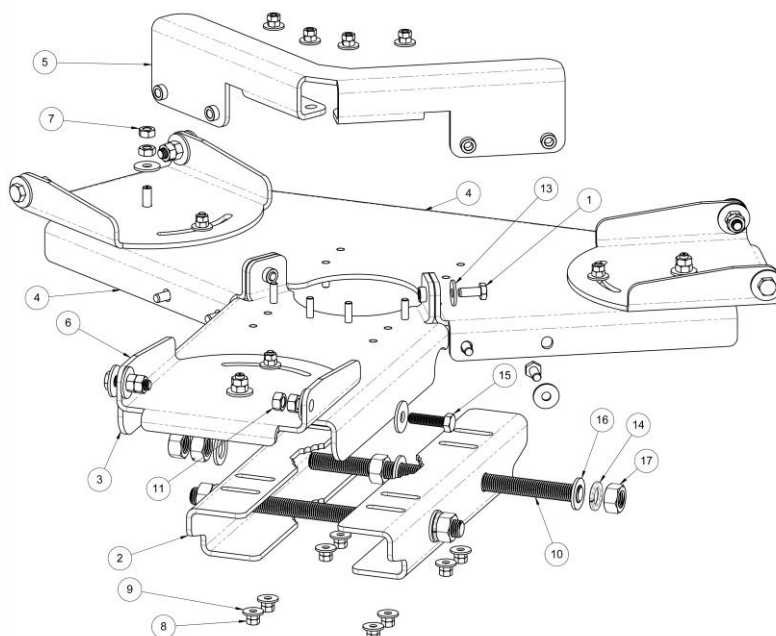


**DISCLAIMER:**

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. Communication Components Antennas Inc. disclaims any liability or responsibility for the results of improper or unsafe installation.

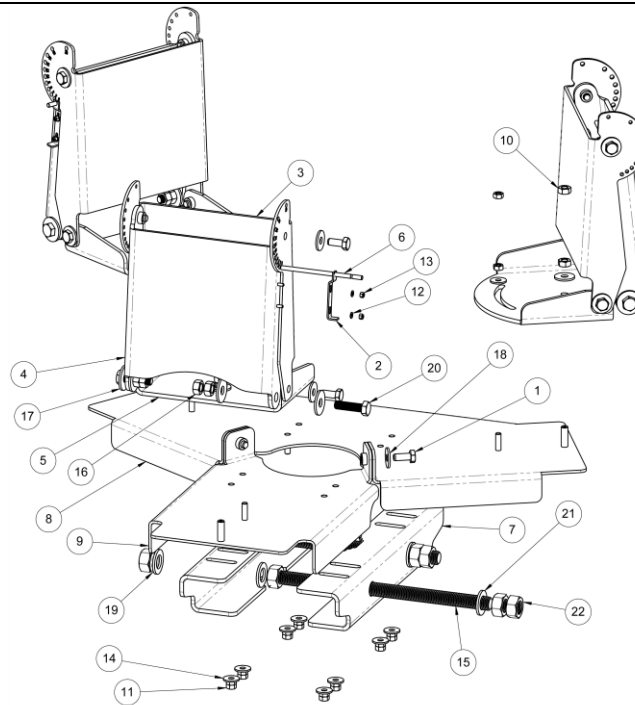


**Fig. 1: Triple Swiveling Mechanical Tilt (MT) Fixed Bracket BOM**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	6	SCREW, HEX, CAP, M10X1.5, 25L, ISO 4017, SS A4-70, NYLON PATCH	10	2	THREADED ROD, M12X1.75, 300L, DIN 976, SS A2-70
2	2	MAST CLAMP, MBK-49	11	12	NUT, HEX, M12X1.75, DIN 934, SS A4-70, 19MM HEX
3	1	SWIVEL BRACKET, FIXED, 1 SECTOR, MBK-49	12	12	WASHER, FLAT, M12, 37 OD, MIN 2.3 THK, DIN 9021, SS A2-70
4	1	SWIVEL BRACKET, FIXED, 2 SECTOR, MBK-49	13	9	WASHER, FLAT, M10, 30 OD, MIN 2.3 THK, DIN 9021, SS A2-70
5	1	GUSSET, FIXED BRACKET, MBK-49	14	2	WASHER, SPLIT LOCK, M12, DIN 127B, STEEL, SS A2-70
6	3	SWIVEL PLATE, FIXED BRACKET, MBK-49	15	6	SCREW, HEX, CAP, M12X1.75, 45L, DIN 933, ISO 4017, 18-8 SS
7	6	NUT, HEX, M10X1.5, DIN 934, 18-8 SS, 17MM HEX	16	6	WASHER, FLAT, M20, 37 OD, MIN 3.3 THK, DIN 9021/ISO 7093, A2-70
8	30	NUT, HEX, M8-1.25, SS, DIN 934, 13MM HEX	17	8	NUT, HEX, M20X2.5, A4-70, DIN 934/ISO 4032
9	15	WASHER, FL, M8, ISO 7093, A2 SS, OVERSIZE			

