INSTALLATION INSTRUCTIONS FOR THE HEAVY DUTY 60” POLAR MOUNT

Congratulations, you have now purchased the finest Polar Mount available. This unit has been designed to give you the most stable system to work on a single pole application. Assemble using these instructions. If you have any questions call 608-326-8406 for help.

The Polar Mount is designed to go with the 3.0M, 3.7M, 3.8M, 4.2M, 4.5M and the 5.0 Meter DH antenna. As all are identical in theory, we will cover the basic installation first and address each individually as the installation requires.

PLEASE READ COMPLETE INSTRUCTIONS BEFORE BEGINNING INSTALLATION!!

PARTS LIST

1- DH Antenna
1- Polar Mount
60” Back Ring
1- 5 ½” I.D. Base Can
4- Back Braces for 3.3M –See Note* (8 for 3.7M – 5M)
(No Back Braces for 3.0M)
1- Feed Collar
1- Locking Bar
4- Feed Struts
1- Bolt Bag To Include All Hardware (See Page 2)

*3.3m Discontinued After 1-1-2013

***Options: TX Base Stand, base post, non-penetrating roof mount, hot dip galvanizing, 36” actuator & electronics

DH Satellite
PO Box 239
Prairie du Chien, WI 53821
Phone: (608) 326-8406
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Sectional antennas must be handled with care not to twist or distort sections while handling for installation.
# BOLT BAG: FOR THE 60” POLAR MOUNT

## C14F Feed Assembly
1- Set of 4 Struts  
1- Collar (C, Ku)  
8- 1/4” x 1 1/2” Bolts  
8- 1/4” Lock Washers & Nuts

## Feedhorn to Collar & LNB
3-1/4” x 3/4” Bolts  
3-1/4” Lock Washers  
3-1/4” Nuts

## (LNB to Feed)
20-1/4” x 3/4” Bolts  
20-1/4” Nuts  
20-1/4” Lock Washers

## Back Braces
8- Back Braces  
8- Brace Clips  
8- Bent Tabs  
8- 5/16” x 1 1/2” Bolts  
24- 1/2” Nuts  
16- 5/16” Lock Washers  
8- 3/8” x 1 1/2” Bolts  
8- 3/8” Lock Washers  
8- 3/8” Nuts  
16- 3/8” x 1 1/4” Bolts  
16- 3/8” Lock Washers  
16- 3/8” Nuts

## Back Brace Length
3.0m- 37” Long  
3.7m- 45” Long  
3.8m- 47” Long  
4.2m- 55” Long  
4.5m- 62.5” Long  
5.0m- 68.5” Long

## Base Can To Mount
2- 3/4” x 7” Bolts  
2- 3/4” Nuts  
2- 3/4” Lock Washers  
2- 3/4” Flat Washers

## Heavy Duty Feed Struts
### C14F or C24
1- Set of 4 Struts  
1- Collar (C, Ku)  
12- 5/16” Lock Washers & Nuts  
4- 2” x 2” Angle Brackets  
4- 5/16” x 1 1/2” Bolts  
8- 5/16” x 2 1/2” Bolts

## Ku4FL: 3PC Add To C14F
3- Section to 3pc collar  
3- 8-32 x 1” Bolts

## 3PC Collar To Horseshoe
3- #8 Fender Washers  
3- 8-32 Nuts

## Actuator
1- 1/2” x 6 1/2” Bolt  
1- 1/2” x 2 1/2” Bolt  
2- 1/2” Nuts  
2- 1/2” Lock Washers

## Power Declination
1- 1/2” x 1 3/2” Bolt  
1- 1/2” Nut  
1- 1/2” Lock Washer  
1- 1/2” x 2 1/2” Bolt  
1- 1/2” Lock Washer  
1- 1/2” Nut  
2- 1/2” Washers

## Locking Bar
1- Turnbuckle  
2- 1/2” x 1 3/2” Bolts  
2- 1/2” Lock Washers  
2- 1/2” Nuts  
1- 8” Spade Bolt

## Turnbuckle
1- Turnbuckle  
2- 1/2” x 1 3/2” Bolts  
2- 1/2” Lock Washers  
2- 1/2” Nuts  
1- 8” Spade Bolt

## Antenna To Ring (16 Block)
16- 1/2” x 3” Bolts  
16- 1/2” Flat Washers  
32- 1/2” Rubber Washers  
16- 1/2” Lock Washers  
16- 1/2” Nuts

