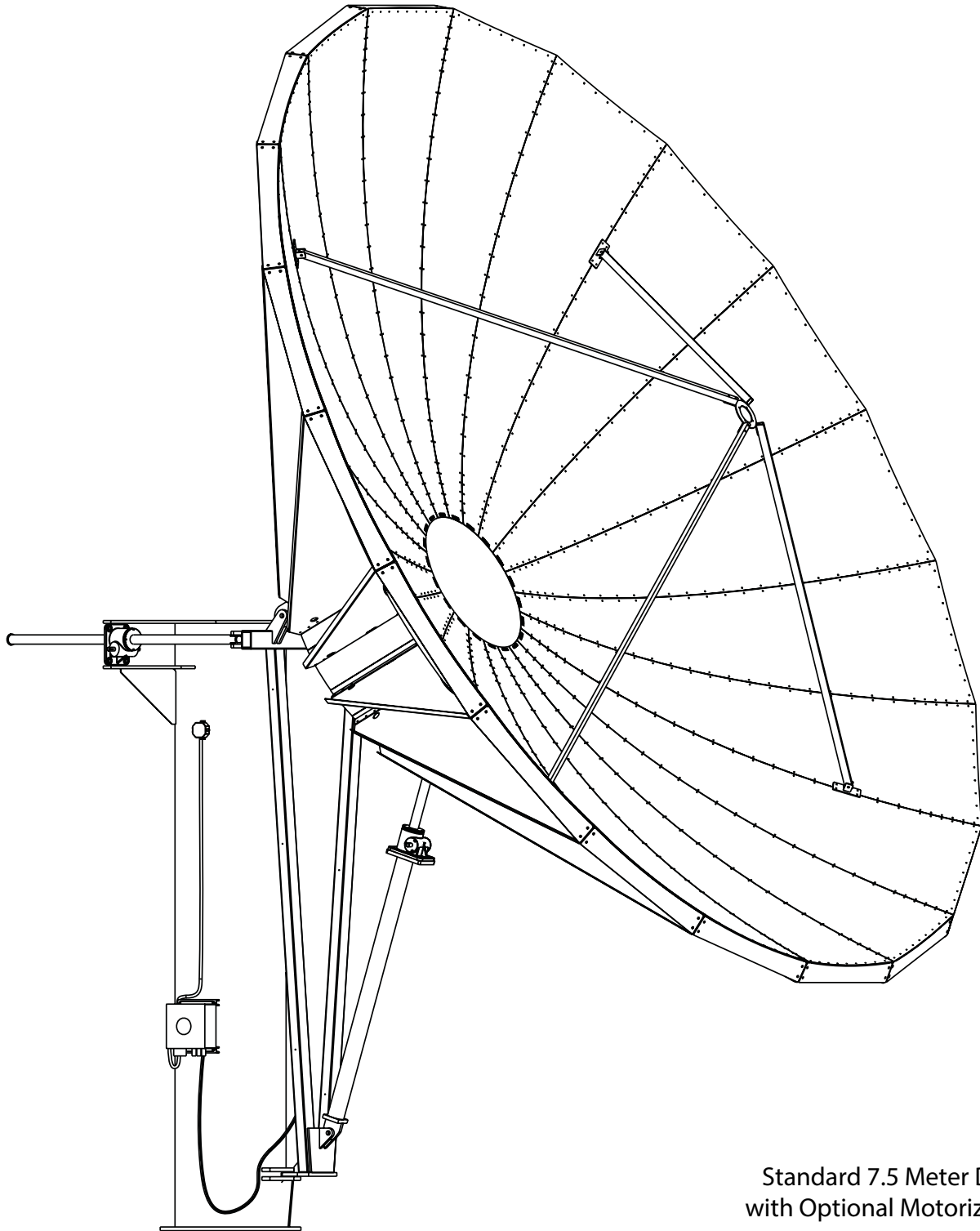


# ***6.3m and 7.5m Receive-Only Earth Station Assembly Manual***



Standard 7.5 Meter Depicted  
with Optional Motorization Kit



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

Claimants under this Warranty shall present their claims along with the defective equipment to CHALLENGER 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. CHALLENGER DOES NOT AUTHORIZE ANY PERSON TO ASSUME FOR IT THE OBLIGATIONS CONTAINED IN THIS WARRANTY AND CHALLENGER COMMUNICATIONS 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 CHALLENGER 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 CHALLENGER 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.

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

Product Serial Number: \_\_\_\_\_

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

Challenger Communications  
704 North Clark Street  
Albion, Michigan 49224 USA  
Tel: (01) 517 680 0125  
Fax: (01) 517 680 0133

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[www.ChallengerCommunications.com](http://www.ChallengerCommunications.com)

## IMPORTANT!!!

INSTALLATION OF THIS PRODUCT SHOULD BE PERFORMED ONLY BY A PROFESSIONAL INSTALLER AND IS NOT RECOMMENDED FOR CONSUMER D.I.Y. (DO-IT-YOURSELF) INSTALLATIONS.

## WATCH FOR WIRES!

Installation of this product near power lines is dangerous. For your own safety, follow these important safety rules.

1. Perform as many functions as possible on the ground.
2. Watch out for overhead power lines. Check the distance to the power lines before starting installation. We recommend you stay a minimum of 6 meters (20 feet) from all power lines.
3. Do not use metal ladders.
4. Do not install antenna or mast assembly on a windy day.
5. If you start to drop antenna or mast assembly, get away from it and let it fall.
6. If any part of the antenna or mast assembly comes in contact with a power line, call your local power company. DO NOT TRY TO REMOVE IT YOURSELF! They will remove it safely.
7. Make sure that the mast assembly is properly grounded.

## WARNING

Assembling dish antennas on windy days can be dangerous. Because of the antenna surface, even slight winds create strong forces. For example, a 1.0m antenna facing a wind of 32 km/h (20 mph) can undergo forces of 269 N (60 lbs.). Be prepared to safely handle these forces at unexpected moments. Do not attempt to assemble, move or mount dish on windy days or serious, even fatal accidents may occur. CHALLENGER COMMUNICATIONS is not responsible or liable for damage or injury resulting from antenna installations.

## WARNING

Antennas improperly installed or installed to an inadequate structure are very susceptible to wind damage. This damage can be very serious or even life threatening. The owner and installer assumes full responsibility that the installation is structurally sound to support all loads (weight, wind & ice) and properly sealed against leaks. CHALLENGER COMMUNICATIONS will not accept liability for any damage caused by a satellite system due to the many unknown variable applications.

## RECOMMENDATION

CHALLENGER COMMUNICATIONS highly recommends the application of anti-seize wax on all antenna and mount hardware upon installation.

## Introduction

Thank you for purchasing your Challenger Communications product. We trust that you will find this to be a well designed product that will provide many years of reliable service. Please 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 two for future reference and read the warranty information. The serial number plate can be found on the hub.

## 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.

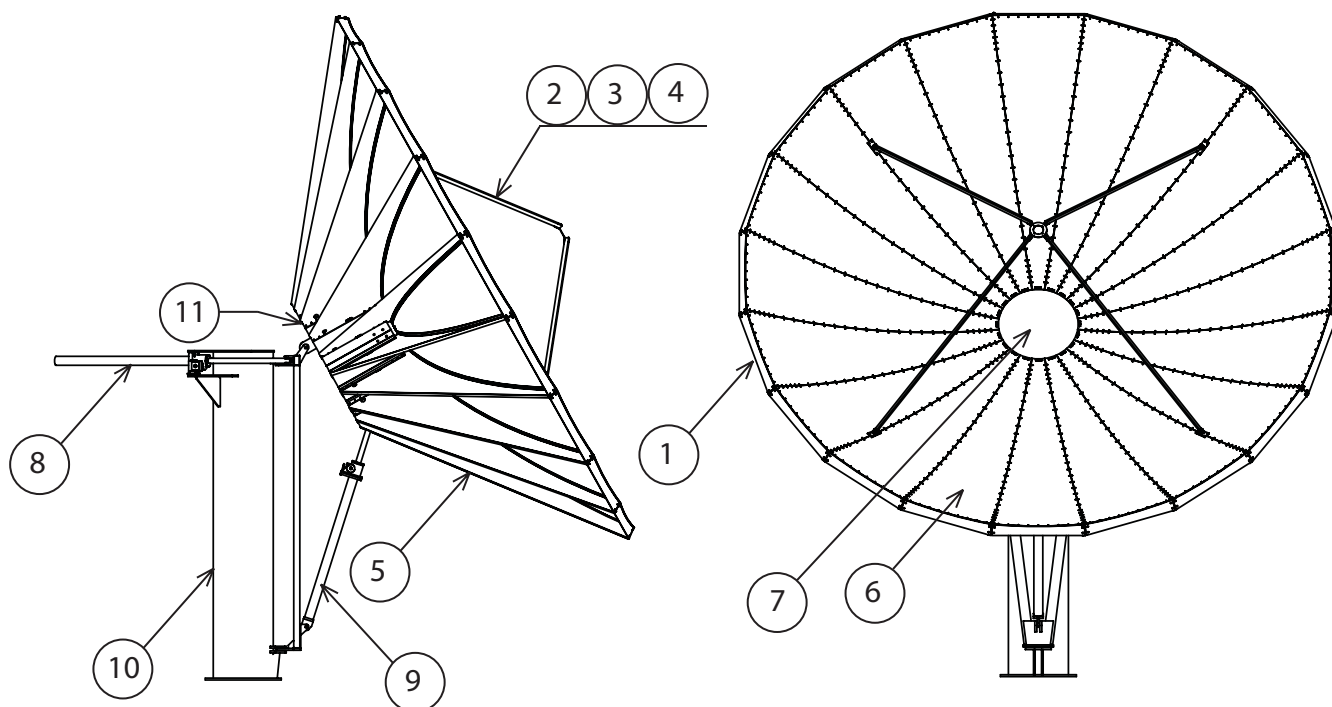
When selecting "look angle," be sure to observe and take readings approximately 10 deg to the left and right, above and below your selected "look angle."

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.

