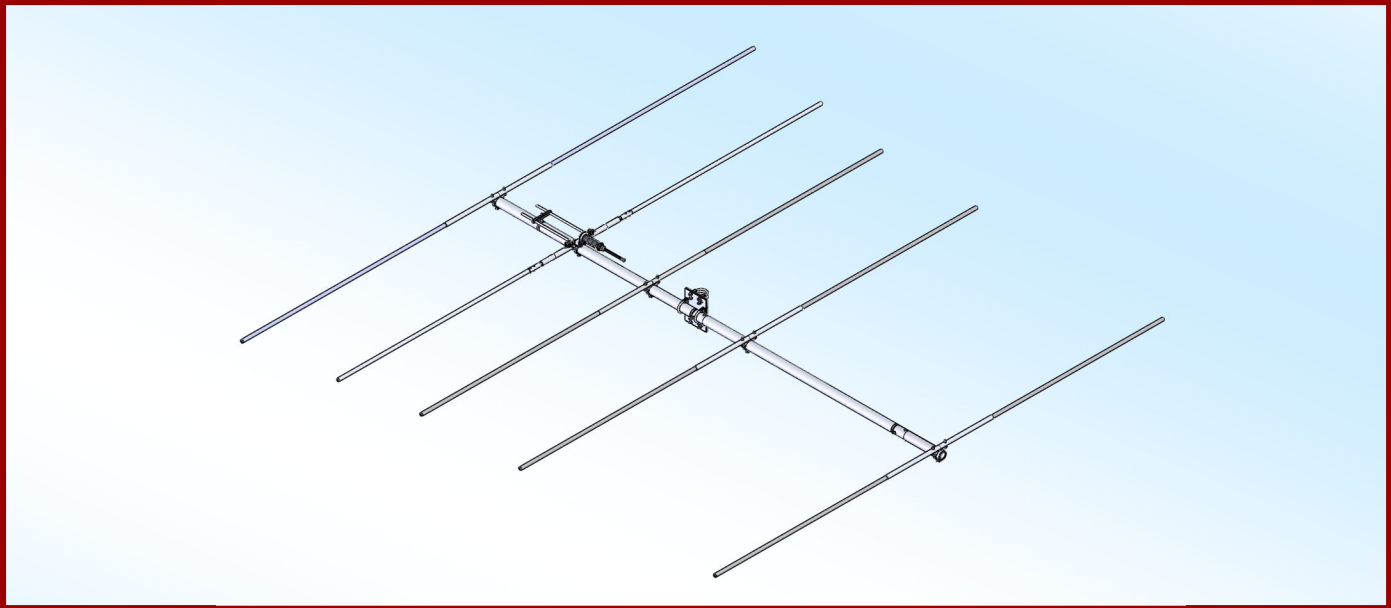




# M2 Antenna Systems, Inc. Model No: 44.5-5



## SPECIFICATIONS:

Model .....	44.5-5	Boom Length / Dia.....	17' 6" / 2"
Frequency Range.....	44.2 to 44.8 MHz	Maximum Element Length.....	157" / 7/8"-3/4"
*Gain .....	10.69 dBi	Turning Radius: .....	Call
Front to back .....	24 dB Typical	Stacking Distance.....	Call
Feed type .....	"T" Match	Mast Size.....	2" Nom.
Feed Impedance .....	50 Ohms Unbalanced	Wind area / Survival .....	3.0 Sq. Ft. / 100 MPH
Maximum VSWR.....	1.5:1 Max	Weight / Ship Wt.....	45 Lbs. / 50 Lbs.
Input Connector.....	"N" Female		
Power Handling.....	1.5 kW		

**\*Subtract 2.14 from dBi for dBd**

## FEATURES:

The 44.5-5 has been computer optimized from the ground up for gain and pattern covering 44.2-44.8 MHz. The original design was for Meteor Scatter, but can be used for Monitoring systems. The custom 4:1 balun and low loss "T" match help maintain high efficiency. Element ring clamps and other important components are CNC machined for maximum strength and electrical integrity. All antenna hardware is stainless steel and the U-bolts for mounting are zinc plated.

**M2 Antenna Systems, Inc.** has well over 30 designs for Meteor Scatter applications covering from 39 MHz to 50 MHz. If you have a specific requirement, please contact us for more details.

# 44.5-5 ASSEMBLY MANUAL

Note: A cup of zinc past (PENETROX, NOALOX, or equivalent) has been provided to enhance the quality of all the electrical joints in this antenna. Apply a thin coat wherever two pieces of aluminum come in contact.

