Installation Instructions for the
Standard AZ-EL Mount

Congratulations you have now purchased the finest AZ-EL Mount available. This unit has been designed to give you the most stable system to work on a single pole application. Please follow these instructions and if you have any questions please call 800/ 627-9443 for help.

The AZ-EL Mount is designed to go with the 3.0m, 3.3m, 3.7m, 3.9m and the 4.2 meter 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 - AZ-EL Mount
60" Back Ring
1 - 5 ½" I.D. Base Can
4 - Back Braces for 3.3 - 3.7
(8 for 3.9m - 4.2m)
3m requires no back braces
4 - Feed Struts
1 - Feed Collar
1 - Elevation Tube
1 - Elevation Tube Bracket
1 - Bolt Bag to include all Hardware
1 - Feed Cover
1 - Elevation Fine Tune Assembly

DH Satellite
P.O. Box 239
Prairie du Chien, WI 53821
Phone: (608) 326-8406
Fax: (608) 326-4233
8 a.m. to 5 p.m. C.S.T.

CAUTION! - All 3.0m - 5.0m, 2 pc. antennas must be handled with extreme care. 8/3/98

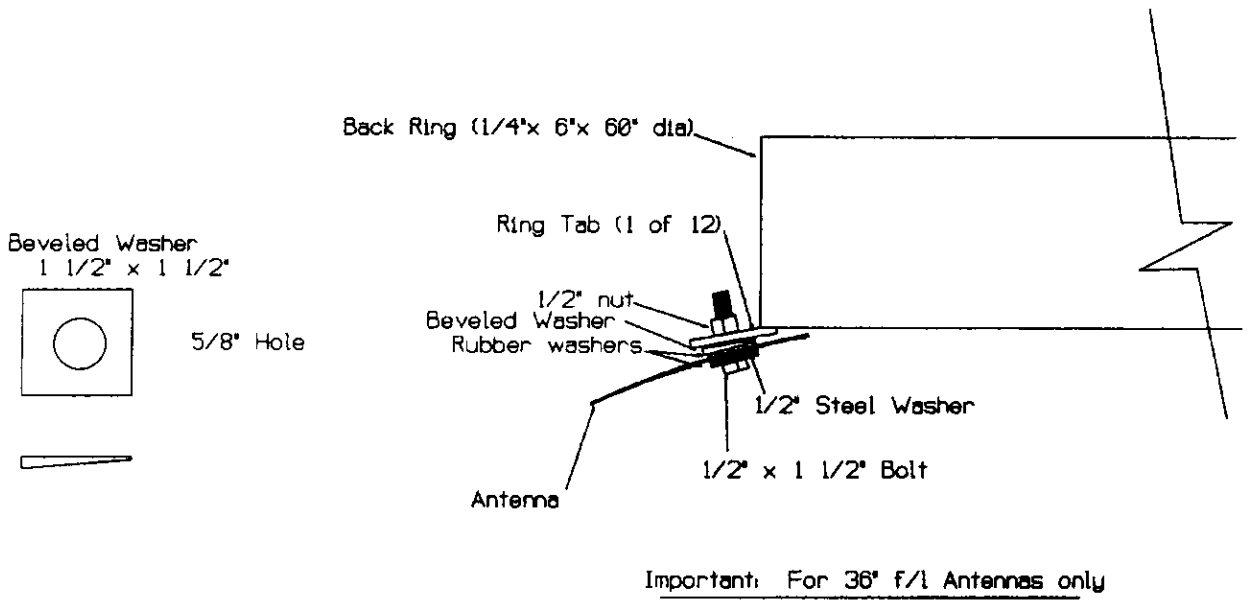
Important!!!

If you have purchased a 36" F/L Antenna (3.0m, 3.3m or 3.6m T.I. Eliminator) follow these directions.