ITEM	DESCRIPTION	PART NO.	QTY.
1	ASSEM, 7.5 OUTBOARD SKIRT	275004	20
2	ASSEM, 6.3/7.5 FEED ANCHOR FOOT	263007	4
3	TUBE, 6.3/7.5 FEED STRUT	263006	4
4	PLATE, C-BAND 6.3M/7.5M	275102	1
5	ASSEM, 7.5 RADIAL BEAM WITH HOLE	275022	20
6	PANEL, 7.5M	238206	20
7	CENTER COVER, 6.3M/7.5M	275101	1
8	ACTUATOR, 63"08:1 JOY/DAY ANTIBACKLASH	ACTJD63081ABL	1
9	ACTUATOR, 63"08:1 JOY/DAY WITH JACK SLEEVE	ACTJD63081JS	1
10	ASSEM, 7.5m-6.3m KP AND YOKE	PRT-750KP	1
11	ASSEM, 7.5m 6.3m HUB	275002	1
PG 8	LIFT KIT, 6.3/7.5 REFLECTOR	20000026	1
PG10	ANGLE, 6.3/7.5 OUT BOARD SKIRT	2630P0006	40
	PREBAG, 7.5/6.3m HARDWARE KIT	3HP75001	1

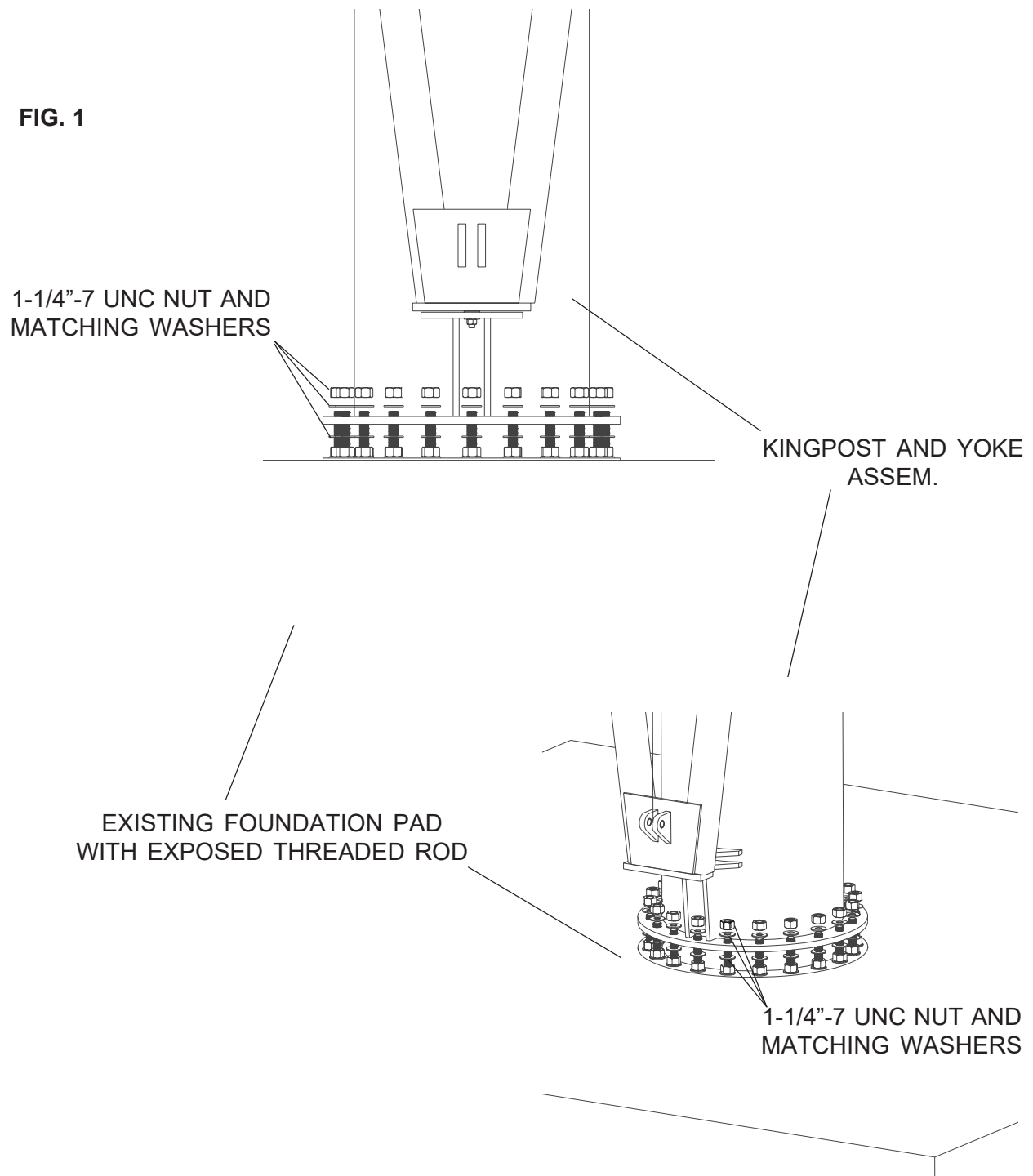


## Installation Procedure

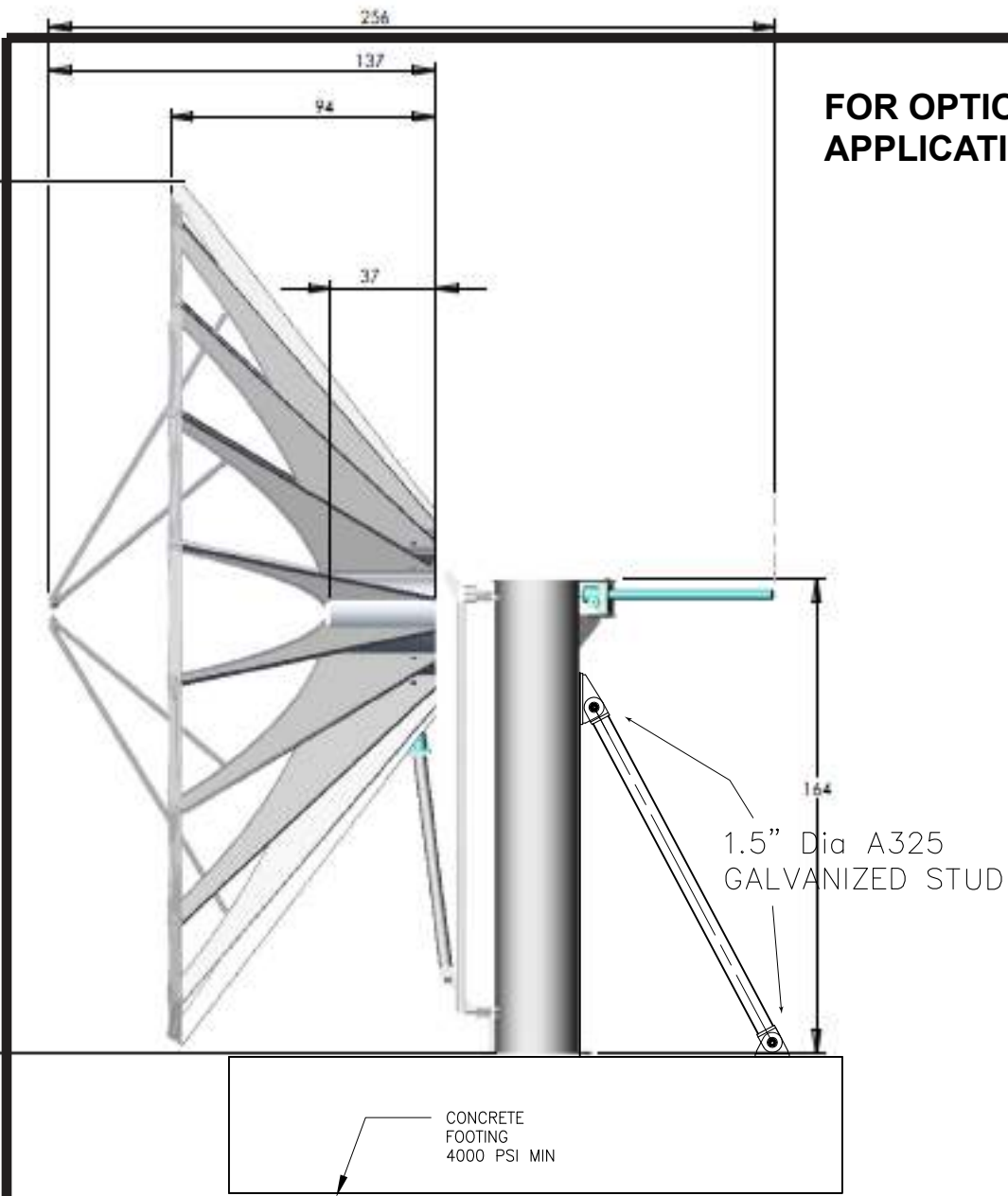
### Mount Assembly

1. Assemble Mast pipe to Foundation. Place the King Post Mast assembly onto the foundation threaded rods and secure with nuts and washers from the foundation hardware pack.

