SkyLark 2X7

12 & 17 Meter Dual-Band Yagi Antenna

DXE-2X7-INS Rev 2

1200 Southeast Ave. - Tallmadge, OH 44278 USA
Phone: (800) 777-0703 · Tech Support and International: (330) 572-3200
E-mail: DXEngineering@DXEngineering.com

DX Engineering SkyLark 2X7

Congratulations on the purchase of your **DX Engineering SkyLark 2X7**. You now possess the finest computer optimized dual-band on the market. The SkyLark features low weight, zero mast torque, a balanced beam and high wind survival. Corrosion and UV resistant materials are used throughout its construction. Only stainless steel fasteners and rivets are used for element construction. Custom designed aluminum extrusions make assembly a snap. Multiple wall boom construction, eliminating the need for stays, coupled with ultra thin trap-free riveted elements significantly reduces wind load.

DX Engineering Skylark™ Dual-Band Yagi Antennas cover 17 and 12 meters and have no moving parts, support instant band changes, and have no UV challenges. The 12 meter driven element is parasitically coupled. Skylark™ antennas require no tuning and offer an SWR of less than 1.3:1 over the entire width of both bands.

DX Engineering's Skylark™ utilizes aluminum and stainless steel construction, operate from a single feed line, and have a 90 mph wind survival rating. At only 43 lbs., Skylark™ antennas are light enough to be easily installed. These antennas are supplied complete with all mounting hardware for a 2 inch OD mast. Their stainless steel U-bolts and unique boom to mast mounting system make for very easy installation.

The Skylark™ antenna is a perfect match for stacking with the DX Engineering SkyHawk™ Tri-Band Yagi Antenna or any other classic tri-band antenna.

DX Engineering SkyLark features include:

EZ-mount system for attaching antenna to mast

- All aluminum parts de-burred
- Stainless steel pop-riveted element construction
- Quality DXE Balun and Balun mounting system
- Gain on 17 meters: 7.95 dBi
- Gain on 12 meters: 7.75 dBi
- Front to back on 17 meters: 21 dB
- Front to back on 12 meters: 24 dB
- 16 ft. boom
- Wind loading: 6.5 square feet
- Longest element is 27 feet, 8 inches
- Turning radius is 16 feet
- No user adjustment required - assemble and put it up

Required Tools and Items

POP Rivet tool: POP Rivetool PRG 430, POP Rivetool PRGIII or equivalent
Phillips head screwdriver
Nut Driver: 11/32” and 3/8” nut driver
Wrench: 7/16” and 1/2”
Pair of saw horses or similar support
Permanent marker
Jet-Lube SS-30
Tape Measure
Electrical Tape
Soldering Iron

Before You Start

WARNING: INSTALLATION OF THIS PRODUCT NEAR POWER LINES IS DANGEROUS. FOR YOUR SAFETY FOLLOW THE INSTALLATION INSTRUCTIONS.

WARNING: AT NO TIME DURING ASSEMBLY, INSTALLATION, ADJUSTMENT, OR OPERATION SHOULD ANY PART OF THIS PRODUCT BE ALLOWED TO COME INTO CONTACT WITH ELECTRIC POWER LINES, NOR SHOULD THIS PRODUCT BE INSTALLED IN SUCH A WAY THAT ANY PART OF IT MAY CONTACT POWER LINES DURING NORMAL OPERATION OR IN THE EVENT OF STRUCTURAL FAILURE. FAILURE TO EXERCISE EXTREME CARE IN THIS MATTER CAN RESULT IN DAMAGE TO PROPERTY, PERSONAL INJURY OR DEATH.

Before you start assembling the antenna, read through the instructions completely, paying special attention to the diagrams and photos.

When you unpack the boxes do it on a surface where you will not lose small parts. See Important Installation Notes. Check to see that all parts are present before beginning assembly. Check the parts against the PART LISTS, identifying each part carefully.

Important Installation Notes

Boom and Antenna Assembly Tips: Assembly of the boom and antenna is made easier if work stands or saw horses are used to elevate the working area waist high. The addition of clamps to your saw hordes or work stands to hold the boom in a fixed place will help ensure everything is constructed properly and level to each other. Additionally, a tarp or other smooth surface (such as a driveway) under the antenna during construction will help if hardware such as bolts, washer and nuts are accidently dropped, they will be easy to spot and pick up. Building the antenna over a grassy area does not work well. Dropping a nut or washer in the grass almost guarantees you will not find it.

Assembly of Stainless Steel Hardware and Aluminum Parts: It is required that a lubricant such as **JTL-12555** Jet-Lube SS-30 Pure Copper Anti-Seize be used on the threads to reduce friction which allows the fastener to be properly tensioned. **JTL-12555** Jet-Lube SS-30 is an ideal electrical joint compound that ensures proper electrical connections between aluminum and copper metal parts such as conductors, telescoping aluminum tubing, or other antenna and grounding parts. Apply a thin layer to each metal to metal antenna connection with a brush or clean cloth. Be careful not to accumulate excess material on other parts or yourself as it is quite difficult to remove and virtually impossible to clean out of clothing.

Fastener Assembly: Installing and tightening fasteners is a simple procedure but one, which is often done incorrectly. Tightening fasteners evenly to the proper torque keeps bolts tight, increases joint strength, creates friction between parts to resist shear and improves the fatigue resistance of the connection. Unfortunately fasteners are usually over tightened causing them to fracture or at least causing thread damage making them impossible to disassemble.

The best way to properly tension a fastener is to tighten the nut until the lock washer is flat and then tighten it no more than an additional one quarter turn. This rule should be followed except for Mast Plate U-bolts where one additional full turn is required.

Element Construction

Each band has the element tubes in a separate bag with a tag indicating which antenna element the tubes are used for. When opening the bag, just open one end. As tubes are needed, remove them from their bag to avoid mixing up element tubes. The part number label on the bag will help to keep tubes separated and identified prior to use.

Pop Rivet Installation

The elements of your SkyLark 2X7 are assembled with blind rivets. What is the difference between a blind rivet and a rivet? The short answer is there is no difference between Pop® rivets, pop rivets, or blind rivets. These are different rivet labels for the same item, a blind rivet means you do not need access to the other side of the material, or you cannot see the other side of the material. Blind rivets were chosen to provide fast, strong, reliable, vibration proof assembly, with high grip and pull-up strengths. Open end stainless steel rivets are used because they provide better than 80% more shear and tensile strength than closed end aluminum rivets.

It is beyond the scope of this manual to cover how to pop rivet. Though the process is neat and simple, you do want to be sure you get it done right! If there is any question, get assistance from someone who has experience. Also, the internet has several different instructional videos. Here are just two links to short videos explaining how to pop rivet:

https://www.youtube.com/watch?v=9aoXmzdSf_I https://www.youtube.com/watch?v=yuJqCtSrad0

Note that when pop riveting it is sometimes necessary to pull up on the rivet by squeezing the riveter handle, then releasing pressure on the handle, pushing the rivet tool down further and then squeezing the handle again. If you have never done pop riveting before it would be time well spent to try three or four rivets on a couple pieces of sheet metal for practice.

Blind Rivets are suggested to be installed on the bottom side of each element. Blind Rivets are easily set by:

1. Line up the pre-drilled holes in each tube as shown
2. Insert a blind rivet in each hole. This ensures proper alignment of all holes
3. Make sure the rivets are fully seated in place
4. Set each rivet with the pop-rivet tool

If for some reason you need to remove a blind rivet: Blind rivets may easily be removed by drilling through them with a 1/8" (3.175mm) drill bit. Be careful not to drill through the entire element and be sure to remove any remnants left from the removed rivet.

Choosing an Installation Site

As with all directional antennas, care must be taken in the choice of a tower installation site for your SkyLark 2X7. Select a place clear of power lines or other obstructions.

When completed, the SkyLark 2X7 should be mounted at least 30 feet (9.1 meters) above the ground for proper operation. The SkyLark 2X7 should be able to rotate without hitting anything.

Finally, it should not be near any large masses of metal, like metal roofing or siding.

Masts and Guying

In order to avoid coupling between antenna elements and metallic guy wires that can de-tune the antenna it may be necessary to break up the guy wires with insulators.

If the separation between the antenna and the highest set of guys is less than 15' (4.6m) it would be a good idea to use insulators on each of the uppermost guys at intervals of 10' (3m).

Place the first insulator on each guy AT THE MAST OR TOWER, for that too is a conductor that can be coupled to the antenna by any horizontal or near-horizontal guy wire connected to it.

The best solution to avoid guy wire interference is to use Phillystran guy lines which are not metallic.

Part Lists

SKYLARK 17 METER ELEMENTS - PARTS LIST				
	Qty	Description	Size Inch (cm)	
17M REFLECTOR ELEMENT				
	1	SPLICE 17M	5/8” (1.5875) X 47-7/8” (121.6025)	
	2	SECTION A 17M	3/4” (1.905) X 47-7/8” (1,216)	
	2	SECTION B 17M	5/8” (1.5875) X 47-7/8” (121.6025)	
	2	SECTION C 17M	1/2” (1.27) X 35-7/8” (91.1225)	
	2	SECTION D 17M	3/8” (0.9535) X 47-7/8” (121.6025)	
17M DRIVEN ELEMENT				
	1	INSULATOR DRIVEN	1/2 (1.27) x 23-3/4 (60.325)	
	2	SECTION A 17M	3/4” (1.905) X 47-7/8” (1,216)	
	2	SECTION A 17M REDUCER	5/8” (1.5875) X 23-7/8” (60.6425)	
	2	SECTION B 17M	5/8” (1.5875) X 47-7/8” (121.6025)	
	2	SECTION C 17M	1/2” (1.27) X 35-7/8” (91.1225)	
	2	SECTION D 17M	3/8” (0.9535) X 47-7/8” (121.6025)	
17M DIRECTOR ELEMENT				
	1	SPLICE 17M	5/8” (1.5875) X 47-7/8” (121.6025)	
	2	SECTION A 17M	3/4” (1.905) X 47-7/8” (121.6025)	
	2	SECTION B 17M	5/8” (1.5875) X 47-7/8” (121.6025)	
	2	SECTION C 17M	1/2” (1.27) X 35-7/8” (91.1225)	
	2	SECTION D 17M	3/8” (0.9535) X 35-7/8” (91.1225)	

SKYLARK 12 METER ELEMENTS - PARTS LIST				
	Qty	Description	Size Inch (cm)	
12M REFLECTOR ELEMENT				
	1	SECTION A 12M	3/4” (1.905) X 35-7/8” (91.1225)	
	2	SECTION B 12M	5/8” (1.5875) X 35-7/8” (91.1225)	
	2	SECTION C 12M	1/2” (1.27) X 35-7/8” (91.1225)	
	2	SECTION D 12M	3/8” (0.9535) X 47-7/8” (121.6025)	
12M DRIVEN ELEMENT				
	1	SECTION A 12M	3/4” (1.905) X 35-7/8” (91.1225)	
	2	SECTION B 12M	5/8” (1.5875) X 35-7/8” (91.1225)	
	2	SECTION C 12M	1/2” (1.27) X 35-7/8” (91.1225)	
	2	SECTION D 12M	3/8” (0.9535) X 47-7/8” (121.6025)	
12M 1st DIRECTOR ELEMENT				
	1	SECTION A 12M	3/4” (1.905) X 35-7/8” (91.1225)	
	2	SECTION B 12M	5/8” (1.5875) X 35-7/8” (91.1225)	
	2	SECTION C 12M	1/2” (1.27) X 35-7/8” (91.1225)	
	2	SECTION D 12M	3/8” (0.9535) X 35-7/8” (91.1225)	
12M 2nd DIRECTOR ELEMENT				
	1	SECTION A 12M	3/4” (1.905) X 35-7/8” (91.1225)	
	2	SECTION B 12M	5/8” (1.5875) X 35-7/8” (91.1225)	
	2	SECTION C 12M	1/2” (1.27) X 35-7/8” (91.1225)	
	2	SECTION D 12M	3/8” (0.9535) X 35-7/8” (91.1225)	

