

Makeup for Airplanes?

Sort of: Powder coating is a new method of painting tubing...without paint.

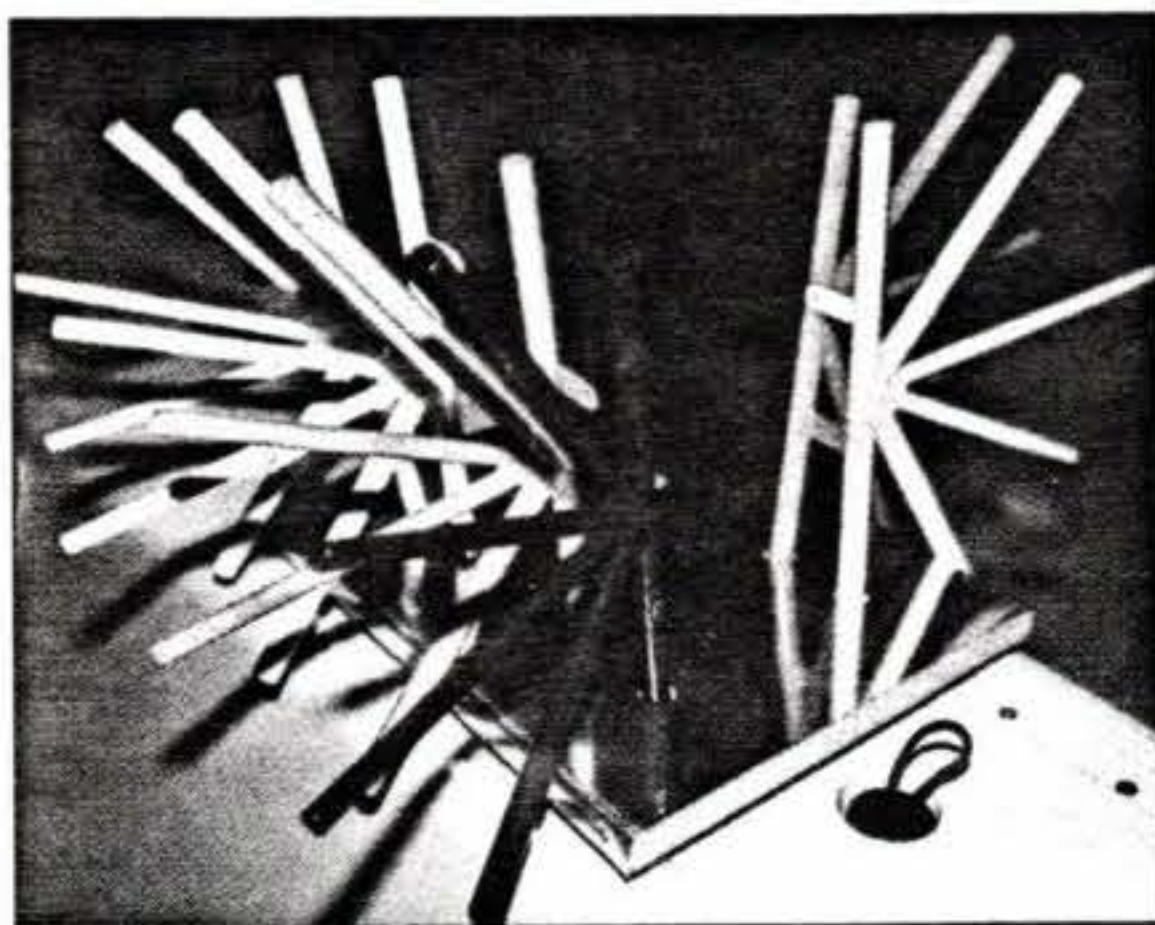
BY BEN MILLSPAUGH

Now that it's finished, I'm using my school-built Fisher Classic biplane for more than just boring holes in blue sky. As I've mentioned in earlier articles on painting and finishing, I've always had a passion for the Great Lakes 2T-1A-2 and the "Turbo" paint scheme many of them wore in the mid-Eighties.

To duplicate the look of the Great Lakes on the Classic, I wanted to paint the landing gear, cabane, N and Y struts white.

I decided to look into a process I'd heard about called powder coating. I started off by comparing the cost of Ditzler paint with that of powder coating. In the end, I chose powder coating for two reasons. First, polyester powder coating is roughly four times more durable than polyurethane paint, and second, it costs about the same as the more-conventional paint, catalysts and supplemental materials.

I contacted a company in Littleton, Colorado—Powder Coating Specialties—to set up an appointment to have my struts coated. Shop owner



Denney Aircraft's display of powder-coated tubing shows the variety of colors available for this new process.

Jack Howell and chief engineer Steve Pilger had done several aircraft components in the past and reported that the owners were very satisfied with the durability of the coating.

In **Photo 1**, workers are attaching a wire hanger to the Classic's landing gear in preparation for the first step of the process, a thorough cleaning with a ketone solvent that removes petroleum contamination.

