

# **WEATHERING** **ARMOR**





Pat's 1/35 scale Tamiya M3 Stuart is stuck in some realistic mud.

# Modeling Mud

Get your armor dirty with realistic mud *By Pat Hensley*

Chances are, if it served in the European theater during World War II and it was armor, it got dirty ... very dirty. Tanks, especially, collected heavy, caked-on mud as a result of driving through any terrain during any weather.

I found a simple way of applying realistic mud to armor, and it works for tanks or soft-skinned vehicles. I started by staining and sealing a simple wooden base, then adding a layer of Sculptamold modeling compound for the mud. After spraying the Sculptamold dark brown, it was ready for my mud effects. It requires only a few simple items most modelers already have around the house: various shades of light or dark brown pastels, Elmer's white glue, dirt from your yard, and Sculptamold for the optional base coat, **1**.

Start by collecting your dirt from the yard. I recommend sifting it to create a finer texture. I pack a kitchen strainer full and then move the dirt around with a spoon to get the desired effect, **2**. I store it in one-gallon freezer bags. Next, choose the shade of brown pastel you want to use. The dirt from the yard is for texture only; the pastels provide color for the mud. Often the colors of the natural dirt and pastels work together or complement each other. For instance, the dirt around my home is very red, so I use dark pastels to create a darker brown and correct the dirt's natural redness.

I mix the ingredients in mixing palettes, available at any craft store. I fill one cup with glue and shave pastel dust into it until the desired shade is acquired, **3**. Make sure to mix the pastel dust and glue



**1** All you need are pastels, Elmer's white glue, and actual dirt.

well. Once the color is right, slowly sprinkle in the natural dirt, **4**; the clumpier the mud, the more dirt will be needed, **5**. If it gets too thick, just add more glue. But remember, the glue will harden, so work quickly.





**2**

It's a good idea to sift your dirt for a finer texture.



**3**

Shave the pastels into the glue until you have the desired color.



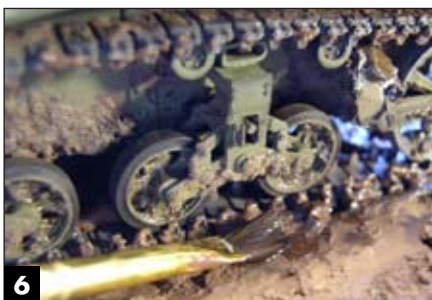
**4**

Slowly sprinkle in the dirt until the texture is right.



**5**

Remember, work fast, or the glue will dry.



**6**

Apply Future to make the mud look wet.

Now that you have mud, it's time to get the model dirty. I apply the concoction with a simple rounded toothpick. I place the mud on the inside hull, the rear sprocket, and on and around the lower exterior. Check references to see how mud was distributed on the tracks and road wheels. And finally, if you're going for a wet look, simply apply some Future floor polish to the wet areas, **6**.

This technique can be applied to almost any scene. I hope you find it as convenient as I do. **FSM**





Trumpeter's Model 1942 KV-1, dressed for winter warfare: Modeler Mike Kirchoff makes it look easy – and he says painting and weathering really *is* easy.

# Painting & Weathering ARMOR

*By Mike Kirchoff*

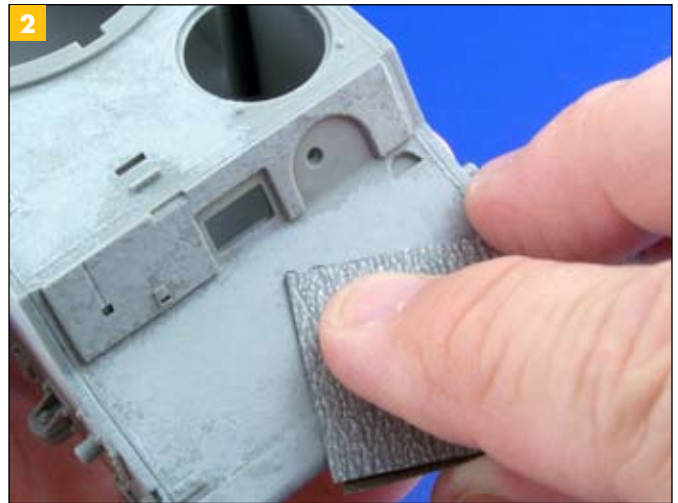
Giving Trumpeter's  
Model 1942 KV-1  
“the look”

