Issue 648 / March 25th, 2025

PEAK OF FLIGHT NEWSLETTER

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

New Features of RockSim Pro v4.2.3



Also in this issue:
SeaBee Rocket Plan

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COVER PHOTO



Aerobee Seabee Model Rocket Design, from the Plan in this Article

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New Features of RockSim Pro v4.2.3

by Tim Van Milligan

Learn more about the exciting new features in RockSim Pro v4.2.3



Aerobee Seabee Rocket Plan

by Robert George

A comprehensive build guide with schematics on how to build your very own AeroBee SeaBee Model Rocket

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Model Rocket Launch
with a Dark Matter Motor
Pueblo, CO

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New Features of RockSim Pro v4.2.3

by Tim Van Milligan

Why we use simulation software

There are three new highly useful features in RS-PRO that I'd like to share with you in this article. And in order to explain why we constantly upgrade our software, I need to start by discussing why we even want to use it in the first place.

Rocketry is a field where precision and predictability are paramount. Every launch is a delicate balance between harnessing incredible power and mitigating potential disasters. That's why simulation software plays such a vital role in rocketry. By tapping into both the laws of physics and the hard-earned lessons of past flights, computer simulations allow us to predict what might go wrong—to design better, and/or set up our launches according to known conditions. It's not about leaving things to chance; it's about using science to turn uncertainties into calculated risks.

For more than 25 years, the original RockSim software helped enthusiasts and professionals alike design rockets in a way that moved beyond just trial and error. By marrying physics equations with a deep understanding of how rockets behave under ideal conditions, RockSim provided a solid foundation of confidence before a physical launch.

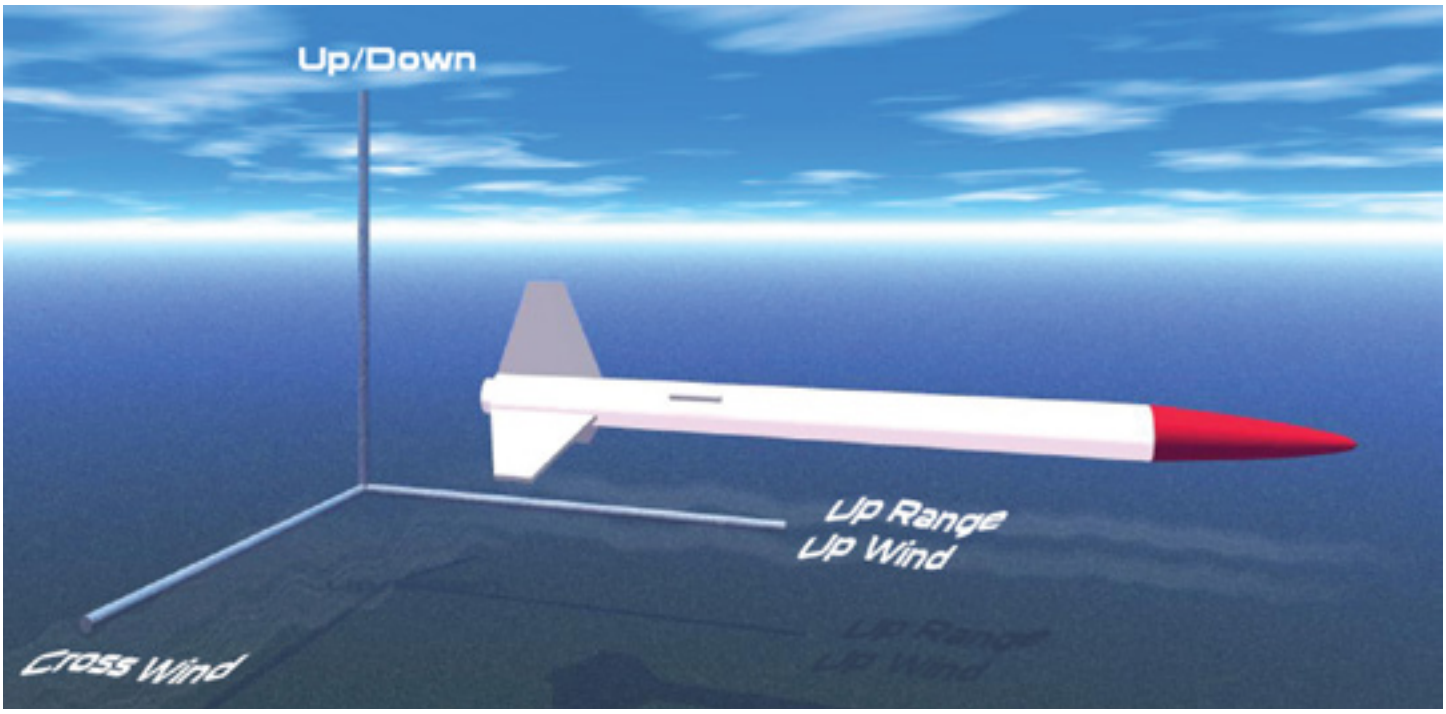


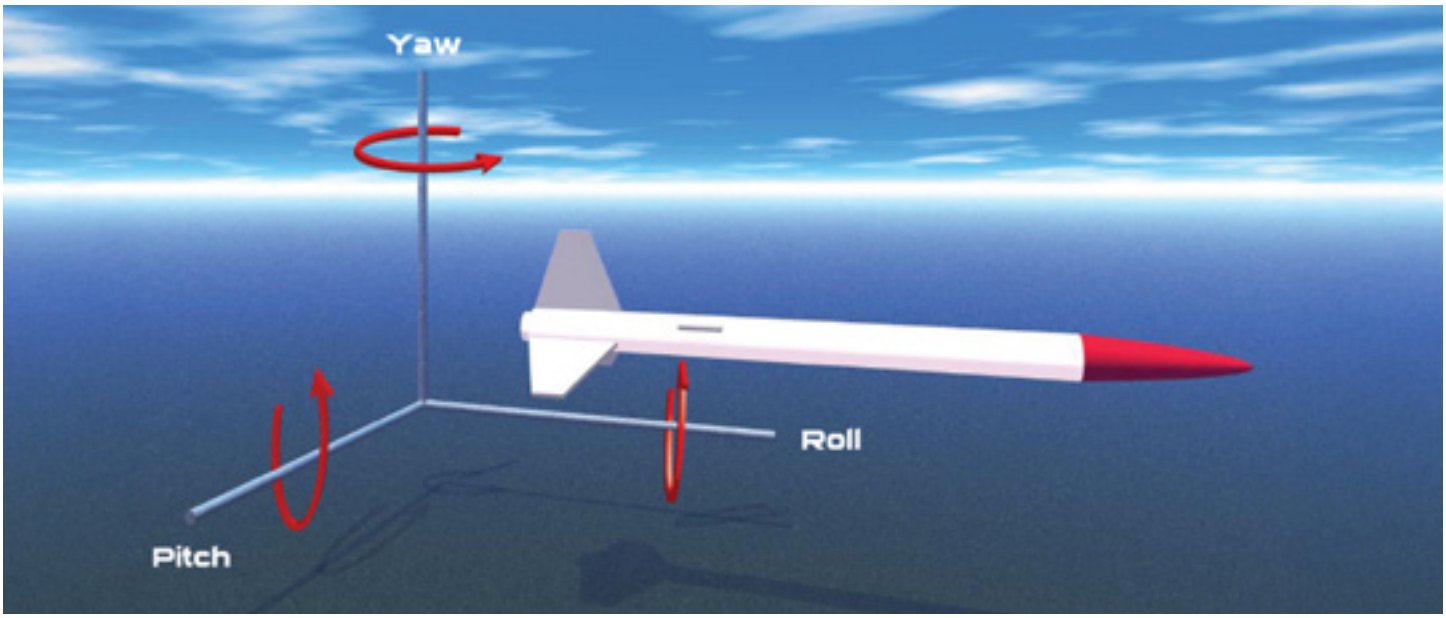
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New Features of RockSim Pro v4.2.3





We're always trying to better our simulations to what goes on in real life. That's the reason we make updates to the software. There emerged a need for a simulation that could capture the full complexity of a rocket's dynamics. Thus, RockSim Pro was born.

(Above) Figure 1a-b - The 6-Degrees of Freedom that define a rocket's motion. The top show three translations, and the bottom shows three rotations.

