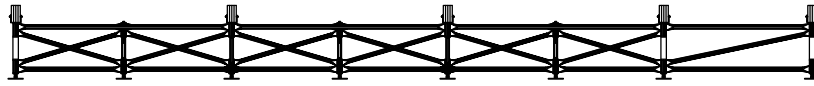


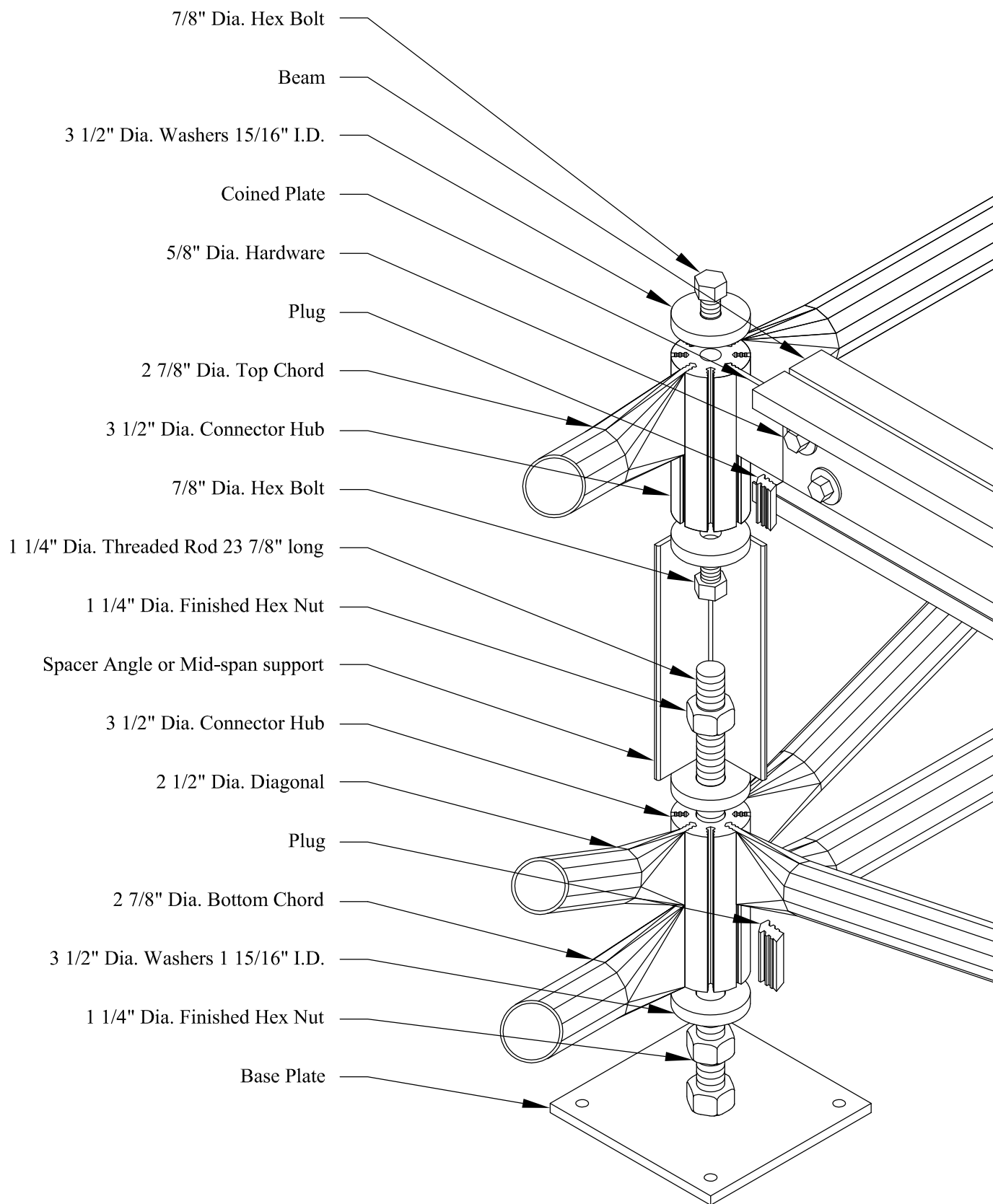
# MULTIPOINT

## FOUNDATIONS



### INSTALLATION GUIDE

### INTEGRATED BEAM DESIGN



**TOOL LIST**

- ☐ 1. Electrical Cords
- ☐ 2. Come - Alongs: one or two (1 to 3 ton capacity)
- ☐ 3. Low - rise hydraulic jack (5 ton)
- ☐ 4. Impact wrench and sockets \*\*
- ☐ 5. Ratchet, wrenches, sockets\*\*, open end/box wrenches, spud wrenches
- ☐ 6. Wood blocking - 75 to 100 pcs. (approx. 4" x 4" x 20" long)
- ☐ 7. Plastic pails - for carrying small parts and tools
- ☐ 8. WD-40 oil in spray cans (3-4 Cans)
- ☐ 9. Builders level and plumb line
- ☐ 10. Coarse file
- ☐ 11. Long steel pry bar
- ☐ 12. Tape measure

\*\*All threaded hardware provided by Triodetic for this project is supplied in imperial sizes

The following are the required wrench and socket sizes:

- ☐ 13. 1/2" Dia. standard hex nuts: wrench and socket size: 3/4"
- ☐ 14. 5/8" Dia. standard hex nuts: wrench and socket size: 15/16"
- ☐ 15. 7/8" Dia. standard hex bolts: wrench and socket size: 1-5/16"
- ☐ 16. 1-1/4" Dia. hardware: open end wrench size: 1-7/8" or 2"

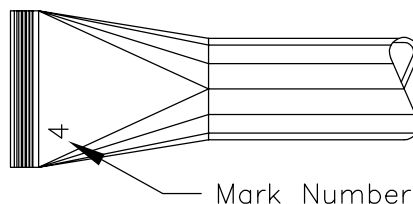
Special rawhide faced mallets used for assembly or the tube components will be provided by Triodetic with the shipment, including replacement heads.

## **Mark Numbers**

A multipoint foundation may have a number of tubular members which, although having exactly the same diameter, have a small variation in forming angle of length which is difficult to detect visually. It is imperative that mark numbers (Mk.No.) on the members be constantly referred to throughout the entire assembly procedure. (See figure 1)

**Tip:**

Refer to the assembly drawings for the location and proper orientation of a component.



**Figure 1:** Location of mark numbers on tube.

## **Preparation**

Before proceeding to assemble the foundation, please read all drawings and instruction manual carefully. Familiarize yourself with all components provided and with the layout of the foundation to be built. All the components should be separated according to individual mark numbers. (At this point, an inventory of all parts is advisable).

## **Site Examination**

The site should be examined for grade and obstructions. It is important that the base plates be adjusted so that the lower chord hubs are as level as possible, This will greatly enhance the assembly. Note: Base plates can be adjusted to account for some unevenness in the terrain. Site should be free of debris and other obstructions. Please ensure there is adequate room to maneuver equipment and people around the foundation.

