

# PEAK OF FLIGHT

## NEWSLETTER

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## 2016 - Another Year In Review



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### Apogee Components, Inc.

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3355 Fillmore Ridge Heights Colorado Springs, Colorado 80907-9024 USA

www.ApogeeRockets.com e-mail: [orders@apogeerockets.com](mailto:orders@apogeerockets.com) Phone: 719-535-9335 Fax: 719-534-9050

**APOGEE**  
COMPONENTS

# PEAK OF FLIGHT

## 2016 - Another Year In Review

By Tim Van Milligan

Another exciting year has come and gone, and because it went by in such a blur, I thought I'd take this some time to write about what happened here at Apogee Components. But before you read this article, I hope you go back and peruse the review I wrote at the end of 2015 in Peak-of-Flight Newsletter Issue #407 (<https://www.apogeerockets.com/education/downloads/Newsletter407.pdf>). I made some predictions, and more importantly some goals for the company year. I hope you'll see that I tried to stay on the path we set out on. In this article, I'm going to make some new "stretch" goals for 2017, and I'll probably need your help in achieving them.

### **Accomplishments for 2016**

First, here is a list of products that were announced in our newsletter that we developed internally at Apogee:

- SkyMetra Rocket Kit
- AeroDactyl Rocket Kit
- Vacuum-Formed Canopy for our BT-70 Nose Cone
- Rocket Display Stands (both cardboard and plywood)
- U-838 HD Video Camera
- Oblique Nose Cone for 24mm tubes
- Camera Hoods (both opaque white and clear)
- Rocket Dad Bumper Sticker
- Apogee Logo Decal
- Slotted Tubes for TARC
- Foam-Core Rings for TARC
- Vacuum-Formed Transitions for TARC
- Conformal Rail Guides for TARC rockets
- Universal Rail Guides
- TARC Success Packs for 2017
- BT-70 Egg Protector
- Starter Chipboards to make Ematches
- Lightweight 40mm Nose Cone for FAI rockets

- 2016 Christmas Ornament
- Clear Egg Capsule with Padding
- Plywood Centering Rings for 38mm tubes

### **From our suppliers, we also released these products:**

- Madcow Aluminum Bulkplates
- Aeropack Minimum Diameter Retainer with Vent Holes
- Atlas V CST-100 from Real Space Rockets
- Jolly Logic Chute Release
- Semroc Kits - Mars Lander, Orbital Transport, Magnum Sprint, Magnum Hornet
- LumaDyne Tube Fastener Inserts
- MadCow Fiberglass Nose Cones
- Aerotech 38mm Non-Hazmat High Power Motors
- Lamda 4S Rocket Kit
- North Hawk Boost Glider
- Sunward Ice Storm, Desertfox, The Liberator, The Maverick, Umbrella, Galactic Wave, Moon-dance, Payloader, Shoot the Moon
- H3 Ematch Dipping Compound
- MJG Ematch Starter Kit
- Aerotech 54mm Diameter Reload Kits

### **Marketing Projects**

To be a well rounded company, you have to tackle a few marketing projects too. The most visible ones that readers of this newsletter saw in 2016 were the "Patch Batch" promotion, which has one sticker left to be released January 1st (<https://www.apogeerockets.com/Patch-Batch>), and the #Rocketober photo challenge that we did on social media during the month of October (<https://www.apogeerockets.com/rocketober>). Our team also made a cool YouTube "branding video" that is visible on our home page (<https://www.youtube.com/watch?v=JDC0SD6MYCM>).

The other less-visible marketing projects

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### **Newsletter Staff**

Writer: Tim Van Milligan  
Layout/Cover Artist: Chris Duran  
Proofreader: Michelle Mason

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we accomplished were attending NARCON in Dayton, Ohio in late February, and going to the World Space Modeling Championships in Lviv, Ukraine, which happened in August.