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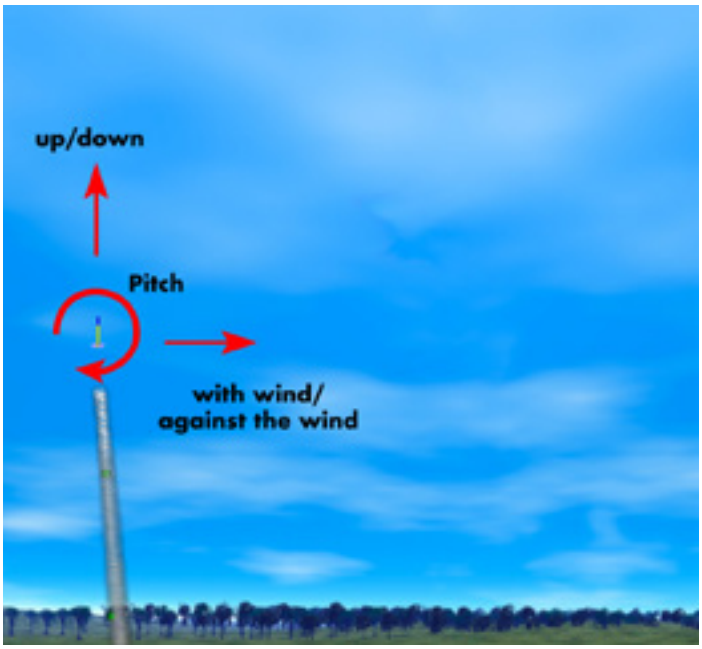


The regular version of RockSim is awesome, and is still useful even to this day. But could it be made better? Of course. The big change from Rocksim to RockSim-Pro is how the rocket moves. In RockSim, the rocket can only move in three ways. We call these ways the three degrees of freedom. The three directions the rocket can move are:

Up/down - the rocket can go up into the sky, and can come back down to the ground.

Left/right - We'll call this the upwind and downwind direction

It can rotate about its own center-of-gravity in the direction of the wind. We'll call this "pitch" rotation.



(Above) Figure 2 - RockSim's 2D Flight Profile show the three types of motion (3-DOF) that the rocket can perform. It is like you'd draw the trajectory on a sheet of paper.



STICKY SITUATION?
SHOP NOW

This is OK for designing and simulating most rockets, because in general the rocket will travel with the wind. But it only allows us to make a 2D drawing of the trajectory as shown in Figure 2. In RockSim, this 2D drawing is called the Flight Profile. It is just like what you'd sketch on a sheet of paper if you were describing the flight to another person.

Personally, I always recommend that people look at it when running simulations, because we want to compare what we think the rocket's trajectory path should look like, compared to what the simulations say it should be.

RockSim Pro allows for 6-degrees of freedom, versus just three in regular RockSim. It has the same ones as RockSim, but then adds an additional three more:

Cross wind movement that is 90° to the relative wind direction.

Yaw - rotation of the rocket in the direction of the cross wind

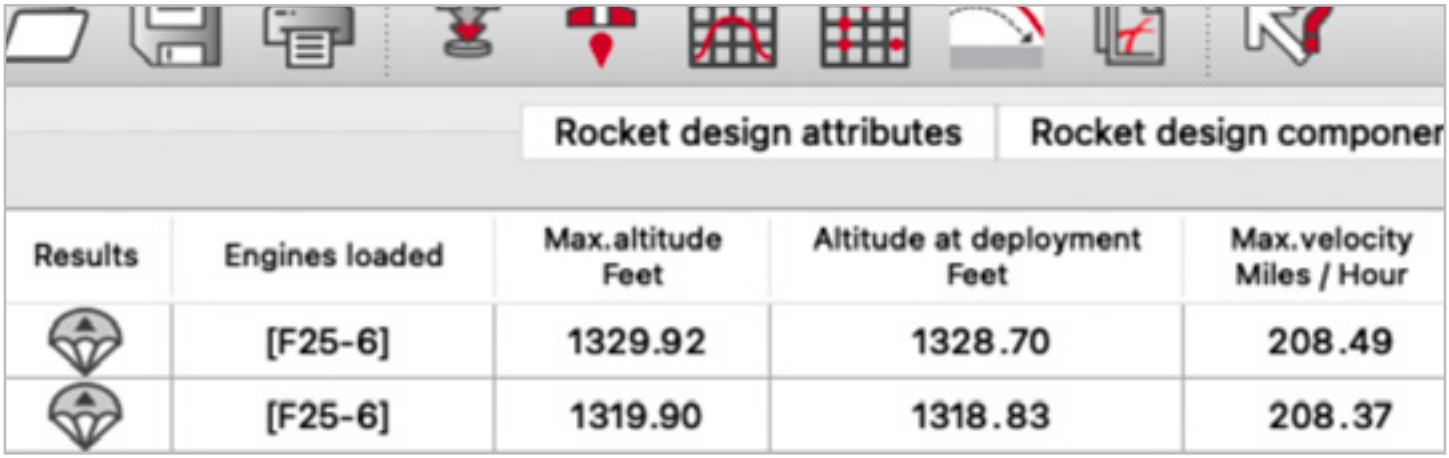
Roll - rotation of the rocket around its long axis.

With these additional allowances, our 2D flight profile can now become three dimensional (it is actually 4-dimensional, if you were to count the time aspect to it as well). And to see it, we can overlay the trajectory over a map of the earth. This is powerful, because it is the closest we can come to a real launch of a rocket and the way it moves. Not only do we see a map of the earth, but we can now see how the rocket moves in all 6 degrees of freedom.



(Above) Figure 3 - In RS-PRO, the rocket can move in six different ways (6-DOF), so it is a true 3-dimensional representation, and is as realistic as you can get. You can even look at the rocket from different angles, and zoom in/out to see the launch location on the earth.





Rocket design attributes | Rocket design componer

Results	Engines loaded	Max.altitude Feet	Altitude at deployment Feet	Max.velocity Miles / Hour
	[F25-6]	1329.92	1328.70	208.49
	[F25-6]	1319.90	1318.83	208.37

(Above) Figure 4 - Here are two simulations with the same motor, where everything is the same except the launch direction (the tilt angle is the same). Why the different altitudes?

But remember, a simulation is all about a "comparison." We're comparing the sim. to how we think the rocket should be behaving.

Overlaying Flight Trajectories

Now that we've got a good comparison of the rocket to what we think it should be doing, our next step is to make comparisons of one simulation to another. The first big new feature in RockSim Pro is to overlay two rocket trajectories in the same 3D environment.

In the past, if we wanted to make this comparison, we could only see one trajectory in the Launch Visualizer at time. Launch the first one, and try to remember what happened as we watched the trajectory of the second flight in the Launch Visualizer.

In figure 4, we see two simulations where everything was set up to be identical. Same rocket, same motor, same wind speed, same launch angle. The only different was the azimuth (the compass direction) where the rocket was aimed.



Viewing each simulation individually in the 3D Launch Visualizer works fine, but when doing an apples-to-apples comparison, you'd really like to see both simulations at the same time. The one particular reason for this is "time." You see, events in the flight, like the rocket suddenly changing course, happen at different times in the flight. By overlaying the flights in the same virtual environment, we can also control the time aspect of the trajectory.

This feature is really nifty, because in rocketry we're always asking "what-if" questions. For example, what if we angled the rocket towards the northeast at launch, versus launching directly to the East? Or what if the fins were canted slightly, how would this affect the trajectory?

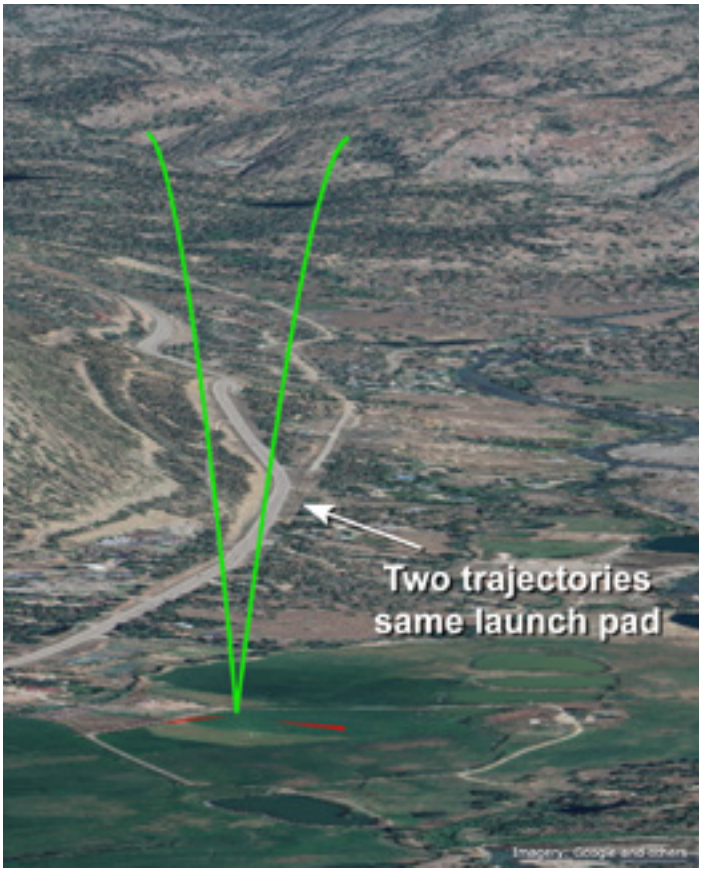


Now we can actually make this comparison and see the results in real time in the Launch Visualizer. All you do is highlight the two simulations you wish to compare in the summary chart (Fig.4), and click the trajectory button at the top of the screen. It will take you to the 3D Launch visualizer, and you'll see something like Figure 5.



