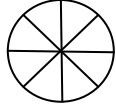


# **CRITICAL FACTORS INSTALLING A DH ANTENNA**

1. **READ INSTRUCTIONS** before disassembling the crate.
2. **RIBS:** Look for color coded dot on the rib. Dots indicate correct order to assemble panels. Number is stamped in the lip of the antenna too.
3. **PILOT HOLE:** Locate pilot hole on the ring and antenna. **THIS IS YOUR STARTING POINT!** Pilot hole is located on the 2<sup>nd</sup> block from the left of the weld on the ring from the back view of the antenna. **MATCH** mount pilot hole to panel with pilot hole.
4. **FINGER TIGHT:** Installing the panels to the ring and installing the ribs on the panel sections. **DO NOT OVERTIGHTEN.**
5. **TIGHTEN DOWN** all ribs to become a solid antenna. (Once all panels installed)
6. **STRING THE ANTENNA.** Strings should just touch. Adjust the braces so front surface is exactly flat. 
7. **TIGHTEN DOWN ALL BOLTS:** Ring to antenna.
8. **SET FEEDHORN TO EXACT FOCAL LENGTH & TO EXACT CENTER OF THE ANTENNA.** Use a laser tool or cut a piece of wood to the focal length of your antenna. Feedhorn must be flat to antenna surface. Please consider feedhorn manufacturer's recommendation. See "Preparing the Feed Assembly" in manual.

**CALL 1-608-326-8406 WITH QUESTIONS**



# Installation Instructions for the **GIBRALTER IV MOUNT**

Congratulations! You have now purchased the finest dual powered Azimuth-Elevation mount available. This unit will not only track the geosynchronous arc, but will work equally well for satellites that are in inclined orbit, or elliptical orbit. Please follow these instructions and if you have any questions, please call **608/326-8406** for help.

The Gibraltar is designed to go with the 3.0m, 3.7m, 3.8m, 4.2m, 4.5m and the 5.0m antennas, 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!!**



**DH SATELLITE**

**SEE SHIPPING WARRANTY FOR MISSING PARTS**

**\*Galvanized back braces please immediately read special note on bolt bag pages (page 1 for Dual Powered Gibraltar Systems and page 12 for Fixed Az-El Gibraltar Systems.**

**Sectional antennas must be handled with care not to twist or distort sections while handling for installation.**

**PO BOX 239  
PRAIRIE DU CHIEN WI 53821  
PH: (608) 326-8406  
Fax: (608) 326-4233**

# Parts List for: The “Dual Powered Gibraltar”

## C14F Feed Assembly

- 4- 3/4" Struts
- 1- Feed Collar
- 8- 1/4" x 1 1/2" Bolts
- 8- 1/4" Lock Washers & Nuts

**\*New Style Collar C14F2018  
transition Starts April 16<sup>th</sup>, 2018**

## \*C14F2018

### Feed Assembly

- 1- Set of 4 Struts
- 1- Collar (C, Ku)
- 8- 5/16" x 3/4" Bolts
- 8- 5/16" Lock Washers & Nuts

## DH CH1339 Feed Dual C Band

- M6-1.0 x 25MM Bolts
- Lock Washers
- M6-1.0 Hex Nut

## Feedhorn to Collar & LNB

- 3-1/4" x 1" Bolts
- 3-1/4" Lock Washers
- 3-1/4" Nuts

## (LNB to Feed)

- 20-1/4" x 1" Bolts
- 20- 1/4" Nuts
- 20- 1/4" Lock Washers

## 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

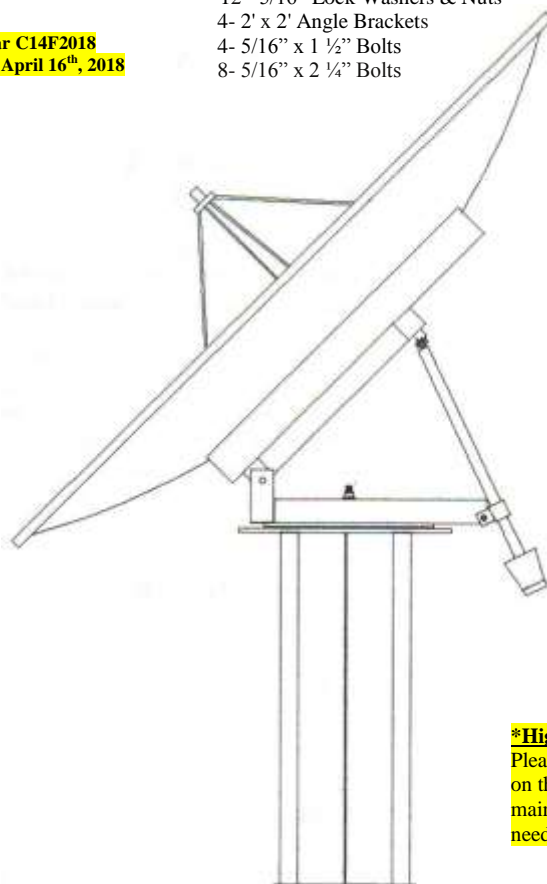
## Mount To Ring

- 2- 1" Brass Bushings
- 2- 3" Bearing Plates
- 2- 1" x 3 1/2" Bolts

## 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 1/4" Bolts



## Ku4FL: 3PC

### Add To C14F

- 3- Section to 3pc collar
- 3 8-32 x 1" Bolts

## 3PC Collar To Horseshoe

- 3 8-32 x 3/4" Bolts
- 3- #8 Fender Washers
- 3 8-32 Nuts

## Elevation Assembly

- 1-36" Actuator w/Clamp
- 1-48" Stow Bar w/Clamp
- 1 - 3/4" x 10" Bolt
- 1 - 3/4" Lock Washer
- 1 - 3/4" Nut
- 2 -1/2" x 2 1/2" Bolts
- 2 -1/2" Lock Washers
- 2 -1/2" Nuts
- 2 - 3/4" x 5/8" Spacers

## Back Braces

- 4- Bent Back Braces
- 4- Straight Back Braces
- 4- Bent Tabs
- 4- 1/2" x 1 1/2" Bolts
- 4- 1/2" Lock Washers
- 20- 1/2" Nuts
- 8- Brace Clips
- 16- 1/4" x 3/4" Bolts
- 16- 1/4" Lock Washers & Nuts
- 8- 3/8" x 2" bolts
- 8- 3/8" Lock Washers & Nuts

## Back Brace Length

- 3.0m- NONE
- 3.7m- 45" Long
- 3.8m- 47" Long
- 4.2m- 55 1/4" Long
- 4.5m- 62 1/2" Long
- 5.0m- 68 1/2" Long

**\*Highly Recommended On Systems With Galvanized Back Braces\***  
Please use a rubberized spray or silicon sealant to coat the threaded rods on the end of back braces to help prevent corrosion. When doing annual maintenance on your antenna system please make sure to check as it may need to be reapplied.

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

Template Rib Hardware: Sectional				
Antenna Size	3/8" x 1" Bolts	3/8" Lock Washers	3/8" Nuts	3/8" Washers
3.0M	24	24	24	48
3.7M	28	28	28	56
3.8M	28	28	28	56
4.2M	64	64	64	128
4.5M	72	72	72	144
5.0M	72	72	72	144

Splice Straps: Sectional				
Antenna Size	Splice Straps	1/4" x 3/4" Bolts	1/4" Lock Washers	1/4" Nuts
3.0M	4	8	8	8
3.7M	4	8	8	8
3.8M	4	8	8	8
4.2M	8	16	16	16
4.5M	8	16	16	16
5.0M	8	16	16	16

**If you have upgraded to an 8PC 3.7M sectional antenna please refer to the tables below  
for additional hardware needed.**

Template Rib Hardware: Sectional			
Antenna Size	1/4" x 3/4" Bolts	1/4" Lock Washers	1/4" Nuts
3.7M	104	104	104

Splice Straps: Sectional				
Antenna Size	Splice Straps	1/4" x 3/4" Bolts	1/4" Lock Washers	1/4" Nuts
3.7M	8	16	16	16

## 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

Look at the drawings below. Figure #1 shows a base plate using 18" anchors. This mount option can be used either with a square foundation or sono tube. **Please see drawing on page 2A for recommended concrete base.** In areas of deep frost we recommend that this base go below frost levels. Rebar can be used to reinforce the structure. Please contact your local concrete contractor or a local Engineer to determine these needs. ***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.***

When pouring the concrete, be sure to have the base template ready and insert the anchors as per Figure #2.

