PEAK OF FLIGHT

NEWSLETTER

ISSUE 495 | May 14th, 2019

IN THIS ISSUE

Techniques for Challenging Paint Jobs

www.ApogeeRockets.com/Rocket-Kits/Skill-Level-3-Model-Rocket-Kits/Initiator

Apogee Components, Inc.
Your Source For Rocket Supplies That Will Take You To The "Peak-of-Flight"
4960 Northpark Drive Colorado Springs, Colorado 80918 USA
www.ApogeeRockets.com e-mail: orders@apogeerockets.com Phone: 719-535-9335 Fax: 719-534-9050

APOGEE COMPONENTS

PEAK OF FLIGHT

Techniques for Challenging Paint Jobs

By Josh Frizzell

1 Painting Challenges for Rockets

"I hate painting rockets." That's the first sentence I saw in a rocketry forum I recently came across. The individual that posted that statement expressed frustration with his undesirable rocket finishing results and was reaching out for advice. Personally, I don't "hate" painting rockets. I actually finding it quite satisfying, although I'll admit that I can't say I've never been frustrated or had to completely sand down a rocket project and start over. It's taken a fair share of trial and error (with plenty error), but since starting into rocketry in my teens (I'm now in my 40's) I've reached a point where I've learned to avoid most finishing pitfalls and I enjoy the finishing process as I eagerly await "meeting" a new rocket in its beautiful, finished form. As I write this in the spring of 2019, the 50th Anniversary of the first human landing on the Moon is fast approaching. As luck would have it, our local library has a big glass hallway display case that is available to citizens for a month at a time. I approached the library about doing a Moon landing-themed display that would include scale models of rockets that played a role in the development of the Apollo missions along with some sport rocketry-based Science, Technology, Engineering, and Math (STEM). The library eagerly bit on the proposal and I'm building a series of scale kits in earnest.

Let's consider some of the models that are in the works for the library display, and more specifically, the paint jobs that finishing them will entail. We've got the complex, curvy V-2, the bumpy Saturn V with roll patterns that crisscross dozens of tiny three-dimensional corrugations, and the Mercury-Redstone with its own quirky black-and-white patterns. Completing these rockets might seem like a sadistic myriad of painting nightmares. In this article I'll go over some of the techniques I used to arrive at clean, sharp-looking finishes despite those complexities. If you've longed to build one of those beautiful Saturn series models but were intimidated by the intricate paint jobs involved, this article is for you. But before we get into the meat of this article's topic, let's go over some basics that could save you from experiencing some frustrating painting pitfalls.

2 Start with a Solid Base

Any good finish needs a great beginning. Surface prep is key to end up with a final product that both looks good and will be durable enough to withstand the rigors of rocketry. It is futile to get the fine details down pat without first creating an attractive starting surface.

For cardboard tubes, expect the outer layer to be a shiny, waxy layer called glassine. The glassine protects the paper and also adds a surprising amount of strength. The glassine has an important role, but its smooth surface makes it less than ideal for paint adhesion. Poor adhesion means a paint job that might eventually peel. Instructions that come with kits provided by some manufacturers advise completely sanding the glassine off. I don't like to completely remove it because it helps stabilize the paper underneath as we work through the finishing process, but it is advisable to slightly roughen it up to help our paint stick. I lightly go over the body tube with fine grit sandpaper to scuff it up without going all the way through the glassine. If you do sand all the way through the glassine, you will end up with cardboard "fuzzies" when you shoot your first coat of primer. Don't panic if that happens; it's remedied easily with a coat of primer and another light sanding (**Figure 1**).

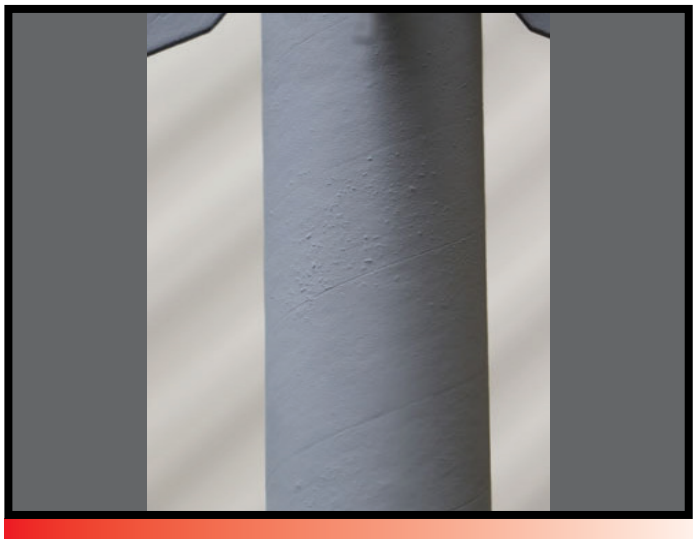


Figure 1: Cardboard "fuzzies" appear as I shoot my first coat of primer on this V-2 model. Seam filling is also visible as a ridge where two sections meet. Some light sanding and additional primer will remedy these defects.

For wood surfaces like fins, we'll want to seal the grain so our primer can create a smooth base. There are lots of ways to achieve this and everybody ends up with their go-to method. For me, I usually use sanding sealer applied with a small brush. The small brush allows me to apply the sealer with precision. If sealer is applied thickly it can be viscous enough to leave undulations that you'll later have to sand out. I like the thin coats with a small brush approach. Some folks like to seal wood with slightly watered-down wood filler, others like to use cyanoacrylate (CA)

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: Josh Frizzell
Layout/Cover Artist: Chris Duran
Proofreader: Michelle Mason

Techniques for Challenging Paint Jobs

Continued from page 2

glue brushed across the wood surface (which I will use for some small surface area applications). All are viable methods, and each has its own pros and cons. Sealer works and it's relatively inexpensive. I bought a can for about 10 bucks, have finished dozens of rockets, and still have some left. The downside is that it has a strong smell when you're working with it so you'll have to do it outside. CA also works well, but would get expensive if you had to cover a lot of area. It has quite an odor and I find that it burns my eyes when used to the extent that it covers a fin, so I generally avoid it other than for the smallest of jobs. Wood filler is non-toxic, so it has a major advantage going for it and a little goes a long way. I get consistent results with sanding sealer, so that's usually where I start.