**A**rmored fighting vehicles evolved quickly in the terrible crucible of World War II. But in the first years of the war, the toughest bully on the block just might have been the Soviet Union's mammoth 45-ton KV-1 tank. Although it was prone to mechanical breakdowns, and was later eclipsed by other weapons, the KV-1's 76mm gun could dish out punishing firepower – and this massive tank's 90mm-thick armor could take a severe pounding, too.





**1** Rolled armor is rough stuff. Mike achieves this texture by stippling these panels with Mr. Surfacer 500.



**2** Light sanding slightly smooths the stippled surfaces and keeps the texturing effect from looking exaggerated.



**3** The makings of mud: Mix Woodland Scenics grass, Mr. Surfacer 500, Tauro powdered-pigment brown dirt, and lacquer thinner.



**4** Mike uses an old brush to apply a thick build-up of mud and sod.

### The big idea

Rather than an attempt to create a historically accurate and detailed model, this project could be more appropriately defined as a simple study of the trinity of armor-model finishing: texturing, painting, and weathering.

To demonstrate, I chose Trumpeter's excellent 1/35 scale Soviet KV-1 Model 1942 Heavy Cast Turret (No. 00359), an ideal subject for finishing. With its angular, slab-sided hull construction, and large, cast turret, the Model 1942 is a perfect "canvas" for a full battery of effects.

The two-tone winter camouflage scheme on the box art was simple yet intriguing. Bolstered by a photo of tanks from this very unit in action on the Kalinin front (page 25 of *Stalin's Heavy Tanks 1941-45: The KV & IS Heavy Tanks*, by Steven Zaloga), I decided to take a stab at this distinctive green-and-white scheme.

### First steps

It's convenient to model basic effects, such as torch-cut edges as well as rolled and cast armor textures, before assembly.

For the rough-cut edges typically found on armor plates, I use the backside of a No. 11 hobby-knife blade. Drawing the blade perpendicular to the edge and allowing it to randomly skip and

chatter will leave a series of neat "notches." Occasionally, I'll even use an abbreviated sawing motion to create deeper grooves. Follow photo references to keep this effect "to scale."

I wanted to add character to the KV-1 hull's wide expanses of armor plating. After assembling major hull components and road wheels, sprockets, and idlers, I textured plates with a thin coat of Gunze Sangyo Mr. Surfacer 500 applied with a short-bristled brush, **1**. Leaving off the fenders makes it easier to work on the hull sides. I avoided areas below the fender line (later, they would be slathered with mud). After drying, the flat surfaces were gently sanded with 600-grit paper to even out the effect, **2**.

The turret and mantlet received a similar but heavier treatment to replicate the heavy cast armor. Again, photos can tell you how far to take this technique.

### Mud

In winter camouflage, this vehicle needed a thorough application of mud. I achieved this in two stages – a thick precoat applied before the hull assembly is completed, and a final layer that would be almost a straight application of liquefied pigment powder after the model had been painted and weathered.

For the thicker concoction of mud, I used a base of Mr.



**5** This time, Mike applies a smooth coat of Mr. Surfacer 500 for primer.



**6** Next comes a base of Russian green slightly lightened with yellow ochre.



**7** White-metal tracks were primed, then airbrushed with a base coat of Vallejo Model Color black grey.



**8** Mike fired up his Iwata HP-C airbrush to apply several thin, almost transparent layers of Vallejo Model Color foundation white.