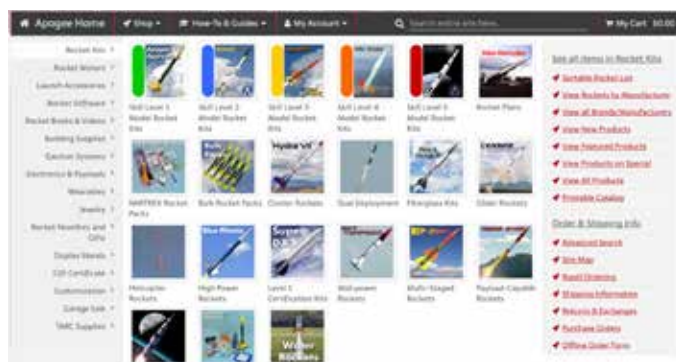
What you probably didn't see was our participation in a few trade shows. We were at the Space Symposium here in Colorado Springs in the month of April, and at the HobbyTown USA trade show in June. We also did an experiment with social media advertising in May.

By far the biggest marketing projects we accomplished were our newsletters and how-to videos. We feel very pleased knowing that we didn't miss a week during the year. It is the number one thing that customers comment on when they visit our web site. And we hope to continue that success in 2017 too.

The one marketing challenge that our customers faced at the end of 2015 was that our web site had gotten a bit disorganized. Recall from Newsletter #407 that we had switched to a new server host in 2015 to speed up the site, but it was getting harder to find things. So in early 2016 we made a switch to our current menu system.

The drop-down menu choices at the top of the page got reduced to just a few items: Shopping, Information, Your Account Information, and Search (**Figure 1**). Clicking on any of these opens up a dedicated screen that lists all the options that pertain to that category. In the past, there were multiple cascading fly-out menus that created endless lists. The lists were so long that you had to scroll down on the screen - in which case they

might suddenly disappear. The new menu stays in place and arranges information horizontally to make use of wider computer screens. And it stays put until you actually click your mouse.



**Figure 1: Screen shot of the new website menu design.**

While it requires a couple of more clicks, the general response from customers has been favorable. In real terms, this means that we have gotten a lot fewer complaints. But it is still a work in progress, so if you have suggestions, we are open to hearing your thoughts.

### **The Goal of 2016**

Among our team, our overall theme for the year 2016 was "increased efficiency." We started the year out by buying 30 new shelving units so that we could organize our warehouse to make it more efficient. Our facility seems to be getting smaller with all the new products we keep bringing in, so we had to go vertical to store everything in a more efficient manner.

In the manufacturing side of our facility, I've also been investing in new

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# Egg STORMINATOR Rocket Kit



This kit comes with:

- Conformal Egg Protectors
- Laser cut rings and tubes with through-the-wall fins
- Flexible nose cone for extra egg protection
- Canted fins for straighter flights
- Nose cone holds the Altimeter compartment

[www.apogeerockets.com/Rocket-Kits/Skill-Level-4-Model-Rocket-Kits/EggStorminator](http://www.apogeerockets.com/Rocket-Kits/Skill-Level-4-Model-Rocket-Kits/EggStorminator)

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tooling to increase efficiency. This is important to keeping prices stable for you and our other customers. This past year we had to raise prices on a lot of our own products, and I really hated doing that. In order to increase efficiency, I ended up upgrading a lot of our TARC egg-protector molds (**Figure 2**), and tried to make our laser cutting machine more efficient by updating the cutting files.

Another big efficiency project we worked on this past year was to better document and adapt our internal processes. My personal philosophy is that Apogee's value to customers is logistics. We may not have everything-rocketry under one roof (yet), and we may not be the least expensive, but we are the fastest at turning around customer orders and shipping them out the door. Because of that, we continue to strive to streamline the way your purchases flow through the company from when you come to our web site to when the product gets delivered at your house. We want to be even more convenient and quicker, so our internal processes have to improve.

### New Faces

In 2016 we had two employees leave the company (Amy and Emerito), for whom we eventually found replacements (Sharlene and Joe). But we also added two new positions to keep up with our current workload, and for future growth. One position was created in our rocket kit production area (Martina), and one

person in the "order entry" office (Sara). All told, we now have 10 people working at Apogee! See them at: <https://www.apogeerockets.com/Company/Staff>



**Figure 2: New egg-protector molds.**

I'm planning for our next position in the company, and that person is going to help me with the production of these newsletters and the how-to-videos. If you're interested in being part of our team, see our job opportunities page on our web site at: [https://www.apogeerockets.com/Company/Job\\_opportunities](https://www.apogeerockets.com/Company/Job_opportunities)

### The Year In the Rocket Industry

I know that Apogee Components doesn't operate in a vacuum. We are partners with many companies within the rocket industry. I don't look at other rocketry companies as being competitors. We're in such a mature industry that in order to grow, we have to grow the entire market. Our competition comes from new industries that are trying to take siphon off the time of our customers (like video games). It makes sense to me that our

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partners in the rocketry industry grow with us.

