

**1.8m Offset Rx
& TxRx Antenna**

**INSTALLATION &
ASSEMBLY INSTRUCTIONS**

PATRIOT®

LIMITED TWELVE (12) MONTH WARRANTY

This PATRIOT ANTENNA equipment is warranted to be free from defects in material and workmanship under normal use and service. PATRIOT ANTENNA shall repair or replace defective equipment, at no charge, or at its option, refund the purchase price, if the equipment is returned to PATRIOT ANTENNA not more than twelve (12) months after shipment. Removal or reinstallation of equipment and its transportation shall not be at cost of PATRIOT ANTENNA except PATRIOT ANTENNA shall return repaired or replaced equipment freight prepaid.

This Warranty shall not apply to equipment which has been repaired or altered in any way so as to affect its stability or durability, or which has been subject to misuse, negligence or accident. This Warranty does not cover equipment which has been impaired by severe weather conditions such as excessive wind, ice, storms, lightning, or other natural occurrences over which PATRIOT ANTENNA has no control, and this Warranty shall not apply to equipment which has been operated or installed other than in accordance with the instructions furnished by PATRIOT ANTENNA.

Claimants under this Warranty shall present their claims along with the defective equipment to PATRIOT ANTENNA immediately upon failure. Non-compliance with any part of this claim procedure may invalidate this warranty in whole or in part.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER AGREEMENTS AND WARRANTIES, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY. PATRIOT ANTENNA DOES NOT AUTHORIZE ANY PERSON TO ASSUME FOR IT THE OBLIGATIONS CONTAINED IN THIS WARRANTY AND PATRIOT ANTENNA NEITHER ASSUMES NOR AUTHORIZES ANY REPRESENTATIVE OR OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE EQUIPMENT DELIVERED OR PROVIDED.

IN NO EVENT SHALL PATRIOT ANTENNA BE LIABLE FOR ANY LOSS OF PROFITS, LOSS OF USE, INTERRUPTION OF BUSINESS, OR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

In no event shall PATRIOT ANTENNA be liable for damages in an amount greater than the purchase price of the equipment.

Some states do not allow limitations on how long an implied warranty lasts, or allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

PATRIOT ANTENNA has the right to void the warranty when the antenna is installed by someone other than a certified installer.

Product Serial Number- _____

Date Purchased- _____

Patriot Antenna Systems

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E-mail: info@sepatriot.com

Thank you for purchasing your Patriot Commercial Antenna. We trust that you will find this to be a well designed product that will provide many years of reliable service. This manual will help you to know the tools and proper installation of the product. Please check, read and understand the content of this manual before beginning your antenna installation.

Identify and verify that all parts have been received by comparing packaged contents with the Hardware List below.

Record the serial number of the unit on page 2 for future reference and read the warranty information. The serial number can be found on the antenna mount.

Hardware Table

No.	Description	Qty	No.	Description	Qty
1	Reflector assm	1	7	Elev. Pivot Block	1
2	Back Frame Assy	1	8	Elev. Rod	1
3	Az/EI Assy	1	9	Azimuth Rod	1
4	Pipe Adapter Assy	1	10	Clevis	1
5	Feed Support Assy	1	11	Mount Hdw Pack	1
6	TxRx Feed System	1			

Tools Required

- 1– Drive Socket set (7/16” through 3/4”)
- 1– Combination wrench set (7/16” through 3/4”)
- 1– 1-1/8” Combination wrench
- 1– 1-1/2” Combination wrench
- 1– 15” Adjustable wrench