## Base Can To Mount
2- 3/4” x 7” Bolts  
2- 3/4” Nuts  
2- 3/4” Lock Washers  
2- 3/4” Flat Washers

## NOTE: SECTIONAL ANTENNAS INCLUDE ADDITIONAL HARDWARE, SEE TABLES BELOW

### Template Rib Hardware: Sectional

<table>
<thead>
<tr>
<th>Antenna Size</th>
<th>1/4” x 3/4” Bolts</th>
<th>1/4” Lock Washers</th>
<th>1/4” Nuts</th>
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<tr>
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<td>4.2M</td>
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<td>4.5M</td>
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<tr>
<td>5.0M</td>
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### Splice Straps: Sectional

<table>
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<tr>
<th>Antenna Size</th>
<th>Splice Straps</th>
<th>1/4” x 3/4” Bolts</th>
<th>1/4” Lock Washers</th>
<th>1/4” Nuts</th>
</tr>
</thead>
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<td>4.5M</td>
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<td>5.0M</td>
<td>8</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

**NOTE:** Stainless steel or DURA-CON® hardware provided.  
*DURA-CON® is a corrosion resistant coating.  
DURA-CON®: Problem of thread-galling is eliminated.
INSTALLATION OF BASE POST

With this polar mount you have a choice of using the factory TX base stand (page 4) or using a base post (see Figure # 1.) The base post is simply a 5” I.D. / 5 1/2” O.D. pipe that has one or more weldments on the lower section. We recommend that the post be in concrete at least 4’-0”. When the post is set in concrete, be sure it is plumb.

![Diagram of Base Post in Concrete]
INSTALLATION OF TX BASE STAND

WE RECOMMEND THAT YOU CHECK WITH A LOCAL ENGINEER TO DETERMINE SOIL TYPE AND BEARING TO VERIFY THAT THIS BASE WILL WORK FOR YOUR LOCALE. In areas of frost, you must go below levels or make provisions for frost heave.

The base stand unit is designed to go above ground and/or installed on the concrete pad instead of in it. You can install this either of two ways: the first is you can request a template of the base stand and then install J-bolts in the concrete as you are pouring it, or you can wait until you receive the base stand (having previously poured pad) and drill holes into the concrete using the stand as the template. You must use a type of Lead Head or Garonite, a Resin Mortar to secure the bolts.
ASSEMBLY OF THE 2 PIECE ANTENNA WITH JOINER STRIP

Disregard this section if you have a 1pc, 4pc, or 8pc Antenna

At this time the antenna will come in either one or two pieces when using the 60” polar mount. If you have requested your antenna to be shipped in one piece, please ignore this paragraph and go on to the next page. Those of you who had your antenna shipped in two pieces you must take the two halves and place them on a flat surface.

USE EXTREME CARE WHEN HANDLING A MULTIPLE PIECE ANTENNA.

The antenna must always set on the lip when assembling and/or storing (see fig. 3). Before sliding the halves together, one person should get under the antenna with the 1/4” x 3/4” bolts supplied. Using the proper joiner strips push the bolts from the inside out and secure with the 1/4” nuts. The joiner strips and the dish will have serial numbers that match, so when installing be sure the numbers match. These numbers are on the inside lip of the dish and the end of the joiner strip (see fig. 4). Tighten these very tight so the dish holds the shape it had when it was manufactured.

Below is a listing of the additional number of 1/4” bolts that should be in your bolt bag when your antenna is in two pieces.