(Above) Figure 5 - Two rockets placed on the same pad as seen in RS-Pro's Launch Visualizer. Each is aimed in a different direction, but everything else is the same.

When you click the start button, both rockets will take off, and you'll see them going skyward. It does help to orient the view of the camera (lower left in figure 6) so that you can see both trajectories at the same time.

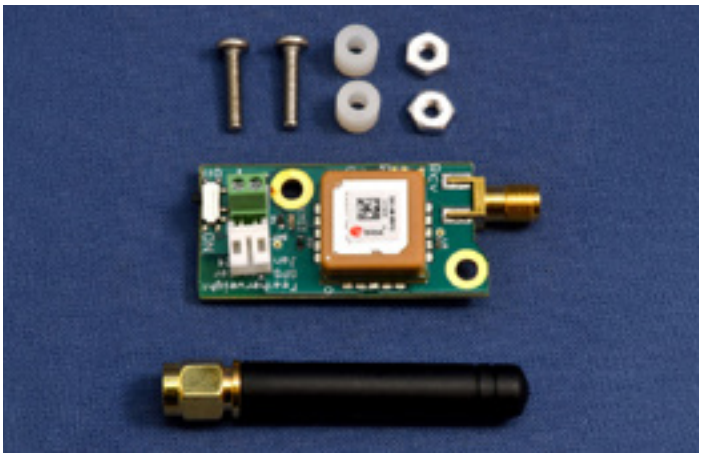


(Above) Figure 6 - We can display both flights at the same time in RS-Pro to compare their trajectories. Then we can figure out why their details are different.

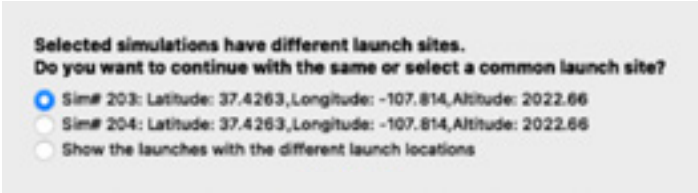


There is no limit to what variables that we can compare and see an animation of the flights. It is a lot more useful than just looking at a chart full of numbers, because it helps you to wrap your mind around what the numbers actually mean. You'll learn a lot more about your rocket by seeing an animation of the flights after changing one variable at a time.

It should be noted that since the launches might be anywhere on the planet, displaying them at the same time might be confusing if the launches are indeed in different locations. So you will be prompted (shown in figure 7) to pick where the launch pad is located when you do show two simulations at once.



(Above) Figure 8 - A GPS tracker that can also record flight information.



(Above) Figure 7 - When you run two simulations at once, there is the possibility that launch locations may be different. RS-PRO allows you to select where to place the launch pad.

Replaying the Actual Real-Life Launch

The next new feature of RockSim-Pro is the ability to read in recorded flight data from altimeters and GPS trackers.

This has long been requested by users, because the quality of flight data has come a long way in the last few years. The sensors on altimeters and GPS trackers are really excellent, and they are actually starting to record things like the orientation of the rocket in all 6 degrees of freedom.

Up until this point, that data was really hard to decipher. It is all stored in a data table (a .csv file) which really isn't that user friendly. You can see that the rocket is rolling, because the roll rate is non-zero. But you had no perspective of how fast it was rolling, what direction it was rolling (clockwise or counterclockwise), nor what might be causing it.

(Below) Figure 9 - Raw flight data is stored in a table, but is difficult to understand.

	Flight_Time_(s)	Sync	Temperature_(F)	Baro_Press_(atm)	Baro_Altitude_ASL_(feet)	Baro_Altitude_AGL_(feet)	Inertial_Altitude	Inertial_DR_Position	Inertial_CR_position	Tilt_Angle_(deg)	Future_Angle_(deg)
2	-1.98	39	83.4	0.8272	5154.7	-2.5	0.00	0.00	0.00	0.0	0.0
3	-1.96	59	83.4	0.8272	5154.7	-2.5	0.00	0.00	0.00	0.0	0.0
4	-1.94	79	83.4	0.8272	5156.7	-0.5	0.00	0.00	0.00	0.0	0.0
5	-1.92	99	83.4	0.8272	5156.7	-0.5	0.00	0.00	0.00	0.0	0.0
6	-1.90	119	83.4	0.8271	5159.9	2.7	0.00	0.00	0.00	0.0	0.0
7	-1.88	139	83.4	0.8271	5159.9	2.7	0.00	0.00	0.00	0.0	0.0
8	-1.86	159	83.4	0.8272	5156.7	-0.5	0.00	0.00	0.00	0.0	0.0
9	-1.84	179	83.4	0.8272	5156.7	-0.5	0.00	0.00	0.00	0.0	0.0
10	-1.82	199	83.4	0.8271	5157.9	0.8	0.00	0.00	0.00	0.0	0.0
11	-1.80	219	83.4	0.8271	5157.9	0.8	0.00	0.00	0.00	0.0	0.0
12	-1.78	239	83.4	0.8272	5154.7	-2.5	0.00	0.00	0.00	0.0	0.0
13	-1.76	9	83.4	0.8272	5154.7	-2.5	0.00	0.00	0.00	0.0	0.0
14	-1.74	29	83.4	0.8272	5154.7	-2.5	0.00	0.00	0.00	0.0	0.0
15	-1.72	49	83.4	0.8272	5155.4	-1.8	0.00	0.00	0.00	0.0	0.0

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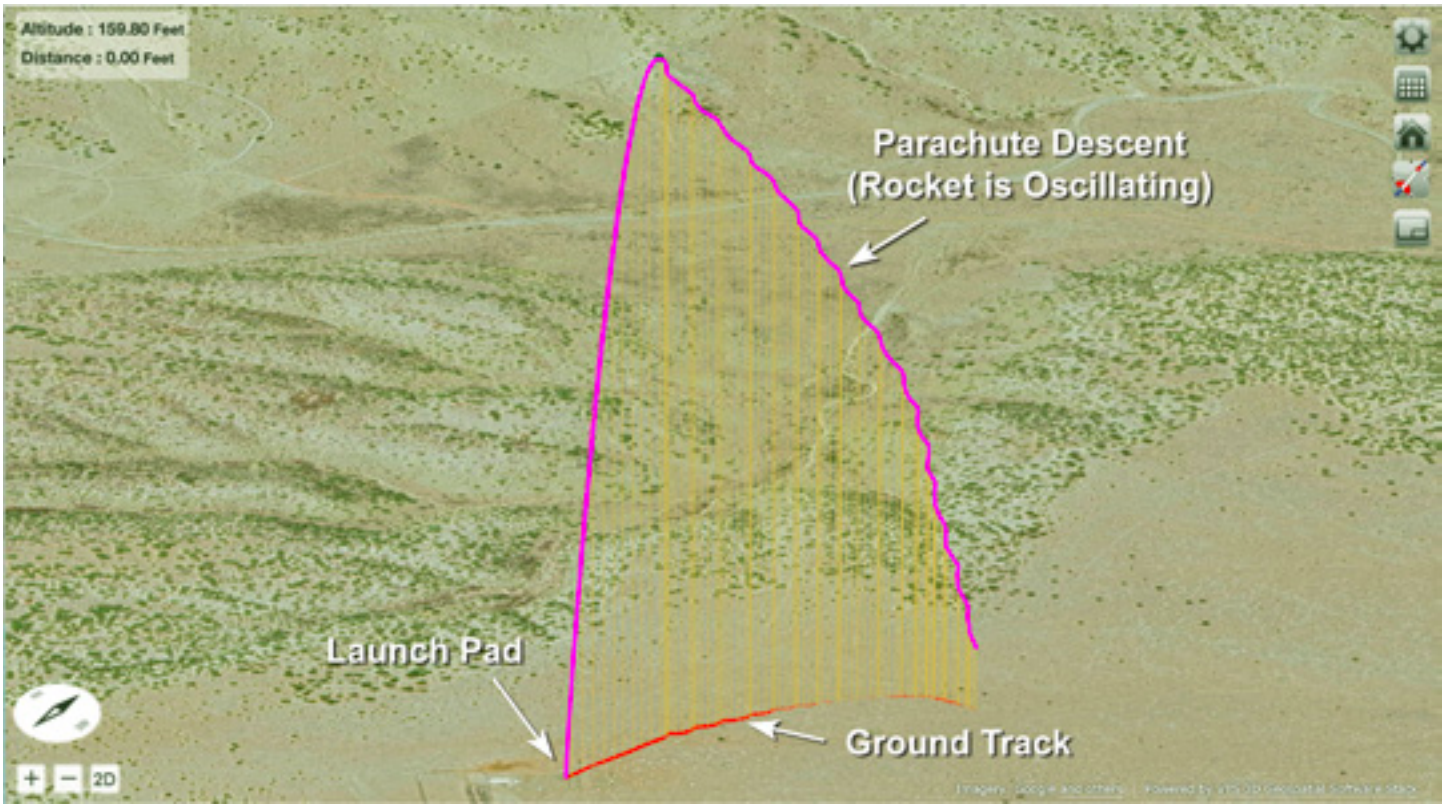


With the new version of RockSim-Pro, we can now import the raw .csv file that stores the data from the flight, and then make a real-time trajectory of the flight in the Launch Visualizer. So essentially, we're replaying the flight as it happened on the launch day.

