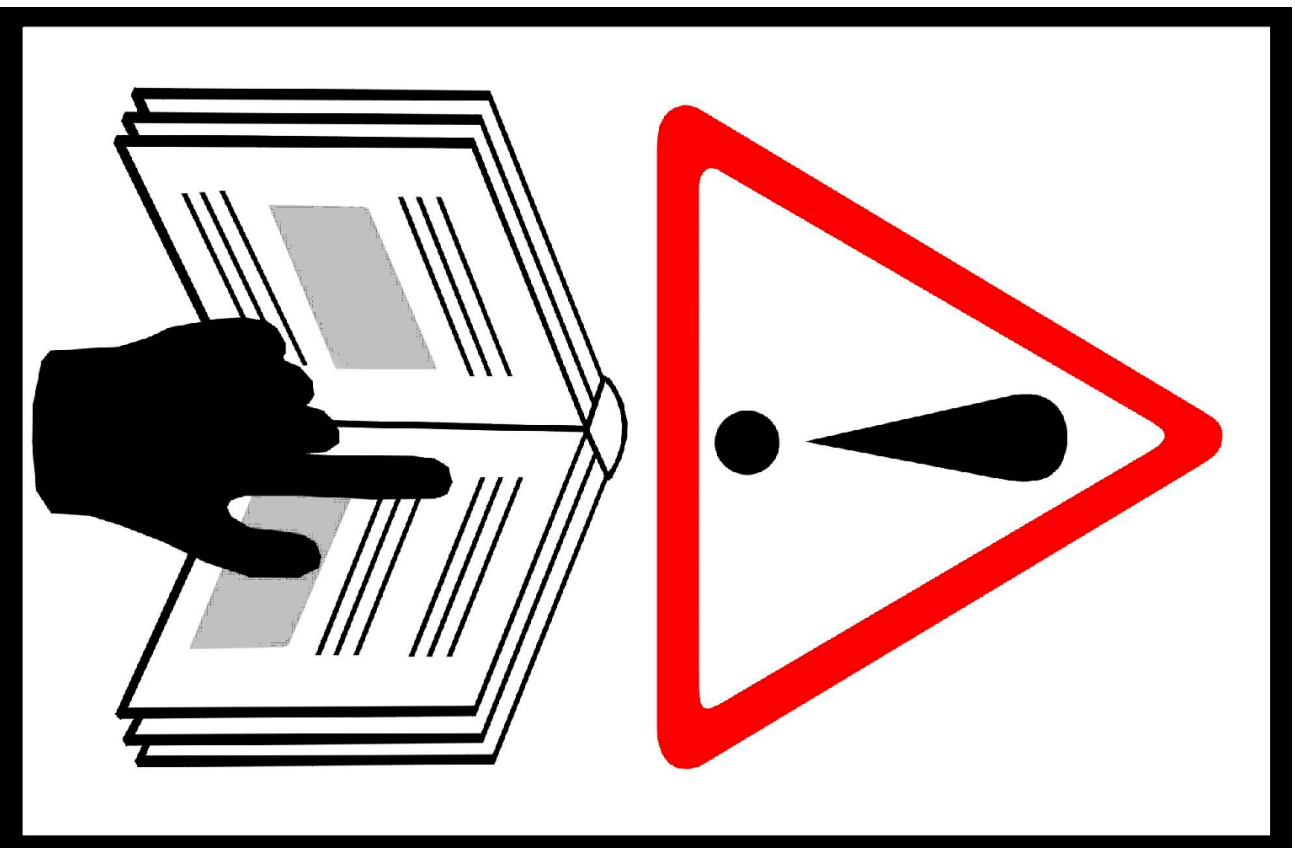




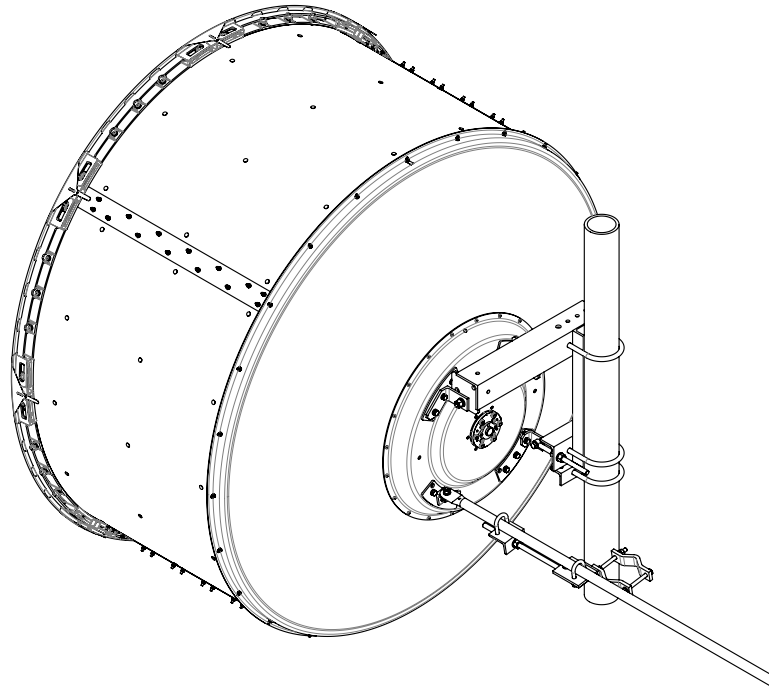
7855544 Rev:D



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



This document is for the following: HX6/USX6-*** 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.

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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 document provides assembly instructions for a HX6/USX6 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

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 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
		HX6	USX6	
A		1	1	Reflector
B		1	1	Shield Set
C		1	1	Radome
D		1	1	Feed (frequency dependant)
	Kit D1			Feed Hardware Kit
		4	4	M6 x 20lg SHCS, sst, pass
		4	4	M6 Lock Washer, sst, pass
		1	1	Conductive Grease (tube)
		2	2	Gloves
	Kit D2			Vertex Plate Kit
		2	2	Vertex Plate
		4	4	M4 x 10lg SHCS, sst, pass
E		1	1	Elevation Pivot Bar - Top
F		1	1	Vertical Support Channel
	Kit G			Mount Kit
	G1	1	1	Elevation Pivot Bar - Bottom
	G2	3	3	Spacer Plate
	G3a	1	1	Elevation Pivot Bracket - Top Right
	G3b	1	1	Elevation Pivot Bracket - Top Left
	G4	1	1	Elevation Pivot bracker - Bottom
	G5	1	1	Safety Bracket
	Kit H			Shield and Radome Hardware kit
	H1			Shield Hardware Kit
		62	78	M6 x 20 Hex Hd Screw, sst, pass
		124	156	M6 Washer, sst, pass
		62	78	M6 Lock Washer, sst, pass
		62	78	M6 Nut, sst, pass
	H2	40	40	M6 x 25 Skt Hd Cap Screw, sst, pass
		40	40	M6 Large Washer, sst, pass
	Kit J			Mount Hardware Kit
	J1	3	3	M16 U-Bolt c/w Nuts & Washers
	J2	4	4	M12 x 40lg Carriage Bolt
		4	4	M12 Nut, stl, galv
		4	4	M12 Lock Washer, stl, galv
		4	4	M12 Washer, stl, galv
		4	4	M16 Washer, stl, galv
	J3	1	1	M16 Eye Bolt, stl, galv
		2	2	M16 Washer, stl, galv
		2	2	M16 Nut, stl, galv
		1	1	M12 x 45lg Hex Hd Screw, stl, galv
		1	1	M12 Lock Washer, stl, galv
		1	1	M12 washer, stl, galv
		1	1	M12 Nut, stl, galv
	J4	2	2	M16 x 45lg Hex Hd Screw, stl, galv
		2	2	M16 Lock Washer, stl, galv
		4	4	M16 Washer, stl, galv
		2	2	M16 Nut, stl, galv
	J5	9	9	M10 x 35lg Hex Hd Screw, sst, pass
		9	9	M10 Lock Washer, sst, pass
		9	9	M10 Washer, sst, pass

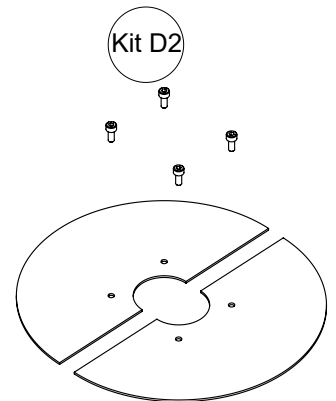
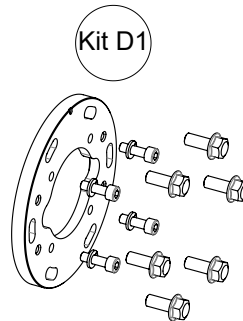
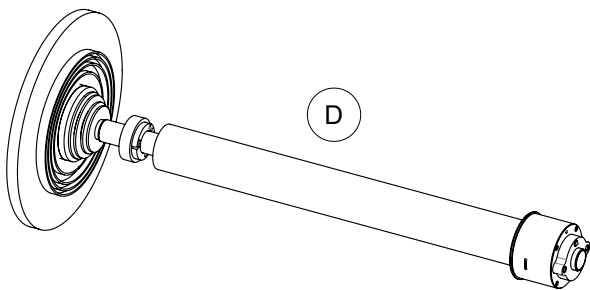
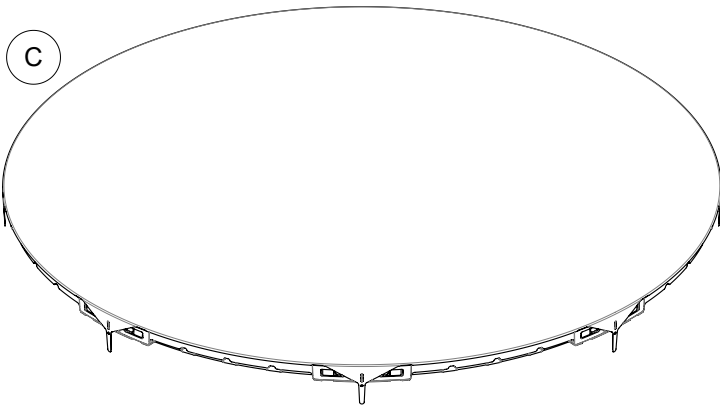
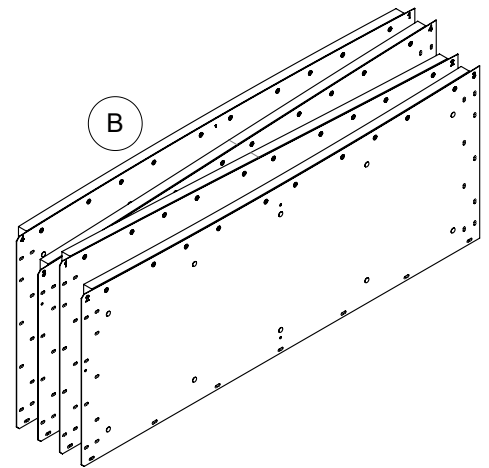
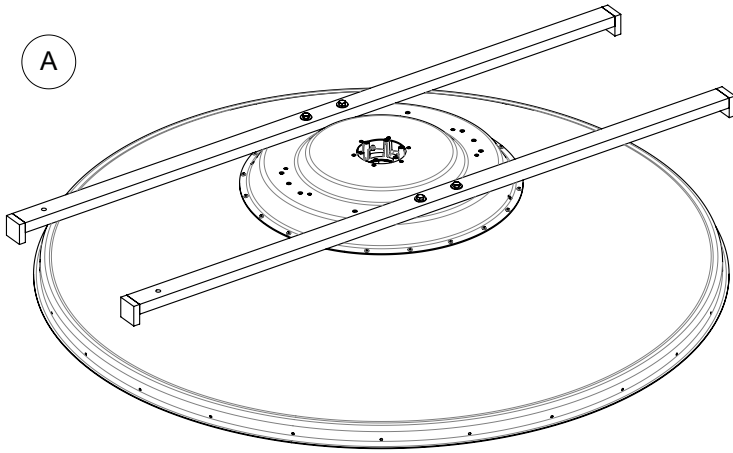
Table 1 Supplied Equipment and Tools

