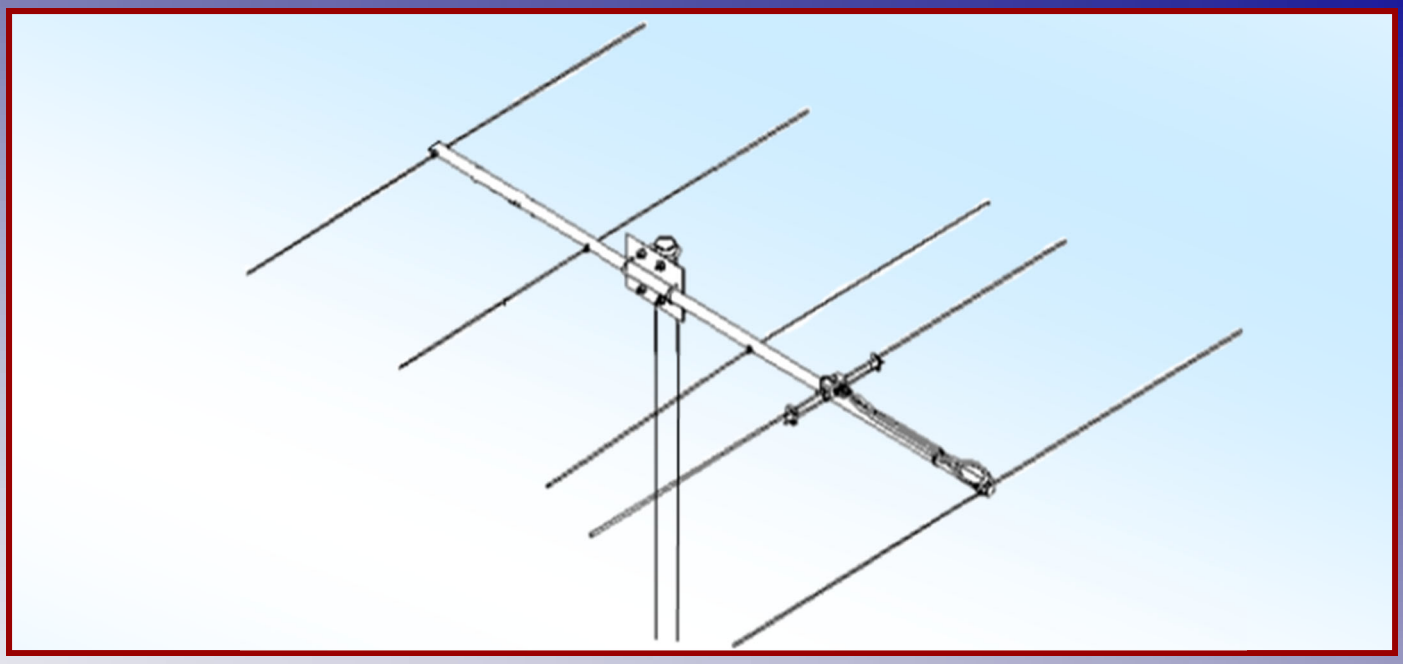
M2 Antenna Systems, Inc.
Model No: 173-5



SPECIFICATIONS:

Model	173-5
Frequency Range	173 To 174 MHz
*Gain	11.01 dBi
Front to back	28 dB Typical
Feed type	“T” Match
Feed Impedance.	50 Ohms Unbalanced
Maximum VSWR	1.5:1 Typical
Input Connector	“N” Female
Power Handling	1.5 kW
Boom Length / Dia	62” / 1”
Maximum Element Length	34” / 3/16”
Turning Radius:	Call
Stacking Distance	Call
Mounting	1-1/2” to 2” Nom.
Wind area / Survival	0.50 Sq. Ft. / 100 MPH
Weight / Ship Wt.	5 Lbs. / 7 Lbs.

