FineScale Modeler MAGAZINE

Tips and techniques for creating better models

HOW TO WEATHER AIRCRAFT

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Extreme WEATHERING

Pulling out all the stops to model Revell-Monogram's SB2C-4 Helldiver as a well-worn Pacific Theater aircraft

Story by John Adelmann Photos by John Adelmann and Jim Forbes

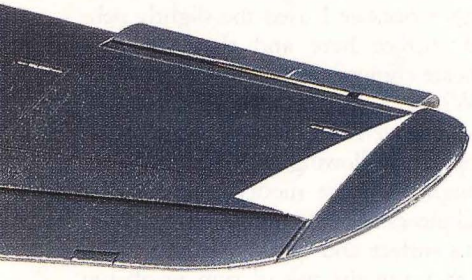
It's a challenge to paint World War II Pacific Theater aircraft – replicating color schemes that look beaten by the elements and abused by the crews. Such extreme weathering involves more than just applying lighter shades of the base color, or daubing a little silver paint here and there.

I used several weathering techniques on Revell-Monogram's ProModeler 1/48 scale SB2C-4 Helldiver (kit No. 5935), with AeroMaster's aftermarket decal sheet (No. 48-204). This "Big-Tailed Beast" flew from the USS *Essex* in April 1945 and sported the Navy's tricolor camouflage scheme of white, intermediate blue (FS 35164), and nonspecular blue (FS 35042).

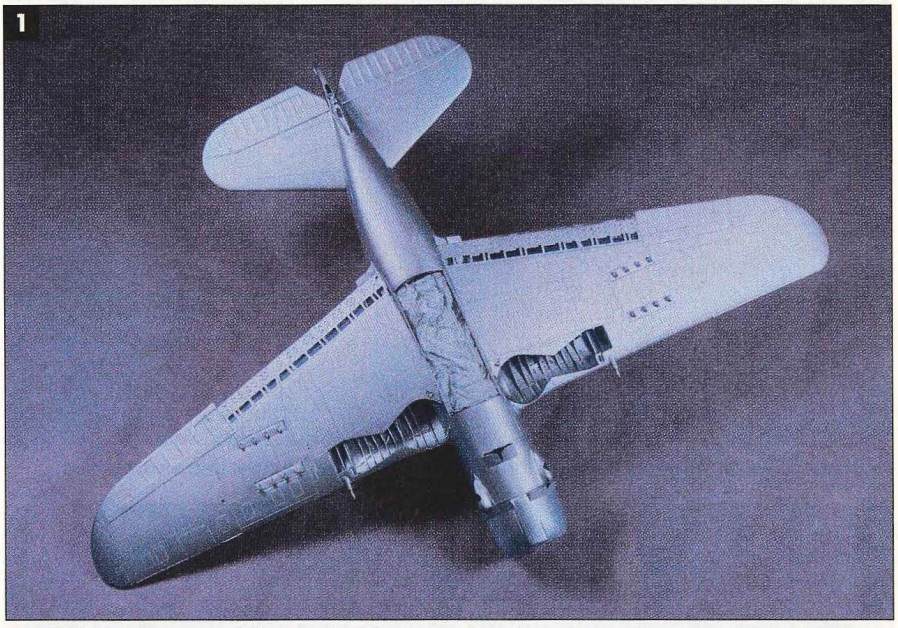
Primer. When the assembled Helldiver was free of scratches and dents, I applied Model Master Metalizer nonbuffing aluminum plate as a primer coat. After the primer dried, several light coats of Future floor polish were added.

I sprayed plenty of Future onto the leading and trailing edges and raised surface detail. The model looked like a shiny quarter, **1**.

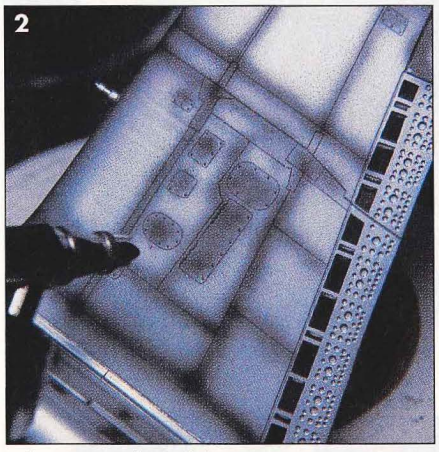
Weathering. I applied a coat of Model Master RLM 66 dark gray over all panel lines, **2**. You could get similar results with FS 36118 (gunship gray). Access panels and recessed details such as the rudder and wing flaps got special attention. All panel lines were painted, but I didn't worry about how precisely the paint was laid down, since most of this undercoat would be covered later.



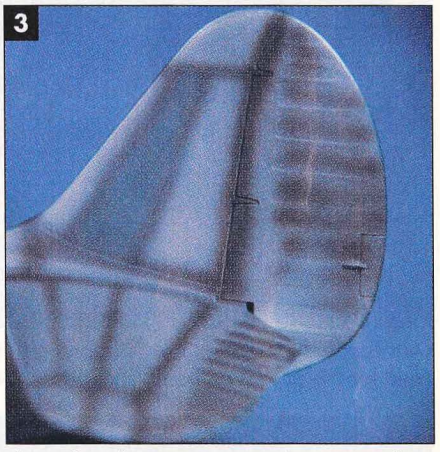
John Adelmann's 1/48 scale Helldiver features "extreme weathering" techniques. The color scheme is that of an aircraft based on the USS *Essex* in April 1945. Jim Forbes photo



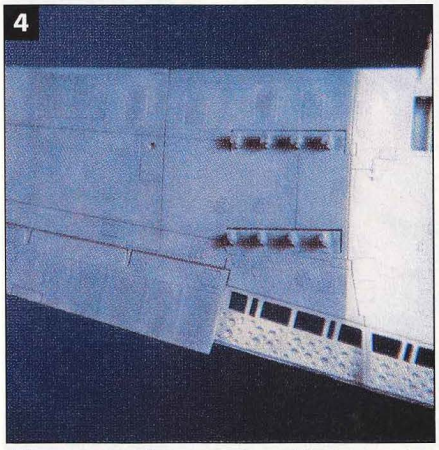
The Helldiver was primed with Model Master Metalizer nonbuffing aluminum plate and sprayed with several light coats of Future floor polish. Photos 1-8 by John Adelmann.



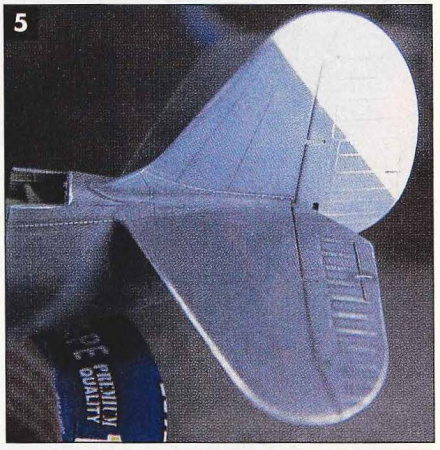
John sprayed Model Master RLM 66 on all panel lines, with special attention to access panels and recessed details.



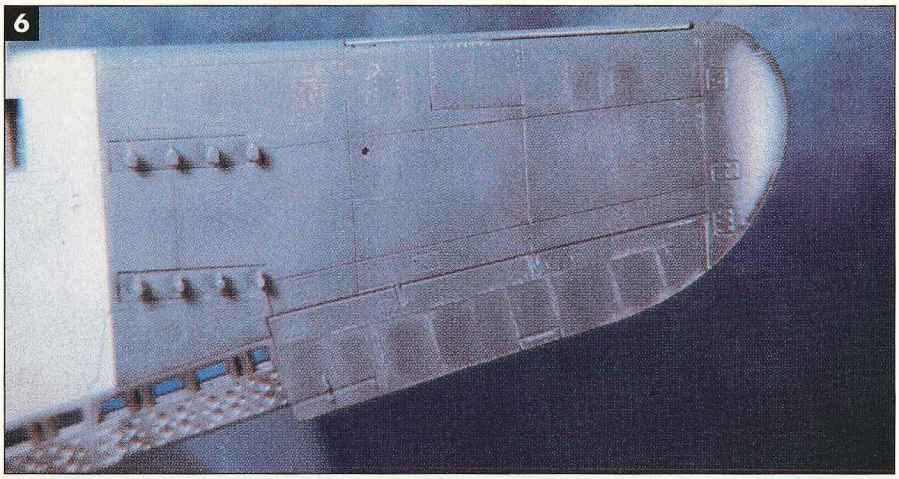
The tail surfaces are painted one panel at a time, resulting in what John calls an "evenly uneven" effect.



