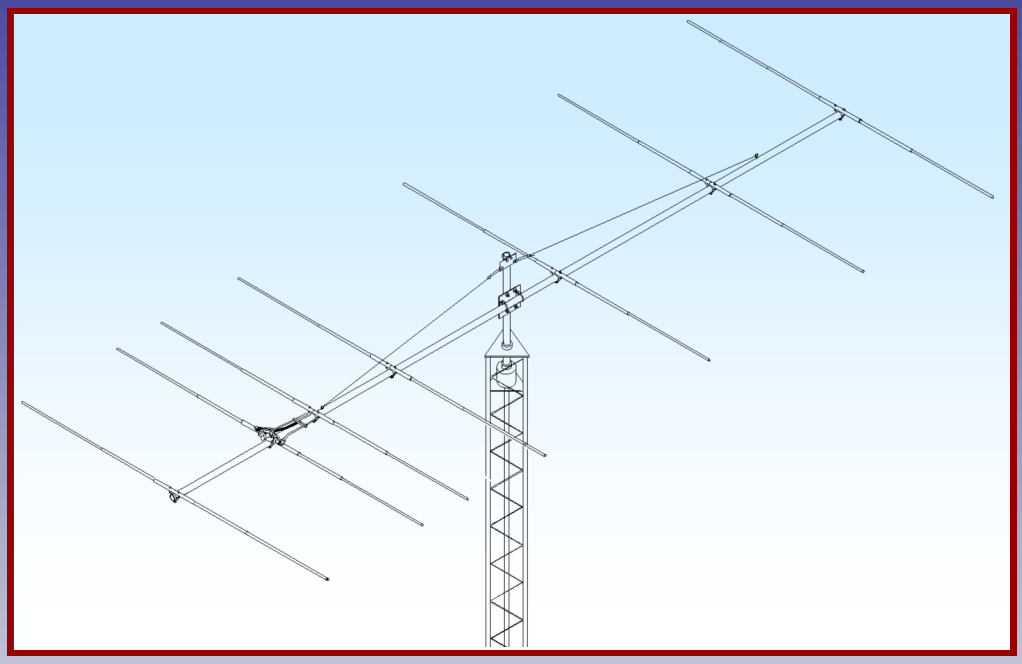
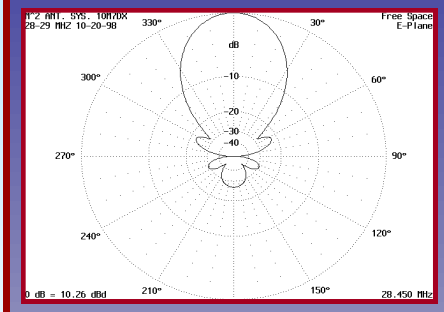
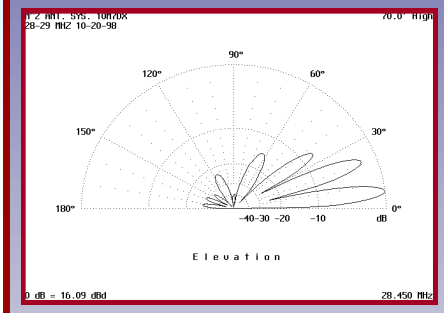
M2 Antenna Systems, Inc.
Model No: 10M7-125







SPECIFICATIONS:

Model	10M7-125
Frequency Range	28.0 To 29.0 MHz
*Gain, (FS) / Over gnd	12.3dBi / 17.6dBi @35’
Front to back	25 dB Typical
Beamwidth	E=43° / H=50°
Feed type	Hair pin match
Feed Impedance	50 Ohms Unbalanced
Maximum VSWR	1.2:1
Input Connector	SO-239, Others avl.
Power Handling	3 kW, Higher avl.
Boom Length / Dia	45’ / 3” X .125 Wall
Element Length / Dia.	18.5’ / 1” To 1/2”
Turning Radius:	22’
Stacking Distance	35’ To 41’
Mast Size	2” to 3 ” Nom.
Wind area / Survival	8.5 Sq. Ft. / 125 MPH
Weight / Ship Wt.	100 Lbs. / 116 Lbs.

