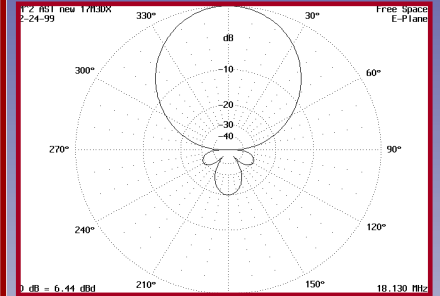
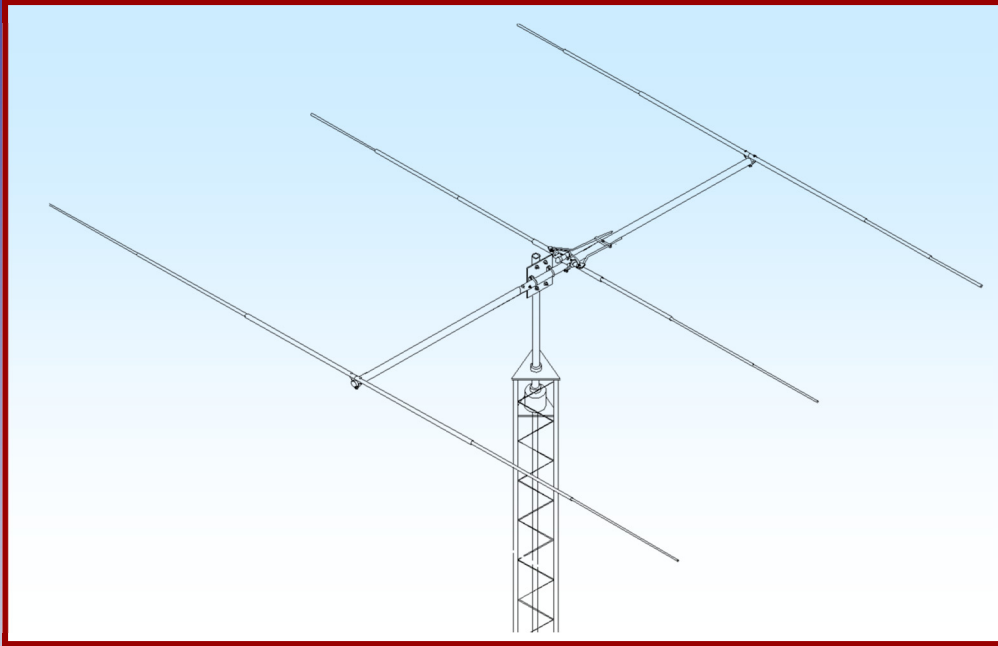




M2 Antenna Systems, Inc.

Model No: 17M3DX



SPECIFICATIONS:

Model	17M3DX	Power Handling	3 kW, Higher avl.
Frequency Range	18.05 To 18.2 MHz	Boom Length / Dia	19' 2" / 2" x .065 Wall
*Gain, (FS) / Over gnd	8.54dBi / 14.3dBi @55'	Element Length / Dia	27' 11" / 1" To 1/2"
Front to back	20 dB Typical	Turning Radius:	19' 3"
Beamwidth	E=60° / H=90°	Stacking Distance	37' To 41"
Feed type	Hair pin match	Mast Size	2" to 3" Nom.
Feed Impedance	50 Ohms Unbalanced	Wind area / Survival	4 Sq. Ft. / 85 MPH
Maximum VSWR	1:1	Weight / Ship Wt.	30 Lbs. / 39 Lbs.
Input Connector	SO-239, Others avl.		

***Subtract 2.14 from dBi for dBd / FS = Free Space**

FEATURES:

Not a compromise or makeshift redesign, the 17M3DX is computer optimized from the ground up for gain and pattern on 17 meters. The broadband 1:1 Teflon Coax Balun and low loss hairpin match maintains high efficiency. Element ring clamps, and other important components are CNC machined for maximum strength and electrical integrity. The 84" boom sections are 2" O.D. x .065" wall 6063-T832 drawn aluminum tubing. All hardware is stainless steel except the U-bolts. All elements are DC grounded. The 17 Meters is open despite the sunspot null and offers very good DX in a less competitive atmosphere. Explore this opportunity with the 17M3DX It delivers very respectable performance on a boom length that most towers and rotators can handle.

17M3DX ASSEMBLY MANUAL

Note: A cup of zinc paste (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. It also works well to prevent the stainless nuts from galling on the bolt threads.

