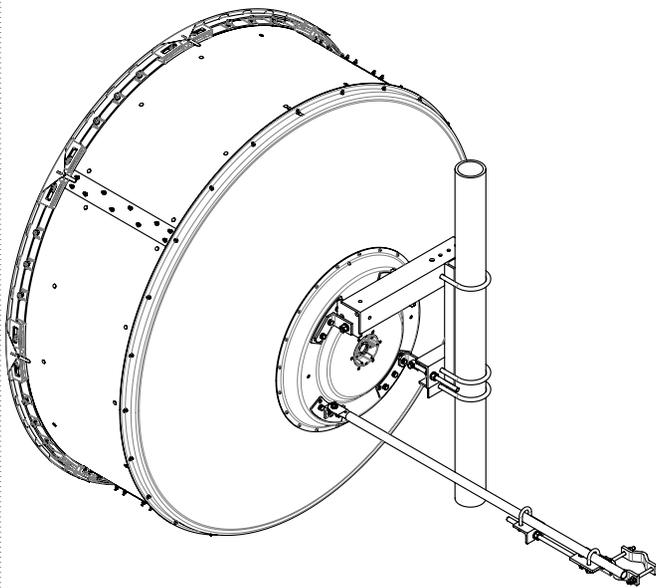


IMPORTANT!
INSTALLATION
INSTRUCTIONS
READ THIS
MANUAL FULLY
BEFORE UNPACKING
AND ASSEMBLING
THE ANTENNA

This document is for the following:
VHLP(X)6-* 1.8m ANTENNA**



SAFETY

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

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 - 120mm. The mount provides adjustment ranges of $\pm 5^\circ$ 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 those enclosed with the equipment or recommended by Commscope.

CommScope

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www.commscope.com

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LIST OF CONTENTS

<u>SECTION</u>	<u>TITLES</u>
1	INTRODUCTION
2	SAFETY INSTRUCTIONS Including Introduction, Standards, Safety Requirements, Safety Symbols, Definitions and Hazards.
3	EQUIPMENT & TOOLS Including Equipment supplied diagram, Equipment quantities and descriptions. Tools required.
4	UNPACKING Including Unpacking of antenna parts.
5	ASSEMBLY OF REFLECTOR TO SHIELD Including how to assemble the reflector to the shield in the correct orientation.
6	FEED ATTACHMENT Including attaching the feed.
7	RADOME ATTACHMENT AND ALIGNMENT Including how to assemble the radome to the shield in the correct orientation.
8	MOUNT ATTACHMENT AND ALIGNMENT Including Basic alignment, Attaching the antenna to the pole, Fitting the mount, Elevation alignment, Azimuth alignment and tightening fasteners instruction.
9	GENERAL INFORMATION Including maintenance and cleaning instructions.

INTRODUCTION

This instruction describes how to assemble a VHLP(X)6 antenna.

The antenna can be mounted to the left or to the right of the supporting structure.

These instructions describe how to mount the antenna to the left of the supporting structure, however instructions showing the antenna mounted to the right of the supporting structure are included where appropriate. It is recommended that at least 2 persons assemble the antenna.

SAFETY INSTRUCTIONS

INTRODUCTION

This section describes the system used for presenting safety information.



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 the equipment in the specified hoisting points.
- 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 is 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

Item	Qty	Description
A	1	Reflector
B	1	Shield Set
C	1	Radome
D	1	Feed (frequency dependant)
Kit D1		6ft Feed Hardware Kit
	4	M4 x 16lg SHCS, sst, pass
	4	M4 Lock Washer, sst, pass
	1	Conductive Grease (tube)
	2	Gloves
Kit D2		Vertex Plate Kit (6GHz & 11GHz only)
	2	Vertex Plate
	4	M4 x 10lg SHCS, sst, pass
E		Elevation Pivot Bar - Top
F		Vertical Support Channel
Kit G		Mount Kit - 6ft
G1	1	Elevation Pivot Bar - Bottom
G2	3	Spacer Plate
G3a	1	Elevation Pivot Bracket - Top Right
G3b	1	Elevation Pivot Bracket - Top Left
G4	1	Elevation Pivot bracker - Bottom
G5	1	Safety Bracket
Kit H		Shield and Radome Hardware Kit
H1	62	M6 x 20 Hex Hd Screw, sst, pass
	124	M6 Washer, sst, pass
	62	M6 Lock Washer, sst, pass
	62	M6 Nut, sst, pass
H2	40	M6 x 25 Skt Hd Cap Screw, sst, pass
	40	M6 Large Washer, sst, pass
Kit J		Mount Hardware Kit
J1	3	M16 U-Bolt c/w Nuts & Washers
J2	4	M12 x 40lg Carriage Bolt
	4	M12 Nut, stl, galv
	4	M12 Lock Washer, stl, galv
	4	M12 Washer, stl, galv
	4	M16 Washer, stl, galv
J3	1	M16 Eye Bolt, stl, galv
	2	M16 Washer, stl, galv
	2	M16 Nut, stl, galv
	1	M12 x 45lg Hex Hd Screw, stl, galv
	1	M12 Lock Washer, stl, galv
	1	M12 washer, stl, galv
	1	M12 Nut, stl, galv
J4	2	M16 x 45lg Hex Hd Screw, stl, galv
	2	M16 Lock Washer, stl, galv
	4	M16 Washer, stl, galv
	2	M16 Nut, stl, galv
J5	9	M10 x 35lg Hex Hd Screw, sst, pass
	9	M10 Lock Washer, sst, pass
	9	M10 Washer, sst, pass

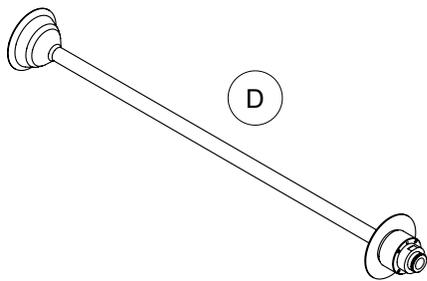
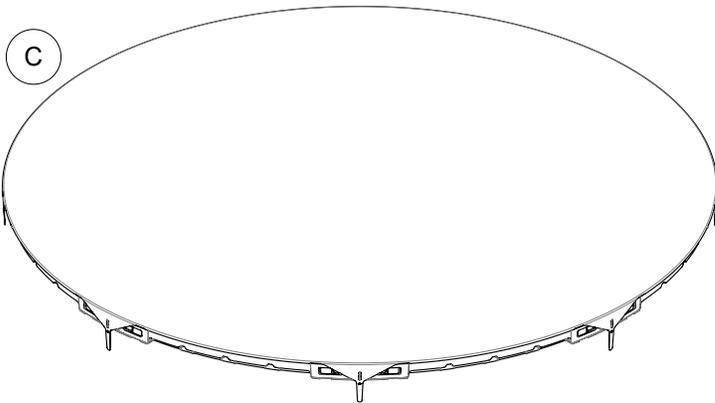
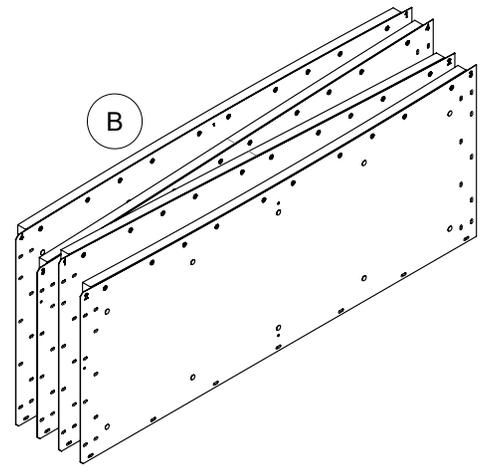
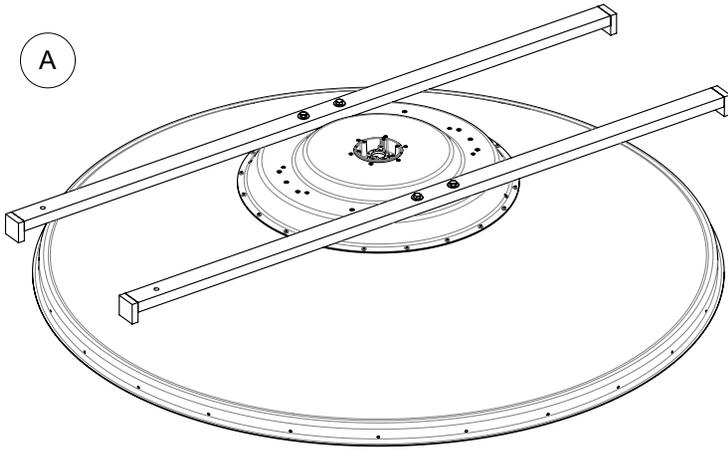
Table 1 Supplied Equipment and Tools

Item	Qty	Description
Kit K		Strut Hardware Kit
K1	1	Spacer Plate
	1	Brce Rod Attachment Bracket
	1	M12 X 35lg Hex Hd Screw, stl, galv
	1	M12 Lock Washer, stl, galv
	1	M12 Washer, stl, galv
	3	M10 x 35lg Hex Hd Screw, sst, pass
	3	M10 Lock Washer, sst, pass
	3	M10 Washer, sst, pass
K2		Azimuth Adjuster Assembly
	1	Azimuth Adjuster Bracket
	1	Adjuster Plate Bracket
	2	Clamp Bracket
	1	Swivel Plate
	1	M16 x 390lg Eye Bolt, stl, galv
	2	M12 U-Bolli c/w Nuts and Washers
	1	M12 x 180lg Stud, stl, galv
	1	M12 X 140lg Hex Hd Screw, stl, galv.
	1	M12 x 60lg Skt Hd C'sk Screw, stl, galv
	9	M12 Nut, stl, galv
	7	M12 Washer, stl, galv
	1	M12 Lock Washer, stl, galv
	1	M12 Washer, stl, galv
L	1	Brace Rod

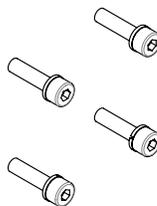
Tools

TOOL REQUIRMENTS

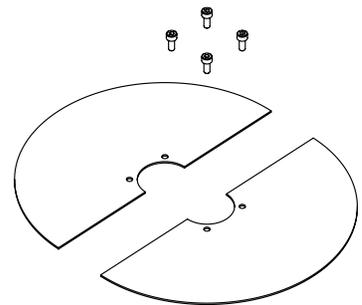
Tools Required	Bolt Diameter in MM				
	M4	M6	M10	M12	M16
Ring and Open spanner (A/F)		10mm	17mm	19mm	24mm
Torque Wrench	2.5 - 95Nm				
Sockets (A/F)		10mm	17mm	19mm	24mm
Allen Key (A/F)	3mm	5mm	8mm		
General Toolbox					
Spirit Level					

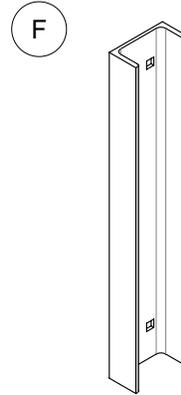
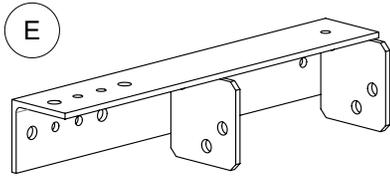


Kit D1

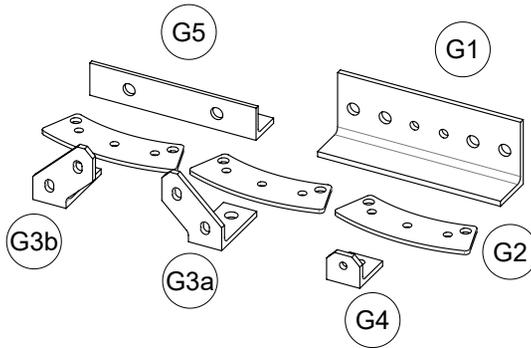


Kit D2

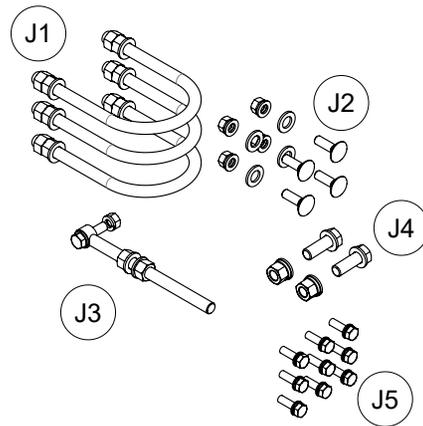




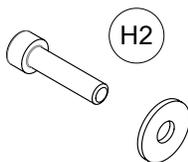
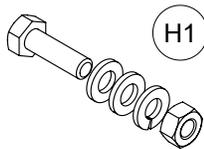
Kit G