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

FEATURES:

The 10M7-125 is the perfect balance between wind area and performance. It features improved gain and F/B across the 10m band. Performance is excellent on both CW and phone. The 10M7-125 has been computer optimized for maximum strength for its wind area. The pattern is sharp and clean reducing noise and QRM. The 10M7-125 is a band opener and closer. It makes 100 watts sound like a kW! Mechanically, CNC machined aluminum (6061-T6) ring clamps ground the elements to the boom and make assembly a snap. A hairpin type match couples the 3kW 1:1 balun to the feedline. The antenna is completely DC grounded. Physically, the 10M7-125 Yagi features tapered elements, each secured with a pair of CNC machined, ½” thick aluminum boom-to-element plates secure each element and permit spacing adjustments on the 3 x .125” wall boom. Elements taper in size from 1” to the adjustable ½” tips and are single and double sleeved at critical points to achieve a 125MPH wind survival rating. All hardware, except U-bolts, is stainless steel. Great effort has been put into making sure this antenna stays in the air for years to come while providing enjoyment and satisfaction along the way.

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8/9/2018
REV A

10M7-125 ASSEMBLY MANUAL

TOOLS REQUIRED: 11/32 NUT DRIVER, PHILLIPS HEAD SCREW DRIVER, 7/16, 1/2 AND 9/16" SOCKETS AND / OR END WRENCHES, KNIFE.

NOTE: Apply conductive paste or anti-seize compound (PENETROX OR NOALOX) lightly to all joints and electrical connections except the coax connectors.

Refer to the DIMENSION SHEET for details on boom assembly and element assembly.

1. Assemble the center section of the DRIVEN ELEMENT by FIRST sliding two white polyethelene discs onto near the center of the 7/8 x 29-3/4" fiberglass center insulator. Then slip the two special 1" x 22", "swaged one end" (SOE) tubes over the fiberglass rod insulator. and Insert (2) 1/4-20 x 2-1/4 bolts through the 9/32 holes. Add (2) 3/8 clamp blocks and figertighten the locknuts at this time. The BALUN leads will be attached here later.

2. Assemble the 3/4 x 36" SOE tubes to the 1/2" x (see DIMENSION SHEET) and (COMPRESSION CLAMP/TIP ASSEMBLY DETAIL) tubes in pairs and secure. Be sure the **driven element** gets the right tip length pair. Now attach these tip sections to the center 1" sections using 8-32 x 1-1/4 screws and locknuts.

3. FOR THE PARASITIC ELEMENTS, attach a pair of element to boom clamps **at the center** of each 1" x 44" element section using (4) 1/4-20 x 2" bolts and locknuts. FOR THE DRIVEN ELEMENT, **center** the clamps over the 7/8" o.d. fiberglass center insulator. Tighten evenly so the clamp halves are parallel.

4. Assemble the boom by first sliding in the **BOOM STIFFENER** into the 3" x 15 ft. straight section per the DIMENSION SHEET. Then insert the two identical 3" x 15' SOE tubes into the 3" x 15" straight section. Align the holes and secure with 1/4-20 x 3-1/2" bolts and locknuts. Tighten until no movement occurs at the joints.

5. Add the two 3/8 forged eyebolts and secure with 3/8 nuts.

6. Refer to the DIMENSION SHEET and install the elements on the boom at the correct spacing. Start with the REFLECTOR and place it about 3/8" in from the end of the boom. Add two saddles and secure with (4) 1/4-20 x 3" bolts with 1/4" split ring lockwashers under each bolt head. Align the reflector on top of the boom, perpendicular to the eyebolts and tighten the 4 bolts evenly. Continue with the rest of the elements.

7. Install the 1 x 1x 4" "L" bracket on the top of the DRIVEN ELEMENT CLAMP PLATES by removing the nuts from the upper set of clamp block bolts. Place the bracket on the clamp block and re-install the two locknuts. Attach the balun as shown on the DIMENSIONS SHEET. The main feedline MAY be attached at the same time if convenient, and secured along the boom using the heavy black nylon ties supplied. For long tie life, wrap a couple of layers of Scotch 33 black vinyl tape over the ties.

