

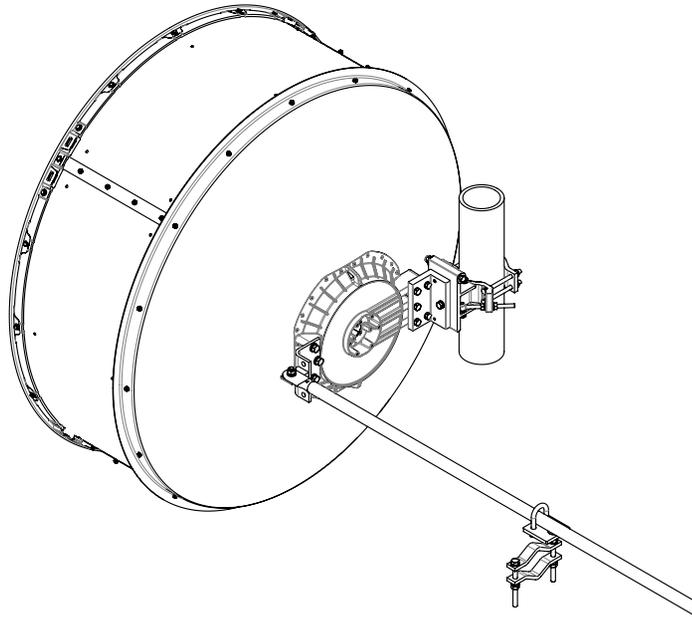
IMPORTANT!

**INSTALLATION
INSTRUCTIONS**

**READ THIS
MANUAL FULLY
BEFORE UNPACKING
AND ASSEMBLING
THE ANTENNA**



This document is for the following: SHP(X)4-*** 1.2m ANTENNA



SAFETY

ANTENNA INSTALLATION, MAINTENANCE OR REMOVAL MUST BE PERFORMED BY QUALIFIED EXPERIENCED INSTALLER.

It is essential that all appropriate national and local safety regulations be strictly observed to ensure the safety of personnel and to prevent damage to the equipment. CommScope cannot accept responsibility for accidents resulting from non-compliance with such regulations.

The Antenna is designed to attach to a vertical tower pipe of diameter 115mm
The mount provides adjustment ranges of $\pm 15^\circ$ fine elevation and $\pm 180^\circ$
($\pm 15^\circ$ fine) azimuth.

Always read the entire manual before commencing installation.

WARNING

Do not use any installation components (screws, nuts, etc) other than with the equipment or recommended by the supplier

Andrew Solutions

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INTRODUCTION

This instruction describes how to assemble and adjust a SHP(X)4 antenna.

The antenna can be mounted with the mount offset to the left or to the right. Offset left is described in this bulletin, however the images showing offset right installation are shown at the end of this document.

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SECTION	TITLES
1	INTRODUCTION
2	SAFETY INSTRUCTIONS
3	EQUIPMENT & TOOLS
4	UNPACKING
5	SHIELD ASSEMBLY
6	ASSEMBLY OF REFLECTOR TO SHIELDS
7	FEED ATTACHMENT AND ALIGNMENT
8	RADOME ATTACHMENT
9	MOUNT ASSEMBLY AND ATTACHMENT
10	MOUNT ADJUSTMENT
11	STRUT ATTACHMENT
12	GENERAL INFORMATION

SAFETY INSTRUCTIONS

Reduce the risk of accidents by studying all the instructions carefully before starting working.

The safety information in this document presupposes that any person performing work on CommScope products or systems has the education, training and competence required to perform the task correctly.

SAFETY REQUIREMENTS

The safety requirements in the following sections must be followed to avoid personal injury and damage to tangible property.

It is the responsibility of the installer to ensure that local regulations and the safety instructions in this document are known and followed.

SERVICE PERSONNEL

Installation and service must be carried out by authorized personnel having the appropriate technical training and experience necessary to be cognizant of hazards during installation and service, and of measures to minimize any danger to themselves or any other person.

SAFETY SYMBOLS & DEFINITIONS**HOISTING****WARNING!**

Falling objects can cause accidents.

- Use only tested and approved hoisting equipment in accordance with the instructions supplied with the equipment. Appropriately trained personnel must operate the hoisting device.
- Always hoist from a suitable location.
- Never walk under hoisted loads.
- Follow local regulations for safety clothing and safety equipment for hoisting or moving goods.

WORKING AT HEIGHTS**WARNING!**

Some working areas involve the risk of accidents caused by falling or by falling objects

SAFETY REGULATIONS

Use local safety regulations where these are mandatory. The safety instructions in this document shall be used as a supplement to the local regulations.

In case of conflict between the safety instructions in this manual and the local safety regulations, the local safety regulations shall prevail if these are mandatory. If the local regulations are not mandatory the safety instructions in this manual shall prevail.

INSTALLATION HARDWARE

Do not use any installation components (for example screws and nuts) other than those enclosed with the equipment or recommended by CommScope.



Use protective wear to avoid skin contact with conductive grease. Keep away from mouth. Wash thoroughly after use with liberal amounts of liquid soap and rinse with water. Do not store open near food or food substances.
Contents: Oil, clay & zinc dust.

INSTALLATION PROCEDURES & TOOLS

The installation procedures in this manual must be followed. Make sure that:

- Working instructions are followed.
- Recommended tools are used.
- Adequate safety devices are used.
- The risk of falling and falling objects is known.
- All hardware must be tightened to the torques specified $\pm 5\%$. The integrity of the antenna depends on all fasteners being tightened correctly.

ANNUAL INSPECTION

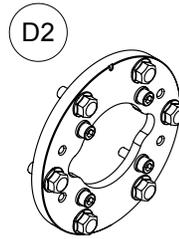
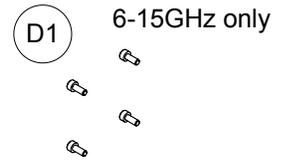
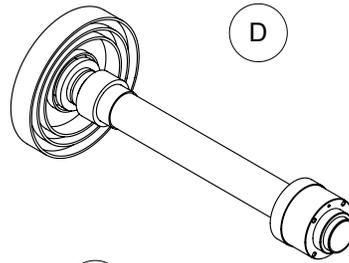
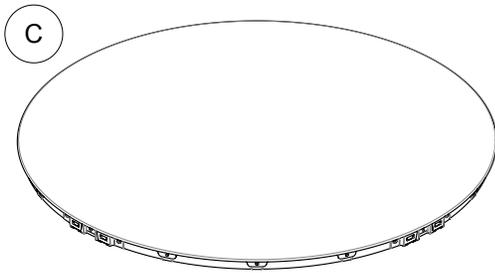
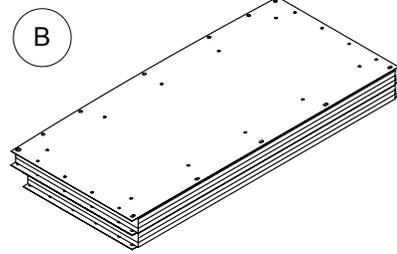
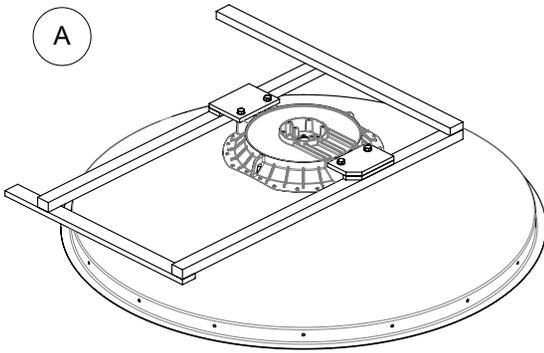
Antenna systems should be inspected once a year by qualified personnel to verify proper installation, maintenance and condition of equipment.

Table 1 Supplied Equipment and Tools

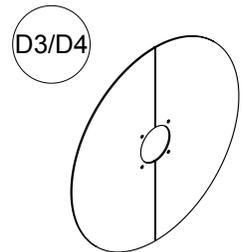
General Table			
Item	Qty	Description	Contained in Kit Part No
A	1	Reflector	
B	1	Shield Set	
C	1	Radome	
D	1	Feed	TF-4-FREQ-19
D1		Feed Hardware Kit 6-15GHz	7613039
	4	M4 x 12lg SHCS, sst, pass	
	4	M4 Lock Washer, sst, pass	
	1	Conductive Grease (tube)	
D2		Feed Hardware Kit 4GHz	7776733
	1	Feed Hub Adaptor Plate	
	4	M8X20 SCR, HEX WHSR, stl, passivated	
	4	M6X20, SHCS, sst, pass	
	1	Conductive Grease (Tube)	
D3		Vertex Plate Installation Kit, 4GHz	7832527-1
	2	Vertex Plate Segment	
		M4X10 SOKKET ,SCREW, DIN 912-ST, ST	
D4		Vertex Plate Installation Kit, 6GHz	7832527-2
	2	Vertex Plate Segment	
	4	M4X12, SCR, FH, SLOT, SST, PASS	
	1	LOCTITE NUTLOCK 242 1/2ML SACHET	
E	1	Mount: Elevation Adjustment Assembly	7679156
F1	1	Mount: Azimuth Adjustment Clamp	7679155-LPK
F2	1	Mount: Antenna Side Bracket	7679155-LPK
G		Mount Hardware Kit	
	1	Conductive Grease (Tube)	
	2	Gloves	
G1			7679221
	5	M10 x 40lg Hex Hd Screw, sst, pass	
	5	M10 Lock Washer, sst, pass	
G2			7679221
	2	M10 x 100lg Hex Hd Screw, stl, galv	
	4	M10 Flat Washer, stl, galv	
	2	M10 Lock Washer, stl, galv	
	2	M10 Hex Nut, stl, galv	
G3			7679221
	1	M10 x 35lg Hex Hd Screw, stl, galv	
	1	M10 Lock Washer, stl, galv	
	2	M10 Flat Washer, stl, galv	
G4			7679221
	1	M10 x 140lg Eyebolt, stl, galv	
	2	M10 Lock Washer, stl, galv	
	2	M10 Flat washer, stl, galv	
	2	M10 Hex Nut, stl, galv	
G5			7679221
	1	Pipe Clamp, stl, galv	
	4	M10 x 130lg Hex Hd Screw, stl, galv	
	4	M10 Lock Washer, stl, galv	
	4	M10 Hex Nut, stl, galv	

