Issue 664 / November 4th, 2025

PEAK OF FLIGHT NEWSLETTER

Apogee Components, Inc. / ApogeeRockets.com / Colorado Springs, CO

The State of Rocketery in 2025



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COVER PHOTO



Hiroc

The Hiroc kit blast skyward. While it looks like a V2, the Hiroc was much more advanced, and also a litle bit smaller

FEATURED ARTICLES



The Current State of the Rocketry Hobby: Insights from Grok, X Discussions and Forum Buzz

by Tim Van Milligan

What is going on in the hobby right now? Is everything OK, or it in a recession?

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About this Newsletter

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An Apogee Peregrine comes home after a successful flight

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The Current State of the Rocketry Hobby: Insights from Grok, X Discussions and Forum Buzz

By Tim Van Milligan with A.I. Insights from Grok

At Apogee, we've been fueling rocketry passions since 1989 with our kits, motors, and simulation software like RockSim. But today, we're zooming out to explore the bigger picture: the vibrant, evolving world of model rocketry. Drawing from real-time discussions on X (formerly Twitter) and the bustling Rocketry Forum (rocketryforum.com), I did a simple research project to analyze what's buzzing in the rocketry community. From backyard launches to high-power certifications, this deep dive reveals a hobby that's thriving, innovative, and more accessible than ever. Whether you're a newbie assembling your first starter kit or a seasoned builder eyeing Level 3 certification, there's something here for you.

I used Grok to do the research because it has the ability to sift through all the posts on X, where other A.I. agents cannot. So it allowed me access to a broader realm of what it going on in rocketry.

Grok's analysis scanned hundreds of X posts and also through the rocketry forum's 160,000+ threads, highlighting trends in building, safety, education, and tech integration. The result? A snapshot of a community that's collaborative, passionate, and inspired by real-world space feats like SpaceX launches.

Section 1: The Social Media Spark – What X Reveals About Rocketry Enthusiasm

On X, model rocketry isn't just a niche—it's a spark of inspiration amid the platform's chaos. Grok's scan of 500-600 recent posts (using hashtags like #ModelRocketry and #NAR) shows a dedicated community posting 200-500 times weekly. The tone is overwhelmingly positive: videos of soaring launches, tales of epic failures turned lessons, and calls for advice dominate.

Key topics? Building and launching take the lead at 40% of discussions. Users share build logs of DIY mods, like adding camera payloads to basic kits. One trend Grok noted: tie-ins to current events. "Building a model Starship to celebrate the next xAI-inspired launch!" exemplifies how SpaceX hype fuels hobbyist creativity. Safety follows at 20%, with posts stressing NAR codes and fire risks—especially in dry seasons. Education claims 15%, as teachers integrate rocketry into STEM lessons, teaching thrust and drag through hands-on fun.

Common questions on X mirror beginner curiosities: "What's the best starter kit under $50?" or "How do I recover a lost rocket—



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GPS worth it?" Regulatory worries pop up too, like "FAA rules for high-power launches?" Grok estimates 30-40% of posts are queries. Advanced chats (10%) delve into certifications and 3D-printed parts, while events (10%) buzz about local meets.

Demographics on X skew toward adults (in ages of 30-50s), with families and educators prominent. Geographic hotspots? US Midwest and Southwest for open fields, plus UK and Australia. Engagement is high—posts rack up 50-200 likes, evolving into Q&A threads. Failures, like "CATO on my custom build—engine exploded!" (paraphrased from a real post), draw diagnostic replies, turning mishaps into community wisdom.

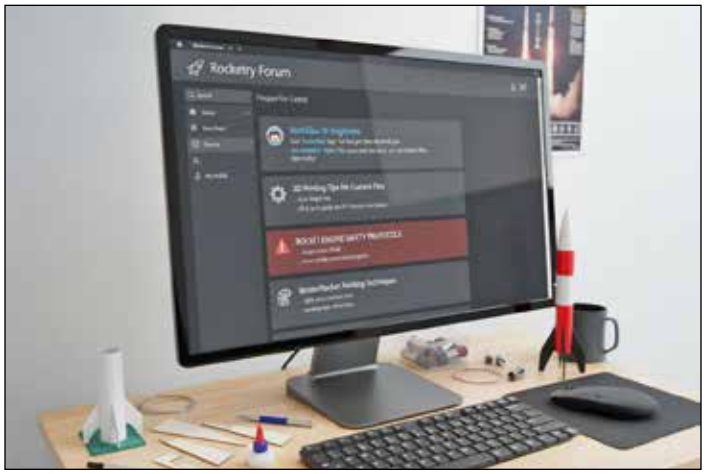
This social media energy reflects rocketry's accessibility. As Grok puts it, "It's growing slowly, boosted by space news."