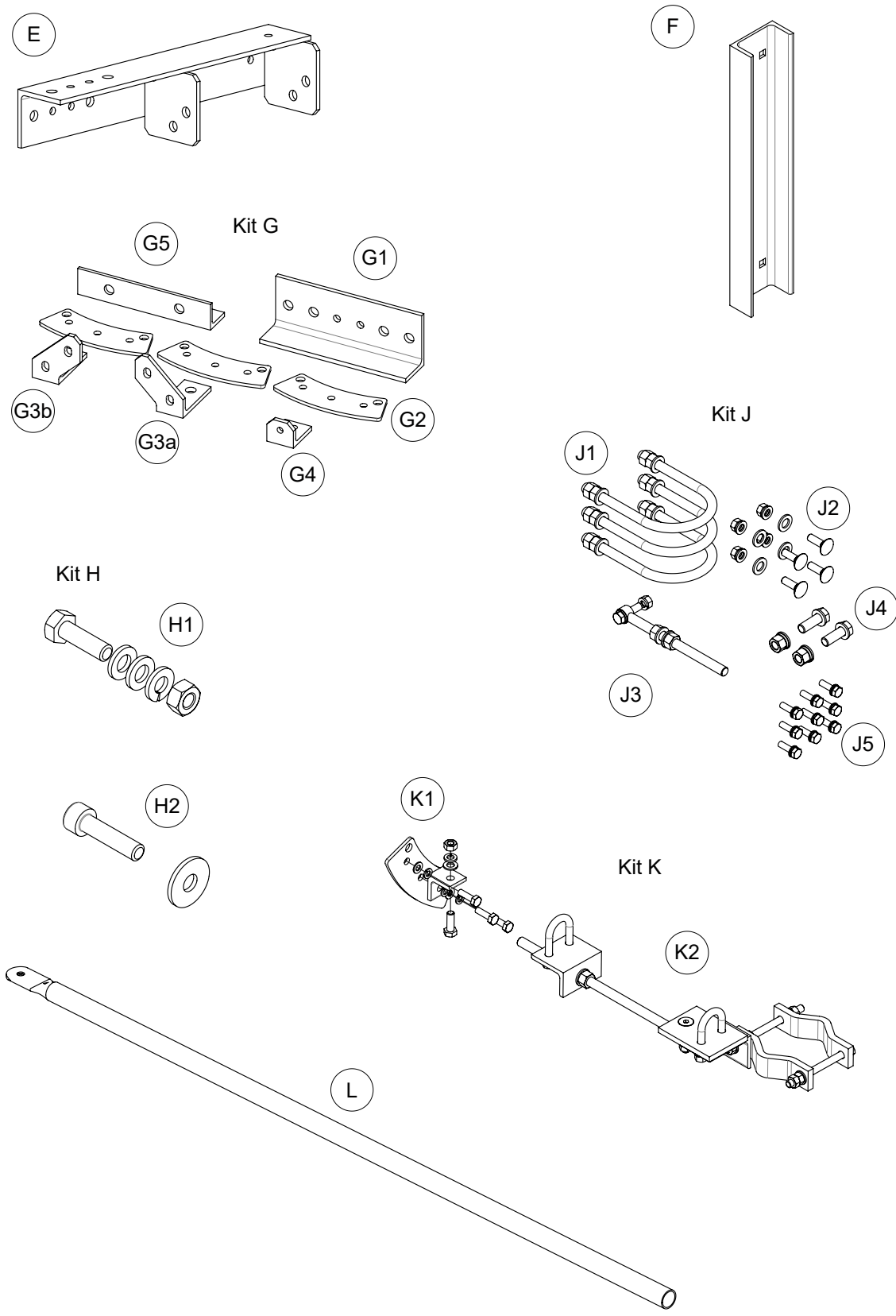
Item		Qty		Description
Kit K		HX6	USX6	Strut Hardware Kit
	K1	1	1	Spacer Plate
		1	1	Brce Rod Attachment Bracket
		1	1	M12 X 35lg Hex Hd Screw, stl, galv
		1	1	M12 Lock Washer, stl, galv
		1	1	M12 Washer, stl, galv
		3	3	M10 x 35lg Hex Hd Screw, sst, pass
		3	3	M10 Lock Washer, sst, pass
		3	3	M10 Washer, sst, pass
	K2	1	1	Azimuth Adjuster (supplied assembled)
L		1	1	Brace Rod

Tools

TOOL REQUIREMENTS

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					



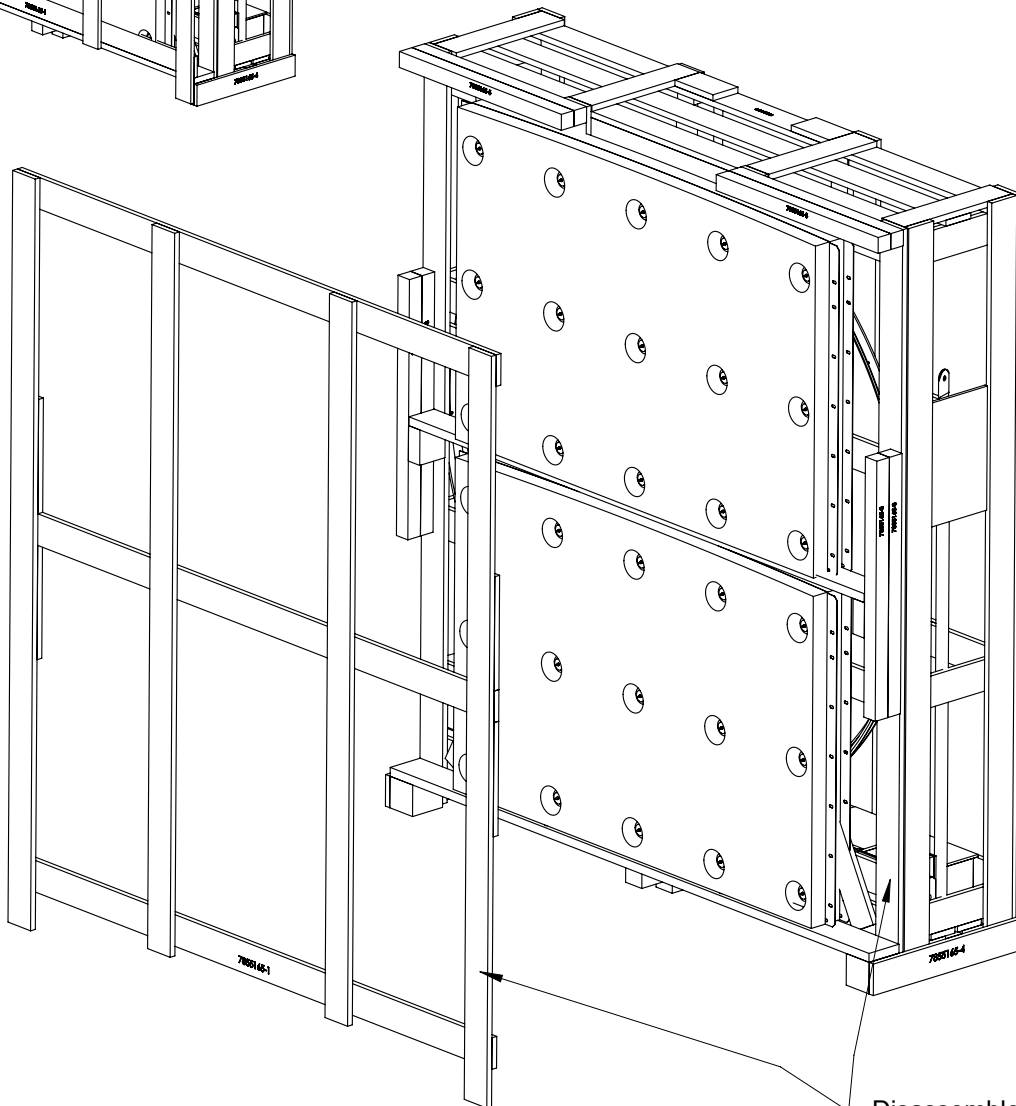
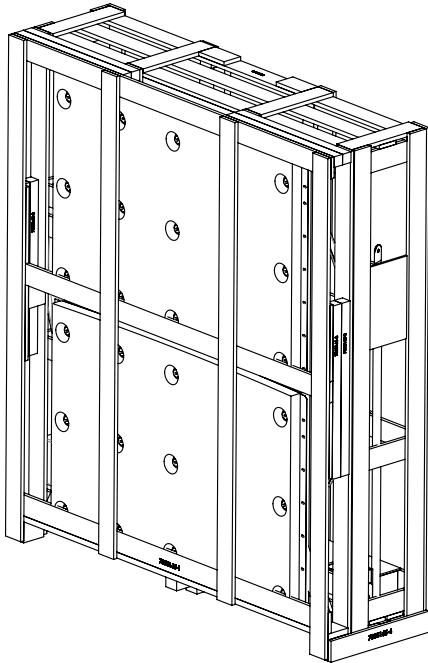


Instructions for unpacking crate:

1. Carefully remove crate extension to allow access to shields and reflector struts.

Remove components:

2. Remove shields and proceed with the disassembly of the crate.



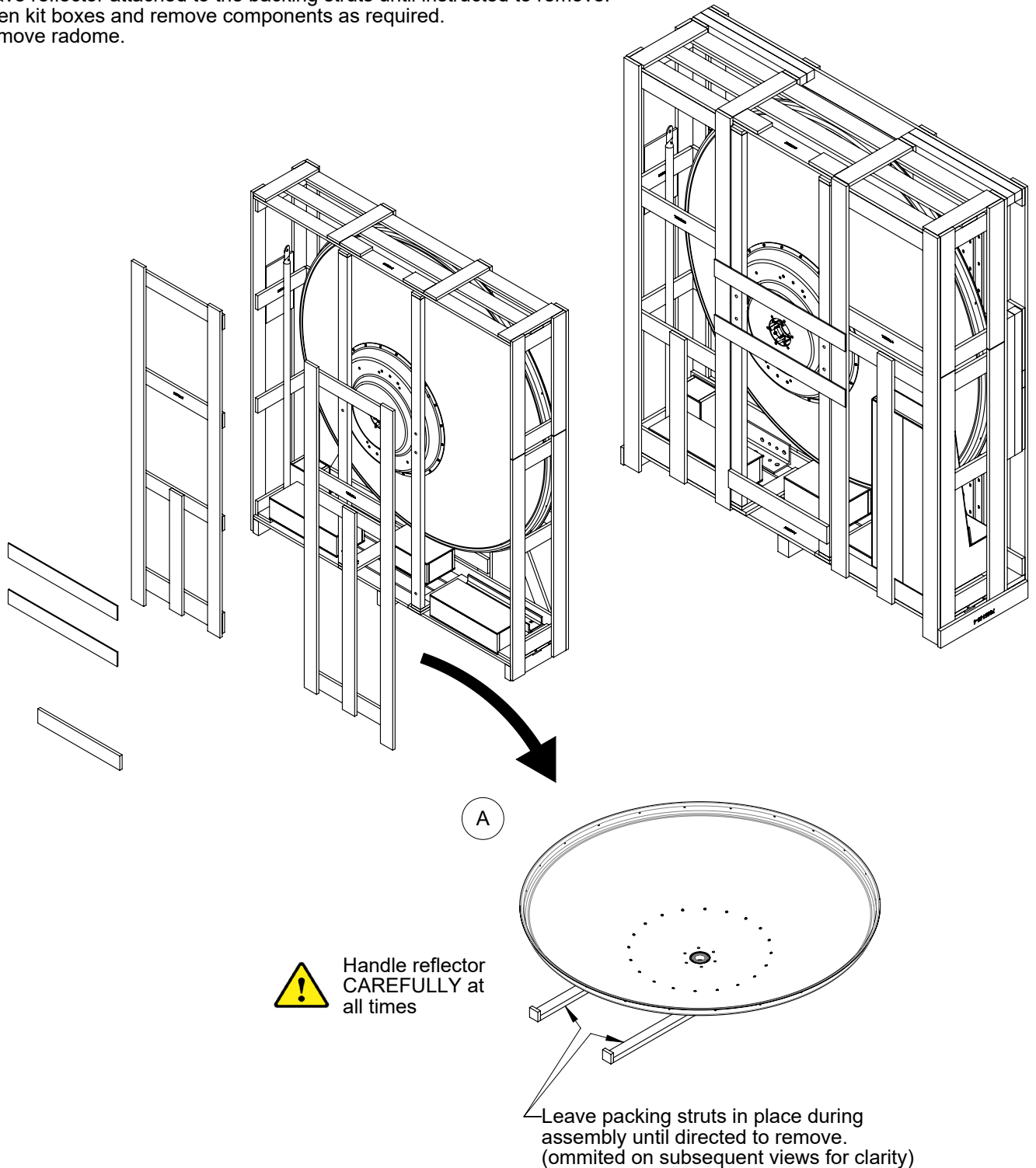
Disassemble the crate extension and remove the shields.

Instructions for unpacking crate:

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

Remove components:

2. Remove strut pipe, integration/omt kit and feed.
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. Open kit boxes and remove components as required.
6. Remove radome.



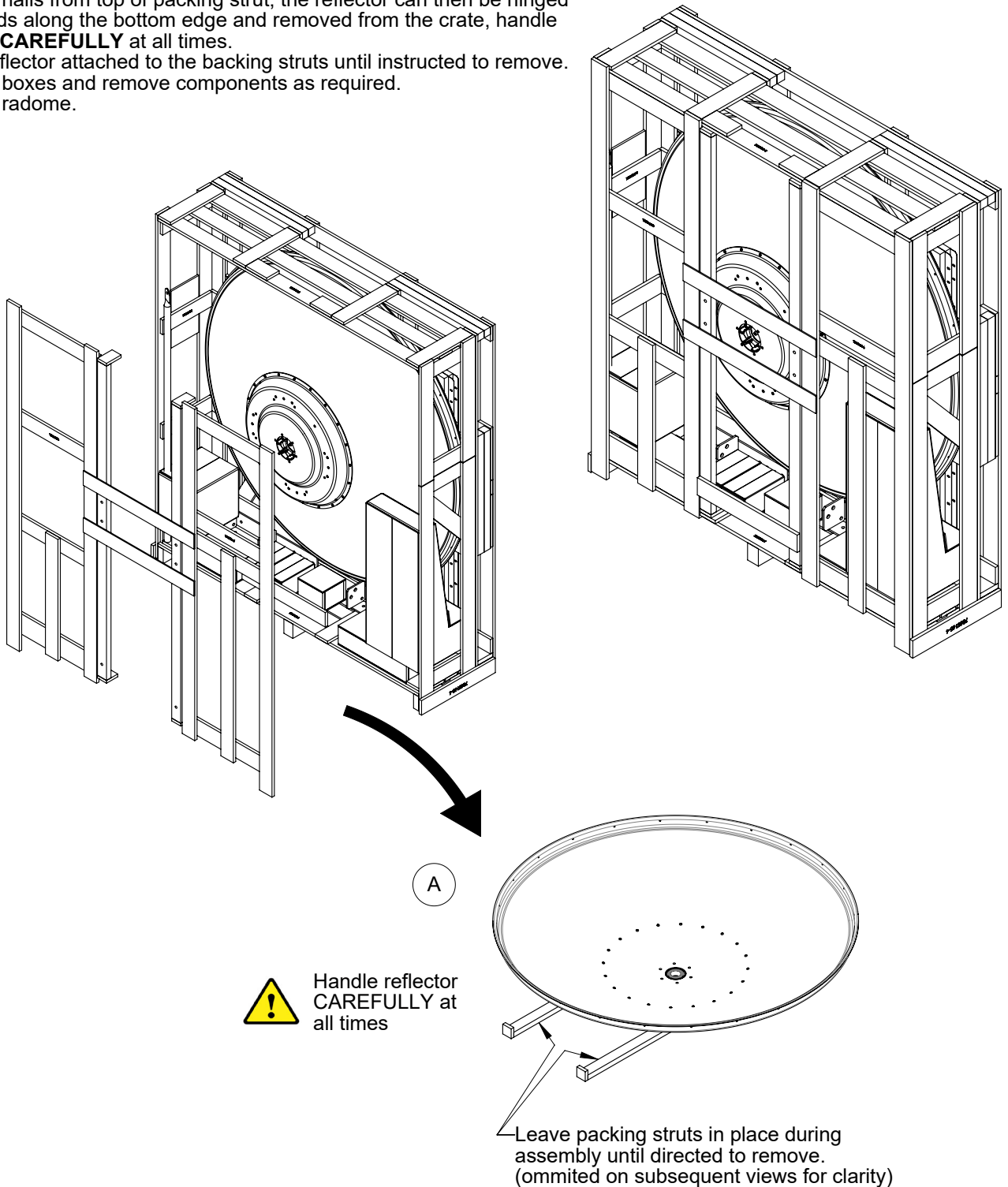
Unpacking 6/11 antenna

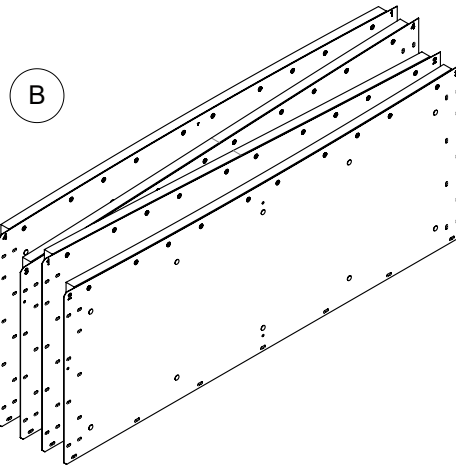
Instructions for unpacking crate:

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

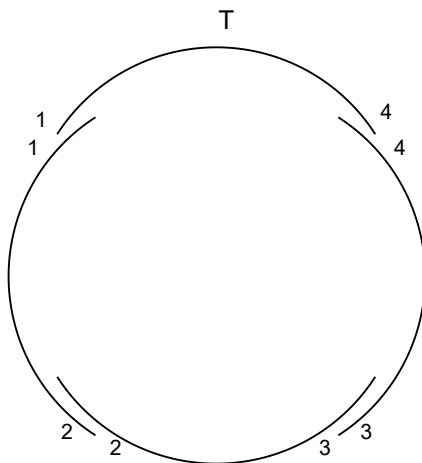
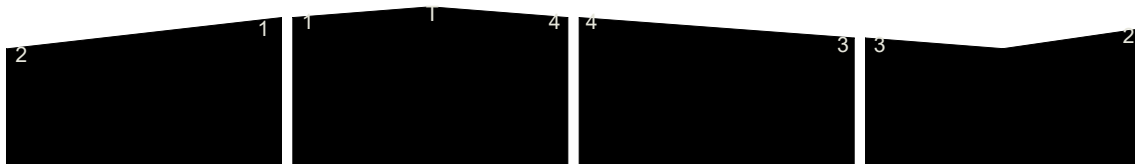
Remove components:

2. Remove strut pipe ,integration/omt kit and feed.
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. Open kit boxes and remove components as required.
6. Remove radome.

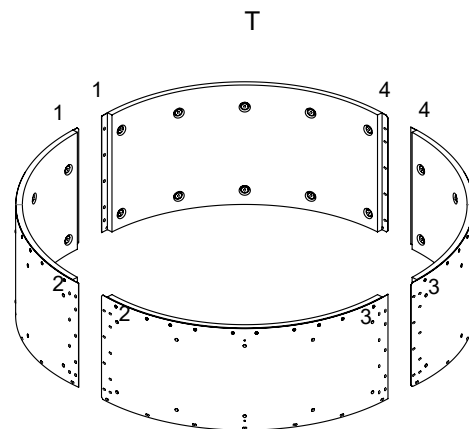




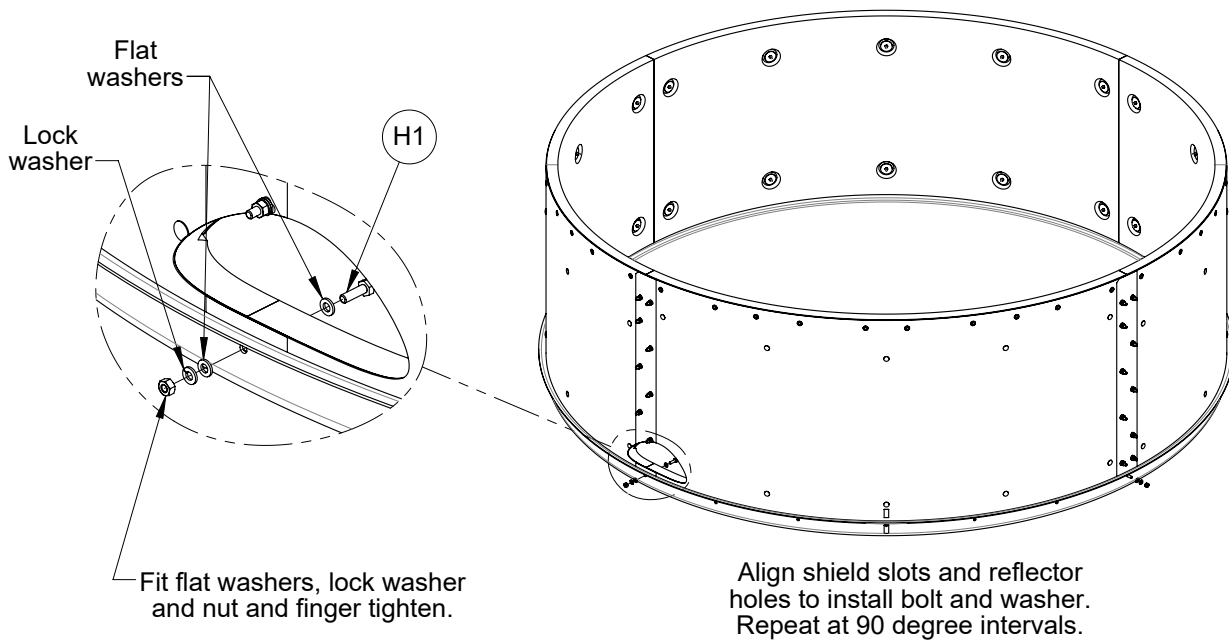
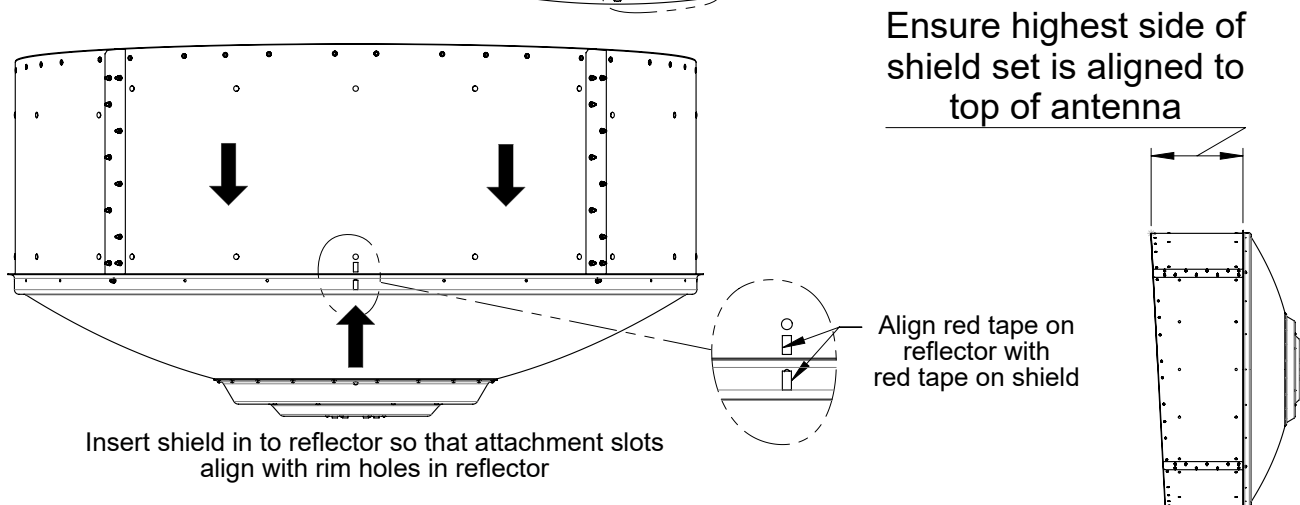
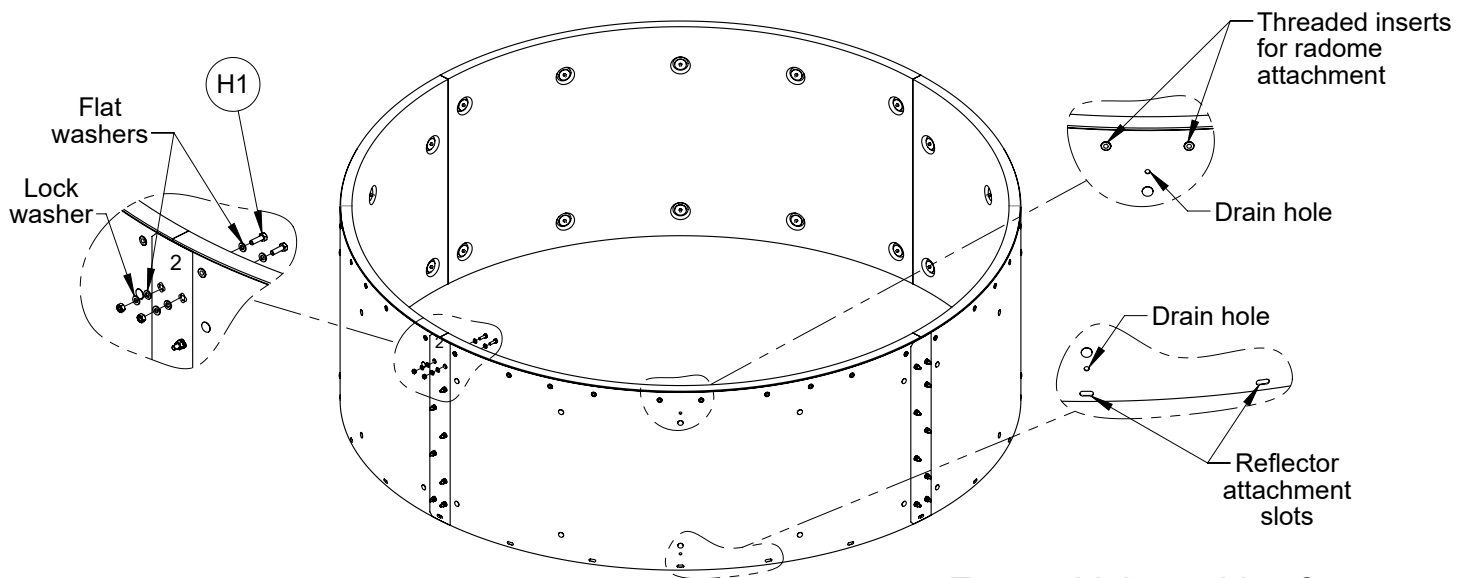
Shield assembly number sequence (Absorber face up)