<table>
<thead>
<tr>
<th>Length (FT)</th>
<th>Number of Screws</th>
</tr>
</thead>
<tbody>
<tr>
<td>10’ (3.0M)</td>
<td>28 1/4” x 3/4” bolts</td>
</tr>
<tr>
<td>11’ (3.3M)</td>
<td>28 1/4” x 3/4” bolts</td>
</tr>
<tr>
<td>12’ (3.7M)</td>
<td>28 1/4” x 3/4” bolts</td>
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<tr>
<td>12’ 9” (3.9M)</td>
<td>36 1/4” x 3/4” bolts</td>
</tr>
<tr>
<td>14’ (4.2M)</td>
<td>36 1/4” x 3/4” bolts</td>
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<tr>
<td>14’ 9” (4.5M)</td>
<td>36 1/4” x 3/4” bolts</td>
</tr>
<tr>
<td>16’ (5M)</td>
<td>36 1/4” x 3/4” bolts</td>
</tr>
</tbody>
</table>

Disregard this section if you have a 1pc, 4pc, or 8pc Antenna

This 2pc antenna option is sold only on request. Signal loss of .5 to 1DB is expected on Ku Band.

2pc antenna discontinued as of January 2013
PREPARING THE BASE POST

Before setting the base can over the base post, please loosen the four set screws on the base can. With some assistance from another person lift this base can over the base post. Set the base can so the front ears of the saddle are pointing in a southerly direction. Now tighten down one or two of the set screws. If you are relying on man power to lift the antenna in place, you must now gather your manpower and take the 60” ring and lift it up and set the ring onto the top of the base can. This is referred to as the saddle, (see drawing below). While you align the hole in the boom to the holes in the ears of the base can, have one of your helpers slip the 3/4” x 7” bolt through these holes. Yes, the bolt will fit, we actually over drilled this hole. You may want to use a hammer to get this bolt in place. NOTE: To assure an easier installation insert the bolt through the holes in the can and boom before it is lifted into place. This will guarantee that the bolt will slip through the holes without any problems.

Now take the turnbuckle and the two 1/2” x 1 1/2” bolts and place them as in the drawing below. The turnbuckle is used to set your elevation and then never adjusted again. The boom will be set to your latitude. This will be covered again in the section under declination.

In most locations you will use the top hole in the boom. The lower hole in the boom is for areas below 20 degrees latitude. Use the second 3/4” x 7” bolt in the back top of the saddle and tighten it until the sides of the saddle compress against the boom. (See below).
DECLINATION SETTING AND POWER DECLINATION OPTION

Set the boom to the same degree as your latitude. You will find most road atlases will have this listed. Now adjust the four 3/4” nuts on the top tube moving it in or out to your off set angle. See the chart below. The farther north or south you go from the equator the larger your off set will be. The off set (declination) is the number in degrees between your axis (latitude) and the angle of the face of the antenna. Once this is set it should be left alone.

Units with power declination must have the actuator assembled to the ring and bracket prior to assembling the antenna to the mount. The power declination is a modification made to the mount in the factory and it requires the assembly of the actuator to the bracket on the ring and to the bracket on the back of the boom. Refer to page 16.

<table>
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<th>Site Latitude</th>
<th>Declination (Offset Angle)</th>
<th>Inclination</th>
<th>Zenith</th>
<th>Site Latitude</th>
<th>Declination (Offset Angle)</th>
<th>Inclination</th>
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<td>80.22°</td>
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</tr>
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</table>
ASSEMBLING RING TO BOOM

In most cases the 60” ring is already attached to the boom. If you have requested your shipment as the knocked down version then you will have to assemble these pieces. The easiest way to assemble the ring and the boom is before you set the boom in place on the base can. First attach the top and bottom tubes to the ring. Take the 3” bottom tube and lay it between the ears of the ring. Insert the 3/4” x 2” bolt through the ear on the ring. Now thread the bolt into the tube. Do the same for the other end. See photo A-A.

Now thread one 3/4” nut on each of the two 3/4” declination bolts. Run the nuts most of the way down. Insert the bushing into the top and bottom tubes, two bushings per tube. Now swivel the bottom tube slightly and set the base bolt of the boom in place and secure with 1” nut. Next you can swivel the unit into place so the top tube slides over the declination bolts. Secure by threading the remaining two 3/4” nuts to the declination bolts. Now is the ideal time to attach the locking bar if you are not going to motorize this unit. The locking bar can go on either side of the top tube and bolts in place with the 1/2” x 1 1/2” at the tab and 1/2” x 5” bolt at the back of the boom. Lift assembly onto base can and follow instructions from “Preparing The Base Post” section.