8. Attach the HAIRPIN assembly as shown on the DIMENSION SHEET and the HARDWARE ARRANGEMENT SHEET. Set the shorting bar to the dimension shown. A one or two inch longer setting will improve the match at the CW end and a one inch shorter setting will improve the match at the high end. Generally, the match will be under 2:1 across the band

specified for the dimension shown. If a better match is desired at the upper edge of the band, (above 29 MHz) shortening the driven element 1/2" tips by about 1" should help. Be sure to adjust the shorting bar as this will finalize your attempt at a near perfect match. A VSWR meter is a MUST for this option. CONTACT US IF YOU HAVE ANY QUESTIONS.

9. (THIS STEP MAY VARY DEPENDING ON MAST OR TOWER TYPE). Locate the balance point of the boom and attach the boom to mast plate using two 3" U-bolts and saddles. Secure with (2) stainless 3/8-16 nuts and lockwashers for each U-bolt. Temporarily install two of the 2" heavy duty U-bolts and attach a temporary mast. Install the single 2" regular U-bolt and 2 x 5" turnbuckle plate up about 5 feet on the temporary mast. Open the two forged turnbuckles until just one thread shows inside the body of the turnbuckle. Attach the turnbuckles to the turnbuckle plate.

10. Unroll the HPTG 6700 Phyllistran guy cable and attach one end to each eyebolt using two 3/8 clips and a 3/8 cable eye. Return to the temporary mast and cut the guy cable so you have at least 12 inches remaining after the cable passes through the eye of the turnbuckle. Install a cable eye in each turnbuckle eye and attach the cable using two cable clips on each side as on the eyebolts. Tension the cables evenly with the turnbuckles so the boom is level. Remove the temporary mast. The antenna is now ready to be installed on the tower.

NOTE: Whenever possible let the antenna sit overnight to allow the hardware to take a "set". Go over the dimensions one more time. Then re-tighten all the screw and bolt connections one more time.

CAREFULLY DESIGNED AND MANUFACTURED BY:

