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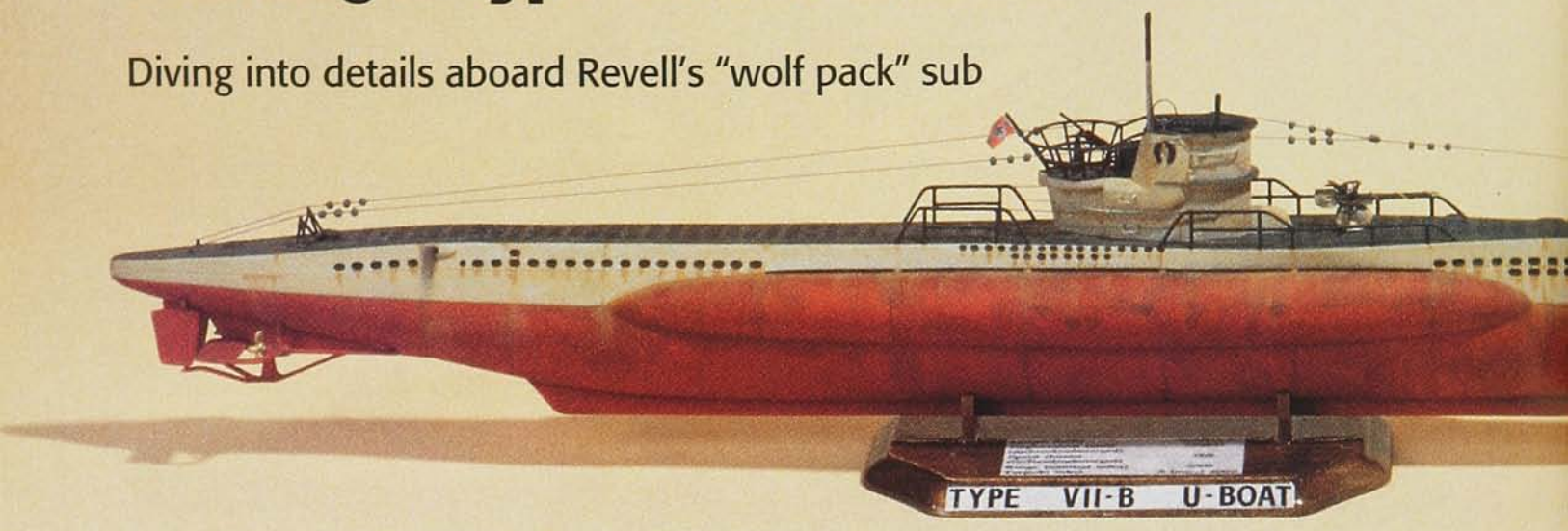
FineScale Modeler PRODUCTS

The best of *Modeling the Second World War*

Building a Type VII-B U-boat in 1/125 scale

Diving into details aboard Revell's "wolf pack" sub



James modeled Revell's "wolf pack" sub as a Type VII-B and painted it in an early-war scheme. Heavy weathering shows that U-boats spent most of the time on the surface.

BY JAMES T. GREEN

ON LEAVE after returning home from Desert Storm, with time on my hands before returning to my unit, I looked for an easy kit to divert me from my usual 1/48 scale jets.

I went out and bought Revell's 1/178 scale *U 505*, thinking that I would be able to finish it in a weekend – but it wasn't that simple. A trip to the library turned out to be the first leg of a longer modeling journey.

There'll be some changes made. After looking at references I ruled out building an accurate *U 505* straight from the box, for several reasons: The kit depicted a Type VII-B sub, not *U 505*, which is a Type IX-C; the hull and conning tower needed weld-seam detail; the bridge deck lacked surface detail and certain fittings; ladders and handrails on the tower didn't look real; and the guns and deck rails needed work. Additionally, measurements showed the kit actually was closer to 1/125 scale.

Nevertheless, the hull molding and profile were appealing, and the conning tower invited detail, so I resolved to continue. Follow along and I'll show you how to build a better U-boat.

Hull and main deck. The long, slender hull of a sub requires extra care to avoid warping and big, ugly seam gaps. With this in mind, leave off the main-deck details for now. Trim and clean the aft torpedo tube before installing it to minimize seam repair later, Fig. 1. Drill out the diesel exhausts with a pin vise and glue .010" styrene sheet behind them, Fig. 2.

Cut off the locking tabs of the main-deck pieces, Fig. 3. Gluing a slab of .030" styrene on the underside braces the hull amidships; the extra strength keeps it from popping open later when you sand seams.

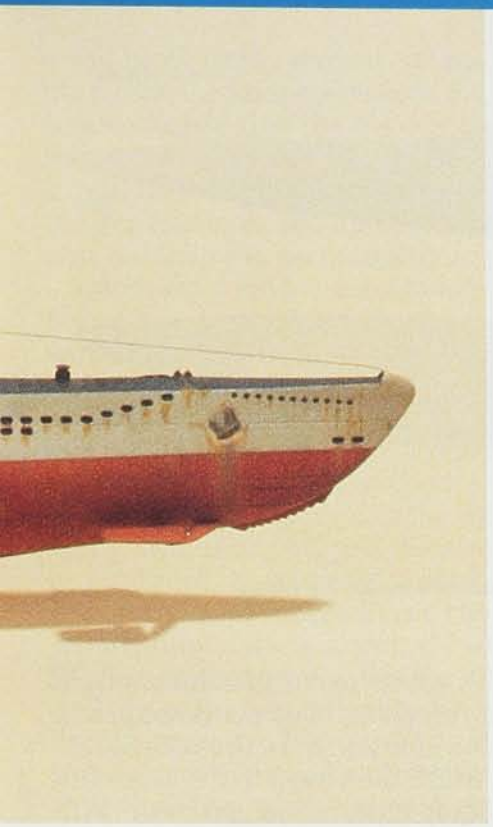
Test fit the main deck carefully, trim it to fit, then flow super glue into the seams, letting capillary action draw it along the joint. Apply pressure on the hull sides until the glue sets. Before gluing the conning-tower interior panel and tower halves, test fit them to ensure the bridge deck will fit later.

Now you're ready to fill joints and smooth rough spots. Instead of putty, I fill seams with Duro gel-type super glue, available at any hardware store. Again, flow glue into the seam to fill the gap – more than one application may be necessary.

If you leave off the bow-mounted cable cutter, as I did, fill its mounting hole, Fig. 4 (page 18). I reworked the kit-supplied main-deck rails, so I filled those mounts, too. However, do not fill the D-shaped mounting hole for the pin on the lower right front of the conning tower. Also, leave the holes on the stern for the cable tripods, the gun-deck holes, and the hole for the valve.

Use sandpaper, files, and emery boards to smooth fills and remove unwanted details, but take care not to eliminate limber holes and other desired details. On the main deck, remove the locator ribs for the tower and fill the many ejector-pin marks. Remove the display-stand mounts from the keel and the raised plate molded on the bow (where a decal of the ship's hull number was supposed to go). Also, remove molded handrails and ladders from the conning tower, but leave the larger set of life preservers, Fig. 5 (page 18).

Scribing details. You can scribe with any sharp instrument; I use an old knife-edge file with a chipped tip. Keep your photo references and drawings where you



THE U-BOAT PERIL

The only thing that ever really frightened me during the war was the U-boat peril. – Winston Churchill

Great Britain – and, ultimately, the Allied war effort in Europe – depended on Atlantic shipping for its vital supplies. Those tenuously stretched lifelines were nearly severed by Germany's U- (*untersee*) boats.

The Allied powers entered the war susceptible to submarine attack, partly because of Great Britain's misplaced faith in the London Submarine Agreement of 1936, in which Germany promised to warn and evacuate merchant ships before sinking them. This noble pledge went glimmering less than 10 hours after Great Britain declared war on Germany, when a U-boat sank the British passenger liner *Athenia* – without warning – on September 3, 1939.

The U-boats seemed unstoppable. German Adm. Karl Dönitz devised the "wolf pack" strategy, in which subs swarmed to attack a convoy. For the next three years U-boats – usually lurking on the surface, their low profile almost invisible – racked up a terrible tally. After the fall of France in 1940, Dönitz based his operations in Lorient on the Bay of Biscay, greatly increasing the time his subs could prowl before returning to port for fuel. When the United States entered the war at the end of 1941, U-boats plagued the North American East Coast. American resort operators, fearful of losing vacation business, resisted blackouts – and ships outlined against city lights made easy targets. Worldwide, sinkings reached a monthly peak in May 1942 when submarines sank 144 Allied ships – many within sight of American beaches.

However, Germany's high command rated its navy behind land and air forces. Production of U-boats lagged behind Dönitz's demands. In the meantime, the Allied convoy system improved. Merchant ships were better organized (no small feat), and their escorts became more effective. Small aircraft carriers bridged the gaps in air cover; depth-charge techniques improved; and the advent of radar made it possible to locate U-boats on the surface.

In the end, Germany paid a high price for its plunder. Of the 863 operational U-boats, 753 were lost – along with 28,452 of the 41,300 U-boat sailors.

can see them as you work. Trace weld seams with a soft-lead pencil. After drawing these guides, use a flexible straightedge and start scribing.

Go slow and be patient. As you define the lines with each passing stroke you'll be able to drop the straightedge and finish the lines freehand.

How much seam detail is enough? That's up to you, but it's best to keep it simple. Scribing every line won't look right. Clean the new lines with a stiff toothbrush and give the subassemblies a final wet sanding.

