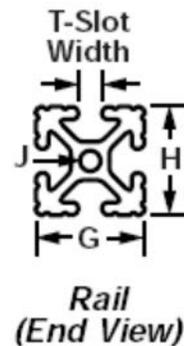


## LAUNCH RAILS FOR TARC

The TARC 2018 rules require that at the Finals teams use only launch rails, which we provide. In previous years we have provided and allowed the use of either rails or ¼" launch rods, but this year rods are no longer permitted at the Finals. We have found from many years of experience that they are not really stiff enough to support safe and repeatable launch angle control for rockets as heavy as the ones used in TARC, particularly in years like this one where the payload is two eggs. Most teams at the Finals in recent years have shifted to the use of rails for this reason. Rods are still permitted for use in local qualification flights before the Finals.

The launch system provided for contestant use at the Finals will have individually-assigned, well-spaced sturdy three-legged pads with a 6-foot-long "1010" (1 inch on a side, dimension "G" below; ¼ inch center slot) T-slot launch rail on an adjustable base (see photo below) and one pair of high-current 12-volt electrical igniter leads with a single pair of micro-clips at the end. These will provide 18 amperes from our launch system from a car battery through 60 feet of 16-gauge wire, which will light any igniter or cluster of up to 4 igniters. Teams are not required to use the launch system and rail that we provide. They may bring their own launch pads, towers, rails, or other hardware, "clip whips" to light clusters of motors from our single pair of micro-clips on the ignition wires, and even their own electrical launch systems if they need anything different from what we provide. But they cannot bring a launch rod system. Individual launch systems must comply with the NAR Safety Code requirements and will be subject to our safety check and approval. A minimum rail length of 6 feet is required.



Rockets that fly from launch rails use "rail buttons", which can be purchased from TARC vendors such as Apogee Components

[https://www.apogeerockets.com/Building\\_Supplies/Launch\\_Lugs\\_Rail\\_Buttons/Rail\\_Buttons?zenid=9gem93bv7keir68ao3sidmvr20](https://www.apogeerockets.com/Building_Supplies/Launch_Lugs_Rail_Buttons/Rail_Buttons?zenid=9gem93bv7keir68ao3sidmvr20) . The appropriate size is the "standard" or "1010" size. Most NAR rocket clubs have and use rail launchers at their launches, if you are able to fly with one of these organizations in your area. "Rocket launch rails" are not really rocketry-unique products, they are actually "T-slotted framing" stock available from McMaster-Carr <https://www.mcmaster.com/#t-slotted-framing/=1alxwp9> or from: <http://www.sustainablesupply.com/80-20-T-Slotted-Extrusion-10S-72-Lx1-In-H-1010-72-C1552409>

Launch pad bases that support rails can be locally fabricated in a variety of ways, or can be purchased from Knight Manufacturing <http://www.knight-mfg.com/home> or from Animal Motor Works [http://cart.amwprox.com/index.php?option=com\\_virtuemart&view=productdetails&virtuemart\\_product\\_id=1139&virtuemart\\_category\\_id=73](http://cart.amwprox.com/index.php?option=com_virtuemart&view=productdetails&virtuemart_product_id=1139&virtuemart_category_id=73)