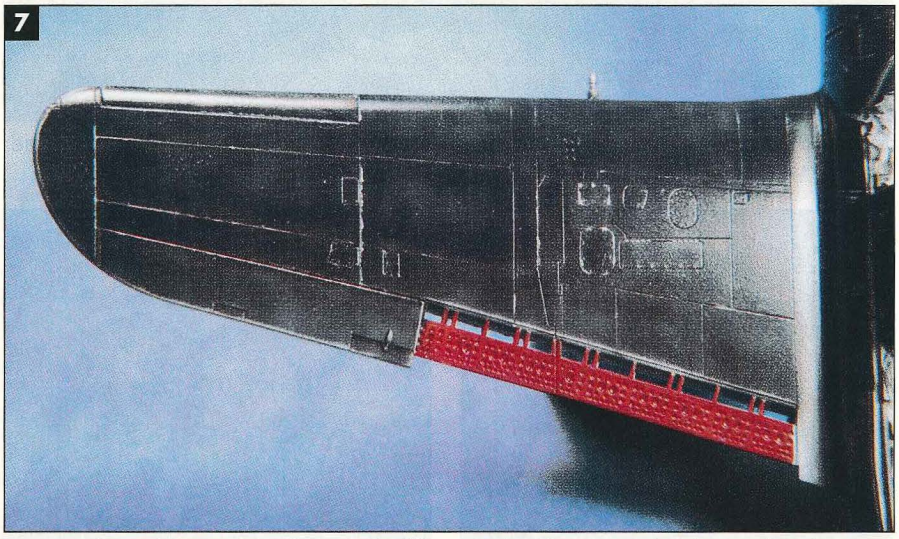
After a coat of intermediate blue, access panel doors on the wing undersides became more noticeable.



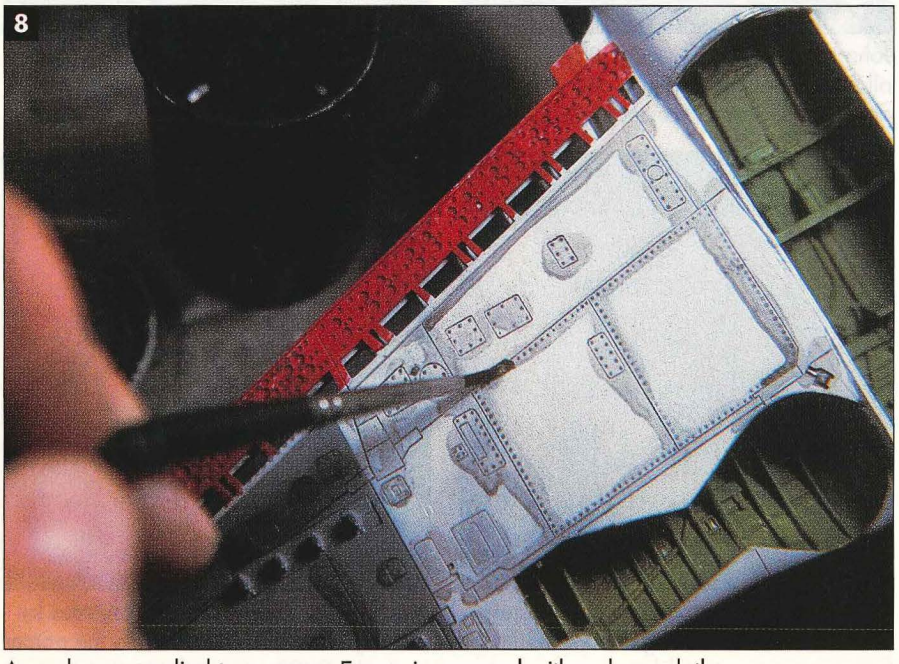
Wear on the tail surfaces is simulated by scuffing selected areas down to the primer coat with 2400-grit sandpaper.



Rivets and aileron framing showed through after the wing's underside was sanded.



Dust specks in the paint are "chipped off" to simulate bare metal. John used a sharpened toothpick to chip paint from panel lines.



A wash was applied to recesses. Excess is removed with a damp cloth.

Evenly uneven. When the RLM 66 was dry, I mixed some intermediate blue and applied it panel by panel. The tail was painted within the confines of the panels, **3**, to create an "evenly uneven" texture that replicated a weathered surface.

When I applied the intermediate blue to the undersides of the wings, the access panel doors became darker and more pronounced, **4**. When the panel lines were filled in, a noticeable weathering effect began to emerge.

Sanding. After the intermediate blue dried, I scuffed the paint surface with a 2400-grit sanding pad until some of the aluminum peeked through, **5**. The coat of Future applied earlier protected the aluminum paint from scratches. The gray rivets at the base of the rudder appeared, the paint on the leading edge was worn away, and the rudder frame looked rather shabby.

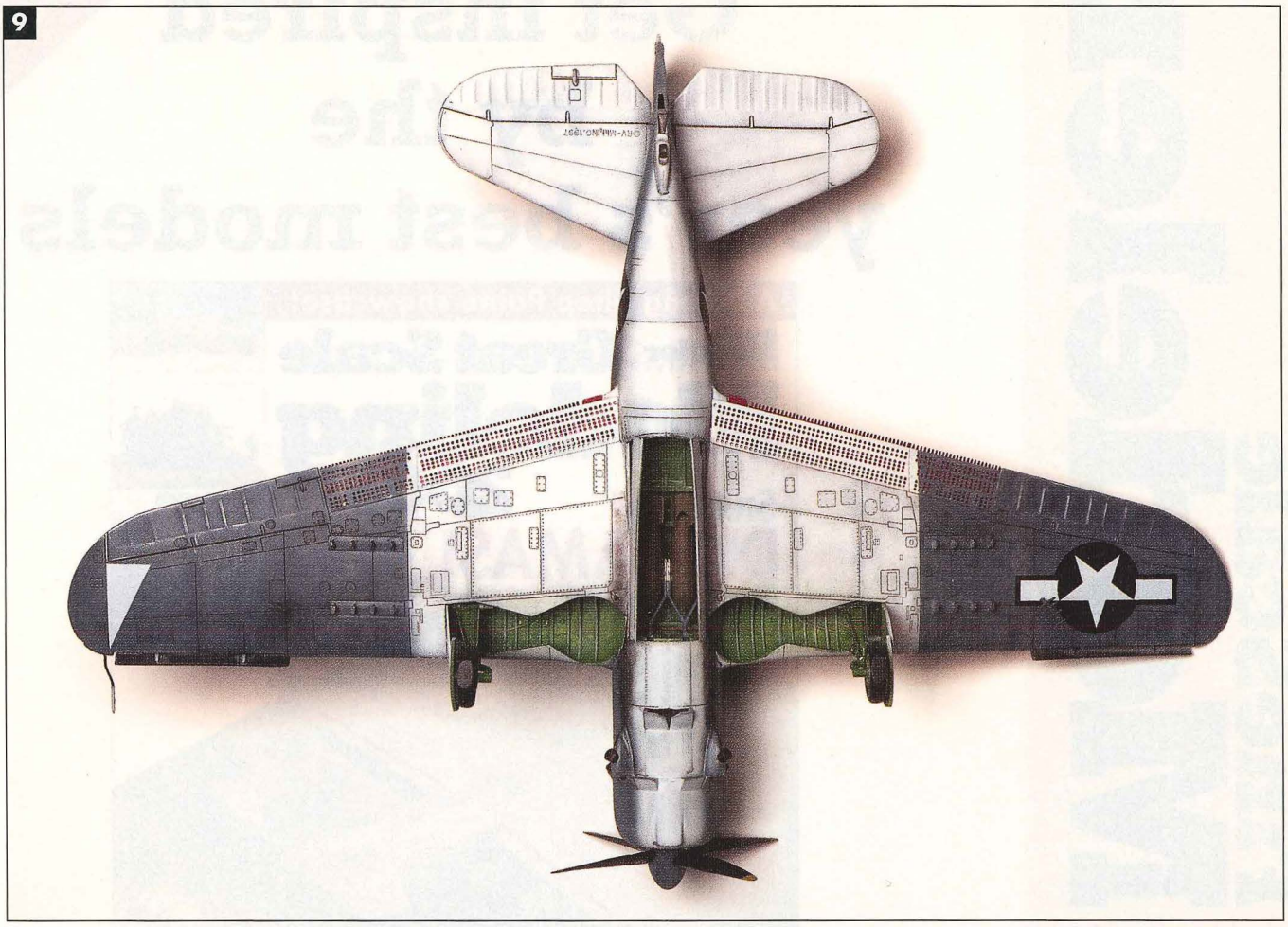
Raised rivets on the wing underside access doors appeared nicely after sanding, as did the metal framing on the ailerons, **6**. (The more "bare metal" you want to show, the more you sand; if you remove too much paint, reapply the original color.)

I repeated the painting/sanding process for the underside white and the topside nonspecular blue. I sealed each color with Future so that if I got paint where I didn't want it, I could use thinner to remove it without harming the other colors.

Intentional flaws. When I prepare a model to be painted, I usually remove the sanding dust with a tack cloth and apply a coat of Future to reveal scratches or other imperfections. I did not attempt to remove all the dust from this model – especially on the upper surfaces of the wings – because I used the slightly pebbled surface here and there to help replicate chipped paint.

When I sanded where dust was trapped underneath the paint, tiny specks chipped off, allowing bare metal to show through, **7**. Some model builders press small pieces of masking tape onto the aircraft's surface and quickly remove them, but they run the risk of ripping off too much paint. It's a major sanding project to feather the edges of the chipped paint and/or fill them in with putty.