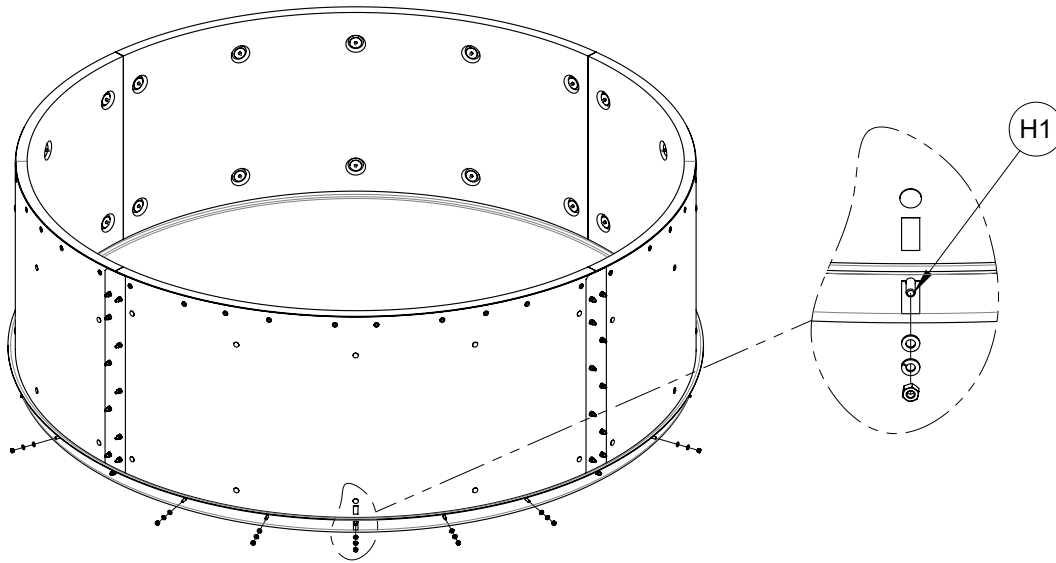


ATTENTION
shield overlap
arrangement



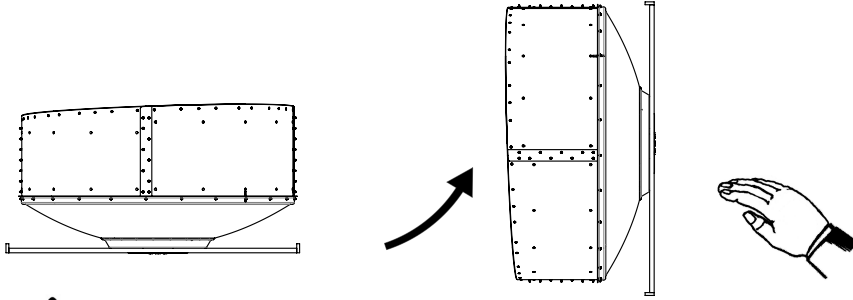
Antenna shield
arrangement





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

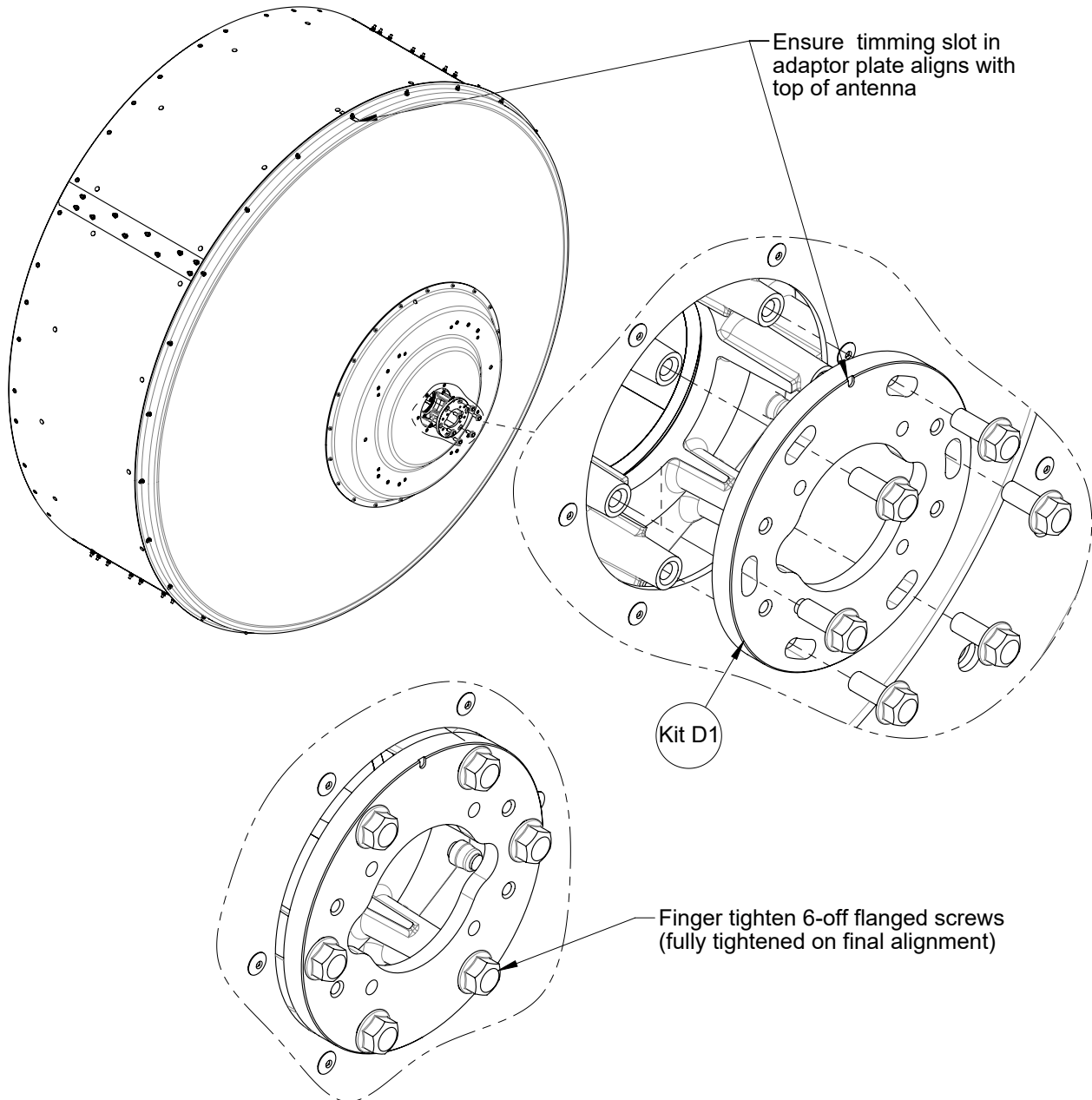
Tighten all shield and segment fastenings to $7.7\text{Nm} \pm 5\%$



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

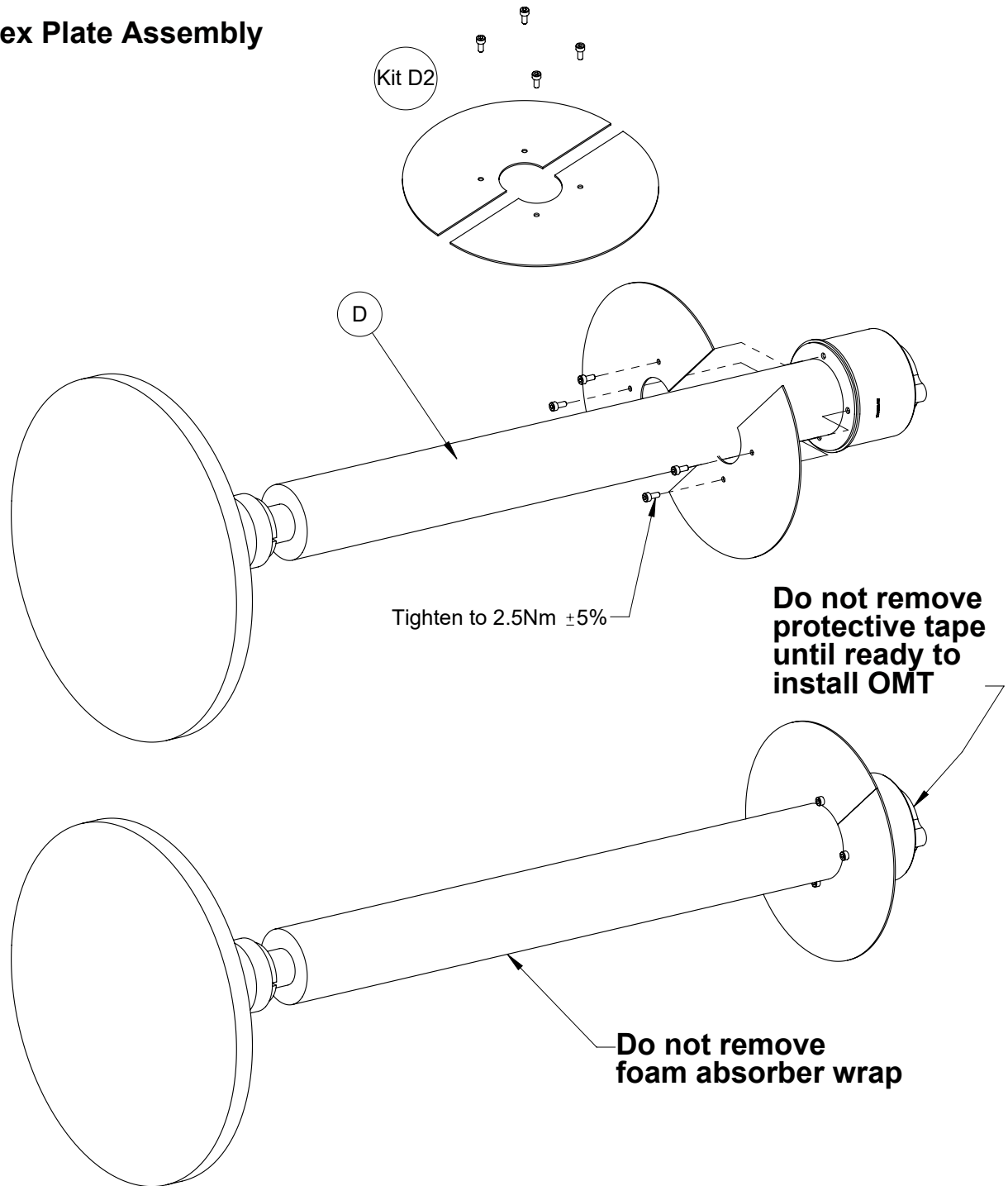


Ensure timing slot in adaptor plate aligns with top of antenna

Kit D1

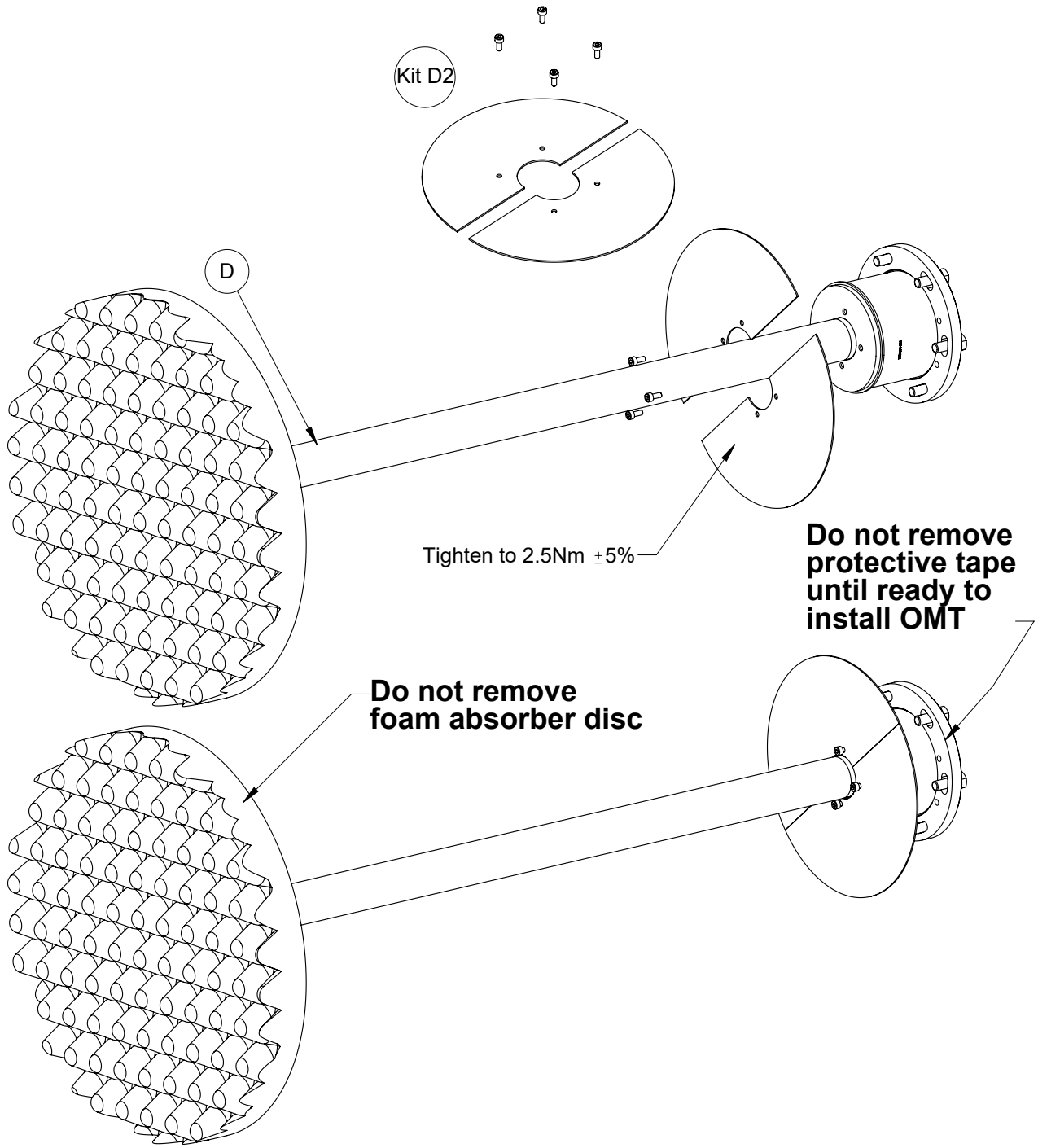
Finger tighten 6-off flanged screws (fully tightened on final alignment)

Vertex Plate Assembly



Leave the feed in it's protective packaging until ready to install in antenna.

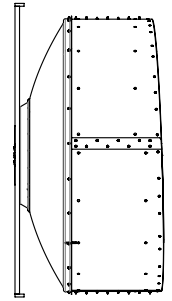
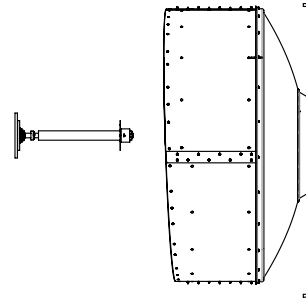
Vertex Plate Assembly (6/11)



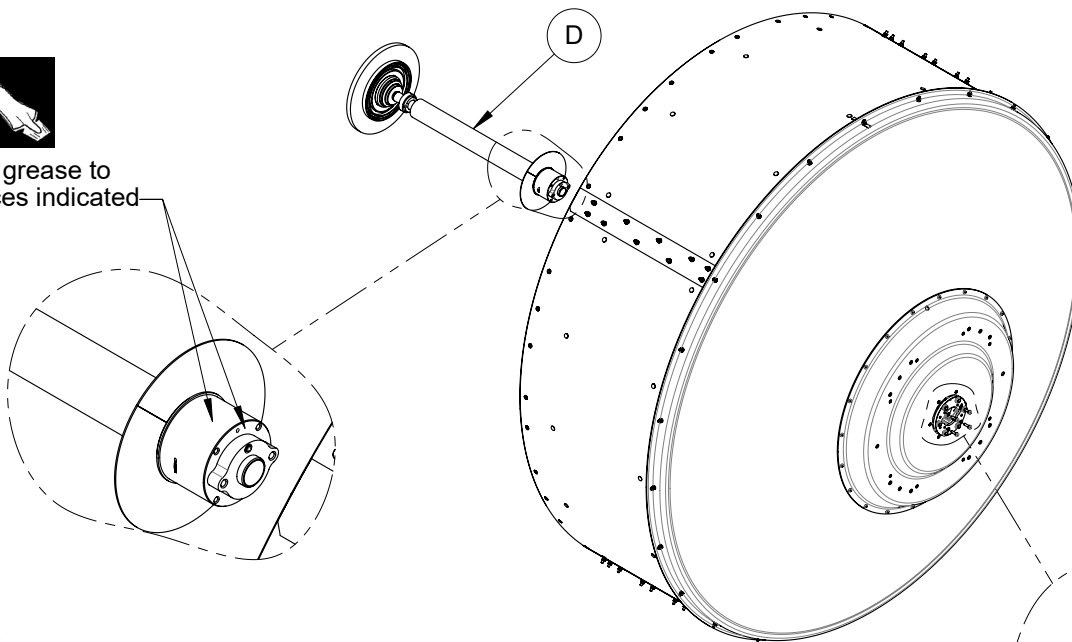
Leave the feed in it's protective packaging until ready to install in antenna.



