



Alumast

Aluminium Lattice Mast System

Installation Manual

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Preface

SMC - **South Midlands Communications Ltd** was established in 1958 and initially specialised in antenna support masts, towers and HF antennas. SMC is now recognized globally as a specialist communications company.

Over the last 50 years the SMC product range has grown to include pneumatic telescopic masts, aluminium lattice masts, high-level photography solutions, Mil' specification antenna positioner's and two way radio products including GPS, AVLS and data transfer.

SMC are able to advise, design, supply and install mobile communications systems, from the simple to more complex and integrated networks.

Although every care is taken in the production of this publication it may contain technical inaccuracies or typographical errors. SMC may make improvements and or changes in the product detailed in this manual at any time without notice.

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Safety Information



ALWAYS follow the instructions within this manual.



WARNING: DO NOT install the mast in weather conditions that can cause injury or death.



WARNING: Ensure all equipment used to erect the Alumast is in good working order before erecting.



WARNING: Ensure the area in which the mast is to be erected is free of any overhead obstructions and power lines.

Recommended protective clothing & Equipment



Eye protection must be worn



Safety gloves must be worn



Protective footwear must be worn



Hard hats must be worn

FAILURE TO OBSERVE ANY OF THE WARNINGS IN THIS MANUAL MAY RESULT IN PERSONAL INJURY, DEATH, OR EQUIPMENT DAMAGE. SOUTH MIDLANDS COMMUNICATIONS LTD (SMC) ACCEPTS NO RESPONSIBILITY FOR IMPROPER USE OR USE NOT COVERED IN THIS MANUAL.

Description

Alumast is a lattice aluminium guyed mast system, designed for ultimate flexibility in manufacture and installation.

The System comprises high quality extrusions in high grade 6082TF aluminium alloy, using stainless steel bolts and all galvanised steel guys and guy fittings. The design allows low volume, high-density packing specifications for ease of shipping and inland transportation, especially for remote sites.

Specification

Face Width		Section Length		Max Guyed Height		Section Weight	
mm	inch	mm	feet	m	feet	Kg	lb
375	14.75	3050	10	61	200	11.8	26
Materials				Finish			
High grade Aluminium Alloy with St/St Fixings				Natural / Painted to Specification			

Table 1: Specification

Installation Instructions

Ground Preparation



Ensure the ground is suitable for the application. If unsure a site survey by a qualified contractor is required.

1. Prepare concrete foundation for the mast; refer to drawing supplied with mast for dimensions. Ensure that the surface of the concrete is level in both directions. The foundation bolts should be positioned accurately using base as a template, bolts should fit as closely as possible into base corners.
2. Prepare concrete foundations for the hairpin anchors at 120° in plan to mast base and to distance stated on drawing supplied with mast.

Note: It is important to allow the concrete to harden before erecting the mast.

Alumast Base Options

Alumast Fixed Base

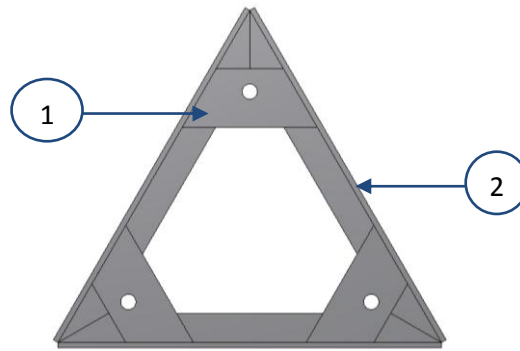


Figure 1: Alumast Fixed Base

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	290200804	ALUMAST BASE CLAMPING PLATE	3
2	300100500	ALUMAST TRIANGULAR PLATE	1
3	495048504	RAG BOLT M16x200 MS GALVANISED	3