**Step Task**

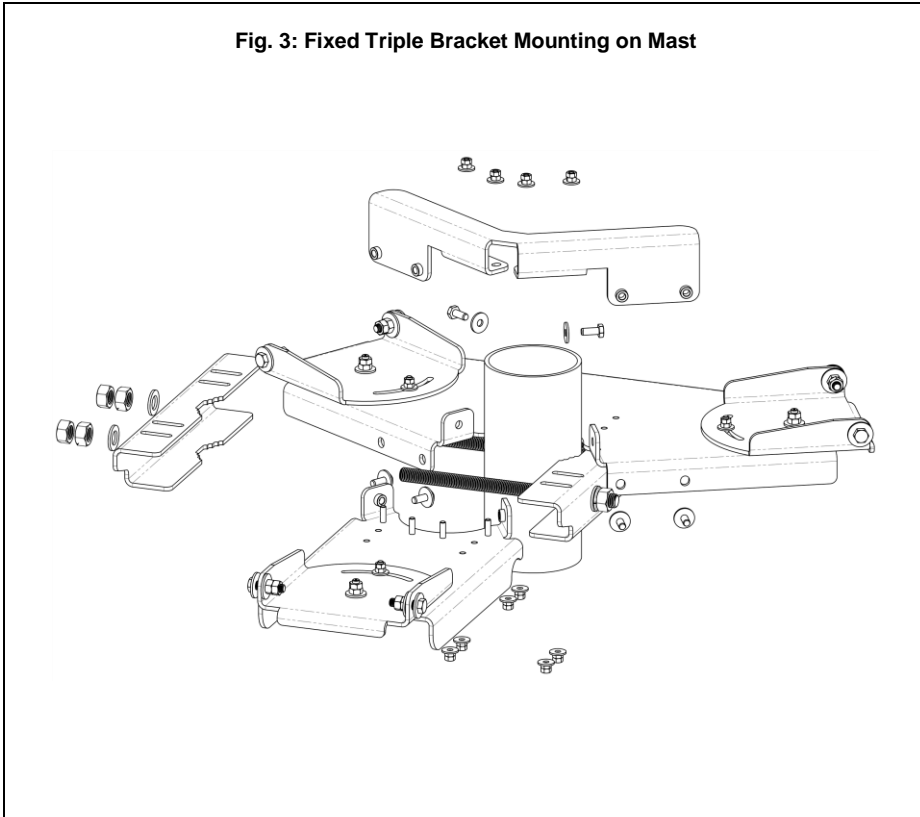
- 1 The Triple Mounting Kit is intended for antennas with a pitch of 1300 mm between hinge brackets. It will provide mechanical tilt capability of 0°-20°, and azimuth swiveling of ±30°. The Fixed Bracket (Fig. 1) only provides swiveling, while the Adjustable Bracket (Fig. 2) provides tilt and swiveling. The Brackets will arrive assembled for the Downtilt Setup but the hardware will not be torqued. Apply an anti-seize lubricant conforming to MIL-A-907E to the M20 threaded rods before tightening.



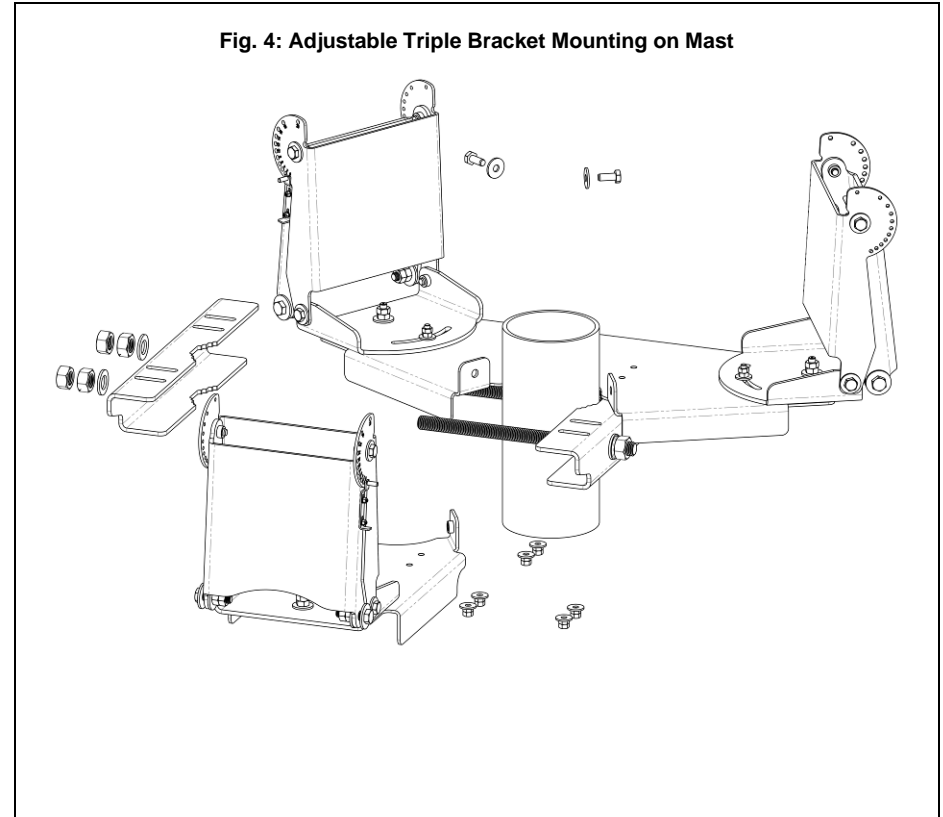
**Fig. 2: Triple Swiveling Mechanical Tilt (MT) Adjustable Bracket BOM**

ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
1	14	SCREW, HEX, CAP, M10X1.5, 25L, ISO 4017, SS A4-70, NYLON PATCH	12	6	WASHER, M4, 4.3ID, 9OD, 0.8TH, SS, DIN 125, ISO 7089
2	3	LATCH, DOWNTILT BOLT, MBK-19	13	6	NUT, HEX, M4-0.7, NYL LK, SS
3	3	TILT BRACKET, ADJUSTABLE, REAR, MBK-38	14	11	WASHER, FL, M8, ISO 7093, A2 SS, OVERSIZE
4	3	TILT BRACKET, ADJUSTABLE, FRONT, MBK-38	15	2	THREADED ROD, M20X2.5 X 332L, A2-70, DIN 976/ISO7412
5	3	SWIVEL PLATE, ADJUSTABLE BRACKET, MBK-49	16	12	NUT, HEX, M12X1.75, DIN 934, SS A4-70, 19MM HEX
6	3	BOLT, DOWNTILT BRACKET, MBK-38	17	12	WASHER, FLAT, M12, 37 OD, MIN 2.3 THK, DIN 9021, SS A2-70
7	2	MAST CLAMP, MBK-49	18	17	WASHER, FLAT, M10, 30 OD, MIN 2.3 THK, DIN 9021, SS A2-70
8	1	SWIVEL BRACKET, TILTING, 2 SECTOR, MBK-49	19	2	WASHER, SPLIT LOCK, M20, A2-70, DIN 127B/ISO-7090
9	1	SWIVEL BRACKET, TILTING, 1 SECTOR, MBK-49	20	6	SCREW, HEX, CAP, M12X1.75, 45L, DIN 933, ISO 4017, 18-8 SS
10	6	NUT, HEX, M10X1.5, DIN 934, 18-8 SS, 17MM HEX	21	6	WASHER, FLAT, M20, 37 OD, MIN 3.3 THK, DIN 9021/ISO7093, A2-70
11	22	NUT, HEX, M8-1.25, SS, DIN 934, 13MM HEX	22	8	NUT, HEX, M20X2.5, A4-70, DIN 934/ISO 4032

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



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



Step	Task
2	Apply an anti-seize lubricant conforming to MIL-A-907E to the M20 threaded rods before tightening. Attach the Fixed Triple Mount Bracket by separating one Mast Clamp 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. 5. Reinstall the Mast Clamp and the associated hardware. Adjust the M20 threaded rods to balance the protrusion on either side and tighten the M20 nuts to a torque of $150 \pm 5.0$ N-M ( $111 \pm 3.5$ 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	Apply an anti-seize lubricant conforming to MIL-A-907E to the M20 threaded rods before tightening. Attach the Adjustable Triple 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, at a height of 1300 mm above the Fixed Bracket (see Fig. 5) and also pointing in the same direction as shown in Fig. 6. Reinstall the Clamp Bracket and associated hardware. Adjust the M20 threaded rods to balance the protrusion on either side and tighten the M20 nuts to a torque of $150 \pm 5.0$ N-M ( $111 \pm 3.5$ 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 Triple Mount Brackets – Downtilt Setup

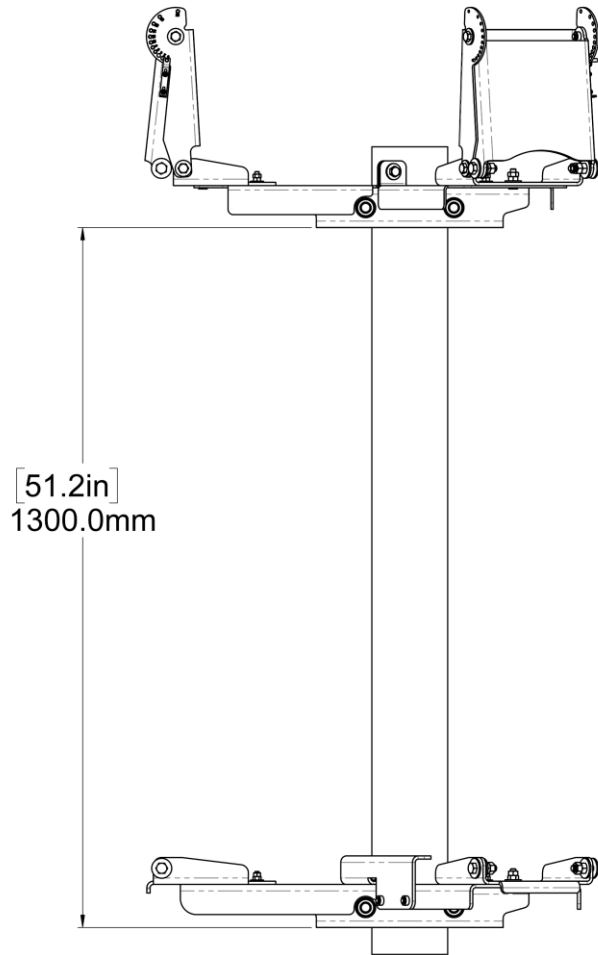
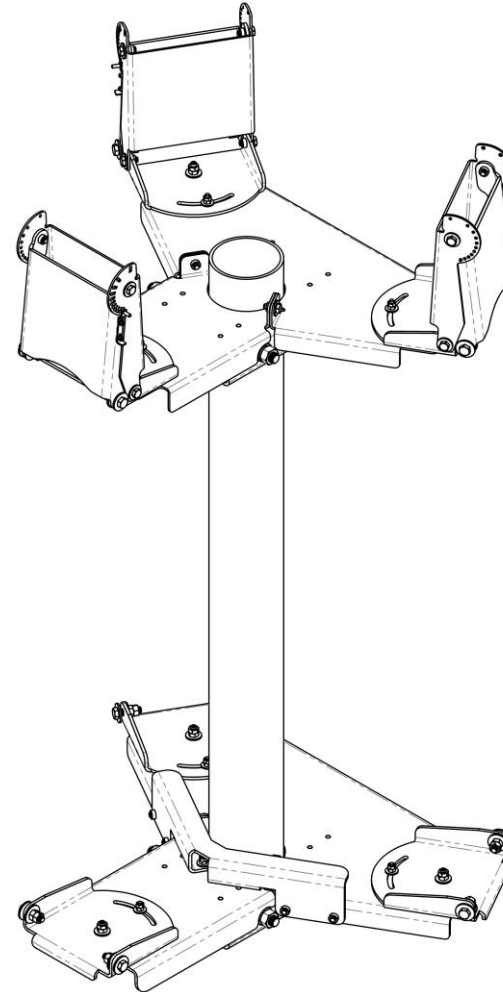
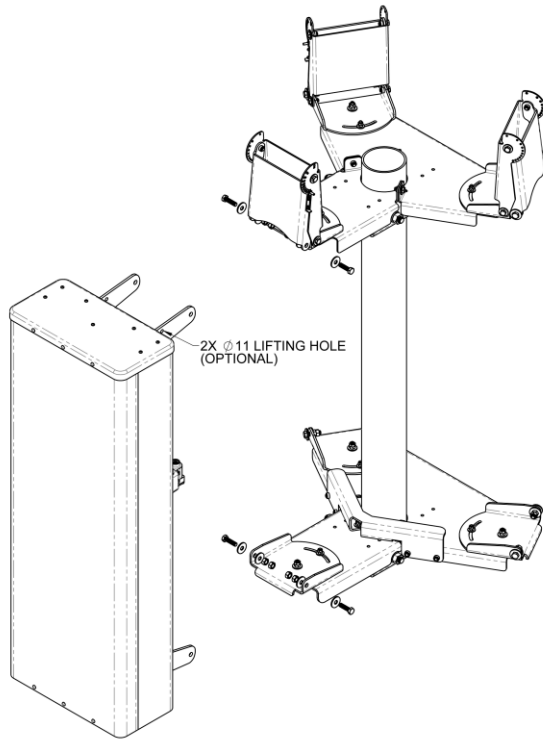