Leave approximately 2" of the bolt out of the concrete. These bolts can be installed after the mount is delivered by drilling the holes in the concrete and using lead heads, Garonite or a resin mortar to secure the bolts. If you decide to put the bolts in after the concrete has set, you must install regular hardened bolts. (We recommend the bolts be installed prior to the delivery of the mount.) Our people have installed both lead heads and Garonite. DH recommends the Garonite.

When installing the Gibraltar stand, carefully lower it over the bolts and then tighten the nuts in place. Be sure to install a lock washer. It is always a good idea to get the base plumb although this is not critical with this Azimuth-Elevation mount as it would be with a Polar mount. The front of the mount should be facing South in the Northern Hemisphere. (The rear of the mount will have the gearbox.) With the Gibraltar mount, you will have over 250 degrees of travel, but you do not have a full 360 degrees of azimuth. I mention this for those of you who are installing the Gibraltar to track things other than the Geosynchronous Satellite belt.

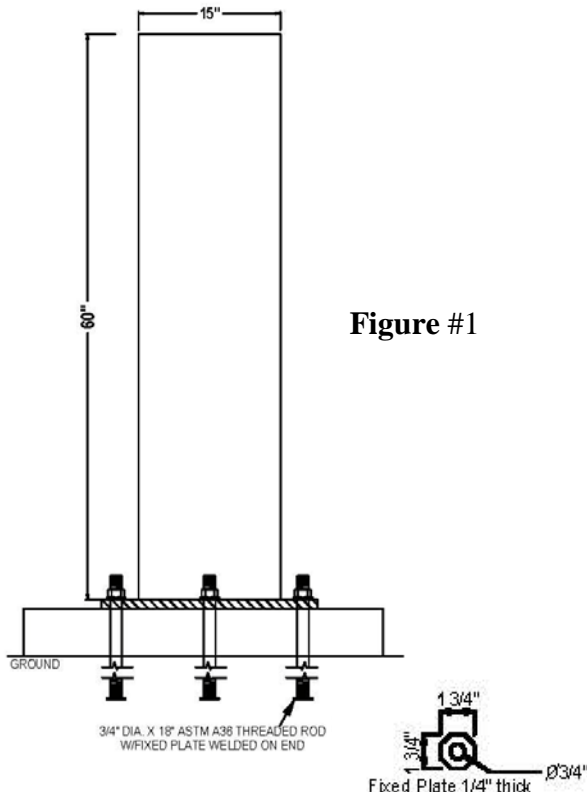


Figure #1

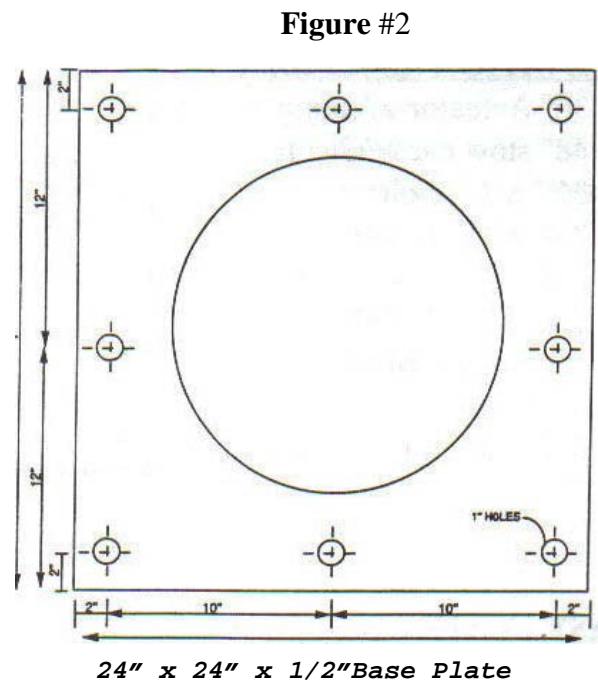
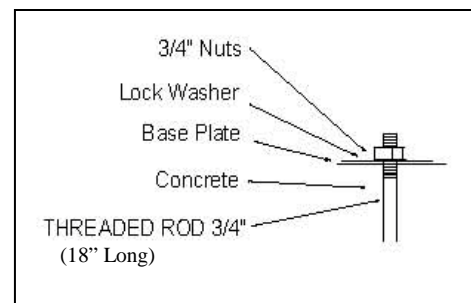


Figure #2



# GIBRALTER BASE PADS

PAGE 2A

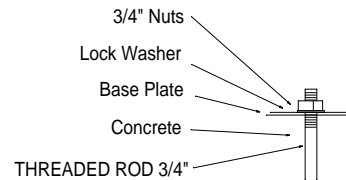
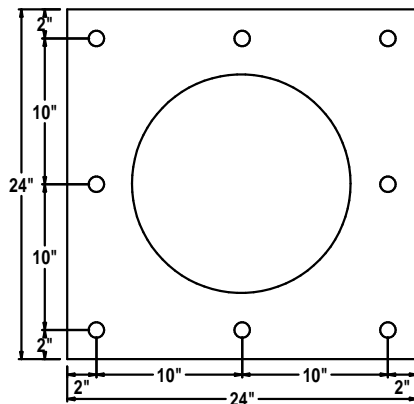
## 90 MPH REQUIRED FOUNDATION SIZE BASED ON SOIL CONDITION

