LEARN TWO ESSENTIAL TECHNIQUES
The FSM staff shows you how, step-by-step

GALLERY: Master modelers share the weathering secrets behind their best models
WEATHERING HANDBOOK

By the staff of FineScale Modeler

Cover photo: FSM’s Mark Hembree weathers his 1/35 scale Trumpeter KV-1 with pastels.
Chalk one up for weathering

By Mark Hembree • Photos by Aaron Skinner

Whenever I wonder whether our readers are tired of hearing the same modeling tip, technique, or trick, I just check my “Q&A” mailbox. Along with baffling, arcane queries—“What is the proper color of canteens for British regulars during the first Boer War?”—I find indications that we can never explain too much. For anyone mystified by the phrase “I finished with various touches of powdered pastels,” here’s the lowdown.

**Easy to find, easy to use**
Colored powders such as Mig Pigments or Tamiya’s weathering powders can be used right out of the package, and they work great. However, artist’s pastels (available wherever art supplies are sold) can be just as effective. You do have to powder them yourself, but that’s easy. Applying them isn’t difficult, either.

**Soots me fine**
Perhaps the easiest use of pastels is a dry application to model exhaust or smoke stains. Using coarse sandpaper, grind black pastel to make a little pile of powder. 1. Load a little on a dry brush, drop it in place, and grind it into the surface. 2. Blow (don’t brush) off the excess and tap it out of your brush, then use the brush to feather out the edges of the stain. 3. In this, as in other weathering applications, build it up a little at a time—don’t overdo.

**Making mud**
Mixing the right soil color can place your model in Tuscany or Tennessee. To make mud, moisten a brush with thinner, dip it in the powder, then slop, splatter, or smear it on. Look at photos to see how mud builds up in wheel wells, under fenders, etc. Keep clean thinner handy to clear your brush or fix mistakes.
Artist’s pastels are an easy and effective way to weather any model. You’ll find them wherever art supplies are sold.

1. Coarse sandpaper produces a fine, colorful powder.

If you use the correct thinner, it won’t damage your finish coat. On acrylic paint, use enamel thinner; on enamels, use alcohol or acrylic paint thinner.

Again, don’t overdo. To illustrate, I used pretty bright mud (about the color of the Atlanta infield!) and really laid it on thick – too thick. If this happens to you, apply more thinner and wipe it away with a clean brush, cotton swab, or even your finger, 4.

2. Load the brush with powder, tap the brush to knock a little onto the surface, then brush it where you want. Blow away excess powder to keep it from showing up elsewhere.

3. Feathering the edges softens the effect, making it more believable.

Dust to dust

The best material for modeling dust is, well, dust. Mix lighter shades of your chosen soil and apply with a big, puffy brush, 5. To show heavier accumulation, work the powder in with your brush. Again, blow (don’t brush) off excess.

And there you have it – you’re “finishing with various pastels.” You can use them on any model – ships, planes, cars, even figures. One rule is constant – take it easy. Subtle effects are the best. FSM

4. Too much? Add thinner and wipe it away with a clean brush, swab, or your finger. Note how the pastel color emphasizes surface texture.

5. A dry application of dust-colored pastels can highlight details while realistically making a vehicle look used.
WEATHERING GALLERY TOP TIPS

As FSM travels to exhibitions throughout the year, we photograph our favorite scale models and chat with their builders. The question we most frequently ask is, “How did you do that?” The answers often are surprising – and they can be enlightening.

Surprises and secrets are the stuff of weathering, a modeler’s sleight of hand that transforms molded plastic into illusions of worn metal, old rubber, or faded fabric.

So, how do they do that? We got some surprising – and enlightening – answers.