Rather than risk taking off too much paint, I ran a sharpened toothpick through some of the recessed panel lines, chipping and removing paint as I went. I paid particular attention to the fuselage kick steps and the access panels that could



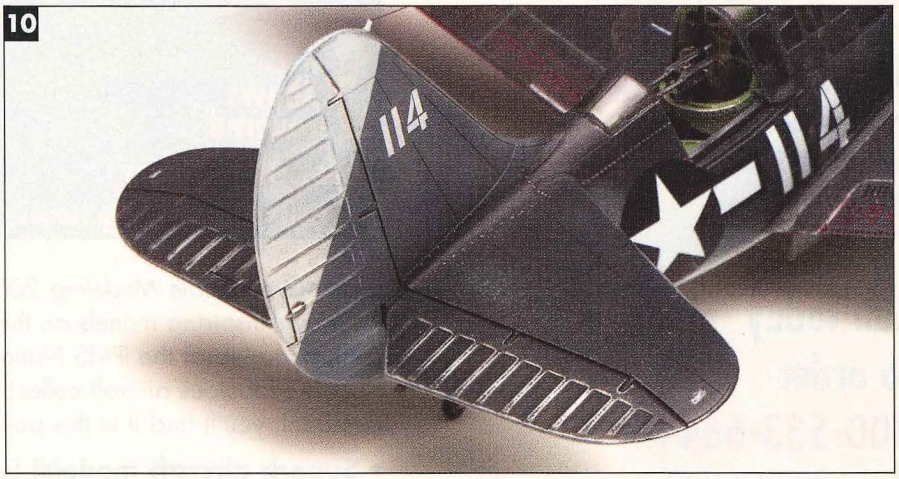
The white portion of the wing "came alive" after the wash was applied. Jim Forbes photo

have been "dinged" with screwdrivers or other tools during routine maintenance.

Decal/wash prep. After all three colors were applied and sanded, I removed dust from the model and laid down heavier coats of Future. This was perfect surface preparation for the decals and for the wash that was applied to the recesses (removed with a damp cloth after it dried), **8**.

The wash made the white section come alive, **9**, and the AeroMaster decals went on without a hitch, thanks to the slick, smooth surface. I sealed the decals with a final coat or two of Future, which deepened the colors and revealed the underlying shading, **10**. Then I applied several light coats of Model Master acrylic clear flat to bring down the shine.

Extreme weathering takes a little extra effort, but I think the results are worth it. Give it a try on your next model. **FSM**



John gave the Helldiver a coat of Future after decals were in place, then sprayed several light coats of Model Master clear flat to bring down the shine. Jim Forbes photo

REFERENCES

"U.S. Military Aircraft Colors 1955-2001," Paul Boyer, *FineScale Modeler*, October 2001

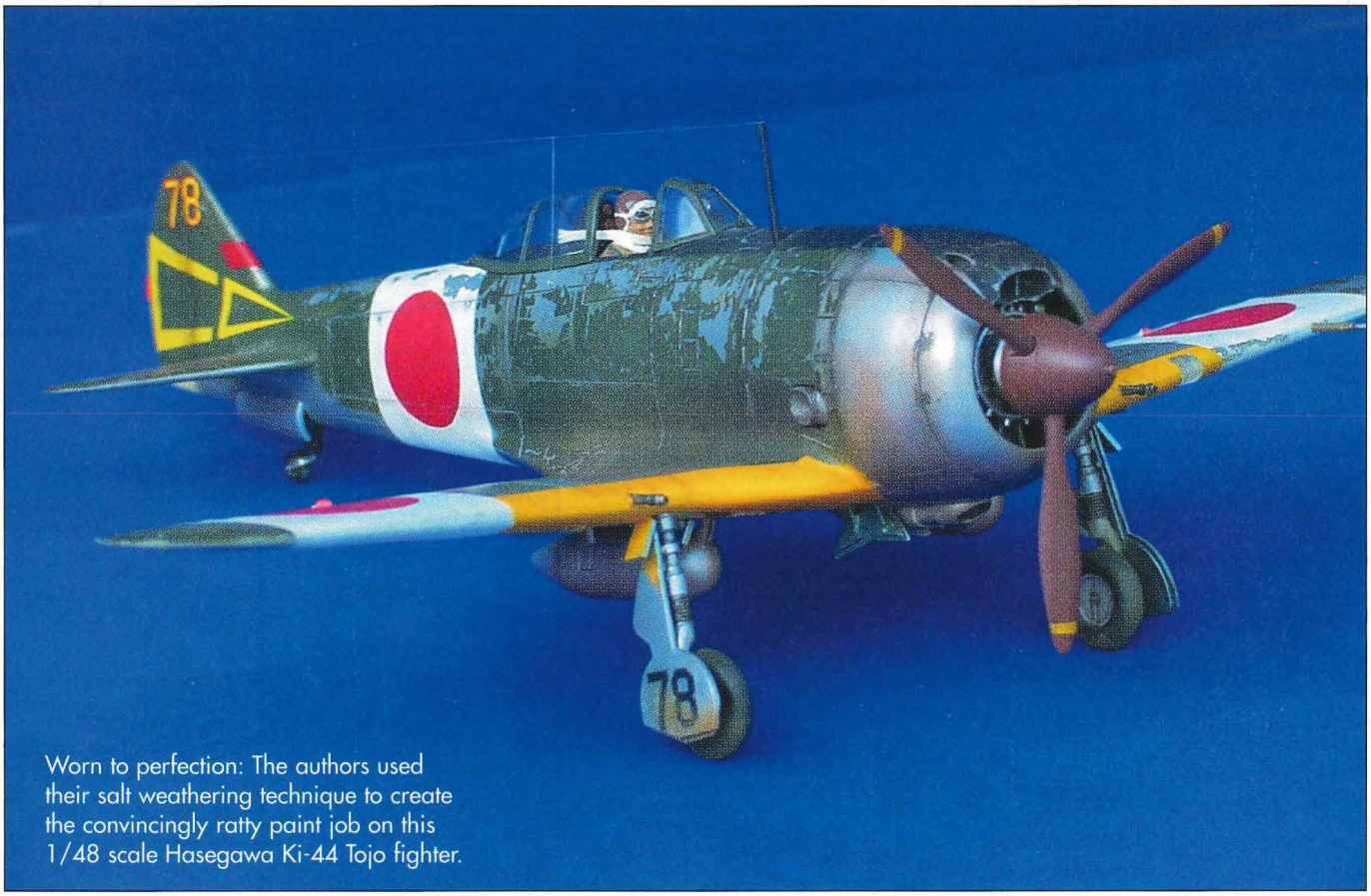
"Quick and Easy Weathering," Paul Boyer, *FineScale Modeler*, November 2001

SOURCES

SB2C-4 Helldiver kit distributed by Revell-Monogram, 8601 Waukegan Rd., Morton Grove, IL 60053-2295, 847-966-3500, www.revell-monogram.com

AeroMaster decal sheet Eagle Strike Productions, 12982 SW 132 Ave., Miami, FL 33186, fax 786-293-9286, www.aeromaster.com

Model Master paints Testor Corp., 440 Blackhawk Park Ave., Rockford, IL 61104-5158, 815-962-6654, www.testors.com



Worn to perfection: The authors used their salt weathering technique to create the convincingly ratty paint job on this 1/48 scale Hasegawa Ki-44 Tojo fighter.

Weathering with salt

The fast and easy way to simulate chipped paint

Story by Brian Barton, Michael Chorney, and Charles Swank *Photos by Chris Chorney*

Simulating wear and tear on combat machines helps make convincing models. Chipped paint can be simulated by dry-brushing with metallic paints, marking with graphite and silver pencils, applying metallic powders, and chipping with sharp tools, but these methods can be time-consuming. Our fast, easy technique requires nothing more exotic than ordinary table salt.

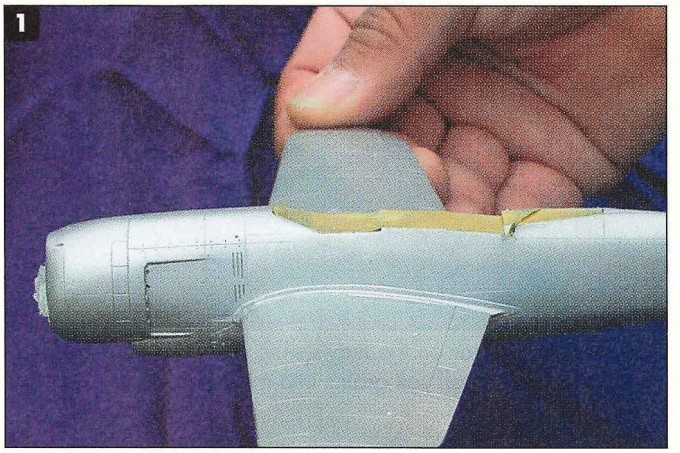
It all began when one of us, Michael, was making pretzels for his kids one evening. Reaching for the kosher salt, inspiration struck. Why not simulate paint flaking by masking a model with salt before applying the top coat? This led to several trial runs, all with convincing results.

