PEAK OF FLIGHT NEWSLETTER

ISSUE 559 / OCTOBER 26TH 2021

IN THIS ISSUE

EXPERIENCE THE WORLD SPACEMODELING CHAMPIONSHIPS

PART 1 OF 2

https://www.apogeerockets.com/Launch-Accessories/Launch-Pads/IMPLS-fiver-SPORT-Bundle-and-Power-Pack

www.ApogeeRockets.com
4960 Northpark Dr, Colorado Springs CO 80918
Ph# 719-535-9335

APOGEE COMPONENTS

PEAK OF FLIGHT

Experience the World Spacemodeling Championships Pt. 1

By Tim Van Milligan

I returned from Romania on Friday, October 8, where I attended the World Spacemodeling Championships (WSMC). This article is my recollections of that experience, and you'll find that it is more of a personal journal. I'm writing it more as a blog, because I want to come back to this in the future to try to remember what happened at the event. I have done this twice in the past, in *Peak-of-Flight Newsletters* #373 and #427 (https://www.apogeerockets.com/education/downloads/Newsletter373.pdf, https://www.apogeerockets.com/education/downloads/Newsletter427.pdf), but even those trips seem very foggy now as I'm older. I want to remember the actual launches and what I learned from them. That is my primary purpose for this - so I can jog my memory in the future.

Please note that I'm not writing this to promote my girls (Allison and Ashley) and their wins. I already feel very self-conscious when people send their congratulations on their accomplishments. I'm already proud of them, but not for winning. I'm impressed by how they handle themselves under stress and how they treat other people. They have achieved so much in rocketry in their young lives, but I want this to be just a stepping stone to whatever future they decide for themselves.

I personally wasn't a competitor myself, but I truly feel that I did take home a GOLD medal, and it is something that I'm very proud of.

Actually, I would say that I got the gold medal last November (2020). That was the point in time that I gained enough knowledge to be able to make world class rockets. That is the real "gold" prize -- KNOWLEDGE!

And fortunately, the prize is available to everyone that really and truly wants to learn. I find that most people go through the motions of trying, but as soon as they hit an obstacle, they give up. I had many setbacks that came up during the preparation phase, and I was just as dejected as anyone could be. But I would say my desire and persistence just to be able to "do it" (to make models that were competitive on a world class stage) was the one factor that allowed me to overcome the setbacks along the way.

It is my hope that this recollection will inspire you to build upon what I have learned, and take it literally to a higher level.

You see, in two years (July of 2023), the next WSMC will be hosted by the USA and will be held near Austin, Texas. You won't have to travel nearly half-way around the world to prove you are a world class modeler. You just have to go to Texas.

FIGURE 1: ASHLEY MAKES A FIBERGLASS BODY TUBE IN A TWO-PART MOLD.

As I mentioned, I wasn't a participant on the US Team. I was supporting my two daughters that were selected for the team. My oldest daughter Allison was on the Senior team (older than 18 years), and my youngest was on the Junior team (under 18). I'm happy to be in the background and just support them and make sure they are ready to go.

The girls were selected for the team in the summer of 2019 as part of the tryout process.

But we procrastinated a little bit on getting prepared for the actual WSMC event, and it wasn't until around November of 2019 that I really started the process of

Continued on page 3

About this Newsletter

You can subscribe to receive this e-zine FREE at the Apogee Components website www.ApogeeComponents.com, or by clicking the link here Newsletter Sign-Up

Newsletter Staff

Writer: Tim Van Milligan
Cover & Layout: Derek Villar
Proofreader: Michelle Mason

Experience the World Spacemodeling Championships Pt. 1

Continued from page 2

experimenting with different techniques to improve on our previous competition rockets. My previous rockets were made from fiberglass cloth over the top of a male mold. See *Peak-of-Flight Newsletter* #434 (https://www.apogeerockets.com/education/downloads/Newsletter434.pdf) for the technique that I used previously.