Antenna mount. I used the conning tower's side-mounted ventilation duct as a housing for the retractable loop antenna, Fig. 5. I drilled 3/16"-deep starter holes in the top of the duct, then milled a slot for the antenna loop using a dovetail bit in a drill press.

Note how the drill is offset to allow the tower's front to clear the edge of the drill-press base and avoid damaging the locating pin. Adjust the drill press to the desired depth, hold the tower securely, and start the drill inside one of the predrilled holes. Pull the tower across the base, cutting the slot out to the other hole. After the slot is done, change to a larger bit and drill out a center hole for the antenna shaft.

Bridge deck. To detail the surface of the kit-supplied bridge deck, I thinned it before gluing it in the

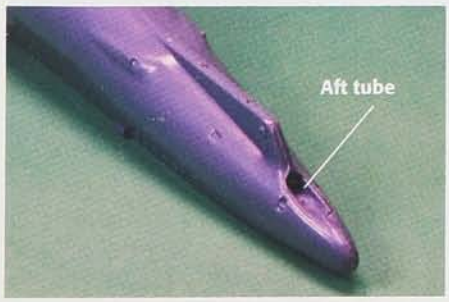
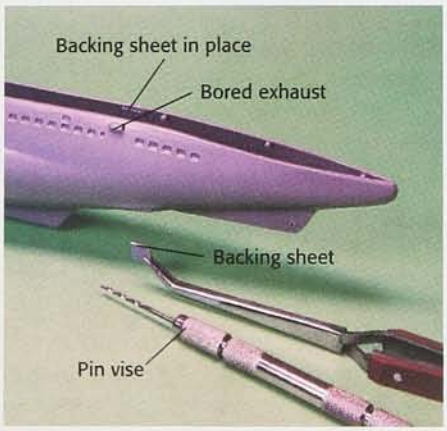
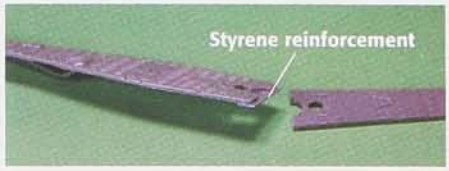


Fig. 1. Paying attention to the aft torpedo tube now saves filling and sanding work later.



(Left) Fig. 2. Bore out the exhausts and back them with .010" sheet styrene.



(Above) Fig. 3. Slicing off the tabs on the deck pieces improves the fit; sheet styrene restores the joint's strength.

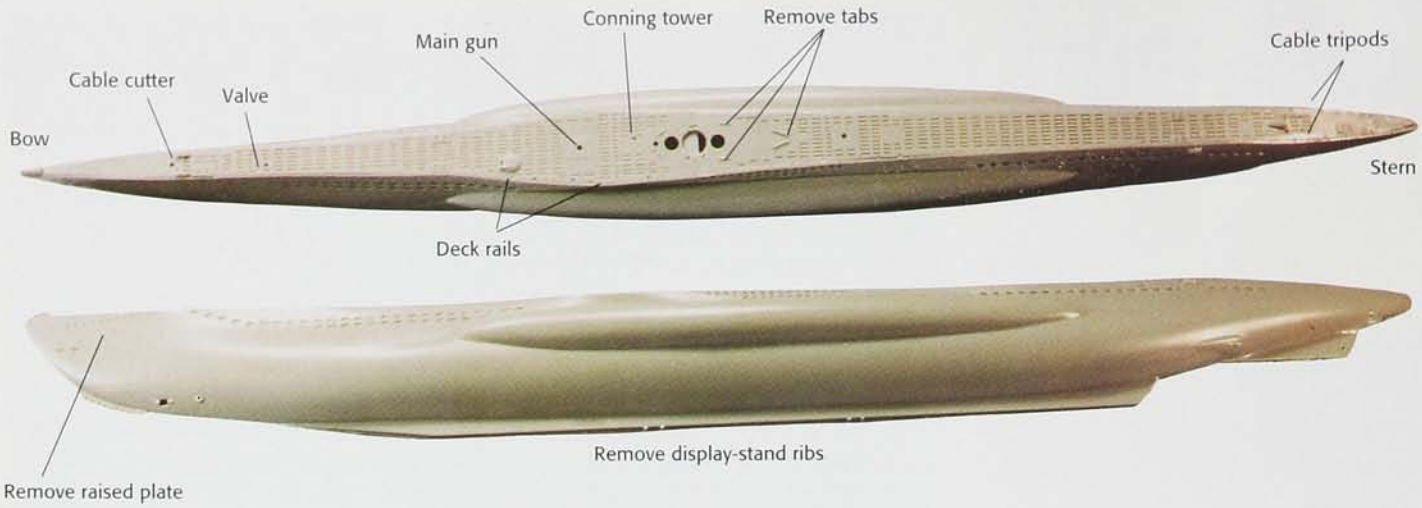


Fig. 4. Fill gaps and seams, then decide which details you'll use and which you'll lose. Fill unused mounting holes.

conning tower. I filed and sanded its underside to allow for a layer of fiberglass screen (from a Bondo auto-body repair kit) topped with .010" styrene sheet.

Use the templates in Fig. 6 to trace and cut out the sheet-styrene bridge-deck overlay and fiberglass screen. Begin cutting at the hatch, periscope, and gun brace openings; it's easier to cut fine details from a full sheet. Cut petal shapes in the screen to fit the afterdeck. Attach the screen to the deck with liquid glue, tamping it down with

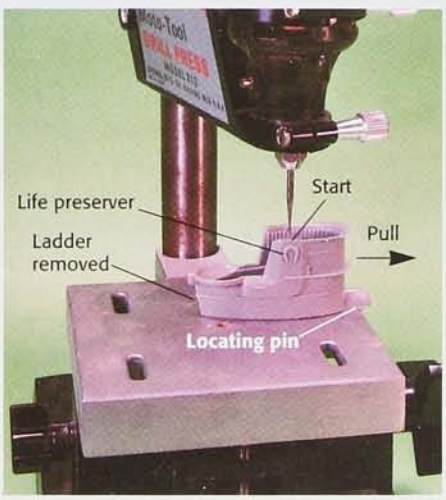
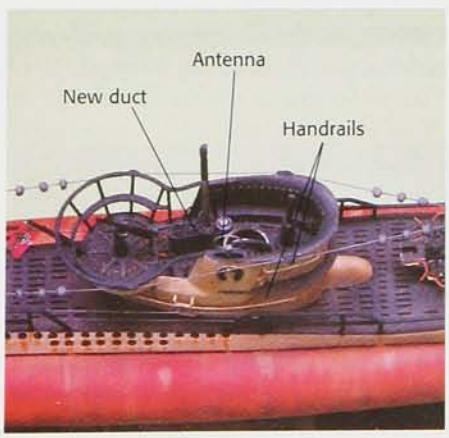
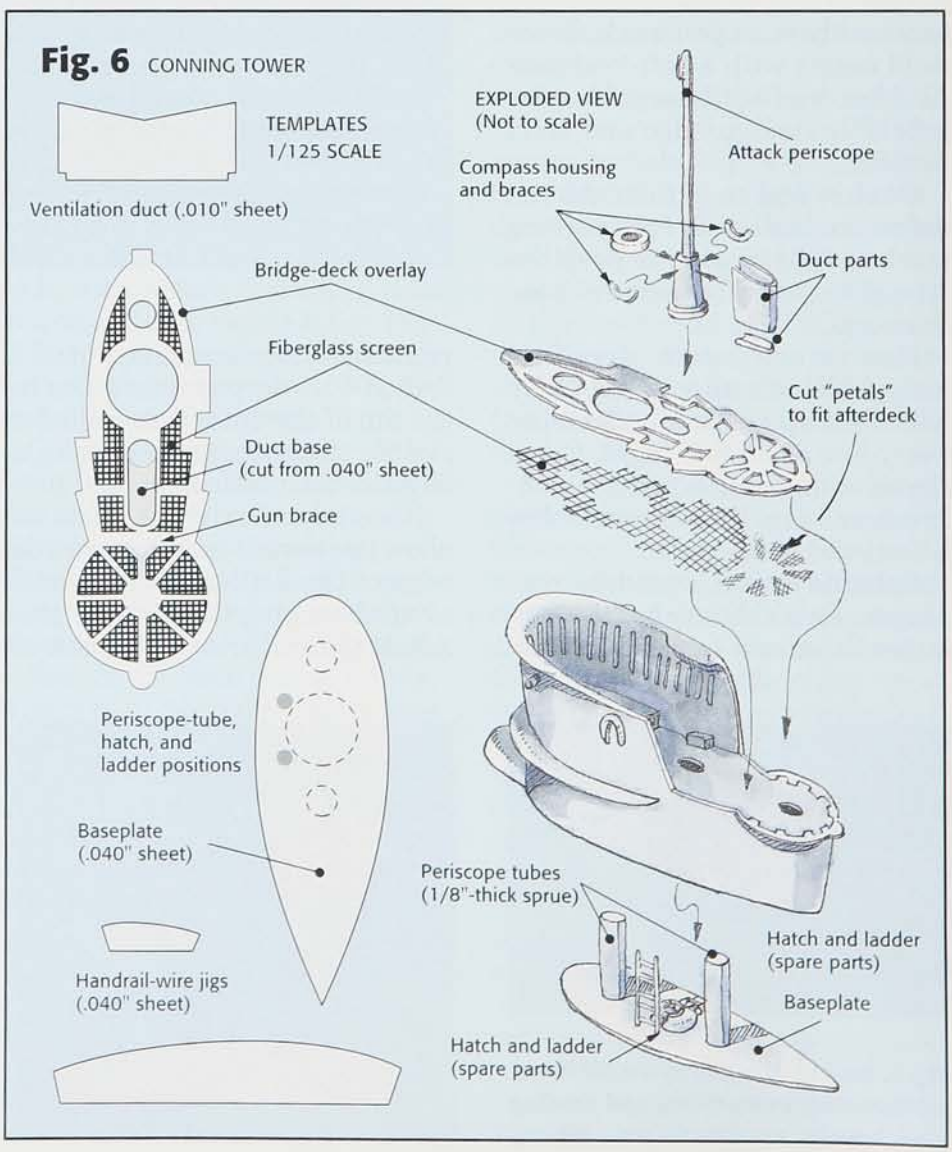


Fig. 5. (Above) Cutting a slot in the kit's ventilation duct for an antenna housing: Start the bit, then pull it the length of the slot. (Below) The reworked conning tower displays several new details.





a nail head; as the cement softens the plastic the tamping embeds the screen. Super glue the overlay to the screen, letting the screen show through. Trim and sand around the gun platform and apply white glue to blend the parts together.

