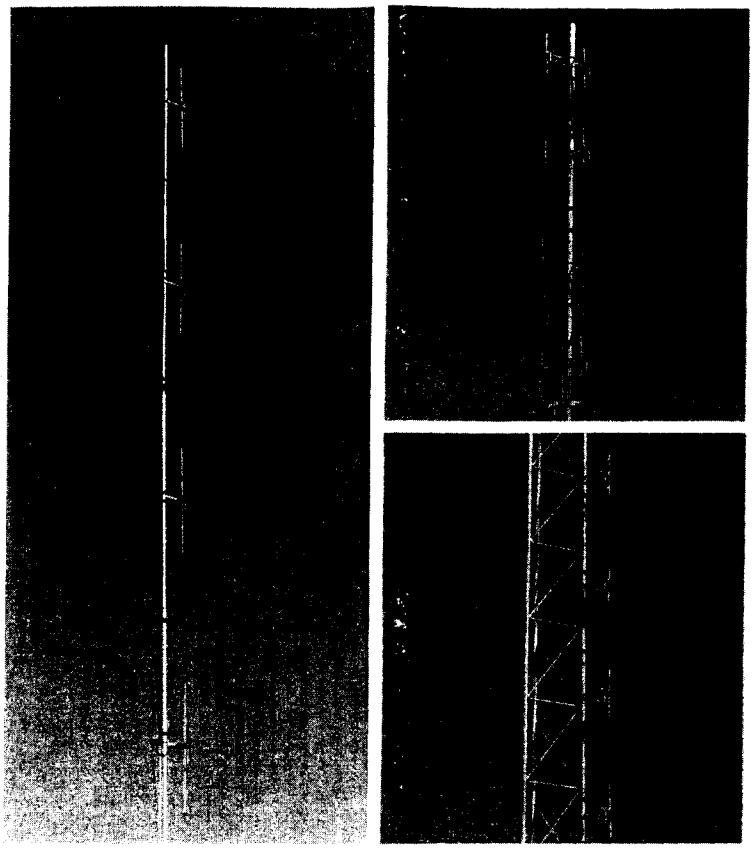
ASSEMBLY & INSTALLATION INSTRUCTIONS



PROLINE PREASSEMBLED FOUR POLES

&

FOUR POLE MASTS

PF-156DA, PF-167DA, PF-457DA

PF8-457DA, PFM-8, PFM-22

cushcraft
CORPORATION
THE ANTENNA COMPANY

951316 (2/87)

INSTALLATION INSTRUCTIONS

Your Cushcraft Four Pole 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 if care is used in assembly and installation.

MASTING

The mast mount brackets will take up to a 2"OD. Mast. For protected installations where severe wind and weather will not be encountered, 1¼"OD. steel television type tubing will be satisfactory. At remote exposed locations where wind and ice loading will be encountered, a heavy wall 2"OD. steel or aluminum mast should be used. The PF-156DA requires 24' of masting, PF-167DA 22', the PF-457DA 8.5', and the PF8-457DA 8.5'.

LOCATIONS

FOR maximum isolation between pairs of four pole antennas keep the vertical spacing as great as possible. Pairs of four pole antennas may be combined for higher gain requirements.

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 INSTALLAIONS RECOMMENDED BY THE U.S. CONSUMER PRODUCT SAFETY COMMISSION AND LISTED IN THE ENCLOSED PAMPHLET.

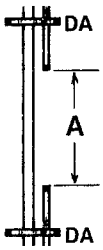
ASSEMBLY

The Reddi Match and dipoles are factory assembly on the booms. The PF-156DA, PF167DA, and PF-457DA have 1 dipole for each boom. The PF8-457DA has 2 dipoles, 1 on each end of the boom.

Mount the assemblies to the center support or tower using the 2⅜"x 4¼" U-bolts (142) as shown in Figure 1. Keep all Reddi Match rods pointing down on the PF-156DA and the PF-167DA. The Reddi Match rods point up on the PF-457DA and PF8-457DA. The mast or tower section should extend 5" above the top element.

