

PEAK_{OF} FLIGHT

NEWSLETTER

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***NARCON MANUFACTURERS'
FORUM
& TIM'S MESSY DESK***



<https://www.apogeerockets.com/Model-Rocket-Kits/Skill-Level-3-Model-Rocket-Kits/Antares-Explorer>

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NARCON Manufacturers' Forum

By Tim Van Milligan

What is going on in the world of model rocketry? The answer to that question is why I took time away from my vacation to attend the NARCON Manufacturer's Forum on January 27th. Just like you, I wanted to keep abreast of what other rocketry manufacturers are putting out.

NARCON is the National Association of Rocketry's annual convention. Because of Covid, it has been held virtually since 2021. Prior to that, it was a hotel convention that traveled to different locations around the United States. Personally, I liked it better when it was an in-person event because there were always great tours tied to the conference that you wouldn't probably have access to any other way. And it was great to meet so many other modelers in person.

In this article, I thought I'd give you a synopsis of what was talked about during the manufacturer's forum. Due to time constraints, there was a limited number of vendors, and each was only given about 7 minutes to tell about all the things they had going on.

I just re-watched my own presentation, and I have to admit I looked worn out. I had a hard day of helping my daughter move into a new apartment, so that was my own excuse.

I covered most of the Apogee news in the Peak-of-Flight Newsletter #589 (<https://www.apogeerockets.com/education/downloads/Newsletter589.pdf>), but I'll give a short synopsis in case you missed it.

The big news from Apogee last year was the release of the gliding parachute recovery system, which allows you to guide the rocket right back to your feet. No more do you have to trek "over hill and dale" to find your rocket. It can come back to you. That product was released in October, and has been getting great reviews ever since. Also last year, we released two versions of RockSim (versions 10.4

and 10.5), plus the new Launch Visualizer (<https://www.RockSim.com>). The Launch Visualizer is our cloud-based simulator that you can run on any web browser. You can even run it when you're at a launch, assuming you have a cell phone connection with your smartphone.



FIGURE 1 - APOGEE'S NEW ROCKET: QUICK DRAW

This year, we have some big goals. First of all, we want to release 12 new Apogee kits, which is essentially one per month. And we're on track, since we released the first new rocket in January. That was the Quick Draw rocket (<https://www.apogeerockets.com/Model-Rocket-Kits/Skill-Level-4-Model-Rocket-Kits/Quick-Draw>), which is a BT-80 based rocket that has interchangeable engine mounts. So you can swap between a single motor, or a choice of 2, 3, or 4 engine clusters. It is a very fun rocket, because of all the different choices you have when it is time to launch it.

We've got rocket number 2 and 3 queued up and they are also nearly ready to release. The next one out will be the Antares Explorer (<https://www.apogeerockets.com/Model-Rocket-Kits/Skill-Level-3-Model-Rocket-Kits/Antares-Explorer>), which is a futuristic research rocket that is destined for the Antares star system. It is a BT-55 based rocket that is going to really inspire the next generation of rocketeers. Released soon after that one will be a small rocket called the Feathered Flyer. This is going to be our smallest rocket, based on a 13mm tube with big feathery fins. We



FIGURE 2 - THE NEW ANTARES EXPLORER, WHICH IS AVAILABLE STARTING TODAY!

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NARCON Manufacturers' Forum

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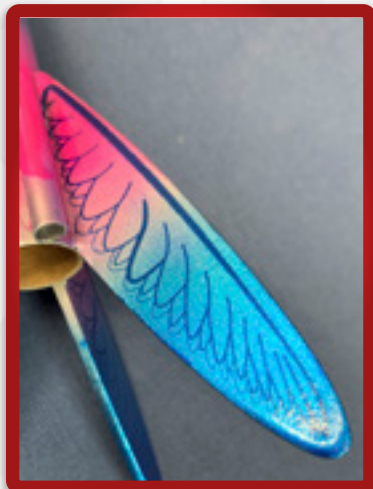


FIGURE 3 - A SNEAK PEEK AT THE UPCOMING FEATHERED FLYER

decided to do a simple rocket, because we're gearing up for some bigger projects later this year.