I predicted in Newsletter 407 that there would be some turn-over within the rocketry industry. That has been the case in 2016.

The biggest industry event that occurred was the fire in late March at the production facility of Cesaroni Technology Incorporated. They are a major supplier of reloadable rocket motors, so the incident has caused a major disruption in our ability to get motors for customers.

The other issue concerning Cesaroni was that they had a bad batch of forward closures that were discovered. Those closures probably got into the system before the fire occurred, but that also created some confusion with customers. Fortunately, that separate issue has been resolved. But at the time of this writing, Apogee is still unable to get new motors from Cesaroni due to the fire situation.

The other big news is that Rocketry Warehouse and LOC Precision have new owners. I see this as positive, and we are looking forward to working with them in the future too.

### **Looking Forward to 2017 - A new place**

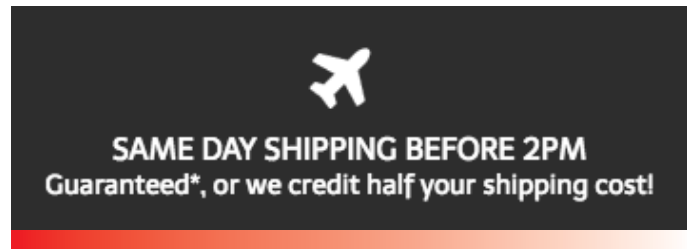
Last year I wrote that I wanted to keep everything in our current building for at least one more year. Well... that year is up. I am now actively looking for a larger building to move the company into.

With the two extra teammates, we don't even have room in our front parking lot for everyone to park their automobiles and still leave room for

our customers. And inside the building, we're out of offices too. I'm now sharing my own personal office! Even though I agreed to it, I am beginning to think that it was a ploy by my team to nudge me to look for a bigger space.

At this time, I'm 60% confident that we'll be in a new building sometime in 2017.

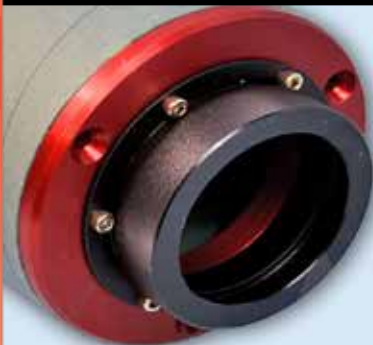
This is a big move, and I've been telling the team that one thing will not change. That is our shipping guarantee. If we make the move, we will NOT inconvenience you and our other customers. We will not shut down during normal business hours to make the move. We will find a way to keep shipping merchandise out the same day that you place your order (**Figure 3**). In 2007, when we moved into our current facility, we were able to keep everything going, so I do not consider this to be an insurmountable obstacle. We did it before, and we can do it again.



**Figure 3: Screen shot of our same-day shipping guarantee from our website.**

The possibility of making a move to a new facility is both exciting and scary. What I'm obviously most scared of is the expense of the new facility. A bigger building means a larger monthly lease payment - a lot bigger. If we move, we need more income coming in, or the com-

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## Experienced HPR Builders Use Thrust Plates

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**Figure 4: Vapor Rocket Kit.**

pany could be at risk.

Therefore, the theme we're going to follow in 2017 is: "Let's GrOwth!"

Here's where I'm starting: I'm publicly making a commitment to add 12 new Apogee rocket kits to our line during 2017.

That is a bold goal, considering that we might move and that we only added two new kits in 2016: SkyMetra and AeroDactyl.

And this is where I'm asking for your help. I am going to open this up to our customers to submit ideas for new kits for 2017. I've never taken submissions before, but I wanted to have a little fun with this project. So if you have ideas, start putting them down on paper. Note that nothing is guaranteed, and there probably won't be any significant compensation other than getting your

name on a kit. What I'm most interested in are rockets that operate differently than normal rockets. I like rockets that "do something." And finally, they have to use standard parts that Apogee already has in our inventory.

