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Introduction

Building scale models is a rewarding hobby that connects you to history and provides an outlet for creativity. It's part exacting science and part art—and it's all fun.

Maybe you're new to modeling. Or maybe you built models as a kid, and as you got older, the distractions of dating, cars, athletics, college, career, military service, marriage, and/or children pushed this quiet hobby to the back burner. Now you've got some time to spare, and a hobby may be just the ticket. Whatever route you took to get here, this book is designed to give you some tips and techniques for building better models.

Through various projects, I'll show you how I do everything from clipping parts off a sprue to painting and gluing as well as working with materials that have become increasingly common such as photoetched metal and resin. You can follow along by acquiring the kits I used, or you can adapt the techniques to fit models you want to build.

Modeling improves with practice, and it is best learned by doing over and over again. Each model I build seems to be better than the next. Don't be afraid to try new things and push the envelope with each build. Just be patient with yourself. I can't tell you how many models I've screwed up by rushing to get done. Modeling is rarely good when you are in a hurry.

These techniques are what works for me, but they are not the be-all and end-all of modeling. I've been building models for more than 30 years, and I am still learning things. So let's learn a few things and have some fun.

3

Brushing up on AIRBRUSHING



Skills

- Learning techniques
- Blending
- Mixing paint
- Troubleshooting

There are few skills more likely to improve your modeling than airbrushing. It transforms painting from uneven brush strokes or difficult-to-control spray cans to applying precise even finishes and allowing for blending and soft transitions. There have been many books written about airbrushing, and modeling magazines routinely cover the subject. What follows is a brief introduction to the tools, how to use them, and how to maintain them.



The core of any airbrush is the nozzle and needle. They may change size depending on the brush, but airflow over and through them produces the spray that moves paint to the model.

What is an airbrush? Designs differ, but in simple terms, an airbrush compresses air and pushes it through a narrow nozzle where it atomizes paint and blows it out in a controllable pattern, 1. Think about it as a miniaturized, precision version of the paint sprayers used for houses and cars. Airbrushes are used in many professions and hobbies, and they are the perfect tool for applying paint to scale models.

Single- versus double-action. Airbrush designs differ, but they can be divided into two basic categories: single-action and double-action. Airbrush types can affect the way paint is applied, their ease of use, and cleaning properties.

In a single-action brush, the trigger controls only air flow, and it's usually either on or off, 2. Paint flow is preset by adjusting either the nozzle or the needle. This makes them easy to use, especially for beginners, because there's only one thing to consider while spraying and a lot less chance of applying too much paint. On the other hand, single-action brushes tend to be less versatile because adjusting the paint flow is generally done while the brush is not in use.

On a double-action airbrush, the trigger controls air flow and paint volume, 3. Generally, the air pressure is controlled by depressing the trigger. Pulling back on the trigger moves the needle within the nozzle, which allows more paint through and results in a wider pattern. Skilled painters can manipulate double-action brushes to easily create interesting effects. But the versatility of double-action brushes makes them harder to use as there are more variables to master.



A single-action airbrush is easy to use, as the trigger controls only air flow, but one can also be less versatile.



A double-action airbrush is harder to use, but it can create more interesting effects. The trigger controls air flow as well as paint volume.

External versus internal mix. An airbrush can mix paint and air in two ways, either externally or internally. External brushes are usually less expensive than internal brushes, but they tend to produce a wider, harder-to-control spray pattern. I find internal mix brushes easier to use and control, but I know many talented builders who achieve terrific results with external-mix brushes.

Bottles, color cups, and gravity feed. Airbrushes hold paint either in a bottle that attaches to the brush, usually from underneath, or in an open-top color cup. Bottles hold more paint and can be closed, a handy way to prevent unfortunate spills or splashes. Most color cups mount on top of the brush. They hold less paint, but because gravity helps move paint into the body of the brush as opposed to air pressure in a bottle-fed

Skills

- Handling photoetched metal
- Silly Putty masking
- Hairspray weathering
- Using pastels and pigments
- Making mud
- Post-shading



Tackling WEATHERING



Weathering is a catch-all term for techniques applied to a model that enhance realism, giving it a worn appearance and a sense of how, when, and where the represented vehicle was used. Weathering includes techniques for highlighting detail, such as washes and dry-brushing, as well as extremes such as paint chipping, battle damage, and mud.

