

The Mooney Flyer

The Official Online Magazine for the Mooney Community
www.TheMooneyFlyer.com

July 2022





Take the “Pain” out of “Painting”

By Kevin Knight

Planes look better, are more valuable and make passengers feel safer when they have nice paint schemes. Why? Shiny, attractive paint says, “I’m being well taken care of!”

Anyone who disagrees should walk down a flight line that includes a few planes with dull, oxidized, peeling paint. They may be mechanically sound, have great glass and avionics, even brand new engines beneath the cowlings. But they look old, decrepit, unloved... even dangerous.

That may sound dramatic, but ask yourself: If I walked into an engine shop and it looked disorganized with lots of old, rusty parts shoved in various corners, would I feel confident in the owner’s work? If I interviewed an A&P about doing my annual and that person seemed indifferent, kept sloppy records and was unkempt, would I feel comfortable? If someone was selling a plane with paint that resembled the bottom of a rat’s nest, would I wonder what else was wrong with it?

The good news is, it’s easy to have a terrific paint design created and applied to your plane. It won’t be cheap but will add value and, if properly cared for, will last 20 or more years.

Since the waitlist for most shops is two months or more and finalizing a design usually takes at least a month, you have time to educate yourself before transforming your plane into a showstopper.

I’ve owned Mooneys, Cessnas and Pipers. I just had a 1983 Cessna TR182 painted in Las Cruces, New Mexico, with oversight from John Calhoun of Fresh Aircraft. (I sold my 1967 M20F to buy the Cessna at a great price. Once it’s refurbished, I’ll sell it to buy a nice Eagle or 252 Encore.)

The design was by Craig Barnett of [Scheme Designers](#), (see sidebar), and the paint was a two-stage, clear coat, metal flake, tour de force from Sherwin-Williams. To quote everyone who’s seen the plane, “It’s spectacular.”

I spent many hours on that restoration and am sharing some ideas and insights to save you some time and money.

Regarding costs, Art Craft Paint in Santa Monica, California, was rated a “standout” shop by **Aviation Consumer**. For a sense of expense and time, Sales Manager Brenda Maldonado told me they paint 15-20 planes a month and usually have them in and out in six weeks.





Half the customers have paint schemes locked down and half don't. Before their in-house designer left recently, they'd charge \$1,250 for two designs, with up to three revisions after one design was selected.



Painting a 201 or Piper Cherokee white with up to three stripes cost \$17,000. That includes removing and balancing the flight controls, ten hours of bodywork, since most planes have some dents and dings, plus stripping, priming, and applying a single-stage paint.

Prices go up from there, based on design, complexity and paint selection. When I was finishing this article, I spoke with a Cessna 182 owner at my local airport who had his plane painted to resemble a hornet. That cost \$40,000, but it was a great looking hornet!

A career in cutting edge medicine has taught me to rely on experts with decades of experience. I thus had a lengthy Q&A with Richard Giles, Global Technical Services Manager for Sherwin-Williams Aerospace Coatings. I have a strong bias for Made in USA products and Sherwin-Williams's aero division is in Kansas, the same state where Superman grew up!



Q: When is an airplane's paint so bad it should be stripped and replaced?

A: "Corrosion is the first and most important consideration. Is it severe, is there a lot of paint detachment or skin thickness depletion, called erosion? If you have a leading edge with no paint, there's only one option: painting. When you walk around the plane, you look at the vibrancy and gloss of the finish. Has it been cleaned, are there any repairs, dents, and dings that need to be fixed? In a very few minutes, you can assess whether it needs a repaint. It's a very quick visual calculation."

Q: If my paint isn't great---but not horrible---can I restore it?

A: "There are lots of clever people out there who are committed to paint resurrection, but they're just delaying the inevitable. When you have to sand and polish, you're removing the DFT, or dry film thickness. The guys who do this professionally are very mindful of not removing too much pigment or clear coat. Paint restoration is achievable, but you have to be mindful of each situation, including the paint type and colors. Sometimes, there's just no hope."

Q: What should I look for in a paint shop?

A: "Experience, particularly with your kind of plane. Geography is also a consideration, although good shops can share progress photos as things move forward. I recommend asking for some references, search the internet for feedback, and get a couple of quotes. You can tell a lot by that, and how detailed the staff is in their work. Preparation is the foundation of a great paint job. If you want special effect colors, make sure they have expertise in applying them. There are lots of tricks of the trade that expert shops have learned through the years."

Q: Can the paint shop use automotive paint instead of aerospace?

A: "Aerospace coatings are more durable, flexible and weather resistant than automotive paints, and engineered to handle the rapid thermal cycles airplanes regularly experience."

Q: My plane has a single-stage paint. How does it compare with a two-stage paint?

A: “Single-stage paints are self-contained and don’t have a clear coat. Initially, they are just as glossy as two-stage paints that include a clear coat. But over time, the clear coat paints retain gloss longer. The clear coat provides ultraviolet protection, color fastness and environmental protection since wind is very abrasive. If you want to use metal flake, pearlescent or a hybrid paint, they must be two-stage. They cost more but hold up better over time and can be easily repaired by a competent paint shop.”

Q: Are “metal flake” paints actually metallic?

A: “Metallic colors contain numerous aluminum flakes, but there are also mica pigments made primarily of glass and plastics. Micras are mined, then processed to get a microscopic dish shape that reflects light from different angles. Micras are a really exciting addition to airplane paint schemes. You can get chameleon finishes with multiple mica layers. If you look at it head on, then from the side, the translucence, color and clarity change. That’s called a flop.