The following instructions pertain to the Installation of the 36" F/L Reflector only. **If you have purchased a 57.6" F/L Reflector please disregard these Instructions.**

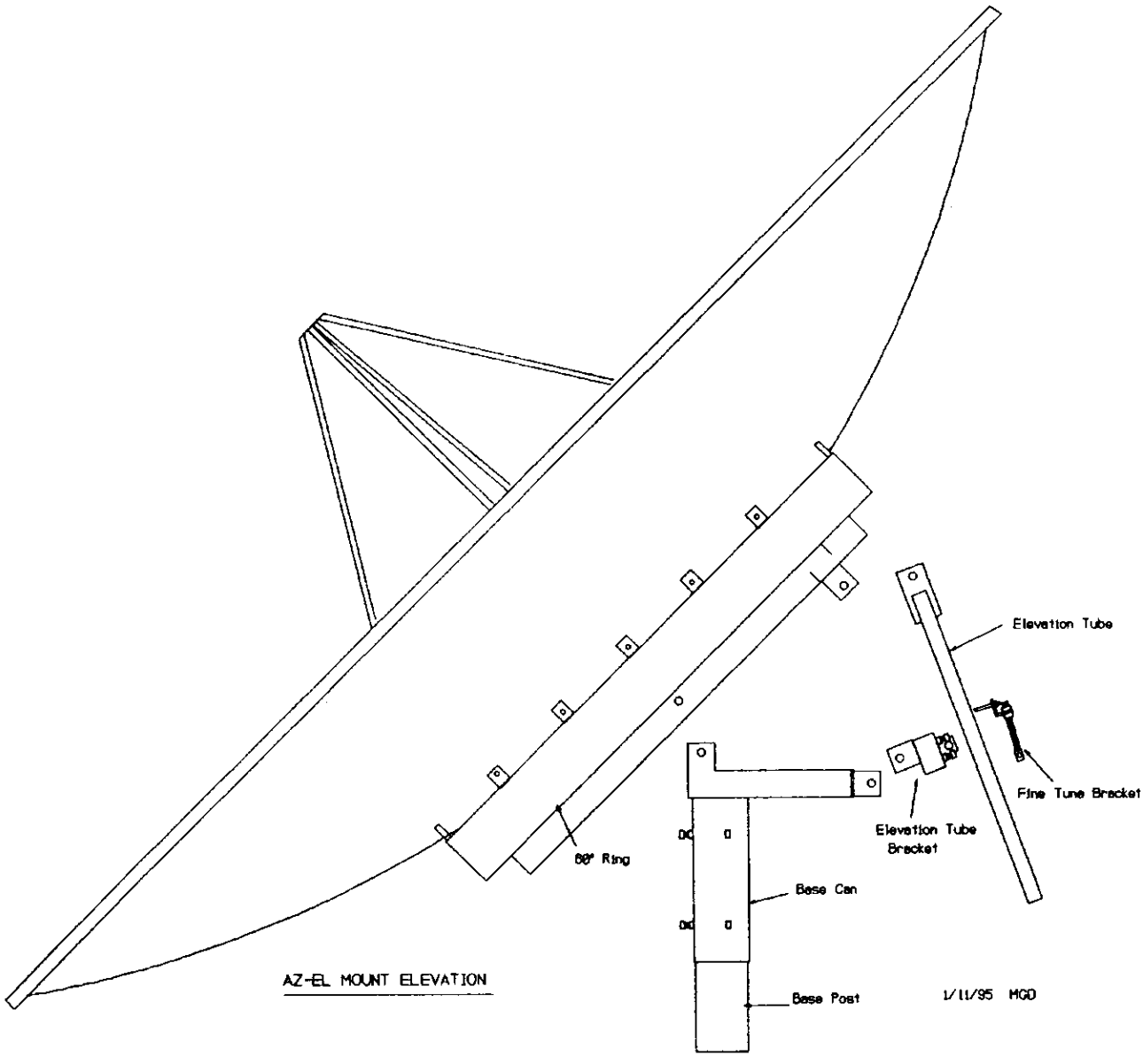
When you purchase the 36" F/L Reflector with the 60" Ring Mount the following procedure is necessary in order to conform the Reflector to the Mount.

When Assembling the reflector to the Mount, the 12 Beveled Washers must be installed between the reflector and the mount tab. When you put the Beveled Washer in place, **make sure that the thick part is oriented toward the reflector perimeter**. This is very important as failure to do this will distort the reflector causing loss of signal because the parabolic shape will be compromised.