When we're replaying the flight, this is not a simulation of what we think should happen with our rocket, but we're seeing what did happen. You'll see the speed at which the rocket takes off, you'll see it pitch, yaw, and roll, and you'll observe how the wind affected the rocket during ascent and descent. And since it is overlaid on a 3D map of the world, you see where it landed.

Note: It should be mentioned that the best data comes from a recording GPS tracker versus a recording altimeter. With the altimeter, it records rates-of-change of the rocket, which is fine. But because of inertial errors, the exact position of the rocket can drift over time. The position of the rocket is really good during ascent because the rocket doesn't have time to drift. It is during descent that you'll see the rocket drift out of position because of the long time it takes the rocket to descend to the ground. So if you want better accuracy, we'd start by recommending the Featherweight GPS tracker because it constantly records the position of the rocket and eliminates the drift problem.

(Below) Figure 10 - The flight data recorded during an actual flight can be displayed as an animated trajectory in RS-PRO so you can see what is happening during the flight.



While RockSim Pro currently supports recording electronics from Featherweight Altimeters, we are expecting to add more altimeters and trackers as they start recording similar inertial data too. Altimeter devices are always getting better and cheaper, and we expect more manufacturers in the future. And if you are making your own trackers (which we think is really cool), just arrange/store your data in a similar format to what Featherweight is doing, and RockSim Pro should read it just fine too.

Making the Final Comparison

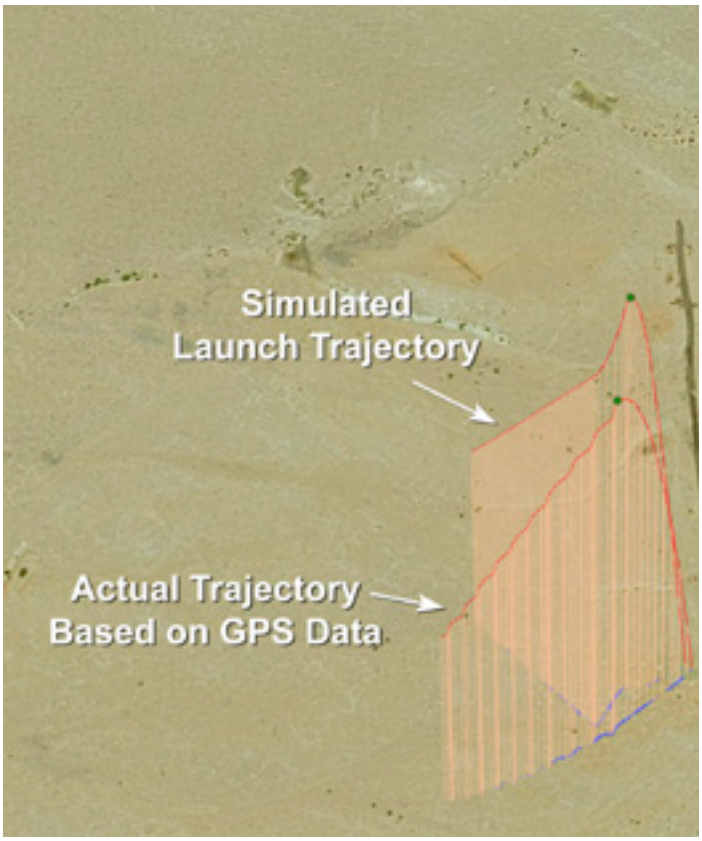
Now that we can read in and display actual flight data from onboard electronics, the final thing we want to do is overlay the predicted trajectory as estimated by Rocksim-Pro to the actual trajectory.

And this is now possible, because of the first enhancement where two trajectories can be overlaid in the launch visualizer at the same time. It doesn't matter if we're comparing two simulated flights, or a simulated flight versus one with actual flight data. RockSim-Pro can do either one.

Comparing a real versus a simulated flight is where the real benefit of comparison comes in. The reason is that we can use this to see how well RockSim-Pro can make predicted flights. We all want to know how accurate our simulations are, and this is the final proof that will tell us how accurate it is.

In all honesty, I'll tell you ahead of time that RockSim-Pro's simulations are not going to be as accurate as we'd like. Why? Because in real life, there are all sorts of unknown aerodynamic forces acting on the rocket that we haven't accounted for in a simulation. We only know about them after the flight, because the trajectory didn't follow the predicted path in the simulation.

The learnings come when we try to figure out why there was a deviation between the simulation and the actual launch of the rocket. Was it a fin that was out of alignment? Was there more drag than we anticipated? Was the rocket off balance to one side that caused it to yaw? Was there a wind-shear that the rocket flew through during the ascent? There could be 100s of variables we haven't thought of before, and it is the comparison with the actual flight data that allows us to determine what might have happened.



(Above) Figure 11 - You can also display a simulated flight against the actual flight data from the payload in the rocket. This allows you to compare and adjust the inputs to make more accurate sims in the future.

And once we know what happened, that becomes a new input for the next simulation that we run. If you know there was a wind-shear, then we'd put that into the initial weather conditions of the next sim, so that we're closer to real life.



Conclusion

The new features of RockSim-Pro are really all about allowing us to make better comparisons of what we want to happen with our rockets. It is this process of comparison that allows us to make better decisions about how we build and fly our rockets. Every design choice, from the angle of the launch pad to the shape of the rocket's body, can be seen in action. You can watch two different designs run side by side and notice small differences that can have a big impact on the flight.

The replay feature is equally amazing. When you replay a flight, you are given a clear and realistic picture of what happened. The replay shows you the rocket's path as if you were watching a movie of the actual launch from a helicopter high above the launch site. This is very helpful when trying to understand unusual movements or mistakes that happened during the flight. If something goes wrong, you can find the exact reason why. With this tool, each launch becomes a learning experience, and every flight adds to your knowledge of how to design safer and better rockets.

RockSim Pro is more than just an upgraded program; it is a tool that helps you learn from both your predictions and your real flight experiences. With its ability to show more details about a rocket's movement and let you see comparisons side by side, RockSim Pro helps make rocket design a smarter, safer process. Whether you are a beginner or an experienced rocketeer, having a clearer picture means you can make stronger choices and launch with more confidence.



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 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.



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Aerobee Seabee Model Rocket Plan

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Aerobee Seabee Rocket Plan

by Robert George

I have always wanted to model an Aerobee sounding rocket. There are several on display near me that have always caught my eye. I haven't built one until now because almost all Aerobee rockets are two-stage rockets. Then I saw an article on the Seabee in the 2025 Jan/Feb issue of Sport Rocketry and I knew I had to build one. It is one of the few single-stage Aerobee rockets. I used the drawings by Mr. Peter Alway to develop this sport-scale rocket. It's intended as an entry into scale, mid-power rockets and composite motors. Due to the extra weight of scale details, it flies best on E and F size composite motors such as those offered by Aerotech and Quest. You can fly this rocket with Estes E12-6 motors and go over 600 feet but a D12-5 will barely go over 300 feet so I do not recommend them for this rocket. Here are the details on how I built mine plus a few "lessons learned".