The next step—cleaning the parts with a high-pressure blast of an aluminum oxide abrasive—is shown in

Photo 2. Although the blasting dulled the surface of the struts, it didn't seem to change the characteristics of the metal because only a very small amount was removed by the blasting.

Because the landing gear axles were not to be powder coated, they were wrapped with heat-resistant masking tape as shown in **Photo 3**. In spite of baking in an oven at a temperature of 400°F for 20 minutes, the tape does not flame or lose its adhesiveness.

Once the parts are wired, taped and cleaned, they are given one last blast of high-pressure air to remove any aluminum oxide residue so that the powder will have the best possible chance of bonding.

The part being coated is then grounded while the powder itself is given the opposite electrical charge. This sets up a field of attraction that bonds the powder to the surface. Because there is very little overspray, this all takes place in an open shop instead of an enclosed spray booth.

The powder itself is applied with the spray gun shown in **Photo 4**. The

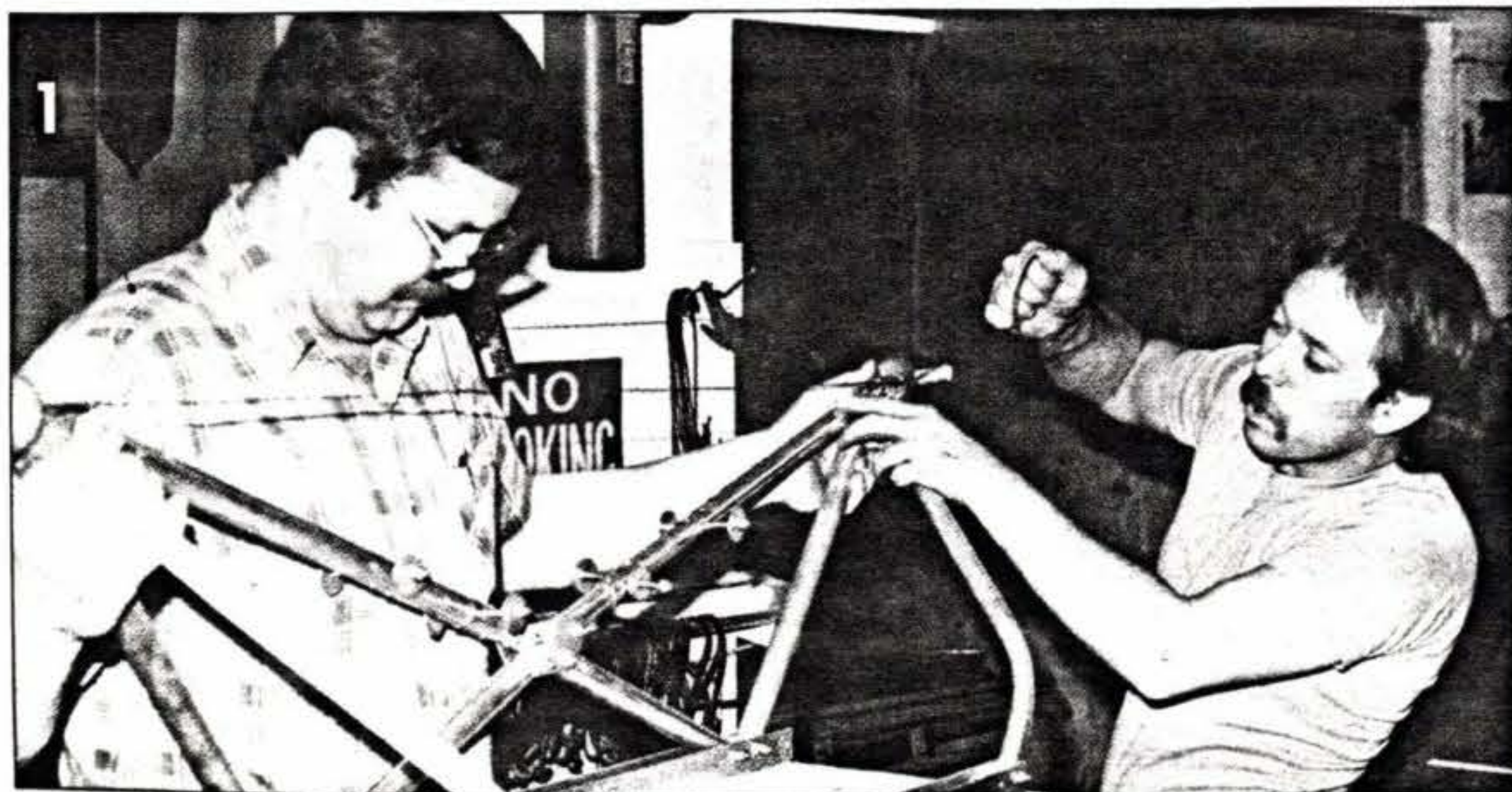




Photo 5 shows the powder coating being applied by painter Randy Jewsbury. Note that there is very little powder coming out of the gun, resulting in minimal overspray. Also note that Jewsbury wore only a dust mask during the entire operation and had just a small amount of powder on his face when he was finished. Conventional paint spraying is a much different affair!