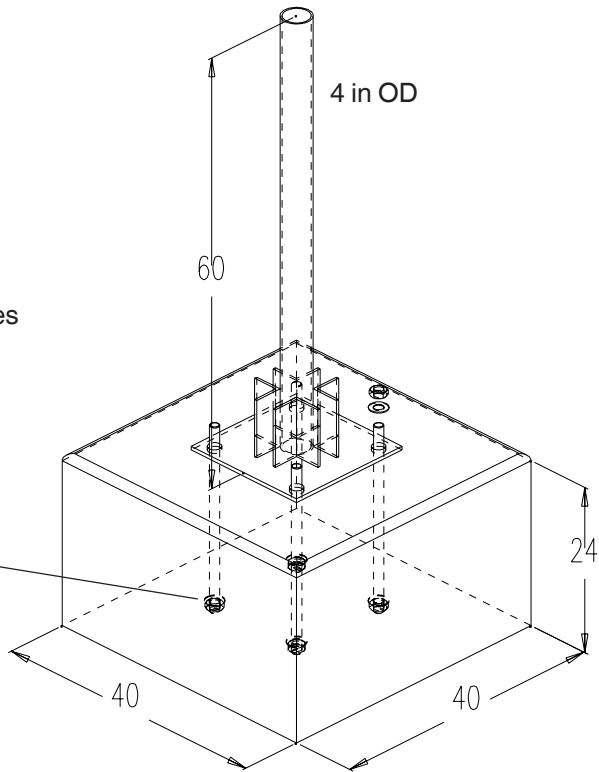
Requirements

- 1- Pre-installed 4” OD Pipe (not included)

In-Ground Mast Foundation

Base plate 18 x 18 x 1/2"
Use #4 rebar in all concrete pad surfaces

Place nut-washer on
this end of all-thread



The Optional Kit Includes:

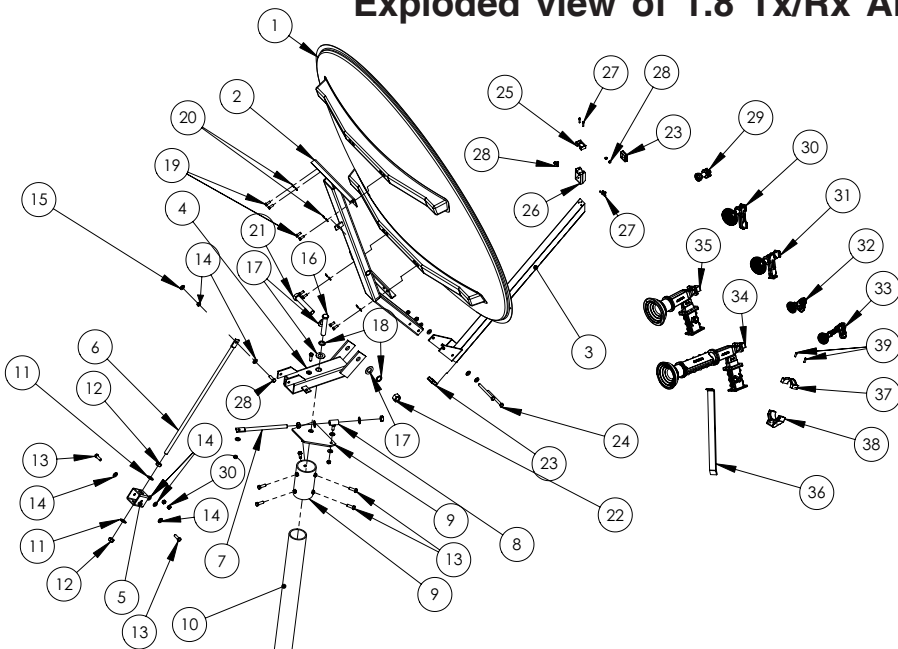
Description	Qty
• 60" Steel Pipe Mast	1
• 18x18x1/2" Base plate with 14" centered holes	
• Reinforced Steel Angles for support	
• 3-1/2" (4" O.D.) schedule 40 pipe	
• 18x18" Templates	2
• 1 1/4x24" Threaded Rod (bolts)	4
• 1/ 1/4" Nuts, Washers	8

Foundation Requirements & Specifications:

- Recommended Pad Size: 40x40x24"
- Concrete: 3000 psi at 28 days, poured against undisturbed soil
(Allow concrete 24 hour set time before installation of antenna)
- Ground the Antenna to meet applicable local Codes.