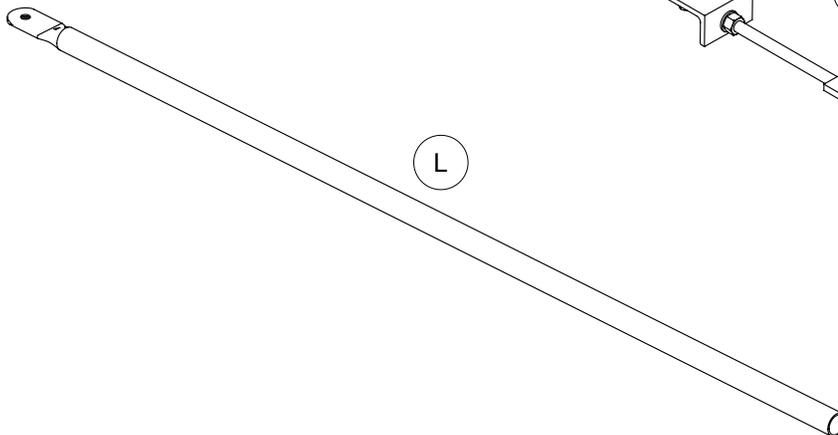
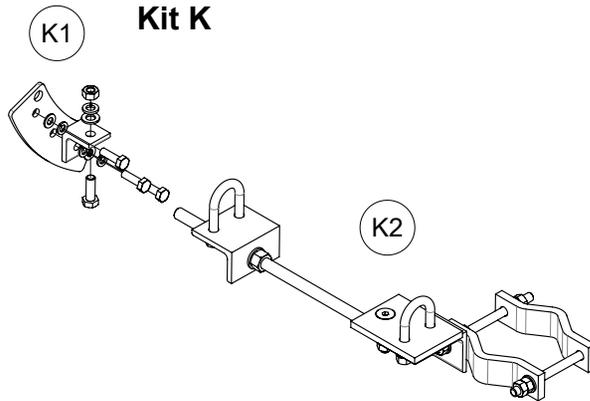
Kit J



Kit H



Kit K



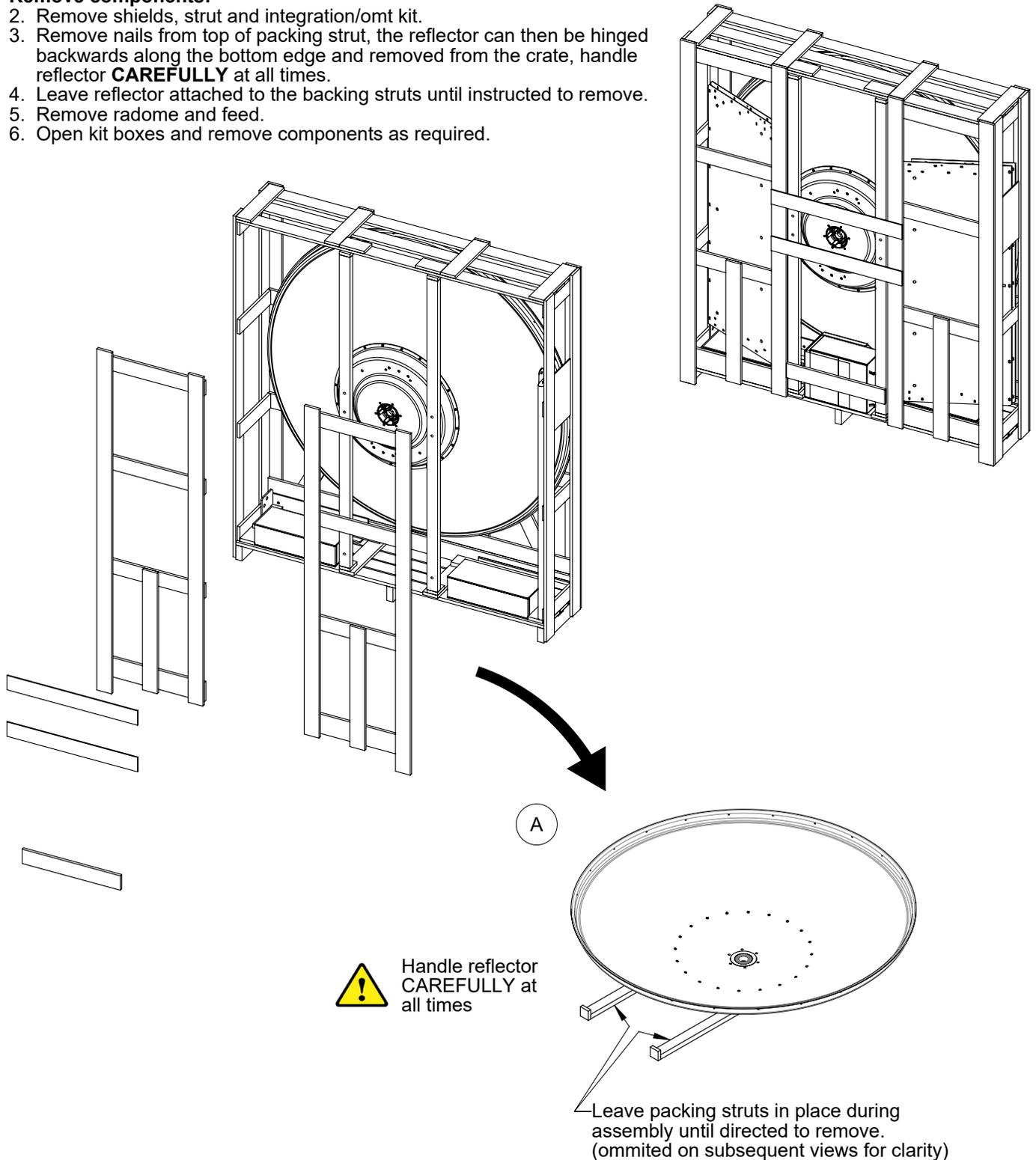
Instructions for unpacking crate:

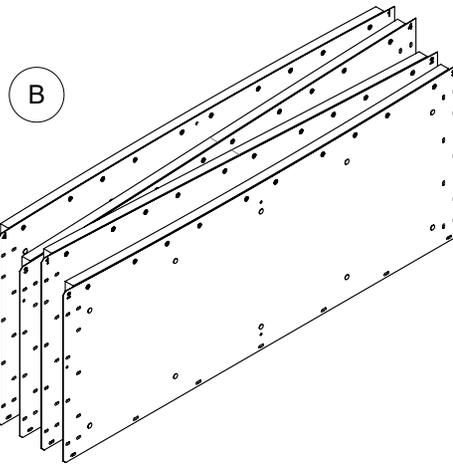
Nailed crate:

1. Carefully remove panels and support elements to allow access to shields and reflector struts.

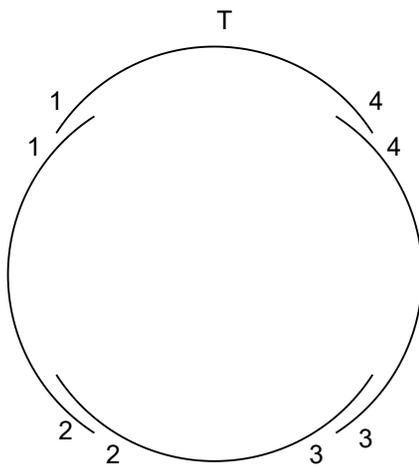
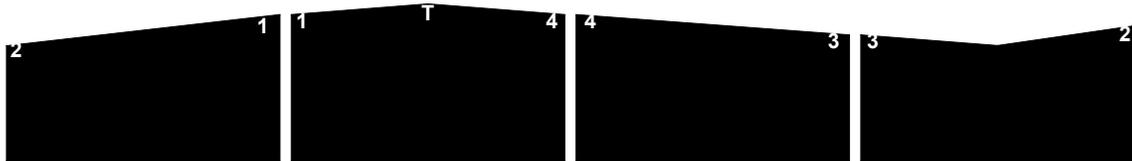
Remove components:

2. Remove shields, strut and integration/omt kit.
3. Remove nails from top of packing strut, the reflector can then be hinged backwards along the bottom edge and removed from the crate, handle reflector **CAREFULLY** at all times.
4. Leave reflector attached to the backing struts until instructed to remove.
5. Remove radome and feed.
6. Open kit boxes and remove components as required.

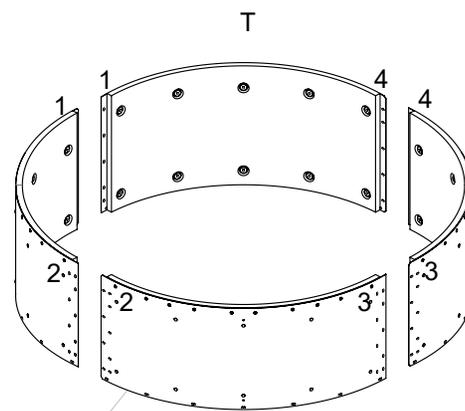




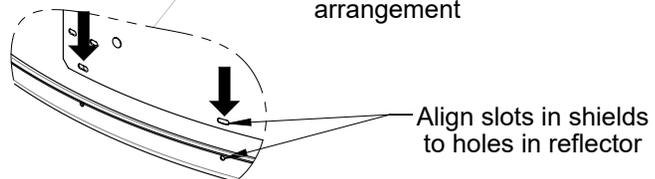
Shield assembly number sequence (Absorber face up)



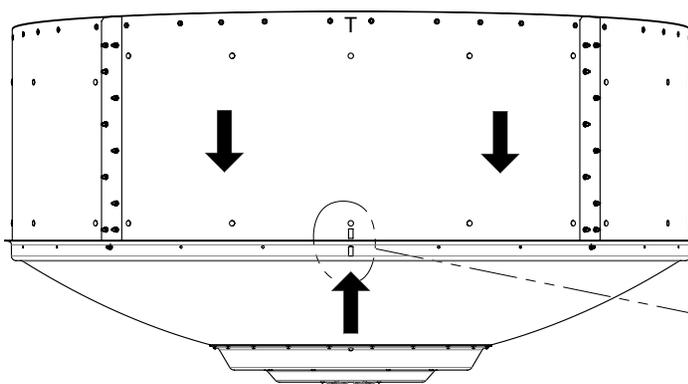
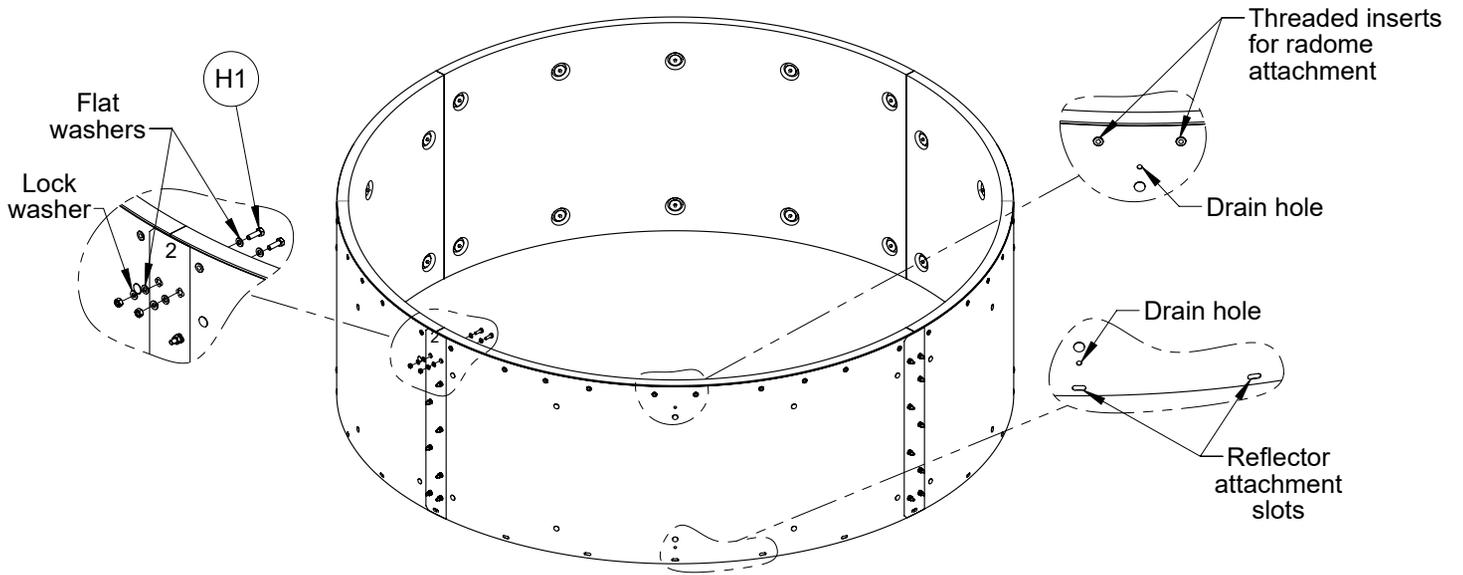
ATTENTION
shield overlap
arrangement