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 boom sections. Accurate positioning is unnecessary this point. Spread the ring clamp fingers with a flat blade screwdriver to ease movement on boom. Loosely add a 1/4-20 x 1" bolt and locknut to fingers of all clamps.

2. Assemble the boom using 1/4-20 x 2-1/2" bolts and locknuts. Tighten all joints. If possible lay the boom on a flat surface (cement floor or driveway). Start with the REFLECTOR ring clamp. Rotate it so its long flat surface is down and 1" from the end of the boom. If your boom has EYEBOLT HOLES, rotate the boom so the eyebolt holes are aligned straight up. Tighten the 1/4-20 x 1" bolt in the ring clamp locking the ring clamp in place. Now measure, mark and tighten the 2 remaining ring clamps in place. REFER TO THE DIMENSION SHEET FOR THE EXACT RING CLAMP / ELEMENT SPACING. Final alignment may be necessary when all the elements are installed on the RING CLAMPS. Now turn the boom over and place it on a table or workmate for element attachment.

3. DRIVEN ELEMENT ASSEMBLY: Select two 3/4" x 60" element sections and attach to two 1" x 60" swaged tubes using 8-32 x 1-1/4" screws and locknuts. Now locate the 2 x 4" balun mounting plate and drop two 1/4-20 x 2" bolts through the outer holes. These same bolts then go on through the inner holes in the 7/8" x 15" CENTER FIBERGLASS INSULATOR ROD. Set this insulator/plate assembly on the DRIVEN ELEMENT ring clamp, sliding the extended bolts down through the holes in the ring clamp, add the nuts and tighten.

4. Slide a "POLY RING" on each end of the 7/8" fiberglass insulator all the way into the ring clamp. Next, mount the 3-30 MHz 1:1 BALUN on the plate using the 2-1/2" U-bolt and cradle. Face the connector towards the front. Position the balun so it's leads will reach out to the outer holes in the fiberglass rod insulator and tighten the U-bolt lightly.

5. Now slide the 1" element butts onto each side of the insulator and align the holes. Push a 1/4-20 x 2" bolt **UP** through one hole, add two machined HAIRPIN CLAMP BLOCKS face to face over the stud. Place a balun lead terminal over the stud and add a locknut finger tight. Add the second bolt in the same fashion. The HAIRPIN TUBES ASSEMBLY will be added later.

6. PARASITIC ELEMENT ASSEMBLY: Assemble the remaining 1.0 x 60 to 3/4" x 60" element sections and 7/8" x 15" sleeves. Slide the 1 x 60" sections over the 7/8" sleeves. Align the holes and add the 1/4-20 x 2.0" bolts. Set this element assembly onto the ring clamp and add the nuts. Tighten securely until the 3/4" inner section is tight.

7. ELEMENT TIPS: Refer to the DIMENSION SHEET and install the 1/2" diameter tip pairs as shown. Secure with 5/8" compression clamps. Refer to compression clamp and tip assembly detail sheet.

8. HAIRPIN ASSEMBLY: Place the HAIRPIN TUBES into the clamp blocks as shown on the DIMENSION SHEET. Rotate the tubes so the long sections are parallel. Flush the ends with the clamp blocks and tighten the clamp blocks down enough to hold this position. Install the 1/4-20 x 1/4" set screws into each end of the SHORTING BAR and slide the bar onto the tubes to the dimension shown on the DIMENSION SHEET. Insert a 1/4-20 x 2" bolt from the inside of the band clamp and attach the band clamp loosely on the boom below the shorting bar with the bolt sticking up. Slip the 3/8 x 1" spacer tube on the bolt and then allow the bolt to come up through the center hole in the shorting bar.

17M3DX ASSEMBLY MANUAL

Align the whole assembly, check the shorting bar position once more and tighten all hardware including the band clamp. THIS ASSEMBLY MATCHES THE ANTENNA IMPEDANCE AND DC GROUNDS THE DRIVEN ELEMENT FOR SOME STATIC AND LIGHTNING PROTECTION.

9. If possible, install the feed line cable at this time and route forward to center of boom. Secure with the nylon ties supplied (ties should be snug, but not crushing cable). Seal the balun connector with black tape, coax seal or equivalent.

10. The balance point of the 17M3DX is just about where the balun is mounted. We feel the best place for the BOOM TO MAST PLATE is just to the rear of the Balun as shown on the dimension sheet but as always on M2 antennas the final location is your option. Mount the plate and secure with two 2" U-bolts, cradles, stainless lockwashers and nuts. Two more 2" U-bolts are supplied for attaching the antenna to the mast.