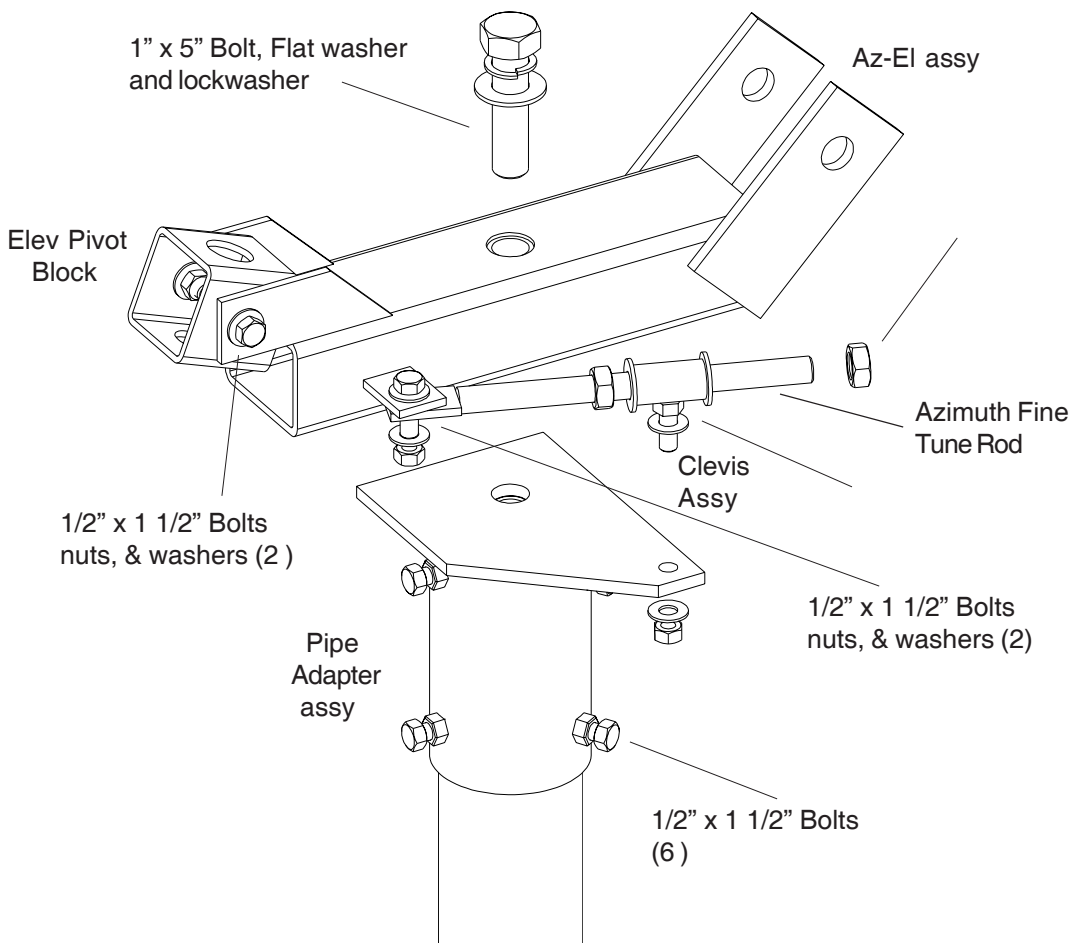
ITEM	PART NO.	DESCRIPTION	QTY.
1	218007	Reflector Assembly, 1.8m	1
2	218002	Back Frame Assembly	1
3	218009	Feed Boom	1
4	218003	Az-El Assembly	1
5	231104	Elevation Pivot Block	1
6	218005	Elevation Rod	1
7	218008	Azimuth Fine Tune Rod	1
8	218006	Clevis Assembly	1
9	218004	Pipe Adaptor	1
10	1RSP02740/1RSP03040	Mast Pipe 2 7/8" or 3" OD (Not Included)	1
11	HWD Prebag H1101	Large USS 3/4 Washer	2
12	HWD Prebag H1101	Large USS 3/4 Nut	2
13	HWD Prebag H1101	1/2" x 1 1/2" Bolt	10
14	HWD Prebag H1101	1/2" Washer	12
15	HWD Prebag H1101	1/2" Nut	8
16	HWD Prebag H1101	1" x 5" Bolt	1
17	HWD Prebag H1101	1" Washer	4
18	HWD Prebag H1101	1" Lock Washer	2
19	HWD Prebag H1101	3/8" x 1" Bolt	8
20	HWD Prebag H1101	3/8" Washer	8
21	HWD Prebag H1101	1" x 6" Bolt	1
22	HWD Prebag H1101	1" Nut	8
23	HWD Prebag H1101	Plastic Plug	1
24	HWD Prebag H1101	1/2" x 5 1/2" Bolt	3
25	PE0400A	Feed Holder, Top	2
26	PE0400B	Feed Holder, Bottom	2
27	HWD Prebag H1101	1/4-20 x 1 SOC CAP SC	1
28	HWD Prebag H1101	1/4-20 Fin Hex Nut	1
29	TXFD - KA/KUR	Ku Rx only, Feed Assembly (Optional)	7
30	TXFD-OMTKUL	Ku Tx/Rx XPol, Feed Assembly (Optional)	7
31	TXFD-DPLCOPOL/KUL	Ka Tx/Rx CoPol, Feed Assembly (Optional)	1
32	TXFD-OMTKAL	Ka Tx/Rx Linear Pol, Feed Assembly (Optional)	1
33	TXFD-OMTKPLKA	Ka Tx/Rx Circular Pol, Feed Assembly (Optional)	1
34	TXPOL-CC	C-Band Circular Tx/Rx, Feed Assembly (Optional)	1
35	TXOMT-CL	C-Band Linear Tx/Rx, Feed Assembly (Optional)	1
36		Polarizer Support Bracket	1
37	E0410A	C-Band Top Feed Clamp	1
38	E0410B	C-Band Bottom Feed Clamp	1
39	HWD Prebag H1101	5/16 Cap Scr	2