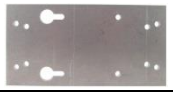
SKYLARK DRIVEN ELEMENT HARDWARE KIT - PARTS LIST			
	Qty	Description	
	2	SADDLE 1” (2.54cm) 17 METER DRIVEN ELEMENT	
	2	ELEMENT SPACER ASSEMBLIES with Mounting Screws and Hex Nuts	
	1	COIL - 12/17 METER SKYLARK with Ring Terminals Soldered	

ELEMENT HARDWARE PACKAGE - PARTS LIST			
	Qty	Description	
	2	# 8 SPLIT RING LW 18-8	
	4	# 8-32 HEX NUT 18-8 (11/32 X 1/8)	
	2	# 8-32 X 2.000 PHIL RND HD MS 18-8	
	146	0.125 X 0.265 POP RIVET 18-8	

BOOM TUBES - PARTS LIST			
	Qty	Description	
	1	BOOM SECTION A 2” (5.08) X 47-7/8” (121.6025)	
	1	BOOM SECTION B 2” (5.08) X 47-7/8” (121.6025)	
	1	BOOM SECTION C 2” (5.08) X 47-7/8” (121.6025)	
	1	BOOM SECTION D 2” (5.08) X 47-7/8” (121.6025)	
	1	BOOM SPLICE AB 1-7/8” (4.7625) X 47-7/8” (121.6025)	
	1	BOOM SPLICE BC 1-7/8” (4.7625) X 47-7/8” (121.6025)	
	1	BOOM SPLICE CD 1-7/8” (4.7625) X 47-7/8” (121.6025)	

SADDLES			
	12	ELEMENT SADDLE	
	7	BOOM SADDLE	
	1	MAST SADDLE	

BOOM HARDWARE PACKAGE - PARTS LIST			
	Qty	Description	
	37	1/4-20 HEX NUT 18-8	
	37	1/4 SPLIT RING WASHER 18-8	
	28	1/4-20 X 0.625 PHILLIPS HEAD BOLT 18-8	
	9	1/4-20 X 2.750 PHILLIPS HEAD BOLT 18-8	
	2	PROTECTIVE BOOM END CAP, 2” (5.08cm)	

BOOM/MAST PLATES - PARTS LIST			
	Qty	Description	
	2	1/4-20 HEX NUT 18-8 (7/16 X 7/32)	
	2	1/4 SPLIT RING WASHER 18-8	
	2	#10 SPLIT RING WASHER 18-8	
	2	#10-32 X 0.375 PHILLIPS HEAD BOLT 18-8	
	1	MAST PLATE	
	1	BOOM PLATE	
	2	1/4-20 x 2.750 PHILLIPS HEAD BOLT 18-8	
	4	5/16-18 HEX FLANGE NUT 18-8 (1/2 x 9/32)	
	4	5/16-18 x 1.250 FLANGE HEX BOLT 18-8	
	4	5/16-18 HEX NUT	
	2	2” SADDLE CLAMP, WITH MTG HDWARE	

BALUN, MOUNTING BRACKET AND HARDWARE PARTS LIST			
	1	DX Engineering 1:1 BALUN W/ WEEP HOLES	
	2	BALUN CONNECTION STRAPS, ALUMINUM with mounting hardware and 2 Nyloc Hex Nuts	
	1	BALUN MOUNTING BRACKET	
	8	BALUN MOUNTING BRACKET FLAT WASHERS	
	4	BALUN MOUNTING BRACKET NYLOC HEX NUTS	
	4	BALUN MOUNTING BRACKET HEX HEAD BOLTS	
	2	2 inch ECLS CLAMPS with mounting hardware	
	1	COAX SUPPORT CLAMP	

NOTE - Extra hardware is included, just in case

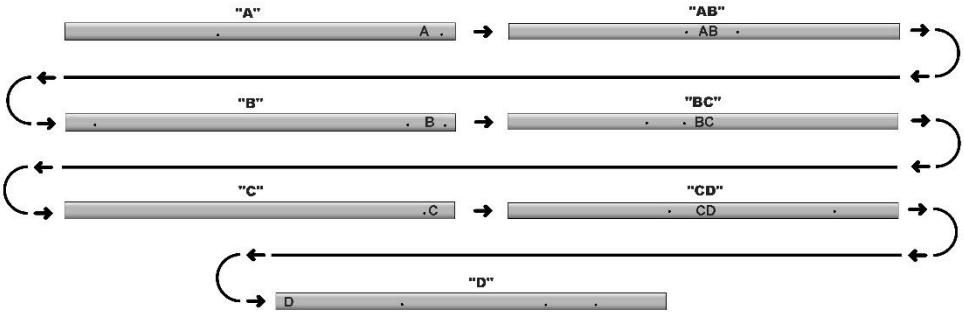
Assembly Sequence

Step	Page	Description
1	10	Boom assembly
2	11	Element Platforms mounted to boom
3	12	Boom to Mast Clamp installation
4	13	Element assemblies constructed and mounted to boom
5	21	Balun assembly and mount to boom
6	22	Install Coax Guide, connect coaxial cable and weatherproof connections
7	22	Rotate boom 180 degrees (Balun will now be on bottom side)
8	23	12M & 17M Element spacer assemblies constructed and mounted
9	24	Boom Mounting Plate to Boom Mounting Bracket installation
10	25	Boom End Caps installed and drain holes cut
11	25	Double-check all measurements
12	25	Verify all hardware is tight
13	25	Let antenna rest for one day
14	25	Verify all hardware is tight
15	26	Mast Plate to Antenna Mast installation
16	27	Antenna mounted to tower Mast Plate

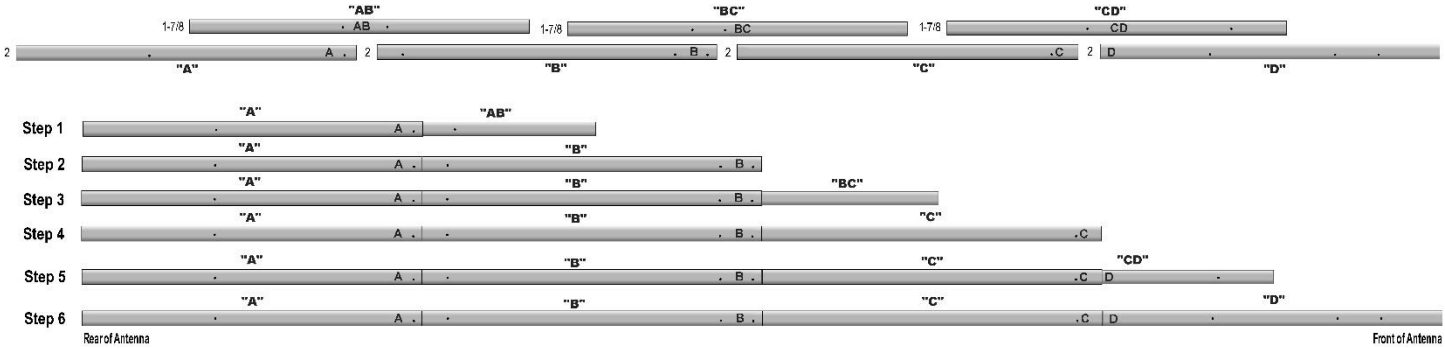
Boom Assembly

Each boom section labeled for easy assembly. In the event that the letters have worn off, each section may be identified using the boom dimensions.

Boom		
Qty	Description	Size Inch (cm)
1	BOOM SECTION A	2” (5.08) X 47-7/8” (121.6025)
1	BOOM SECTION B	2” (5.08) X 47-7/8” (121.6025)
1	BOOM SECTION C	2” (5.08) X 47-7/8” (121.6025)
1	BOOM SECTION D	2” (5.08) X 47-7/8” (121.6025)
1	BOOM SPLICE AB	1-7/8” (4.7625) X 47-7/8” (121.6025)
1	BOOM SPLICE BC	1-7/8” (4.7625) X 47-7/8” (121.6025)
1	BOOM SPLICE CD	1-7/8” (4.7625) X 47-7/8” (121.6025)



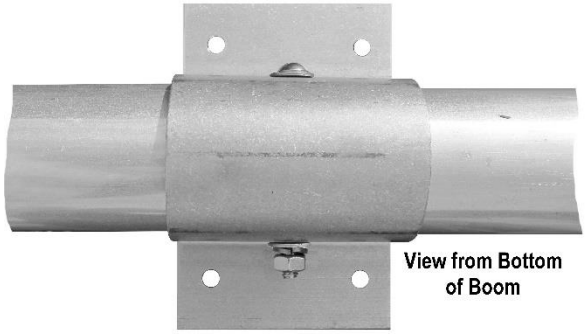
NOTE: When assembling the boom sections - Install 1/4-20 x 2-3/4” (6.985) Phillips round head, two 1/4” Flat washers, 1/4-20 Hex nut and 1/4” Split ring washer only finger tight. The bolts will be tightened in later assembly steps. Rotate boom sections to align holes. The splices and sections will only fit together one way, so if there is an interference fit then recheck your assembly sequence.



1. Insert “AB” into “A” until holes line up.
2. Slide “B” over “AB” until holes line up.
3. Insert “BC” into “B” until holes line up.
4. Slide “C” over “BC” until holes line up.
5. Insert “CD” into “C” until holes line up.
6. Slide “D” over “CD” until holes line up.

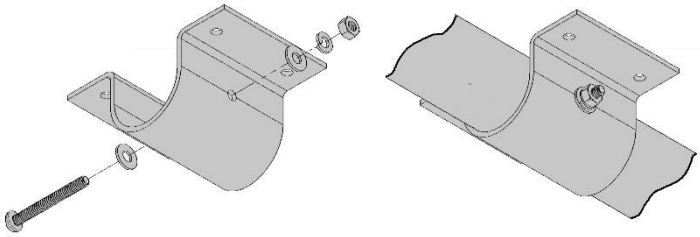
Element Platform Mounts

There are seven aluminum element platforms. These are mounted at the seven element stations. There are already a temporary bolts and hardware through the boom (installed finger tight during boom assembly) where the element platforms will mount. When mounting these platforms it is necessary to remove the bolts and hardware as you install the element platform mounts. The element platform station numbers are based on the distance from the reflector end (rear) of the boom in inches (cm), starting at the rear end of the boom. Stations are mounted so that the flat plate area is up.

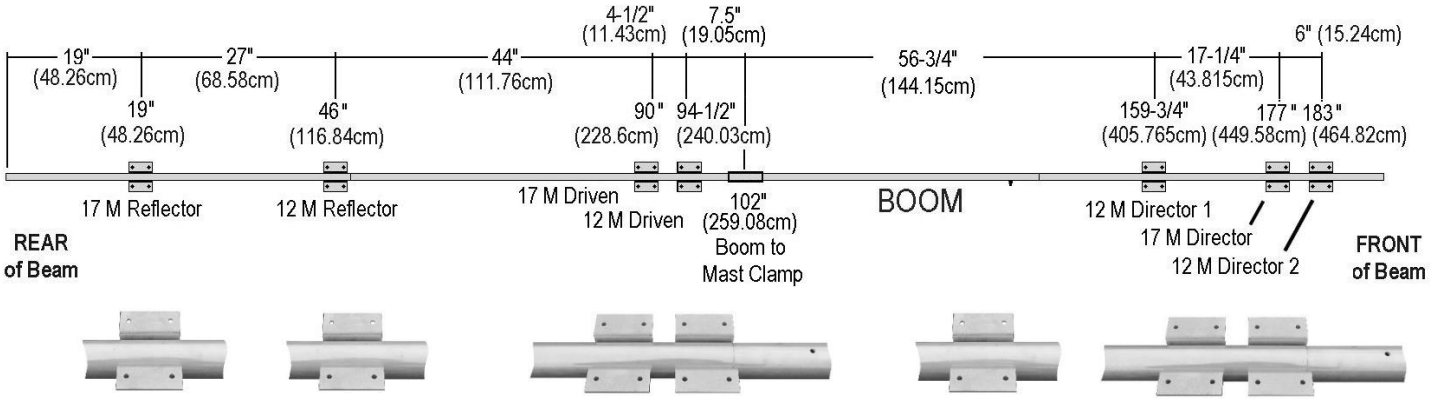


NOTE: ***At this point in the assembly, the boom is upside down on your work stands for ease of element installations.***

The first station is the 17 meter reflector, which is approximately 19" (48.26) in from the end of the boom. Remove the temporary bolt, two flat washers, split washer and nut, slip an element platform around the boom tube, as shown in the pictures, re-install the 1/4-20 x 2-3/4" (6.985) Phillips round head, two 1/4" flat washers, 1/4" split ring washer and 1/4-20 hex nut - tighten in place.