NOTE: The boom droop on this 3 element design is minimal and will not affect electrical performance in any way. Therefore most users do not need an overhead boom support. However, in heavy ice areas, we recommend some form of boom brace or overhead guy to support the boom. We can supply and OPTIONAL BOOM SUPPORT PACKAGE. Call M² sales for pricing. This kit would contain (2) 5/16" x 4" Eyebolts for placement near each end of the boom and (18) feet of 5/16" Dacron line to form the overhead support. We also use (1) 2" U-bolt to attach (1) 4 x 8 aluminum turnbuckle plate and (2) 5/16 turnbuckles to the mast 3 to 4 feet above the boom. The user can also provide his own similar support system and 1/8" steel aircraft cable may be substituted for the non conductive Dacron cord.

12. To prepare the OPTIONAL overhead guy system, begin by *temporarily* installing a 2" U-bolt through the TURNBUCKLE PLATE and into the top set of 2" U-bolt holes on the boom to mast plate. Add a couple of 5/16" nuts to hold in place. Unscrew turnbuckle eyes / hooks until only a thread or two shows inside the turnbuckle body and hook to turnbuckle plate.

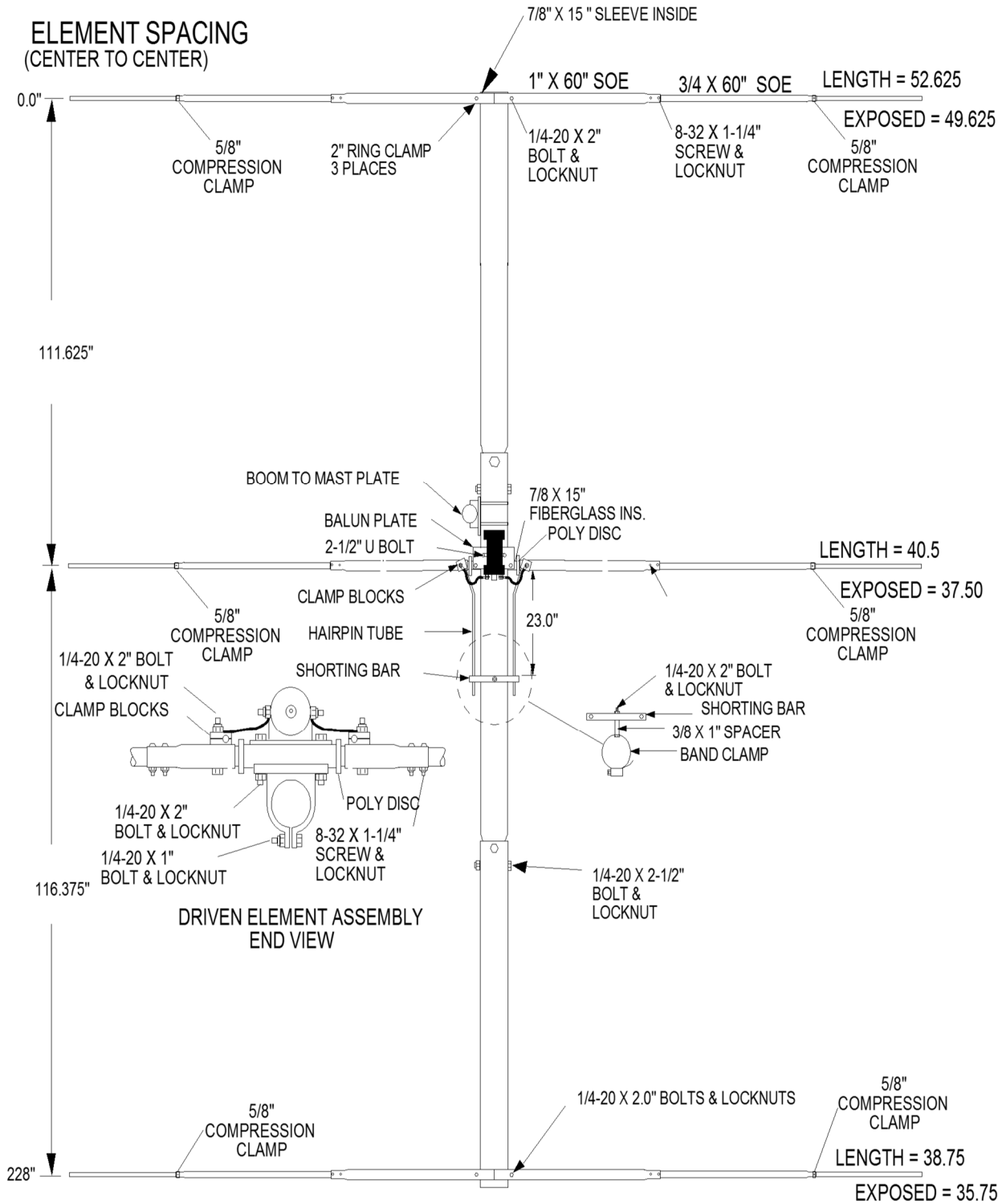
13. Uncoil DACRON CORD. Secure one end to rear eyebolt, taking two turns through the eyebolt, then adding three TIGHT half-hitches. Pull hard on cord to set the knots. Repeat for the front eyebolt. Seal cord ends with heat (lighter, propane torch, etc) and tape to main line. Equalize cord length at turnbuckle plate and cut. Put two turns through rear turnbuckle eye, pull slack out of rope, and add three TIGHT half-hitches. Repeat for front cord section. Seal and tape cord ends.