Exploded view of 1.8 Tx/Rx Antenna



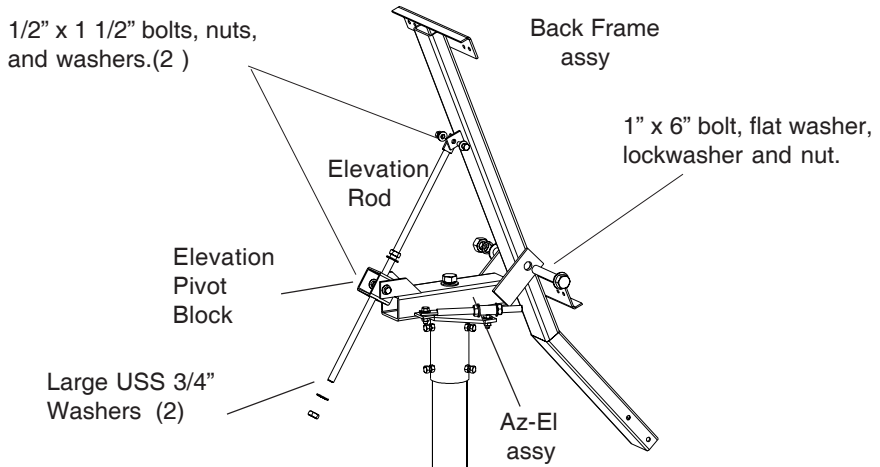
Mount Assembly

1. Place the Pipe Adapter Assembly on to the 4in OD ground pipe, using 1/2" x 1 1/2" bolts.
2. Attach the Az-El Assembly on to the Pipe Adapter Assembly using 1" x 5" bolt, washer, and lockwasher.
3. Attach the Azimuth Fine Tune Rod as shown using 1/2" x 1 1/2" bolts, nuts, and washers.
4. Install the Elevation Pivot Block as shown using 1/2" x 1 1/2" bolts, nuts, and washers.