Tony dove into a motor-pool diorama by combining a 1/35 scale DML kit and Aires conversion to model a Czech VT-34 recovery vehicle featuring towbars and a boom crane that he scratchbuilt. Aside from his impressive construction skills, what keys Tony’s scene is the masterful weathering of diverse materials. Much of the weathering is done with Mig powdered pigments, applied dry, although Tony streaked the spade by diluting pigments with water and flowing them on. Where chipped paint reveals bare metal, Tony brushed a 50:50 mix of acrylic steel and flat black, then painted over it with diluted pigments that allowed the steel hue to show through. He tarnished the Friulmodel metal tracks quickly with Blacken-It, which darkened the tracks in 20 minutes and produced corrosion in about 24 hours. Artist’s oil washes of burnt umber and raw sienna dimmed the rust; dry-brushing with steel caught high spots, depicting freshly exposed metal. The markings look like degraded paint because, prior to weathering, Tony applied dry transfers he had nicked up with a hobby knife. A final dusting of pastel chalks was applied with a fluffy brush. Incidentally, the odd color matched Tony’s photo references – possibly showing a makeshift combination of Soviet armor and aircraft interior paints.
Michael’s washes are Winsor & Newton artist’s oils mixed with Turpenoid. For darker colors, such as olive drab, he uses lamp black; for lighter colors, such as Panzer yellow, he uses washes of raw umber. Michael favors model railroad weathering pastels from Stoney Mountain Classic Castings, brushing them on dry. He also uses Gamblin artist’s pigments, custom mixing the colors in a paper cup and applying them dry for dust and light dirt buildup. For heavier dirt, he mixes the pigments with Turpenoid and applies them more heavily; for caked-on mud, he mixes the pigments with Hudson & Allen mud and Polly Scale airbrush thinner. Michael dinged up his 1/35 scale Italeri DUKW by brushing on chips and scratches of Vallejo paints. He says, “I have evolved my technique to subdue the contrast, which is usually not severe, by using lighter colors.” Heavier chips are a mix of Winsor & Newton Ox Gall liquid and watercolors with Bragdon rust pigment to depict bare metal in the midst of chips. A “dot filter” technique produces faded or corroded paint: Michael moistens the surface with Turpenoid, applies small, multicolored dots of oils, then spreads and streaks the paint with a damp brush to add corroded or sunbaked shades as well as warmth and depth to the olive drab finish. Michael Bedard, Cottage Grove, Minnesota

Leigh likes Pro Modeller wash for weathering: “It’s water-based, designed for weathering, and it’s amazing. Slap it on, let it dry, then wipe off as much as you want. You can leave it on as long as a month and it still comes right off.” He applies Doc O’Brien’s weathering powders with a round brush, dusting it onto the model, blowing off the excess, and correcting it with a cotton swab. He sprayed this Hobbycraft 1/48 scale Sea Fury with automotive silver, dampened spots, sprinkled on rock salt masks, then poured on more water to dissolve the salt and reveal metallic chips. Leigh credits Charlie Pritchett’s article on painting a 1/48 scale KV-2 (February 2008 FSM). “I followed his technique to the letter on my KV-1,” Leigh says, “and that model has won three IPMS first places in as many months! The idea of painting the burnt umber base coat and building up paint layers has changed the way I weather and improved my builds immensely.” The markings put Leigh’s plane in Cuban action at the Bay of Pigs.

Leigh Eaton, Mission Viejo, California

HAWKER SEA FURY

DUKW, PHILIPPINES, 1945

Michael Bedard, Cottage Grove, Minnesota

HUAWKER SEA FURY

Leigh Eaton, Mission Viejo, California
Adrian built Revell’s 1/240 scale destroyer escort as the USS Buckley, arming it with scratchbuilt guns as well as photoetched-metal details from Tom’s Modelworks, Gold Medal Models, and Eduard. His finishing techniques also set his ship apart. “On ships, I use pastels most often,” Adrian says. “Secondly, I use inks, and only occasionally do I apply oils.” A variety of washes also finds its way aboard: a 50:50 mix of water and ink for wood decks; in other places, a 70:30 mix of water and dark inks, such as sepia; and touches of oil-based ink washes, such as a 70:30 mix of oils and mineral spirits for die-cast pieces and a 50:50 mix of the same for rusty rain streaks. Adrian applies pastel powders with cotton swabs, Microbrush precision applicators, or a fine paintbrush. “For rain and rust streaks, I recommend following the laws of physics and looking closely at photograph references,” he says. Peeling finishes are oil-painted in brown, black, or sepia, and corrosion is accomplished with pastels. Adrian achieves faded finishes by selectively airbrushing thinner, lighter colors (60:40 paint/thinner ratio). Another of Adrian’s individual touches is his precise outlining of hatches, doors, and portholes with a .005mm sepia stylograph (drafting pen).

