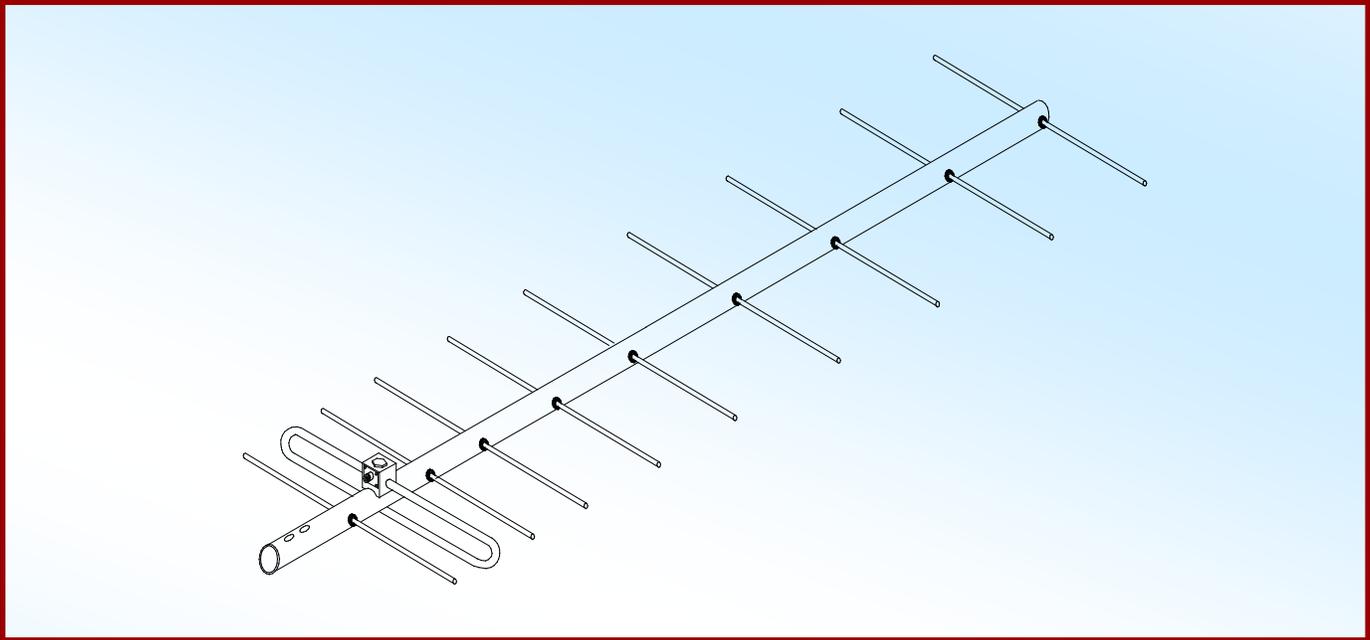




M2 Antenna Systems, Inc. Model No: 440-460-11HD



SPECIFICATIONS:

Model	440-460-11 HD	Power Handling	1.5 kW
Frequency Range.....	440 to 460 MHz	Boom Length / Dia.....	60" / 1-1/2"
*Gain	13.8 dBi	Maximum Element Length.....	40-5/8"
Front to back	20 dB Typical	Turning Radius:	18' 9"
Beamwidth	E=33° H=40°	Stacking Distance.....	36"
Feed type	Folded Dipole	Mast Size.....	1-1/2" to 2" Nom.
Feed Impedance.....	50 Ohms Unbalanced	Wind area / Survival	0.66 Sq. Ft. / 125 MPH
Maximum VSWR.....	1.2:1 Typical	Weight / Ship Wt.....	13 Lbs. / 14 Lbs.
Input Connector.....	"N" Female		

***Subtract 2.14 from dBi for dBd**

FEATURES:

The 440-460-11HD is a rugged antenna that has been computer optimized at the 440-460 MHz band. By raising the top end of the frequency it allows use in the commercial band and now maintains good performance in the amateur band even with 1/2" radial ice. The driven element has been engineered to handle up to 3 kW. It is ideal for repeater linking or any point to point application. Clean patterns in most applications provide more reliable communications with less inter-mode. An optional stacking harness is available when more than one antenna is required for reduced beamwidth or additional gain. Users are surprised by the performance of this compact but potent antenna.

Construction is classic M2 for long term electrical and mechanical integrity. Elements are 3/8" 6063-T832 tube, mounted through the boom on UV stabilized insulators and locked in place with stainless steel shaft retainers. The driven element module is CNC machined and all openings are O-ring sealed. The driven element halves are aluminum brazed for a perfect seal.