Most of the 12 new rockets we are planning are being developed by Martin Jay McKee, who joined our team in August of 2022. I'm so happy to have help with the rocket designing. At this point, Apogee is growing so big that I have to do different duties here.

But I'm still doing a little bit of the designing. My current project is to redesign the all-fiberglass rocket called the Level-2. In the past, the Level-2 kit was made for us by Mad Cow Rocketry. But they had difficulty getting fiberglass parts, so I asked Mike if we could produce it here at Apogee. He graciously gave me the go-ahead, and my plan is that the rocket be released sometime this spring. The first batch of parts are shipping to us right now, so we're still on schedule. The new filament wound nose cone is stunning and super strong.

I wanted to do a redesign of the rocket to give it that "Apogee touch" that our customers come to us for. So I've designed it with a new e-bay arrangement that is more like the avionics bay in the Katana rocket kit. But instead of having a wood sled where the electronics are mounted, this is

all-fiberglass. It is a bit more complex from our perspective, as there is a lot of CNC work to shape the fiberglass parts. But for customers, this will be a really beautiful assembly. Much simpler, and incredibly durable.

Finally, we will have a new BT-60 nose cone to add to our line-up. We've had this size nose cone on our wish-list for years, and I finally ordered the tooling. The prototypes arrived a few weeks ago, and now we're waiting on the production parts to be delivered. Once they are here, we'll be designing a whole bunch of new rocket kits around the shape. They are going to be here sooner than you realize, so be sure to read each Peak-of-Flight newsletter to get the latest information.

But what are other manufacturers up to? That was my goal for writing this article. To fill you in on what the other presenters at NARCON spoke about.

First up was Launch Lab Rocketry. This company founded by Steve Nevard in 2020 is the manufacturer of the Bullet Bobby rocket kit. The original rocket is a short-stubby, based on a 2.6-inch diameter tube, and that has a hemispherical 3D printed nose cone. Steve's news at NARCON is that he's now offering a 7.5-inch diameter version of the rocket that runs on high power motors.



FIGURE 4 - NEW FIBERGLASS NOSE CONE

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FIGURE 5 - RAY DIPAOLO, THE OWNER OF FLISKITS

Speaking next was Ray DiPaola, the owner of Fliskits. At the start of 2019, Ray and Eric Henderson acquired the company from founder Jim Flis. They are currently in the process of reintroducing the fleet. Ray's new announcement was that he is looking to make some high power rockets, based on the components from LOC Precision. His initial objective is to make a simple-to-build rocket with "jig fins" that are reminiscent of the fins on the rocket they make for schools.

Randy Boadway from E-Rockets followed next and had several new products to show off. First off was a set of clip whips for a 3-engine cluster. These make it a little easier to wire up a cluster, particularly if you are using the standard Estes igniters. The leads on the Estes igniters are short and can be hard to twist together. Randy also showed off a 3D printed Rod Mount Adapter for the Estes Pro Pad. One of the issues with the Estes Pro Pad is that it doesn't accept smaller



FIGURE 6 - EROCKETS CLIP WHIP

diameter launch rods. So with the new 3D printed adapter, you can use a 3/16" or a 1/8" diameter launch rod.

Speaking of 3D printed parts, E-rockets is now selling a Mercury Redstone capsule and tower, plus a 1/100th scale capsule and escape tower for the Estes Saturn V rocket. And finally, Randy mentioned that he's trying to get the Hydra 7 rocket kit back into production. He's simplifying the assembly with fewer parts, which will allow him to sell it at a lower price than it was in the past.

Matt Johnson from Altaira was up next. He announced that his revised N1 book is now available again on Amazon. There is a more detailed review of the book in the January/February 2023 issue of Sport Rocketry if you're interested.

NewWay Space Models was represented by Rick Randol. For those that haven't heard of NewWay, they make square rockets. Rick mentioned that it is getting a bit hard to source the square paper tubes, but he did show several new models.

