



M2 Antenna Systems, Inc. Model No: 100-600VLP16



SPECIFICATIONS:

Model	100-600VLP16	Input Connector	"N" Female
Frequency Range.....	100-600 MHz Cont.	Power Handling	500 Watts
*Gain	9.64 dBi	Boom Length / Dia.....	84" / 1" & 3/4"
Front to back	12 dB Typical	Turning Radius:	48"
Beamwidth.....	E=64° / H=70°	Wind area / Survival	1.6 Sq. Ft. / 100 MPH
Feed Impedance.	50 Ohms Unbalanced	Weight / Ship Wt.....	14 lbs. / 16 lbs.
Maximum VSWR.....	2.5:1 Max, 1.5:1 Typical		
Mounting Polarity	Horizontal or Vertical		

***Subtract 2.14 from dBi for dBd**

FEATURES:

The 100-600VLP16 is a "V" boom log periodic with significant advantages over conventional designs. The split boom configuration produces a narrow "H" plane beamwidth similar to the "E" plane. The result is a nearly symmetrical pattern and higher gain. The physical capture area, or aperture, is also larger improving fade margins on UHF and VHF frequencies. The VLP can be mounted in horizontal or vertical polarity.

For long term electrical efficiency and durability, even under extreme environmental conditions, the element mounting clamps are machined with large electrical contact areas to the boom and element rods. Boom sections are insulated with the 2" x 1/4" fiberglass crossboom and polyethylene nosepiece. The crossboom is extra long to provide a mounting section beyond the boom for mounting in Horizontal polarity. Boom, element, plate and clamp materials are 6063-T832 and 6061-T6 aluminum alloys. All hardware except U-bolts are stainless steel.

100-600VLP16 ASSEMBLY MANUAL

REQUIRED TOOLS

#2 PHILIP'S HEAD SCREWDRIVER, 11/32" & 5/16" NUT DRIVERS, 7/16" & 1/2" END WRENCHES.

NOTE: IN ORDER TO ENSURE A LONG OPERATIONAL LIFE, A LIGHT COATING OF PENETROX TO ALL METAL TO METAL CONTACT AREAS INCLUDING SCREW THREADS, IS RECOMMENDED.

ASSEMBLY

1). **BOOM ASSEMBLY:** INSERT THE 3/4" TUBES INTO THE 1" SWAGED SECTIONS AND ALIGN THE TWO HOLES OF THE TWO IDENTICAL BOOM SECTIONS. SECURE WITH TWO 8-32 X 1-1/4" SCREWS & LOCKNUTS FOR EACH BOOM.

2). **INSTALLING THE ELEMENTS.** MAKE EACH HALF ANTENNA IDENTICAL, NOT MIRROR IMAGE. THEY WILL END UP MIRROR IMAGE WHEN IN THE FINAL CONFIGURATION. BEGIN WITH THE **SECOND TO THE SHORTEST ELEMENT HALVES**. PUT AN 8-32 X 1-1/2" SCREW DOWN THROUGH THE ELEMENT BUTT, THEN THROUGH A MOUNTING BLOCK FOR THE 3/4" BOOM DIAMETER. SET THIS ASSEMBLY ON THE BOOM AT THE SECOND SET OF ELEMENT HOLES ABOUT 2" IN FROM THE END. ADD A LOCKNUT AND TIGHTEN.

3.) NOW MOUNT THE NEXT LONGEST ELEMENT HALF IN THE NEXT HOLE BACK BUT THE ELEMENT MUST POINT OPPOSITE THE FIRST ELEMENT. ADD THE LOCKNUT AND TIGHTEN. CONTINUE INSTALLING PROGRESSIVELY LONGER ELEMENTS ON THE 3/4" DIAMETER BOOM SECTION UNTIL YOU HAVE 9 INSTALLED. THE NEXT ELEMENT MOUNTS ON 1" DIAMETER BOOM SECTION AND REQUIRES A LONGER (8-32 X 1-3/4" SCREW) AND DIFFERENT MOUNTING BLOCK THAT FIT THE 1" BOOM. CONTINUE MOUNTING THE ELEMENTS UNTIL YOU HAVE SECURED THE LONGEST ELEMENT HALF IN THE LAST HOLE.