Table 1 Supplied Equipment and Tools

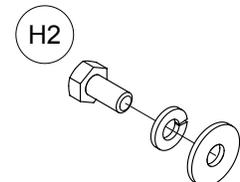
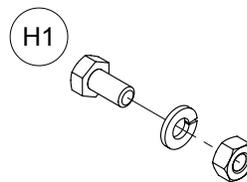
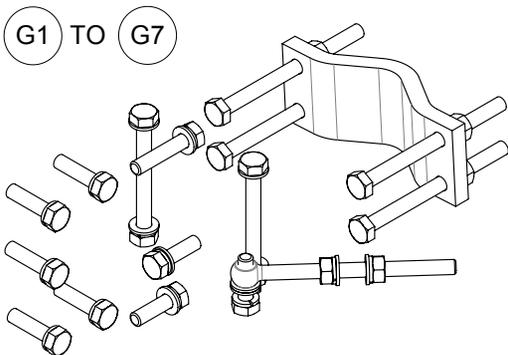
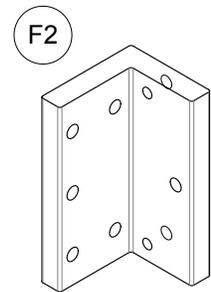
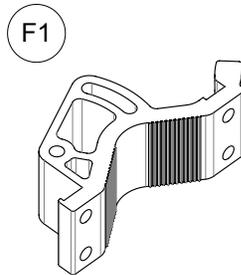
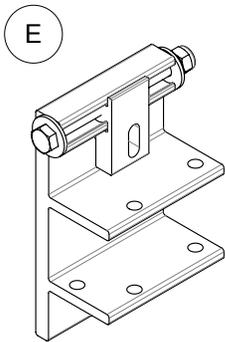
Item	Qty	Description	Contained in Kit Part No
G6			7679221
	2	M10 x 35lg Hex Hd Screw, sst, pass	
	2	M10 Lock Washer, sst, pass	
	2	M10 FlatWasher, sst, pass	
G7			7679221
	1	M10 x 50lg Hex Hd Screw, sst, pass	
	1	M10 Lock washer, sst, pass	
	1	M10 Flat Washer, sst, pass	
H1		Shield Assembly Hardware	7614388-2
	32	M6 x 12lg Hex hd Screw, sst, pass	
	32	M6 Lock Washer, sst, pass	
	32	M6 Hex Nut, sst, pass	
H2		Radome Hardware	7614388-2
	24	M6 X 20LG Hex hd Screw, sst, pass	
	24	M6 Flat Washer, sst, pass	
	24	M6 Lock Washer, sst, pass	
J		Strut Hardware Kit	117790-3
	1	Strut Bracket	
	1	Angle Bracket	
	3	M12 Washer, sst, pass	
	2	M12 Washer, stl, galv	
	3	M12 Lock Washer, sst, pass	
	2	M12 Lock Washer, stl, galv	
	2	M12 Nut, stl, galv	
	2	M12 x 35lg Hex Hd Screw, stl, galv	
	3	M12 x 30lg Hex Hd Screw, sst, pass	
K	1	Strut	P99849
L		Strut Pipe Tower Clamp Hardware Kit	7637689
		(refer to sheets 11 and 26 for installation configurations)	
	2	Clamp Bracket	
	1	Anchor Plate	
	1	M12 x 140 Hex hd Screw, stl, galv	
	1	M12 x160 C'sk Skt hd Screw, stl, galv	
	5	M12 Washer, stl, galv	
	7	M12 Nut, stl, galv	
	1	U-Bolt, M12 c/w Nuts and Washers, stl, galv	
	1	SCR,HCS,HEX,M16X50,STL,GALV	
	1	SCREW M12 X 40 CSK SKT 8.8	
	1	M16 Nut, stl, galv	
	1	WSHR,LK,SPLT,M12,STL,GALV	
	2	WSHR,FLT,M16,17X30X3,STL,GALV	
	1	WSHR,LK,SPLT,M16,STL,GALV	
	1	Angle Bracket	



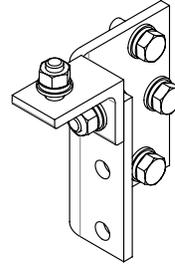
4GHz only



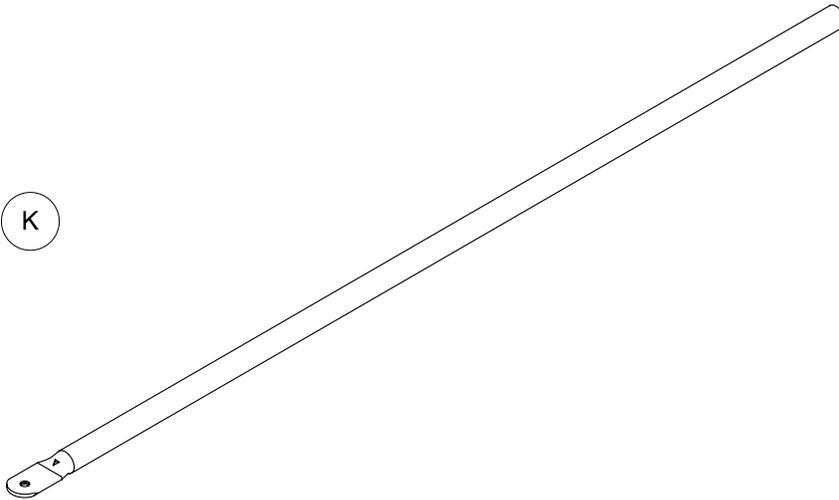
4/6GHz only



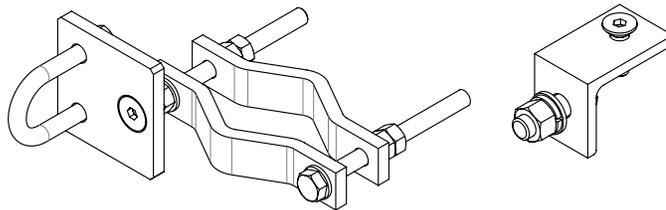
J



K



L



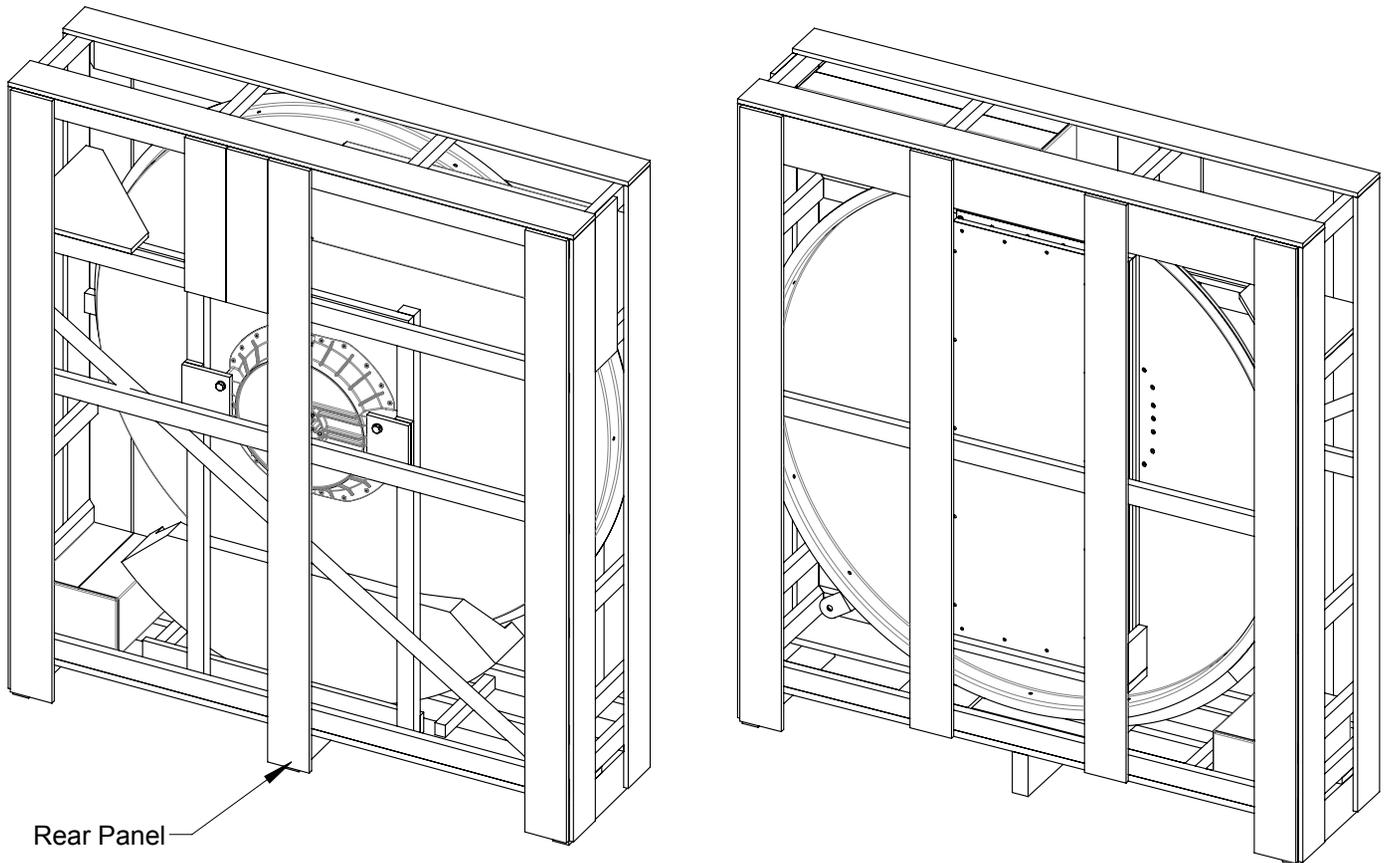
Tools

TOOL REQUIREMENTS

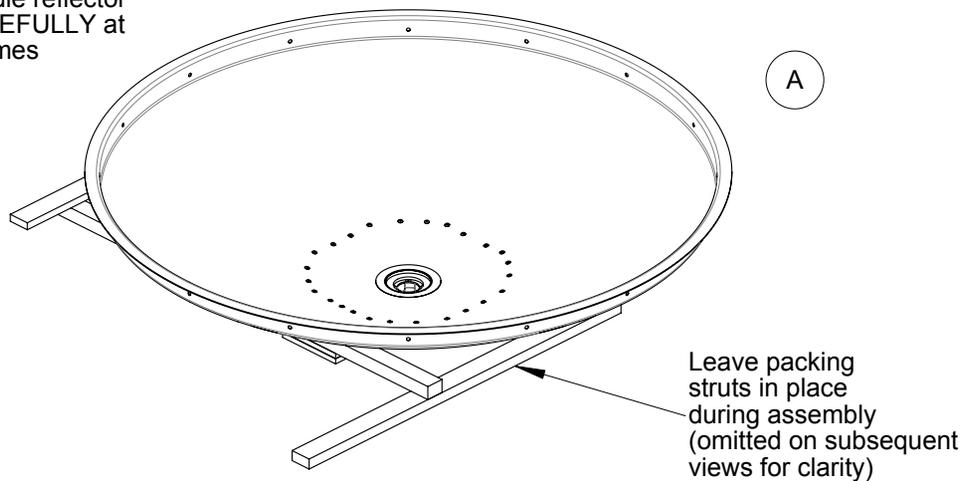
Tools Required	Bolt Diameter in MM			
	M4	M6	M10	M12
Ring and Open spanner (A/F)		10mm	17mm	19mm
Torque Wrench				
Sockets (A/F)		10mm	17mm	19mm
Allen Key (A/F)	3mm		8mm	

Instructions for opening crate:

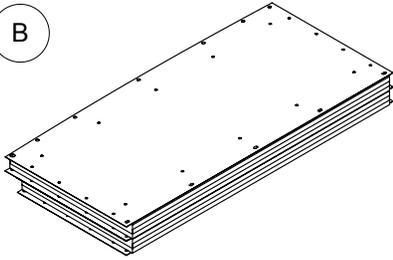
1. Release wire tabs if present on the outside of the crate
2. Remove the crate's rear panel
3. The reflector can then be hinged backwards from the bottom edge and removed from the crate
4. **Leave reflector attached to the backing struts until instructed to remove**



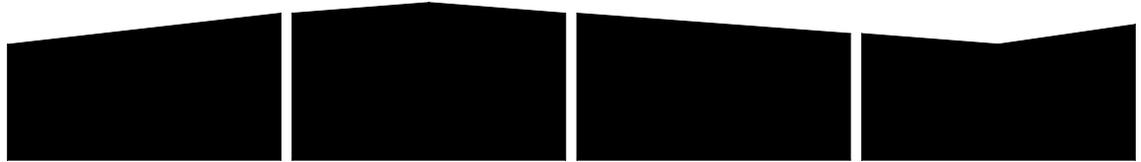
 Handle reflector
CAREFULLY at
all times



B



Shield assembly sequence

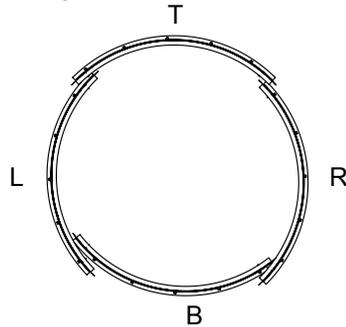


LEFT-L

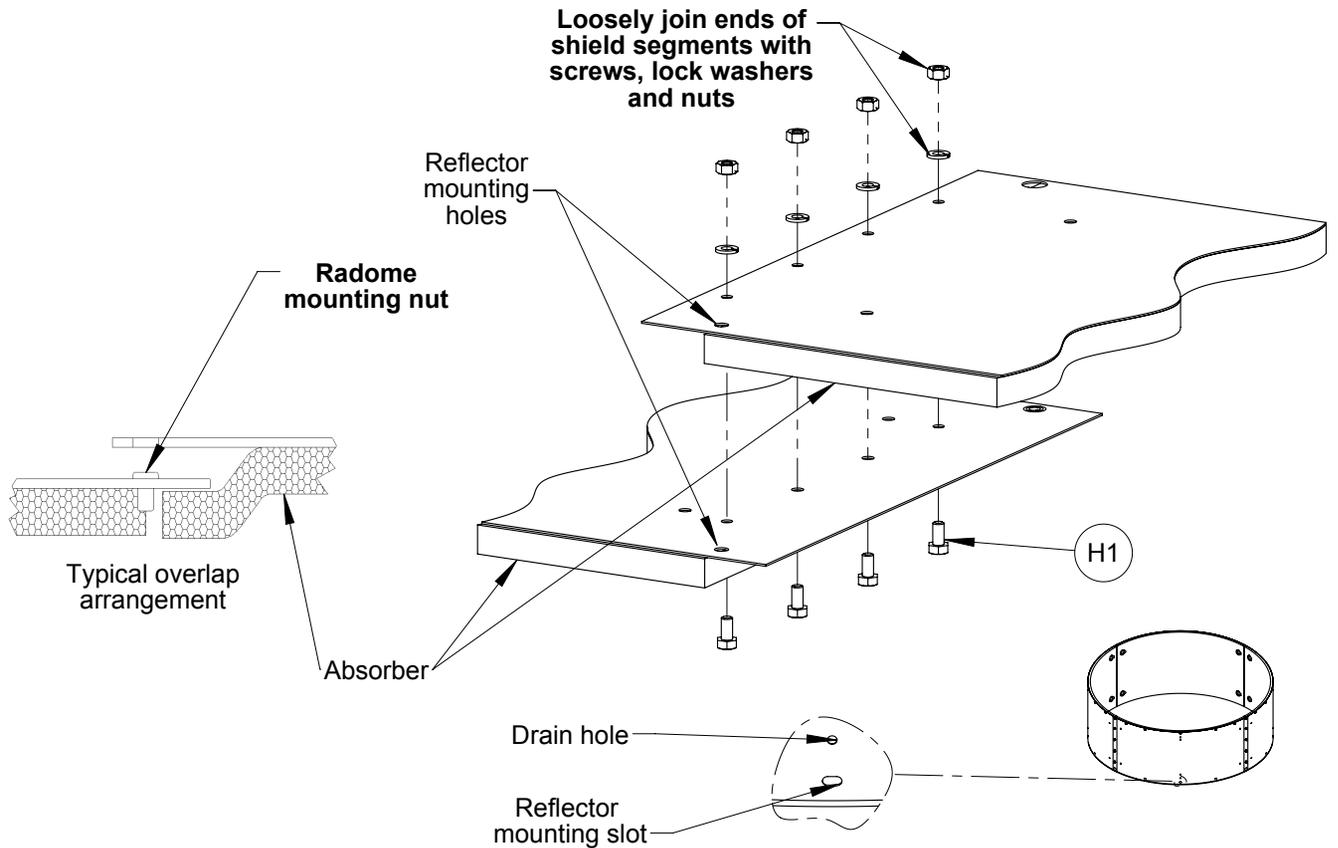
TOP-T

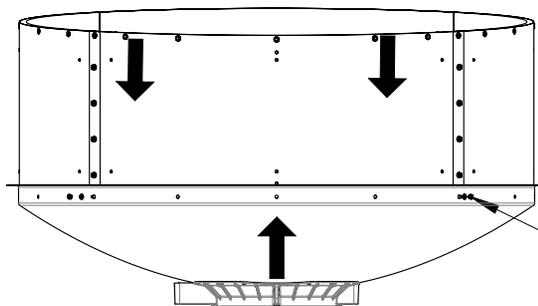
RIGHT-R

BOTTOM-B



Loosely join ends of shield segments with screws, lock washers and nuts

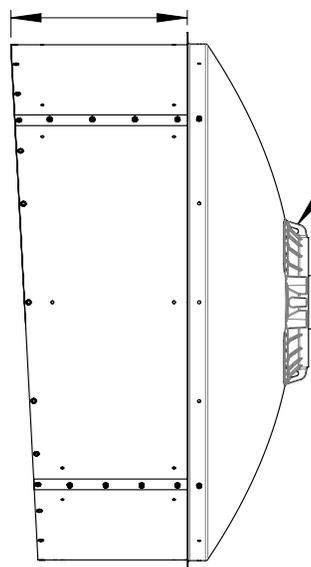




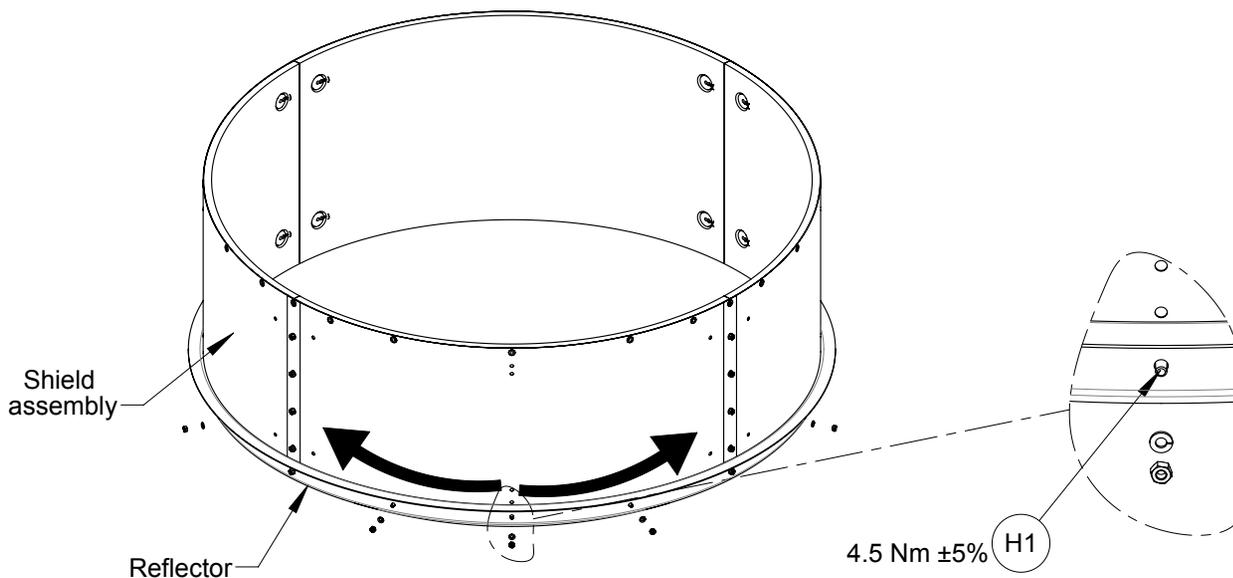
Insert shield in to reflector so that mounting holes align with rim holes in reflector