14. Both cords should now be fairly taut and parallel with boom. Disconnect the 2" U-bolt holding the turnbuckle plate and lift it up until the boom bows up slightly. This is approximately how high the plate will need to be mounted on the mast when the antenna is installed. During final installation on the tower / mast, secure the turnbuckle plate at the appropriate height with the 2" U-bolt. Then lean or pull on the cords to increase the tension and help the knots take their final "set." Make sure the knots are not slipping. When the guy system has taken a "set", loosen the 2" U-bolt and adjust turnbuckle plate height until boom is straight and level. Finer adjustments can be made at any time, if necessary, with the turnbuckles.

15. Check over the completed antenna and correct any minor misalignment. Also double check all hardware to be sure everything is tight and connectors are sealed. If possible before installing set the antenna up on a ladder or pole and run a preliminary VSWR check and a RECEIVER check. Do all you can at this point to determine that the antenna is working properly before placing it in its final location.

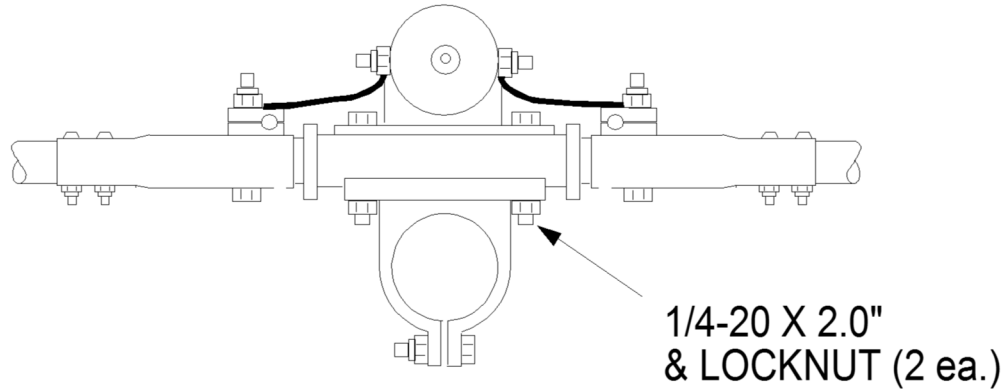
This completes the assembly. REMEMBER to support the feed line at the antenna boom and on the mast. Leave an adequate feed line loop for rotation around the tower. When stacking this antenna with other H.F. models, maintain at least 8' of separation; more if practical. Mount horizontally polarized VHF and UHF antennas at least 40" above or below this antenna to minimize interaction.

