

Explorer Post 1010

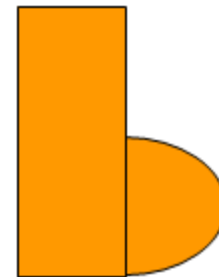
JARC Team 14212

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Design and Construction Process

- We used OpenRocket to design our rocket.
- We used the same simple booster design from last year.
- Used dremels, saws, sanders, and manpower to construct our rocket.
- We used a round fin design.
- Putting in past experience and the weight, we selected our E28-7T motor.
- When our rocket was damaged by a tree, we had to use our backup rocket



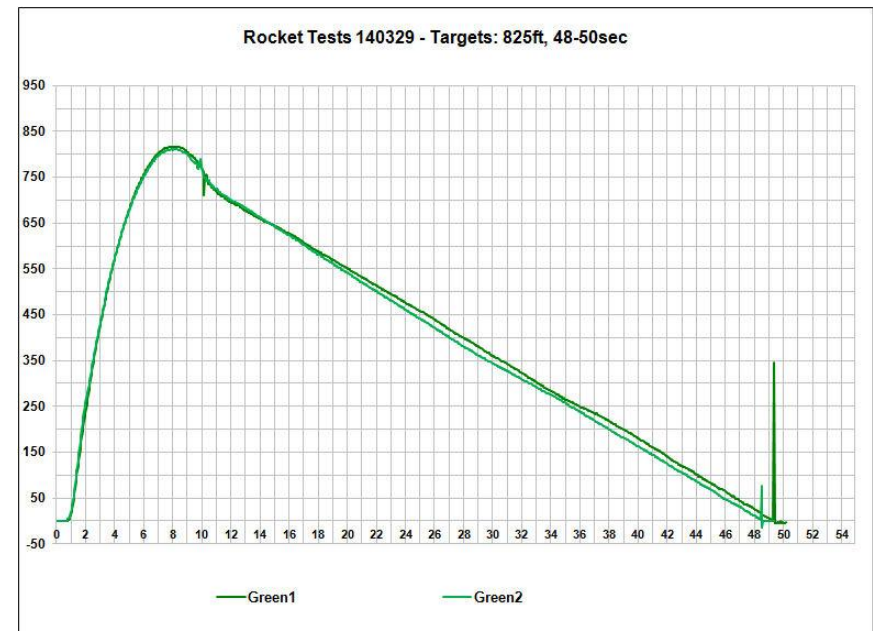
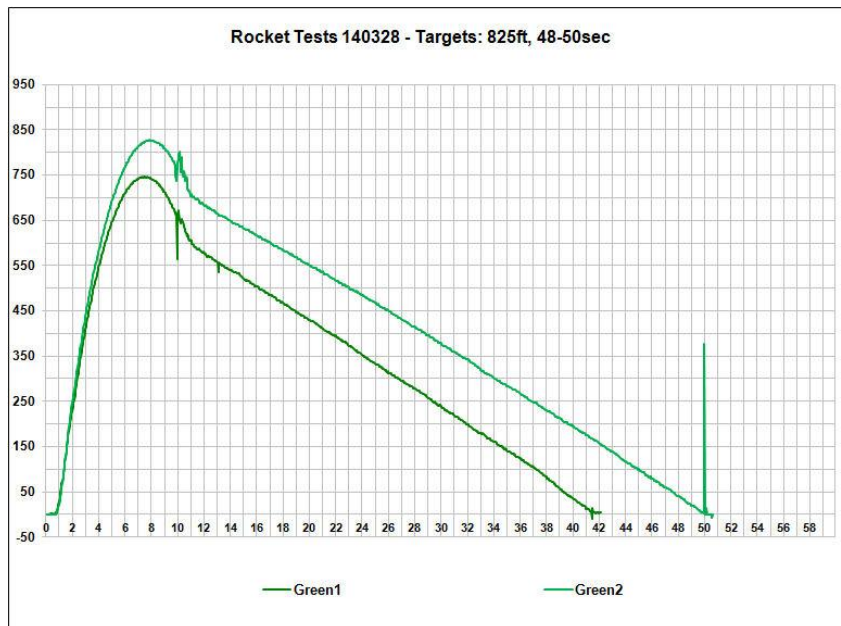
Teamwork

- We each put in our own individual input to making the fins and building the body.
- We each contributed to the laborious process of sanding.
- For the design of the rocket to be cohesive, we all coordinated our ideas and attended all the launches.
- Recovery from a tree took some special skills.
- Demonstrated rockets at USA Science & Engineering Festival



Flight Testing Process

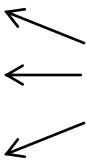
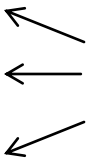
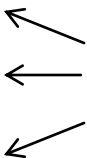
- Our flight altitudes were too high, we adjusted the weight of our rocket (about one gram for three feet)
- We tested, and repeated the process until scores improved.
- We plotted the altimeter data and reviewed the results at meetings the following week.



Lessons Learned

- We learned that lot number for engines is very important.
- 3 launches done with engines from the same lot showed consistent data across them.

Date	Rocket	Engine	Rail	Recovery	Weight	Results	Comments
12/28/13	Green flight 2 Team 14212	E28-7T	7ft 5d	2-15" Round	415g	826ft, 52sec	
2/17/14	Green flight 1 Team 14212	E28-7T	7ft 0d	2-15" Round	421g	831ft, 46ec	
2/17/14	Green flight 2 Team 14212	E28-7T	7ft 0d	2-15" Round	423g	822ft, 43.34sec	Qualification Score: 21.64
3/15/14	Green flight 1 Team 14212	E28-7T	7ft 6d	2-15" Round	419g	788ft, 47ec	
3/15/14	Green flight 2 Team 14212	E28-7T	7ft 6d	2-15" Round	417g	772ft, 34.92sec	
3/28/14	Green flight 1 Team 14212	E28-7T	7ft 3d	2-15" Round	408g	745ft, 42ec	
3/28/14	Green flight 2 Team 14212	E28-7T	7ft 3d	2-15" Round	406g	826ft, 50sec	
3/29/14	Green flight 1 Team 14212	E28-7T	7ft 0d	2-15" Round	405g	816ft, 48.235sec	Qualification Score: 9.0
3/29/14	Green flight 2 Team 14212	E28-7T	7ft 0d	2-15" Round	406g	810ft, 47.26sec	Qualification Score: 17.96

 Same lot
 Same lot
 Same lot

Lessons Learned

- We kept a close eye on weather patterns.
- There seemed to be less wind when we launched early.

