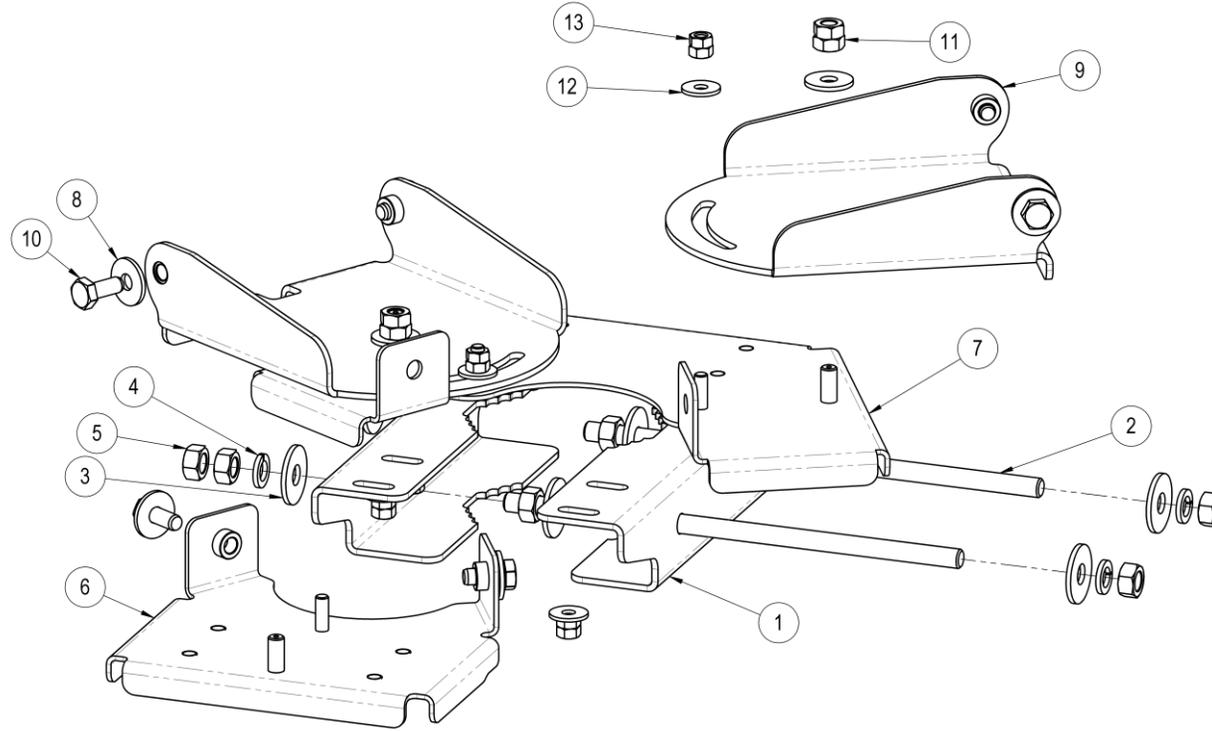


#### DISCLAIMER:

The installation, maintenance, or removal of an antenna requires qualified, experienced personnel. You must refer to the appropriate local safety codes and ensure proper electrical and electromagnetic compatibility before proceeding with the installation. All local codes shall take precedence over information in this document. Antenna systems should be inspected once a year by qualified personnel to verify proper installation, maintenance, and condition of equipment. The maximum static load for a single antenna attachment position is 77.5 kg. Communication Components Antennas Inc. disclaims any liability or responsibility for the results of improper or unsafe installation.