Important: For 36" f/l Antennas only

AZ-EL Mount


Elevation Tube
Fine Tune Bracket
Elevation Tube Bracket
60° Ring
Base Can
Base Post
AZ-EL MOUNT ELEVATION
1/11/95 MGD

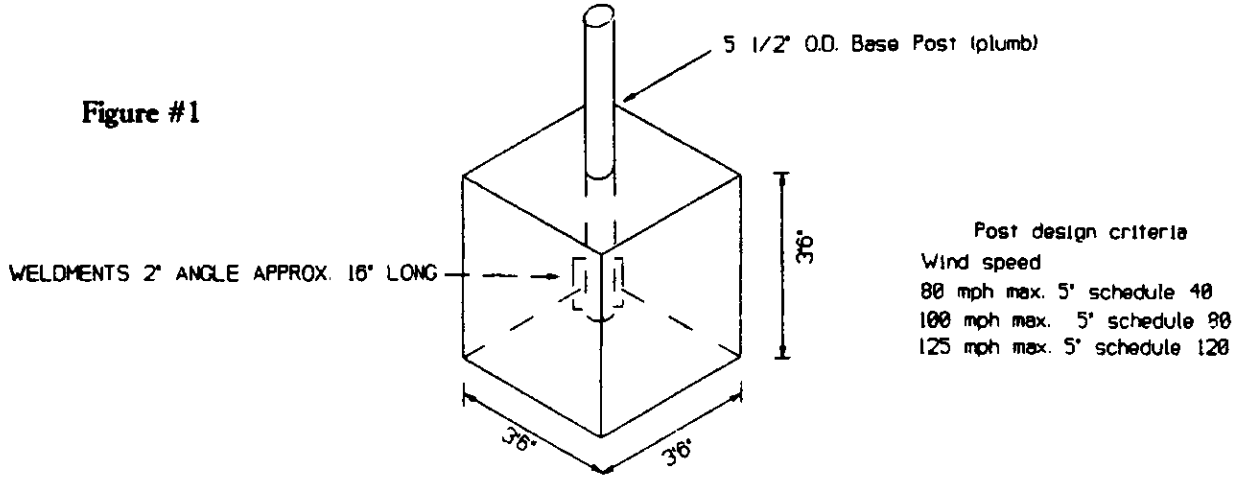
Installation of Base Post

Look at the drawings below, the first drawing shows the recommended concrete base for the 3.7m antenna. The actual base pad size will vary depending on the size of the antenna used. Please call your DH representative for the recommended base size pad required. In areas of deep frost, we recommend that the base go below frost levels. 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.

With this AZ-EL mount you have a choice of two different base assemblies. The first is a base post (see figure #1). The base post is simply a 5 1/2" O.D. schedule 40, 80 or 120 base pipe that has one or more weldments on the lower section. The schedule of the base post must be determined on the wind load desired. We recommend that the post be in the concrete at least 4'0" or more for the larger antennas. When placing the base post in the concrete, make sure it is plumb. The following charts shows how much of the post should be **out** of the ground for the different size antennas.

3.0m antenna . . . . . 5'-0" out of ground
3.3m - 3.7m antenna . . . . . 5'-6" out of ground
3.9m - 4.2m antenna . . . . . 6'-0" out of ground

Figure #1



Concrete Pad for 3.7m Antenna when using Base Post

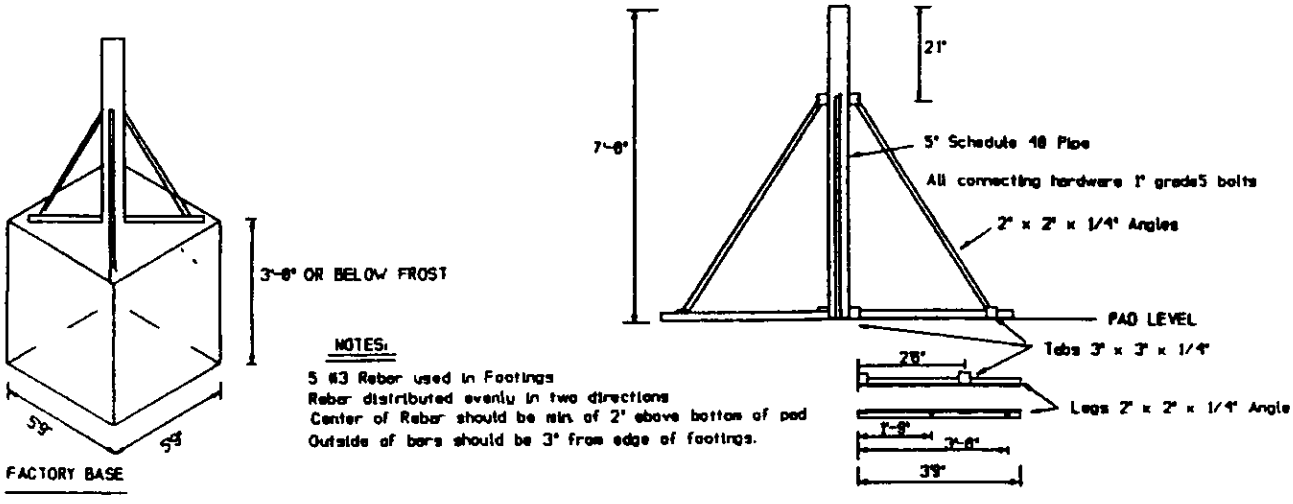
Note: 1) Dimensions for concrete will vary depending on soil types and wind conditions. 2) Post must be 5'6" out of the ground. 3) Post must have weldments on side to prevent post from turning in the wind. (Drawing not to scale.)