After tuning and checking the dipoles, prepare to connect the coaxial phasing harness (CPH). Coat the outside threads, of the connectors, on each dipole with silicone grease. DO NOT GET SILICONE ON THE CENTER PIN OF THE CONNECTOR. Connect the coaxial phasing harness as illustrated in Figure 2. Tighten until finger tight. Push the black vinyl boot over the connector as far as it will go. Use the remaining silicone around the edges of the vinyl boot. Connect your 50 Ohm feed cable to the center connector, Figure 2. Dress the cables along the booms and down the mast using electrical tape to hold it in position. Recheck and tighten all fasteners and connections.

THE TIP-TO-TIP VERTICAL SPACING SHOULD BE



Model	Dimension A
PF-156DA	37''(94.0cm)
PF-167DA	33⅝"(85.3cm)
PF-457DA	13⅝"(34.6cm)
PF8-457DA	13⅝"(34.6cm)

MOUNTING OPTIONS

For a uniform 360 degree pattern with 6 dBd gain, space the dipoles equally around the mast or tower, with each dipole 90 degrees from the dipole above and below it. The PF8-457DA should be mounted with each pair of dipoles 90 degrees from the pair above and below them for a 6.6 dBd 360 degree pattern.

For a semi directional pattern with 9 dBd gain, using the PF-156DA, PF-167DA or the PF-457DA, mount the dipoles in one line on one side of the mast. The gain at 100 degrees either side of the center will be 5 dBd. Gain directly in back of the antenna will be 1.5 dBd.

For an elliptical pattern with 7.8 dBd gain, using the PF8-457DA, mount the dipoles in one line on each side of the mast. The gain directly out from the dipoles will be 5 dBd with the 7.8 dBd gain being 90 degrees to either side.

TUNING

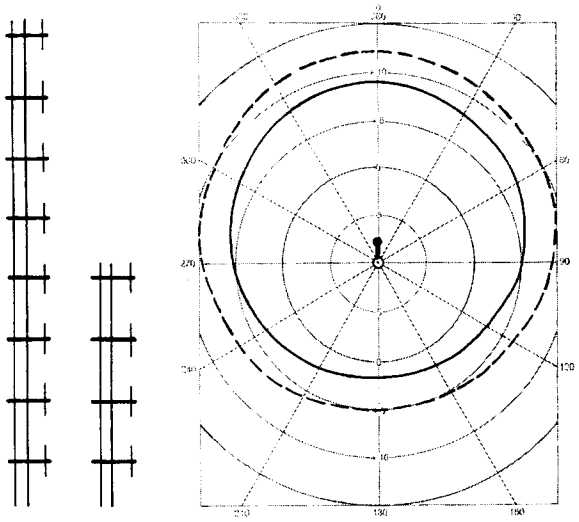
The Reddi Match units are preset. In most installations no tuning will be required. If you do find it necessary to tune, follow the procedure outlined below for each dipole. The PF-156DA and PF-167DA have fixed Reddi Matches and are not tunable.

1. Insert a good quality watt meter in the 50 ohm cable between signal source and the dipole.

2. Set the watt meter for reflected power. If the reflected power is high, loosen the tuning strap and adjust it slightly in either direction. Move away from the antenna and check the reading. If the reflected power has increased, move the strap back to its original position and adjust in the opposite direction. If the reflected power dropped, repeat the adjustment procedure until you achieve minimum reflected power on the watt meter.

