

***2.4m Navigator
Offset Antenna
Receive only and
Transmit-Receive***

**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

704 North Clark Street

Albion, MI 49224 USA

Tel: (517)629-5990

Fax: (517)629-6690

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 hub.

Hardware Table			Hardware Table		
No. ___	Description _____	Qty_	No. ___	Description _____	Qty_
1	Reflector Panel A-Right	1	1	Panel Hardware	1
2	Reflector Panel A-Left	1	2	Radial Beam to Hub Hardware	1
3	Reflector Panel B-Right	1	3	Feed boom Hardware	1
4	Radial Beam Assembly A	1	4	Elevation Adjustment Hardware	1
5	Radial Beam Assembly B	2	5	Hub Angle to Hub Hardware	
6	Radial Beam Assembly C	2			
7	Kurving Segment Long	2			
8	Kurving Segment Short	2			
9	Hub Assembly	1			
10	Boom Support	2			
11	Nav Mount Assembly	1			
12	Elevation Jack (motorized unit only)	1			
13	Azimuth Jack (motorized unit only)	1			
14	Manual	1			
15	TxRx Feed Assembly (Optional)	1			

Tools Required

- 1- Combination wrench set (thru 3/4")
- 1- 5/16 Drift Pin or tapered lineup tool
- 1- Adjustable wrench 12in
- 1- Ratchet/Allen 5/32 inch socket

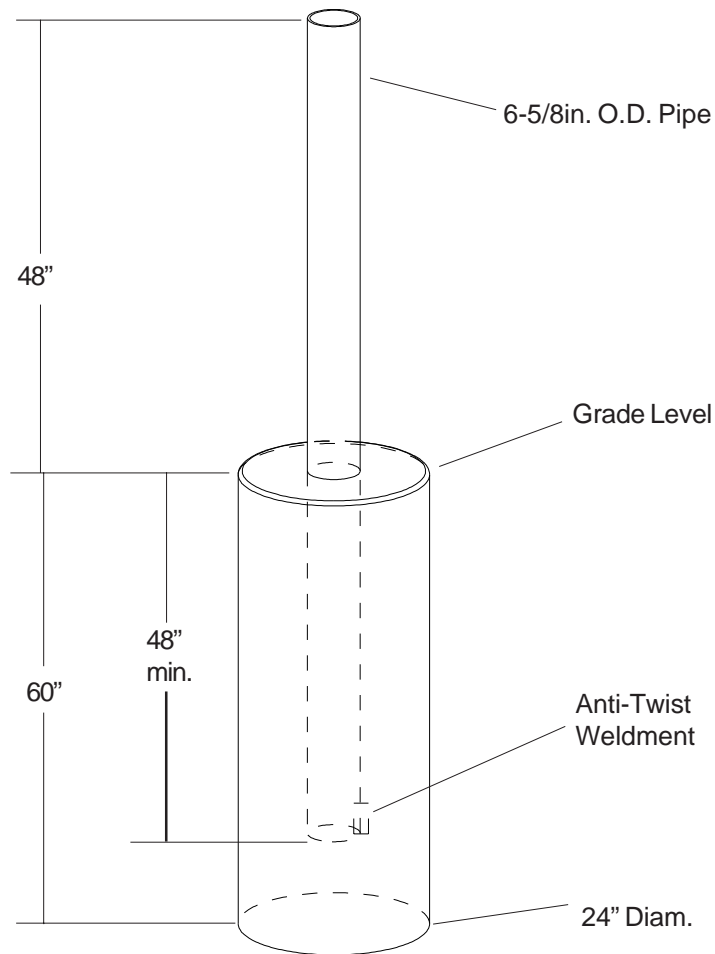
- 1- Level
- 1- 8ft ladder

Note: A 3/8 inch drive socket set, a battery operated drill, and air tools can help speed up the installation.

