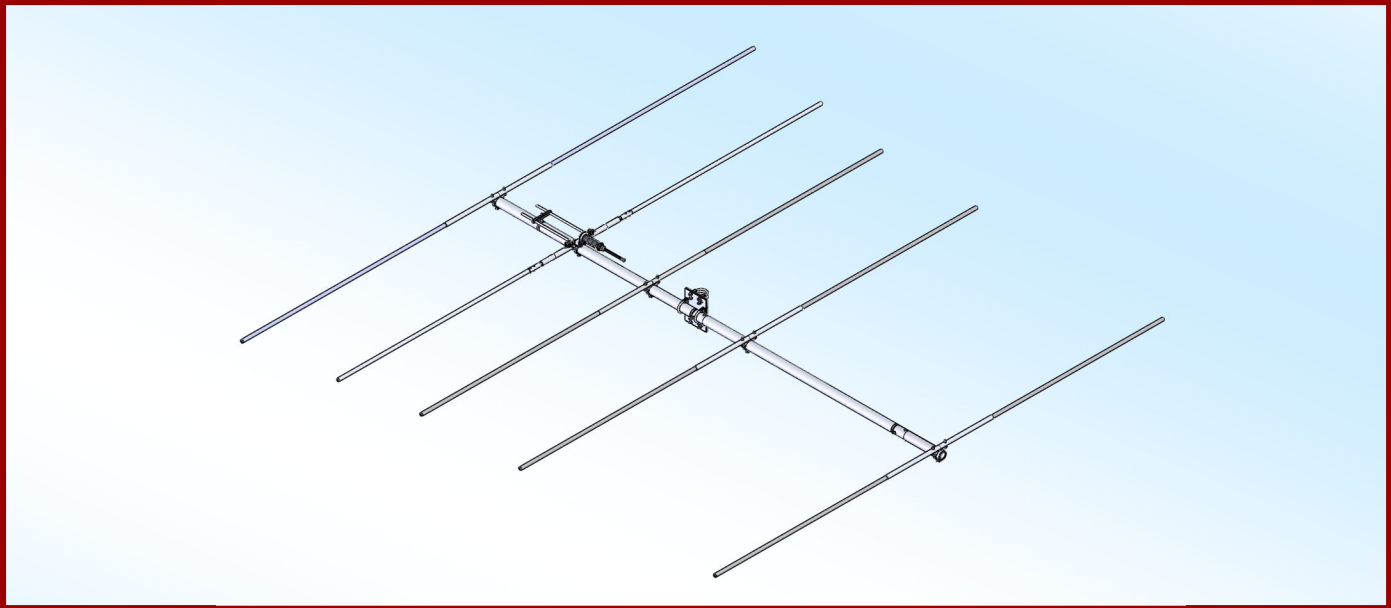




M2 Antenna Systems, Inc. Model No: 40.5-5



SPECIFICATIONS:

Model	40.5-5	Boom Length / Dia.....	13' 5" / 2"
Frequency Range.....	39.5 to 40.5 MHz	Maximum Element Length.....	177" / 7/8"-3/4"
*Gain	11.27 dBi	Turning Radius:	Call
Front to back	22 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 40.5-5 has been computer optimized from the ground up for gain and pattern covering 39.5-40.5 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.

40.5-5 ASSEMBLY MANUAL

TOOLS REQUIRED: 1/2" and 7/16" end wrenches or deep sockets, flat blade screwdriver, 11/32 nut driver or end wrench, knife or large diagonal cutters.

1. Begin by laying out the boom sections in order according to the DIMENSION SHEET.

NOTE: THE RING CLAMPS FOR ELEMENT MOUNTING MUST BE PUT ON THE BOOM PRIOR TO ASSEMBLING THE BOOM JOINTS.

2. Locate the rear boom section and install the two, 2" ring clamps on that section according to the dimension sheet. USE A FLAT BLADE SCREWDRIVER slipped in the slot of the ring clamp to spread it slightly allowing it to slide along the boom. Remove the screwdriver when the clamp is at the approximate dimension.

3. Continue installing ring clamps on the individual boom sections, positioning them according to the dimension sheet.

4. Now assemble the boom using the hardware called out on the dimension sheet. Use 1/4-20 locknuts and tighten securely.

5. Next mount the "T" match section using the SINGLE 1/4-20 x 2-1/4" bolt. The two small connectors for the bal-un should face the middle of the boom. The ring clamp for the DRIVEN ELEMENT should now be right against the access cap on the "T" match block. Rotate the ring clamp so the grooved side is on the opposite side of the boom from the "T" block.