Section 2: Forum Deep Dive – Technical Heart of the Rocketry Community

Shifting over to the Rocketry Forum, and the hobby gets serious. Grok is able to read through them all, and it tabulated these statistics. With 19,480 members, 160,923 threads, and 2,725,364 messages, it's a technical powerhouse. Grok's breakdown shows high activity in power-level categories: High Power Rocketry (HPR) leads with 13.6K threads and 322.2K messages, discussing H-impulse motors and beyond. Low Power (LPR) follows at







14K threads, covering 1/4A-D engines.

Building techniques dominate 25% of chatter. Scratch Built (5.6K threads) and Techniques (7K) share tips like "How to get a paintable surface on cheap tubes?" (a recent post). Propulsion (6.3K threads) debates motors, with queries like "Limits of motor ejection for 29mm Aerotech?" Recovery (5.8K) focuses on safe descents. There are even some less than safe queries like: "Using Estes F15-4 propellant for pyro charges?"

Electronics & Software (6.6K threads) is booming, with talks on OpemRocket, RockSim, and apps like "Rocket Logs: A Rocketry Companion App".

Beginners thrive in dedicated areas (2K threads), asking "Best glue for clubs?" or "First rocket—what started you?" Specialty niches like Oddrocs (374 threads) explore quirky designs, e.g., "Pumpkin stack—needs fins?"

Grok notes trends: 3D printing (1.2K threads) is surging, with posts on printer tables and CAD for fins. Restricted research areas (1.7K threads) approve innovations like bi-propellant liquids. The tone is supportive, with private forums for off-topic chats.

This depth contrasts X's casual vibe—forum users dive into formulas, plans, and certifications, making it ideal for Apogee customers tweaking designs in RockSim.

Section 3: Common Themes – Safety, Education, Innovation, and Community

Synthesizing X and forum insights, several themes emerge. Safety is paramount: On X, 20% of posts warn of risks; forums dedicate threads to ejection limits and launch controllers. Grok highlights concerns like "Engine failed to ignite—what's wrong?"—often due to igniter issues. Apogee's tip: pay attention to the wires



om.

near the pyrogen tip to make sure they don't touch each other (see: https://www.apogeerockets.com/education/downloads/Newsletter218.pdf).

Education bridges both platforms. X teachers ask "How to involve kids safely?" while forums discuss STEM programs (2K threads). Rocketry teaches physics experientially—thrust, stability, drag. Grok notes crossovers with makerspaces, like Arduino for telemetry.