In November of 2019, Kevin Kuczek, who also lives here in Colorado, invited me over to his house to see a demonstration of his process of making carbon-fiber cloth tubes in a two-part female mold. I was leaning toward this technique anyway, as you might have read at the end of the article in newsletter issue 434. In fact, I had already designed, ordered, and took possession of a two-part mold before Kevin even showed me his process.

However, I have to say that I was completely blown away by the process he showed me. The surface finish was absolutely outstanding. Nearly glass smooth. It was far better than anything I had made myself.

Even though I had a two-part mold, I had not attempted more than a handful of body tubes at that point. And of course, they weren't good at all. But they did have partial areas of smooth surface that were intriguing enough to continue experimenting. So Kevin's how-to process, while not 100% perfect, was a huge step forward for me.

After that, it took a long-long time, and hundreds of failed attempts before I was able to make a tube that was good enough to use in international competition. Kevin and I exchanged numerous emails in order to isolate the problems and work out a solution in order to get consistent quality from one tube to the next.

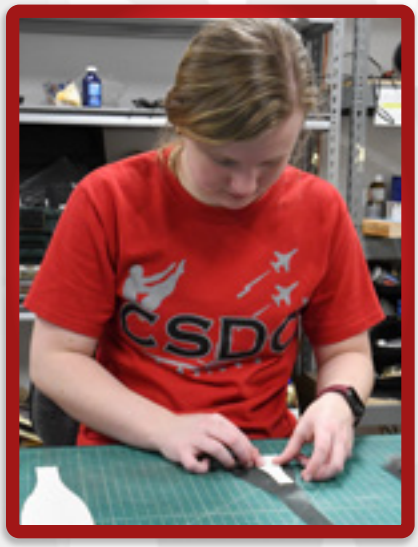


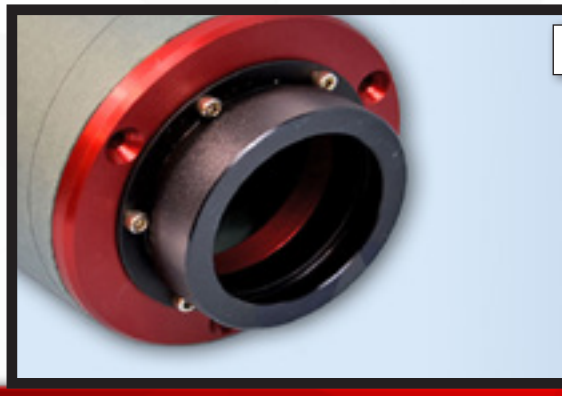
FIGURE 2: ASHLEY CUTS OUT PATTERNS FROM CARBON-FIBER CLOTH TO MAKE A LIGHTWEIGHT BODY TUBE.

I learned so much during the process, which is why I really feel that I won the gold medal for this contest. It was so rewarding, that even the setbacks I had along the way were tolerable.

We had expected to go to Romania in August of 2020. But then the pandemic hit, and all plans were tossed out the window. Nobody knew if the event would even be held. It was off-and-on for well over a year. That was the hard part that really affected me and made me feel discouraged. Do you really want to devote a lot of time to an event that may not happen?

You see, at the same time I was trying to ramp up production of carbon-fiber tubes for the contest, I also had to devote more time to working here at Apogee due to the situation caused by the pandemic. It was a busy time. And just like the rest of humanity was experiencing, it was a bit more stressful than usual. Fortunately, we have a great team here at Apogee, and they have been working hard to keep everything running smoothly for customers. We had to work extra hard to overcome the obstacles caused by the pandemic situation.

Continued on page 4



Experienced HPR Builders Use Thrust Plates

- Eliminates Shear Forces on Centering Rings
- Mates with AeroPacks Flanged Engine Retainers
- Fits Standard HPR Tubes, Blue Tubes, and Fiberglass Tubes
- Made from Aircraft Grade Aluminum

https://www.apogeerockets.com/Building_Supplies/Thrust_Plates

Experience the World Spacemodeling Championships Pt. 1

Continued from page 3

FIGURE 3: GOLD MEDALS ARE MADE FROM HUNDREDS OF PRACTICE ATTEMPTS. THESE BOXES CONTAIN ABOUT A 100 REJECTED CARBON FIBER TUBES THAT WE MADE.