Weathering can be applied to any subject, even cars and airliners, but military vehicles benefit most from the extremes. I'll touch on recent advances in armor finishing techniques as well as old standbys as I build Dragon's 1/35 scale early production Tiger I Ausf E. Weathering is an art. Experiment with these and other techniques to expand your finishes.



1 Dragon's Tiger I is a plastic tour de force including photoetched-metal details and markings for three Leningrad front tanks.



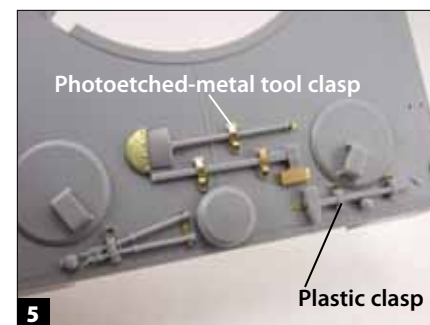
2 Highlighting the relevant steps in the instructions is a great way to avoid confusion between versions.



3 I highlighted the sprue designations with a marker to make finding parts easier.



4 Clear periscopes are nice details. To mask them before painting, place strips of Tamiya tape with a hobby knife.



5 Photoetched metal is great for fine detail, but it can be frustrating. I used some of the clasps and other photoetched-metal parts to enhance the molded plastic tools.



6 I used the tip of a new No. 11 blade to maneuver small parts such as headlight bases into position. You don't have to press hard, just enough to pick up the piece.

The kit. Dragon kits are a tour de force among armor models. This Tiger, part of Dragon's Smart Kit range (No. 6600), includes photoetched-metal details, wire tow cables, and decals for three tanks operated by Germany's 502 Heavy Panzer Regiment on the Leningrad front in the winter of 1942–43, **1**. There are optional parts for the three versions that the complicated instructions point out. After deciding to build tank 100, I marked the optional parts I needed to be sure I didn't miss anything, **2**. There are 15 sprues in the box. To make finding needed parts

easier, I highlighted the sprues' letter tabs with a marker, **3**.

A few armor tips. The focus of this chapter is weathering, but here are a few tips for dealing with detailed armor models. Because I airbrushed the Tiger as opposed to spray-painting (as I did to the KV in Chapter 1), I attached the road-wheel arms and other suspension components at the start of the build. I left the overlapping road wheels off to be sure they all received paint.

Dragon provides clear periscopes, so I placed tiny strips of masking tape on

TIGER TANK

Armed with a powerful 88mm gun and protected by as much as 100mm of armor, German Tiger tanks presented the Allies with a thorny opponent. Design work for a heavy tank began in 1937, and the first vehicle entered service in August 1942. The first combat occurred the following month with the 502nd Tank Battalion near Leningrad. Although changes



This Tiger tank was captured in Tunisia. U.S. Army photo

were made to the engine, road wheels, and commander's cupola during production, the basic design stayed essentially the same for the more than 1,340 Tiger Is built. Tigers served in North Africa, Russia, and northwest Europe and proved deadly for many Allied tanks, although the vehicle was not without its problems, especially mechanical deficiencies that sidelined many. However, Tigers have become an iconic tank and are wildly popular modeling subjects. Tank 100 of the 502nd battalion modeled here is noteworthy as the first Tiger captured intact by the Soviets in January 1943.

the areas to remain clear before adding the covers, **4**.

The kit offers a comprehensive set of photoetched-metal parts including tool clasps, straps, and brackets; engine frames; and other details (some with optional plastic parts). Pick and choose the parts you use—just because there are photoetched-metal parts provided doesn't mean you have to use them, **5**.

Lots of detail means lots of small parts. After applying a little liquid cement to the mounting locations, I moved small parts with the tip of a new No. 11 blade, **6**. For very small parts, leave a little handle of sprue attached to make them easier to handle, **7**. You can trim the handle off after the glue dries, **8**.