Surfacer 500 reduced with lacquer thinner. By adding “soil” – in this case, Tauro brown dirt powdered-pigment (No. 70105) and clippings of Woodland Scenic grasses, **3** – I created a sod-like appearance. Using a disposable brush, I generously applied this mixture to the hull, concentrating on areas where mud would naturally build up (such as between the idler arms, both sides of the wheels, and, of course, the mud scraper located forward of each drive sprocket, **4**). Don’t forget to add a thin layer to the underside of the fenders, as well.

### Tracks

There’s nothing wrong with the kit-supplied tracks, but I used a set of Friulmodel white-metal, pinned tracks (No. ATL-10). After assembly, I gave each link a thorough coat of Mr. Surfacer 500 from a spray can before adding them to the model.

(Important note, based on painful experience: *Pay attention to the direction of the track.* I reversed one side early on and didn’t catch my mistake until late in the build. What a headache!)

### Primer

Construction went quickly, and I soon found myself in the final stages of assembling the turret and hull. I installed the fenders and added tow cables, spare links, toolbox, etc. I left off the headlamp lens, taillight, and the fragile hull and turret machine guns until after painting and weathering.

I usually apply a primer before finish coats, especially painting with acrylics (as I planned to do). I primed with a 1:2 mix of Mr. Surfacer 500 and Mr. Color Leveling Thinner. Cranking the air regulator up to about 14psi, I shot a velvet-smooth coat of primer

over the entire model using a Paasche VL airbrush with a medium tip, **5**. The solvent-based primer dries almost immediately, so the model was quickly ready for its first coat of color.

### Color coats

My weathering process almost always darkens the overall color – and that’s important to planning the paint. Using Vallejo Model Color acrylics, I airbrushed a base coat of Russian green (No. 894) slightly lightened with a few drops of yellow ochre (913), **6**.

Using a 3:2:1 mixture of paint, distilled water, and Vallejo thinner, I shot the entire hull, turret, and wheels with my Iwata HP-C airbrush at 12psi. Even though the model would be mostly covered with the white camouflage, I still wanted a bit of the green to show through in a few strategic spots.

The tracks received an even coat of black grey (862) as a neutral dark base, **7**.

Trumpeter supplies a nice full-color profile sheet I followed for this kit. I airbrushed a thinned coat of foundation white (919), concentrating on the inner portions of each facet of the hull and turret and leaving a bit of the green around the peripheries for contrast, **8**. If this effect is too subtle it will disappear during weathering.

### Markings

I intended to keep this model as close to stock as possible, including decals. The kit’s small decal sheet included five pairs of single-color turret markings. I chose the yellow numerals 702 and applied the decals using nothing more than a layer of Micro Set and gravity to persuade them to conform to the irregular surfaces





**On to weathering:** First, an overall application of dark-sienna artist's oils reduced with enamel thinner, with emphasis on tracks and undercarriage.



**Mike uses a thin wash of raw-umber oils and a fine brush to pick out bolt heads, allowing capillary action to draw the watery paint around each detail.**



**The first of several "tinting washes" slightly altering the basic coat and lending character and depth to the monochromatic finish.**



**A small brush and steady hand replicate the small chips and scratches found on a vehicle.**



**Use the side of the brush on sharp edges to model worn areas.**

of turret armor. Just two treatments of solvent got the decals to settle down. When the decals were dry, I gently washed them with distilled water followed by a light dusting of Testors Dullcote to help hide what remained of the carrier film.

### Weathering

Weathering allows armor builders the greatest freedom of artistic expression – and it's really a lot easier than you think.

I used artist's oils in this stage. I began by giving the entire model, including tracks, an extremely light wash of dark sienna oils reduced with Humbrol enamel thinner, **9**. This wash gives a multicolor scheme continuity and depth, and it brings all the colors a bit closer in terms of hue.

Next came a little thicker blend of raw umber oils to pick out bolt heads, recessed screws, welds, and other details. This "pin wash" is applied with a 5/0 or 10/0 brush for precise control, **10**. I methodically work my way around the model until each detail has been addressed.

After those washes had dried completely, I used a wash of Van Dyke brown thinned to the consistency of water, concentrating on all the nooks and crannies but also letting the paint tint the broad surfaces, **11**. I followed in the same fashion with a mixture of Van Dyke brown and raw umber. This step varies the tones while emphasizing the vehicle's natural lines.