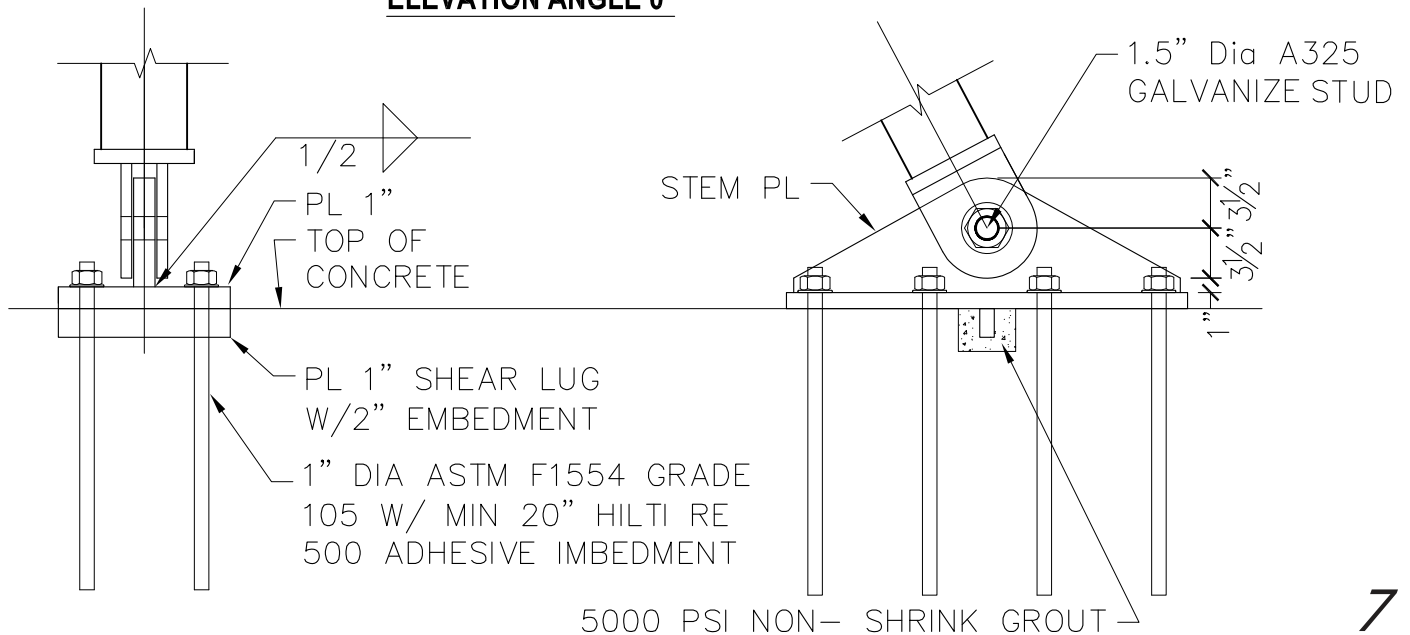
FIG. 1



**FOR OPTIONAL HIGH WIND  
APPLICATIONS ONLY**

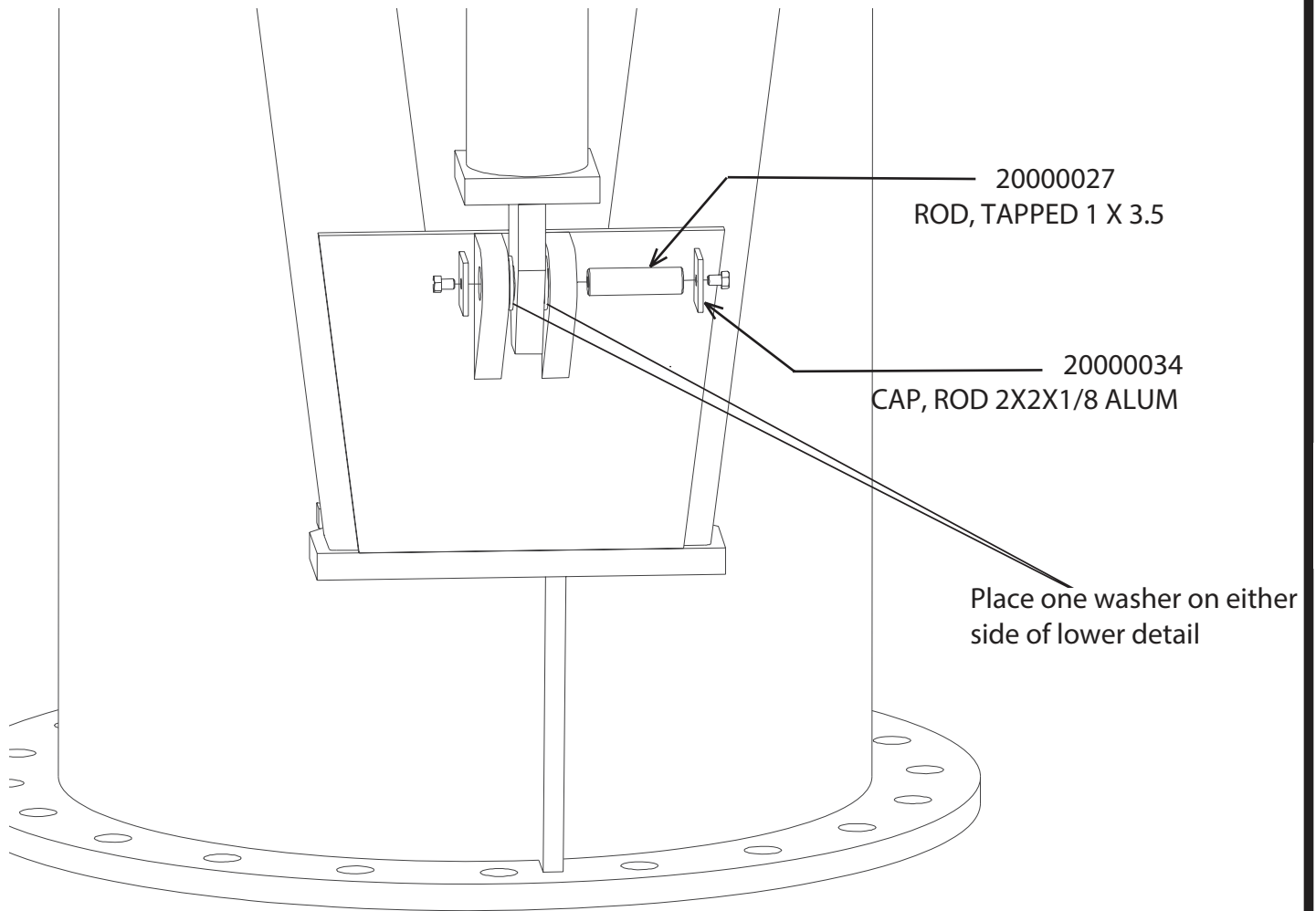


**ELEVATION ANGLE 0°**



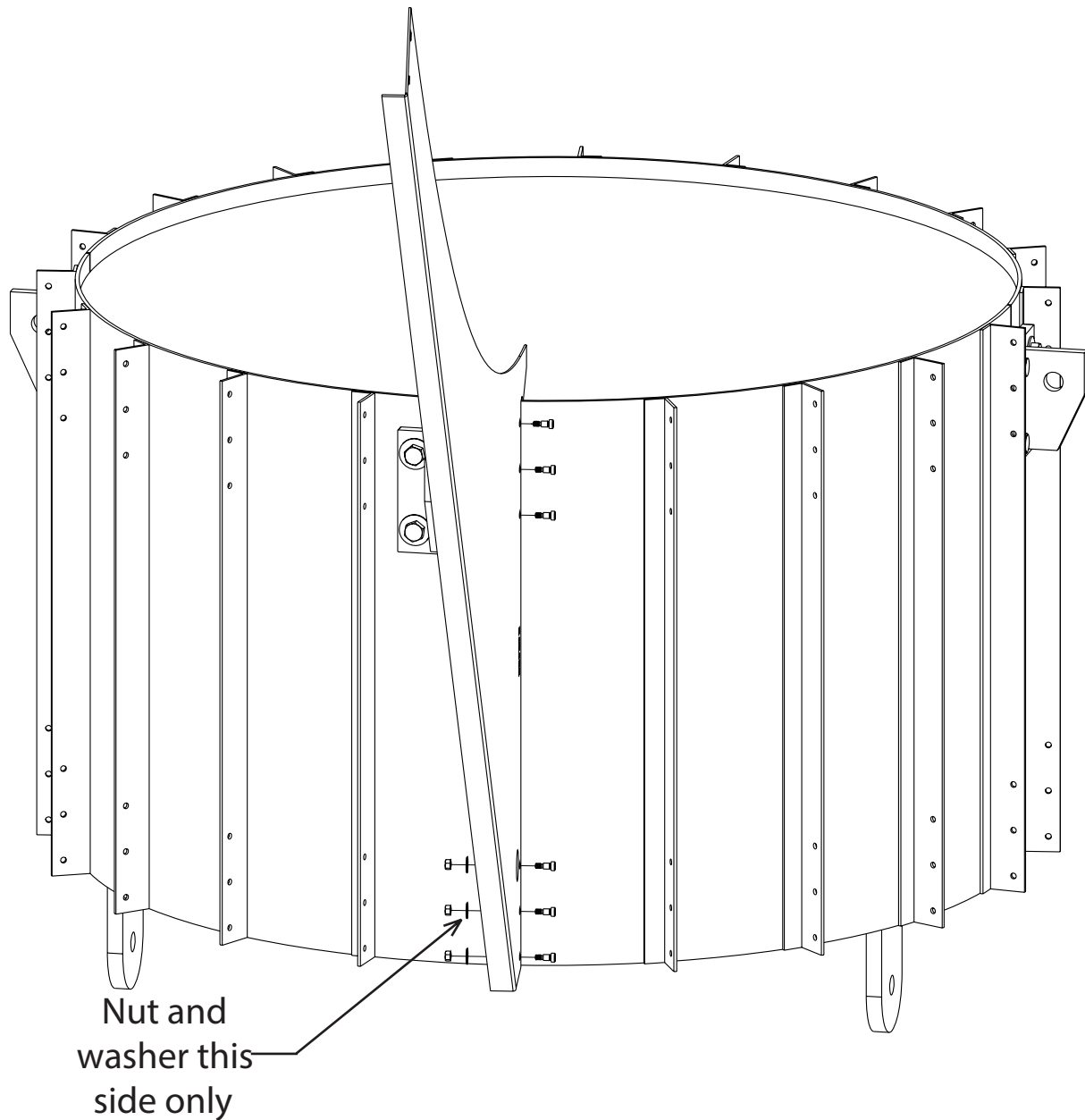
## Elevation Drive Assembly

- 1) Attach Elevation Drive Assembly (prt# PRT-ACTJD63081JS ACTUATOR, 63"08:1 JOY/DAY W/JACK SLV) as pictured below.
- 2) Use spacer washers to bridge any gap between Yoke Details and Jack Housing Detail.



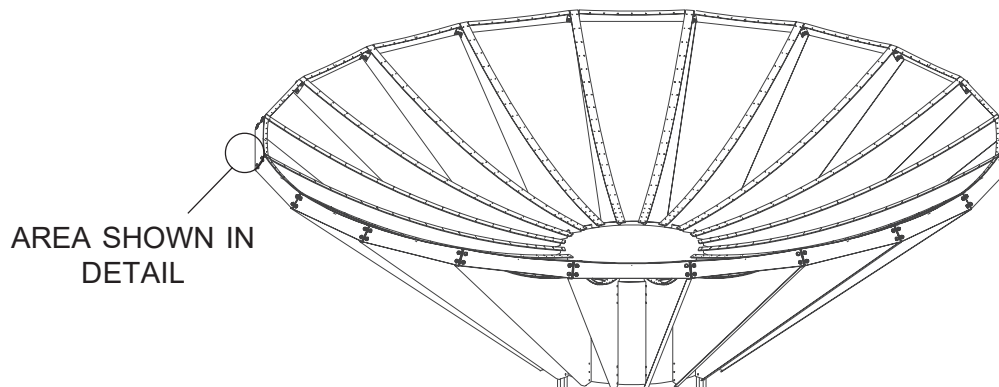
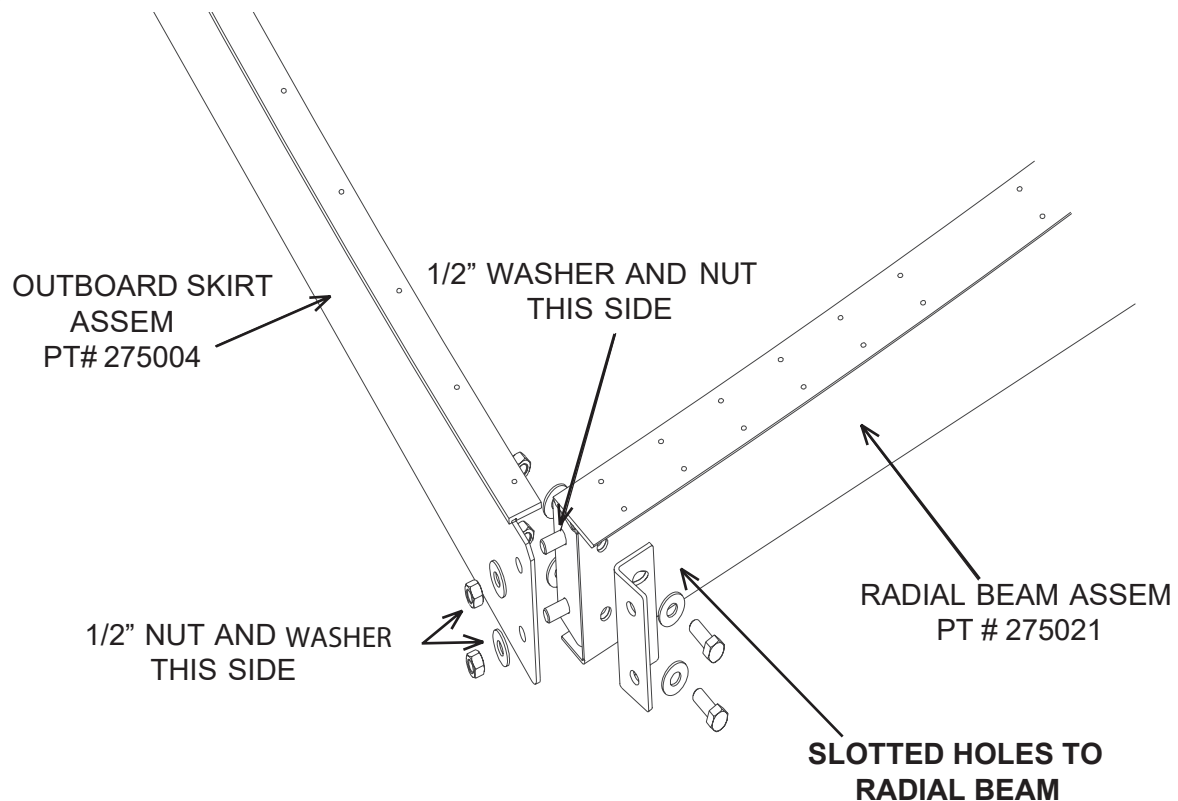
## Radial Beam to Hub Assembly