17M3DX DIMENSION SHEET

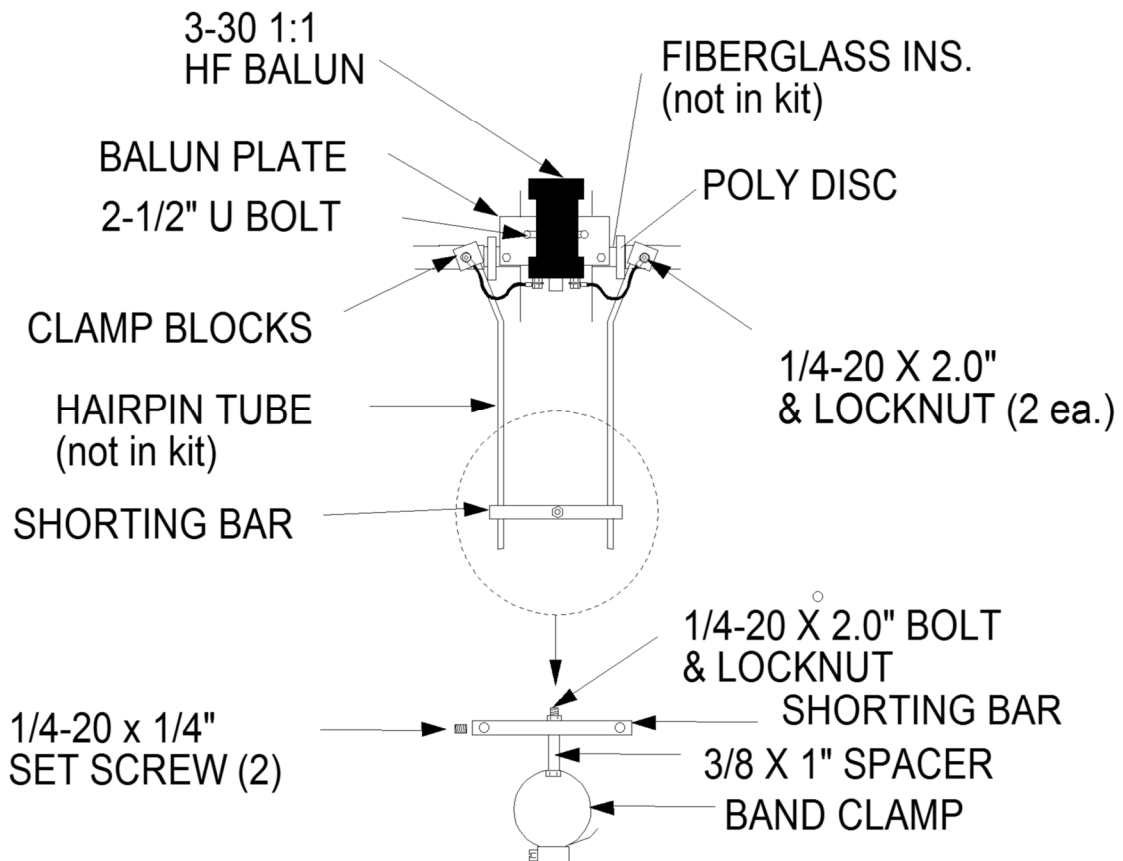


HAIRPIN ASSEMBLY DETAIL

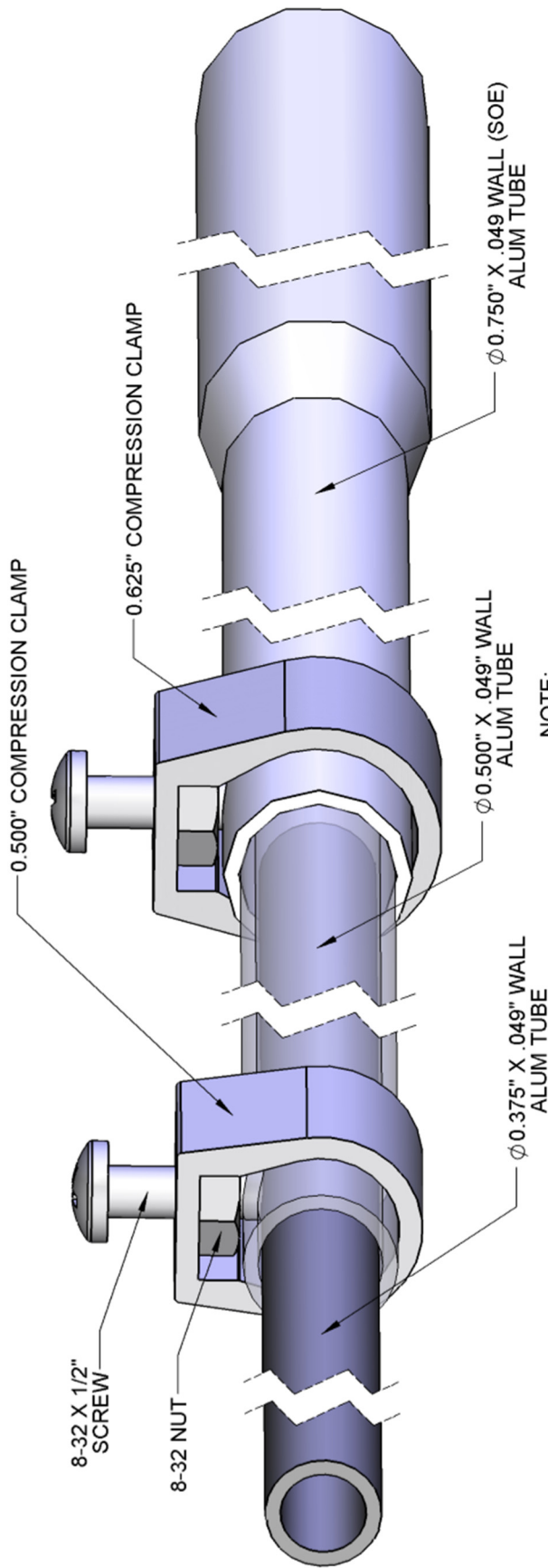
DRIVEN ELEMENT ASSEMBLY END VIEW



DRIVEN ELEMENT ASSEMBLY TOP VIEW



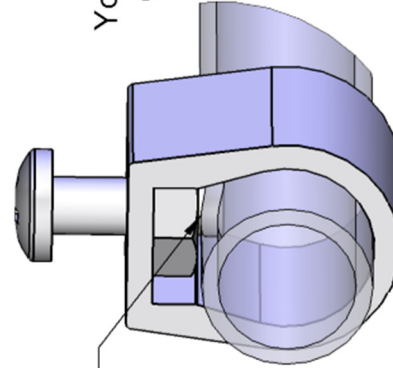
GENERIC COMPRESSION CLAMP DETAIL



NOTE:
TUBES SHOWN TRANSPARENT
TO SHOW MORE DETAIL

NOTE:

Generic layout to show
how compression clamps work.
Your antenna may have one or the other
or may even have both compression
clamp sizes.



NOTE:
8-32 X 1/2" SCREW
PRESSES ON INNER TUBE

NOTE: INSIDE TUBE NOT SHOWN FOR CLARITY

17M3DX PARTS & HARDWARE

DESCRIPTION	Qty
Boom section, 2" x .065 x 76" straight.....	1
Boom section, 2" x .065 x 84" swaged one end.....	2
Element section, center 1" x 60" swaged on end.....	6
Element section, 3/4" x .049 x 60" swaged on end.....	6
Element tip, 1/2" x 0.049 x see Dimension Sheet.....	6
Sleeve, element, 7/8" x .058 x 15" (for 2" RC).....	2
Boom to mast plate, 4" x 6" x .188"	1
Hairpin tube, 3/8 x .049 x 30"	2
Fiberglass insulator, 7/8" x 14.75"	1