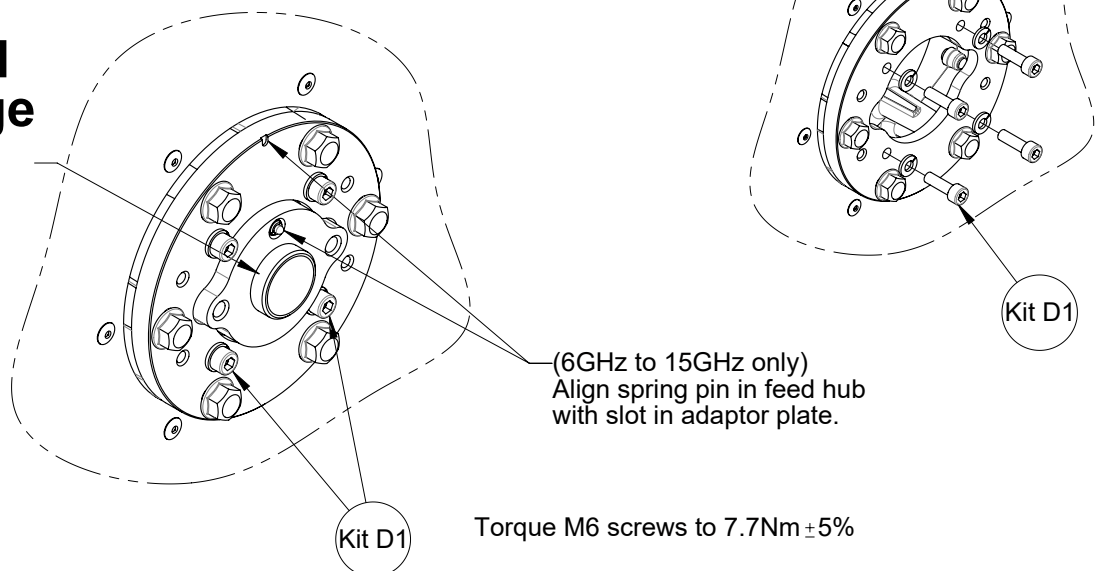
IMPORTANT
Do not assemble
feed into reflector
in direct sun.



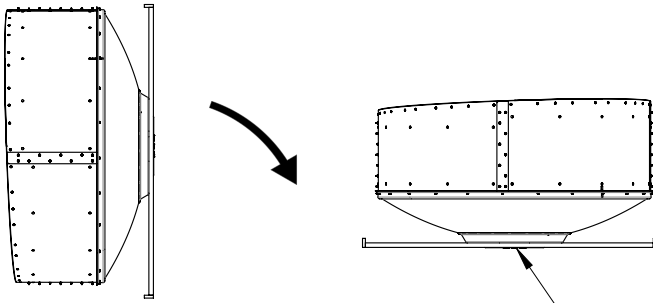
Apply grease to
surfaces indicated



**Protect feed
from damage
at all times**

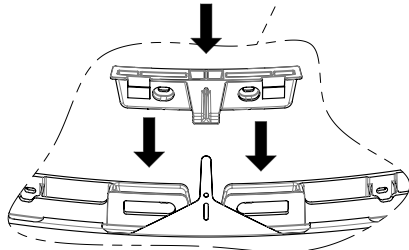
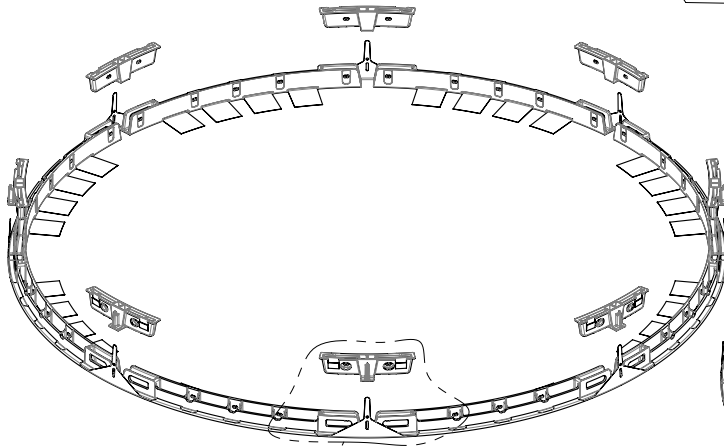


After assembly, remove excess grease from internal reflector surface.

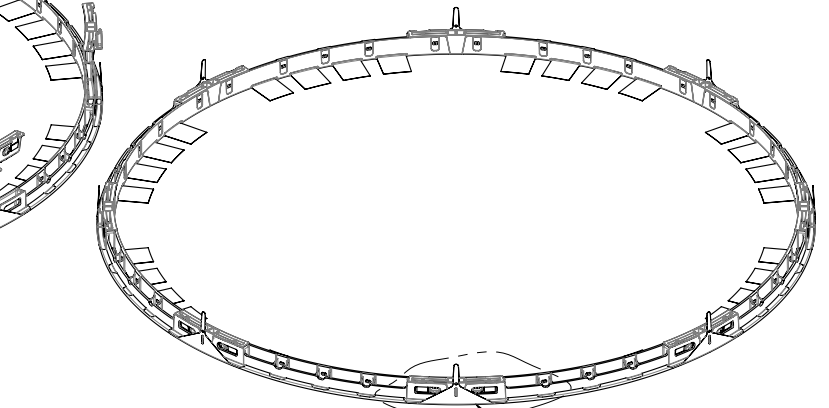


After feed attachment, carefully lay antenna flat.

**Protect feed
from damage
at all times**

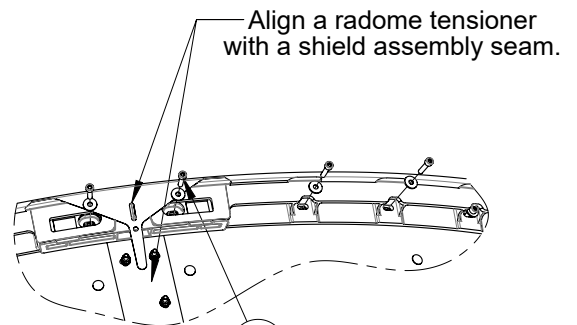
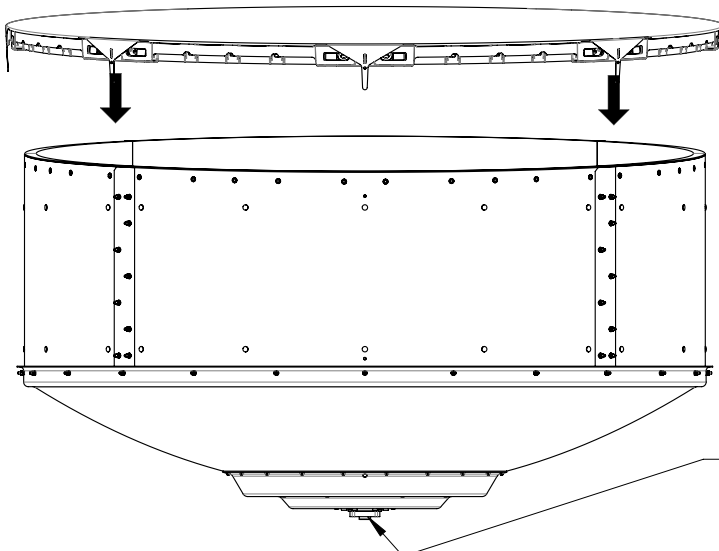


Unfold radome on to a clear, flat and dry surface and assemble radome rim tensioners at 8 places.



Lift radome and secure tabs over hooks

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



Align a radome tensioner with a shield assembly seam.

H2 Torque to 7.7Nm \pm 5%

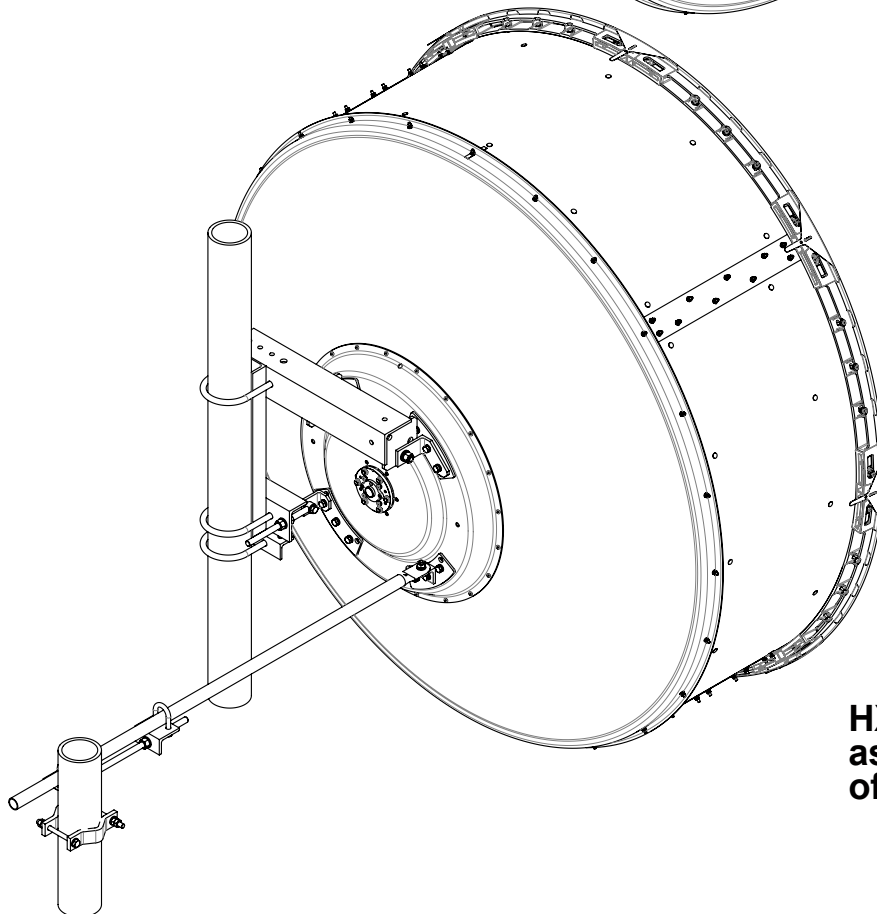
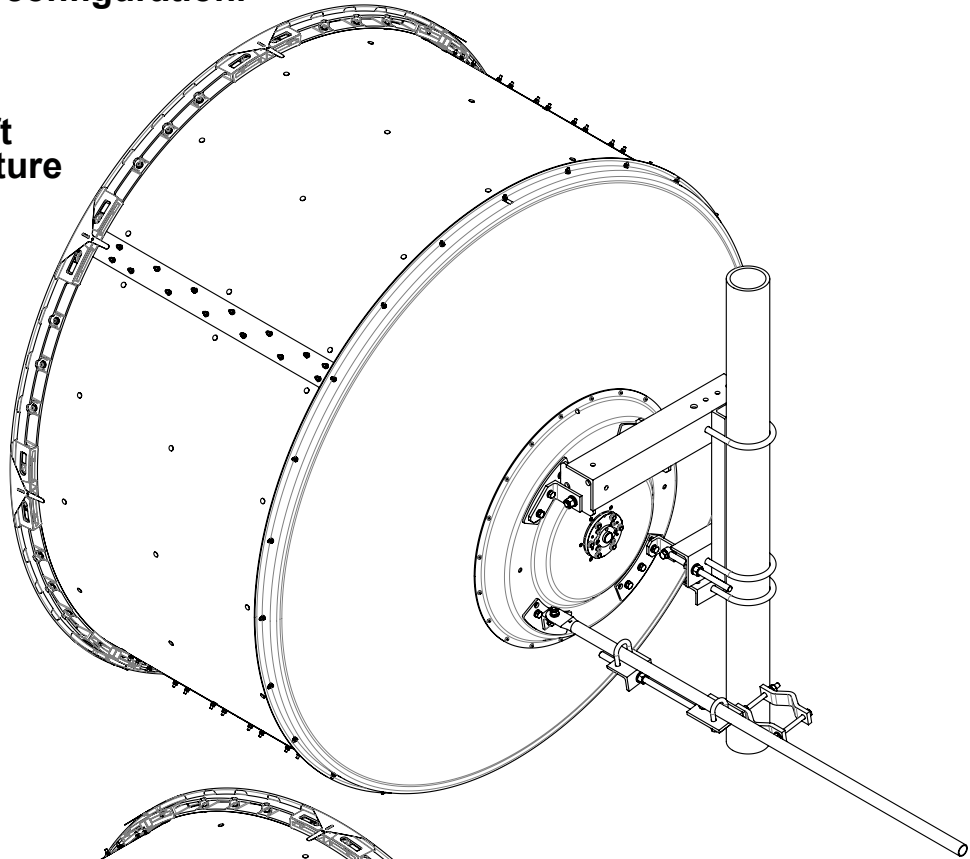
Assemble radome to shields with screws and washers