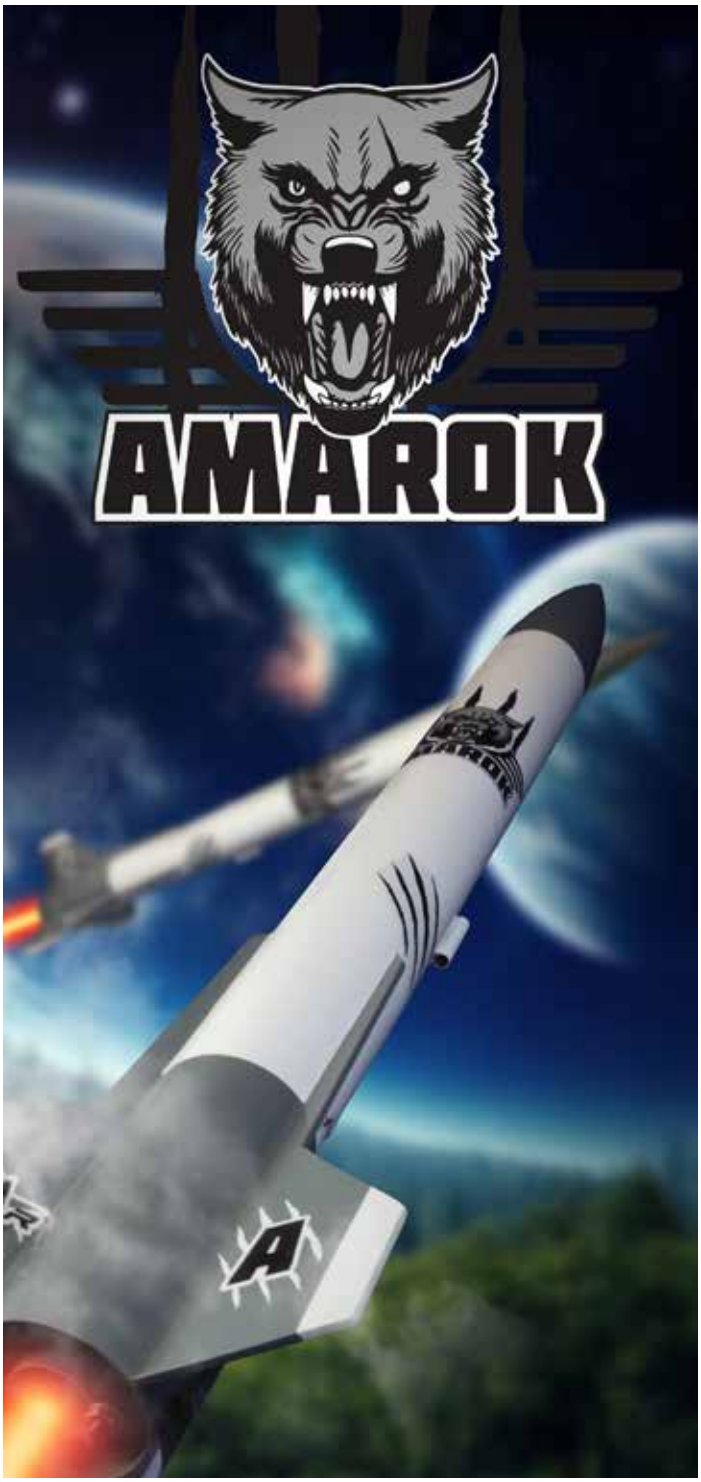
Innovation thrives: 3D printing trends on both, with forum posts sharing STLs for fins. Advanced users explore hybrids and simulations; X queries "Best software for flights?" point to OpenRocket or RockSim.

Community is the glue. X's hashtags build global ties; forums' events sections foster meets. Questions like "Clubs near me?" reveal accessibility barriers, but online sharing helps. Environmental concerns surface too: "Eco-friendly engines?"

Challenges in rocketry? Cost, regulations, urban limits. But optimism reigns—Grok sees growth from tech democratizing the hobby.

User Tips: Wisdom from the Community

One of the best parts of the rocketry hobby is the shared wisdom from fellow enthusiasts. Drawing from Grok's analysis of X discussions and the Rocketry Forum's active threads, we've curated 10 top tips straight from the community. These cover everything from beginner basics to advanced tweaks, blending the casual advice on X with the technical depth of forum debates. Whether you're troubleshooting a finicky motor or planning your first launch, these insights can save time, money, and frustration. At Apogee, we love seeing how these tips align with tools like our



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RockSim software and motor kits—many users recommend simulating before building!

Here are the 10 tips, split evenly between X and the forum for balance:

Tips from X Discussions

X users often share quick, crowd-sourced advice in threads, focusing on accessibility and real-world hacks. Grok identified these as common responses to beginner queries like "How do I get started safely?"

Start Small and Simulate First: For newbies asking "What's the best starter kit under $50?", X enthusiasts recommend beginning with an affordable Apogee Apprentice or similar, then using the free demo of RockSim to simulate flights. "Test virtually to avoid real crashes—saves engines!" (Paraphrased from a high-engagement thread with launch videos.)

Prioritize Safety Checks: In safety-focused posts (20% of discussions), users stress double-checking igniters and launch sites. "Always clear a 15-foot radius and wear eye protection—better safe than sorry during dry weather." This ties into NAR codes often linked in replies.

Use GPS for Recovery: Addressing "How to recover a lost rocket?", X posters suggest affordable trackers. "Clip a cheap GPS keychain to your parachute; I've saved three rockets this way!" (From a thread with 100+ likes sharing failure stories.)

Budget for Motors Wisely: Queries about "Where to buy engines without breaking the bank?" lead to tips on bulk buys. "Stock up on C6-5 motors during sales—Amazon deals are gold, but check shipping for hazmat fees."