Table 2: Alumast Fixed Base Parts List

Alumast Hinged Base

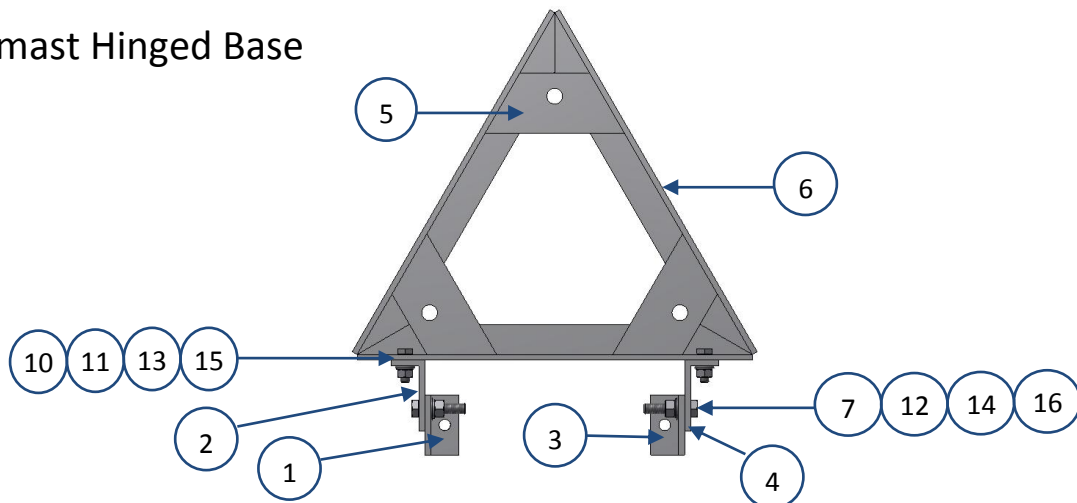


Figure 2: Alumast Hinged Base

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	290102600	L/H HINGE PIVOT	1
2	290102700	L/H BASE HINGE PIVOT	1
3	290102800	R/H HINGE PIVOT	1
4	290102900	R/H BASE HINGE PIVOT	1
5	290200804	ALUMAST BASE CLAMPING PLATE	3
6	300100500	ALUMAST TRIANGULAR BASE	1
7	407041600	BOLT M12x50 HX HD ST/ST	2
8	495042404	RAGBOLT M12x100 MS GALVANISED	2
9	495048504	RAGBOLT M16x200 MS GALVANISED	3
10	507036200	SCREW M10x30 HX HD ST/ST	4
11	607011000	NUT FULL M10 ST/ST	4
12	607012000	NUT FULL M12 ST/ST	2
13	681201000	WASHER M10 FLAT ST/ST	10
14	681201200	WASHER M12 FLAT ST/ST	6
15	691201000	WASHER M10 S/COIL SPRING	4
16	691201200	WASHER M12 S/COIL SPRING	2

Table 3: Alumast Hinged Base Parts List

Mast Section Assembly

1. Assemble the leg sections with the yellow leg (colour coded at the top end) to the left of the red leg and the blue leg to the right, ensuring the diagonals are fitted on the outside starting at the base (plain end), see Figure 1. Attach in position with steps, securing loosely using M6 bolts, nuts and washers. Tighten all bolts securely.
2. Continue to assemble remaining sections as in step 1.

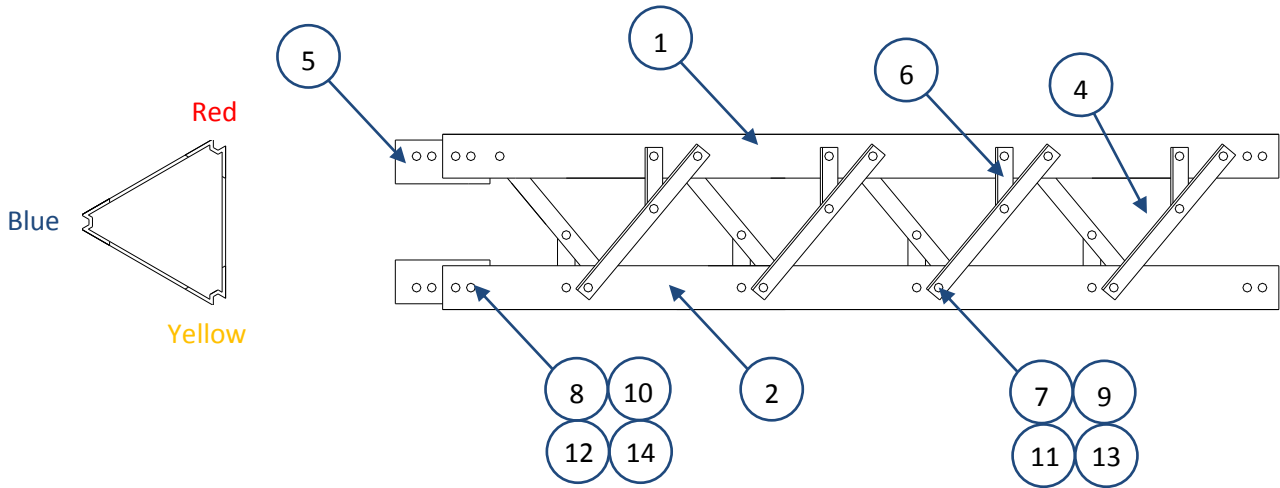


Figure 3: Alumast 10' Section

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	290102000	ALUMAST MAIN LEG RED	1
2	290102100	ALUMAST MAIN LEG YELLOW	1
3	290102200	ALUMAST LEG BLUE (not shown)	1
4	290102300	ALUMAST DIAGONAL	24
5	290102400	ALUMAST COUPLER	3
6	290102500	ALUMAST STEP	8
7	507026000	SCREW M6x20 HX HD ST/ST	47
8	507036100	SCREW M10x25 HX HD ST/ST	27
9	607010600	NUT FULL M6 ST/ST	47
10	607011000	NUT FULL M10 ST/ST	27
11	681200600	WASHER M6 FLAT ST/ST	47
12	681201000	WASHER M10 FLAT ST/ST	27
13	691200600	WASHER M6 S/COIL SPRING	47
14	691201000	WASHER M10 S/COIL SPRING	27

Table 4: Alumast 10' Parts List

Top Mast Plate Fitting

1. Assemble support rails to mast legs using M10 bolts.
2. Attach top plate to support rails using M6 bolts.
3. Assemble top plate tube clamps to top plate using M8 bolts.

