

**HAND-CRAFTED AMATEUR RADIO ANTENNAS**



# **Propagation Station**



**106 S. Randolph Lufkin, TX 75904**

**PHONE(409)-639-4842 E-MAIL w5uc@lcc.net FAX(409)-634-1517**  
**Mike Watson, W5UC**

## **ASSEMBLY INFORMATION** **PROPAGATION STATION 5 ELEMENT 6 METER YAGI ANTENNA**

### **CAUTION**

**THIS ANTENNA UTILIZES A FIBERGLASS CENTER INSULATOR. FIBERS MAY IRRITATE THE SKIN. CAUTION SHOULD BE EXERCISED TO PROTECT EYES, NOSE AND MOUTH.**

Before beginning assembly of this antenna, please read all ASSEMBLY INFORMATION and review the drawings included with the antenna.

- 1) The boom is shipped with the short boom parts inserted into the main boom, and secured with stainless steel clamps. Loosen the clamps and pull the short boom pieces out to lengthen the boom. The main boom & short boom pieces have been drilled to accommodate an 8-32 x 2" screw which will properly set the position of the short boom pieces, and will also prevent rotation of the short boom due to torque in high winds. Align the holes in the short boom(the boom pieces are marked for easy alignment) pieces at each end of the main boom, and re-tighten the stainless steel clamp. Be sure to position the stainless steel clamp as close to the end of the main boom as possible. Insert the 8-32 x 2" screws, and secure them with 8-32 nuts provided.
- 2) Assemble the elements using the dimensions shown in Figure 1. Assembly details for the driven element are shown in figure 2 and Figure 3. Note that positions for clamps are shown for only one element, but are required at ten locations as noted in the drawing. The same applies to element end caps. Also see Detail 1.
- 3) Mount the elements to the boom using the spacing shown in Figure 1. It is recommended that the elements be mounted under the boom. Tighten the U-Bolts such that the elements will remain firmly in place, but being careful not to crush the boom. Sight down the boom to be sure that the elements are all in the same plane.

- 4) Prepare the Balun as shown in figure 4. The Balun should be made from the main coaxial feed line to the antenna. Prepare the coaxial cable end as shown in Figure 4. Refer to the ARRL Handbook, or the ARRL Antenna book for details on stripping the end of the coaxial cable. The Balun is made by winding the coaxial feed line into a 5 to 6 turn loop as shown. The loop diameter is not critical. A loop of 5 or 6 inches diameter will suffice. Be sure to seal the end of the coaxial cable against intrusion by water. The Balun should be mounted under the boom using electrical tape or tie wraps.
- 5) Attach the hairpin matching stub as shown in figure 3. Attach the coaxial cable, and secure it to the boom using electrical tape or tie wraps.
- 6) Mount the Boom to Mast coupler as shown in figure 1. the positioning is not critical, but an effort should be made to mount it near the center of gravity of the antenna.
- 7) Before mounting the antenna on the tower, the SWR should be adjusted. Mount the antenna not less than 6 feet above the ground if mounted in a horizontal position, or the antenna may be positioned such that it is pointed up toward the sky, with the reflector at least 4 feet from the ground. The hairpin should be positioned such that there is a distance of 4" between the closed loop and the mounting clip. The length of the driven element and the spacing of the hairpin can then be adjusted for minimum SWR. The dimensions for the driven element shown in Figure 1 may be used as a starting point. once the SWR is set, mount the antenna 8 - 10 feet above the ground in the horizontal position for a final check of the SWR.
- 8) It is recommended that the locations where the coaxial cable, and the hairpin match connect to the driven element be protected from the weather. A liberal coating of clear KRYLON or similar spray should be sufficient.

