

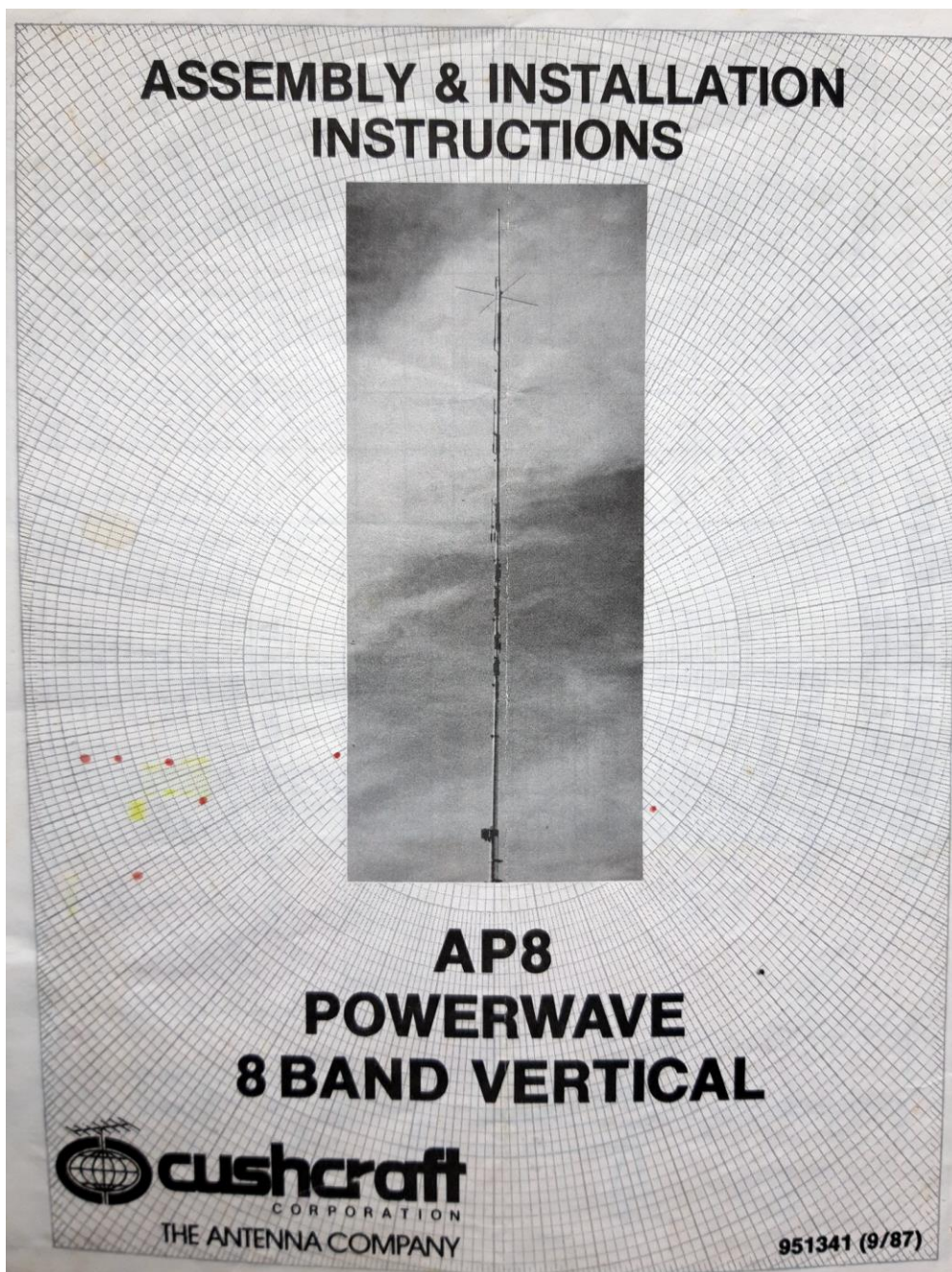
**ANTENNA VERTICALE CUSHCRAFT AP8 APR18****RIFERIMENTI**

<i>Genere</i>	<i>DATA</i>	<i>Generalità</i>	<i>Note</i>	<i>Distribuzione</i>
<i>radio</i>	<i>gennaio 2020</i>			<i>afweb</i>

**GENERALITA'**

Da qualche anno non ho più questa antenna. I radiali si erano marcati, rifarli non ha avuto il successo che speravo, poi modificata ed infine dismessa perché l'isolatore nero alla base dava segni di logoramento

Prima di gettare i data sheet meglio metterli in rete, chissà che servano ancora a qualcuno.