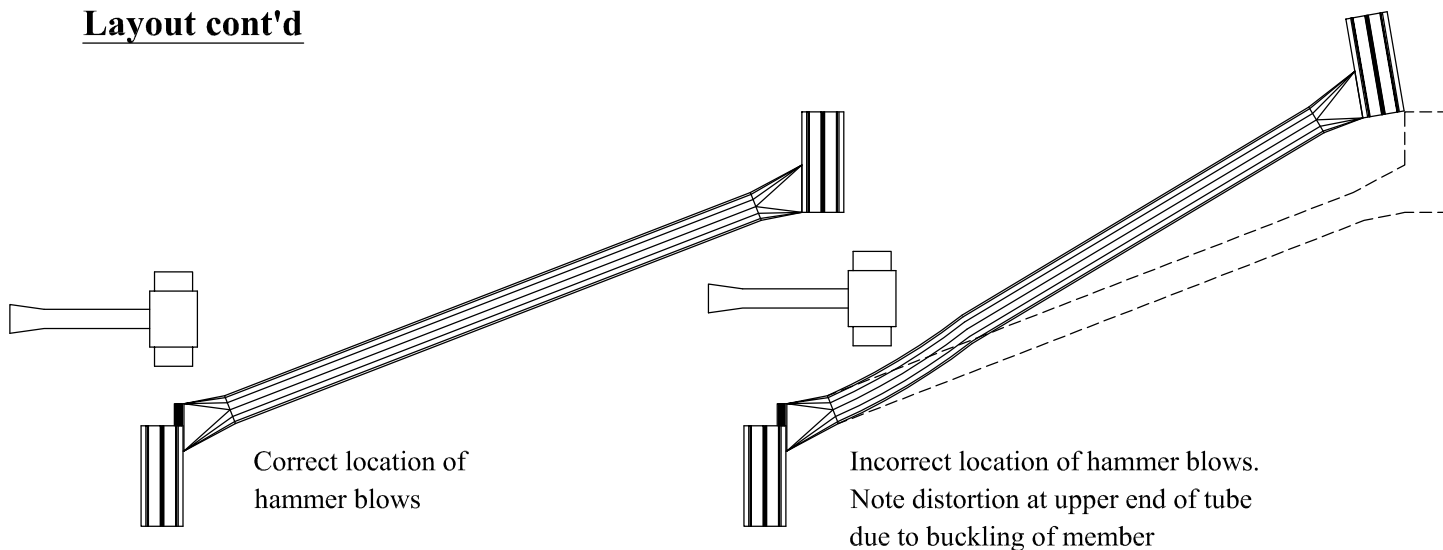
## **Layout**

Begin by laying out some base plates in a grid pattern approximately the module size of the frame. Base plates should have the appropriate connectors and rods attached. This layer will be referred to as the bottom chord level.

The chords are inserted into the connectors by hand using the rawhide hammer provided. The use of a steel hammer is not allowed as damage to the member and connector will almost certainly result. Special caution should be taken in the location of the hammer blows to ensure no damage is done to the member.

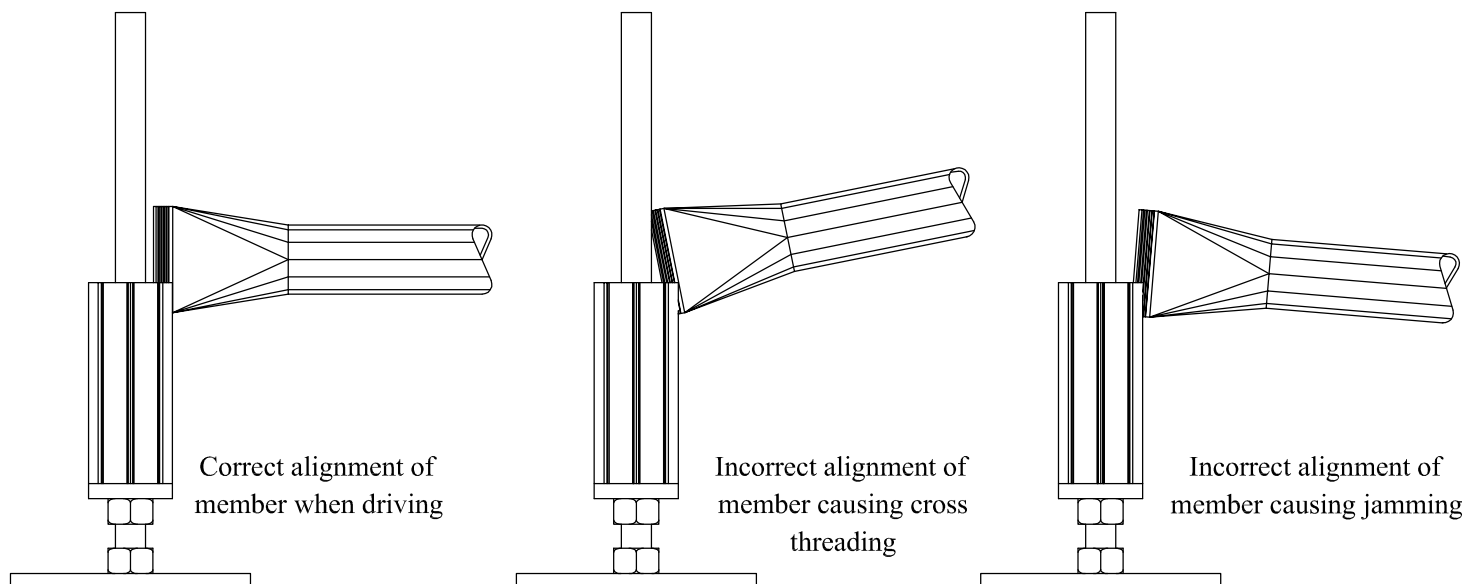
(See figure 2 - pg.5)

**Layout cont'd**



**Figure 2:** Location of hammer blows at end of members.

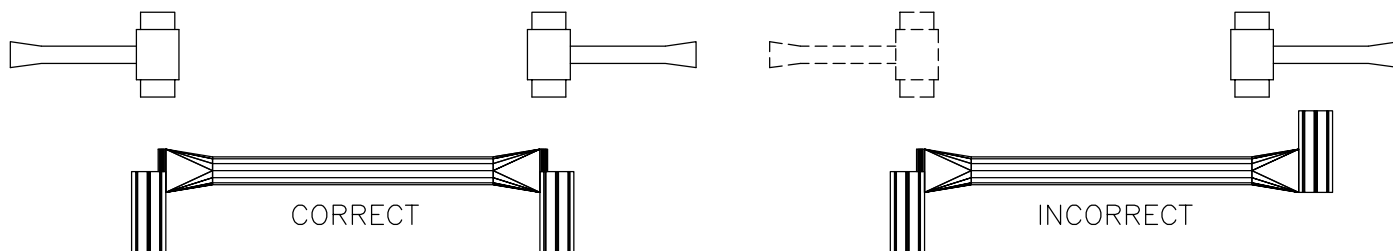
The connectors should be checked to ensure that the slots are clean and free from burrs and that the members can be properly started into the correct tooth. Misalignment of the members will cause jamming or cross threading. (See figure 3)