6. Align the rest of the ring clamps with the driven element ring and "T" match section.

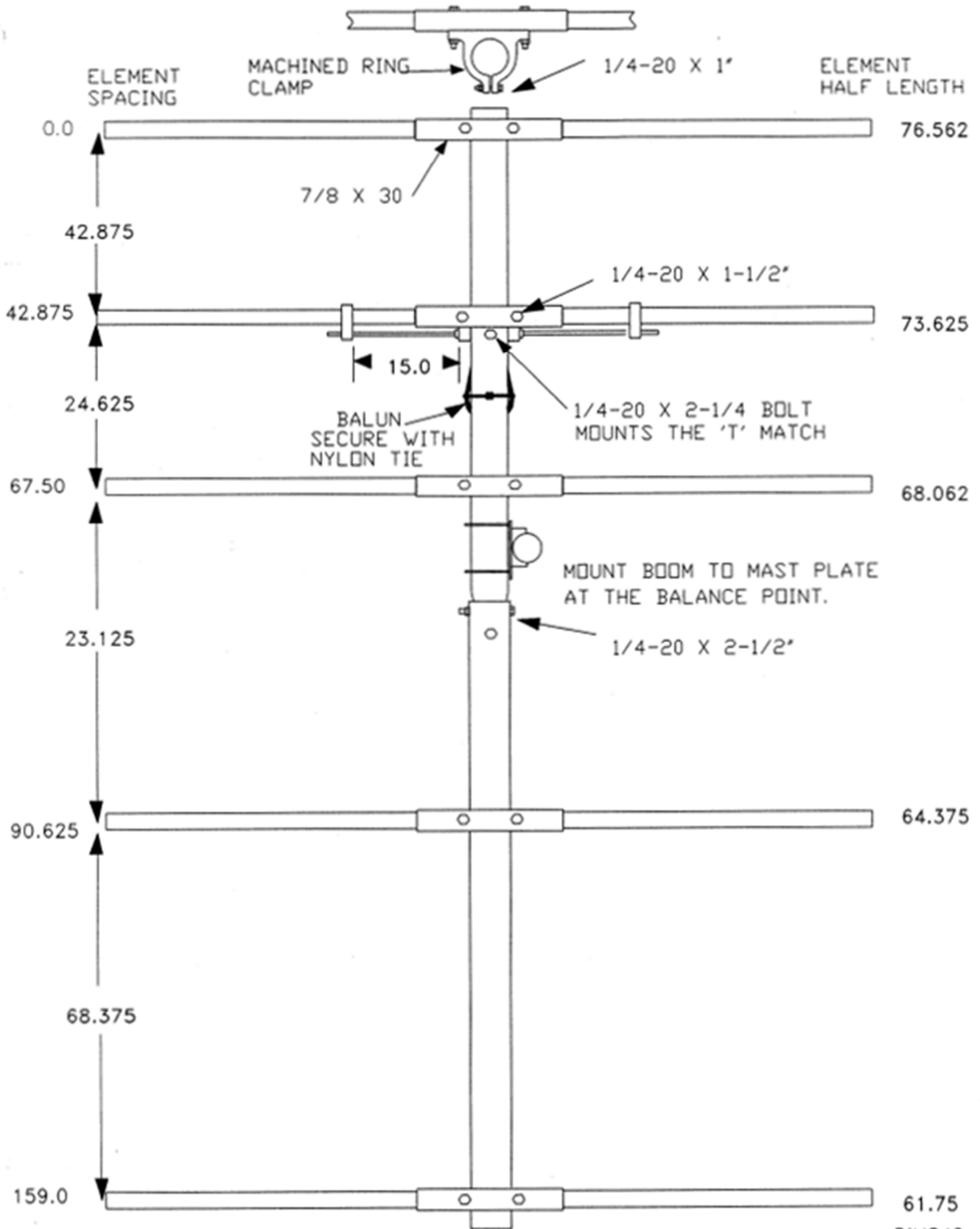
7. Layout the element pairs according to the length, longest (REFLECTOR) to the shortest (FRONT DIRECTOR)
NOTE: FOR ANTENNAS WITH 2-1/2" MID BOOM SECTION THERE ARE TWO DIFFERENT 7/8" SIEVE TYPES. Separate the center 7/8" x 30" sleeve sections. The ones with the close spaced holes mount on the 2" ring clamps.

