ISSUE 170 - NOVEMBER 7, 2006

APOGEE PEAK OF FLIGHT NEWSLETTER

I-Hobby ...the BIG Show

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APOGEE COMPONENTS

1130 Elkton Drive, Suite A
Colorado Springs, Colorado 80907 USA
www.ApogeeRockets.com e-mail: orders@ApogeeRockets.com
phone: 719-535-9335 fax: 719-534-9050

Apogee Rocketry Grant Program

Apogee Components, Inc. is pleased to announce the first in a yearly grant program geared toward model rocketry education organizations!

The rules are simple:

1. Entrants must submit an essay to Apogee. There is no length requirement for the essay.
2. Any club, organization, school program, etc. is eligible for entry. This would include rocketry clubs or prefectures, 4H, scouts, etc.
3. The content and purpose of the essay is as follows:
   - If we gave you $300.00, How would you use it to impact the rocketry community?
   - How many people you think it will reach?
   - How many people are involved in the organizing and running of the event?
   - How big of an effect it will have on the rocketry community?
4. One of the biggest things to keep in mind when composing your essay is, "How is what I am planning unique"?

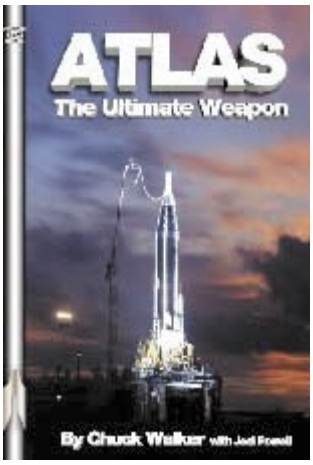
There will be only one winner and recipient of the grant, which is $300.00 toward any order with Apogee Components.

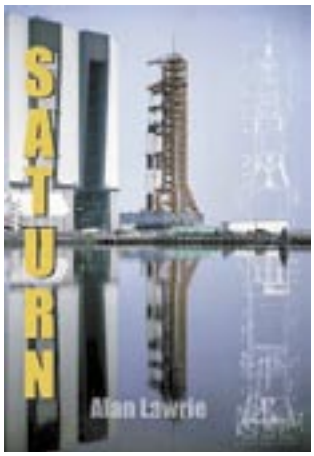
The deadline for entry is November 30, 2006.

The grant winner will be announced on January 1, 2007.

What a great way to start off the new year!

Send essay to
1130 Elkton Drive Suite A
Colorado Springs CO 80907
or
johnm@apogeerockets.com





If you want to build REALLY big rockets try these two great books from Apogee Space Books

www.apogeebooks.com
905 637 5737

"Apogee Books" is not affiliated with Apogee Components. But they do sell some nifty space books, and we do recommend them.

Hobby Show Highlights

By Tim Van Milligan of Apogee Components

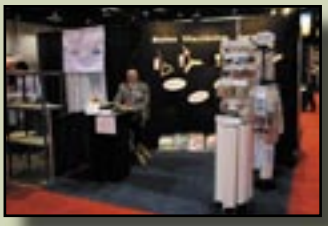
Do you want to know what new stuff is coming in rocketry? Then you should have attended the International Hobby Expo (called I-Hobby Expo) in Chicago, Illinois this past October. We at Apogee did.

The I-Hobby Expo is more than just rockets. It encompasses all types of "high testosterone" hobbies like electric trains, RC airplanes, RC cars, slot cars, plastic models and role-playing card games. There were five manufacturers present from the rocketry world, Apogee Components, Aerotech, Balsa Machining Service, Flis Kits, Quest Aerospace, and Semroc.

The rocketry industry is a pretty close-knit group. I suppose we have to stay together because we're all fighting the bureaucracy of the federal government. I was able to chat a lot with the guys from the other companies. We had lunch together several times over the four-day event, as well as a get-together on Saturday night.