(Below) Nosecone, Body Tube, and Coupler cut to length

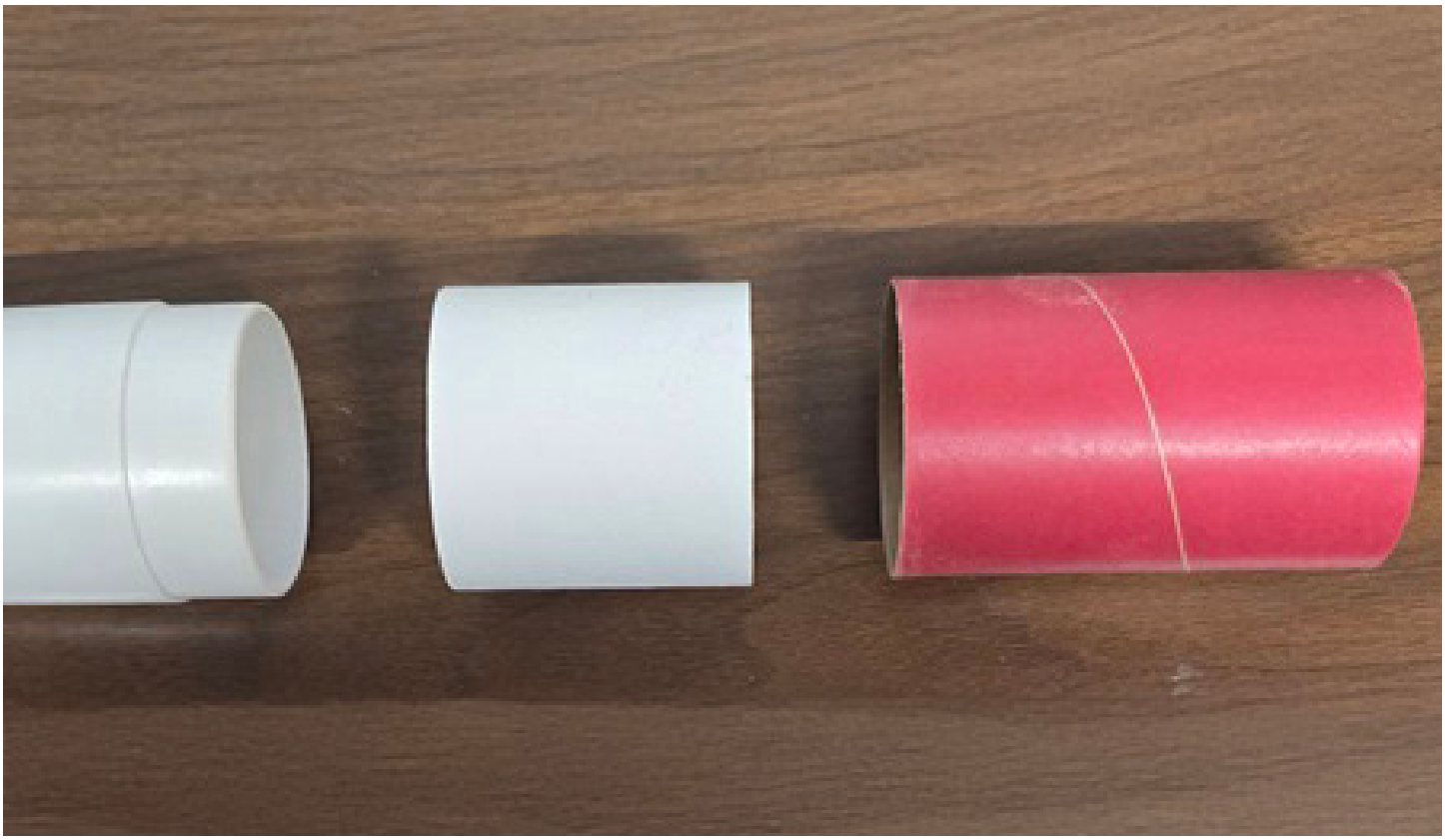
Building the Nosecone

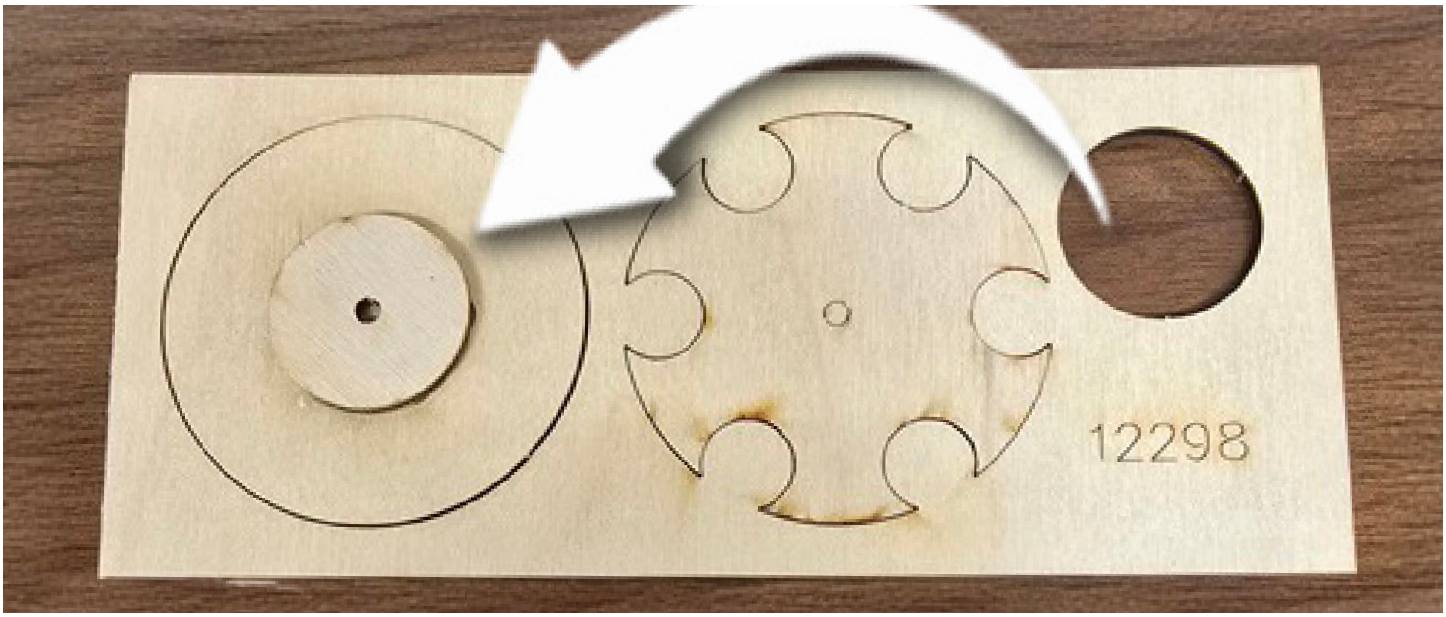
The Seabee has a longer nose than is commercially available, so we are going to modify an existing nose. Starting with the nose cone from Apogee, cut the shoulder where the indentation is at .75 inch. Dress the cut edge with some fine sandpaper and scuff up the shoulder.

Next cut a 2.25-inch section of body tube. I find wrapping a piece of printer paper around the tube for a guide and using a new straight-edge razor blade to make consecutive shallow cuts gives a nice, true edge. While you have the tools out this is a good time to cut the coupler (from the baffle kit) to 3.5 inches long. Be sure to keep the .5-inch cut-off piece for later in the build. Once everything is ready, test fit the parts.

First, a few words about epoxy. It's heavy so use it sparingly and always wear gloves. Also, isopropyl alcohol wipes away epoxy that hasn't cured yet. Oh, and about gluing in general, always test fit parts before applying glue to anything.

Epoxy the body tube to the nose cone shoulder, then epoxy the coupler into the body tube. My coupler fit very tight, so I carefully removed the red layer for a good fit to the body tube.





Attaching the Shock Cord

We need an attach point for the shock cord to the nose cone. Take the 1-inch disk from the baffle kit and glue it to the center of the bulkhead with the six small holes. It is best if the little circles stay in the bulkhead, so make sure to glue the disk in place before removing the bulkhead.

(Above) The 1-Inch disk from the baffle kit being glued upon the center bulkhead with the six holes.

Once dry, drill the .125 hole thru the 1 inch disk for the screw eye. Apply glue to the threads of the screw eye and screw it into the plywood bulkhead. Do not twist it past the threads on the shank. Apply glue to the threads on both sides of the bulkhead. Inset the bulkhead inside the coupler .125 so you can have a fillet of epoxy to keep it in place and glue.

(Below) Screw eye glued, & drilled into the 1-inch disk & the plywood bulkhead. Apply glue to both sides of the bulkhead.







(Above) Clay, applied and sanded, on the modified nosecone



(Above) Apply some filler to the body tube spirals if desired

Body Assembly

I have applied spot putty to smooth over the transition from the plastic nose cone to the body tube. I also filled the seam in the nose cone and sanded it smooth–Looks like a Seabee nose cone!

This is a good time to apply some filler to the spirals in the 18-inch long body tube if desired. I have had good luck using thinned carpenter's wood filler, which was applied with a small brush and then sanded smooth.

Next is the laundry shelf. This will keep the wadding and parachute from moving too much to the rear during launch and provide an attachment point for the shock cord. Make another 1-inch disk using the leftover plywood from the baffle kit. I use a razor saw like in the picture to cut it out and sand the edges round.



(Above) 1-Inch disk created from the leftover plywood sheet

Next glue the 1-inch disk to the center of the baffle disk that came in the baffle kit. Glue the assembly to the 1/2-inch section of the coupler that you removed when making the nose cone, centered vertically.



(Above) 1-Inch disk, baffle disk, and .5 inch section of the coupler, all glued together



Once dry, drill the .125 hole through the 1-inch disk for the screw eye. Install the metal screw eye same as you did in the nose cone bulkhead.

The laundry shelf assembly is going to be installed 8 inches up from the bottom of the body tube. Smear a ring of epoxy about 7.5 inches up inside the body tube. Now insert the assembly and carefully push it into place.