- 1) Attach Radial Beams to Hub using 3/8 x 1/2 shoulder bolt as shown.  
(Leave bolts loose until all bolts in Radial Beam are in place.)
- 2) Tighten bolts on Radial Beam.
- 3) Repeat on all Radial Beams.



## Radial Beam and Outboard Skirt Assembly

- 1) Attach the Attachment Brackets to Outboard Skirts; only finger tight. **IMPORTANT:** Slotted holes must be positioned to the Radial Beam.
- 2) Attach Outboard Skirt Assembly to Radial Beam as shown using hardware in Bag 1. (Radial Beam Kit)  
Leave hardware loose. (Use Ladders)
- 3) Attach next Outboard Skirt Assembly (part #275004) to Radial Beam (part #275021) and install 1/4-20 screws along top edge of Outboard Skirt through panel.
- 4) Tighten all hardware at this time.



## Panel & Feed Support Assembly

- 1) Place a panel on top of the assembled pie section and secure in place with 1/4-20 x 1/2" Button Head Screws as shown in **FIG. 1** below. **As indicated by arrows, install only 6 screws per panel** near the outer, middle, and inner areas of the panel. Repeat for each of the 20 panels. Leave bolts 1 turn loose. (Panel Screw Kit)
- 2) After 6 screws are installed in each of the 20 panels (120 screws in total), manually shake the entire reflector assembly slightly. This will allow the panels to settle and will help to align the remaining screw holes.
- 3) Install all remaining 1/4-20 x 1/2" Button Head Screws in all panels. Tighten screws "snugly," but not too tight. **RECOMMENDATION: Use Dewalt drill level 4 torque setting.** Tighten Outboard Skirts to Radial Beams using same torque setting.
- 4) Fasten Feed Anchor Foot to panel at holes #9 and #10 on the 7.5 mtr. from the outer edge using 1/4-20 x 3/4" Button Head Screws. (Feed Hardware Kit) Use holes (#2 and #3 on the 6.3 mtr); **FIG. 2**.

**FIG. 2** (6.3 mtr. depicted)

1/4-20x3/4" Button  
Head Screw

1/4-20x3/4" Button Head  
Screw and Washer

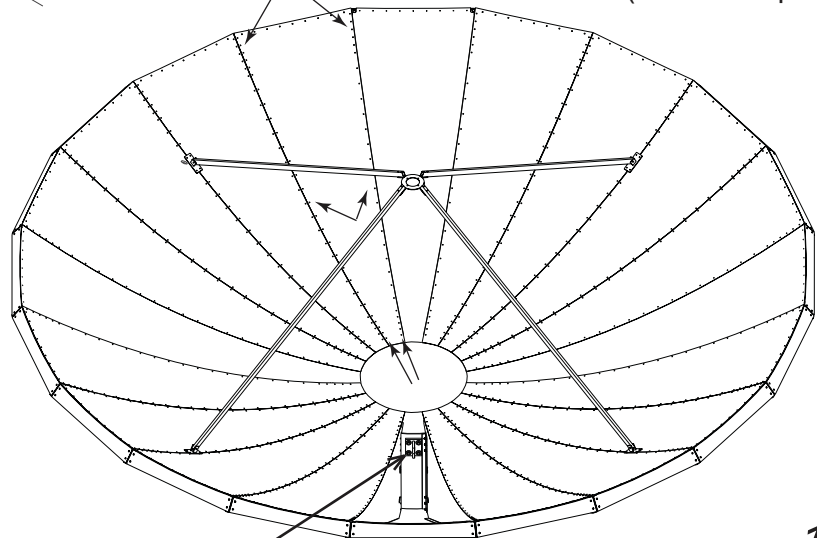
Feed Anchor Foot:  
Fasten at holes #9 and #10  
on the 7.5 mtr.  
Fasten at holes #2 and #3  
on the 6.3 mtr.

### IMPORTANT:

When working inside dish,  
only step on Radial Beam  
areas. DO NOT place any  
weight on center of panels.

Begin with 6 screws  
per panel for all 20  
panels.

**FIG. 1** (7.5 mtr. depicted)

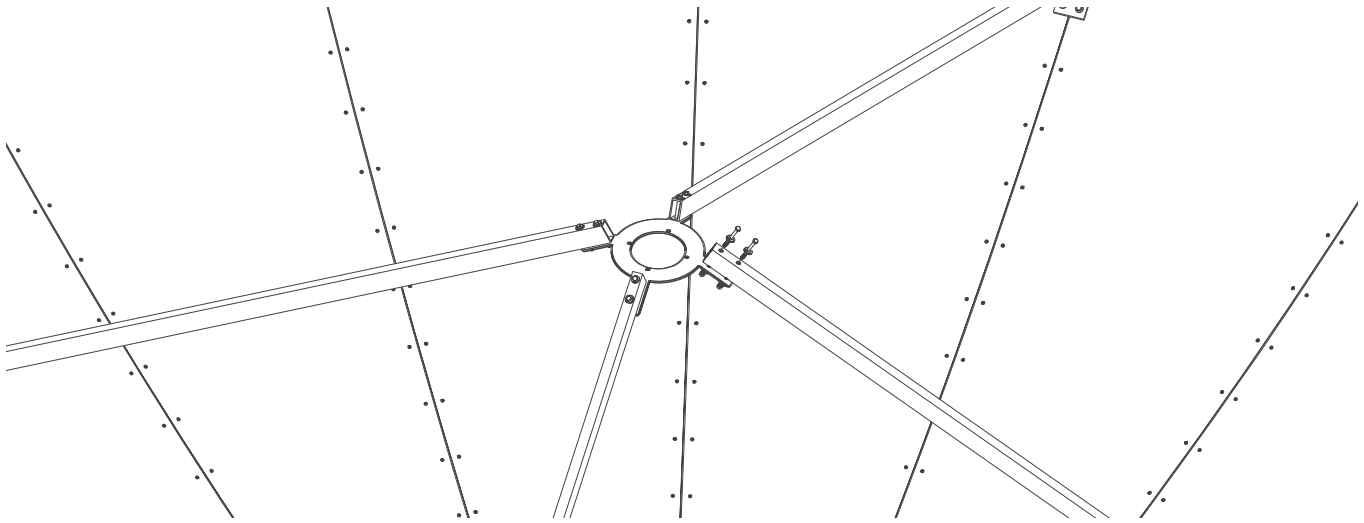


Lifting Lug Assembly

(Visible here for reference purposes. There are 4 in total)

## 1) Attach Feed Horn Bracket Assembly.

Attach Feed Horn Bracket Assembly bracket using 1/4" hardware as depicted below. Adjust feed horn (not shown) accordingly.



## 2) Cut 4 panels above lifting lugs. This will allow access to lifting lugs. Install 4 lifting straps:

### IMPORTANT - HOW TO CUT PANELS:

- Locate all 4 lifting lug locations. Locate the 4 panels above each lifting lug. **FIG. 1, pg. 11**
- Remove the first 10 screws from both sides of each of the 4 panels, closest to center of dish. **FIG. 3**
- CAREFULLY cut through the middle of the 6<sup>th</sup> screw hole on each of the 4 panels. DO NOT BEND panels. SAVE these 4 pieces, they will be replaced later. Sand and paint cut edges to protect metal.

**RECOMMENDATION:** Use hand-held, battery operated Sabre saw or equivalent to cut panels.

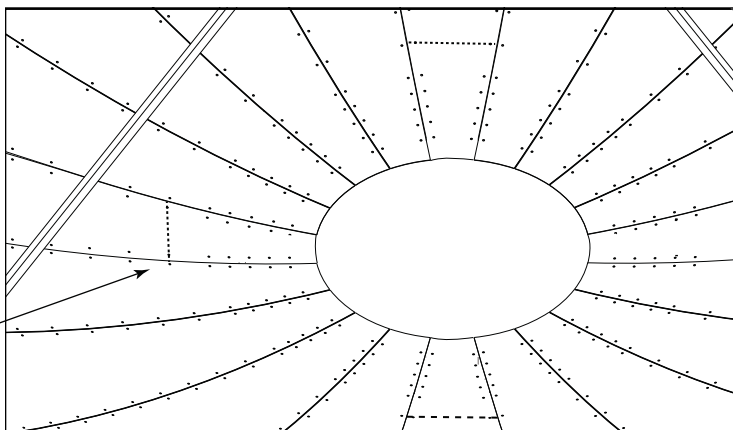
## 3) Install High Wind Stiffeners using holes in flanges of radial beams x20. **FIG. 4, pg. 13**

**FIG. 3**

REMOVE THE FIRST  
10 SCREWS FROM  
BOTH SIDES OF  
PANEL.