Handrails. I made new conning-tower handrails from 26-gauge wire (bought at a crafts store), Fig. 5. To shape the wire, cut jigs according to the template in Fig. 6 and secure them to a work surface with double-sided tape or clamps. With the curved portion of the jig facing away from you, pull the wire around each jig; it should be snug around the corners. Trim the handrail mounts to about 1/8" to fit them to the tower sides, Fig. 5.

Use needle-nose pliers to form four segments of 26-gauge wire into ladders. (To avoid marring the wire finish, use pliers with smooth, flat jaws.) You can copy the shape of the ladders you removed earlier. Drill locating holes in the tower sides, trim the ladder ends to fit, and super glue them in place.

Time to paint. It's easier to paint the hull and tower as subassemblies. Taking advantage of the holes in the main deck, I clamped two wood dowels in a multi-position vise, slipped the hull onto the dowels, then set the whole affair on a lazy Susan. I also made a cardboard painting stand for the tower.

Using spray cans, I painted Testor Model Master gloss gull gray above the waterline, Pactra gloss insignia red below. Paint the gray first, then prepare the propellers, dive planes, and rudder for when you paint the lower hull red. Wait at least 72 hours between colors.

Position the conning tower on the main deck and trace around it to mark its location. Mask this area and the edges of the main deck and dust the top with flat black to emphasize recessed details. Hand paint limber holes and exhaust openings black on the hull sides, too. Finally, super glue the dive planes, rudders, and propellers in place.

Conning-tower mount. Cut out the conning-tower baseplate according to the template in Fig. 6 and glue it in position. This hides the holes in the main deck and provides a mount for the tower and interior details. Aurora's old M-47 provided the hatch, a trashed artillery piece yielded the handwheel, and the ladder is an HO scale scrap. I attached these items, along with periscope tubes made from 1/8"-thick sprue, as shown in the drawing, Fig. 6. I enhanced the wall opposite the ladder with a section of hydraulic lines from the weapons bay of a Monogram F-106 and painted the interior Pactra airframe white (it doesn't have the unrealistic brightness of plain white). Paint the hatch Testor dark gray and dry-brush it with Pactra metallic gray. You can deepen the detail on the periscope tubes by tracing around them with a No. 2 pencil; darken the ladder rungs the same way. Shave the pencil lead on sandpaper and use the powder to dust the plumbing on the wall. Apply a thin bead of super glue around the edge of the baseplate and press the tower onto it.

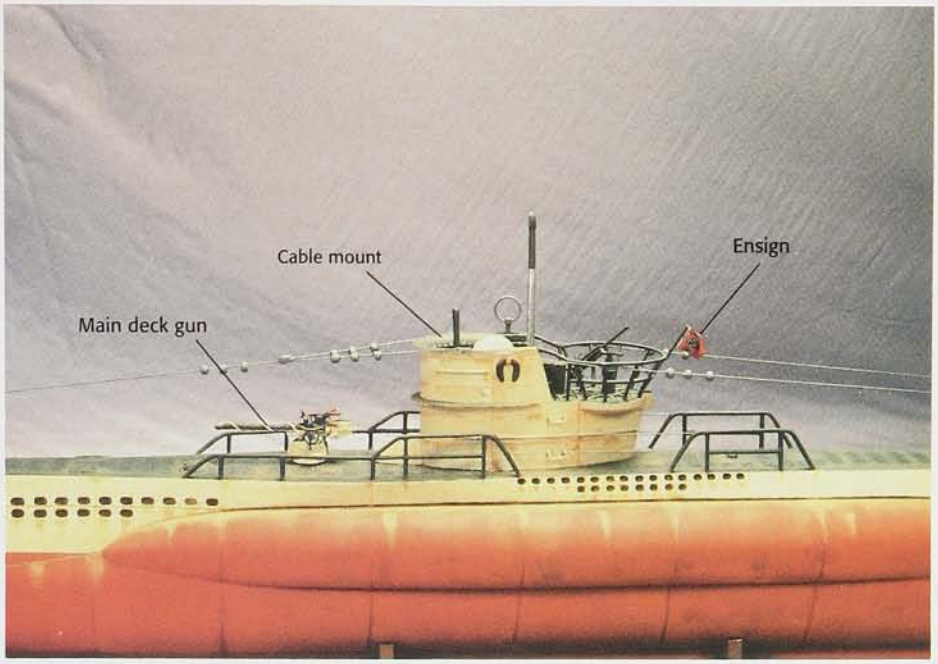
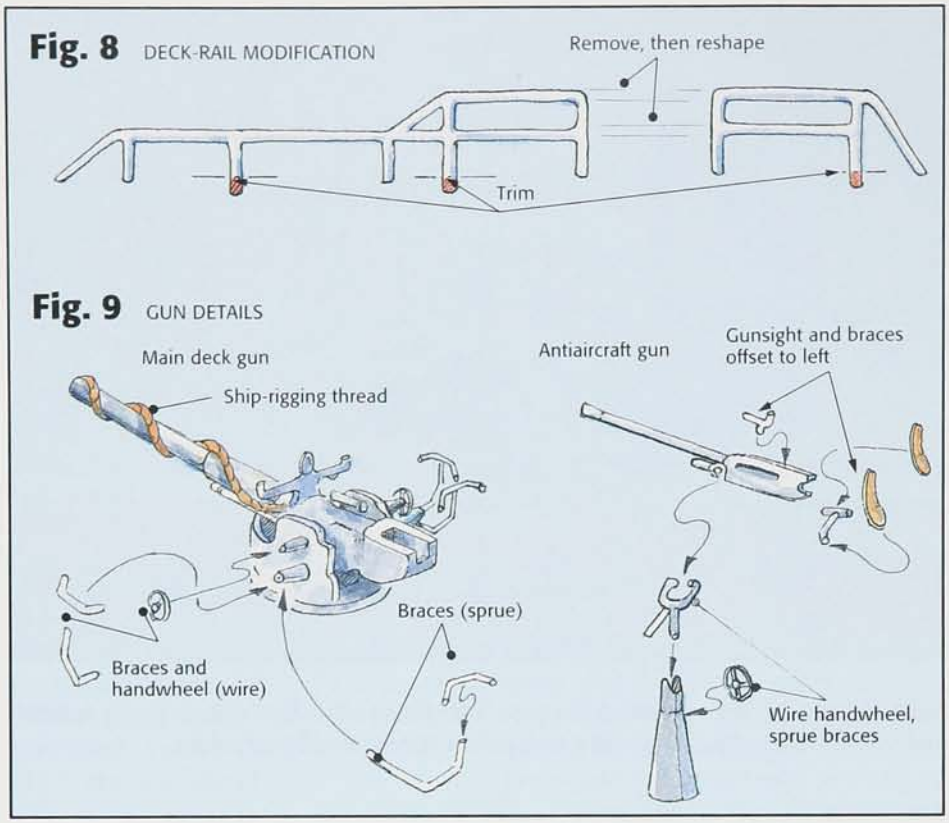


Fig. 7. The hand grabs are silver bead wire. After fitting a few final details James applied heavy weathering, finishing with a fine patina of powdered-pastel rust.

Bridge deck and rails. Set the height of your periscopes and cut off the lower portions accordingly. I positioned the attack periscope high to show its contrasting natural metal, Fig. 7 (page 19), but used less than half of the search periscope. Attach the trimmed periscopes, eliminate seams, and sand the bottom mating surfaces to ensure that they are flat and level. Finally, bore out the search periscope and voice pipe with a pin vise and super glue them in place. Attaching the periscopes this way is easier and brings their stands to scale height.

Cut out a new ventilation duct, Fig. 6, and super glue it together. I also added a compass housing; an armored-vehicle running light from my spares box was just the shape I needed. Make hand grabs from silver bead wire (available at crafts stores) and attach them to the top of the attack periscope stand and the corners of the tower just aft of the bridge, Fig. 7. Trim the bridge rails to fit and install them. Paint the inside of the ventilation duct and the slot for the antenna loop flat black, then put a cross brace of silver bead wire in the duct's mouth, followed by brass screen, Fig. 5. To make the antenna, turn 26-gauge wire around a paintbrush handle. Tack this to a shaft from your spares box, then paint it dark gray and set it aside. Paint the inside of the bridge hatch and set it aside, too. Add the valve, button, and cable tripods to the main deck.