Besides that, going on behind the scenes was a major change to RockSim, and we also started work on the Launch Visualizer (https://www.rocksim.com).

We expected the contest organizers to let us know in early 2021 if the contest would be held in the summer. But they told us that they would wait until early April, which then slipped to June for them to decide whether or not the event would even happen. And in late spring of 2021, we heard that all the other RC airplane contests held by the FAI were being completely cancelled. The general feeling was that eventually, even the spacemodeling event would be cancelled. So in the Spring of this year, I actually put competition model building on the back burner until a firm decision was made.

It seemed like a good decision at the time, because I could focus more on work here at Apogee. There were some major changes, as Marketing assistant, Bobby Potter, and graphic artist Matthew Martinez both left Apogee. Then we hired Derek Villar as our new graphic artist and Christopher Texler for product development. This caused an increase in workload for me, as training for these key positions takes a lot more of my personal time. So instead of making new carbon fiber tubes every day, I was only doing it once a week throughout the spring and early summer.

The June date, for the contest organizers to decide a Go/No-Go decision, came and went. By early July I had resigned myself that the contest would be completely scratched. From what we heard, the contest organizers were concerned by all the additional new international travel restrictions due to Covid, and were hoping that the pandemic would die down during the summer months. It was almost daily that we heard that various countries were putting on more and more travel restrictions.

But finally, in the middle of July, they announced the dates would be in early October. Of course, they had a caveat that they could cancel it at a moment's notice if the Covid situation got worse. I was fully expecting that to happen, but we went through the motions of getting prepared anyway. All the airline tickets were purchased with the "refund" insurance option added, just in case the event was cancelled at the last second.

All through this late spring and early summer, my daughters were wanting me to schedule a family vacation before school started. But because of the on/off situation with the SpaceModeling championships, we decided to forgo any family trips just in case things got turned on again.

Continued on page 5

Experience the World Spacemodeling Championships Pt. 1

Continued from page 4

Once the event was confirmed, I had to pivot my work here at Apogee to concentrate on building rockets with my daughters. We'd build rockets for ½ a day, and I'd do my duties for Apogee during the remaining half. I'd even come back into the workshop after dinner and build some more rockets. This routine lasted right up to about one week before we left for Europe in late September. There was so much to do in order to get ready.

I wasn't complaining though. I did get to spend a lot of time with my daughters building rockets, and I was still developing new processes for making contest rockets. One technique that I came up with in late summer was a way to make lightweight, chrome covered, balsa fins. They have a near mirror finish, which helps them sparkle brightly in the sun. This could be very useful when you're trying to see your rocket in the sky as the model has drifted a long distance away. The flashes of light reflecting off the fins can really help you locate the model when it is just a speck in the sky.

Even though I fully expected the contest to be cancelled at the last second, nobody shut it down. That was the real surprise.

Our trip to the World Spacemodeling Championships started in late September with a few days vacation in southern France. Of all the countries in Europe, France was the one with the easiest entry regulations due to the Covid situation. We only had to prove we were vaccinated in order to get in. We rented a small apartment in the city of Nice so that we didn't have to stay in a crowded hotel. From Nice, we were able to drive to visit the city of Cannes, Monaco, and northern Italy. The weather there was beautiful - reminiscent of southern California.

FIGURE 4: ALLISON GETTING A PRACTICE FLIGHT IN COLORADO PRIOR TO OUR TRIP TO ROMANIA.

Finally our vacation was over, and it was time to go back to work and fly some rockets. This job stinks -- having to fly rockets all the time.

We arrived in Bucharest, Romania on Thursday evening ahead of the contest. It was at this point that we started seeing other members of the USA team. That was a relief, as there is safety and confidence when you're surrounded by friends.

