

With several new paints  
to choose from—  
not to mention myriad colors,  
hundreds of painters, and  
a few new ideas—  
there's a lot to learn when it's . . .

# Time to Repaint Your Plane

by BERL BRECHNER / AOPA 466558

If your airplane is held together with paint and a prayer, forget about repainting. But if you think it's time to refinish your bird, there's much you should know before the first brushes stroke even a dab of mandarin orange on the old metallic marvel.

A couple of name-brand auto painters turn out glistening-finished cars in the way a porno-novel writer turns out suggestive words—a lot of fast exterior work with little undercover preparation. Give the man \$29.95 and a day with your car, and he says he can make it look like new.

Airplane painting, however, is still in another world (a more expensive one, of course, but you would expect that—everything in aviation seems to be expensive). Airplane painting is, for the most part, dominated by craftsmen.

A good plane refinisher's name will spread by word of mouth from hangar to hangar. A plane owner may migrate hundreds or thousands of miles every few years to let his bird nest and sprout new feathers at his favorite paint shop.

"You can't deliver a repainted airplane in worse shape than when it came in," explained Don Drown, of Aircraft Specialties, Inc., Punta Gorda, Fla. Drown's shop, at Charlotte County Airport, has painted planes that have come from as far away as Alaska and Wisconsin.

Painting a plane at Aircraft Specialties is a multi-step, highly structured affair. Drown doesn't take a paint-by-the-numbers, assembly-line approach to his work. Each plane gets the full treatment: degrease, mask, strip old paint, wire-brush corrosion, etch with phosphoric acid, treat with alodine, dry and prepare metal, prime and sand, and finally paint. Drown asks for about two weeks to handle a normal repaint job and charges in the \$650 range for a three-color coat on a Cessna 172 in "average shape."

"You've got to pay for a first-class job," Drown continued. "But you get a job that's good for three to five years—it will last."

Drown points out that—as with anything where money is involved—people are looking for a bargain. Sometimes a bit miffed when quoted a price around \$600 for a paint job, a few of his customers ask how much the cost would be if they did the stripping themselves. "I tell them \$700," Drown said. "There's a lot more to stripping than meets the eye, and we usually would have to redo it anyway."

The bargain hunt leads some plane owners into spraying the paint themselves, but airplanes are not living-room walls. One pilot, in fact, found his plane, with its new do-it-yourself paint finish, about to land—much against the pilot's will—about 300 feet short of the intended runway. His hours of tedious paint application had peeled into a multitude of flakes spoiling the airflow across the top of the wing.

As he and probably other home painters have discovered, the final tally in time, acid-worn fingers, and money (which may include the cost of a salvage paint job following the owner's original attempt) comes to well above the quoted price from a professional paint shop. And one pro, describing the difficulties of stripping the old paint, said, "Do it once and you'll never do it again."

A new wrinkle in plane painting comes from the Glendale School of Aeronautics, at San Fernando (Calif.) Airport. Last March Wayne Williams (AOPA 328673) and his partner, who run the fixed-base operation, began advertising a unique offer: "Paint your plane for \$195 . . . you strip and sand . . . we'll help you mask."

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Stripped to its bare aluminum, N5844A, a 1956 Cessna 172, sits in the Florida sun awaiting the half-dozen more steps that will complete its refinishing by Aircraft Specialties, Inc., at Punta Gorda. Photos by Joseph Janney Steinmetz



After receiving a complete coat of epoxy primer, the base color—red—has been applied to the upper half of the airplane. Surfaces not to be painted are shielded with paper and tape.



An Aircraft Specialties employee uses masking tape to mark off the boundaries of a white stripe.



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"We're swamped. We're doing a land-office business," Williams told *The PILOT*. He claims Glendale can make the offer based on "shorter margin, bigger volume." He promises one-week service, two colors, Dulux enamel paint. The price quoted is for a standard single-engine aircraft; for twins the price jumps to \$295. Williams says Glendale will handle stripping and preparation, if requested, for another \$200 to \$300, but he admits he prefers not to. About half the planes Glendale paints are stripped by the owner.

Regarding the \$195 offer, Williams said his firm has received no complaints, but can offer only "as good a job as the man himself does in preparation . . . But we're doing so much work we have to be careful what we take in, so we can do what we promise."

"Anybody can slap a paint on, but that isn't what's going to make a good paint job," confirms Ed Morey, chief of the general aviation branch of FAA's Flight Standards Service, Maintenance Division. "The thing I look for," he explained, "is the amount of effort put into preparation of the surface. This is where you're going to get the durability . . . and this is the thing that really makes a difference as to cost and quality of a paint job."