Figure 8 shows how I reshaped



the kit-supplied deck rails: I cut them apart, thermoformed them, and trimmed them to fit. Prepare them for painting, but leave them off until all weathering is done.

Apply Testor Model Master nonspecular sea blue to all upper surfaces, carefully painting around the limber holes. Paint the bridge and all its new fittings; don't forget the upper surface of the hatch, its retainer, and the top portion of the tower's spray deflector.

Get your guns. Make handwheels and brace supports for the main gun from bead wire, Fig. 9. I cut the sight and brace supports for the antiaircraft gun from a used photoetched parts tree. The main gun is painted gray below and blue above, the antiaircraft gun black, and its stand and handwheel blue. Painting the padded braces brown replicates oiled leather. The muzzle plug on the main gun is dark gray; after the paint dries, wrap its retaining line around the barrel. (I used ship-rigging thread for this.) I made a Y-shaped brace from sprue and wire and glued it to the bridge deck to mount the antiaircraft gun, Figs. 6 and 9, then mounted both guns.

Paint the life preservers black and detail them with lead-foil retaining brackets (paint these gray). Install the antenna loop in its slot and the bridge-deck hatch in an open position.

Weathering. Since U-boats spent more time on the surface than below it, heavy weathering is appropriate. Begin with three misty coats of Testor Dullcote, then apply a light, highly diluted overall wash of Pactra rust. Avoid buildup in the limber holes by using a narrow brush to get between them. Follow with an application of grimy thinner, concentrated in the vents above the saddle tanks on the hull. Allow it to streak and stain the tanks and fill the panel lines. Next, using a fine-tipped brush, apply unthinned rust streaks to limber holes, weld seams, the anchor, and anything else above the waterline where fittings join. Follow these streaks with a swipe of a thicker brush barely moistened with thinner. Let each stage of weathering dry completely.

Display base and ensign. While you wait for your weathering to dry, build a stand for the model. I attached the kit stand's hull supports to a small decoupage plaque. After the paint dried I super glued the U-boat to its new resting place.

Fold the kit's ensign decal over a piece of lead foil and let it dry. Touch up the edges with paint, darken it a little with a thin black wash, and complete the swastika with pen and ink. Cautiously bend the ensign to shape and super glue it to the boat.

Antifouling cables. Secure the model to your workbench; I taped mine down by its display base. I secured locking tweezers in a "third hand" tool and centered the tweezers over the main gun.

Cut a strand of 6-pound-test fishing line and run it from the stern, around the tackle assembly on the port side, and back down to the stern on the starboard side. Thread nine craft beads onto each leg of the rigging: three before the tower, six aft. Rig one section at a time, super gluing the line over the pins on the tower sides and to the cable tripods and pins on the stern, then trim off the excess. Drill a hole in the bow and glue one end of the line. Thread three beads on this line and run it to the forward tackle assembly. Super glue this end of the line, trim excess, and super glue the beads in position. Paint the rigging dark gray.

Cut two triangles of lead foil and glue them to the tower over the rigging pins to replicate mounting brackets for the cables. Blend them into the tower surface with white glue and paint them nonspecular sea blue.

Now attach the new deck rails and wire safety lines. Paint the propellers Testor nonbuffing metalizer brass, and the periscope shaft Testor chrome silver. I added a gyroscope dial to the compass (really an instrument-panel decal). Drops of clear glue replicate lenses. Finally, I shaved and mixed several shades of orange and yellow pastels to achieve a rusty powder which I dusted over the model with a thick brush.

There you have it. My weekend project took a month, but it was worth it. And diligence has its rewards: My U-boat has won many prizes, including third place in its category at the 1992 IPMS/USA national convention in Seattle!

Detailing Tamiya's 1/35 scale T-34/85

Modeling a victor of the Eastern Front

Gérard detailed his T-34/85 and sent it to 1945 and the streets of Berlin.

BY GÉRARD DEYGAS

BY THE TIME HITLER INVADED the Soviet Union in 1941, German armor had proved superior to that of any other nation. In a stunning turnabout, the Soviet T-34 tank shattered German illusions of invincibility.

Here, previously unknown to the Western world, was a tank that could defeat the best the Germans could offer. Its sloped armor deflected shells, and its 76mm gun was fatally effective. Greatly impressed, Germany based the design of its new Panther tanks on the T-34. Meanwhile, the Soviets were improving their tank, replacing the gun with the more-powerful 85mm in 1943.

This is the tank I built, Tamiya's 1/35 scale T-34/85 (kit No. 35138). It differs from other Tamiya T-34s mainly in the turret; I added a few other details to model a late-war version.

REFERENCE

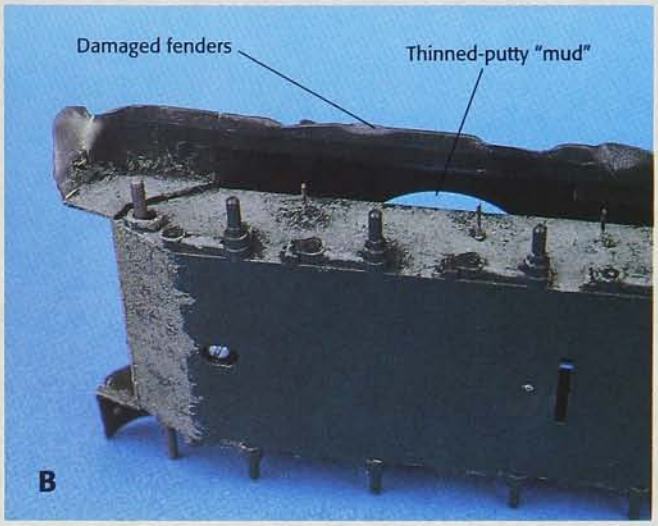
■ Zaloga, Steven, and James Grandsen, ***The Eastern Front: Armor Camouflage and Markings, 1941-1945***, Arms and Armour Press, London, 1983

SOURCES

■ **Sheet, rod, and tube styrene:** Plastruct, 1020 S. Wallace Place, City of Industry, CA 91748, ✆818-912-7016

■ **Verlinden decals:** VLS Mail Order, 811 Lone Star Drive, Lone Star Industrial Park, O'Fallon, MO 63366, ✆314-281-5700

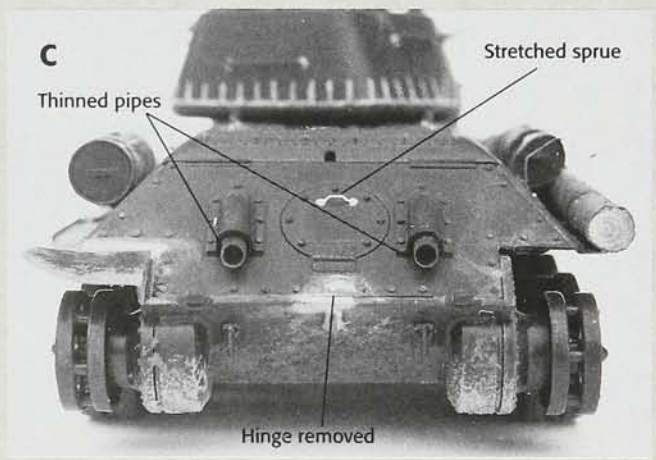
Step 1: WEAR, TEAR, AND BATTLE DAMAGE



I modeled a veteran T-34 that had suffered several dents and scrapes. You can add battle damage to the glacis plate by making small marks with a drill or motor tool (**A**). I cut out the mudguards with a fine razor saw, and "beat up" the fenders with a hot knife (**B**). Before mounting the road wheels I modeled mud on the lower hull sides with an application of filler putty thinned with acetone.

I cut off the middle hinge on the backplate (part A7), being careful not to damage the plate, and replaced it with a scale bolt (**C**). That's a stretched-sprue handle on the circular hatch. I also thinned the exhaust-pipe ports and filled the grab-handle mounts on the glacis plate.

I tossed the siren (part D7), headlights (A23 and A24), and toolbox (A8) into my spare-parts box.



DEFENDING MOTHER RUSSIA

The Soviet Union and Nazi Germany began World War II as partners in crime, if not friends. The Russo-German Nonagression Pact of August 1939 assured Stalin and Hitler that they could pursue their expansionist goals without interference from one another – and also divided Poland between them. On Sept. 1, 1939, Germany invaded Poland and touched off WWII.