LATERAL SOIL BEARING= 400 PSF/FT ALLOWABLE FOUNDATION PRESSURE= 4,000 PSF

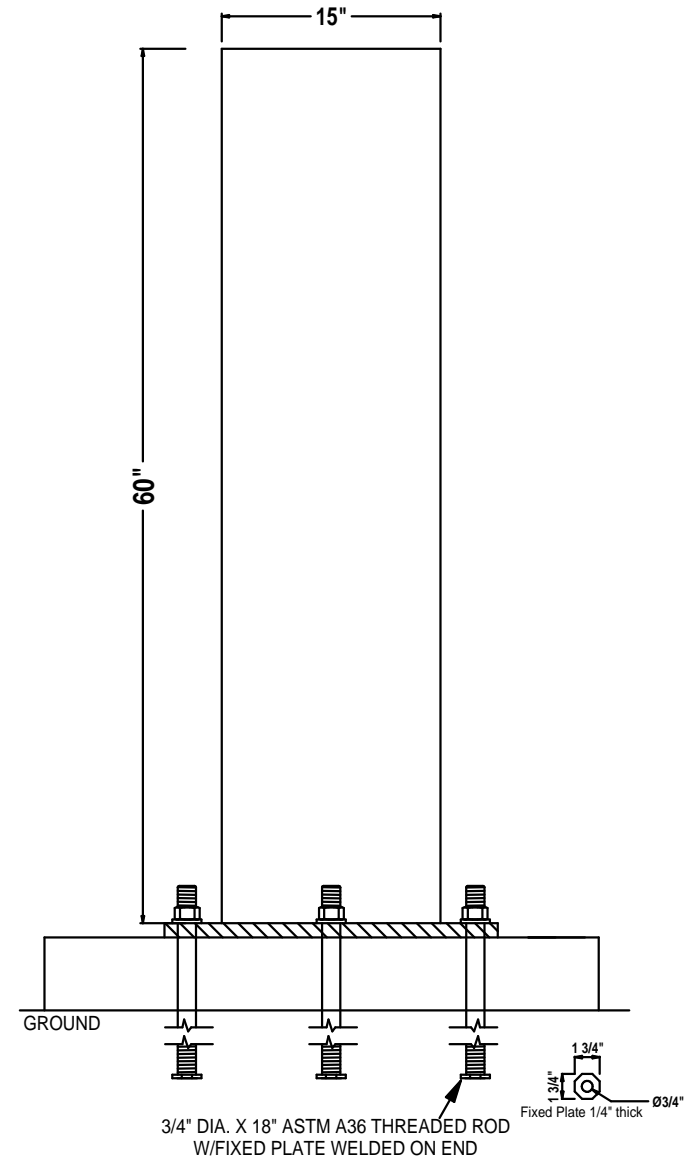
Dish Size(in meters)	SONOTUBE DIMENSIONS	SQUARE PAD
3.0	3.5' DIA. X 4'-4" deep	3'-5" x 3'-5" x 3'-7" deep
3.7	3.5' DIA. X 4'-8" deep	4'-0" x 4'-0" x 4'-0" deep
3.8	3.5' DIA. X 5'-0" deep	4'-2" x 4'-2" x 4'-0" deep
4.2	3.5' DIA. X 5'-6" deep	4'-6" x 4'-6" x 4'-3" deep
4.5	3.5' DIA. X 5'-8" deep	4'-6" x 4'-6" x 4'-5" deep
5.0	3.5' DIA. X 6'-3" deep	5'-0" x 5'-0" x 4'-7" deep


\*IF SOIL TYPE DOES NOT MATCH SOIL TYPE DESCRIBED, THE FOUNDATION SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER OR BUILDING OFFICIAL \*

TOP VIEW BASE PLATE



5-7 #3 REBAR USED IN FOOTINGS  
REBAR DISTRIBUTED EVENLY IN TWO DIRECTIONS  
CENTER OF REBAR SHOULD BE 2" ABOVE BOTTOM OF PAD  
OUTSIDE OF BARS SHOULD BE 3" FROM EDGE OF PAD

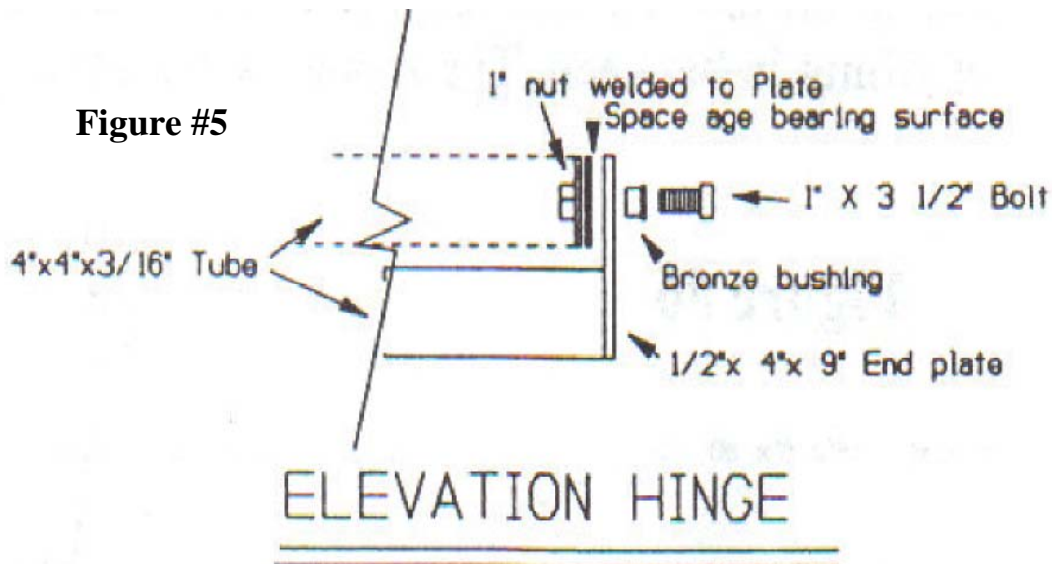


 <b>DH SATELLITE</b> P.O. BOX 239 PRAIRIE DU CHIEN, WISCONSIN 53821 PHONE (608) 326-8406		
DESCRIPTION: GIBRALTER BASE PADS		
DRWN BY: GILBERTS	DATE: 12-19-13	DRWGR:
SCALE: NOT TO SCALE	REVISED: 10-6-14	Gibraltar Bases



## Assemble Ring to Base Stand

In most instances, you will have to assemble the 60" ring to the 16" dia. base. Look at the photo of the mount on page 5, and you will notice that the top of the mount has two brackets to attach the elevation arm and the elevation stabilizer. The bottom has the 4" bar closest to the ring; it also has the hole in each end. Line up the bottom framework of the ring with the swivel brackets, set in the green bearing surface washer, place the two 1" x 3 1/2" bolts through the swivel brackets (there is a brass bushing in the hole) and tighten. The washers go between the ring and the tabs on the mount (see Figure #5).



## Assembling the Antenna to the Ring

The mount should be assembled by this point. Now it is time to install the antenna. First, locate the 1/8" pilot holes on the ring and antenna. One is located next to one of the 16 1/2" holes in the dish and the other is located on one of the 16 blocks next to 1/2" holes on the mount. **(NOTE: These holes do not line up with one another, they are only to identify the alignment of the dish to the mount.)** Drop the mount down to a birdbath position so when the antenna is put into the ring, it will resemble a large birdbath. When you have located these two holes, use 6-8 people and pick up the dish and gently turn it over so the antenna is now pointing to the sky. Lift the antenna by the edge, get it up above your heads, and walk in toward the bolt holes. Walk it over and set it into the ring, making sure the pilot holes line up. Now slip in some 1/2" x 3" bolts to hold it and keep it lined up with the mount holes until a worker can get into the dish. Before you have a worker climb a ladder and get into the dish, please have one worker support the lip of the antenna and mount before anyone gets into it. Have the smallest worker (installer) get into the dish and install the bolts and feed assembly and hold them while they are tightened. Install the bolts as in Figure #6. **DO NOT OVER TIGHTEN.** Install the back braces finger tight. Refer to Figure #7.

(Instructions on page 5)

Now align the 36" heavy duty actuator with the right side brackets on the back of the mount. See Figure #8 on page 5. First, assemble the actuator clamp and slide it about halfway down the actuator tube; tighten all nuts. Take the 3/4" x 10" bolt and attach the clamp to the right side rear of the 4" tube on the top of the base. Then take the eye bolt on the end of the actuator and put it between the right side brackets on the framework of the ring. Use a 1/2" x 2" bolt and use a lock washer and nut to secure this in place. Now take the stow bracket (refer to Figure #9 on page 5) and install thru the left brackets on the back of the base next to the elevation arm, tighten the 3/4" nut. *(Insert spacer before tightening the 3/4" nut, spacers are placed on the 3/4" bolt that holds the storm bar clamp.)*

Slide the storm stow rod through the bracket making sure the end with the hole is up, slide this up until it fits into the left hand brackets next to the elevation arm. Use the 1/2" x 2" bolt and tighten. **DO NOT TIGHTEN THE BOLTS THAT SECURE THE STOW BRACKET TO THE STOW ROD.** This is done only in case of high winds or severe weather. Once the storm stow rod is fastened down in anticipation of bad weather. **YOU MUST REMEMBER TO LOOSEN BEFORE YOU RESUME OPERATION.** The motor will burn out if you fail to loosen the stow kit.