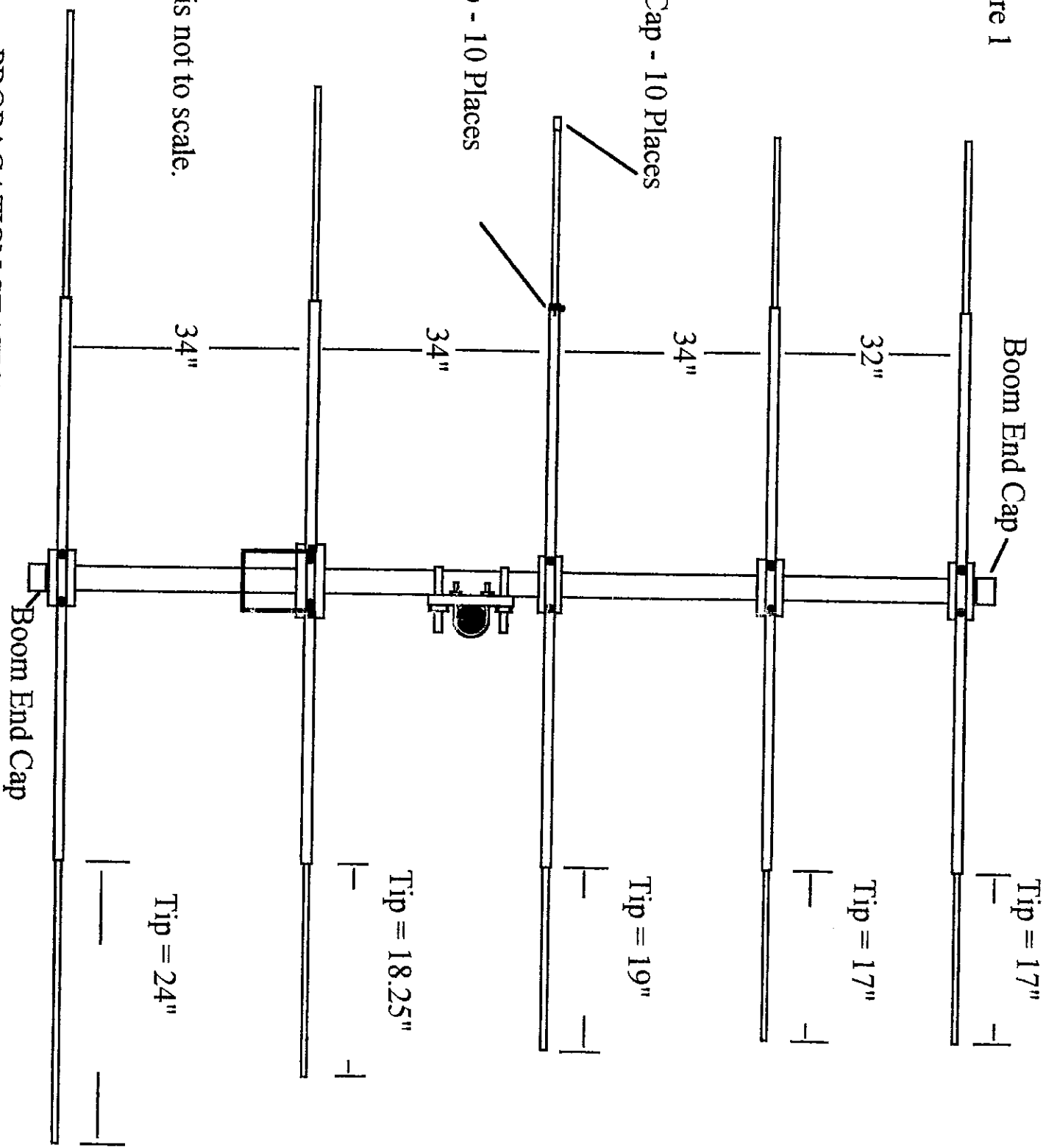
**\*\*\*NOTE\*\*\***

The element tip lengths shown on Figure 1 are for operation between 50.0 and 50.5 mHz. For operation higher in the band, reduce each element tip length approximately 1" and recheck the VSWR until a match is obtained at the desired operating frequency.

