

Space Grant Midwest High-Power Rocket Competition  
Roll/Orientation Challenge for 2017-2018

Questions and Answers from Introductory Telecon on 9/26/2017

send all questions to both

James Flaten [flate001@umn.edu](mailto:flate001@umn.edu) (MN Space Grant & organizer)

Gary Stroick [president@offwegorocketry.com](mailto:president@offwegorocketry.com) (Tripoli MN & technical adviser)

Q1. Can you clarify the “not till after motor burnout” rule?

A1. External mechanisms to control roll may not be activated until somewhat after motor burnout (delay time TBA – not to exceed 3 seconds – might even be announced as zero seconds). Fully-internal roll control mechanisms may be operating during the launch and boost phase (i.e. prior to motor burnout).

Q2. May we use other radios for communication besides XBee radios?

A2. No. There is some selection of XBee radios allowed, but to “maintain a level playing field” all teams that elect to try the Bonus Communications Challenge need to select an XBee radio from the subcategory described in the handbook so the power level is basically even. There are no restrictions on the type of antennas used nor on the type of flight microcontroller that is running the XBee radio.

Q3. Are canard forbidden altogether, or just canards with moving parts?

A3. Canards are allowed, but they may not have moving parts. This is equivalent to saying that canards cannot be used for active roll control. This is a safety issue. Canards are actually an effective way to control roll but, if done improperly, they are also a “good way to get into trouble.”

Q4. How are “canards” defined? In particular, can we have control surfaces on canards/fins that are not at the very tail of the rocket?

A4. We will define “forward canards” (the type which is limited – see Q3) as canards / fins located forward of the CG of the rocket. Control surfaces on canards / fins that aft of the CG are allowed.

Q5. Are we really limited to motor from just Cesaroni and AeroTech? What about Loki motors, for example?

A5. For this competition teams may only use Cesaroni and AeroTech motors. Both of these companies have a fairly wide range of motors to choose from, though recent production problems at Cesaroni might limit availability of some of their motors.

Q6. How early do we have to order motors?

A6. Competition motors are supplied by the Tripoli MN vendor, Gary Stroick, with up to \$100 paid for by registration funds. That order needs to be included in the PDR report, due March 9, 2018. Orders for motors for test flights that will occur during March or April might need to be placed with a certified high-power rocket vendor even earlier than March 9, 2018 – confirm with your vendor (probably no later than early February) when they need such orders in

writing. Selecting the motor your team wants to use needs to be a relatively early part of your design process.

Q7. Do we have to do more than one test flight?

A7. Only one test flight, with the actual motor chosen for competition and with the active roll control activated, is required for reporting. However additional test flights to test the natural tendency of the rocket to roll and also to test the ability of the sensor package and the video camera to characterize roll might be useful as well.