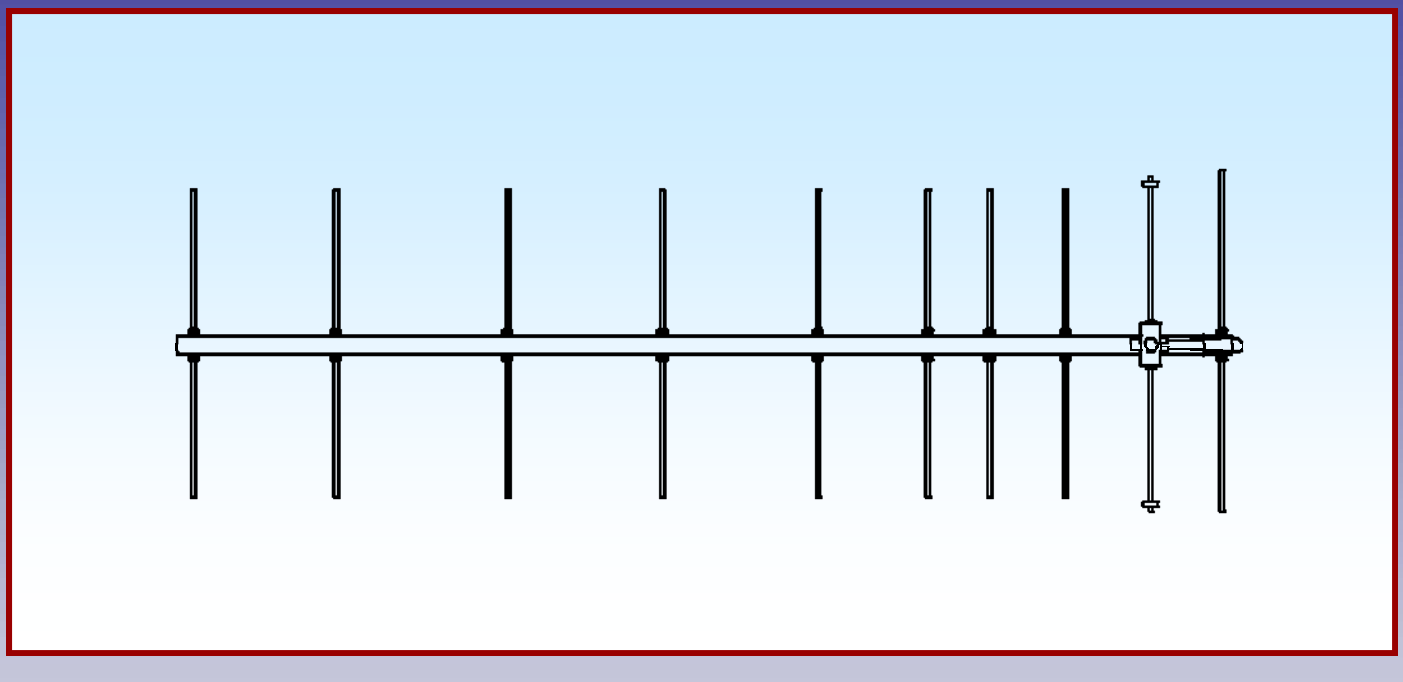
M2 Antenna Systems, Inc.
Model No: 162-10HD



SPECIFICATIONS:

Model	162-10HD
Frequency Range	160 To 163 MHz
*Gain	15 dBi Min
Front to back	23 dB Typical
Beamwidth	E=30 deg. H=35 deg.
Feed type	Folded Dipole
Feed Impedance.	50 Ohms Unbalanced
Maximum VSWR	1.5:1MAX
Input Connector	"N" Female
Power Handling	1200W
Boom Length / Dia	214" / 2"
Maximum Element Length	36-5/16"
Turning Radius:	111'
Stacking Distance	130" High & 130" Wide
Mast Size	1-1/2" to 2" Nom.
Wind area / Survival	2.16 Sq. Ft. / 100 MPH
Weight / Ship Wt.	11 Lbs. / 15 Lbs.