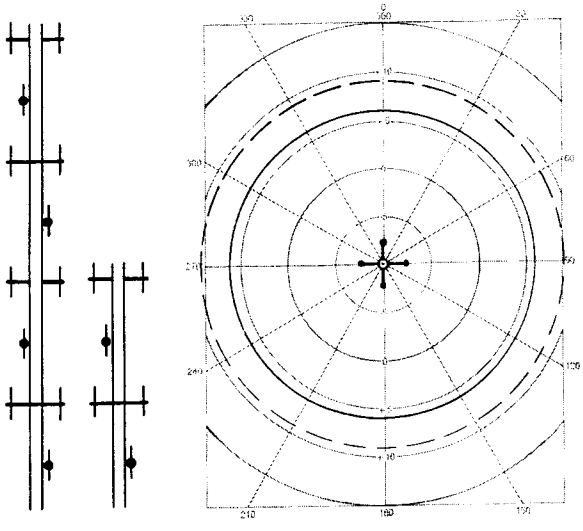
FOUR POLE PATTERNS

B2



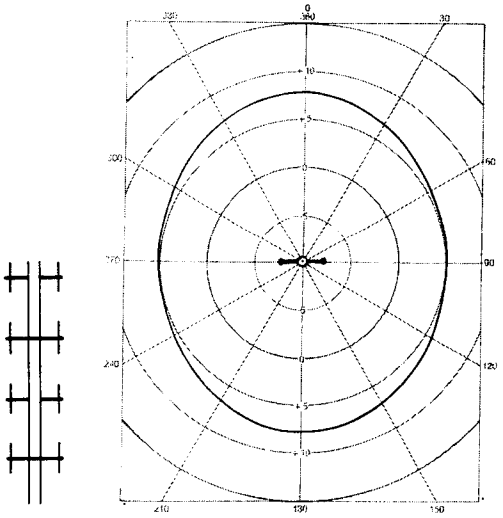
——— FOUR POLE OFFSET TOP MOUNTED ON MAST
– – – 2-FOUR POLES OFFSET TOP MOUNTED ON MAST

C



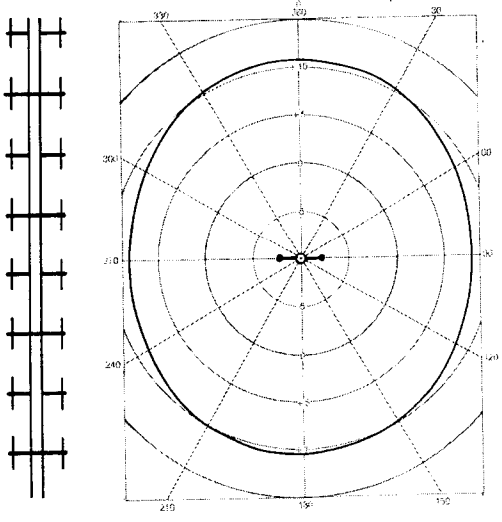
——— SINGLE PF8-457DA 6.6dBd
– – – 2-PF8-457DA 9.0dBd