The first was the Der Squared Max, which is a homage to the Estes Der Red Maxx kit. It is a unique rocket in that it has three fins that are mounted on a square tube. Then there is the Angled Invader, which is a square model that

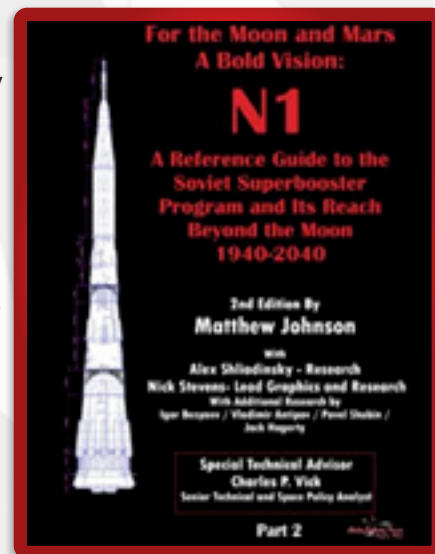


FIGURE 7 - N1 BOOK

Continued on page 5

A large, white and green rocket with the word "ZEPHYR" on its side, flying through a blue sky with clouds. The Apogee Rockets logo is in the top left corner.

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FIGURE 8 - NEWWAY SPACE BOXY BIRDIE

is a take-off on the Estes Alien Invader. This rocket has a 3D printed nose cone, and canopy pods that glue onto the nose. The Boxy Birdie is a take-off of the Odd'I Birdie rocket (<https://www.apogeerockets.com/Rocket-Kits/Skill-Level-2-Model-Rocket-Kits/Birdie>), which is a regular badminton shuttlecock. The square version is about the same size, but has a unique look to it.

Because of problems getting square tubes, Rick says he is also going to start manufacturing some old clones of Estes kits. The first one out is the BAT rocket with its all-black color scheme and fins in the shape of a bat wing. He is also coming out with a Mars Snooper II rocket, which is the lesser known brother of the regular Mars Snooper. With its shock absorbing landing pads, this one was a favorite one of Rick's childhood.

A scale model of the Nike-Ajax rocket is also coming from NewWay. The Nike Ajax was a surface-to-air guided missile system developed by the United States Army in the 1950s. The missile was equipped with a solid-fuel rocket motor and a high-explosive warhead, and was guided to its target by radar and remote control. It is a clone of the Estes kit, and will be a single-stage rocket that will be based on a 18mm diameter motor.

Rick is also bashing some designs together to make novel rockets. The Mark One-Two is a combination of the old Orville Carlise rocket called the Mark

1, with a two engine cluster from the Flis kits called the Deuces Wild. So it will have a set of fins mounted on stilts, along with a cluster of two canted engines. And of course, it is a square body rocket.

He's also doing an Andromeda looking rocket called

the USS Element in limited quantities. Finally, he's coming out with an airplane rocket based on the F22 stealth fighter that he is calling the N22 Night Storm. It will be all black with a 3D printed nose cone.

Estes Industries

was represented by Ellis Langford. The new Estes catalog was released in January, so if you got that booklet, then you're probably aware of the new items they are coming out with. Ellis showed off the B.O.S.S. rocket, a futuristic rocket that looks like it came out of the Star Trek series. He also displayed a prototype of the "So Long" rocket, which is a 29mm minimum diameter rocket, but as a two stage. With the F15-0 and F15-8 motors, this rocket will definitely live up to its name, and you'll probably never see it again.

Ellis mentioned that they upgraded the production

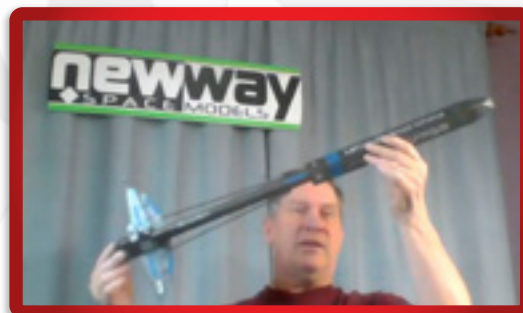


FIGURE 9 - USS ELEMENT KIT



FIGURE 10 - ANGLED INVADER FROM NEWWAY

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process of the F15 motors (<https://www.apogeerockets.com/Rocket-Motors/Estes-Motors/29mm-Motors>), and that helped to get the motors back into stock, and hopefully to remain in stock for the future as well. Estes is also coming out with a sanding bar, similar to the famous Apogee sanding Tee (<https://www.apogeerockets.com/Building-Supplies/Tools/Apogee-Sanding-Tee>). Theirs is much shorter, and is designed to work with 3-inch wide rolls of adhesive backed sandpaper.