The majority of general aviation planes are painted with enamel-based paints, the old standby, and the cheapest of durable outdoor finishes. But a fast though expensive gainer in the paint popularity contest is the polyurethane (commonly but wrongly referred to as plastic) finish. Probably the most widely used of these is Alumigrip, a product of the U.S. Paint, Lacquer and Chemical Company, St. Louis.

Beech Aircraft, for instance, uses Alumigrip as the standard finish on the company's heavy twins, while the light-twin and single-engine fleets receive an enamel coat. Beech offers, however, to paint its lighter planes with Alumigrip for a little extra money—\$440 extra for the Baron and Bonanza and \$360 for the Sierra, Sundowner, and Sport. A Beech spokesman says more than 90 percent of the Baron and Bonanza buyers request the more expensive finish, and 65 percent of the buyers of the three lighter airplanes ask for Alumigrip.

As with any product, the latest style

N5844A,  
its three  
colors dry,  
ready to fly.



or newest development often becomes the rage. So it was when Day-Glo (remember Day-Glo?) was first introduced in the late 1950s. It was widely touted as the ultimate solution to the in-flight collision problem. Who could miss a plane swathed in gallons of Day-Glo orange? In late 1958 the Civil Aeronautics Board drafted a proposal to make fluorescent paint mandatory on

all civil aircraft. AOPA opposed the move, citing high costs and the relatively short life of fluorescent paints. The association did, however, endorse voluntary use of the product. But time took its toll on Day-Glo, and the novelty wore off almost as fast as the paint.

One of the latest airplane paints being offered is a DuPont product called Imron. According to Paul Leach, a





company official, Imron first came out about a year ago, and was specifically intended for air and surface vehicles. Its primary qualities, explained Leach, are high impact resistance, long gloss durability, and high chemical and corrosion resistance.

The paint, a polyurethane enamel similar in structure to Alumigrip, is available from DuPont in 400 colors.

According to the company, a well-applied coat of Imron should last a minimum of three to five years and does not need wax. Without wax it will maintain a "wet look" up to twice as long as more conventional paints.

Among the polyurethanes, Alumigrip has, nevertheless, maintained its popularity. Joseph Dilschneider, Jr., vice president of U.S. Paint, Lacquer and

Chemical Company, says he might lose a little of the single-engine-airplane paint business to Imron because it sells for less. But he steadfastly claims that his paint produces a richer, more brilliant-looking finish.

Alumigrip is the only airplane finish manufactured by the company, and sales are "a couple of million dollars' worth" each year, said Dilschneider. The largest bulk of the paint goes to plane manufacturers and airline paint shops.

He defends the \$32.50 per gallon wholesale cost of Alumigrip, pointing out that paint is the lowest cost item of the airplane refinishing job. When compared with the total price of the project, "the additional cost for Alumigrip is minimal," said Dilschneider. And, he added, since polyurethane requires less frequent paintings to keep the finish in top shape, overall costs are less throughout the life of the plane.

No matter what type of paint is selected, its weight may possibly affect critically balanced control surfaces found on some airplanes. According to FAA's Morey, repainting those surfaces must be done under the auspices of a certificated mechanic and entered into aircraft records. Morey stressed that many owners are not aware of the critical nature of some of these surfaces, and that a check with a mechanic or the plane manufacturer should be made before the painting gets under way. Not all planes have "statically balanced" surfaces, but they are common on more recently built aircraft, Morey explained.

Paint color and safety are consistently intertwined whenever a discussion of airplane paint arises. There have been many theorems, but few axioms. And despite a plethora of studies, analyses, reports, and tabulations—private and government—color schemes and patterns are still left to the individual to prescribe.

One study done for the FAA in 1961 by a psychological research firm concludes, not surprisingly, that "for conspicuity purposes, some paint on the exterior surfaces of an aircraft is measurably better than no paint." The report also said that orange and red fluorescent paints "are to be preferred," and that "standardized paint-patterning principles are essential."

But the following year the same firm, after a study of six different paint patterns, concluded that "no pattern was exceptionally more detectable than any other."

In one report the firm told FAA that a paint pattern should "include ele-



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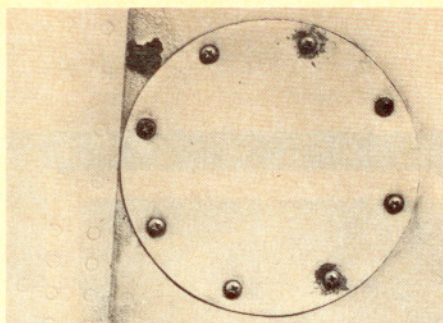
ments for positive brightness contrast, negative brightness contrast, and color contrast." But again, another report from the firm determined that "maximizing brightness contrasts between portions of the aircraft's surfaces does not lead to enhanced conspicuity."