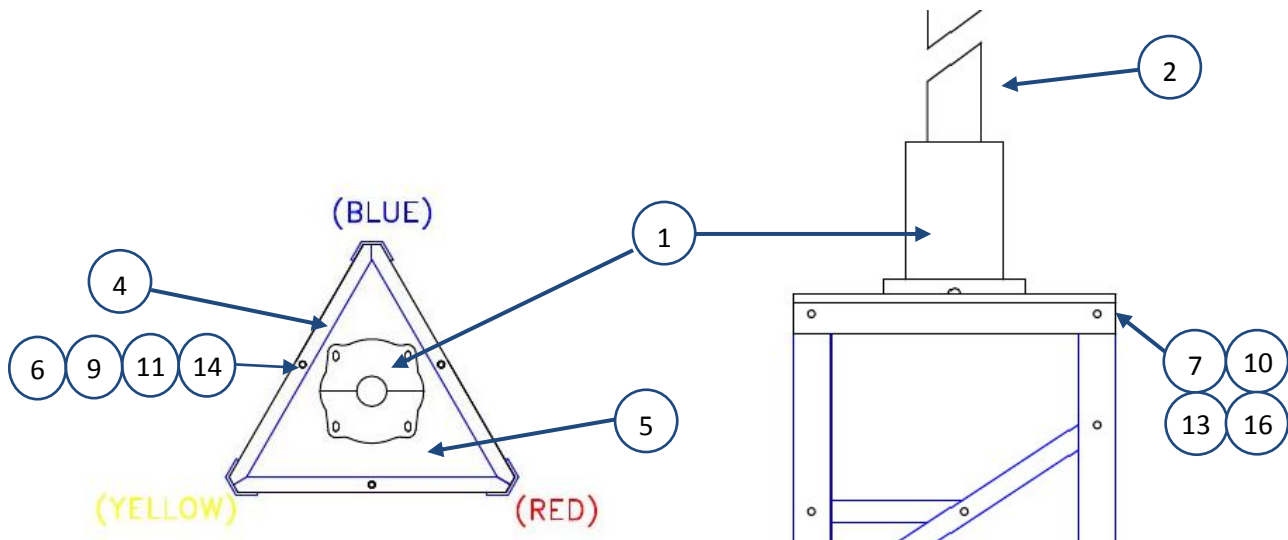


Figure 4: Alumast Head Plate TP-1

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	050038500	MAST TUBE CLAMP MODIFIED	1
2	102204969	ALUMINIUM TUBE	1.5M
3	283277800	TUBE INSERT (Not Shown)	1
4	290103100	ALUMAST SUPPORT RAIL	3
5	290103200	ALUMAST ROTOR MOUNTING PLATE	1
6	507026000	SCREW M6x20 HX HD ST/ST	3
7	507036100	SCREW M10x25 HX HD ST/ST	6
8	607000800	NUT FULL M8 ST/ST	4
9	607010600	NUT FULL M6 ST/ST	3
10	607011000	NUT FULL M10 ST/ST	6
11	681200600	WASHER M6 FLAT ST/ST	3
12	681200800	WASHER M8 FLAT ST/ST	4
13	681201000	WASHER M10 FLAT ST/ST	6
14	691200600	WASHER M6 S/COIL ST/ST	3
15	691200800	WASHER M8 S/COIL ST/ST	4
16	691201000	WASHER M10 S/COIL ST/ST	6

Table 5: Alumast Head Plate TP-1 Parts List

Rotor Mount Assembly Fitting

1. Fit one rotor support rail, coded blue, to corresponding blue mast leg and two remaining support rails to mast legs using M6 bolts.

Note: To fit support rails on all three sides it may be necessary to remove the fitted M6 bolts attaching diagonals.

2. Assemble rotor support plate to rails using M6 bolts. Assemble rotor tube clamp to plate using M8 bolts.

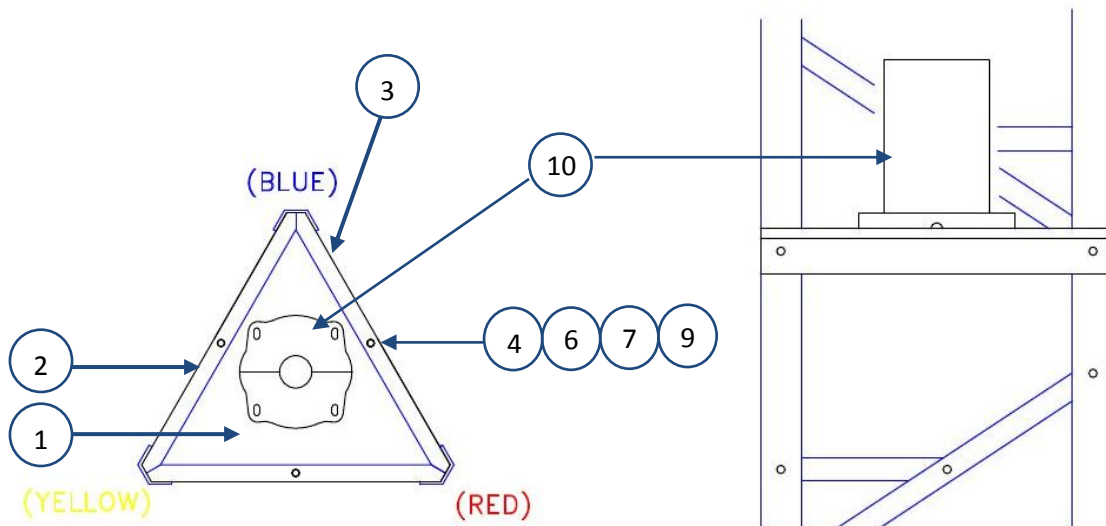


Figure 5: Alumast Rotor Mounting Plate

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	290103200	ALUMAST ROTOR MOUNTING PLATE	1
2	290103700	ALUMAST SUPPORT RAIL	2
3	290103900	ALUMAST SUPPORT RAIL (BLUE LEG)	1
4	507026000	SCREW M6x20 HX HD	9
5	607000800	NUT FULL M8 ST/ST	4
6	607010600	NUT FULL M6 ST/ST	9
7	681200600	WASHER M6 FLAT ST/ST	9
8	681200800	WASHER FLAT M8 ST/ST	4
9	691200600	WASHER M6 S/COIL SPRING	9
10	GC-038B	MAST CLAMP	1