Antenna shield
arrangement



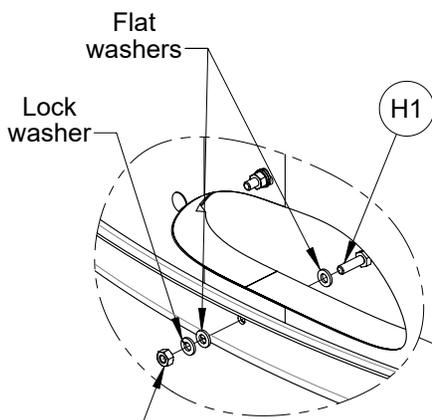
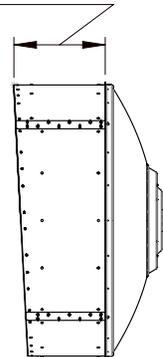
Align slots in shields
to holes in reflector



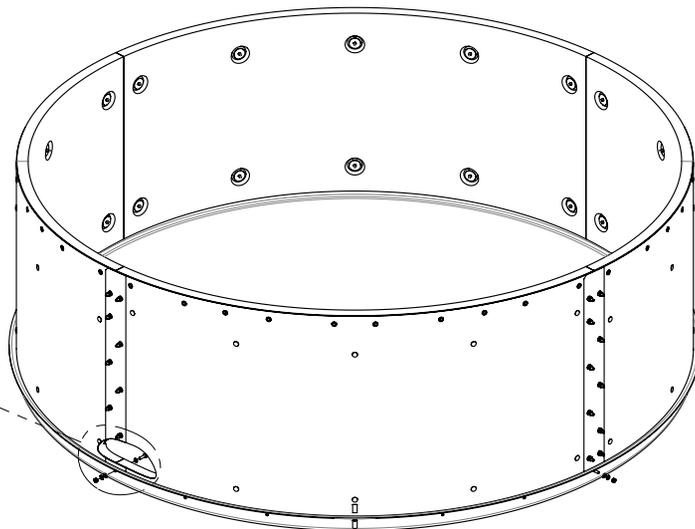
Ensure highest side of shield set is aligned to top of antenna

Align red tape on reflector with red tape on shield (for reference only)

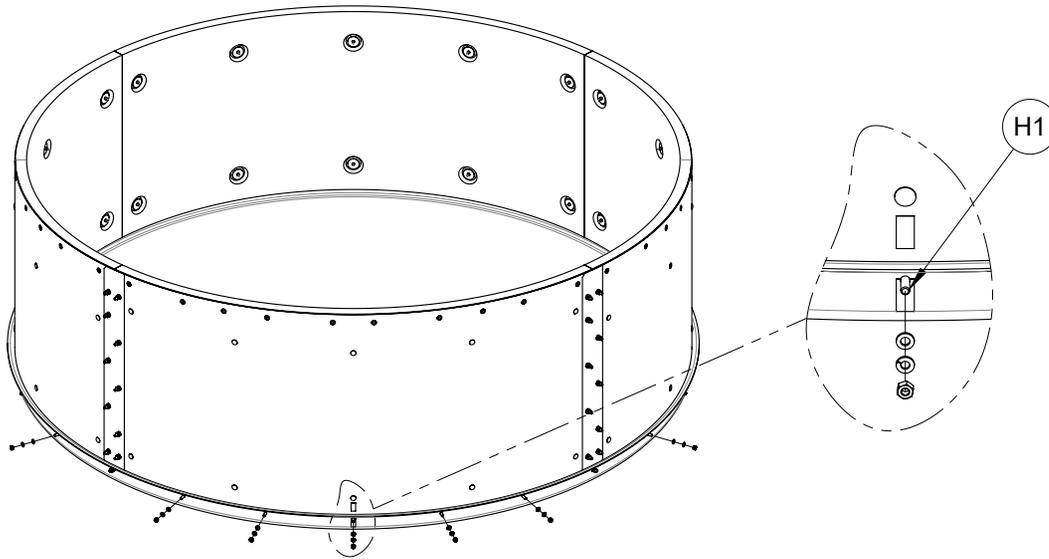
Insert shield in to reflector so that attachment slots align with rim holes in reflector



Fit loosely with flat washers, lock washer and nut in 4 positions as directed then tighten.



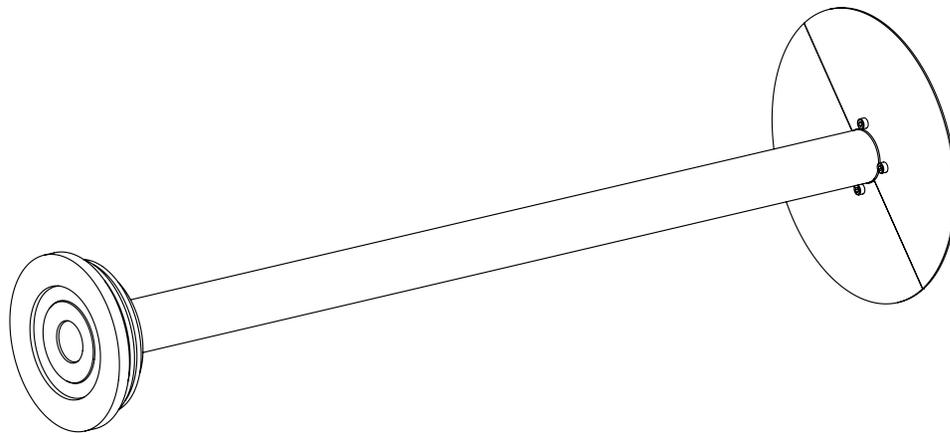
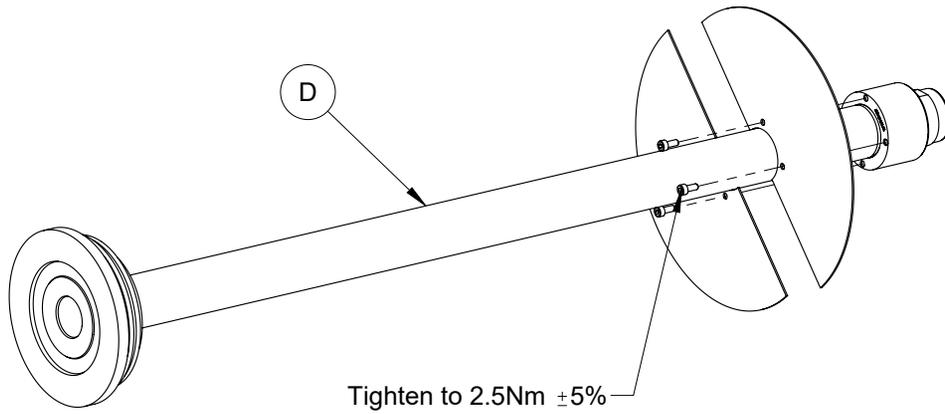
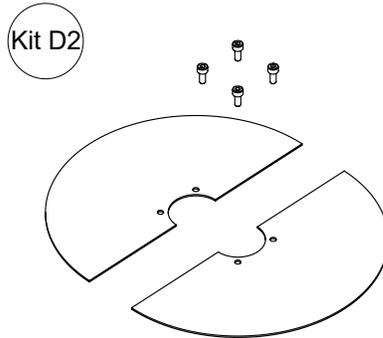
Align shield slots and reflector holes to receive a bolt. Repeat at 90 degree intervals.

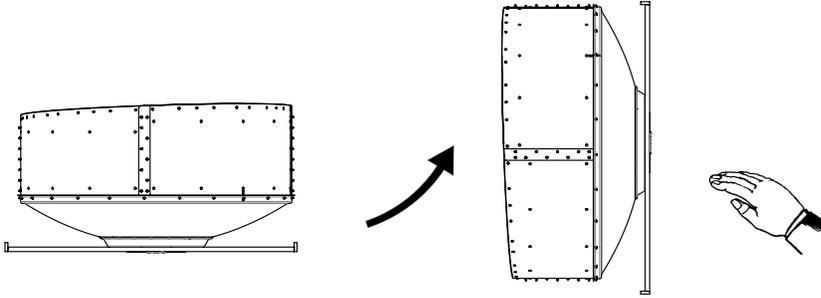


Fit bolts, washers, lock washers and nuts to remaining holes of assembly and tighten.