I probably wouldn't have attempted this goal if we didn't make a couple of big changes to the way we develop kits. Technology has improved things, and I'm trying to leverage that. For example, when I worked at Estes in the early 1990's, I designed rockets with just a pencil. Then Rock-Sim came out in the 2000's, and designs became a lot safer using it.

In the past year, I've learned a new CAD program and that also changed how I look at development. No longer am I limited to simple geometric shapes. They can be more organic and swoopy. What's more, we can now 3D print some parts and build short-run tooling to make those parts.

The last piece of the rocket kit production puzzle is getting the instructions drawn. Just this past week we discovered how to export the images from the CAD program into beautiful and detailed technical drawings. This will allow us to make instructions faster than ever, plus ones that are significantly better than anything we could have done in the past. I'm really excited about the possibilities for the future, and how fast we might get new kits out.

I can say that I've already got four kits in the queue. A non-flying rocket kit called the "Vapor" will be first. It is a see-through rocket intended for teachers and for use as a static display to get new modelers interested in the hobby and specifically in how rockets work (**Figure 4**). The cool thing is that it is a big rocket, so it has a size advantage that gets noticed.

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After that will be a competition style egglofter rocket (**Figure 5**). This model is built around our new see-through egg capsule that also comes with molded foam protectors (<https://www.apogeerockets.com/Building-Supplies/Nose-Cones/For-up-to-24mm-Body-Tubes/Vac-Form-Egg-Capsule-CLEAR-1-pk>). The rocket will also come with the fly-away rail guides that you may have read about in Peak-of-Flight Newsletter #387 (<https://www.apogeerockets.com/education/downloads/Newsletter387.pdf>).



**Figure 5: Egglofter Rocket Kit with flyaway rail guides.**

The third kit will be strap-on rocket boosters. This “component type kit” (**Figure 6**) will allow you to add parallel staging to your rockets with very little modification. See a video of what strap-on boosters look like at: <https://www.youtube.com/watch?v=VMlkqMU5myM>. The fourth rocket coming out after that will actually use the strap-on boosters. With this rocket kit you’ll get both a core-vehicle rocket plus two strap-on boosters. I think you’ll like the look of it too, as we’re giving it a cool steampunk flavor.

The other goal for Apogee is to expand our selection of products from other suppliers. We do want to carry more kits from other manufacturers, because they are also doing some really neat things. The issue is that we build and test the products that we carry in our store. So I’m going to need help building some rockets. If you’re interested in building test models for us, I’m starting a list of people that I’ll contact when an opportunity becomes available. Again, shoot me an email, and I’ll get you on that list.

And if you are a manufacturer and want Apogee to carry your products, now is a great time to contact us. We’re always looking for new items to carry in our store, and I anticipate having a lot more room to store products in a bigger building.



**Figure 6: Strap-on rocket boosters.**

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### Conclusion

This next year looks to be very busy for Apogee. As you've read here, I'm committing our team to some very big goals. I'm putting it down in print because I want you to hold me accountable. By late December 2017, I want you to ask the question: "how did you do on your goals?" Hopefully we'll have good news to report.

### About The Author:

Tim Van Milligan (a.k.a. "Mr. Rocket") is a real rocket scientist who likes helping out other rocketeers. He is an avid rocketry competitor, and is Level 3 high power certified. He is often asked what is the biggest rocket he's ever launched. His answer is that before he started writing articles and books about rocketry, he worked on the Delta II rocket that launched satellites into orbit. He has a B.S. in Aeronautical Engineering from Embry-Riddle Aeronautical University in Daytona Beach, Florida, and has worked toward a M.S. in Space Technology from the Florida Institute of Technology in Melbourne, Florida. Currently, he is the owner of Apogee Components (<http://www.apogeerockets.com>) and also the author of the

books: "Model Rocket Design and Construction," "69 Simple Science Fair Projects with Model Rockets: Aeronautics" and publisher of the "Peak-of-Flight" newsletter, a FREE e-zine newsletter about model rockets. You can email him by using the contact form at: <https://www.apogeerockets.com/Contact>

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