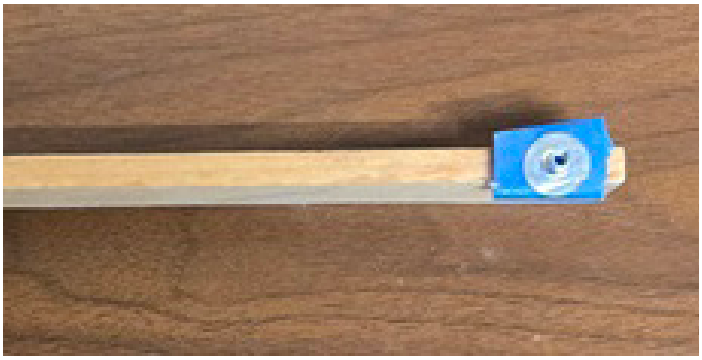
Now is a good time to drill the holes for the rail buttons. You'll need to drill two 3/16ths holes in line with each other, centered between two fins. One hole will be 1 inch from the end of the body tube & the 2nd hole will be 9 inches from the end of the body tube.



You may need to use a stick with masking tape on it to position the upper tee nut in place.

Apply a small amount of epoxy to the flat of the tee nut and push it through the hole.

(Top to bottom) Using a stick & masking tape to attach the rail buttons, Drilling holes for the rail buttons, Apply epoxy to the bottom of the tee nut

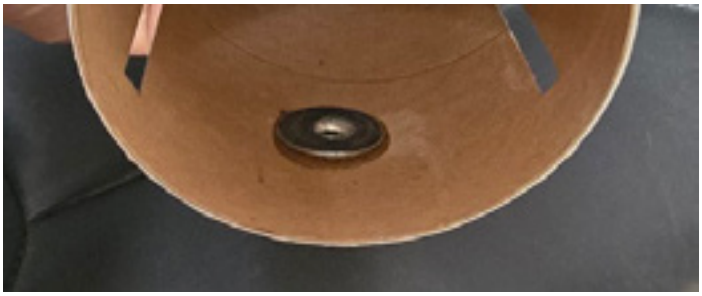








Use the rail button and screw it to hold the tee nut in place while the epoxy dries.



(Above) Tee nut held down to dry by the rail button

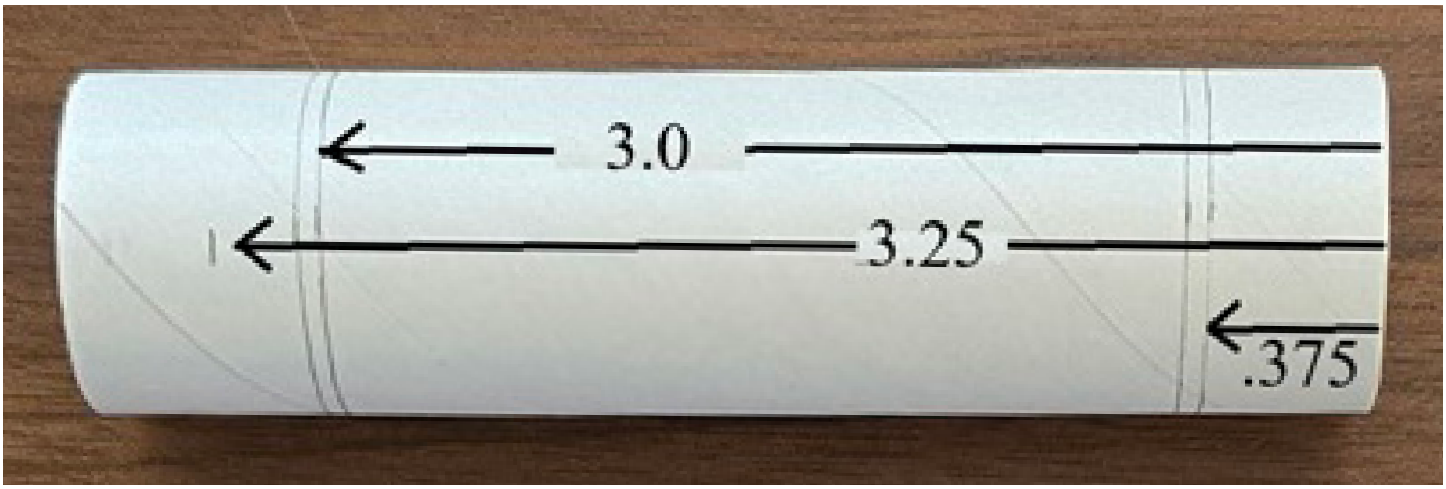
Motor Mount Assembly

Now we can build the motor mount. First, a word of caution about white glue. It tends to "grab" very quickly when joining parts with a tight fit. In these circumstances, you need to be quick in the placement of the parts you are joining that is why trial fitting is important. Don't stop moving the part until it is in place.

You will need to make a .125-inch slot across the motor tube 3.25 inches from the end of the motor tube for the engine hook. Next, insert the end of the engine hook into the slot and slip the large green ring over the hook and glue it so the edge is 1 inch from the aft of the motor tube.



(Above) The green ring is 1 inch from the aft of the body tube



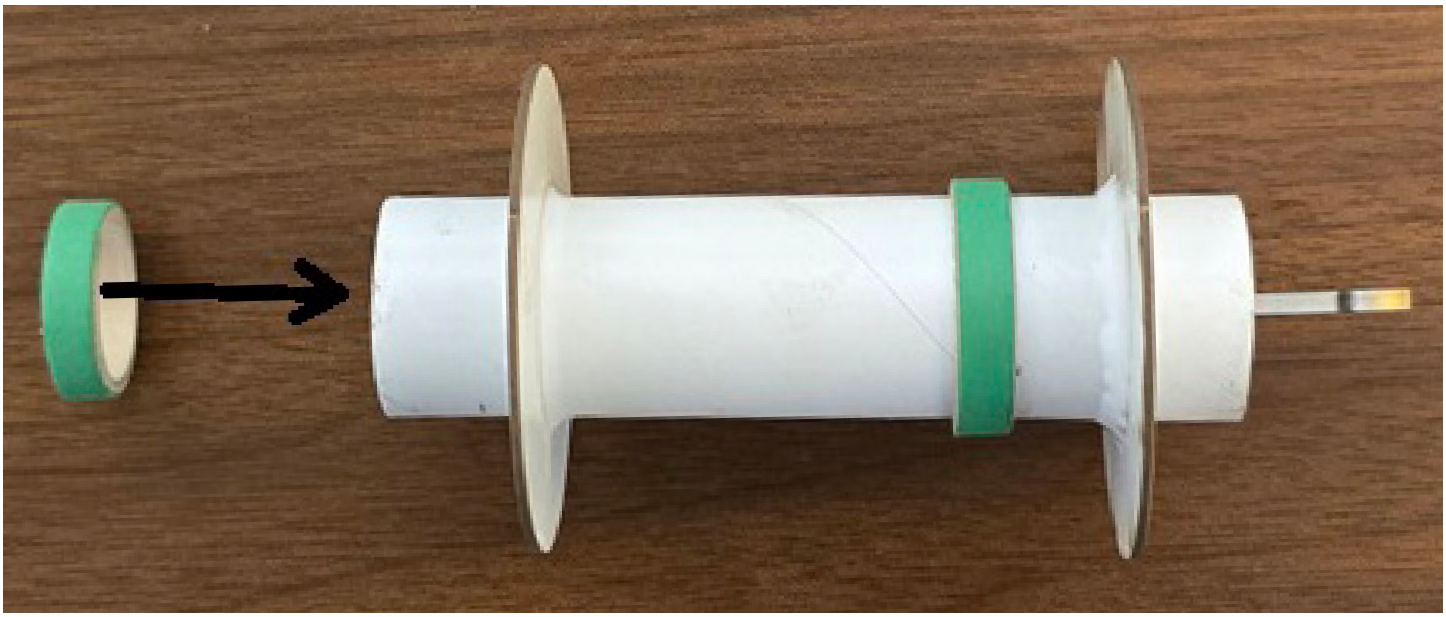
(Above) Markings for the engine hook (3.25"), aft centering ring (.375"), and the forward centering ring (3")

The aft centering ring is glued to the tube .375 from the end of the motor tube. The forward centering ring is positioned 3 inches from the aft end of the motor tube.

Apply a nice fillet of glue to the centering rings and be sure to align the notches in the centering rings with the engine hook. Glue the small green ring into the forward end of the motor tube until it butts against the engine hook.

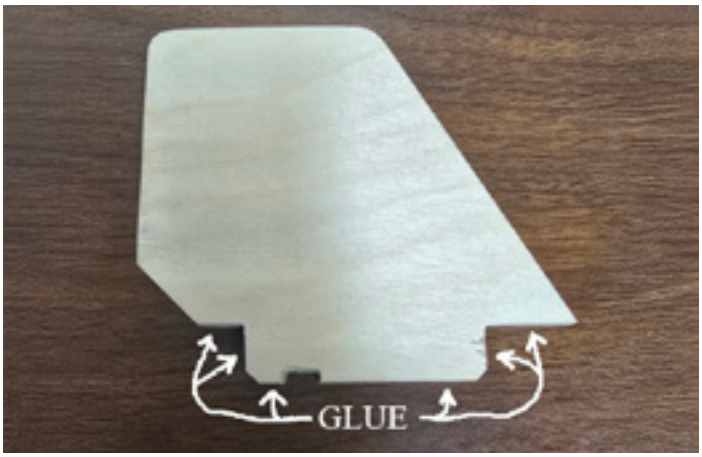
Test fit the engine mount assembly in the body tube. You will have to tilt it a bit initially because of the tee nut. Once it fits well, glue the motor tube assembly into the body tube. I use a short dowel to apply the glue a few inches in the body tube, then insert the assembly until the centering rings align with the fin slots. Once the assembly is dried in place apply a fillet of glue where the aft centering ring joins to the body tube.