### VERTICAL ASSEMBLY FIGURE 1

**SWR CHARTS**

**20 METERS**

**40 METERS**

**80 METERS**

**ANTENNA LENGTH CHART**

KEY	CW	PHONE	BAND
A	4-5/8	11.7	10/12 M
B	12-3/4	32.4	15/17 M
C	21-1/2	54.6	20 M
D	36	91.4	40 M
E	85	215.9	80 M
F1	81	205.7	80 M
F2	76-1/2	194.3	80 M
F3	72	182.9	80 M
F4			80 M

**X-HAT ASSEMBLY**

**BASE ASSEMBLY**

P/N	KEY	DISPLAY	DESCRIPTION	QTY.
010083	B3		Machine Screw 1/8" - 20 X 1 1/2 in. (3.2cm)	5
010084	B4		Lock Washer 1/8 in.	8
010085	B5		Hex Nut 1/8 in.	8
200090	B6		Mount Mount Ring	2
010104	B7		Flat Washer 1/4 in.	6
200105	B8		Formed Radial Clamp	3
200096	B9		Warning Label	1
240116	B10		Silicone Grease	1
050116	B11		Vinyl Conn. Boot	1

**FIGURE 2**

**BASE ASSEMBLY**

P/N	KEY	DISPLAY	DESCRIPTION	QTY.
010231	Z21		Machine Screw 8-32 X 1 3/4" (4.4 cm)	2
010010	Z10		Lock Washer 8-32	2
010011	Z11		Hex Nut 8-32	2
190028	Z8		Aluminum Hat Washer	2
190026	Z6		Formed Al. Bracket 1/2" (1.2 cm) w/#6 Hole 1/4" x 2 1/2" (1.9 x 3.5 cm)	2
XHR			Aluminum Rod 1/4" x 2 1/2" (1.9 x 3.5 cm)	2

**DO NOT TRY TO ADJUST ANY TRAP CAPACITORS. DOING SO WILL CAUSE DAMAGE TO YOUR ANTENNA AND VOID THE WARRANTY.**

### VERTICAL ASSEMBLY FIGURE 1

#### SWR CHARTS

**20 METERS**

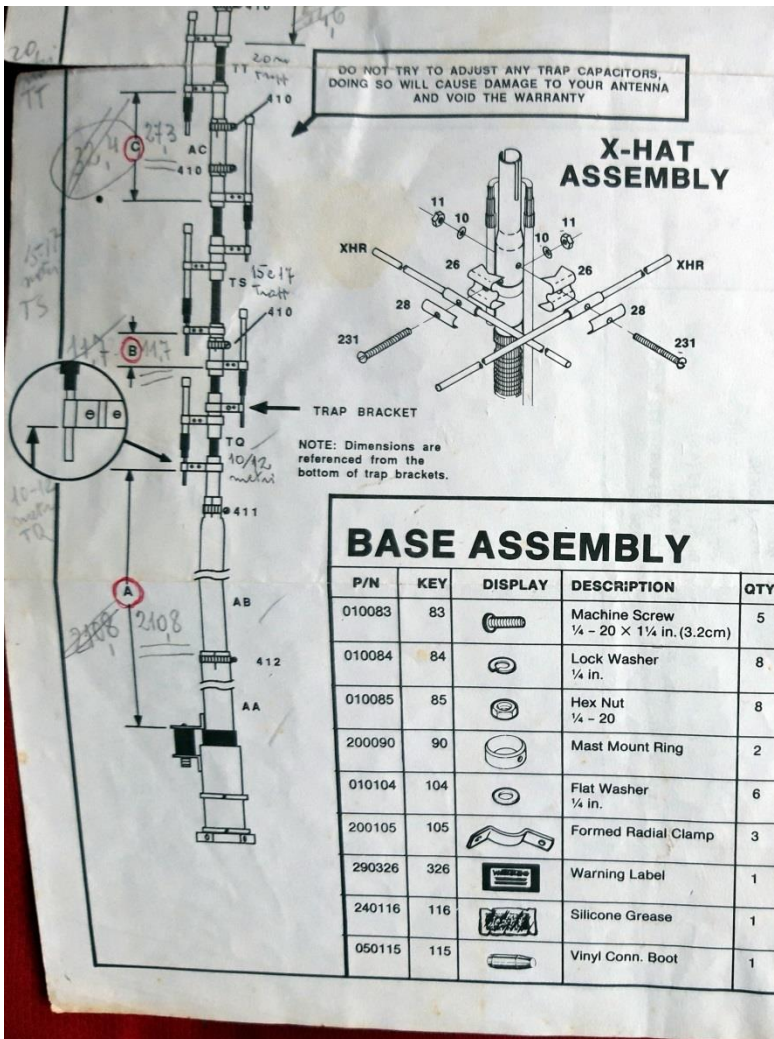
**40 METERS**

**80 METERS**

**ANTENNA LENGTH CHART**

KEY	CW	CENTER	PHONE	BAND			
A	87	221	83	210.8	79-1/2 201.9	10/12 M	
B	4-5/8	11.7	4-5/8	11.7	4-5/8	11.7	15/17 M
C	12-3/4	32.4	10-3/4	27.3	9-1/4	23.5	20 M
D	21-1/2	54.6	23	58.4	23	58.4	40 M
E	36	91.4	32	81.3	28	71.1	80 M
F1	85	215.9	70	177.8	56	142.2	80 M
F2	81	205.7	66	167.6	52	132.1	80 M
F3	76-1/2	194.3	62	157.5	49	124.5	80 M
F4	72	182.9	59	149.9	46	116.8	80 M