Fit loosely with lockwasher and nut in 4 opposite places as shown

Ensure highest side of shield set is aligned to top of antenna



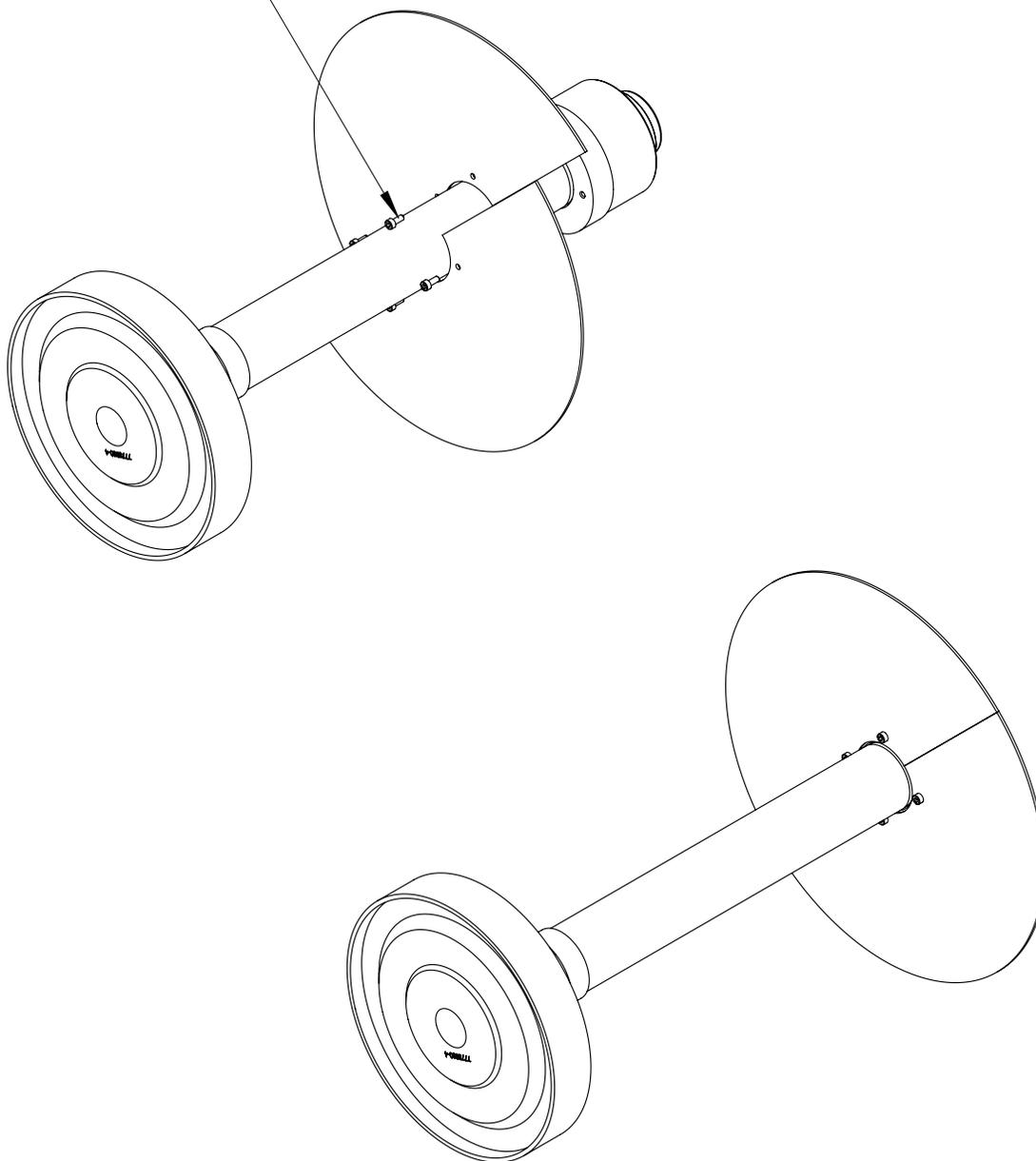
Lifting eye identifies top of antenna

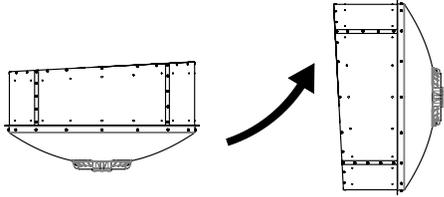


Fit bolts, lock washers and nuts to remaining holes of reflector. Starting at the middle of each segment, tighten all fastenings.

Vertex Plate Assembly 4/6 GHz only

Apply Loctite Nutlock to
threads prior to assembly
Tighten to $2.5\text{Nm} \pm 5\%$





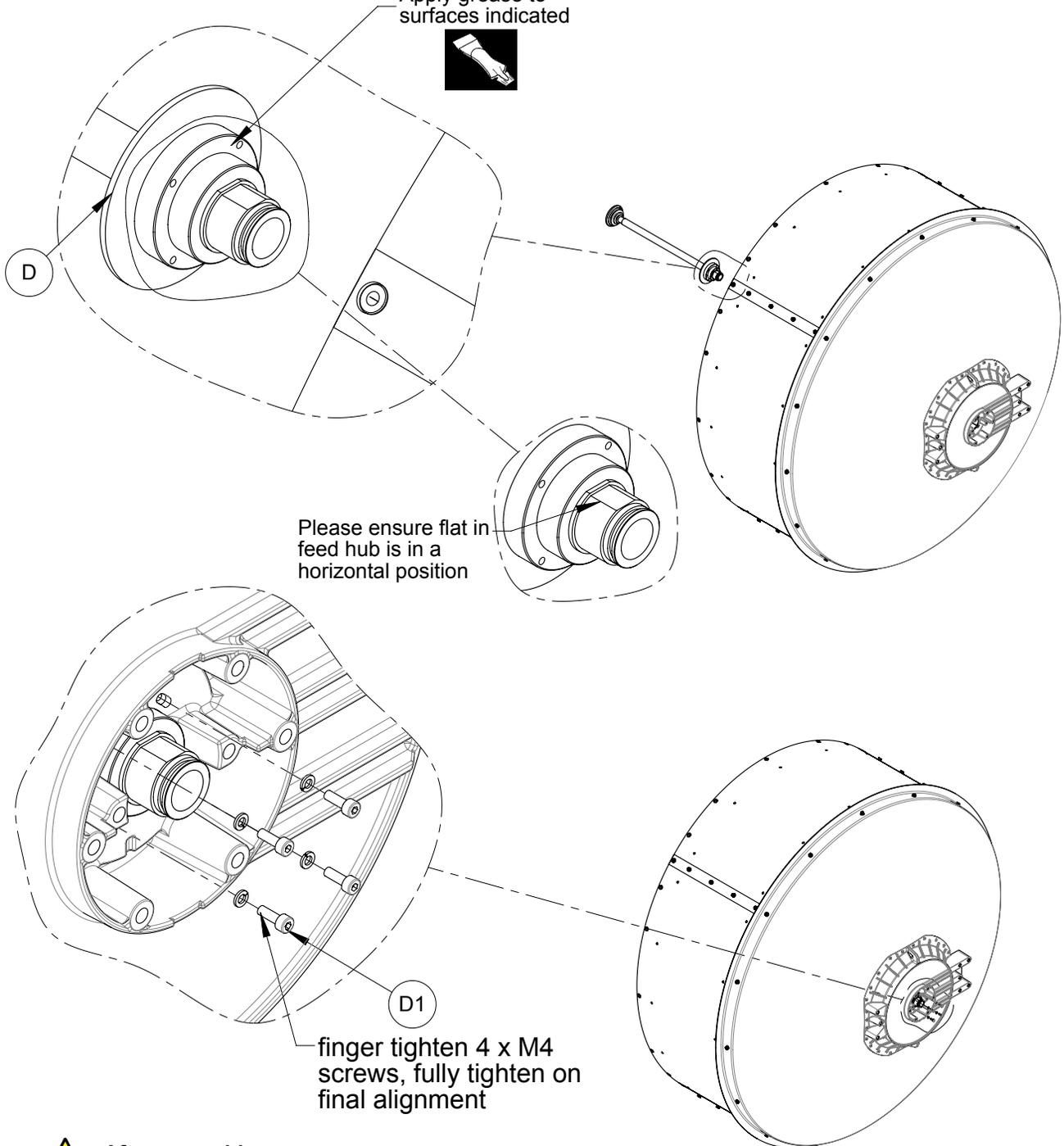
Prior to feed attachment, carefully tilt antenna upright and hold in position.



REFER TO SAFETY NOTE ON PAGE 5

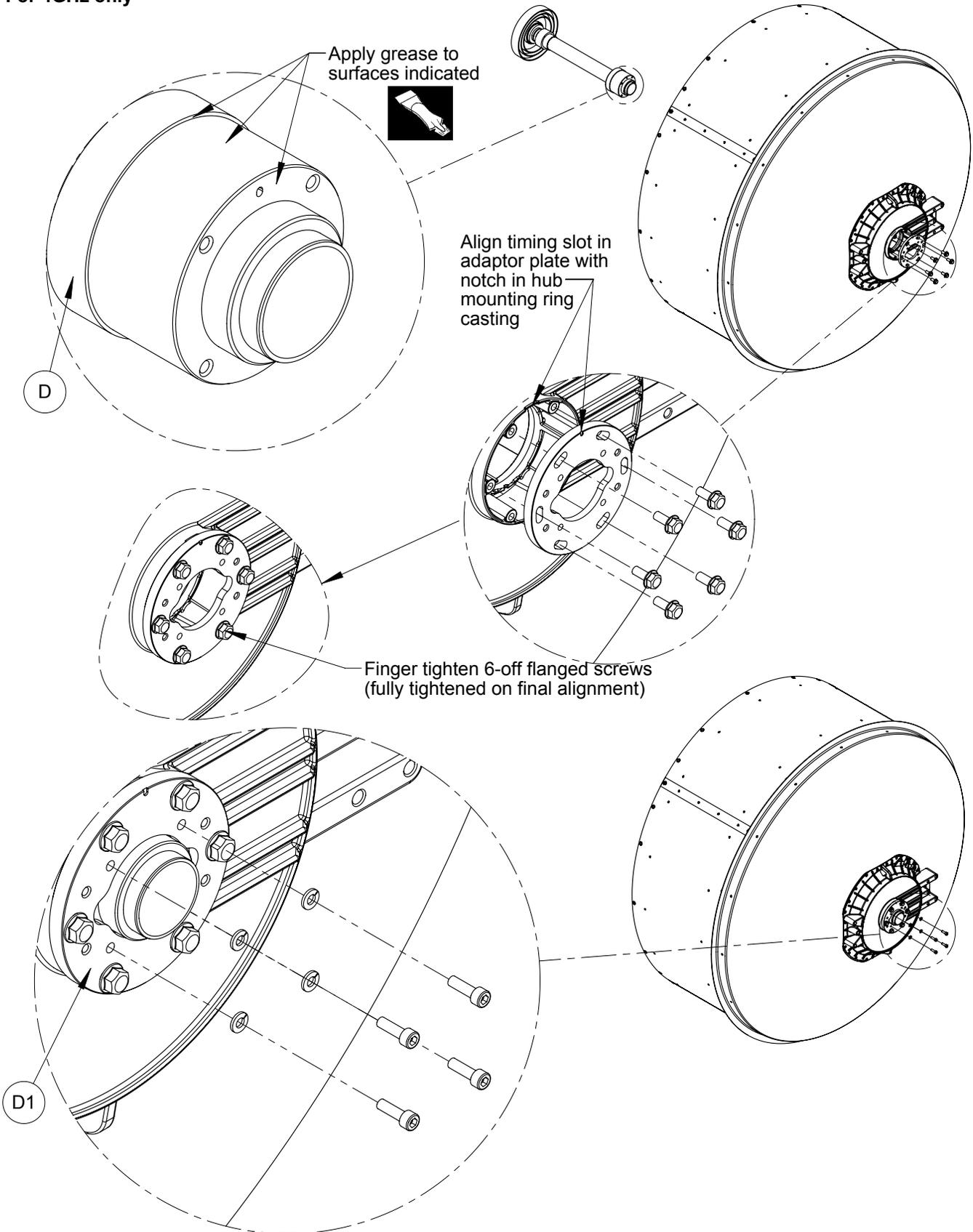
For 6-15GHz only

Apply grease to surfaces indicated

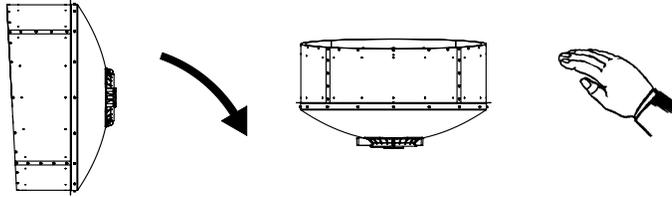


After assembly, remove excess grease from internal reflector surface

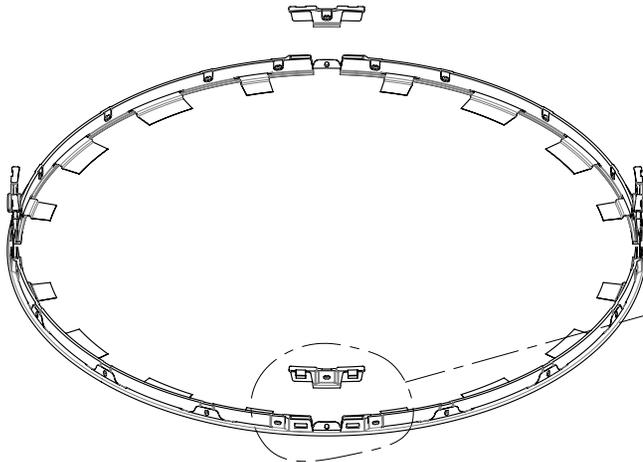
For 4GHz only



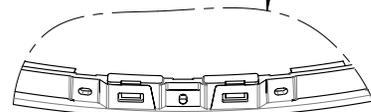
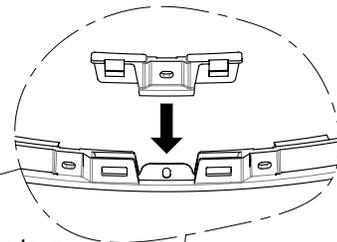
After assembly, remove excess grease from internal reflector surface