Fig. 6: Orientation of Fixed and Adjustable Triple Mount Brackets – Downtilt Setup

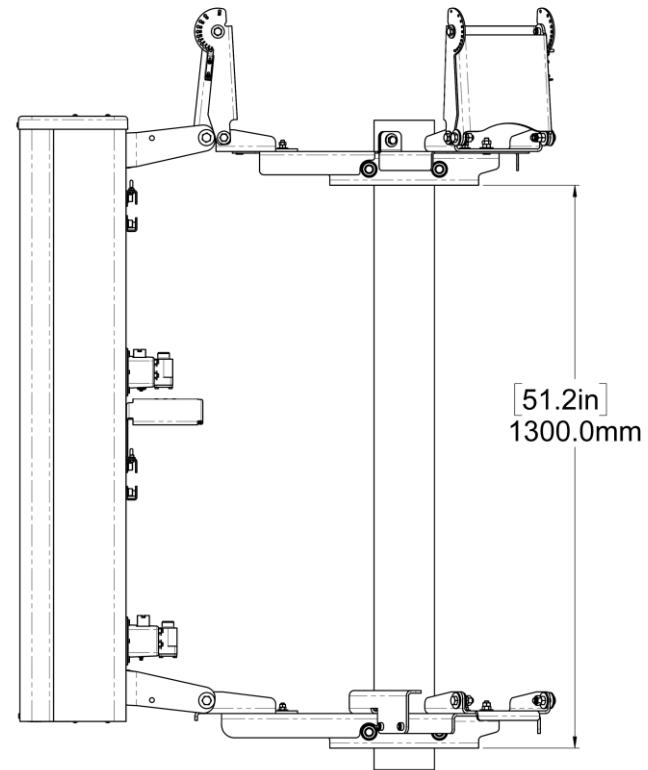


## Mounting Kit Installation Guide (MBK-49)

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

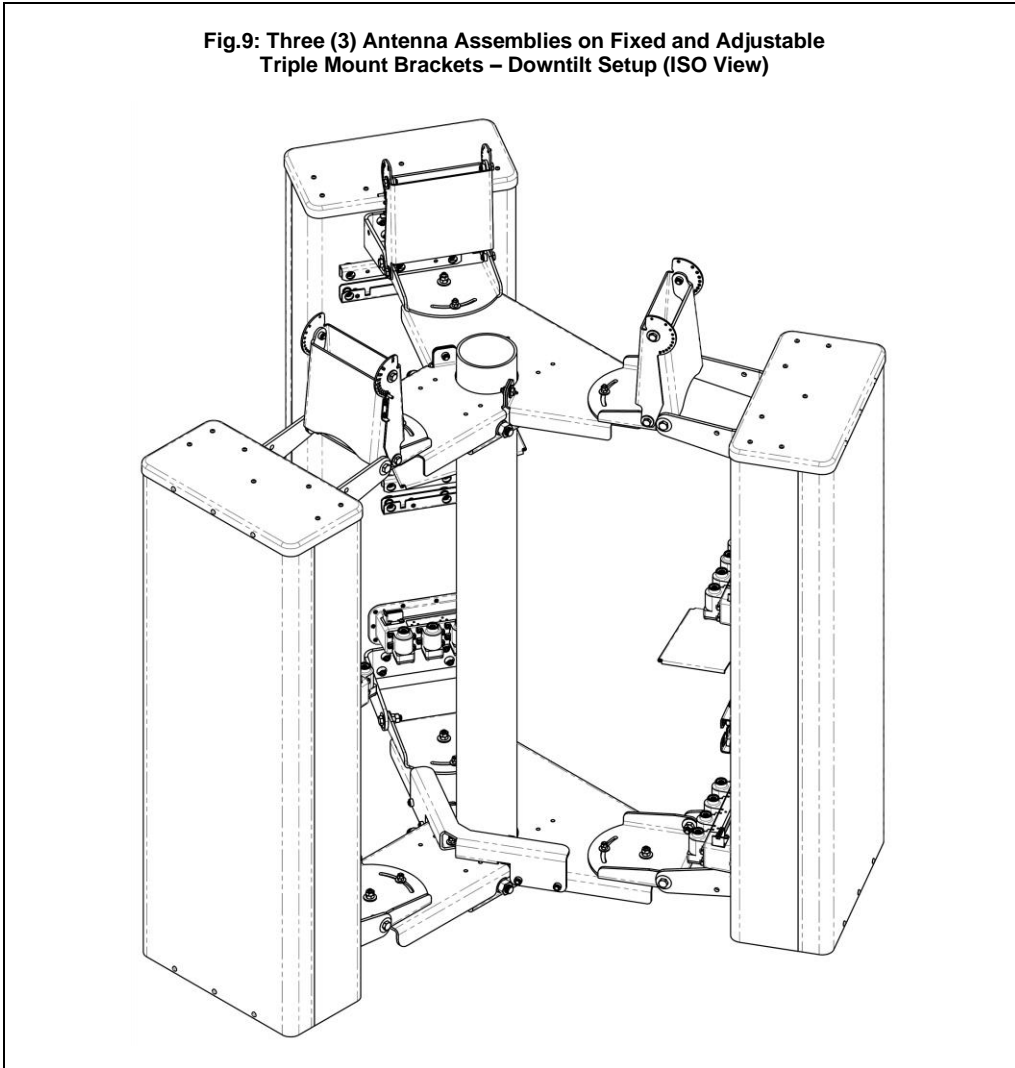


**Fig.8: Installation of 1<sup>st</sup> Antenna Assembly on Fixed and Adjustable Triple Mount Brackets – Downtilt Setup (Side View)**



Step	Task
4	Install the 1 <sup>st</sup> antenna on to both Brackets using the M12 hardware provided as shown in Fig. 7. Torque M12 hardware to 54±2.5 N-M (40±2 ft-lbs.). If further alignment is required loosen the M20 hardware while supporting the mast brackets in place and adjust the alignment of the 1 <sup>st</sup> antenna in the direction specified by the site engineer. The orientation of the Antenna is normal to the sector unless specifically required otherwise.
5	Once properly aligned torque M20 clamp hardware to 150±5.0 N-M (111±3.5 ft-lbs.). Then tighten all M10 bolts and nuts to a torque of 25.0±1.5 N-M (18.5±1.5 ft-lbs.), and tighten the M8 nuts to a torque of 9.5±0.5 N-M (18.5±1.5 ft-lbs.).
6	Completed installation with 0° Mechanical Downtilt should appear as shown in Fig. 8.
7	Radios can now be installed following separate Radio installation guides.