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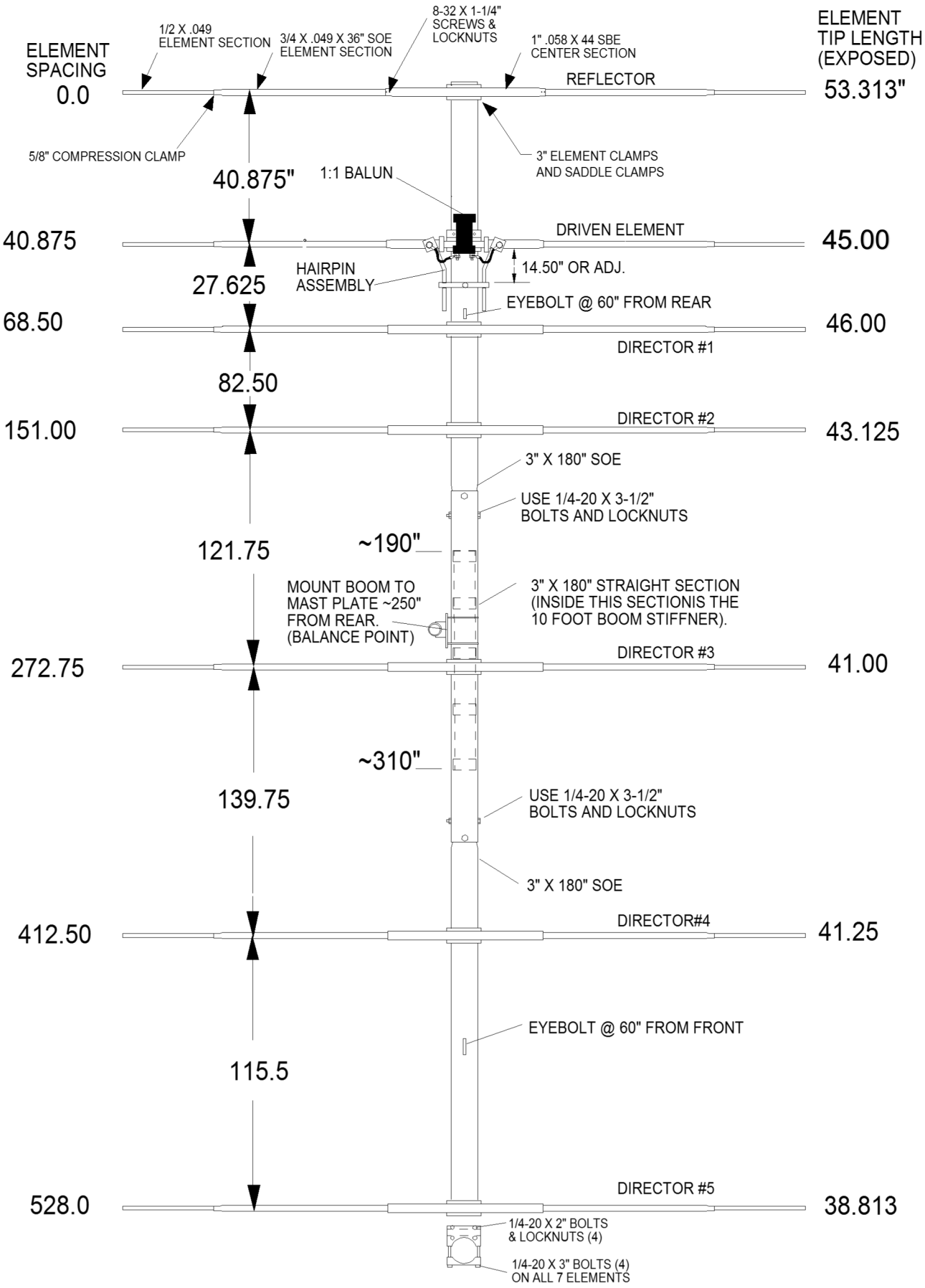
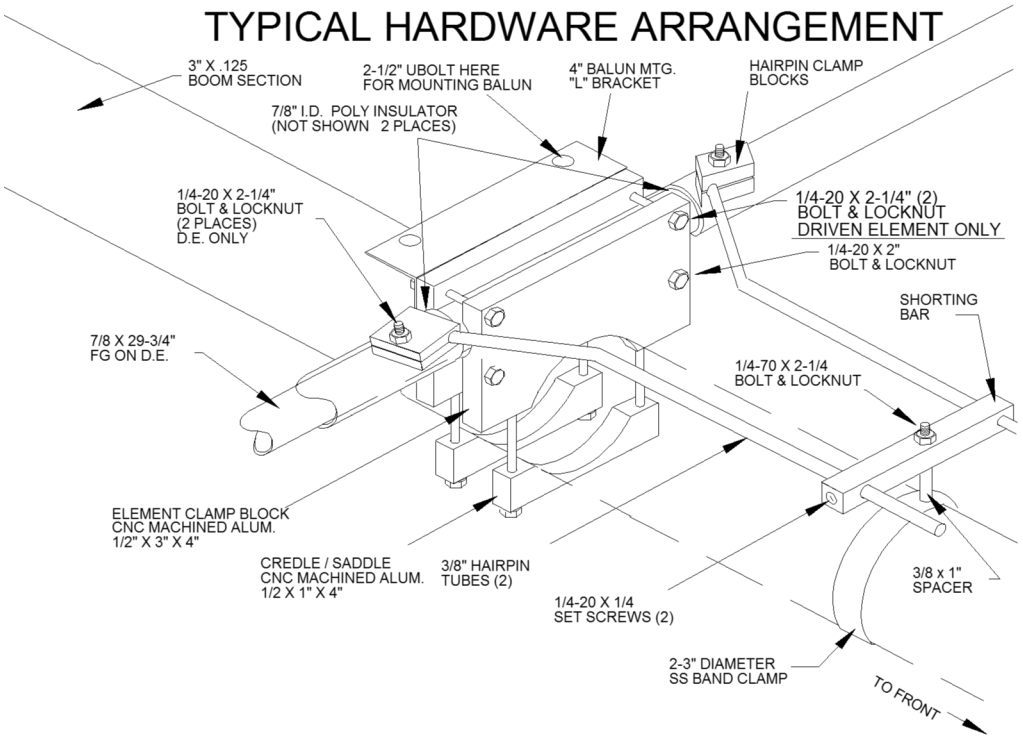
10M7-125 ASSEMBLY DETAILS