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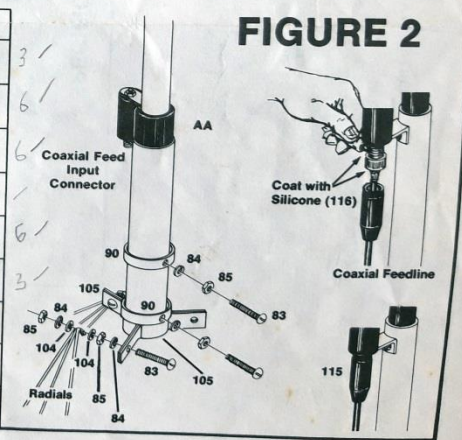


TU		30 Meter Trap	1
TV		40 Meter Trap	1

010231	231		Machine Screw 8-32 x 1 3/4" (4.4 cm)	2
010010	10		Lock Washer #8	2
010011	11		Hex Nut 8-32	2
190028	28		Aluminum Half Washer	2
190026	26		Formed Al Bracket 7/8" (2.2 cm) w/#8 Hole	2
XHR			Aluminum Rod 3/16" x 25" (5 x 63.5cm)	2

### BASE ASSEMBLY

P/N	KEY	DISPLAY	DESCRIPTION	QTY.
010083	83		Machine Screw 1/4 - 20 x 1 1/4 in. (3.2cm)	5
010084	84		Lock Washer 1/4 in.	8
010085	85		Hex Nut 1/4 - 20	8
200090	90		Mast Mount Ring	2
010104	104		Flat Washer 1/4 in.	6
200105	105		Formed Radial Clamp	3
290326	326		Warning Label	1
240116	116		Silicone Grease	1
050115	115		Vinyl Conn. Boot	1





## AP8 ASSEMBLY AND INSTALLATION INSTRUCTIONS

Your Cushcraft AP8 is designed to give trouble-free service. The antenna will perform as specified if the instructions are followed and care is used in assembly.

We have included pictorials to insure that non-English speaking users can easily assemble the AP8.

**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.

VERY HIGH VOLTAGES ARE DEVELOPED IN THE ANTENNA AND RADIAL SYSTEM DURING USE. INSTALL THE ANTENNA SUCH THAT PEOPLE WILL NOT BE ABLE TO COME IN CONTACT WITH IT WHILE YOU ARE TRANSMITTING.

### SELECTING A LOCATION

Surrounding objects such as trees, powerlines, etc. will have an affect on the antenna's performance. To minimize the effect of these, mount the antenna in the clear as much as possible. For roof mounting or windy areas, the use of non-metal guy wires is recommended. If metal guy wires are used, they should be broken up with stain insulators. If your AP8 is mounted within 25 feet of any guy wires supporting a nearby tower, those wires should be broken up with insulators. A length of eight feet (2.4 meters) or less is sufficient for the length between insulators.

### GROUNDING

In all installations, the base of the AP8 should be grounded. We recommend the Cushcraft LAC series of lightning arresters as part of the lightning protection system of your equipment and home. Figure 3 gives the dimensions for either roof or ground mounted radials. If a full size ground radial system is not practical, the Cushcraft APR18 radial kit would be a good alternative.

### ASSEMBLY

Identify and layout the tubing and traps in the order shown in Figure 1. Using Figure 2, assemble the base section. When completed, place clamp 412 over the top of the base tube. Insert tubing section AB 4 inches (10 cm) and tighten the clamp 412. Using the same procedure, assemble the rest of the radiator. The arrows on the traps all point up. The external trap capacitors should alternate on the left and right sides of the antenna. Use care in making the measurements given in the Length Chart along the length of the antenna. (For Novice band coverage, select the center settings.) Place the antenna over its mount and tighten the mounting ring screws. Attach the ground radials to the bracket as shown in Figures 2 and 3.

We have provided a weatherproof boot for the PL259 connector on your feedline. Follow Figure 2 to install it. Insert the antenna end of your coax through the small end of your connector boot. Many cables are very tight which results in an excellent weather seal. Attach the PL259 to the end of your coax. Spread the silicone on the threads of the antenna connector. Silicone should not be placed on the center pin. Screw the PL259 connector onto the antenna input connector. Apply the remaining silicone to the outside of the connector. Slip the boot over the connector.

