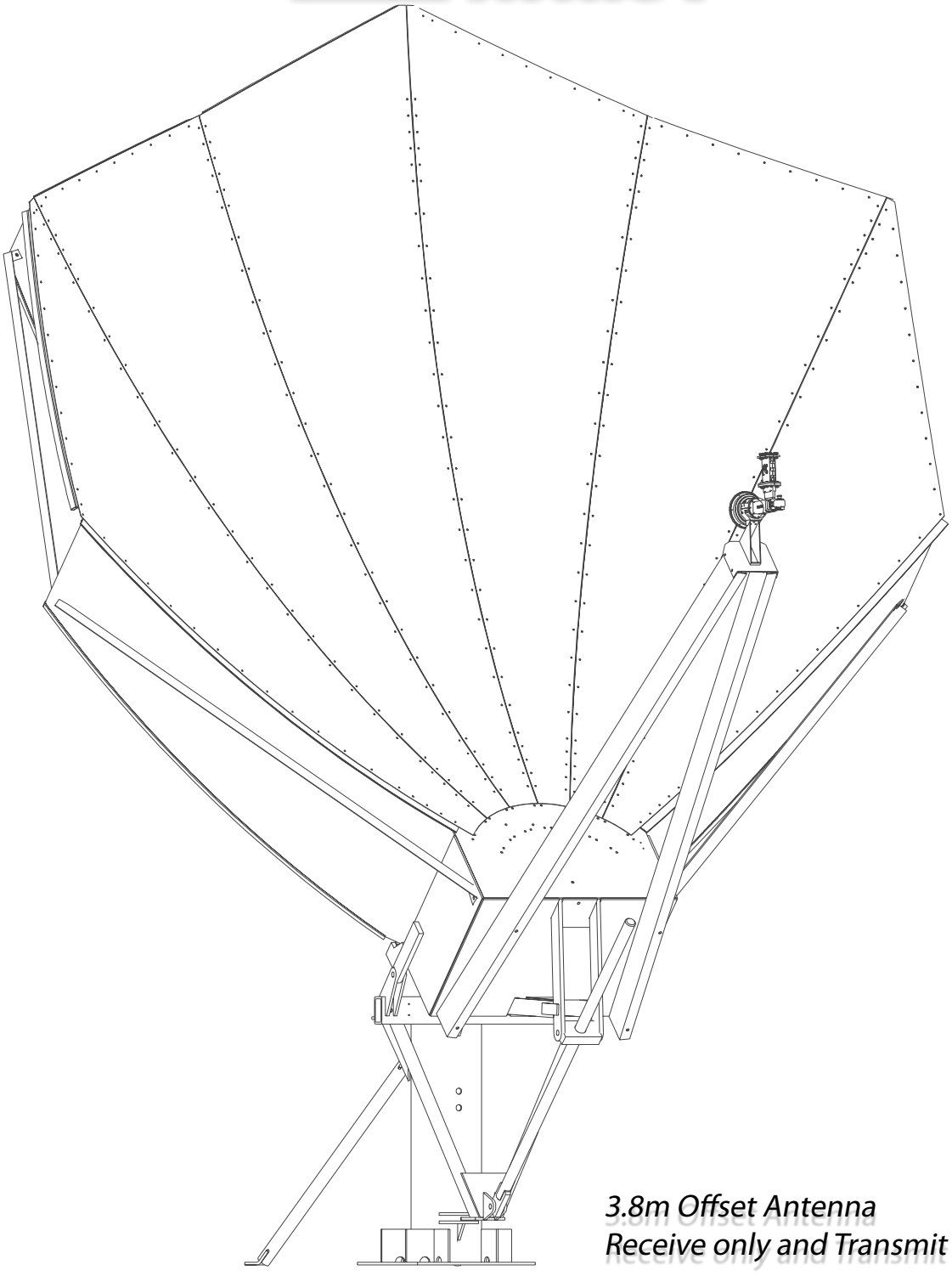
PATRIOT



3.8m Offset Antenna
Receive only and Transmit Receive

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. Noncompliance 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 then 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

Introduction

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 covers the assembly and installation of the 3.8m Offset Antenna System. Read this manual thoroughly before beginning assembly. For best results in the assembly process. Perform each step in the same sequence as listed in this manual. Record the serial number of the unit on to page 2 for future reference and read the warranty information. The serial number can be found on the antenna back structure.

Unpacking and Inspection

Shipping cartons should be unpacked and contents checked for damaged or missing parts. Should there be any parts that are damaged or missing, please contact technical support for replacement.

Site Selection

The main objective of conducting a site survey utilizing a compass and inclinometer is to choose a mounting location on the ground that will give you the greatest amount of swing for azimuth and elevation for present as well as future use. A thorough pre-installation site survey is strongly recommended because it can alert you to any "look angle", soil, wind or other problems. The first and most important consideration when choosing a prospective antenna site is whether or not the area can provide an acceptable "look angle" to the satellite. A site with a clear, unobstructed view facing south, southeast is required. Your antenna site must be selected in advance so that you will be able to receive the strongest signal available. Also consider obstructions that may occur in the future such as the growth of trees. It is important to conduct an on-site survey with a portable antenna or with a compass and clinometer to avoid interference, obstructions, etc. When selecting "look angle", be sure to observe and take readings approximately 10 deg to the left and right, above and below your selected "look angle". Before Ground Pole Installation, the soil type should be checked because soil conditions vary widely in composition and load bearing capacity. A soil check will help you to determine the type and size of foundation required to provide a stable base for the antenna. Before digging is done, information regarding the possibility of underground telephone lines, power lines, storm drains, etc., in the excavation area should be obtained from the appropriate agency. As with any other type of construction, a local building permit may be required before installing an antenna. It is the property owner's responsibility to obtain any and all permits. Ground mounts are certified for 125 mph wind survival.

Foundation

Follow the specifications for materials, layout, and preperation in apendix "A" for the Foundation.

Use this list as in conjunction with the following page to help in idenityfing parts and assemblies

Item#	Part Description	Part Numbe	Quantity
1	ASSY, 3.8M OFFSET A-LEFT PANEL	238204	1
2	ASSY,3.8M OFFSET A-RIGHT PANEL	238205	1
3	ASSY,3.8M OFFSET B PANEL	238206	2
4	ASSY,3.8M OFFSET C-LEFT PANEL	238208	1
5	ASSY,3.8 MTR OFFSET C-RIGHT PANEL	238209	1
6	ASSY,3.8M OFFSET RADIAL BEAM A	238210	1
7	ASSY,3.8M OFFSET RADIAL BEAM B	238211	4
8	ASSY,3.8M OFFSET RADIAL BEAM C	238213	2
9	ASSY,3.8M OFFSET 90" BACK SUPPORT	238223	2
10	ASSEM, CURFING 42.68""B"	238910	2
11	ASSEM, CURFING 46.79""A"	238911	2
12	ASSEM, CURFING 57.00""C"	238912	2
13	TUBE,3.8M OFFSET FEED SUPPORT	238993	2
14	ASSEM, 3.8M OFFSET FEED PLATE	238996	1
15	MOUNT,3.8M OFFSET KINGPST AND YOKE	238308	1
16	ASSY,3.8M OFFSET MAST STRUT	238307	1
17	ASSY,3.8 MTR OFFSET HUB	238214	1
18	ASSY,3.8M OFFSET KP ELEV.ROD	238302	1
PG 7	PLATE,3.8M OFFSET KP AZ LOCKDOWN	238304-04	1
PG 7	ASSY,3.8M OFFSET KP AZ LOCKDOWN	238304	1
PG 7	ASSY,3.8M OFFSET KP AZIMUTH ROD	238303	1
PG 9	SHIM, 2.4M BOOM .25"	224132	4
PG10	ANGLE,3.8M OFFSET HUB	238214-12	28
PG11	ASSY,3.8M OFFSET 65" BACK SUPPORT L	238224	1
PG11	BRKT.,3.8M OFFSET BACK SUPPORT	238222	21
PG11	ANGLE,3.8M 45"BACK SUPPORT	238219	4
PG11	ASSY,3.8M OFFSET 65" BACK SUPPORT R	238225	1
PG11	ANGLE,3.8M 32" BACK SUPPORT	238220	4
PG11	ASSY,3.8M OFFSET 65" BACK SUPPORT L	238224	1
PG11	ASSY,3.8M OFFSET 65" BACK SUPPORT R	238225	1
PG11	ANGLE,3.8M OFFSET 90" BACK SUPPORT	238223	2
	PREBAG,3.8M.OFFSET REFLECTOR HWD.	3HP38011	1
	PAINT, OFF WHITE TOUCH UP, 8 OZ.	4M9055	1

Tools Needed

1- 5/32", 3/16" , 1/4" allen wrenches
2- Combination wrenches -
7/16", 1/2", 9/16", 3/4", 15/16", 1-1/8"
1- Large Crescent wrench or Pipe Wrench with
3in. jaw opening
1- Inclinometer (for sighting in)
1- Compass (for sighting in)

1- Impact drill
(for drilling cement anchor holes)

Preinstallation materials checklist

Grounding Rod Clamp & Grounding Block - As required by National Electric Code or local codes.

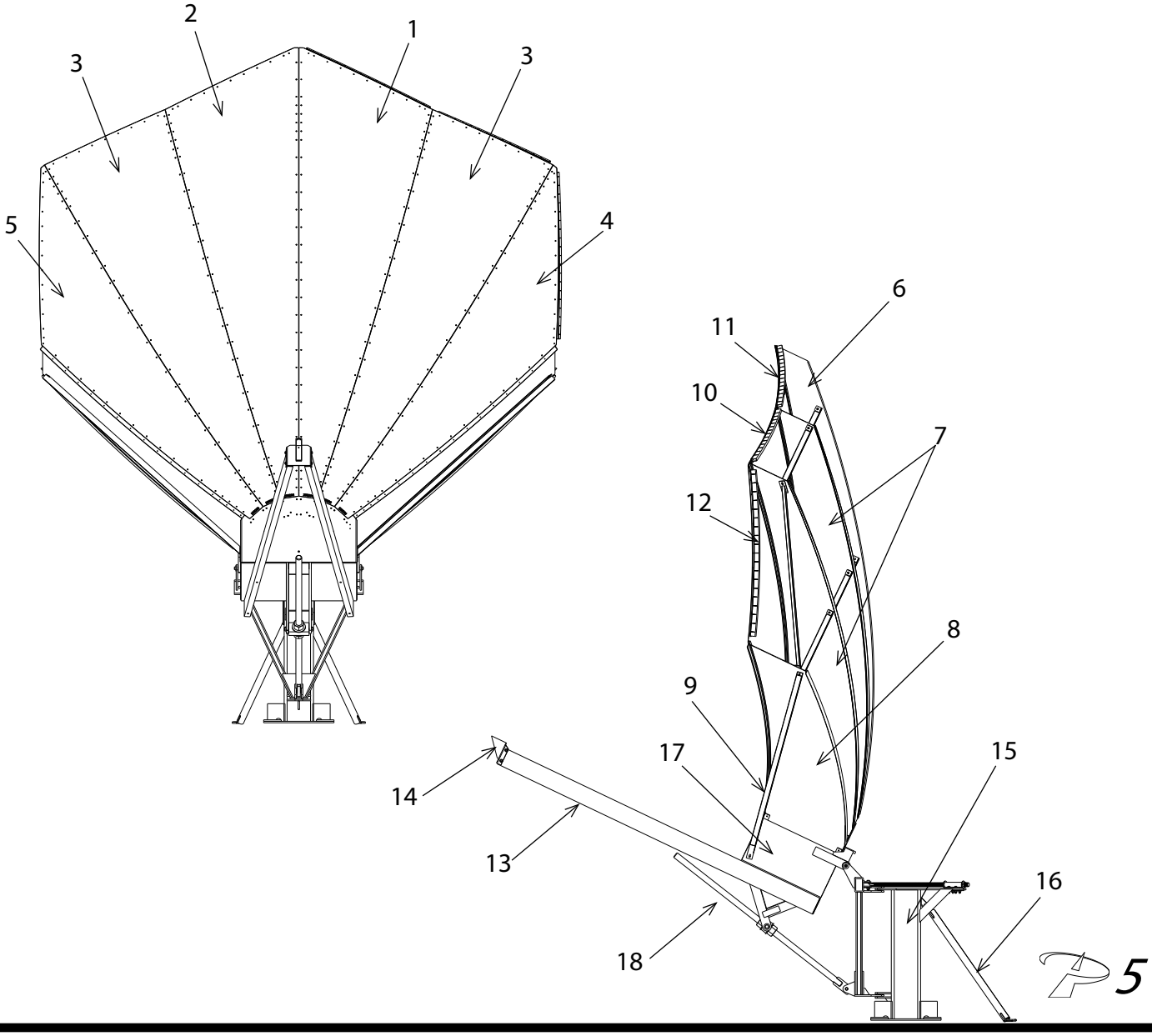
Ground Wire - #10 solid copper or as required by National Electric Code or local codes.

