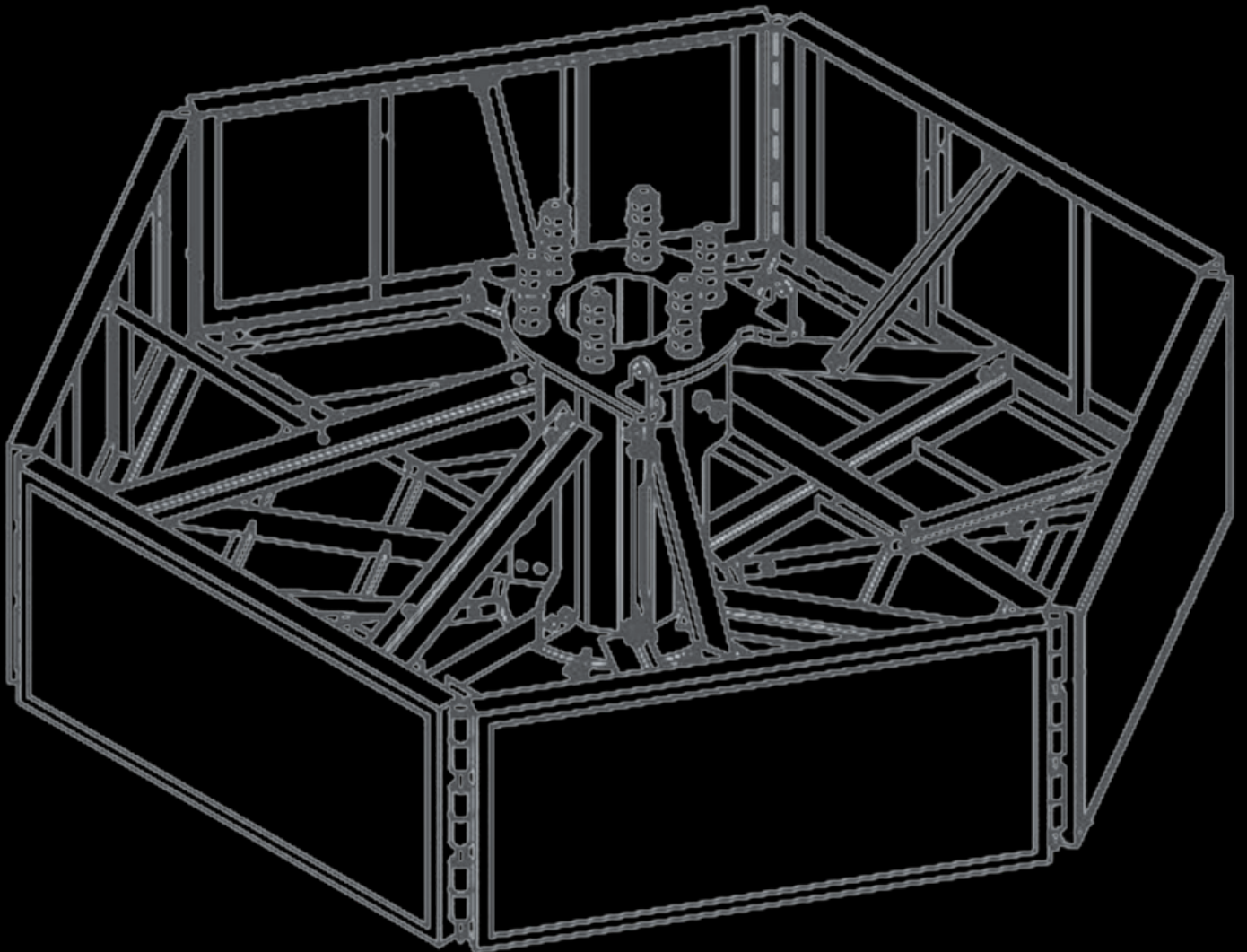


QUIKBASE

FOUNDATION
ASSEMBLY MANUAL



Introduction and Safety Guidelines

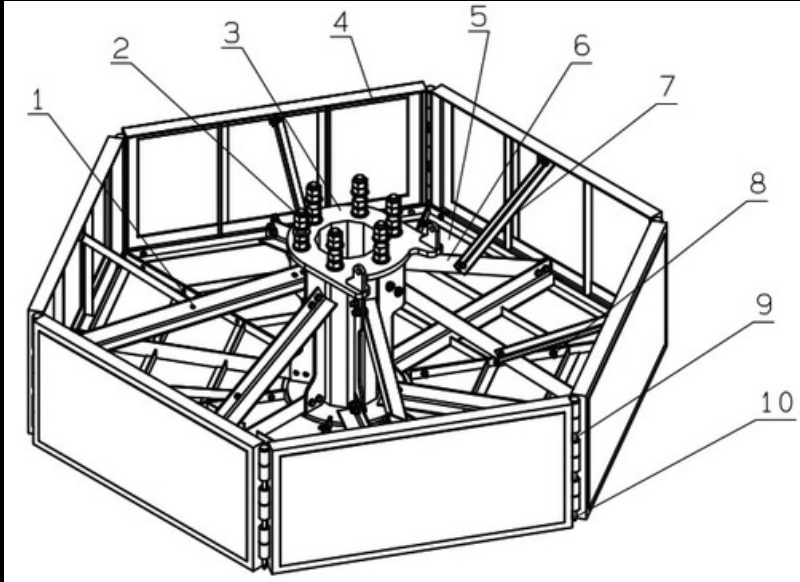
Important!