For plastic such as nose cones, I like to start by roughing up the plastic with 220 grit sandpaper. Your first coat of primer will look HIDEOUS, but your first sanding after primer will look quite good and the primer will have decent adhesion. Pre-treating with plastic adhesion promoter is also a good option. I've used both methods and they both work.

For nastier imperfections such as gouges in plywood fins, some wood filler thinned with a bit of water will do the trick. I also often smooth gaps at transitions between parts such as coupled body tubes with J.B. Weld epoxy and sand it smooth.

The bottom line is that surface prep is an important first step to end up with a finish that you're happy with.

3 Primer Coats

Primer serves a few very important purposes. Not only does it help the top color coats adhere, but a high-solids, high-build primer will fill surface imperfections such as body tube spirals and wood grain that isn't completely filled. If you want your rocket to look like anything better than a prettied-up paper towel tube, attention to priming is key.

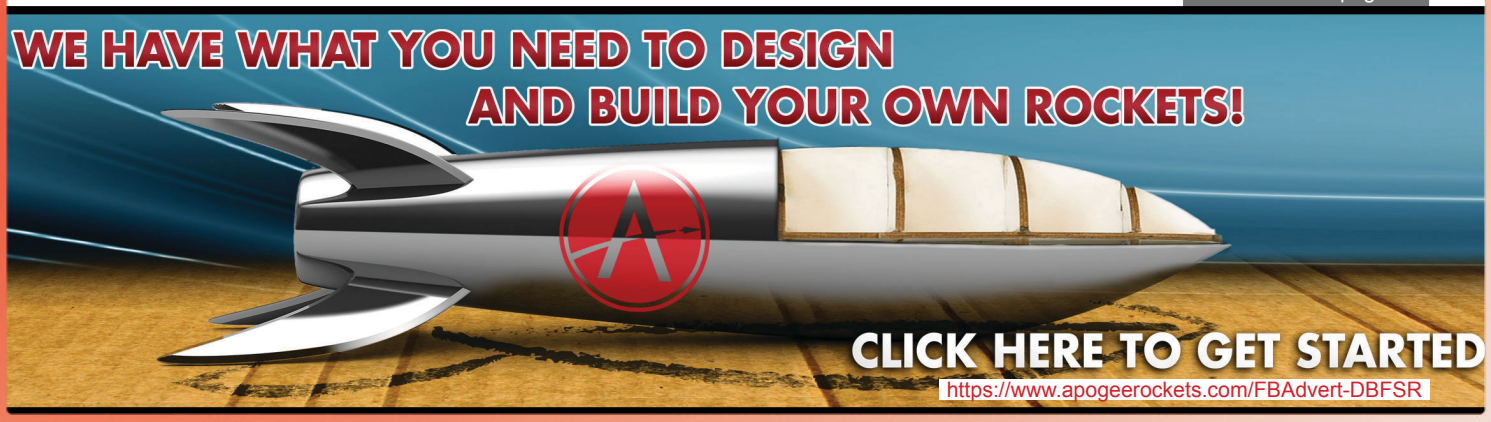
The primer we select for painting a rocket should have the following qualities:

- Builds well to fill imperfections in the rocket's surface
- Hides well to cover variations in material color (cardboard, balsa/plywood, etc.)
- Chemically compatible with the selected top coat

Again, a high-solids primer will help fill in low spot imperfections that will glaringly show through your final color coats if left unfilled. Automotive primers usually fit the bill. My standard go-to primer is Rustoleum® Automotive gray primer. I've also used Krylon® 2-1 Filler plus Primer with good results. Both build well. In my experience the Rustoleum® has better build and hiding with superior single-pass coverage while the Krylon® boasts ability to be sanded after only 30 minutes (versus four or more hours for the Rustoleum®). The Krylon® variant, in my opinion, has a harsher chemical smell than the Rustoleum® and doesn't hide as well on the first coat. Note that both of those products are gray. You may hear that you should use white primer if you're going to top coat with a light color, but I have yet to find a white primer that builds as well as the gray products I've mentioned. True, it might take a bit more coating to get a final white color, but the smooth surface you'll end up with is worth the effort. Selecting a decent paint (described more below) will allow you to get a smooth, even-looking color coat, even if it's a light color, with only a few coats.

As far as chemical compatibility is concerned, there are a great number of paint chemistries on the market and not all of them are compatible. Generally if you stick within a given brand you've got a good chance of ending up with a compatible combination of primer, color coat(s), and clear coat if applicable, but that's no guarantee. The only way to be sure is to test all of the products you intend to use on something expendable. If there is an incompatibility, you will probably see one of the layers wrinkle or begin to look like rough alligator skin soon after spraying (note that not following the recoat times indicated on the can, or in some cases even allowing much more time, may also cause severe wrinkling; be sure to give a base coat plenty of time to cure, several days to a week or more in some cases, before shooting a top coat).

Continued on page 4



Techniques for Challenging Paint Jobs

Continued from page 3

After you've got all of your surface prep done, make sure the surfaces are free of sanding dust. I find that vigorously wiping down the whole project with a dry paper towel gets the job done. For plastic or vacu-formed parts, a LIGHT coat of plastic adhesion promoter will help ensure your project will stay looking good for the long run. Then start with a thin first coat of primer that covers the whole rocket. Overlap your coats a little bit in smooth, sweeping motions while painting systematically to evenly coat the entire project. Practice starting the paint flow, sweeping across the rocket, then letting off of the paint flow once the paint is no longer directed at the rocket. The primer coat is good practice for the later color coats which are less forgiving when it comes to runs and sags.