Coaxial Cable (Size & Length required).

Concrete & Rebar (See Foundation Appendix A).

Reference Drawing

Refer to Parts and Hardware list on page 5 for part descriptions. This figure is an overall assembled antenna and can assist the installer with locating parts and understanding the relationship between components.

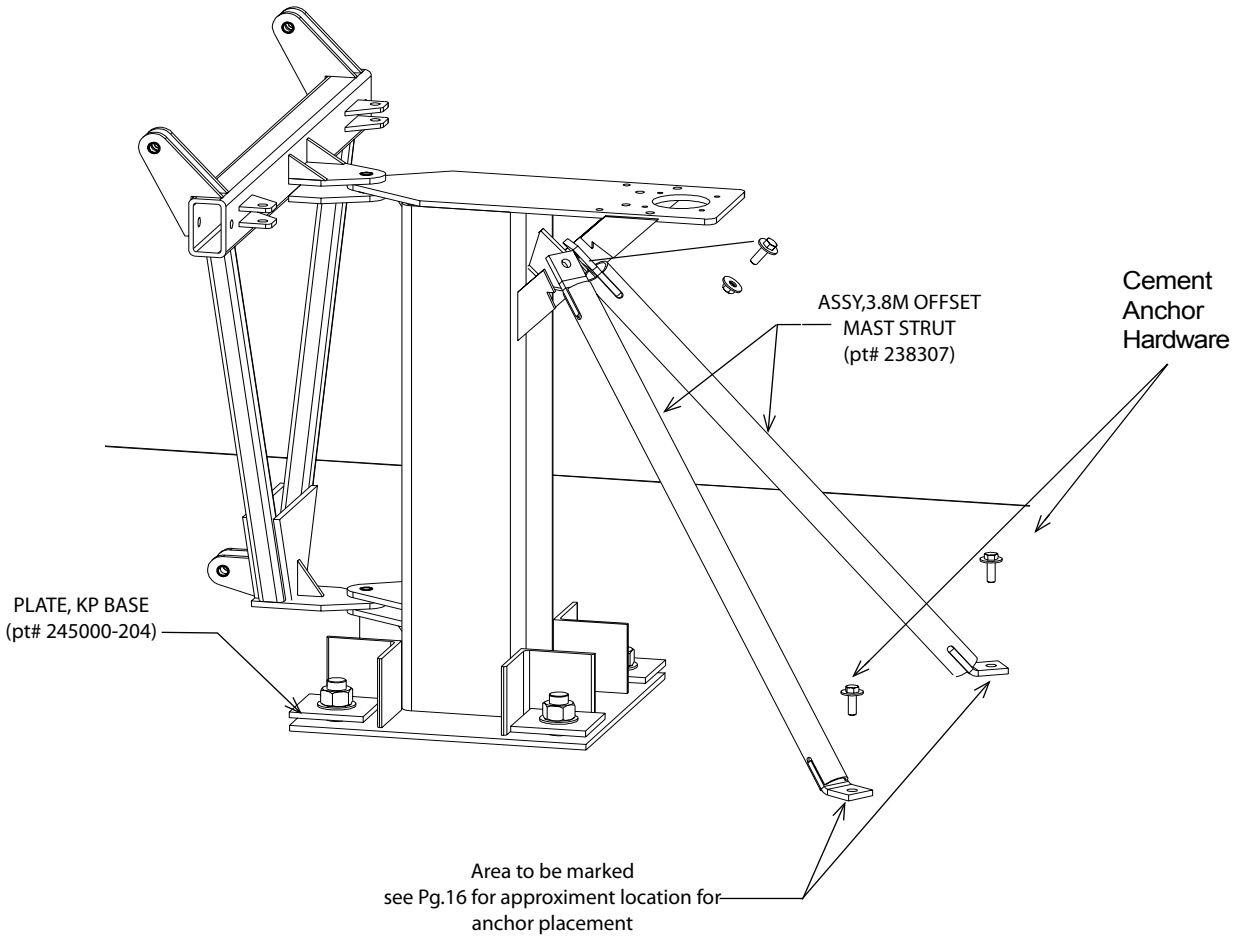


King Post Assembly Placement

1. Place the King Post Mast assembly onto the foundation threaded rods and secure with nuts and washers from the foundation hardware pack. Be sure to use the 4-base reinforcement plates provided as shown.
   NOTE: The mast should be pointed due south (northern hemisphere sites)

2. Attach ASSY,3.8M OFFSET MAST STRUT (pt# 238307) using 5/8in hardware. Mark area on foundation for cement anchor placement location (see page 16 for foundation details and anchor requirments)
   NOTE: The use of an impact drill for drilling cement will be needed.

3. Assemble either the Fixed or Motorized Mount Assembly Kit option purchased with the system.



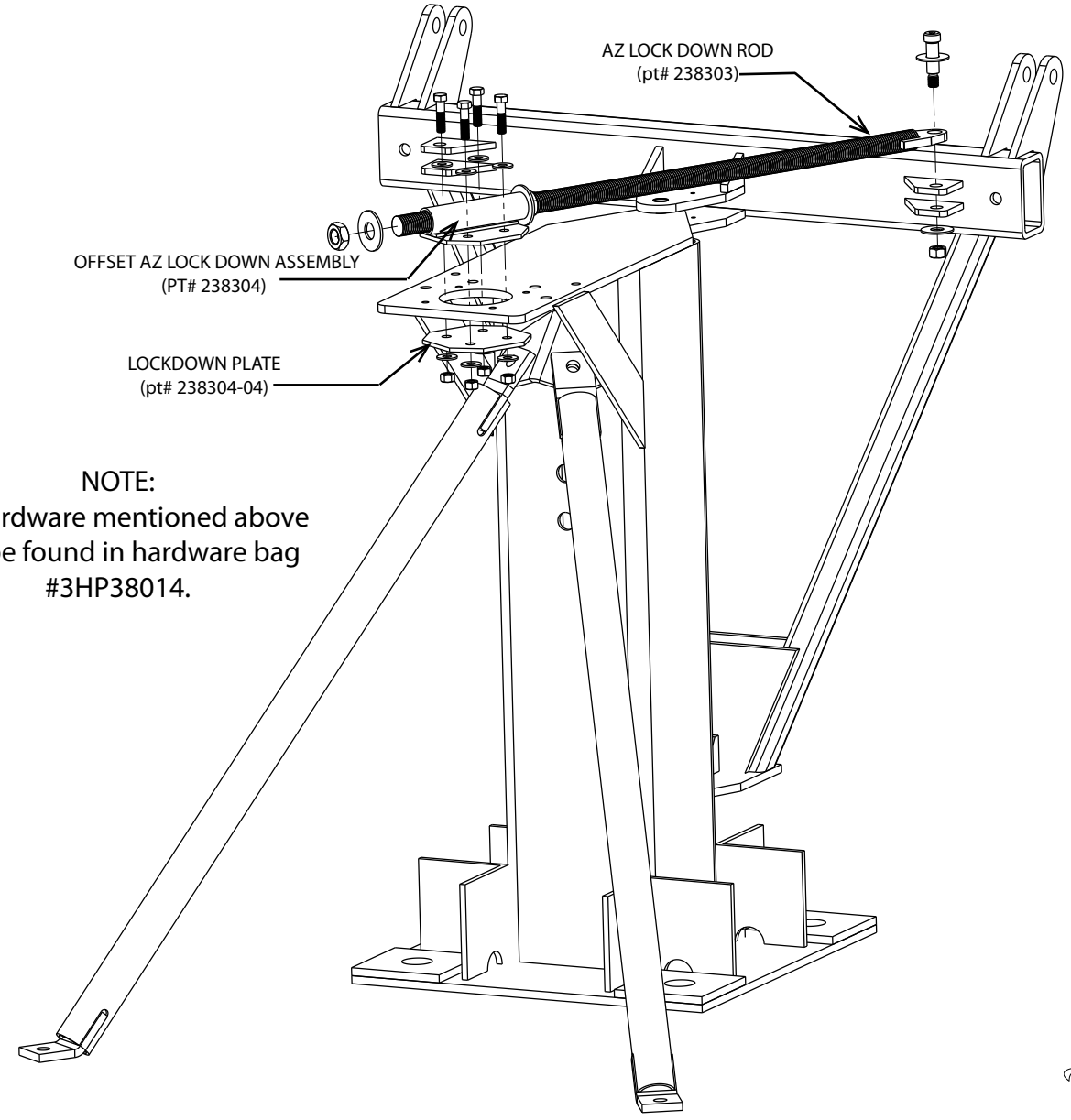
Az Lockdown Assembly

1. Attach 3.8m OFFSET AZ LOCK DOWN ASSEMBLY (PT# 238304) and LOCKDOWN PLATE (pt# 238304-04) to Kingpost assembly using (4) 1/2nc X 2-1/4 botls and matching washers and nuts. Leave hardware lose at this time.

2. Slide AZ LOCK DOWN ROD (pt# 238303) thru tube on lock down plate as pictured below. Leave hardware lose at this time.

3. Attach yoke end of AZ LOCK DOWN ROD to yoke using 3/4" x 2.00" shoulder bolt and 5/8" nut washers as pictured below.

4. Tighten all hardware once proper AZ angle has been set.



NOTE:
All hardware mentioned above can be found in hardware bag #3HP38014.