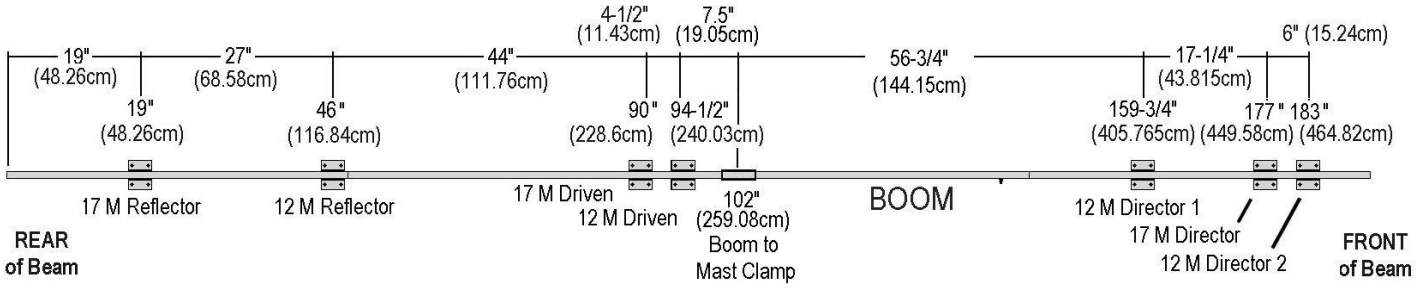
In the same manner, mount the other six element platforms. Use a tape measure to verify the station element locations. Besides the first element platform mounted at 19" (48.26), element platforms should be mounted at: 46"(116.84), 90" (228.6), 94-1/2"(240.03), 159-3/4" (405.765), 177" (449.58) and 183" (464.82). Make sure that the element platform stations are correct. **Note:** *The first element platform station may not be exactly 19" (48.26) in from the end; this is okay.* However, to measure the rest of the element platform stations, place the 19" (48.26) mark of your tape measure exactly centered on the hole of the first element platform station installed (17M Reflector). All other element platform stations should be exactly correct.

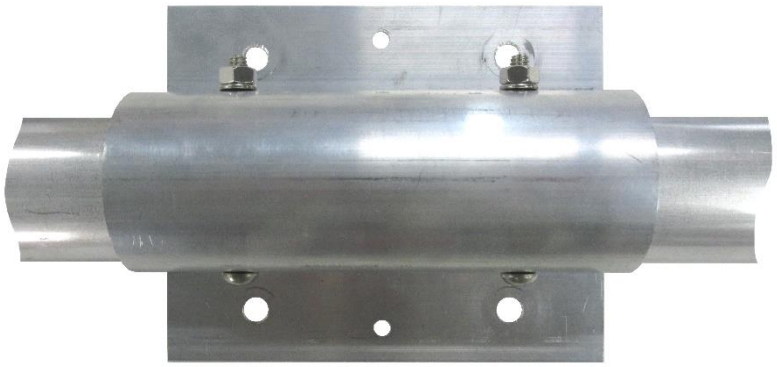


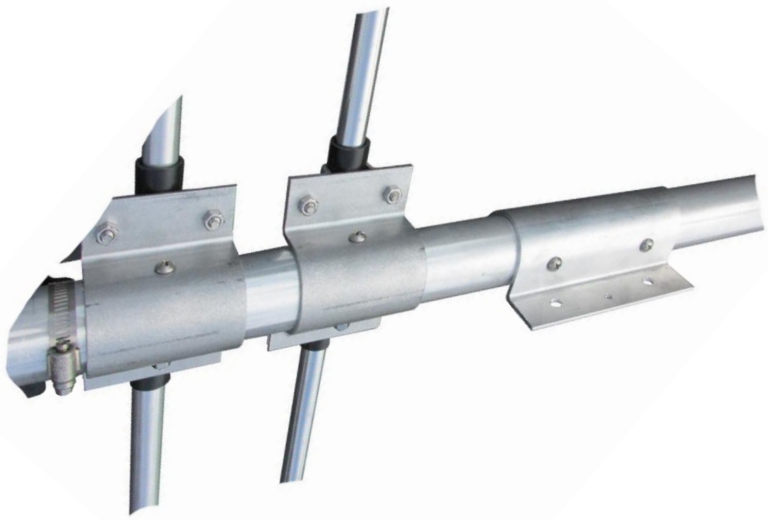
Boom to Mast Mounting Clamp

Install the Boom to Mast mounting clamp on the Boom in the position as shown.

Use the appropriate bolt, split washer, hex nut hardware to hold the clamp in place as shown. Note that the mast clamp can be mounted in either side of the boom depending on where the user wants it.







Element Assemblies

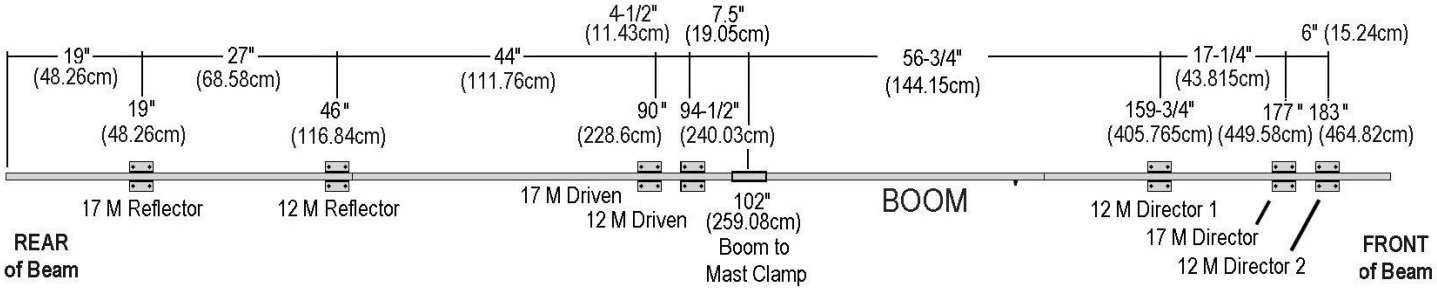
NOTE: Each band has the tubes in a separate bag with a tag indicating which element the tubes belong with. When opening the bag, just open one end. As tubes are needed, remove them from their bag to avoid mixing up element tubes. The part number label on the bag will help to keep element tubes separated and identified prior to use.

When assembling the elements, you should be using Jet Lube SS-30 anti-seize to insure a good electrical connection between element segments. Note that if Jet Lube SS-30 gets on your clothes, it is virtually impossible to remove the stain. For this reason, we strongly recommend you wear clothing for which permanent stains will not be an issue. Also, you will want rags for wiping away excess Jet Lube SS-30, and these rags are probably best thrown away when the project is completed.

When mounting the elements, try to have the rivet holes facing upward. This helps prevent any moisture leaking into the rivet ends. Before riveting any elements - VERIFY proper lengths per the assembly drawings. The rivet holes are spaced in a way that they can only be put together one way, as long as the elements are not mixed with other elements.

Reminder - You are assembling the elements to the boom with the boom being held upside down.

Assembly is presented starting at rear of beam (17 Meter Reflector) and working toward the front of the beam (12 Meter Director 2)

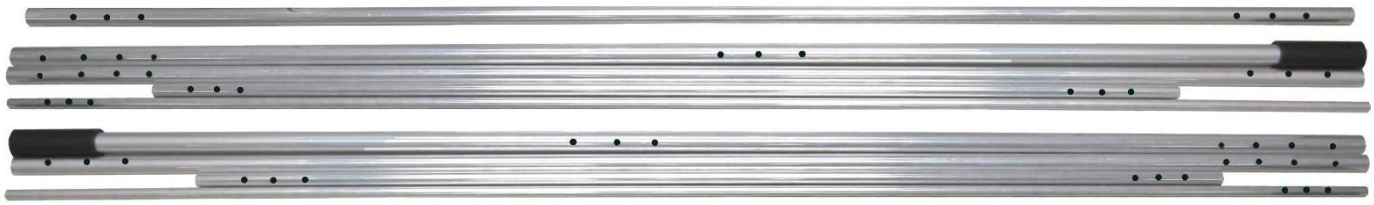


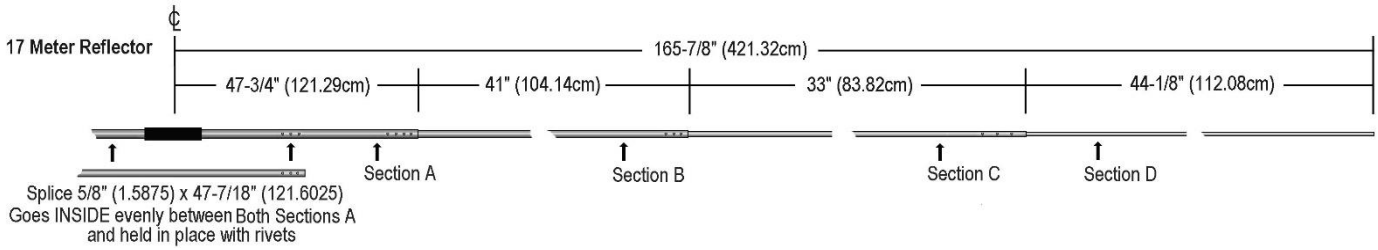
Elements - order of assembly:

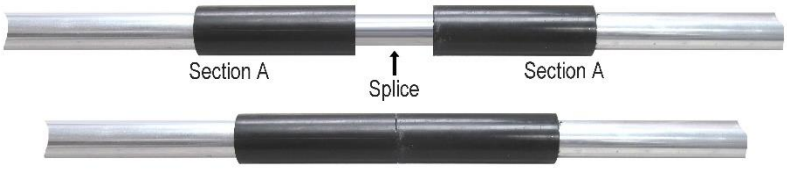
17 Meter Reflector Element (rear of beam)
12 Meter Reflector Element
17 Meter Driven Element
12 Meter Driven Element
12 Meter Director 1 Element
17 Meter Director Element
12 Meter Director 2 Element (front of beam)

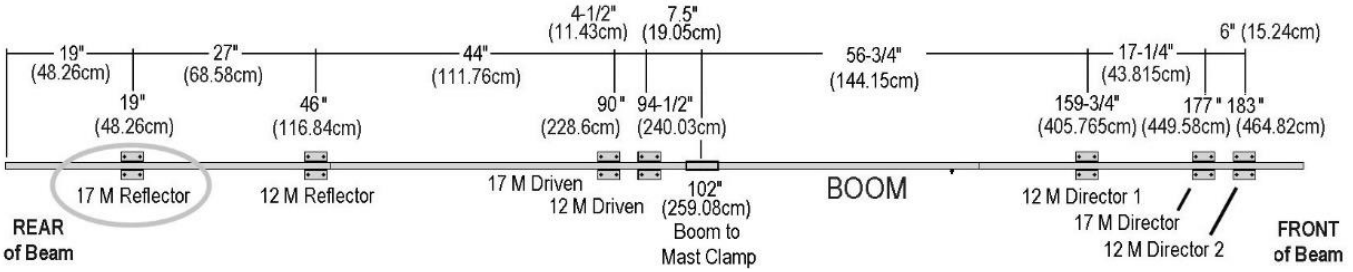
17 Meter Reflector Element construction and mount to boom