### FINAL ADJUSTMENT

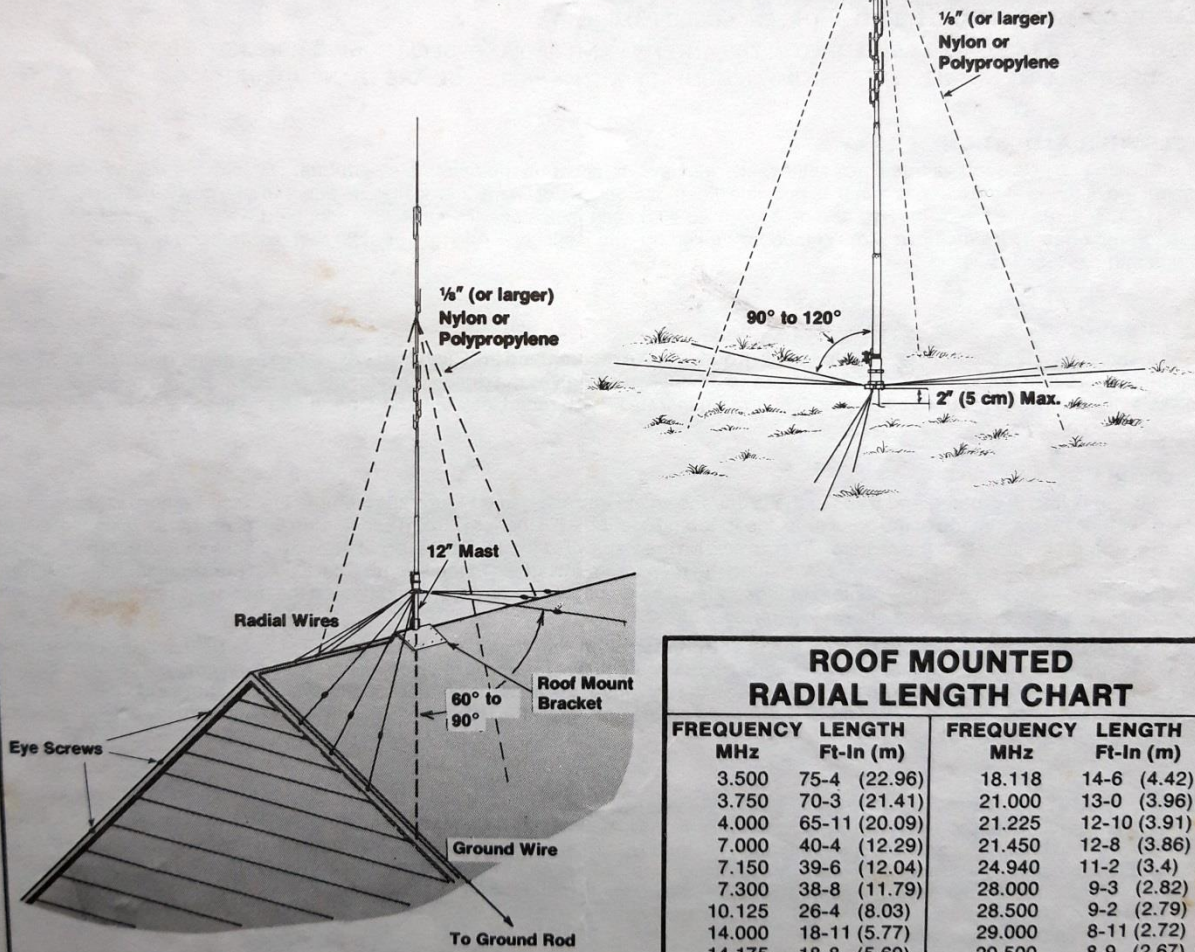
These final adjustments compensate for variations from one installation to another. Measure the SWR on 10 meters. If not centered in the band or too low for the desired operating position, then shorten dimension A two inches and check the SWR. If the SWR is higher, make the same adjustment in the opposite direction. Continue adjusting as the SWR improves until the lowest SWR is reached. Using the same technique, adjust B for 15 meters, C for 20 meters, D for 30 meters, E for 40 meters, and F for 80 meters. Twelve and seventeen meters will not have to be adjusted. NOTE: Changes that you make in high frequencies may effect the lower frequencies. It is only necessary to adjust the antenna on bands where you intend to operate.



### GROUND MOUNTED RADIAL LENGTH CHART

FREQUENCY MHz	LENGTH Ft-In (m)	FREQUENCY MHz	LENGTH Ft-In (m)
3.500	56-2 (17.12)	18.118	10-10 (3.3)
3.750	52-5 (15.98)	21.000	9-5 (2.87)
4.000	49-2 (14.99)	21.225	9-4 (2.84)
7.000	28-1 (8.56)	21.450	9-2 (2.79)
7.150	27-6 (8.38)	29.940	7-10 (2.39)
7.300	26-11 (8.2)	28.000	7-0 (2.13)
10.125	19-5 (5.92)	28.500	6-11 (2.11)
14.000	14-0 (4.27)	29.000	6-10 (2.08)
14.175	13-10 (4.22)	29.500	6-8 (2.03)
14.350	13-8 (4.16)		