Installation of Base for the Four Leg Base Stand (continued)

The second base assembly is our Four Leg Base Stand. (figure #2). This unit is designed to go above ground on a concrete pad. You can install this either of two ways, number one you can request a template of the base stand and install J-bolts in the concrete as you are pouring it. Or you can wait until you receive the base stand (having previously poured the pad) and drill the holes into the concrete using the stand as the template. You must use a type of lead head or garonite, a parafast resin mortar to secure the bolts. *** (Most local concrete companies stock this type of product.)

Concrete Pad for 3.7 - 4.2m Antennas

Figure #2

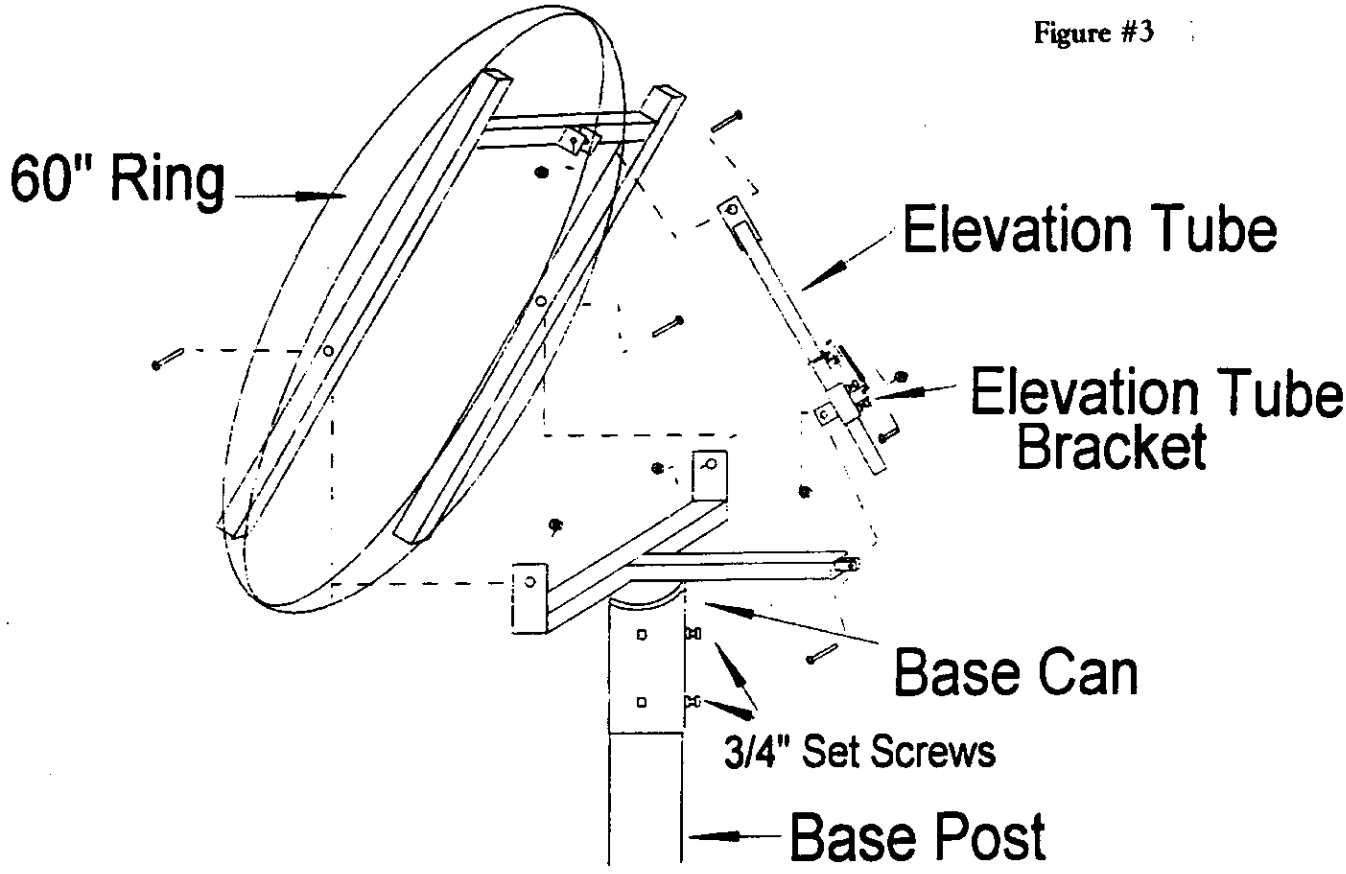


Assembling the Ring to the Base

Assembling the AZ-EL Mount is very easy (familiarize yourself with figure #3), as there are only four parts to put together. First take the base can and set it on the base post, then tighten it with the 3/4" set screws. You will notice the 3/4" holes in the center on each of the 3" x 3" x 52 ½" tubes welded to the 60" ring, now take the 60" ring and place each of the two ears inside of the tubes and line up the holes on the ears with the holes in the tubes. Place the ¾" x 5" bolts through the holes and secure with the lock washers and nuts provided.