Hub Assembly

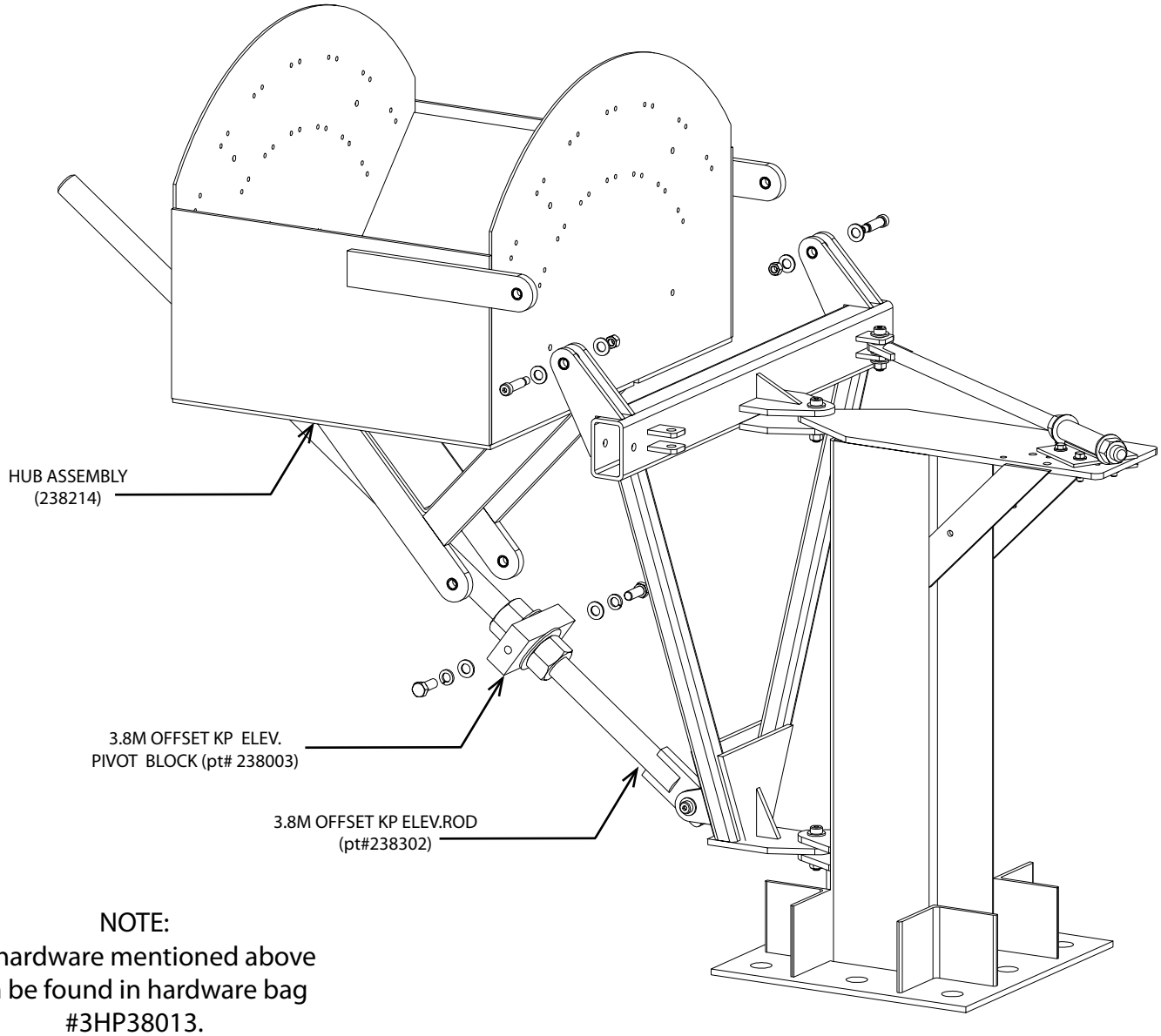
1. Attach ASSY,3.8M OFFSET KP ELEV.ROD (pt#238302) to yoke pick up detail using 3/4"X 2.00" shoulder bolt, 5/8 nut and washer.

2. Place 3.8M OFFSET KP ELEV.PIVOT BLOCK (pt# 238003) on to 3.8M OFFSET KP ELEV.ROD (pt#238302) as pictured below. (Leave THIS hardware loose at this time)

2. Place the HUB ASSEMBLY (pt# 238214) on to the A-frame using the pre-installed shoulder bolt hardware as shown.

3. Attach 3.8M OFFSET KP ELEV.PIVOT BLOCK (pt# 238003) to HUB ASSEMBLY using (2) 3/4nc X 1-1/2 bolts and matching lock washers.

4. Tighten all hardware at this time.

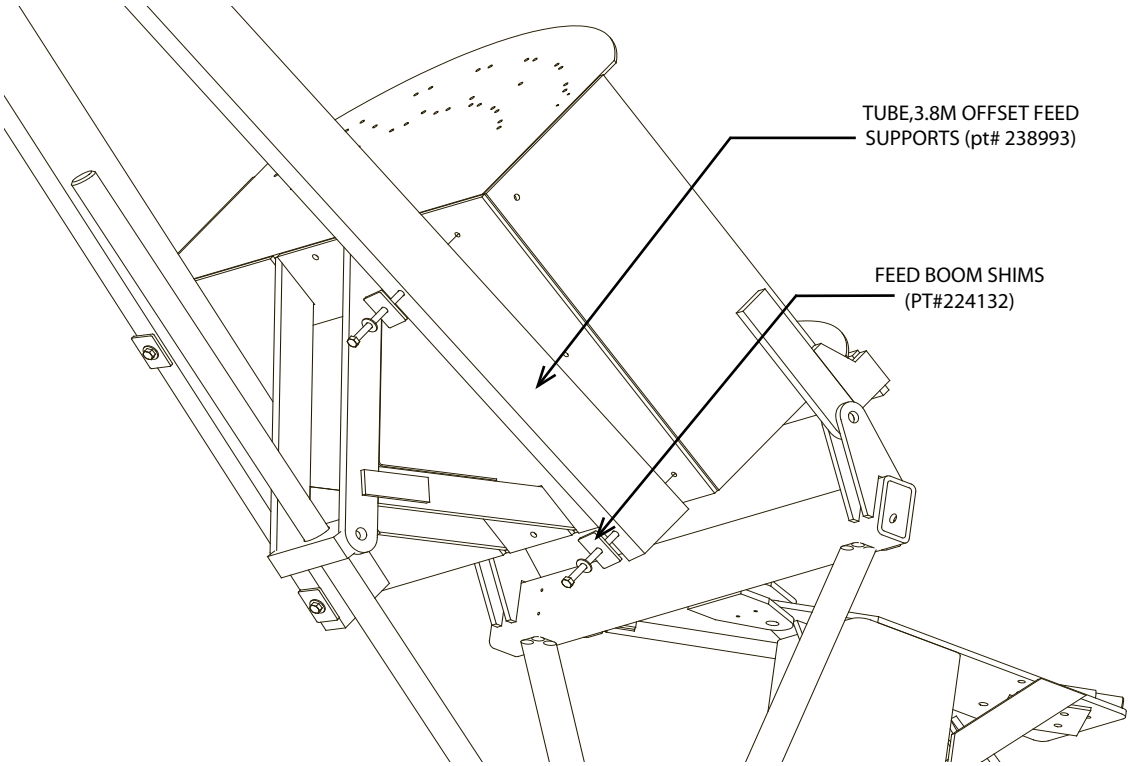


NOTE:
All hardware mentioned above can be found in hardware bag #3HP38013.

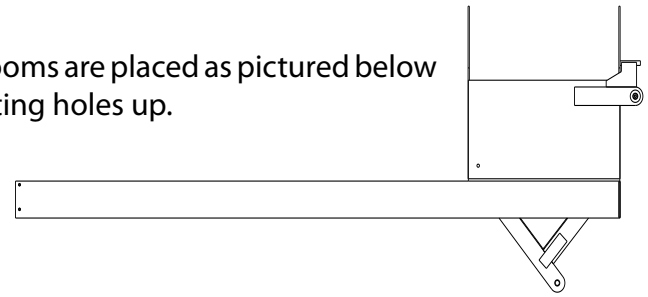
Feed Boom Install

1. Install TUBE,3.8M OFFSET FEED SUPPORTS (pt# 238993) using (4) 1/2nc x 7.00" bolts, matching washers and (4) FEED BOOM SHIMS (pt# 224132).

2. Tighten all Feed Support hardware.

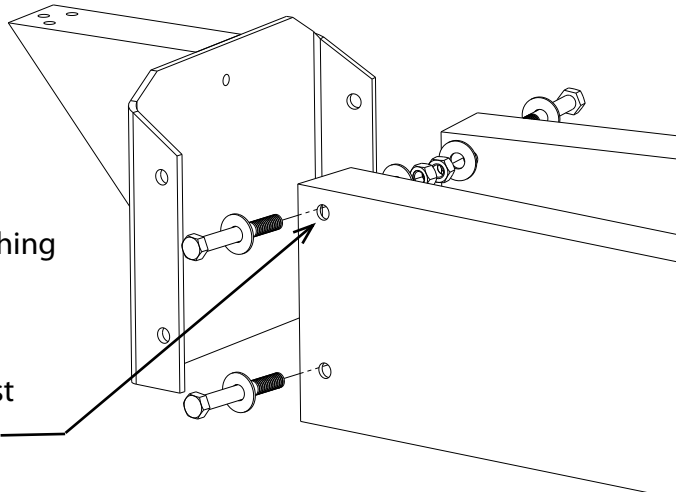


NOTE:
Make sure that feed booms are placed as pictured below with feed plate mounting holes up.



Feed Plate Install

1. Install 3.8M OFFSET FEED PLATE ASSEMBLY (pt# 238996) using (4) 3/8nc x 3.00" bolts,and matching washers and nuts.



NOTE:
All hardware mentioned above can be found in hardware bag #3HP38016.

Radial Beam Install

1. Fasten (4) ANGLE,3.8M OFFSET HUB (pt# 238214-12) to each Radial Beam as shown, using (4) 3/8in shoulder (1) 5/16" washer, and nut per.

2. Adjust the Hub into the position shown, and select 3.8M OFFSET RADIAL BEAM C ASSEMBLY (pt#238213), and place into the outermost location inside the Hub. Fasten using 3/8in shoulder bolt hardware, (1) 5/16" washer, nut per Leave 1/2 turn loose.

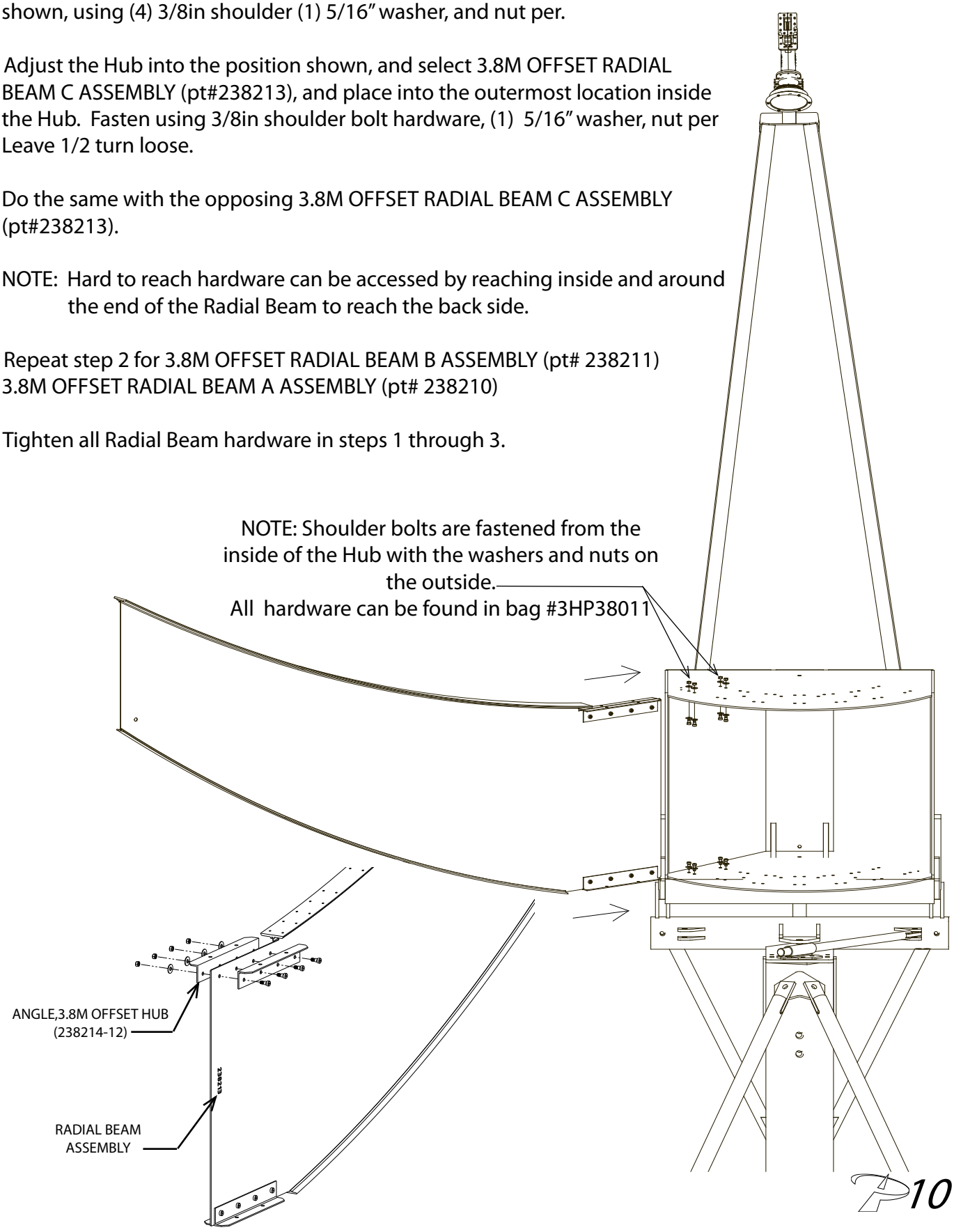
   Do the same with the opposing 3.8M OFFSET RADIAL BEAM C ASSEMBLY (pt#238213).