### FIGURE 3



### ROOF MOUNTED RADIAL LENGTH CHART

FREQUENCY MHz	LENGTH Ft-In (m)	FREQUENCY MHz	LENGTH Ft-In (m)
3.500	75-4 (22.96)	18.118	14-6 (4.42)
3.750	70-3 (21.41)	21.000	13-0 (3.96)
4.000	65-11 (20.09)	21.225	12-10 (3.91)
7.000	40-4 (12.29)	21.450	12-8 (3.86)
7.150	39-6 (12.04)	24.940	11-2 (3.4)
7.300	38-8 (11.79)	28.000	9-3 (2.82)
10.125	26-4 (8.03)	28.500	9-2 (2.79)
14.000	18-11 (5.77)	29.000	8-11 (2.72)
14.175	18-8 (5.69)	29.500	8-9 (2.67)
14.350	18-5 (5.61)		

The Cushcraft APR18 Radial Kit is designed for use with the AP8. If you build your own radial system, cut your radials using the appropriate radial length chart. You should use at least 3 radials per band. The more you have, the better your antenna will work. In many instances, ground mounted installations will only require radials for 80 and 40 meters in order to work on all bands. If your radials are too long for the area available, do not cut them. Form them as necessary to fit the space available.



### 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 PURCHASER'S 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, NEGLIGENCE, ACCIDENT OR IMPROPER INSTALLATION. ANY REPAIRS OR ALTERATIONS OUTSIDE OF THE CUSHCRAFT FACTORY WILL NULLIFY THIS WARRANTY.

### SPECIFICATIONS

<b>Frequency Range, Meters</b>	<b>80, 40, 30, 20, 17, 15, 12, 10</b>
<b>SWR</b>	<b>Less than 2:1</b>
	<b>80 &gt; 70 kHz</b>
	<b>40 &gt; 150KHz</b>
<b>Traps</b>	<b>Powerwave Circuit</b>
<b>Height, ft (m)</b>	<b>&lt; 26 (7.92)</b>
<i>mounting in</i> <i>alto</i> → <b>Mount, in (cm)</b>	<i>mounting</i> <b>Sleeve, 1.75 (4.5)</b>
<b>Wind Survivability, mph (kph)</b>	<b>80 (130) plus</b>
<b>Radiator, in (cm)</b>	<b>1.375 (3.5) 6063-T832 alum.</b>
<b>Connector</b>	<b>SO239</b>



**THE ANTENNA COMPANY**  
48 Perimeter Road, P.O. Box 4680  
Manchester, NH 03108

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# INSTALLATION & USE INSTRUCTIONS

# APR18

## 8 BAND HF RADIAL KIT

for

10, 12, 15, 17, 20, 30, 40 & 80 Meters



951345587



## APR18 Assembly and Installation Instructions

The APR18 is designed for use with the Cushcraft AP8 eight band vertical; however, it works nicely with any HF quarter wavelength vertical amateur band antenna. The APR18 effectively combines 24 radials into 3 sets of 2 radial wires attached to an easy to use connector lug, making this a quick and convenient way to get the most out of your  $\frac{1}{4}$  wavelength HF vertical.

**WARNING:** THIS ANTENNA GROUND RADIAL SYSTEM IS AN ELECTRICAL CONDUCTOR, CONTACT WITH POWER LINES OR OTHER ELECTRICAL SOURCE CAN RESULT IN DEATH, OR SERIOUS INJURY. DO NOT INSTALL THIS ANTENNA GROUND RADIAL SYSTEM 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 PAMPHLET THAT CAME WITH YOUR ANTENNA. VERY HIGH VOLTAGES ARE DEVELOPED IN THE ANTENNA AND RADIAL SYSTEM DURING USE. TO PREVENT THE POSSIBILITY OF SHOCK INSTALL THE ANTENNA AND RADIAL KIT SUCH THAT PEOPLE AND ANIMALS WILL NOT BE ABLE TO COME IN CONTACT WITH IT WHILE YOU ARE TRANSMITTING. IF THE ANTENNA IS MOUNTED AT GROUND LEVEL, IT AND ANY EXPOSED RADIALS SHOULD HAVE PROMINENT ELECTRICAL HAZARD WARNING LABELS.

### INSTALLATION AND USE

Assemble and install the antenna as described in your antenna instruction manual.

Attach the APR18 radial kit to the antenna base using the connector lugs and the radial mounting hardware provided with your antenna. The radial kit to base connection for the Cushcraft AP8 is shown in figure 1. If your antenna doesn't have clamps to connect the radial kit, use the hardware provided and attach the radial kit as shown in figure 2.

After attaching the radial kit, evenly space the radials alternating long and short radials around your antenna, approximately 60 degrees apart. (see figures 3 & 4) Figure 3 shows the radial and identifies the high and low frequency sections. Figure 4 is an aerial view of the spaced radial kit after installation.

Figure 5 & 6 show typical installations. Ground mounting is shown in figure 5. Figure 6 shows pole or roof top mounting.