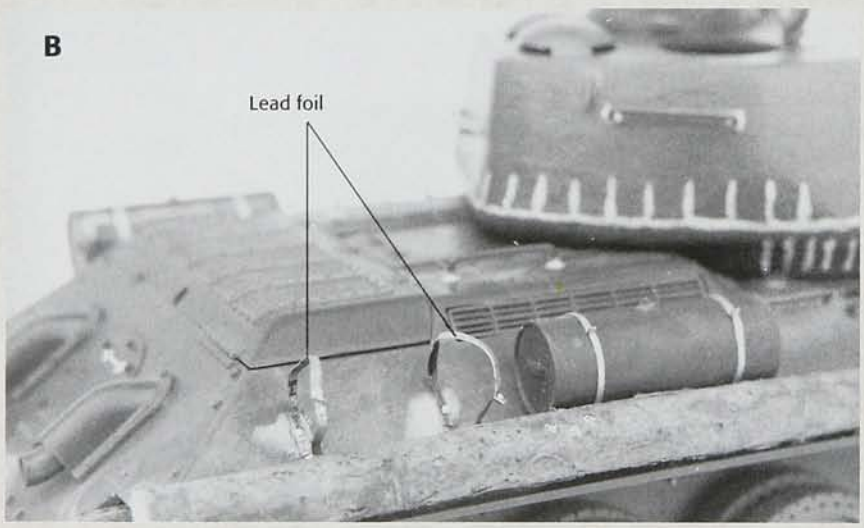
While Hitler and Stalin avoided public conflict, privately each denounced and mistrusted the other. Hitler moved first, crossing the Soviet border in June 1941 to begin Operation *Barbarossa*. The Germans advanced swiftly against the unprepared Soviets, rolling to within 10 miles of Moscow by November.

Yet the war was far from over. By invading the Soviet Union, Hitler had ignored not only his military advisers but also the lessons of history. Fighting on two fronts had been the downfall of Germany in World War I. And, like Napoleon, Hitler ran afoul of the brutal Russian winter. Because *Barbarossa* was to have been completed in two or three months, only about 20 percent of German troops were issued winter clothing.

Hitler also underestimated the Soviet people. No strangers to hardship, the citizenry not only persevered under siege but made further sacrifices, burning their own homes and crops before the Germans and working in defense factories around the clock – often under fire. From Stalingrad emerged the legend of T-34 tanks rolling off the assembly line and straight into battle.

As the war dragged on, Hitler's impatience with his generals grew unreasonable and many of his advisers resigned. Soon he was running operations himself – and making fatal blunders, such as stubbornly insisting that Stalingrad be taken at all costs. The German Sixth Army laid siege to the city in August 1942 and was in turn wiped out by February 1943. The Red Army's victory at Stalingrad signaled Germany's defeat on the Eastern Front.

Step 2: TURRET AND FUEL TANKS

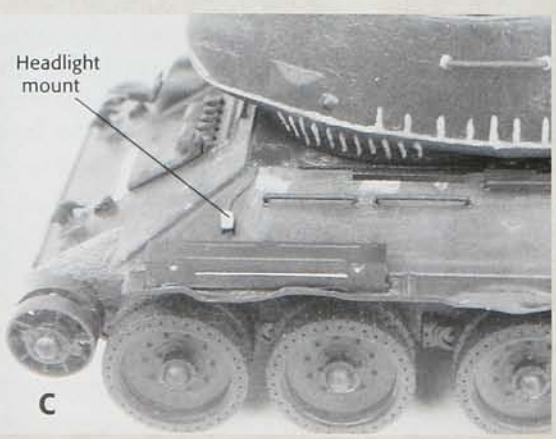


In gluing and smoothing the seams on the turret, I damaged the molded weld beads. To replace them, I applied a putty of scrap plastic and liquid glue (**A**). After the bead was in place I textured it with the back of a hobby knife. (Store this home-brewed putty in a tightly sealed jar, and don't use it without plenty of ventilation.)

I built three covered periscopes with plastic circles obtained from a sheet of .020" styrene. I used a 4mm-wide punch to make the disks and flattened the front slightly with a file (**A**).

I improved the fuel-tank mounts by thinning parts with a hobby knife and making new cradles from lead-foil strips (**B**).

Ironically, because I left off the headlights I had to build mounts for them (which would have been covered if the headlights had been in place). I cut the mounts from .020" sheet styrene, sanded them to shape, (**C**), and glued them over the kit's mounting holes.



Step 3: COLOR AND MARKINGS

There is nothing simpler than decorating a Soviet tank; they were notoriously drab. These particular T-34s were either dark green or covered with a whitewash in winter.

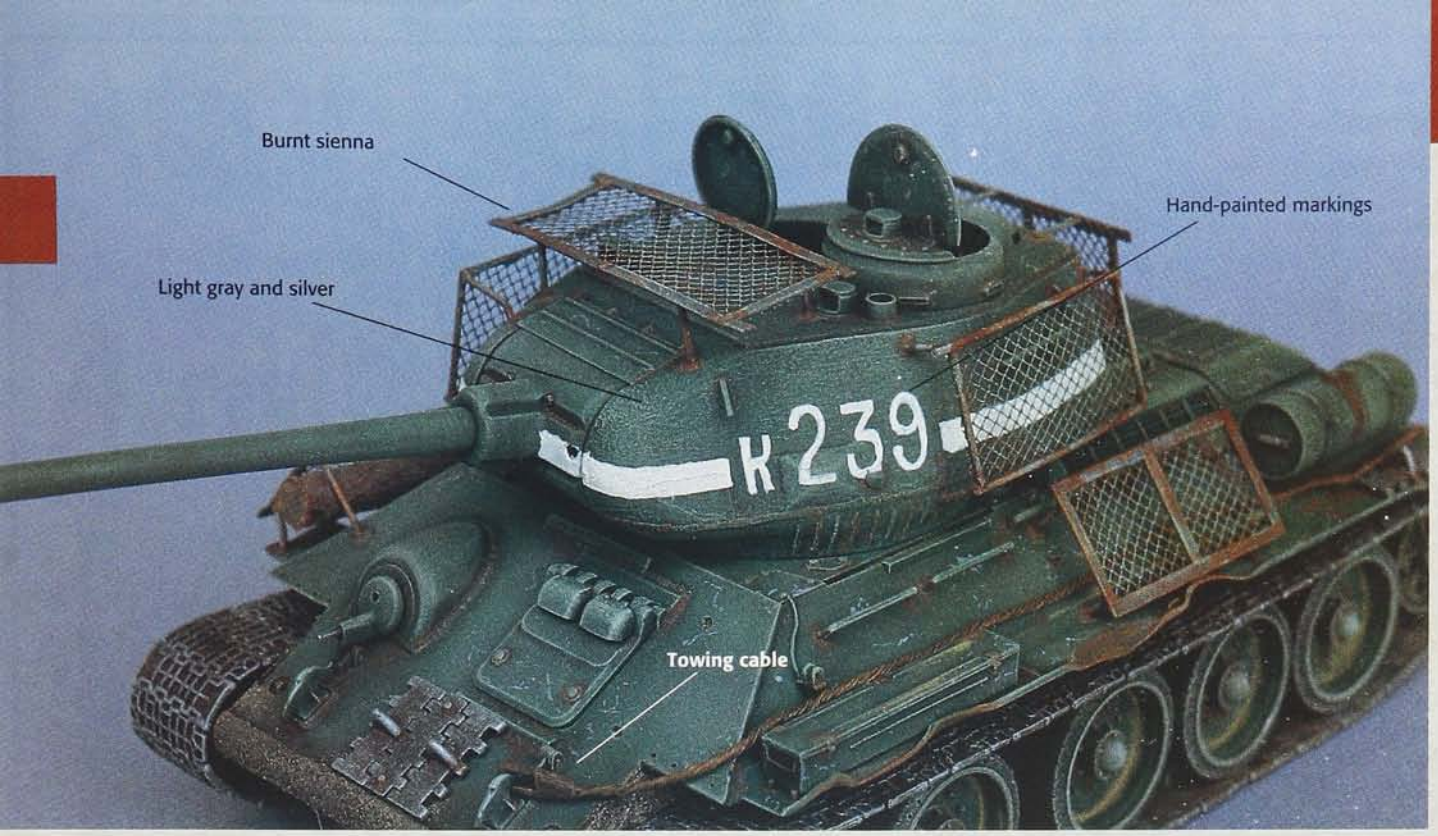
I painted the hull with a 50-50 mix of Humbrol Schwarzgrün 70 (HG1) and sand (HI4), sealed it with a thinned clear flat, and applied a flat-black wash. Finally, I dry-brushed with a lightened shade of the base coat.

Let's not forget to model the weathering and wear. I painted exposed metal with a mix of flat light gray and silver, and rusted surfaces with a thinned burnt sienna oil. The exhaust stain is powdered black watercolor.

I painted the tracks with a mix of Humbrol leather (No. 62) and burnt earth oils. After let-

Step 4: BEDSPRINGS?

To protect against the deadly Panzerfausts (a one-shot German infantry antitank weapon that fired an armor-piercing shaped charge), Soviet crews welded bedsprings to their



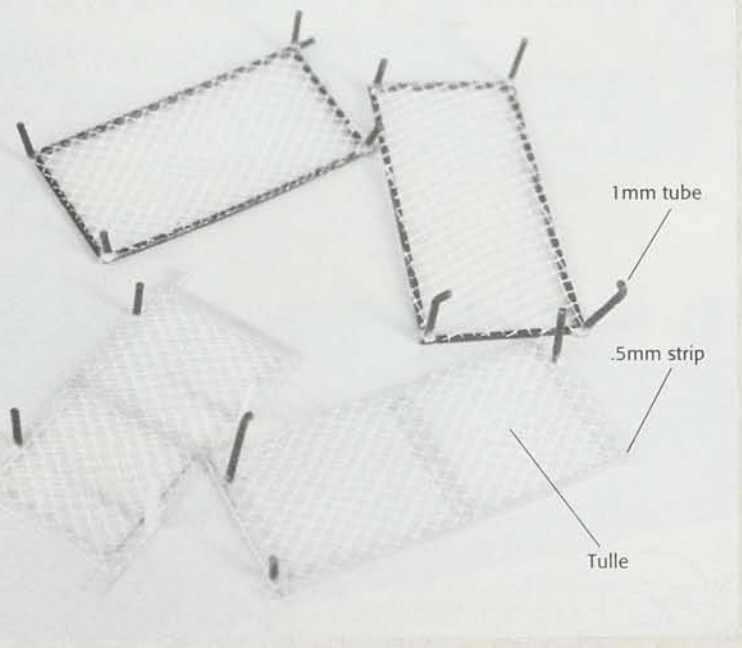
ting them dry for 24 hours I dry-brushed them with Humbrol aluminum (No. 56).