“Candy paints are a translucent material that rely on the background. Many of those beautiful finishes are over black backgrounds. They’re very attractive and getting brighter and brighter. It’s a different look and a step beyond the mica. A shop has to be on its game to produce those finishes.” (Author’s Note: To see what different colors and schemes can look like, Sherwin-Williams has an easy-to-use, online color visualizer that’s fun to play with at <https://acv.sherwin.com>)

Q: Can I use single-stage and two-stage paints in the same scheme?

A: “Yes. That’s called ‘splitting.’ It’s very common. If you use plain white on the upper half and red metal flake on the bottom, your paint shop can ‘split’ the scheme with single-stage paint on top and two-stage on the bottom.

Q: Can new clear coat be shot over an old, two-stage paint to renew it?

A: “You don’t want to do that since there are two adhesion bond principles: mechanical and chemical. There’s no chemical bond left on old paint so you’d need a mechanical key, which would be sanding. But you can’t just clear coat a 10 year old paint. You’d have to sand, prime, base coat and clear coat the entire plane for it to look OK. However, those ‘scuff and paint’ jobs are heavier than new finishes since you’re building on top of the old paint. Generally speaking, you’re better off going with a clean palette and chemically stripping it.

Q: If I get some localized paint damage, can it be repaired?

A: “Yes. Sherwin-Williams design materials for ease of use. Many aviation paint shops have mixing facilities where they can exactly match a paint’s color and appearance for repairs, similar to automotive shops.”

Q: How much weight does a new paint job add to a plane?

A: “Roughly 25 pounds for a single engine plane.”

Q: How long does it take a new paint job to cure?

A: “After 14 days, it’s typically as cured as it’s going to get.”

Q: What is the biggest enemy of paint?

A: “Keep it clean. Remove carbon and fluids as they appear. And, if possible, keep it in a hangar to block the sun’s UV rays. If you’re going to use a cover, get a quality, breathable cover, e.g., Bruce’s Custom Covers, that doesn’t let moisture sweat on the surface.”

Q: Is there a safe way to protect my leading edges?

A: “We see the 3M aerospace tape a lot. I think it has its place. It ages, yellows, and has to be replaced occasionally. (Contact Aircraft Spruce or 3M for details.) We offer an erosion system for leading edges that has a Teflon additive. It requires another step for the painter, and it’s mostly used by commercial clients.”

Q: What are the best cleaning and protective products for my paint?

A: “We aren’t partial to any specific products, but prevention is better than cure. Keeping an airframe clean is the most important thing. New paint, by its nature, provides good runoff. If you can keep your plane hangared and clean, and quickly address any fluid leaks or carbon deposits, that’s critical.”

Author’s Note: Since my plane is undergoing its annual, I haven’t applied any cleaning products or protective coatings. I’m intrigued by the new ceramic coatings and studying products offered by Aircraft Spruce and Sporty’s. I prefer environmentally friendly items that require minimal elbow grease to apply.

If you decide your plane deserves a new paint scheme, I suggest scanning the internet for ideas and visiting schemedesigners.com. There are hundreds of variations, ranging from factory original looks to multicolor paints and patterns. You’re only limited by your imagination and budget.

You will doubtless come across some vinyl wraps, which are increasingly popular on sports cars. Craig Barnett of Scheme Designers designed some eye-catching ones for my plane that resemble carbon fiber. He said vinyl wraps are most appropriate for “plastic planes” like Cirrus and Diamonds, since they don’t have rivets. For those of us flying metal planes, vinyl can offer some nice accents but won’t replace paint.

One final thought. My loving wife’s support and happiness are critical to my flying “hobby.” It thus seemed like a win-win to request a new N number from the FAA before the paint was stripped. As she proudly tells friends and family, her initials and my birth date are now “our” plane’s call sign.



There's Nothing Plain About Craig Barnett's Planes

by Kevin Knight

Craig Barnett grew up in South Africa, spending hours of his childhood, flying with his father in a Bonanza and an Aztec, across that spectacular, diverse, colorful country. They even restored a Spitfire IX fighter plane together. "My favorite plane of all time," he says. As a young man, he earned his wings and a degree in Civil Engineering.



Twenty-five years ago, he literally left the farm and founded [Scheme Designers](https://schemedesigners.com/), which is based in New Jersey. The dedicated staff has since created paint schemes for nearly 16,000 planes, and more than half the Original Equipment Manufacturers (OEMs), including Cessna, Piper, Mooney and Cirrus.

Based on my design collaboration with Craig, I found that he's a responsive, engaging perfectionist with boundless enthusiasm for aviation. His knowledge of how shapes, light, color and hues interact are peerless.

Working with him, I was reminded of a story I did with World Series MVP pitcher Curt Schilling. His understanding and explanation about the physics of throwing a fast ball was like a lecture from Einstein. Craig is like that with planes, paint and design. His opinions are strong, but always supported by experience. For instance...

"Design services are more than getting a beautiful design perfected for your tastes. Detailed documents convey everything to your paint shop to ensure accurate replication. To paraphrase Mark Twain, the difference between the right design and the almost right paint design is the difference between lightning and a lightning bug. Details matter."

I want that kind of obsessive-compulsive fixation from everyone involved with my plane's restoration and care. If you do, too, check out <https://schemedesigners.com/>