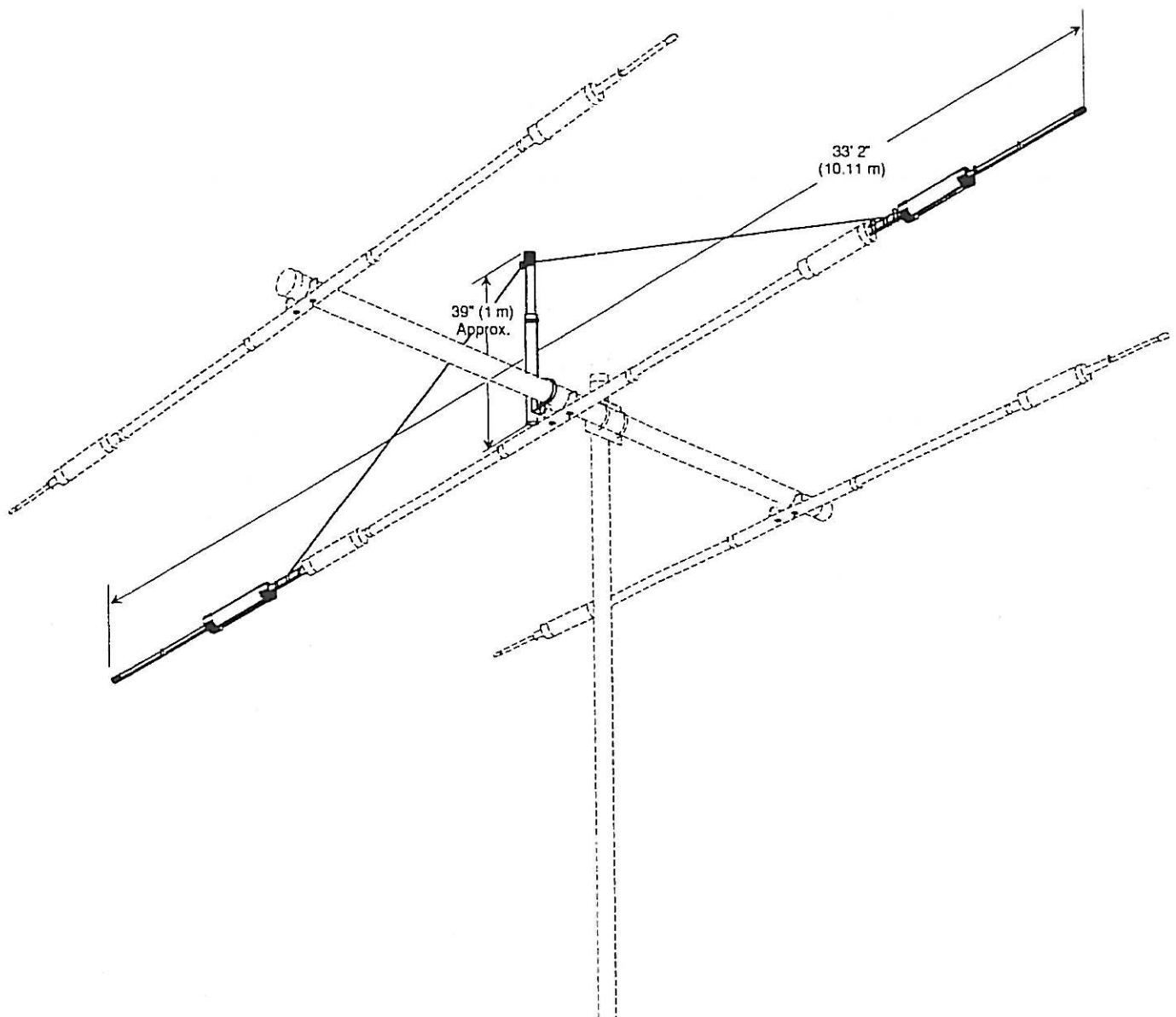
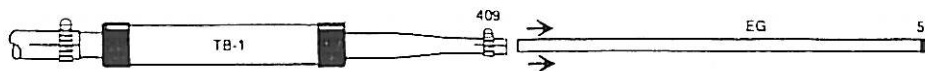
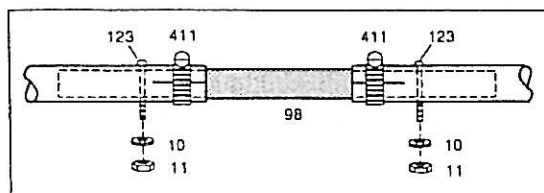
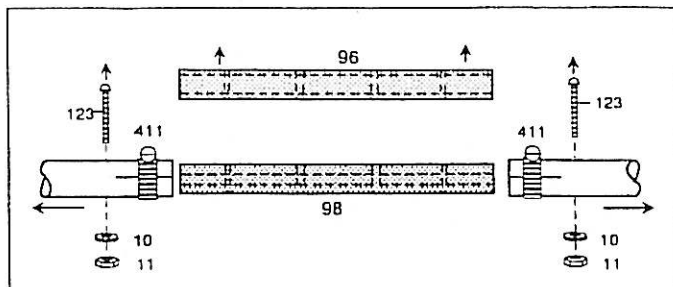


