Recommended “Homework” for Rocketry Lesson 3 9/27/2018

Reading

* read Chapters 3, 4, 10, 12, & 18 in the High-Power Rocketry book
* read through the Flight Readiness Review template slides and start taking the photos it will ultimately require

Tote

* add the new parts to your tote when they arrive (possibly Friday, 9/28) – you should now have everything for the entire build (except for a camera pod, if you want us to print one for you let us know)
* remember that the motor itself, plus ejection charges, won’t be provided until the day of the launch
* the radio beeper and video camera will be lent out on launch day as well

Exercise

* write an airframe build schedule, with explicit steps, dates, and names of people (by Monday, please) – aim to be finished building within 3 weeks (preferably less)
* submit a copy of your airframe build schedule to Max and Prof. Flaten (and to your faculty adviser) by e-mail – we will give you feedback on it
* post the schedule, possibly after taking some feedback from us, then stick to it, crossing off steps as they are finished
* Note: there will be additional homework assigned in upcoming weeks, so the airframe build will need to continue “in the background” and won’t be the only thing you are doing in future weeks – that said, be aggressive with this build schedule and try to get steps done as quickly as possible (in less than 3 weeks, if possible)

Building

* start working through the airframe build – this week you should (at least) get the nose cone modified and the motor mount tube and fin assembly dry-fit and started to be epoxied – by next week you should be inserting the fins (one at a time) and perhaps even get started on building the piston
* Note – the nose cone modification and the piston build are independent from the motor mount tube / fin assembly, so could be done in parallel if need be
* Note – you only have 1 pre-filled tube of RocketPoxy in your tote, so use the syringes to fill more empty tubes. (Snip the tips of the syringes so they can draw in epoxy more easily. Fill all empty tubes at once, since you probably cannot really keep the syringes once you’ve gotten them wet.) Try to use no more than 2-3 tubes on fin fillets (external – done thoroughly – and internal – that can be done more quickly) because you will probably need at least one tube of epoxy for the motor mount centering rings, piston, and for the av-bay (1 external collar, 2 internal collars, 2 ejection charge caps, 1 screw switch, and just 1 terminal block) – as you build, be efficient with epoxy use (don’t mix more than you need) and modest on how much you use (especially for non-structural joints)
* Note – use J-B Weld for the motor retainer since that part of the rocket gets very hot when the motor fires and DP420 no-sag epoxy might fail there

Document repository: *http://www.aem.umn.edu/people/faculty/flaten/Rocketry\_Remote\_Lessons\_Fall\_2018/*

Max’s evolving photo-build instructions – check back regularly:

<https://docs.google.com/presentation/d/1oepk62CjsZubKPHbRcWFAOIm7tNdElkoKxc64FFhwU4/edit#slide=id.g42ec7e3ad3_0_5>