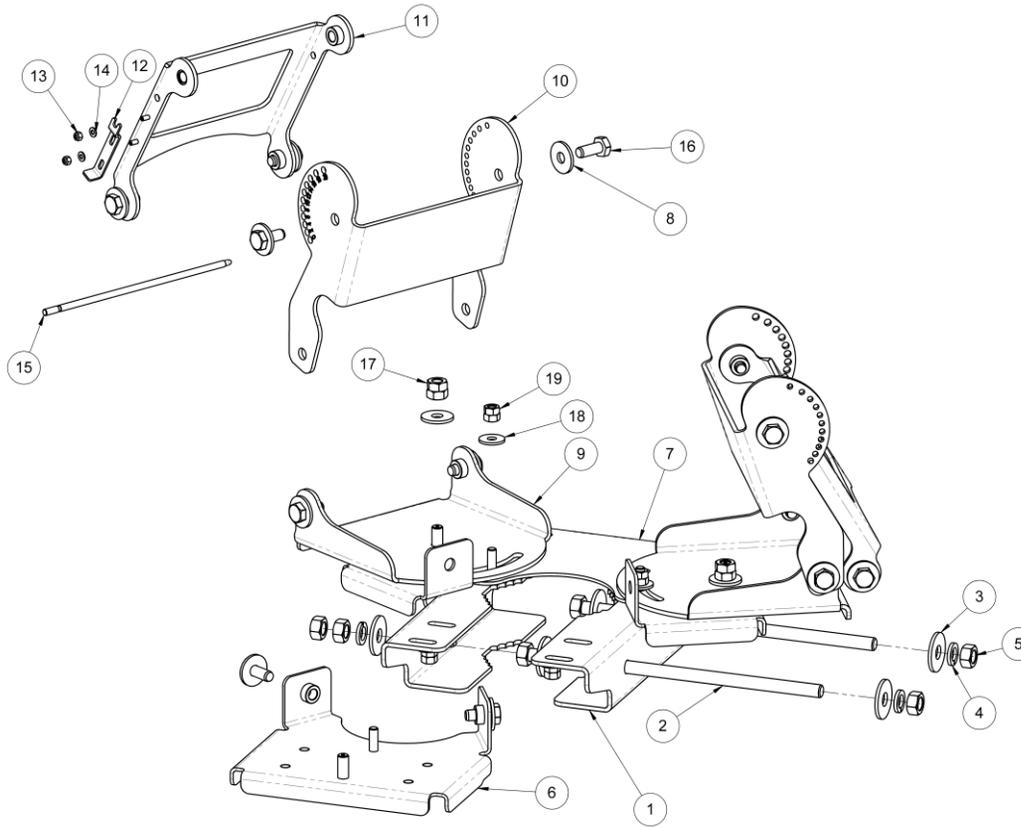


**Fig. 1: Swiveling Dual MDT Fixed Bracket BOM**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	2	MAST BRACKET, CLAMP, MBK-19/20/21	8	8	WASHER, FLAT, M10, 30OD, MIN 2.3 THK, DIN 9021, SS A2-70
2	2	THREADED ROD, M12X1.75, 300L, DIN 976, SS A2-70	9	2	MAST BRACKET, SINGLE HINGE, FIXED, MBK-19
3	6	WASHER, FLAT, M12, 37 OD, MIN 2.3 THK, DIN 9021, SS A2-70	10	6	SCREW, HEX, CAP, M10X1.5, 25L, DIN 933, ISO 4017, SS A4-70, NYLON PATCH
4	4	WASHER, SPLIT LOCK, M12, DIN 127B, STEEL, SS A2-70	11	4	NUT, HEX, M10X1.5, DIN 934, 18-8 SS, 17MM HEX
5	8	NUT, HEX, M12X1.75, DIN 934, ISO 4032, SS A4-70, 19MM HEX	12	10	WASHER, FL, M8, ISO 7093, A2 SS, OVERSIZE
6	1	BRACKET, SWIVEL JOINT, FLANGED, MBK-19	13	20	NUT, HEX, M8-1.25, SS, DIN 934, 13MM HEX
7	1	BRACKET, DOUBLE HINGE, SWIVEL JOINT, FLANGED, MBK-21			

**Step Task**

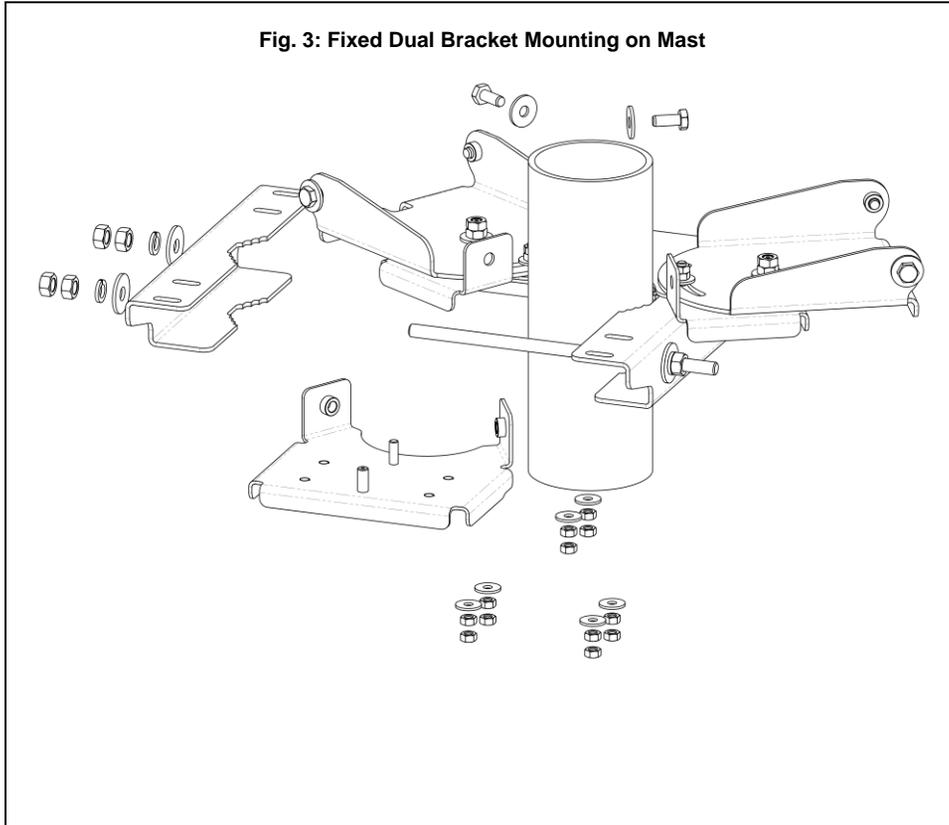
- 1 The Dual Mounting Kit is intended for antennas with a pitch of 700mm between hinge brackets. It will provide mechanical tilt capability of 0°-20°, and azimuth swiveling of ±30°. The Fixed Bracket only provides swiveling, while the Adjustable Bracket provides tilt and swiveling. The Brackets will arrive assembled for the Downtilt Setup, but the hardware will not be torqued..