If you get some runs or sags with the primer coat, don't sweat it. You'll be sanding the primer surface down anyway. Just let the primer dry fully and deal with it later. Whatever you do, DON'T TRY TO WIPE OFF A RUN OR SAG, whether it's primer or top coat. Paint coats can soften coats beneath them. If you wipe away a run you will probably damage any coats underneath and you'll likely end up sanding all the way down to bare cardboard or wood to repair it.

After the first coat of primer dries enough that it doesn't look wet, shoot another even, light coat. Let dry again, just enough that the primer doesn't look wet, shoot a third even coat. I don't generally go beyond three coats of anything without letting the application fully cure. Getting too carried away with too many coats can result in a condition where the product that you've sprayed on can't "breathe" and will take a very long time, if ever, to fully harden. The solvents in the paint need to be able to evaporate, and coating too thickly can prevent that from occurring.

Once the primer has dried, it's time to sand. We've got a couple of options for the sanding process. Both are messy in their own way, but both work. Sanding away most of the primer between applications is what will fill imperfections such as tube spirals and leave us with a realistic-looking finish.

3.1 Dry Sanding

Dry sanding creates copious, light, messy dust but avoids the sloppy mess you'll encounter if wet sanding. If the primer is dried sufficiently and you've kept your coats light, using a very light, almost effortless sanding technique with dry 220 grit sandpaper will cause the primer to very easily sand away as a very fine dust. Avoid the temptation to put some elbow grease into the effort in an attempt to speed up the process. You'll just tire yourself out and clog up your sandpaper. Lightly wipe, rather than scrub, with a gentle but brisk swirling motion until you see some light dust quickly form. Frequently wipe away the dust and brush off your sandpaper to prevent the sandpaper from clogging. Keep sanding and wiping away dust until imperfections such as tube spirals start to become less prominent or even disappear. Cardboard fuzzies should be greatly reduced or disappear entirely after the first sanding on your cured primer. If you get to the point where you can start to see the color of underlying materials (cardboard, plywood, etc.) it's time to stop sanding that part of the rocket. Avoid cutting into the underlying materials, especially cardboard tubes. If you cut too much into the cardboard's glassine, you get a recurrence of the "fuzzies" and effectively start over on that part of the rocket. Again, it's not something to panic over, just shoot it with primer again, let it dry, and re-sand. It may take a couple of spray-dry-sand cycles to get it smooth.

Continued on page 5

Techniques for Challenging Paint Jobs

Continued from page 4

Once you've sanded the whole rocket to a point that you're stopping to avoid sanding into underlying structural material, it's time to recoat with primer and let dry again. The prime, sand, repeat process is what will fill and smooth over surface imperfections, leaving a seamless result. The 220 grit will leave some light surface scratches, so when I'm getting close to a surface that I'm happy with I shoot a light coat of primer and sand it smooth with some 400 grit (**Figure 2**).

Figure 2: The smooth sections of this Saturn V model are spiral-wrapped cardboard tube. Priming and sanding left a smooth surface and the spirals are invisible.

3.2 Wet Sanding

Wet sanding has some distinct advantages but also must be used with caution with cardboard and wood rockets. There is no free-flying dust to contend with and the water combines with the sanded away primer to form a slurry that helps keep the surface smooth. Wet sanding also seems to help sandpaper do more work before it's clogged or loses its effectiveness.

To wet sand, we don't really want to get the rocket WET if you're dealing with cardboard and wood. I dip a piece of sandpaper in water, shake off the excess, sand the rocket a little bit, drop the sandpaper in my container of water, wipe the resulting primer slurry off of the rocket with a paper towel or rag, rinse out the sandpaper, and repeat. Give the rocket plenty of time dry thoroughly before shooting another coat.

4 Painting the Base Color

In this section we'll discuss applying the base color for your complex paint job.

4.1 Paint Selection

Based on my experiences, making the wrong choice here is probably one of the greatest causes of frustration for people painting rockets. There are plenty of rattle can options of useable quality for painting rockets. Unfortunately, there are also plenty of truly crummy spray paint products out there. As someone that's painted gobs of rockets using a variety of paint brands from various vendors in dozens of colors and multiple product lines, I will tell you that NOT ALL SPRAY PAINT IS CREATED EQUAL. I'll say it again, as this is probably a major reason for frustration experienced by many: NOT ALL SPRAY PAINT IS CREATED EQUAL. How would one know this? Painful experience. In some cases I've sanded down projects, sometimes multiple times, cursing all the way, only to try a different brand or product line of paint and met with the beautiful finish I was after on the first try.

For the commonly available, mass-produced rattle-can spray paint, there is a delicate balance between a paint that is thin enough to spray smoothly yet thick enough to cover well. Some spray paint product lines find that balance much better than others, and even within a product line the paints can vary in usability from color to color. On one hand, I've used the Krylon® Color Master line sold at Wal-Mart and found some colors to be on the thin side but very usable while other colors have such low viscosity they would run unless applied ridiculously thinly. At the other end of the spectrum, I've tried the Rustoleum® 2X coverage lineup and found some colors to

Continued on page 6

Techniques for Challenging Paint Jobs

Continued from page 5

be generally thick but delightfully workable with excellent coverage (looking good with only one coat in some cases) while other colors were so thick they mostly just splattered droplets out of the nozzle in a 180-degree spatter cone, covering me in paint droplets, and leaving the rocket looking like an orange peel on steroids. Seemingly somewhere in the middle are the Rustoleum® Protective Enamel and Krylon® CoverMaxx and ColorMaxx, which do spatter some droplets a little bit, but not unmanageably so, and cover reasonably to extremely well. While these are some general observations, I've also experienced variability from color to color within paint product lines. Chances are that if you're really struggling to get a good result despite using good painting practices, your paint might be part of the problem.