Other

- 1- 6-5/8in OD Pipe Mast (not included) or (optionally purchased)

In-Ground Mast Foundation

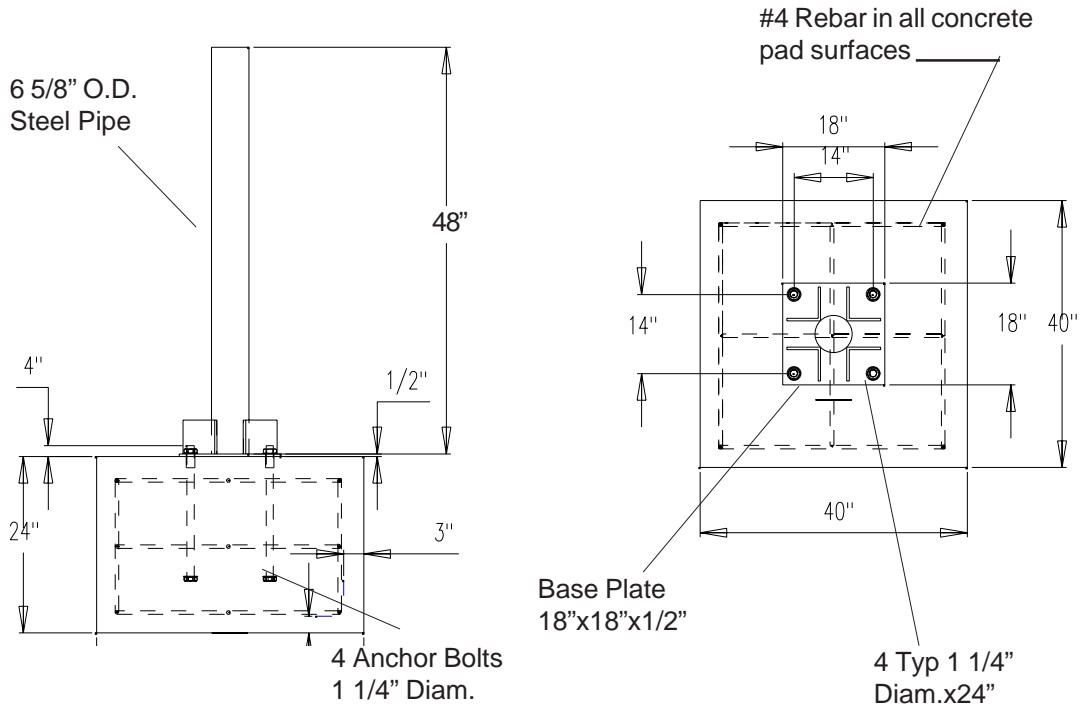


Foundation Requirements & Specifications:

- Steel Mast: 6" Schedule 80, L=96"; 6 5/8" O.D.
- Concrete: 3000 psi at 28 days, poured against undisturbed soil
(Allow concrete 24 hour set time before installation of antenna)
- Soil Bearing Capacity > 2000 psf.
- Ground the Antenna to meet applicable local Codes.

Mast Pipe(optional)

with Bolt & Template Kit

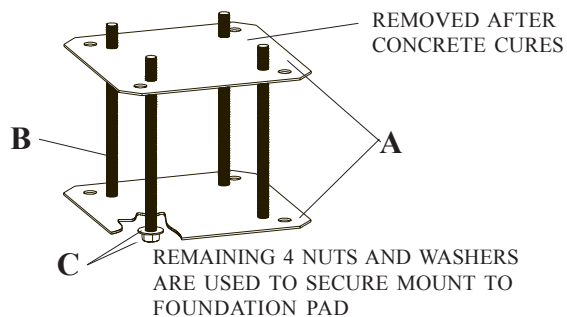


The Optional Kit Includes:

Schedule 40 6" (6-5/8" OD)
 4' Mast Steel Pipe
 18"x18"x1/2" Base Plate
 with 14" Centered Holes
 Reinforced Steel Angles for Support
 Bolt and Template Kit with Pipe
 (On one skid) = 215 Lbs.
 Note: See Foundation Requirements
 & Specifications on previous page.

