



Competition Launch Tower

P/N 07696

The Apogee Components Competition Launch Tower allows your rockets to fly higher in the air, because you can remove the drag-producing launch lug from the rocket. This tower is light-weight, easily adjustable for different diameter models, and can be disassembled for transport to and from the rocket range.

Parts List

13089	Rod End Caps	6
13090	Graphite Rods	3
13091	1/4-20 Thumb Screws	3
13092	1/4-20 Hex Bolts	15
13093	1/4-20 Wing Nuts	12
13099	Laser-Cut Plywood Set	
	Top Plate	1
	Base Plate	1
	Leg with Lock-Down Slot	3
	Leg Stiffener	3
	Rod Support (spares included)	16
	Leg Lock-Down Key (spare included)	4
	Rod Spacer Rings (spares included)	8
31099	Instruction Sheet	1

Additional Tools and Supplies To Construct This Launch Tower

- Hobby Knife
- Fine grit sandpaper
- Wood Glue
- Epoxy or CA glue to attach the Rod End Caps to the Graphite Rods
- Paint or Polyurethane to seal the surface and inhibit moisture seeping into the wooden parts.
- Stakes to anchor the tower to the ground on breezy days

Apogee
COMPONENTS

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Made in the USA

Assembly Instructions

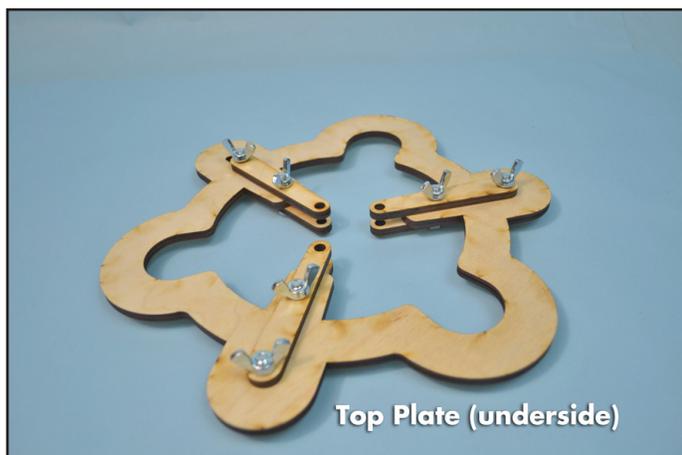
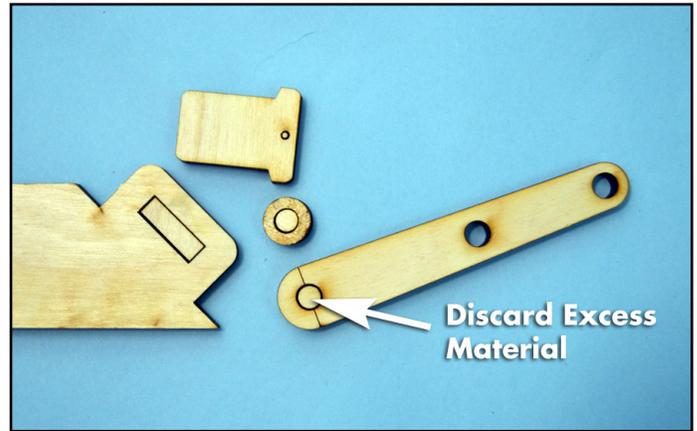
- 1.) Verify all parts are present in the package.
- 2.) Remove any punch-out pieces that remained in the wood parts from the laser-cutting process. These can be discarded. It may be necessary to score heavily on the back side of the parts with a hobby knife to remove the excess pieces.
- 3.) Sand the surfaces (including the edges) of the wood with fine grit sandpaper to smooth the wood and remove any splinters.

4.) **IMPORTANT!** Water will warp the plywood. Before continuing assembly, coat the wood and all edges with sealant (clear spray paint or polyurethane). Keep the wood from getting damp or wet. *Apogee Components does not warranty this product against warping or breakage of the wooden pieces!* Allow the surface to completely dry before assembly.

5.) Slide the two leg parts together and glue into place using wood glue. Allow the glue to fully dry.

6.) On the top support pieces, there is an etched line that bisects the hole on the fattest end. Make sure this faces outward during assembly, as it is the diameter pointer line that allows you to know where to position the slide arms.

There are six rod slide arms that need to be assembled; three for the top plate, and three for the base plate. Take two 1/4-20 bolts, two rod support pieces and two wing nuts. Insert the bolts into a rod side arm, the plate, and the lower side arm. Then install the wing nut to keep them in place as shown in the photos below. Do not tighten them down yet.