Regardless of what paint you buy, practicing on something expendable before shooting your rocket is a good idea. Observe the paint's behavior while practicing getting the optimum distance from the piece (too close and you get runs, too far and you might get a dusty or bumpy appearance) and partially overlapping smooth, sweeping passes. Watch out for excessive runniness (paint might be too thin) or splotchiness (paint might be too thick). Paint heavily running down the nozzle of the spray can while you paint is a sign that the paint might be on the thick, if not too thick, side. Don't be afraid to abandon a certain can of paint in favor of another brand or product if you're struggling.

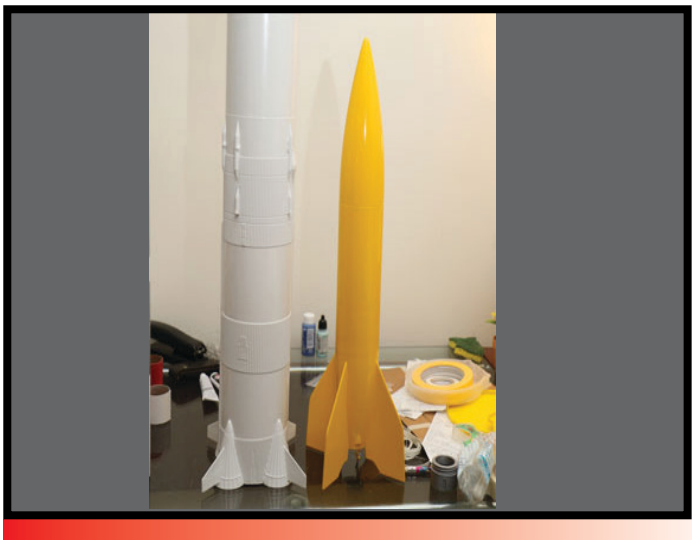


Figure 3: Completed base colors on Saturn V and V-2 kits.

4.2 Base Coat Painting Technique

To paint a rocket with a single solid color (initial base coat for rockets that will have detail or elaborate paint jobs), it's best to apply light coats using smooth, sweeping motions and slightly overlapping coats. Paint systematically until you've got a thin coat of paint over the entire rocket. Don't worry about getting complete coverage on the first coat. It's better to build up coverage on subsequent coats than risk sags and runs. Again, don't try to wipe off sags or runs. You will probably do much more harm than good. Just let them harden, sand them smooth, and try again. I like to wait 10 to 15 minutes between coats. Some paint cans indicate only 1 minute between coats, which I find to be too soon for most paints, to prevent runs. Shoot up to three light coats until you've got a smooth, uniform base coat across the whole rocket (**Figure 3**).

If you're like me, you don't have a spray booth with nicely controlled conditions. If you paint enough rockets you'll no doubt encounter annoyances like bugs landing on your freshly-applied base coat. When such occurrences happen, just let the paint cure, sound out the imperfection with fine (400-ish grit) sandpaper, and give it another go.

5 Getting Down to Details

After the base coat has fully cured (about 48 hours to as much as two weeks depending on the base coat paint) we can start getting into the fine details. There are a variety of ways to approach detail finishing, but any sharp lines will generally require a mask of some sort. Many folks swear by 3M Scotch Magic tape for this purpose. It can be trimmed into small, formable strips. I have tried that method and, although it is effective for many modelers, I found it frustrating and time-consuming. For a challenging surface like the corrugations on a Saturn V model, I have had the best success with the least tedium and irritation with an airbrush.

You don't have an airbrush? No problem. Read on and I'll describe how you can get set up for about 20 or 30 bucks. No air compressor? Also not a problem. You can airbrush a rocket without one.

Continued on page 7

Techniques for Challenging Paint Jobs

Continued from page 6

An airbrush takes much of the challenge out painting difficult, textured surfaces because we can lay down a very thin layer of paint with a degree of control that no rattle can could approach. Much of the difficulty that comes with masking a 3-D surface like the corrugated sections on a Saturn V arise from having to make a mask conform to the complex surface. Any imperfections in the mask will allow paint to sneak under the mask and will result in an ugly, uneven line. The airbrush allows us to apply a layer of paint that is too thin to run under the mask. In fact, as we'll discover below, the mask doesn't even need to physically contact our painted surface if we use the airbrush (and the fine paint control that it offers) to our advantage.

5.1 Airbrush Basics

My airbrush setup cost about 20 dollars from nothing to happily painting. I live in an apartment and I don't have an air compressor but I use my airbrush routinely, so simple airbrushing for rocketry purposes can be accomplished nearly anywhere.

To get started, let's understand two basic types of airbrush: single-action and double-action. Single action airbrushes have one button that the user presses for both air and paint flow. In contrast, a double-action airbrush uses two trigger motions to independently control air flow and paint flow. To paint with a double-action airbrush, the trigger is pressed downward to initiate airflow, then the trigger is pulled back toward the user to initiate paint flow. The paint flow can be throttled with the double-action airbrush trigger (**Figure 4**). The farther the user pulls back on the trigger, the larger the paint flow the airbrush will put out. With that in mind, I use a double-action airbrush for model detail work. We want to take full advantage of the fine paint flow control that an airbrush offers.

You'll also see airbrush varieties with either a small paint cup above the airbrush or a jar that mounts on the side of the airbrush. I personally prefer the jar style for rocketry work because it allows a larger volume of paint to be prepared at one time (we likely need to thin our paint before use depending on the paint we select), but the cup style is easier to mix on the go as it doesn't require the user to unscrew a jar from the airbrush.