Coming later this year from Estes, is the scale model of the Black Brant XII, which is a single stage rocket, even though it looks like a four-stage vehicle. Additionally, this summer they will be producing another upscale version of the classic Goblin rocket, which will be called the Great Goblin. It is about the same size as the 3-inch diameter Der Big Maxx rocket.

Following Estes was Matt Steele from North Coast Rocketry. Matt has a day-job working for Aerojet, so he mentioned that because of the war in Ukraine, he has not been able to work as much on NCR as he would have liked. He started his presentation by mentioning that last year he released the Corporal rocket (<https://www.apogeerockets.com/Rocket-Kits/Skill-Level-2-Model-Rocket-Kits/Corporal>), which is the 4th iteration of the rocket since he first started the company well over 20 years ago.

He also was able to show off the Launch Master controller that came out last fall (<https://www.apogeerockets.com/Launch-Accessories/Launch-Controllers/LaunchMaster-Launch-Controller>). This is a heavy duty controller with 40 feet of wire so that you can launch those larger mid-power rockets from a safe distance. To go with it, Matt mentioned that he will also release a launch pad with a swivel head that will take

the most common size launch rods later this year. He is also still working on the sport scale version of the Javelin rocket, which will be using the Nike-shaped fin unit from Quest. He is currently working on the instructions for the rocket, which should be the last item that needs to be completed before the rocket is released.

Concurrently, Matt says he is working on the large scale SLS from NASA. The main tube will be based on a 2.6-inch diameter tube, and it will have full-body sticker wraps, very much like the MGM-157 Scorch that came out last year (<https://www.apogeerockets.com/Model-Rocket-Kits/Skill-Level-4-Model-Rocket-Kits/AGM-157-Scorch>). The SLS rocket will be available soon according to Matt. For the last two years, Matt has been thinking about re-releasing the Phantom4000 and the Archer, which are both

4-inch diameter rockets, capable of flying on high power motors. If everything goes well, he hopes that those 4-inch kits will be available in the Fall of 2023.

Finally, Matt talked about his 3D printed screw-on engine retainers, which he also hopes to get out before Fall of this year.

Gary Rosenfield from Aerotech also had a lot to show off. He began with a review of

the new products released in 2022, starting with the 29mm X 95mm Q-jet motor called the E35W (<https://www.apogeerockets.com/Rocket-Motors/Quest-Motors/24mm-Motors/Single-Use/Quest-Q-Jet-Composite-Motor-E35-8W>). This is a full 40N-s motor that has a big kick to it. You'll find



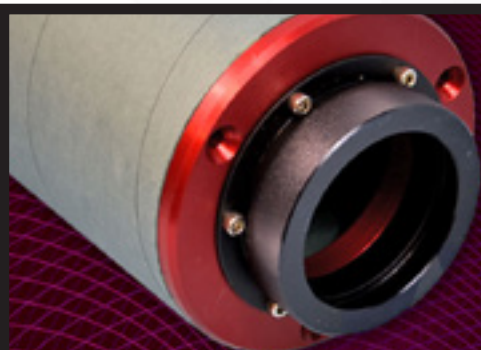
FIGURE 11 - LAUNCHMASTER CONTROLLER

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it useful for heavier models that need a good kick to punch them into the sky.

Also released last year was the 38mm diameter, Disposable Motor System (DMS) I40N-P (<https://www.apogeerockets.com/Rocket-Motors/AeroTech-Motors/38mm-Motors-Single-Use/Aerotech-38mm-HP-SU-DMS-Motor-I40N-P>), which uses the Warp-9 propellant

formula. It is an end-burner, so it has a burn time of 10 seconds. It doesn't have an ejection charge, so to use it, you'll need electronics to deploy the parachute.