7.) Install the three legs to the lower base plate. **DO NOT GLUE THEM!** They are installed by slipping the slotted tab into the slot on the base plate. The slotted tab of the leg will be fully visible on the top side of the base plate. Now slide one of the leg lock-down keys through the slot. It should fit snugly and hold the leg firmly to the base plate.

TIP: If the key get loose over time, add some masking tape to one of the sides to increase the friction force.

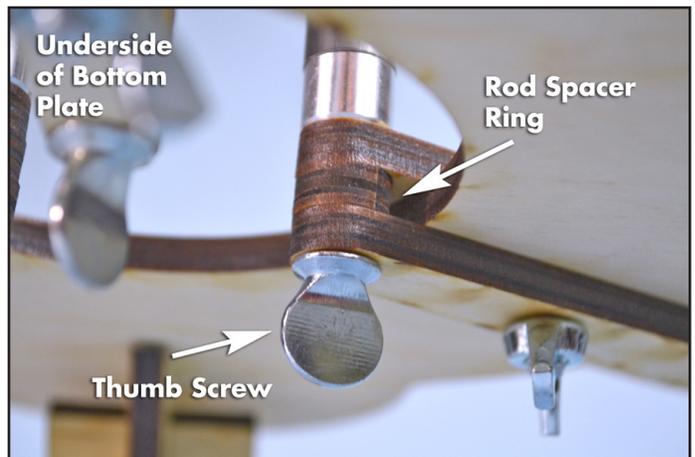
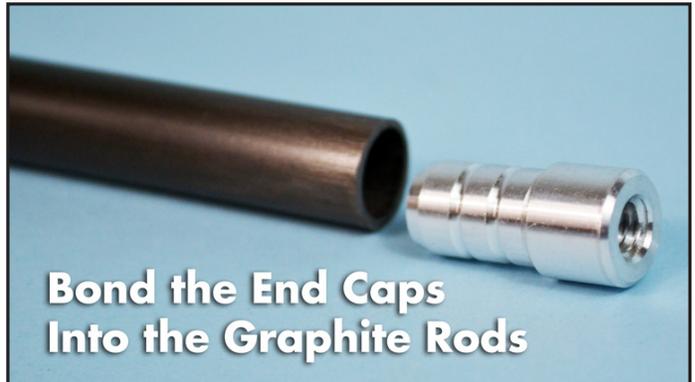


8) Using CA glue or epoxy, attach the six threaded rod end-caps to the ends of the graphite rods. Allow the glue to harden before installing the rods in the base plates.

9) Attach the top plate to the three graphite rods using three 1/4-20 bolts and three wooden rod spacer rings. The wooden rod spacer rings slide in between the slide arms, and then the bolts are passed through the holes of the slide arms and into the top of the threaded rod end-caps.

10) Tightening the bolts in the rods can be done by twisting on the graphite rods.

11) Attach the three rods to the base plate slides using the three 1/4-20 thumb screws and three wooden rod spacer rings. As when assembling the top plate, put the spacer ring between the two arm support pieces (the slides), and insert the thumb screw from underneath the base plate. Tighten the thumb screws to hold the rods in the upright position.



Adjusting the tower for the diameter of the rocket:

Loosen the thumb screws on the support arms, so the support arms can slide along the plates. Using the diameter pointer line on the top side of the support arm, slide the support arm to the desired tube diameter. Once in position, tighten the wing nuts to lock it into place. Do NOT over tighten, as it could damage the wooden pieces. Follow this same procedure for the remaining support arms.

Aligning the rods:

Once the diameter is set, and before you slide the rocket into the tower, the rods must be aligned to make sure they are all parallel.

First, Slightly loosen the thumb screws on the base of the three rods!!!

Tilt the tower over to one side. Sight along the top and bottom base plates. Gently twist the top plate so that the protruding parts are in line with each other. Tilt the tower back to the upright position, and re-tighten the thumb screws holding the rods to the support arms.

Congratulations! You're ready to launch your rocket.

Note: Because the tower is so lightweight, on breezy days, you should stake the tower to the ground. The holes in the bottom of the legs can be used as anchor points.

Precautionary notes:

Do not pick up by grabbing all three rods in the middle. This will cause the end plates to rotate, and you'll lose alignment of the rods. It could also cause damage to the support pieces. Pick up by ONE rod only. The tower is very light-weight, weighing only 2 lbs 6 ounces, so you can do it.

Disassembly

The rods and the three legs can be disassembled for storage and to make transportation easier.

Remove the legs by pulling the leg lock-down keys out of the slots in the legs. You can tie the leg lock-down keys together using piece of wire which is inserted into the hole on the parts.

Remove the rods by removing the screws at both ends. To keep from losing the screws and the wooden spacer rings, put the spacer ring back onto the screw, and then thread the screws into the ends of the graphite rods.