17 Meter Reflector			
	Qty	Description	Size Inch (cm)
□	1	ELEMENT SPLICE 17M	5/8" (1.5875) X 47-7/8" (121.6025)
□	2	ELEMENT SECTION A 17M	3/4" (1.905) X 47-7/8" (1,216)
□	2	ELEMENT SECTION B 17M	5/8" (1.5875) X 47-7/8" (121.6025)
□	2	ELEMENT SECTION C 17M	1/2" (1.27) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION D 17M	3/8" (0.9535) X 47-7/8" (121.6025)



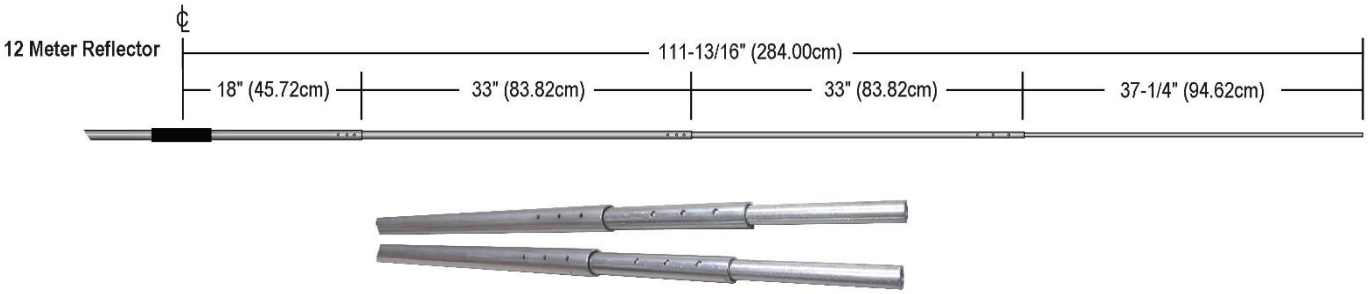


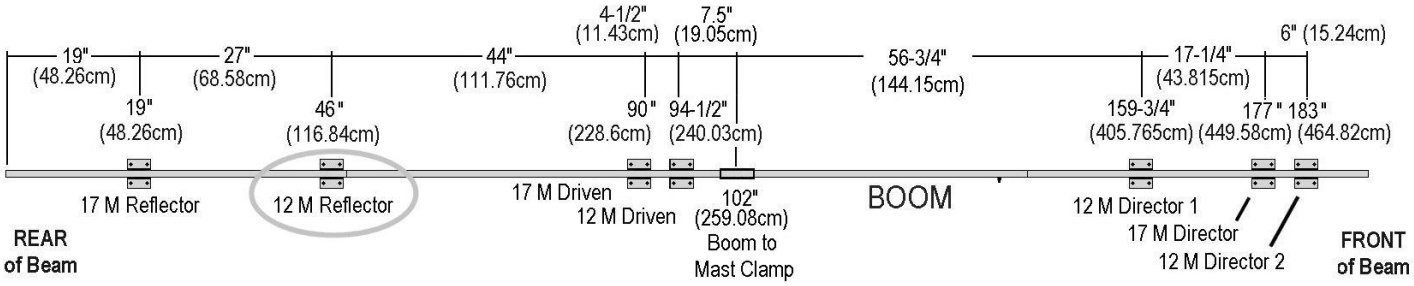




12 Meter Reflector Element construction and mount to boom

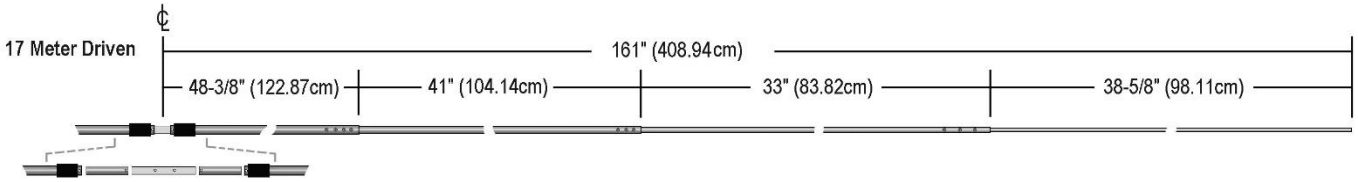
12 Meter Reflector			
	Qty	Description	Size Inch (cm)
□	1	ELEMENT SECTION A 12M	3/4” (1.905) X 35-7/8” (91.1225)
□	2	ELEMENT SECTION B 12M	5/8” (1.5875) X 35-7/8” (91.1225)
□	2	ELEMENT SECTION C 12M	1/2” (1.27) X 35-7/8” (91.1225)
□	2	ELEMENT SECTION D 12M	3/8” (0.9535) X 47-7/8” (121.6025)

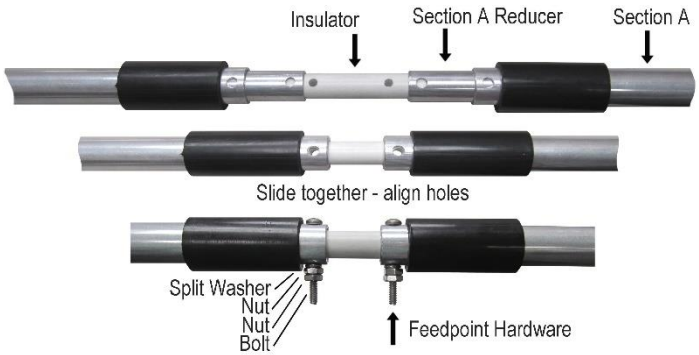


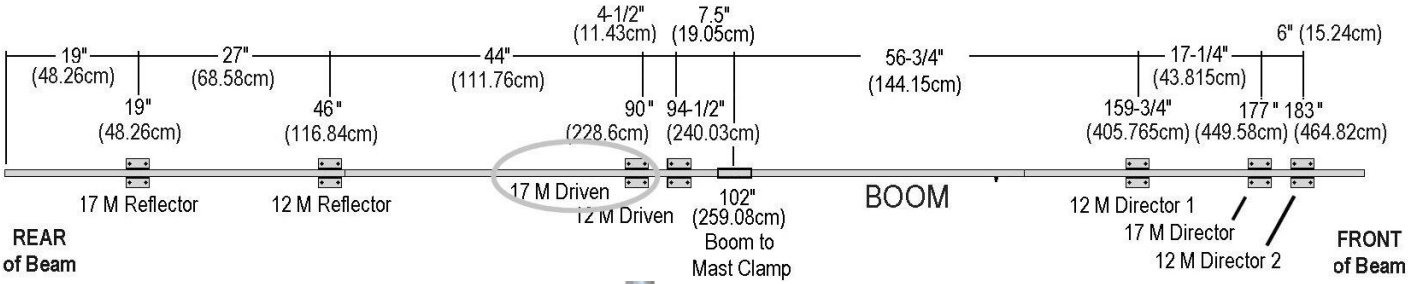


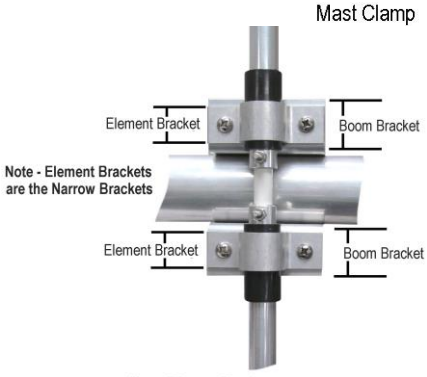
17 Meter Driven Element construction and mount to boom

17 Meter Driven			
	Qty	Description	Size Inch (cm)
□	2	ELEMENT SECTION A 17M	3/4” (1.905) X 47-7/8” (1,216)
□	2	ELEMENT SECTION A 17M REDUCER	5/8” (1.5875) X 23-7/8” (60.6425)
□	2	ELEMENT SECTION B 17M	5/8” (1.5875) X 47-7/8” (121.6025)
□	2	ELEMENT SECTION C 17M	1/2” (1.27) X 35-7/8” (91.1225)
□	2	ELEMENT SECTION D 17M	3/8” (0.9535) X 47-7/8” (121.6025)



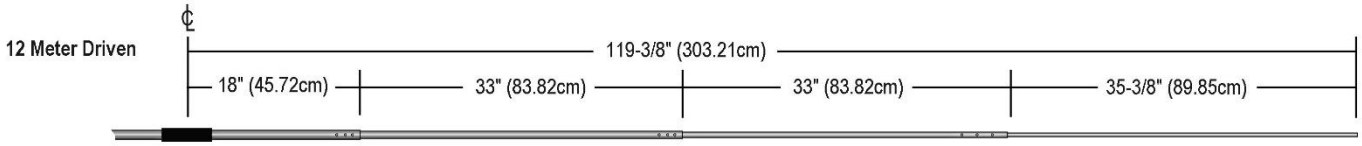


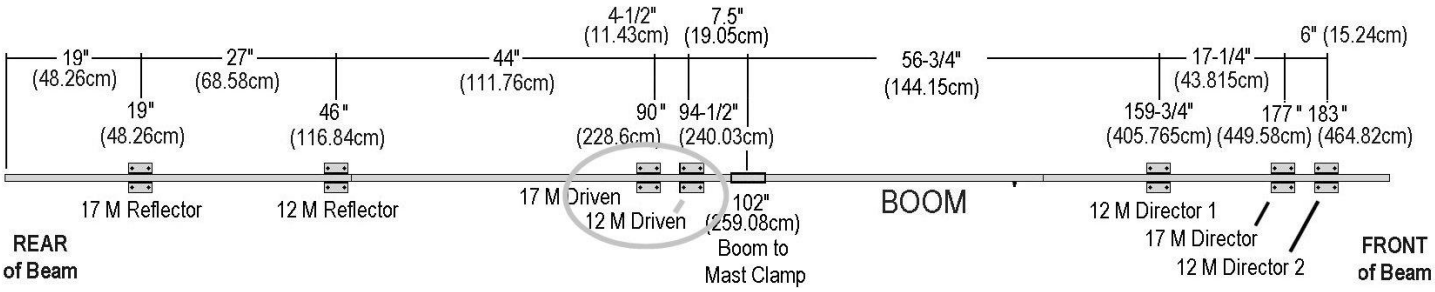




12 Meter Driven Element construction and mount to boom

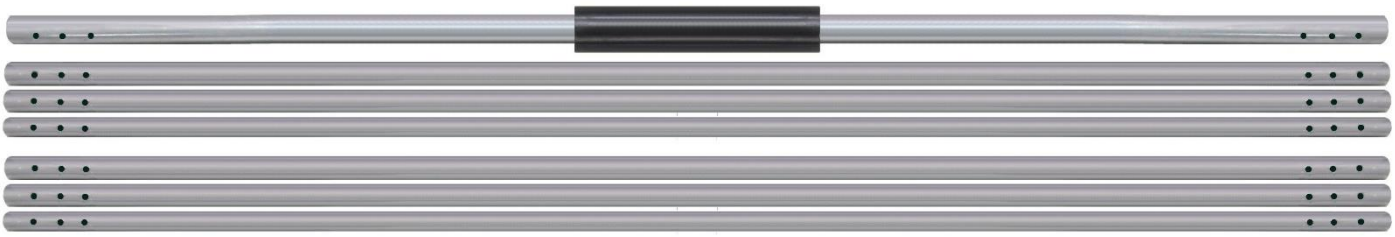
12 Meter Driven			
	Qty	Description	Size Inch (cm)
□	1	ELEMENT SECTION A 12M	3/4" (1.905) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION B 12M	5/8" (1.5875) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION C 12M	1/2" (1.27) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION D 12M	3/8" (0.9535) X 47-7/8" (121.6025)