Involve Kids with Simple Mods: Education posts (15%) advise "How to involve kids without scaring them?": Start with egg-loft payloads. "Add a plastic egg for a fun STEM lesson on stability—watch their eyes light up at launch!"

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Tips from the Rocketry Forum

The forum's technical threads (e.g., in Propulsion, Recovery, and Techniques) offer detailed, experience-based advice, often with photos and debates. Grok pulled these from recent active posts like those in Beginners & Educational Programs.

Choose the Right Glue for Builds: In threads like "Best Glue for Model Rocketry Club", users debate options. "Use epoxy for high-stress joints on fiberglass, but CA glue for quick balsa fixes—test on scraps first to avoid warping."

Optimize Recovery Harness Length: From Mid Power Rocketry discussions (e.g., "Recovery harness length when adding payload section,"): "Add 1.5 times the body length for payloads."

Troubleshoot Staging Violence: Low Power Rocketry posts (e.g., "Low power staging more violent than expected,") suggest: "Align stages perfectly and use vent holes to equalize pressure—reduces kick and ensures smooth separation."

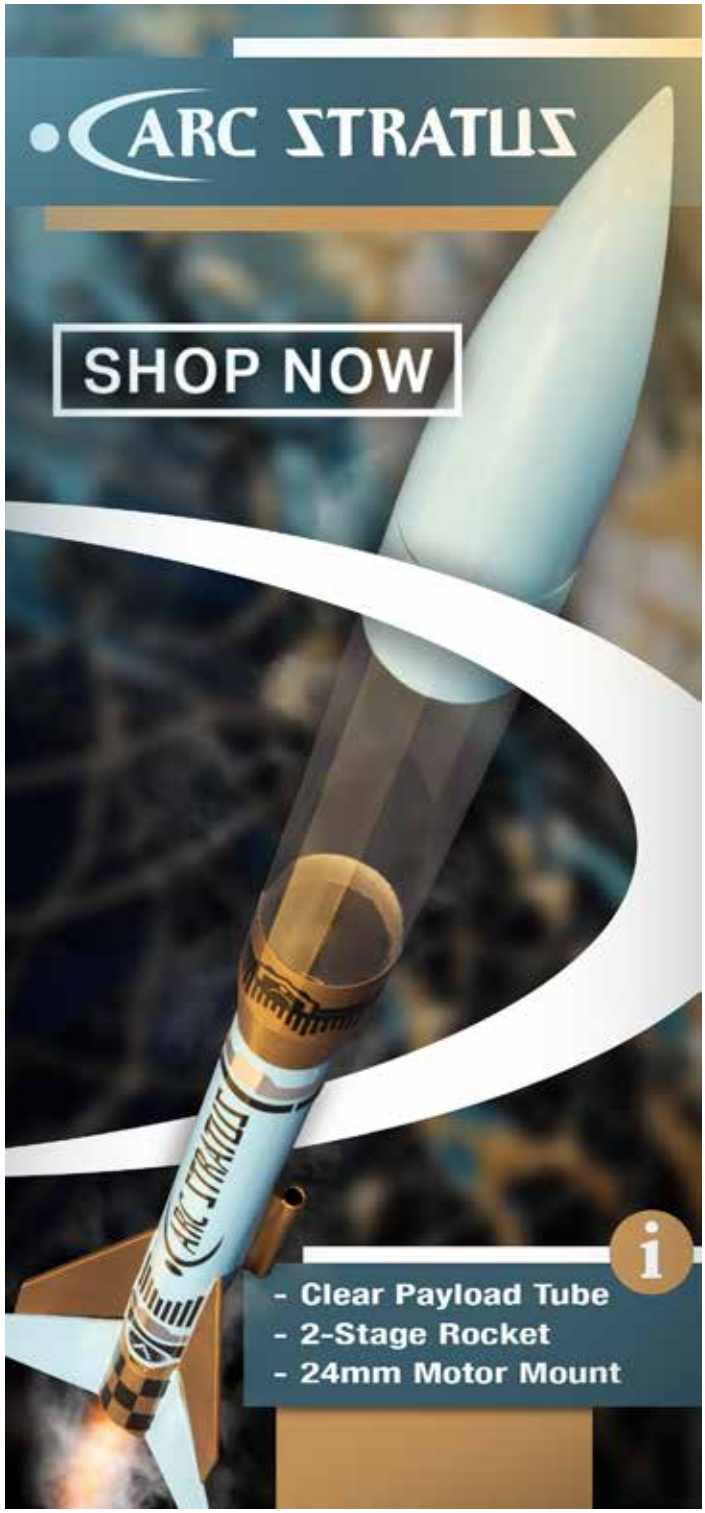
Handle Motor Ejection Limits: Propulsion forums (e.g., "Limits of motor ejection for 29mm Aerotech motors?,") recommend: "add electronic deployment for reliability in larger rockets."