(Below) The green ring, forward & aft centering rings glued on the motor mount, and the small green ring being glued in



The template gives you the size of the fins. I made mine of .125 plywood. Basswood may work as well but balsa will not be strong enough. Any small handsaw such as a razor saw, coping saw, or hacksaw will easily cut .125 ply or basswood.

I chose to round out the leading and trailing edges. Now it's time to attach the fins. Apply glue to the root edge of the fin and insert the fin into the slot.



(Above) Rocket fin made of .125" Plywood, template on pg.25

Wipe away excess glue at the body tube and make sure the fin is perpendicular to the body tube. I use a fin jig for this. I will usually wait until one fin is dry before moving on to the next one. Sometimes going slow is faster.



(Above) Attaching the fins using a fin alignment jig





Once the fins are on you can install the conduits. Refer to the drawing for the dimensions. I used balsa for mine and sealed them with thinned carpenter's wood filler then sanded them smooth.

(Above) Balsa Conduit glued, sanded, and installed on the rocket body tube.



(Above) Apply fillets around the outside of the rocket fins. *Feel free to use either epoxy or woodglue*

I use Titebond Quick and Thick for the fillets. It is a thick white glue that stays in place and has minimal shrinkage. I use my finger to get a nice, rounded fillet. This glue is white when you apply it but dries clear. It also sets pretty fast so one swipe with a wet finger is about all the time you get to make a smooth fillet. I applied fillets to the fins and the conduits.



It's time for paint now. Entire articles could be written on which paint to use and how to apply it. I'll just simply say I use Rustoleum Automotive 2-in-1 filler primer and Krylon Acryli-Quik lacquer paints on most of my builds. I like how lacquer paints dry quickly

Refer to the photos, drawings, and the Jan/Feb issue of Sport Rocketry for color and marking info. After applying the decals, I seal them with a clear coat.



(Above) Attaching the fins using a fin alignment jig

I used 10 feet of 700-pound Kevlar for my recovery harness. I tied an overhand loop knot in each end and applied a dab of glue on the cut end to control fraying. I feed one loop through the eyebolt in the body tube and use a length of wire with a hook bent into the end to pull the loop up. Then I thread the other end of the line thru the loop and pull the line until it is tight around the screw eye. Attach the other end of the line to the nose cone and parachute using a heavy-duty swivel or 1/8 inch quick link. Please use some sort of anti-zipper device on the Kevlar.

The first flight of my rocket was with an Estes E12-6. It was a nice launch and took the rocket to just over 700 feet.

Here are parts I used to build my rocket,available from Apogee:

Part#	Description	Order Quantity
12163	BT-70 Baffle Kit	1
10168	Slotted Body Tubes	1 (2 in Pkg)
13060	1010 Rail Buttons	1 (2 in Pkg)
12010	24mm/BT70 Motor Mount	1
24049	"E" Size Motor Hooks	1 (6 in Pkg)
20070	PNC-56A Nose Cone	1
29092*	18" Nylon Parachute	1
29507	750# Kevlar Cord	1

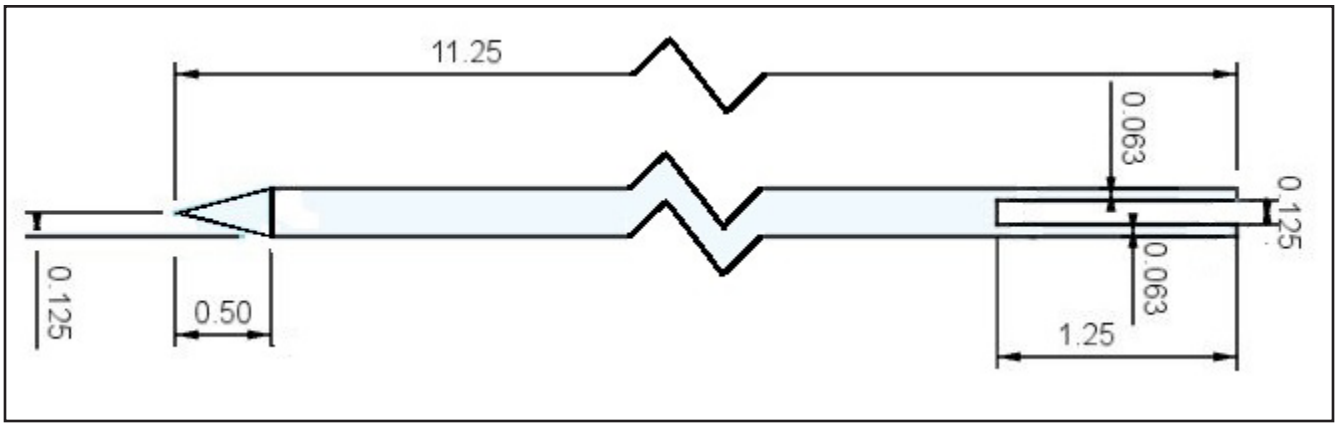


Aerobee Seabee Decals and Guides

Here are the decals. The “Aerojet-General Corp” is 5.5"long.



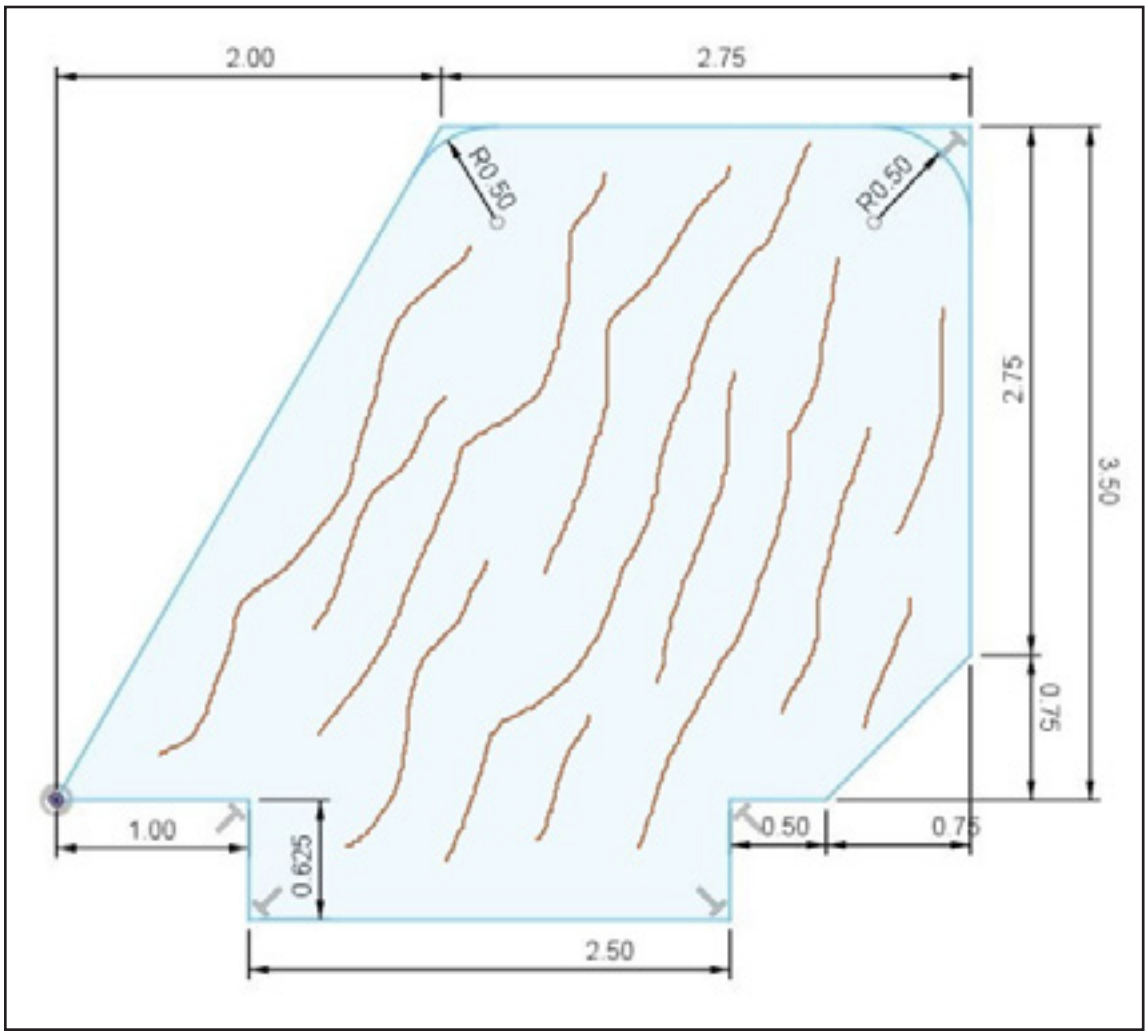
The conduits are 11.25 long but are shortened to fit the page in the above diagram. Made from .25 by .125 balsa wood.