Balun, 1:1 3-30 MHz standard	1
Ring clamp 2"	3
5/8" Compression clamp	6
U-bolt and cradle, 2 inch.....	4
Assembly Instructions	1
HARDWARE BAG	Qty
Nut, 5/16-18 ss	8
Lock washer, split ring 5/16"	8
Bolt, 1/4-20 x 2-1/2" ss	4
Bolt, 1/4-20 x 2.0" ss	6
Bolt, 1/4-20 x 1" ss	3
Nut, 1/4-20 locking, ss.....	14
Screw, 8-32 x 1 1/4" ss.....	12
Screw, 8-32 x 1/2" ss.....	6
Nut, 8-32 locking, ss.....	12
Nut, 8-32, ss.....	6
Nylon tie, large black, 11".....	3
Zinc paste, 1 oz. cup	1

HAIRPIN KIT BAG INCLUDING:

PLATE, BALUN MTG. 1/8 X 2 X 5" ALUM.....	1
U-BOLT, 2-1/2" AND SADDLE	1
CLAMP BLOCK, FOR 3/8".....	4
SHORTING BAR, HAIRPIN, 1/2 X 1/2 X 5	1
POLY DISC, 7/8" HOLE	2
BAND CLAMP, MODIFIED WITH 1/4" HOLE.....	1
SPACER, 3/8 X 1" ALUM.....	1
NUT, 5/16-18 SS.....	2
LOCKWASHER, 5/16" SPLIT RING, SS	2
BOLT, 1/4-20 X 2" SS	3
NUT, 1/4-20 LOCKING, SS	3
SET SCREW, 1/4-20 X 1/4" SS	2
ALLEN WRENCH, 1/8"	1

M² Antenna Systems Inc.
 4402 N. Selland Ave.
 Fresno Ca. 93722
 559-432-8873 FAX 559-432-3059
 www.m2inc.com Email: sales@m2inc.com