Announced last

year but coming this spring, the

F41W is a similar motor to the E35, but with a smidge more power: 46 N-s of total impulse. So you could consider it a small F motor. But it is shippable through the postal service without having to pay hazmat fees.

Last year also saw the release of a first-of-its-kind aerospike nozzle motor. It is the RMS-54/582 J615ST. The flame on this motor is more feathery than any other exhaust plume, really showing off the violet color of the Super Thunder propellant. For small fields, Aerotech produced the K750ST motor for the RMS-75/1280 casing. It is a single grain motor with a short burn time of 1.7 seconds.

In other news, Gary mentioned that they started work

last year on a new 15,000 square foot building that will be part warehouse, part offices, and with some additional room for manufacturing kits. The building will be opening this summer, and Aerotech plans to have an official ribbon-cutting ceremony in the Fall.

Recently, Aerotech announced that they were taking about 50 of their low-selling motors and making them "seasonal" items. That means they will only produce them "once in a while," which means they won't be available on a regular basis. This will allow Aerotech to be more efficient in producing more popular motors, and should allow them to have better stock of those going forward.

They are also rebranding their motor line this year to simplify things. The motors that used to be called Econojet or Econo-max will be relabeled. They aren't going away, they just will be called either Q-Jets, Enerjet, or Aerotech. For example, the rebranded motors will be in three

varieties. They will have the Q-Jets, which will remain as a lower cost small motor that uses the thermoplastic cases and the clay nozzles. The Enerjet line will be strictly modern reproductions of legacy motors. And almost everything else will be simply called Aerotech motors. They are also working on new clam-shell plastic packaging for the larger G size rocket motors, phasing out the plastic bags that were common in the past.

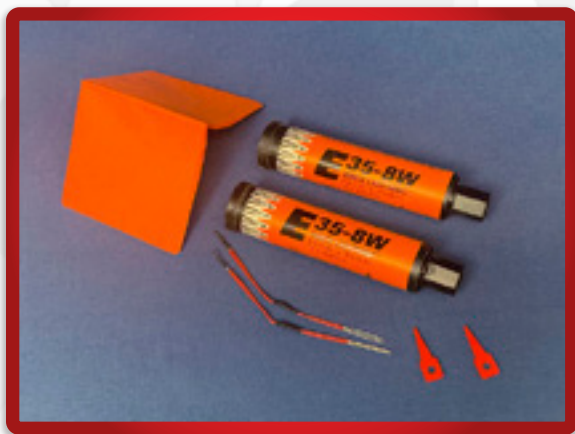


FIGURE 12 - E35 MOTOR



FIGURE 13 - E26 MOTOR

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New motors coming out this year:

- M2225WS-PS 75mm RMS reload kit
- O5500X-PS 98mm DMS motor - which replaces the O5280
- J1265ST-14A 54mm DMS motor - short burn of .85 seconds
- K62N-P 54mm DMS motor - Warp-9 end burning. Great for lightweight rockets!
- N1000 98mm DMS motor
- N1975 98mm DMS motor

Other classic Enerjet motors coming this spring will be two motors in a 29mm X 83mm size casing. They are the:

- E24C - 18.4g propellant weight, 36.3 N-s total impulse.
- F67C - 36.8 g propellant weight, 77.5 N-s total impulse. This motor will require Hazmat shipping because of its propellant weight being greater than 30 grams.

As far as kits go, Gary said there will be a new kit, the Enerjet Nike-Ram. It is 35mm diameter x 24-inches long and uses a 29mm motor mount. It is an Enerjet classic kit developed by Bob Sanford. Finally, Aerotech is planning on doing a weekly live video called "Coffee with Aerotech" once they get the video studio set up in their new building. It should be interesting.

That's it for manufacturer's news at NARCON. It is always interesting to see what other manufacturers are up to, and this looks like there are going to be plenty of new products for us all to play with later this year.

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 e-zine newsletter about model rockets. You can email him by using the contact form at <https://www.apogeerockets.com/Contact>.



**1:21
SCALE
MODEL**



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PEAK^{of} FLIGHT

Tim's Messy Desk

By Tim Van Milligan

It's Valentine's Day. Which is why I'm thinking about my girls, Allison and Ashley. This past few weeks has been a whirlwind of activity for them, which is why I'm not personally getting a lot of things done. Thank goodness for our team here at Apogee. They have been taking over my workload while I've been distracted with my daughter's activities. I am so grateful for all of them.