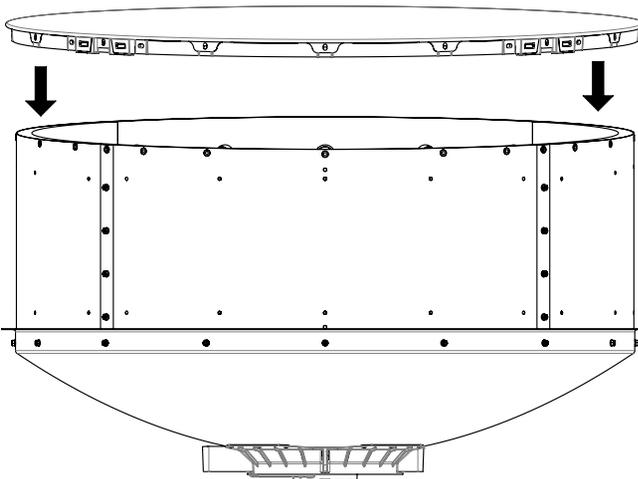
After feed attachment, carefully tilt antenna flat.



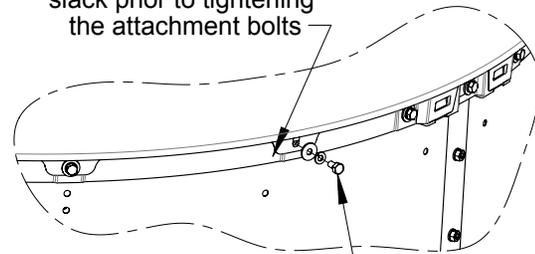
Unfold radome on to a suitable surface and assemble radome rim tensioners at 4 places.



Ensure radome rim tensioners are pressed fully home. (When fully pressed home, tensioners are no longer loose or removable)



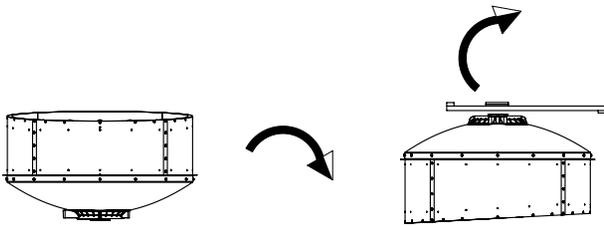
Pull radome tab to take up any excess slack prior to tightening the attachment bolts



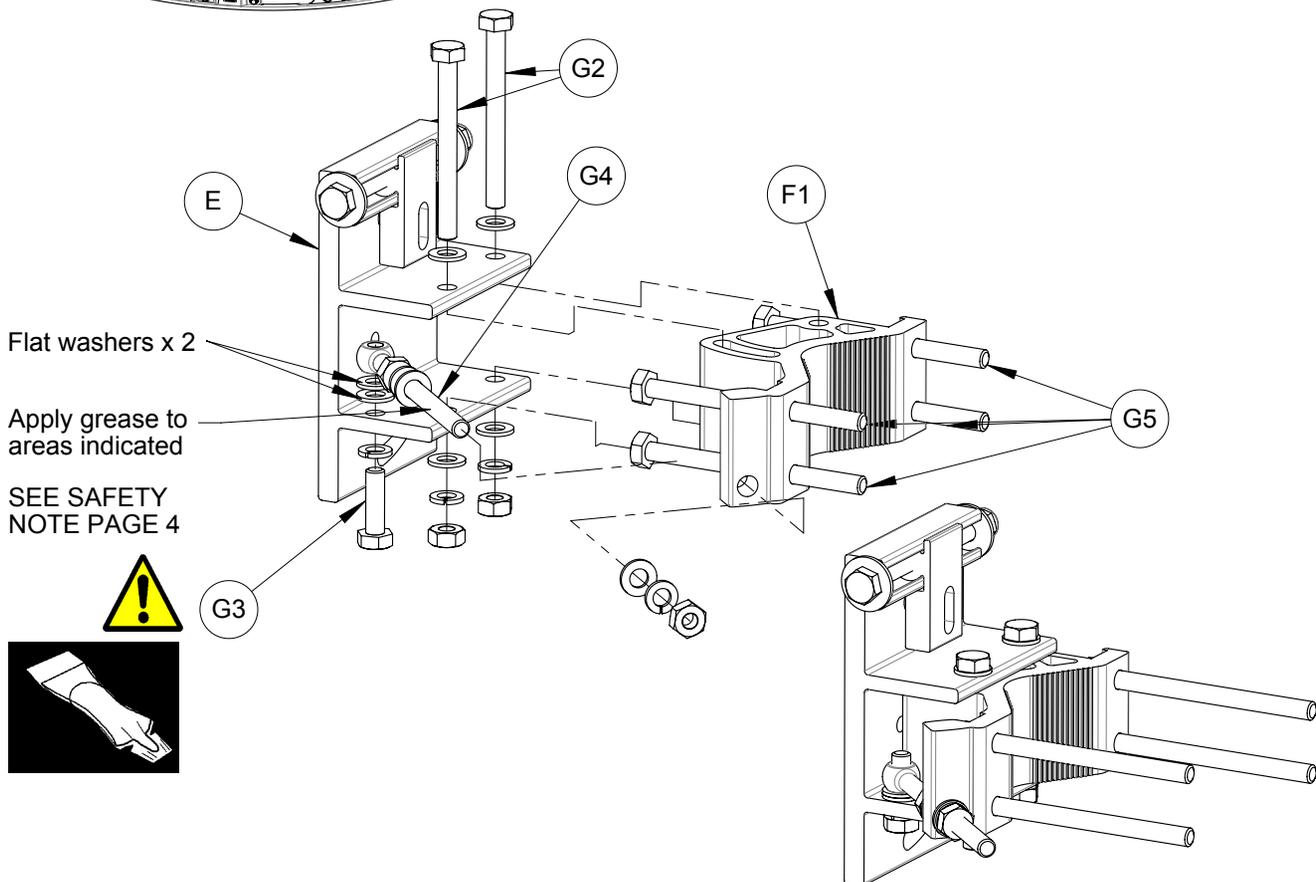
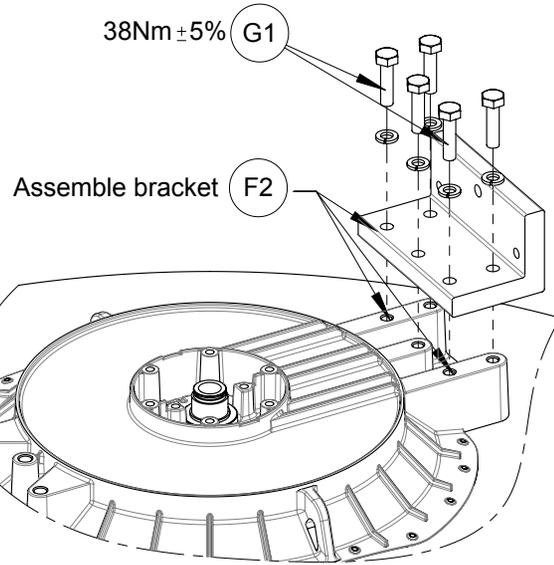
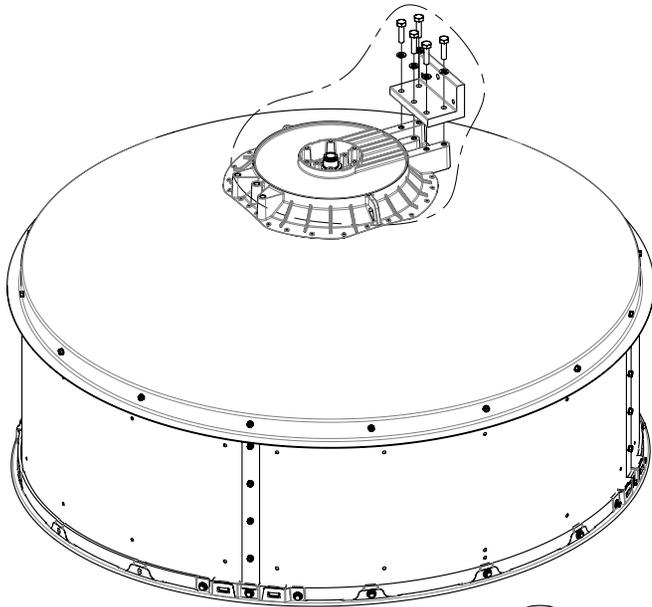
H2 Torque to 5.5Nm \pm 5%

Assemble radome to shield with screws, lock washers, and flat washers

Fit transition, OMT or customer interface at this stage see separate installation instructions



Remove braces and discard fixings.
Carefully lay antenna on clear, flat ground.
Do not apply excessive weight to antenna assembly.