The salt technique has several advantages. Application is quick, and salt adheres almost as well to lightly moistened plastic as it does to egg-washed pretzels. The salt grains slightly disrupt the flow of paint sprayed at an angle, thus contributing variations in paint intensity and depth. (Modelers have used liquid masking substances and rubber cement to create a similar effect, but they lie relatively flat.) Salt can be applied evenly to replicate gentle wear or in an uneven pattern to simulate more aggressive natural chipping. When wiped from the surface and captured by a cloth, it also serves as a sandpaper-like abrasive to create additional wear and streaking on the paint.

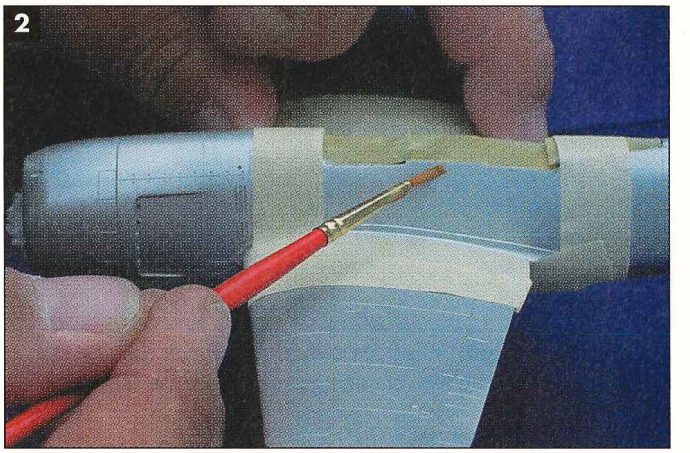
Salt weathering requires only basic tools and supplies: table salt, water, a small paintbrush, paints, and of course, a model. Follow along as we demonstrate the technique on a Fine Molds 1/48 scale radial-engine Judy bomber.

The first step is applying the base color that will show through the chipped paint, **1**. Both enamels and acrylics work well as base paints, so take your pick. We airbrushed the Judy with an Alclad aluminum undercoat, but Testor or SnJ metallic paints work fine, too.

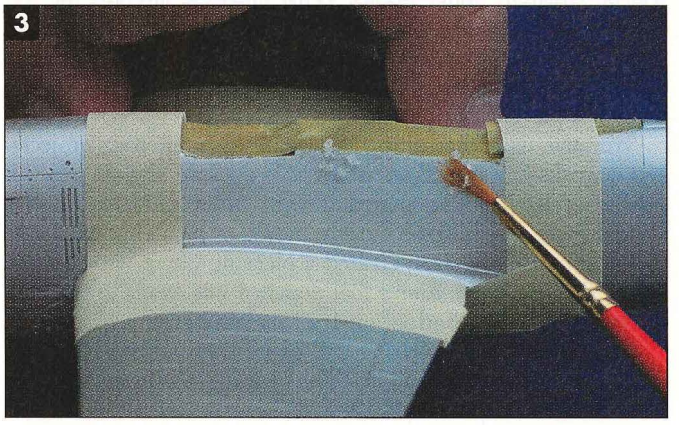
For simplicity's sake in this demonstration, we masked off a small section to work on, but we have successfully done large areas, even entire models, in one pass. Moisten the area lightly



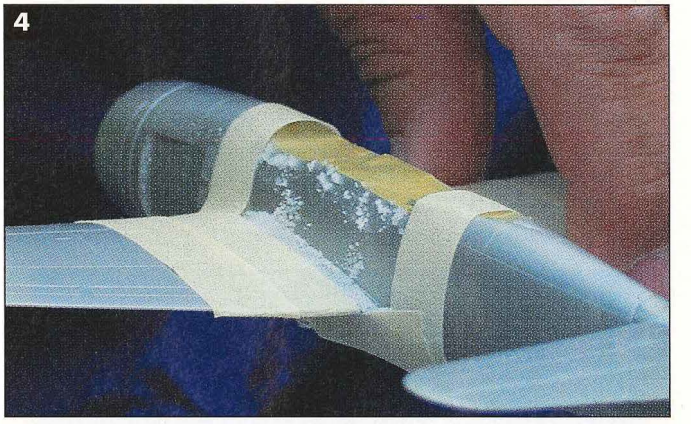
Begin by applying the base color – that's the color you want to show through the chipped top coat.



Using a small paintbrush or a spray bottle, lightly apply water to the area that is to be weathered.



Before the water dries, apply the salt with the brush. Try to avoid making the pattern too even – you want the weathering to look random and natural.



After the salt dries, make sure you have the pattern you want. If it's too thick, pick off some of the grains. Too thin? Add more water and salt.

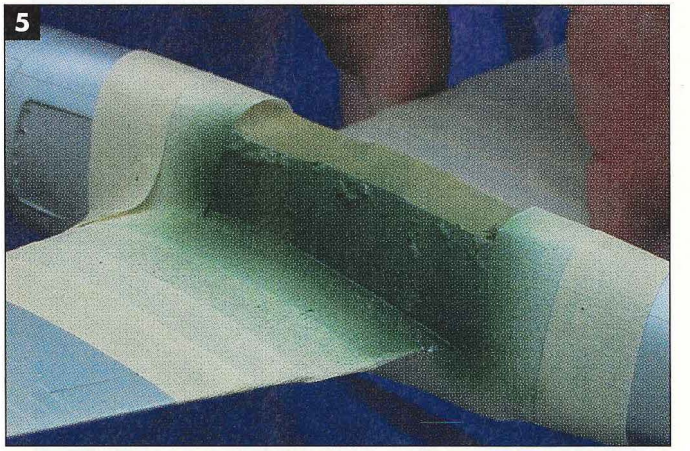
with water misted from a spray bottle or dabbed on with a paintbrush, cotton swab, or even your finger, **2**.

Apply the salt to the model with the brush, **3**. Position the grains with the brush – or any modeling tool that gets the job done – to obtain the desired wear pattern (in a pinch, we've even poured it straight from a salt shaker to save time!). You can remove the salt where too much accumulates for your taste (no pun intended). Our goal on the Judy was to closely replicate the chipping shown in a reference photo of a real aircraft.

Allow the salt to dry and adhere properly, **4**, then spray the model with the top color, **5**. Our example received a mix of Tamiya IJNAF green and light gray in order to simulate the color of a late-war Judy. After the paint is thoroughly dry, wipe the salt away with a soft cloth or a brush, **6**. Capture some of the loose grains in the cloth and wipe vigorously with this abrasive for extra wear. We used this technique to drastically weather the Judy's left wing root, **7**, and it was also used on the cowling of the Ki-44 shown at the beginning of this article.

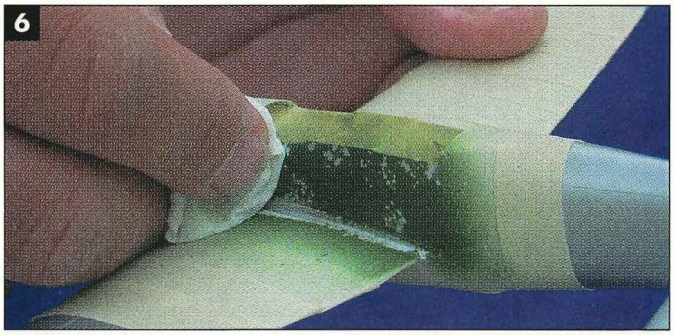
Variations in the top coat's density can be achieved several ways. If you spray with high air pressure (but not too high), some of the salt grains will blow off, exposing the undercoating in mid-painting. If the salt proves a little too sticky, you can also wipe off grains by hand while painting. The goal is to attain a lighter shade in the newly exposed areas to get a more realistically uneven finish.

If you use a lot of water when laying down the salt, as we did

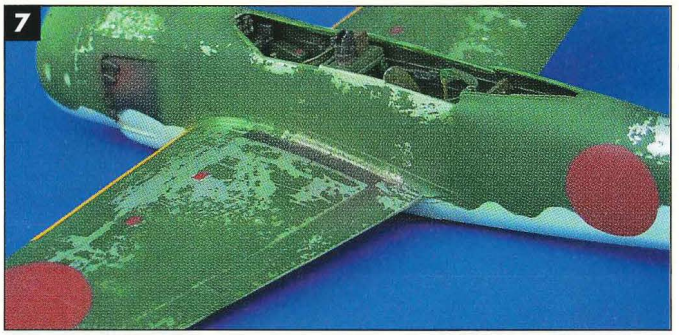


Spray on the top color. If a few more salt grains fall off while painting, don't worry – it'll further enhance the natural unevenness of the weathering.

on the Judy's left wing root, the heavier layer of dissolved salt will lead to a lighter color over an extended area. In contrast, the areas less affected by the salt solution will have greater intensity. As with any new technique, experiment on practice models until you feel confident with the general method. When first applying it to a finished model, try it on small areas before proceeding to salt large areas.



Now for the fun part: Wipe the salt off with a soft cloth or stiff brush. If it roughs up the remaining paint a little, so much the better!



The extra-heavy wear on the Judy's wing root was created by working the rubbed-off salt grains into the paint's surface like a rubbing compound.

After the salt is removed, spray on clear gloss in the usual manner and apply the decals. Keep in mind that chipped paint will be apparent under decals. With Japanese aircraft, the red paint used for the insignia seemed more resistant to chipping, so the Hinomarus on the Judy were painted using a frisket paper mask. The weathering process was finished by applying an oil wash and pastel chalk powder.