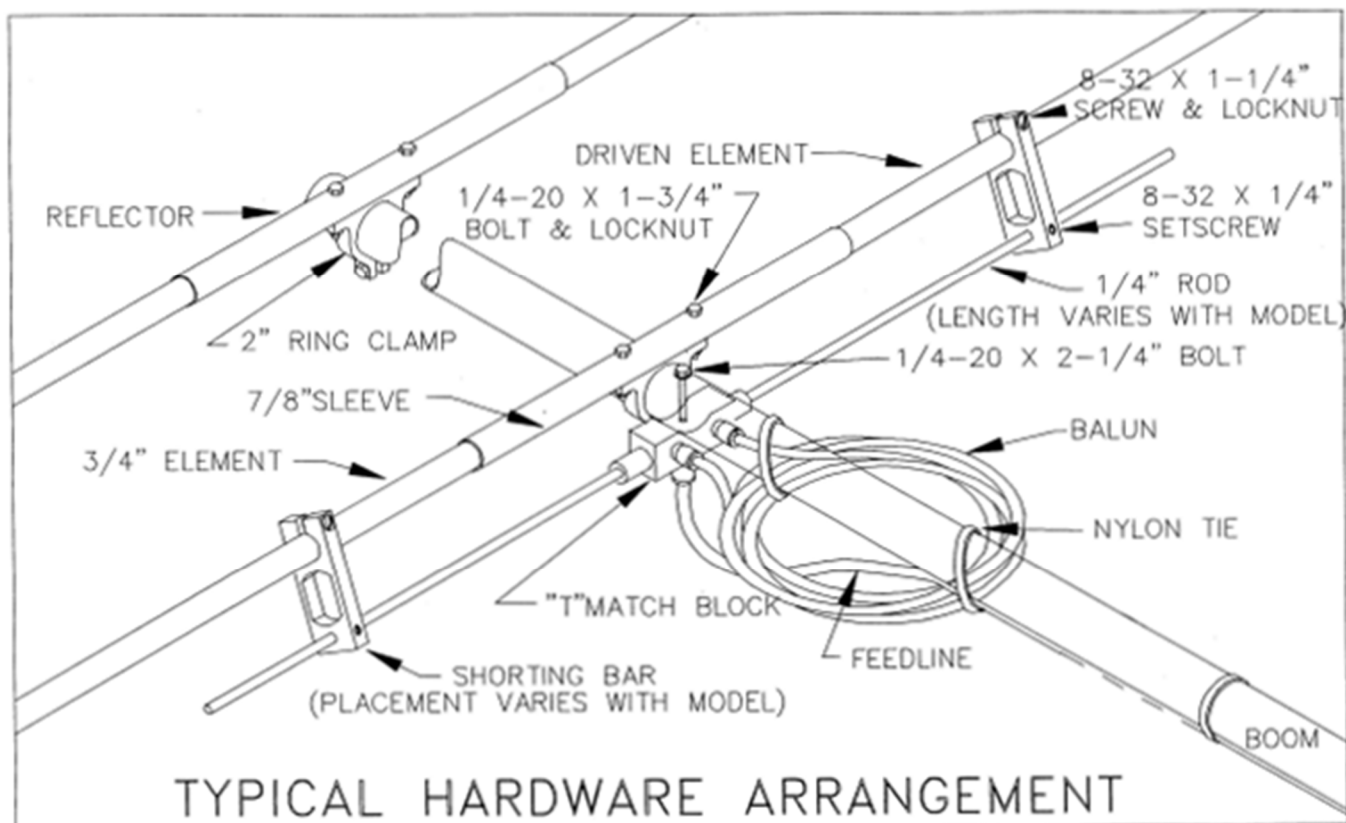
1. Refer to the Dimension Sheet. Note the different boom sections and the approximate position of each element. Slide the 2" RING CLAMPS into their approximate positions on the appropriate boom sections. For example, the rear boom section has three 2" ring clamps, one at 67-7/8" from the rear end. Note this section also has a 1/4" hole (for "T" match block). Accuracy is unnecessary: the boom must be assembled for exact settings. Spread the ring clamp fingers with a flat blade screwdriver to ease movement on the boom. Loosely add a 1/4-20 x 1" bolt and locknut to fingers of all clamps.

2. Return to the rear boom section. Mount the "T" MATCH ASSEMBLY BLOCK on the 1/4" hole, using a single 1/4-20 x 2-1/4" bolt. Orient balun connectors forward. Make sure the Driven Element ring clamp is to the rear of the "T" match block. Now slide the ring clamp up against the "T" match block and rotate until the element channel is on the opposite side of the boom from the "T" match block. Tighten the 1/4-20 x 1" bolt and locknut to hold the clamp in position.