Semroc and FlisKits were attending this show for the first time. It was neat to see all of their rockets in one location. It makes me want to carry them all. But unfortunately this would be too much of a burden on Apogee, and would prevent me from bringing out my own new kits. I may be willing to carry a small selection of kits from these vendors in the future if we get a lot of requests for them.

Bill Saindon with Balsa Machining Service had a lot of his speciality there at the show: balsa nose cones.



I've been sending a lot of business to BMS over the years as people come to me looking for a custom size nose cone that Apogee doesn't carry. The BMS nose cones are top notch, so I don't mind sending people over to his web site.

I do stock a lot of Aerotech's smaller rocket engines (up to a G size), so when I was going to the Aerotech booth, I was looking as a buyer. They released information in August about a new line of single-use motors called "Loadable Motor System," which they had displayed at the show.

Basically, the LMS is like a reload motor, except the case is plastic instead of aluminum. This means that it can only be used once instead of multiple times like a true reloadable motor.

The advantage of the LMS is that you save a bit of money compared to other single-use rocket motors, because you assemble the components yourself. They are priced lower than single-use motors, but a little higher than a 'true' multiple-use reloadable rocket motor.

I am interested in your comments about this new technology. You'll have to write me and let me know if this LMS technology is something you'd be interested in buying.

Quest also had a number of new items in their booth. The items that I'm looking forward to carrying are their new mid-power launch pad and their 18mm diameter composite-propellant motors. They didn't give me a release date for these items, but watch for further information in future issues of the Peak-of-Flight ezine newsletter.

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About this Newsletter

You can subscribe "FREE" to receive this e-zine at the Apogee Components web site (www.ApogeeRockets.com), or by sending an e-mail to: ezine@apogeerockets.com with "SUBSCRIBE" as the subject line of the message.

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In the Apogee booth, we displayed a new line of kits from the SKY Rocket Company. They are based out of China and have a unique line of models.

The kits that excite me the most are the scale models of the Chinese launch vehicles, such as the Shenzhou and the Long March Three. I like scale models, and this is a good way to see what Rocketeers are building in other countries around the world.

There will be a delay in having them imported though. All the instructions are in Chinese, and we are working to translate them into English. Fortunately, building a kit is similar in any country, so it won't take too long.

One of the unique things about the rockets is that all of the tubes are convolutedly wound, instead of being spiral wound. Because of this they are able to print the décor right on the rocket as they roll up the paper to make the tube, so there is no finishing required on any of the models. Well...this is not exactly true for all the kits. The scale models do have a few decals that must be placed on the rocket, such as on the plastic nose cones, but it is pretty minor stuff.

I also like the Condor Boost Glider kit. It is a competition style model that has a bunch of unique features. The little plastic piece where the wings mount is designed really well. It not only has the correct dihedral built into it, but it also has the right angle-of-attack.

The SKY company also has a launch pad and controller that we'll carry as well. I personally like that they use an LED in the controller instead of a glass light-bulb. That will be more resistant to breakage and should last a long, long time.

We also displayed one new Apogee-brand rocket at the show called the "Diamondback." This is similar in size to the Aspire, but uses smaller 18mm diameter motors like the C6-5. It's unique feature is the diamond shaped fins, and the graphics were designed by Shrox, so you know that they look really good. The kit will sell for $17.58 and should be available in a few more weeks. I'll post something in this newsletter when it is finally ready to ship.

Finally, we displayed our complete line of DynaStar Mid-Power Model Rocket kits, including the two newest models: The Grappler and Sky Torpedo. They were both hits due to their large size. If you haven't seen them yet check out the DynaStar web site at: http://www.DynaStar-rockets.com

To get kids excited about rocketry, we held a coloring contest. The kids took home a picture of a rocket, and after coloring it with crayons or markers, they were requested to send it back to us. The winner hasn't been selected yet because we're still receiving entries. As soon as we pick a winner, we'll post a picture of the winner's entry in this newsletter. I'm excited about this contest, because the artwork of the youngsters is really good.