If space is not available completely around your vertical, equally space the ground radials in the available area. If space is limited in one direction gradually curve the radial and run it in another direction. Sharp bends will cause some detuning of that ground radial. DO NOT CUT THE RADIALS, they are pre-tuned at the factory.

Although they will work when placed above ground, burying the ground radial 1 inch under the ground will increase the coupling to the earth ground and give some improvement to the system. It will also prevent them from being tripped over, accidentally cut or broken, and reduce the hazards from electrical shock.

For both ground or elevated mounting, a ground wire to a ground stake should be used for lightning protection. Connect the ground wire to the ground stake by either soldering or clamping it firmly. For added security of equipment we recommend using lightning arresters. Cushcraft offers many different models to accommodate your needs, such as the LAC-1, LAC-2, LAC-3, or the LAC-4 series.

**Figure 1** AP8 RADIAL KIT ATTACHMENT

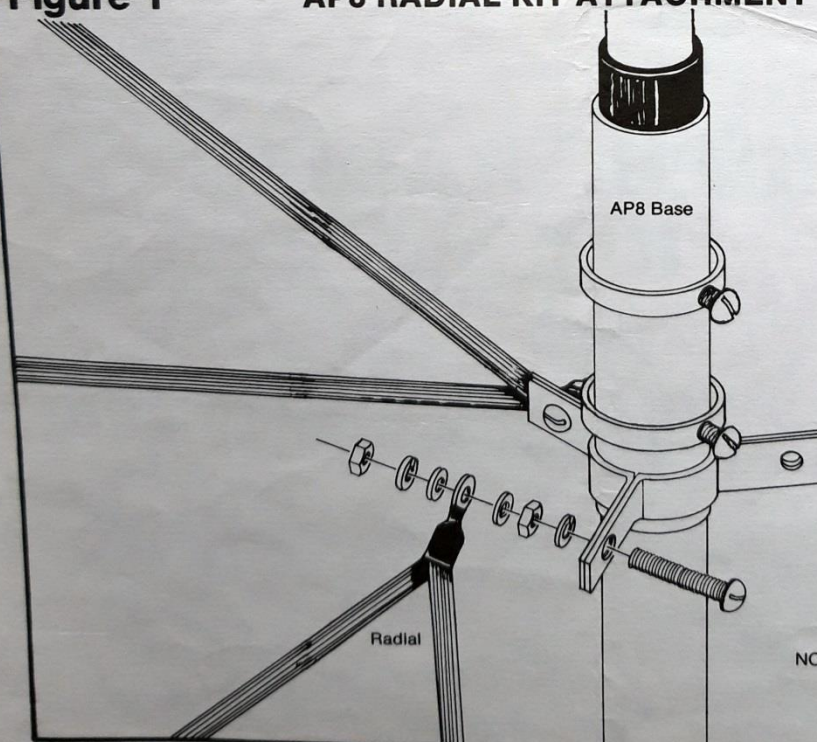
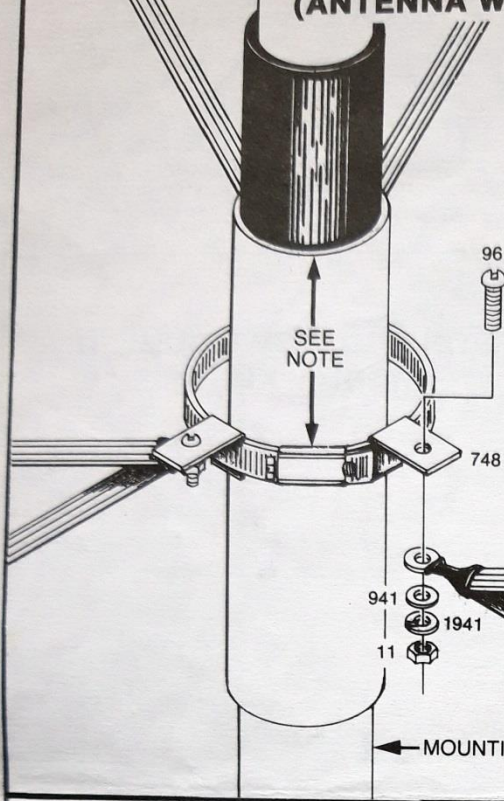






Figure 2

### RADIAL KIT ATTACHMENT (ANTENNA WITHOUT RADIAL CLAMPS)



**PARTS LIST FOR FIGURE 2**

P/N	KEY	DISPLAY	DESC.	SIZE	QTY.
190748	748		ANGLE BRACKET		3
010096	96		MACHINE SCREW	8-32 x 3/4" (1cm)	3
011941	1941		LOCK WASHER	#8	3
010011	11		HEX NUT	8-32	3
360941	941		FLAT WASHER	#8	3
030414	414		HOSE CLAMP	1-5/16" to 2 1/4" (3.3cm to 5.7cm)	1
RADIAL			RADIAL PAIR		3

NOTE: This distance will affect the tuning on the higher frequencies. If not specified on the installation instructions, make 1" and adjust radiator length as necessary.