### Chips and scratches

A combination of Vallejo acrylic black grey and red leather (No. 818) provided the dark brown I used to create chips and scratches on the vehicle. Careful: This technique is easy to overdo.

I usually begin by randomly applying simple, irregular dots, **12**, following with a series of broken lines along almost every edge and concentrating on high-wear areas such as the sharp edges of armor plating, exposed bolt heads, and hatches. Thin sheet-metal details are particularly susceptible to this type of wear, so don't forget fenders, fittings, and toolbox lids, **13**.

### Tint wash

Lately, it's popular to apply a series of translucent glazes, or filters, to alter the tonal value of a color scheme – but I've been doing this for years with carefully controlled washes of artist's oils. Using basic colors such as umber, sienna, and ochre, I stipple highly diluted combinations of these oils in very small amounts, **14**. This technique can yield striking results – but don't overdo it, especially with this winter scheme. Properly applied, these washes can lend interest and character to a monochromatic model while muting effects such as chipping and scratching to a more realistic value, **15**.

I wanted contrast for the Soviet green, especially on the turret. The darker color requires a more aggressive approach. You'll recall, I addressed this earlier by stippling the same shades of oils as I had used on the white portions of the hull. Here, I used a simple solution of diluted yellow-ochre oils applied with a pin-wash technique to the upper turret and rear deck, **16**.

### Pigments

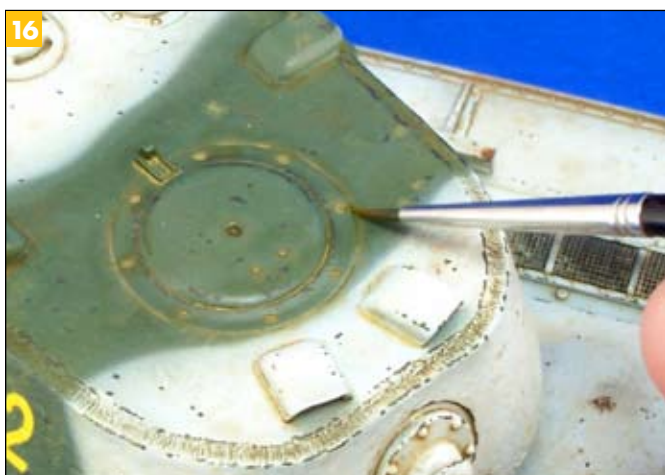
Being a cheapskate, I wouldn't use my MIG powdered pigments for thick mud. But having created mud with Mr. Surfacer 500, I could simply use pigments for a cosmetic coat.



Oil washes continue, this one to emphasize prominent structural details.



Several applications of oils yield good results, even on the vertical surfaces of the turret.



A thinned coat of yellow-ochre oils recreates the dusty look of the turret roof and calls out details around the hatch.



Getting good earth: Mike brushed enamel thinner on the running gear, then applied dry, powdered pigments.

The entire underside of the model, including hull, fenders, and running gear, was brushed with Humbrol enamel thinner followed while wet by an application of the MIG Europe dust (No. P028), **17**.

I thinned a bit of pigment and brushed the slurry on front and rear fenders and hull plates and gave the track a complete once-over, **18**. I also stippled and blended the same pigment mixtures on most horizontal surfaces, **19**.

Exhaust pipes were initially painted with the same dark-brown acrylic blend I used for chipping. While the acrylic paint was still wet, I stippled it with MIG Productions standard rust (P025) and light rust (P024). When this was completely dry I applied black smoke (P023) inside the throat of each pipe as well as on corresponding surfaces of the upper hull, **20**.

### Details

Time for the final details: Machine guns were painted flat black acrylic, washed with phthalo blue oils and, when dry, lightly rubbed with graphite for a metallic sheen. I painted the headlight interior silver with a gloss-white bulb before installing the lens.