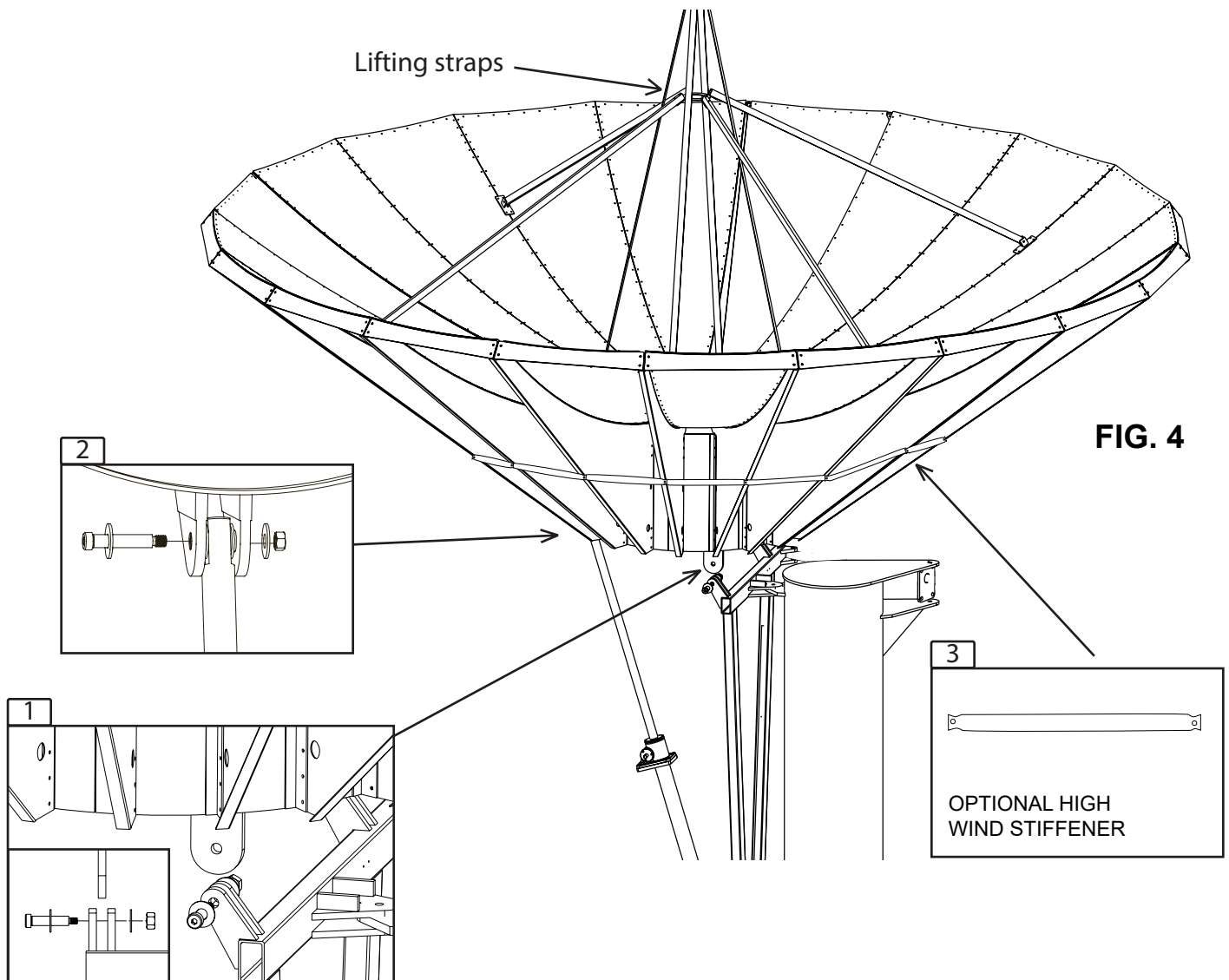
20 SCREWS PER PANEL.  
4 PANELS.

CUT THROUGH  
PANEL AT 6<sup>th</sup>  
SCREW HOLE.



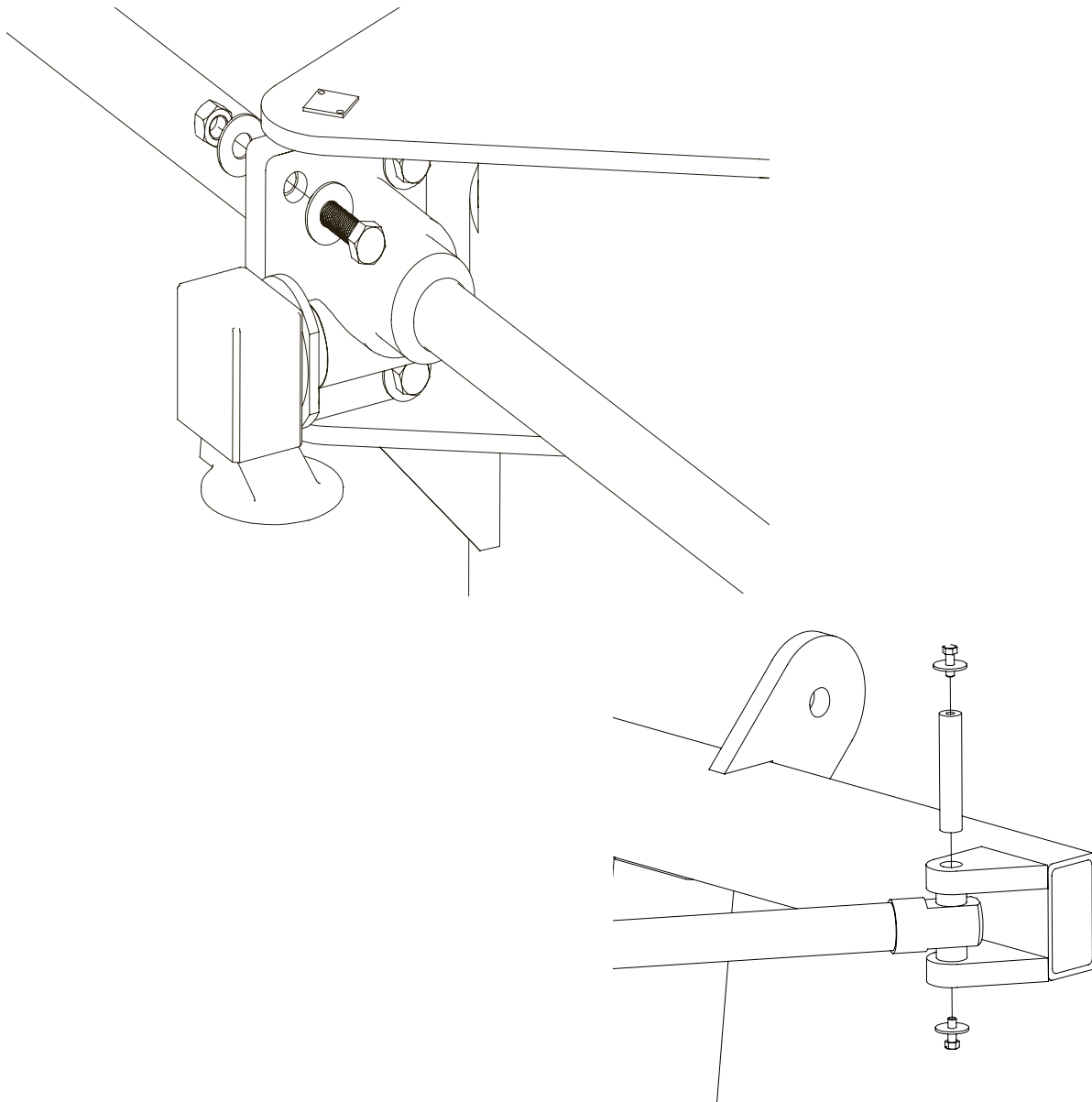
## Reflector to Pedestal Assembly

- 1) Assemble Reflector Assembly to Yoke using 1-1/4" x 3-1/2" shoulder bolts as shown in Inset #1
- 2) Using 1 x 4 shoulder bolt, 4 washers and lock nut, attach Actuator Arm to Hub as shown in Inset #2
- 3) Remove lifting straps and install optional High Wind Stiffeners in the holes provided on Radial Beams.
- 4) Reinstall the 4 cut panel pieces. All cut edges (8 in total) should be sanded and repainted prior to installation.