The 36" actuator will give you approximately 60 degrees of elevation travel. By positioning the clamp on the actuator tube you can determine where this 60 degrees is used, 0-60, 30-90 or anything in between. The mount is designed to travel 0-90 degrees.

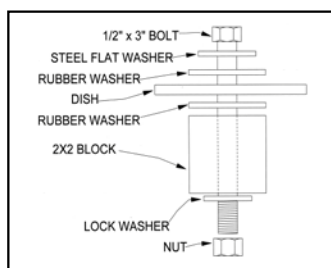
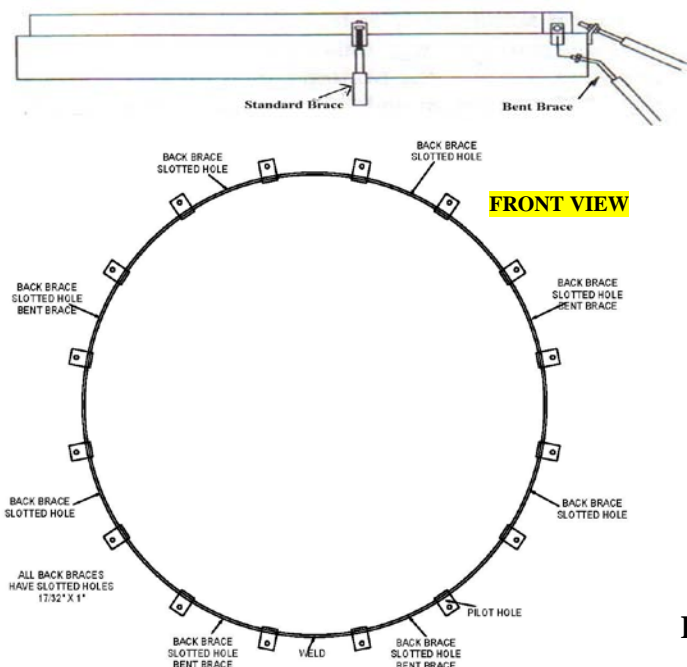


Figure #6

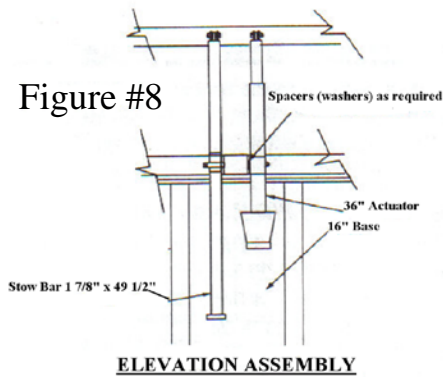


Figure #7 Back Brace To Clip



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

Figure #8



NOTE: Actuator on right when viewed from rear

3/16" X 2" X 1 1/2" Tabs

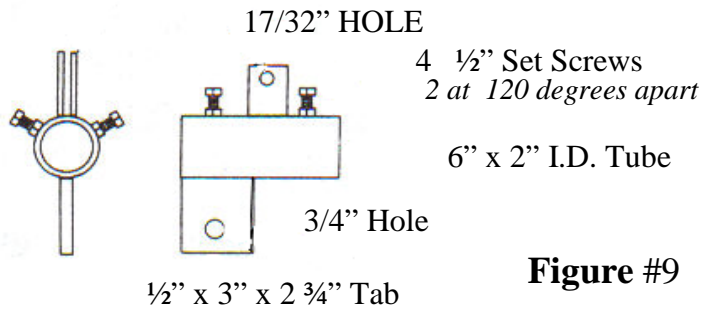


Figure #9

## **STOW SWIVEL**

**Note A:** Please keep in mind the 3m antenna does not have back braces and the 3.3m antenna has only 4 back braces and you must use the spacers as previously mentioned.

## **Assembling & Installing the Back Braces**

There are eight holes around the rear of the 60" ring to accept the braces. In four of these holes, you will install the bent braces, (because of a conflict with other parts of the mount). In the other four holes **you must first install the bent tabs**. See Figure #7 on previous page. The bent tab is 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. **First, fasten the bent tabs** with 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 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 thru the dish and into the end of the brace clip and tighten with 1/4" nuts. Next, attach the brace tube end to the brace clip using the 3/8" x 1 1/2" bolts and 3/8" nuts. Repeat this for all eight braces on the 3.7m, 3.8m, 4.2m, 4.5m, and 5.0m antenna. (see note A) 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. This is listed as tube length only and does not include the bracket or the bolt in this measurement. Refer to Figure #10.

<u>Dish Size</u>	<u>Focal Length</u>	<u>Tube Length</u>
10' (3.0m)	36" f/l	None
<del>11' (3.3m)</del>	<del>36" f/l</del>	<del>40" Discontinued</del>
12' (3.7m)	57.6" f/l	45"
12' 4" (3.8m)	57.6" f/l	47"
<del>12' 9" (3.9m)</del>	<del>57.6" f/l</del>	<del>50" Discontinued</del>
14' (4.2m)	57.6" f/l	55 1/4"
14' 9" (4.5m)	57.6" f/l	62 1/2"
16' (5.0m)	57.6" f/l	68 1/2"

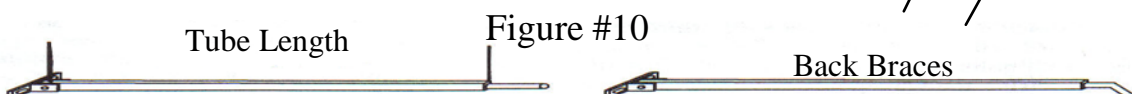
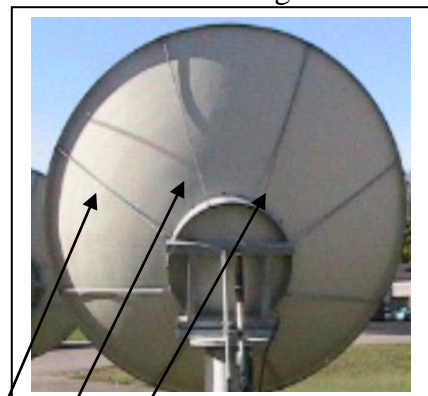


Figure #10



## IMPORTANT!!

If you have purchased a 4 piece or 8 piece sectional antenna follow the instructions on page 6A and 6B.

## 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 of the antenna 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 3/8" x 1" bolts in all holes, using a washer on each side along with a lock washer with the nut, finger tight. Continue on to the next panel in the same manner until finished with all panels. Now tighten all hardware.