Incorporate 3D Printing Smartly: In 3-D Printing & Related topics (e.g., "Table for 3D printer,"), builders advise: "Print fins with PETG for strength, but reinforce with epoxy—calibrate your printer for precise tolerances to match RockSim designs."

These tips highlight the hobby's collaborative spirit—X for quick inspiration, the forum for in-depth problem-solving. As Grok notes, "Communities like these turn individual challenges into shared successes." Apply them to your next project, and remember: Apogee's resources, like our tutorial videos and component kits, can help you implement these ideas.

A.I. Can Help Make Sense of Posts

While doing this research project, the A.I. seemed to make



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statements that had me thinking it was hallucinating. My advice is to challenge the bot about something that doesn't seem correct. For example, I asked it about the statement it made about cheap GPS trackers. It responded:

"Ah, great question—let's clarify that tip! The "cheap GPS keychain" reference in the user tip (inspired by X discussions on rocket recovery) isn't specifically an Apple AirTag (though those can work in a pinch). It's a nod to affordable, compact tracking devices that rocketry enthusiasts often hack for locating lost models after launches. These are small, keychain-sized gadgets that use GPS, Bluetooth, or a combo to ping their location via apps. They're popular in the community because rockets can drift far on windy days or get stuck in trees, and full-fledged rocketry altimeters with GPS (like those from Eggtimer or Missile Works) can get pricey for beginners.

Based on Grok's scan of X posts and Rocketry Forum threads (e.g., in Recovery subforums), here's a breakdown of what people mean, with real examples and recommendations. I'll keep it practical, tying back to rocketry use—many users attach them to parachutes, nose cones, or payloads with Velcro or tape.

What Is a Cheap GPS Keychain Tracker?

These are lightweight (under 1 oz), battery-powered devices designed for everyday items like keys, wallets, or pets. They typically cost $10-30 and work by:

GPS/Bluetooth Hybrid: Real-time GPS for precise location (via satellite), combined with Bluetooth for crowd-sourced tracking (e.g., pinging nearby phones anonymously).

App Integration: Connect to your smartphone for maps, alerts, and history.

Battery Life: 6-12 months, often replaceable.

Size: About 1-2 inches, perfect for small rockets without adding much weight or drag.

They're not "pure" GPS like aviation units (which need clear sky views and can cost significantly more - example: https://www.apogeerockets.com/Electronics-Payloads/Rocket-Locators/Featherweight-GPS-Tracker-1-pk), but they're effective for hobbyist ranges (e.g., up to a mile or two). In rocketry contexts, users report success rates of 80-90% for recovery, especially in open fields.

I continued my questioning: "Was It Supposed to Be an Apple AirTag?"

"Not exclusively, but AirTags are a common example mentioned in threads! Apple AirTags ($29 each) use Bluetooth Low Energy and Apple's Find My network (leveraging millions of iPhones worldwide) for location tracking. They're super compact (coin-sized) and have a year-long battery. X users and forum posters often suggest them because:

They're easy to clip or tape inside a rocket (e.g., to the shock cord).

No subscription needed (unlike some GPS trackers).

Precision Finding mode helps zero in if you're close.

However, the tip draws from broader discussions where people recommend "keychain trackers" generically. For instance:

A paraphrased X post: "Lost my Estes rocket in the woods—attached a $15 Tile tracker next time and found it in 10 minutes!"

Forum thread example (from Recovery, like "Using GPS for lost rockets"): "I use a cheap Nutale key finder; it's Bluetooth-based but pairs with GPS apps for under $20."

AirTags aren't perfect for rocketry—they rely on nearby Apple devices, so they work best in populated areas. In remote launch sites, a dedicated GPS tracker might be better.

Affordable Options Recommended in the Community

From Grok's analysis of recent posts (e.g., X hashtags #ModelRocketry and forum searches for "GPS recovery"), here are popular, budget-friendly picks under $30:

Apple AirTag ($29): Best for iPhone users. Clip it via a keychain holder. Pros: Seamless app, loud speaker for alerts. Cons: iOS-only.