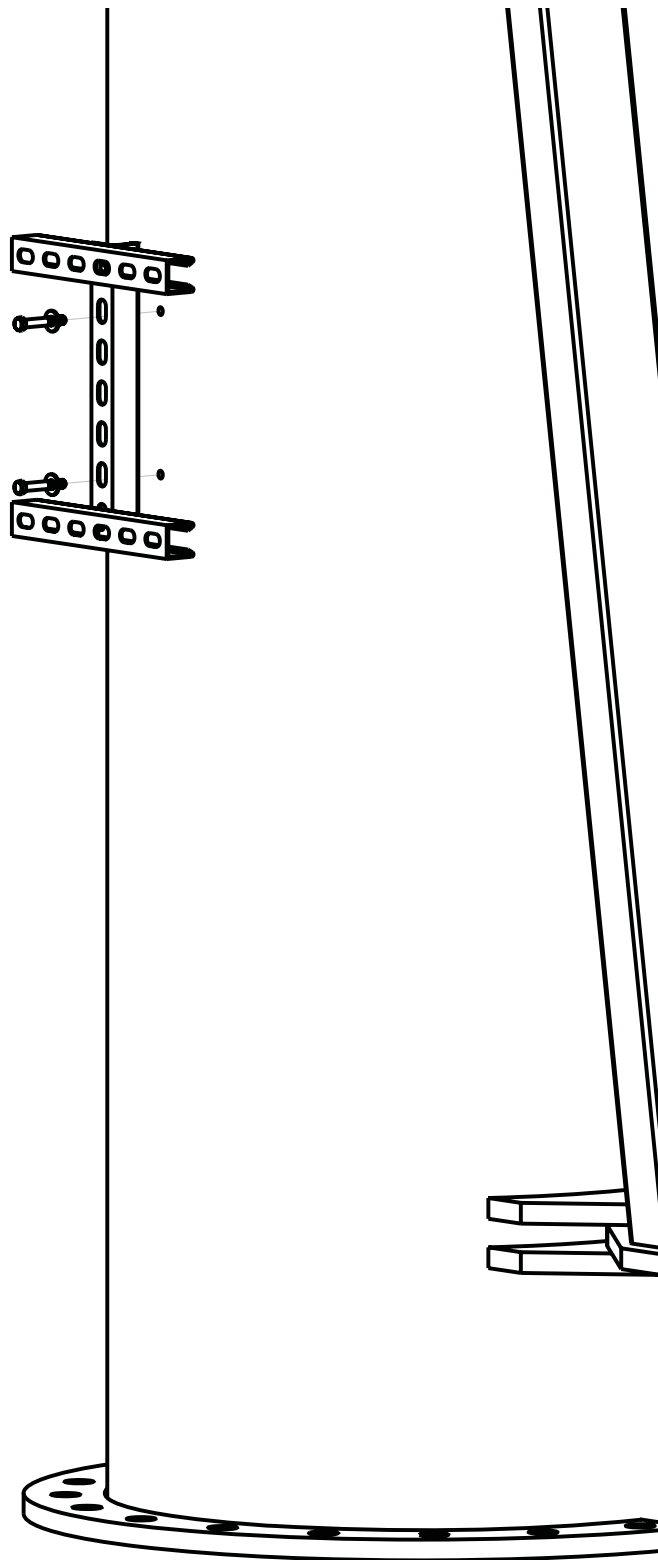
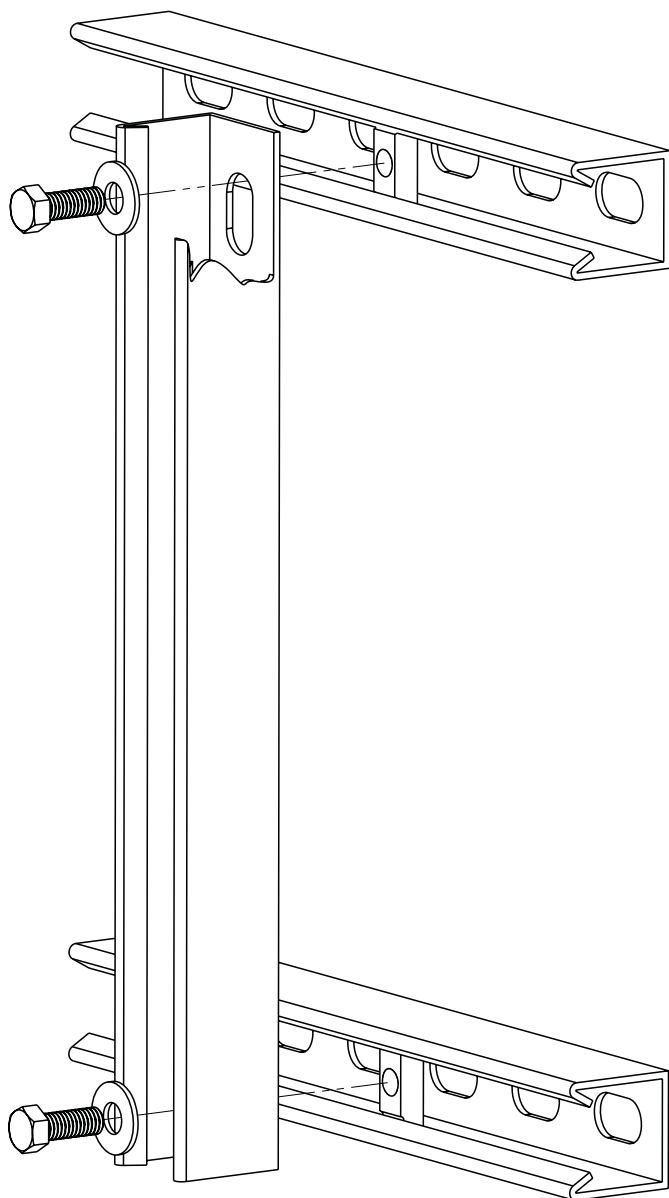
## Azimuth Drive Assembly Installation

- 1) Slide protective tube through motor block as shown.
- 2) Attach Azimuth Drive Assembly to motor block using hardware in Motor Block Kit (3HP75001-06). Leave loose at this time.
- 3) Attach the Actuator Arm Clevis to the Yoke pivot using the dowel pin, washers, bushings and bolts as shown.
- 4) To ensure that the dowel pin stays in place apply Loc-Tite 242 or equivalent to the upper bolt.
- 5) Tighten all bolts.



**FOR MOTORIZED APPLICATIONS ONLY**

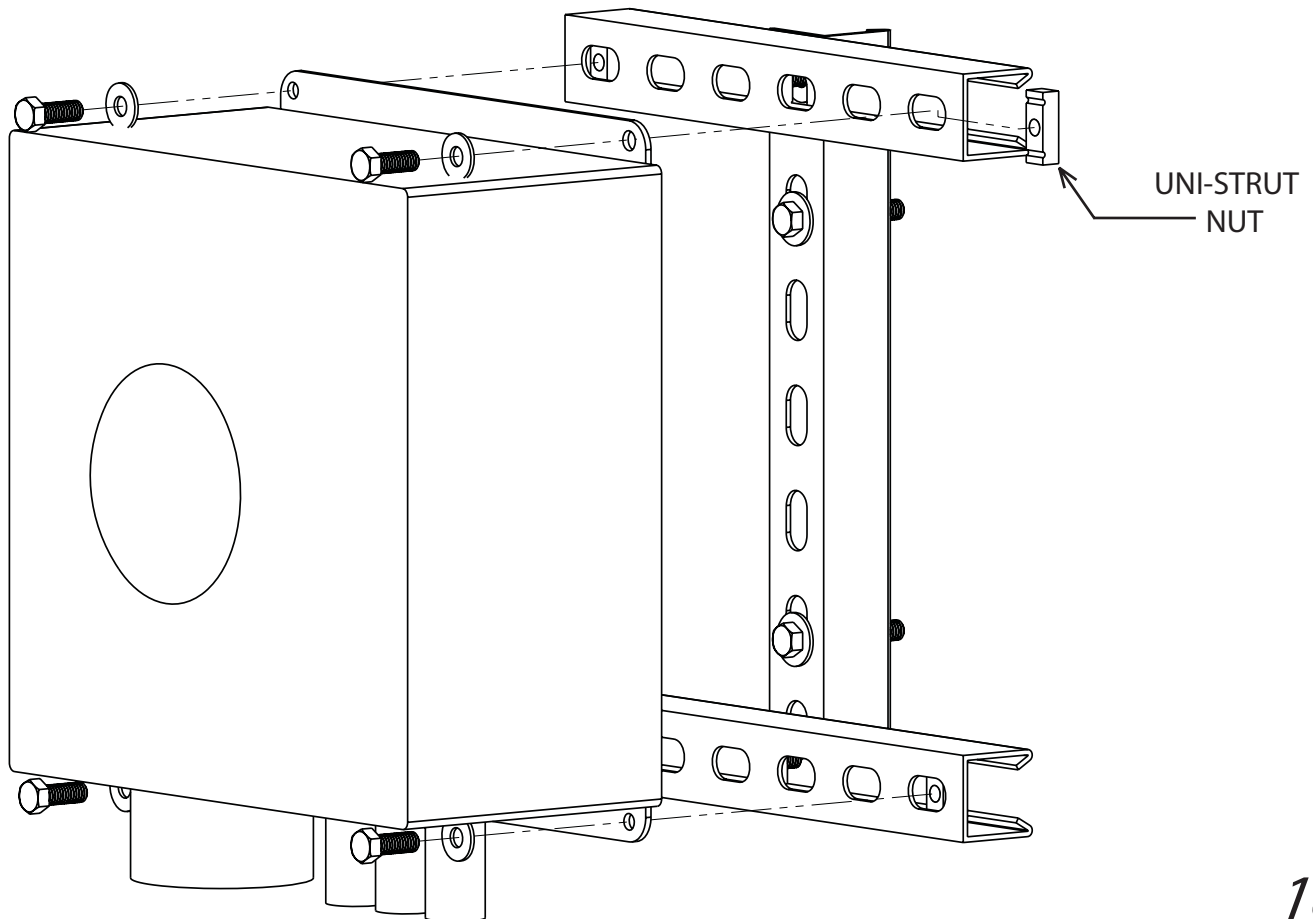
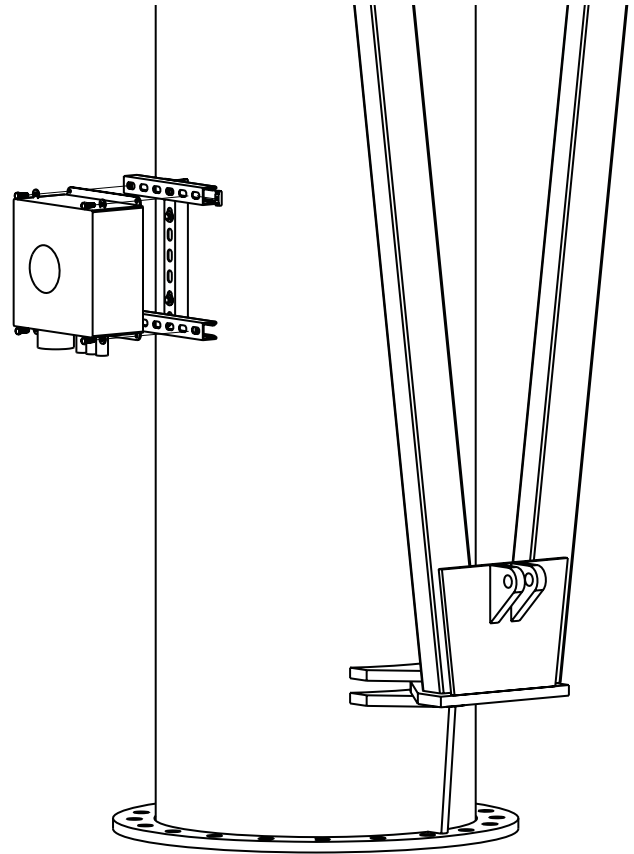
ASSEMBLE UNI-STRUT FRAME  
AS PICTURED BELOW USING  
3/8nc-1" BOLT AND WASHER.