**Fig.9: Three (3) Antenna Assemblies on Fixed and Adjustable Triple Mount Brackets – Downtilt Setup (ISO View)**



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**Step Task**

- 8 Install additional Antennas by repeating Steps 4-6.
-

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

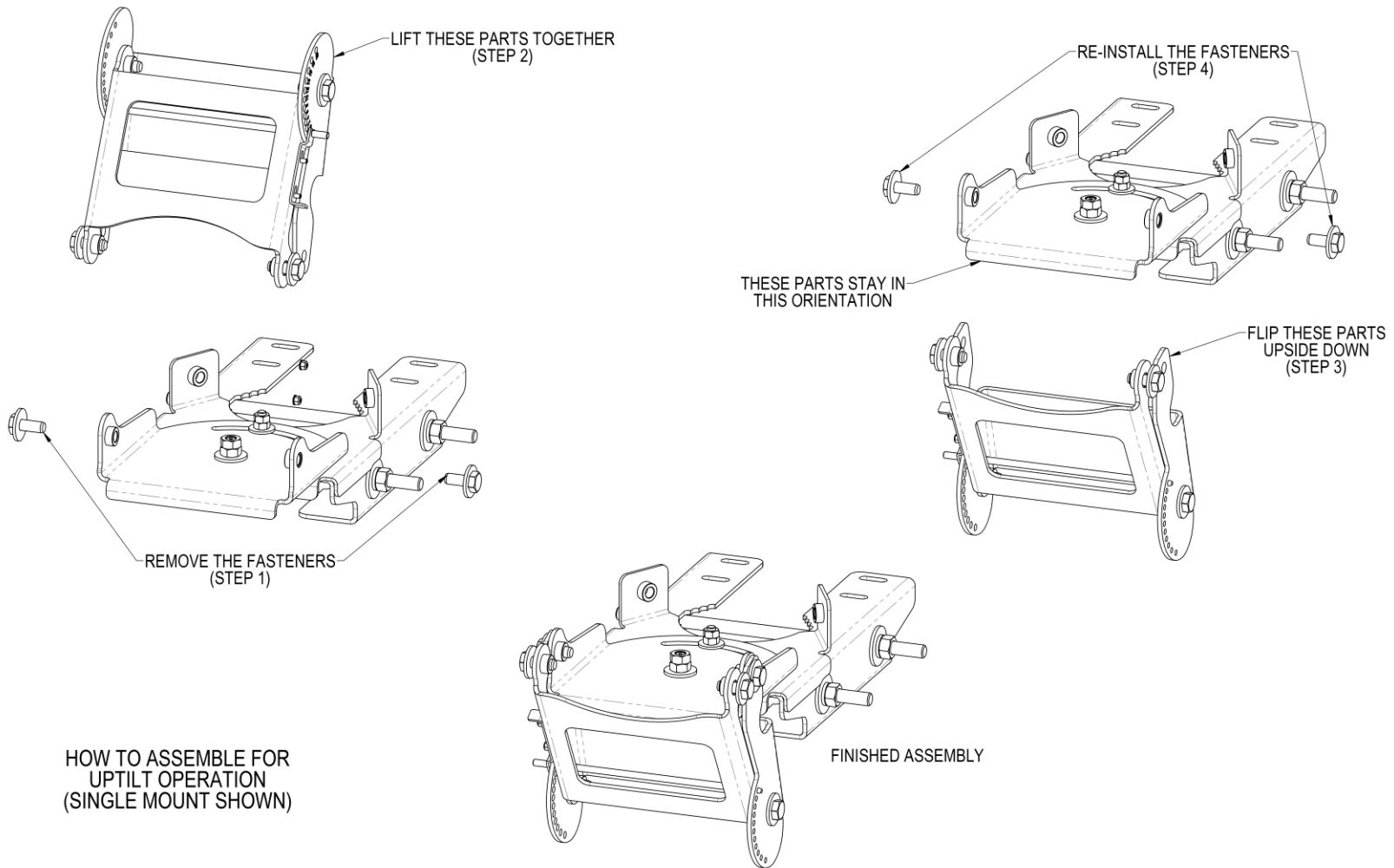




Fig. 11: Spacing Between Fixed and Adjustable Brackets – Uptilt Setup

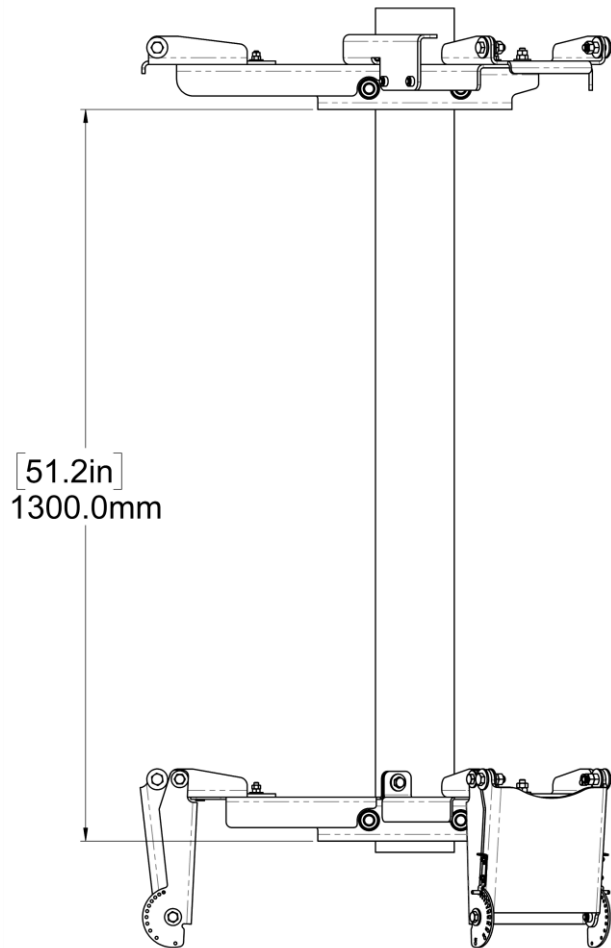
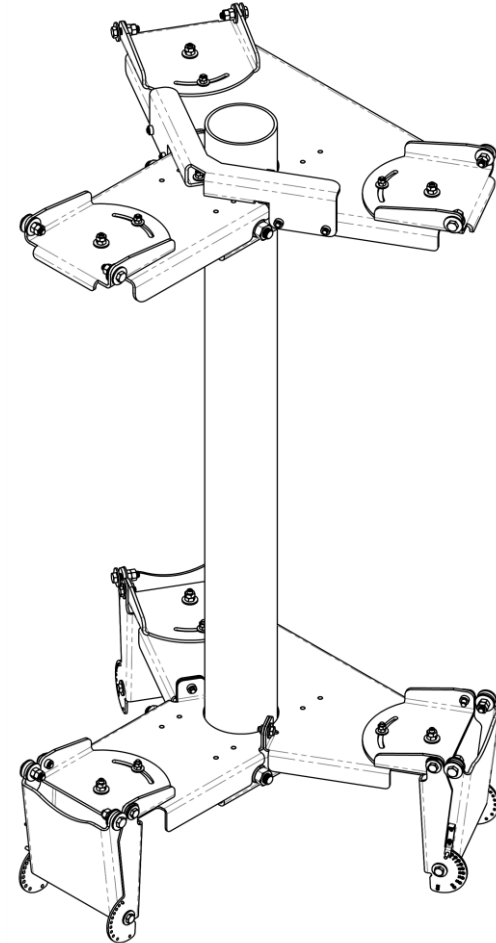
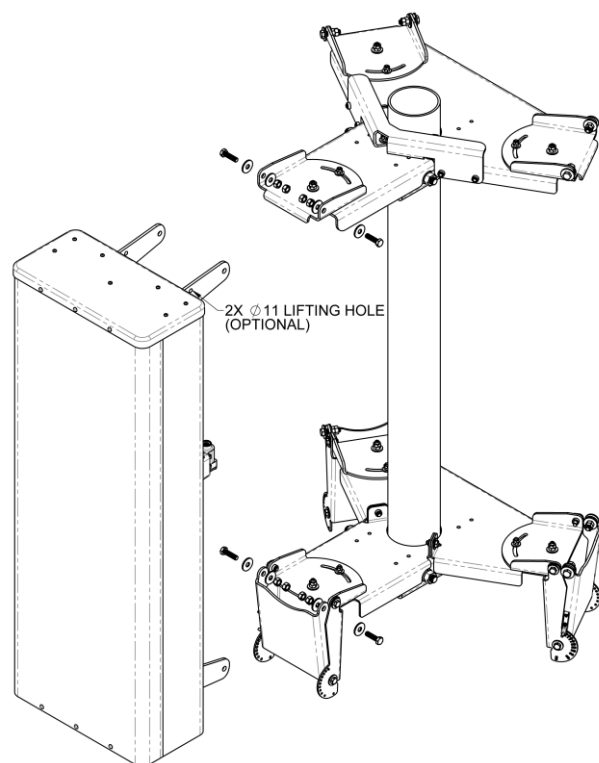


