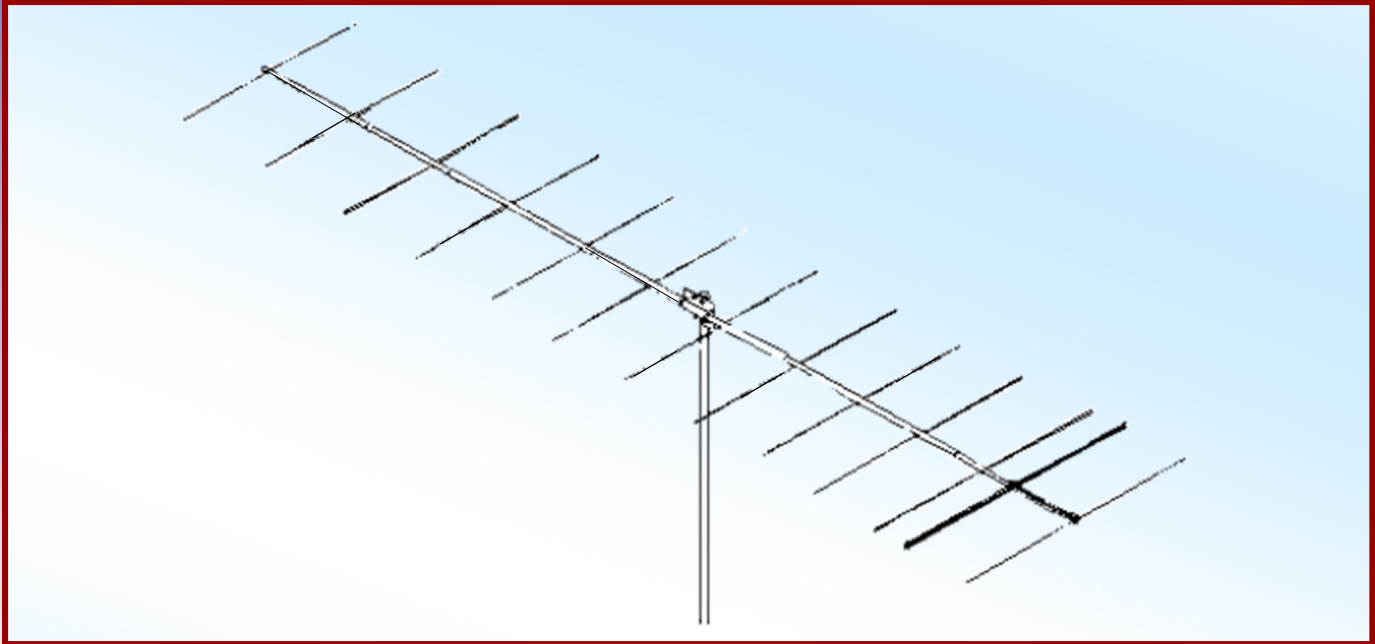




# M2 Antenna Systems, Inc. Model No: 278-13



## SPECIFICATIONS:

Model .....	278-13	Power Handling .....	1.5 kW
Frequency Range.....	268-288 MHz	Boom Length / Dia.....	122" / 1-1/2"
*Gain .....	14.6 dBi	Maximum Element Length.....	22" / 3/8"
Front to back .....	29 dB Typical	Turning Radius: .....	Call
Feed type .....	"T" Match	Stacking Distance.....	Call
Feed Impedance .....	50 Ohms Unbalanced	Mast Size.....	1-1/2" to 2" Nom.
Maximum VSWR.....	1.5:1	Wind area / Survival .....	1.5 Sq. Ft. / 100 MPH
Input Connector.....	"N" Female	Weight / Ship Wt.....	8 Lbs. / 10 Lbs.