Tighten all shield and segment fastenings to $7.7\text{Nm} \pm 5\%$

*****6GHz and 11GHz Only****
Vertex Plate Assembly

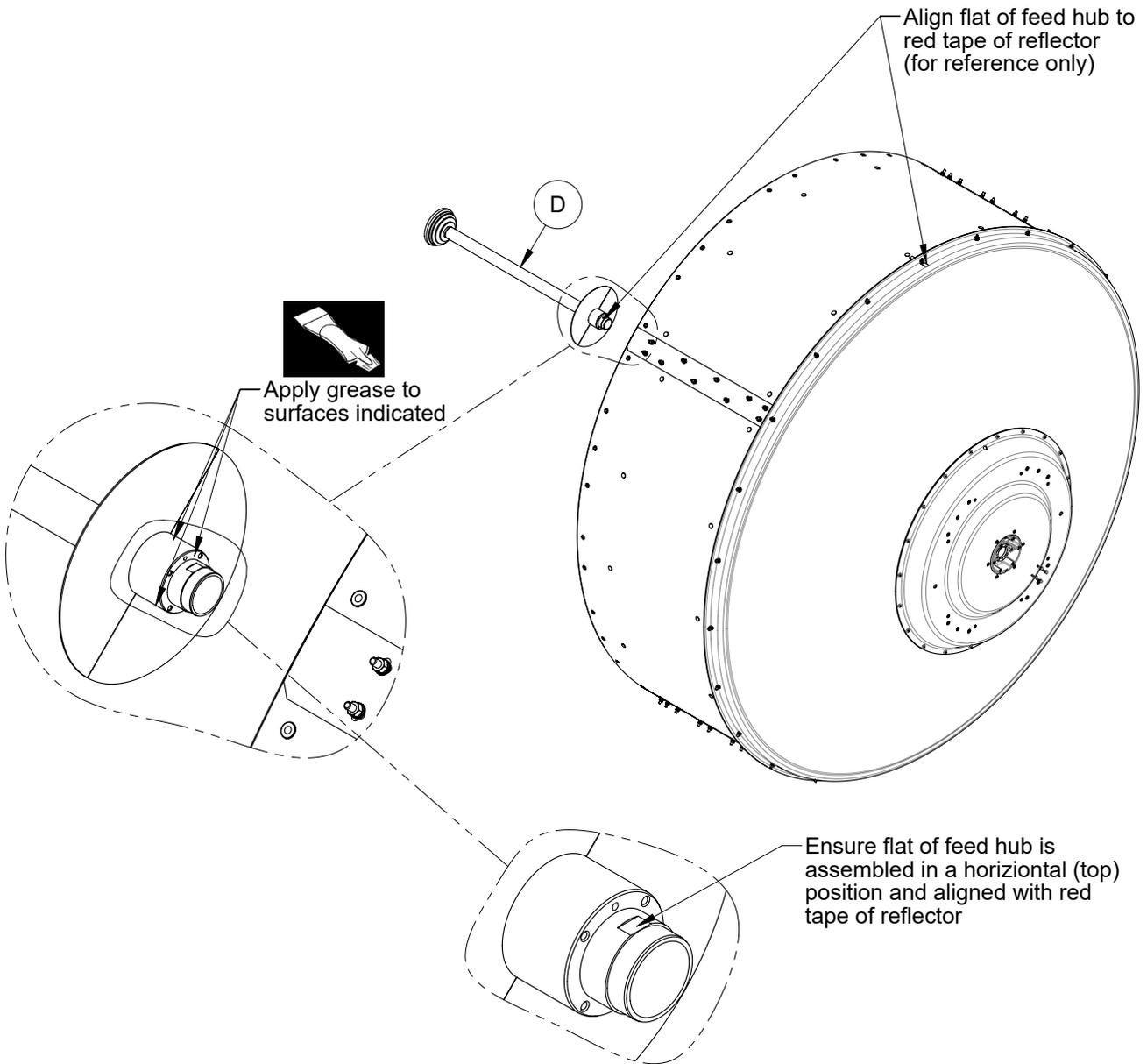


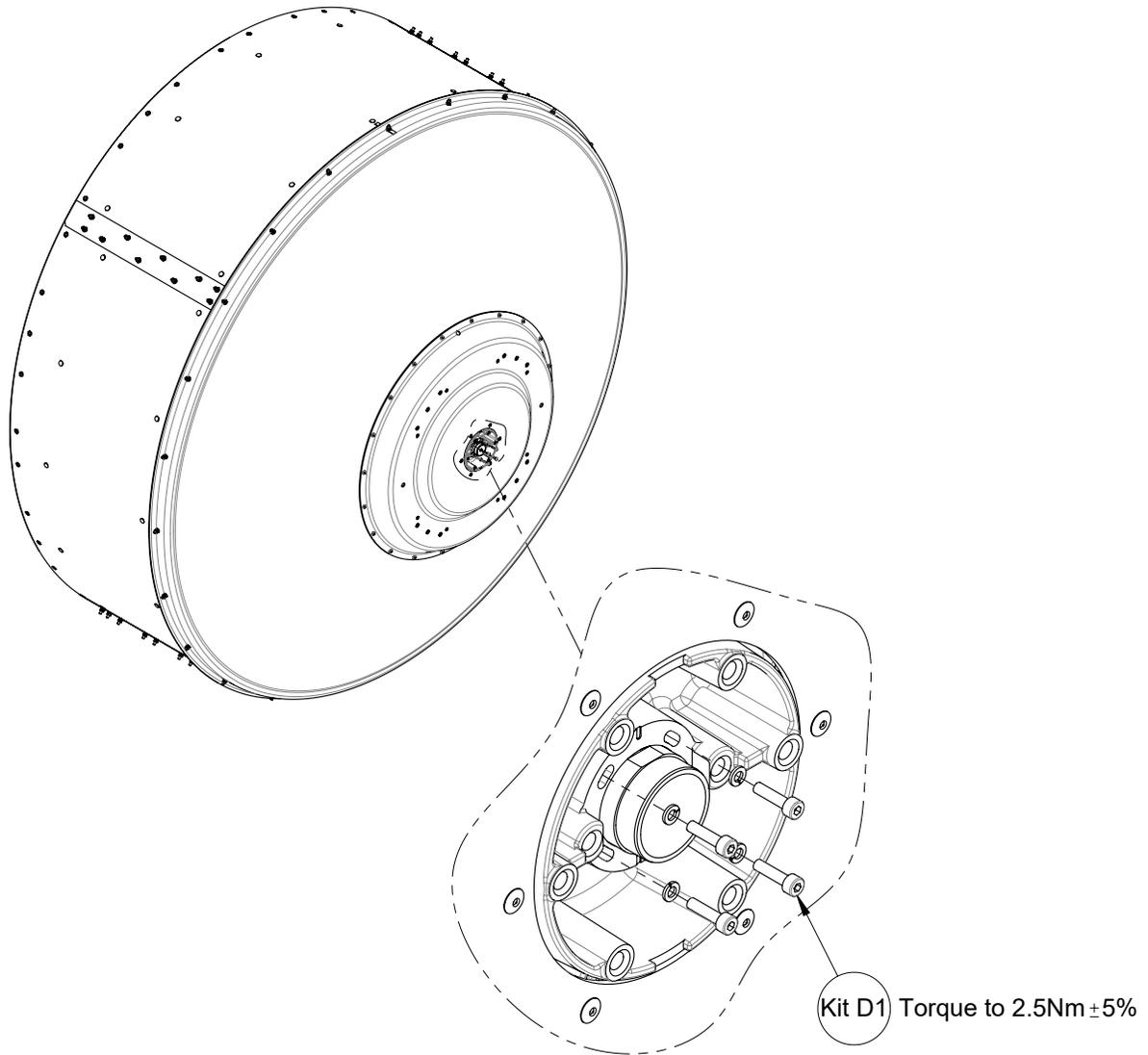


Prior to feed attachment, carefully tilt antenna upright using packing struts and hold in position. Do not apply excessive weight to antennas assembly.

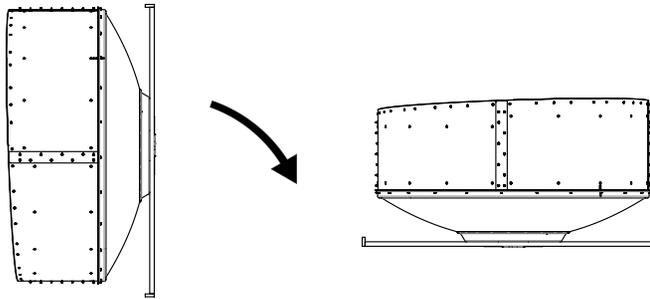


REFER TO SAFETY NOTE ON PAGE 5

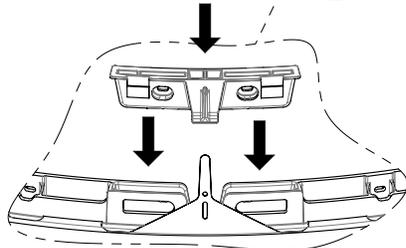
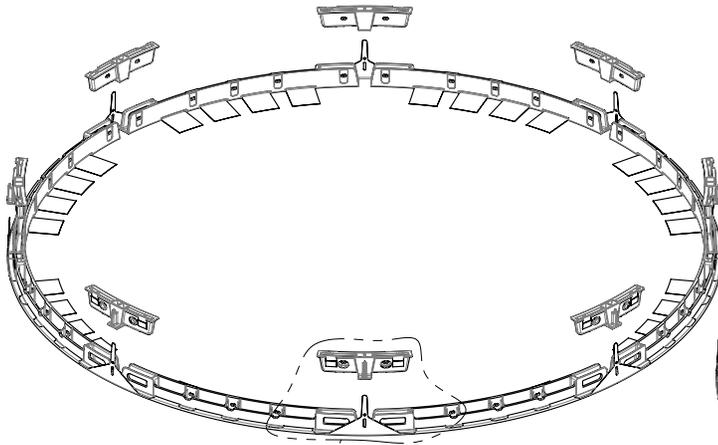




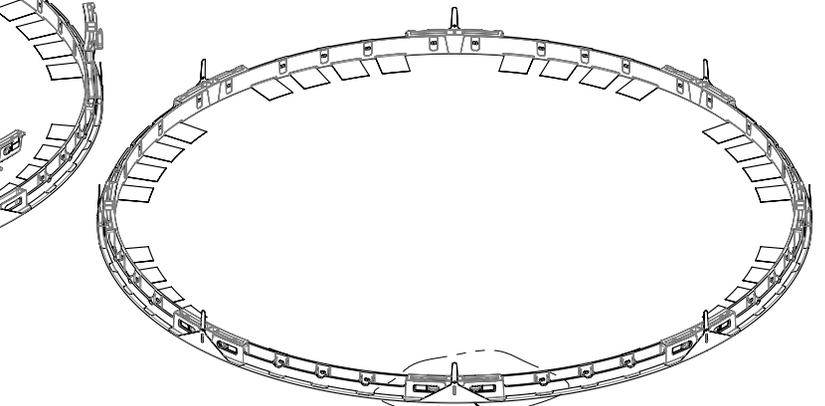
After assembly, remove excess grease from internal reflector surface.



After feed attachment, carefully lay antenna flat.

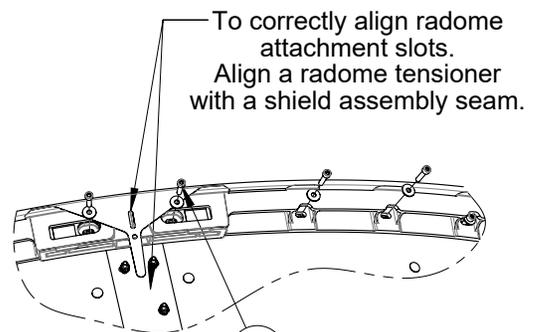
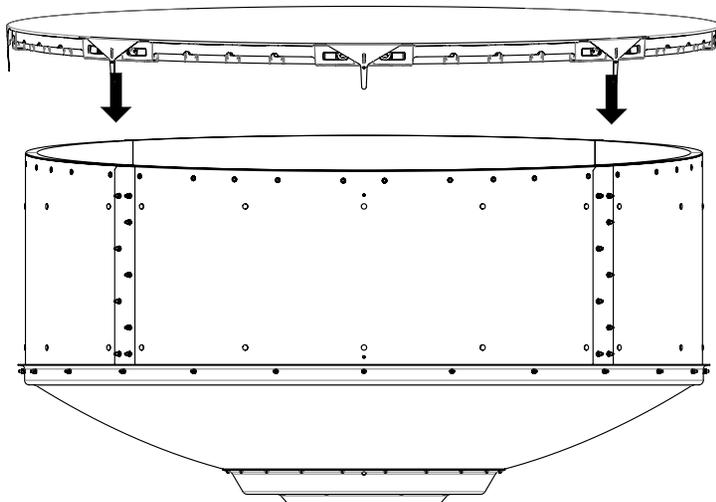


Unfold radome on to a clear, flat and dry surface and assemble radome rim tensioners at 8 places.



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

Lift radome and secure tabs over hooks



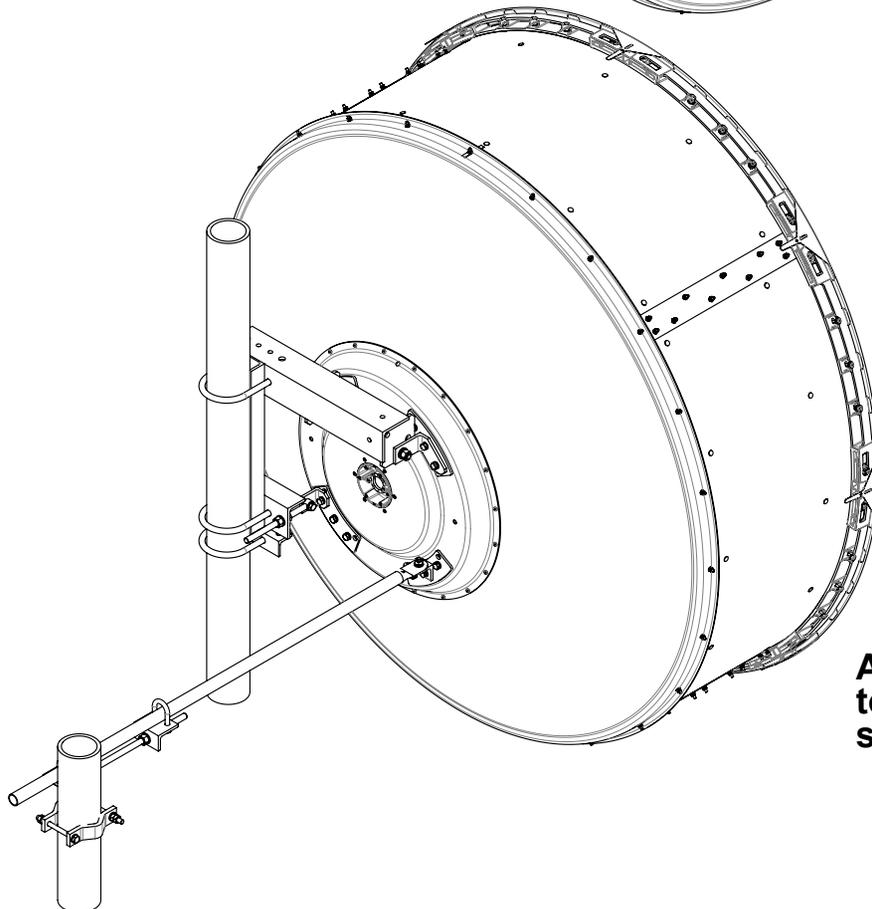
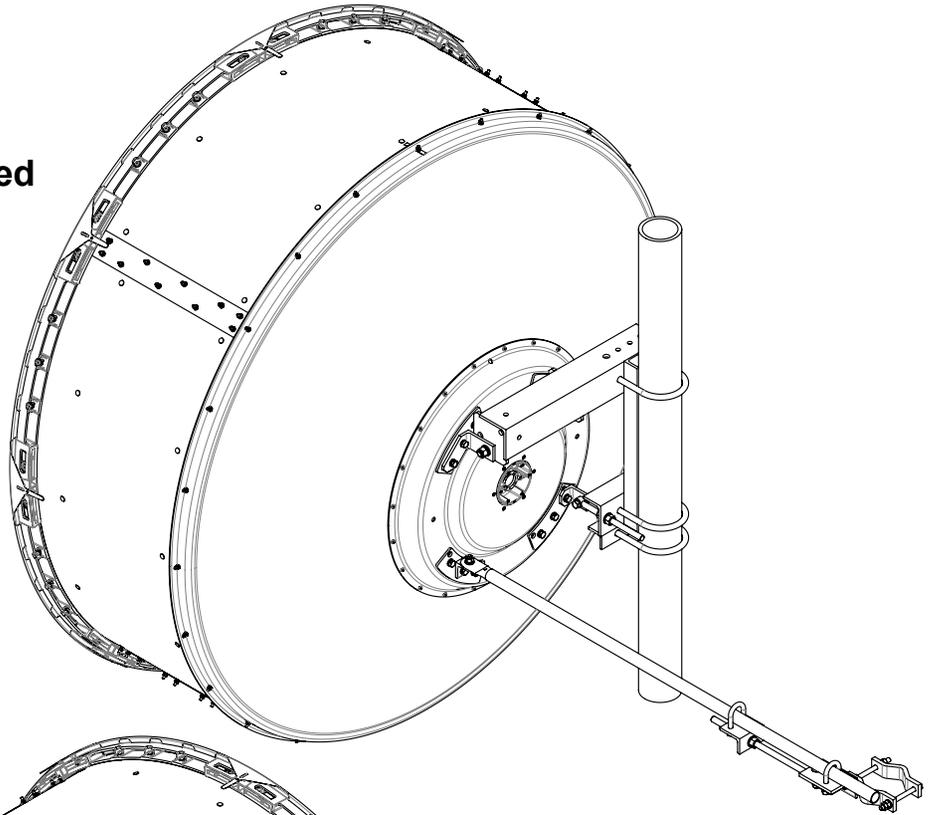
To correctly align radome attachment slots. Align a radome tensioner with a shield assembly seam.