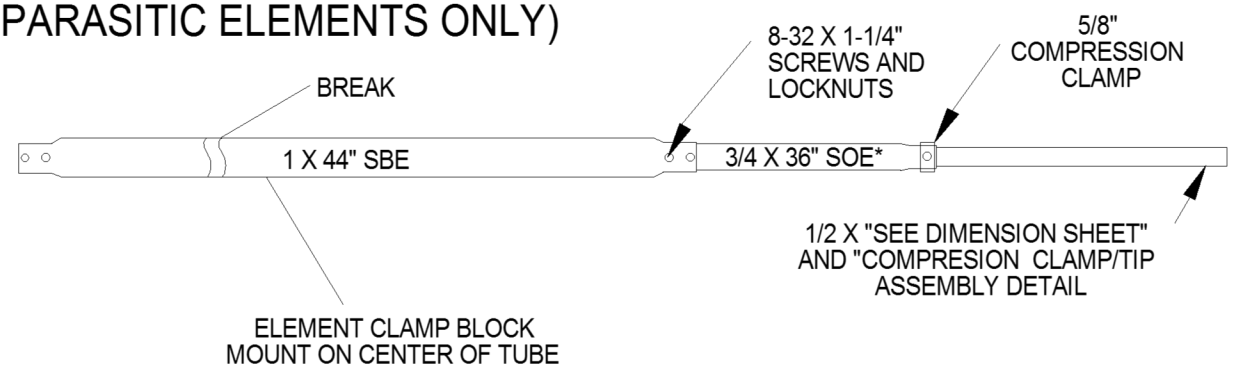


10M7-125 ASSEMBLY DETAILS

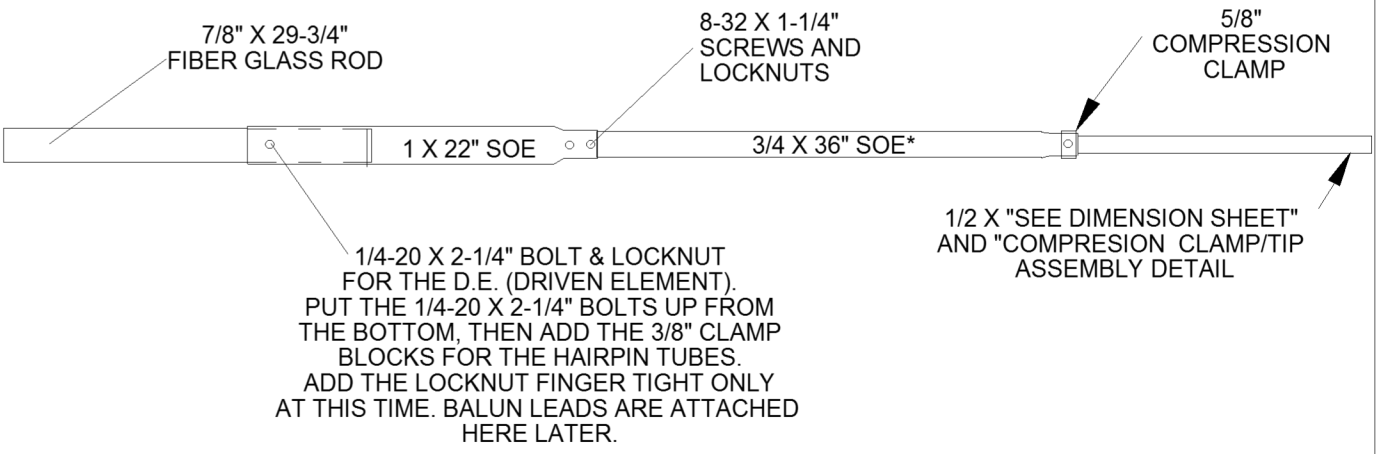