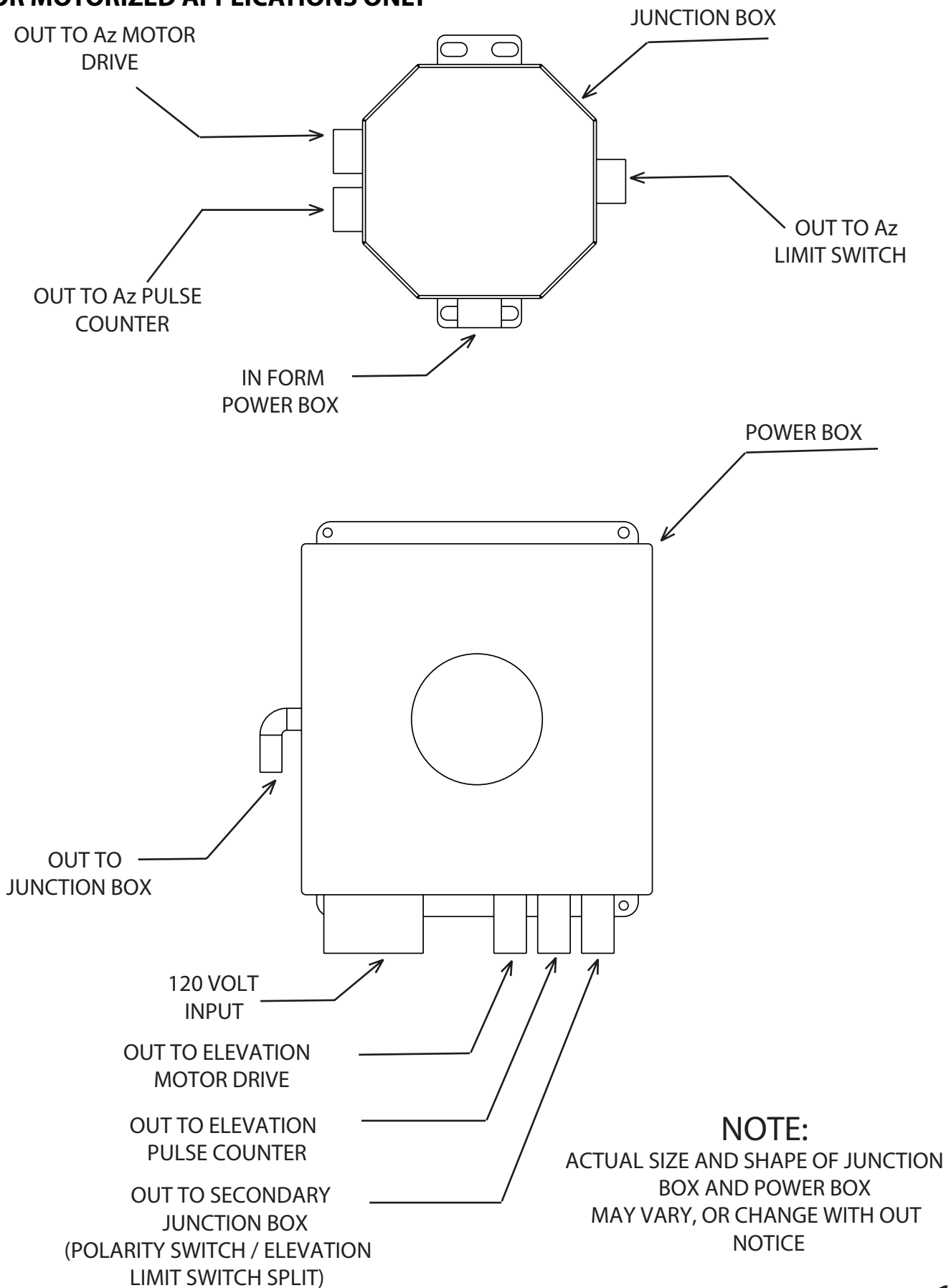
ATTACH UNI-STRUT FRAME TO  
KING POST ASSEMBLY AS  
PICTURED ABOVE USING 3/8nc-2  
1/2" BOLT AND WASHER.

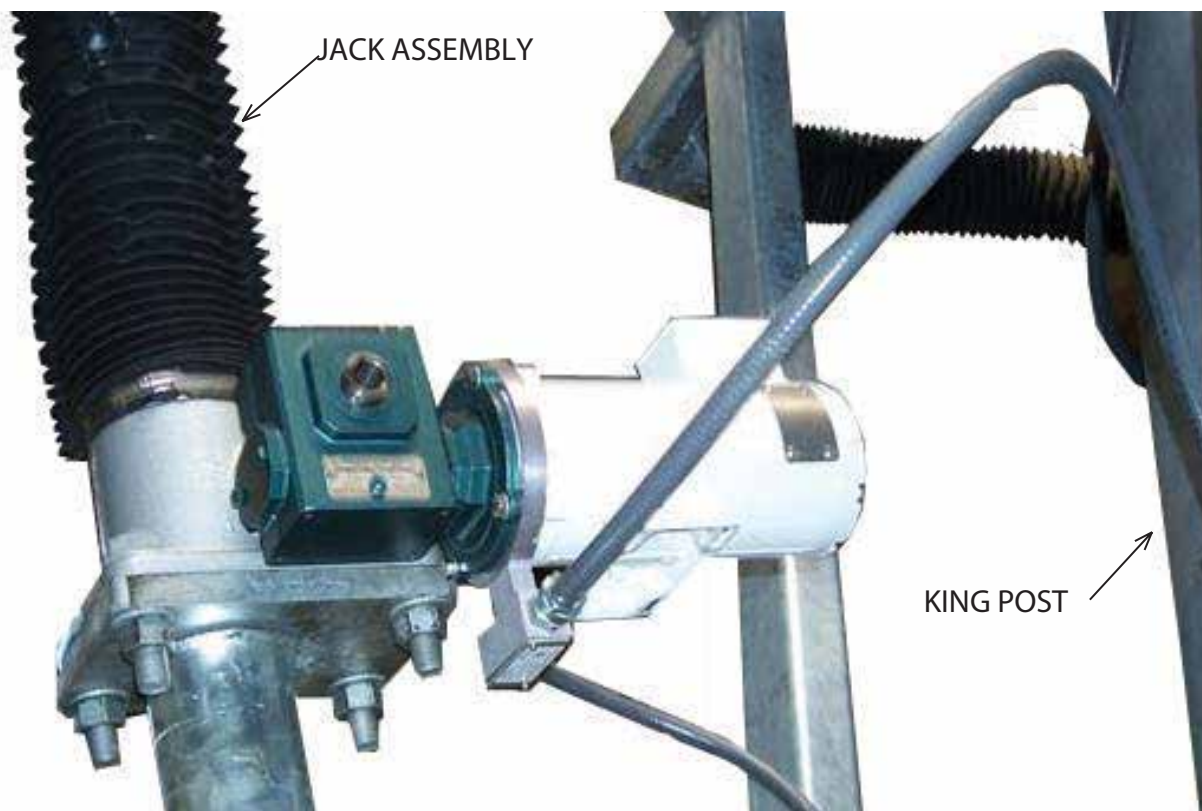
**FOR MOTORIZED APPLICATIONS ONLY**

ATTACH POWER BOX TO UNI-STRUT  
FRAME AS PICTURED USING 3/8nc-1"  
BOLT AND WASHER.