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

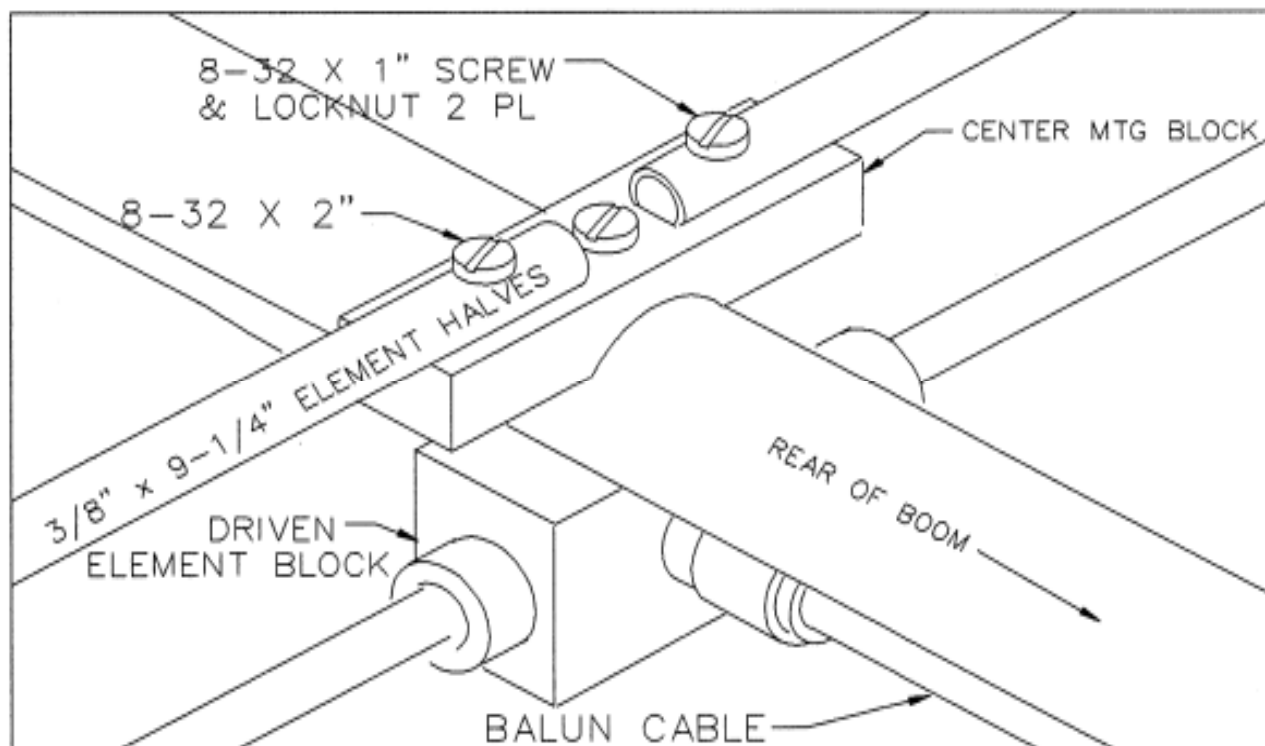
## FEATURES:

Performance has been computer optimized to meet your application. Physical construction emphasizes long term electrical and mechanical durability. Elements are rod 5/16" 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.

# 278-13 ASSEMBLY MANUAL

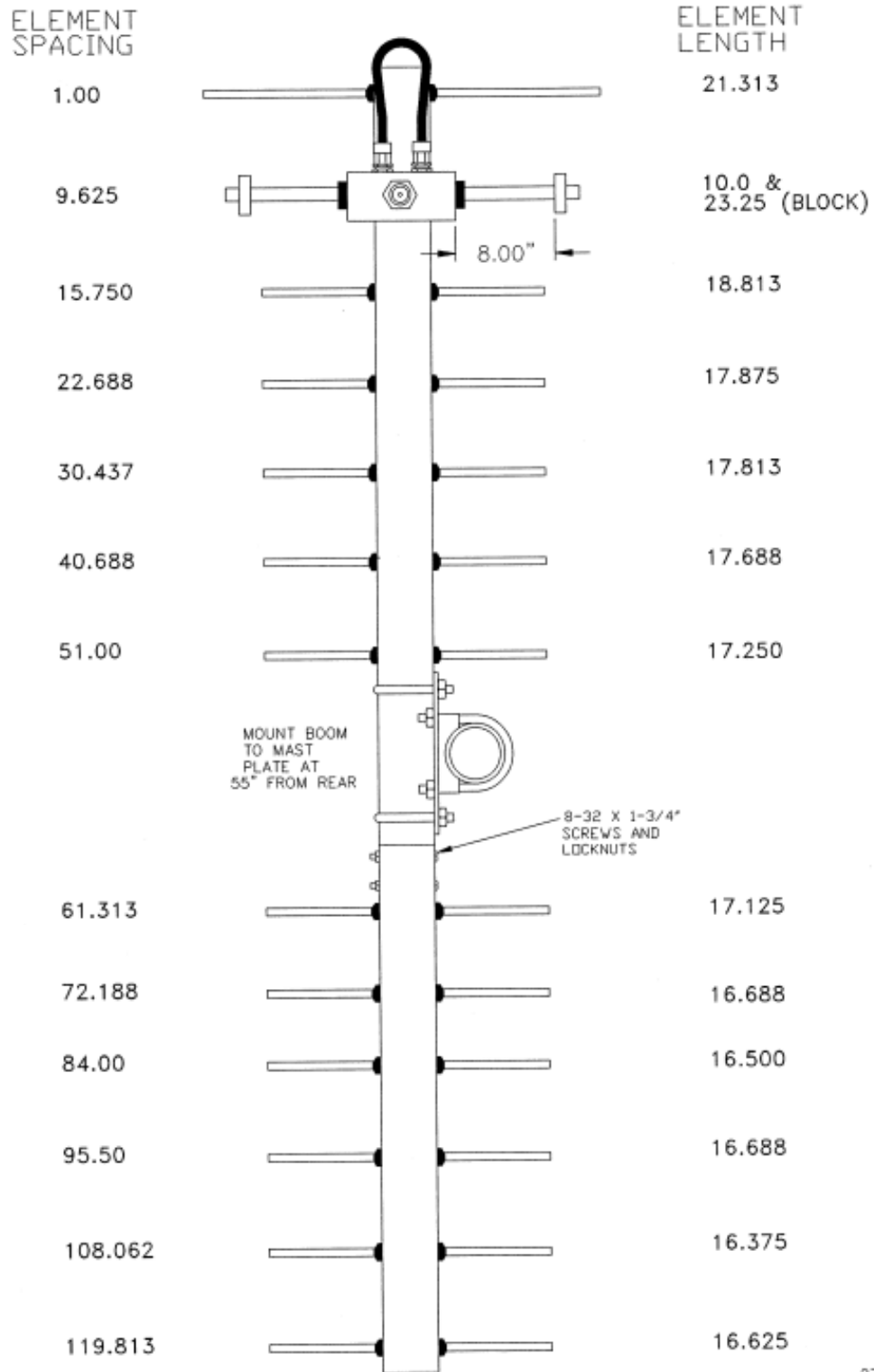
For assembly, useful tools include a 1/2" x 7/16" end wrench, an 8-32 spin tight or end wrench, flat blade and or Phillips head screwdriver, pliers and a tape measure.