8. Starting with the longest element (REFLECTOR) insert one element half into a "two inch" sleeve, align the holes and drop a 1/4-20 x 1-3/4" bolt through to hold it into position. Insert the second element half and install the second bolt.

9. Now place this assembly over the rear (REFLECTOR) ring clamp on the boom, add two 1/4-20 locknuts and tighten securely.

10. Now install the DRIVEN ELEMENT in the same manner. Then slide on the "T" match shorting bars and position them on the 3/8" diameter "T" sections on each side according to the DIMENSION SHEET. Install the 8-32 x 1-1/4" screw and lock nut on each side, align the shorting bars with each other and tighten in position. Add two 8-32 x 1/4" set screws to each side and tighten with the 5/64 Allen wrench provided. Add the two black plastic 3/8" caps to the ends of the "T" match tubes.

40.5-5 DIMENSION SHEET



DIMS40-5
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40.5-5 ASSEMBLY MANUAL

11. Continue element assembly until all are mounted on the boom. Re-check the element spacing according to the dimension sheet and re-adjust the positions if necessary. Now carefully align the elements with the DRIVEN ELEMENT, add a 1/4-20 x 1" bolt and locknut to each clamp and tighten each clamp in place.

NOTE: STEP 12 THOROUGH 16 ARE ONLY FOR BOOMS WITH 2-1/2" MID SECTIONS

12. install the EYEBOLTS in holes provided near each end of the boom. The eyes should be on the ELEMENT SIDE of the boom. Pick up the antenna and find the balance point. Mount the BOOM TO MAST PLATE at or near this point keeping the antenna just slightly FONT HEAVY to offset the feedline weight (added later). IMPORTANT: if this is part of a phased array, then all the mast mounting plates must be mounted at the same distance from the driven element to maintain proper phase.

13. If possible, install a short temporary mast to accommodate turnbuckle plate positioning using two 2" U-bolts. Using the 5/16" black Dacron support line, take two loops through an eyebolt, add two half hitches or equivalent knot leaving about 6 to 8 inches of line after the knot. Pull hard on the knot to "SET" it. Repeat this procedure at the other eyebolt. DON'T CUT THE LINE YET.

14. Open each turnbuckle so just one thread appears inside the body. Install the turnbuckle plate on the short temporary mast with another 2" U-bolt just an inch or so above the boom to mast plate. Hook in the turnbuckles, center the line for an equal amount for each turnbuckle and cut the line. NOTE: The line may be sealed with a lighter or equivalent to prevent fraying. Take two turns through the turnbuckle eye, pull taught and lock in place with two half hitches or equivalent. Repeat for the other turnbuckle.

15. Using black electricians tape, tape each line and tightly back on the taught line. Cut off any ends in excess of 18 inches.

16. Now slide or lift the turnbuckle plate up. At about 2 to 3 feet up, the boom will come straight. Final turnbuckle plate positioning and turnbuckle adjustment will be done during installation.

17. NOTE: HIGH POWER VERSIONS USE BALUNS WITH TYPE "N" CONNECTORS. On the smaller "F" type connectors install the 3/8-32 nut seals first on the female connectors with the seal out. Then install the balun on the "T" match block. When tightening the smaller "F" type connectors, use a 7/16" end wrench and gently tighten the connectors. Then using a 1/2" end wrench, gently tighten the nut seals up against the face of the male connectors. Use of weatherizing with COAX-SEAL or equivalent is OPTIONAL. Add the main feed line providing a 6 to 8 inch drip loop before fastening the feedline to the boom with the large cable ties provided.

This completes the ASSEMBLY.

Carefully designed and manufactured by:

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40.5-5 PARTS & HARDWARE

DESCRIPTION.....	QTY
BOOM SECTION, 2" X .058 X 84" SOE.....	2
BOOM SECTION, 2" X .058 X 42" STR.....	1
ELEMENT SECTION, 3/4" X .049 X SEE DIMENSION SHEET.....	10
ELEMENT SLEEVE, 7/8" X .058 X 30" (FOR 2" RING CLAMP).....	5
BOOM TO MAST PLATE, .188" X 4" X 6".....	1
DRIVEN ELEMENT ASSEMBLY.....	1
BALUN, RG-6.....	1
RING CLAMP, 2".....	5
U-BOLT AND CRADLE, 2".....	4
ASSEMBLY MANUAL.....	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
LOCKNUT, 8-32 SS.....	2
SEAL NUTS, 3/8-32.....	2
NYLON TIE, 11".....	4
ALLEN WRENCH, 5/64".....	1

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