***Subtract 2.14 from dBi for dBd**

FEATURES:

Performance has been computer optimized to meet your application. Physical construction emphasizes long term electrical and mechanical durability. Elements are 3/8" 6061-T6 aluminum tube, mounted through the boom on UV stabilized polyethylene button insulators, and locked in position with stainless steel shaft retainers. The driven element Folded Dipole 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.

M2 Antenna Systems, Inc. 4402 N. Selland Ave. Fresno, CA 93722
Tel: (559) 432-8873 Fax: (559) 432-3059 Web: www.m2inc.com

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Rev.01

162-10HD ASSEMBLY MANUAL

TOOLS REQUIRED: Screwdriver, 11/32 wrench, socket or spintite, a 7/16" and 1/2" wrench or socket, tape measure. For best results please review instructions before assembly.

1. Assemble the boom starting with the rear 2” x 95" swaged section with the four 5/8" diameter element mounting holes. The end with a 5/8” hole located in 1” is the REAR of the boom. Mate the other end to the straight end of the other 2” x 95" section. Align the holes, insert the 1/4-20 x 2-1/2" bolts and locknuts and tighten. Add the 32” long tip section, and secure with 1/4-20 x 2-1/2” bolts and locknuts.

2. Lastly, install the boom to mast plate with two 2” U-bolts and cradles, placing it at about 105” from the rear of the boom. Tighten lightly and clamp flat to a “WorkMate” or upright in a vice to hold the boom for element installation.

3. Lay out the elements in the order they install in the boom. The longest is the reflector (36-5/16”) and it mounts at the rear end of the boom section in the 5/8" hole one inch from the end. First balance the element across your finger to find approximate center. Now slide on one black button insulator to about 1 inch off center using the 3/4 x 3" swaged PUSHER TUBE. ***The insulators can be a tight fit. Place them in hot water for a few moments to expand or run a 3/8" drill through the center hole to ease installation.*** Insert the element through the boom while sliding the second button insulator on as the element tip is passing through the boom. Fit the first insulator into the boom hole and push the second insulators up tight against the boom. Don't bother to center accurately at this point. It is quicker to do when all the elements are in place.

4. Continue installing the 3/8” TUBE elements in the order shown on the DIMENSION SHEET:

5. Now begin centering the elements using a tape measure. Final accuracy of +/- 1/16" is fine. Double check your centering by sighting down the boom tips on one side and look for large discrepancies. Correct if found.

6. Now install the stainless SHAFT RETAINERS. Place the PUSH TUBE in your hand with the end between your thumb and forefinger. Now place a retainer on the end of the push tube (dished into tube) and hold it in place with the same thumb and forefinger. Slide this setup over the 1/4" rod and up to the 3/8" outer sleeve section. Using the PUSH TUBE, slide the retainer down the 3/8 section and up against the button insulator. During this operation DON'T LET THE ELEMENT SLIDE THROUGH THE INSULATORS! (Locking pliers, ***lightly*** clamped up against opposite button insulator will help maintain center reference and keep you from pushing the first retainer too far, or, grab the opposite side of the element and pull it hard sideways to the boom to pre load and increase the friction of the element on the button insulators while pushing the retainer the last inch or two up against the insulator). Repeat on the opposite side. Continue installing the retainers on the rest of the elements.

7. Now mount the two short 16.75 x 3/8” sections on the machined block as shown on the DIMENSION SHEET. Place this assembly on top of the boom and insert a 1/4-20 x 2-1/2” bolt and lockwasher down through the boom. Then place the driven element block up against this bolt and carefully thread the bolt into the hole in the curved section of the block. The single female 'N' connector faces forward (see the dimension sheet). Now slide the ring clamp up against the 'T' match and orient the element channel to the top.