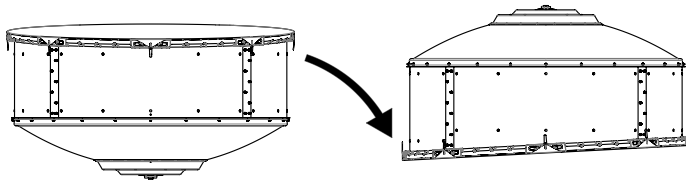
**Protect feed
from damage
at all times**

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

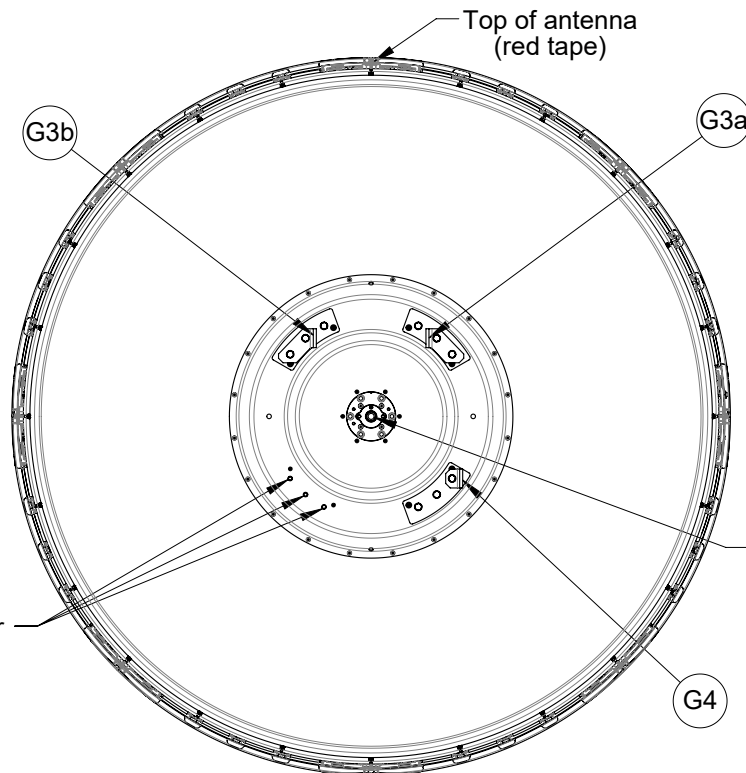
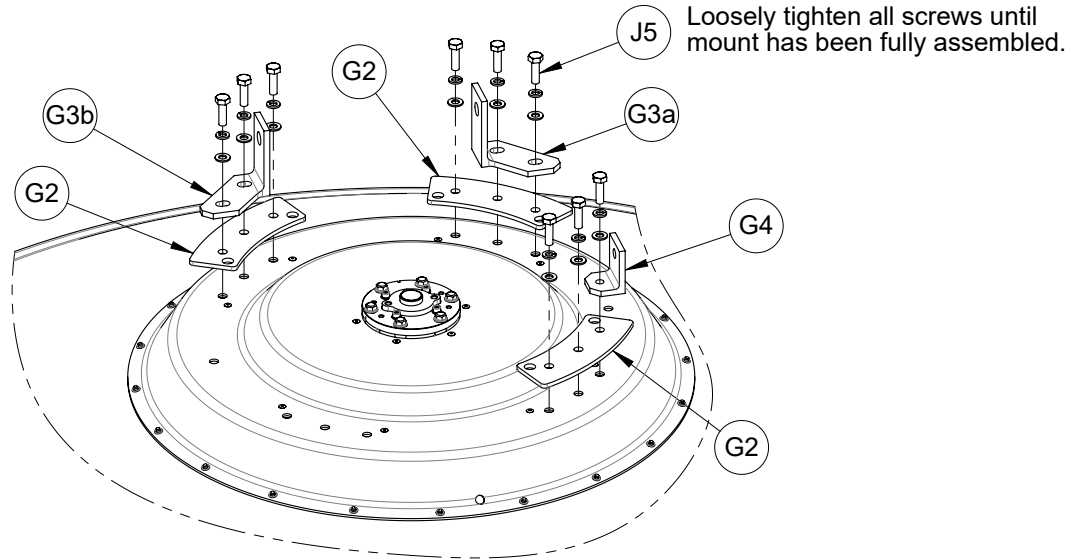
**USX6 Antenna
assembled to left
of support structure**



**HX6 Antenna
assembled to right
of support structure**



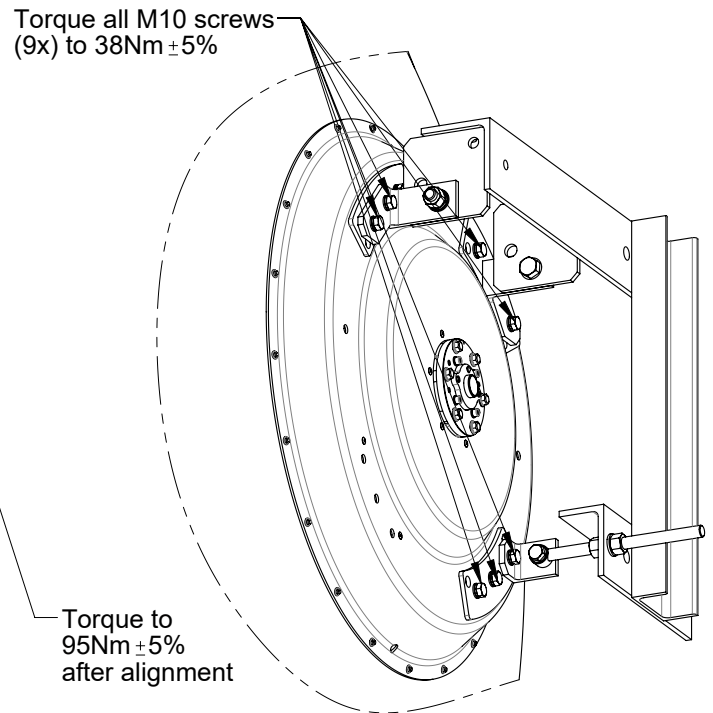
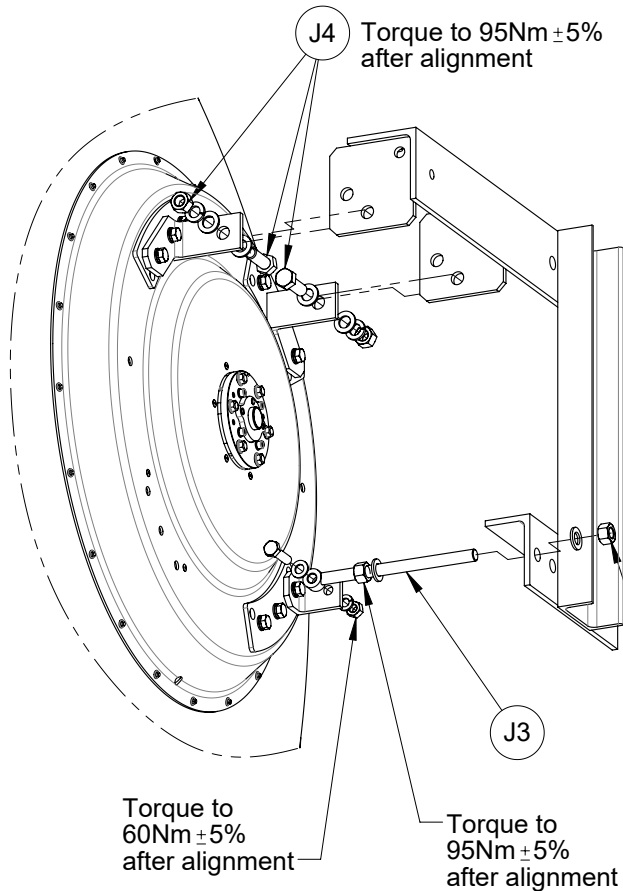
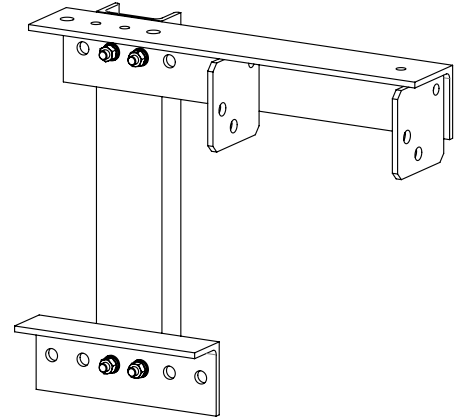
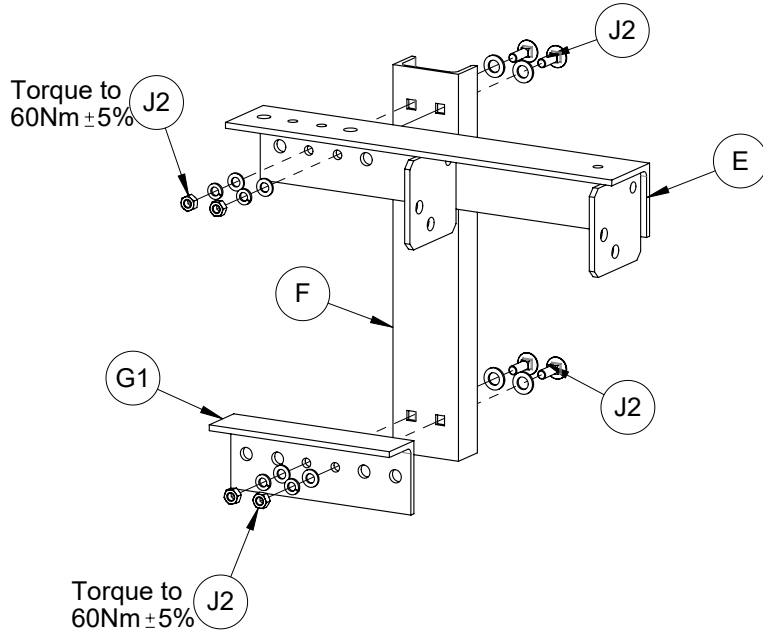
Carefully lay antenna on clear, flat ground and remove packing struts.. Do not apply excessive weight to antennas assembly.



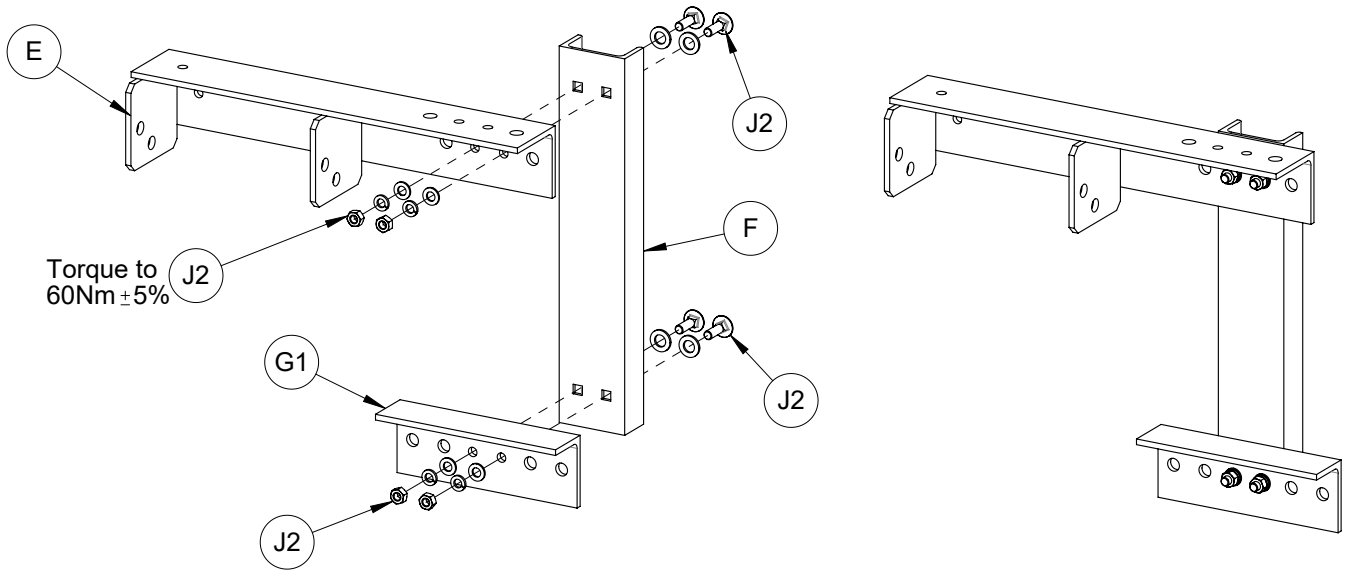
Mount bracket orientation for mounting antenna to the left of the support structure