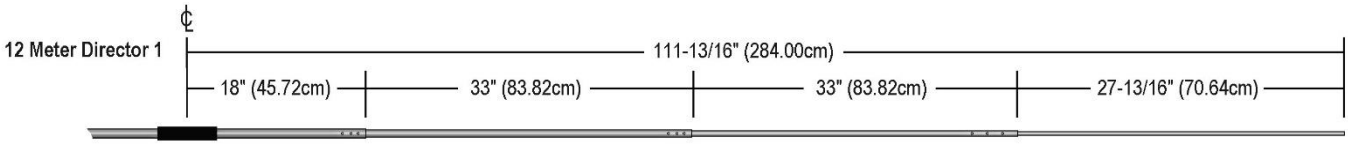


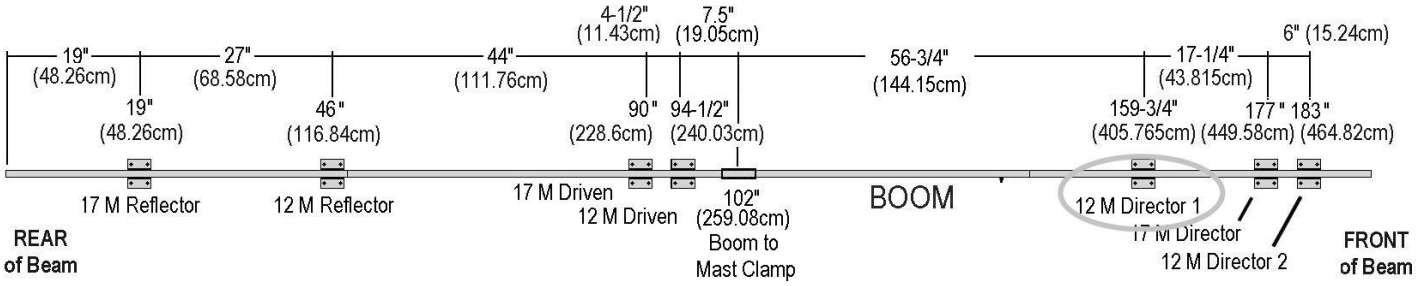


12 Meter Director 1 Element construction and mount to boom

12 Meter First Director			
	Qty	Description	Size Inch (cm)
□	1	ELEMENT SECTION A 12M	3/4" (1.905) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION B 12M	5/8" (1.5875) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION C 12M	1/2" (1.27) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION D 12M	3/8" (0.9535) X 35-7/8" (91.1225)

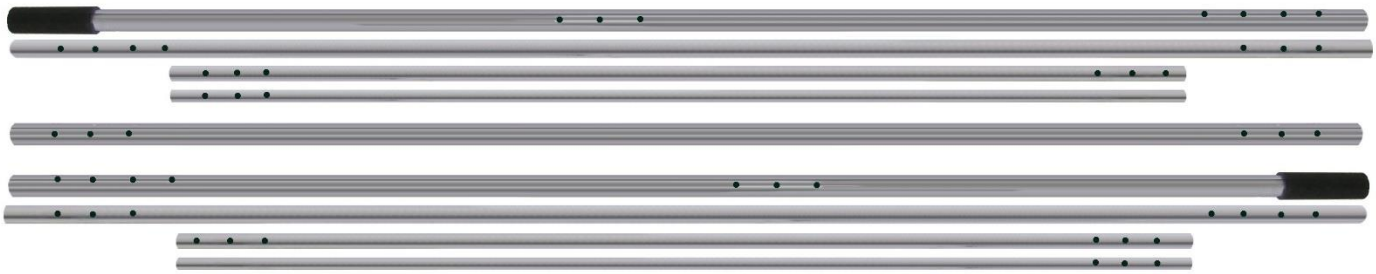


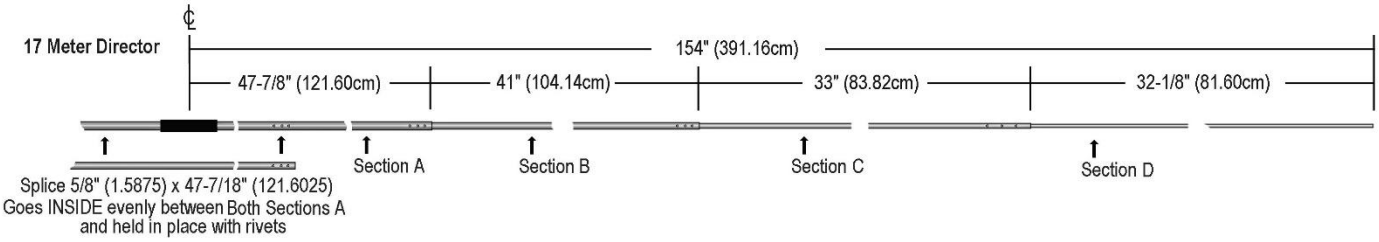


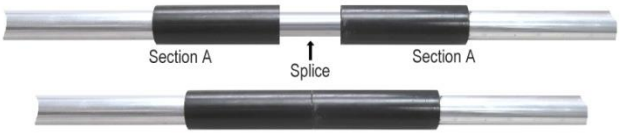


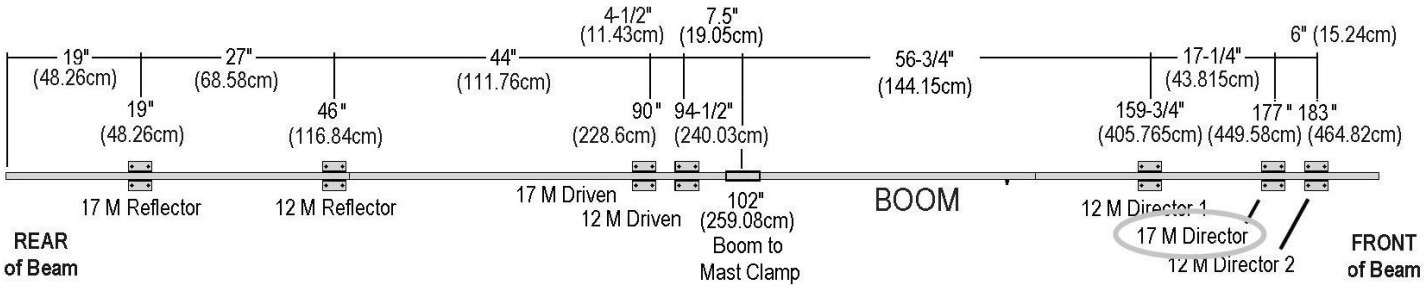
17 Meter Director Element construction and mount to boom

17 Meter Director			
	Qty	Description	Size Inch (cm)
□	1	ELEMENT SPLICE 17M	5/8" (1.5875) X 47-7/8" (121.6025)
□	2	ELEMENT SECTION A 17M	3/4" (1.905) X 47-7/8" (121.6025)
□	2	ELEMENT SECTION B 17M	5/8" (1.5875) X 47-7/8" (121.6025)
□	2	ELEMENT SECTION C 17M	1/2" (1.27) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION D 17M	3/8" (0.9535) X 35-7/8" (91.1225)



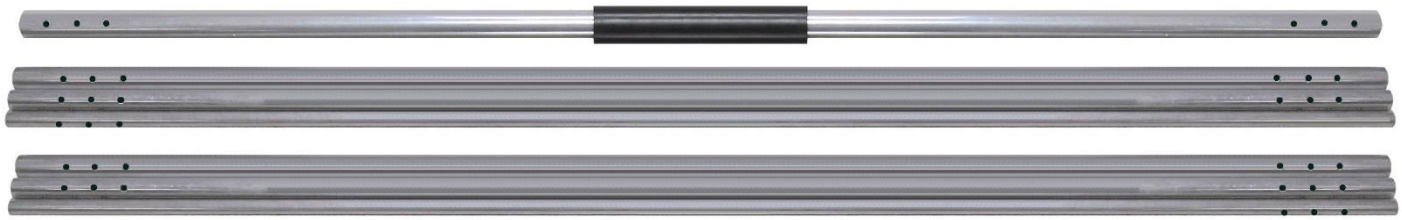


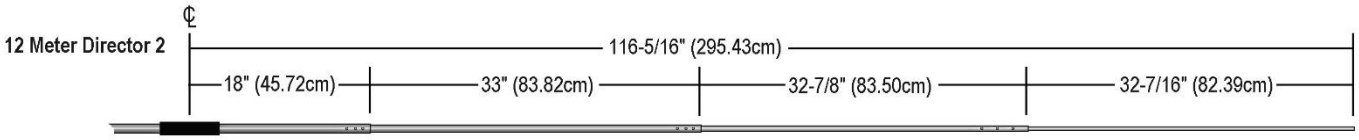


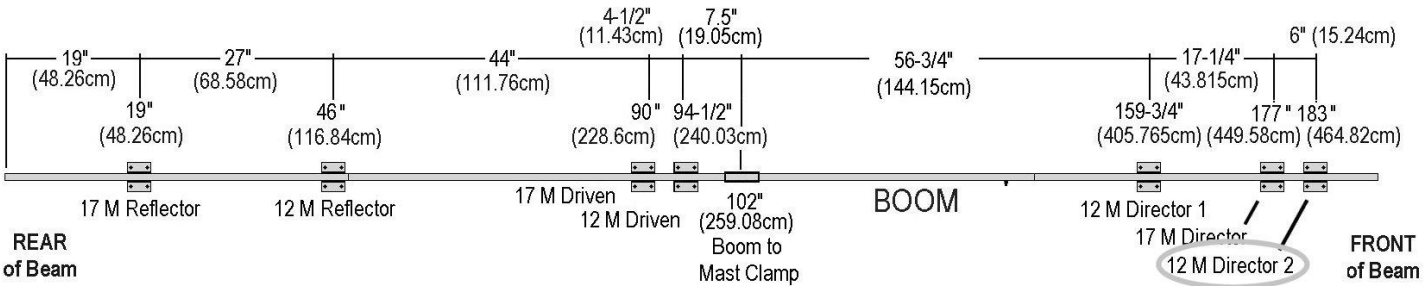


12 Meter Director 2 Element construction and mount to boom

12 Meter Second Director			
	Qty	Description	Size Inch (cm)
□	1	ELEMENT SECTION A 12M	3/4" (1.905) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION B 12M	5/8" (1.5875) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION C 12M	1/2" (1.27) X 35-7/8" (91.1225)
□	2	ELEMENT SECTION D 12M	3/8" (0.9535) X 35-7/8" (91.1225)