8. Loosely Install a 8-32 x 1/4” set screws into the two SHORTING BARS. Then slide bars over the element tips. Position inner edge of bars at 15-1/2” from the outer end of the match block. Align the elements and tubes parallel and tighten the bar hardware. . NO SWR adjustment should be necessary for a nearly perfect match from 159 to 162 MHz.

162-10HD ASSEMBLY MANUAL

9. Install the two gold SEAL NUTS on the match block balun connectors with the black neoprene face out. Locate the 1/2 wavelength balun cable assembly and form into a large "U" shaped loop. Install the two small gold spacer rings into the male cable connnectors and attach connectors to the female connectors on the block. Tighten up the 7/16" balun connector nuts gently with a 7/16" end wrench first. Then run the seal nuts up against the face of the connectors and tighten about 1/2 turn more with a 1/2" end wrench.

10. Secure the balun cable and the feedline as shown on the DIMENSION SHEET using the large black Nylon cable ties. Tighten the ties just enough to secure but not crush or kink cables.

11. Adjust the boom-to-mast plate to desired orientation (vertical or horizontal). If you've attached the feedline, move the plate to the exact center of balance and tighten the U-bolts

This completes the ASSEMBLY. Mount like 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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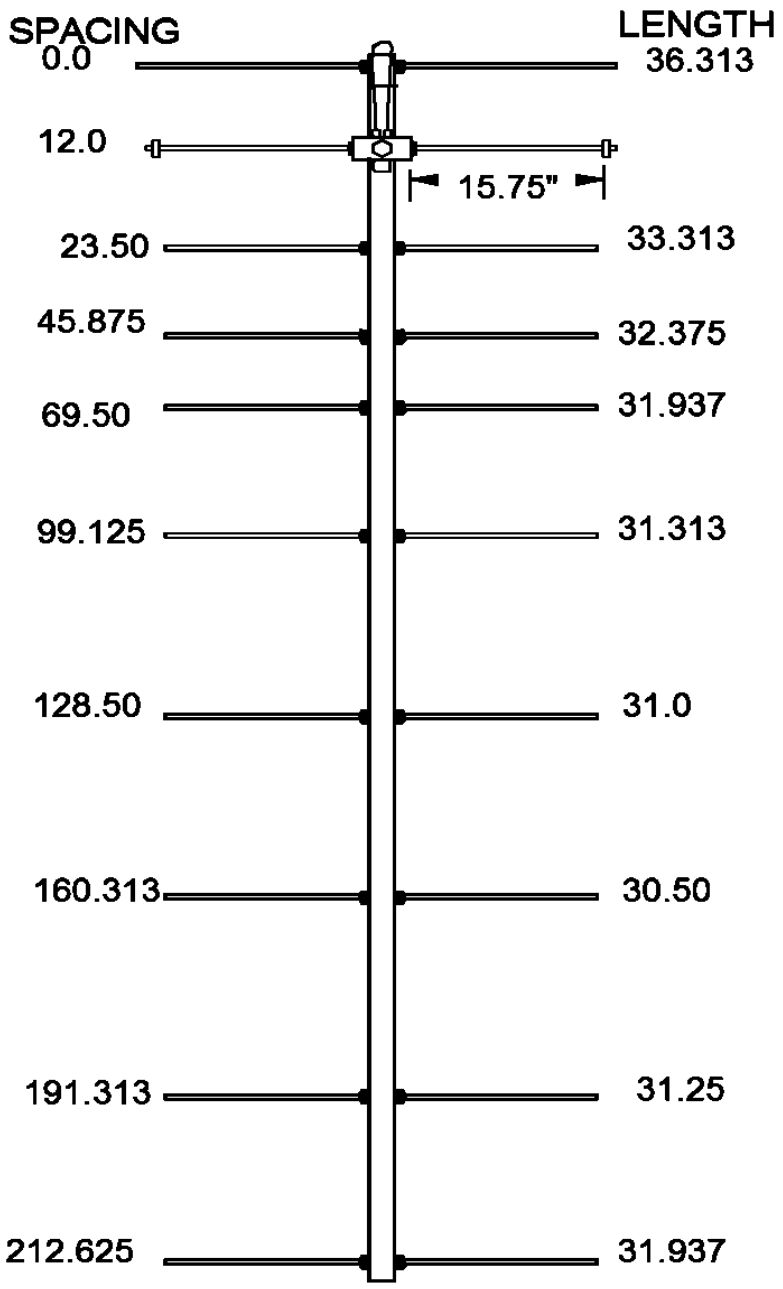
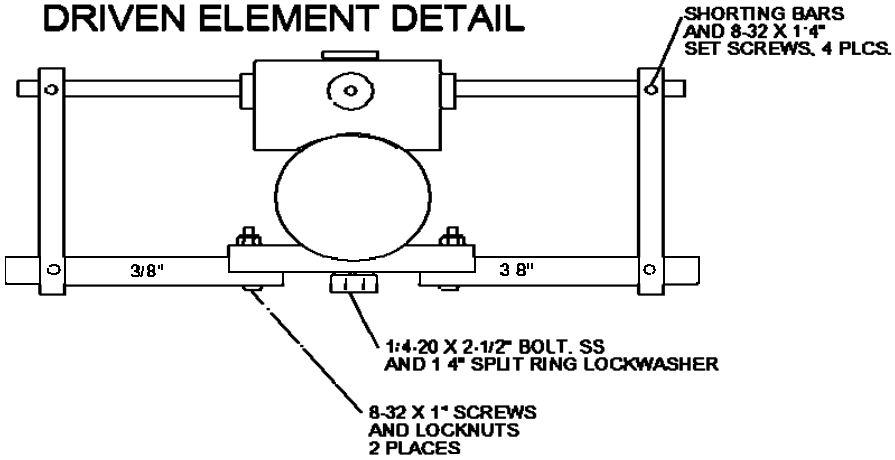
Fresno, CA 93722
(559) 432-8873 FAX: 432-3059
www.m2inc.com Email: sales@m2inc.com