FIGURE B

**#1 - DRIVEN ELEMENT DISASSEMBLY**

Remove the driven element from the A3WS boom. Remove the clamps (409) on the ends of the tapered end of the TB-1 traps. Remove the tubing (EG) on the end of the traps.

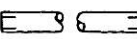
FIGURE C



KEY	P/N	DISPLAY	DESC	SIZE	QTY
98	122098		FIBERGLASS INSULATOR	1" X 10" (2.5 x 25.4 cm)	1

#2 - DISASSEMBLY OF CENTER INSULATOR

Remove the center insulator (96) and replace it with the new one (98) as shown in figure C.

KEY	P/N	DISPLAY	DESC	SIZE	QTY
10	010010		LOCK WASHER	#8	2
11	010011		HEX NUT	#8-32	2
56	320056		ALUMINUM SPACER	5/16" X 1/4" (.79 x .64 cm)	2
72	010072		MACHINE SCREW	#8-32 X 3/4" (1.9 cm)	2
88	200088		GUY LINE CLAMP	1" (2.5 cm)	2
FC			ALUMINUM TUBING	1" X 8" (2.5 x 17.8 cm)	2

#3- GUY LINE CLAMP ASSEMBLY

Attach the guy line clamps to the center of the FC tube as shown below.

FIGURE D

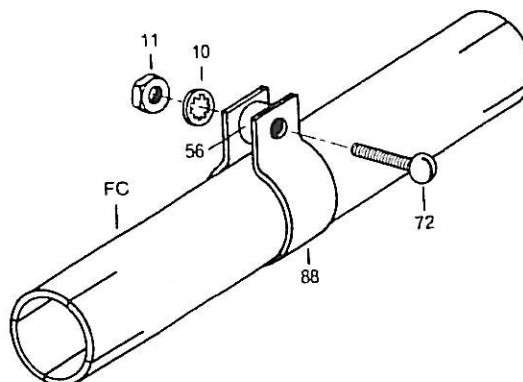
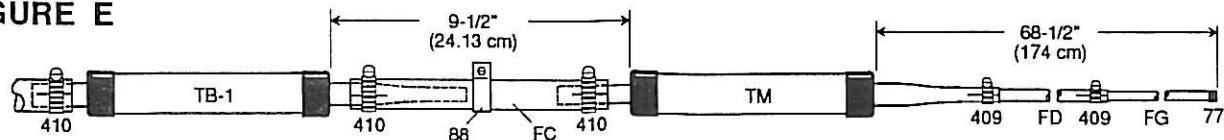


FIGURE E



#4 - END SECTION ASSEMBLY

Attach the TM trap to the TB-1 trap using clamps (410) and the FC tube (figure E). Place a clamp (409) on the end of the TM trap. Insert the unslotted end of the FD tube 4" (10.2 cm) into the trap and tighten the clamp. Attach a clamp (409) on the slotted end of this tube. Insert the FG tube to the dimension shown and tighten the clamp. Place a cap (77) on the end of the tube.