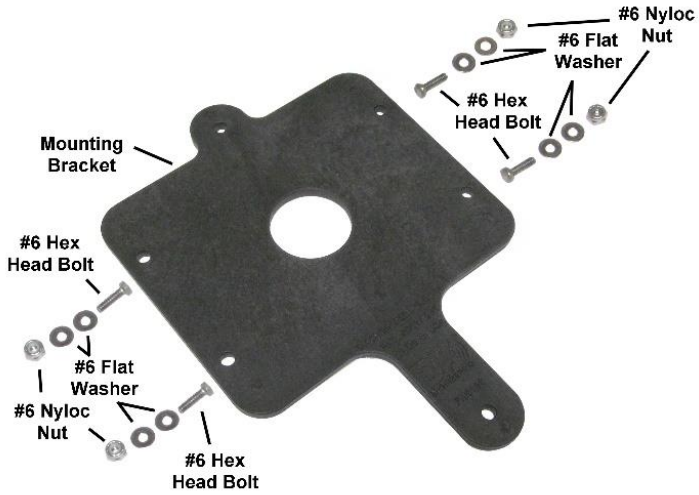


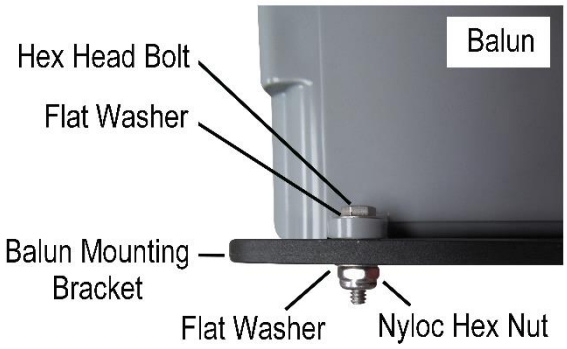


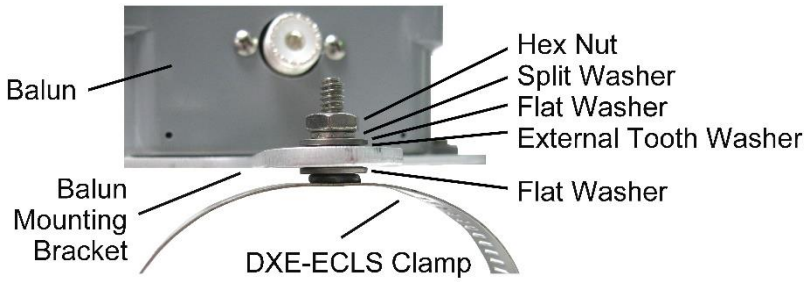
Balun assembly

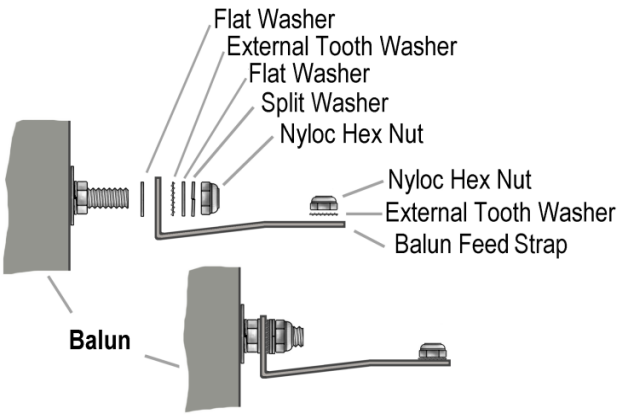
Balun and Hardware Package		
	Qty	Description
□	1	COIL 12/17 METER SKYLARK (Red Coil with Ring Terminals)
□	1	DX Engineering Balun 1:1
□	1	Balun Mounting Bracket with hardware
□	2	Element Clamps with hardware
□	2	Feedpoint straps with hardware
□	1	Coax Cable Clamp

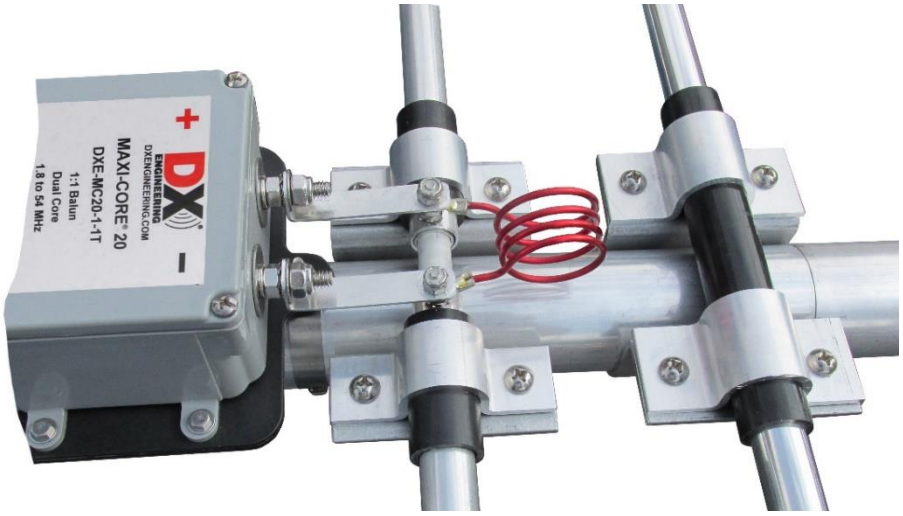
Assemble the Balun & Bracket, Element Clamps and Coil to the Boom connecting to the 17 Driven Element as shown.

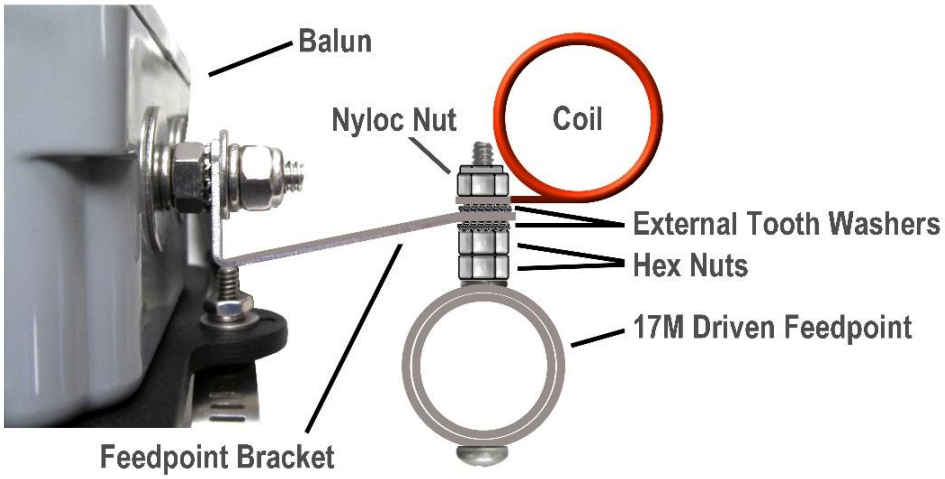












Install the Coax Clamp as shown. Your option to attach coax cable and weatherproof. You may want to do this when mounting the antenna on the tower.

<u>Rotate antenna 180 degrees</u> (Balun will now be on bottom side). As mentioned earlier in the assembly procedure, the Antenna was upside down for ease of element mounting and construction. You can easily turn it over by putting one end of the boom on the ground and walking the antenna over. You need assistance when doing this so you don't accidently lose control while flipping the beam.

Element Spacer Assemblies and Mounting to 12M and 17M Driven Elements

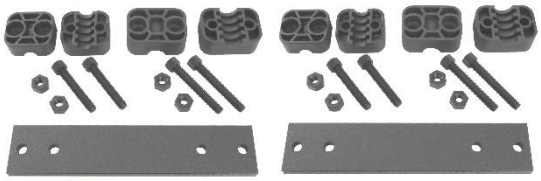
The element spacers are designed to maintain the relationship between the two driven elements providing unchanging performance under a wide variety of operating conditions.

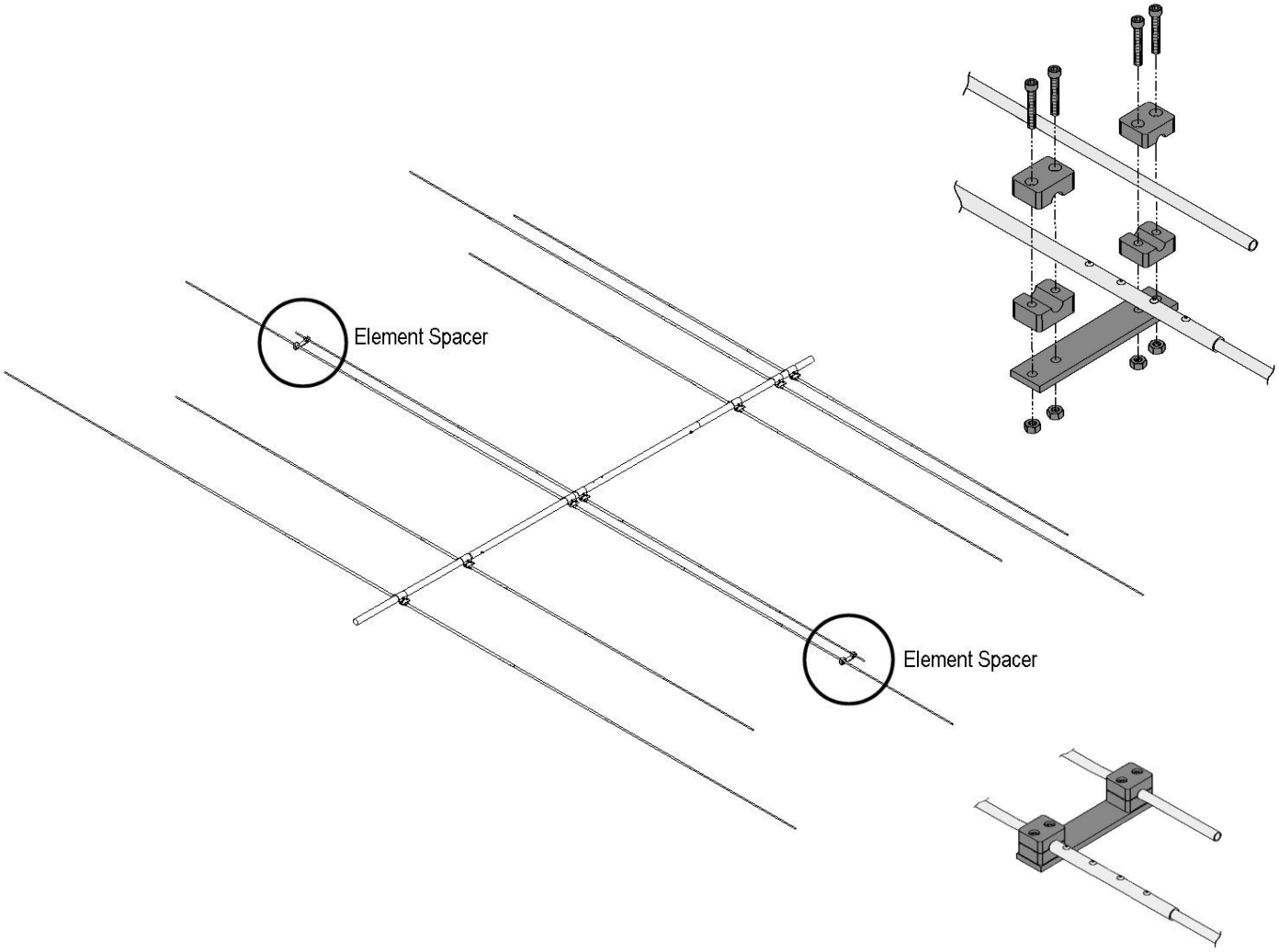
Assemble the Element Spacers as shown and position them between the 12 Meter Driven Elements and the 17 Meter Driven Elements. The Resin Support blocks are in two diameter sizes for the elements. The 12 Meter element is the smaller diameter.

Note: *The screws and nuts are black nylon and* ***do not*** *need Jet-Lube SS-30.* ***Do not over tighten****.*

To help ensure the nylon nuts do not loosen, you can slightly melt the threads on the ends of the nylon bolts after the assembly is built using a soldering iron.