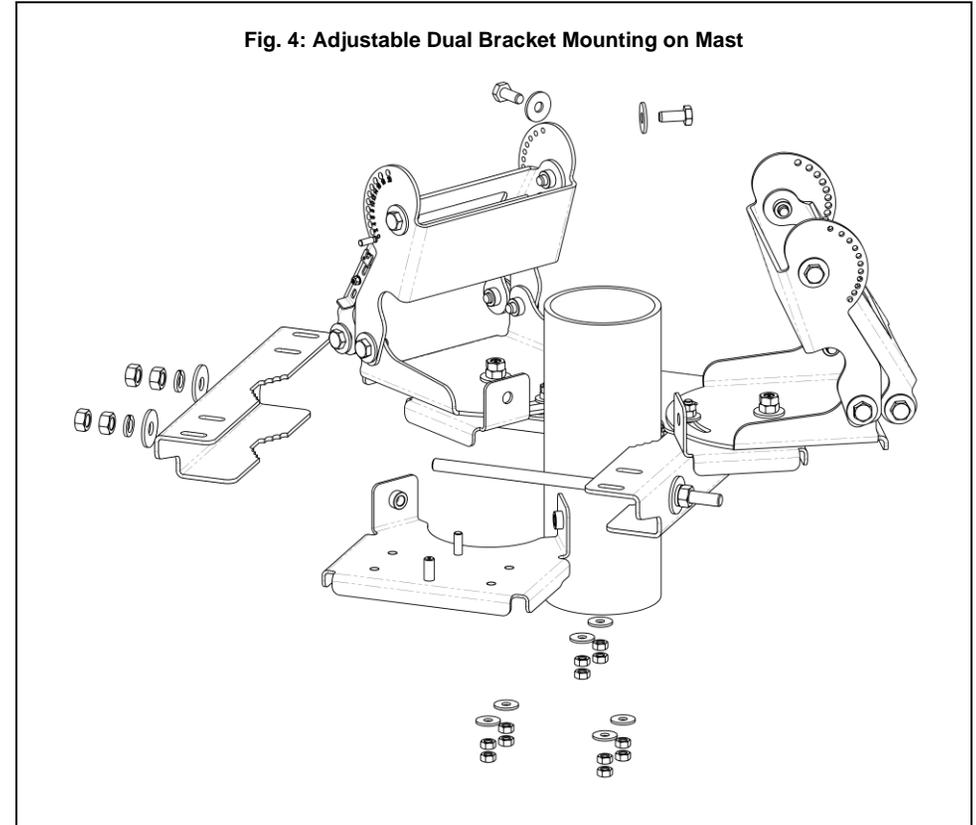
**Fig. 2: Swiveling Dual MDT Adjustable Bracket BOM**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	2	MAST BRACKET, CLAMP, MBK-19/20/21	11	2	MAST BRACKET, ADJUSTABLE, FRONT, MBK-19
2	2	THREADED ROD, M12X1.75, 300L, DIN 976, SS A2-70	12	2	LATCH, DOWNTILT BOLT, MBK-19
3	6	WASHER, FLAT, M12, 37 OD, MIN 2.3 THK, DIN 9021, SS A2-70	13	4	NUT, HEX, M4-0.7, NYL LK, SS, DIN 985, ISO 7089
4	4	WASHER, SPLIT LOCK, M12, DIN 127B, STEEL, SS A2-70	14	4	WASHER, M4, 4.3ID, 9OD, .0.8THK, SS, DIN 125, ISO 7089
5	8	NUT, HEX, M12X1.75, DIN 934, ISO 4032, SS A4-70, 19MM HEX	15	2	BOLT, DOWNTILT BRACKET, MBK-19
6	1	BRACKET, SWIVEL JOINT, FLANGED, MBK-19	16	14	SCREW, HEX, CAP, M10X1.5, 25L, ISO 4017, SS A4-70, NYLON PATCH
7	1	BRACKET, DOUBLE HINGE, SWIVEL JOINT, FLANGED, MBK-21	17	4	NUT, HEX, M10X1.5, DIN 934, 18-8 SS, 17MM HEX
8	16	WASHER, FLAT, M10, 30OD, MIN 2.3 THK, DIN 9021, SS A2-70	18	10	WASHER, FL, M8, ISO 7093, A2 SS, OVERSIZE
9	2	MAST BRACKET, SINGLE HINGE, ADJUSTABLE, MBK-19	19	20	NUT, HEX, M8-1.25, SS, DIN 934, 13MM HEX
10	2	MAST BRACKET, ADJUSTABLE, REAR, MBK-19			

**Fig. 3: Fixed Dual Bracket Mounting on Mast**



**Fig. 4: Adjustable Dual Bracket Mounting on Mast**



**Step Task**

- 2 Attach the Fixed Dual Mount Bracket by separating one Clamp Bracket from the assembly, by removing some of the associated hardware (see Fig. 3). Place the Bracket on the mast at the correct height in the orientation shown, and also pointing in the desired direction as shown in Fig. 3. Reinstall the Clamp Bracket and the associated hardware. Adjust the M12 threaded rods to balance the protrusion on either side and tighten the M12 nuts to a torque of  $54 \pm 2.5$  N-M ( $40 \pm 2$  ft-lbs.). Then tighten all sixteen M8 nuts (on the underside) to a torque of  $9.5 \pm 0.5$  N.m ( $7.0 \pm 0.5$  ft-lb.).

**Step Task**

- 3 Attach the Adjustable Dual Mount Bracket by separating one Clamp Bracket from the assembly, by removing some of the associated hardware (see Fig. 4). Place the Bracket on the mast in the orientation shown (see Fig. 5), at a distance of 700mm from the Fixed Bracket (depends on tilt direction) and also pointing in the same direction as shown in Fig. 6. Reinstall the Clamp Bracket and associated hardware. Adjust the M12 threaded rods to balance the protrusion on either side and tighten the M12 nuts to a torque of  $54 \pm 2.5$  N-M ( $40 \pm 2$  ft-lbs.). Then tighten all sixteen M8 nuts (on the underside) to a torque of  $9.5 \pm 0.5$  N.m ( $7.0 \pm 0.5$  ft-lb.).