PRT-BTKPS

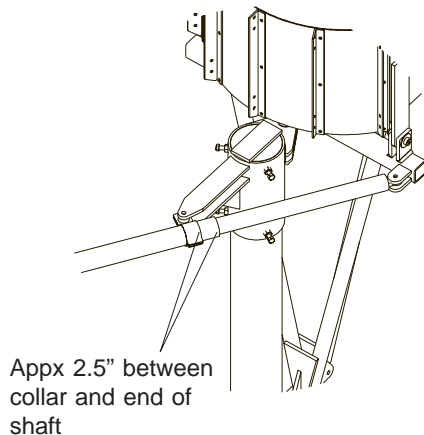
A: (2) 18"x18" Templates
 B: (4) 1-1/4x24" Threaded Rod (Bolts)
 C: (8) 1-1/4" Nuts & Washers



Mount Assembly

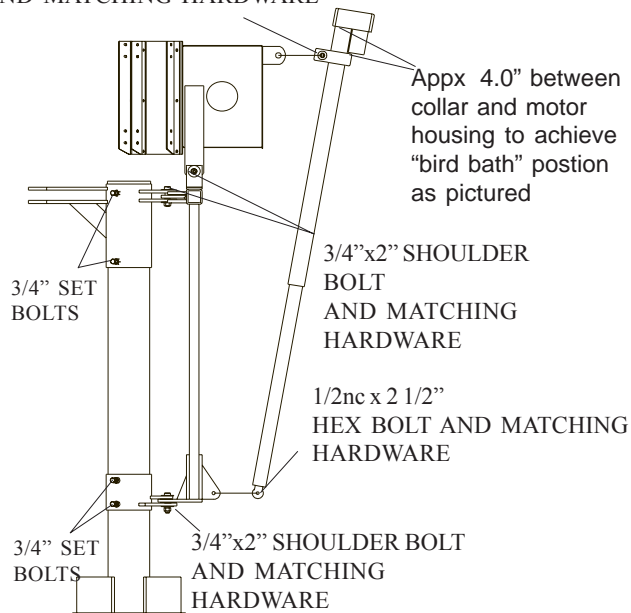
1. Slide lower then upper Az/EI collar assemblies over the mast pipe as shown. Do not tighten the set bolts at this time.
2. Attach the A-frame assembly to the upper and lower Az/EI collars using $\frac{3}{4}$ shoulder bolts and $\frac{5}{8}$ nuts.
3. Carefully align the Lower Az/EI Collar with the Upper Az/EI Collar by means of "squaring" them with the A-Frame and then tighten the set bolts on the collars.
4. Attach the hub using $\frac{3}{4}$ x2 inch shoulder bolts. (use two washers and $\frac{5}{8}$ in nut per shoulder bolt)
5. Attach elevation jack as pictured using $\frac{1}{2}$ in hardware.

NOTE: The A-frame (when pointing directly away and perpendicular to the collars) and collars should be initially aligned due south.



NOTE: You must position the hub in the position shown or it will be unsafe to build the reflector. You will also be able to assemble the dish with out moving your ladder. With the mount pipe bolts loose the dish can spin on the pipe for ease of assembly.