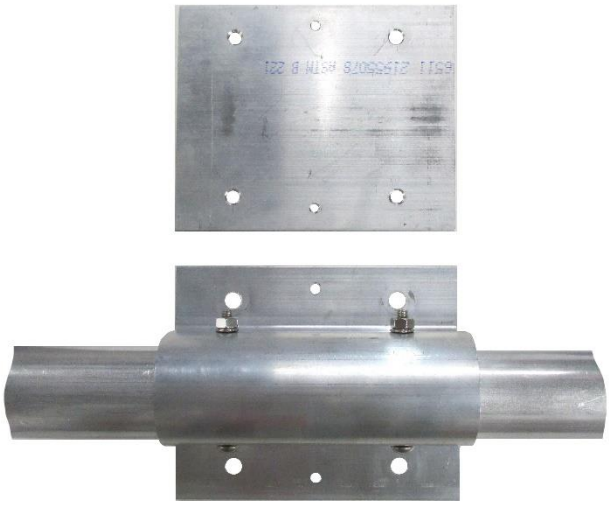
Element Spacers	
Qty	Description
2	CLAMP BRACKET, BLACK
4	RESIN SUPPORT CLAMPS, BLACK
8	SOCKET HEAD CAP SCREWS, BLACK NYLON
8	HEX NUTS, BLACK NYLON

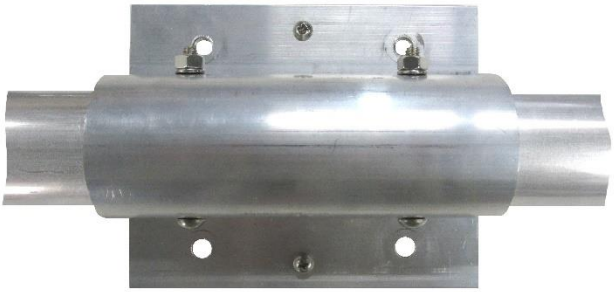




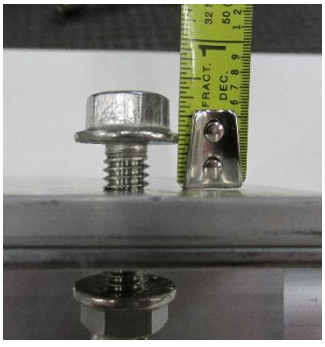
Boom Mounting Plate

Attach the Boom Mounting Plate to the Boom Mounting Bracket using two small Phillips Head screws and split washers as shown.





Loosely install two Flange Head Hex bolts in the mounted mast plate in the upper two threaded holes as shown. Allow approximately 3/8” (0.95cm) between mast plate and the bottom of the flange part of the bolt as shown.



Boom End Caps and Drain Holes

Install the Vinyl Boom Caps on the ends of the book. Wrap electrical tape around the cap and on the boom to help ensure the cap stays in place over time.

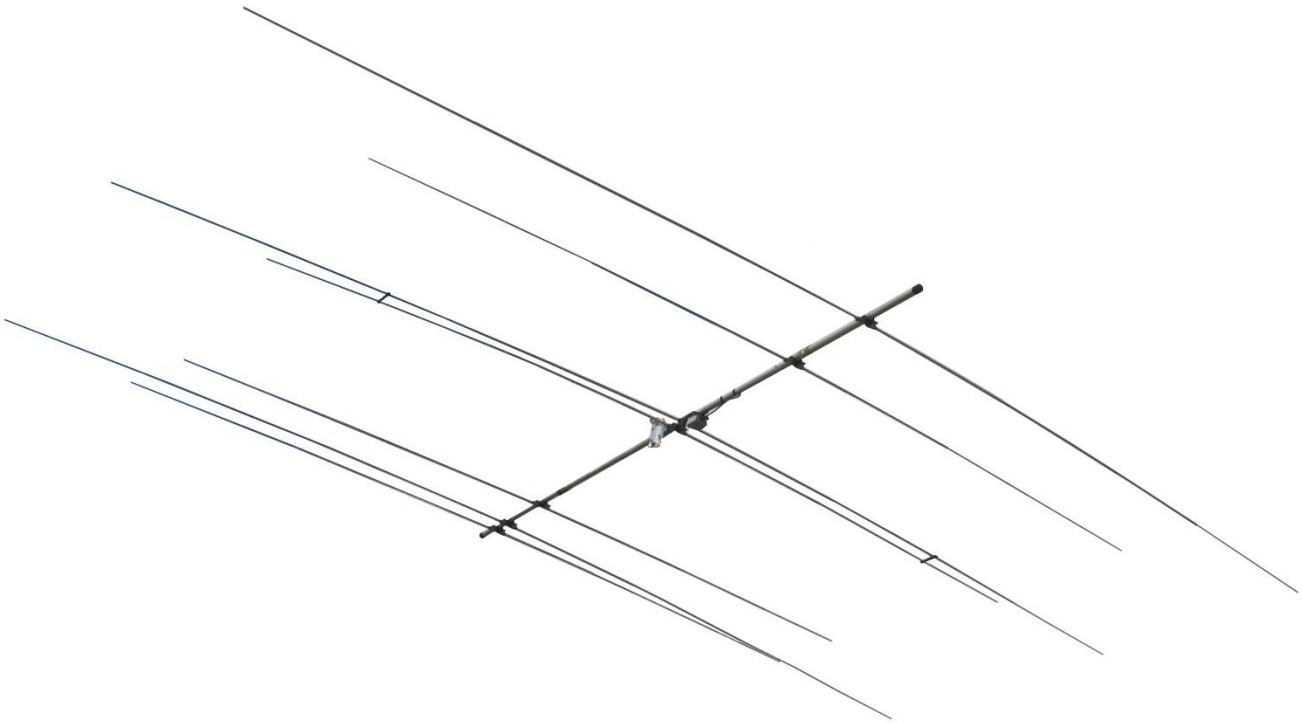
Cut a triangle drain hole in the bottom of the cap as show. This allows any moisture build up in the boom to vent out.

Double-check all antenna measurements.

Verify all hardware is tight.

Let antenna rest for one day.

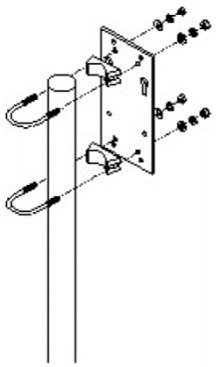
Re-Verify all hardware is tight.



Mast Plate Mounting on Antenna Mast

The mast plate is supplied with hardware to mount to a 2" OD (51mm) mast. Additional holes in the mast plate have been provided to accommodate a 2-3/8" (60mm) mast with customer supplied clamps and hardware.

Position a 2" (51mm) U-bolt saddle over the second pair of holes from the top as shown.



Pass a 5/16 x 2" (51mm) U-bolt through the 2" (51mm) U-bolt saddle and mast plate. Secure with a 5/16" flat washers, lock washers and hex nuts.

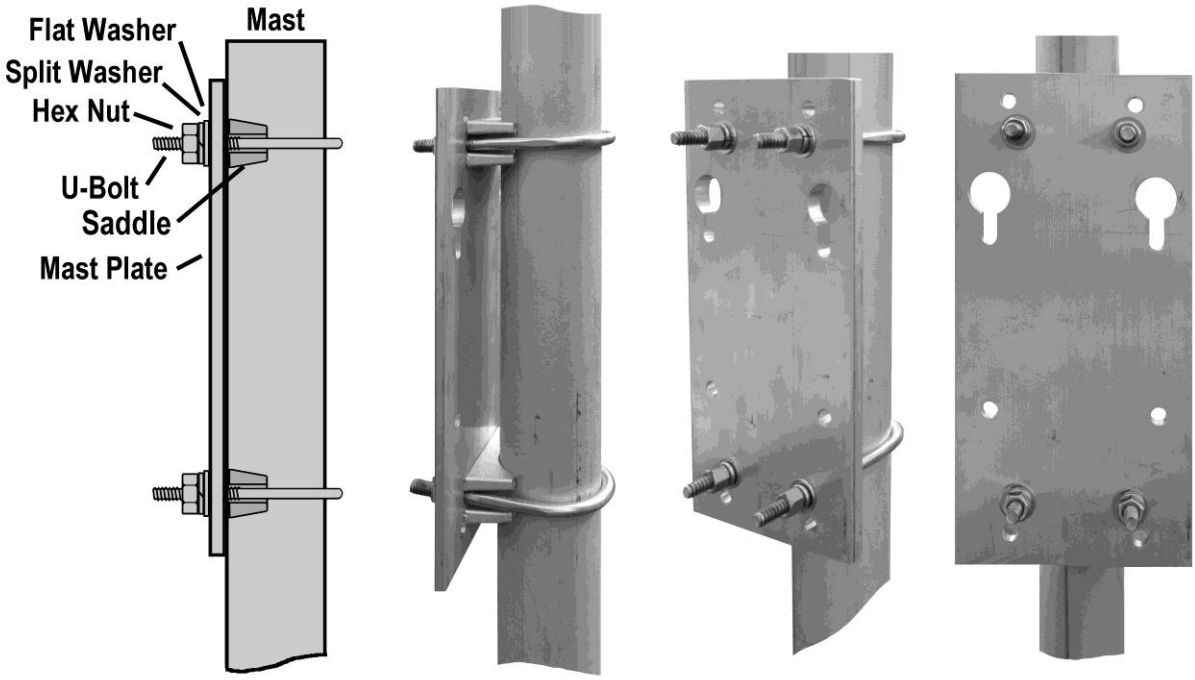
Position a 2"(51mm) U-bolt saddle over the second pair of holes from the bottom as shown.

Pass a 5/16 x 2" (51mm) U-bolt through the 2" (51mm) U-bolt saddle and mast plate. Secure with a 5/16" flat washers, lock washers and hex nuts.

Slide this assembly over the mast, with the top of the large end of the keyhole facing up and securely tighten in place.

The best way to properly tension a fastener is to tighten the nut until the lock washer is flat and then tighten it no more than an additional one quarter turn. This rule should be followed except for the Mast Mount Plate U-bolts where one additional full turn is required.

NOTE: IT IS EXTREMELY IMPORTANT THAT EACH HEX NUT IS EVENLY TIGHTENED. APPLYING UNEQUAL AMOUNTS OF TORQUE TO THE U-BOLT LEGS MAY LEAD TO PREMATURE FAILURE

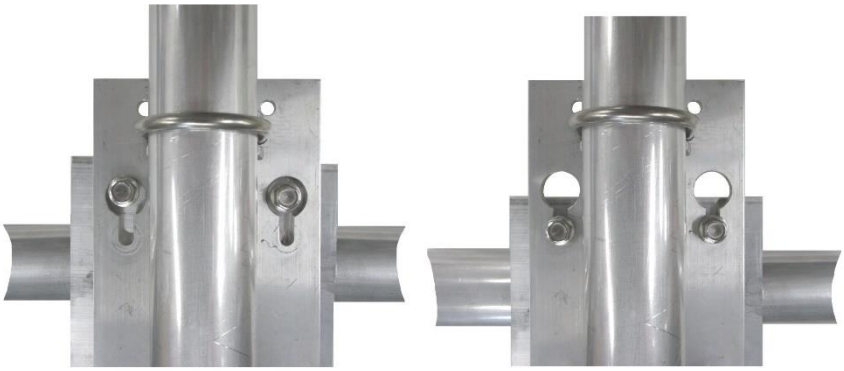


Mounting the antenna to the Antenna Mast Assembly

Ensure all proper safety precautions are taken while on the tower to avoid any personal injury.

Line up the two Flange Head Bolt Heads located on the boom plate with large hole in each keyhole on the mast plate as shown.