I made the towing cable with stranded electrical wire. I removed the insulation by heating it with a candle, then twisted the individual strands and glued on the Tamiya cable ends. I painted the cable the same color as the tracks, but instead of aluminum I dry-brushed it with leather.

Because the decals I wanted were not available, I hand painted the markings to make my tank a member of the 36th Brigade, 2nd Armored Corps, as it might have appeared in the shattered streets of Berlin in the spring of 1945.

If you want to decorate your tank differently, take a look at Verlinden decal sheet No. 288, "Russian Tank Slogans WWII."

A



B

Author's collection

tanks to detonate the charges before they could strike the hull (**A**).

I made the frames from styrene strips (.5mm) and tubes (1mm). Their dimensions are only approximate, about 37mm x 17mm (**B**). The springs are tulle (bridal veil), super glued to the frame.

I painted the bedsprings a dirty, rusty gray and added touches of rust and metal to replicate the weldings.

This odd-looking but effective add-on armor is easy to build – and it is just such details that make a common model extraordinary!

Checkerboard patterns on model aircraft

How to solve a pesky paint problem

BY BOB STEINBRUNN

CHECKERBOARDS were probably the most distinctive and attractive markings applied to aircraft during World War II. For modelers, however, they are a dilemma. Checkerboard patterns are difficult to replicate, particularly around compound curves. You may have tried decals, hand painting, or masking for airbrushing. If you have been as frustrated as I have, you may want to try the method I use now.

In many cases the checkers were not square, but tapered to fit onto curved surfaces such as the cowling on "Miss Behave," the 1/48 scale P-47 I built. I've had excellent results with what I call the "graph and ink" method. It may not be the easiest way, but it works for me.

There are three basic steps:

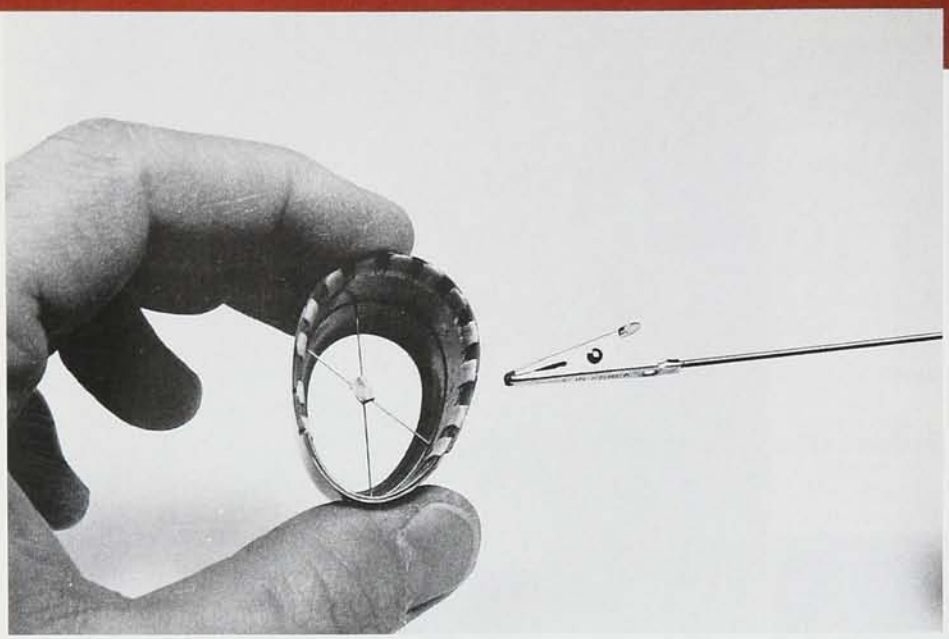
- Paint the cowling the background color.
- Pencil or "graph" in the checkerboard pattern.
- Ink in the squares with a technical drawing pen.

The process is more involved, of course. It's tedious and time-consuming, but you'll be happy with the results long after you've forgotten how much time it took; I spent about 25 hours on my P-47 cowling. This method requires accuracy and a steady hand. The system depends on India ink, so you're limited to black checkers; colored inks don't flow or cover well.

You'll need these tools and materials:

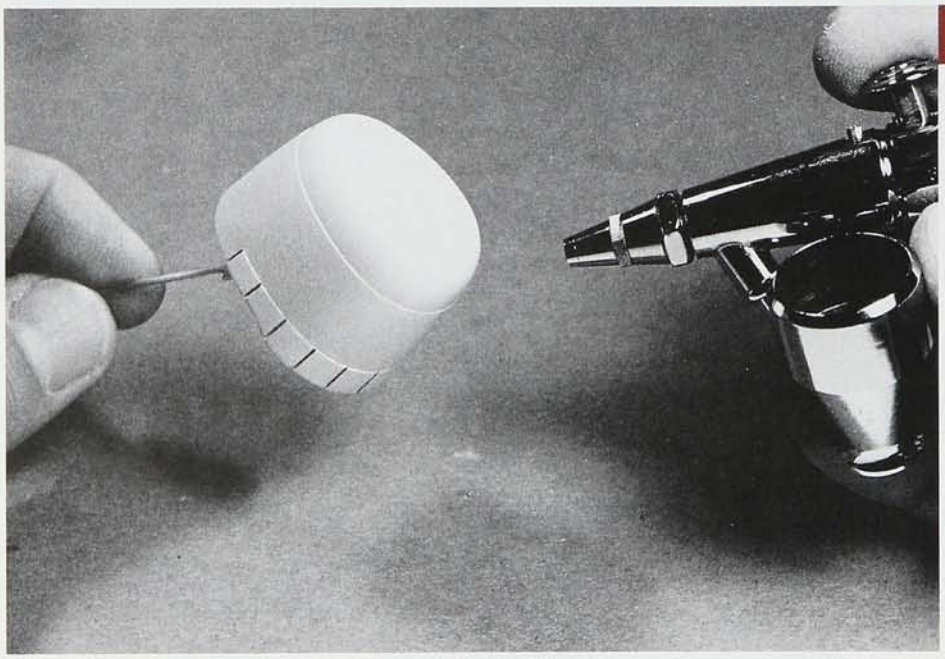
- Metal ruler
- Hobby knife with sharp blade
- Masking tape cut into thin strips (cutting on a glass sheet works well)
- Draftsman's pencil and sharpener
- Technical drawing pen with a clean, fine point (I use a 000 Rapidograph)
- Fresh India ink

Let's get started.



1.

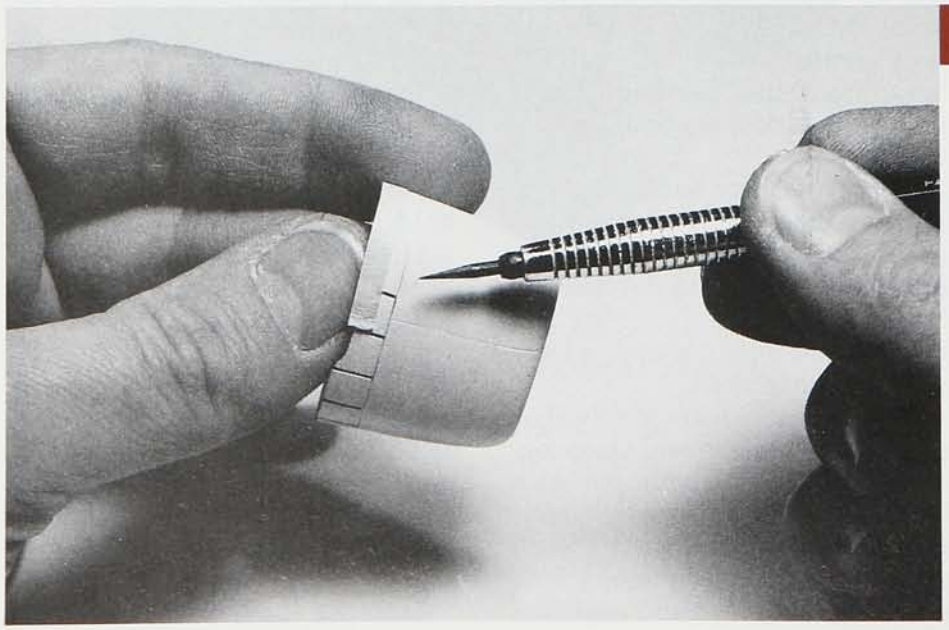
To hold the cowling while airbrushing the base coat, temporarily super glue two pieces of .010" piano wire inside the cowling. Pad the intersection with tape to provide a gripping surface for an alligator clamp mounted on a metal rod. Now you've got a handle.



2.