But we had to spend a little more time at the airport because there was one piece of missing luggage. It was my long box with the launch tower parts and other launch

Continued on page 6

Experience the World Spacemodeling Championships Pt. 1

Continued from page 5

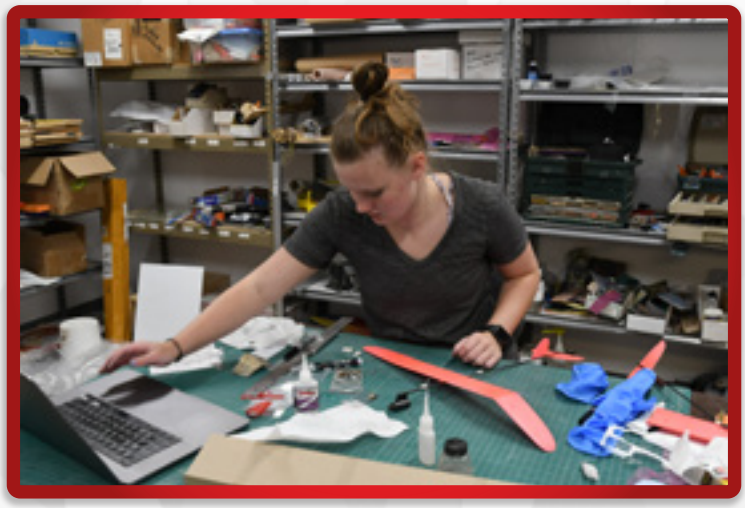


FIGURE 5: ASHLEY PUTS THE FINISHING TOUCHES ON HER GLIDER ROCKETS.

equipment. Fortunately, it wasn't the actual rocket models. We always take the models and put them on the plane as carry-on luggage, so they don't get lost or damaged by baggage crews.

Incidentally, I learned that it isn't a good idea to use a rifle case for luggage. Every cop and security agent would eye me like I had a weapon in the airport. I got delayed more than once when they stopped me to ask what was in the rifle case. If I have to do it in the future, I might try to find an old guitar case that was long enough for my graphite rods that I use for the launch tower.

We had dinner and spent the night at the airport hotel with most of the team that had also arrived that day. There was a team meeting to go over some of the logistics of the event, and to get the last minute changes we could expect.

Friday was a leisurely day in Romania, since we didn't have to be at the contest hotel in Buzau (about 110 km to the north-east of Bucharest) until the evening. So we decided to drive around Bucharest and see the sights. Because of Covid, all the tourist areas were closed to us, so all we could do was drive around and look at the outsides of some old buildings.

I probably would have enjoyed it more if it wasn't for the traffic. I wanted to sightsee, but my daughters in the back seat would be constantly yelling at me to keep my eyes on the road ahead. The traffic in Romania is a nightmare, so I could understand their concerns. The roads are narrow, and there isn't any room for parking (no lots), so other people just park on the roadway where they find a place to wedge their cars into. It just makes the congestion even worse. It was bumper to bumper for about two hours. I was finally relieved to get out of the city onto a simple two lane road in the country. I have to say that I did not see much of Bucharest.

FIGURE 6: WE STOPPED IN SAN REMO, ITALY FOR SOME VACATION BEFORE GETTING TO ROMANIA.

Continued on page 7

CHECK OUT THE APOGEE YouTube PAGE
CLICK OR SUBSCRIBE HERE FOR OUR HELPFUL
AND INFORMATIVE HOW-TO VIDEOS
ON MODEL ROCKETRY
APOGEE COMPONENTS

Experience the World Spacemodeling Championships Pt. 1

Continued from page 6

The countryside was nice and flat, with old villages dotting the roadway. We got to Buzau in the late afternoon. My recollection is that it is a weird city. In the middle of the prairie, up pops what looks like a big city with many tall buildings. However, there are no suburbs surrounding it, so you immediately go from countryside right into a downtown. And like Bucharest, it had narrow winding streets with no parking lots anywhere. Why? In the USA, where we also have room, our cities spread out wide instead of going vertical. I just couldn't wrap my mind around how different it was from home.

By now, the rest of the USA team was meeting up at the hotel, and we all exchanged stories of our trip to this point. Everyone had made it into Romania despite the travel hassles, which was good to see.