H2 Torque to 7.7Nm \pm 5%

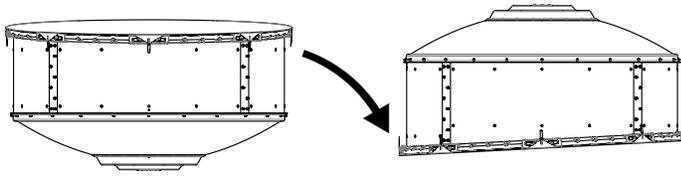
Assemble radome to shields with screws and washers

Prior to assembly of mount to antenna, determine the desired installation configuration.

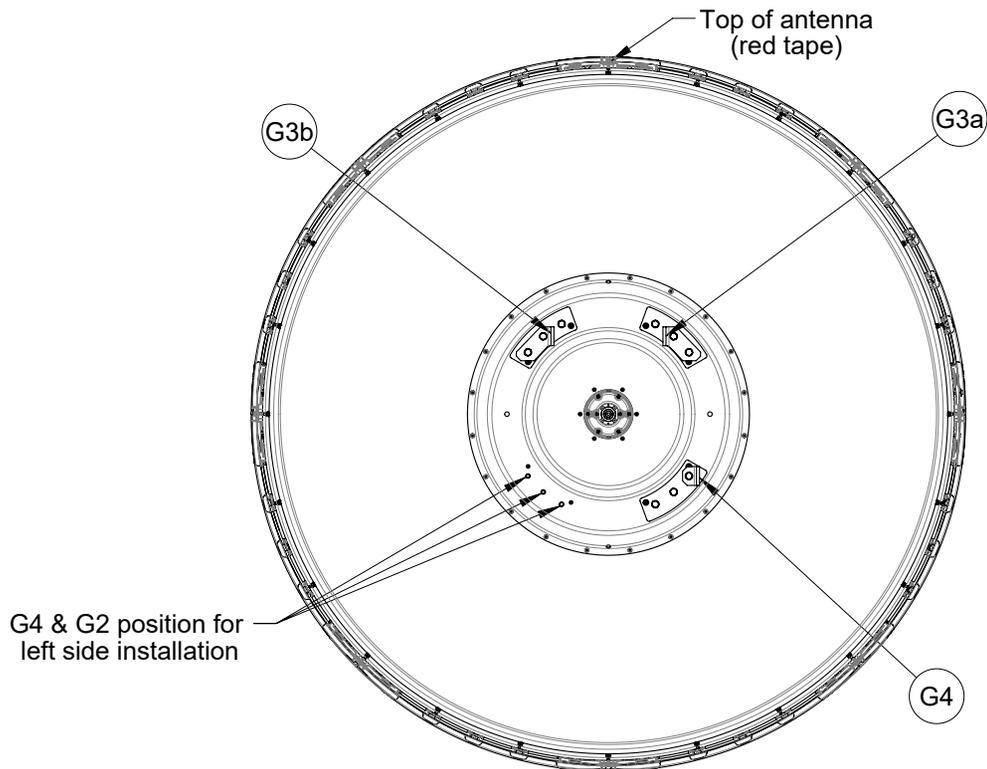
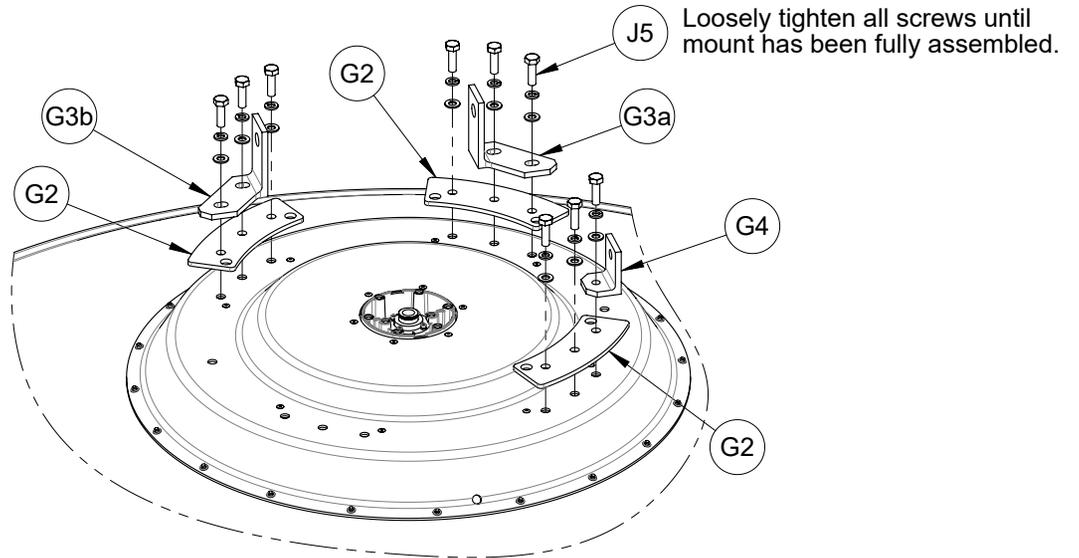
**Antenna assembled
to left of support
structure**



**Antenna assembled
to right of support
structure**



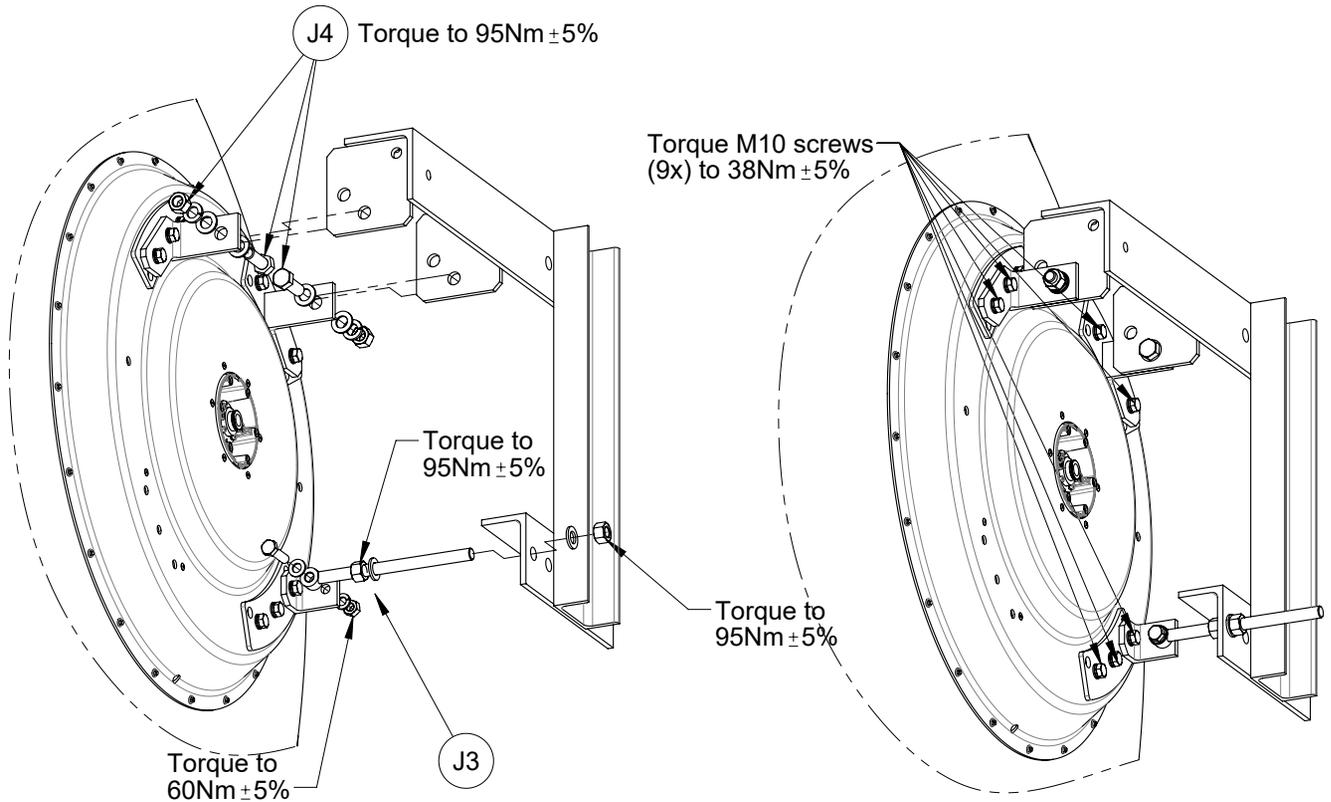
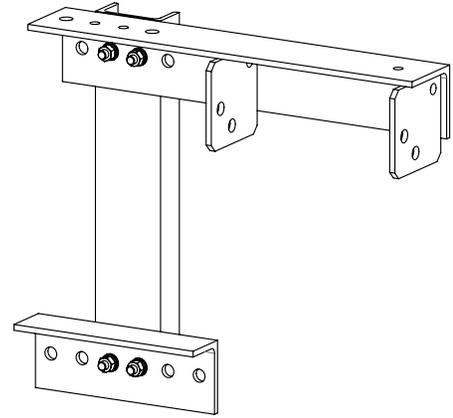
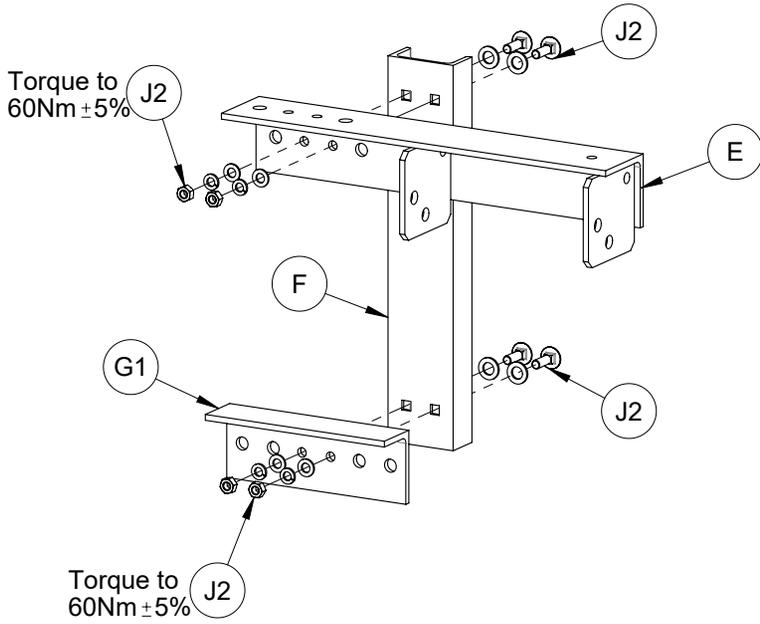
Carefully lay antenna on clear, flat ground and remove packing struts.. Do not apply excessive weight to antennas assembly.