$\frac{1}{2}$ nc x 2 $\frac{1}{2}$ " HEX BOLT AND MATCHING HARDWARE



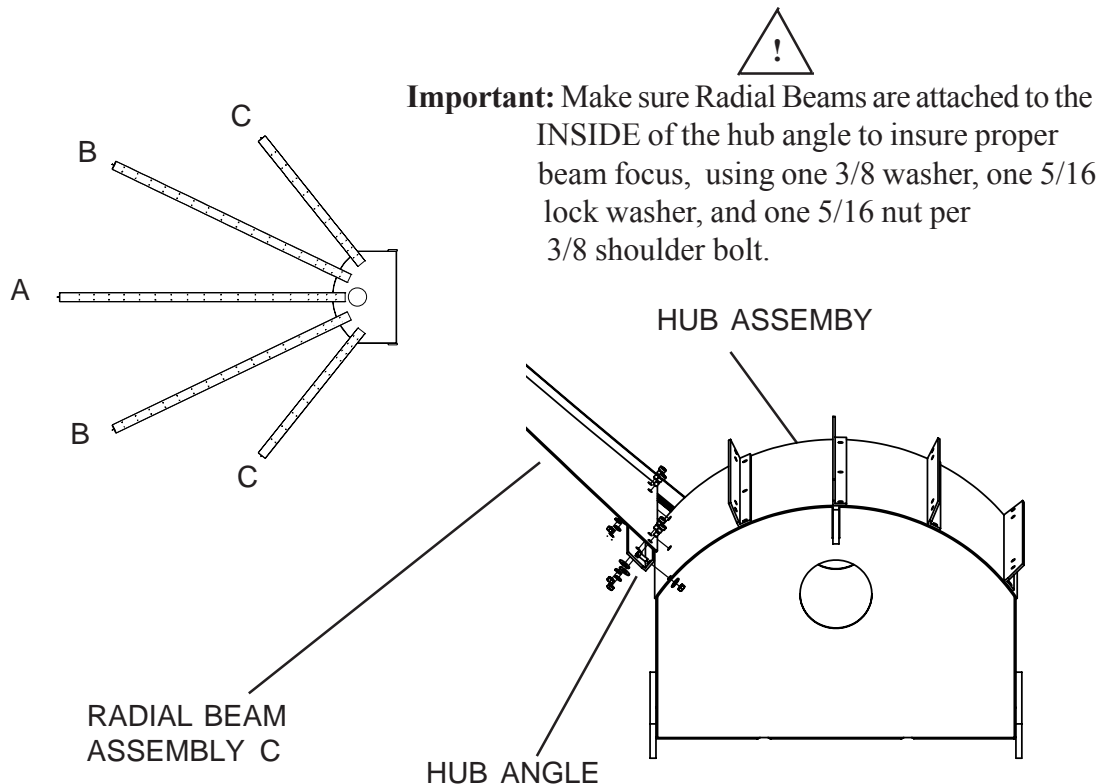
Reflector Assembly

1. Fasten 5- Hub Angles to Hub as shown, using 3- 3/8x1 bolt hardware from Hub to Angle Hardware Pack. (2- 3/8" washer, 1-nut per)
2. Adjust the Hub into the position shown on page 6, and select the shortest Radial Beam assembly - "C" and place into the outermost location inside the Hub. Fasten using 3/8in shoulder bolt from Radial Beam to Angle Hardware Pack. (1 - 3/8" washer, 1- 5/16 lock washer & 1-nut per) Leave 1/2 turn loose.

Do the same with the opposing "C" Radial Beam assembly.

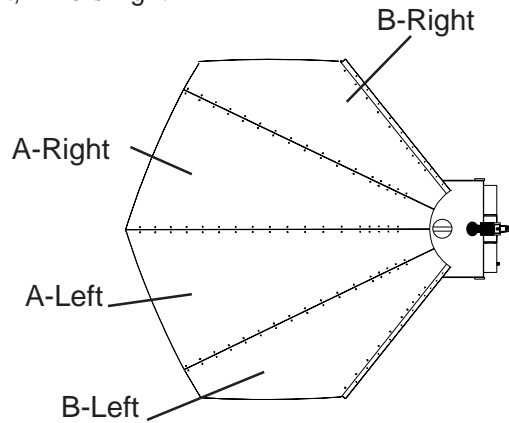
NOTE: Hard to reach hardware can be accessed by reaching inside and around the end of the Radial Beam to reach the back side.