Fig. 5: Spacing Between Fixed and Adjustable Dual Mount Brackets – Downtilt Setup

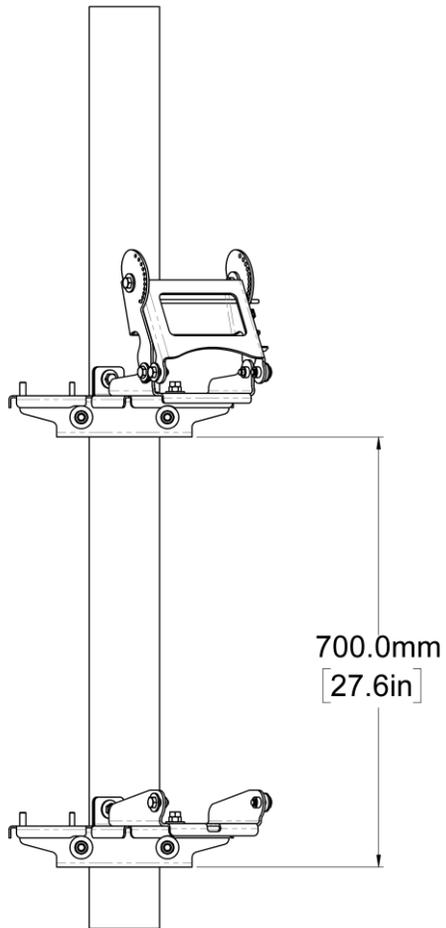
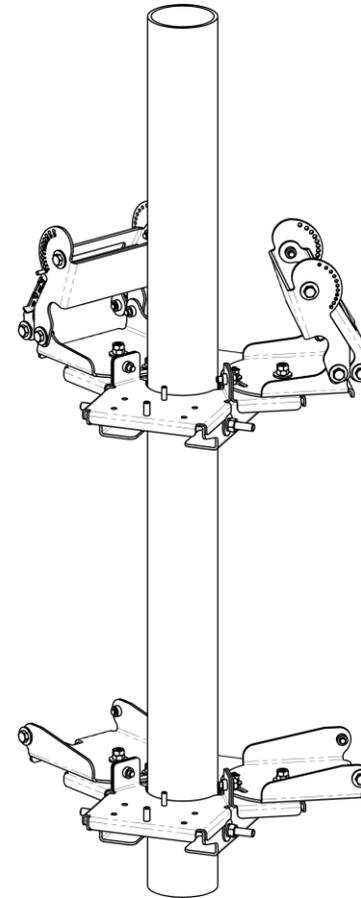
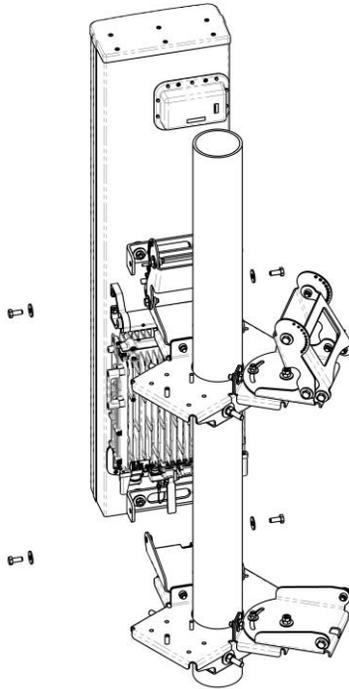


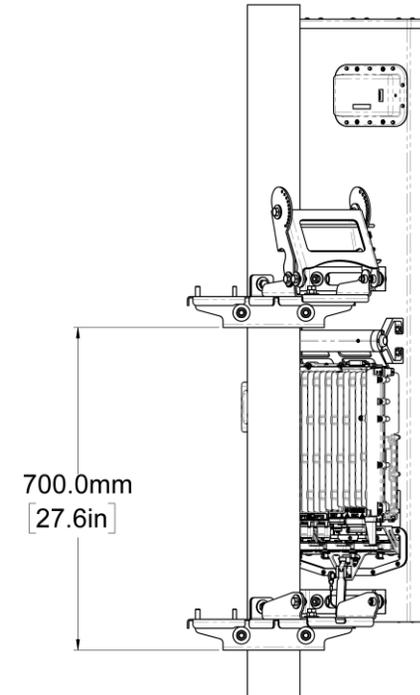
Fig. 6: Orientation of Fixed and Adjustable Dual Mount Brackets – Downtilt Setup



**Fig.7: Installation of 1<sup>st</sup> Antenna/Radio Assembly on Fixed and Adjustable Dual Mount Brackets – Downtilt Setup (ISO View)**



**Fig.8: Installation of 1<sup>st</sup> Antenna/Radio Assembly on Fixed and Adjustable Dual Mount Brackets – Downtilt Setup (Side View)**