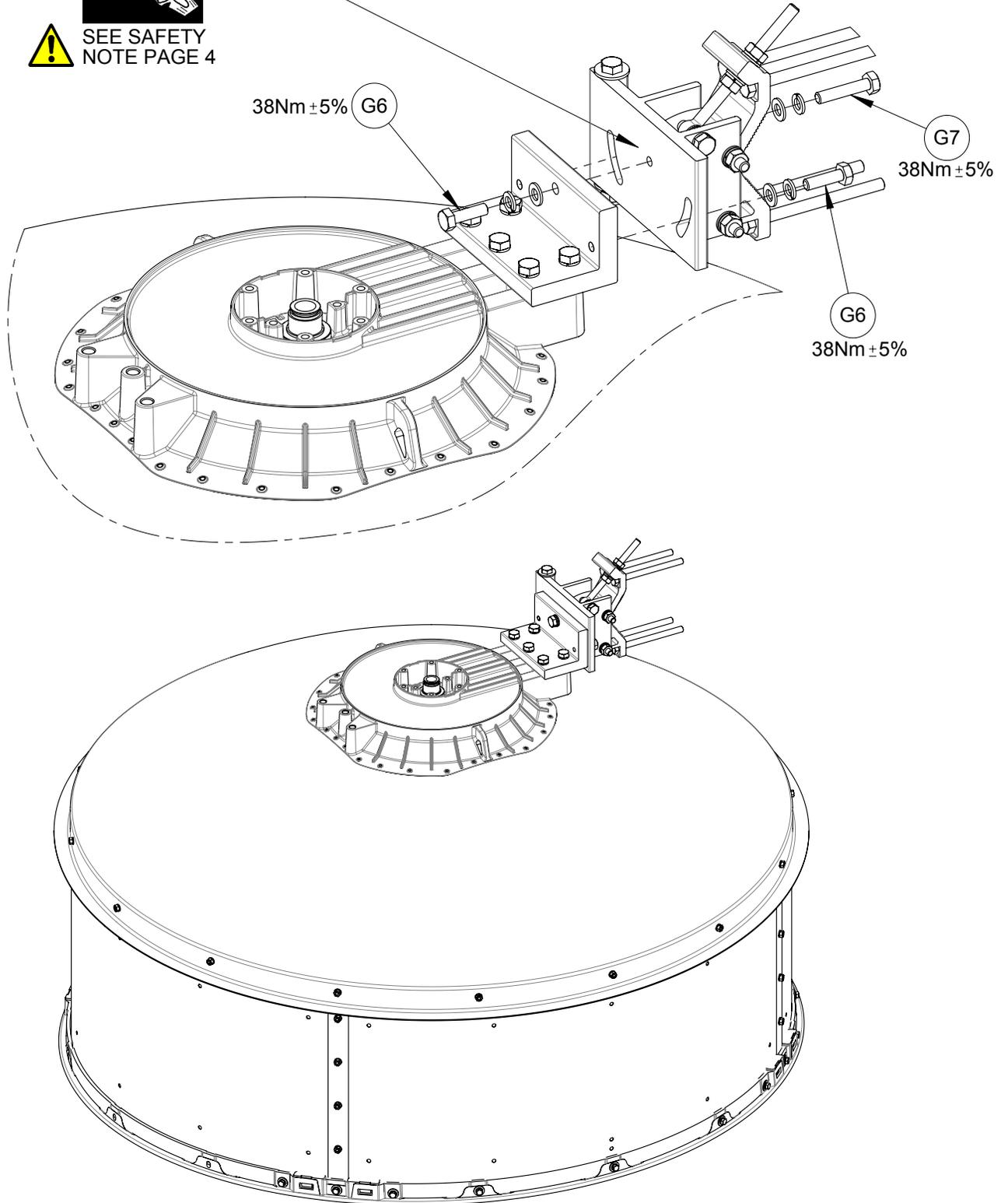


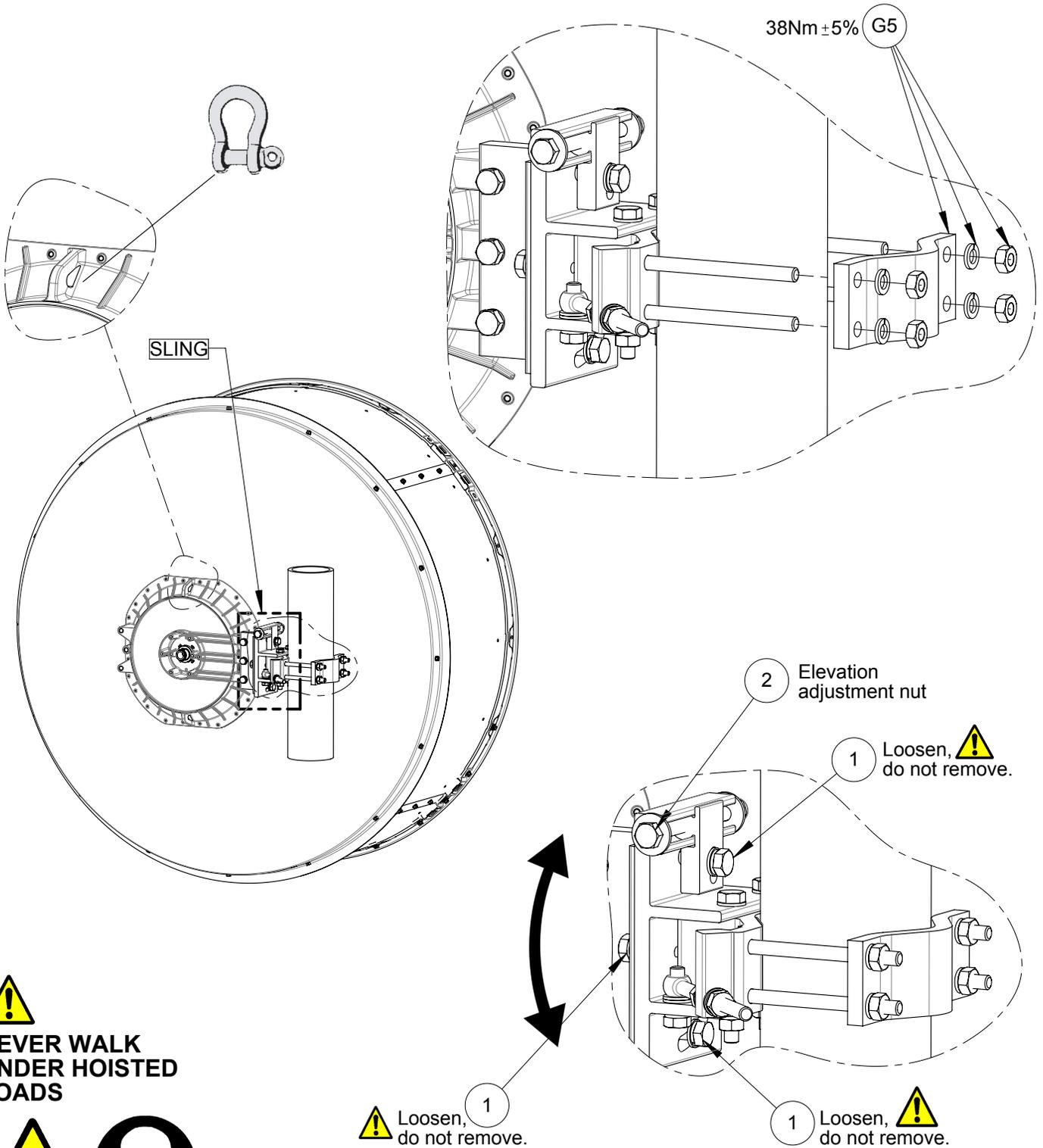


Apply grease to surface indicated



SEE SAFETY
NOTE PAGE 4





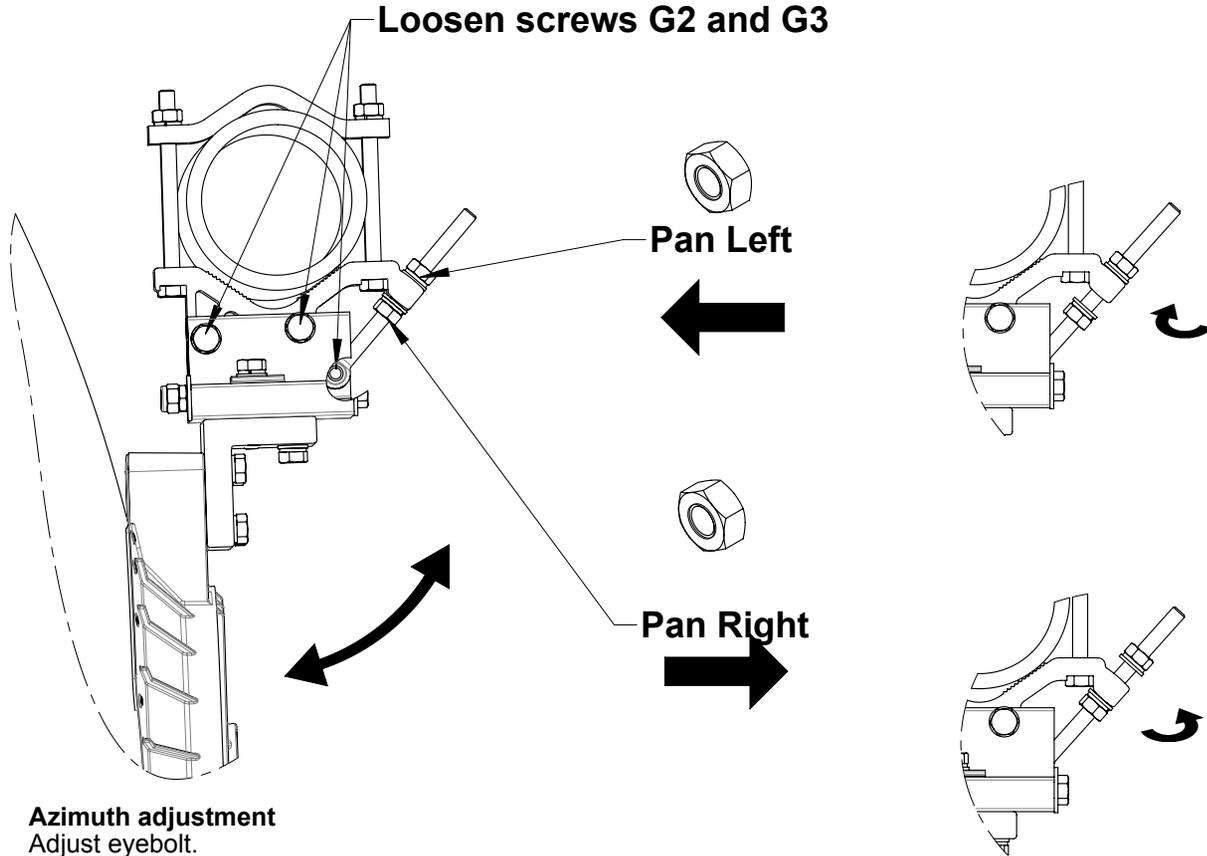
⚠
**NEVER WALK
UNDER HOISTED
LOADS**



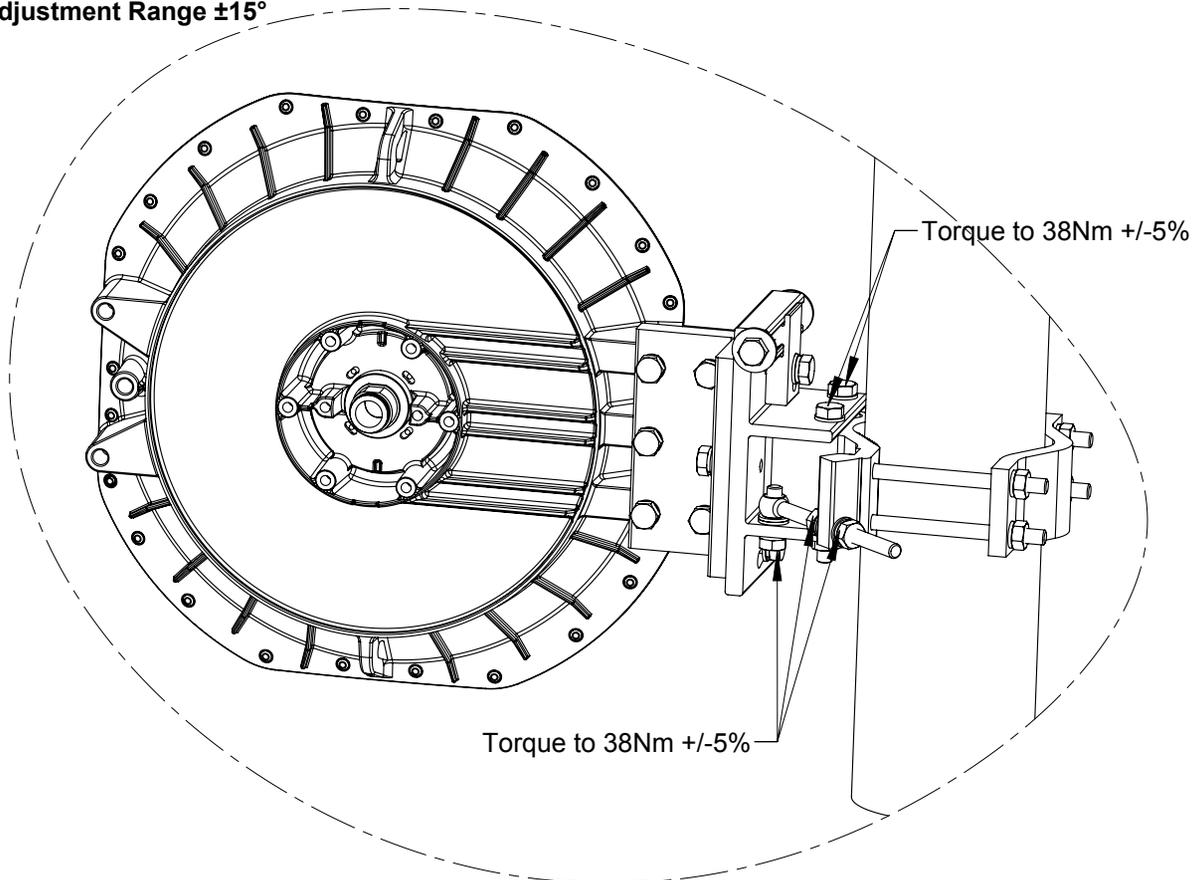
⚠ 1 Loosen, ⚠ do not remove.

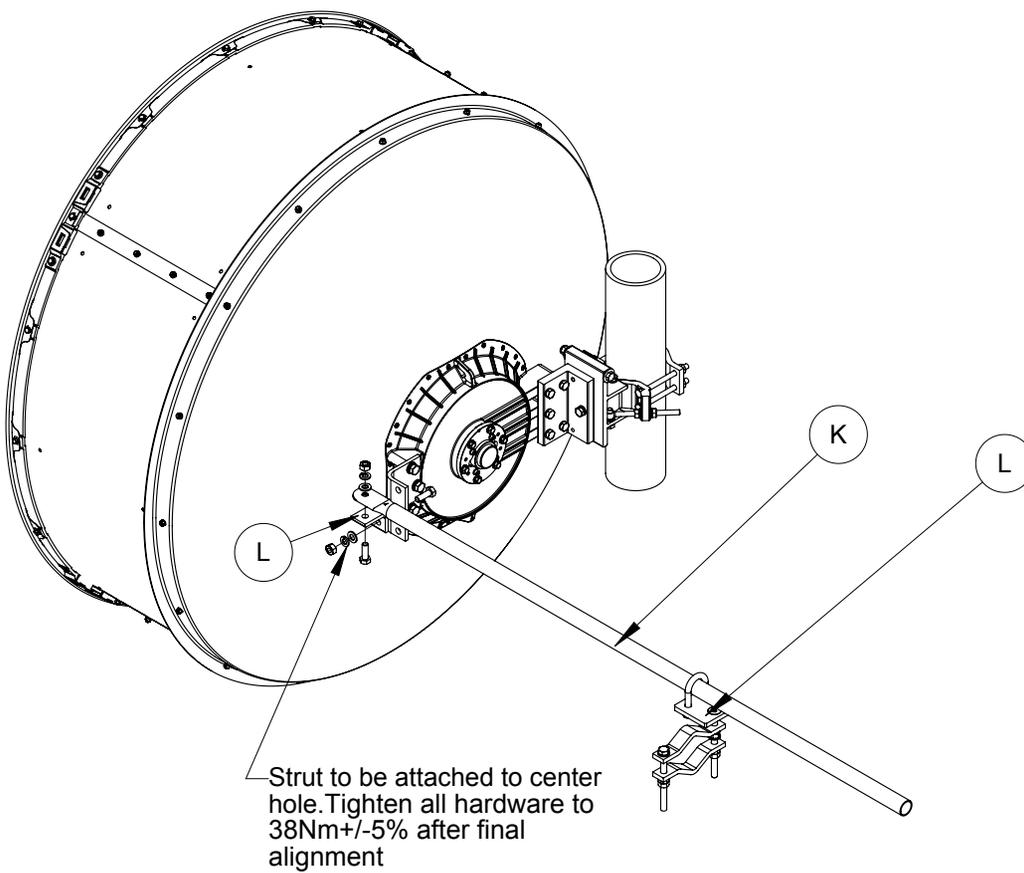
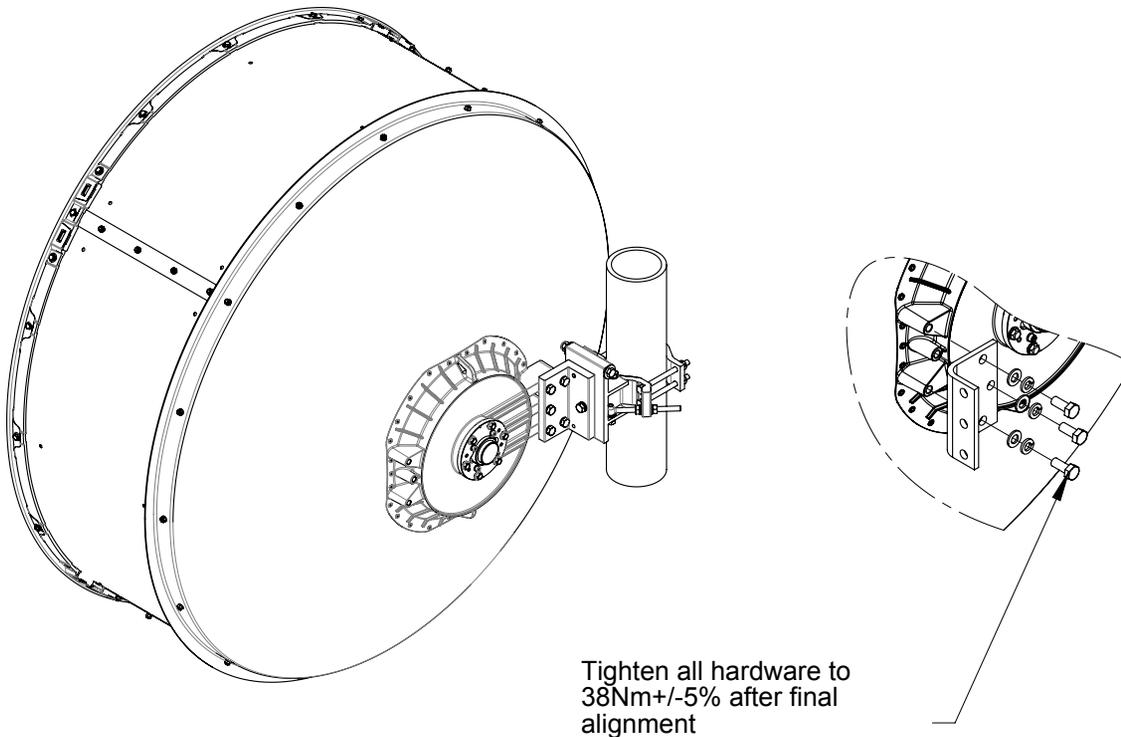