For a final touch, I gently sanded the cleats of the tracks that would contact the ground and applied a light raw-umber wash to those exposed areas. I also stippled a bit of semidry pigment into select links to depict clumps of mud, **21**.

### Wrapping up

You can see the results are easily achieved, layer by layer – it just takes basic techniques and a bit of forethought and planning. From texturing to the basic color scheme to washes, pastels, and pigments, each effect has its own design and purpose.

But this is only a guide: Experiment with each technique and strive to make each model your personal work of art. **FSM**

### REFERENCE

**Stalin's Heavy Tanks 1941-45: The KV & IS Heavy Tanks**, Steven Zaloga, Concord Publications, Hong Kong

### SOURCES

**Trumpeter 1/35 scale KV-1**, imported by Stevens International, 856-435-1555, [www.stevenshobby.com](http://www.stevenshobby.com)

**Gunze Sangyo Mr. Surfacer 500 and Mr. Color Leveling Thinner**, GSI Creos, 03 5211 1844, [www.mr-hobby.com](http://www.mr-hobby.com)

**Scale grass**, Woodland Scenics, 573-346-3768, [www.woodlandscenics.com](http://www.woodlandscenics.com)

**Friulmodel tracks**, available from King's Hobby, (512) 836-7388, [www.kingshobby.com](http://www.kingshobby.com)

**MIG Productions powdered pigments**, available from VLS Corporation, 636-356-4888, [www.modelmecca.com](http://www.modelmecca.com)

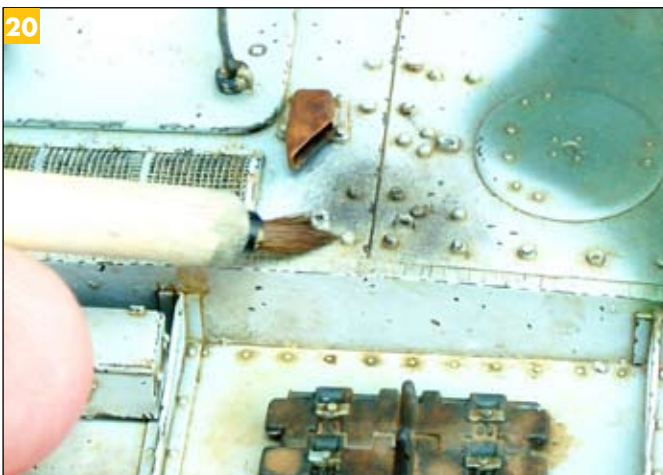




**18** Mixing powdered pigments with thinner creates a slurry to apply to the lower parts of the vehicle.



**19** Using the same mixture, Mike stippled pigment on fenders and other horizontal surfaces to replicate mud and grime.



**20** A combination of acrylic paints and pigments finished the exhaust stacks. Mike blended in black pigment to show soot on the rear deck.



**21** More pigment, more mud; a semidry mix makes good clods.

## Meet Mike Kirchoff

*An engineering technician from Independence, Kansas, Mike cites Sheperd Paine, Bob Steinbrunn, and Francois Verlinden as early inspirations. A self-professed student of the art of modeling, Mike enjoys picking up the newest methods and ideas but finds much more reward in sharing what he's learned with others. His main interests are World War II and modern armor and dioramas, as well as the occasional aircraft to keep his airbrushing skills honed.*



*Mike also has worked as a sportswriter, often covering his beloved Kansas City Chiefs, and is a recently retired professional drummer. Now he builds armor and aircraft-related master patterns, designs custom artwork, and still finds time to enjoy his latest endeavor – writing modeling articles. Mike and his wife, Linda (“my best friend and harshest critic,” he writes), have been married 28 years.*



The culmination of several efforts: Layers of washes, painted details, and powdered pigments add up to a lifelike model.

# Washing a Tiger

PART ONE  
OF TWO

This basic weathering technique adds depth and realism *By Matthew Usher*

Fighting a war is a dirty job, especially on the ground. Unlike aircraft that spend their “off hours” on airbases or aircraft-carrier hangars, armored vehicles spend almost all of their lives in the dust, dirt, mud, and weather of the battlefield. They get plenty of wear and tear even when they’re not under fire.