Hawker Sea Fury
Leighton, Mission Viejo, California

USS Buckley Destroyer Escort
Adrian Cisneros, Mexico City, Mexico

Richard Scanapico, Anaheim, California

An ongoing interest in history, a love of trains, and a fascination with rail-mounted artillery – plus a few fortunate discoveries of reference images on the Internet – inspired Richie to build this unique model of Civil War rail guns. He mounted cannons from Verlinden on a combination of scratchbuilt and model railroad accessories, including Ozark Miniatures lanterns, jugs, and tie-down plates. After slicing and chipping the wood to replicate wear, he weathered it with Age-It-Easy (from Micro-Mark). Water-based washes (1 part Tamiya acrylic color to 9 parts water) and thinned artist’s oils, as well as Pro Modeller’s premixed mud brown weathering wash, are enhanced with touches of artist’s pastel chalks. For streams of rust, weathering powders from Bragdon Enterprises were applied to bolt heads with a small brush, then pulled down and slightly spread out. Richie also mixed different weathering powders with RustAll and soaked bolt heads, chains, and other hardware to achieve a rusty patina. The train wheels were weathered with rust-colored powders as well as real ferrous oxide – actually the product of steel wool Richie soaked in water.
Winter camouflage graces Rick’s imaginary big gun, which he kitbashed together using Trumpeter’s Grille 17, two Maus turrets, and an E100 chassis to make what he calls “Das Earsplitten Loudenboomer.” In a whitewash technique he describes as “reverse dry-brushing,” Rick sprays the deepest shadows flat black from below, then works from the top down with flat white, and follows by dry-brushing shades of what the tank’s base coat would be under the whitewash to depict wear, catching sharp edges with lighter-colored artist’s pencils. A regular No. 2 pencil replicates bare, worn metal. For rust stains and runs, he uses a toothpick to apply pastel shavings to a chosen spot, then spreads it out with a flat, stubby brush, starting with a bright rust color and gradually blending and fading it to browns and tans. “The great thing about pastels and pencils is you can correct them with an eraser,” he says, pointing out this method is for monochromatic schemes. Rick prefers pastels and weathering powders to washes, and he’d rather use Archer dry transfers, noting that decals show an unwelcome difference in sheen when he’s weathering with pastels and powders.

**Stug III**

**Chris Toops, Lancaster, Ohio**

Chris base-coated with various shades of Model Master Panzer yellow enamel, let it dry for a couple days, then applied a thin coat of Tamiya white. He waited about 10 minutes, then selectively removed white with a ½” brush dipped in Windex. After the whitewash was dry, he sprayed a coat of Pledge Future floor polish, let that dry, and applied water-based artist’s gouache washes of burnt sienna, burnt umber, raw sienna, and lamp black to panel lines, wheels, bolt heads, weld seams, etc. When this layer had dried for a day, he removed excess color with a damp brush. Chris says, “The beauty of this medium is if you don’t like the results, simply remove the gouache with water and redo it.” A light dry-brushing of bleached titanium artist’s oil and a coat of Polly Scale clear flat finished the job. To model battle-damaged skirts, Chris beat up Eduard photoetched-metal accessories, drilling dents to depict small-arms hits and adding creases with a small screwdriver. A rusty gouache depicted additional corrosion, while scratches were applied with grimy black on a Scotch-Brite pad or scribed with a hobby knife and filled in with dark gouaches.
“The trick to realistic weathering is to take it slow and use several subtly different oversprays and washes,” David says, citing greater control and fewer surprises. To individualize his Tamiya T-55, David modeled a sun-baked Eritrean tank in a border conflict with Ethiopia. He mixed Tamiya flat green and flat olive green for a base coat and oversprayed a lighter shade of the same for scale effect. To maintain color intensity, David consulted a color wheel he bought at an art store and added a drop of orange for every drop of white, using more thinner as he gradually brightened the overspray. About halfway through this process, he started adding chips and wear with Humbrol Metalcote gunmetal and General’s soft charcoal pencil. He alternated pencils and paints with oversprays to vary the age of the marks, and applied several light washes of Humbrol thinner and artist’s oils between each overspray. Oxidized streaks are heavily thinned Tamiya yellow green mixed with Tamiya yellow, lightly airbrushed with rust pastels run down the center of the streaks. David painted the muffler a rosy pink, then beat it up with dark brown oils; the muffler guard was treated with pastels in Humbrol thinner. Final oversprays comprised Tamiya buff, Mig pigments, and about 90 percent Tamiya thinner.