162-10HD DIMENSION SHEET



DRIVEN ELEMENT DETAIL



162-10HD PARTS & HARDWARE

DESCRIPTION	QTY
BOOM SEC.#1 2.0 X .065 X 95.00 SOE	1
BOOM SEC.#2 2.0 X .065 X 95.00 SOE	1
BOOM SEC.#3 2.0 X .065 X 32.0	1
ELEMENT, 3/8 X SEE DIM SHEET	9
ELEMENT, 3/8 X.049 X 16-3/4”	2
DRIVEN ELEMENT ASS’Y FOR 2” BOOM	1
BALUN CABLE, RG-6U WITH MALE F CONNECTORS	1
BOOM TO MAST PLATE, 4 X 6 X ¼ ALUM	1
ELEMENT MOUNT BLOCK, 2” BOOM, 3/8” ELEMENT	1
SHORTING BAR ¼ X ¾ X 3.375	2
U-BOLT, 2” AND CRADLE	4
ASSEMBLY MANUAL	1
HARDWARE	
NUT, 5/16-18 SS	8
LOCKWASHER 5/16 SS	8
BOLT, ¼-20 X 2.5 SS	5
LOCKNUT, NYLOC ¼-20 SS	4
LOCKWASHER, 1/4”, SPLIT RING, SS	1
SCREW, 8-32 X 1”, SS	2
LOCKNUT, NYLOC, 8-32, SS	2
SET SCREW, 8-32 X ¼ SS	4
NUT SEALS, 3/8-32, NEOPREME	2
3/8 BUTTON INSULATOR	20
3/8 KEEPER SS	20
PUSH TUBE, LARGE	1
ALLEN WRENCH 5/64	1
NYLON TIES LARGE	5

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