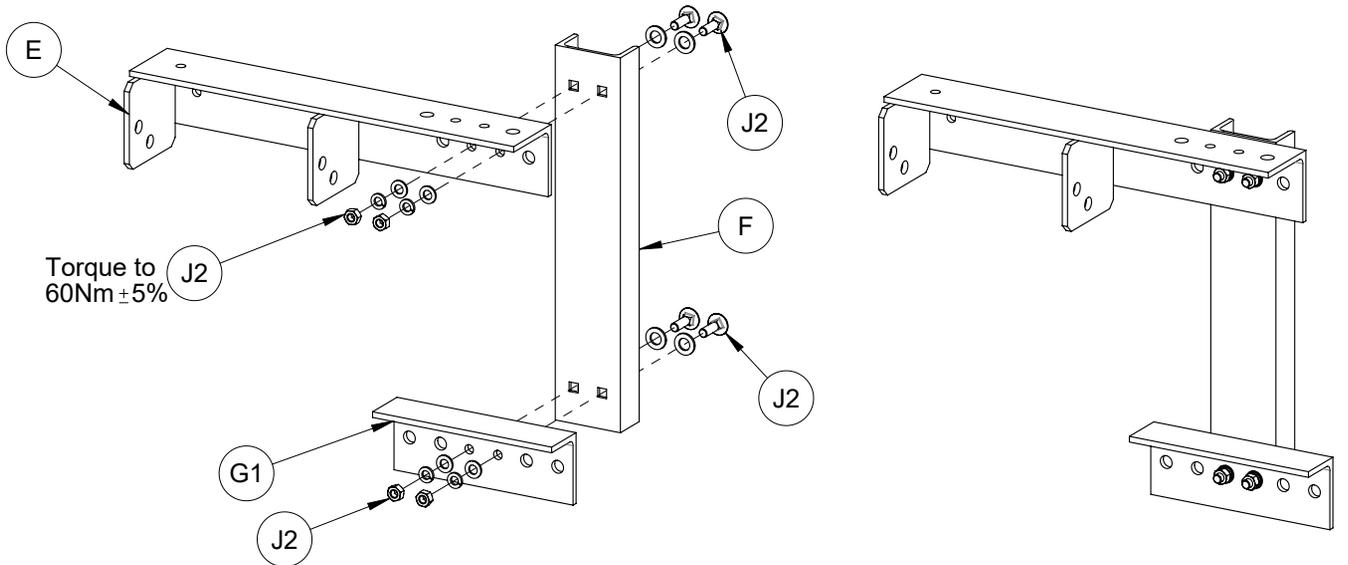
Mount bracket orientation for mounting antenna to the left of the support structure

For mounting the antenna to the right of the supporting structure assemble bracket G4 along with associated plate G2 in position indicated.