Figure 3

### ONE APR18 RADIAL PAIR

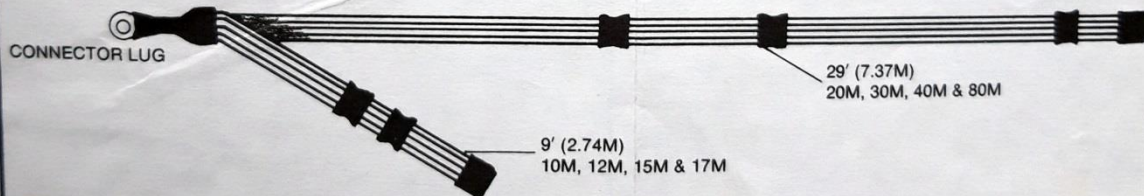
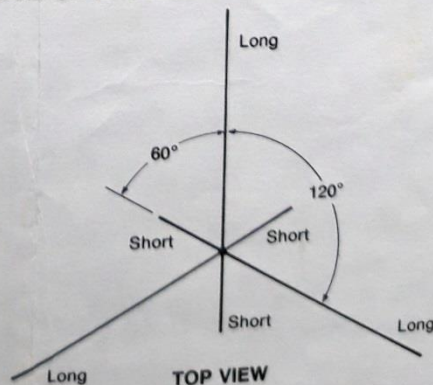


FIGURE 4

### TYPICAL RADIAL SPACING

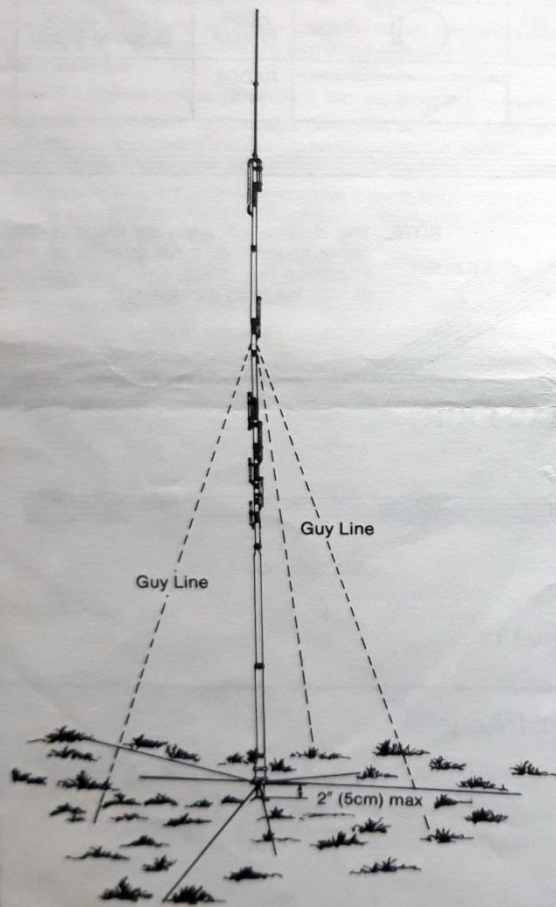




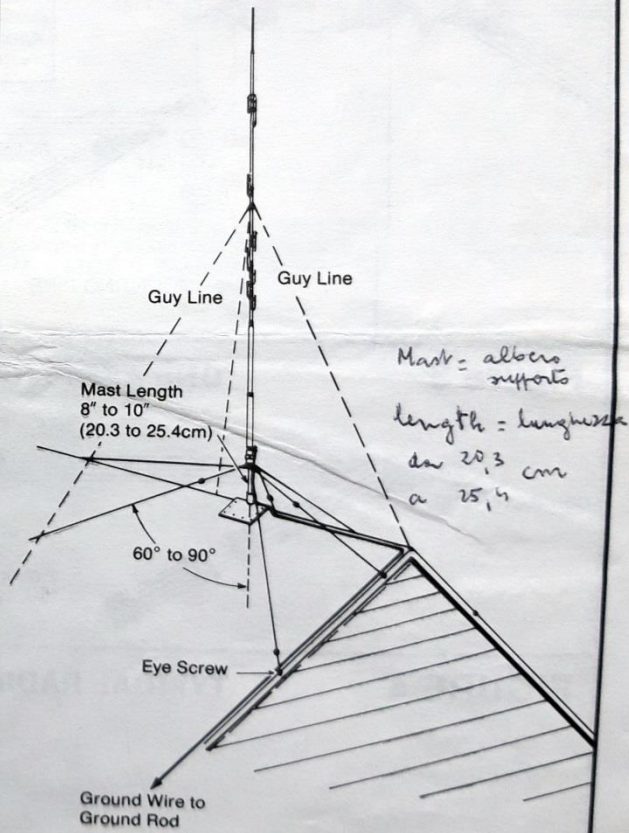
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**Figure 5**  
**GROUND MOUNTED RADIAL KIT**