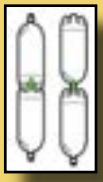
Overall, it was a exciting show to attend. Not only did we go to sell some rockets to retailers, but we met a lot of our old friends as well as making some new ones too. I'd like to thank everyone in the Chicago area that came by. You were all very nice and you made the show an enjoyable experience.

Companies mentioned in this article:
Aerotech: www.Aerotech-rocketry.com
Balsa Machining Service: www.balsamachining.com
DynaStar Mid-Power Model Rockets: www.DynaStar-Rockets.com
FlisKits: www.fliskits.com
Quest AeroSpace: www.questaerospace.com
Semroc: www.semroc.com

Web Sites Worth Visiting

In this issue we will travel to the land of water.....rockets, that is! Take a trip back to your childhood or maybe to a recent class project for your own child as you join me in a stroll into a very interesting aspect of the science of rocketry.

Here are a few different websites that will prepare you and your child for that 2 liter project. The Water Rocket Playground (http://www.h2orocket.com) actually sells some kits for water bottle rockets as well as a heavy-duty pad that has a pressure guage that will take all that you have to give it and more! St. Mary's University in Canada (http://www.ap.stmarys.ca/demos/content/mechanics/water_rocket/water_rocket.html) has a nice website that shows the theory behind these rockets and the procedure for firing one off. The cool thing is that they have a couple of videos that will actually show someone new to these what they can do.



The Rocketcorps website (http://www.geocities.com/rocketcorps) provides basic designs and component information about water rockets and also has plans on how to make what they call a "Double rocket/4 liters of fury" for those of you who want more power out of your rocket.

The site at http://hometown.aol.com/hayhurst1/h2orocket.htm was made by "Mr. Hayhurst" and contains a lot of good information on this subject as well as the science behind it. As seen in the photo, he really gets into this and has a lot of fun! Last but not least is the Rockets Away website at http://www.ag.ohio-state.edu/~rockets. This is pretty cool because they have an online simulator in which you plug your own numbers in for ounces of water in the bottle, tail weight, body weight, and cone weight. Then, the simulator will give you an estimate of how high the rocket will go.

Be prepared for that day when your son or daughter comes home with this as a project in school. By reading and studying up on it, you will help your child to look better on launch day!

Achievments in Rocketry

At Apogee Components, we like to give special recognition to our customers that have worked extra hard to make astounding achievements. Recently, these individuals made significant rocketry accomplishments, and we would like to provide recognition they earned.

Terry Goodfellow	Level 1	CA
Brett Wilkins	Level 2	CA
Richard Hofman	Level 1	CA
Brian Dalby	Level 2	CA
Kristopher Brown	Level 1	CA
Alan Kennedy	Level 1	CA
Jack Heidrick	Level 1 & 2	CO
Bill Mott	Level 2	CO
Timothy Moore	Level 1	CO
Brian Keel	Level 1	CO
Mark Cripps	Level 2	CO
Les Mann	Level 1	CO
Stephen Henderson	Level 1	ID
Allen Cass	Level 2	KS
Keith Ravenstein	Level 1 & 2	KS
Jim Cox	Level 3	MD/DL
Cameron Chen	Level 1	MT
Mike Whorley	Level 1	ND
Colin Westgarth-Taylor	Level 2	SC
Jack Orr	Level 3	SC
Scott Peterson	Level 1	TX
Lou Scalpati	Level 2	TX
Charlie King	Level 1	WI
Kurt Crowhurst	Level 1	WI
Jay Rietz	Level 1	WI

Our congratulations go out to all of these individuals! Great work to all of you. We know it took a lot of effort, grit, and determination. For those reasons we celebrate your accomplishments! If you see a name in the above list that you know, why not send them a note of congratulations?

Continued on page 7

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Outstanding Rocketry Achievments from pg 6

Photo taken at 93,324 ft

Gene Nowaczyk's flight at BALLS 2006. Measuring 14 feet in height and 8 inches in diameter, the rocket weighed 318 pounds at liftoff. The rocket was all aluminum with a Q20,000. The on-board electronics recorded a maximum velocity of 3,344 feet per second, setting the speed right at Mach 3.45.