   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 3.8M OFFSET RADIAL BEAM B ASSEMBLY (pt# 238211) 3.8M OFFSET RADIAL BEAM A ASSEMBLY (pt# 238210)

4. Tighten all Radial Beam hardware in steps 1 through 3.

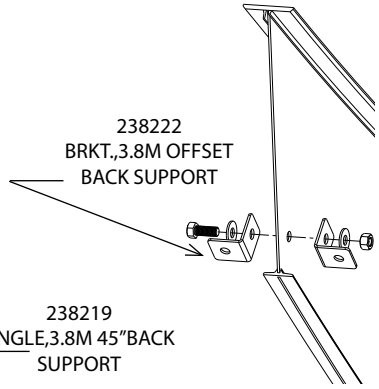
NOTE: Shoulder bolts are fastened from the inside of the Hub with the washers and nuts on the outside.
All hardware can be found in bag #3HP38011

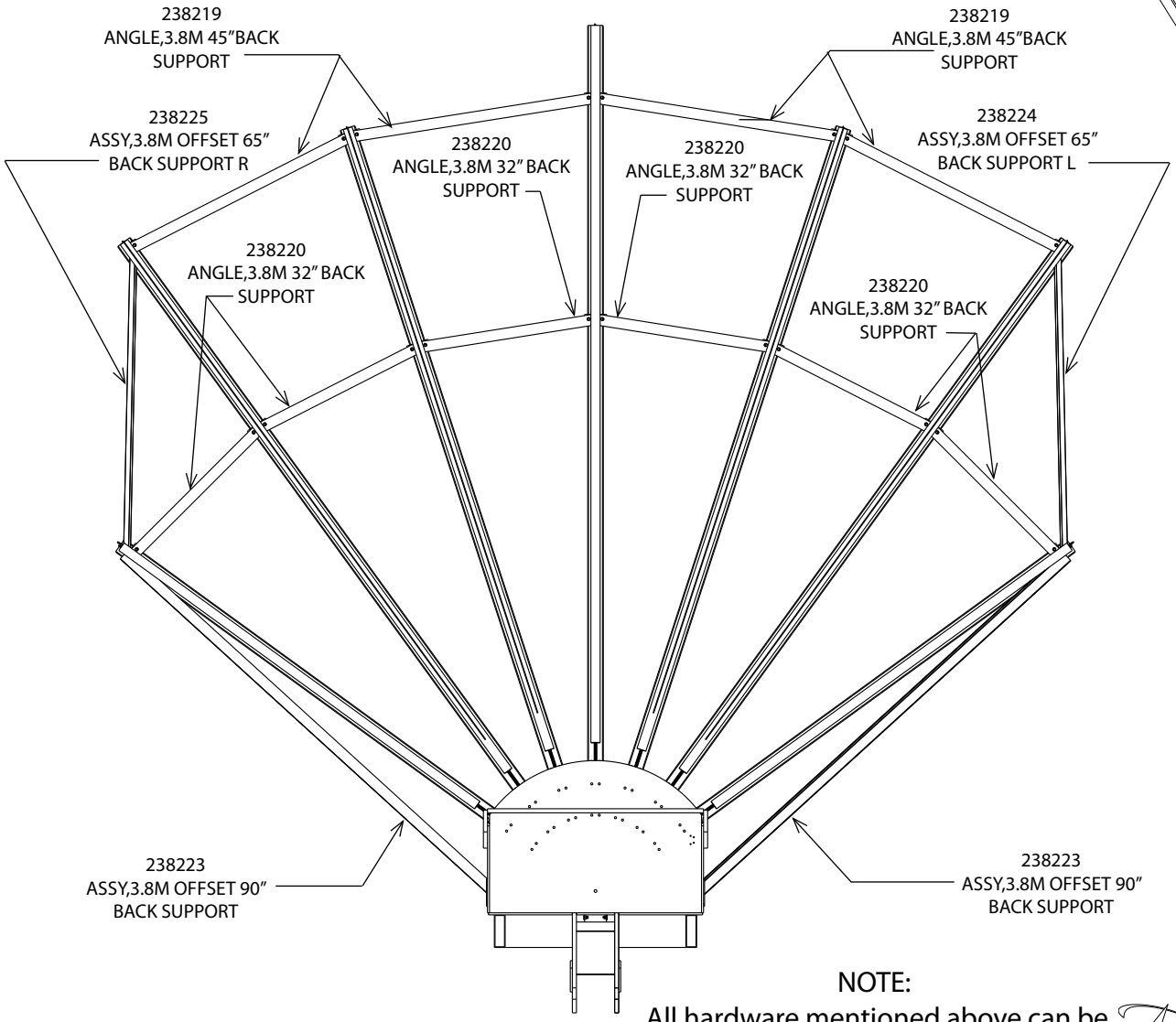


Back Structure Install

1. Pre-assemble all (20) BRKT.,3.8M OFFSET BACK SUPPORT to the Radial Beams using 1/2x1-1/4" bolt, 2-washers, 1-nut. Leave loose.
2. Attach 3.8M OFFSET 65" BACK SUPPORT L (pt# 238224) and 3.8M OFFSET 90" BACK SUPPORT (pt# 238223)
3. Starting in the middle and working outward attach (6) ANGLE,3.8M 32" BACK SUPPORT (pt# 238220) and (4)ANGLE,3.8M 45"BACK SUPPORT using 1/2x1-1/4" bolt, 2-washers, 1-nut.
4. Attach (2)ASSY,3.8M OFFSET 90" BACK SUPPORT (pt# 238223) to the Hub and Radial Beams as shown.

NOTE: Leave all Frame hardware approx. 1/2 turn loose at this time.
NOTE: Assure that all supports angles and frame angles are parallel to to face of the Hub.





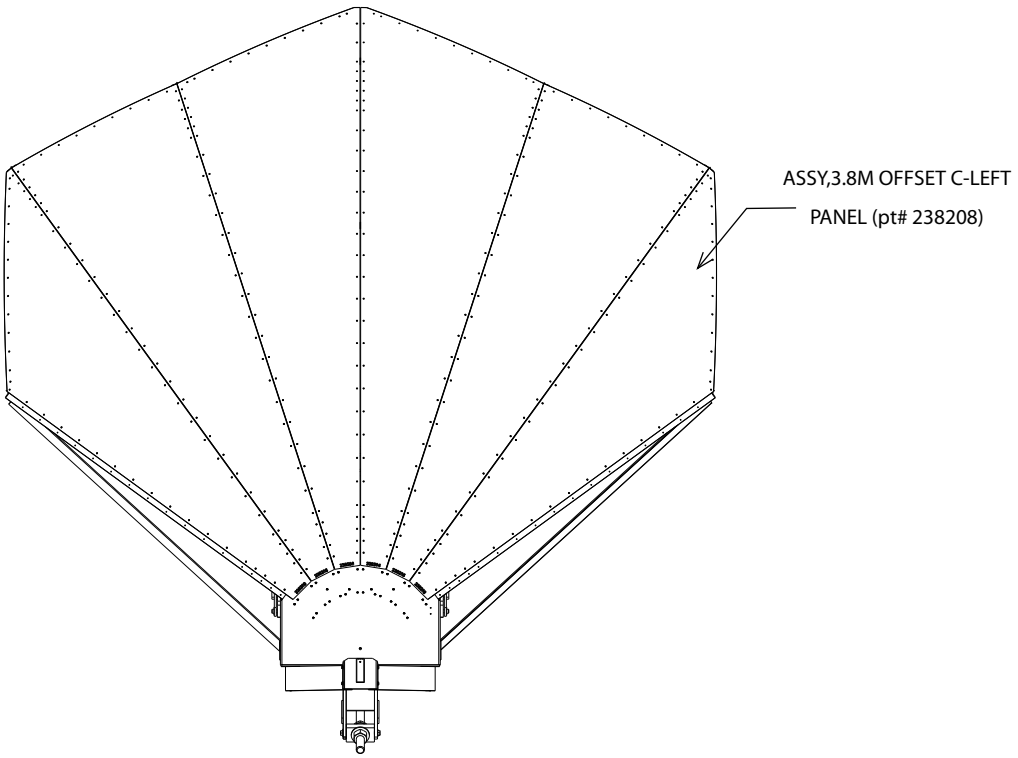
NOTE:
All hardware mentioned above can be found in hardware bag #3HP38011-03

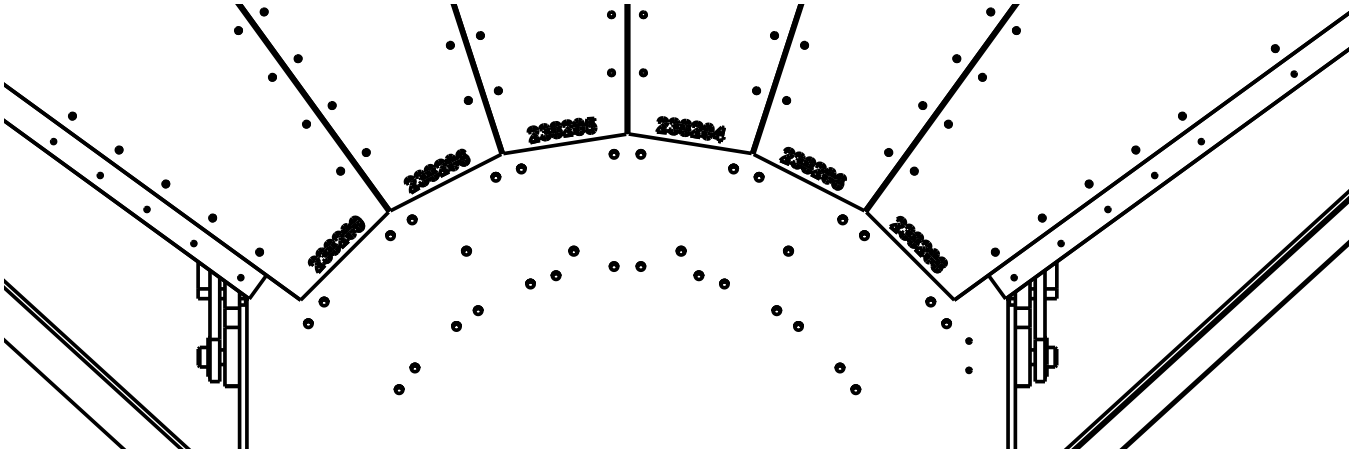
Panel Install

1 Starting with ASSY,3.8M OFFSET C-LEFT PANEL (pt# 238208)
Place the panel into place onto the left-most radial ream as pictured below
Fasten with 1/4x1/2 truss head bolts. Leave bolts 1/2 turn loose at this time.