Now place the elevation tube bracket onto the elevation tube. Tighten the set screws to hold it in place. Now take the top end of the elevation tube, the end with the 3" x 6" plate welded on and place it in the brackets on the crossmember of the ring. You will use a ¾" x 3" bolt, lock washer and nut. Go to the elevation tube bracket and place the tab with the ¾" hole into the tab brackets at the back of the base can. Secure it with a ¾" x 3" bolt lock, washer and nut. Make sure the bolts are secure but leave them slightly loose until you have aligned the antenna on the satellite you will be using. Once you have aligned the antenna, tighten all bolts and nuts.

Figure #3



Assembly of the Antenna

The antenna will come in either one or two pieces. If you have requested your antenna to be shipped in one piece, please ignore this paragraph and go on to the next one. Those of you who received your antenna shipped in two pieces, you must take the two halves and place them on a flat surface. The antenna must always set on the lip when assembling and/or storing, (see figure #4). 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 figure #5). 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.

10' (3.0m) . . . . . .28 1/4" x 3/4" bolts
11' (3.3m) . . . . . .28 1/4" x 3/4" bolts
12' (3.7m) . . . . . .28 1/4" x 3/4" bolts
12'9" (3.9m) . . . . . .36 1/4" x 3/4" bolts
14' (4.2m) . . . . . .36 1/4" x 3/4" bolts

Figure #5

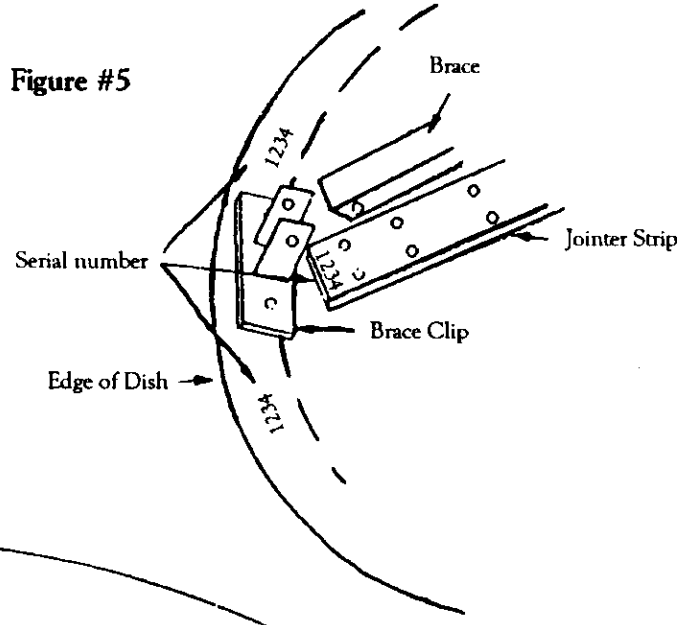
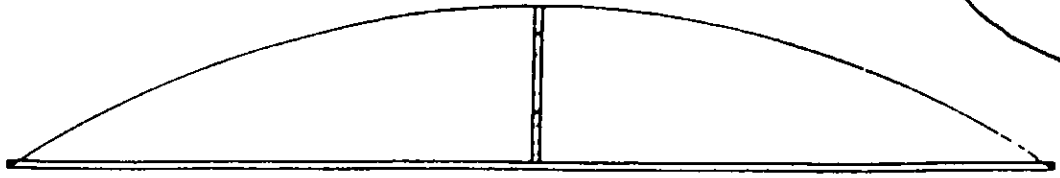