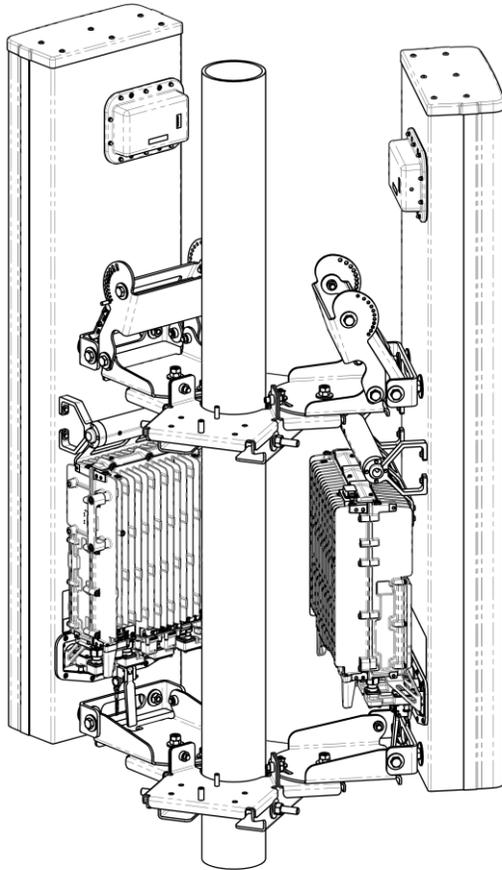
Step	Task
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- |   |   |
|---|---|
| 4 | Install the 1 <sup>st</sup> antenna/radio assembly on to both the Fixed Bracket using 2 pcs. each of the M10 hardware, and the Adjustable Bracket using 2 pcs. each of the M10 hardware as shown in Fig. 7. Torque M10 hardware to $25\pm 1.5$ N-M ( $18.5\pm 1.5$ ft-lbs.). If further alignment is required loosen the M12 hardware holding the mast brackets in place and adjust the alignment of the 1 <sup>st</sup> antenna/radio assembly in the direction specified by the site engineer. The orientation of the Antenna is normal to the sector unless specifically required otherwise. |
|---|---|

Step	Task
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- |   |  |
|---|--|
| 5 | Once properly aligned torque M12 clamp hardware to $54\pm 2.5$ N-m ( $40\pm 2$ ft-lbs.). |
| 6 | Completed installation with 0° MDT (Mechanical Tilt) should appear as shown in Fig. 8.   |

Fig.9: Two (2) Antenna/Radio Assemblies on Fixed and Adjustable Dual Mount Brackets – Downtilt Setup (ISO View)



Step	Task
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- |   |  |
|---|--|
| 7 | Install the 2 <sup>nd</sup> additional Antenna/Radio assembly in an identical manner. The installation should appear as shown in Fig. 9. |
|---|--|