We have used the salting technique on numerous projects, and it works just as well on armor as it does on aircraft (see the sidebar at left). We've shared it with other modelers in the United States and abroad. Satoshi Sasaki of Japan has tried different salts and has even created a pleasing effect with baking soda. Likewise, we've found that popcorn salt seems to produce the right "scale weathering" on 1/72 scale subjects.

We're sure salt weathering will be a useful addition to your arsenal of modeling techniques. The pleasing outcome may even lower your blood pressure! **FSM**

It works on armor, too!

Co-author Brian Barton used the salt weathering technique on this 1/35 scale SdKfz 231 (top) built from the Tamiya kit and painted with Tamiya acrylics. The undercoat is Panzer gray, and the top coat Panzer yellow, followed by standard weathering.

Brian also salt weathered the impressive 1/35 scale desert Matilda (bottom), also built from a Tamiya kit and finished with Tamiya acrylics.

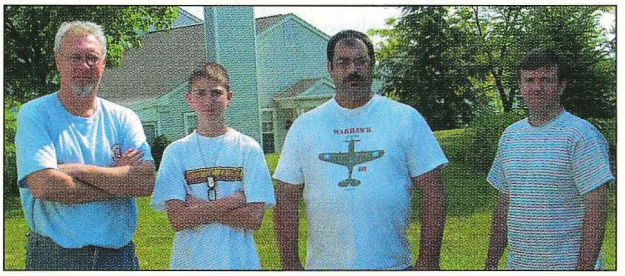
Meet the authors

Michael and Chris Chorney, Brian Barton, and Charles Swank live in the Harrisburg, Pennsylvania, area and are members of IPMS/Harrisburg.

Michael is a research professor at Penn State College of Medicine. His modeling focus is World War II aircraft. Michael's son, Chris, combines interests in computers and digital photography to make animations using 1/6 scale WWII figures.

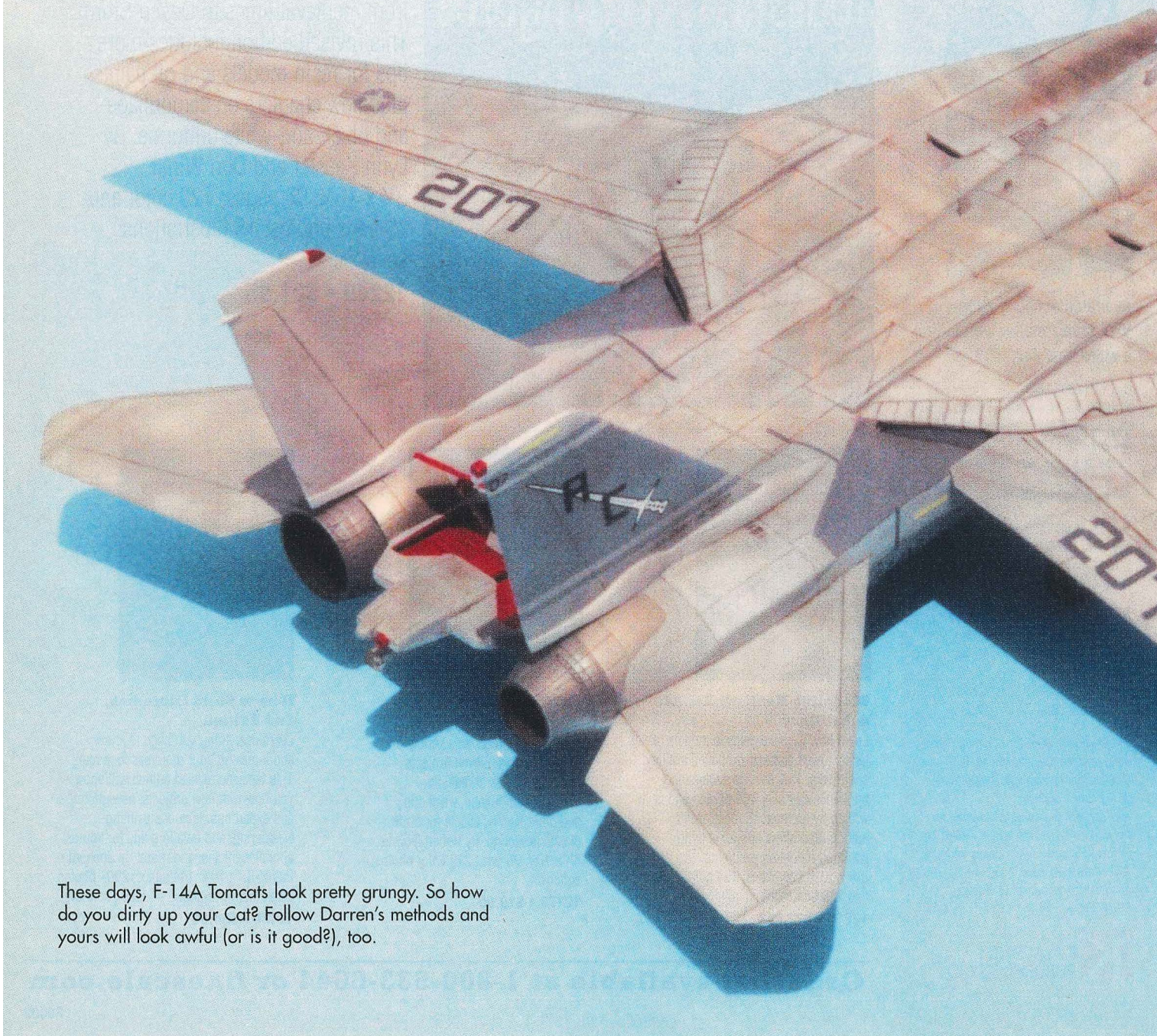
Brian, a former Army tank commander, builds dioramas and armor. He works for Hershey Foods.

Charles, a stock manager, is a life-long modeler, kit collector, and WWII picture collector. His interest is WWII Axis aircraft.



Modeling quartet (left to right): Michael and Chris Chorney, Brian Barton, and Charles Swank.

Weathering an F-14 MiG killer



These days, F-14A Tomcats look pretty grungy. So how do you dirty up your Cat? Follow Darren's methods and yours will look awful (or is it good?), too.

How to make your Tomcat look like an alley cat

Story and photos by Darren Roberts

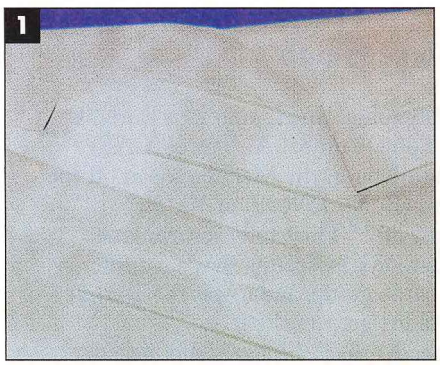
Navy aircraft deployed at sea take an absolute beating. Jet exhausts, catapult launches, arrested landings, and corrosion-control maintenance make a jet look as though it has been through a 10-round heavyweight fight by the time it returns to shore.

Rarely, if ever, do jets get a fresh coat of paint while out on "the boat." Instead, maintenance crews touch up areas where paint has been chipped or worn off, and sometimes they might not use the correct matching color. This creates a blotchy appearance over the entire aircraft. Add dirt and grime that accumulates during carrier operations, and it turns into a real mess.

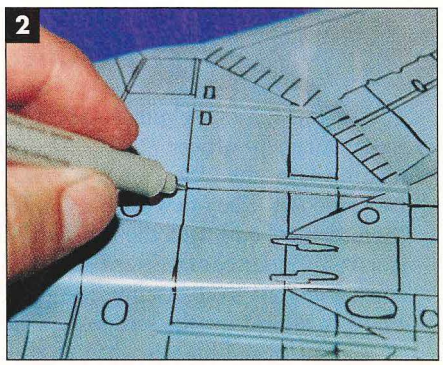
I've tried several different ways to recreate this look and have finally found a method I like. It's a multistep process, but it isn't difficult. Follow along as I dirty up my 1/48 scale Academy Tomcat.

Step 1: Base colors. The first step is to apply the base colors. The Tactical Paint Scheme (TPS) for the Tomcat varies quite a bit from the regulation pattern, and this MiG killer Tomcat from VF-32 "Swordsmen," was no exception. I painted my Tomcat with Testor Model Master Acryl light ghost gray (FS 36375) on the undersurfaces, dark ghost gray (FS 36320) on the anti-glare panel and canopy, and blue gray (FS 35237) on the upper surfaces.