***Subtract 2.14 from dBi for dBd**

FEATURES:

The 173-5 performance has been computer optimized to meet your application. Physical construction emphasizes long term electrical and mechanical durability. Elements are rod 3/16” 6061-T6 aluminum, grounded to the boom. The driven element “T” Match uses a CNC machined central block with O-ring sealed connectors. Internal connections are encapsulated in a silicone gel with a dielectric strength 3.7 times greater than air for enhanced power handling. Balun connectors are triple O-ring sealed to the coax.

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173-5 ASSEMBLY MANUAL

Tools handy for assembly process: screwdriver, 11/32” spin-tite or socket, 7/16” and 1/2” end wrenches sockets, measuring tape.

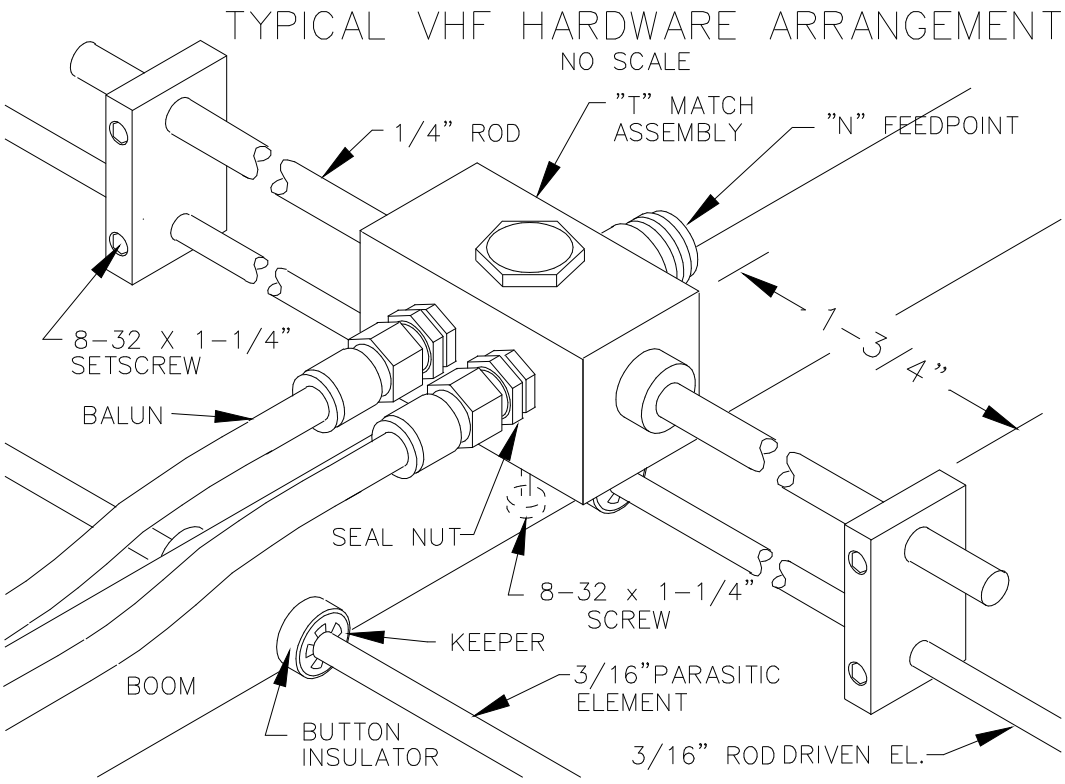
1. Lay out the elements by length and position as shown the DIMENSION sheet. Start with the REFLECTOR (longest) element. Balance on finger to find rough center and push on a black button insulator to about 1/2” from center. Push the element through the holes on the rear of the boom and install the second button, snugging it up into boom. DO NOT BOTHER WITH ACCURATELY CENTERING the element at this time and DO NOT INSTALL the stainless steel SHAFT RETAINERS yet. This is easier to do after all the elements are installed in the boom. Install the 3/16” rod DRIVEN ELEMENT as you did the reflector and then the DIRECTORS.