**Fig.10: How to Assemble Adjustable Bracket for Upright Orientation**

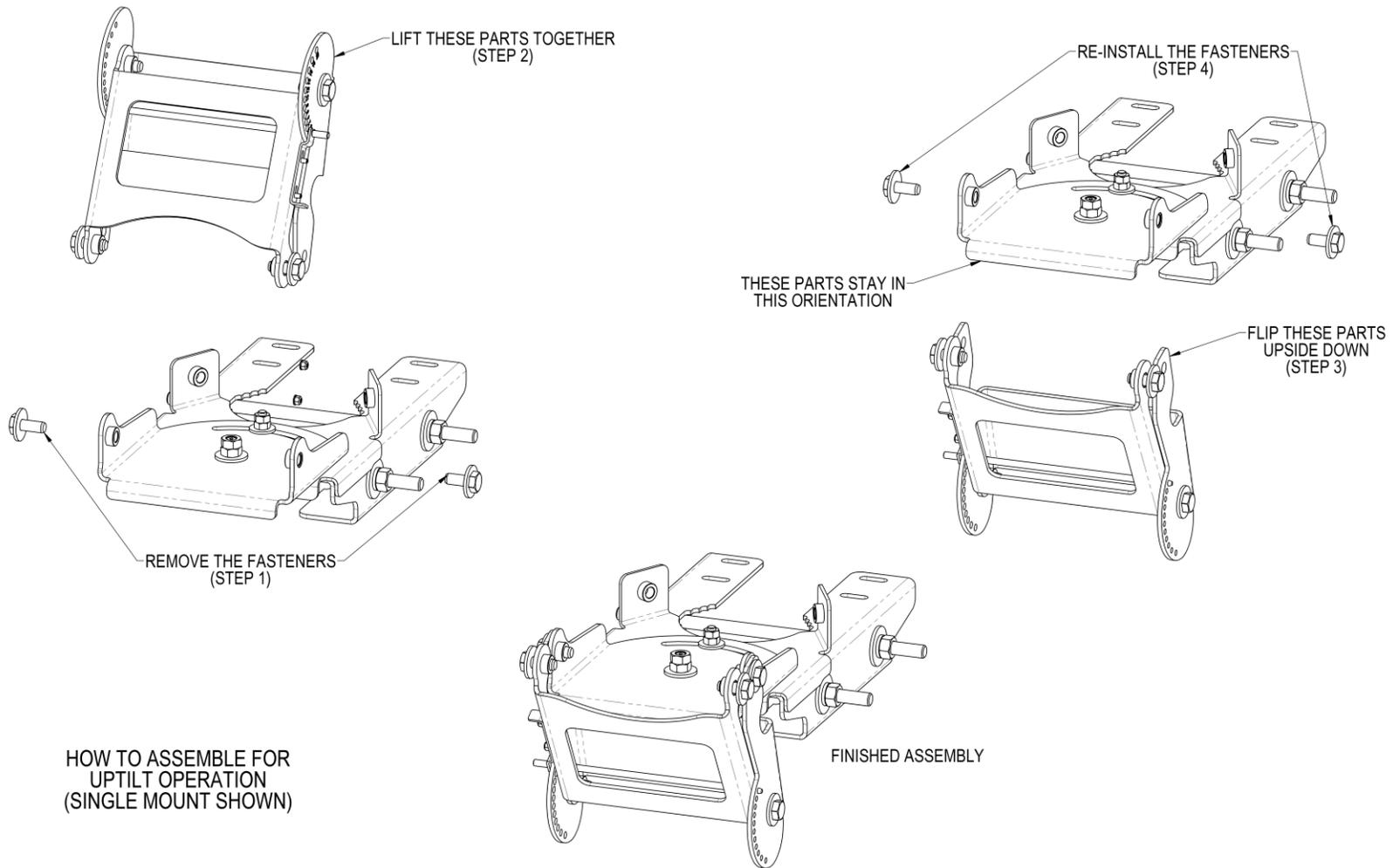


Fig. 11: Spacing Between Fixed and Adjustable Brackets – Uptilt Setup

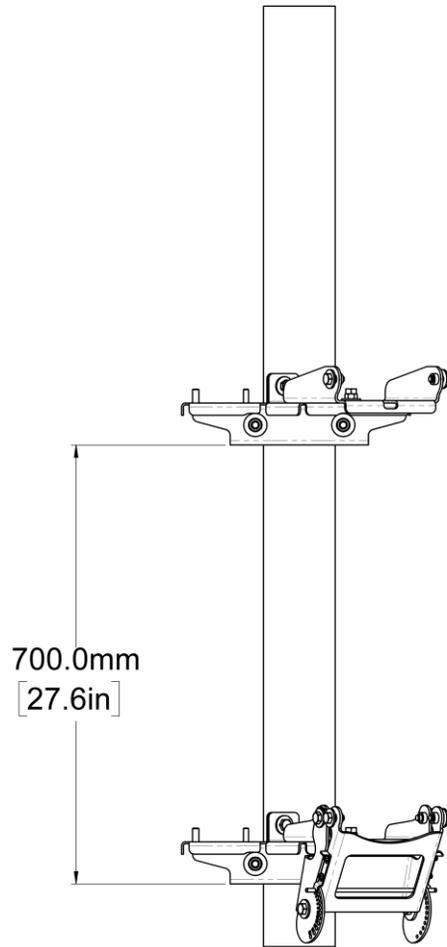
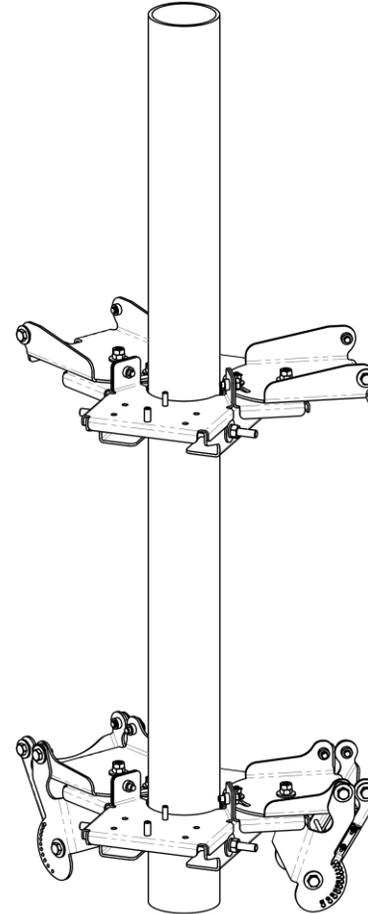
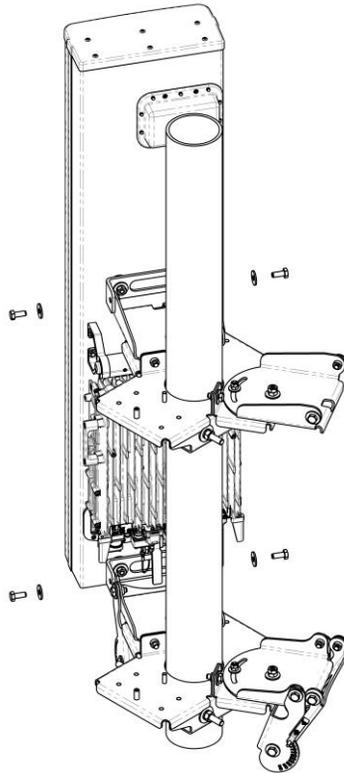


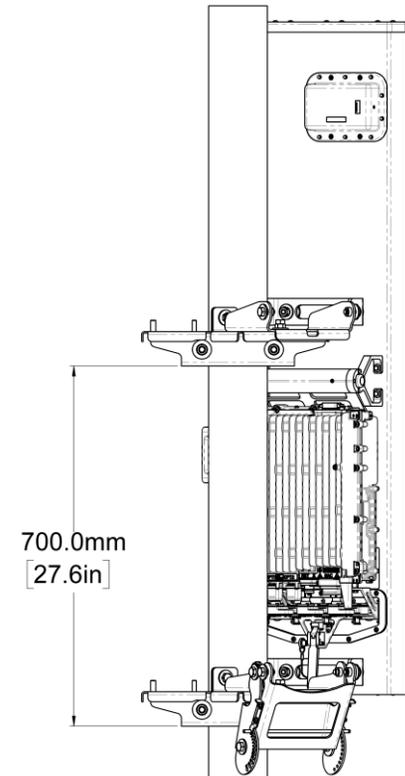
Fig. 12: Orientation of Fixed and Adjustable Brackets – Uptilt Setup