1. Assemble the boom as shown in the Dimension sheet. Insert the 1-3/8" x 12" boom slice and secure boom sections with 8-32 x 2" screws and locknuts.
2. Using the Dimension drawing, insert the elements into the boom. Make sure you match up the correct spacing with the elements lengths. This antenna has elements that do not taper in length. Slide a black button insulator on a 3/8" diameter element by eye for now. NOTE: due to temperature and age, the button hole may shrink making it difficult to slide on the element. Reaming the hole with a 3/8" drill bit or equivalent will allow easier element installation. DO NOT ADD THE KEEPERS YET.
3. Use a tape measure to center each element. The absolute measurement is not as important as just equalizing the exposed element on each side of the boom. Do not exceed 1/16" difference from one side to the other.
4. Now install the stainless keepers with the plastic push tube. First preload the element by grasping the element and the boom together with one hand while pushing the keeper on with the other hand. If the element slips on the first try, remove the element, remove and save the keeper, re-install the element and repeat the keeper installation. Then install another keeper on the other side. Continue until all parasitic elements have been installed.
5. The driven element block assembly mounts on the boom with the "N" connector forward. Use an 8-32 x 2" screw, first through the center mounting block, down through the boom and into the threaded hole in the driven element block. Attach the two 3/8" x 9.25" tube element halves using 8-32 x 1" screws and locknuts.
6. Install the 8-32 x 1/4" set screws into the shorting bars and slide the bars on each end of the driven element assembly. Set the bars according to the Dimension sheet and tighten in place with the 5/32" Allen wrench provided.
7. Install the two gold nut seals on the two female "F" connectors on the driven element block with the black seal facing out. Then attach the half wave balun cable as shown and tighten just beyond finger tighten with a 7/16" end wrench. Then hold the back shell of the connector with a 7/16" wrench and tighten the nut seals gently with a 1/2" wrench. Run the nut seals up tight against the face of the male connector. Form the cable close to the boom back toward the reflector. Use a black cable tie to hold the balun in place.
8. Install the boom to mast plate noting its' position on the Dimension sheet. Use 1-1/2" U-Bolt, lockwashers and nuts on the antenna boom. Do not overtighten. Install the antenna on a nominal 2" mast with the 2" U-Bolts and hardware provided. This completes the antenna assembly.



# 278-13 DIMENSION SHEET

## 278-13BB DIMENSION SHEET



DECIMAL TO FRACTION CONVERSION	
.062	= 1/16
.125	= 1/8
.188	= 3/16
.250	= 1/4
.313	= 5/16
.375	= 3/8
.437	= 7/16
.500	= 1/2
.562	= 9/16
.625	= 5/8
.688	= 11/16
.750	= 3/4
.813	= 13/16
.875	= 7/8
.937	= 15/16

# 278-13 PARTS & HARDWARE

## 278-13 PARTS LIST

DESCRIPTION	QTY
BOOM SECTION, 1-1/2" X .058 X 60" .....	1
BOOM SECTION, 1-1/2" X .058 X 61" .....	1
BOOM SPLICE, 1-3/8" X .058 X 12" .....	1
ELEMENT SET, 3/8" ROD X SEE DIMENSION SHEET .....	13
BOOM TO MAST PLATE, 4" X 4" .....	1
ELEMENT HALF, 3/8" X 9.25" .....	2
DRIVEN ELEMENT ASSEMBLY .....	1
BALUN, RG-6 .....	1
CENTER MOUNTING BLACK, 3/4" X 3/8" X 3" .....	1
ASSEMBLY MANUAL .....	1
<b>IN HARDWARE BAG</b>	
U-BOLT, 1-1/2" .....	4
U-BOLT, 2" .....	2
Nut, 5/16-18 SS .....	8
SCREW, 8-32 X 2" SS .....	5
NYLOCK NUT, 8-32 SS .....	6
SCREW, 8-32 X 1" .....	2
SET SCREWS, 8-32 X 1/4" .....	4
BUTTON INSULATOR, 3/8" .....	26
KEEPER, 3/8" .....	26
PUSH TUBE, 1/2" .....	1
ALLEN WRENCH, 5/64" .....	1
SEAL NUT, 3/8-32 .....	2
NYLON TIE .....	3