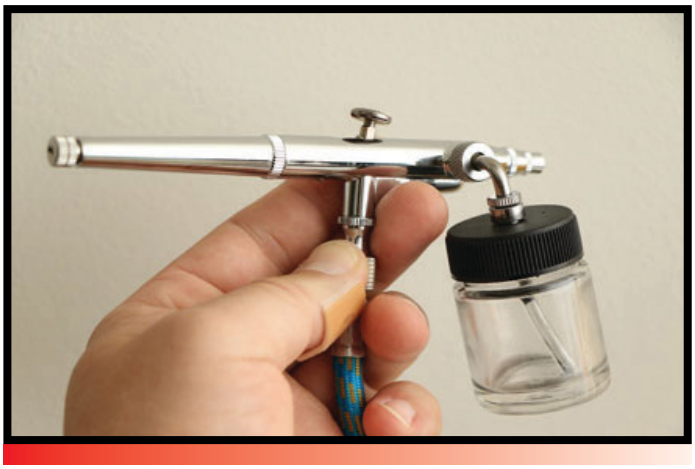


Figure 4: An inexpensive, double-action airbrush with a paint jar.

I got a cheapo double-action airbrush on Ebay for 11 dollars with free shipping. That included the airbrush and a paint jar. I got an airbrush air hose with 1/8" female threaded fittings for about 4 bucks, and a propellant can regulator (the key to airbrushing without a compressor, **Figure 5**) for about another 5 dollars.

Figure 5: Canned airbrush propellant will allow you to airbrush if you don't have an air compressor.

Continued on page 8

Techniques for Challenging Paint Jobs

Continued from page 7

Airbrush fitting sizes are highly varied depending on brand. The cheap ones seem to most often use the semi-standardized 1/8" male thread for air hose attachment. Most of the cheap propellant can regulators I found had 5 mm thread, so I also got a 5 mm to 1/8" adapter on Ebay for about 2 dollars.

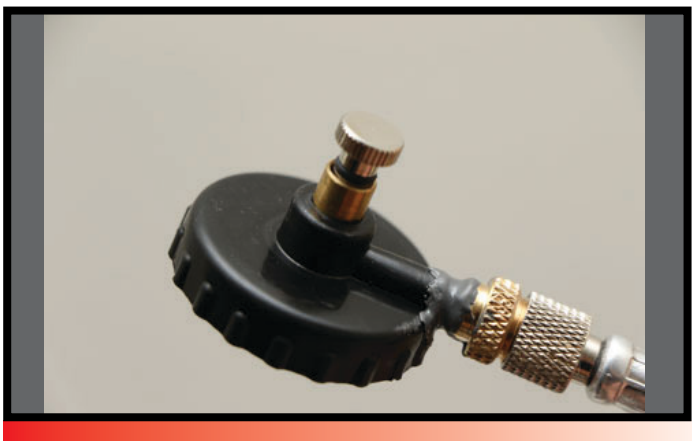


Figure 6: Going cheap on your airbrush setup might require a bit of DIY work, such as this propellant regulator patched with J.B. Weld epoxy. The 5 mm to 1/8" adapter (brass section) is also visible.

If you already have an air compressor (or are willing to buy one) you'll enjoy a more consistent air flow than what canned propellant provides. Avoid the cheap tankless air compressors you'll see offered with airbrush kits. You need the tank to provide a pressure buffer between the compressor and the airbrush to achieve a smooth flow. You may need to get an adapter to connect your airbrush to your compressor. If you go the canned propellant route, I like to watch for 40% off coupons at Michael's and score a can for about 5 dollars. One propellant can could cover detail painting on something like a Saturn V build (I would rattle can the base coat), but it's good to have more than one can on hand as their pressure performance varies widely as you use the gas and the can gets cold due to the rapid pressure reduction in the can. A quick can swap will allow you to continue painting without delay. Going cheap isn't without its pitfalls and there are some elements of "you get what you pay for." For example, the metal threaded section on my propellant regulator freely spun within the plastic piece that it was attached to, which made it impossible to tighten and it suffered from a small air leak (not good when you're paying for canned air). A dab of J.B. Weld around the fitting solved the problem (**Figure 6**).

5.2 Preparing Paint

For my rockets I usually use small bottles of enamel (**Figure 7**).

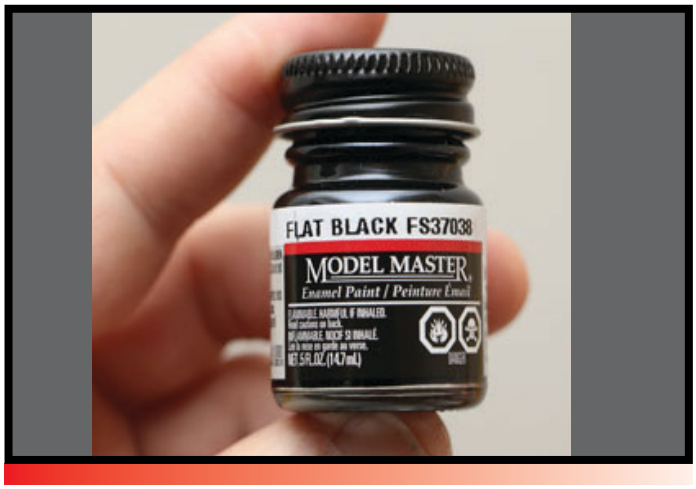


Figure 7: For airbrushing you can use small bottles of enamel like this.

For airbrushing enamels you'll likely need to thin the paint before spraying. You might note recommendations for thinner on the paint bottle. I typically use regular mineral spirits and get good results, and the mineral spirits can also be used for cleanup and is relatively inexpensive. A good rule of thumb you might hear for thinning airbrush paint is to shoot for the consistency of milk. A 2:1 mix of paint to thinner is a good place to start.