KEY	P/N	DISPLAY	DESC	SIZE	QTY	KEY	P/N	DISPLAY	DESC	SIZE	QTY
FC			ALUMINUM TUBING	1" x 8" (2.54 x 20.3 cm)	2	77	050077		PLASTIC CAP	3/8" (.95 cm)	2
FD			ALUMINUM TUBING	1/2" X 36" (1.3 x 91.4 cm)	2	88	200088		GUY LINE CLAMP	1" (2.5 cm)	2
FG			ALUMINUM TUBING	3/8" X 36" (.9 x 91.4 cm)	2	409	030409		WORM CLAMP	7/8" (2.2 cm)	4
TM			30 METER TRAP		2	410	030410		WORM CLAMP	1" (2.54 cm)	4

KEY	P/N	DISPLAY	DESC	SIZE	QTY
10	010010		INT TOOTH WASHER	8-32	1
11	010011		HEX NUT	#8-32	1
26	190026		ALUMINUM BRACKET		1
32	190032		U-BOLT BRACKET	3-1/2" (8.9 cm)	1
33	190033		BACKING PLATE	3-1/2" (8.9 cm)	1
38	050038		PLASTIC CAP	1" (2.5 cm)	1
44	321044		PHENOLIC TUBING	7/8" X 1" (2.2 x 2.5 cm)	1
118	010118		HEX NUT	5/16" (.8 cm)	2
119	010119		LOCK WASHER	5/16" (.8 cm)	2
232	010232		MACHINE SCREW	8-32 X 2-1/2" (6.4 cm)	1
405	010405		U-BOLT	2-1/8" (5.4 cm)	1
411	030411		WORM CLAMP	1-1/4" (3.2 cm)	1
FH			ALUMINUM TUBING	1-1/8" X 24" (2.8 x 61 cm)	1
FJ			ALUMINUM TUBING	1" X 24" (2.5 X 61 cm)	1
FN			GUY LINE	23' (7 m)	1

#5 - DRIVEN ELEMENT SUPPORT ASSEMBLY

Attach the driven element to the boom at the same place as before disassembly. Assemble the driven element support mast as shown below. Attach it to the A3WS boom using the 405 U-bolt (figure A). Adjust the guy line so that the driven element is level (figure G). When the antenna is in its final resting position, loosen the clamp (411) and raise or lower the FJ tube to minimize droop in the driven element. Tighten the clamp. Refer back to the tuning procedure on page 2.