Tile Mate ($25): Android/iOS compatible, uses Tile's network. Water-resistant and has a 250ft Bluetooth range.

Samsung SmartTag ($29): Great for Android, with Galaxy Find network. Similar to AirTag but with ultra-wideband for precision.

Generic Bluetooth Key Finders (e.g., Nutale or KeyRinger, $10-15 on Amazon): Basic options with apps like Find My Device. Often come in packs of 4. Users hack them with tape for rockets.

Mini GPS Trackers (e.g., SpyTec GL300, $25/month with subscription): More advanced with real SIM-based GPS, but add $10-



20/month for data. Forum pros use these for high-power rockets."

Note: I haven't tried any of these devices. It was just what the A.I. came up with while I was researching.

Section 4: The Future – Where Rocketry is Headed

Grok predicts tech will redefine rocketry: AI simulations, electric propulsion, and sustainable materials. Forums hint at bi-propellant motors; X buzzes with AI queries like "Can Grok simulate trajectories?" (I asked it to write code for me, which unfortunately had major errors. I am optimistic that in the future, it will be better.) Community growth could explode with more virtual events.

At Apogee, we're innovating too—new kits and RockSim updates. The hobby's state? Healthy, with room for all.

Conclusion

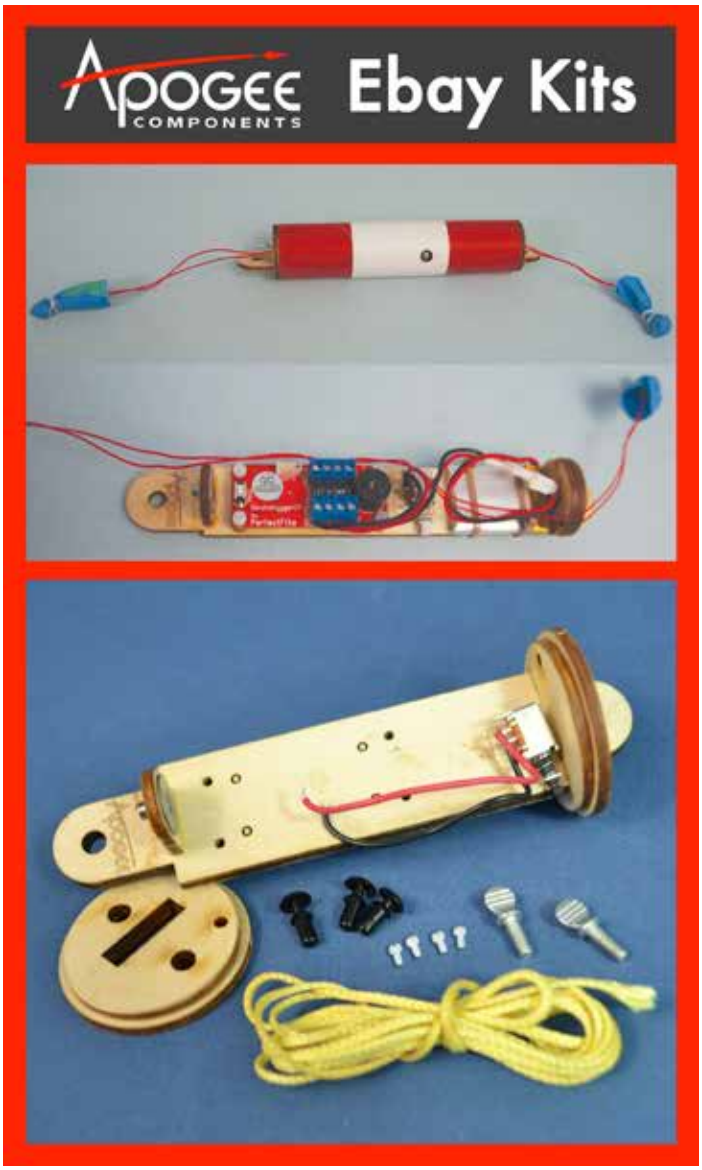
From Grok's deep dive into X and the Rocketry Forum, it's clear that model rocketry is flourishing as a dynamic, tech-driven hobby. The insights reveal a passionate community united by a love for flight, innovation, and shared knowledge. Whether it's the quick tips and launch videos on X or the in-depth technical discussions and build logs on the forums, the hobby offers something for every skill level.