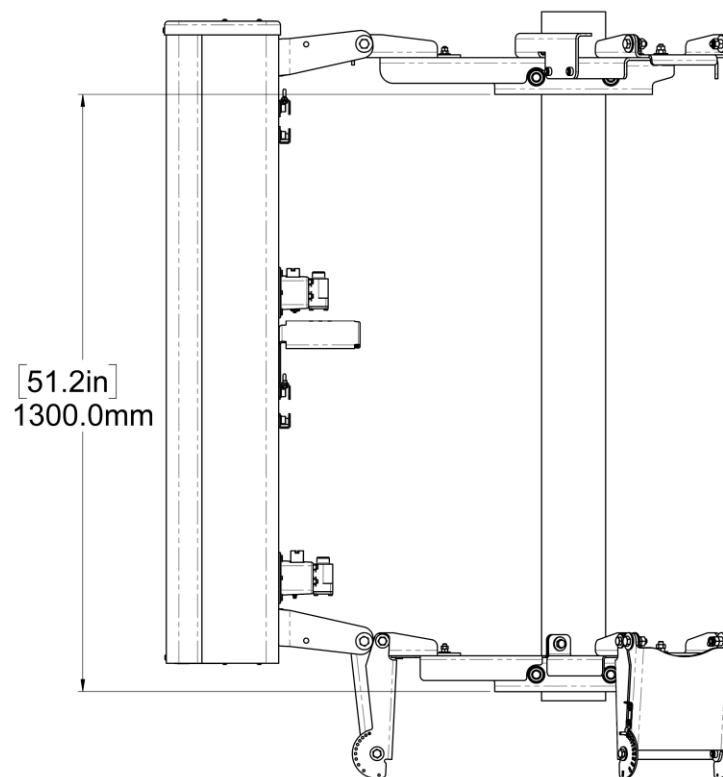
Fig. 12: Orientation of Fixed and Adjustable Brackets – Uptilt Setup



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

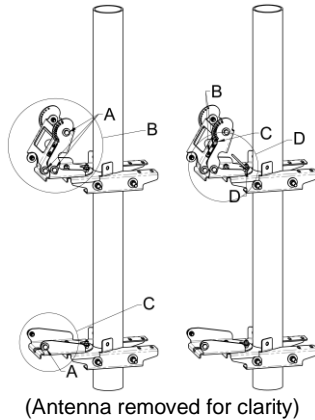


**Fig.14: Installation of Antenna on Fixed and Adjustable Brackets – Uptilt Setup (Side View)**

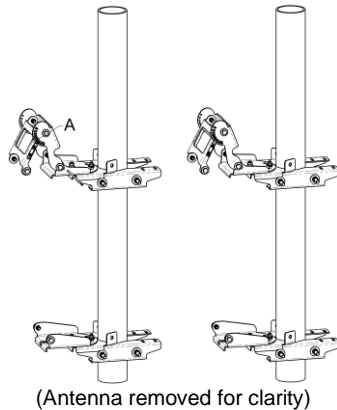


Step	Task
4	Install the antenna/radio assembly on to both Brackets using the M12 hardware provided as shown in Fig. 13. Torque M12 hardware to 54±2.5 N-m (40±2 ft-lbs.). If further alignment is required loosen the M20 hardware holding the mast brackets in place and adjust the alignment of the antenna/radio assembly in the direction specified by the site engineer. The orientation of the Antenna is normal to the sector unless specifically required otherwise.
5	Once properly aligned torque M20 clamp hardware to 150±5.0 N-M (111±3.5 ft-lbs.). Then tighten all M10 bolts and nuts to a torque of 25.0±1.5 N-M (18.5±1.5 ft-lbs.), and tighten the M8 nuts to a torque of 9.5±0.5 N-M (18.5±1.5 ft-lbs.).
6	Completed installation with 0° Mechanical Uptilt should appear as shown in Fig. 13.
7	Radios can now be installed following separate Radio installation guides.