**Figure 3:** Alignment of members

## Assembly Procedure

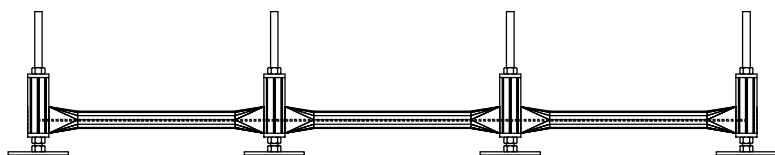
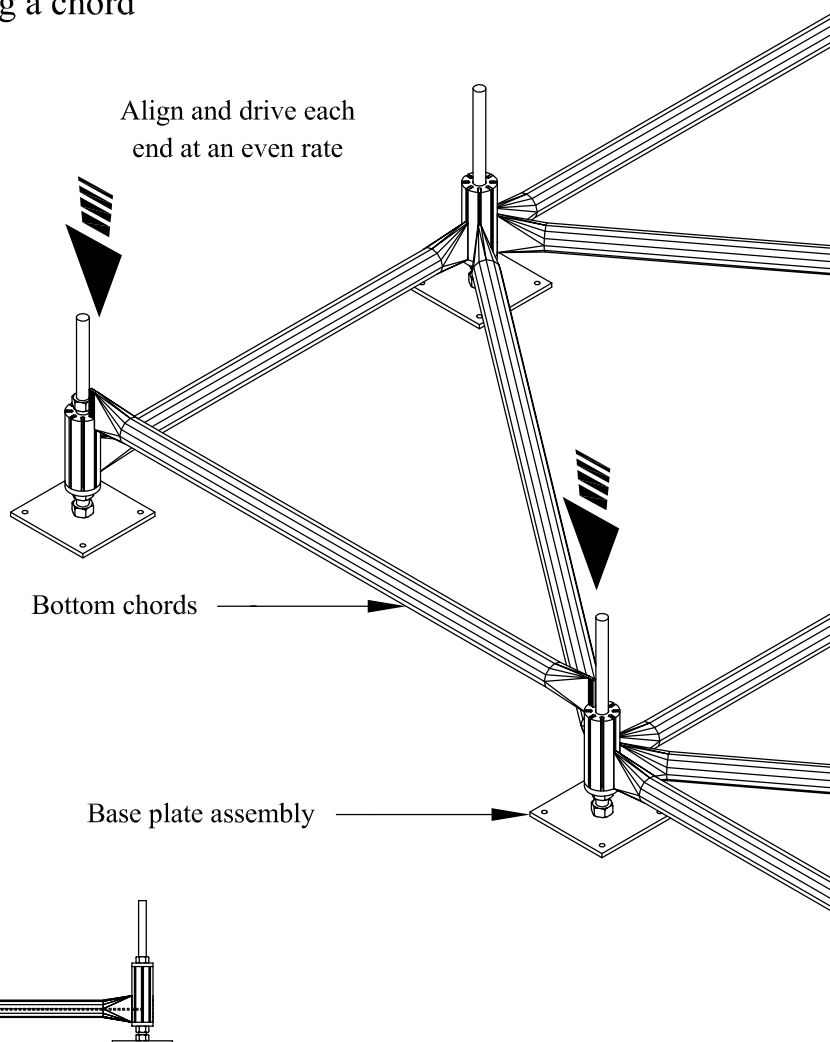
1. Having placed the base plates and connectors in a grid pattern, align a member between two connectors and using the rawhide hammer, drive down the tube so that both ends of the tube are being inserted at the same rate. Keep and eye on the level of the tube to ensure one end is not advancing faster than the other. (See figure 4 and 5)



**Figure 4:** Inserting a chord

**Tip:**

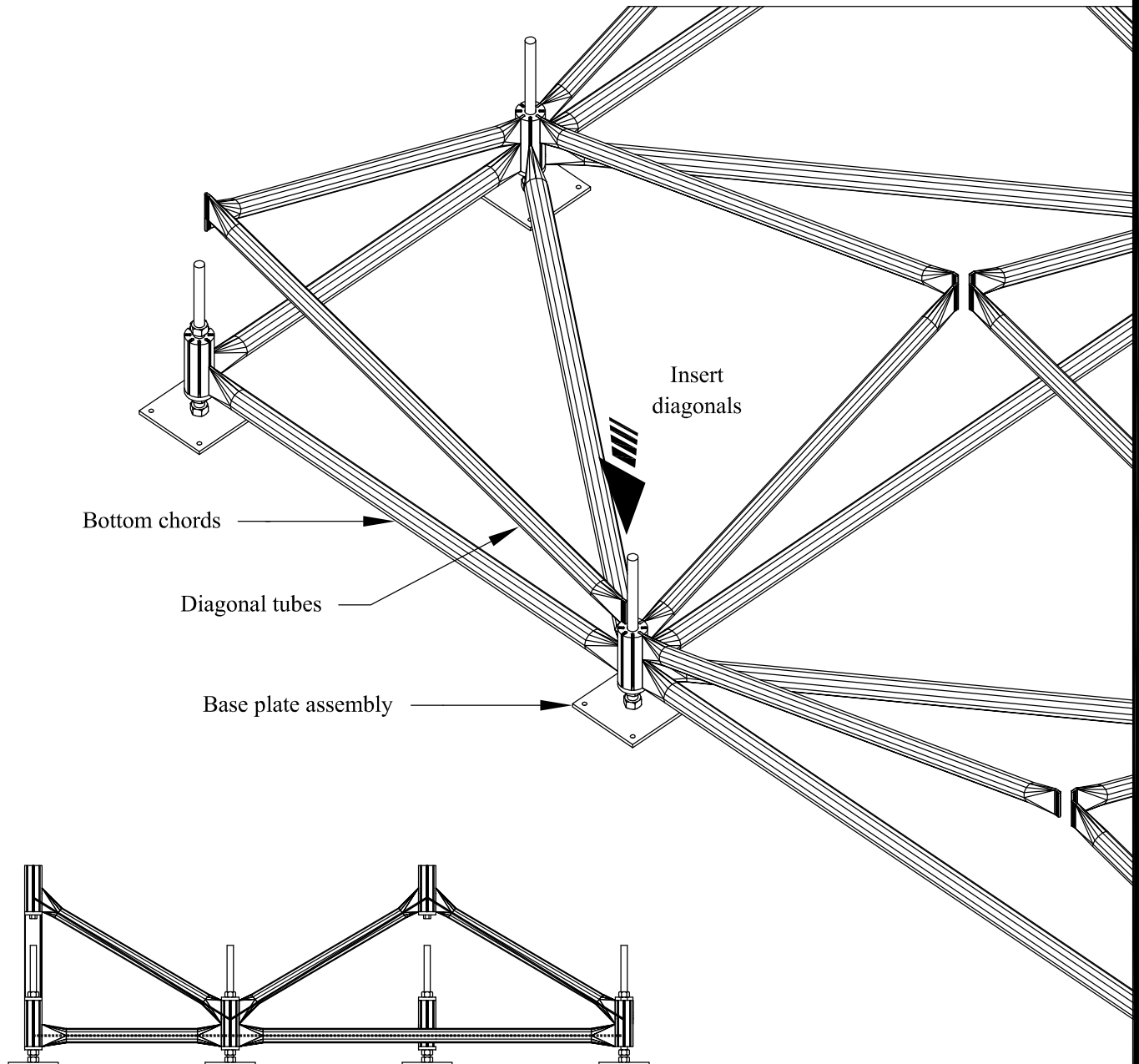
A light oil (WD40) or silicone lubricant should be used on the tooth shape to assist in inserting the tube into the connector.



**Figure 5:** Bottom Chords

### Assembly Procedure cont'd

2. The most efficient method of assembly is to build each module and bolt each connector once all the tubes in the joint are installed. Start at one corner of the foundation and work along the narrow width of the foundation to complete your first row.
3. When the bottom chords have been connected to form a few modules, insert the diagonals into the connector to bridge to the top chord level. (See figure 6)