PHOTO A-A
Ring to Boom
ASSEMBLING THE ANTENNA TO THE RING

This section/page is for assembly of a 1pc solid antenna or a sectional antenna assembled to install as a 1pc antenna.

(3M-5M)

The mount should be assembled and now it is time to install the antenna. We recommend two methods of lifting the antenna onto the post.

**The first option is using the Ground method.**

Place the antenna face down and with a person under the antenna, you will place the ring on the antenna. Put the bolt from under side up through the dish and ring tabs. Attach the 8 back braces, clips, and tabs on the ring and tighten, but not too tight as we need to allow for flex. You can now lift this antenna and ring by a crane, forklift or a boom truck. This insures that no pressure will be put on the antenna.

**The second option is the Bird Bath method.**

If you are going to use manpower, follow the ensuing instructions. First you must elevate the ring to about 60 degrees. Lock it in place. Now locate the 1/8” pilot holes on the ring and the antenna. One is located next to one of the 16 ½” holes in the dish and the other is located on one of the 16 blocks next to ½” holes on the mount. See figure #5. (These pilot holes are only to locate the two 1/2” holes they will not line up from the mount to the dish.) When you have located these two holes, use 4 -5 people and pick up the dish and set it into the ring making sure the pilot holes line up. **BE EXTREMELY CAREFUL IN HANDLING THE ANTENNA WHEN SETTING IT INTO THE MOUNT.** Now slip in the 1/2” x 3” bolts, (leave out every fourth bolt when using a C, Ku, C/Ku, or S – band feed.) Do not tighten these bolts more than just snug. Now put the dish in a very flat position (birdbath). Have the smallest worker (installer) get into the dish and install the feed and hold the bolts while they are tightened. Install the bolts as in figure #6. **DO NOT OVER TIGHTEN.**

*FROM THE BACK VIEW OF ANTENNA
Pilot hole is located on the 2nd block from the left of the weld on the ring.

Note:
THE WELD OF THE ANTENNA IS ALWAYS LINED UP WITH THE BOOM OF THE MOUNT
ASSEMBLY OF THE ANTENNA
(On Ground: Lift As One Piece Antenna)

The antenna will come in 4 or 8 pieces each having a color coded dot on the rib (see FIG. #9). **NOTE: After complete installation you will no longer see the colored dots.** You must take two sections and place them on a flat surface face down allowing for the installer to work on attaching the numbered ribs. **The antenna must always stay in crate until assembled,** (see FIG. #10). Take panel one labeled 08/1 and 08/2 and attach it to panel 2 which is labeled 08/2 on one rib and 08/3 on the other rib. Connect panel 1 with rib #2 (labeled 08/2) to panel 2 with rib #2 (labeled 08/2), matching the #2 on each rib of the two panels (See photos below). Install 1/4" x 3/4" bolts in all holes, finger tight. Continue on to the next panel in the same manner until finished with all panels. Now tighten all hardware.

**NOTE:**
The aluminum antenna is also stamped in the lip. This number reflects the position of the panel.

The number stamped on the rib reflects the antenna as a whole for bulk shipping. Each section has one rib stamped. The number will be the same on all ribs making it one complete antenna.

*Example:* In FIG. #9 you will see 4 sections with the top number 08. You will take all four pieces of 08 to make one complete antenna.

*Example:* On a 4 piece 3.0m antenna the dot will have a 08 on the upper part of the dot (serial number) and the lower number of 1, 2, 3, 4 are the rib numbers.

See optional sectional installation on page 10B: “Installing by Sections to Ring”
Installation Photos: Additional Help for Installing by Sections to the Ring

Continue to page 10B for section by section installation
Installation Photos:
Additional Help for Installing by Sections to the Ring

Continue to page 10B for section by section installation
“OPTIONAL ASSEMBLY METHOD”
(Install By Sections: Using 2-3 People)

Assemble mount and put mount in birdbath position. Be sure to lock the mount with ratchet straps once in birdbath position. (See picture C, birdbath below)

**Step 1:** Install the brace clips to the back braces before placing on the antenna lip and ring. Have all 8 brace clips installed on the brace before going to the next step. See brace clip and back brace photos below.