Tanks aren’t known for their finesse, and that’s particularly true when they’re on the move. Tons of armor plate rolling on steel tracks tend to tear things up. At speed, a tank will quickly make a mess of the countryside – and itself.

Unlike other modeling genres, armor models need to receive some weathering to look realistic, but “dirtying up” your latest project can be daunting if you’ve never tried before. I have a lot of armor models in my collection, but most have more-or-less factory-fresh finishes, and that’s always bothered me a little.

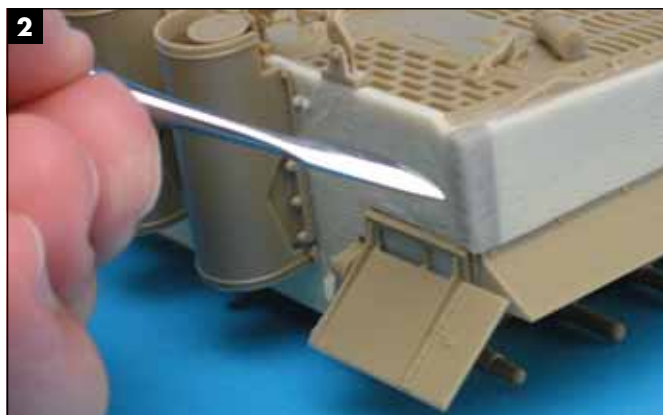
My friend John Plzak is a great modeler who has been bringing beautifully weathered Workbench Review models to FSM’s offices for years. After seeing the stunning M1 Abrams he built for our July 2003 issue, I decided to jump in and give an armor project a full-on weathering treatment.

I picked Tamiya’s 1/35 scale mid-production Tiger I Ausf E kit (No. 35194) to practice on. It’s a great kit of an important subject, and its massive hull provides plenty of opportunities for weathering. I decided to apply a middle-of-the-road weathering job – I’d add an average amount of dust, dirt, and wear, but stop short of adding inches of mud, grime, and severe battle damage.

In this issue I’ll complete the model and show how to apply an artist’s-oil wash, and in the next issue I’ll cover dry-brushing and pastel weathering. **FSM**



A mid-production Tiger I should have a ridged coating of Zimmerit antimagnetic paste on the vertical surfaces of its hull and turret, but Tamiya’s kit doesn’t include it. Instead of simulating the coating with putty, I used CMK’s Zimmerit set (No. 35001). The set’s cast-resin parts are realistically textured right out of the box and are drop-in replacements for many of the kit parts. I also added an Eduard turned-aluminum gun barrel (No. 34005).



In a couple of places, the CMK Zimmerit panels didn’t quite line up, so I blended them together with Aves Apoxie Sculpt. I applied the two-part epoxy putty to the model, and when it started to cure and firm up, I added the Zimmerit texture with a Squadron sculpting tool. After curing overnight, the putty was completely dry and ready for paint.



An artist's-oil wash really helps bring an armor model to life. Best of all, applying one is much easier than you might think! William Zuback photo



3



After giving the model an overall coat of Tamiya dark yellow (XF-60) with an airbrush, I applied the freehand camouflage pattern using a slightly lightened mixture of Tamiya dark green (XF-61). Unlike standard, oil-based hobby enamels, acrylic paints like Tamiya's won't be affected or damaged by the mineral spirit-based wash that will come later.