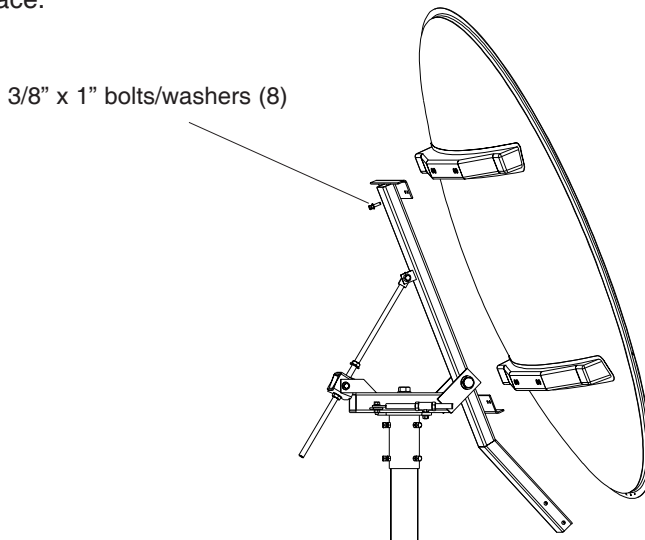
Back Frame to Mount assembly

1. With the help of an assistant, lift the Back Frame assembly and place it onto the Az-EI assy as shown. Attach using 1" x 6" bolt, flat washer, lockwasher and nut.
2. Assemble the Elevation Rod as shown using 3/4" nuts, washers (large USS) on each side of the elevation pivot block, and 1/2" x 1 1/2" bolts, nuts, and washers.