SOUTH LEBANESE T-55
DAVID MANTER,
FORT WAYNE, INDIANA
David base-coated his 1/35 scale Tamiya tank with Tamiya acrylics, then faded the finish by spraying the center of panels with the finish color lightened by tan or light gray. Chipped paint is a mix of gray/tan and dark brown Vallejo colors applied with a tiny brush. The first wash is 95 percent thinner (“not turpentine!” he says) and Winsor & Newton artist’s oils of Van Dyke brown and lamp black, applied from the top down. He followed with a slightly stronger wash of the same for running gear, then pinwashes of Van Dyke brown, lamp black, and Indian red, “great for fresh rust,” he says. Finally, he applied Mig pigments with a No. 2 round brush. “Plain paint thinner locks the powder in place and softens the effect,” he says. Light strokes with a wide, soft brush produced the final blend.
The key to building a beater is “simple observation,” says Charlie. On his Monogram 1/25 scale Z28, Charlie used a very thin (95 percent thinner) mix of titanium white artist’s oil and odorless mineral spirits to top surfaces, working from the center of the panels out to near the edges and soaking up pools or excess. He applied a darker filter of cadmium yellow below the centerline crease to depict areas less bleached by sun. Charlie prefers Bragdon weathering powders to pastels for modeling oil, grease, and dirt. Rusty headers are painted flat black, overcoated with Testors dark earth (“always a good rust tone”), detailed with Bragdon rust-tone powders, sprayed with Testors Dullcote, and sprinkled with a little more weathering powder to give a flaking, layered look. The rusty door was base-coated with dark earth, and rubber cement was applied to future corroded spots. After painting the door primer gray, Charlie removed the rubber cement to leave “nice, gaping holes in the paint,” he says. And there’s more – gouging, grinding, chipping, and scraping – much more than we can fit here to describe Charlie’s well-worn heap.

1969 CAMARO Z28
CHARLIE Dameron, LONG BEACH, CALIFORNIA

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BA-20 ARMORED CAR
RICK BROWNLEE,
MERRIAM, KANSAS

A self-described “contest modeler,” Rick does things the hard way. His Russian BA-20 armored car, loosely based on the Alan 1/35 scale kit, has a scratch-built toolbox and interior – and the only thing not scratchbuilt under the hood is the radiator. Rick hand-painted with artist’s oils, capturing light like a masterful painter with a fine-arts degree – which, in fact, he is. He base-coated with squeeze-bottle craft acrylics, then mixed shadows and highlights with artist’s oils. He uses water-based washes. “It’s easier to remove a mistake if it’s acrylic,” he says. His rust comprises Indian red, raw umber, and yellow ochre oils, dulled with an acrylic wash. Rick encourages others to pursue new techniques: “Leave your comfort zone,” he advises, “and try something new. You have to do it to learn it.”

FSM
A salt and battery: Boba Fett's Slave 1 looks weather-beaten onscreen and in miniature, thanks to good old sodium chloride. It may be bad for high blood pressure, but salt is a trouble-free way to chip paint on your models.
Salt as a weathering tool – I knew it could be used like a mask, and I wanted to try it, but I had a lot of questions: How easy is it to use? How realistic a finish will I achieve? Will I want to throw the model in the trash when I’m done?

I figured the only way to answer those questions was to bite the bullet and give this technique a whirl. Hunting through my stash, I spied the perfect model to test this technique: AMT/Ertl’s *Slave 1*, Boba Fett’s mount in “The Empire Strikes Back.” The life of an outer-space bounty hunter must be rough, ‘cause this ship is in dire need of a body shop. There’s paint peeling from every surface!

After locating photos of a filming miniature, I was ready to beat up the ship.

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**By Aaron Skinner**  
*Photos by Jim Forbes, Mark Hembree, and Aaron Skinner*

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1. Aaron assembled *Slave 1’s* major components. Unhappy with the raised panel lines, he rescribed them. Aaron also shaved off the raised gun power cables and replaced them with bent paper clips. Tamiya putty filled gaps and sink marks.