Figure #4



Preparing the Mount to Receive the Antenna

The mount should be assembled, now it is time to install the antenna. First you must elevate the ring to about 60 degrees and lock it in place. Now locate the 1/8" pilot holes; (figure #6A) one is located next to one of the 5/8" holes in the dish and the other is located on one of the 12 tabs on the mount. Now place the dish onto the ring, make sure that the two pilot holes correspond. The pilot holes are just locators for aligning the holes on the dish with those on the mount. Once the holes are aligned, install the 1/2" x 1 1/2" bolts as per figure #6. Leave every third hole open, as the feed struts will attach to these holes. Do not tighten these bolts more than just snug. Now elevate the dish to a very flat position (birdbath). Have the smallest worker (installer) get into the dish and install the feed struts. (Support the edge of dish as the installer crawls in and out). Once again, DO NOT OVER TIGHTEN. Refer to installing brace section. Set the dish in it's designated elevation level. Then refer to the fine tuning of antenna section for the adjustment of the back braces.

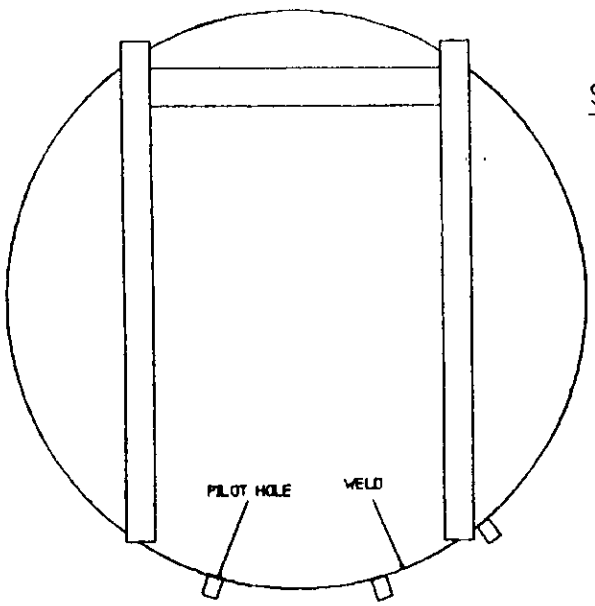


Figure #6A

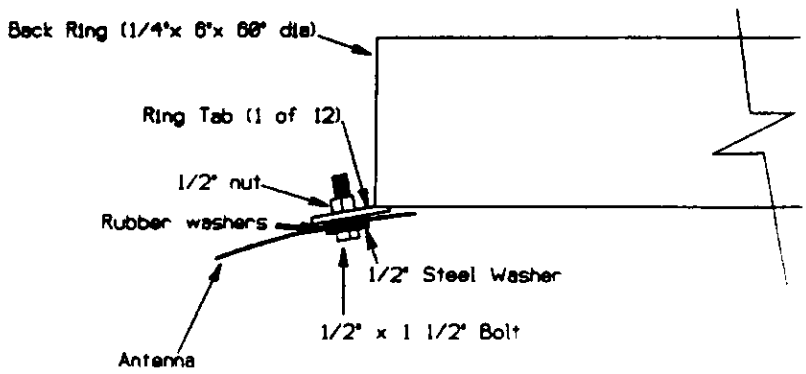


Figure #6

Assembling & Installing the Back Brace

There are eight holes around the rear of the 60" ring to accept the braces. First install the bent tabs. (See figures #7 & 8.) The bent tabs are a piece of steel bent in the middle, approximately 1½" x 3" long with two ½" holes, you will find these in the bolt bag. Fasten the tabs with ½" x 1½" bolts to the 60" ring; now thread one ½" nut about ⅔ of the way down on the ½" rod end of the brace. Slip the rod end through the tab and install another ½" nut. Only tighten these finger tight. Now go to the edge of the dish and place the two ¼" x ¾" bolts thru the dish and into the end of the brace clip and tighten with ¼" nuts, (Refer to figure #5). Repeat this on all four braces on the 3.3m thru 3.7m and eight braces on the 3.9m and 4.2m antenna.