8

IMPROVING an Older Kit



Skills

- Working with resin parts
- Using white metal
- Scribing panel lines
- Airbrushing metal finishes

F-80 Shooting Star

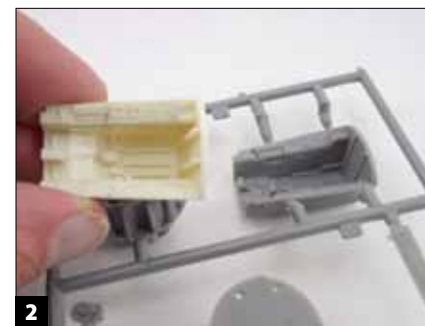


Modern kits are masterpieces of molding and detail. Some are so well made that filler and sanding are rarely needed, and construction can take a few short hours, allowing the builder to focus on painting and finishing. There are times when you want to build an older kit, either because it may be the only model of the subject or because you have the kit in your stash.

The Monogram 1/48 scale F-80 Shooting Star is a good example of the former. Recently reissued by Revell, the kit debuted in 1977, but it's still the only option if you want a 1/48 scale model of this Korean War combatant.



Raised panel lines were once the only option, but most modelers don't like them because they lack realism and don't take weathering washes.



The detail in Monogram's plastic cockpit tub isn't bad, but the True Details resin tub is more refined and has lots of knobs and switches that are not on the kit's cockpit.



Westley's Bleche-Wite is a strong tire cleaner that will break up oily mold-release agents. Wear gloves if you have to get your hands in the solution, for example, when you are removing the parts.



Pour plugs are excess resin usually left where the liquid resin was poured into the mold. Most manufacturers put them in easy-to-hide locations like the bottom of the F-80 ejection seat.



Sawing is the best way to remove pour plugs. You can cut slowly and check your work often to prevent mistakes.



I used a sander to remove excess resin in the instrument panel. Always check instructions before cutting or sanding, so you don't remove something important.

It's not a bad kit: the shapes are good, and it goes together okay. The detail in the cockpit is passable, but the surface is marked with raised panel lines, 1. They were standard on model kits until the 1980s when engraved panel lines became vogue. When I built the reissue recently, I decided to replace the raised lines by re-scribing them and finish the model with a shiny natural-metal skin. While I was at it, I added a

resin cockpit, 2, wheels, and Misawa wingtip fuel tanks.

What is resin? Speaking technically, urethane resin is the product of a two-part material that can be poured into a mold to cast parts. For modelers, this results in having more detailed parts than those made of injection-molded styrene. These very detailed parts can really improve the appearance of models. Like photoetched

LOCKHEED F-80 SHOOTING STAR

Originally designated the P-80, Lockheed's Shooting Star became the U.S. Air Force's first operational jet fighter when it entered service in late 1944. Too late to see combat in World War II, the single-engine airplane rose to prominence in the early months of the Korean War when it was the only USAF jet in the theater. Despite some success in air-to-air combat, the F-80 was outmatched by the swept-wing MiG-15 and was transformed into a potent ground-attack aircraft.



Shooting Stars from the 8th Fighter-Bomber Squadron fly over Korea. U.S. Air Force photo

Armed with six .50-caliber machine guns in the nose, the F-80C could carry rockets, bombs, and napalm canisters. The RF-80 reconnaissance version exchanged guns for cameras. By mid-1951, most F-80s had been withdrawn from frontline service, but the basic design soldiered on for many years as the two-seat T-33 trainer. Several are still flying with the Bolivian Air Force, and Boeing used one as a chase plane during flight tests of the 787 Dreamliner in 2010.

metal, resin parts used to be the province of aftermarket manufacturers, but more and more kits from major manufacturers are including resin, especially for cockpits and wheel wells.

Unfortunately, all that detail doesn't come without negatives. Resin tends to be more fragile, so care must be taken during handling. There are also occasional molding problems, including air bubbles and warping. And because the parts are not plastic, they usually need more test-fitting and refinement before they can be installed.

Resin preparation. Cleaning plastic parts before painting is a good idea, but it's essential for resin parts. Most have a strong mold-release agent that will repel