2. Basecoat: This is the color you want to see through the dilapidated paint. Aaron airbrushes Model Master Acryl light gull gray mixed with several drops of silver. The latter gave the base coat a slightly metallic sheen.
With the paint dry, Aaron assembles what he needs to assault the model – water and table salt. Different forms of salt produce various effects as a mask. A trip to the FSM coffee station netted a few packets of finely ground salt. A couple brushes are the only tools needed.

Slave 1's spine (or nose) appeared to have no body paint left, so Aaron applies ragged tape strips to serve as the base of the weathering. He repeated this step in the area above the cockpit.

Aaron brushes water onto the surface of the model in the area to be treated. A thin film works best, but water wants to bead on glossy paint – keep the brush handy.

With the other brush, Aaron applies salt to the wet area. Paint doesn’t wear evenly, so try to keep the salt crystal placement random.

Aaron experimented with ways to get the salt on the model, including pouring it on larger areas like the ridge. Another method was taking a pinch and sprinkling it over the wet surface.

It’s easy to move salt around on the model with a small brush. You can refine the pattern and correct mistakes.

Satisfied with the pattern, Aaron set the main hull aside to dry. It looks bad right now – more like something you’d find on the ocean floor or the bottom of a refrigerator. Don’t panic. It gets better.

Aaron airbrushes a 50:50 mix of Model Master Acryl RLM 02 gray and white, taking care to ensure every part of the spacecraft, especially the salted areas, got good coverage. Note: Make sure the salt is dry before painting.
After the paint is dry and the masking tape is removed, Aaron takes a clean, soft cloth (an old cotton T-shirt works well) and scrubs off the salt. You may need to scrub hard. The extra abrasion can replicate scratched paint, but be careful not to wear it down to the plastic.

As salt comes off, it reveals the lighter gray base coat in an uneven pattern. By a happy coincidence, salt water discolored the paint in a few places, adding wear and tear to Slave’s finish.

For the two-tone effect on the lower hull, Aaron added a pattern of salt, then painted an equal mix of Polly Scale boxcar red and white. After the first coat dried, Aaron added salt around the first deposits and elsewhere, then painted full-strength boxcar red.

Aaron achieved spotty patterns on the wing humps by first airbrushing lightened Tamiya deep green. After it dried, he wet the area and tossed pinches of salt from several inches away.

Aaron sprinkled every condiment under the company kitchen sink on a Ju 88 wing to test masking qualities. Everything but the creamer worked pretty well. So, next time, order it black!

Food for thought: A pinch of this, a dab of that

Flush with the success of my last foray to the company break room, I wondered what other masking goodies might be lurking there masquerading as food additives. A quick scan revealed another brand of salt, sugar, three artificial sweeteners, creamer, and pepper. To see what would work, I painted a Ju 88 wing Tamiya silver and let it dry overnight. Then, I brushed seven lines of water, sprinkled on each condiment, and set the wing aside to dry. A couple hours and a coat of Tamiya flat black later, I attacked the wing with a clean cloth. Here’s what I learned:

Coarse salt peeled away easily and left a realistic, jagged line. The big crystals further scratched and beat up the paint, enhancing the effect.

Sugar behaved like salt, masking cleanly, rubbing off easily, and leaving a realistically worn edge. The large crystals similarly scratched the paint.

Splenda’s fine, irregular powder adhered well and produced an irregular edge. But it wasn’t as tight a mask as the salt or sugar, allowing a little more black paint through resulting in a slightly feathered edge.

Inside its pink package, Sweet’n Low proved to be as fine as Splenda. But the crystals were more uniform in size. The result was a soft edge that looked more like worn than peeling paint.

Equal provided the softest edge of all, masking and rubbing off easily.

My only failure was creamer. It dissolved into a sticky lump that I have not yet been able to remove. (Even using my thumbnail, I scratched paint from around the mask without disturbing the hardened lump!)

I expected pepper to be a bust, too. Not being crystalline, the large grains didn’t stick well to the wet surface. But it resulted in a suitably random pattern of oddly shaped silver spots resembling chips appropriate for larger scales.

And that’s just a quick trip to the company break room. Imagine all the sugars, salts, and sprinkly things available at your nearest supermarket. Experiment! You’re bound to find fine-scale uses for foodstuffs.

~ Aaron Skinner

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