Continued on page 9

Check out our Facebook page
www.facebook.com/ApogeeRockets

Techniques for Challenging Paint Jobs

Continued from page 8

I use small, disposable pipettes (very cheap on Ebay) to roughly measure out thinner and paint into the airbrush's spray jar (**Figure 8**). If paint is spattering or clogging the airbrush nozzle, add thinner. If the paint doesn't appear to be "grabbing" onto the rocket's surface, it's probably too thin and adding some paint will thicken it back up.

Figure 8: Disposable pipettes are handy for transferring and measuring paint and thinner.

5.3 Masking

For masking I use a few different products depending on specific task at hand, including:

- Low-tack (yellow) Frogtape masking tape
- Masking tape for curves (Tamiya or similar)
- Liquid mask

For straight edges on smooth surfaces I like the FrogTape as it helps prevent paint from bleeding under the tape's edge, especially when using spray cans. It also leaves a nice, straight line when airbrushing (**Figure 9**).

Figure 9: Low-tack Frogtape works well for straight lines on smooth surfaces.

For more challenging shapes I like to use masking tape for curves such as that offered by Tamiya or Scotch (Artist Tape for Curves). It can be made to conform to more complex forms such as the corrugated transition section on the Saturn V. It is narrow and pliable but leaves sharp lines (**Figure 10**).

When applying the tape, it may be easier to overshoot with the tape and trim back with the help of a sharp hobby knife and pre-existing straight features of the model (**Figure 11**).

Figure 10: Masking tape for curves is useful for masking around complex forms such as transitions.

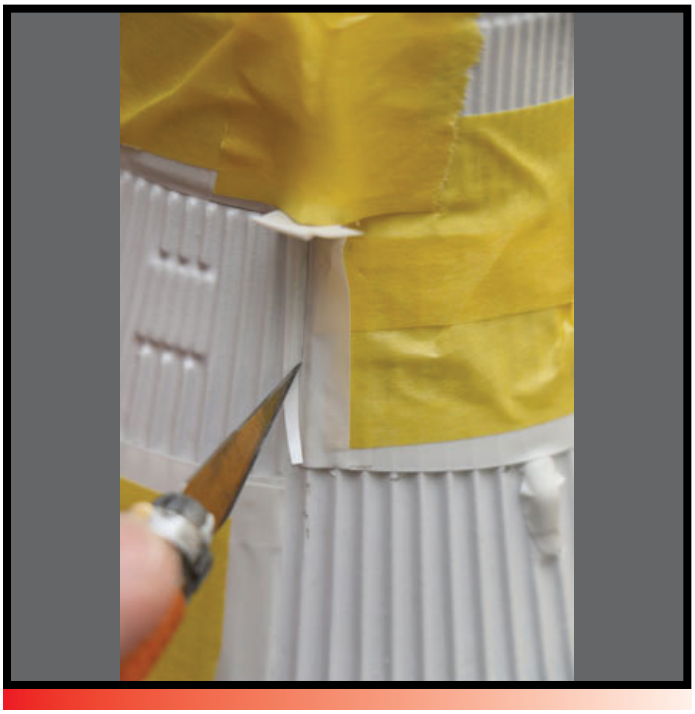


Figure 11: For detail masking, it is sometimes easier to overmask and trim the tape back using features in the model as a straight edge.

Continued on page 10

Techniques for Challenging Paint Jobs

Continued from page 9

I use the back edge of a small pair of tweezers to work the tape into tight spots (**Figure 12**).

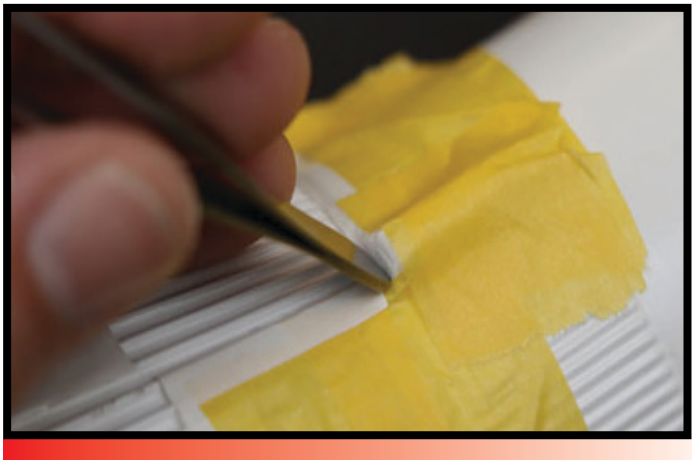


Figure 12: A small tool such as this pair of tweezers is helpful for working masking tape for curves into tight spots.

For really tricky details, I've had the best luck with liquid mask (**Figure 13**).

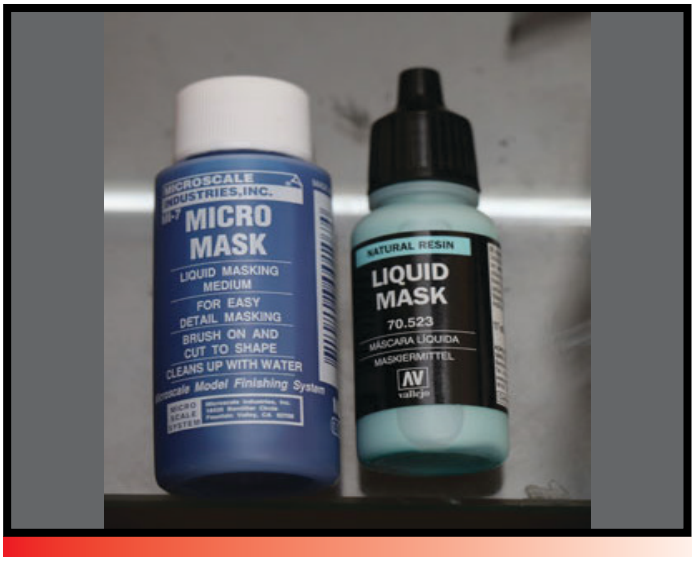


Figure 13: Liquid mask is useful for difficult details. It can be applied and trimmed after it has dried.

