

Painting Models
by Jim Lowe

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Technical Program Summary for 14 February 2003

Jim Lowe discussed the techniques of painting models. He advised not to rush to completion and risk spoiling an otherwise good model by inadequate paint planning. Think ahead on how to:

- Prepare the surface
- Hold the parts
- Select the type of paint, color and texture
- Apply the paint --- brush, dip, air spray, or electrostatic spray
- Apply the lettering and striping.

Prepare the surface

The objective of this step is to provide a surface to which the paint can readily adhere. First, remove all cutting oil using mineral spirits or TSP. Then the surface should be either mechanically abraded by bead or sand blasting or chemically etched. If bead blasted, the surface then needs to be washed thoroughly to remove all dust and powder. Use tack free rags and a surface cleaner available from auto paint stores. Be careful if using lacquer thinners because they may contain additives that could interfere with the paint adhesion. Chemical etching is done by applying a metal etch solution available in the paint section of DIY stores.

Hold the parts

Before painting mask any surface that must remain bare. Small parts to be sprayed may be strung like beads on a frame. Larger parts may be set on small dust free plywood squares. A lazy Susan rotary table is handy to easily get all sides of a part covered. Decide whether to paint individual parts of an assembly or paint the assembly.

Select the type of paint, color, and texture

The method of applying the paint suggests the type of paint to use. Generally, slower drying oil base paints are used when brushing and quick drying lacquers are used when spraying. An advantage of quick drying paint is the reduction in the time that dust can adhere to the paint surface. Other types of paint include water based and electrostatically applied dry powder both of which avoids the release of hydrocarbon solvents into the atmosphere. Dry powder paint requires careful fixturing to hold the parts during spraying and curing. Curing is done in an oven (not the one in the kitchen!) at about 400 deg. F. If the part to be painted has very fine surface detail, then select a paint with micro sized pigment particles. These paints have pigment size 1/10 of that in regular paints and are available in hobby shops. Usually, a primer coat is applied after which any surface defects are filled in and sanded down. Some primers claim that they can be used directly on rusted surfaces as is.

Color selected may be whatever suits your fancy or be dictated by what was used on full sized equipment. If a very realistic result is wanted, add the effects of wear, rusting and dirt accumulation that occurs from use. Also important is the texture of the finish. Small

models look like toys if painted with high gloss paint. Use a matte finish to get that "real" look. Surfaces like smokeboxes should be painted with high temperature paint. Hot rod header and brake caliper paints available from auto paint stores are two good choices.

Apply the paint

If brushing the finish coat, make certain to keep a wet front on the brush. Unless that's done, there's a danger of getting brush strokes in the finish. Use a brush of adequate size, not too small. Spraying small work is best done with an artist's airbrush. The single acting type is easier to use. Don't spray without wearing some breathing protection equipment and make certain there is no fire hazard.

Dry powder is applied with a special gun that electrically charges the paint powder particles. The charged powder is attracted to the part (which must be electrically conductive) and actually "wraps" around the part to give exceptional coverage. After spraying the paint is fused to the part by baking.

Apply the lettering and striping

The general appearance of any model can be improved by addition of striping particularly if the full sized object was so decorated. If you have a very steady hand and proper brushes, the striping may be applied without any special gadgets. Another direct hand technique is applying the paint with a drafting pen. However, most of us need some help and that comes in the form of adhesive tapes made specially to mask for striping. The stripe color is applied first, and then the masking tape is positioned followed by the finish coat. Removal of the tape exposes the striping. These tapes are available from auto paint stores and hobby shops. Striping may also be applied directly by a painting tool that consists of wheels of different widths and spacing. The striping paint is carried in a small bottle and is metered to the wheels.

The finishing touch is the application of lettering. As with striping if you are blessed with a good eye and steady hand, lettering may be done directly by hand. If not, laser cut, vinyl letters with adhesive backing are available from specialty shops. Application is simple enough --- simply press them in place. Another product the dry transfer. These consist of several letters of the alphabet and numerals in wax a transparent sheet. Application is done by burnishing each letter to the surface. The completed lettering is sprayed with a protective cover coat.

Many thanks to Jim Lowe for preparing this talk and for a well done presentation.