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**



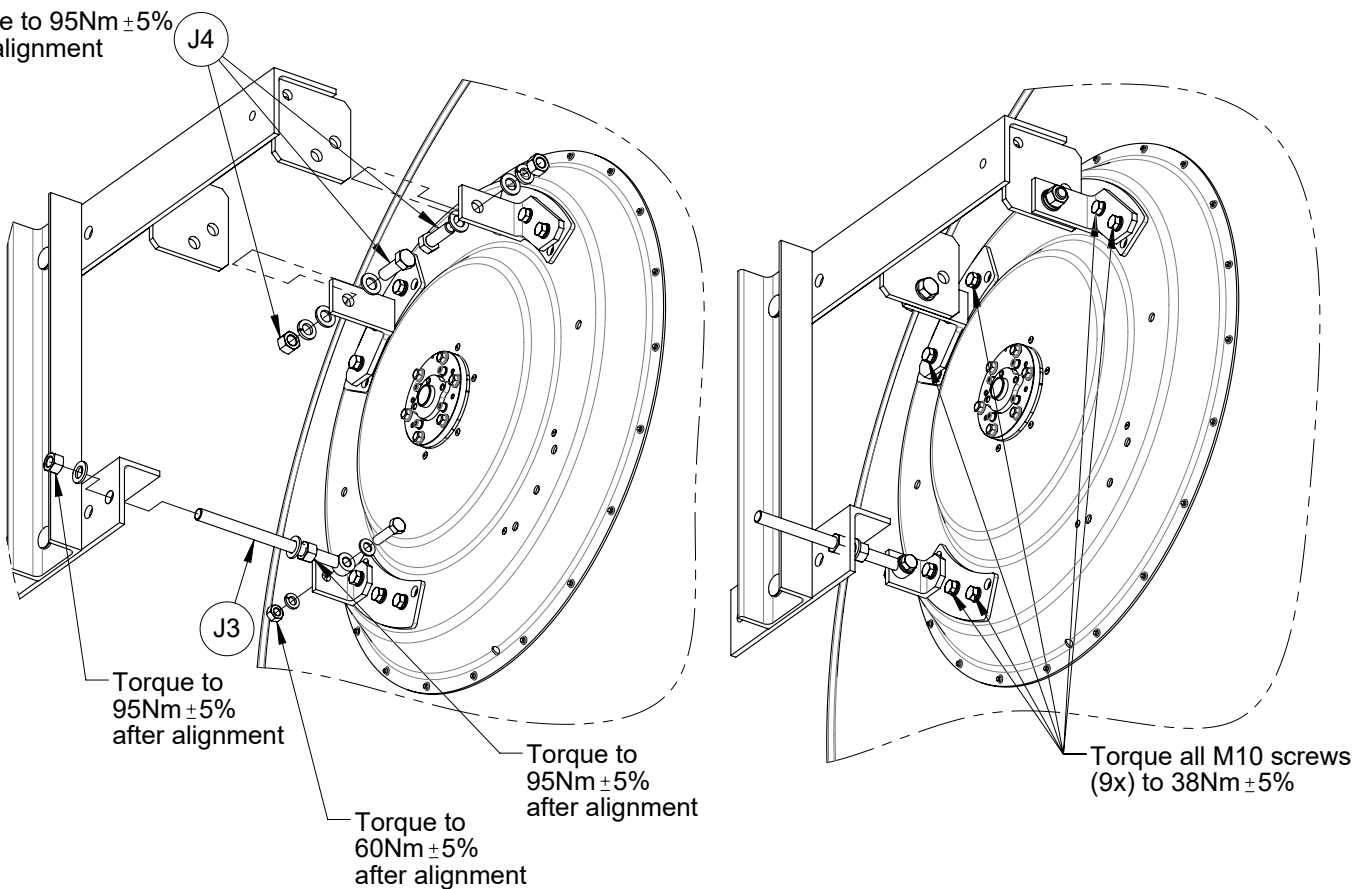
**Mount assembly for mounting antenna
to the right of the support structure**



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

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

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



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

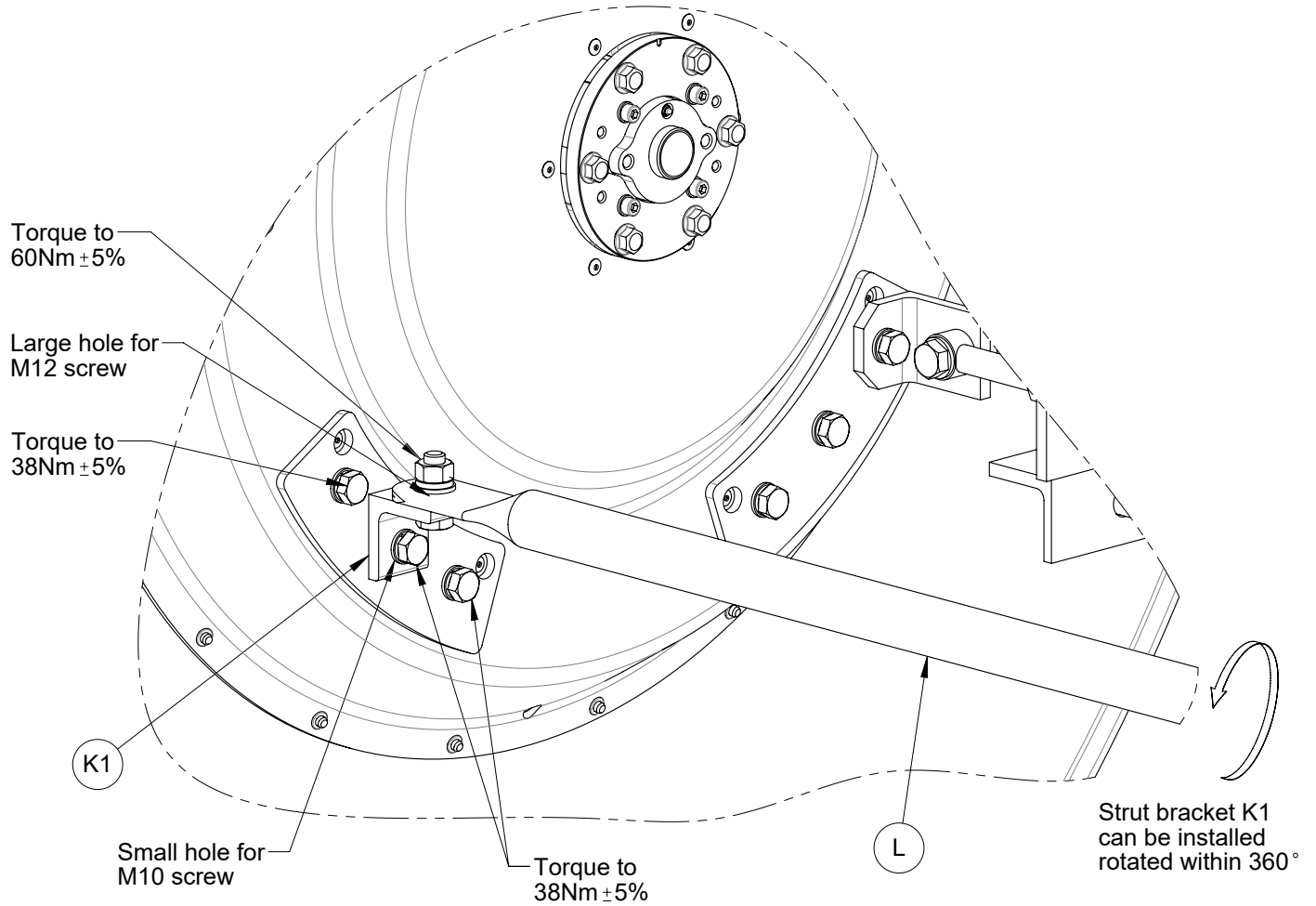
Torque to $60\text{Nm} \pm 5\%$
after alignment

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

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

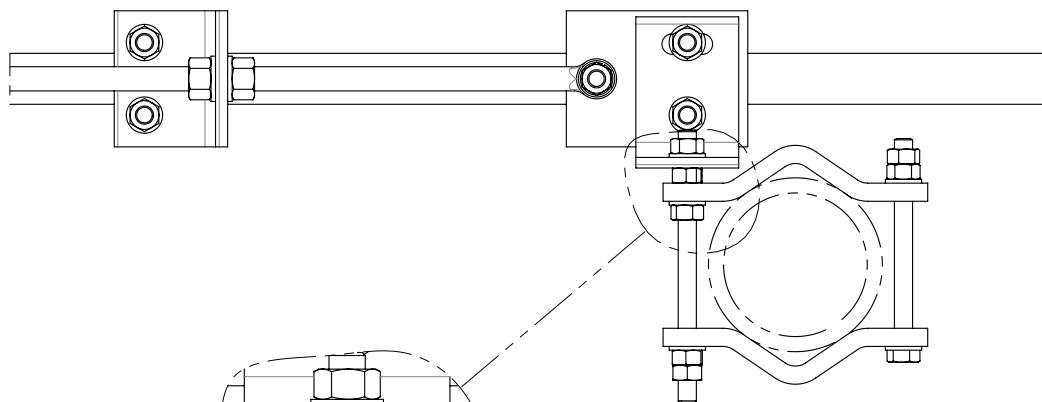
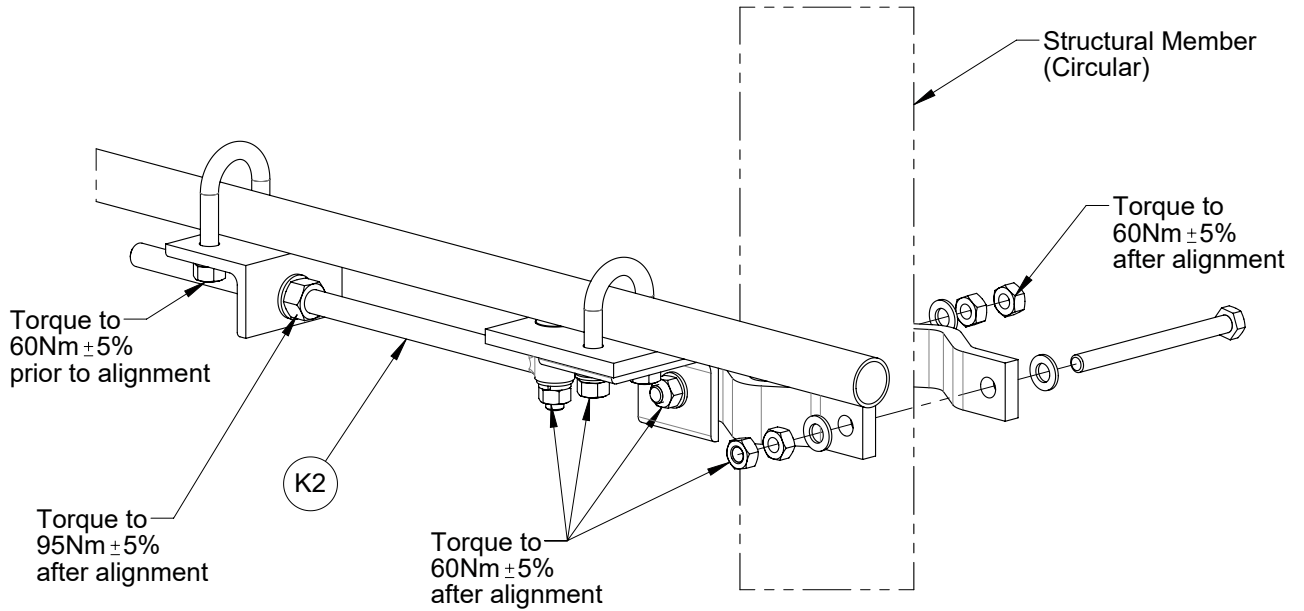


Strut to be fitted after Antenna is hoisted to desired position.



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

ATTACHMENT TO CIRCULAR STRUCTURAL MEMBERS.

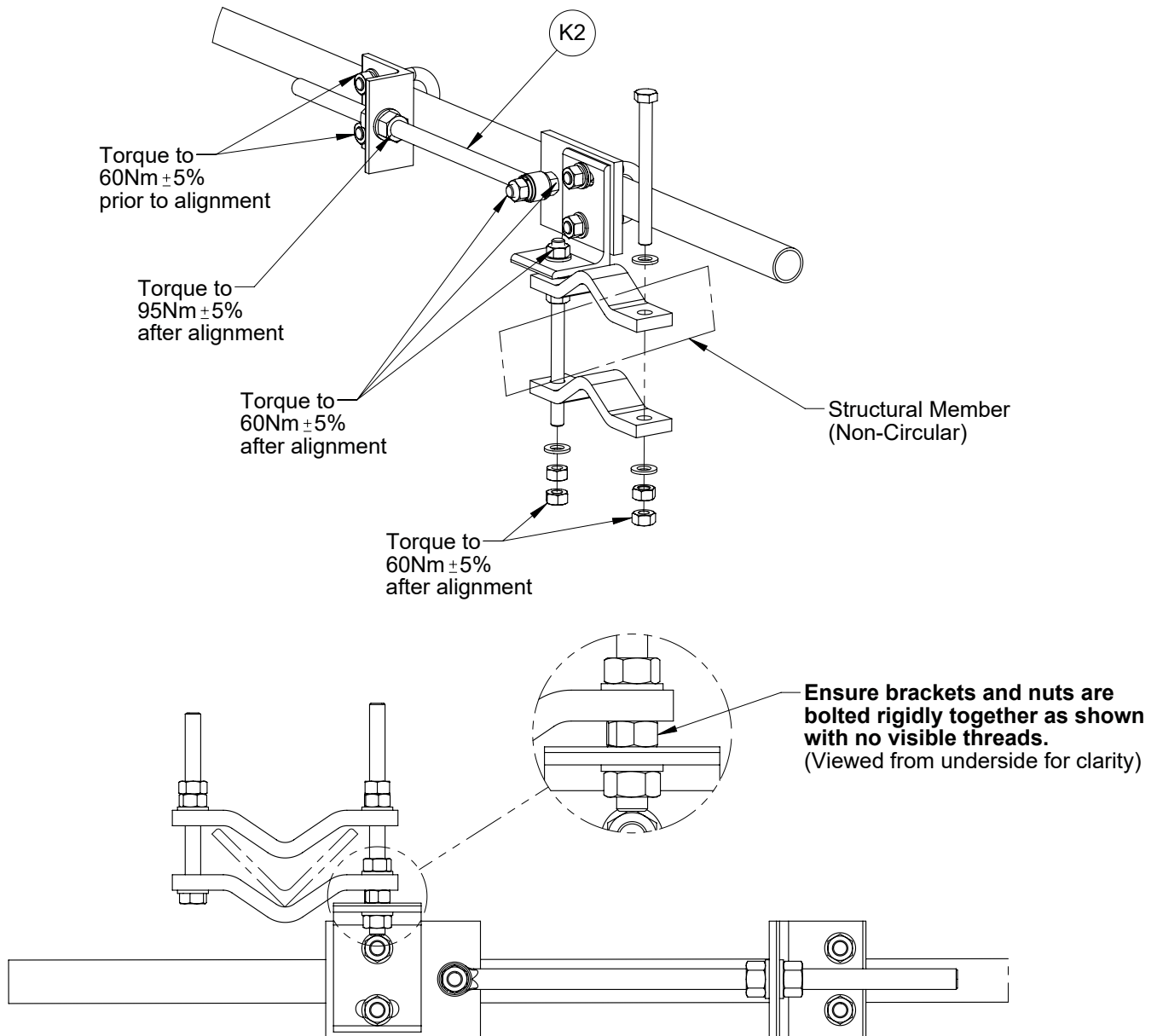


Ensure brackets and nuts are bolted rigidly together as shown with no visible threads.
(Viewed from underside for clarity)

Clamps must be attached to a circular structural member (Dia 48mm - 120mm) capable of supporting 6187N 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 6187N in accordance with TIA-222.