As shown in **Photo 6**, when all the struts were powder coated, they were rolled via overhead track to a baking oven that is approximately 20 feet long, 10 feet high and 8 feet wide. When the parts came out of the oven, the finish was smooth and glossy—like a quality acrylic enamel rather than the wet look of polyurethane.

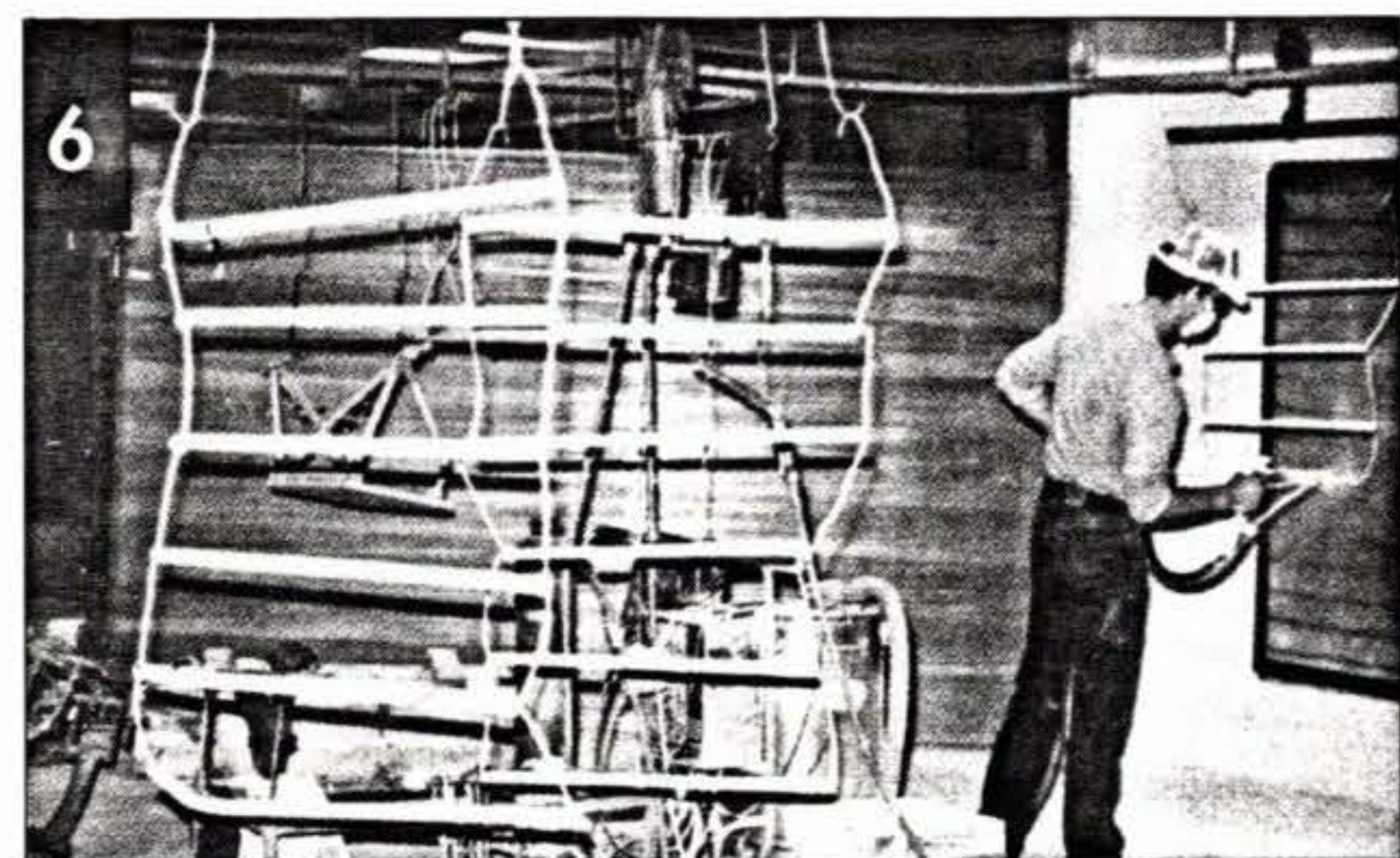


The staff at Powder Coating Specialties told me to let the parts cure a day before working with them, so the following day, I installed them on the airplane. Though I did manage to scratch one of the cabane struts (it was touched up later), I was amazed at how tough the finish was.

powder is siphoned up from a pot and applied at very low pressure. When the trigger is pulled, the powder seems to almost float from the gun to the surface of the part being coated, with the excess sucked back into an extraction filter behind the gun.

Although you don't have an unlimited variety of colors to choose from when you opt for powder coating over conventional painting, there are powder colors that match most standard aircraft finishes. The white I used, in fact, was very close to the pure-white Ditzler Durathane we originally used on the Classic.

The best part of the powder coating process was my satisfaction with the finished look of the airplane when the parts were installed. The quality look was well worth the \$85 it cost to get all the tubes coated. Who knows, maybe it will also add a few mph to the top speed! □



POWDER COATING SPECIALTIES can be reached at 303/278-0406.