3. Repeat step 2 for "B", and "A" Radial Beam assemblies.
4. Tighten all Radial Beam hardware in steps 1 through 3.



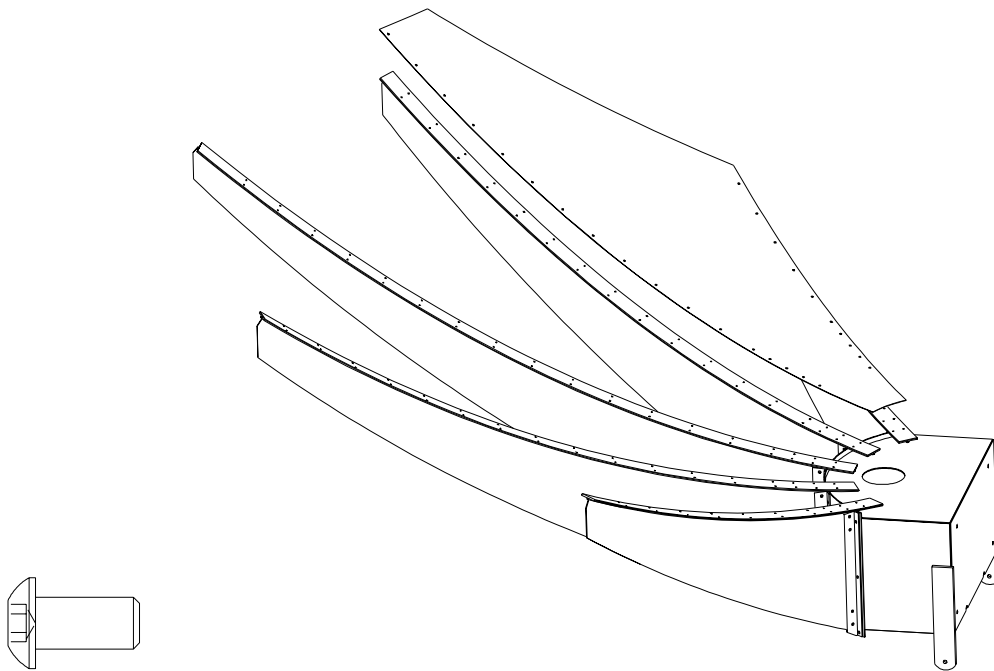
Panel Assembly

Panels are shaped as follows- A-Left/Right, B-Left/Right.



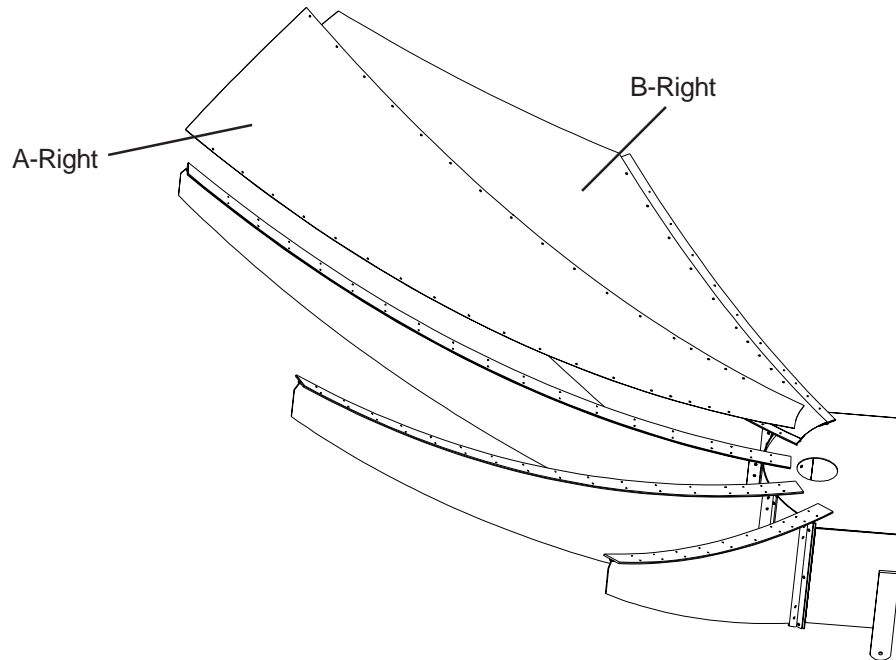
Starting with Panel B Right-

1. Place the panel into place onto the left-most Radial Beam "B" & "C" as shown. Fasten with 1/4x1/2 truss head bolts. Leave bolts 1/2 turn loose at this time.



Panel Assembly (cont.)

2. Set a panel "A-Right" in place next to panel "B-Right" and fasten with hardware as in Step 1 leaving bolts 1/2 turn loose..