2 Fasten the next panel as mentioned above. Continue untill all panels have been placed. (See inset picture for panel placement)

3 Tighten all hardware at this time. (If you must step into reflector please DO NOT step in center of panels. Keep weight in radial beams ONLY)



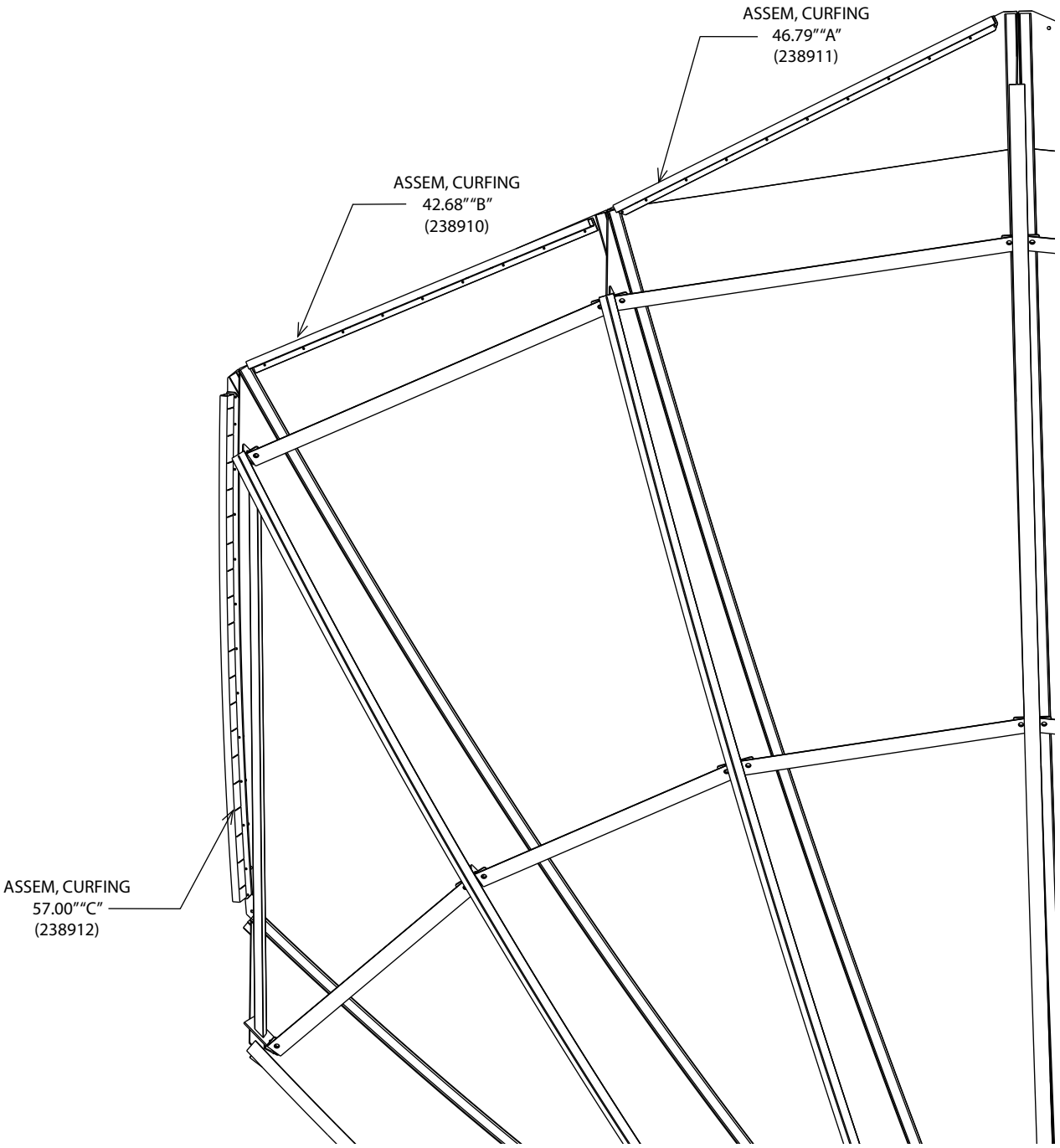


NOTE:
Left and right orentation are as you are standing BEHIND the reflector assembly. The above drawing is pictured as you are standing INFRONT of the reflector assembly. Left and right designated panels are NOT interchangeable.
All above mentioned hardware can be found in hardware bag 3HP38011-01

Kurfing Install

1. Attach Kurffing Segiments to outter most part of panels as pictured below using same 1/4-20 screws used on panels

2. When all panel, kurffing and hardware is in place tighten all panel and back structure angle bolts starting near the hub and working outward.



Antenna Pointing

NOTE: The Reflector contains a 23 degree offset look angle. Therefore, when the face of the reflector looks perpendicular to the ground, the antenna is actually looking 23 degrees in elevation.
The antenna look angle is actually the top side of the Feed Support Plates as shown below.

FOR FIXED MOUNT POINTING-

.

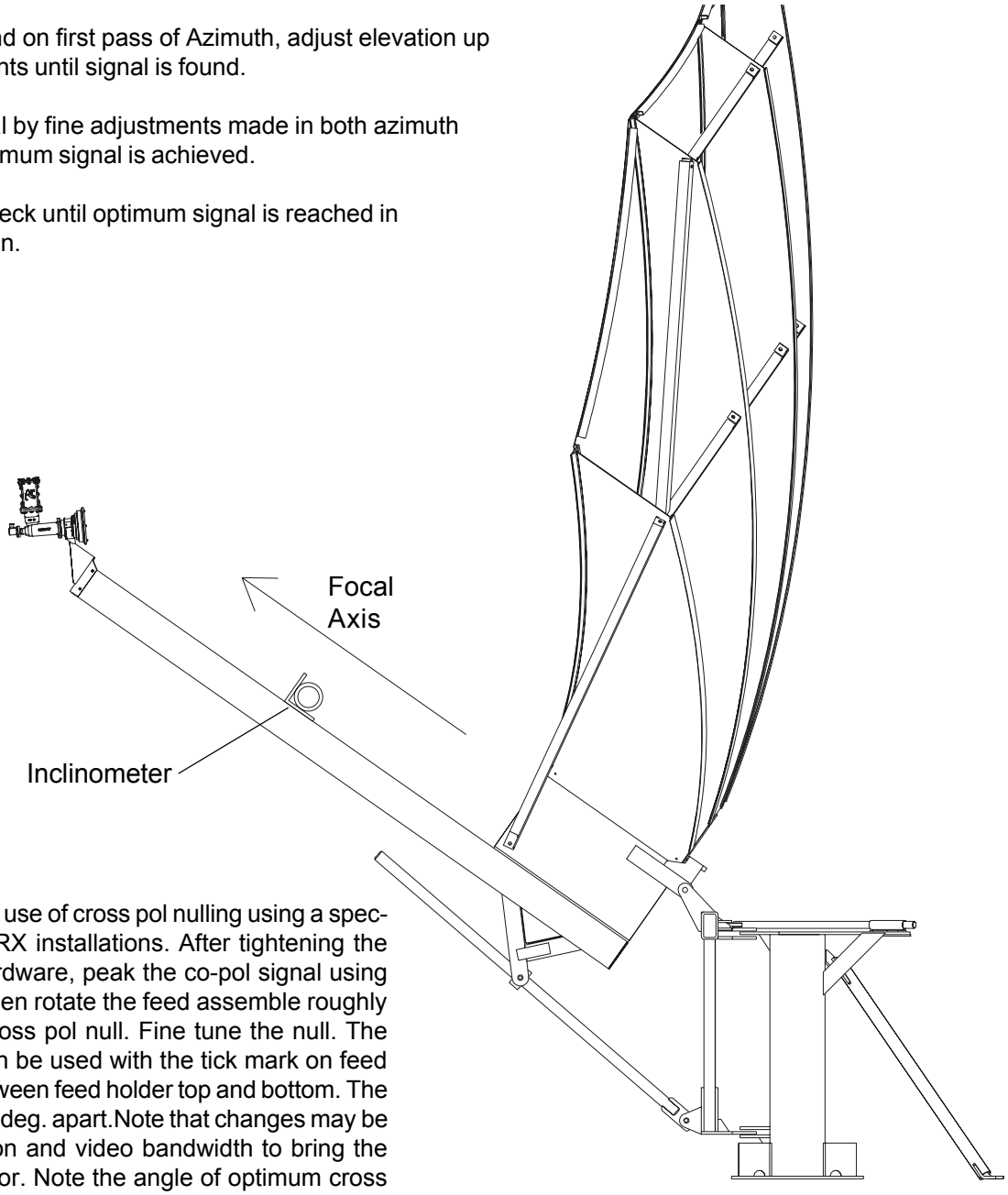
1. Adjust the reflector up or down in elevation by turning the two 2" hex nuts on the Elevation Rod Assembly until the desired elevation is measured (taking Elevation angle measurement from the Feed Support Arms).

2. Azimuth Adjustment: With the electronics set to acquire the satellite, use the double-nut threaded adjustment on the Azimuth Rod.

NOTE: If signal is not found on first pass of Azimuth, adjust elevation up or down in 2 deg increments until signal is found.

3. Peak the satellite signal by fine adjustments made in both azimuth and elevation until the optimum signal is achieved.

Note: Adjust, tighten, recheck until optimum signal is reached in both Azimuth and Elevation.

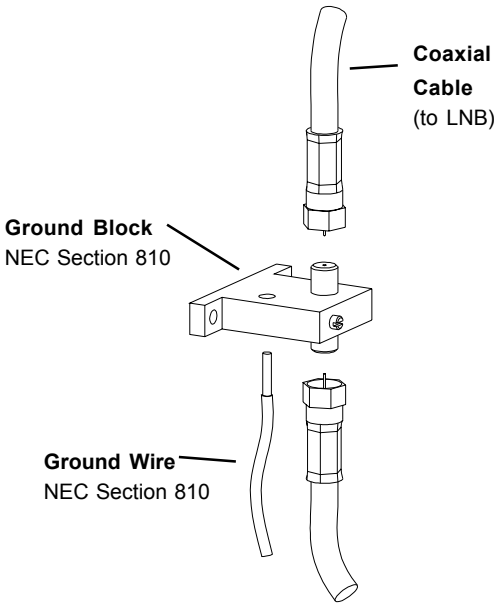


4. Patriot recommends the use of cross pol nulling using a spectrum analyzer during TX/RX installations. After tightening the azimuth and elevation hardware, peak the co-pol signal using the spectrum analyzer. Then rotate the feed assemble roughly 90 degrees to obtain a cross pol null. Fine tune the null. The scale on the feed horn can be used with the tick mark on feed holder top or the seam between feed holder top and bottom. The tick mark and seam are 90 deg. apart.Note that changes may be necessary to the resolution and video bandwidth to bring the signal above the noise floor. Note the angle of optimum cross pol null. Rotate the feed back exactly 90 degrees and tighten the feed clamp.