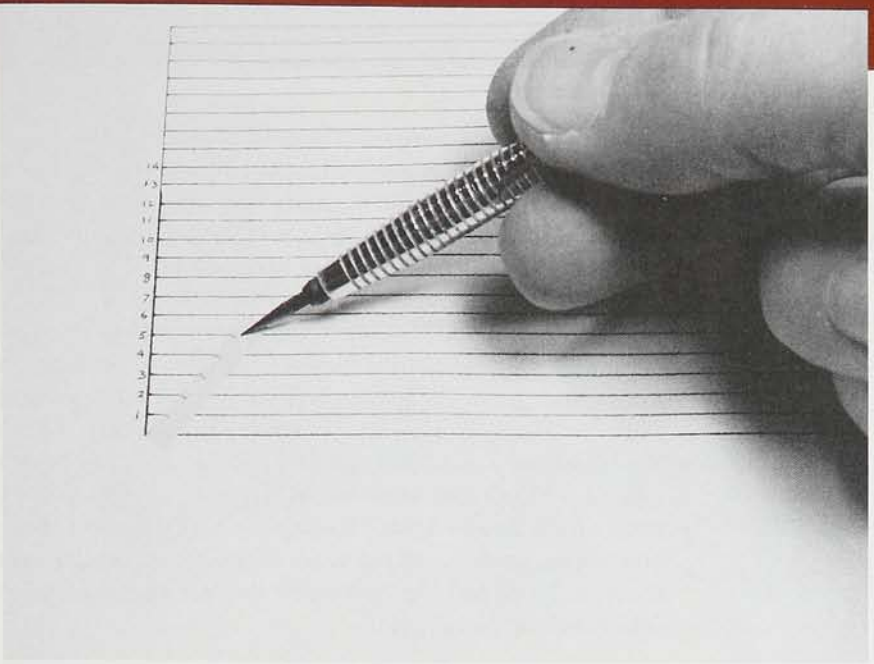
Airbrush the cowling interior zinc chromate. When it's dry, mask the front opening with a paper cutout or masking tape and seal the edges with liquid masking agent or white glue. Airbrush the cowling flat white; apply three or four coats for the best coverage. Follow with a clear flat overcoat to protect the white and to create a finish that can hold pencil lines.

Determine the checkerboard pattern for your model. This P-47 had six columns (from front to back) and 24 rows (around the cowling). That's 144 squares, half (72) to be inked in. Study photos of the real aircraft to determine how the pattern was applied. The top and bottom rows on this aircraft were centered on the cowling.



3.

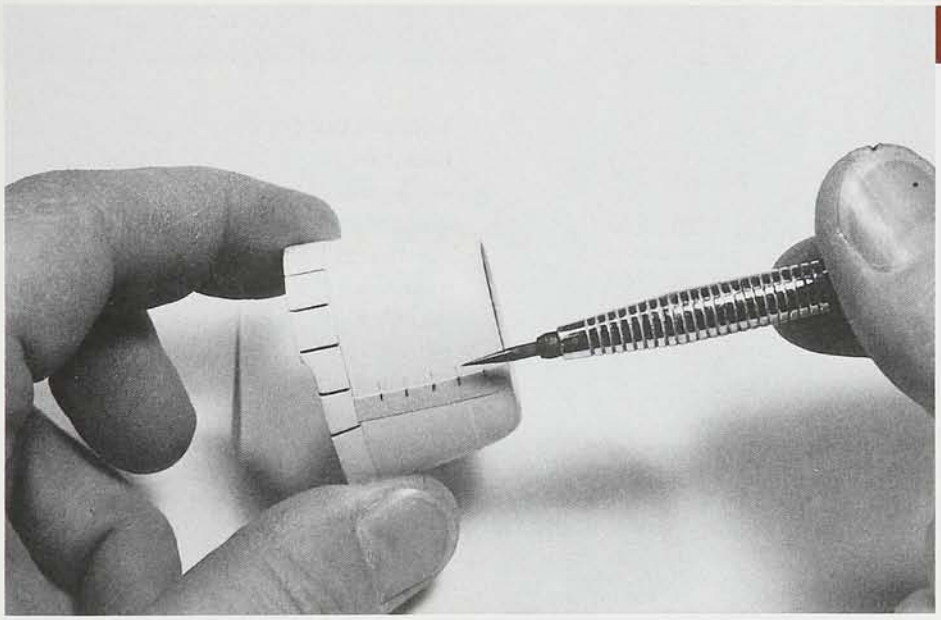
The leading edge of the cowl flaps was the rear edge of the checkerboard pattern. Since there are no flaps on the bottom of the cowl, use a freshly cut tape edge as a guide and draw a pencil line connecting the leading edges of the bottom pair of cowl flaps. This line serves as a reference point.



4.

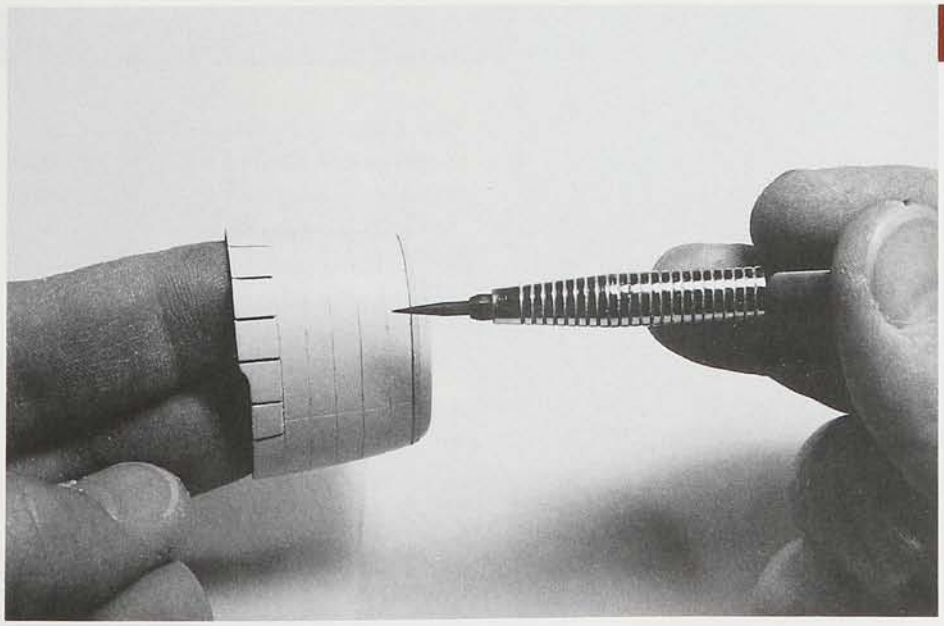
Now it's time to figure out how to subdivide the cowling for the checkerboard pattern. There is no mathematical formula involved, just a simple draftsman's trick. First, draw a simple lined graph with one vertical line and, in this case, 24 horizontal lines about 1/16" apart. Number each line as shown. Now cut a piece of low-tack tape the exact length of the area to be divided. For my P-47, this length is from the leading edge of the cowl flaps to the front edge of the cowling.

Place the tape diagonally over the graph so that one end of the strip is in the corner of the graph and the other end touches line No. 6. With the pencil mark the tape where each line intersects. You now have a measuring device to mark the cowl.



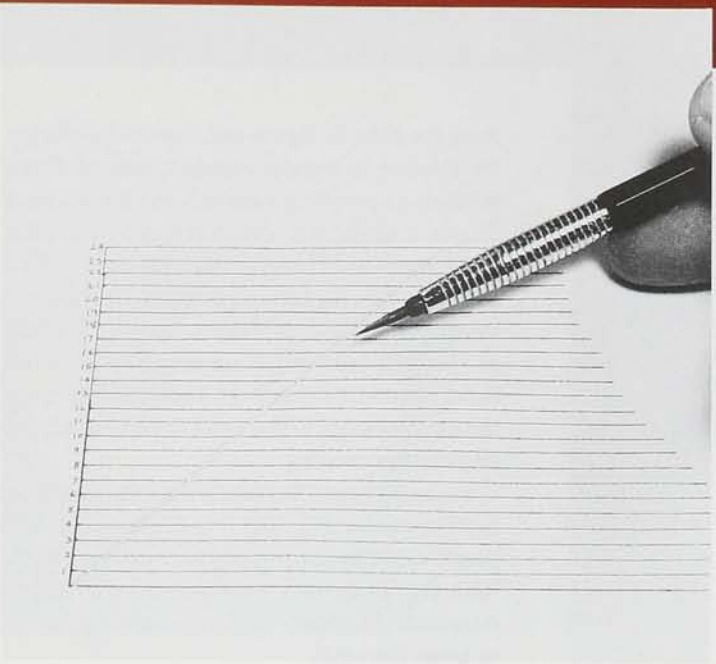
5.

Lay this measuring tape horizontally on the cowl with one end against the leading edge of the cowl flaps. Transfer the pencil marks on the tape to the cowl, and repeat the process about every 1/2" around the cowl. Work carefully and sharpen the pencil point frequently.



6.