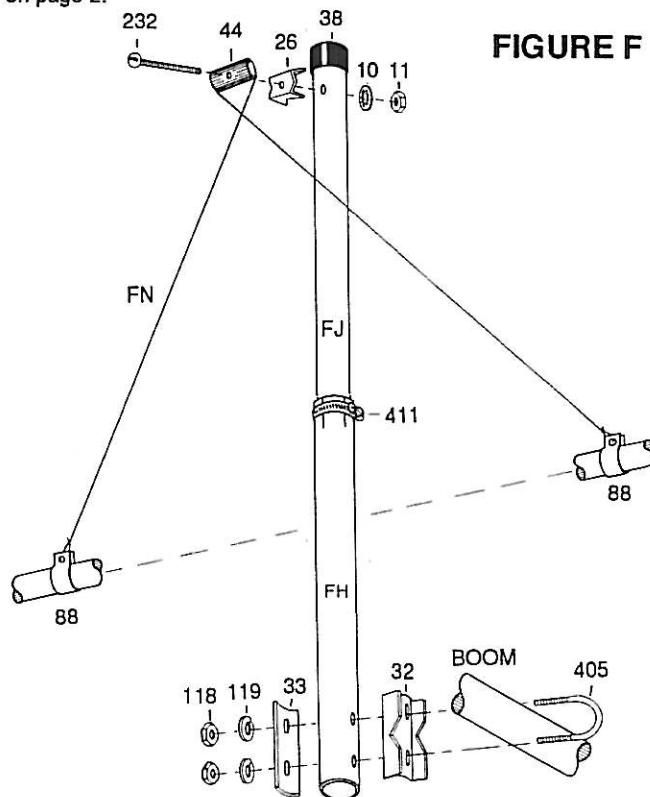
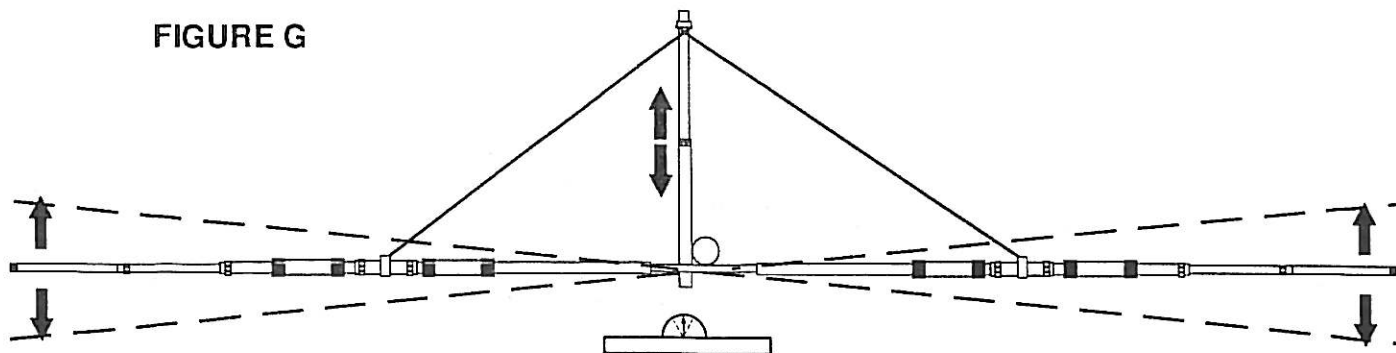


FIGURE F

FIGURE G



SPECIFICATIONS

Model	A103
Frequency Range	10.100 - 10.150 MHz
Forward Gain	Unity
VSWR	1.2:1 typical
Bandwidth	250 KHz minimum
Power Rating	2000 Watts PEP
Feed Point Impedance	50 Ohms
Connector	Twin terminal stainless steel takes all coax
Boom Length	14' (426.7 cm)
Element Length	33' 2" (10.11 meters)
Turning Radius	16' 8" (5.08 meters)
Wind Survival	80 mph (129 kph)
Wind Surface Area	.45 ft ² (.04 m ²)
Weight	3.25 lbs. (1.47 kg)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTIFICATION.

LIMITED WARRANTY

Cushcraft Corporation, P.O. Box 4680, Manchester, New Hampshire 03108, warrants to the original consumer purchaser for one year from date of purchase that each Cushcraft antenna is free of defects in material or workmanship. If, in the judgement of Cushcraft, any such antenna is defective, then Cushcraft Corporation will, at its option, repair or replace the antenna at its expense within thirty days of the date the antenna is returned (at purchasers expense) to Cushcraft or one of its authorized representatives. This warranty is in lieu of all other expressed warranties, any implied warranty is limited in duration to one year. Cushcraft Corporation shall not be liable for any incidental or consequential damages which may result from a defect. Some states do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty does not extend to any products which have been subject to misuse, neglect, accident or improper installation. Any repairs or alterations outside of the Cushcraft factory will nullify this warranty.



THE ANTENNA COMPANY

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