4.) NOW, DO THE SECOND BOOM SECTION THE SAME WAY AND MAKE SURE THE HALF ELEMENT POINT THE SAME WAY AS THE FIRST WHEN THE ELEMENTS AND MOUNTING BLOCKS ARE ON TOP.

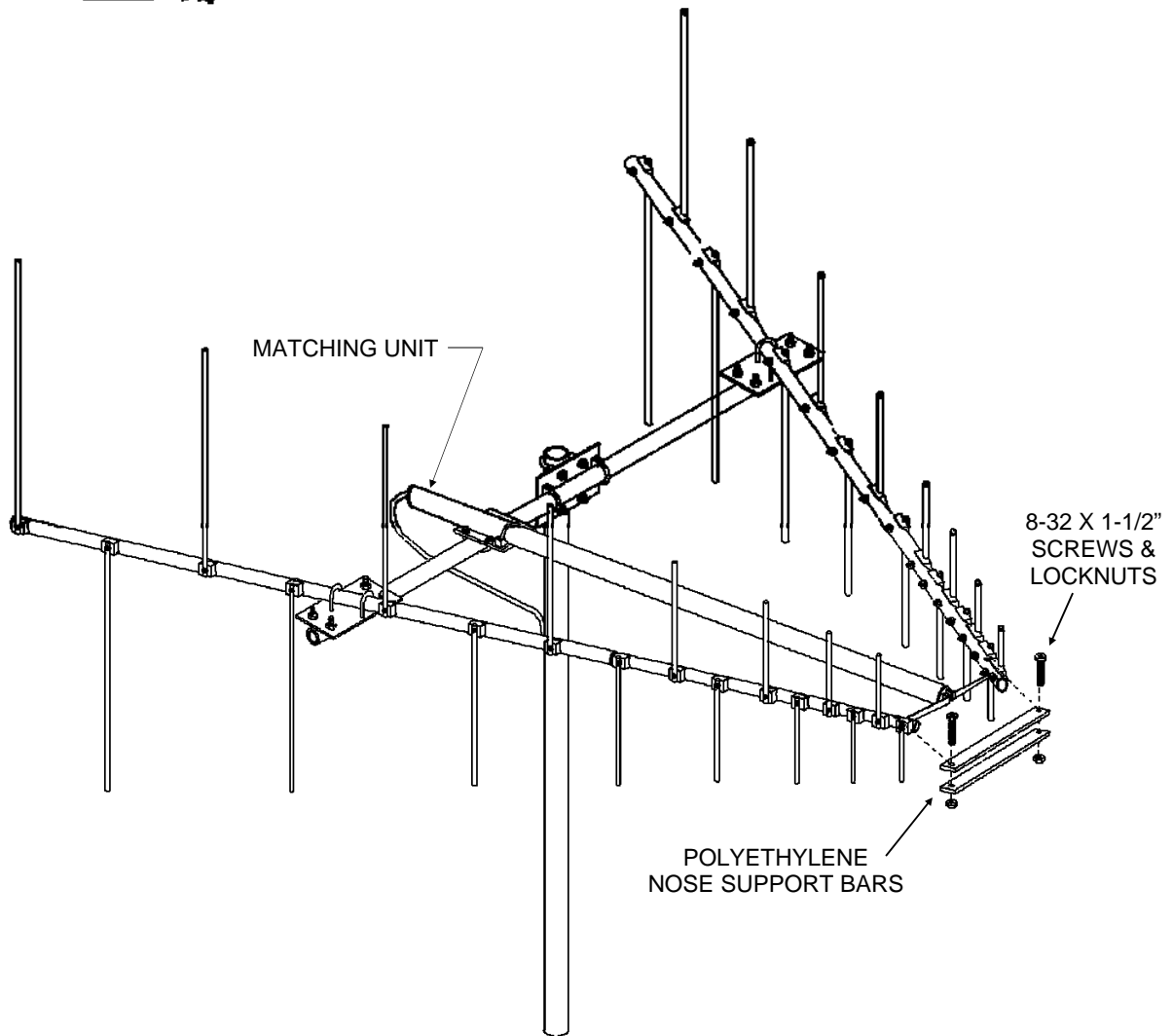
