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How to Attach a Balance Stick to a Rocket Motor

CAUTION!!

Working with pyrotechnic devices is a very rewarding endeavor that can become a lifetime passion. To ensure continued enjoyment of this hobby, please follow appropriate safety guidelines. Work in an open area outdoors, keep all pyrotechnic mixtures in closed containers, limit any compositions to only the amount needed for a particular item, store finished items in an appropriate day box or magazine, be sure to wear appropriate non-synthetic clothing, wear eye protection and keep a source of water nearby. FireSmith cannot be held responsible for any accidents or incidents resulting from the construction and use of any pyrotechnic devices. It is highly recommended to check and adhere to all local, state and federal regulations. Please consider joining the PGI and any pyro clubs in your area so that you may construct pyrotechnic items in a safe and legal environment. Additional information can be found at **www.pgi.org**.

A simple balance stick is the easiest method of keeping a rocket flying in the correct direction. There seems to be a "black art" to stick thickness, length and material. The ideal material is light, rigid and inexpensive. Many pyros make their own from sections of knot free pine and poplar. Should you choose to cut your own, the guidelines below are a good place to start. Rockets with larger payloads may need longer or multiple sticks. Rockets with light payloads may be able to get by with shorter sticks.

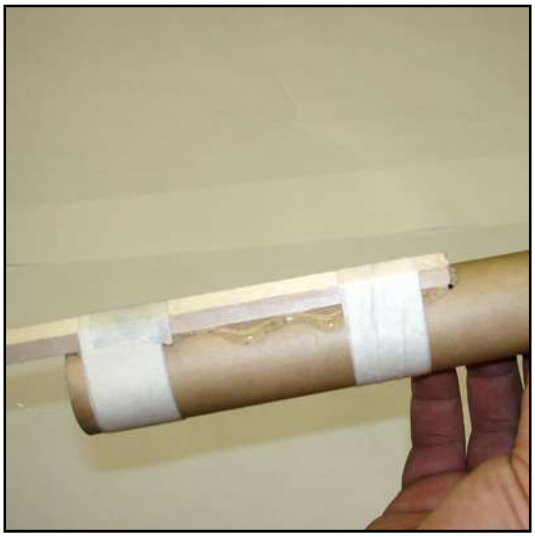
1lb 3/8" x 3/8" x 32-36"
2lb 3/8" x 3/8" x 36-40"
3lb 1/2" x 1/2" x 40-48"
4lb 3/4" x 3/4" x 48-56"
6lb 3/4" x 3/4" x 60-72"

Step 1
Make a mark at half the overall length of the motor.

Step 2
Attaching a stick to a motor with hot glue is quite easy and does seem to be the norm with hobbyists. My preference is to glue the stick with a nice heavy bead of glue.

*Make sure you unplug the glue gun before applying glue to the motor or stick. There have been reports of glue guns shorting out. This could produce a terrible accident should this happen in the proximity of live materials.

Step 3
Before the glue hardens, sight down the length of the stick and motor making sure everything is square. Should the stick be bowed, be sure to attach it to the motor so that the bottom of the stick is pointed towards the nozzle.



Step 4
Further secure the stick to the motor with a couple wraps of masking or strapping tape.