Grounding

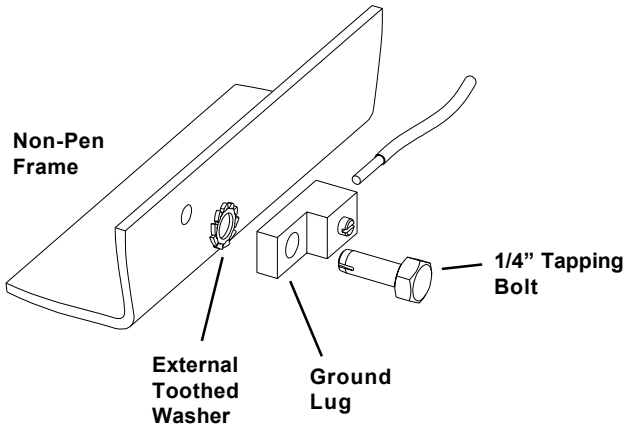
Grounding Antenna Feed Cables

1. Ground antenna feed cables in accordance with current National Electric code and local electric codes. The illustration shows a typical grounding method.
Clamps that provide a solid connection between ground wire and a ground source should be used.



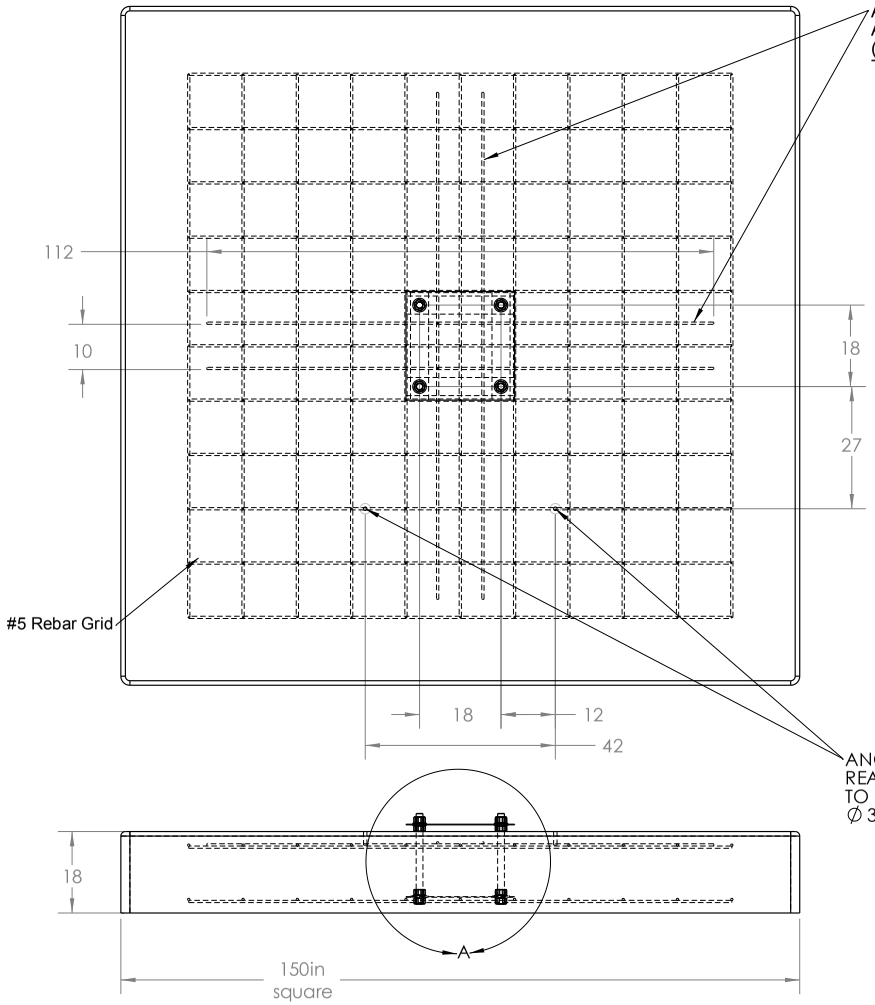
Grounding Non-Penetrating Mount Frame (if applicable)

1. Ground the Non-Penetrating mount frame. The illustration shows a typical grounding method.
Refer to the NEC Section 810 and local electric codes for specific instructions on grounding the remaining end of the ground wire.



FOUNDATION HEADING

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



NOTES:

1. Concrete, 300 psi at 28 days, poured against undisturbed soil. (Allow 24 hours for concrete to set before installation of antenna.)

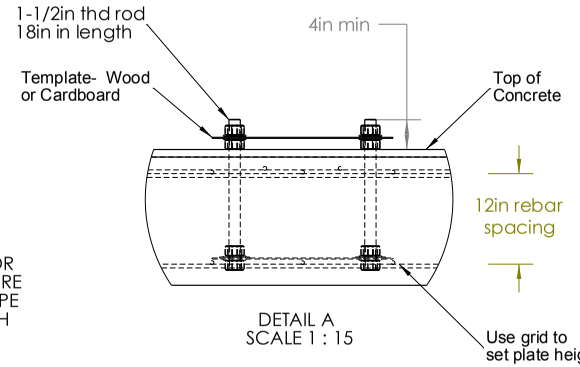
   Estimated concrete- 8.7 cubic yards

2. Soil bearing capacity- 2000 psf.
3. #5 rebar in all concrete pad surfaces

   Estimated rebar- 480 ft.

4. Anchor bolts, washers, nuts shall be Grade 5 or better.
5. When the frost line is below 14in the slab-soil base requires special design consideration to prevent heavage.

Bolt and Template Kit available from Patriot Antenna Systems



DETAIL A
SCALE 1 : 15

		NAME	DATE
MATERIAL:	DRAWN BY:	D PRATT	03/07/2005
	ENG APPR.	KS	03/07/2005

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES:
CORNERS ARE AT 90°

NOTES:

Tolerances:
FRACTIONAL ± 1/16"
ANGULAR: ± 1°
X ± .062"
XX ± .031"
XXX ± .015"

PATRIOT 704 North Clark Street Albion, MI 49224 USA

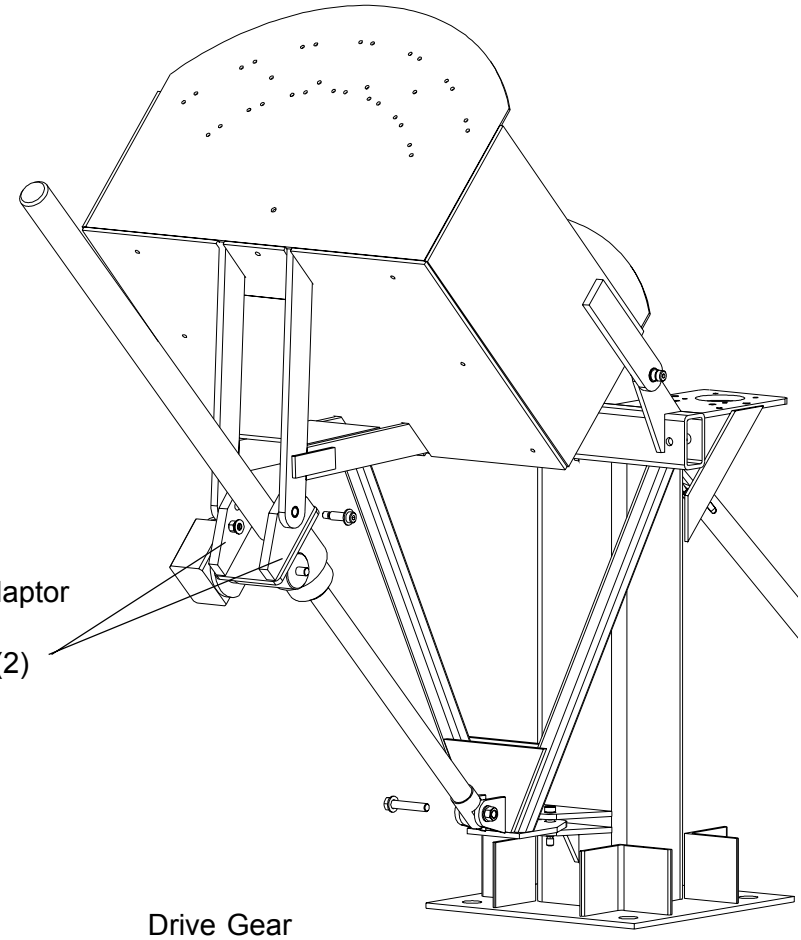
TITLE:
3.8m OFFSET FOUNDATION

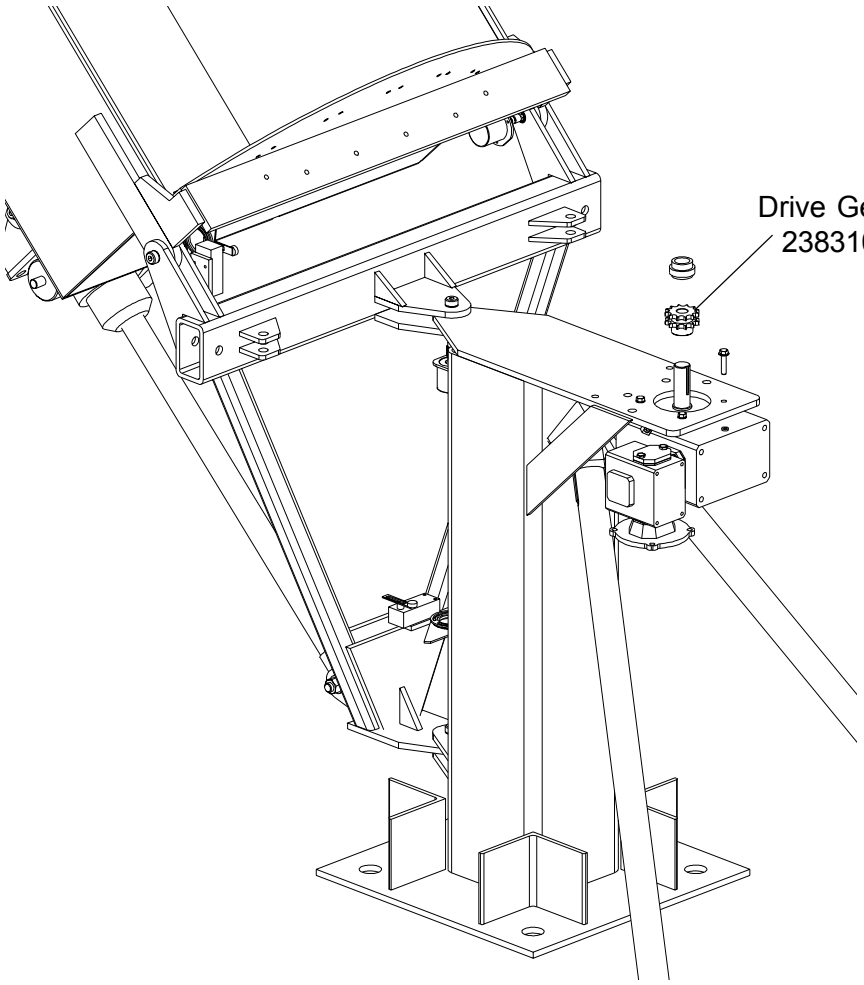
SIZE	DWG. NO.	REV
B	2FD380OFFSET001	**001**
SCALE: 1:25		SHEET 1 OF 1

Mototized Mount Option Assembly

1. Assemble the Elevation Jack assembly to the Hub assy as shown using 2- 3/4x2-1/2" shoulder bolts, 2- 3/4" washers(bolt side), 2- 5/8" washers (nut side), and 2- 5/8" nylok nuts.