Table 6: Alumast Rotor Mounting Plate Parts List

Guy Anchor Brackets Fitting

Guy Anchor Bracket GB-1

1. Assemble guy brackets to mast legs using M10 bolts.
2. Slide guy bush through thimble of guy assembly and assemble to guy bracket using M10x50 bolts.

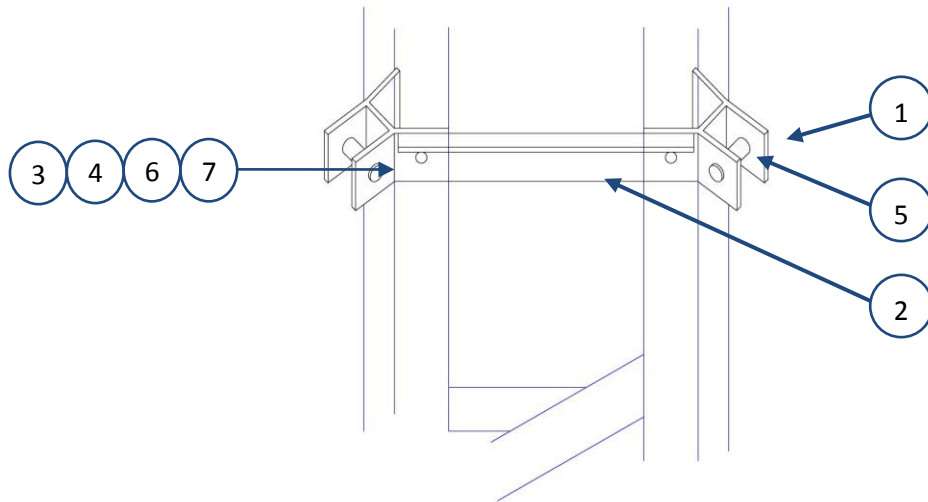


Figure 6: Guy Anchor Brackets GB-1

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	290103300	GUY BRACKET	3
2	290103100	SUPPORT RAIL	3
3	407036800	BOLT M10x60 ST/ST	3
4	607011000	NUT FULL M10 ST/ST	3
5	290103600	GUY BRACKET BUSH	3
6	691201000	WASHER M10 S/COIL	3
7	681201000	WASHER M10 FLAT	3

Table 7: Guy Anchor Brackets GB-1 Parts List

Guy Anchor Brackets Fitting cont.

Guy Anchor Bracket GB-2

1. Assemble guy brackets to mast legs using M10 bolts.
2. Slide guy bush through thimble of guy assembly and assemble to guy bracket using M10x50 bolts.

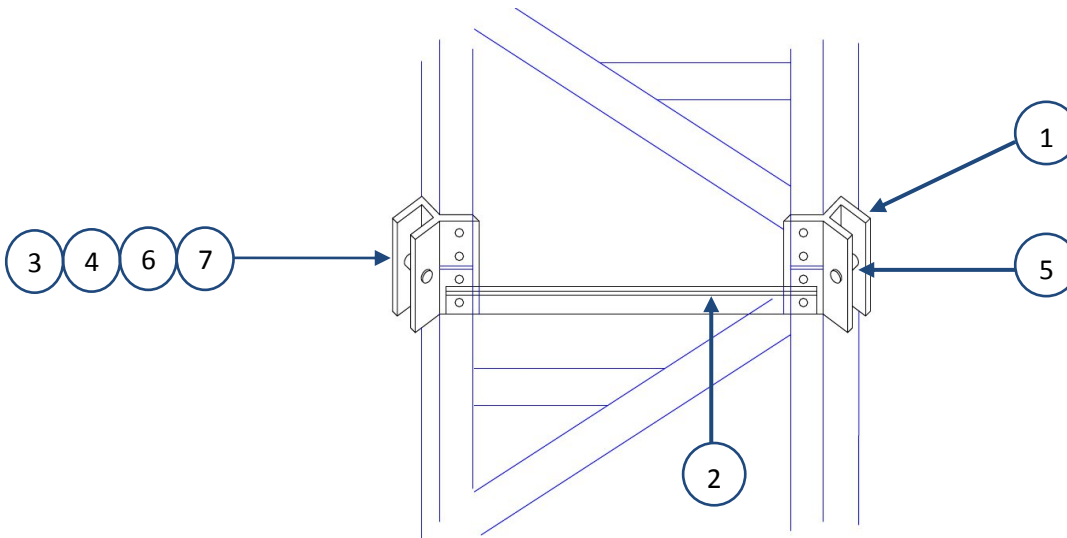


Figure 7: Guy Anchor Brackets GB-2

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	290103400	GUY BRACKET	3
2	290103100	SUPPORT RAIL	3
3	407036800	BOLT M10x60 ST/ST	3
4	607011000	NUT FULL M10 ST/ST	3
5	290103600	GUY BRACKET BUSH	3
6	691201000	WASHER M10 S/COIL	3
7	681201000	WASHER M10 FLAT	3