**Mount assembly for mounting antenna
to the left of the support structure**

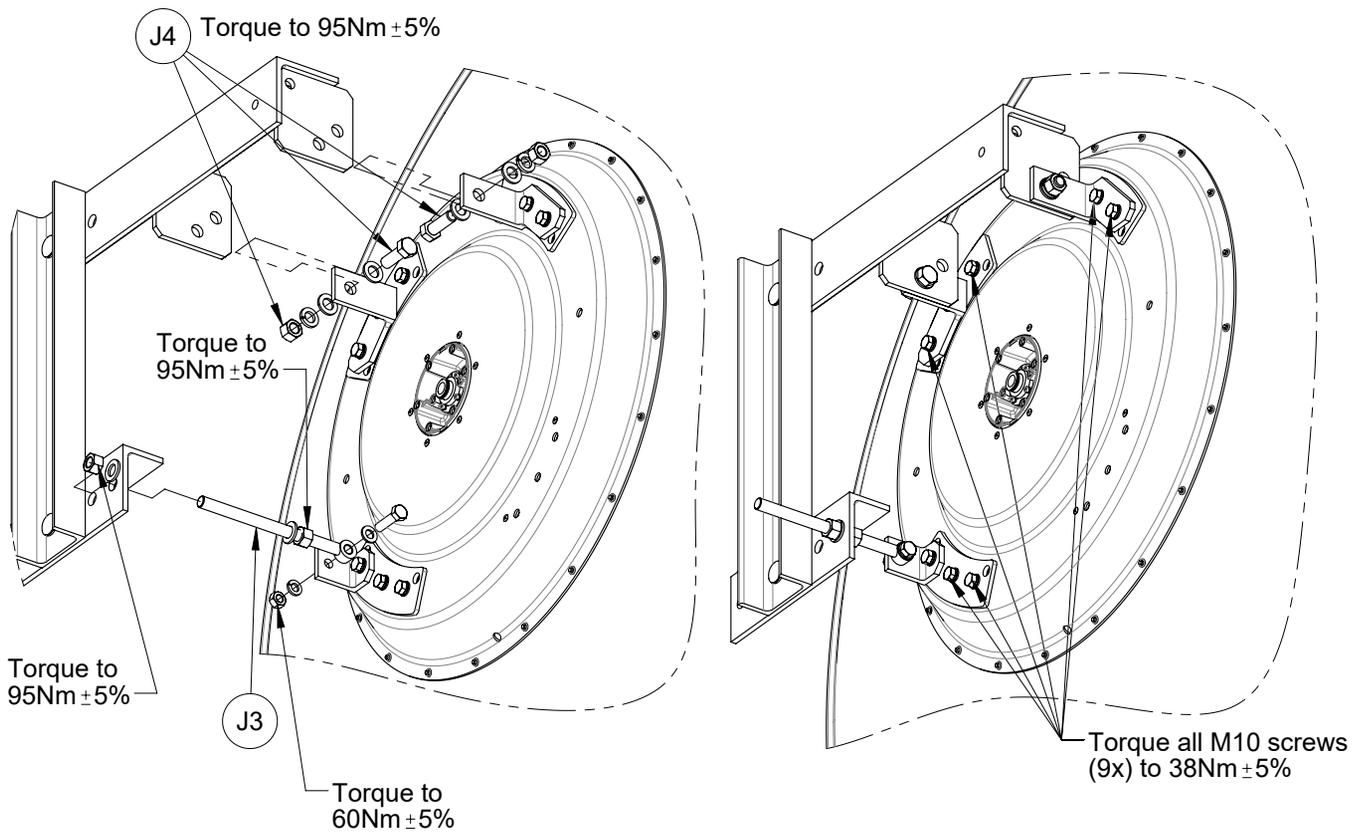


**Mount assembly for mounting antenna
to the right of the support structure**



Torque to $60\text{Nm} \pm 5\%$

Torque to $60\text{Nm} \pm 5\%$



J4 Torque to $95\text{Nm} \pm 5\%$

Torque to $95\text{Nm} \pm 5\%$

Torque to $95\text{Nm} \pm 5\%$

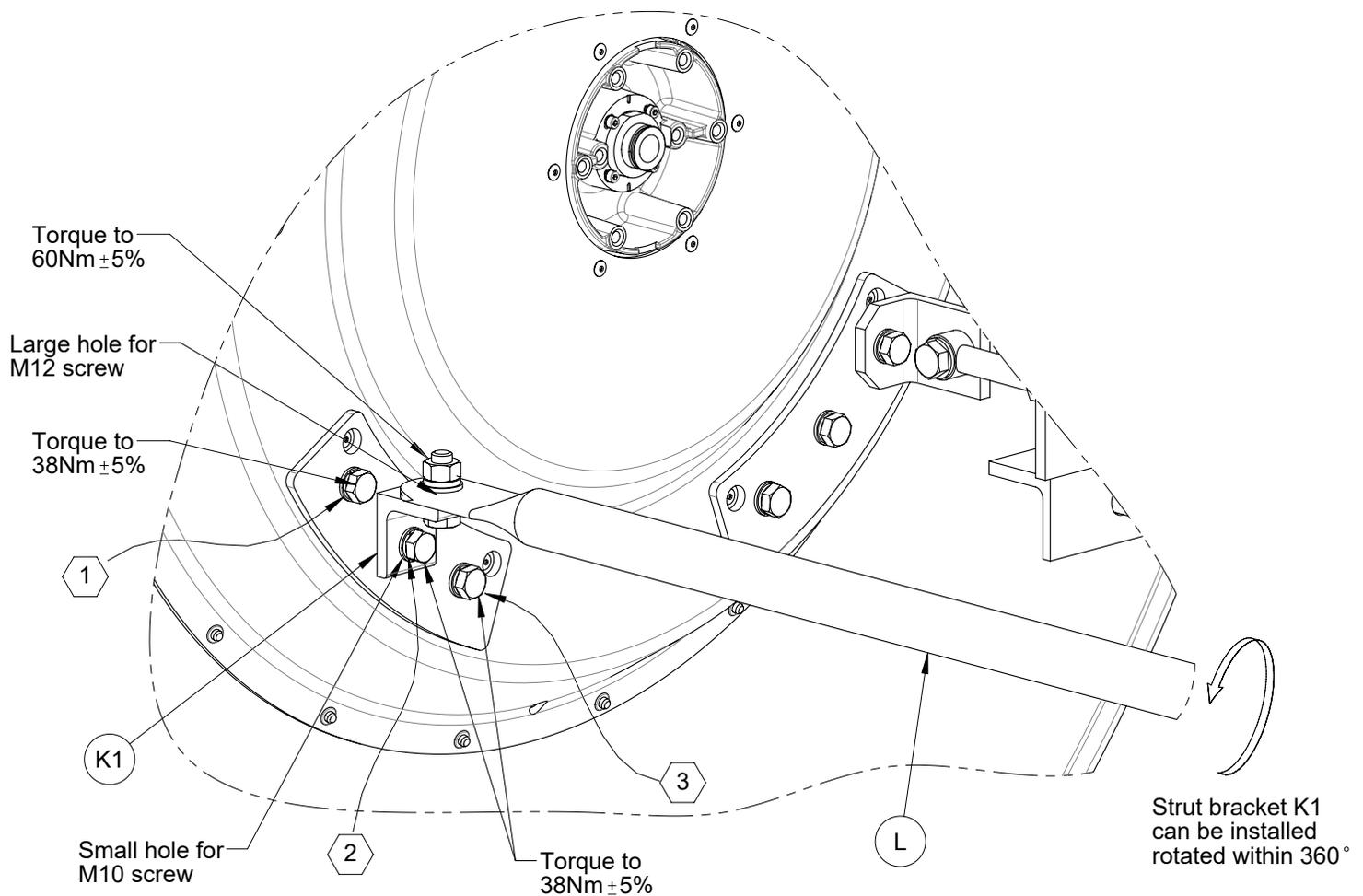
J3

Torque to $60\text{Nm} \pm 5\%$

Torque all M10 screws (9x) to $38\text{Nm} \pm 5\%$



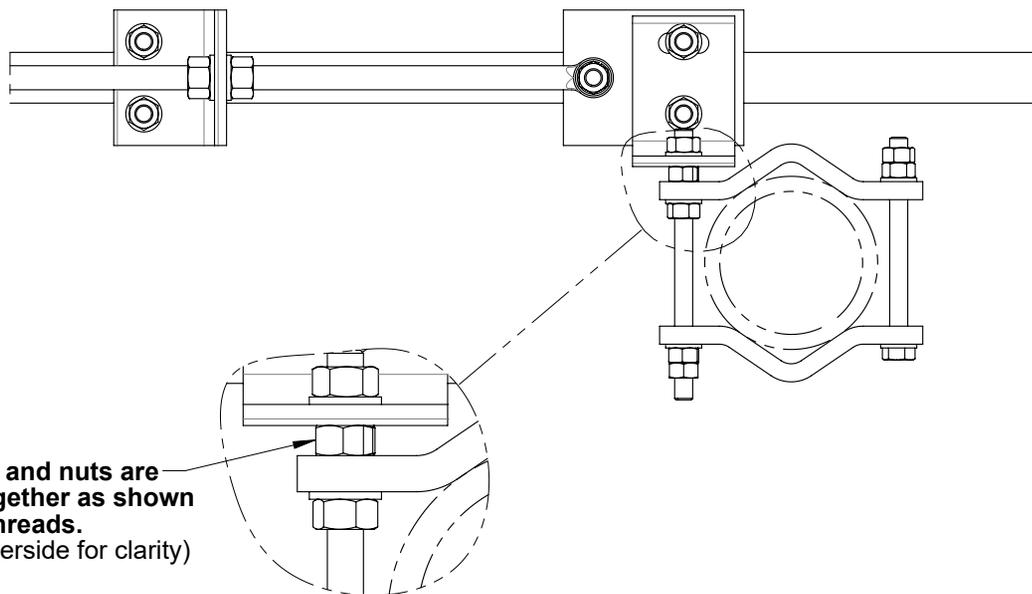
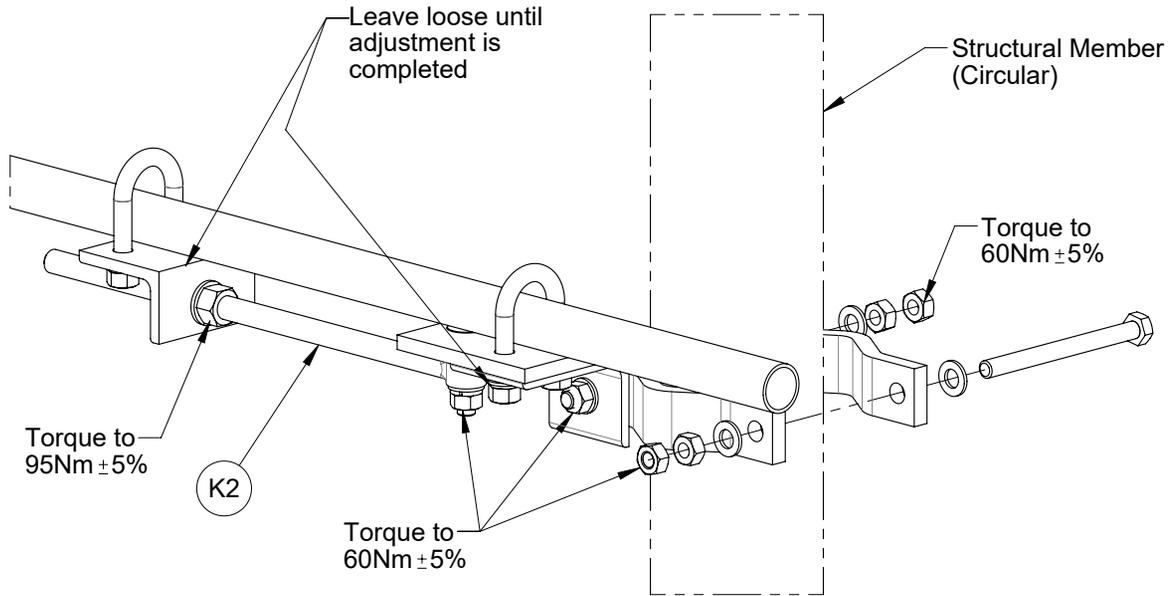
**Prior to assembly of strut, assemble OMT, transition or customer radio.
Refer to separate installation instructions.
Strut to be fitted after Antenna is
hoisted to desired
position.**



Install the strut using one of the three indicated ①, ② or ③ attachment points so it does not interfere with the radio or it's cables.

Strut to be loosely fitted until alignment is complete then tighten all fixings to torque specified.

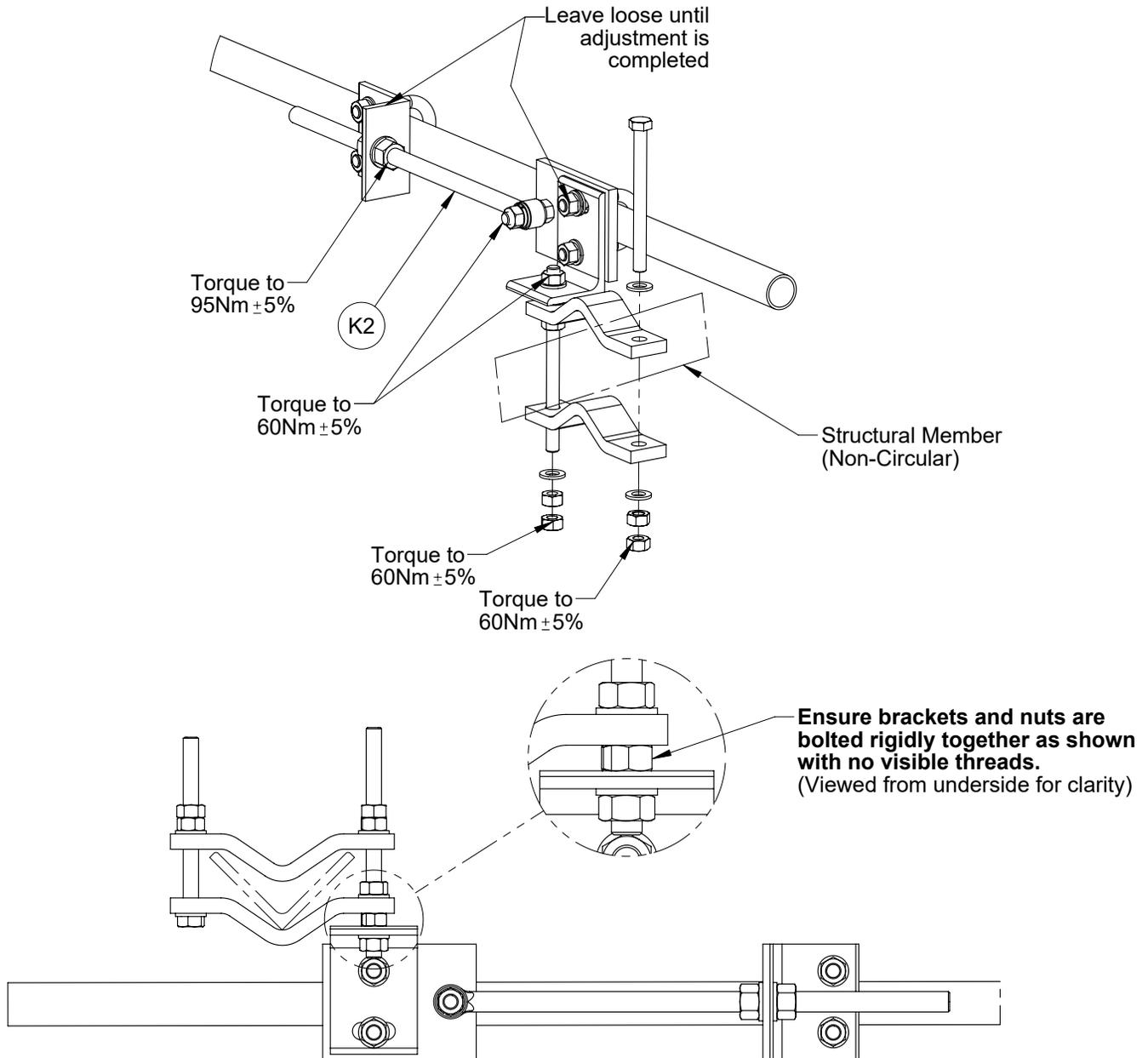
ATTACHMENT TO CIRCULAR STRUCTURAL MEMBERS.



Clamps must be attached to a circular structural member (Dia 48mm - 120mm) capable of supporting 7694N in accordance with TIA-222.

The maximum allowable relative deflection between the antenna mounting pipe and the strut attachment point must be less than 2mm at survival wind speed of the antenna.

ATTACHMENT TO NON-CIRCULAR STRUCTURAL MEMBERS.



Clamps must be attached to a non-circular structural member capable of supporting 7694N in accordance with TIA-222.

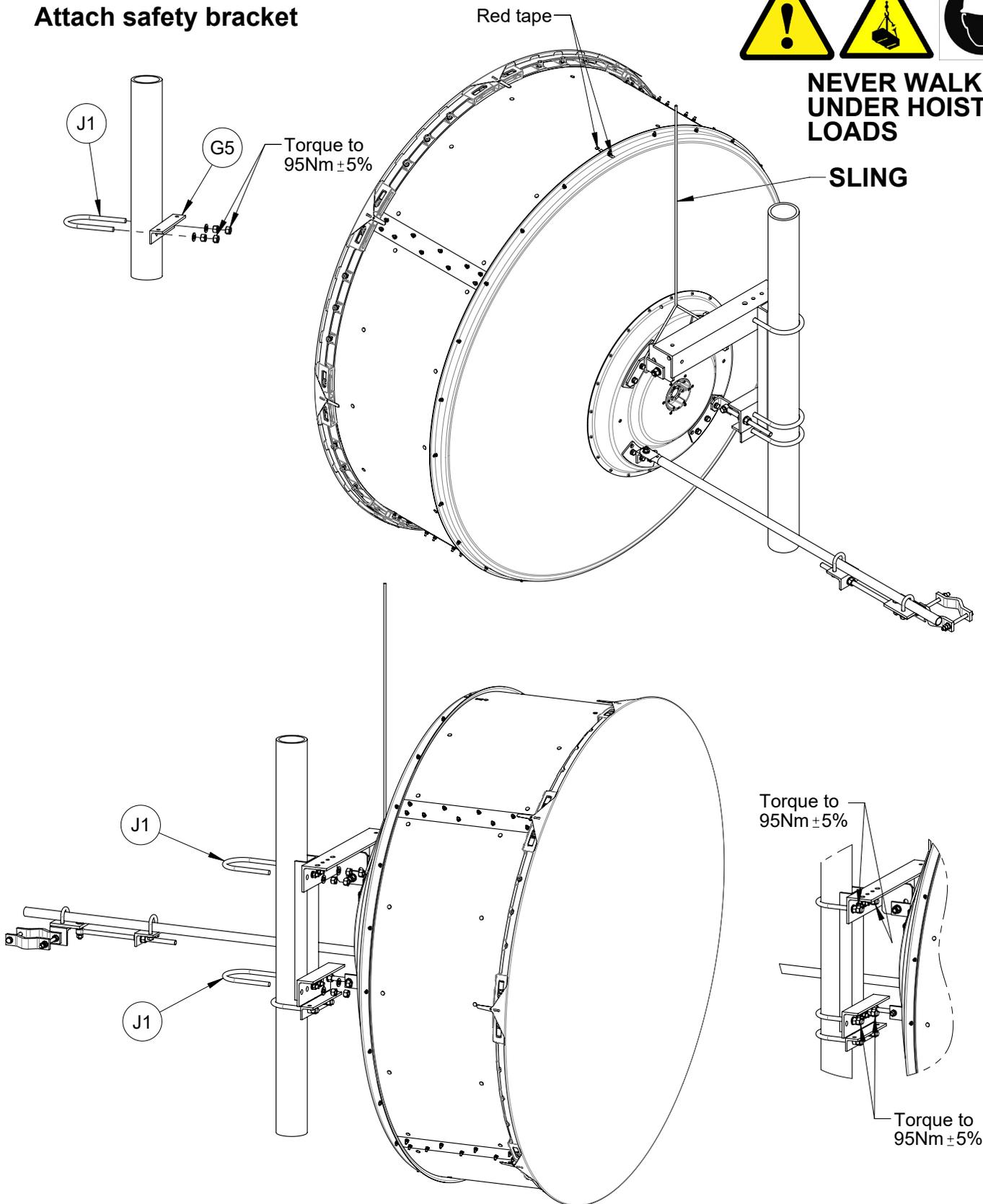
The maximum allowable relative deflection between the antenna mounting pipe and the strut attachment point must be less than 2mm at survival wind speed of the antenna.