The following is a list of the different back braces for the different size antenna's. 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.

Dish Size	Focal Length	Tube Length
10' (3.0m)	36" f/1	None
11' (3.3m)	36" f/1	40"
12' (3.6m)	36" f/1	45"
12' (3.7m)	57.6" f/1	45"
12'9" (3.9m)	57.6" f/1	50"
14' (4.2m)	57.6" f/1	55 1/2"

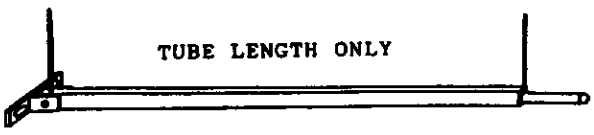


Figure #9

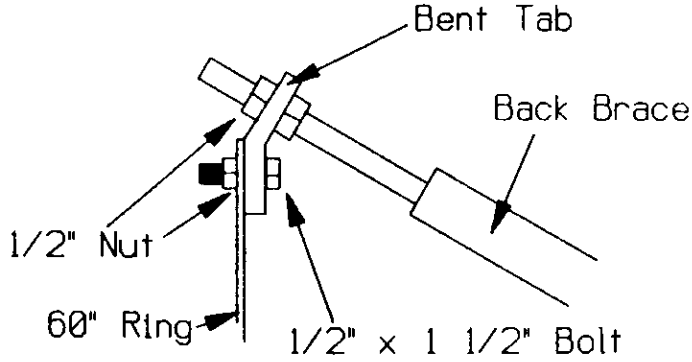


Figure #8

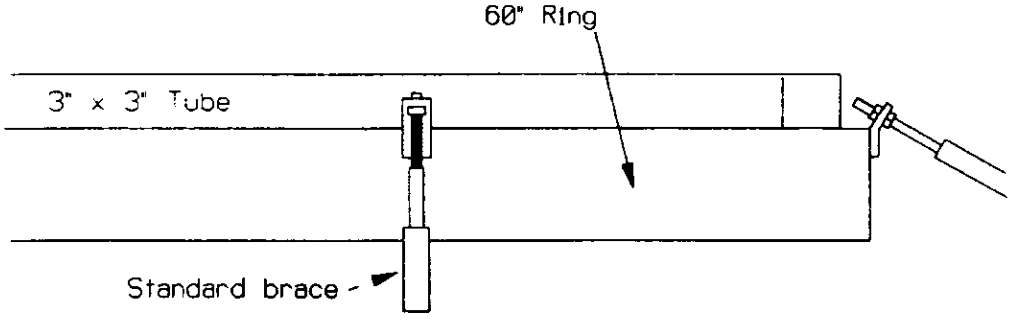
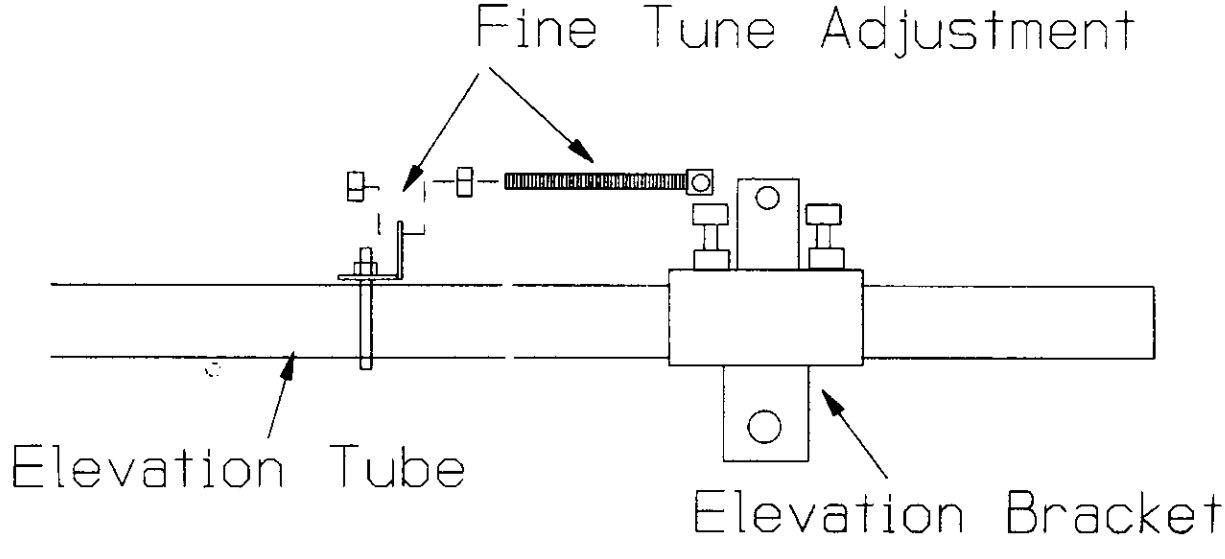