**THIS ANTENNA WILL PROVIDE MANY YEARS OF GOOD SERVICE WHEN PROPERLY ASSEMBLED AND MOUNTED. WE APPRECIATE YOUR SELECTION OF THIS PROPAGATION STATION ANTENNA.**

<b>Parts List - Propagation Station</b>		
<b>5 Element 6 Meter Antenna</b>		
ITEM		
	QTY	
Main Boom, 1.375" X 6'	1	✓
Sub Boom, 1.250" X 3'	2	✓
Element Center Piece, 0.750" X 6'	4	✓
Element Center Piece, 0.750" X 3'	2	✓
Element Tip, .625" X 28"	2	✓
Element Tip, .625 X 23"	4	✓
Element Tip, .625" X 21"	4	✓
U-Clamp With Saddle	5	✓
Center Insulator, Fiber Glass	1	✓
Hose Clamp, 3/4"	10	✓
Hose Clamp, 1.5"	2	✓
Screw, #8 X 2"	2	✓
Screw, #8 X 1.25"	2	✓
Nut, #8	6	✓
MOUNTING PLATE	1	✓
U-BOLTS, 2"	2	✓
U-BOLTS, 1.5"	2	✓
Hairpin Matching Section	1	✓
Hairpin Mounting Clip	2	✓
Spade Lug	2	✓
Plastic End Cap, .625"	10	
Plastic End Cap, 1.25"	2	
#8 Lockwasher for Boom Screws	2	✓

Figure 1



Drawing is not to scale.