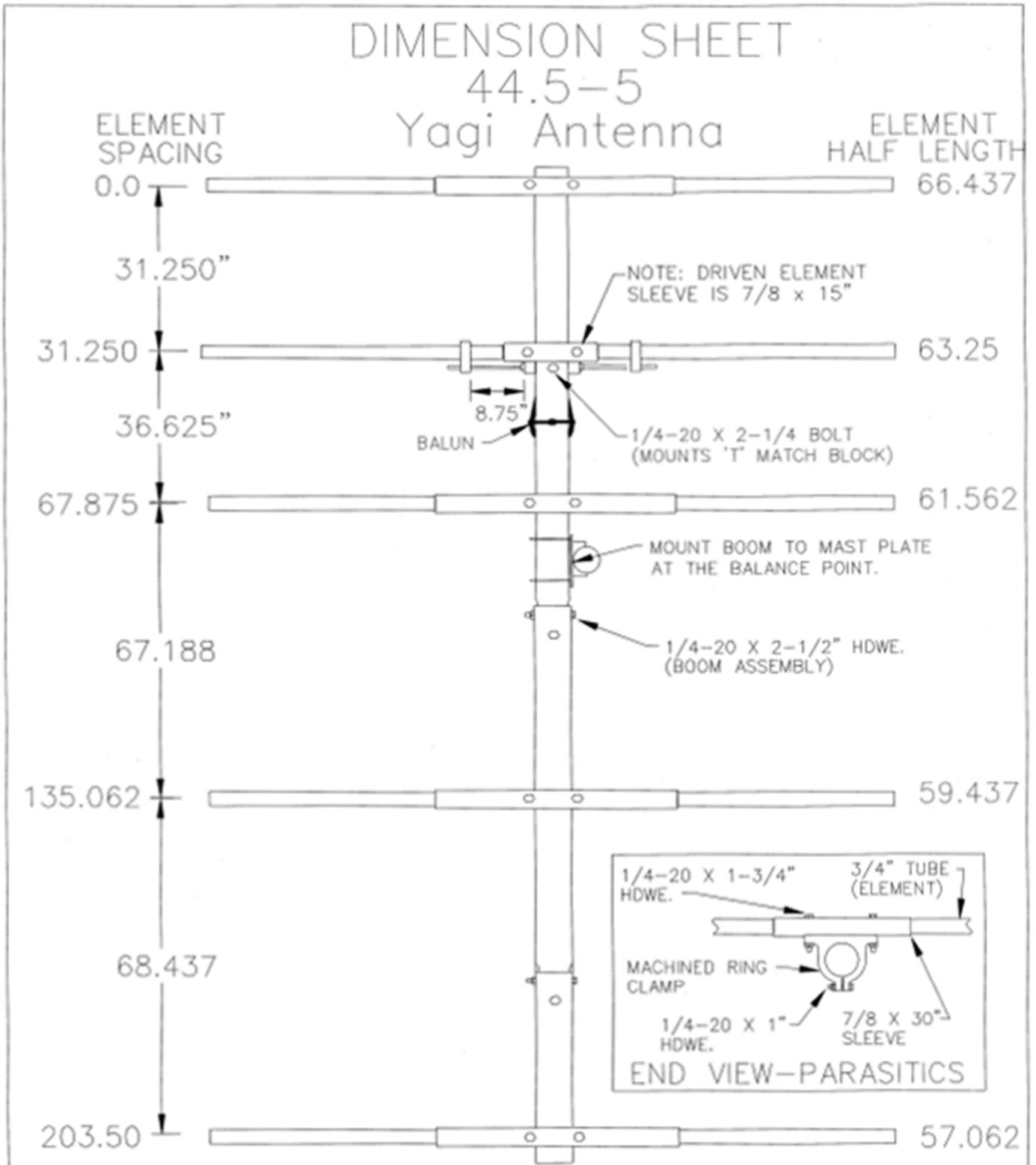
3. Sort the five 7/8" CENTER SPLICE sections: four are 30" long for use with parasitic elements. One is 15" and is used with the driven element.

4. Select the two 3/4" x 63.26" ELEMENT SECTIONS (length specified on the Dimension Sheet for the driven element) and slide a 4-3/8" long SHORTING BAR onto each one. Position them about 12" from the butt ends. Slide the butt end (with hole) of each 3/4" ELEMENT SECTION halfway into a 7/8" x 15" CENTER SLEEVE and line up holes. Slide a 1/4-20 x 1-3/4" bolt through each hole and place this assembly into the Driven Element ring clamp channel. Add the 1/4" locknuts and tighten.