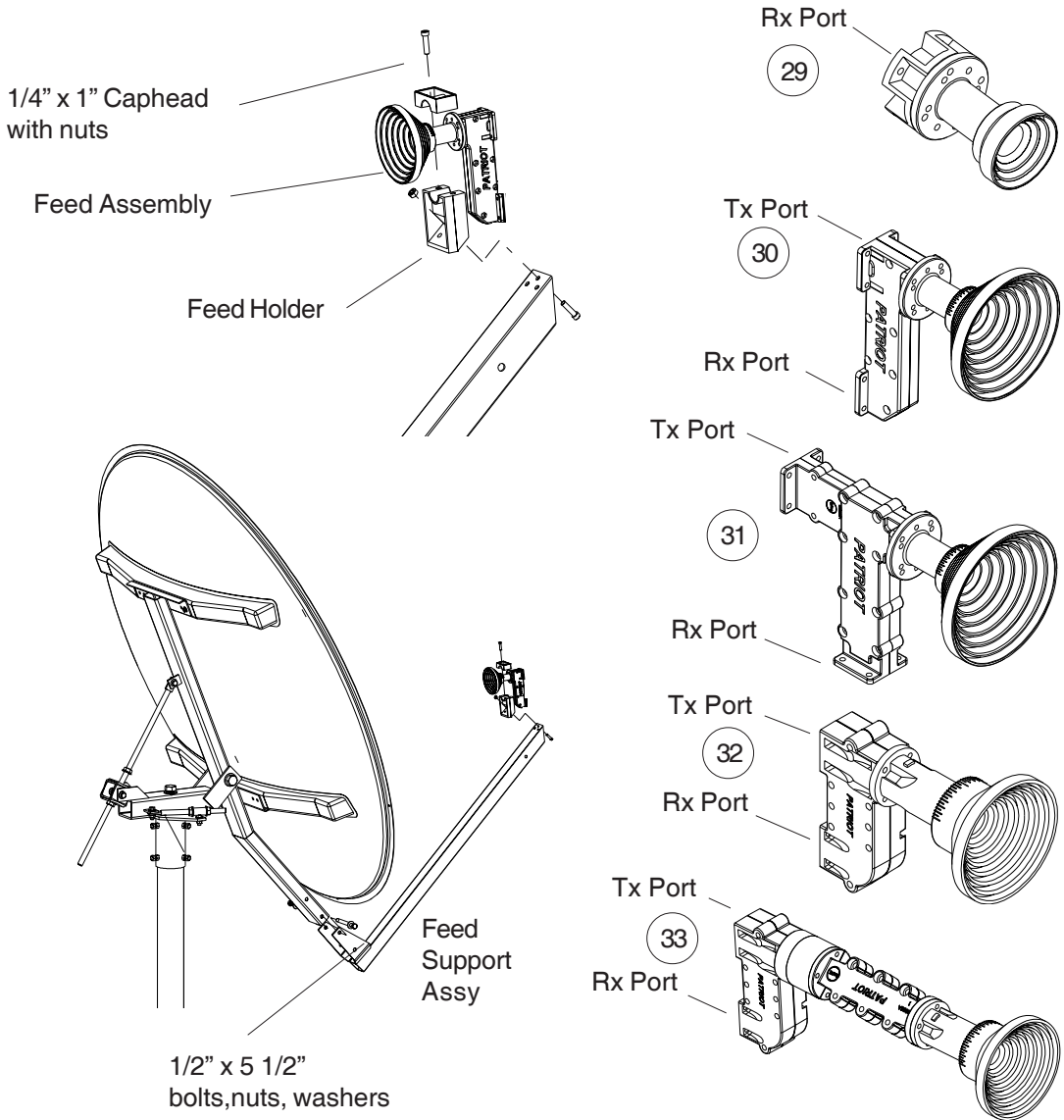
Reflector assembly

1. With the help of an assistant, lift Reflector assembly and place it onto the Back Frame as shown. Use 3/8" x 1" bolts/washers to fasten. Tighten hardware after all bolts are in place.



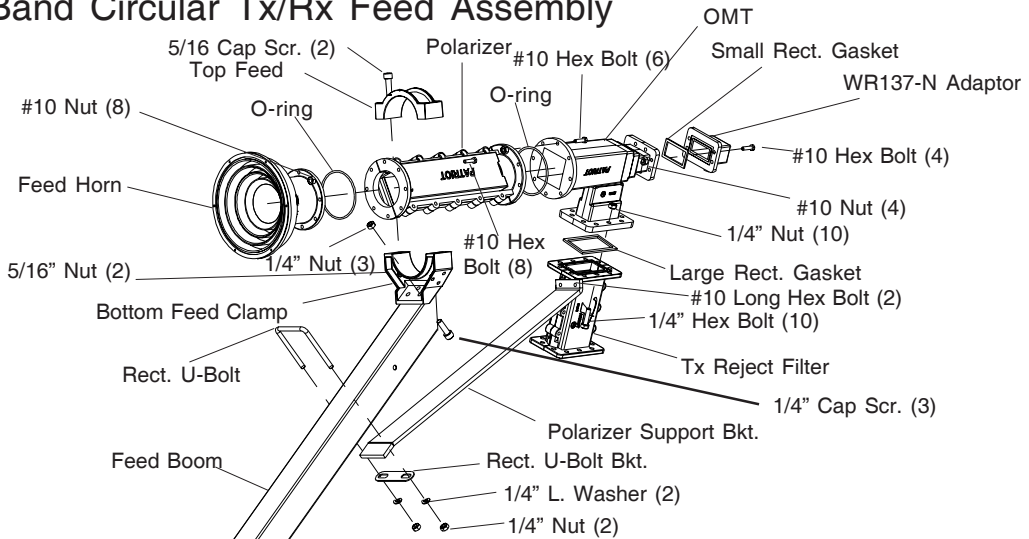
Feed Support Assembly

1. Attach Feed Support assy to the lower tube extension of the Back frame using 1/2" x 5 1/2" bolts, nuts and washers.
2. Assemble the Feed holder and Feed Assembly as shown using 1/4" socket head cap screw hardware.