Elevation adjustment
Loosen 3 screws (item 1).
Rotate bolt head (item 2) to adjust elevation.
On completion tighten screws (item 1) to
38Nm ± 5%
Adjustment Range ±15°

1 Loosen, ⚠ do not remove.

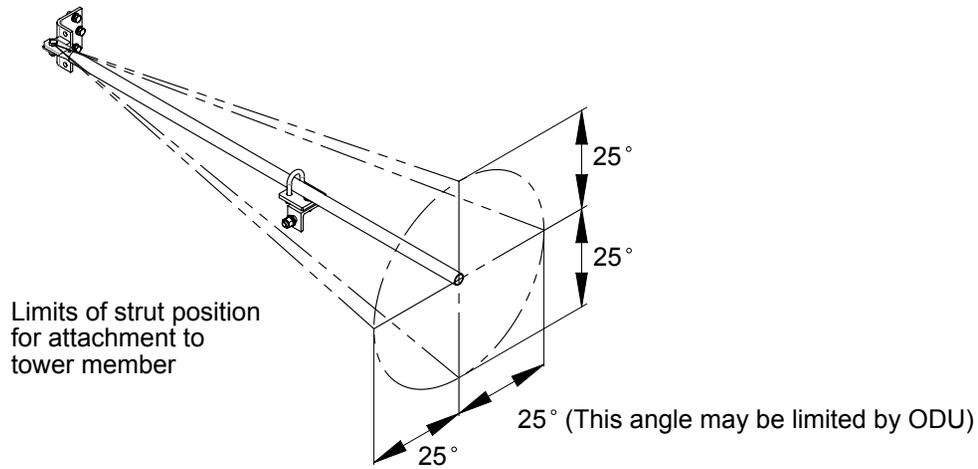


Azimuth adjustment
Adjust eyebolt.
On completion tighten all hardware to
 $38\text{Nm} \pm 5\%$
Adjustment Range $\pm 15^\circ$