Read through the manual in its entirety before assembly and installation of the motorized tower raising system.

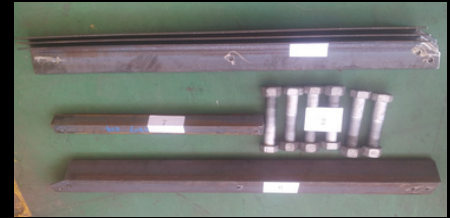
WARNING: Improper use may cause property damage, serious injury or death; therefore, it is highly recommended that trained professionals are installing the towers and operating the raising/lowering system.

Safety

- Motorized Tower Raising Systems should be operated by personnel with proper training or knowledge.
- All planning should take place prior to installation to determine the required clearance and ensure proper space for raising and lowering the tower.
- The work area should be kept clean and free from trip hazards.
- Products should be inspected for damage prior to use. If any damage is noted, parts must be replaced or repaired immediately, per the manufacturer's recommendation.
- When construction or erection of free-standing objects is planned, it must be in compliance with local ordinances and local design specifications (i.e. wind speed requirements)
- Tower grounding must follow local ordinances. If no local ordinance is given, you may refer to the Ambor Pole Grounding Manual.
- During tower installation, all operators must wear head protection and take adequate safety precaution. Never leave the motorized screw jack unattended while in operation.
- NEVER stand or walk beneath a tower in the middle of the installation. Operators must remain a minimum of two meters from the pole when operating the equipment.
- During installation, the operator must take note of any unusual sounds, vibrations or unnatural system behavior during operation. If anything is observed, operation should STOP IMMEDIATELY and the system must be assessed. Contact Ambor for assistance with any pole-related concerns. Your seller/manufacturer can be contacted for assistance with concerns about the foundation, hydraulic RAM cylinders, or other installed components.
- Installation and/or assembly during severe weather conditions must be avoided, especially electrical storm activity (lightening).
- Maximum allowable wind speed during installation or maintenance is 17m/s (38mph).
- SAFETY FIRST! Caution and common sense must be used when installing/using this product.



Part #3



Parts #2, #6, #7



Part #5



Part #4



Parts #1, #8

Bill of Materials			
Part #	Description	Weight	Qty
1	Bolt Set M12x35 1N2W	/	48
2	Bolt Set M33x200 4N4W	/	6
3	Steel Pedestal	104 kg	1
4	Outside Panel	38 kg	6
5	Bottom Panel	35 kg	6
6	Large Steel Angle Bar	6.4 kg	6
7	Small Steel Angle Bar	1.4 kg	6
8	Bolt Set M16x45 1N2W	/	36
9	Pivot Axis Pin Ø16x85	1 kg	6
10	R-Shape Pivot Axis Clip	/	6

Tool List		
#	Description	Qty
1	Rubber Mallet	1
2	Adjustable Wrench	2
3	Socket Wrench	1
4	M18 Socket	1
5	M24 Socket	1
6	Crow Bar	1
7	Hole Punch/Spud Wrench	1



Tool #1



Tool #2



Tool #3, #4



Tool #3, #5



Tool #6



Tool #7

1. Before assembling the base, prepare the area for the foundation. Make sure the area is level. Adjustments can be made post-install to level the tower, but it is easier to have the ground leveled as well.

Note: One method that has been commonly used is scratching the surface of the area where the foundation is to be placed and then filling it in with aggregate and leveling it out. This method, however, is not required for the installation.

2. Place the steel pedestal (Item # 1) of the foundation in place.



3. Begin arranging the bottom panels around the base of the steel pedestal.

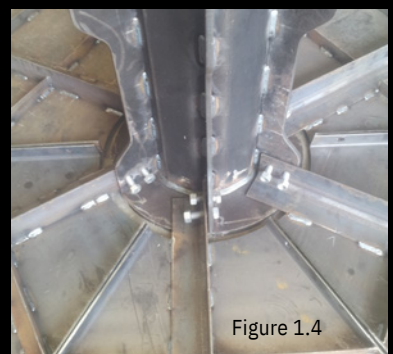


4. Align the tab from the bottom panel on the left hand side of the tab on the steel pedestal. Do not bolt the two together yet.