Table 8: Guy Anchor Brackets GB-2 Parts List

Alumast Cable Support Clamp Fitting

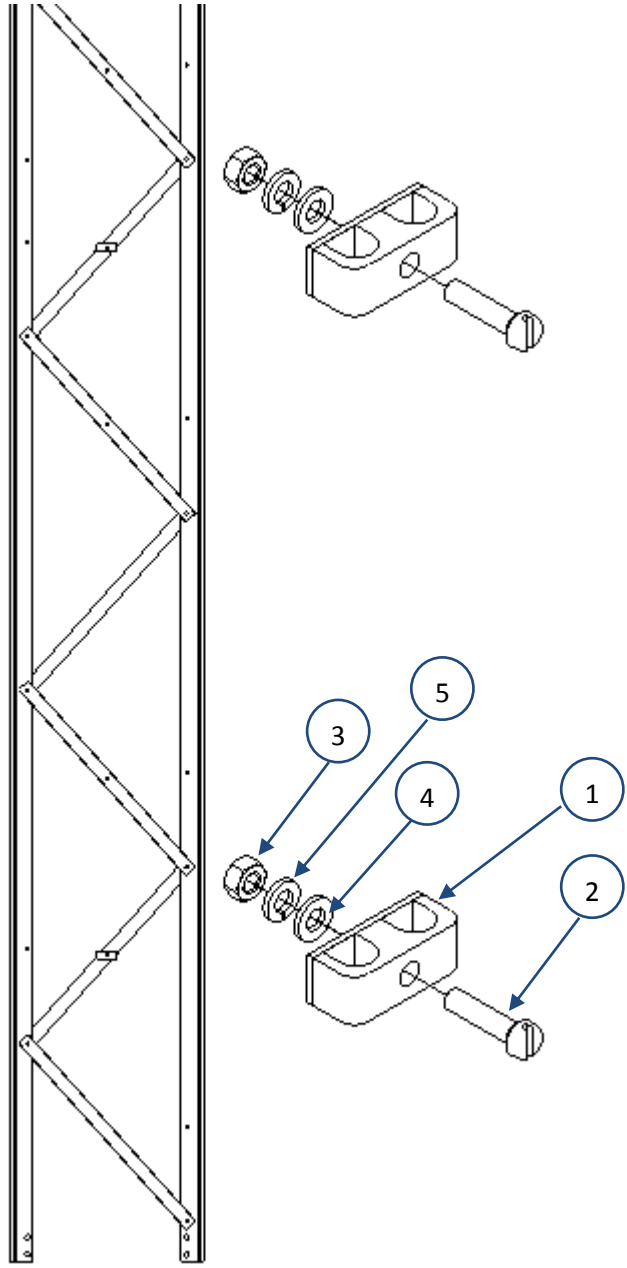


Figure 8: Alumast Cable Support Clamps

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	283200400	CABLE CLAMP POLYMID	3
2	547026100	SCREW M6x25 PAN HD SLOTTED	3
3	607010600	NUT FULL M6 ST/ST	3
4	681200600	WASHER M6 FLAT ST/ST	3
5	691200600	WASHER M6 S/COIL	3