5. Add the 8-32 x 1-1/4" screw and locknut and the two 8-32 x 1/4" set screws to each SHORTING BAR. Slide the shorting bars down onto the "T" MATCH rods and position them according to the Dimension Sheet. The given dimension is from the outer face of the "T" match block to the inner face of the shorting bar. Align the rods parallel with the element sections and tighten the hardware. A 5/64" Allen wrench has been provided for the set screws. Black plastic tip caps are supplied when match rods are 3/8" tube.



# 44.5-5 DIMENSION SHEET



NOT TO SCALE

DIMENSIONS SUBJECT TO CHANGE TO MEET SPECIFICATIONS

DNW BY F. STAAL	DATE 9-7-95	M <sup>2</sup> ENTERPRISES FRESNO, CALIFORNIA
DRW BY	DATE	
APP'D BY	DATE	PART NAME
CUSTOMER INFO	DATE	44.5-5 YAGI ANTENNA
DIMENSIONAL TOLERANCES		
FRACTIONAL	DECIMAL	ANGLES
	±.062	
NEXT ASSEMBLY	PART NO	FILE NAME / REV
		44_5_5DM

# 44.5-5 ASSEMBLY MANUAL

6. Now assemble all the boom sections, using 1/4-20 x 2-1/2" bolts and locknuts.
7. Pair up the remaining 3/4" element sections and 7/8" x 30" sleeves and mount to the ring clamps as in step #4, following the Dimension Sheet for length.
8. Now adjust ELEMENT SPACING following the Dimension Sheet. Since the Driven Element is fixed, use it as the primary measurement reference. Dimensions given are "center to center" but can also be used with a measuring tape, hooked and measured "edge to edge". After setting spacing, align elements with Driven Element and tighten the 1/4-20 x 1" ring clamp bolts.
9. Before installing the balun, thread a 3/8-32 seal nut all the way onto both block connectors, black Neoprene side facing out. Attach balun and tighten connectors gently using a 7/16" end wrench. Then back the seal nuts out and finger-tighten firmly up against the face of the connectors (or tighten gently with 1/2" end wrench). A lot of torque is unnecessary. Secure balun coil to the boom with two nylon cable ties. If the feed connector will be inaccessible after installation, install a feedline section forward to the balance point. Secure with harness ties.
10. Pick up the boom and mark the balance point. Center the BOOM TO MAST PLATE here, 6" length horizontal and secure with two 2" U-bolts, cradles, stainless lockwashers and nuts. Two 2" U-bolts are supplied for attaching the antenna to the mast.

This completes the ASSEMBLY. When the antenna is installed in position on the mast, the main feedline can be attached and sealed at that time. REMEMBER to support the feedline at the antenna boom and on the mast. Leave an adequate feedline loop for rotation around the tower. Mount horizontally polarized VHF and UHF antennas at least 40" above or below this antenna to minimize interaction.

**Carefully designed and manufactured by:**

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Fresno, CA 93722  
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# 44.5-5 PARTS & HARDWARE

DESCRIPTION.....	QTY
BOOM SECTION, 2" X .058 X 84" SOE.....	2
BOOM SECTION, 2" X .058 X 49" STR.....	1
ELEMENT SECTION, 3/4" X .049 X SEE DIMENSION SHEET.....	10
ELEMENT SLEEVE, 7/8" X .058 X 30".....	4
ELEMENT SLEEVE, 7/8" X .058 X 15".....	1
BOOM TO MAST PLATE.....	1
DRIVEN ELEMENT ASSEMBLY.....	1
BALUN, RG-6.....	1
RING CLAMP, 2".....	5
U-BOLT AND CRADLE, 2".....	4
ASSEMBLY INSTRUCTIONS.....	1

## IN HARDWARE BAG

SHORTING BARS, 1/2" X 1" X 4.375.....	2
NUT, 5/16-18 SS.....	8
LOCKWASHER, 5/16 SPLIT RING SS.....	8
BOLT, 1/4-20 X 2-1/2" SS.....	4
BOLT, 1/4-20 X 2-1/4" SS.....	1
BOLT, 1/4-20 X 1-3/4" SS.....	10
BOLT, 1/4-20 X 1" SS.....	5
NYLOCK NUT, 1/4-20 SS.....	19
SET SCREW, 8-32 X 1/4" SS.....	4
SCREW, 8-32 X 1-1/4" SS.....	2
NYLOCK NUT, 8-32 SS.....	2
NYLON TIE, 11".....	5
NUT SEAL, 3/8-32.....	2
TIP CAPS, 3/8".....	2
ZINC PASTE, 1 OZ.....	1

## M<sup>2</sup> ANTENNA SYSTEMS, INC.

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