C-Band Circular Tx/Rx Feed Assembly

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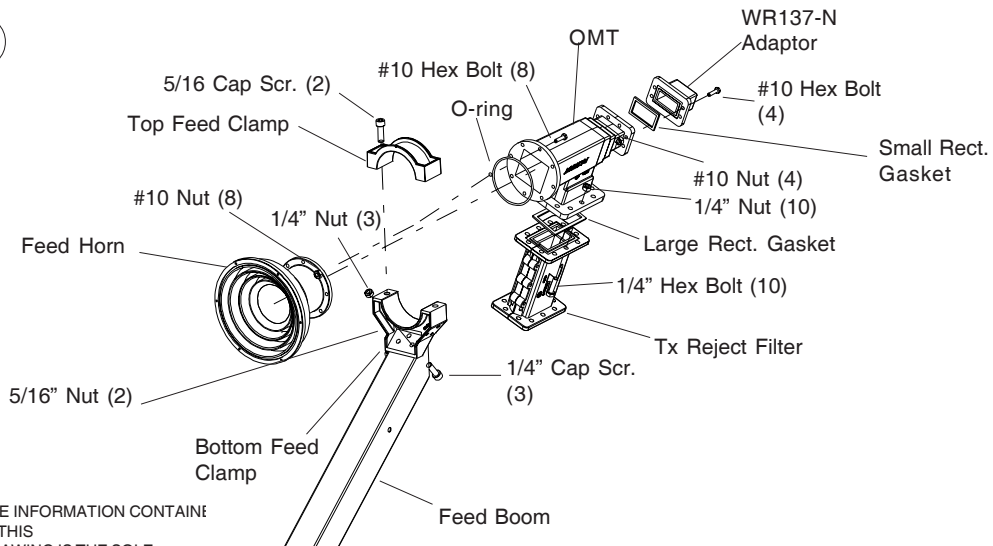


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View shown is for Tx-LHCP, Rx-RHCP.
For opposite polarity, rotate OMT 90 deg.

C-Band Linear Tx/Rx Feed Assembly

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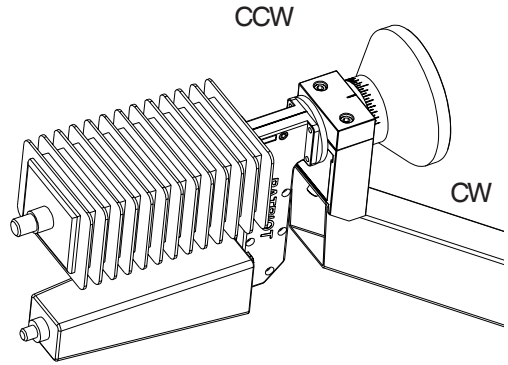
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Feed Adjustment (Polarity tuning)

1. Adjust the Feed to the appropriate skew angle using the provided scale reference.

NOTE: Refer to the chart below for polarization angle. Elevation and polarity are both dependent on site azimuth and the difference between satellite and site longitude.