Table 9: Alumast Cable Support Clamp Parts List

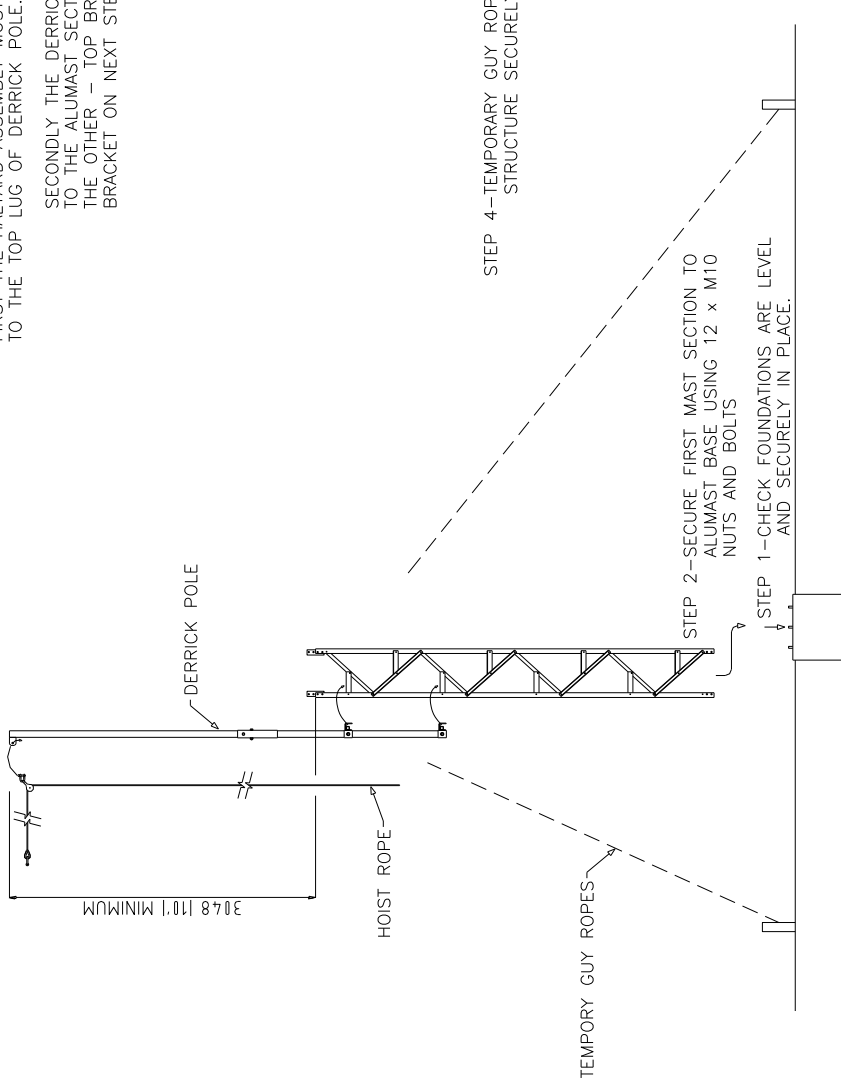
Installation Diagrams

STEP 5—ENSURE A MINIMUM DISTANCE OF 10' FROM TOP OF MAST SECTION TO TOP OF DERRICK POLE.

STEP 3—ONCE THE FIRST SECTION HAS BEEN SECURED THE DERRICK POLE MUST BE PREPARED AND MOUNTED TO THE FIRST SECTION.

FIRST THE HALYARD ASSEMBLY MUST BE SECURED TO THE TOP LUG OF DERRICK POLE.

SECONDLY THE DERRICK POLE MUST NOW BE SECURED TO THE ALUMAST SECTION. POSITION BRACKETS ONE ABOVE THE OTHER — TOP BRACKET ON THE TOP STEP AND LOWER BRACKET ON NEXT STEP DOWN.



STEP 4—TEMPORARY GUY ROPES TO BE USED TO HOLD STRUCTURE SECURELY AND VERTICALLY.

STEP 2—SECURE FIRST MAST SECTION TO ALUMAST BASE USING 12 x M10 NUTS AND BOLTS

STEP 1—CHECK FOUNDATIONS ARE LEVEL AND SECURELY IN PLACE.

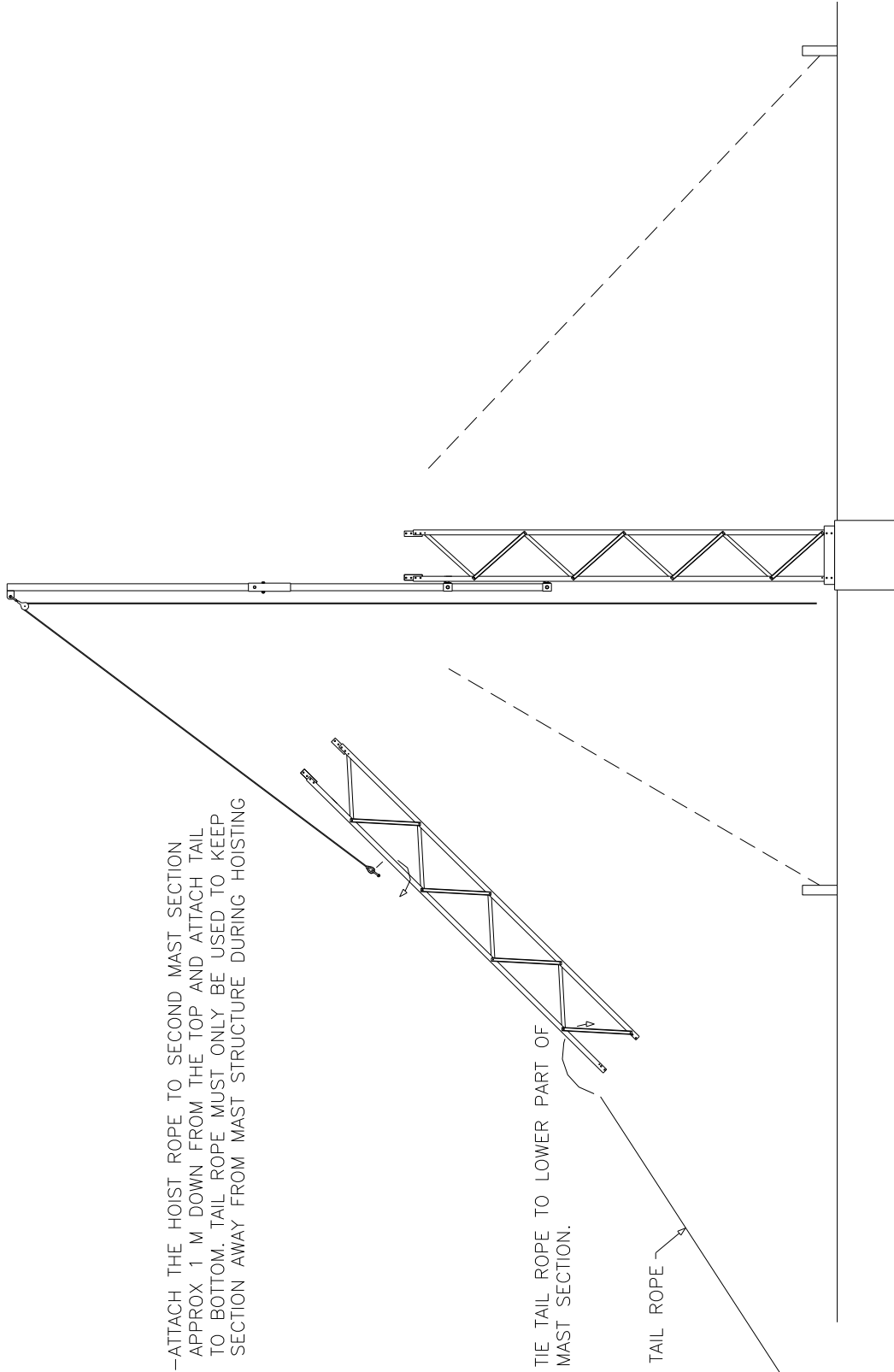
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Figure 9: Alumast Erection Part 1