**Step 2:** Install brace clips to the ends of the 8 back braces and install the ½” nut on the threaded rod end of the back brace, threading it down approximately 4 to 4 ½” down the threaded rod (see FIG. #13 and #14).

**Step 3:** Take the first panel and install it to the ring of the mount finger tight. Be sure to find the pilot hole on the mount and on the antenna. Take the back brace that is ready and put the threaded rod through the tab on the ring (see photo A). Take the other end of the rod with the clip and attach the brace and clip to the lip of the antenna section (see picture B).

**Step 4:** Insert ½” x 3” bolt (see FIG. #17 for washers and rubber placement) from the antenna to the mount. Have one person continue holding the panel in place while the second person attaches the back brace. (Remember the threaded end of the back brace should already have the ½” nut on the threaded end about 4-4 ½” on the threaded rod and the bent tab already installed on the ring, see FIG. #15). Insert the threaded rod of the back brace into the bent tab and bolt brace clip on the edge of the antenna with 3/8” x 1 ½” bolt, 3/8” nut and 3/8” lock washer. Make sure everything is finger tight.

**Step 5:** Pick up the second antenna panel and be sure the numbers line up and bolt in place just like the first panel. (see FIG. #9) Once secure you can begin bolting the two units together by placing the ¼” x ¾” bolts through the templates. Again only finger tight. Continue for the next 6 panels.

**Step 6:** You will notice all 8 bolts in the face of the antenna have been installed from the antenna to the ring at his point. You now remove every other bolt from the face of the antenna and replace them with a feed strut. (See preparing the feed assembly on page 12)
ASSEMBLING AND INSTALLING THE BACK BRACE

There are eight holes around the rear of the 60” ring to accept the braces. First install the bent tabs to the ring. (See figures #7 and #8). The bent tabs are a piece of steel bent in the middle, approximately 1 1/2” x 3” long with two 1/2” holes; you will find these in the bolt bag. Fasten the tabs with 1/2” x 1 1/2” bolts to the 60” ring; now thread one 1/2” nut about 2/3 of the way down on the 1/2” rod end of the brace. Slip the rod end through the bent tab and install another 1/2” nut. Only tighten these finger tight. Now go to the edge of the dish and place the two 1/4” x 3/4” bolts through the dish and into the end of the brace clip and tighten with 1/4” nuts. Repeat this on all eight braces on the 3.7M, 3.8M, 3.9M, 4.2M, 4.5M and 5.0M Antenna.

The following is a list of the different back braces for the different size antennas. Check this chart to be sure you have the right length braces. Listed is tube length only and does not include the bracket or the bolt in this measurement. Refer to figure #9.

<table>
<thead>
<tr>
<th>Dish Size</th>
<th>Focal Length</th>
<th>Tube Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>10’ (3.0m)</td>
<td>36” f/l</td>
<td>None</td>
</tr>
<tr>
<td>11’ (3.3m)</td>
<td>36” f/l</td>
<td>40”</td>
</tr>
<tr>
<td>12’ (3.7m)</td>
<td>57.6” f/l</td>
<td>45”</td>
</tr>
<tr>
<td>12’ 5” (3.8m)</td>
<td>57.6” f/l</td>
<td>47”</td>
</tr>
<tr>
<td>12’ 9” (3.9m)</td>
<td>36” f/l</td>
<td>50”</td>
</tr>
<tr>
<td>14’ (4.2m)</td>
<td>36” f/l</td>
<td>55 1/2”</td>
</tr>
<tr>
<td>14’9” (4.5m)</td>
<td>36” f/l</td>
<td>62 1/2”</td>
</tr>
<tr>
<td>16’ (5.0m)</td>
<td>36” f/l</td>
<td>68 1/2”</td>
</tr>
</tbody>
</table>

*FROM THE BACK VIEW
Pilot hole 2 tabs to the left from weld on the ring.
PREPARING THE C BAND FEED ASSEMBLY

If the feedhorn you have selected has an adjustable scaler ring, move it to the proper wave guide setting as per the manufacturer’s instructions. Below, we have listed the focal lengths and focal length/diameter ratios for our commercial antennas, so just find your antenna size and you will have the information to set the feed properly.