Figure #7

Fine Tuning the Antenna

To get the most gain from your antenna, take an extra hour to make the adjustments needed and if possible use a Spectrum Analyzer. With each adjustment you make you will be able to see your increase/decrease gain. To begin, you string the antenna (use two strings on 3.7M and four strings on antenna's 3.9M and larger). This is done by simply taking a string and tying it to one brace and running the string across the front of the antenna to the other brace at 180 degrees and tying it so it is taut. Now tie another string to a brace 90 degrees from the first brace and running it to the corresponding brace 180 degrees away. Be sure you put the string on top or under the other string so they do not touch each other. When done you should have two/four strings at 90 degrees and they should meet in the center of the antenna. If the strings don't touch at the center, then you will have to do some adjusting with the braces. BE SURE YOUR STRINGS ARE TAUT. Stand back about 30' and sight the antenna to see where you must apply pressure with the braces or relieve the pressure from an area. Now, go ahead and make small adjustments with the braces, each time checking with the Spectrum Analyzer to see that you are increasing the gain of the antenna.

The fine tune adjustment for the elevation of the AZ-EL Mount is very simple to operate. First elevate the antenna to the satellite and lock the elevation rod down. Now tighten the U-bolt on the tube and loosen the bolts on the bracket that holds the tube. The tube now can be moved up and down by loosening and tightening the nuts on either side of the bracket. You can make very small adjustments with this bracket, thus optimizing your picture.

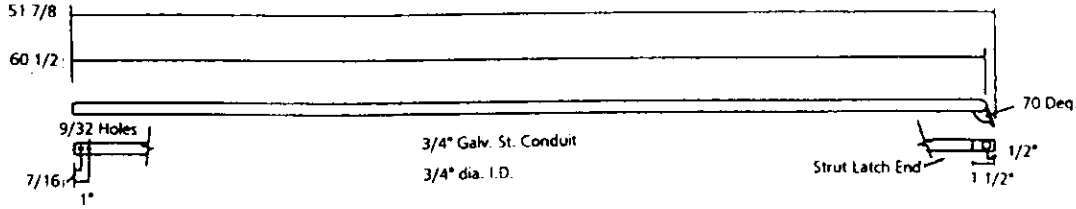


ELEVATION TUBE ASSEMBLY

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 manufacturers 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 scale properly.

Antenna Size	Focal Length	Focal Distance
10' (3.0m)	36" f/1	.3 f/d
11' (3.3m)	36" f/1	.273 f/d
12' (3.6m)	36" f/1	.25 f/d
12' (3.6m)	57.6" f/1	.4 f/d
14' (4.2m)	57.6" f/1	.342 f/d
14' 9" (4.5m)	57.6" f/1	.33 f/d
16" (5.0m)	57.6" f/1	.3 f/d

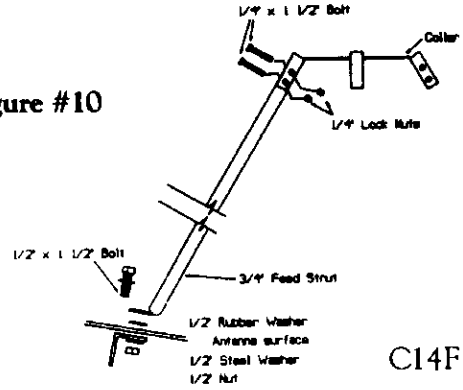


Your DH representative should have asked you what type feed you will be using. We need this information to be assured we are sending the proper collar to attach your feed to our struts. Take the collar and set it on the back of the scaler ring of the feedhorn. Turn it until all three holes line up between 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 SEAVEY type feed please refer to page 10 figure 11

For CHAPARRAL type feeds refer to drawing #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.

Figure #10



C14F

(For use of Chaparral (Universal) Feed)