5. Continue to arrange the bottom panels around the base until they are all in place.

6. Once the bottom panels are in place, begin to fasten bolts around the pedestal using the M16x45 bolt set and tighten.



7. Using the M12x35 nut set, begin to tighten the bottom plates wedges together.

8. Continue to add bolts until each wedge has been connected together.



Figure 1.5

9. Begin arranging the side panels near the outside of the foundation base. These will be put in place next.

10. With the tabs facing in, slide the first side panel underneath the tab on the bottom panel. When facing the foundation base, make sure that the side panel tab is on the right hand side of the bottom panel tab as shown in the picture to the right. Each side panel must be aligned to the base in the same way. Do not tighten the side panel down with bolts yet.



Figure 1.6

11. Align the hinge portion of the first side panel and the next side panel together (see figure 1.7).

12. Using the pivot axis pin, join these two together (see figure 1.7).

13. Secure pivot axis pin with the R-shaped pivot axis clip at the bottom.

14. Swing the second side panel into place along the base panel of the foundation.



Figure 1.7

15. Repeat steps 11-13 until all side panels are in place around the foundation base (see figure 1.8).

16. Around the outside corners, attach the side panels to the bottom panels using the M12x35 bolt sets in the corners. Do not attach the M16x45 bolts to the tabs yet.



Figure 1.8

Note: Make sure to insert the bolts keeping the socket wrench in mind. With deeper socket wrenches, the bolts may need to be opposite of what is shown in figure 1.9 with the nut on the inner side of the foundation.



Figure 1.9



Figure 1.10

17. Place the large angle bar (figure 1.10) in the foundation so that the top (non-angled side) aligns to the steel pedestal as shown to the right in figure 1.11.

18. Match up the angled portion with the side panel/bottom panel tab connection that has not yet been bolted down.

19. Secure the top part of the angle bar to the steel pedestal and the bottom part to the tab connection

20. Repeat steps 17-19 until all large angle bar pieces are secured in the foundation.

21. Next take the small angle bar and align it within the foundation as shown to the right in figure 1.12.

22. Fasten the small angle bar to the foundation using the M12x35 bolt sets.

23. Repeat until all small angle bars have been fastened to the foundation



Figure 1.11



Figure 1.12

24. Tighten down all bolts to meet the required bolt torque specifications or by using the turn of the nut method.



Figure 1.12

25. With the foundation connections all tightened, it is now ready to support the installation of the tower. See General Tower Assembly manual for further instructions.

Recommended Bolt Torque:

Recommended Bolt Torque for Grade 8.8 Connection Bolts						
Bolt Size (mm)	Width Across Flats (mm)	Net Area (mm ²)	Yield Stress (Mpa)	Tension Force (N)	Recommended Torque N*m	Pretension Force (N)
10	16	58	640 (8.8)	37120	37 (27 lb. ft.)	18560
12	18	84	641 (8.8)	53952	65 (48 lb. ft.)	26976
16	24	157	642 (8.8)	100480	161 (119 lb. ft.)	50240
20	30	245	643 (8.8)	156672	313 (231 lb. ft.)	78336
24	36	353	644 (8.8)	225600	541 (400 lb. ft.)	112800
27	41	459	645 (8.8)	294016	794 (586 lb. ft.)	147008
30	46	561	646 (8.8)	358784	1076 (795 lb. ft.)	1179392
33	50	694	647 (8.8)	444160	1466 (1083 lb. ft.)	222080
36	55	817	648 (8.8)	522688	1882 (1390 lb. ft.)	261344
42	65	1121	649 (8.8)	717440	3013 (2225 lb. ft.)	358720
48	75	1473	650 (8.8)	942720	4525 (3342 lb. ft.)	471360
56	85	2030	651 (8.8)	1299200	7276 (5373 lb. ft.)	469600
Recommended Bolt Torque for Anchor Bolts						
Bolt Size (mm)	Width Across Flats (mm)	Net Area (mm ²)	Yield Stress (Mpa)	Tension Force (N)	Recommended Torque (N*m)	Pretension Force (N)
20	30	245	355 (45#)	86904	174 (128 lb. ft.)	43452
24	36	353	356 (45#)	125138	300 (222 lb. ft.)	62569
27	41	459	357 (45#)	163087	440 (325 lb. ft.)	81544
30	46	561	358 (45#)	199013	597 (441 lb. ft.)	99507
33	50	694	380 (GR55)	263720	870 (643 lb. ft.)	131860
36	55	817	358 (45#)	289929	1044 (777 lb. ft.)	144964
42	65	1121	359 (45#)	397955	1671 (1234 lb. ft.)	198978
48	75	1473	360 (45#)	522915	2510 (1854 lb. ft.)	261458
56	85	2030	361 (45#)	720650	4036 (2981 lb. ft.)	360325

Notes:

1. In our experience we would prefer to apply 50% of maximum tension of the bolt as pretension force

2. Pretension Torque: $T_c = k \cdot D \cdot P_c$

$K = 0.2$ (According to the Machine Design Handbook)

D - Bolt Diameter

P_c - Pretension Force