I was out of town about a week ago helping my oldest daughter Allison move into a new duplex in Florida. She graduated college last spring, and then got married in June. Now she is starting to settle into the routine of working at a hospital and trying to get into Physician's Assistant (PA) school. Moving, as I'm sure everyone knows, is a huge chore, and she needed help. So I took off a week to help



**ASHLEY AT THE STATE CHAMPIONSHIPS
- WHICH SHE WON -**



ASHLEY SETTING UP HER ROCKET FOR LAUNCH

clean up and paint the new place, and then move furniture into it. I worked myself to the point of exhaustion. That was bad, because then my body couldn't fight off the flu bug that was going around. I'm not feeling 100% yet, but I'm making progress every day.

When I got back home, my youngest daughter Ashley began the final stretch of her diving season at our local high school. As a parent, I wanted to support her during the last few contests, so I took more time off from Apogee. She finished on February 8 at the Colorado State Championships. I'm so proud of her, as she won the whole thing - she's now the reigning 1 meter springboard diving champion for 4A high schools in Colorado. She had that as her goal for this season, as well as setting two new scoring records for her high school, which she also accomplished.

Next up for her is graduation, and then we get back to doing the big rocket competition this summer at the World

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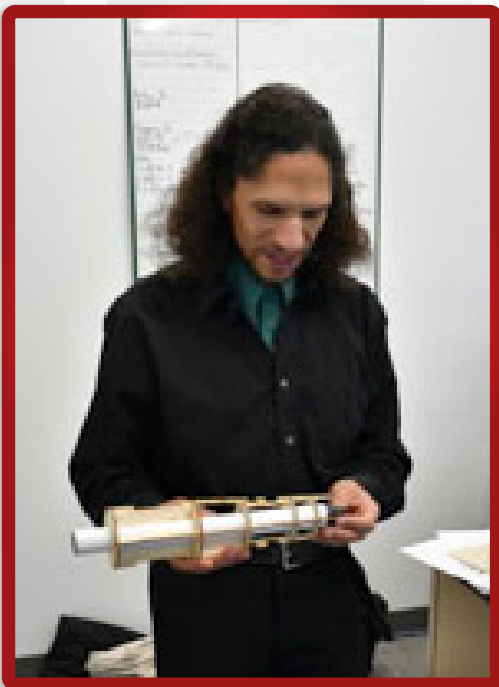
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Space Modelling Championships that will be held near Austin, Texas in July. Ashley is competing with the senior team this year, so she is going against some stiff competition - literally the best competition rocketeers in the world. She's excited by that too.

After that, she's going off to college and will be studying Biomedical Engineering at the University of North Texas, near Dallas. She's going to be on the school's diving team too. Because of that, I'm sure I'll attend some of those competitions. I probably can make them business trips, so if

you're in the Dallas area, I may be visiting a launch or two.

As for what is going on here at Apogee, as you read in the article about the NARCON event, we've got a new BT-60 nose cone design in the works. I just got word this morning that the nose cones are done and are being shipped. So by the next issue of *Peak-of-Flight*, they should be in the house and



MARTIN GIVING A SNEAK PEEK AT WHAT IS COMING DOWN THE PIPELINE

maybe even up on the website where you can purchase it.

I'm also pleased to say that we're still on track to get out 12 new rocket kits this year. I've gotten an inside peek at the new designs that our team is working on, and things are moving along quite fast. For me, I'm excited about it, because this is the first time that someone else is taking the lead and pushing the products through the design and testing process. It very much feels like being a new parent. You get to watch your kids grow up, and accomplish things that you could have never done on your own.

At the same time, I feel a bit scared, because I'm losing a bit of direct control over the manufacturing process. I'm transitioning more into the duties of being a cheerleader and coach, which I've not had much practice at doing. But I've got confidence in the team, because we've tried to instill the same type of values into them I live by personally.

So that is what is passing across my messy desk during the past few weeks. I hope you found it interesting.

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