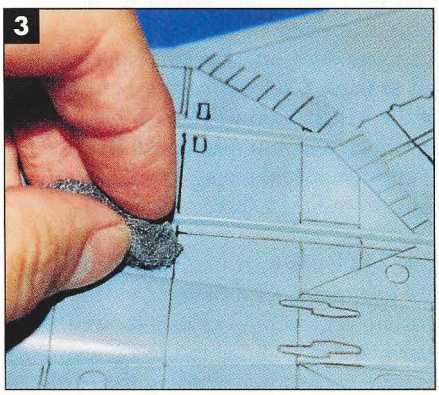
Step 2: Corrosion-control touch-ups. After I finished the base colors, it



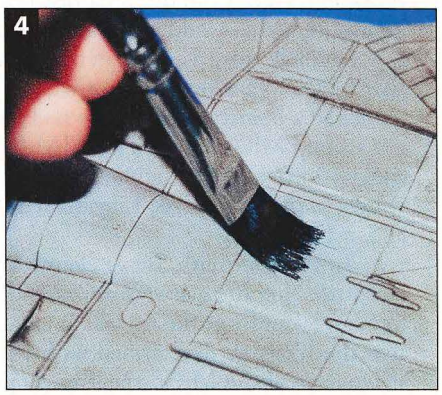
The mottled appearance of current Navy aircraft at sea is mostly due to paint touch-ups. Darren sprayed a lighter shade of gray over the base color to simulate repainted areas.



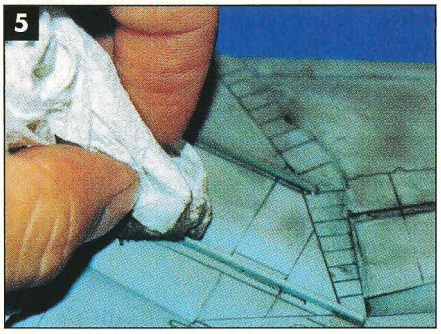
Darren used a technical illustrator's pen to emphasize panel lines.



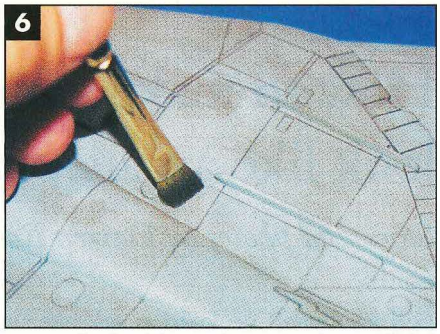
Excess ink was removed by scouring the surface with fine steel wool.



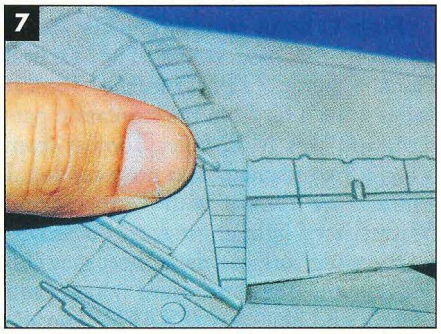
Darren simulated grime with a paste mixture of water and pastel chalk powder.



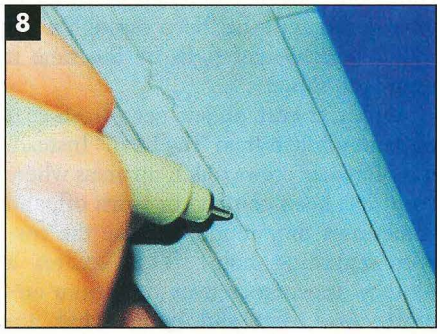
Darren removed excess paste with a moistened paper towel.



He applied additional stain with a soft brush.



For even more grime, Darren ground the pastel dust into the base paint with his thumb.



To simulate a lubricant leak, a spot of ink was applied to a likely location.

MiG-killer Swordsmen

On Jan. 4, 1989, Cmdr. Joseph Connelly (pilot) and Cmdr. Leo Enright (radar intercept officer – "RIO") launched on a Combat Air Patrol (CAP) mission from the USS *John F. Kennedy* patrolling in the Mediterranean off the Libyan coast. They flew an F-14A Tomcat (BuNo 159610) of VF-32 "Swordsmen" and used the call sign "Gypsy 207." They and their wingmen received a radar contact from an E-2C Hawkeye indicating that a pair of Libyan aircraft were heading toward the battle group, and it was the Tomcat crews' mission to make sure the Libyans didn't get too close.

Connelly and his wingman engaged the MiG-23 Floggers and locked them on radar, hoping to scare the Libyans away. The MiGs, however, continued on course. Both Tomcats broke left and descended, attempting to get into a better position to escort the MiGs from the area. The MiGs countered this move and continued to approach head-on. Under the rules of engagement, that was considered a hostile move, and Connelly was given permission to fire if needed. Four more times Connelly and his wingman attempted to get in behind the MiGs, and each time the Libyans countered.

Connelly gave Enright permission to arm missiles, and Enright launched two AIM-7 Sparrows, both of which failed to track. Connelly's wingman also launched a Sparrow, which downed one of the MiGs. Connelly got in behind the second MiG and fired an AIM-9 Sidewinder, which impacted behind the cockpit of the Libyan fighter. The Tomcat crews reported seeing two good chutes in the air, but the Libyans were unable to mount a successful search-and-rescue effort.

In the aftermath, Libya claimed that its MiG-23s were unarmed reconnaissance aircraft that were ambushed by 14 enemy planes. However, video footage taken from the television camera system on the F-14 clearly showed that the Floggers were armed with air-to-air missiles, and due to the aggressive nature of the MiGs, the Tomcat pilots were correct in defending the battle group. – *Darren Roberts*

was time to simulate some "corrosion control." I studied dozens of Tomcat photos to get a feel for where the majority of maintenance touch-ups were done. In most cases, the repainted areas were lighter than the base color and were concentrated around access panels. I sprayed dark ghost gray touch-ups on the blue gray upper surfaces, **1**, then mixed equal portions of light ghost gray and white to spray the undersurfaces. You can also spray a darker color underneath just for variety. I finished this step by spraying a light mist of Polly Scale dust to add an overall faded appearance.

Step 3: Gloss coat. With the touch-up work done, I prepared the model for additional weathering by spraying on a coat of Future acrylic floor polish. The Future formed a barrier to protect the paint from the work I was about to do.

Step 4: Panel lines. With the Future completely dry, I ran a .002 Micro Pen through all of the recessed panel lines, **2**. I didn't worry about excess outside the lines because it would just be wiped off. I chose the ink pen instead of a wash because it was quicker and less messy.

After finishing with the pen, I removed excess ink on the model with 0000 steel wool, **3**. I lightly scrubbed with the steel wool until I was satisfied with the appearance. I applied another coat of Future, and when it was dry, applied the decals.

Step 5: Pastel wash/stain. After applying a clear flat coat, it was time to make the fighter look abused. I ground burnt umber pastel chalk into a small pile of dust, then dipped a wide, soft brush in water, loaded it with pastel dust, and smeared it on the model, **4**. I covered the entire model with the wash, occasionally brushing on clean water to thin it.

I let this wash dry for about 15 minutes, then wiped it off the wash with a wet paper towel and cotton swabs, **5**. If you make a mistake, the pastel dust will come off with water and light scrubbing. When removed, the wash leaves a brownish, dirty-looking stain on the dull coat.

Step 6: Surface dirt. To help accentuate the stain, I ground three parts of brown pastel dust and one part black and applied them with a medium-width, stiff-bristle brush to random areas over the entire model, **6**. I concentrated on the underside, as this area gets dirty. I used my thumb to grind the dust into the surface and wipe off excess dust, **7**.

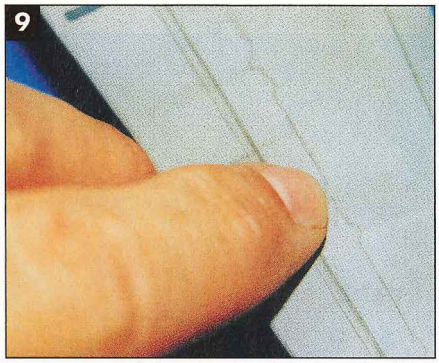
Step 7: Streaks and smudges. I

sprayed one more layer of clear flat to seal the pastel dust and to avoid leaving fingerprints in the weathering. I added the canopy, pitot tubes, and engine nozzles, and then set out to work on simulating streaks from lubricant leaks and smudges on heavily used areas.

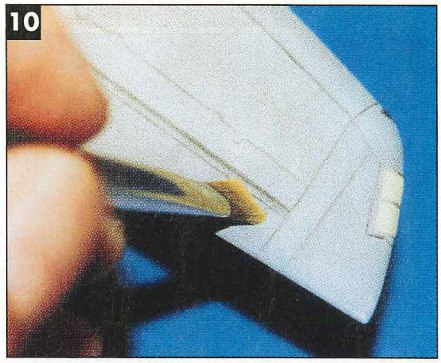
For hydraulic leaks, I used the Micro Pen to put a small spot of ink where I wanted the streak to start, **8**. I moistened my finger and placed it on the spot, **9**, then pulled back quickly, drawing the ink in the direction I wanted it to go. For larger areas, I used a medium-width, stiff-bristled brush to apply black pastel chalk powder, **10**.

I scrubbed burnt umber pastel powder into the walkways over the air intakes and to the side of the fuselage around the boarding steps, **11**. I used an old round paintbrush with its bristles clipped short.