Well, the only real conclusion is that there can be no conclusions.

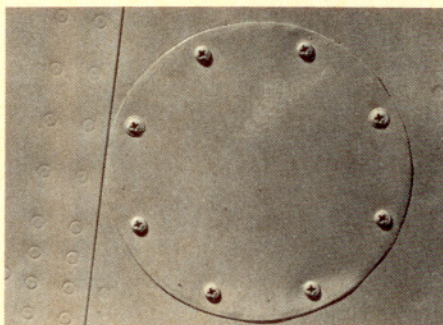
One of DuPont's technical experts recommends colors that have the "greatest strength or length of light wave." She recommends yellow used as "a band of color starting at nose, running the full length of fuselage, ending with a graceful line through tail assembly."

An optometrist in Owego, N.Y., Dr. Stephen S. Solomon, who is also a volunteer fireman, claims that lime yellow is the most visible color—both by day and night. He is the man behind a movement to get fire engines painted yellow instead of the traditional red.

Other people, however, are more prone to abide by the light-top, dark-bottom theorem. "I've always thought I could be seen from above much easier looking down on a light color," said



The same section of N5844A's skin is shown corroded and flaking, then clean and corrosion-free following paint stripping, wire brushing, acid etching, and painting.



FAA's Morey. "My preference was white and green, but it could be white and blue, or white and orange, or anything like that."

But another FAA man, Dr. Stanley R. Mohler (AOPA 167639), chief of a division of the Office of Aviation Medicine, says, "We would prefer not to see blue, white, or green airplanes." His reasoning is that white planes disappear in snow and clouds, green planes blend with trees and grass, and blue planes are camouflaged against a blue sky.

"But whatever we recommend," he continued, "very few companies are painting that way . . . they're doing the exact opposite." He noted the large number of basically white planes. "I guess they like white paint because it's cheaper."

Regardless of what colors are finally chosen, and no matter who does the work, a good paint job is important to the life of a plane, because the paint protects against corrosion stemming from humid or salty air and industrial chemicals. And corrosion can lead to an unexpected in-flight failure.

But not even the finest finish can offer total protection. As one FAA man put it, "If you go through a hail storm, the best paint job may not be too long for this world." □

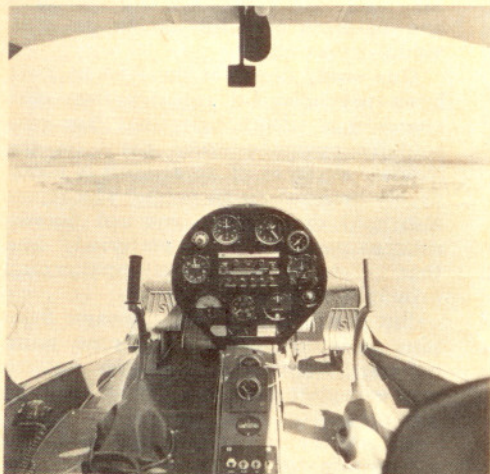
## Lots of Window in a New Little Plane

■ ■ An airplane which offers visibility close to that of a bubble-cockpit helicopter is being tested. FAA certification is the goal.

Designed mainly for patrol and photographic work, the plane, called the Explorer, recently completed a coast-to-coast flight.

It was conceived and is owned by

Marvin Patchen (AOPA 245381) of Ramona, Calif. The plane is intended for land use and has tricycle landing gear, but incorporates the wings and tail section of the Schweizer Teal amphibian. And like the Teal, the Explorer also has its single engine mounted above its wing. The powerplant is a 200-hp fuel-injected Lycoming.



The view from the Explorer cockpit shows wide window area and overhead engine controls.



The four-place Explorer, designed for patrol and photo work.

Seating four people, the aircraft is built with sliding doors on each side of the cabin to permit unobstructed aerial photography.

Engineering for the craft was done by David Thurston. Thurston Aircraft and Aerofab, both of Sanford, Maine, built the prototype Explorer.

Patchen claims his plane climbs at 1,300 fpm and has a cruising speed of about 130 mph. It is currently being tried out on pipeline and fire-patrol missions, fish spotting, and police work, as well as aerial photography. □