D



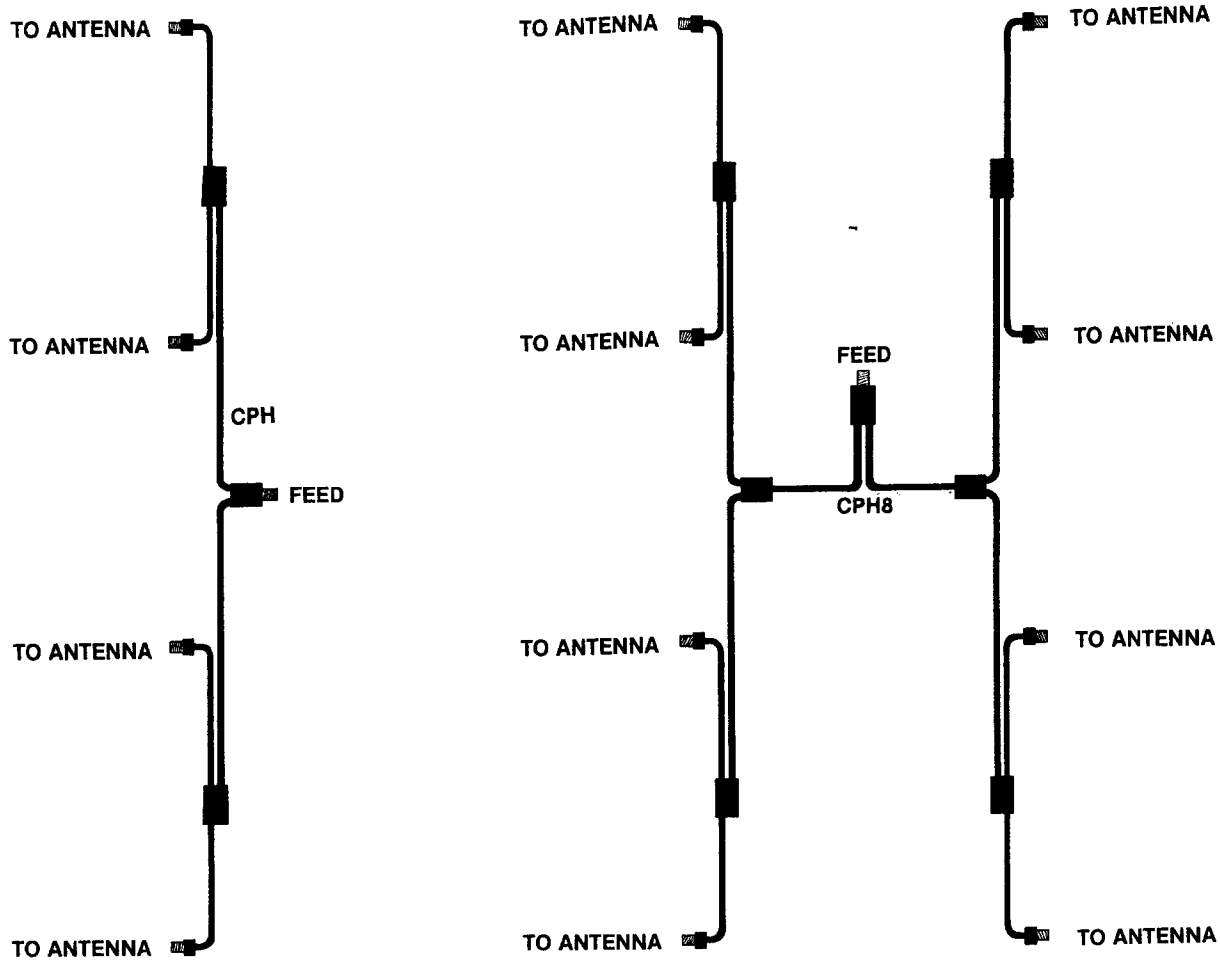
——— 2 - FOUR POLES ELLIPTICAL
——— PF8-457DA ELLIPTICAL

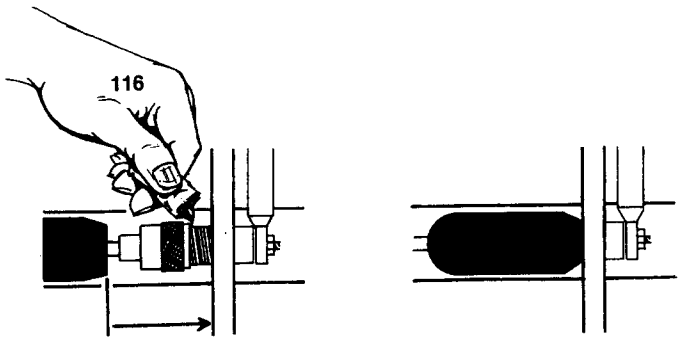
E



——— 4 - FOUR POLES ELLIPTICAL
——— 2 - PF8-457DA ELLIPTICAL

FIGURE 2





P/N	KEY	DISPLAY	DESCRIPTION	SIZE	QUANTITY	
					FOUR-POLES	PF-8-457DA
	CPH		Coaxial Phasing Harness		1	0
	CPH8		PF8-457DA Coaxial Phasing Harness		0	1
240116	116		Silicone Grease		3	6