10M7-125 ASSEMBLY DETAILS

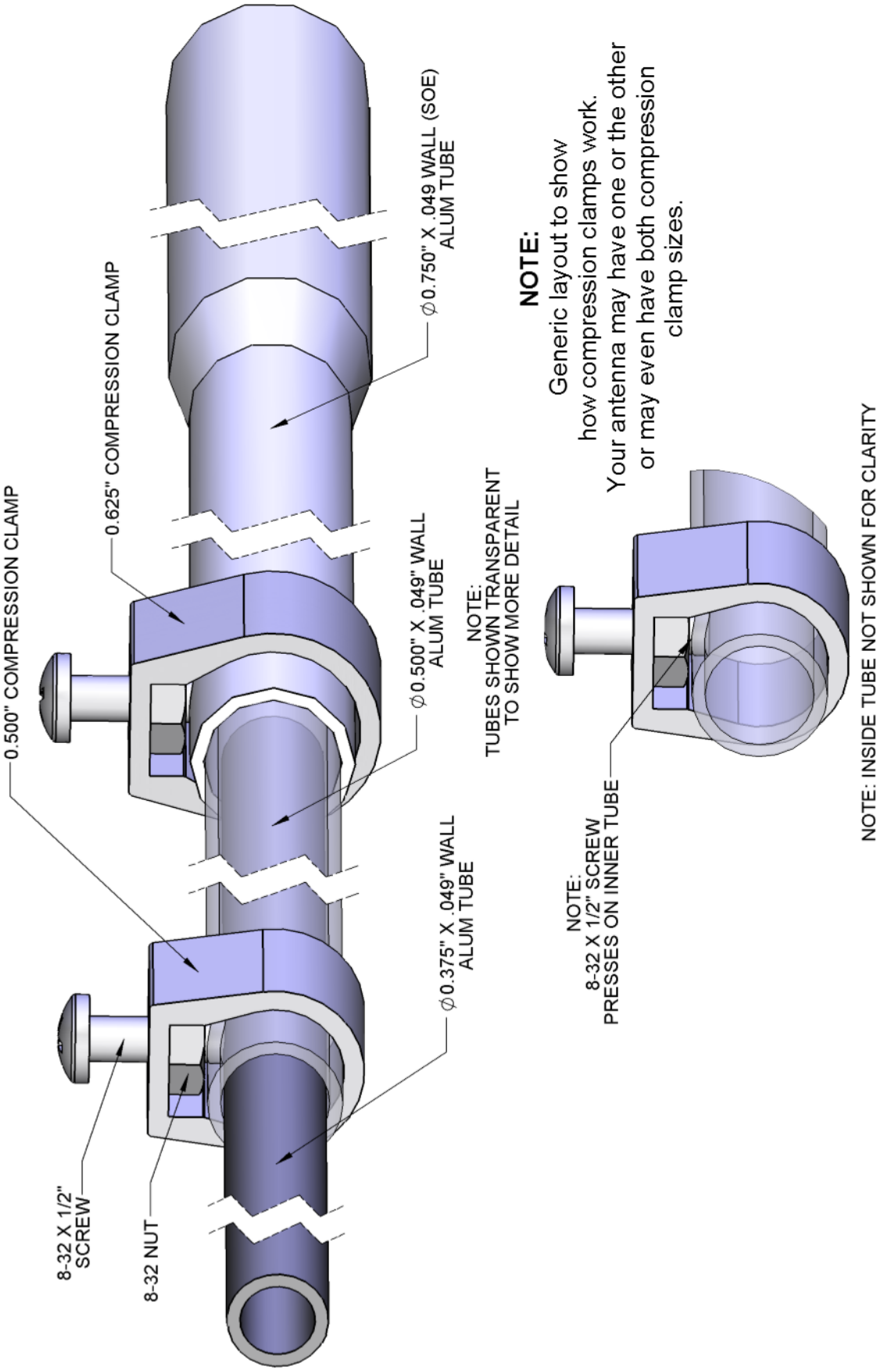
10M7-125 ELEMENT HALF (PARASITIC ELEMENTS ONLY)