440-460-11HD ASSEMBLY MANUAL

ASSEMBLY INSTRUCTIONS

Tools required: 1/2" AND 7/16" wrench, Phillips #2 screwdriver, 11/32 nut driver or equiv. And tape measure

1. Lay out the ten 3/8" tube elements and arrange them according to the lengths on the DIMENSION SHEET from REFLECTOR (rear most) to FRONT DIRECTOR (front most).
2. 5/8" black polyethylene, button insulators are provided for element mounting.
ASSEMBLY TIPS: A. Using a pocket or deburring too, lightly chamfer each hole to remove the sharp edge left from the drilling operation. This deburring will make the insulators slide in easier. Sometimes the black button insulators are tight on the tube element. Hand twisting a 3/8" drill bit through the hole will ease assembly.
3. Starting with the REFLECTOR element, push the tube half way through an insulator. Insert the smaller diameter side of the insulator in the rear hole of the boom and push in until the insulator shoulder is against the boom. Now add the second insulator on the other side of the tube and push it tight against the boom.
4. Continue adding elements to the boom until all are in place except for the DRIVEN ELEMENT FOLDED DIPOLE. Now center the elements carefully to within at least 1/16" using a tape measure or scale.
5. Using the 3/4" push tube", provided, or a 9/16" deep socket, install the element keepers on both sides of each element and push them tight against the button insulators.
6. Install driven element to boom and secure with a 8-32 x 1-3/4" screw and lockwasher. Orient the feed connector to the front.
7. Provide strain relief to feedline connector by securing feedline to boom with the supplied cable ties. Tie feedline near driven element and again where it meets the mast. Ties should hold firmly but not crush or kink feedline .
8. If you have just a single antenna, add the boom to plate as shown on the DIMENSION SHEET, using 1-1/2" U-bolts on the boom and 2" U-bolts are provided to clamp to the mast. Stainless steel nuts and lockwashers have been provided.
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9. OPTIONAL MOUNTING FOR ARRAYS. Add the machined clamp set to the boom at the balance point. Mark and measure the distance from the rear of the boom. Now mark the other antennas for the position of the clamp set. THIS MOUNTING SPOT MUST BE IDENTICAL FOR ALL THE ANTENNAS IN THE ARRAY.
10. Use two (2) 1/4-20 x 2-1/4" bolts and locknuts. Install the clamps on the boom first at your mark and hand tighten the hardware. Slip the open end of the clamp set over the end of the 1" mounting frame. Align the antenna elements to the proper polarity; and align the antenna straight and square with the mounting frame and tighten the hardware. Repeat with the other antenna (s) as necessary.

TO MAINTAIN PROPER PHASE BETWEEN THE ANTENNAS, BE SURE ALL THE DRIVEN ELEMENT BLOCKS ARE ON THE SAME SIDE OF THE BOOMS ON EACH SIDE OF THE ARRAY. THE ANTENNA SHOULD NOT BE MIRROR IMAGE AS THIS WILL CAUSE THE ANTENNAS TO BE 180 DEGREES OUT OF PHASE.

440-460-11HD PARTS LIST

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DESCRIPTION	QTY
BOOM, 1.5 x .125 X 60".....	1
PARASITIC ELEMENT, 3/8" TUBE	
x 13.25.....	1
x 11.75.....	1
x 11.625.....	1
x 11.25.....	1
x 11.188.....	1
x 11.062.....	1
x 11.0.....	1
x 10.75.....	1
x 10.688.....	1
x 10.437.....	1
DRIVEN ELEMENT ASSY., HD, 440 - 460 MHz.....	1
PLATE, BOOM TO MAST, 3/16" X 4 X 6" ALUM.....	1
U-BOLT AND SADDLE, 1-1/2".....	2
U-BOLT AND SADDLE, 2".....	2
ASSEMBLY MANUAL.....	1

IN HARDWARE BAG:

NUT, 5/6-18 SS.....	8
LOCKWASHER, 5/16" SPLIT RING SS.....	8
SCREW, 8-32 X 1-3/4", SS.....	1
LOCKWASHER, 8-32, SS.....	1
3/8" POLYETHYLENE INSULATORS, BLK.....	20
3/8" KEEPERS, (SHAFT RETAINERS), SS.....	20
PUSH TUBE, 5/8 x 3".....	1
CABLE TIE, BLACK.....	3

CAREFULLY DESIGNED AND MANUFACTURED BY
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