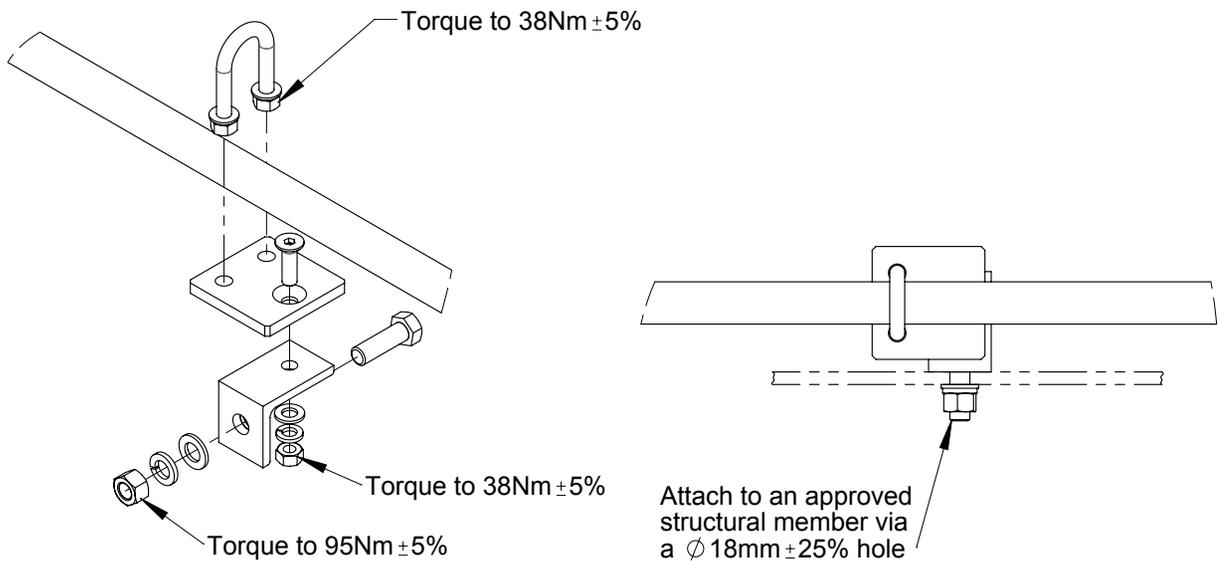




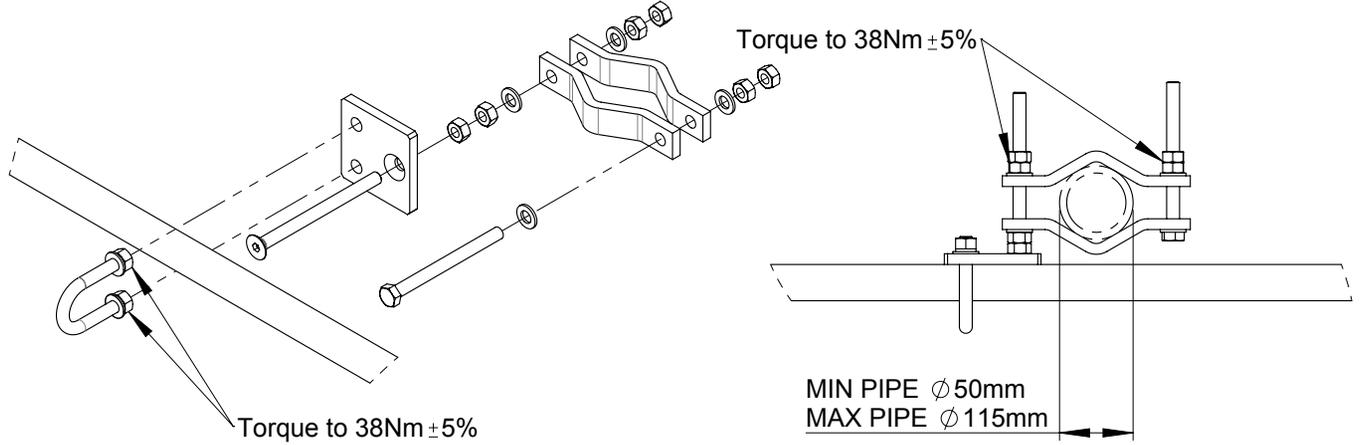
Struts must be attached to a structural member capable of supporting 2704N in line with TIA-222. The maximum allowable relative deflection between the antenna mounting pipe and the strut attachment point must be less than 2mm at the survival wind speed of the antenna.



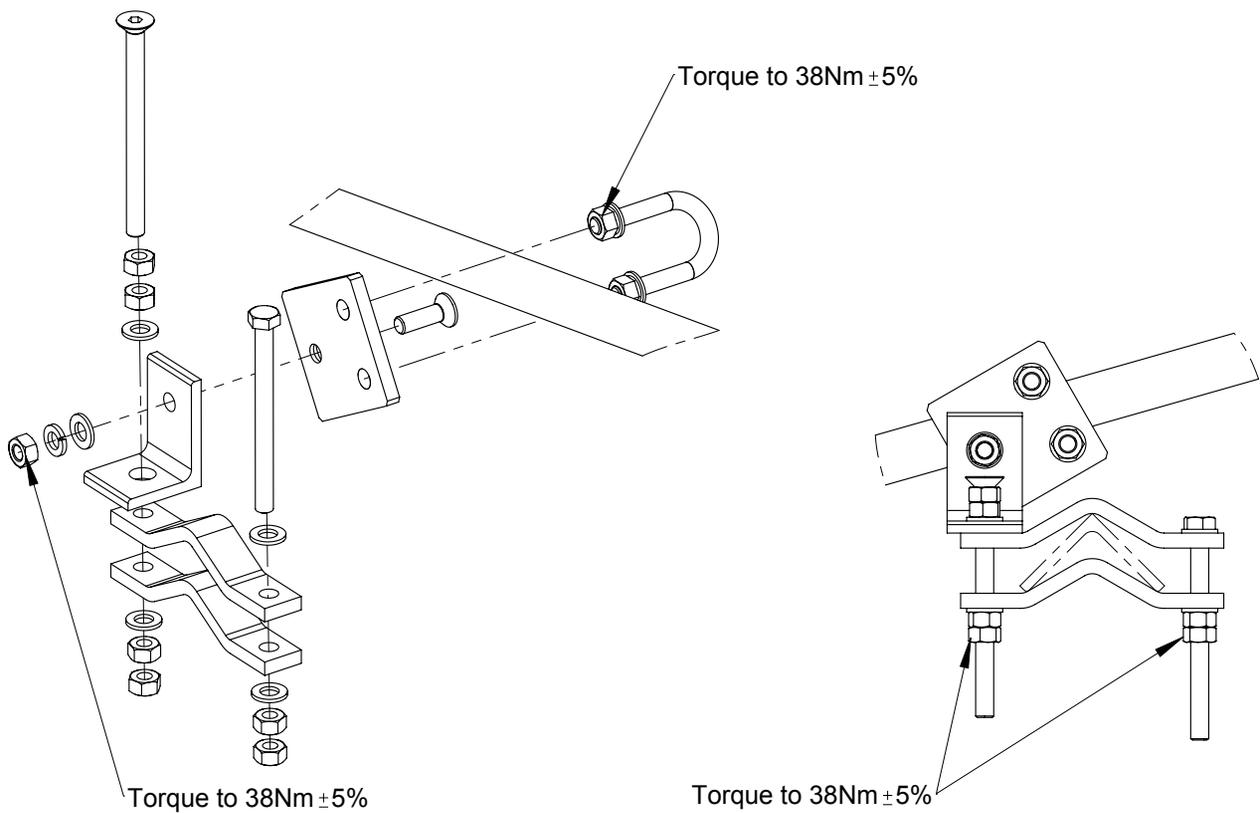
For attachment to non-circular structural members



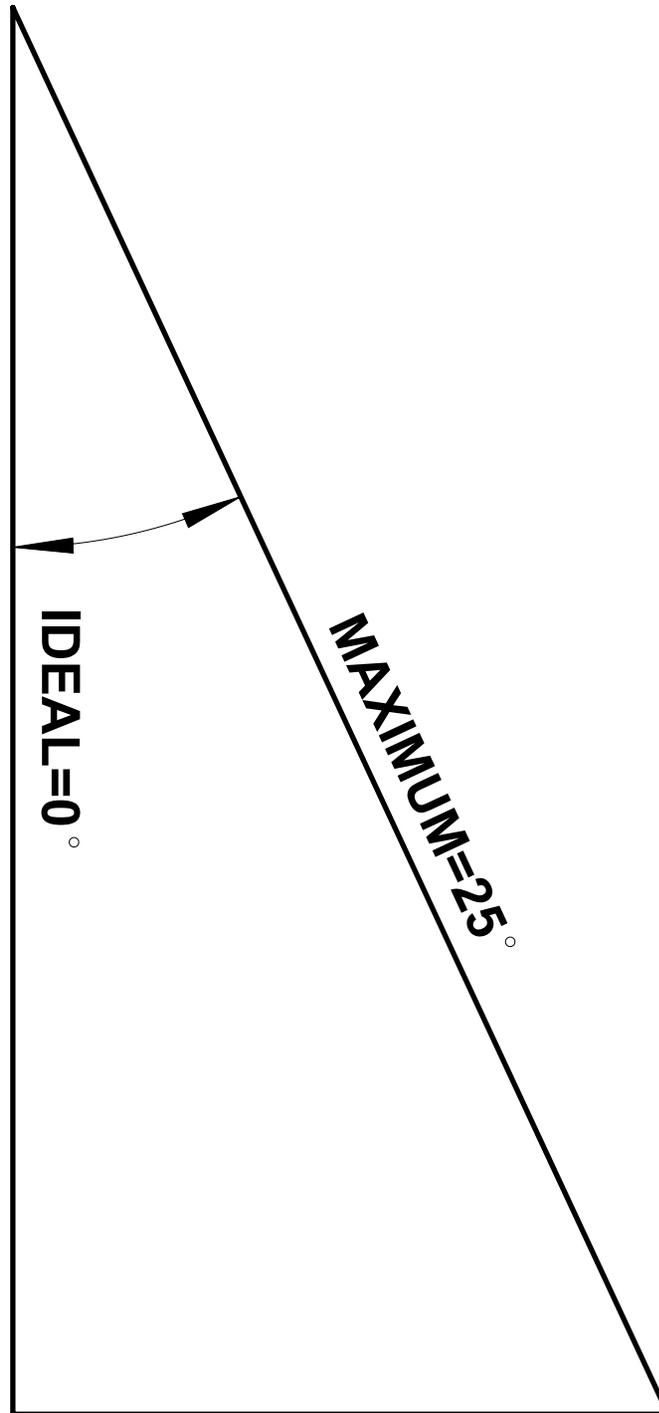
For attachment to circular structural members



For attachment to angle structural members



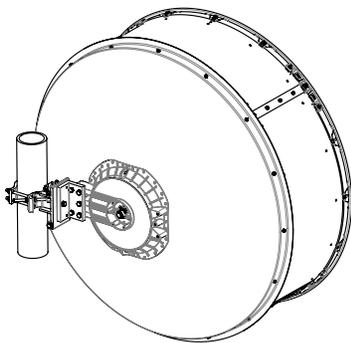
- Image shown is intended as a guide for strut alignment
- Strut must be attached to an appropriate, structural mounting point
- Strut angle must not exceed maximum specified
- Failure to install the strut as instructed may result in mechanical failure of the antenna



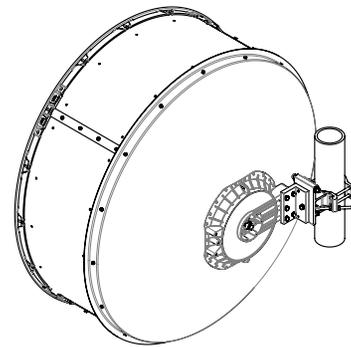
12 General Information

12.1 Antenna Mounting

The antenna can be mounted to the left or right hand side of the pole as shown.



Antenna Offset Right



Antenna Offset Left

12.2 General maintenance

The antenna is designed such that minimal maintenance is required. Other than strong wind conditions the unit is not subject to abnormal forces and regular inspection and maintenance should ensure trouble free operation.

12.3 Cleaning of Antenna

If subsequent cleaning of the antenna is required solvent based solutions must not be used.