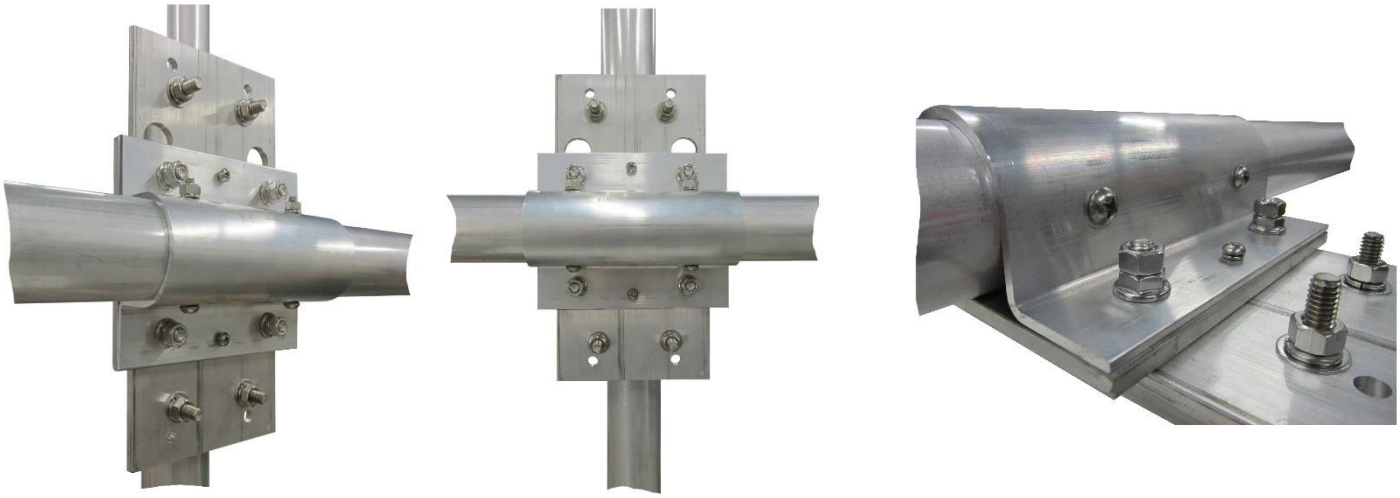
Pass the Flange Hex Heads through the Mast Plate (larger holes) and let the Flange Head Bolts and Boom drop into the slots on the Mast Plate as shown.



Snug the two upper Flange Head Hex Bolts in place when the holes are all lined up. Snug two Hex Nuts with split washers on the other side in place.

Insert 5/16 x 1" (25 mm) Flange Head Hex Bolts through one of the lower holes. Tighten the Flange bolts and secure with Hex Nuts and split washers.

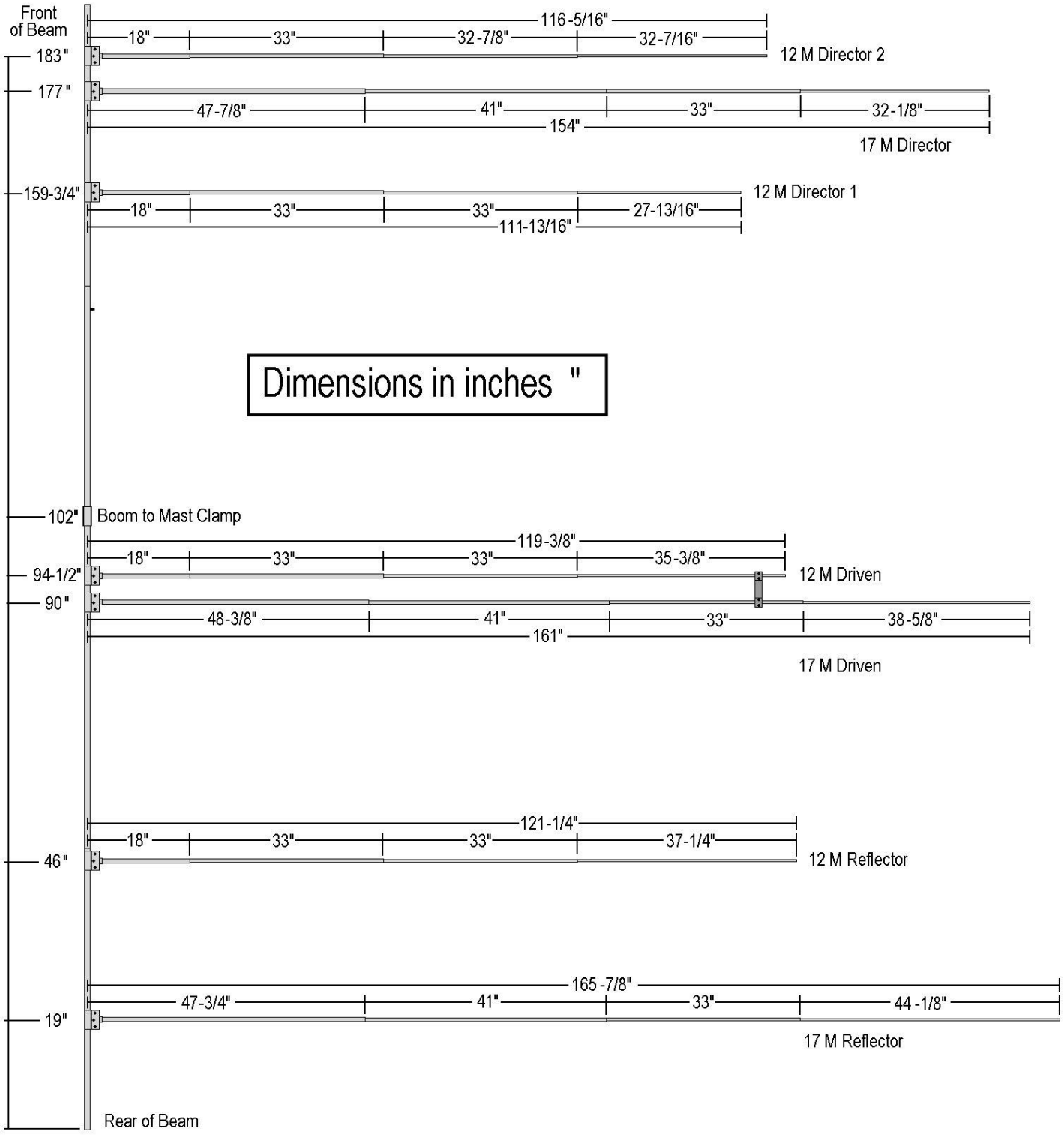
Securely tighten the upper Flange Hex Bolts and Hex Nuts. Securely add regular Hex Nuts on top of all four of the Flange Hex Nuts used to act as nut locks



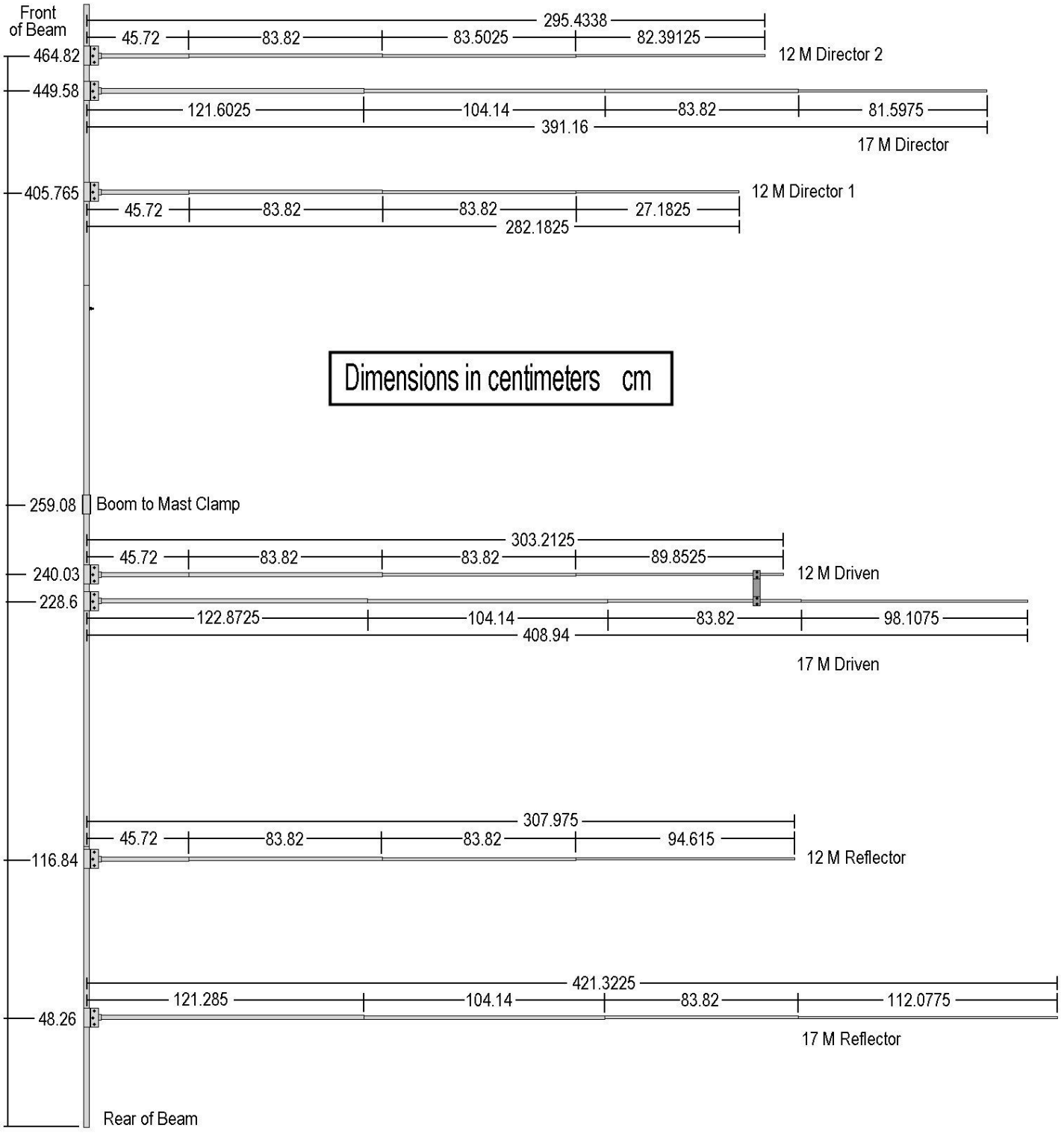
Connect and weatherproof the coaxial cable connection to the Balun (if not previously done – page 22).

Use electrical tape to secure the coax cable to the mast as needed.

Boom and Element Positions - Dimensions in Inches



Boom and Element Positions - Dimensions in centimeters



NOTES:

NOTES:

Technical Support

If you have questions about this product, or if you experience difficulties during the installation, contact DX Engineering at (330) 572-3200. You can also e-mail us at:

DXEngineering@DXEngineering.com

For best service, please take a few minutes to review this manual before you call.

Warranty

All products manufactured by DX Engineering are warranted to be free from defects in material and workmanship for a period of one (1) year from date of shipment. DX Engineering's sole obligation under these warranties shall be to issue credit, repair or replace any item or part thereof which is proved to be other than as warranted; no allowance shall be made for any labor charges of Buyer for replacement of parts, adjustment or repairs, or any other work, unless such charges are authorized in advance by DX Engineering. If DX Engineering's products are claimed to be defective in material or workmanship, DX Engineering shall, upon prompt notice thereof, issue shipping instructions for return to DX Engineering (transportation-charges prepaid by Buyer). Every such claim for breach of these warranties shall be deemed to be waived by Buyer unless made in writing. The above warranties shall not extend to any products or parts thereof which have been subjected to any misuse or neglect, damaged by accident, rendered defective by reason of improper installation, damaged from severe weather including floods, or abnormal environmental conditions such as prolonged exposure to corrosives or power surges, or by the performance of repairs or alterations outside of our plant, and shall not apply to any goods or parts thereof furnished by Buyer or acquired from others at Buyer's specifications. In addition, DX Engineering's warranties do not extend to other equipment and parts manufactured by others except to the extent of the original manufacturer's warranty to DX Engineering. The obligations under the foregoing warranties are limited to the precise terms thereof. These warranties provide exclusive remedies, expressly in lieu of all other remedies including claims for special or consequential damages. SELLER NEITHER MAKES NOR ASSUMES ANY OTHER WARRANTY WHATSOEVER, WHETHER EXPRESS, STATUTORY, OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS, AND NO PERSON IS AUTHORIZED TO ASSUME FOR DX ENGINEERING ANY OBLIGATION OR LIABILITY NOT STRICTLY IN ACCORDANCE WITH THE FOREGOING.

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