I like to brush on a coat, let it dry, then brush on a second coat, leaving enough overage that I'll have something to grab onto with tweezers after I've trimmed it (**Figure 14**).

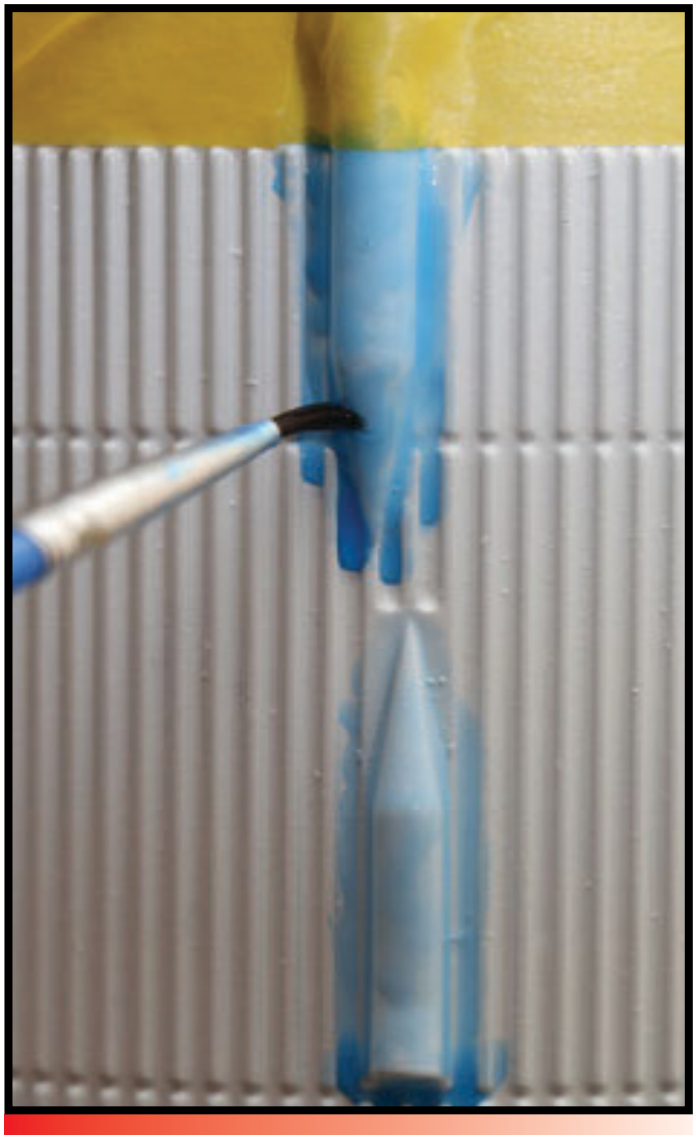


Figure 14: Applying a second coat of liquid mask to details with a small paint brush.

Continued on page 11

Techniques for Challenging Paint Jobs

Continued from page 10

After the mask has dried, it can be trimmed using a sharp hobby knife. Again, you may be able to use the existing features on the model to guide you as a straight edge. Note that if you are trimming on vacu-formed parts it is critical to use VERY light pressure as it is extremely easy to slice completely through the plastic (**Figure 15**).

Figure 15: Dried liquid mask can be trimmed with a sharp hobby knife and VERY light pressure.

A small pair of fine-point tweezers is helpful for peeling away excess. After the trimming process is complete, you can achieve clean, straight lines on challenging details (**Figure 16**).

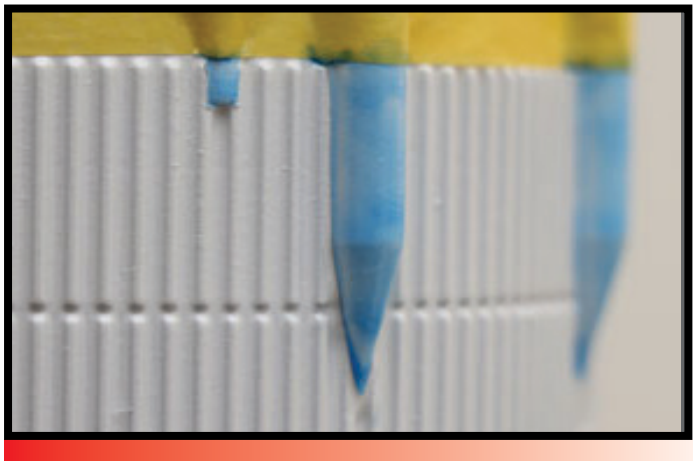


Figure 16: After excess is removed, liquid mask leaves clean lines on fine details.

Earlier in the article I mentioned that masking doesn't have to be in full physical contact with your work piece if you're using an airbrush. In the following section I'll describe how that works in practice.

Join Tripoli.org
Mention Apogee Components

5.4 Applying Detail Colors

Once our mask has been applied, our paint is thinned, and airbrush has been set up, we're ready to shoot our detail paint colors. Take some test shots with the airbrush and get a feel for how much paint it will output with varying trigger input. If you're used to using spray cans for spray painting you may find that you need the airbrush to be uncomfortably close to the model at first. Experiment a little on a test piece to get the feel for it.

For corners in color patterns such as roll patterns that you'll encounter on many scale rockets, the fine paint flow offered by an airbrush allows one to apply very thin, light coats such that there is so little paint present that the chance of paint bleeding under the mask is minimized. I found this tactic useful when painting my V-2 models roll pattern (**Figure 17**), on which roll pattern corners offer a lot of opportunity to bleed under a mask.