**Figure 6**  
**POLE OR ROOFTOP MOUNTED RADIAL KIT**



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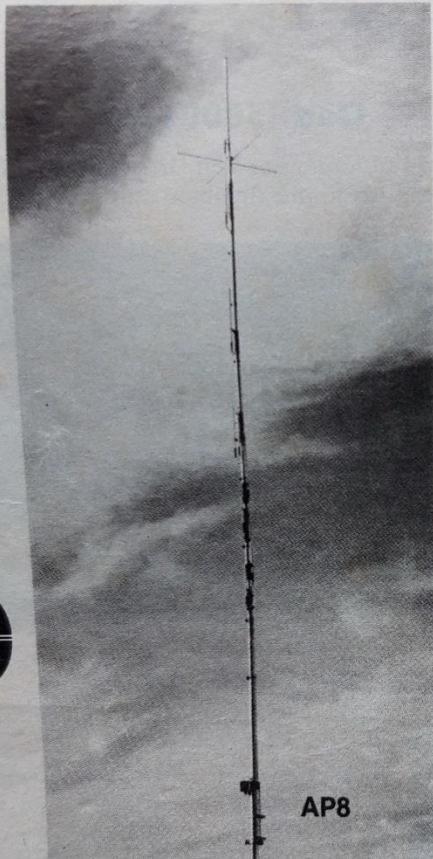
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### AP 8 HF VERTICALE MULTIBANDA - Cod. 590009 - Lit. 469.000

Che dire di questa verticale multibanda che permette di essere attivi in tutte le frequenze HF?!?! La costruzione con metalli di elevata resistenza e con "hardware" in acciaio INOX, le notevoli bande di utilizzo, la grande efficienza, la potenza applicabile, la semplice installazione e soprattutto il prezzo accessibile fanno della AP 8 la scelta vincente di ogni radioamatore!

Ideale l'uso di questa antenna con l'accordatore MT 3000 DX



AP8

MODEL	AP 8
Frequency, Meters	10,12,15,17,20,30,40,80
Electrical Wavelength	1/4
SWR 1.2:1 Typical	
2:1 Bandwidth	Full Band
Except 40>150 KHz & 80 M>60 KHz	
Power Rating, Watts PEP	2000
Radiation Angle Deg.	18
Freq. Selection	Automatic
Horizontal Rad. Pattern Deg.	360
Height (m)	(7.92)
Mast Size Range (cm)	(3.8-4.4)
Wind Load (m <sup>2</sup> )	(1.14)
Weight (Kg)	(4.2)
Radials Required	Normally
Radial Kit Avail	Yes, APR 18

MODEL	AV3	AV5
Frequency, Meters	20,15,10	80,40,20,15,10
Electrical Wavelength		
Each Band	1/4	1/4
SWR 1.2:1 Typical		
2:1 Bandwidth	Full Band	Full Band except 80M > 70 KHz
Power Rating, Watts PEP	2000	2000
Radiation Angle Deg.	18	18
Freq. Selection	Automatic	Automatic
Horizontal Rad. Pattern Deg.	360°	360°
Height (m)	(4.2)	(7.4)
Mast Size Range (cm)	(3.8-4.4)	(3.8-4.4)
Wind Load (m <sup>2</sup> )	(.1)	(.19)
Radiation Required	Normally	Normally
Radial Kit Available	Yes, APR 18	Yes, APR 18

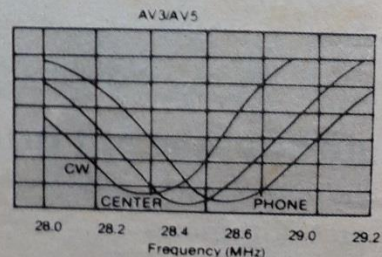
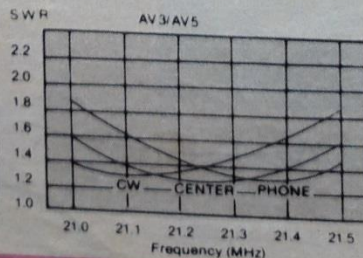
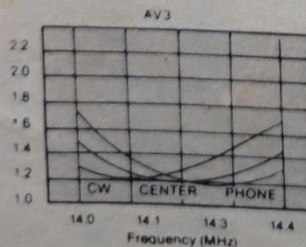
### KIT RADIALI APR 18

Cod. 590032 - Lit. 89.000

### AV 5 HF VERTICALE 5 BANDE

Cod. 590010 - Lit. 365.000

Classica verticale multibanda per le frequenze dei 10,15,20,40,80 metri. Ottimo il suo comportamento nei confronti dei R.O.S., potenza max. 2000 watts, versatile, economica: l'antenna giusta per la Vostra stazione!



### AV 3 HF VERTICALE 3 BANDE

Cod. 590011 - Lit. 199.000

Stesse caratteristiche costruttive della AV 5 ma con frequenze lavoro nei 10,15,20

Buon divertimento, Alessandro Frezzotti