2. Assemble the Jack extension rod to the Yoke assy using 1- 3.4x4" bolt, 2 washers, and nylok nut.





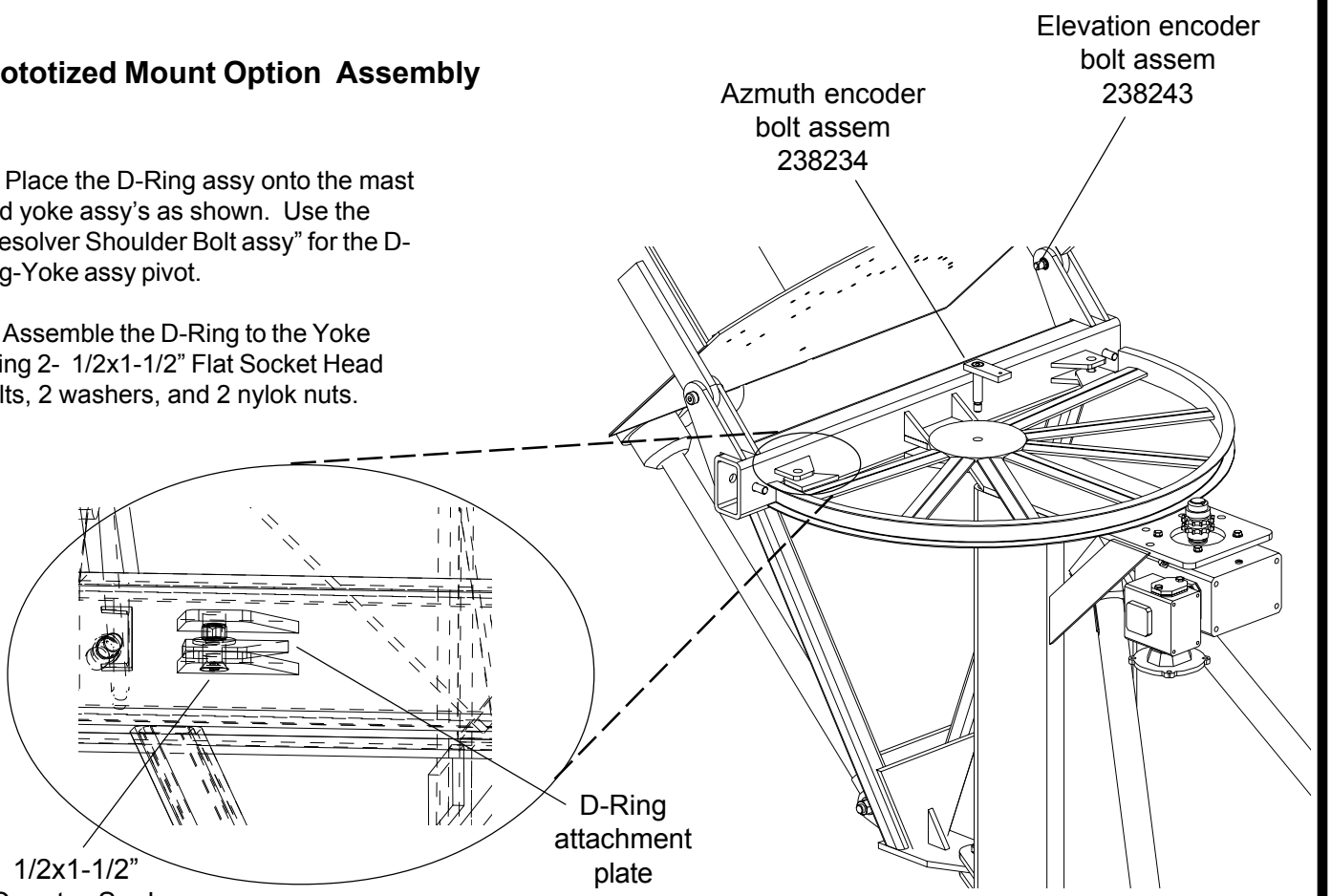
3. Mount the Azimuth GearDrive to the KingPost Mast assembly using 4- 3/8x1-1/2" bolts and washers.

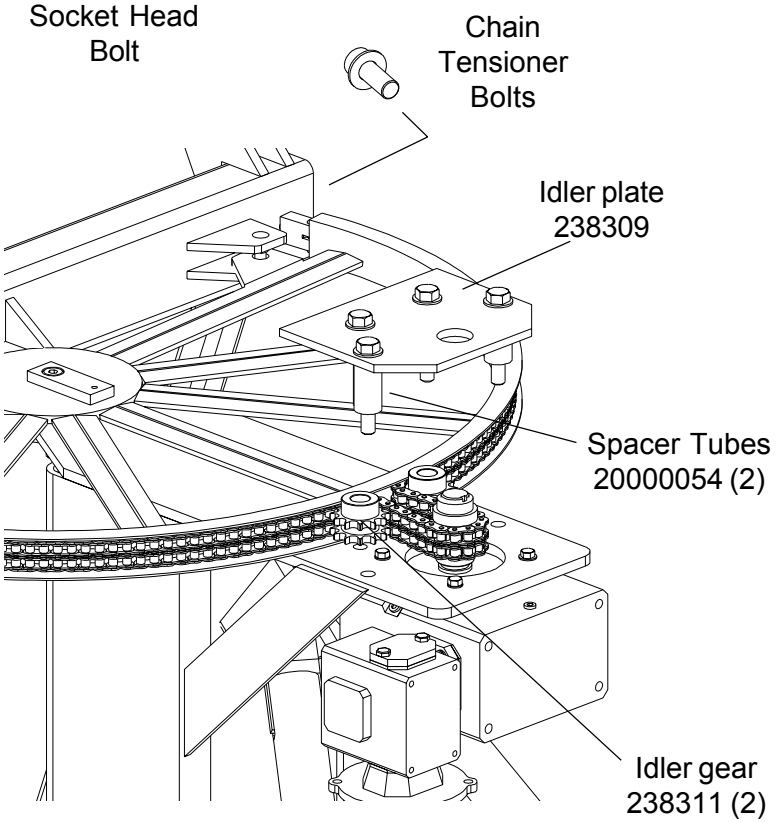
4. Assemble the keyed drive sprocket, key and guide bushing to the drive shapft as shown. Leave loose to adjust height later.

Mototized Mount Option Assembly

5. Place the D-Ring assy onto the mast and yoke assy's as shown. Use the "Resolver Shoulder Bolt assy" for the D-ring-Yoke assy pivot.

6. Assemble the D-Ring to the Yoke using 2- 1/2x1-1/2" Flat Socket Head bolts, 2 washers, and 2 nylok nuts.





7. Replace the right Hub connection shoulder bolt with a "Resolver Shoulder Bolt assy".

8. Wrap the chain assyin place around the D-Ring and drive sprocket attaching the chain tensioner blocks to the yoke with 2- 5/8x1-1/2" NF bolts and washers,
NOTE: Apply lock-tite thread compound to the threads of these fasteners.

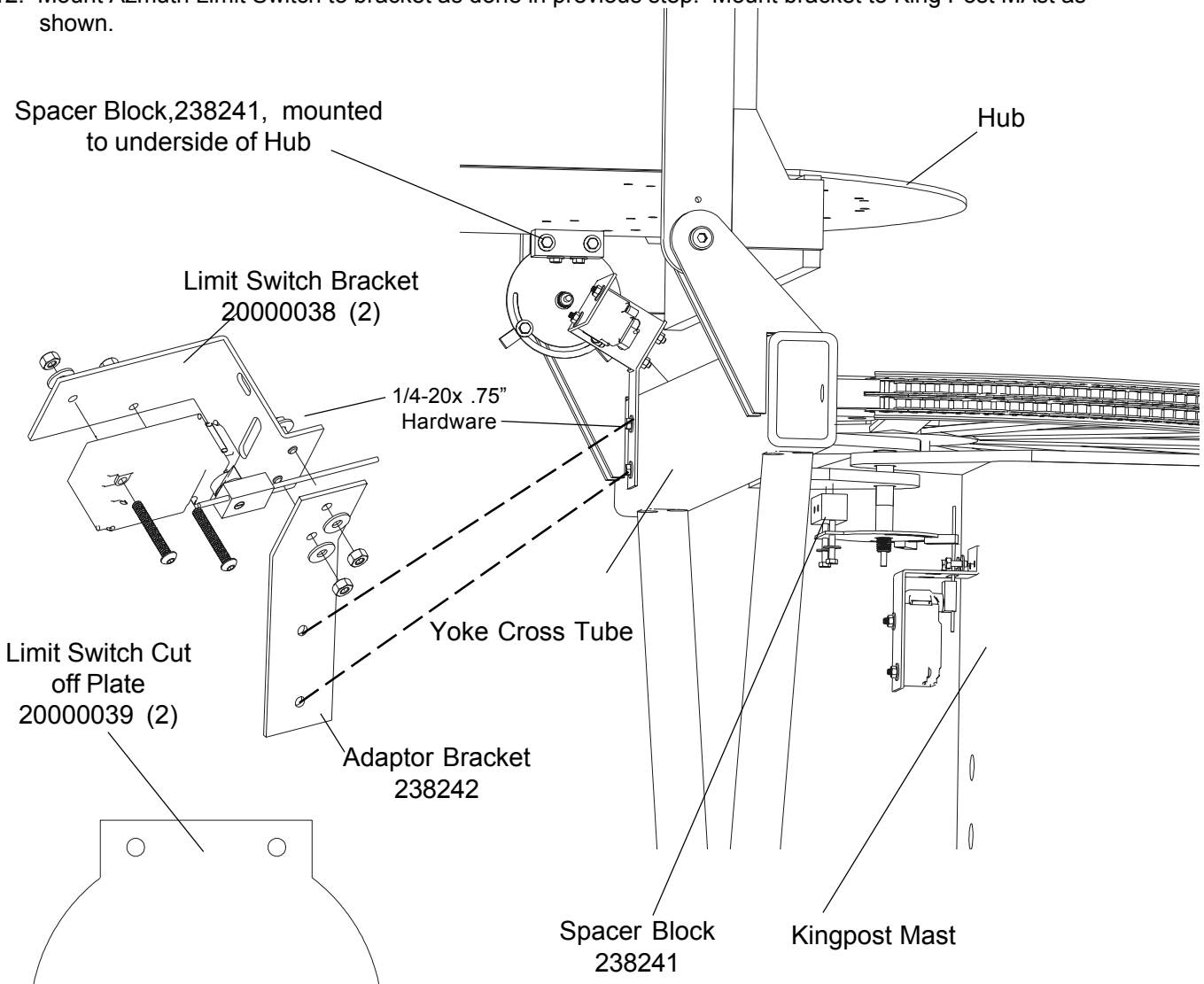
9. Line up the 2 Idler sprockets and Idler plate. Using 4- 5/8x4" bolts, 2 washers, and nylok nuts assemble the Idler plate as shown.

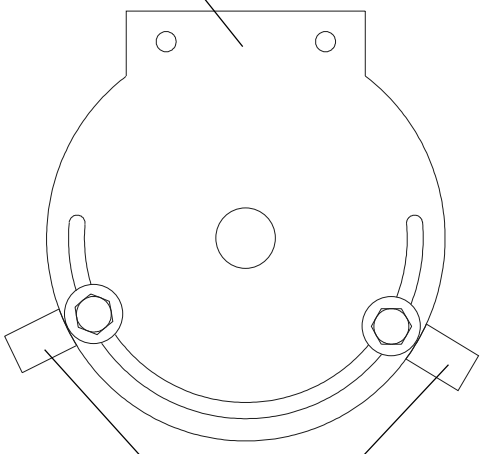
10. Adjust the chain tension purposely leaving a small amount of slack. Each adjuster bolt and chain tensioner block should have an equal gap to one another.

Mototized Mount Option Assembly

11. Mount Elevation Limit Switch and bracket, as shown, to yoke cross tube

12. Mount Azmuth Limit Switch to bracket as done in previous step. Mount bracket to King Post MAst as shown.





13 Assemble the Adjustable Limit stop plates to the spacer blocks and rough adjust a range of motion as shown.

NOTE: The Azimuth range of motion can be adjusted to any desired range within its' 180deg capability. Just be certain to trip the switch before the Yoke bumps the Mast assembly.