<table>
<thead>
<tr>
<th>Antenna Size</th>
<th>Focal Length</th>
<th>Focal Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>10’ (3.0m)</td>
<td>36” f/l</td>
<td>.3 f/d</td>
</tr>
<tr>
<td>11’ (3.3m)</td>
<td>36” f/l</td>
<td>.273 f/d</td>
</tr>
<tr>
<td>12’ 5” (3.8m)</td>
<td>57.6” f/l</td>
<td>.38 f/d</td>
</tr>
<tr>
<td>14’ (4.2m)</td>
<td>57.6” f/l</td>
<td>.342 f/d</td>
</tr>
<tr>
<td>14’ 9” (4.5m)</td>
<td>57.6” f/l</td>
<td>.33 f/d</td>
</tr>
<tr>
<td>16’ (5.0m)</td>
<td>57.6” f/l</td>
<td>.3 f/d</td>
</tr>
</tbody>
</table>

NOTE: Strut length includes bent end.

Your DH representative should have asked you what type feed you will be using. We need this information to be assured we are sending the proper collar to attach your feed to your struts. Take the collar and set it on the back of the scaler ring of the feedhorn. Turn it until all three holes line up between the two and insert the 1/4” x 3/4” bolts through the scaler ring and then through the collar; fasten with the 1/4” nuts. Most C-band and dual feeds have a 3-bolt pattern on the scaler ring as described above.

For heavy duty SEAVEY (C24HD) or heavy duty CHAPARRAL (C14FHD) feed assembly please refer to page 13 and page 14.

For CHAPARRAL type feeds refer to figure #10. Slip the feed strut into a tab on the collar and line up the two holes. Insert the 2- 1/4” x 1 1/2” bolts into the holes and tighten with the 1/4” nuts. Proceed with all four struts then check focal length and tighten down.
Heavy Duty Feed Strut

We have developed a new feed strut and collar for the heavier 4 Port Seavey and Chaparral feed assemblies. This utilizes the rectangular aluminum tube for the feed strut. Refer to the drawing on page 14 for the bolt placement of a C14FHD or C24HD. Each strut has 2 - 5/16” x 2 ¾” bolts to attach to the feed collar. Attach one of the angle brackets (2” x 2”) to the antenna with the ½” x 3” bolts. Notice that angle brackets have two holes. The bottom hole is for a Seavey type feed (C24HD). The top hole is for a Chaparral type feed (C14FHD). Next, attach the base of the strut to the angle brackets with the 5/16 x 1 ½” bolts supplied. Align the feed to point directly at the center of the antenna. Measure the focal length to the front of the scalar rings. (Seavey recommends f/l is measured to front of scalar ring.) (Chaparral measures ¾” inside the wave guide.)

Ku Band Feed Assembly

When using the Ku only feeds, you will be using the C14F feed plate and tri-collars. See Figure #13. First, attach the flat tri-collar to the feedhorn as follows: attach the first two pieces by using the 8-32 x 1” screws provided. Now slide the collar onto the feedhorn and add the third piece; tighten evenly. Attach the tri-collar to the larger horseshoe collar by the 8-32 x ¾” bolts and nuts; tighten down. You can adjust polarity by loosening these nuts and rotating feed. Finishing by assembling the struts to the feed collar as shown in Figure 14. (Fig#14 shows single Ku feed inserted in collar)

Fine Tuning the Antenna

After the assembly is complete, we recommend you "string the antenna." Simply run a string from a back brace across the front of the antenna to the brace 180 degrees apart. Now do this with each brace. If the strings all meet in the middle and no pressure is on any of them, the antenna is perfect and no further work needs be done. If one of the strings is not close to the others, then step back and sight across the dish and see where you will have to push with the back braces. Only make small adjustments at a time and remember to start with all braces loose. After you are sure the antenna surface is flat, you should double check to see that the feedhorn is set at the proper distance, then check to see that it is pointed at the center of the antenna. In our years of setting up antennas, these three items seem to cover over 98% of all problems of picture quality (See also page 15).
FOR ANTENNAS: 3.7m, 3.8m, 4.2m, 4.5m, 5m use 59"x1"x1.5" struts
FOR 3 METER Antenna use 39"x1"x1.5" struts

C14F-HD or C24HD
ADDITIONAL FINE TUNING TECHNIQUES

To receive the optimum from your antenna, you must take time to fine tune the antenna. What are the antenna adjustments? They are: make the front surface flat, be sure the feed looks at the center of the dish, and set the proper focal length. You must also be pointed at the satellite and have the feedhorn skew properly adjusted.