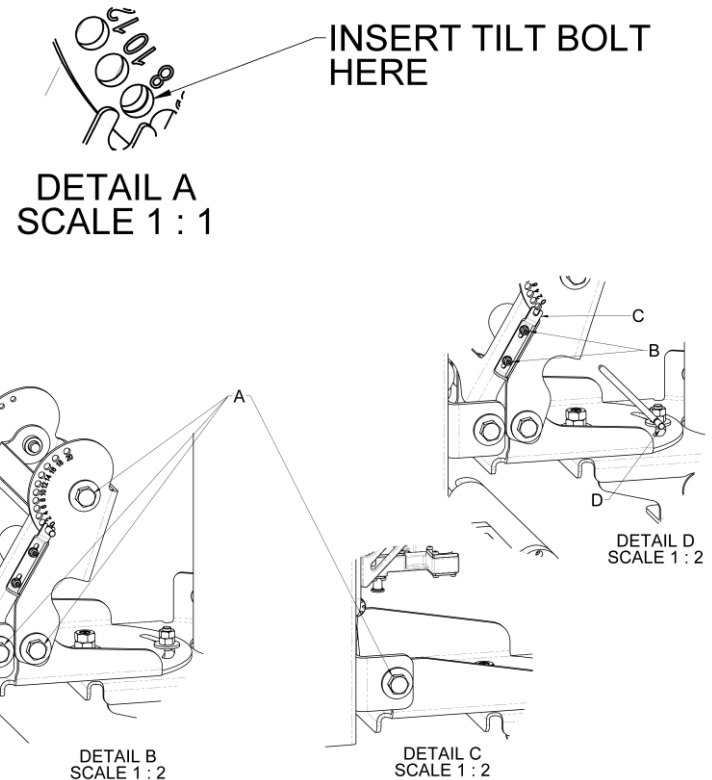
**Fig. 16: Begin Antenna Tilt Adjustment**



**Fig. 18: Begin Antenna Tilt Adjustment**

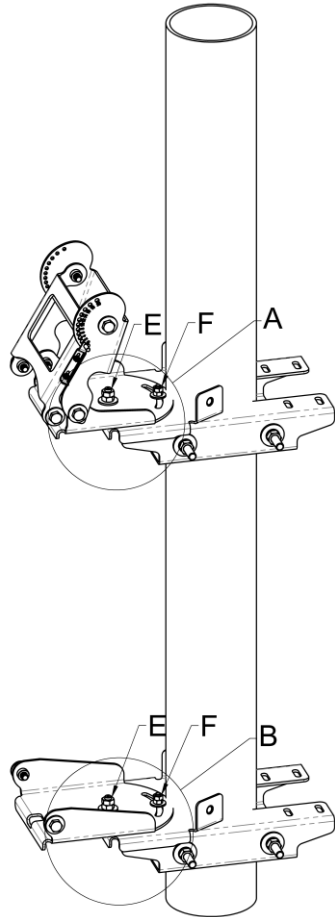


**Fig. 17: MDT Adjustment Details A, B, C and D**



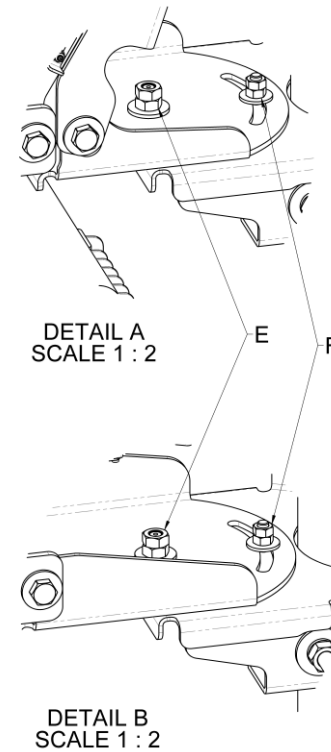
Step	Task
9	CAUTION! Properly support and control the antenna before making any adjustments. Perform Steps 9 thru 12 on one antenna at a time. At the 0° MDT (Mechanical Downtilt) position, loosen all fasteners labeled 'A', on both sides of the brackets (Fig. 16). Repeat individually for the 2 <sup>nd</sup> and 3 <sup>rd</sup> antenna/radio assemblies.
10	Loosen two nuts 'B', slide back the latch 'C', support the antenna and remove the downtilt bolt 'D' (Fig. 16).
11	Allow the antenna to move such that the hole designated '8' (8° MDT) lines up with the mating hole immediately behind (Fig. 17).
12	Insert the downtilt bolt all the way, slide the latch up to engage with the downtilt bolt (Fig. 17), and tighten the two nuts to a torque of 2.5±0.2 Nm (2.0±0.2 ft-lbs.). Then tighten the fasteners loosened in step 9 to their proper torque values.

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



(Antenna removed for clarity)

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



**Step Task**

- 13 To adjust the azimuth direction, on one antenna/radio assembly at a time, loosen the four M10 nuts 'E' and the four M8 nuts '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 tilt setting. Repeat as necessary for the other antenna assemblies.