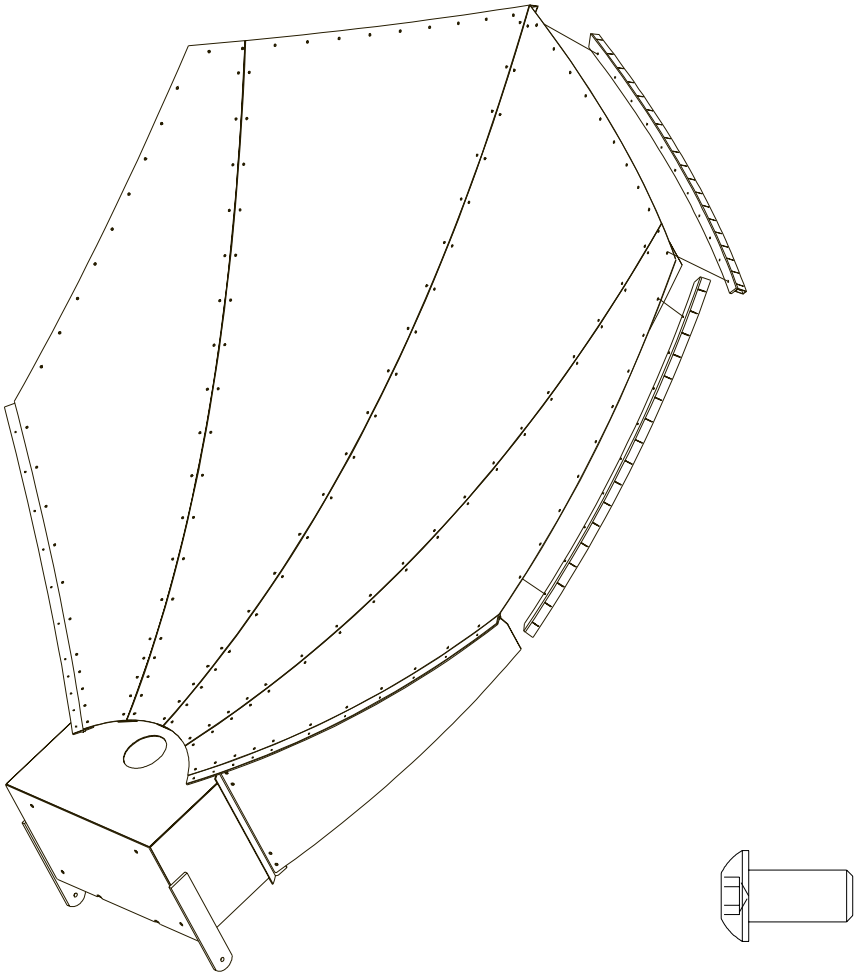
3. Continue repeating step 2 for the remaining panels.

4. When all panels and hardware is in place tighten all panel and support angle bolts starting near the hub and working outward.

NOTE: When working on the panels of the reflector your weight can only be placed on the Radial Beams where the rows of bolts are being tightened!

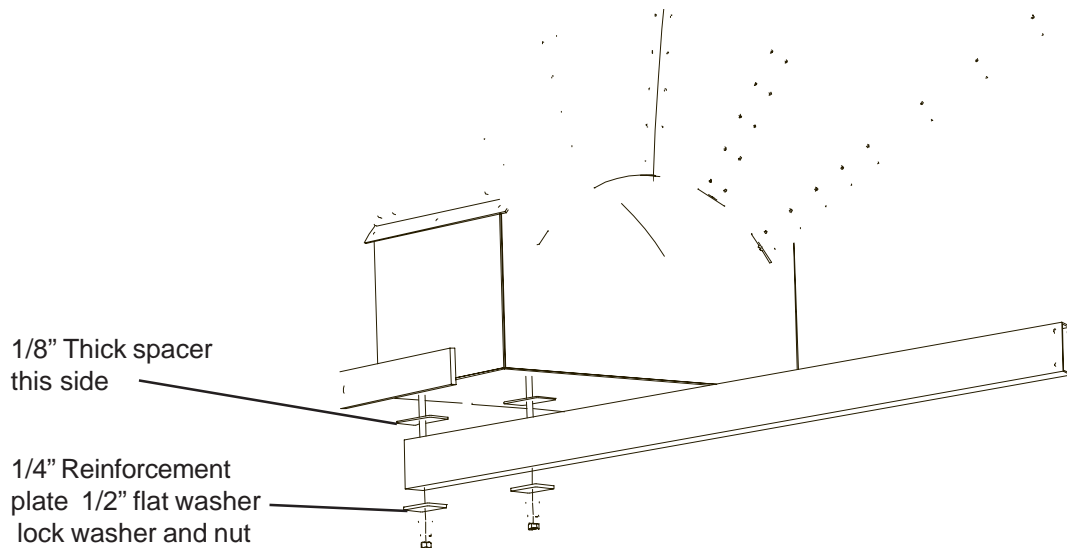
Panel Assembly (cont.)