Attach safety bracket

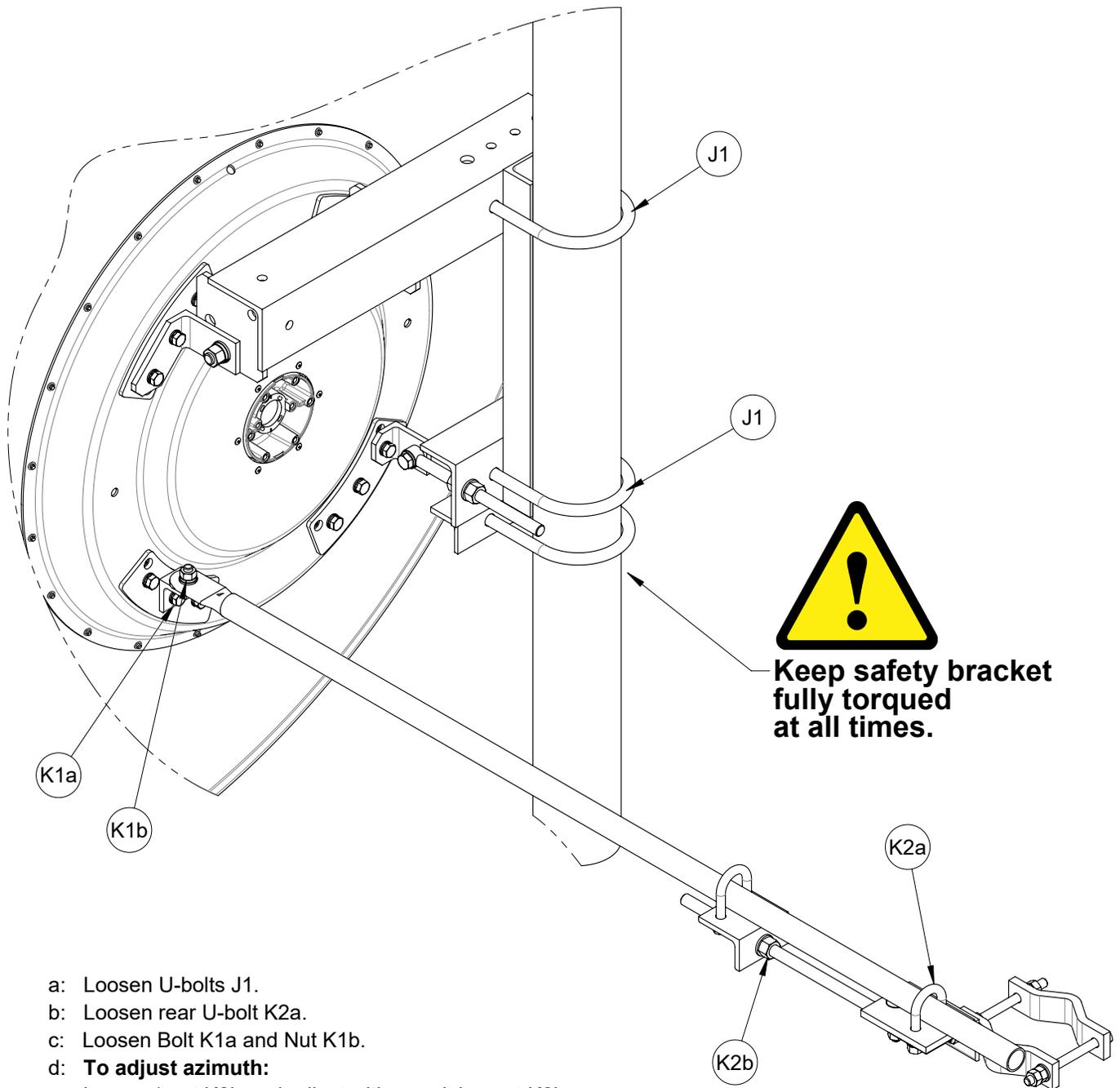


**NEVER WALK
UNDER HOISTED
LOADS**

SLING



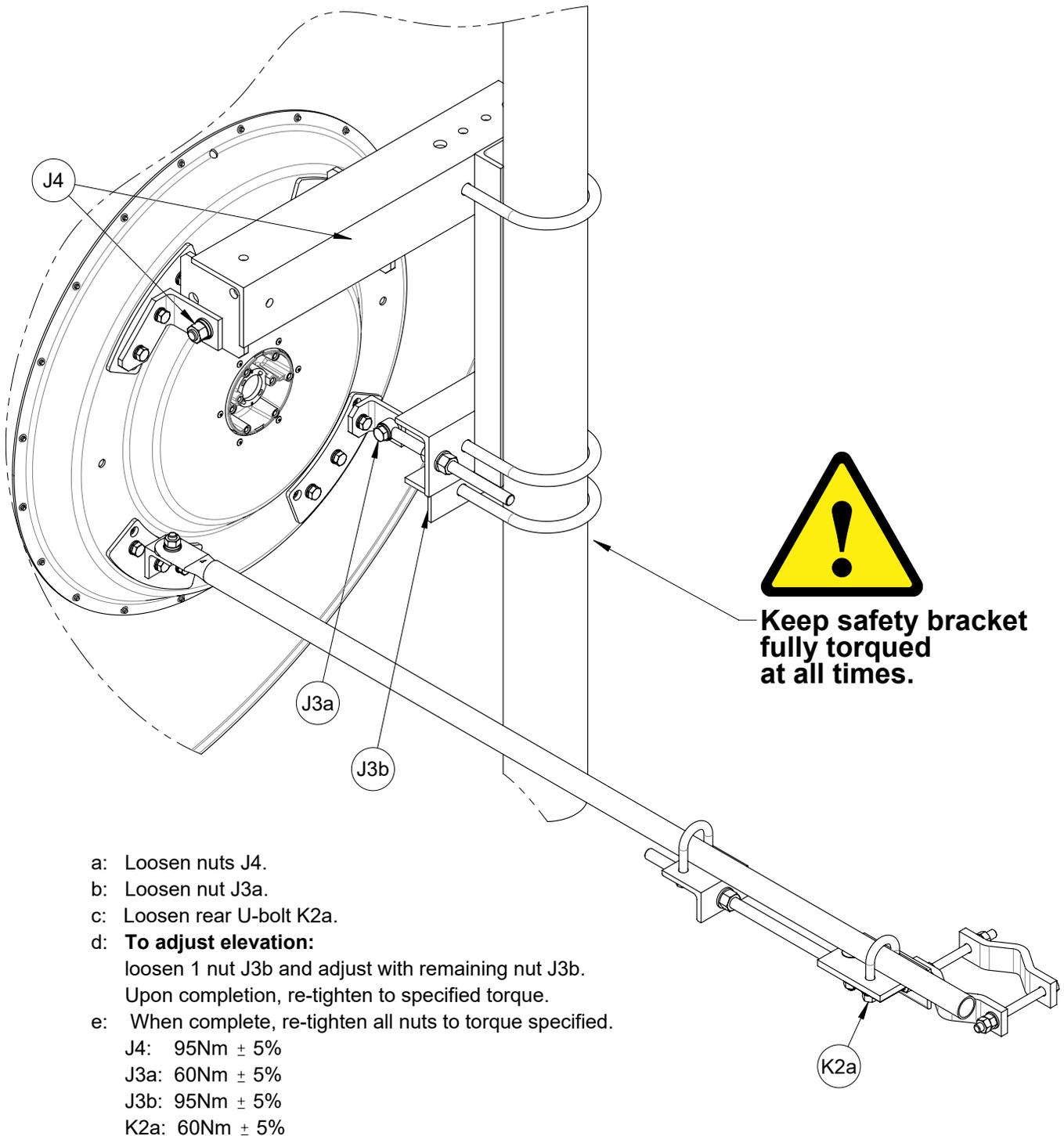
Azimuth Adjustment



**Keep safety bracket
fully torqued
at all times.**

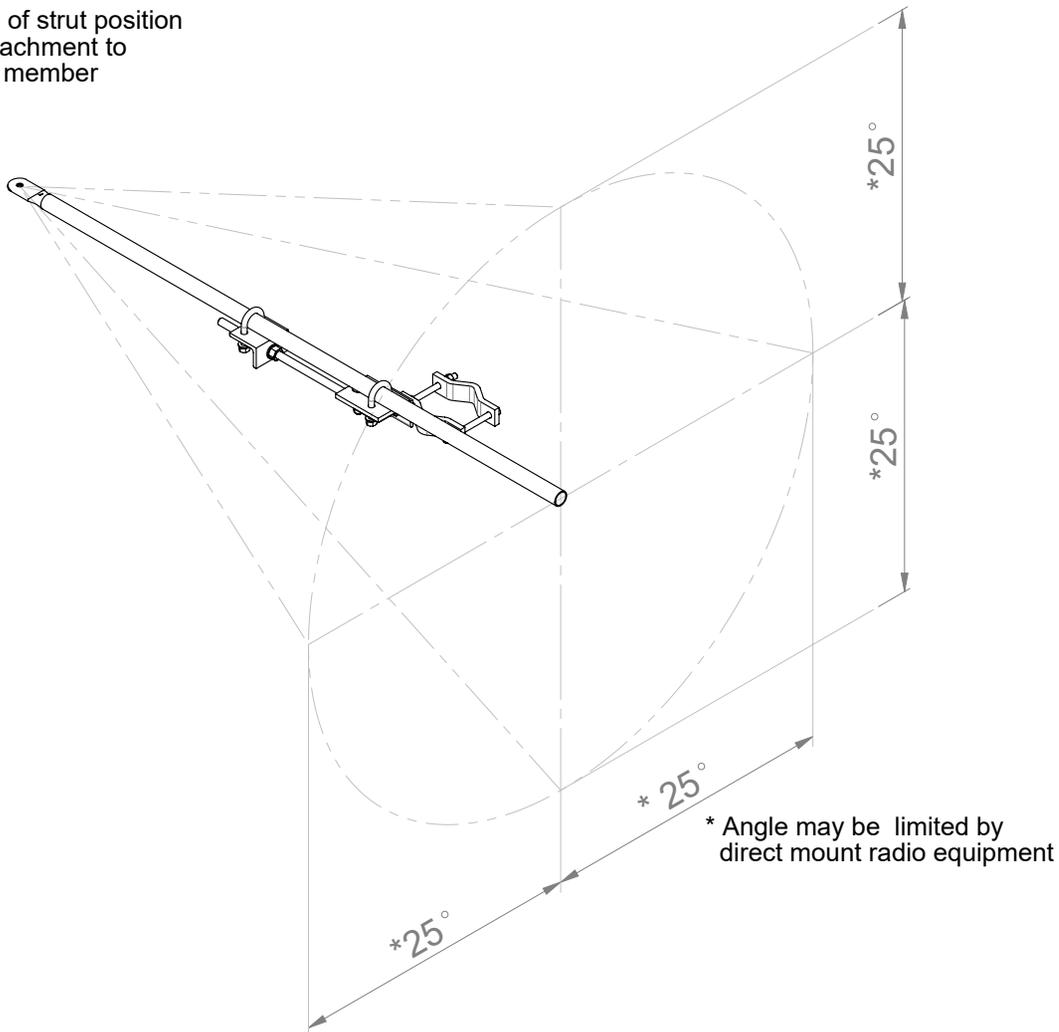
- a: Loosen U-bolts J1.
 - b: Loosen rear U-bolt K2a.
 - c: Loosen Bolt K1a and Nut K1b.
 - d: **To adjust azimuth:**
loosen 1 nut K2b and adjust with remaining nut K2b.
Upon completion, re-tighten to specified torque.
 - e: When complete, re-tighten all nuts to torque specified.
- J1: 95Nm \pm 5%
- K1a: 38Nm \pm 5%
- K1b: 60Nm \pm 5%
- K2a: 60Nm \pm 5%
- K2b: 95Nm \pm 5%

Elevation Adjustment

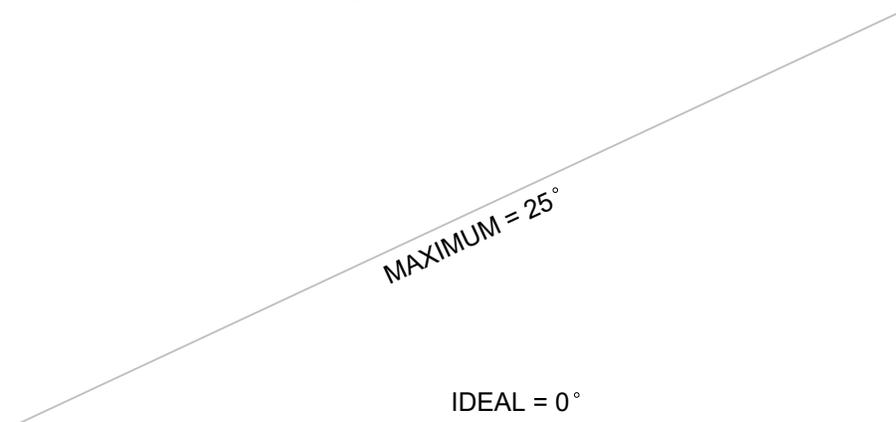


- a: Loosen nuts J4.
 - b: Loosen nut J3a.
 - c: Loosen rear U-bolt K2a.
 - d: **To adjust elevation:**
loosen 1 nut J3b and adjust with remaining nut J3b.
Upon completion, re-tighten to specified torque.
 - e: When complete, re-tighten all nuts to torque specified.
- J4: 95Nm ± 5%
 J3a: 60Nm ± 5%
 J3b: 95Nm ± 5%
 K2a: 60Nm ± 5%

Limits of strut position
for attachment to
tower member



**View show below is intended as a guide for strut alignment.
Strut must be attached to 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.**



9 General Information

9.1 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.

9.2 Cleaning of Antenna

To clean the antenna, use a diluted solution of water and mild detergent. Organic solvents should not be used.