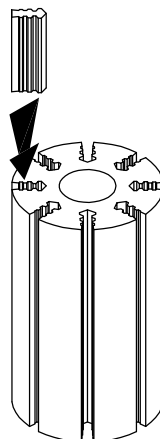


**Figure 6: Diagonals**

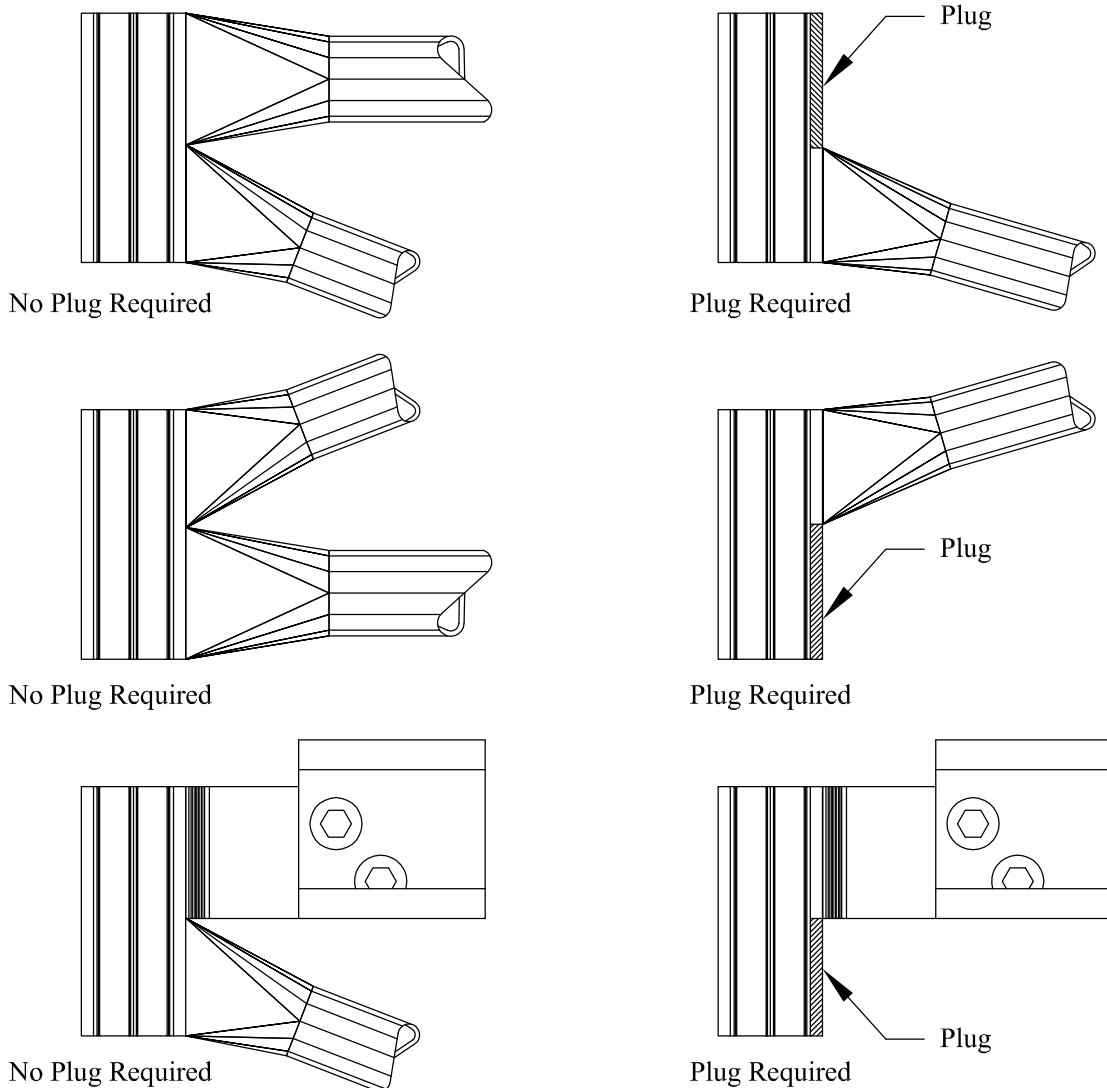
## Assembly Procedure cont'd

4. If plugs are required in the foundation, refer to the assembly drawing for their proper length and location.  
(See figure 7 and 8).

The plug is an important component of the spaceframe. Insert plug into slot of hub as shown and as required.