2. Now accurately center the elements. Use a tape measure to EQUALIZE the amount the element sticking out on each side of the boom. Begin installing the stainless SHAFT RETAINERS.” Use thumb and index finger to hold a retainer over end of the 3/8 x 3” push tube (retainer dished into tube). Hold the element firmly and start the retainer onto the rod by applying pressure with the push tube. Push the retainer until up tight against the button insulator (Locking pliers, ***lightly*** clamped up against opposite button insulator will help maintain center reference and keep you from pushing the first retainer too far). Repeat for the opposite side. Continue installing retainers until all elements are locked in place.

3. Mount the “T” MATCH BLOCK ASSEMBLY to the top of the boom using a single 8-32 X 1-1/4" screw. Orient the block with feed connector facing the rear and balun connectors facing forward.

4. Before installing the balun, thread a 3/8” SEAL NUT all the way onto each connector, with the black Neoprene face of the nuts facing out. Attach balun to the Block and tighten the connectors ***gently*** using a 7/16" end wrench. Once the connectors are tight, 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. Form the balun close to the boom and secure with a nylon cable tie. Tie should be snug but not crushing or kinking the coax.

5. Install the 8-32 x 1/4” set screws (internal Allen head - tool supplied) into the SHORTING BARS. Slide



the bars onto the 3/16” rod driven element tips and then onto the Driven Element Block Rods. Position the Shorting Bars as specified on the Dimension Sheet: 1-3/4”. Align the bars and rods with each other and tighten the setscrews.

THIS COMPLETES THE ANTENNA ASSEMBLY.

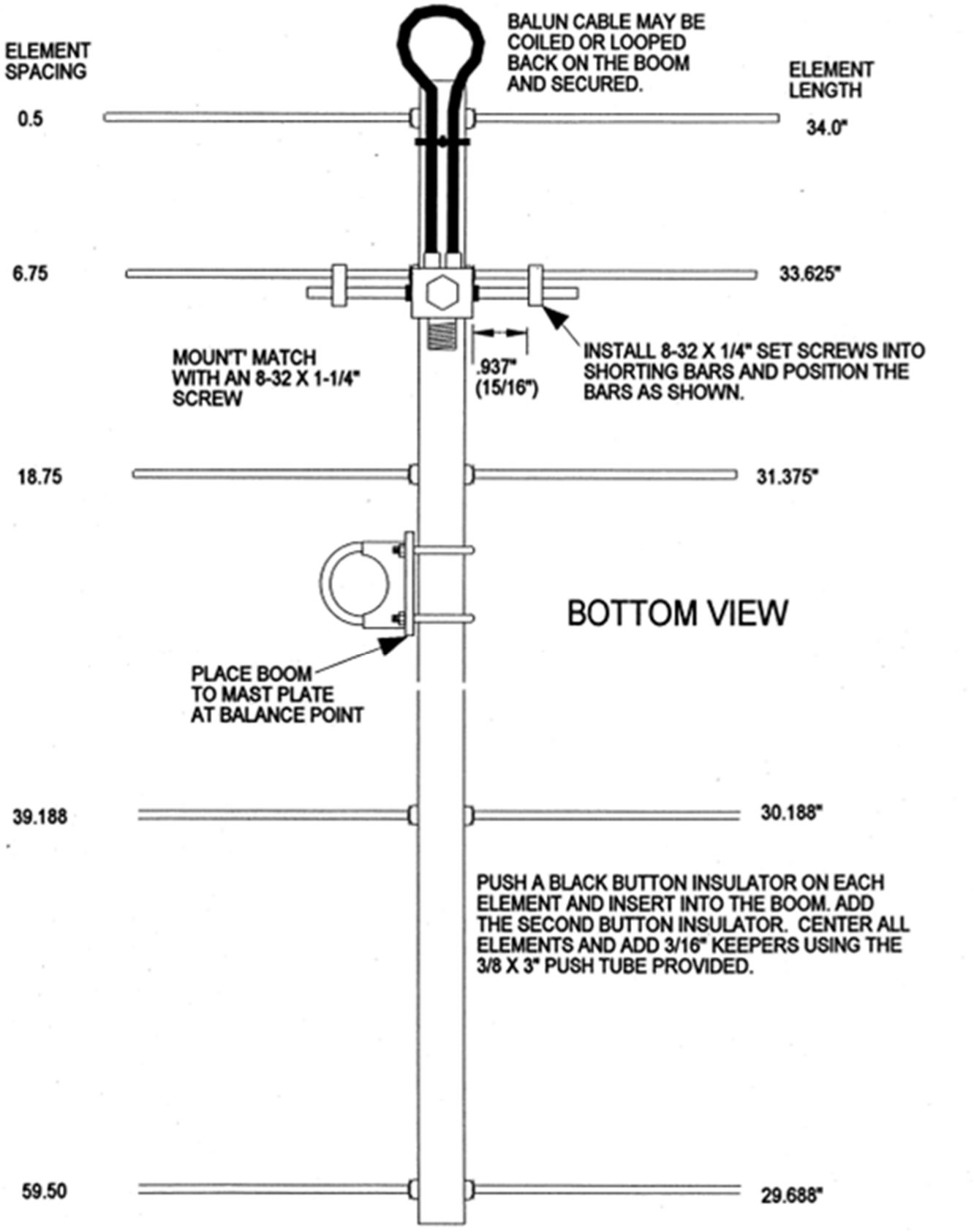
6. INSTALLATION AND STACKING INFORMATION