5. Attach the outer kurling segments using the same cap screw as pictured below.



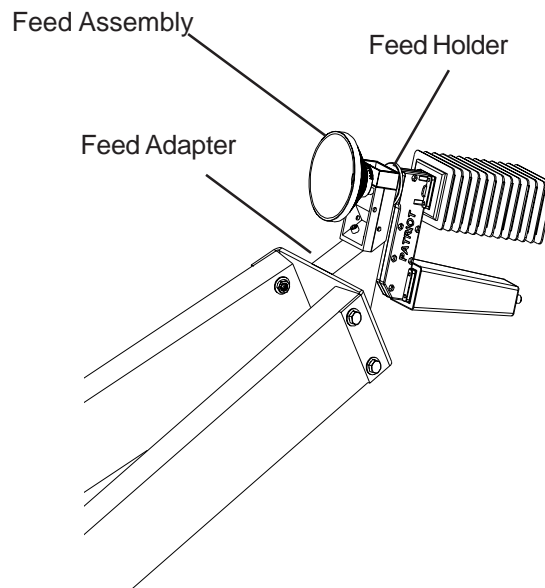
Feed Boom and Feed Assembly

Attach Feed support to bottom side of Hub using 1/2 hardware with bolt and washer inside of hub. Repeat for remaining Feed Support.



Attach the Feed adaptor to the Feed supports using 3/8 hardware bolts, washers, and nuts. Feed angle should be point up.

Attach Feed holder to Feed adaptor using (3) 1/4 cap screws.



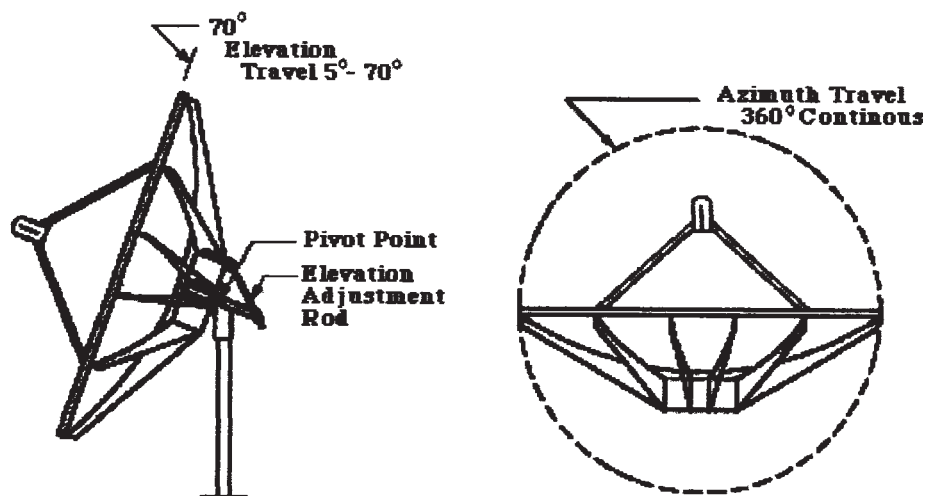
Windload Information

Windload Imposed at 125 mph

Force on Front of Dish - 6,250 lbs
Force on Back of Dish- 3,400 lbs
Torque at Base of Mount- 42,000 ft.lbs.
Overturning moment- 44,000 ft.lbs.

Stress of 6" schedule 40 pipe - 49,233 psi
Stress of 6" schedule 80 pipe - 34,302 psi

Note: For Windloads of 100 mph or more, we recommend using schedule 80 pipe filled with concrete



Specifications

Electrical	Ku-Band
Gain Midband	Tx- 49.6dBi Rx- 48.0
3dB Beamwidth	Tx- 0.6 Deg Rx- 0.7 Deg
Side Lobes	ITU - 580
Cross Polarization (on axis)	>35dB
VSWR	Tx- 1.2:1 Rx- 1.3:1

Mechanical	
Antenna Size	2.4m
Offset Angle	21.34
F/D	.64
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	6-5/8" OD



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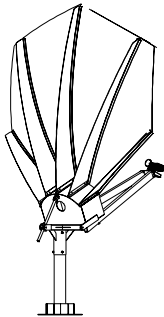
704 North Clark Street
Albion, MI 49224 USA

Tel: (517)629-5990

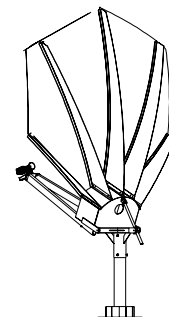
Fax: (517)629-6690

E-mail: info@sepatriot.com

Web site: www.sepatriot.com



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