## FOR MOTORIZED APPLICATIONS ONLY





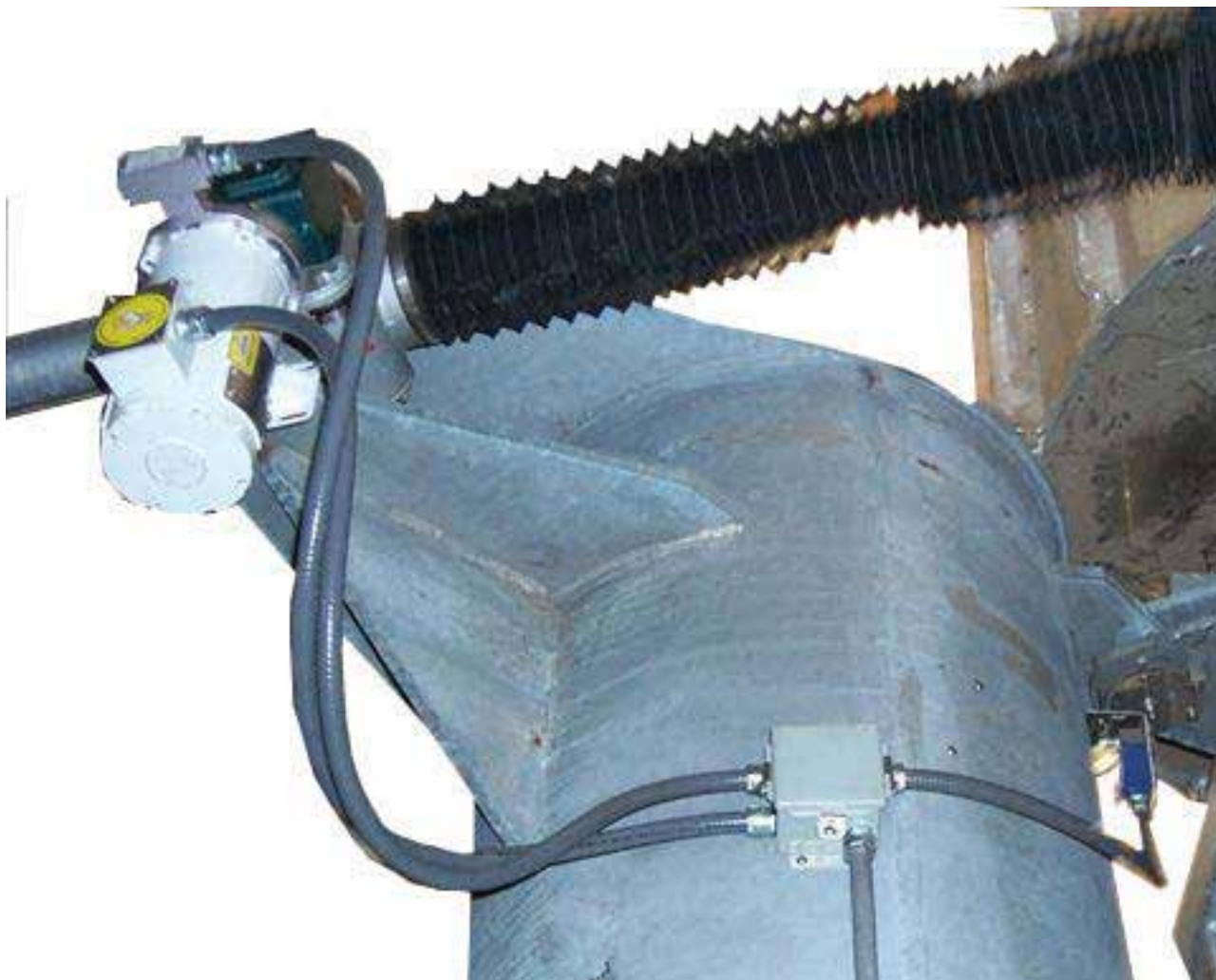
**FOR MOTORIZED APPLICATIONS ONLY**

PLEASE NOTE ORIENTATION OF ELEVATION  
MOTOR DIRVES AND PULSE COUNTERS



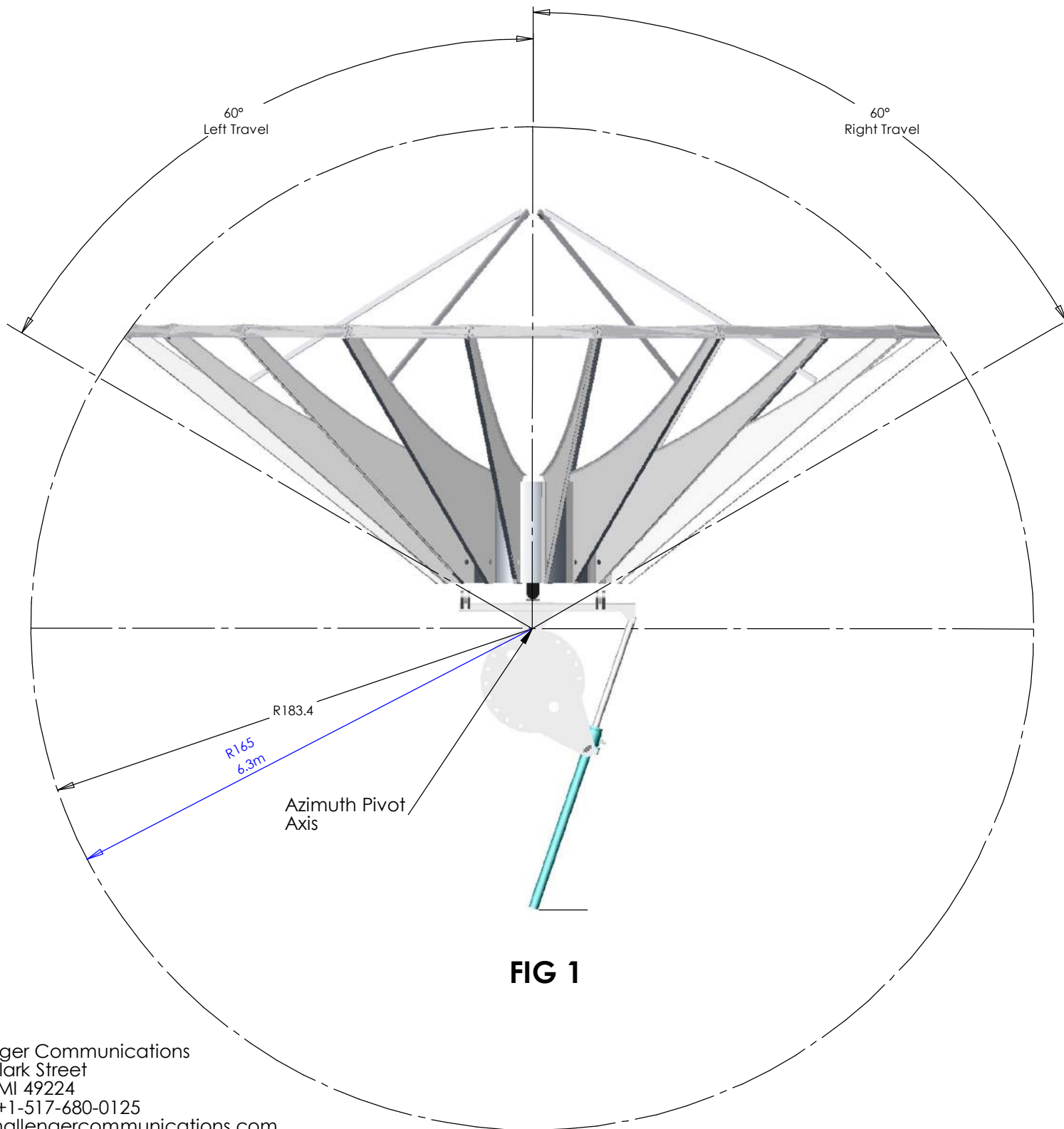
## FOR MOTORIZED APPLICATIONS ONLY

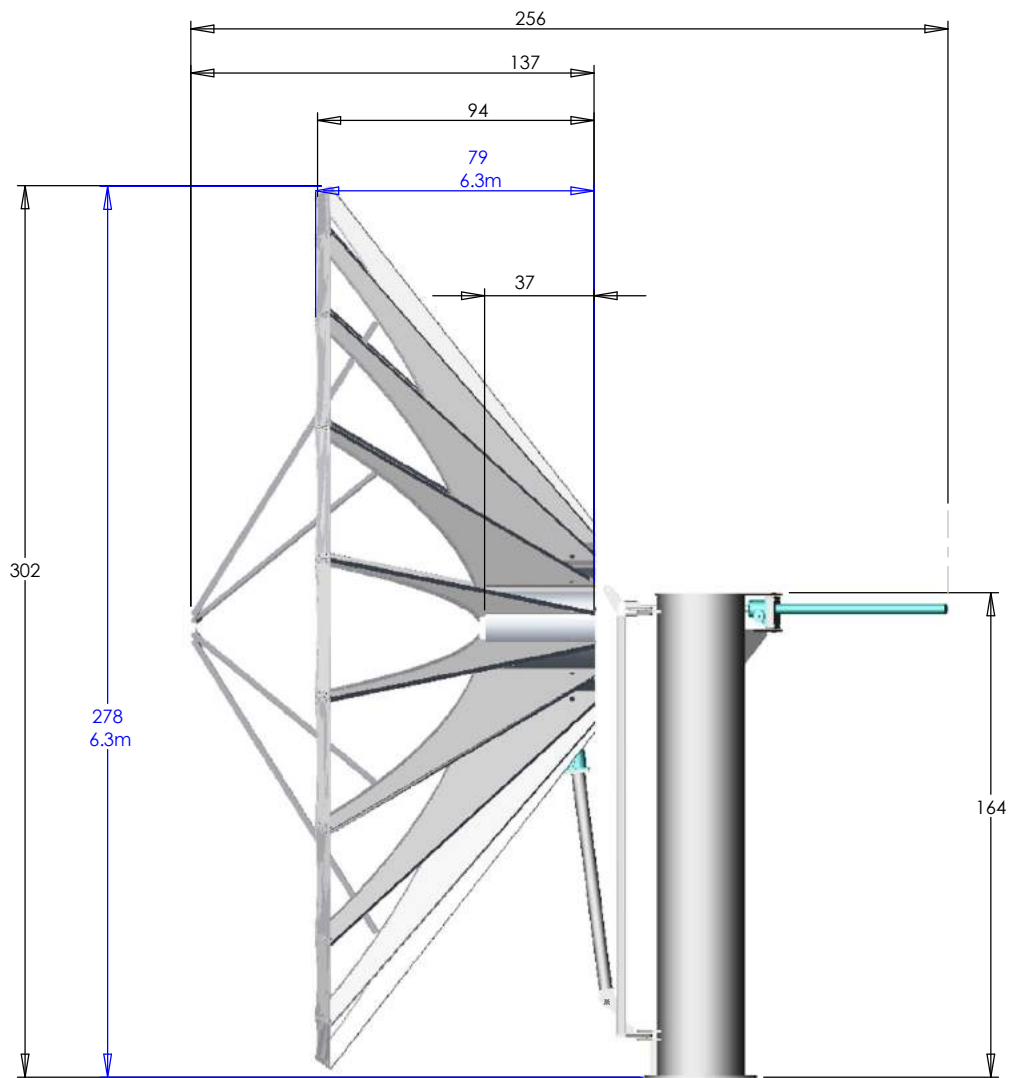
PLEASE NOTE ORIENTATION OF Az MOTOR DRIVES AND  
PULSE COUNTERS



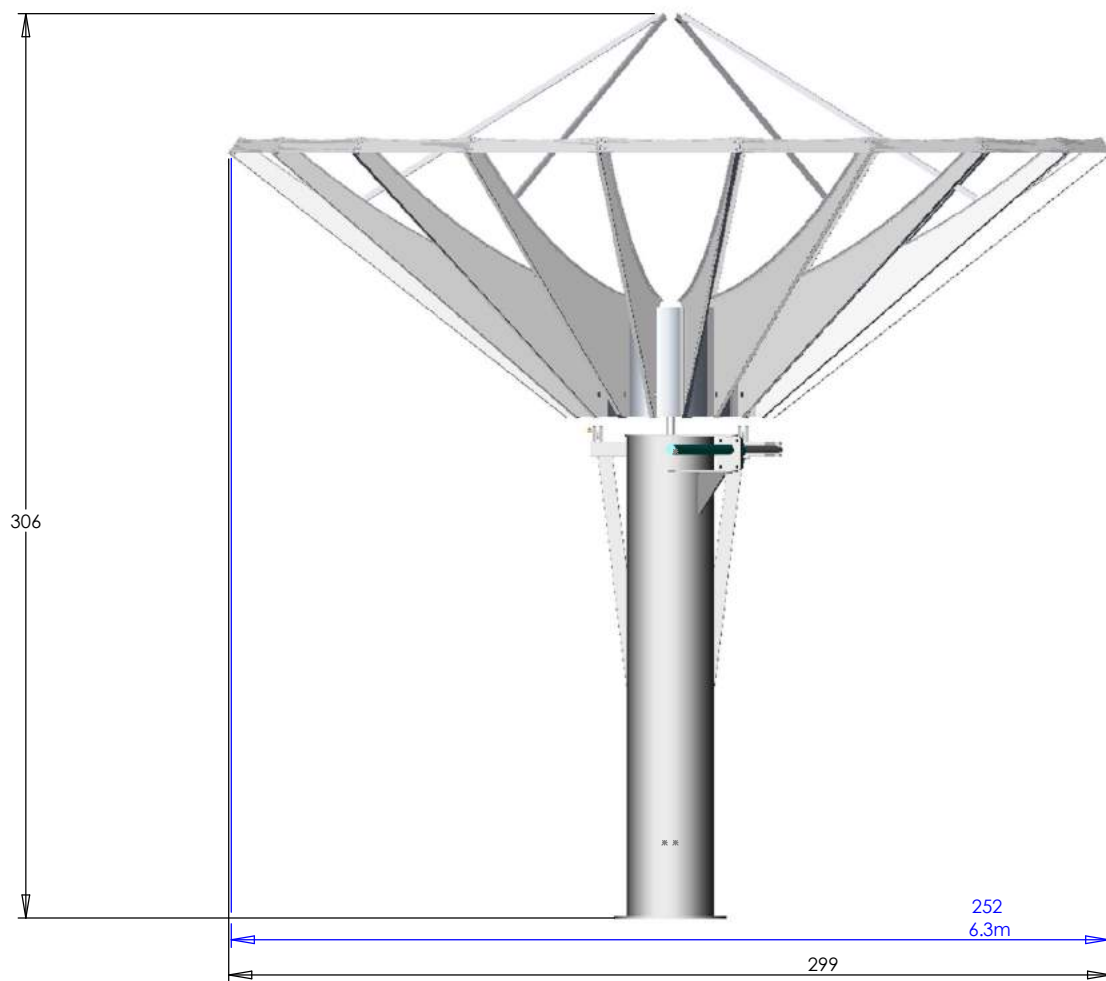
# Challenger Communications 6.3m/7.5m Antenna Geometry CHA-PRT750AZKP CHA-PRT630AZKP

Figure 1: Azimuth Adjustment Range  
Figures 2 and 3: General Dimensions from 0 Elevation  
(Figure 2) and 90 Elevation (Figure 3)





**FIG 2**



**FIG 3**