10M7-125 DRIVEN ELEMENT HALF



GENERIC COMPRESSION CLAMP DETAIL



10M7-125 PARTS & HARDWARE

DESCRIPTION	Qty
BOOM SEC 3.0 X .125 X 180”	1
BOOM SEC 3.0 X .125 X 180 SOE*	2
BOOM STIFFNER 2-1/2 X 120” W / COUPLING RINGS	1
ELEMENT SEC. 1.0 X .058 X 44” SBE**	6
ELEMENT SEC. 1” X .058 X 22” SOE* FOR DRIVEN ELE.	2
ELEMENT SEC. 3/4 X .058 X 36” SOE*	14
ELEMENT TIPS 1/2 X .049 X SEE DIMS.	14
BOOM TO MAST PLATE 8 X 8.0 X .250	1
HARIPIN PARTS	
FIBERGLASS ROD ,7/8 X 29-3/4” MODIFIED	1
TUBE, HAIRPIN, 3/8 X 24”	2
BALUN, 1:1, 3-30 MHz STANDARD	1
HAIRPINPARTS BAG	
SHORTING BAR, HAIRPIN 1/2 X1/2 X 5”	1
CLAMP BLOCK, HAIRPIN,	4
SPACER, 3/8” X 1”	1
POLY DISC, 7/8”	2
‘L’ BRACKET, BALUN MTG, 1 X 1 X 4”	1
BAND CLAMP 3-1/2” MODIFIED #52	1
U-BOLT 2-1/2” (BALUN MTG.)	1
NUT, 5/16-18 SS	2
LOCKWASHER, 5/16” SPLIT RING SS	2
BOLT, 1/4-20 X 2-1/4	1
LOCKNUT, 1/4-20 NYLOC	1
SET SCREW 1/4-20 X 1/4” SS	2
ALLEN WRENCH 1/8”	1
TURNBUCKLE PLATE, 2 X 5	1
FORGED EYE BOLT 3/8 X 5”	2
HF ELEMENT CLAMPS,4”	14
3” SADDLE CLAMP,	14
TURN BUCKLES 3/8 X 8 EYE & JAW FORGED	2
HPTG 4000, (40’)	1
U-BOLT 2” STANDARD (for turnbuckle plate)	1
U-BOLT 2” HD (uses 3/8-16 hardware)	4
U-BOLT 3”	2
5/8” COMPRESSION CLAMP	14
1/4” CLIPS, GALV. (for guy cable)	8

10M7-125 PARTS & HARDWARE

HARDWARE BAG	Qty
8-32 X 1-1/4 SCREW SS	28
8-32 X 1/2 SCREW SS	14
8-32 NYLOC NUT SS	28
8-32 NUT SS	14
BOLT 1/4-20 X 3 1/2 SS	4
BOLT 1/4-20 X 3” SS	28
BOLT 1/4-20 X 2-1/4” SS	4
BOLT 1/4-20 X 2 SS	28
NUT, NYLOC 1/4-20 SS	36
LOCKWASHER, 1/4” SPLIT RING, SS	28
NUT, 5/16-18 SS (for standard 2” U-BOLT	2
LOCKWASHER, 5/16”, SPLIT RING SS	2
NUT, 3/8-16 SS	14
LOCKWASHER 3/8 SPLIT RING, SS	14
THIMBLE, 1/4” (for guy cable)	4
NYLON TIES 14”	6
CONDUCTIVE PASTE, CUP	1

** SBE= Swaged both ends
 * SOE=Swaged one end

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