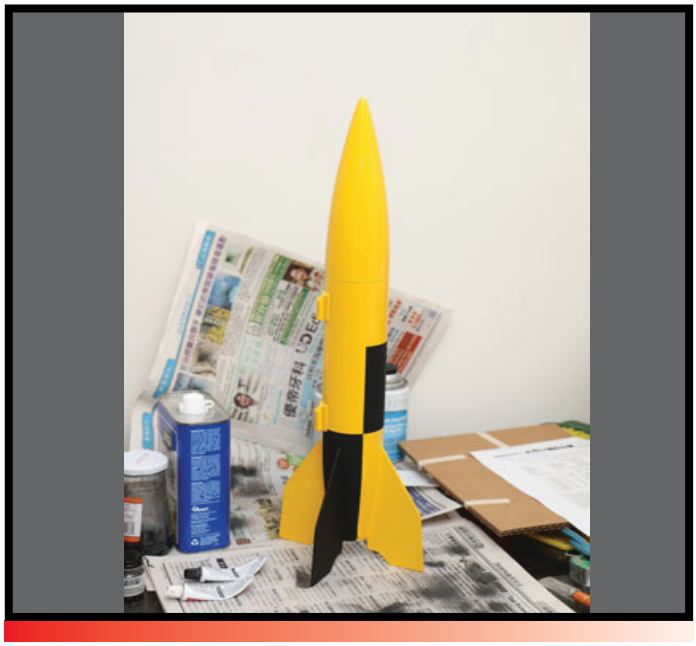


Figure 17: Corners on roll patterns offer paint an opportunity to bleed under masking tape. Keeping coats light using an airbrush can help prevent

Continued on page 12

Techniques for Challenging Paint Jobs

Continued from page 11

Before applying paint to the model, realize that the angle between the airbrush and the mask is CRITICAL. The mask will keep paint from spraying behind it while using the fine paint volumes from the airbrush, but we must ensure that we don't shoot paint down behind the mask. Paint your masked edges with the airbrush, taking care to keep the paint spray perpendicular to the mask. If you maintain the correct angle, paint will not get behind the mask, and if you keep your coat light, it won't run or flow as a liquid, either (**Figure 18**).

Figure 18: Beginning painting with an airbrush along masked edges. Note that white (unpainted) troughs in the corrugation pattern are visible behind the masking tape along the bottom edge of the black area where the masking tape has blocked the airbrush spray.

Although the mask was not pressed into contact with the troughs in the corrugation pattern on the Saturn V model in the photo, we'll still have a sharp line once the mask is removed IF the correct airbrush angle was maintained- (**Figure 19**).

After the edges along the masked have been painted, continue to take care to maintain the angle between the airbrush and the model surface while filling in the remaining space to be painted. More than once have I accidentally sprayed behind a mask while filling in larger areas after I've painted the edges.

5.5 Finishing Steps

Since the airbrush allows for fairly thin coats, your paint will dry relatively quickly. I like to remove masking tape soon after I've finished painting. If there is a mistake such as some errant overspray, you might be able to carefully wipe it off before the paint fully cures. Small imperfections can often be gently scraped away with a hobby knife blade.

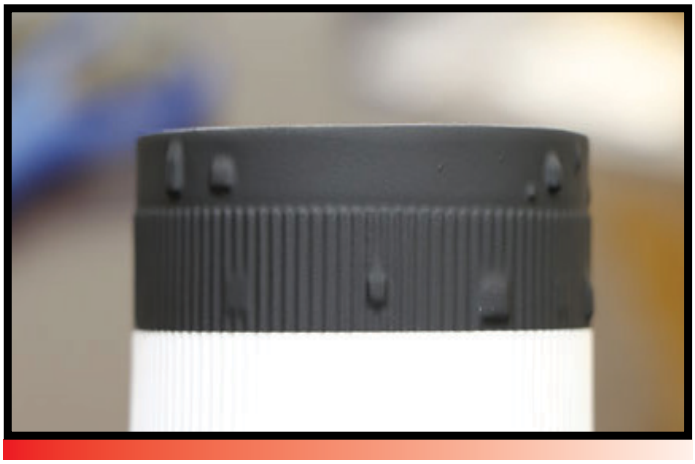


Figure 19: Painted edge after mask was removed.

6 Final Thoughts

The 50th Anniversary of the first time humans walked on another world is upon us. I was inspired to prepare a display for our local library that hopefully will do that awesome story justice, and simultaneously share my passion for rocketry. Along the way I found an excuse to build some wonderful scale kits that I had been wanting to take on for quite some time. Those builds were well worth the work but certainly came with the painting and finishing challenges. If, like me, you've been longing to pursue that gorgeous Saturn kit build, or any other rocketry project, I hope you jump into it and find the suggestions in this article useful along your journey.

Techniques for Challenging Paint Jobs

Continued from page 12

About the Author:

Josh Frizzell has been building and flying rockets since his childhood in the 1980's. These days he works as a geologist specializing in contaminated aquifer remediation. While at work he concerns himself with what is below ground, but in his free time he enjoys that which is above the ground…. WAAAYYYY above the ground! Josh is a NAR certified "Rocket Science Teacher" and enjoys sharing rocketry with anyone willing to listen.

Join The NAR.org
Mention Apogee Components

New Mid-Power Tube Assortment

You get:
(4) AT 29/13
(4) AT 41/18
(2) AT 56/18
(2) AT 66/18
(1) AC-56
(1) AC-66

www.ApogeeRockets.com/Building_Supplies/Body_Tubes

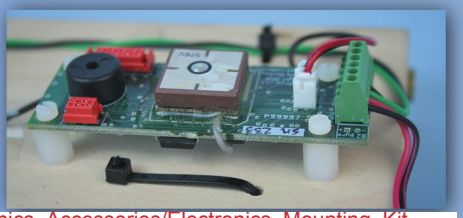
The classic tubes-o-plenty

You get:
(6) AT 13/18
(6) AT 18/18
(6) AT 24/18
(6) AT 33/18

Figure 20: Josh Frizzell

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