PROPAGATION STATION 5 ELEMENT 6 METER YAGI

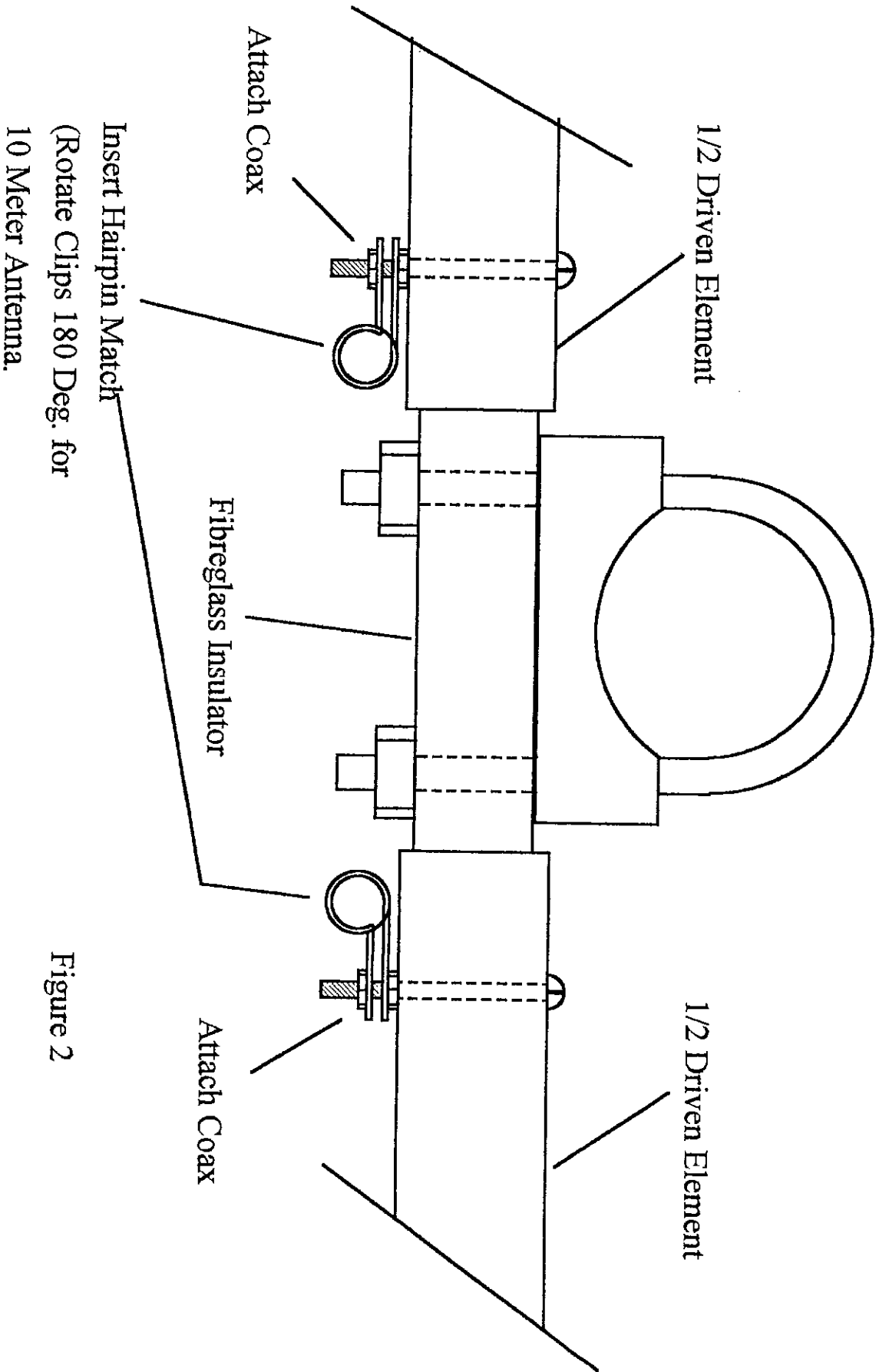
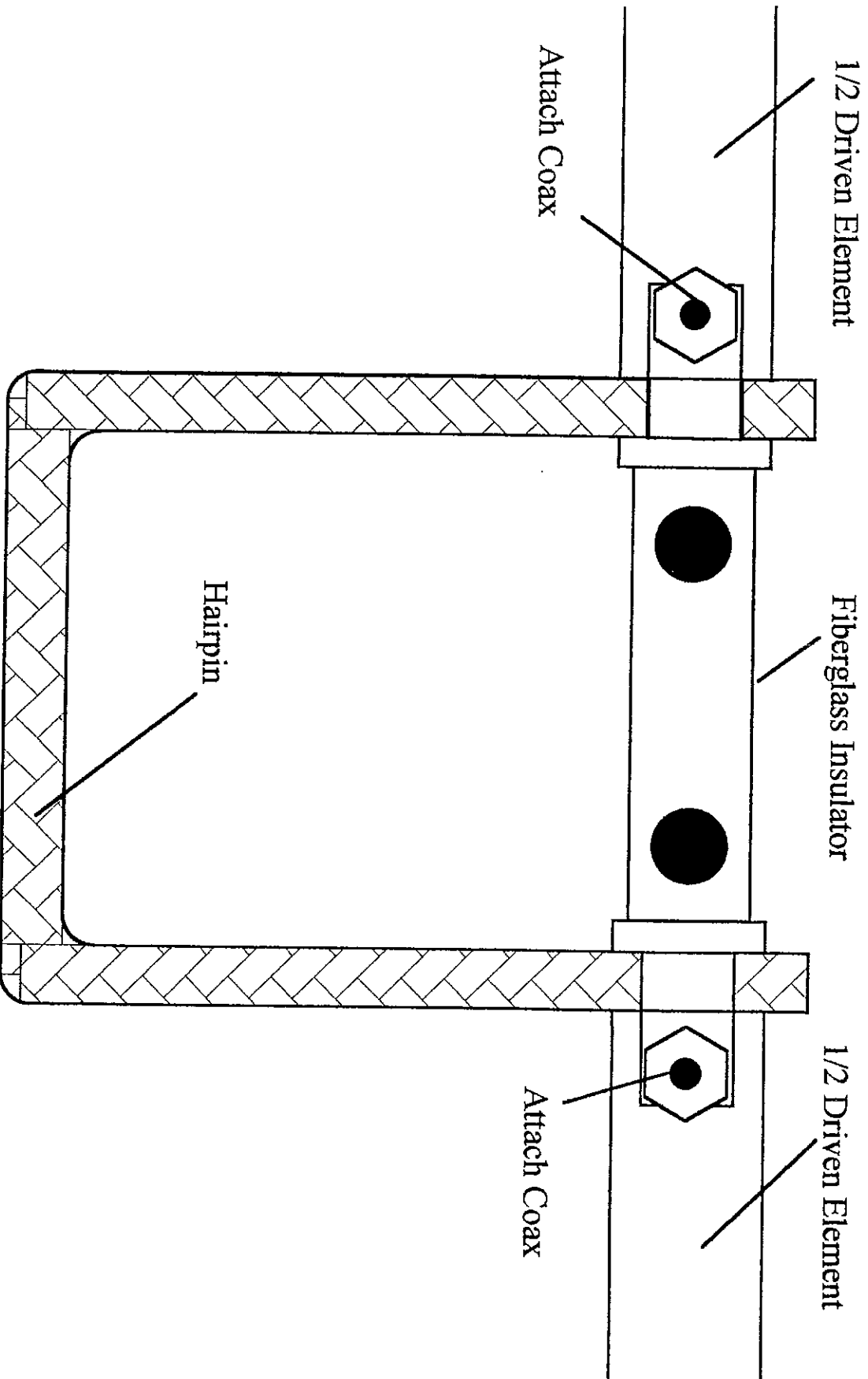