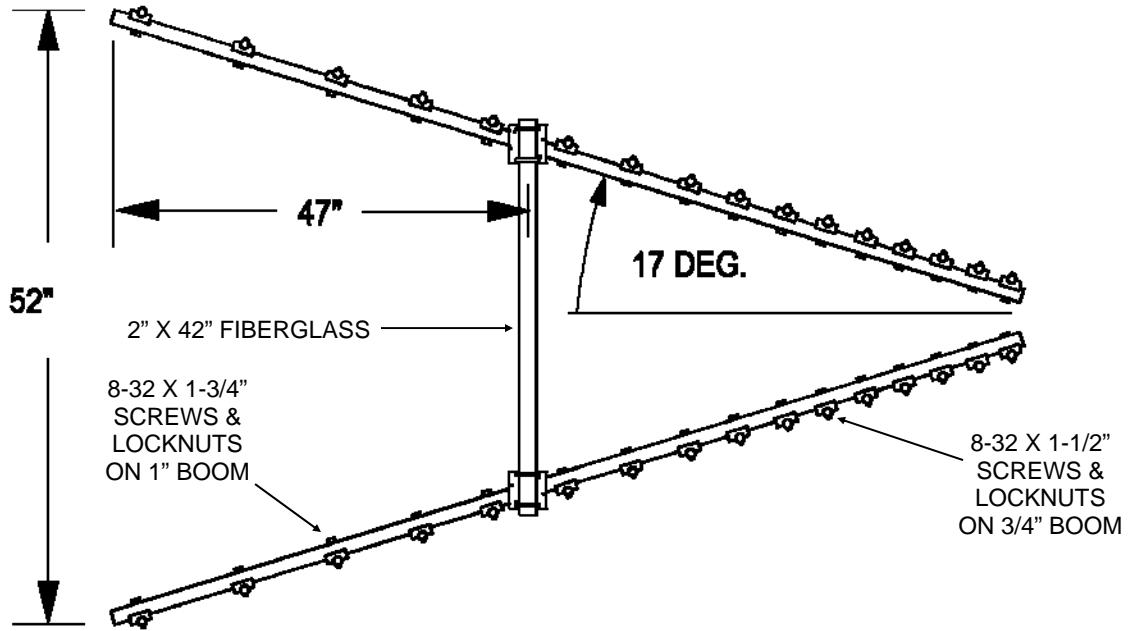
5). LOOSELY ATTACH A 3/16" X 4 X 4" PLATE TO EACH BOOM, CENTERING IT AT 47" FROM THE REAR OF THE BOOM (LONGEST ELEMENT). USE 1" U-BOLTS SECURED WITH 1/4" SPLIT RING LOCKWASHERS AND 1/4-20 NUTS.