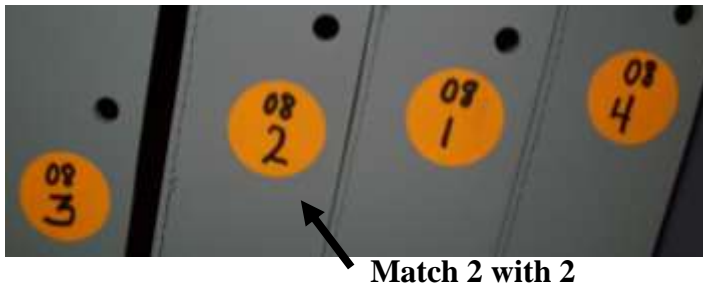


FIG. #9

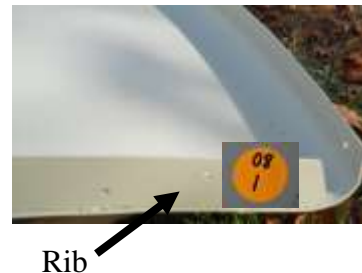


FIG. #10

#### **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.

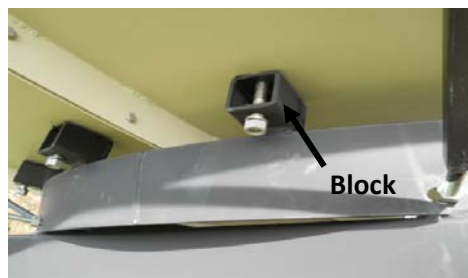
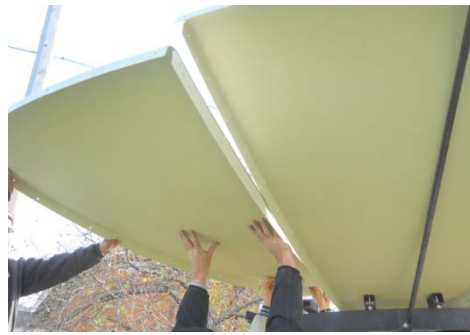
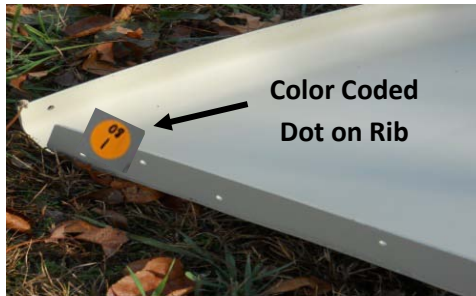


The top number represents the serial number of the antenna. **\*Example:** In FIG. #9 you will see 4 sections with the top number 08. You will take all four pieces of 08 to make one complete antenna.

Rib number. **\*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.

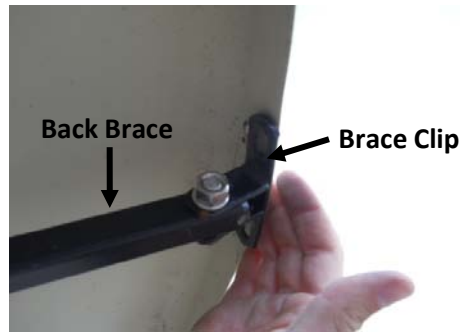
See optional sectional installation on page 6B: "Installing by Sections to Ring"

## Installation Photos: Additional Help for Installing by Sections to the Ring



Continue to page 6B for section by section installation

## Installation Photos: Additional Help for Installing by Sections to the Ring



Continue to page 6B 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 with 3/8” x 1 1/2” bolt, 3/8” nut, and 3/8” lock washer 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 1/2” nut on the threaded rod end of the back brace, threading it down approximately 4 to 4 1/2” down the threaded rod (see FIG. #13 and #14).

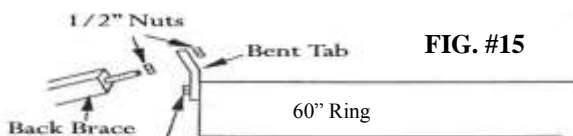
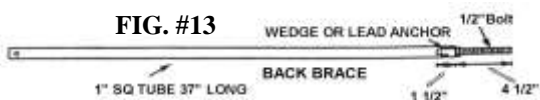
**Step 3:** Take the first panel(with the pilot hole) and install it to the ring of the mount finger tight. Be sure to find the pilot hole on the mount and on the antenna. Take the back brace that is ready and put the threaded rod through the tab on the ring (see photo A). Take the other end of the rod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

**Step 4:** Insert 1/2” 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 1/2” nut on the threaded end about 4-4 1/2” 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 1/4” x 3/4” bolt, 1/4” nut and 1/4” 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 3/8” x 1” bolts with a washer on the head end through the ribs. Place a washer, lock washer and nut on the bolt, and 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 this 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 7)



1/2” x 1 1/2” Bolt

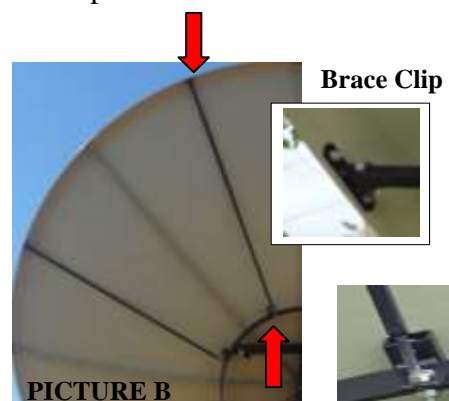
Back braces are measured by tube length only.



PICTURE A



PICTURE AA



Brace Clip

PICTURE B



Brace Tab Threaded

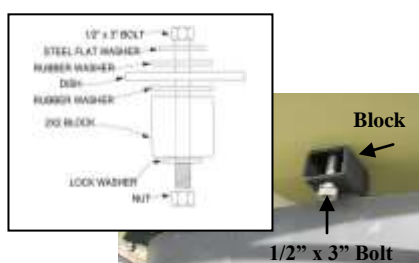


FIG. #17



PICTURE C

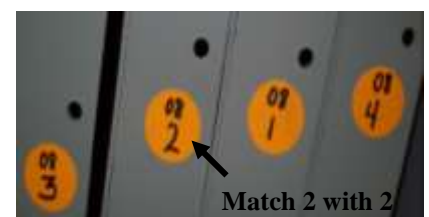
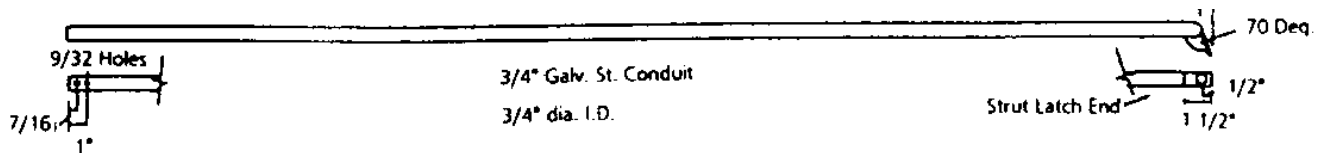


FIG. # 9

## Preparing the C Band Feed Assembly C14F

If the feedhorn you have selected has an adjustable scalar 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. Just find your antenna and you will have the information to set the scalar properly. **Special Note: More critical than setting the wave guide to the manufacturer's recommendations is to make sure you are setting the feedhorn at the correct focal length of the antenna.**

Antenna Size	Focal Length	Focal Distance
10' (3.0m)	36" f/l	.3 f/d
<del>11' (3.3m)</del>	<del>36" f/l</del>	<del>.28 f/d Discontinued</del>
12' (3.7m)	57.6" f/l	.4 f/d
12' 5" (3.8m)	57.6" f/l	.378 f/d
<del>12' 9" (3.9m)</del>	<del>57.6" f/l</del>	<del>.375 f/d Discontinued</del>
14' (4.2m)	57.6" f/l	.34 f/d
14' 9" (4.5m)	57.6" f/l	.33 f/d
16' (5.0m)	57.6" f/l	.3 f/d

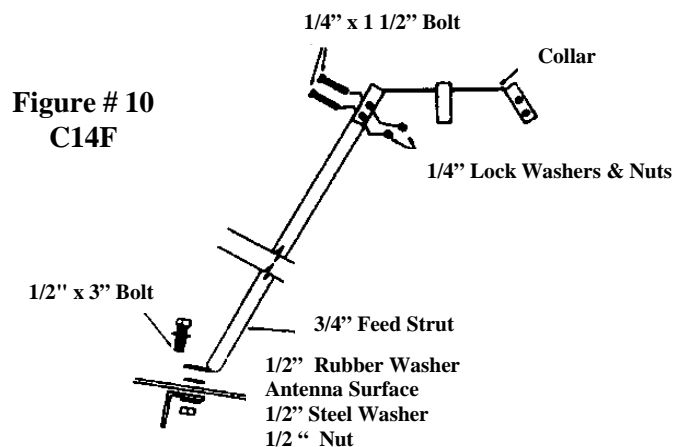


**NOTE: C14F Strut length includes bent end.**

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 our struts. A DH C14F is supplied as standard unless you have made a request for another style collar. Place the C14F collar or collar supplied on the back of the feedhorn scalar ring. Turn the scalar plate off the feedhorn so that all three holes line up between the slotted holes on the feed collar. Insert the 1/4" x 3/4" bolts through the scalar ring and then thru the collar; fasten with the 1/4" nuts. (Most C-band and dual feeds have a 3-bolt pattern on the scalar ring as described above).