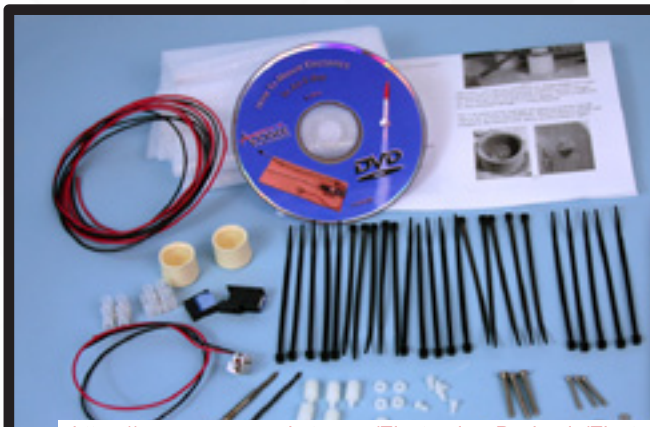
FIGURE 7: AT THE HOTEL IN ROMANIA, ALLISON AND ASHLEY PUT THE FINS ON THEIR ROCKETS.

FIGURE 8: OLD SURPLUS ARMY TENTS WERE OUR PREP AREA ON THE CONTEST FIELD.

Now that we were finally in the contest hotel, it was time to prepare the rockets for the contest. This was actually the first time since departing Colorado that we looked at the condition of the rockets after hauling them to France and then Romania. You don't want to handle them any more than necessary for fear of breaking them. They are so light weight that you have to be careful with them. So you keep them locked up for as long as possible.

At this point, the rockets were only partially built -- they didn't have fins on them. Why? In order to pack as many models into the checked baggage for the flight over to Romania, we left the fins off of them. This is a common thing to do for a lot of people that travel with rockets. We had over two dozen rockets with us to fly, so there were a lot of fins to attach that first night in the hotel. It can get a

Continued on page 8



Electronics Hardware Installation Kit

Think of the convenience of getting everything to professionally install your dual-deployment or other electronic payload into a e-bay of your rocket!

Includes: nylon standoffs, screws & nuts, wire, push-switch, drill & tap, ejection charge cannisters, barrier strips, wire ties, and step-by-step DVD instructions.

https://www.apogeerockets.com/Electronics_Payloads/Electronics_Accessories/Electronics_Mounting_Kit

Experience the World Spacemodeling Championships Pt. 1

Continued from page 7

FIGURE 9: ON PRACTICE DAY, ASHLEY TESTS THE STABILITY OF ONE OF HER ALTITUDE MODELS.

bit cramped in the hotel room, and a little stinky too with the epoxy fumes wafting around. Fortunately, we were able to open the window to get some fresh air flowing in the room.

Saturday was a practice day for the teams. This was a busy day for the Van Milligan family, as my daughters were in many different events that they had to practice. The big unknown for everyone on the USA team was the rocket motors. They don't use Estes engines over there for competition. They use smaller 10.2mm diameter rocket motors that are handmade specifically for the competition.

We don't have access to those motors for practicing at home in the USA, and that puts us at a disadvantage. There are nuances to every motor, and you have to characterize how they will affect the models. In this case, the ejection charges are weaker, and they have tiny nozzles that make ignition a challenge. So it is important to test fly as many rockets as possible on the practice day, in order to tune the performance of the rockets. There is never enough time nor rocket motors for testing purposes.

We were lucky compared to other members of the USA team. There was a box of rocket motors for the scale model and RC glider events that was shipped ahead to Romania in the weeks before the contest. Because of international HAZMAT shipping regulations and Covid-related delays, those motors didn't make it. So the team members in the scale and RC glider events had to scrounge rocket motors from the left-over box from previous year's contests. It was slim pickings.

Also on Saturday, right in the middle of practicing, was the opening ceremonies for the contest. It was a nuisance, and a cool experience all at the same time.