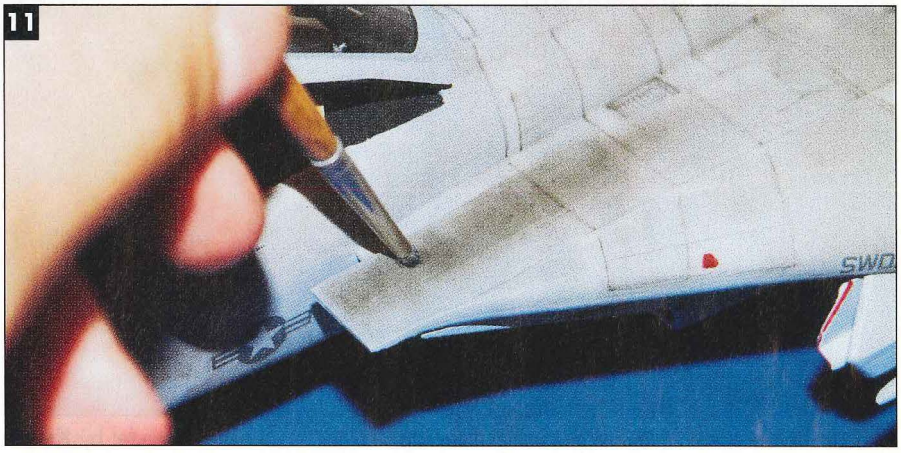
Now my Tomcat looks right. It looks really bad – in a good way! **FSM**



By moistening his finger, Darren pulled the ink back in a streak to simulate the lubricant leak



Darren applied wider streaks with a soft brush and black pastel powder.



Right: The heavily soiled walkways were created with burnt umber chalk powder ground in with a stub-bristled brush.

Below: Navy jets rarely look pristine. Tomcats saw constant service, and the elements took their toll.

The subtle approach often looks best

WEATHERING

It's the step that brings a model airplane to life, and makes a viewer give it a second look. *By Pat Hawkey*

My first weathering efforts were clumsy dabs of silver paint on leading edges, panel lines, and crew boarding areas, followed by heavy gun and exhaust stains that shouted "Hey folks! This airplane is used!"

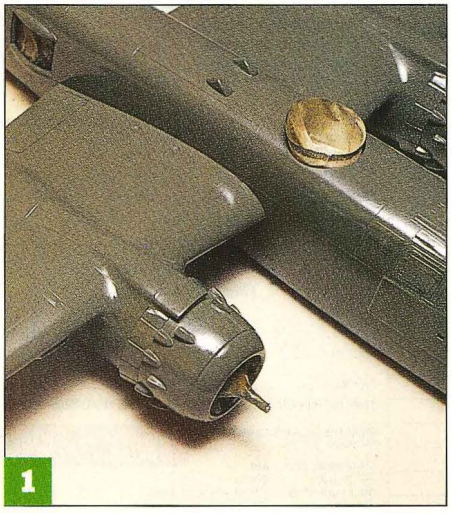
Later, I saw other modelers' work that looked a lot more convincing than mine, and I recognized their weathering was more subtle. So I studied photos, went to air shows and airports to observe the real things, stared at contest models that I thought looked right, and my modeling translation of "used airplane" evolved. This article demonstrates my current approach.

Monogram Mitchells. I built a series of Monogram 1/48 scale B-25s, all Pacific-theater workhorses painted olive drab over neutral gray. The one-color top surface is perfect for honing skills to make a model look like a used airplane. In hard service, this monotonous scheme did not stay uniform for long. Photos show these bombers bleached, splotchy, streaked, and chipped. The paint (and the aluminum and fabric it was applied to) reacted to the tropical sun and extreme climate.

Radial engines were notoriously leaky, and fighting B-25s had lots of fuel and lubricant stains. Getting at them was not as easy as lifting the hood of a car. Frequent hurried removing and replacing of cowl panels would at least result in dinged edges – if cowls didn't quite fit, they'd be made to fit! The engines were pampered, but not the paint jobs.

These machines were being used in a lethal environment. On a good day, they might return with a few holes poked in

Three 1/48 scale Monogram B-25 Mitchells domonstrate the keys to Pat's weathering artistry: first carefully visualizing what causes wear and tear, then being equally careful not to overdue it.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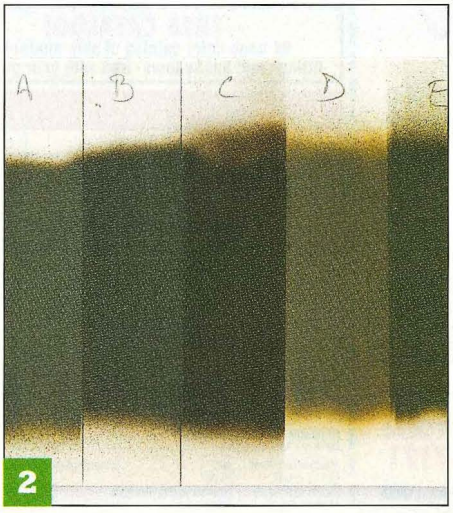

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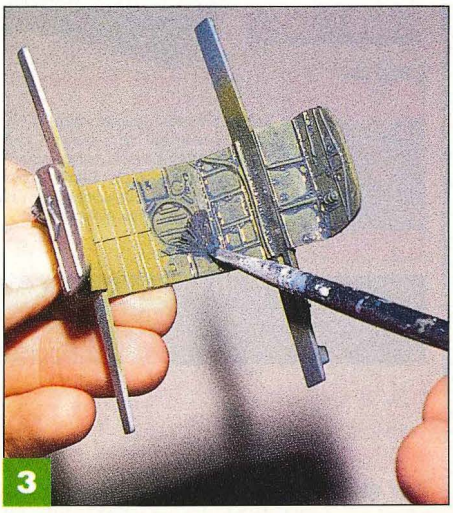
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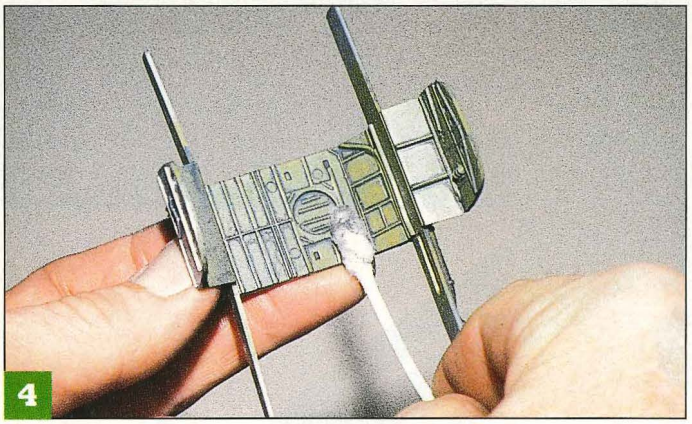
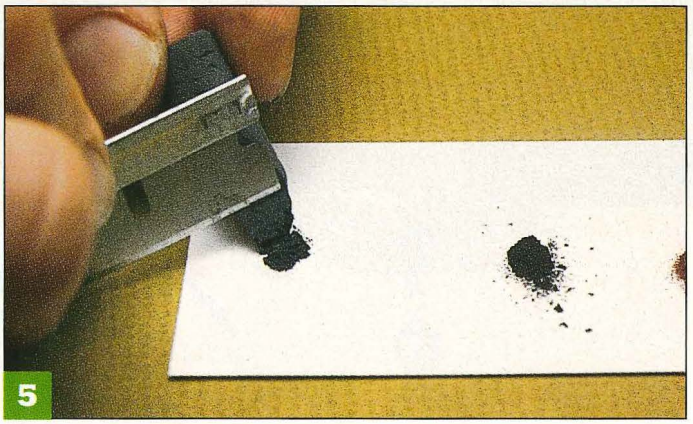
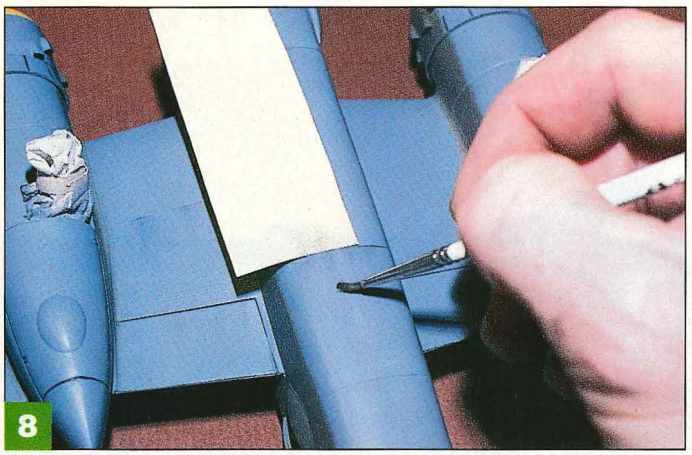
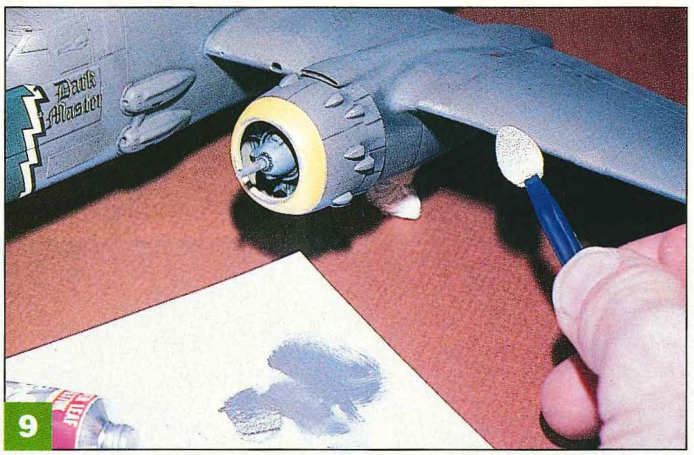
model airplanes









them, and repairs or replacements would be obvious. The primary task of the ground crew has always been keeping the machinery in the air – not making it look good or matching paint standards.