A. To protect your investment in this high performance antenna, always use high quality coax and connectors. Old, corroded, or poor quality materials are common sources of serious performance losses.

B. If possible, test the antenna, connectors and feedline BEFORE installing to your mast or tower. At 6 feet or more the antenna will exhibit VSWR ***similar*** to higher mounting heights. Set antenna on a ladder or temporary mast. Check for continuity and match across the rated bandwidth.

D. CENTER MOUNTING: Metal masts or cross booms are OK for center mounting the antenna IF they are at right angles to the element plane. ALWAYS use a NON-CONDUCTIVE mast or cross boom IF it will be in the element plane. A metal mast in the element plane WILL adversely affect performance. The feed coax, too, if routed to the center, must exit the boom at right angles to the element plane. For example, with a vertically polarized antenna on a vertical non-conductive mast, loop the coax out at a right angle from the elements and reattach to mast at least 6” below the element tips. Or, the coax can exit the rear of the boom and loop back to the mast.
Fiberglass is the prime material for a non-conductive mast because of it’s strength and weather resistance. Wooden rod can also be used or thick-wall PVC pipe with a wooden rod inside for support.

173-5 DIMENSION SHEET



173-5DIM
M. STAAL
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173-5 PARTS & HARDWARE

DESCRIPTION	QTY
BOOM, 1 X .058 X 60".	1
ELEMENTS, 3/16" ROD ALUM.	5
“T” MATCH BLOCK &1/4” RODS	1
BTM PLATE, 3 X 4 X 1/8” (M2APT0019)	1
BALUN, RG-6	1
U-BOLT AND CRADLE, 2"	2
U-BOLT, 1"	2
ASSEMBLY INSTRUCTIONS	1

HARDWARE BAG

SHORTING BAR (M2ASB0090)	2
NUT, 5/16-18 SS	4
LOCK WASHER, 5/16" SPLIT RING SS	4
NUT, 1/4-20 SS	4
LOCK WASHER, 1/4" SPLIT RING SS	4
SETSCREW, 8-32X1/4” INT. ALLEN, SS	4
SCREW, 8-32 X 1-1/4" PAN HEAD SS	1
BUTTON INSULATOR 3/16" BLACK POLY	8
SHAFT RETAINER, 3/16" SS	8
PUSH TUBE, 3 X 3/16" (RETAINER TOOL)	1
ALLEN WRENCH, 5/64"	1
CABLE TIE	3

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