Because of the Covid protocols, the opening ceremony was moved from the plaza by the hotel in downtown Buzau to the contest field in the countryside. So the people in Buzau missed a really nice air show featuring several types of military airplanes and helicopters from the Romanian military. But at the same time, they were also spared the burden of hearing a lot of long boring speeches from politicians.

After practicing the remainder of the afternoon, it was back to the hotel for dinner. Speaking of the hotel, the set-up for the contest was a little different from other World Championship events that we attended in the past. Normally, all the teams are lodged together in the same hotel. But because of Covid, they separated teams into several different hotels across the city. In our particular hotel, it was just the USA team and the team from Russia. That was interesting…

Continued on page 9

Experience the World Spacemodeling Championships Pt. 1

Continued from page 8

Rocketeers are all pretty much alike, so there were no international incidents between us and the Russians. My only comment is that the particular Russians in the room next to ours liked to stay up partying way into the night. And they didn't invite me over. So all they did was to keep me awake every night until about 1 a.m.

The food at the hotel is always a topic that people are curious about. And in that regard, I could say it was more edible than other places we stayed in the past. The breakfast bar was well stocked with very traditional western-type food (scrambled eggs, yogurt, canadian bacon), plus ample amounts of Eastern European food - pork sausages, cheeses, cucumbers, tomatoes, and lots of breads. We had a very hearty breakfast every day.

Lunches were catered on the field by a local grocery store chain. They always had some sort of meat, a large bowl of soup, a small salad like a coleslaw, and lots of bread. Eating the supplied meat on the field was a risk. One day the soup was chicken-bone, which didn't taste all that fresh. One member of the US team did get food poisoning from it, so from that day on, most people didn't eat the meat on the field. What they did was to stuff breakfast food from the hotel in a napkin, and eat that for lunch. But with the exception of the chicken bone soup, I thought the food on the field at lunchtime was edible. Not tasty… just edible.

There was a vendor on the field selling chips, snacks and coffee, and I think they did a good business during the week. At least I spent a lot of money with them.

The hotel dinners at the end of the day were a different experience. I feel that the hotel was trying to be upscale in their dining experience. They served small portions of food that was aesthetically pleasing, and delivered slowly by a well-dressed wait staff. But us rocketeers want home-cooked food served fast, and piled high and deep. In other words, I'd rather have a juicy burger than a pile of rice with some sort of pork on top of it.

The decor in the hotel was what I'd call: "post-soviet." It was clean, but stark. Painted concrete walls, with no windows, wall hangings or plants. The paint was bright green and fresh, but it just didn't feel like a comfortable environment.

By the end of the contest week, we ditched the food at the hotel and headed to a restaurant down the road that we'd probably say is more similar to an Applebees (without the nice decor). But their food was delicious and plentiful.

FIGURE 10: FROM THE CONTEST FIELD, OFF IN THE DISTANCE YOU COULD SEE THE CITY OF BAZAU, ROMANIA. OF COURSE… THERE ARE POWER LINES RUNNING THROUGH THE MIDDLE OF THE FIELD.

Continued on page 10

Experience the World Spacemodeling Championships Pt. 1

Continued from page 9

FIGURE 11: A SMALL MILITARY BAND PERFORMS FOR THE OPENING CEREMONIES OF THE CONTEST.

In the next issue of *Peak-of-Flight*, I'll pick up with the first day of the competition and talk about what actually happened on the field in Romania.

Note: If you are interested in getting involved in International Competition, so that you can be involved with the event in Texas in 2023, you can check out the specific models that Apogee Components has that would be a good starting point for getting familiar with the different events, and that conform to the FAI rules. You can check them out at: https://www.apogeerockets.com/Model-Rocket-Kits/FAI-Competition-Kits.

NEED A PARACHUTE? APOGEE HAS THE ONE YOU'RE LOOKING FOR!

www.ApogeeRockets.com/Building-Supplies/Parachutes

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 an 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 ezine newsletter about model rockets. You can email him by using the contact form at https://www.apogeerockets.com/Contact.

www.ApogeeRockets.com/RockSim/RockSim_Information