6.) NOW ATTACH ONE ASSEMBLY TO THE END OF THE 2" FIBERGLASS MAST SO THE SHORTEST ELEMENTS POINT IN AWAY FROM THE MAST END. THE ELEMENTS SHOULD BE ON THE TOP IF THE MAST IS HELD VERTICALLY. USE 2" U-BOLTS AND CRADLES AND SECURE WITH 5/16-18 NUTS AND LOCKWASHERS.

7). NEXT, ATTACH THE SECOND ELEMENT ASSEMBLY ON THE MAST WITH THE ELEMENTS UNDERNEATH THE BOOM IF THE MAST IS HELD VERTICAL. SPACE THESE ASSEMBLIES APART SO THE REAR OF THE BOOMS ARE 51" TO 52" APART. ALIGN THE TWO HALVES SO THEIR "NOSES" ARE POINTING THE SAME DIRECTION AND ABOUT 4" APART.

8). ON THE FG MAST, BETWEEN THE ELEMENT SETS. MOUNT THE 1/8 X 3" X 4" PLATE USING THE LARGE THIN 2" U-BOLT AROUND THE MAST. NEXT INSTALL THE SMALLER THIN 1-1/4" U-BOLT AND FROM THE FRONT, PASS THE CABLE AND THEN THE MATCHING TUBE THROUGH THE U-BOLT UNTIL THE TWO TABS AT ONE END ARE NEAR THE NOSE OF THE ANTENNA. NOW USING (2) 6-32 X 1/4" SCREWS AND LOCKWASHERS, MOUNT THE 'Z' SHAPED CONNECTING TABS TO THE END OF THE MATCHING UNIT. DO NOT OVER TIGHTEN THE U-BOLT AROUND THE MATCHING UNIT AS THE

100-600VLP16 ASSEMBLY DETAILS



100-600VLP16 ASSEMBLY MANUAL

PVC COVER MAY BE DAMAGED.

9.) FINALLY INSERT AN 8-32 X 1-1/2" SCREW, FIRST THROUGH THE TAB, THEN THROUGH THE BOOM. SET AN ELEMENT MOUNTING BLOCK ON THE SCREW, ADD ONE SHORTEST ELEMENT HALF AND ADD THE LOCKNUT. REPEAT FOR THE OTHER TAB AND ELEMENT HALF. ALIGN AND TIGHTEN THE SCREWS AND NUTS.

10.) NOW ADD THE WHITE POLYETHYLENE SUPPORT BARS TO THE NOSE OF THE ANTENNA USING 8-32 X 1-1/2" SCREWS AND LOCKNUTS. AGAIN ALIGN AND TIGHTEN THIS ASSEMBLY.

11.) FINAL ALIGN THE ELEMENTS SETS PARALLEL WITH EACH OTHER AND TIGHTEN THE 1" U-BOLTS HOLDING THE BOOMS TO THE PLATES. FINAL ADJUST THE SPACING BETWEEN THE LONGEST ELEMENT SET TO 52" AND TIGHTEN THE LARGE 2" U-BOLTS AROUND THE MAST.

12.) HORIZONTAL POLARITY: THE 2" FIBERGLASS MAST IS THE FINAL SUPPORT MAST FOR THE ANTENNA.

13.) VERTICAL POLARITY: THE "MAST" NOW BECOMES THE "CROSS-BOOM" AND A BOOM TO MAST PLATE 3/16 X 4 X 6" MOUNTS IN THE CENTER OF THE CROSSBOOM USING TWO 2" U-BOLTS AND CRADLES. THE MATCHING UNIT SUPPORT PLATE MUST BE SLID JUST THE ONE SIDE OR THE OTHER OF THE PLATE AND MAIN MAST AND RE-TIGHTENED. TWO MORE 2" U-BOLTS ARE PROVIDED TO CONNECT THE ASSEMBLY TO YOUR MAST.

Carefully manufactured by:

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100-600VLP16 PARTS & HARDWARE

DESCRIPTION	QUANTITY
Boom Sec.#1, 1" x .058" x 56" SOE.....	1
Boom Sec. #2, 1" x .058" x 30-1/2" STR.....	1
Half Element, 3/8" tube x SEE dimension sheet	32
Element Mounting Block, 3/8" x 3/4 for 1", alum	12
Element Mounting Block, 3/8" x 3/4 for 3/4", alum	20
Boom to mast plate 3/16" x 4" x 4" alum.	2
Matching section with 24" RG-302/AU pigtail.....	1
Support plate, matching section, 1/8" x 3 x 4 alum. ..	1
Crossboom, 2" x 42" x 1/4" wall fiberglass	1
Penetrox Cup	1
Boom to mast plate for VERTICAL POL. 4x6" alum. 1	
Assembly manual.....	1

Hardware Bag

U-bolt and cradle, 2"	8
U-bolt, 1"	4
U-bolt, 1-1/4" ss.....	1
U-bolt, 2", ss.....	1
Universal saddle.....	2
Nut, 5/16-18, stainless	16
Lockwasher, 5/16", stainless.....	16
Nut, 1/4-20, stainless	12
Lockwasher, 1/4-20", stainless.....	12
Screw, 8-32 x 1-3/4", stainless.....	12
Screw, 8-32 x 1-1/2", stainless.....	22
Screw, 8-32 x 1-1/4", stainless.....	4
Locknut, 8-32, stainless	38
Screw, 6-32 x 1/4", stainless	2
Washer, split ring, ss.....	2
Nose support bars, 3/16" x 3/4" x 3-7/8' poly	2

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