**For heavy duty SEAVEY (C24HD) or heavy duty CHAPARRAL (C14FHD) feed assembly please refer to page 8 and page 9.**

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. Use every fourth hole. The actual focal length should be 1/4" inside the waveguide for C-band and 1/8" for Ku band.



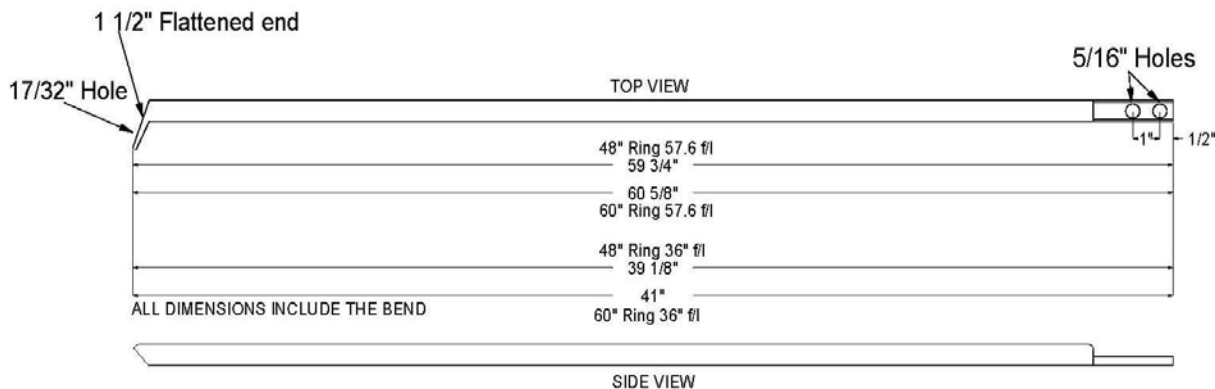
**For use of Chaparral Feeds C14F**



# Preparing the C Band Feed Assembly C14F2018

If the feedhorn you have selected has an adjustable scalar 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. Just find your antenna and you will have the information to set the scalar properly. **Special Note: More critical than setting the wave guide to the manufacturer's recommendations is to make sure you are setting the feedhorn at the correct focal length of the antenna.**

Antenna Size	Focal Length	Focal Distance
10' (3.0m)	36" f/l	.3 f/d
<del>11' (3.3m)</del>	<del>36" f/l</del>	<del>.28 f/d Discontinued</del>
12' (3.7m)	57.6" f/l	.4 f/d
12' 5" (3.8m)	57.6" f/l	.378 f/d
<del>12' 9" (3.9m)</del>	<del>57.6" f/l</del>	<del>.375 f/d Discontinued</del>
14' (4.2m)	57.6" f/l	.34 f/d
14' 9" (4.5m)	57.6" f/l	.33 f/d
16' (5.0m)	57.6" f/l	.3 f/d

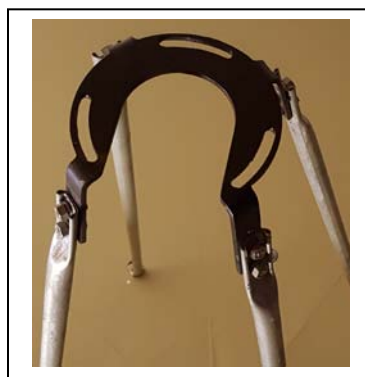


**NOTE: C14F2018 Strut length includes bend in measurement.**

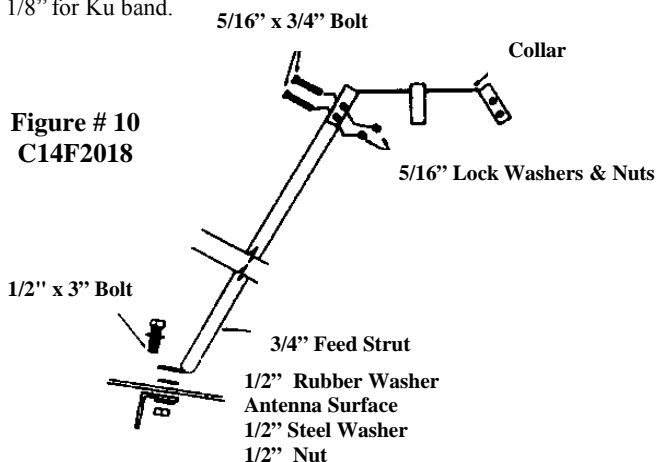
Your DH representative should have asked you what type feed you will be using. We need this information to be assured we are sending the proper collar to attach your feed to our struts. A DH C14F2018 is supplied as standard unless you have made a request for another style collar. Place the C14F2018 collar or collar supplied on the back of the feedhorn scalar ring. Turn the scalar plate off the feedhorn so that all three holes line up between the slotted holes on the feed collar. Insert the 1/4" x 3/4" bolts through the scalar ring and then thru the collar; fasten with the 1/4" nuts. (Most C-band and dual feeds have a 3-bolt pattern on the scalar ring as described above).

**For heavy duty SEAVEY (C24HD) or heavy duty CHAPARRAL (C14FHD) feed assembly please refer to page 8 and page 9.**

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 – 5/16" x 3/4" bolts into the holes and tighten with the 5/16" nuts. Proceed with all four struts then check focal length and tighten down. Use every fourth hole. The actual focal length should be 1/4" inside the waveguide for C-band and 1/8" for Ku band.



**C14F2018**



**For use of Chaparral Feeds C14F2018**

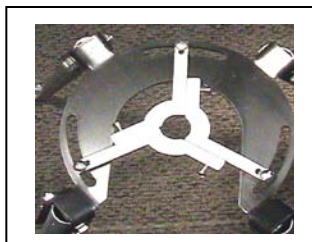
## Heavy Duty Feed Strut\_\_\_\_\_

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 9 for the bolt placement of a C14FHD or C24HD.** Each strut has 2 - 5/16" x 2 1/4" bolts to attach to the feed collar. Attach one of the angle brackets (2" x 2") to the antenna with the 1/2" 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 1/2" 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 1/4" inside the wave guide.)**

## Ku Band Feed Assembly-----

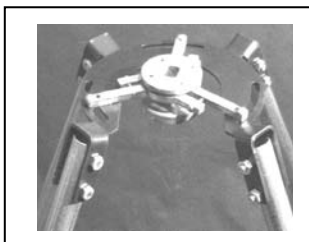
When using the Ku only feeds, you will be using the C14F or C14F2018 feed plate and tri-collar. See Figure 13 and Figure 15 below. First, **attach the flat tri-collar to the feedhorn** as follows: attach the first two pieces by using the 8-32 x 1" screws provided. Now slide the collar onto the feedhorn and add the third piece; tighten evenly. Attach the tri-collar to the larger horseshoe collar by the 8-32 x 3/4" bolts and nuts; tighten down. You can adjust polarity by loosening these nuts and rotating the feed. Finish by assembling the struts to the feed collar as shown in Figure 14 for C14F feed plate and Figure 16 for C14F2018 feed plate. (Fig#14, Fig#16 shows a single Ku feed inserted in a collar)