**Fig.13: Installation of Antenna on Fixed and Adjustable Brackets – Uptilt Setup (ISO View)**



**Fig.14: Installation of Antenna on Fixed and Adjustable Brackets – Uptilt Setup (Side View)**



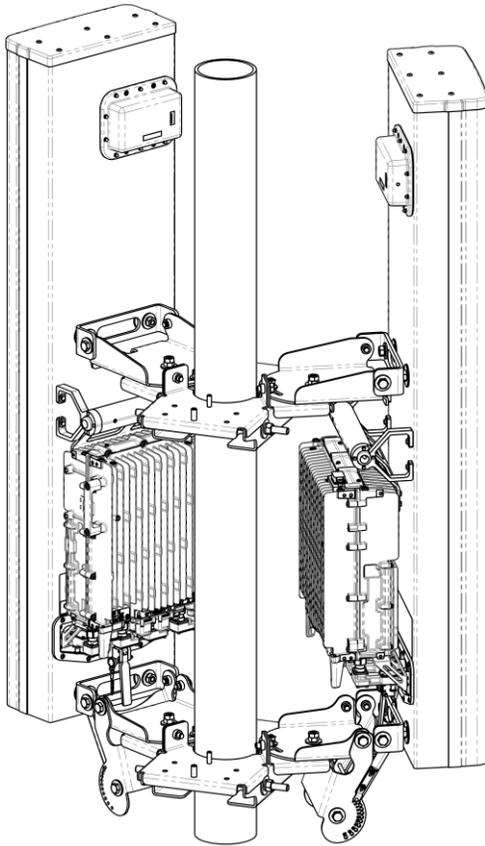
Step	Task
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- |   |  |
|---|--|
| 4 | Install the antenna/radio assembly on to both the Fixed Bracket using 2 pcs. each of the M10 hardware, and the Adjustable Bracket using 2 pcs. each of the M10 hardware as shown in Fig. 13. Torque M10 hardware to $25\pm 1.5$ N-M ( $18.5\pm 1.5$ ft-lbs.). If further alignment is required loosen the M12 hardware holding the mast brackets in place and adjust the alignment of the antenna/radio assembly in the direction specified by the site engineer. The orientation of the Antenna is normal to the sector unless specifically required otherwise. |
|---|--|

Step	Task
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- |   |  |
|---|--|
| 5 | Once properly aligned torque M12 clamp hardware to $54\pm 2.5$ N-M ( $40\pm 2$ ft-lbs.).       |
| 6 | Completed installation with $0^\circ$ MDT (Mechanical Tilt) should appear as shown in Fig. 14. |

Fig. 15 - Two (2) Antenna/Radio Assemblies on Fixed and Adjustable Dual Mount Brackets – Uptilt Setup (ISO View)

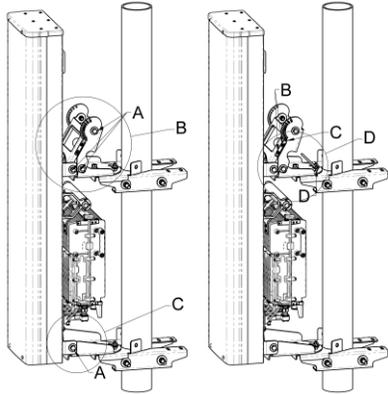


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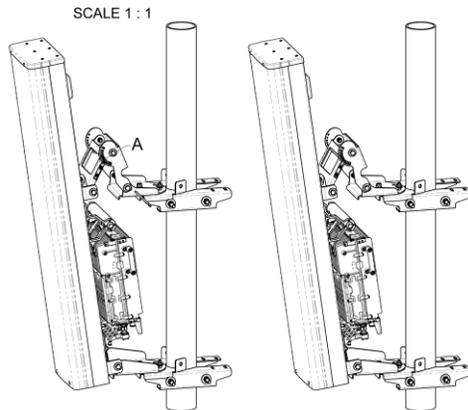
**Step Task**

- 7 Install the 2<sup>nd</sup> additional Antenna/Radio assembly in an identical manner. The installation should appear as shown in Fig. 15.
-

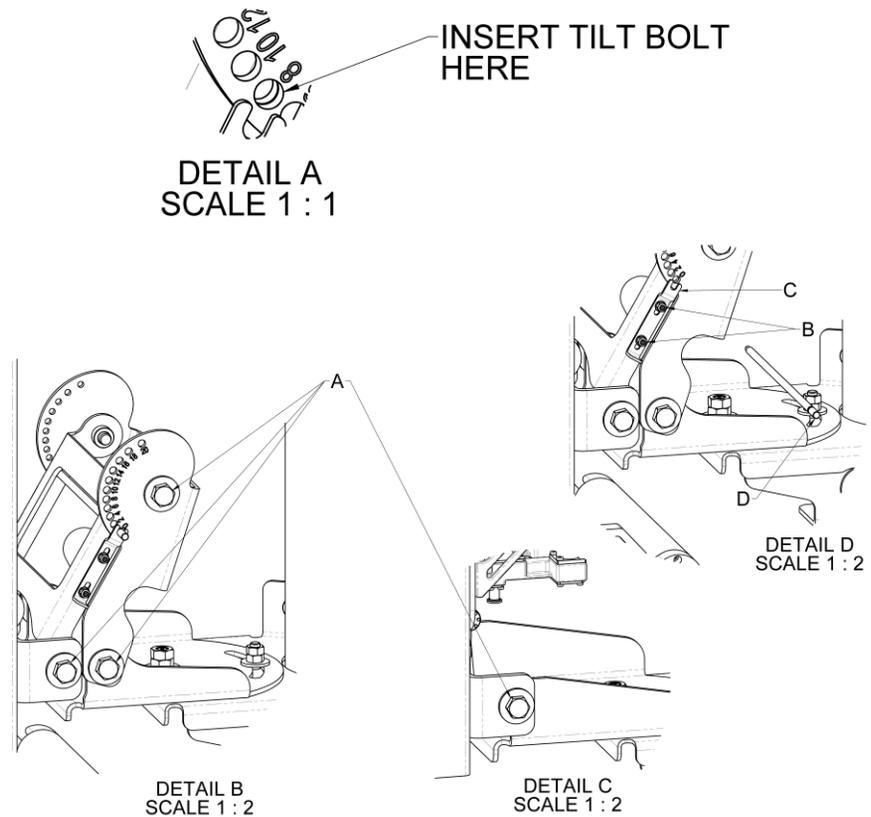
**Fig. 16: Begin Antenna/Radio MDT Adjustment**