4



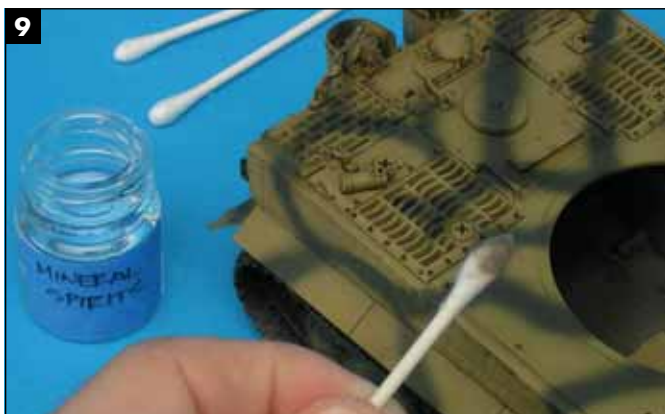
After the camouflage colors dried for several days, I added the tracks and applied the turret's tactical-number decals over a glossy coat of Future floor polish. I wanted to model an Eastern-Front Tiger, so I cut up the kit's decal sheet and reassembled the numbers to make two 30s for the turret. To seal the decals and protect them from the wash, I applied a coat of Model Master Acryl flat clear over the numbers with an airbrush. After drying a couple of days, the model was ready for weathering; I used the time to paint the Tiger's smaller external details, like the tow cables and pioneer tools.



Here's what you'll need to apply an artist's-oil wash: cotton swabs, an eye dropper, paint thinner/mineral spirits, a plastic mixing palette, toothpicks, and a ¼"-wide flat paintbrush. Thinner is available at hardware stores, and oil paints are easy to find at art-supply stores. I used Grumbacher's Academy oil paints in ivory black (No. T115), burnt umber (No. T024), and raw sienna (No. T171). Oil paints may seem pricey compared to hobby paints, but their pigments are really dense, so a little goes a long way.



To mix an overall wash, I filled one of the palette wells most of the way with the mineral-spirit thinner using the eye dropper. Next, I added a BB-sized glob of burnt umber paint to the well's edge and mixed it in a little at a time until the thinner looked like strong black coffee. I added a little ivory black, too, to darken the mixture. As you can see here, the dense pigments will settle to the bottom of the well almost immediately; you'll need to keep stirring to judge the wash's density properly.



I dipped a cotton swab into clean mineral-spirit thinner and used it to "erase" the wash from the parts of the model where it looked too dark or too blotchy. Work carefully and don't rub too hard – you don't want to risk damaging the paint underneath. Now is the best time to use a little artistic license to vary the wash's – and the model's – appearance. Although I removed most of the wash from the smooth flat areas like the fenders and the top of the turret, I didn't do anything to the engine grilles or the Zimmerit-covered parts of the hull, because the wash was doing a perfect job of deepening their engraved detail.



Here's the completed turret top. The smooth open areas are essentially clean, but the recessed details around the hatches, ventilator, and rear storage bin are realistically darkened by the wash.



I airbrushed the Tiger's tracks dark metallic gray, then applied Rustall's black and rust-colored washes. The Rustall set is handy, particularly when you need to add just a little weathering here and there. Rustall is available in most hobby shops and through Micro-Mark (800-225-1066, [www.micromark.com](http://www.micromark.com)).







**7**  
Let's go! I started on the rear deck and applied the wash using the flat brush. Just concentrate on covering the model thoroughly, working a section at a time. Stir the wash regularly with the brush as you refill it in the well. The wash will flow across the model's surface, and the pigment will settle in recessed areas like the panel lines around the engine hatches. Remember that the wash looks much darker when it's wet, and will lighten slightly as it dries. I kept going until I'd applied the wash to the entire model.



**8**  
The model may look splotchy and uneven right after the wash goes on. Luckily, there's an easy way to even things out.



**11**  
The Tiger has a great combination of surface details to bring out with the wash. The Zimmerit looks much deeper and much more realistic after receiving the wash.



**12**  
If mixing and applying an artist's-oil wash seems a little complicated, there's a simpler, off-the-shelf alternative. The Rustall system includes four basic weathering materials: a rust-colored wash, a black wash, a whitish flattening wash, and dust powder. The finishes are ready to apply with a paintbrush, and dry in less than an hour.



In the next issue, Matthew will finish up the Tiger and show how dry-brushing and pastels can bring out even more detail. William Zuback photo

# Battle fatigue

Story and photos  
by Matthew Usher

## Add wear and tear to your armor models with pastels and dry-brushing

In modeling terms, “weathering” covers a lot of ground so it’s difficult to know where to jump in. Fighting vehicles suffer from many different kinds of wear, and it’s not always easy to tell what tools and techniques will best simulate that damage on a model.