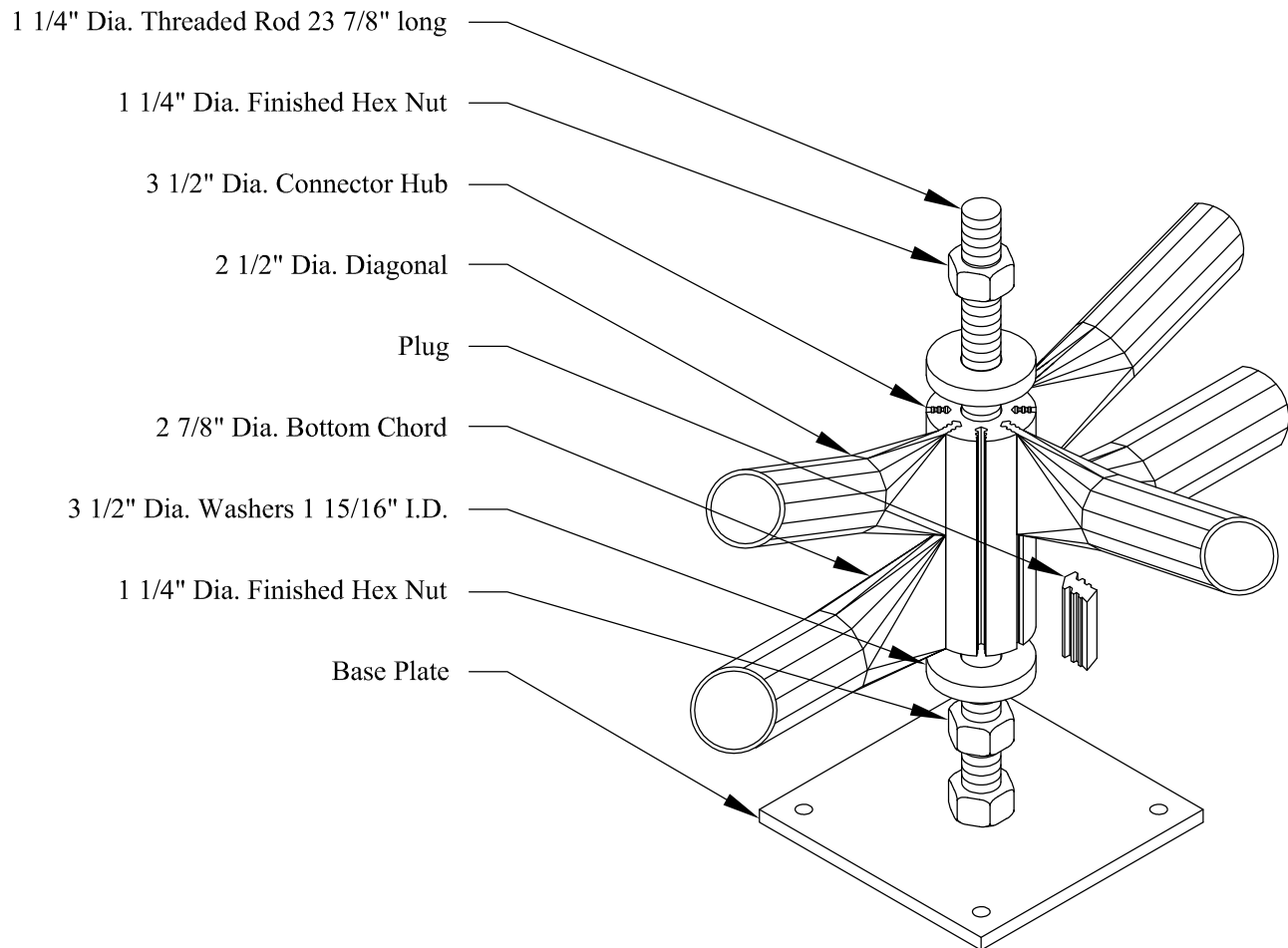
**Figure 7: Plugs**



**Figure 8: Plug Location**



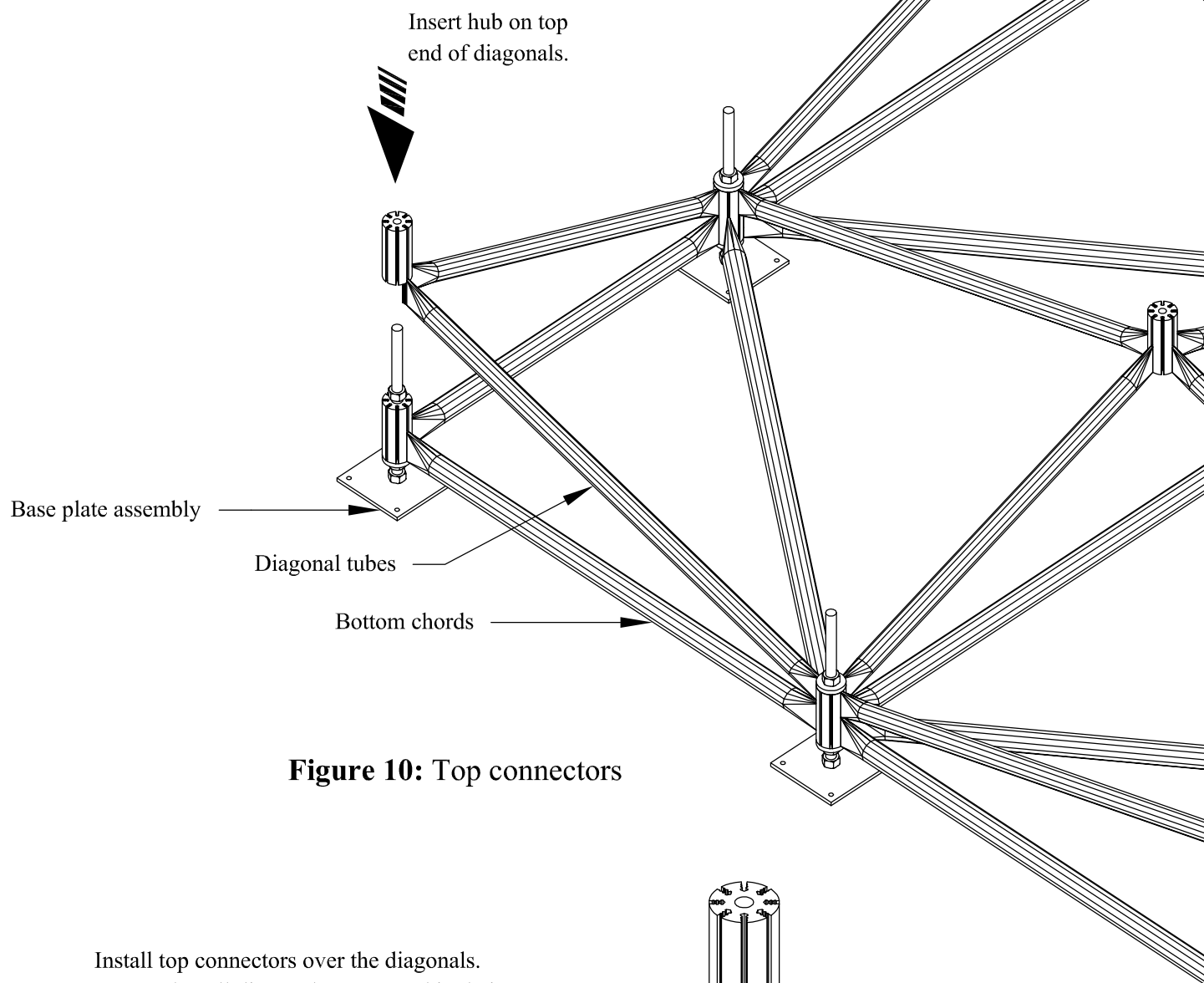
5. Having added the diagonals in the bottom connectors with the required plugs, it is advisable to bolt up these connectors. (See figure 9) Note: Some bases will have a spacer angle that is not shown here. (See pg. 2)



**Figure 9:** Typical bottom hub

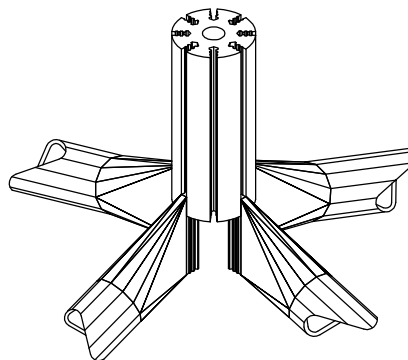
## **Assembly Procedure cont'd**

6. Hammer the top connector onto the free end of the diagonals by aligning the hub with the diagonals. (See figures 10 and 11). Continue down the row to the next set of diagonals and repeat this procedure.



**Figure 10: Top connectors**

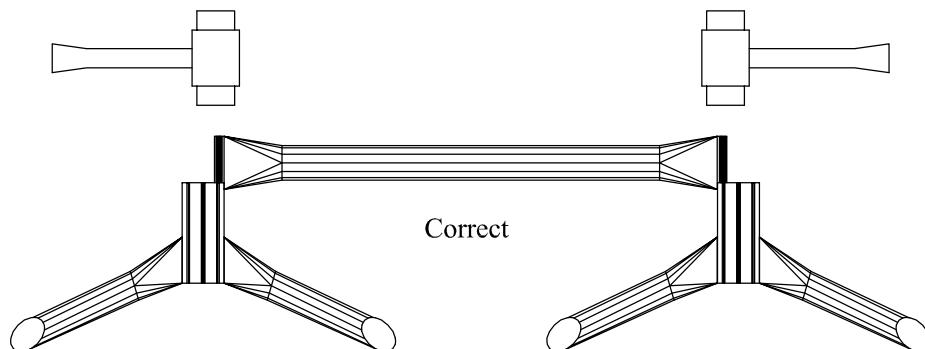
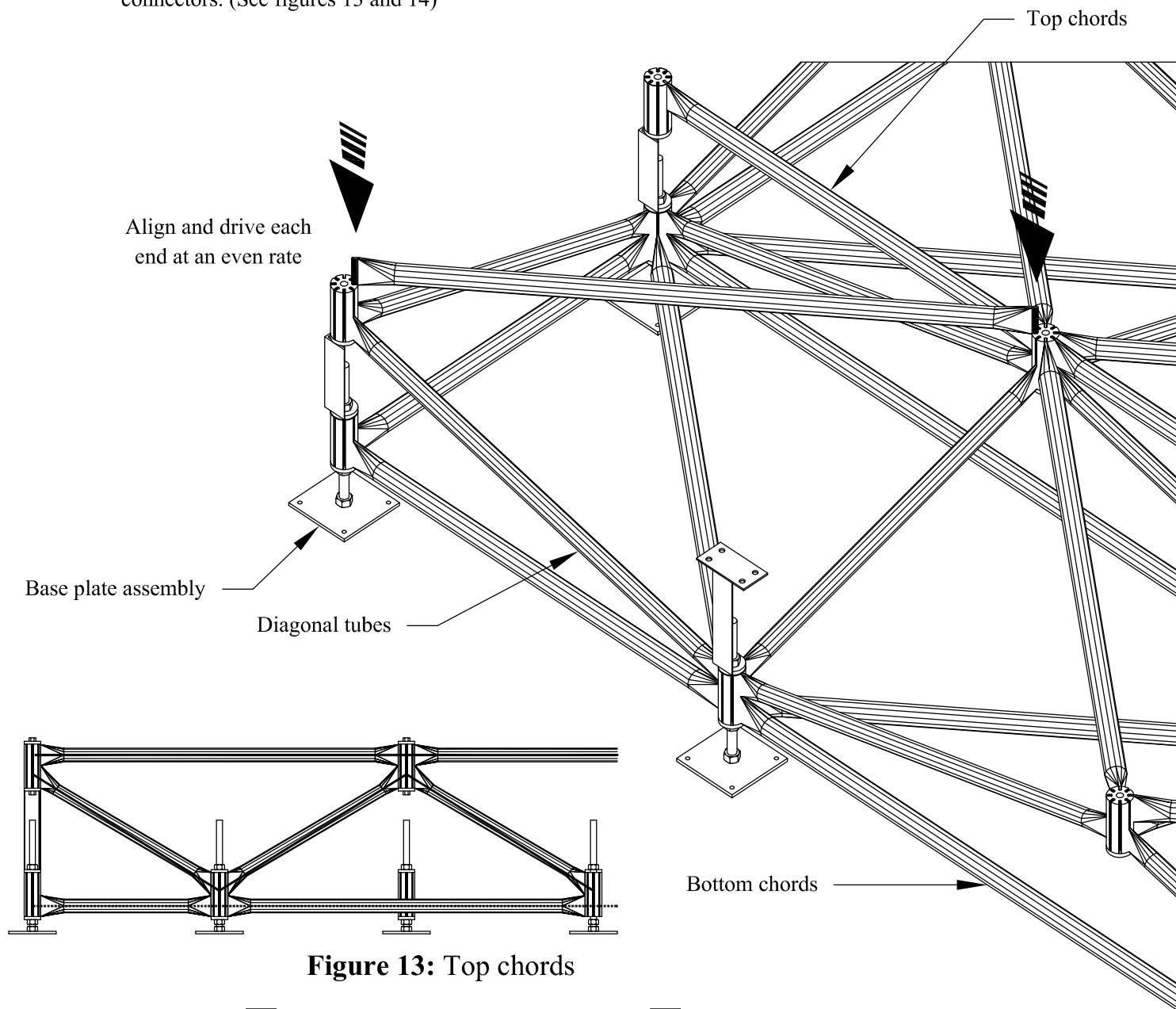
Install top connectors over the diagonals. Ensure that all diagonals are started in their slots and that the teeth are properly aligned before sliding the hub down into place with light taps of the hammer.