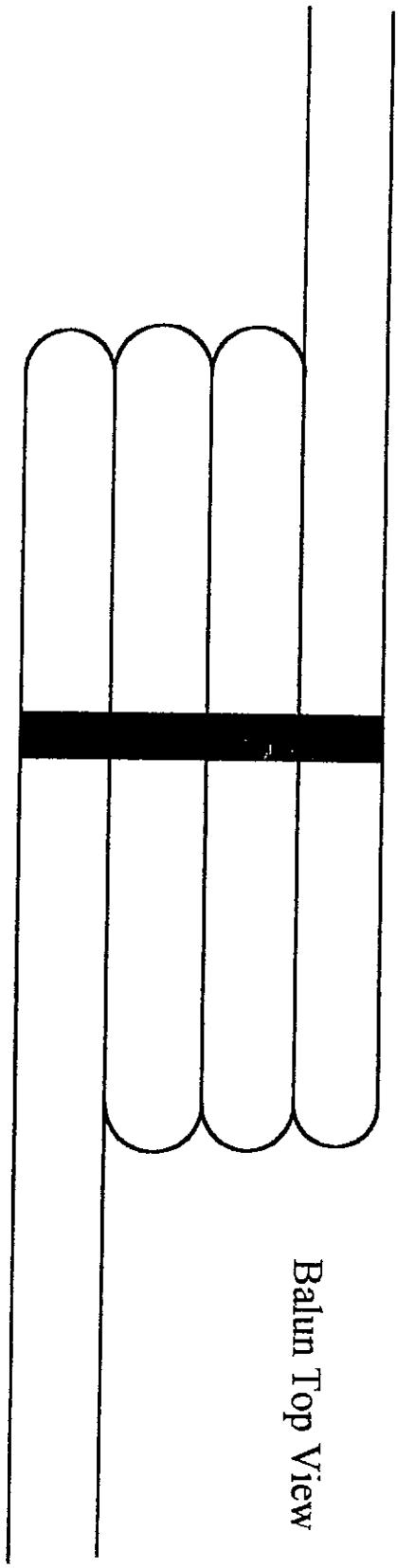
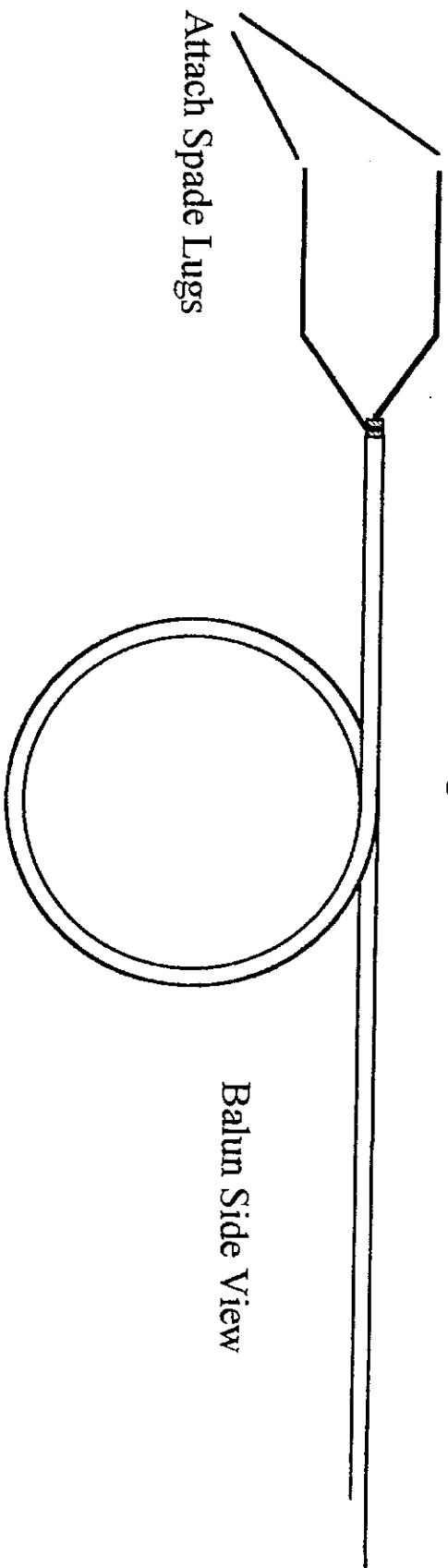
Figure 2