Safety remains a core value, education is a driving force, and constant innovation, particularly through 3D printing and advanced simulations, is pushing the boundaries of what's possible. As tools like RockSim and accessible kits continue to evolve, the barrier to entry lowers, inviting more enthusiasts into the fold. The future looks bright for rocketry, with AI and new technologies poised to create even more exciting possibilities. This blend of tradition and forward-thinking ensures the model rocket community will continue to inspire and launch dreams for generations to come.

About the Author



Tim Van Milligan (a.k.a. "Mr. Rocket") is a real rocket scientist who enjoys helping fellow rocketeers. He is Level 3 high-power certified, an experienced educator, and the founder of Apogee Components. Formerly involved in the Delta II rocket program, Tim holds a B.S. in Aeronautical Engineering from Embry-Riddle Aeronautical University and has worked toward an M.S. in Space Technology. He is also the author of Model Rocket Design and Construction and 69 Simple Science Fair Projects with Model Rockets: Aeronautics, and publisher of the Peak-of-Flight newsletter.



THANKS FOR READING

IT MEANS A LOT TO US.

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Article Submission Guidelines

SUBMITTING ARTICLES TO APOGEE

We are always looking for quality articles to publish in the *Peak-of-Flight* newsletter. Please submit the "idea" first before you write your article. It will need to be approved first.

When you have an idea for an article you'd like to submit, please use our contact form at **https://www.apogeerockets.com/Contact**. After review, we will be able to tell you if your article idea will be appropriate for our publication.

Always include your name, address, and contact information with all submissions. Including best contact information allows us to conduct correspondence faster. If you have questions about the current disposition of a submission, contact the editor via email or phone.

CONTENT WE ARE LOOKING FOR

We prefer articles that have at least one photo or diagram for every 500 words of text. Total article length should be between 2000-4000 words and no shorter than 1750 words. Articles of a "how-to" nature are preferred (though other types of articles will be considered) and can be on any rocketry topic: design, construction, manufacture, decoration, contest organization, etc. Both model rocket and high-power rocket articles are accepted.

CONTENT WE ARE NOT LOOKING FOR

We don't publish articles like "launch reports." They are nice to read, but if you don't learn anything new from them, then they can get boring pretty quick... Example: "Bob flew a blue rocket on a H120 motor for his certification flight." As mentioned above, we're looking for articles that have an educational component to them, which is why we like "how-to" articles.

You can see what articles and topics we've published before at: **https://www.apogeerockets.com/Peak-of-Flight?pof_list=archives&m=education**. You might use this list to give you an idea or two for your topic.

Here are some of the common articles that we reject all the time, because we've published on these topics before:

- How to get a L1, L2, or L3 Cert
- Building cheap rockets and equipment (pads & controllers)
- How to 3D print parts, or a Rocket Kit
- How to Build a cheap Rocket Kit
- Getting Back Into Rocketry After a Long Hiatus

ARTICLE & IMAGES SUBMISSION

Articles may be submitted by emailing them to the editor. Article text can be provided in any standard word processor format, or as plain-text. Graphics should be sent in either a vector format (Adobe Illustrator, SVG, etc.) or a raster format (such as jpg or png) with a width of at least 600 pixels for single column images or 1200 pixels for two-column images. It is preferable for images to be simple enough to be readable in a two-column layout, but special layouts can be used.

Send the images separately via email as well as show where they go by placing them in the word processor document.

ACCEPTANCE

Submitted articles will be evaluated against a rubric (available here on our website). All articles will be evaluated and the results will be sent to the author. In the evaluation process, our goal is to ensure the quality of the content in *Peak-of-Flight*, but we want to publish your article! Resubmission of articles that do not meet the required standard are heavily encouraged.

ORIGINALITY

All articles submitted to Peak-of-Flight must not run in another publication before inclusion in the *POF* newsletter, but it may be based on another work such as a prior article, R&D report, etc. After we have published and paid for an article, you are free to submit them to other publications.

RATES

Apogee Components offers **$300** for a quality-written article over 2,000 words in length. Payment is pro-rated for shorter articles.

WHERE WILL IT APPEAR?

These articles will mainly be published in our free newsletter, *Peak-of-Flight*. Occasionally some of the higher-quality articles could potentially appear in one of Tim Van Milligan's books that he publishes from time to time.





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