Many of the adjustments are done without any measurement of the signal, and in fact require no signal at all. The adjustment of making the front surface flat, adjusting the focal length, and aligning the feed will be done without signal. You will use the strings and the back braces to make the dish flat, a focal finder and measure tape to align the feedhorn to find center, and set the focal length using a measure tape to measure from dish to feedhorn. You will use a satellite tool to locate signal in further steps of fine tuning.

We feel that you must use strings to assure the front of the dish is flat. The strings must be taut and run from brace to the opposite brace at 180 degrees. A larger dish with 8 braces needs four strings. Do all adjustments with the braces loose. The strings must touch at the center, if they do not, sight the dish from the side to see which braces should be slightly adjusted to make the front surface of the antenna perfectly flat. CAUTION: do not over tighten the 12 bolts that hold the dish to the ring as they can distort the dish.

The easiest way to assure yourself that the feedhorn is looking directly at the center of the antenna is to use a Focal Finder (SEE PHOTO “A” BELOW) or to make a tool to assist in finding the center of the antenna. You can if no focal finder is available, cut a 1” X 4” board to the length of the antenna’s focal length. Held vertically against the feed it should point at the center of the antenna, this will be true at the horizontal plane as well.

DH recommends using an A1 Turbo S2 made by Applied Instruments or another tool such as a spectrum analyzer to locate your satellite signal in order to complete the following steps:

Setting the Azimuth: To set the azimuth of the system you will use the base can and a tool to locate and measure signal. Find a satellite signal using the A1-Turbo or another satellite tool that will show signal spiking. Any signal strength will work. This is your reference point. Now you will go from bad signal to bad signal. From this reference point you will move the antenna left of the reference point to see if the signal gets better or worse and right of the reference point to see if this makes it better or worse. When you see the location of the base can for the best signal, you will tighten down the set screws on the base can. (Special Note: It is best to make a mark on the pole and base can to reference your starting point before making any moves with the base can. Remark your base can and pole so that you now know the location that is allowing the strongest satellite signal.)

Setting the Elevation: You will use the turnbuckle assembly to make this adjustment and again you will go from bad to bad signal and find the center point with the best signal strength. Again, to make this adjustment you will only use the turnbuckle. It is best to mark the starting point of the threaded rod or count the turns so you know exactly where you started before making slight adjustments with the turnbuckle assembly.

Skewing the feedhorn: You will rotate the feedhorn again going from left or right of the marked reference location for your feedhorn to find your strongest signal. Once you find your strongest signal tighten down into place.

Keep in mind when you are making these last “Additional Fine Tuning Techniques” very small moves will be needed to make the best improvements in signal strength.

PHOTO A
Focal Finder to Locate Center of Antenna

A1 Turbo S2 Made By Applied Instruments
Look carefully at the drawing above. This shows where the declination actuator is placed on the mount. The polar mount must be ordered from the factory with this option as it is not a retrofit kit. The end of the actuator bolts to the plate under the top of the 60” ring with a 1/2” x 2 1/2” bolt. The actuator clamp is attached to the actuator as per the manufacturers recommendation. Then using the 3/4” x 3” bolt, slide it through the declination bracket and through the clamp and fasten it using the 3/4” nut.
Polar Tracking a DH Antenna