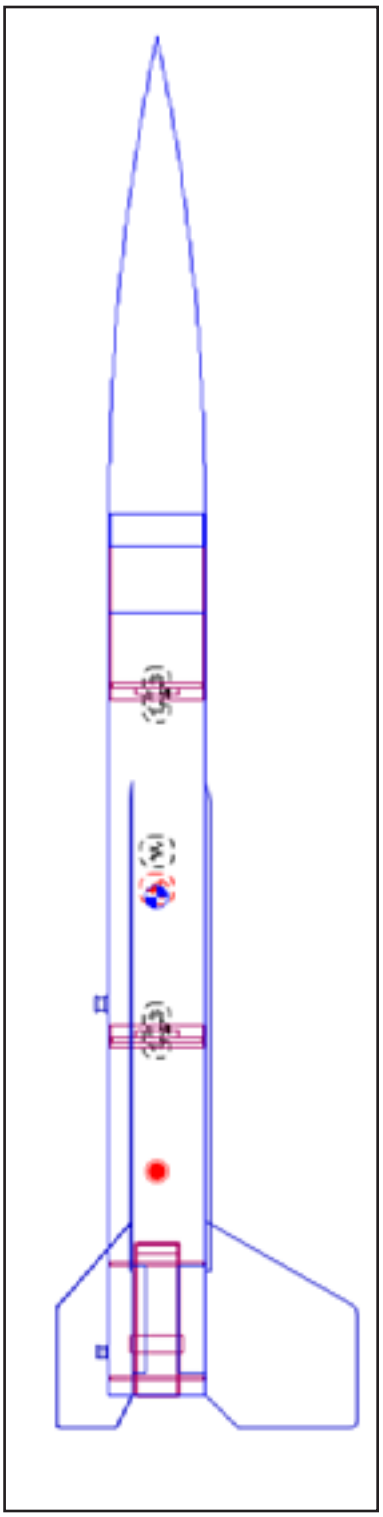


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www.ApogeeRockets.com

Aerobee Seabee Model Rocket Plan

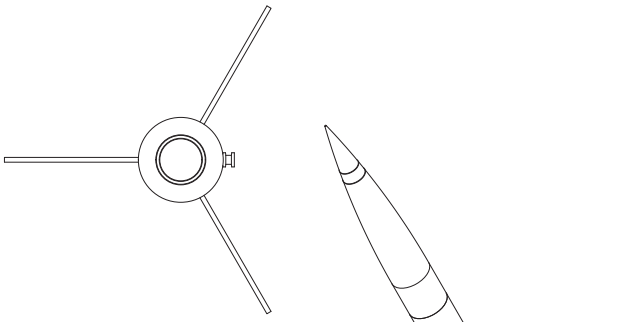


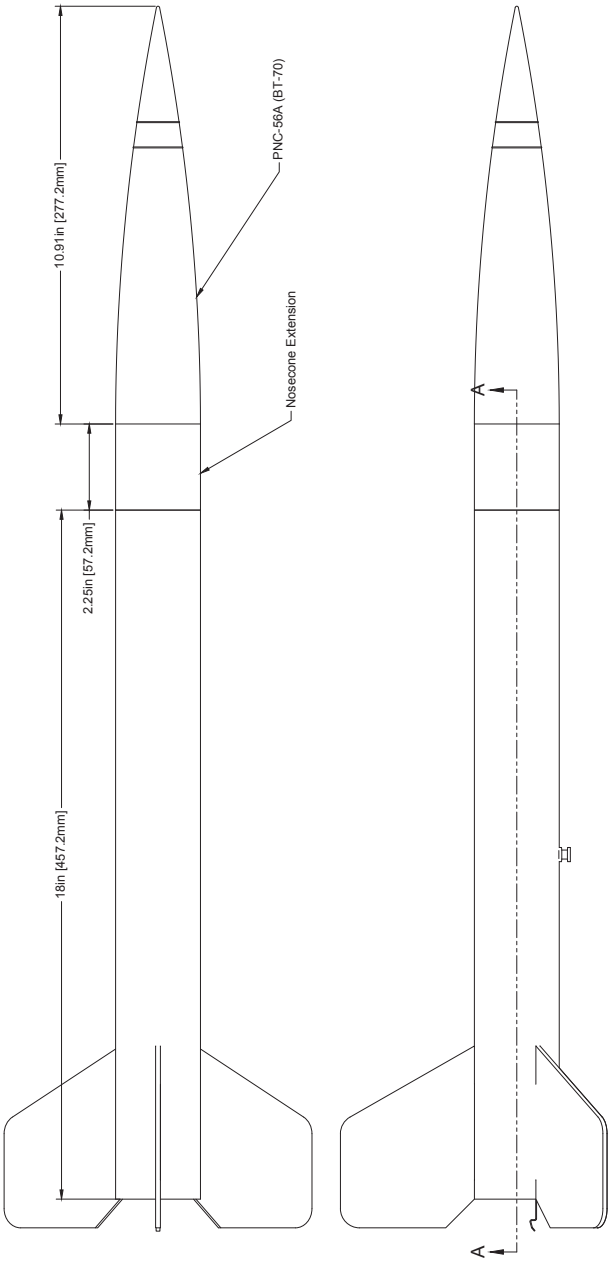


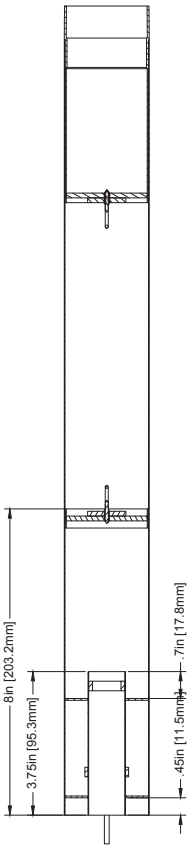
Fin should be the actual size but I've provided the dimensions just in case. Wood grain should be aligned with the leading edge of the fin. Make from .125 plywood or basswood.

Print page to scale for accurate templates

Aerobee Seabee Dimensions







SECTION
A-A
SCALE
1:1

PEAK OF FLIGHT NEWSLETTER

Issue 648 / March 25th, 2025

Article Submission Guidelines

www.ApogeeRockets.com

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.

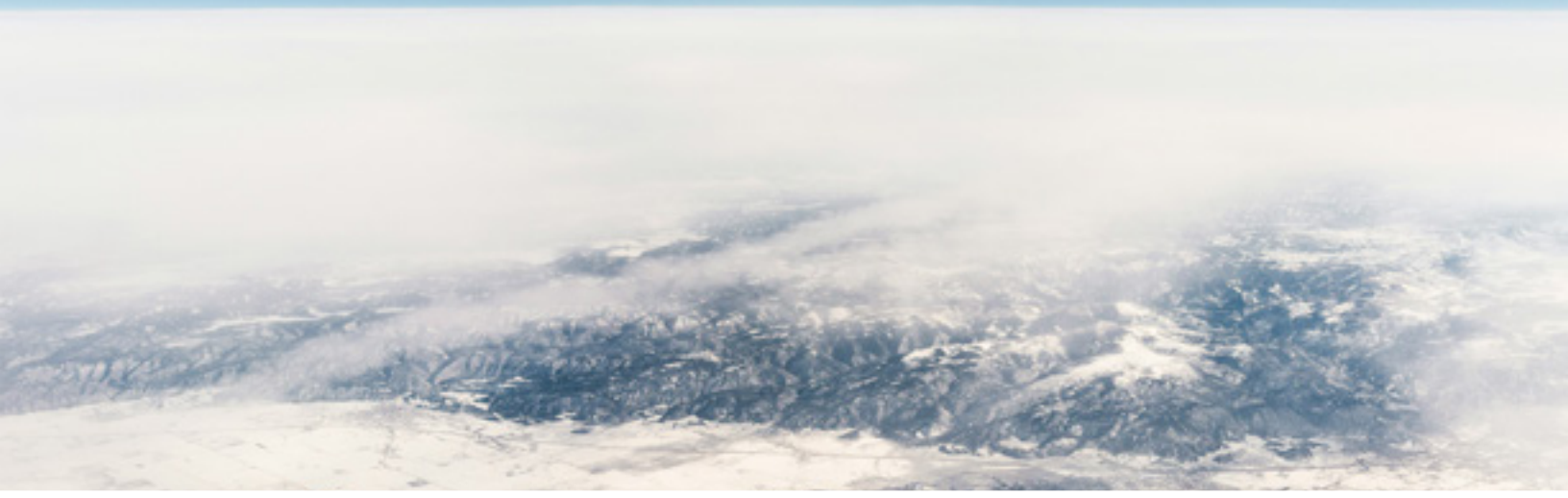



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