**Figure 11: Detail**

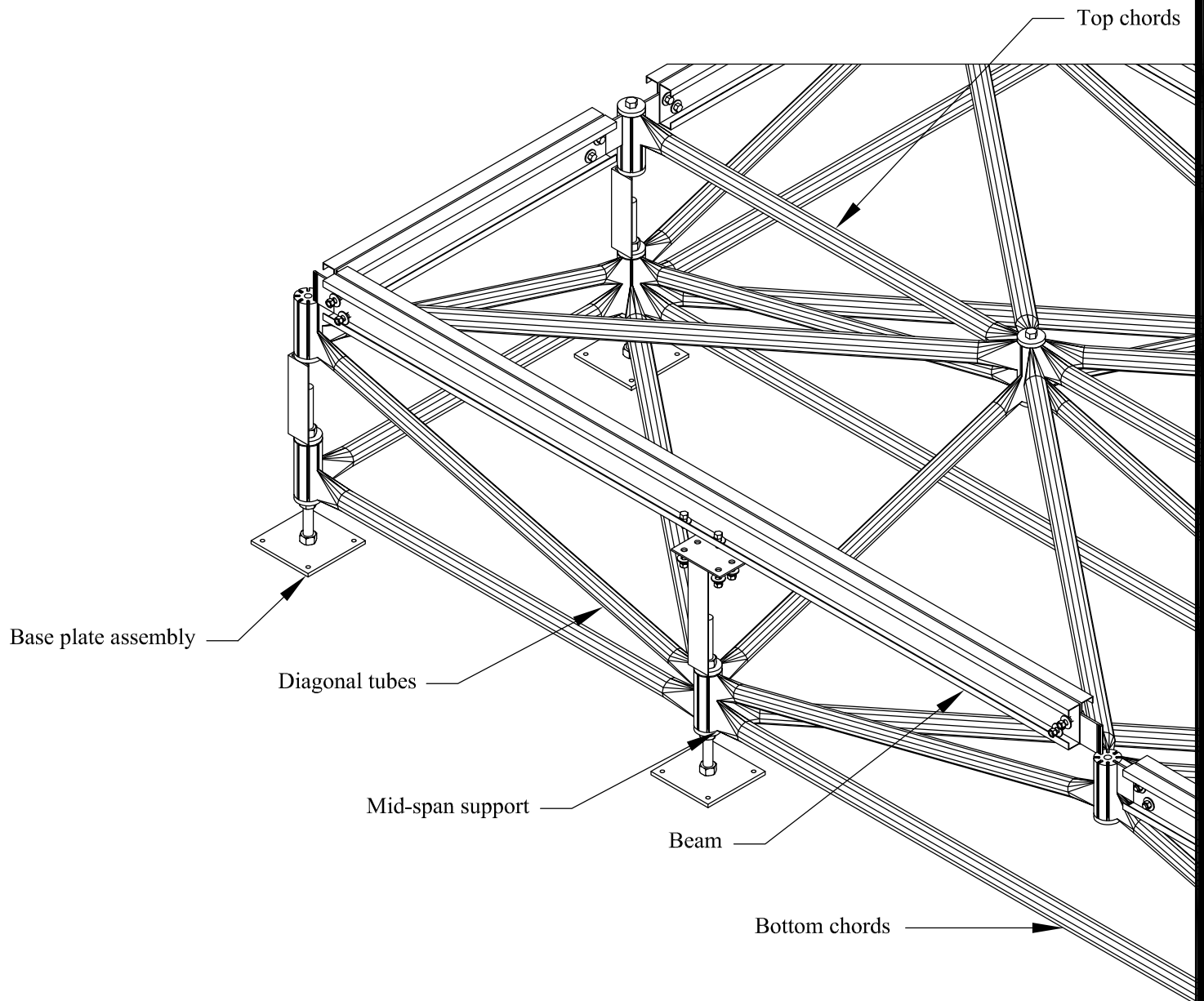
## Assembly Procedure cont'd

- 7b. Finally, align a top chord across two top connectors and, at an equal rate, hammer the top chord into the connectors. (See figures 13 and 14)



### **Assembly Procedure cont'd**

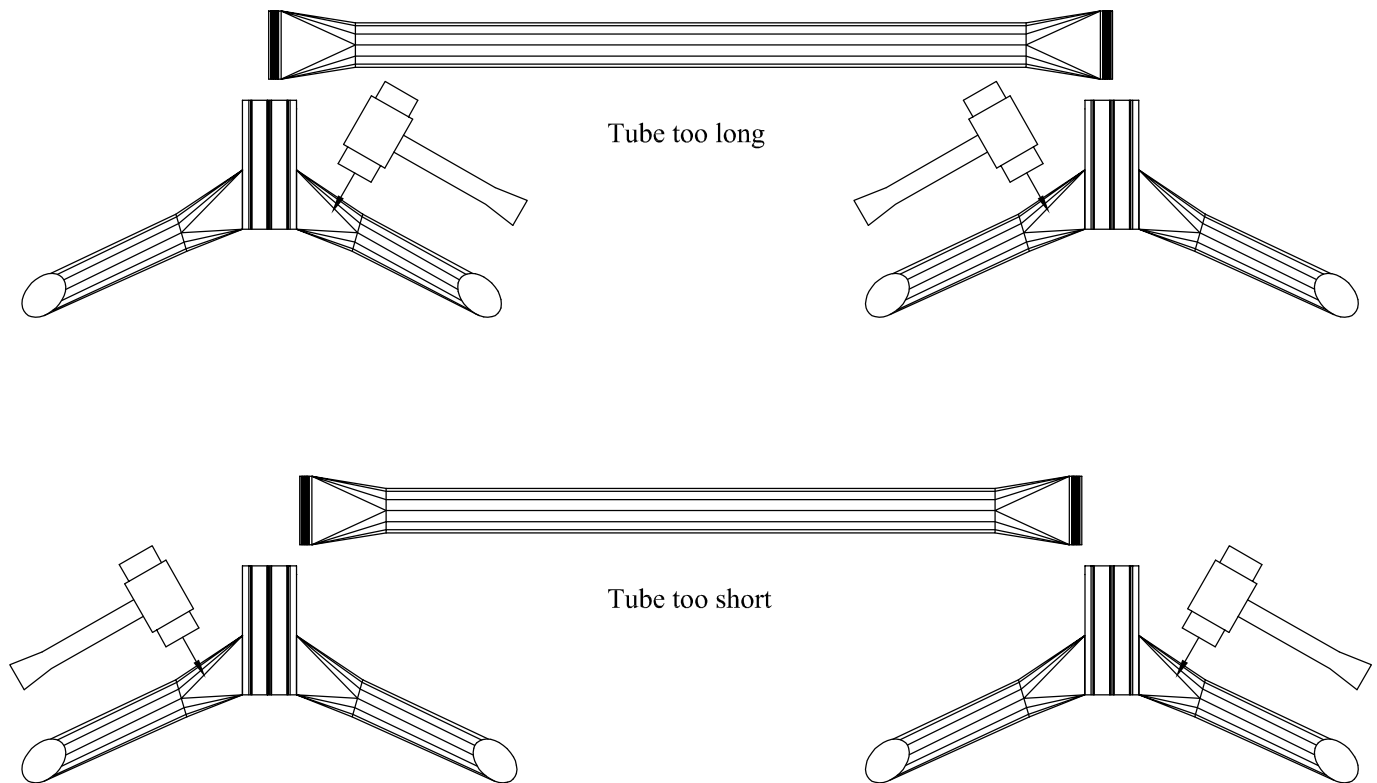
- 7a. Install 2 coined plates into the relevant top hubs and bolt the beams to them, install the mid-span support if required. (See figure 12).