**Figure #13**



C14F with Ku tri-collar

**Figure #14**



C14F with single Ku feed

**Figure #15**



C14F2018 with Ku tri-collar

**Figure #16**



C14F2018 with single Ku feed

**NOTE: New Style Collar C14F2018 Transition Starts April 16th, 2018**

## 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 10).

# 60" MOUNT

Notes

This strut is used for 60" mount with:

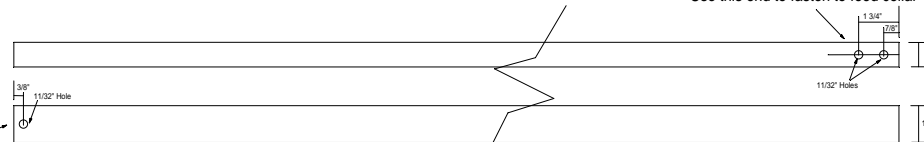
HD Feed collar

Use the 2 holes on the strut for the C14HD or C24HD

Bolt goes through the 1-1/2" side of the feed strut

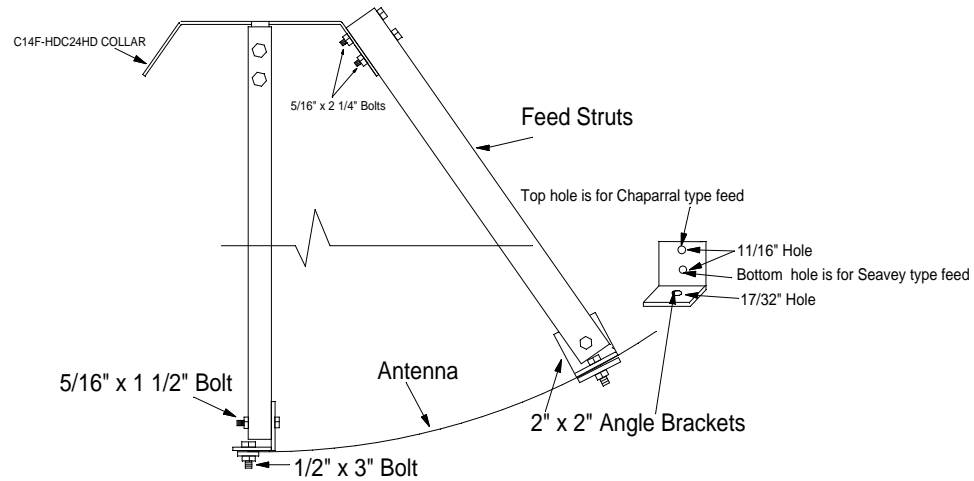
Use this end to fasten to bracked on dish


Use this end to fasten to feed collar



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



 <b>DH SATELLITE</b> P.O. BOX 239 PRAIRIE DU CHIEN, WISCONSIN 53821 PHONE (608) 326-8406		
DESCRIPTION: FEED ASSEMBLY FOR C14F-HD & C24HD 60" RING		
DRWN BY: MD/GILBERTS	DATE: 12-15-14	DRWGR:
SCALE: NOT TO SCALE	REVISED: 3-2-16	C14HD feed for 60ring

# 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.

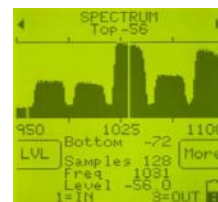
Keep in mind when you are making these last "Additional Fine Tuning Techniques" very small moves will be needed to make the best improvements in signal strength.



PHOTO A  
Focal Finder to Locate  
Center of Antenna



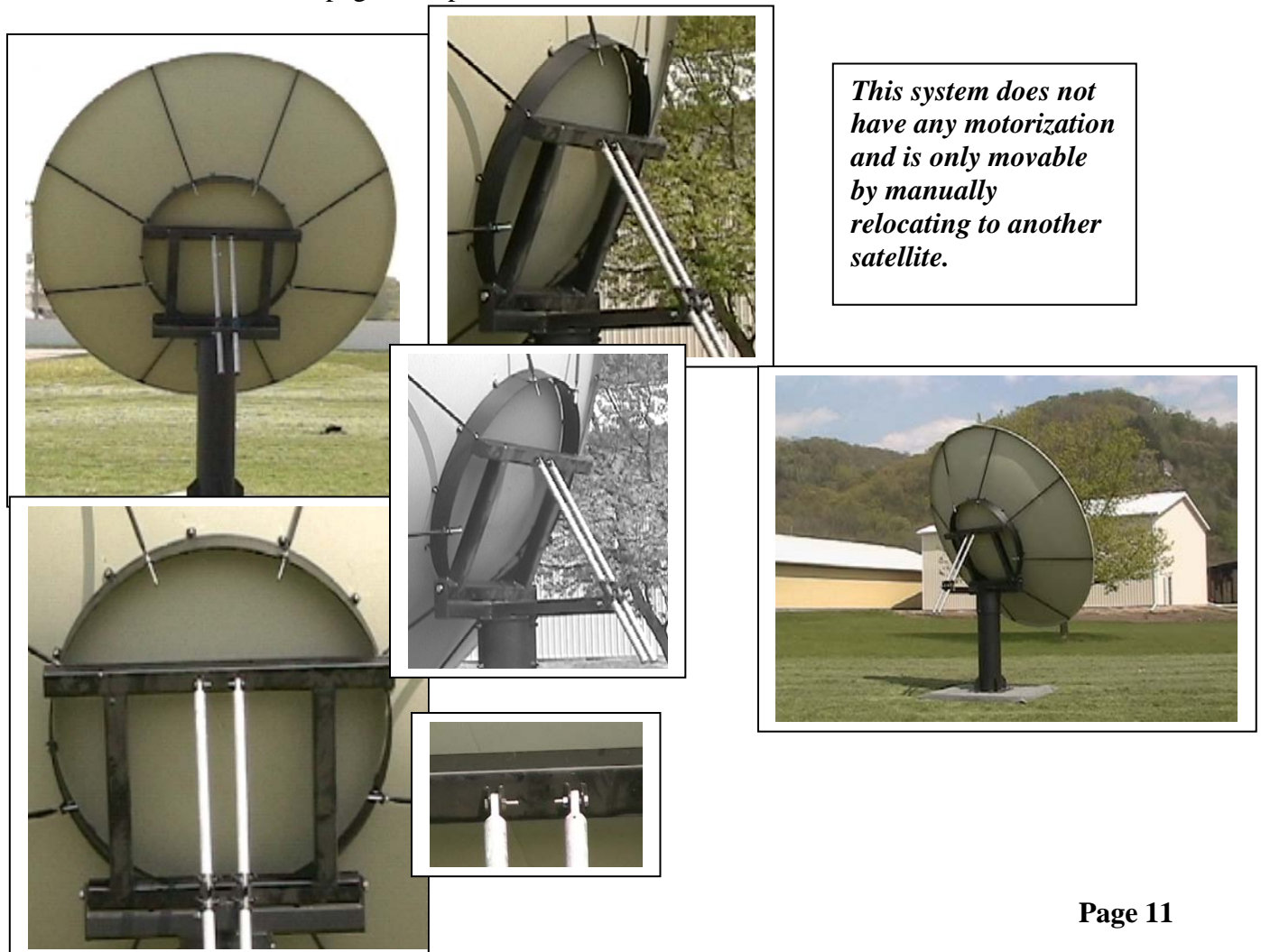
A1 Turbo S2 Made By Applied  
Instruments



## Assembly Instructions for the Fixed AZ-EL Gibraltar

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Please take a look at the sketch below. This shows the typical Gibraltar Fixed Az-El mount. This unit is designed to be moved manually and will not accept motorization. When setting up for the first time or when changing satellites, you will have to make adjustments in azimuth and elevation settings. Most of the installation on the Az-El is identical to the previously discussed dual-powered Gibraltar, so I will only handle the differences. Once the base is set, you will have to put the base can over it. Most of the time this is shipped assembled from the factory, but if yours wasn't, just fit the base can with the welded "T" on top over the base post. Tighten the 6 set screws on the can. Now assemble the ring to the can as in the dual powered unit. The antenna, back braces and feed assembly are installed as previously instructed. To move the unit in azimuth, just loosen the six set screws and rotate to desired location. When moving in elevation, you will need help to raise or lower the dish. You can do this by loosening the stow bracket and the fine tune bracket. Be sure the ring is supported as this unit will drop quickly and any body parts found between metal parts will suffer dramatically. You can get close by manually lifting or lowering the antenna assembly, but to get right on the satellite, you must tighten the fine tune assembly u-bolt and then use the threaded rod to tweak the unit. Refer to the next page for a parts list.