Like a lot of modeling techniques, weathering is an additive process in which a number of layered steps work together to produce a realistic effect. No one step is particularly complicated or difficult to handle, so the real trick to weather-

ing just may be working up the courage to jump in and “dirty up” your latest project. That was certainly true for me.

In the last issue, I assembled Tamiya’s 1/35 scale mid-production Tiger I Ausf E (kit No. 35194), camouflaged it, and added an artist’s-oil wash to accent its recessed details and deepen the appearance of its Zimmerit coating. This time I’ll finish things with some basic dry-brushing techniques and a little pastel weather-

ing. **FSM**



Dry-brushing highlights the model’s raised detail, in this case, worn paint on the Tiger’s most-used parts. Dry-brushing silver paint over these details will create the illusion of the Tiger’s steel showing through worn paint.

Dry-brushing involves whisking an almost-dry paintbrush across the model. The raised details pick up traces of paint. Using the right amount of paint is the key. Here I’ve dipped a flat, ¼”-wide stiff-bristle brush in Floquil old silver. I’ve made several passes on a scrap of cardboard to brush out almost all the paint. When just a trace remains, it’s time to turn to the model.



Work slowly and let the trace amounts of paint build up gradually on the model. One of the secrets to realistic dry-brushing is adding wear where it appears most often. High-traffic areas such as around hatches and frequently used tools such as ladders and pioneer tools always show wear before the rest of the tank. Here I’ve used the silver paint to simulate wear on the Tiger’s hull-mounted tow cables. The light frosting of silver paint gives the illusion of freshly worn steel and contrasts nicely with the cables’ darker recessed areas.



Tamiya's 1/35 scale mid-production Tiger I is a perfect subject for practicing weathering techniques, although these methods work well on any modeling subject that looks good with a little dirt and damage.



3 The Tiger's all-steel tracks wore quickly. When I built the model, I airbrushed the tracks with dark gunmetal paint, then darkened their recesses with a black wash. Dry-brushing with silver paint realistically highlights the links' most-worn high-contact areas. Don't forget to hit the inside surfaces of the tracks and the drive-sprocket teeth, too.



4 A silver art pencil (this one is a Sanford Prismacolor) makes it easy to add wear precisely. I used it to highlight the turret's machine-gun mounting ring and the hatch handles.

Unless you're modeling a factory-fresh vehicle, a little weathering makes an armor model look more natural. The advanced effects you're looking for will come easily after practicing just a few basic techniques.



5



Applying a little pastel weathering is a good last step. Pastel chalks are available at art-supply stores in a huge variety of colors, but for most models a good earth-tone set (like this one from Alphacolor, No. 145011) will provide most of the shades you'll need. I added a few extra sticks, including white and a few shades of gray.

6



Rubbing a pastel stick against a sheet of coarse sandpaper makes a fine pastel powder you can apply to the model with a soft-bristle paintbrush. An old, worn-out brush is best for this, because dragging the brush across the rough sandpaper can ruin the bristles. A little pastel powder goes a long way, so only grind up a little at a time. Different colors of pastel powder can be blended, too, just like paint.

7



Broad strokes with the powder-covered brush add wide, even sections of color, while smaller, concentrated strokes let the color build up. I added a heavy concentration of dark gray pastel powder directly to the exhaust pipes, then lessened the effect on the surrounding areas. If you're unhappy with the pastel application at any point, you can brush it off with a clean paintbrush and start over. It's a really forgiving process.

8



Before and after: Here's the muzzle of the Tiger's 88mm main gun after an application of black pastel powder. Much more realistic, huh?

9



Pastels aren't permanent. Handling the model will remove your carefully applied effect. A final, light coat of clear flat will "fix" the pastels and protect them. The clear coat can make subtle pastel effects disappear, so you may need to "overdo" the pastel application slightly to compensate. A little experimentation will help you get the hang of how far you'll need to go.