**Fig. 18: Finalize Antenna/Radio MDT Adjustment (Example Set to 8° MDT)**



**Fig. 17: MDT Adjustment Details A, B, C and D**



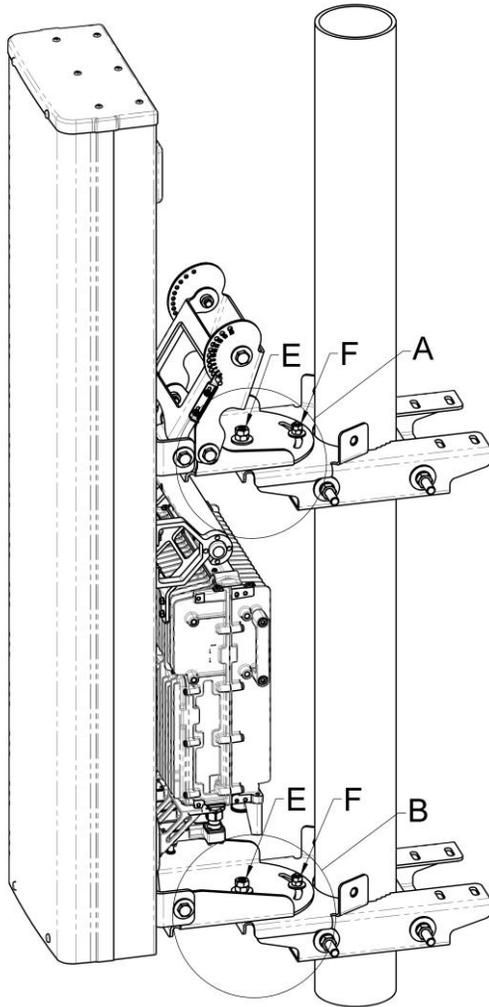
**Step Task**

- 8 Perform Steps 8 thru 11 on one antenna/radio assembly at a time. At the 0° MDT (Mechanical Tilt) position, loosen all fasteners labeled 'A', on both sides of the brackets (Fig. 16). Repeat for individually for the 2<sup>nd</sup> antenna/radio assembly.

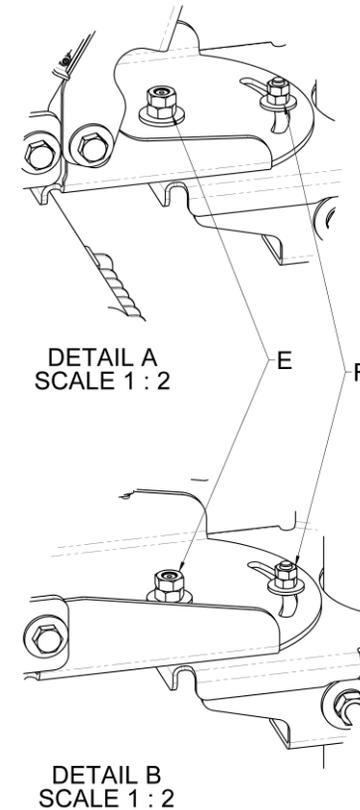
**Step Task**

- 9 Loosen two nuts labeled 'B', slide back the latch 'C', support the antenna and remove the tilt bolt 'D' (Fig. 16).
- 10 Allow the antenna to move such that the hole designated '8' (8° MDT) lines up with the mating hole immediately behind (Fig. 17).
- 11 Insert the tilt bolt all the way, slide the latch up to engage with the tilt bolt (Fig. 18), and tighten the two nuts to a torque of 2.5±0.2 N-M (2.0±0.2 ft-lbs.). Then tighten the fasteners loosened in step 8 to a torque of 25.0±1.5 N-M (18.5±1.5 ft-lbs.).

**Fig. 19: Begin Antenna/Radio Swivel Adjustment**



**Fig. 20: Swivel Adjustment (Detail A and Detail B)**



Step	Task
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- |    |   |
|----|---|
| 12 | To adjust the azimuth direction, on one antenna/radio assembly at a time, loosen the four M10 nuts labeled 'E,' and the four M8 nuts labeled "F." Simply rotate the antenna to the desired position and tighten the four M8 nuts to a torque of $9.5 \pm 0.5$ N-M ( $18.5 \pm 1.5$ ft-lbs.). Then tighten the four M10 nuts to a torque of $25.0 \pm 1.5$ N-M ( $18.5 \pm 1.5$ ft-lbs.). This can be done at any MDT setting. Repeat as necessary for the 2 <sup>nd</sup> antenna/radio assembly. |
|----|---|