# Parts List for the Fixed AZ-EL Gibraltar

## C14F Feed Assembly

- 4- 3/4" Struts
- 1- Feed Collar
- 8- 1/4" x 1 1/2" Bolts
- 8- 1/4" Lock Washers & Nuts

## \*C14F2018

### Feed Assembly

- 1- Set of 4 Struts
- 1- Collar (C, Ku)
- 8- 5/16" x 3/4" Bolts
- 8- 5/16" 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

## Fine Tuning Kit

- 1- 5/16" x 2 U-bolt
- 2- 5/16" Lock Washers & Nuts
- 1- 3" x 2" x 2" Elev. Angle
- 1- 5/8" x 8" Eye Bolt
- 2- 5/8" Nuts
- 1- 1/2" x 1 1/2" Bolt
- 1-1/2" Nut
- 1- 1/2" Lock Washer

## 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

## Mount To Ring

- 2- 1" Brass Bushings
- 2- 3" Dia. Bearing Plates
- 2- 1" x 3 1/2" Bolts

## 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 1/4" Bolts

## Ku4FL: 3PC

### Add To C14F

- 3- Section to 3pc collar
- 3 8-32 x 1" Bolts

## 3PC Collar To Horseshoe

- 3 8-32 x 3/4" Bolts
- 3- #8 Fender Washers
- 3 8-32 Nuts

## Elevation Assembly

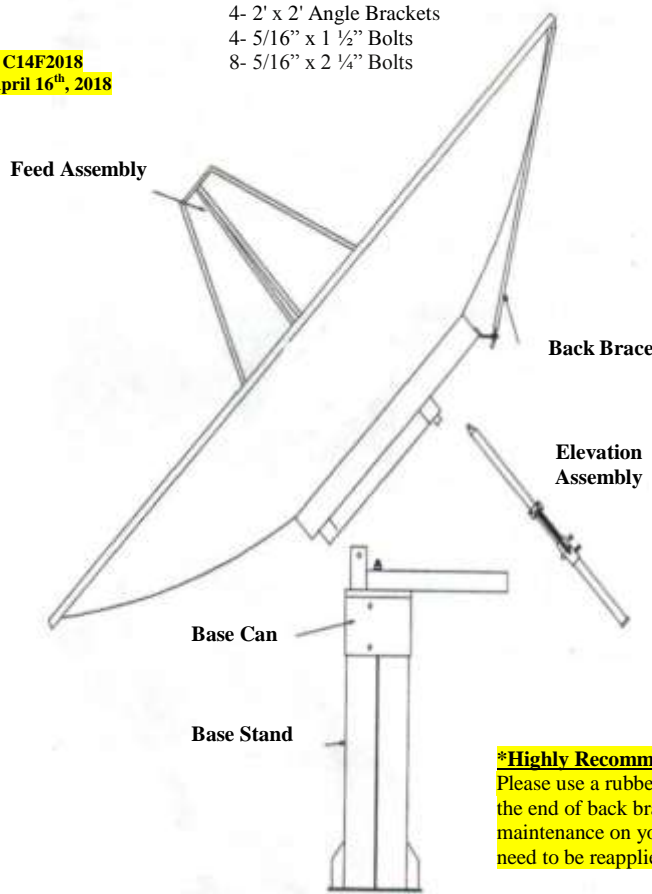
- 2-48" Stow Bars w/Clamp
- Fine Tune Clamp Kit
- 1- 3/4" x 8 1/2" Bolt
- 1- 3/4" Lock Washer
- 1- 3/4" Nut
- 2- 3/4" x 5/8" Spacers
- 2- 1/2" x 2 1/2" Bolts
- 2- 1/2" Lock Washers
- 2- 1/2" Nuts

## Back Braces

- 4- Bent Back Braces
- 4- Straight Back Braces
- 4- Bent Tabs
- 4- 1/2" x 1 1/2" Bolts
- 4- 1/2" Lock Washers
- 20- 1/2" Nuts
- 8- Brace Clips
- 16- 1/4" x 3/4" Bolts
- 16- 1/4" Lock Washers & Nuts
- 8- 3/8" x 2" Bolts
- 8- 3/8" Lock Washers & Nuts

## Back Brace Length

- 3.0m- NONE
- 3.7m- 45" Long
- 3.8m- 47" Long
- 4.2m- 55 1/4" Long
- 4.5m- 62 1/2" Long
- 5.0m- 68 1/2" Long



## \*Highly Recommended On Systems With Galvanized Back Braces\*

Please use a rubberized spray or silicon sealant to coat the threaded rods on the end of back braces to help prevent corrosion. When doing annual maintenance on your antenna system please make sure to check as it may need to be reapplied.

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

Template Rib Hardware: Sectional				
Antenna Size	3/8" x 1" Bolts	3/8" Lock Washers	3/8" Nuts	3/8" Washers
3.0M	24	24	24	48
3.7M	28	28	28	56
3.8M	28	28	28	56
4.2M	64	64	64	128
4.5M	72	72	72	144
5.0M	72	72	72	144

Splice Straps: Sectional				
Antenna Size	Splice Straps	1/4" x 3/4" Bolts	1/4" Lock Washers	1/4" Nuts
3.0M	4	8	8	8
3.7M	4	8	8	8
3.8M	4	8	8	8
4.2M	8	16	16	16
4.5M	8	16	16	16
5.0M	8	16	16	16

If you have upgraded to an **8PC 3.7M sectional antenna** please refer to the tables below for additional hardware needed.

Template Rib Hardware: Sectional				
Antenna Size	3/8" x 1" Bolts	3/8" Lock Washers	3/8" Nuts	3/8" Washers
3.7M	56	56	56	112

Splice Straps: Sectional				
Antenna Size	Splice Straps	1/4" x 3/4" Bolts	1/4" Lock Washers	1/4" Nuts
3.7M	8	16	16	16

## NOTE:

Stainless steel or DURA-CON® hardware provided.

\*DURA-CON® is a corrosion resistant coating.

DURA-CON®: Problem of thread-galling is eliminated.

## 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.

International shipping will need to be discussed prior to shipping.

**Call us M-F 7:00 am to 4 pm 1-608-326-8406**

In the event that you need touch up paint for your antenna or mount, these colors from any Sherwin Williams store are the best match to our colors.(Due to shipping restrictions, we are not able to ship paint).

**Antenna color:** Sherwin Williams Custom Beige product number **0110339-001**

**Black Mount color:** Sherwin Williams Black **6509-00780**



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

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

Size of antenna: \_\_\_\_\_

Date: \_\_\_\_\_

Feedhorn make: \_\_\_\_\_

Model: \_\_\_\_\_

LNB Make: \_\_\_\_\_

Model: \_\_\_\_\_