Figure 3



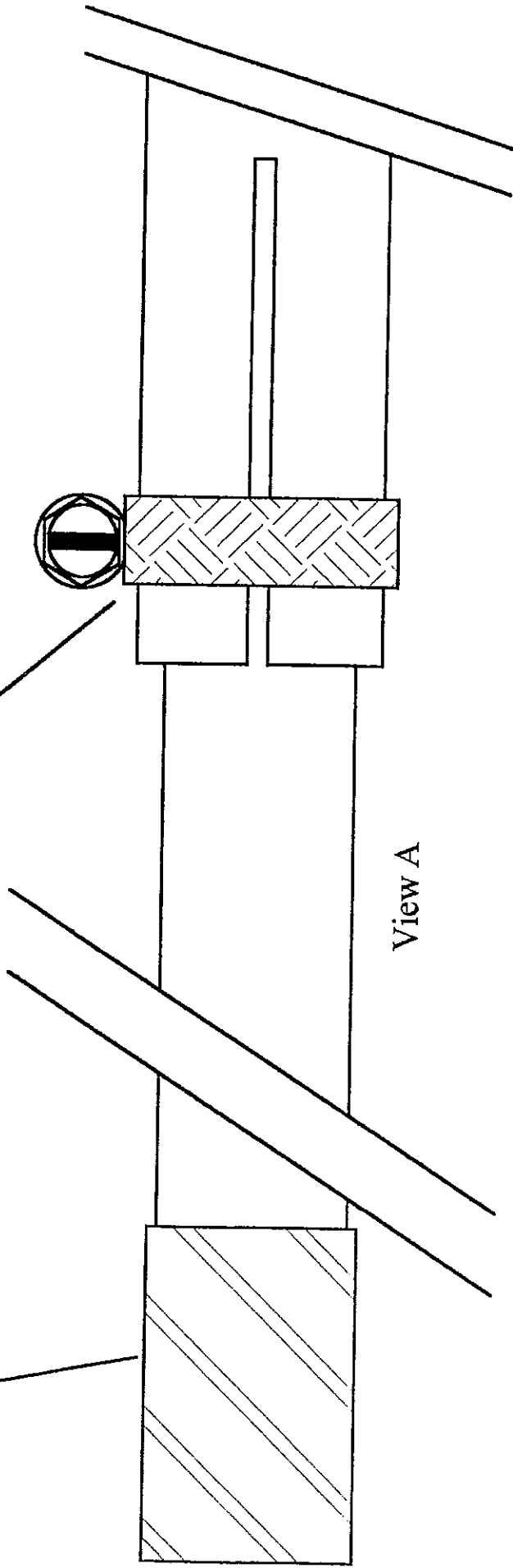
Hairpin Match - Top View

Figure 4



End Cap

Clamp



View A

Assemble same at both ends

Align holes in Boom sections



View B

Insert smaller Boom section exactly 3"

Detail 1