Feed Rotation Chart

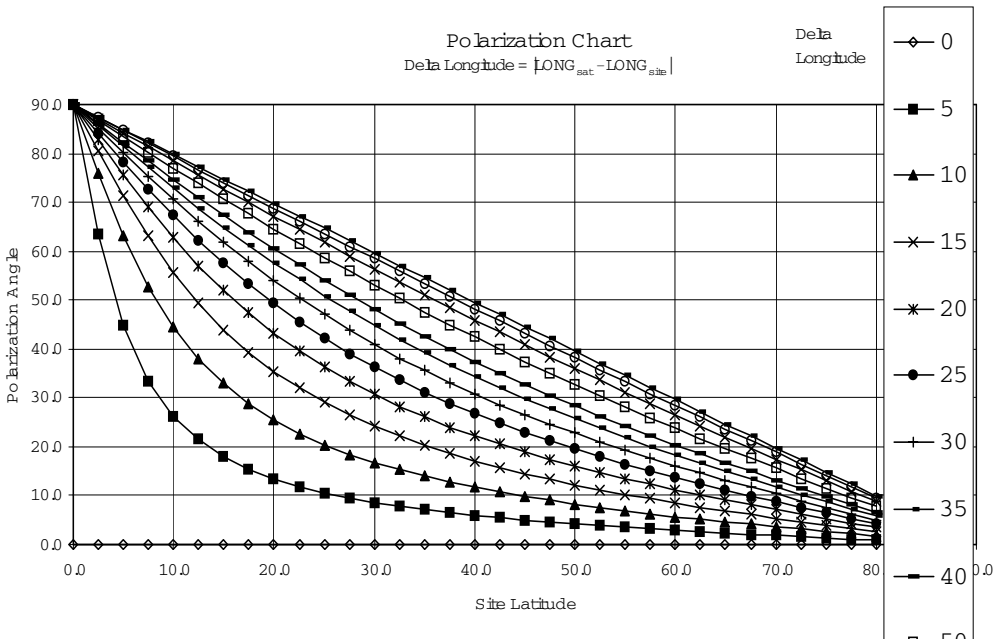
Install site west
of satellite

Install site East
of satellite

CW
CCW

CCW
CW

Northern Hemisphere
Southern Hemisphere



Windload Information

Windload Imposed at 125 mph

Force on Front of Dish - 1,790 lbs.

Force on Back of Dish- 900 lbs.

Overturning moment- 8,950 ft. lbs.

Sighting-in Notes-

The antenna assembly is now complete. To adjust the antenna toward the selected satellite you must first know its elevation angle above horizon. Subtract 22.3 degrees from this number and this will be the reference angle for the face of the antenna. First tighten the Pipe Adapter assy bolts only enough to allow rotation of the mount on the ground pipe, then using an inclinometer on the face of the antenna pre-adjust the desired elevation angle using the 2 nuts on each side of the lower pivot block on back of the mount. Knowing the azimuth angle of the satellite from due south roughly aim the antenna in that direction. Peak the Azimuth on the desired Satellite and tighten Pipe Adapter assy bolts. With the LNB connected to the proper sight-in equipment the antenna can be accurately adjusted to the satellite signal using the threaded fine tune adjustments on both the azimuth and the elevation. Tighten all hardware when complete.

Installation is complete.

Specifications

	Rx	Tx
<i>Ka</i>		
Gain (19.95Rx,29.75Tx)	49.5dBi	53.0dBi
Efficiency		65%
Noise Temp. (10 degree elev)	70K	-
Cross Polarization		-35dB
<i>Ku</i>		
Gain (11.75Rx,14.12Tx)	48.0dBi	49.6dBi
Efficiency		70%
Noise Temp. (10 degree elev)	55K	-
Cross Polarization		-35dB
<i>C-Band</i>		
Gain (3.9Rx,6.1Tx)	38.2dBi	42.5dBi
Efficiency		70%
Noise Temp. (10 degree elev)	45K	-
Cross Polarization	-35dB-LP	17.7dB-CP
<i>Mechanical</i>		
Antenna Size	1.8m	
Offset Angle	22.3	
F/D	.62	
Operational Wind	50mph	
Survival Wind	125mph	
Operational Temp	-40 to 140 F	
Rain	Operational = 1/2in./hr Survival = 3in./hr	
Ice	1 in. Radial -or- 1/2 in. + 60mph wind	
Pole Size	4" OD	



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