STEP 6--ATTACH THE HOIST ROPE TO SECOND MAST SECTION APPROX 1 M DOWN FROM THE TOP AND ATTACH TAIL TO BOTTOM. TAIL ROPE MUST ONLY BE USED TO KEEP SECTION AWAY FROM MAST STRUCTURE DURING HOISTING

TIE TAIL ROPE TO LOWER PART OF MAST SECTION.

TAIL ROPE

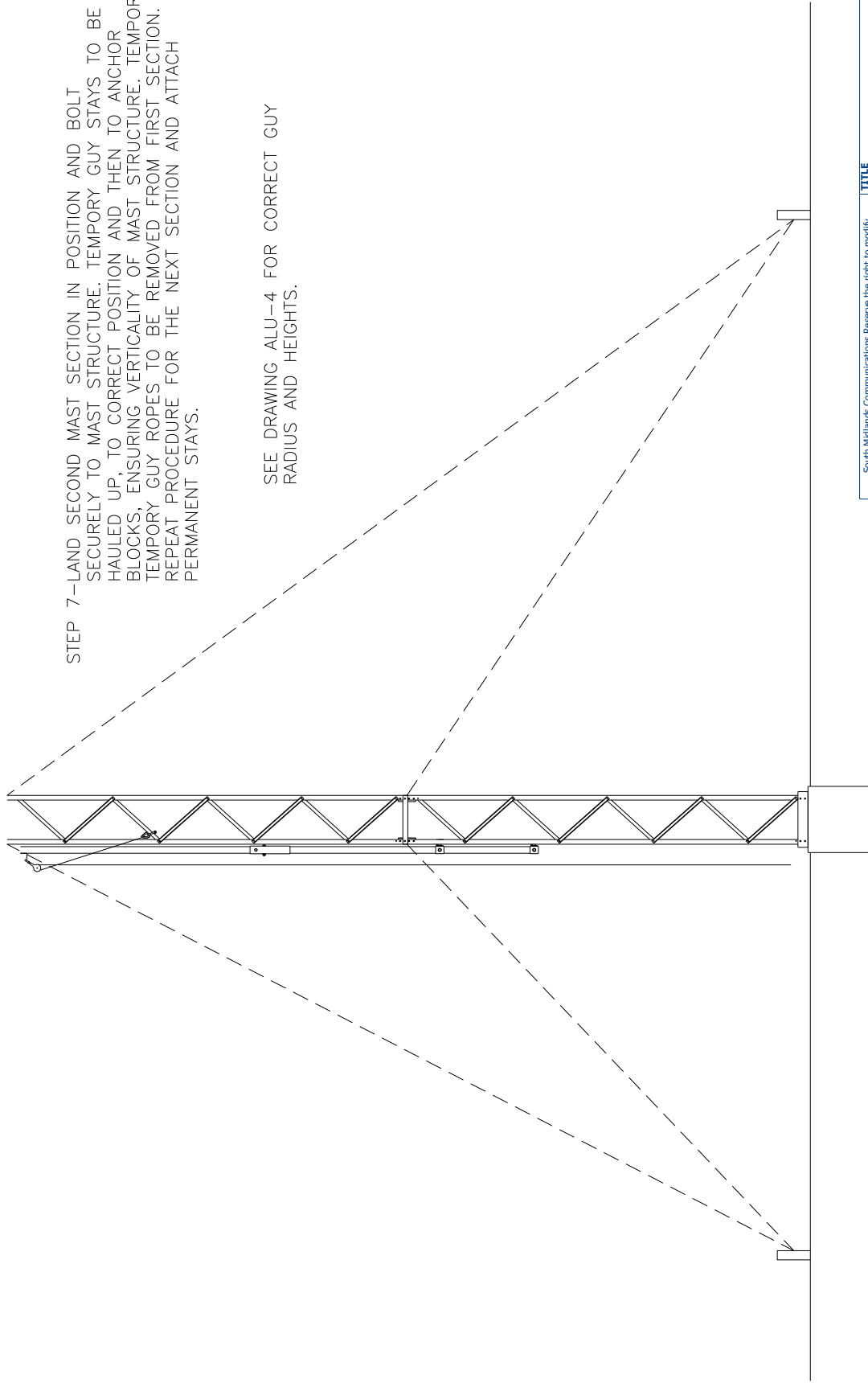


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Figure 10: Alumast Erection Guide Part 2

STEP 7-LAND SECOND MAST SECTION IN POSITION AND BOLT SECURELY TO MAST STRUCTURE. TEMPORARY GUY STAYS TO BE HAULED UP, TO CORRECT POSITION AND THEN TO ANCHOR BLOCKS, ENSURING VERTICALITY OF MAST STRUCTURE. TEMPORARY GUY ROPES TO BE REMOVED FROM FIRST SECTION. REPEAT PROCEDURE FOR THE NEXT SECTION AND ATTACH PERMANENT STAYS.