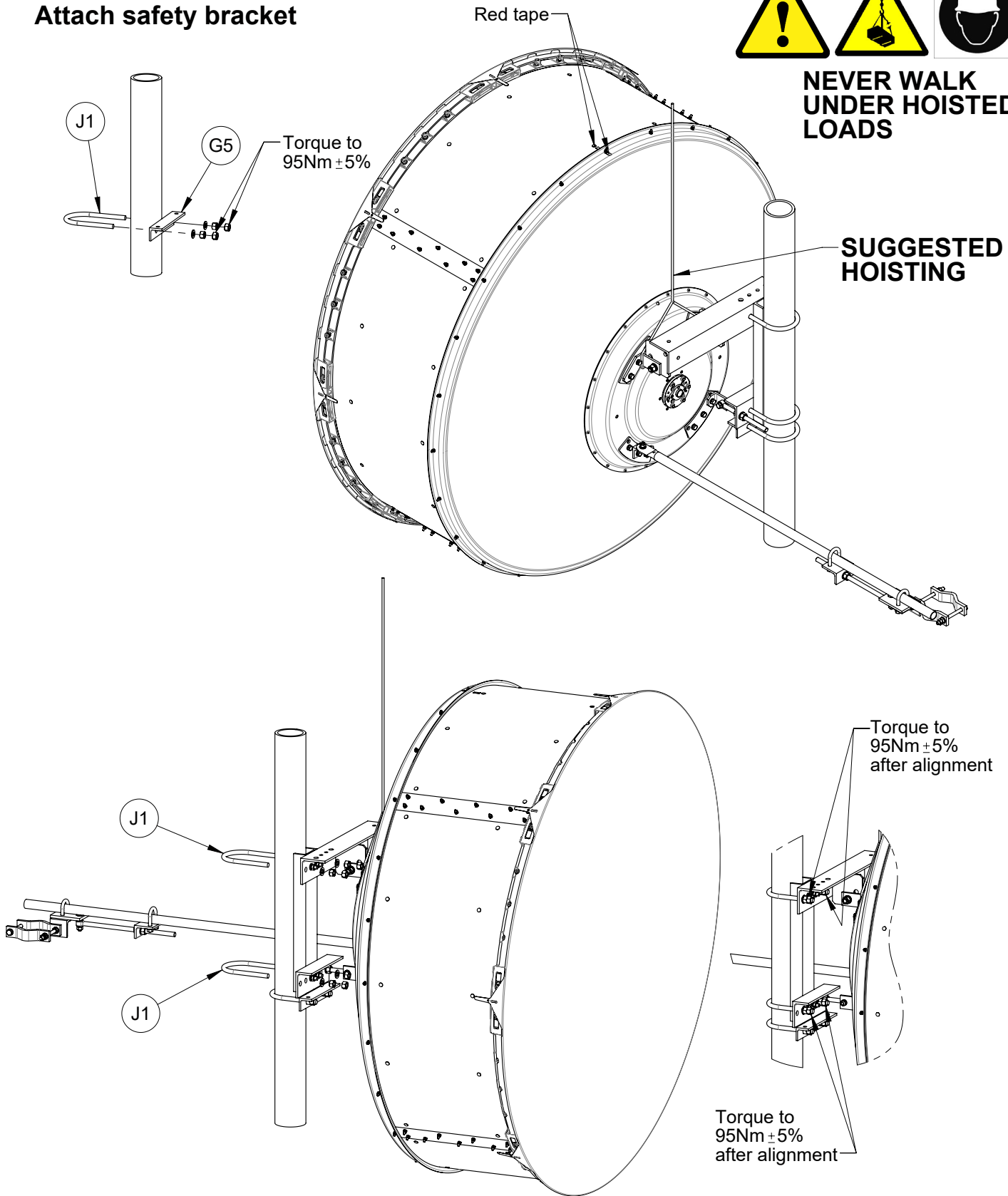
The maximum allowable relative deflection between the antenna mounting pipe and the strut attachment point must be less than 2mm at survival wind speed of the antenna.

Attach safety bracket

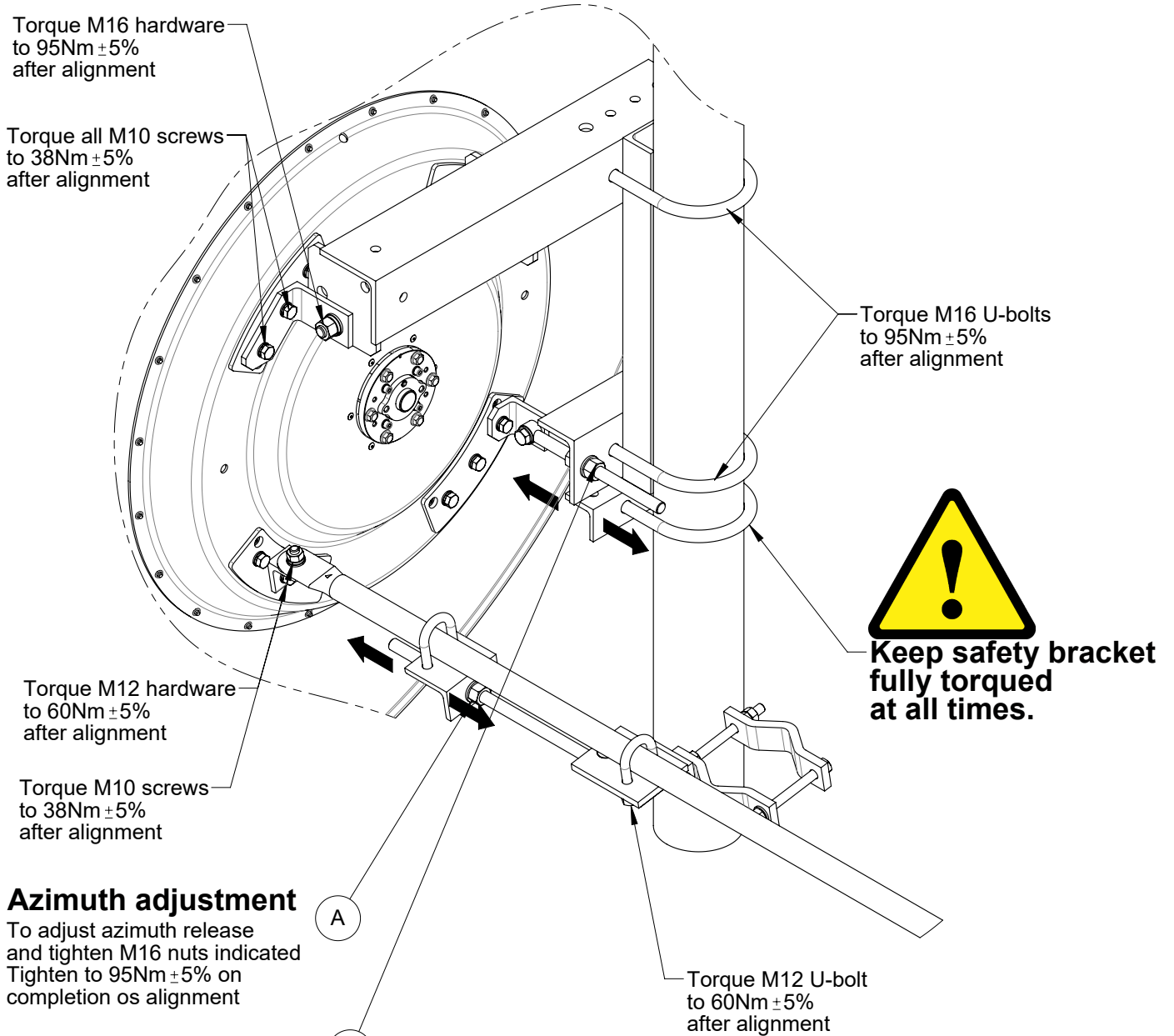


**NEVER WALK
UNDER HOISTED
LOADS**

**SUGGESTED
HOISTING**

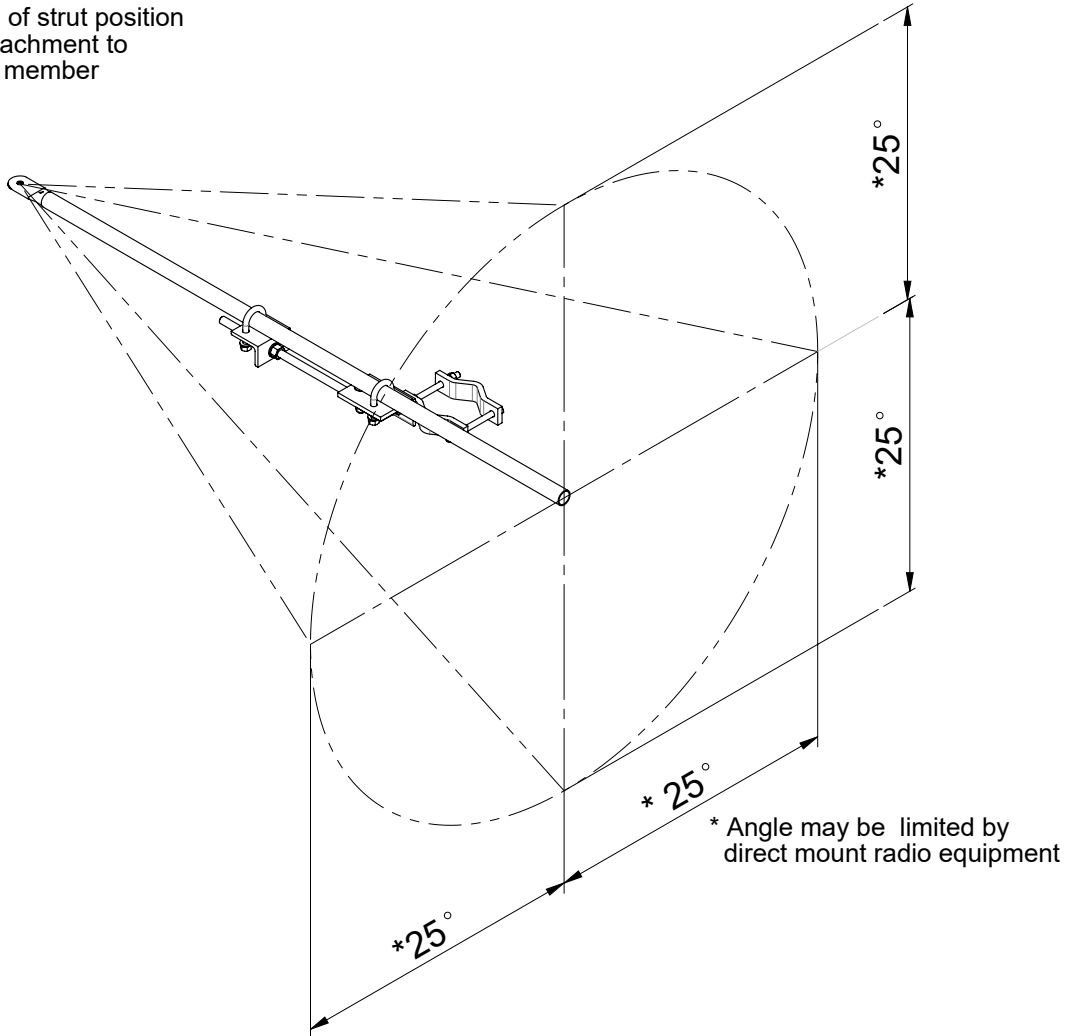


Azimuth Adjustment

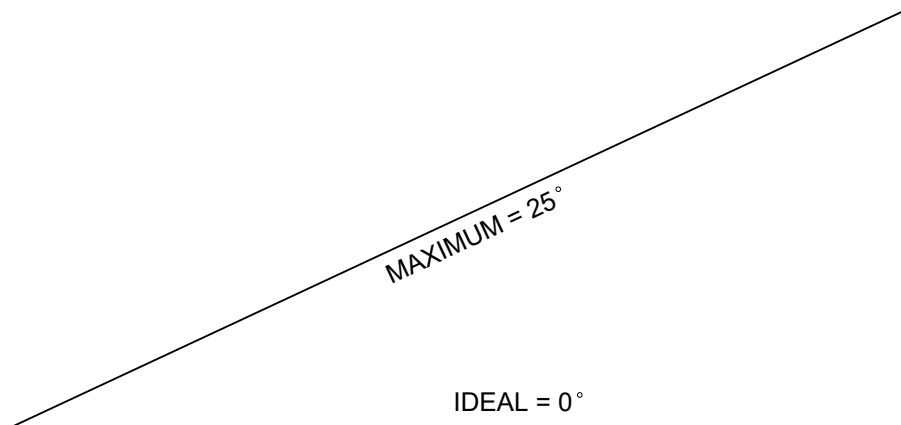


Ensure all hardware is tightened to specified torque after completion of azimuth and elevation alignment

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.