**Figure 12: Integrated beams**

### **Assembly Procedure cont'd**

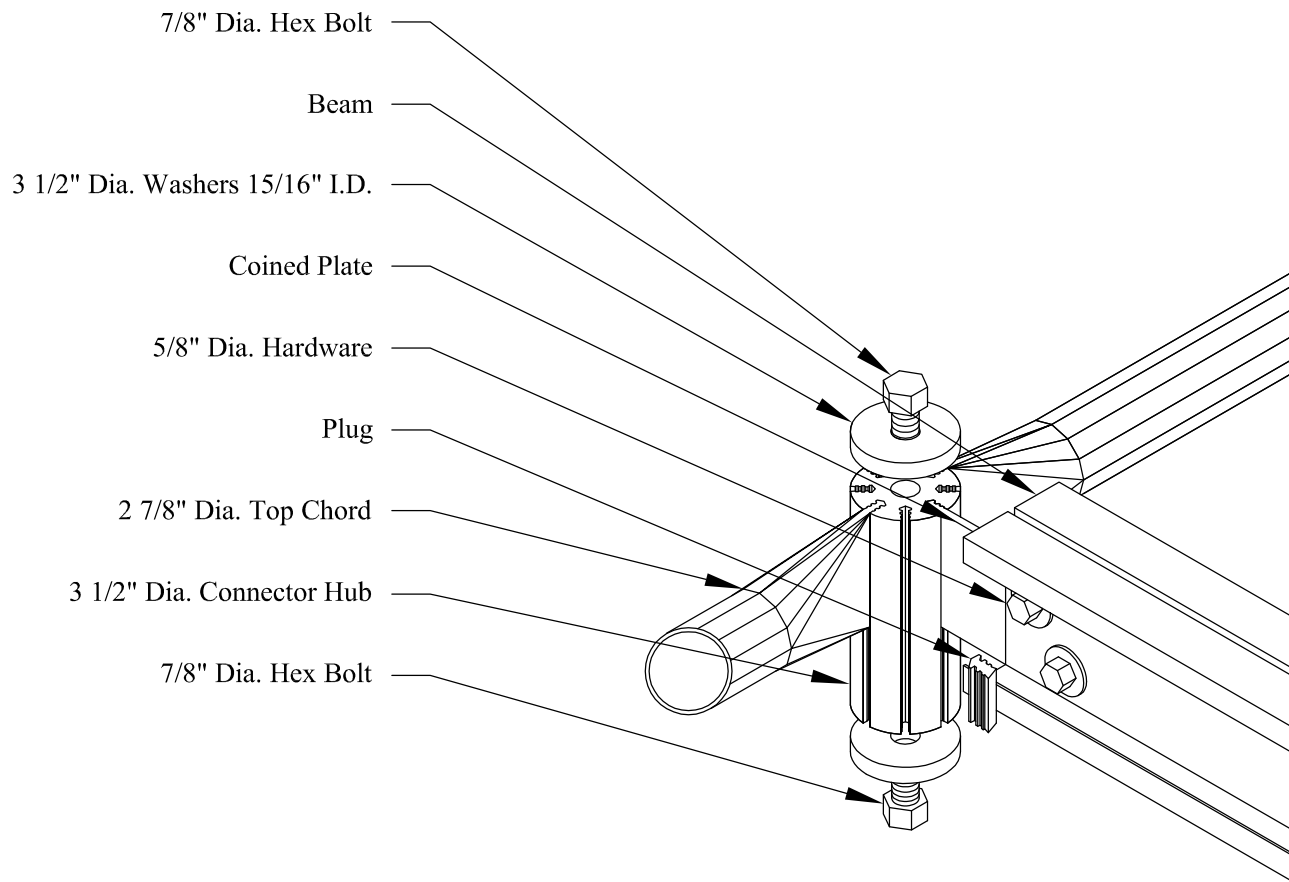
8. When attempting to insert a tube between two connectors, it might seem that the tube is too short or too long. You can widen or shorten the distance between both connectors by striking the diagonals. (See figure 15)