Conway Stevens of North Colorado Rocketry got his L-3 on an all fiberglass/composite rocket that stands 14ft 6" tall, 6" diameter and weighed in at 70lbs on the pad. It flew to 11,396ft AGL on an N2020 W. It landed roughly 1mile away with the only damage being a dime sized nick in the paint.

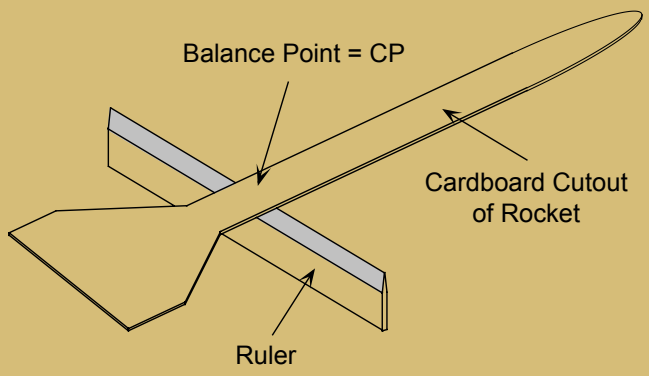
We would also like to say a big thank you to the people behind the scenes that helped these individuals achieve their rocketry goals. It is very rare that someone works alone without receiving encouragement, insight or knowledge from others. Keep up the good work!

If you would like to see your name mentioned here, or if you know of a rocketeer deserving of special recognition, please let us know. We would like to give credit where it is due. Here are some of the attainments we would like to honor and celebrate: High power certification (Level 1, 2, 3), NARTREK Awards, New altitude records, Science fair awards, 4-H Ribbons, Senior student research projects, Starting a new rocketry club, Grand champion at a NAR competition, Awarded a grant to teach rocketry, Rocketry inventions, Having your rockets featured in museum displays, or Feature articles about your rocketry activities in national newspapers or magazines. Email the Astounding Achievements to John Manfredo at johnm@apogeerockets.com. Please limit the achievements to those that occurred in the last two months.

DEFINING MOMENTS

The Cardboard Cutout Method is an old method of determining the approximate location of the CP (Center of Pressure) and is no longer necessary because of the RockSim software (http://www.apogeerockets.com/rocksim.asp). The old method was to make a cutout of the outline of the rocket from a piece of stiff cardboard and balance this cutout on the edge of a ruler. The balance point will be at the approximate CP location. This method is not exact, and is considered overly conservative. The reason for this is that it locates the CP too far forward, so the designer had to add a lot of additional nose weight to the model to move the CG ahead of the CP. This made the model heavier than necessary.

The new RockSim method is much more accurate and will allow your rockets to fly higher. The cardboard cut-out method is presented here only for historical perspective.



TIP OF THE FIN

If you have ever been looking around for a stand-off for the launch pad and can't find one, then this tip is for you!

What you can do is take a used black powder motor case and knock the clay nozzle out of it with a hammer and a screw-driver (or any other tool that will fit).

Then you can use the case as a stand-off to keep the rocket off of the deflector shield when preparing for the launch.

Questions and Answers

Q: I've been struggling with calculating my CP in RockSim. The CP just seemed too far forward and intuitively I thought it should be further aft. The rocket has a tailcone and when I added the tailcone, the CP moved forward 3" which also did not seem intuitively appropriate.When I change my CP Calculation Method from Barrowman to RockSim, the CP jumped aft 7" and my simulations and stability all were good. Is there any info out there that will provide me with some insight on this?

A: If you look at the Barrowman report you'll notice as you go through it that it contains many simplifying assumptions. The reason Barrowman made those simplifications is that in 1965 most people were using slide-rules to make calculations. The equations were just too consuming to do long-hand. The RockSim method is the Barrowman method without all those simplifying assumptions.