SEE DRAWING ALU-4 FOR CORRECT GUY RADIUS AND HEIGHTS.



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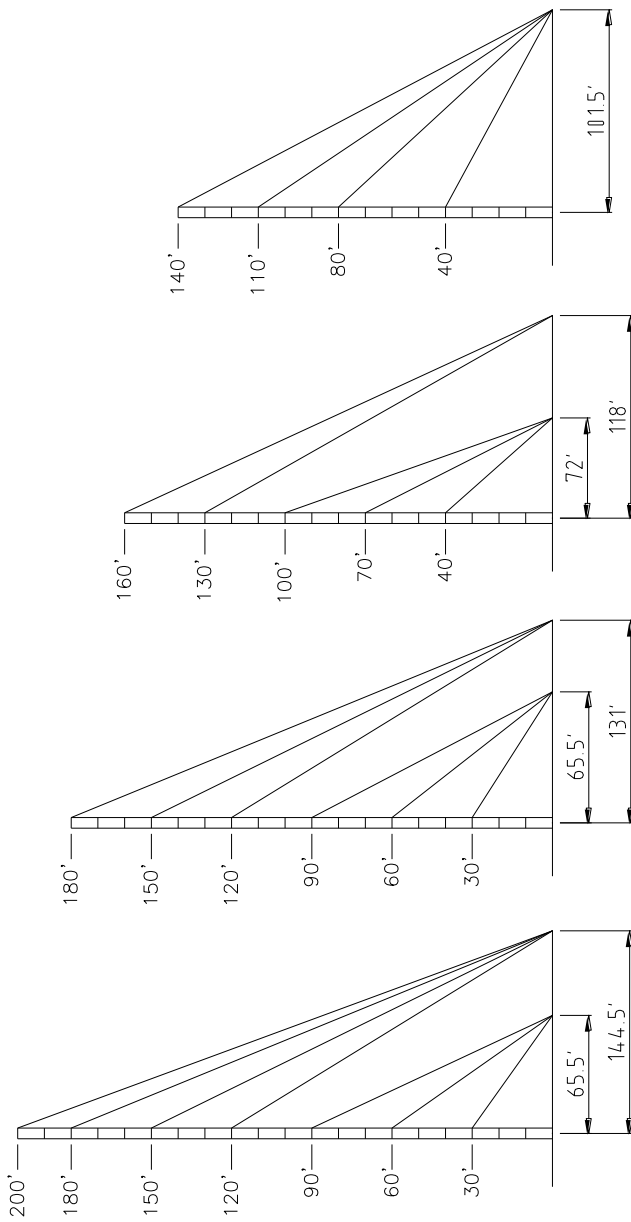
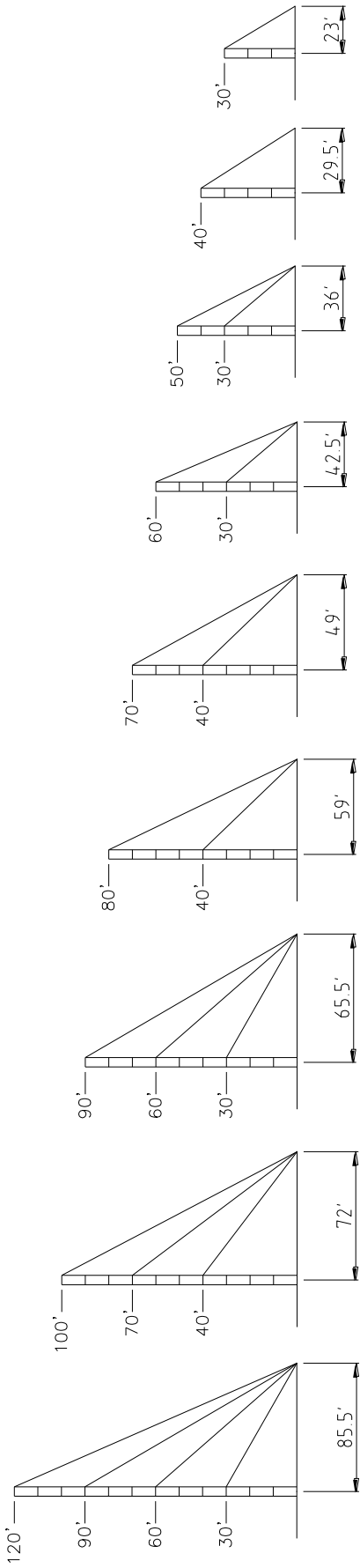


Figure 12: AluMast Guy Raddi

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