1. Point the Antenna system at your most direct southern satellite for your longitude.
2. Set the boom at your site’s latitude.
3. Ensure that the top cross bar of the mount is directly horizontal with the boom and that the boom is pointed north to south.
4. Measure the off-set for your site latitude: (if the site is at 43 deg. Lat and 91 deg. Long): Set the boom to 43 degrees and ensure the top bar is horizontal with the boom, measuring the rings position with a digital inclinometer. This particular site would have a 6 degree off-set. This means the ring should be around 49 degrees. (if you need to make adjustments to the offset, use the declination adjustment on the left and right side of the ring near the top of the ring and the bar).
5. Aim the antenna at the most southern satellite and then peak the signal from this satellite with the Applied Instruments Turbo S2 or your test instrument. Then you will need to move the base can on the pole very slightly to the left or right to peak the signal even further.
6. Once you are satisfied with the location of the base can, mark the base can and base post to reference your spot. This will also be your reference satellite that you will return to in the next steps.
7. Track to the next satellite using the drill to motor the antenna over east or west. Once a signal is obtained on the Turbo S2 or other instrument, slightly move the antenna east or west with the drill. Once this signal has peaked, choose another satellite that is 10 to 20 degrees further and motor over to its position to see if a signal can be obtained (for the site referenced 43 deg. Lat and 91 w long, the most southern satellite used was 91 deg, then the next satellite used to peak was 97 deg. Moving 10 or 20 degrees AMC11(131 deg.) was used.) Peak this satellite signal until you are happy with the signal.

8. Once you have peaked, make a slight turn on the turnbuckle, slightly moving the dish up and down. Using your Turbo S2 or other testing device, note if these adjustments make the signal better or worse. This will indicate if you are over or under the polar arc. Remember where the turnbuckle position started as you will need to put it back to this position. 

   *If you increased the signal strength lowering the dish, this indicates that you were shooting over the arch. If you increased the signal by raising the dish, this indicates you were shooting under the arc. The following will correct that.*

Adjusting arc

1. First, adjust the turnbuckle back to where it was before you made the move either up or down. Drive the dish back using a drill back to the most southern satellite that you started on and peak this signal out. Note: you must be peaked on your most southern satellite signal.

Looking at the mark that was previously made on the can/pole, rotate the dish assembly and base can.

2. If the last satellite you attempted to peak the signal on had a better signal by turning the turnbuckle and dish down, you will need to move the base can to the East about 1/8”. If the signal was stronger when you raised the dish, you will need to move the base can to the West about 1/8”.

3. Tighten down a set screw and mark on the can and pole where you just moved it. Motor the dish slightly east or west to repeak the southern most satellite you used as your reference satellite. Slightly adjust the turnbuckle if needed to peak the signal even further.
4. Once you obtain the best signal strength, drive the dish over with a drill to the last few satellite signals that you had done previously. Note if the signal strength has improved from the adjustments that were just made.

5. Peak the satellite signal out on the farthest satellite you are trying to obtain (we used 131W). Note the signal and then adjust the turnbuckle again either up or down seeing if this increases or decreases the signal strength. If it does, you will need to repeat the steps under **Adjusting arc** until you are satisfied with the signal strengths with the satellite signals you are trying to obtain.
MAGNETIC VARIATION CHART

Magnetic Variation
MISSING PARTS WARRANTY

You have obtained one of the best antennas on the market today! We hope that you will be happy with your new DH Antenna.

To better acquaint you with our system, we ask that you read the instruction manual and verify that all of the equipment has been supplied in your shipment. Please check the hardware as well as the parts list and compare to what you have received. It is our policy to make every effort to assure you that you have received all parts necessary to make this a pleasant experience.

While checking over your parts it is possible to find that you are missing pieces that are necessary to complete the installation. You will find below our shipping policy and charges if any.

Notify Factory within 5 days ARO (Delivery): Red / no charge
Notify Factory 5 to 30 days ARO: Regular / no charge
Notify Factory 31 days ARO: Your cost for parts and shipping.

Please note we are only able to ship out from our location if notified by 12:00 PM CST. Calls received after this time will ship the following business day.

Call us M-F 7:30 am to 5 pm 608-326-8406

PHONE: 1 (608) 326-8406
FAX: 1 (608) 326-4233
EMAIL: dhsat@mhtc.net

Please make notes below to help in future years with replacement needs.

Size of antenna: _______________ Mount type: _______________
Feedhorn make: _______________ Model: _______________
LNB Make: _______________ Model: _______________