Base color. I won't enter the debate about "what is olive drab" here. I mix Xtracolor gloss X111 olive drab and X113 World War II faded olive drab to come up with a base color I like. I mix a lot of it so I won't run out in the middle of a project.

The top of the model gets a couple of coats of the base olive drab, **1**. Gloss enamels take time to dry, so I try not to handle the model for a couple of days.

Next I take a portion of my base olive drab and add tan to produce a shade significantly lighter than the base color. I airbrush this in random patches, spots, and mottling over the base coat. Areas that would get the most exposure to the sun – wings, stabilizers, and fuselage top – get the heaviest application. My goal is to make the finish look faded and uneven, so I don't match the effect from side to side. Though the color is changed, the effect is subtle – so subtle that it didn't show well in my photos. The color chips in **2** do a better job of showing the variations I made to the base olive drab.

Again, only darker. Now I add dark brown or dark green (it doesn't matter which) to the base olive drab to make a noticeably darker shade. I apply this randomly also, sometimes using the panel lines as guides – but I don't paint the panel lines; that's not a realistic representation of a weather-beaten airplane.

At this stage, I set the model down and study it. I have to anticipate what the model will look like once the gloss paint is covered with a clear flat coat. Since I still have the three shades of olive drab on hand, I can go back and correct or repaint areas that look over- or underdone.

This step is a judgment call – I'm trying to achieve an uneven, varied finish, with no hint of symmetry. When it looks good, I let the paint dry at least overnight. When the model is safe to handle, I apply decals.

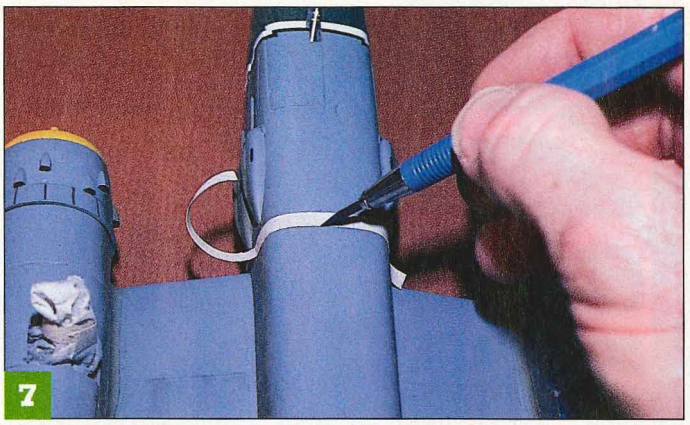
Generally, I don't follow the three-tone approach on the neutral-gray undersides. The weathering I'm trying to achieve is typical of the surfaces that are exposed more to sunlight and precipitation. The undersides accumulate grime, mostly due to gravity, and that's coming up a little later.

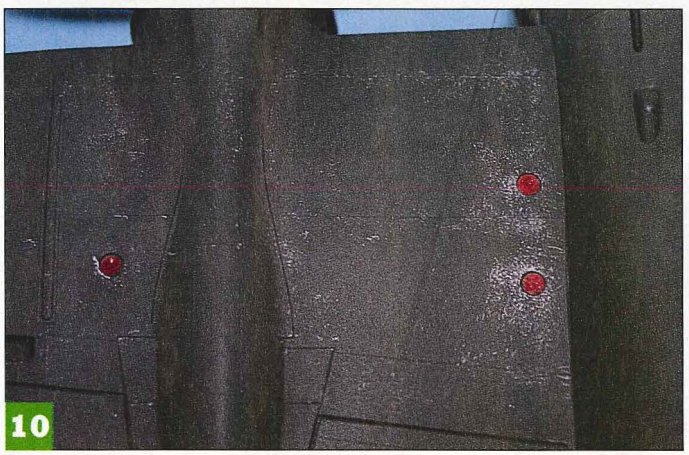
Weathering wash. The next weathering step is a wash of dark gray (black is too stark) Polly Scale water-based acrylic paint. I thin it at least 50 percent with soapy water (one part dishwashing soap diluted with three parts water), and slop it into the recesses separating flying from control surfaces, and all indentations (holes, grills, louvers, and scoops) to give them depth and definition. The photos show the wash being applied to the interior, **3**, but the technique and the effect are the same for the exterior.

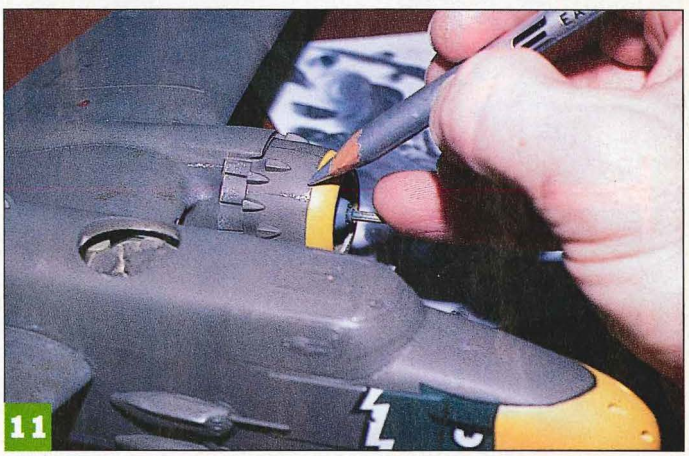
The generous amount of soap reduces the sticking power of the wash, so when it dries I can wipe the surface with a damp cloth or cotton swab and anything not nestled in a recessed area comes right off, **4**. Warning: This acrylic mix is applied to a gloss finish. It can't be removed nearly so easily from a flat finish.

Flat overcoat. After cleaning off dried decal adhesive and excess acrylic wash, I apply multiple coats of Testor Dullcote lacquer thinned at least 50 percent with Floquil Dio-Sol. This not only flattens the gloss finish, but also allows for pastel chalk powder to adhere.

Pastel grime. To me, the best







way to reproduce the characteristic streaked dirt and oil stains found on aircraft is with pastel chalk. Hot, hard-working engines, especially radials, leak fluids. Gravity pulls these liquids to the bottoms of engine compartments and cowlings where they seep out between panels and are blown back along the airframe by prop wash and the airstream.

I use Grumbacher pastel chalks, purchased almost 10 years ago. Obviously, a little stick goes a long way, and they're readily available in art-supply stores. Black, medium gray, and red-brown are my favorites. I scrape the chalk stick with a sharp blade, **5**, and lift the dust to the model with a small pointed brush. Dabbing a bit where the streak begins is followed by stroking the dust back across the surface with a wider brush. The trick here is to keep the streak parallel to the airflow. Compare the weathered and streaked wing in **6** with the untreated paint in **1**.

Besides heavy streaking around engines, I streak a little dust on the undersurfaces too, generally lightening the touch the further out I work from the center line. Don't smear the pastels around at random – ask yourself what the streak is supposed to represent and why it should go here.

Gravity draws rain water, spilled fuel, oil, and dirt to the bottom of an airplane, and this muck gathers along and streaks back from most panel lines. To represent this, I accent panel lines with a sharp artist's 6B pencil lead, **7**. Mask the forward edge with low-stick tape or a Post-it notepaper, and brush pastel dust back across the exposed area, **8**.

Another shot of Dullcote seals the pastels and flattens the shine of the penciled lines.

Chipping away. Some Japanese airplanes appeared to lose paint in sheets, but they were the exception rather than the rule. Simulating chipped paint accurately requires a light touch in most cases. Except for areas such as the wing-root walkways and leading edges exposed to the full brunt of prop wash and small flying debris, chips around panel lines are small.

I use a couple of techniques. For leading edges of cowls and flying surfaces, a sponge eye-make-up applicator dabbed in silver Rub 'n Buff, then dabbed lightly on the model gives a good effect, **9**. The same basic method using a small section of natural sponge (not that flat, rectangular, colorful kind next to the sink) works well for large, heavily trodden areas such as walkways. On these B-25s, the surface around the fuel caps received plenty of activity, **10**. My aim is to quickly apply many tiny, irregular bits of silver. I wanted irregular chips because paint does not erode in perfect dashes or dots.

Once this starts to look believable, I break out my Eagle Prismacolor No. 949 silver pencil, hone a sharp edge on it, and pick away at panel lines, fastener heads, and canopy framing, **11**. The beauty of this tool is its precision. I also employ a number of "retired" paintbrushes – mostly with stiff bristles cut short – to stipple silver paint.

Stop, think, then go. Before weathering your next aircraft model, stop to think where that particular subject would be affected; a walkway would erode faster than a wing tip. Think of the materials that cause the discoloration and the forces acting on them. Once you get going, stop before you think you've done enough. Subtlety is the key, and it's easier to add more weathering than to remove it. **FSM**