**Figure 15:** Moving hubs to insert chords

### **Assembly Procedure cont'd**

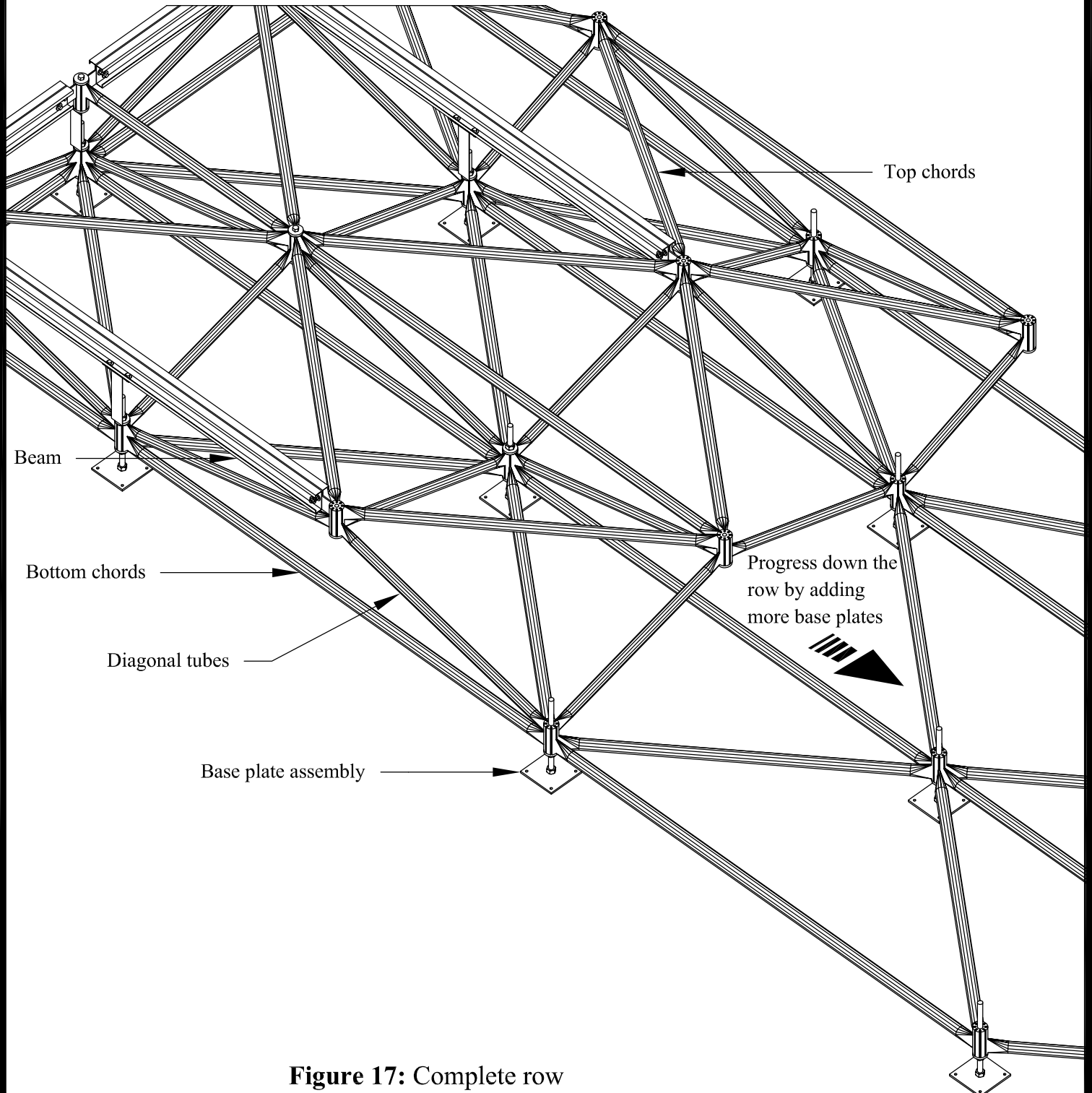
9. When the connectors and members have been assembled in their proper layout in the top connectors, bolt up these connectors as well. (See figure 16) Note: Some top connections will have a spacer angle as well. (See pg. 2)



**Figure 16: Typical top hub**

## Assembly Procedure cont'd

10. Progress down the row by adding more base plates and connectors to form the next module and repeat this entire procedure. (See figure 17)

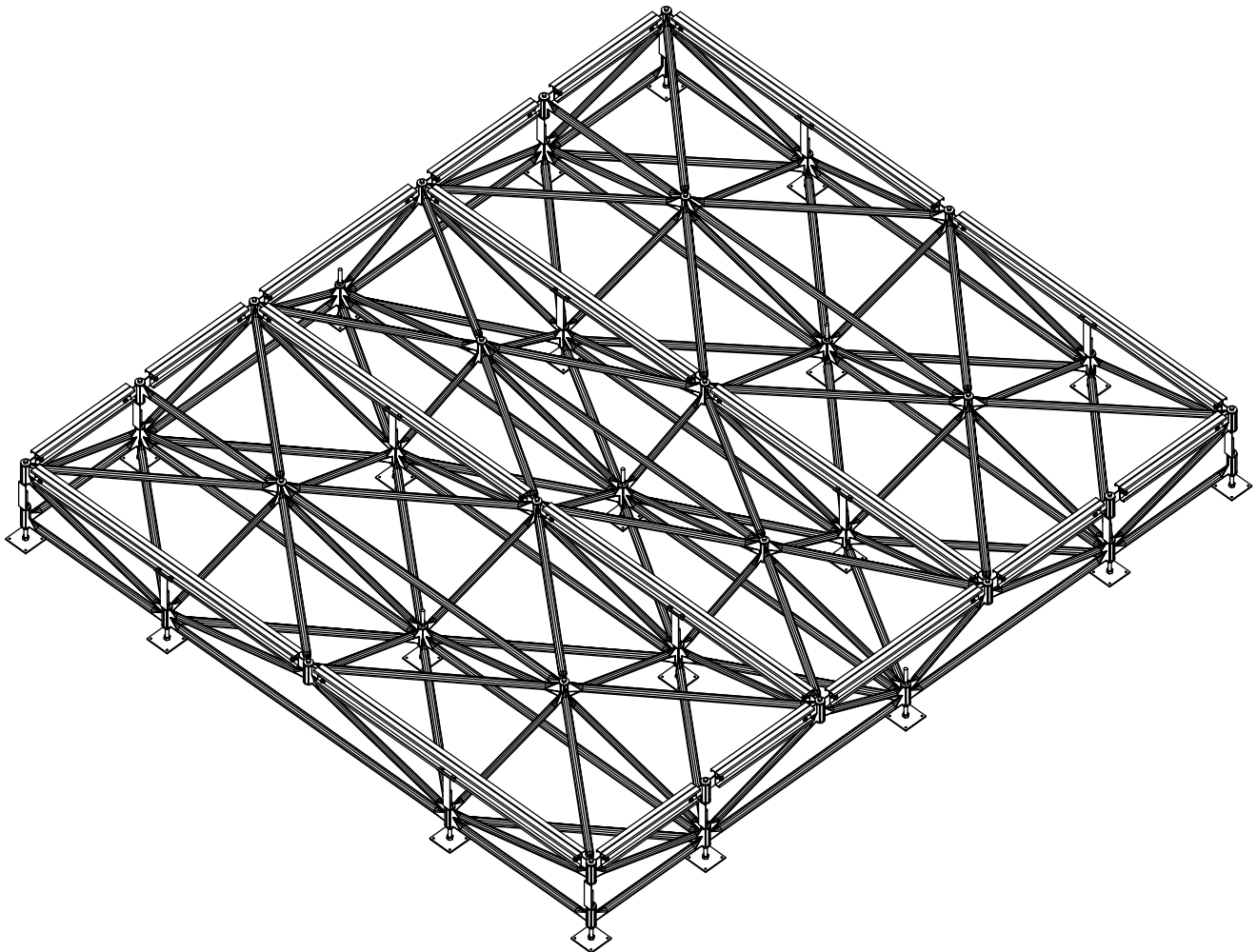


**Figure 17: Complete row**

## **IMPORTANT**

Throughout the entire assembly procedure, a constant reference to the assembly and shop drawings must be maintained. Each multipoint foundation frame is individually designed to meet the requirements of each site. There may exist special connectors or members.

A light oil (WD40) or silicone lubricant should be used on the tooth shape to assist in inserting the tube into the connector.





Thank you for choosing Triodetic Multipoint foundations for your building needs.

Multipoint foundations is a sister company of Triodetic. For over 45 years Triodetic has been designing & manufacturing specialty structures such as space frames, architectural and industrial domes and free form structures.

Visit [www.triodetic.com](http://www.triodetic.com) to see our award winning structural space frames.

If you would like more information about our company and our products or would like to give us feedback on your experience please contact us at:

Triodetic LTD.  
10 Didak Rd.  
Arnprior, On  
K7S 0C3  
Canada  
Tel: 613-623-3434  
Fax: 613-622-4003

Website: [www.multipoint-foundations.com](http://www.multipoint-foundations.com)  
[www.triodetic.com](http://www.triodetic.com)  
E-mail: [info@multipoint-foundations.com](mailto:info@multipoint-foundations.com)  
[info@triodetic.com](mailto:info@triodetic.com)

Triodetic INC.  
4465 East Geness St.  
PMB 306  
Syracuse, NY 13214-2253  
USA  
Tel: 800-565-2743  
Fax: 315-453-7817

Website: [www.triodetic.com](http://www.triodetic.com)  
E-mail: [info@triodetic.com](mailto:info@triodetic.com)