14. Connect the wiring per instrucitons of the selected controller unit.

Appendix B
(continued)

Mototized Mount Option Assembly

15. Assemble the Drive motors to the Elevation acutator and the Azimuth Gearbox.

Recommended Maintenance Schedule

Maintenance Item	Comment
Check Azimuth gearbox oil level. Oil level should be even with fill plug. Add oil as required to maintain proper level	
Check Azimuth chain and sprockets for dirt. Clean and lubricate as needed.	Lubricate with good commercial quality spray lubricant
Check Elevation gearbox oil level. Oil level should be even with fill plug. Add oil as required to maintain proper level.	
Check Elevation Jack boot for damage or deterioration. Clean dirt and oil from boot as required.	Use soap and water for cleaning
Check cables and connectors for damage or deterioration. Clean as required to prolong life.	Use electrical contact cleaner as required
Check wiring for strain relief, damage or deterioration. Clean as required to prolong life.	

Troubleshooting

Troubleshooting Tips

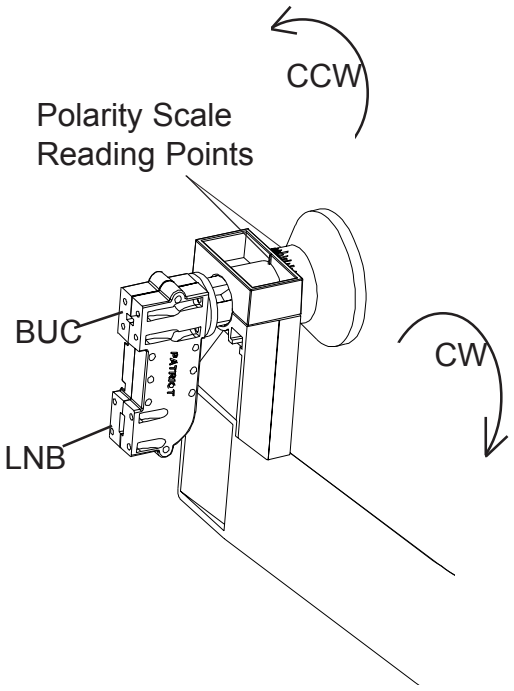
Item	Symptom	Recommended Action
1	Antenna will not drive.	•Check for mechanical interference •Check power source •Check fuses in drive cabinet •Check limit switch status/operation •Refer to controller maintenance manual for further options
2	Feed polarization will not drive.	•Check for mechanical interference •Check power source •Check fuses in drive cabinet •Check limit switch status/operation •Refer to controller maintenance manual for further options
3	Low signal strength	•Check pointing of antenna and re-peak as required if mis-pointed •Check feed assy for damage or water ingress •Check waveguide for damage or water ingress •Check cables for damage or poor connections

Feed Adjustment (Polarity tuning)

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

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

NOTE: Some satellites have a slant angle with respect to the satellite belt angle. Contact the satellite operator for details.

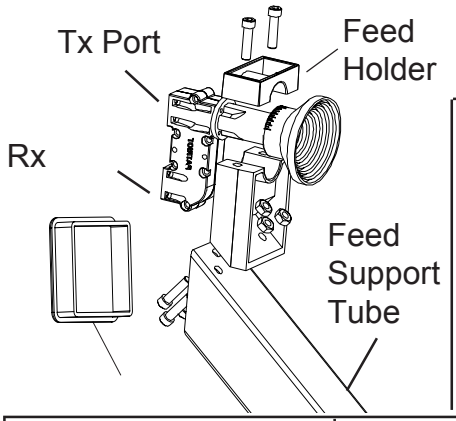


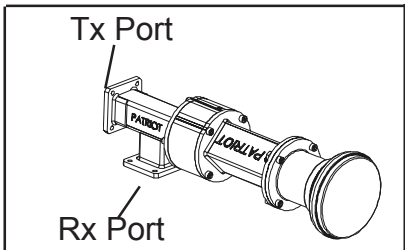
Feed Rotation Chart

Install site west of satellite	Install site East of satellite	
CW	CCW	Northern Hemisphere
CCW	CW	Southern Hemisphere

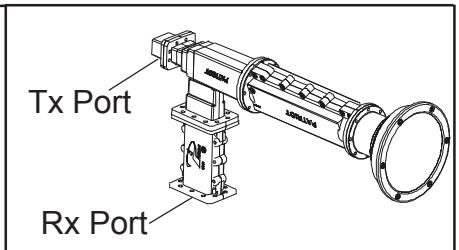
Feed Assembly

1. Attach the relevant Feed Assembly.
2. Insert the Feed Assembly into the Feed holder and assemble to the Feed Support Tube using the hardware illustrated below.
3. Ir support tube.

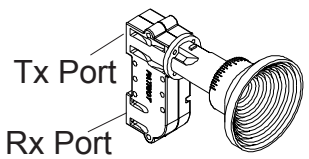




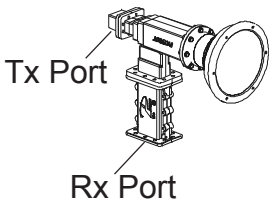
X-Band Circular



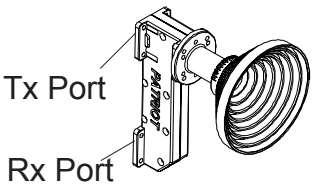
C-Band Circular



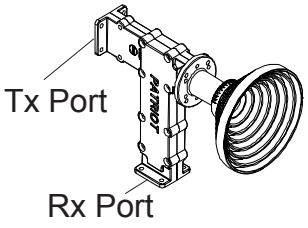
KA-Band Linear Tx/Rx



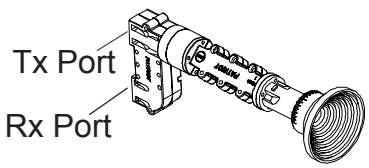
C-Band Linear



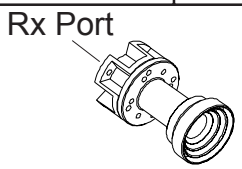
Ku Band Tx/Rx



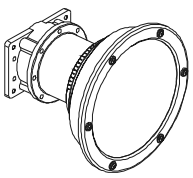
Ku-Band Co-Pol Tx/Rx



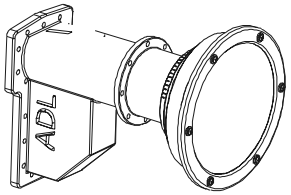
KA-Band Circular Tx/Rx



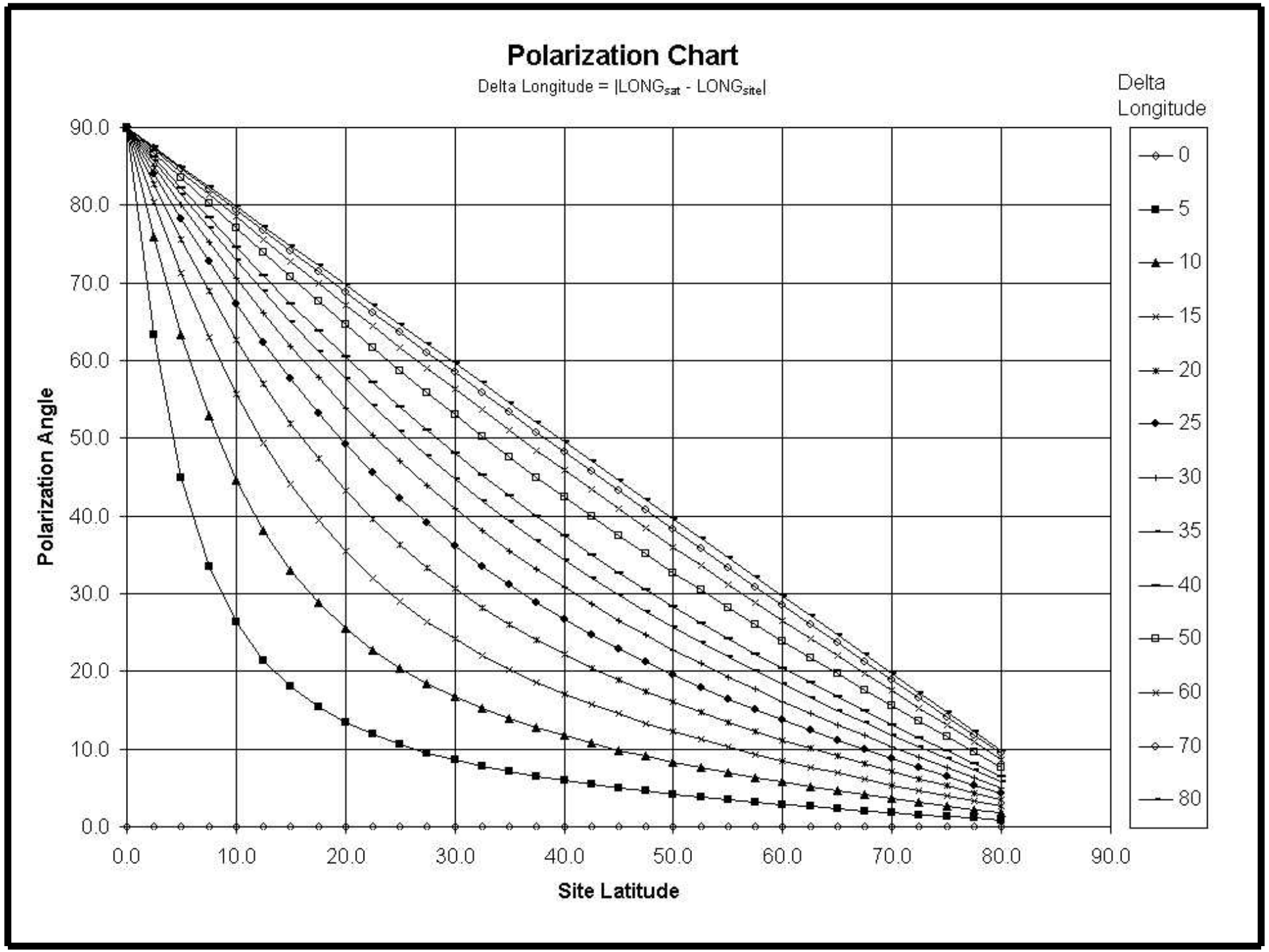
Ku Band Rx



C-Band Rx



C-Band Dual Rx


Polarization Chart
Delta Longitude = |LONG$_{sat}$ - LONG$_{site}$|
Delta Longitude
0
5
10
15
20
25
30
35
40
50
60
70
80
Polarization Angle
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Site Latitude

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- ***Wegner***

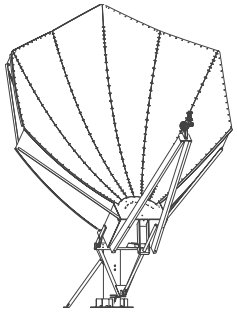
Specifications

Electrical	*C Band*		*Ku Band*
	Linear	**Circular**	
Tx Band(GHz)	5.85 - 6.725	5.85 - 6.425	13.75 - 14.5
Rx Band(GHz)	3.4 - 4.2	3.625 - 4.2	10.7 - 12.75
Tx Gain dBi (Midband)	46.2	46.1	53.5
Rx Gain dBi (Midband)	42.1	41.9	51.8
Efficiency	70%		70%
Cross Polarization (on axis)	35dB	(see note)	35dB
Side Lobes		ITU-580-5	

(note- Feed dependent
17.7 or 27.3dB)

Mechanical

Antenna Size	3.8m (150")
Offset Angle	22.9 degrees
F/D	0.64
Operational Wind	50 m.p.h.
Survival Wind	125 m.p.h.
Operational Temp	-40 to 140 F
Survival Temp	-60 to 180 F
Rain	Operational = 1/2in./hr Survival = 3in./hr
Ice	1 in. Radial -or- 1/2 in. + 60 m.p.h. wind



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