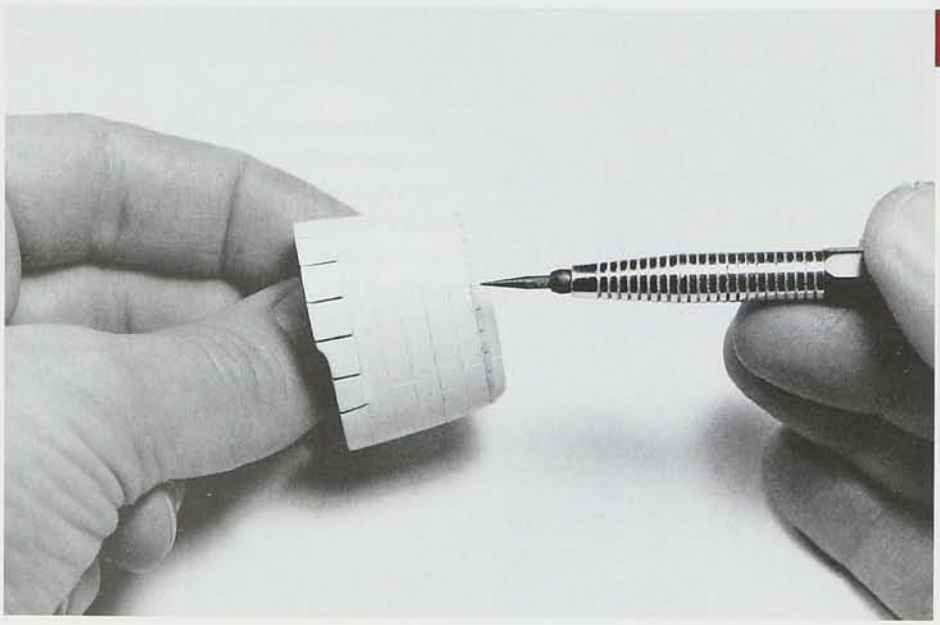
Cut a thin strip of tape long enough to wrap around the cowl. Place it so that it connects all the pencil marks in one vertical column, then lightly draw a pencil line along the edge of the tape. Move the tape and repeat this until you have drawn five rings around the cowl, each connecting the tick marks.



7.

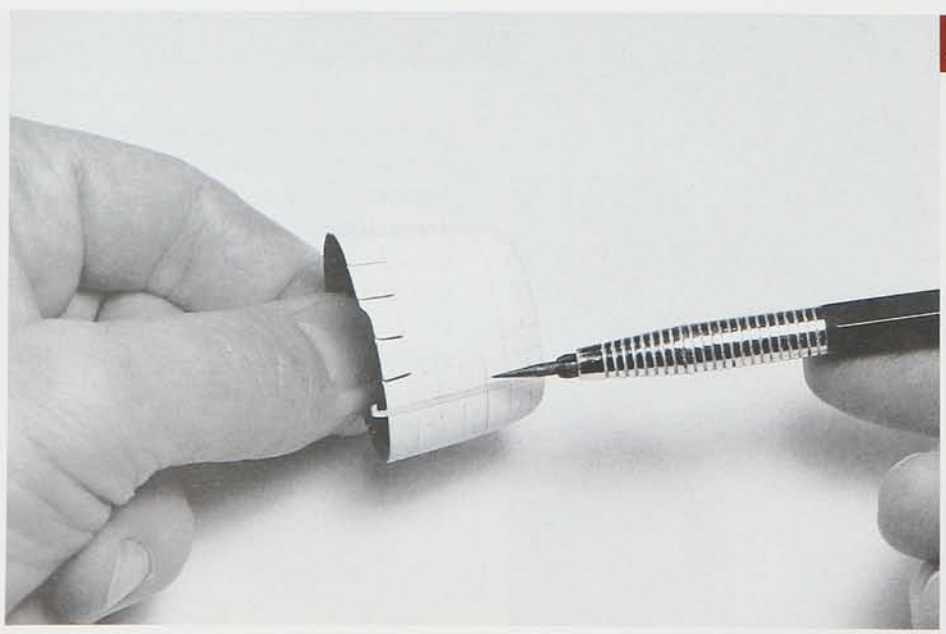
The process for the horizontal lines is similar but with an important difference. Since the cowl tapers slightly, the checks must taper, too. Also, the top row of checks must be centered on the center line of the cowl so the checks will be in the proper position. Determine the top center line of the cowl and lightly draw the line with the pencil guided by a piece of tape.

Next cut a thin strip of tape exactly the circumference of the cowl at the leading edge of the cowl flaps. Place the tape diagonally on the graph so that one end is in the corner and the other is on the 24th line. Mark the tape where it intersects each line. Now you have a measuring guide for the back edge of the back column of checks. Remember that the top row of checks is centered on the cowl, so place the tape so that the center line you drew on the cowl bisects the space between two pencil marks on the tape. OK so far? Lightly transfer the markings onto the cowl with the sharp pencil point.



8.

Because the cowl tapers, create a new measuring tape for each vertical column of checks, all marked off with 24 ticks. The circumference of the cowl becomes smaller as you move forward, so each measuring tape becomes shorter as you go. Align each on the center line as you did with the first and make light ticks on the cowl with the pencil, then remove each tape before making the next.

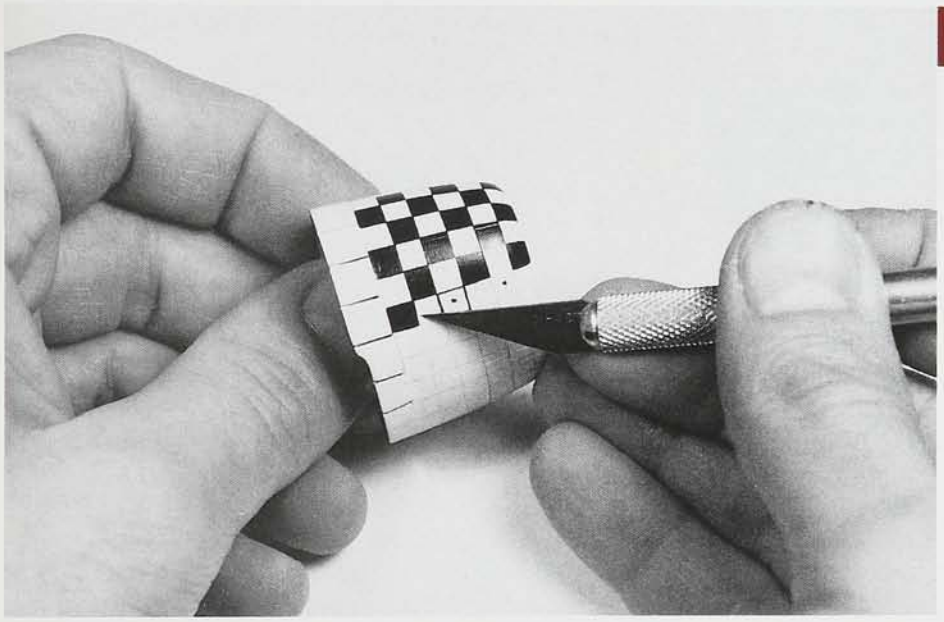


9.

Using tape as a guide, draw lines to connect the tick marks fore to aft. You may need to adjust the tape slightly to correct misalignments. After you draw all 24 lines, you should be able to see the entire checkerboard grid – if you can still focus, that is.

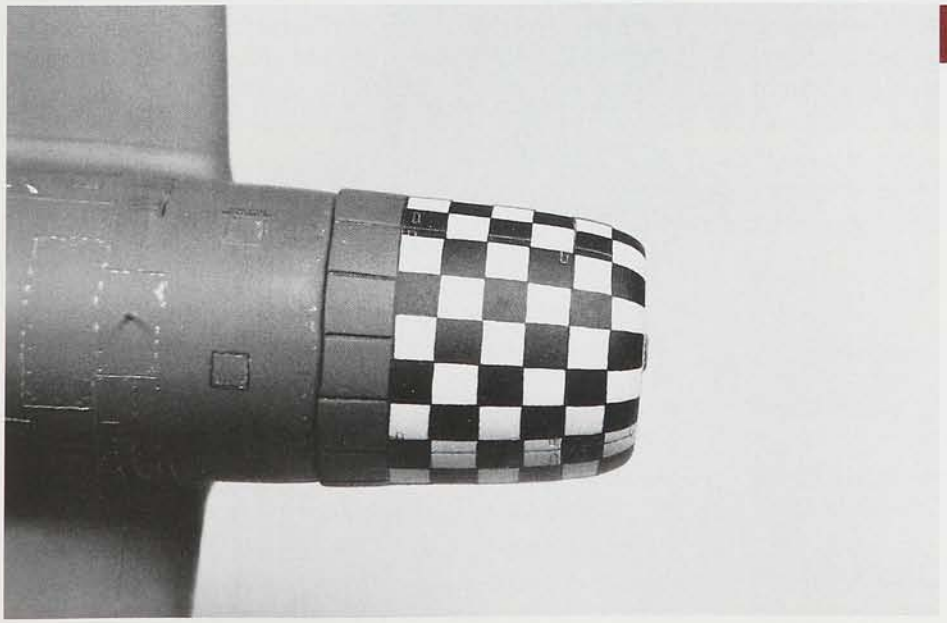
10.

Now comes the fun part. After checking reference photos, use the technical drawing pen to place a dot in the center of each of the 72 soon-to-become-black squares. This will help you keep track of which ones to ink in. Using a straightedge to guide the pen (freehand if you're steady) outline each square, then fill in the center. Use a liberal amount of ink for best coverage. India ink dries in about 30 seconds.



11.

If your pen strays a little, remove the ink by scraping with a sharp No. 11 blade. If you scrape away too much, simply re-ink. The semigloss sheen of the India ink will even out with a clear gloss or flat overcoat.



12.

This view of the top of the cowl shows how the checks are aligned with the center line of the cowl.

That's it! Don't forget you can go back over with the blade and pen to fix mistakes. This graph-and-ink method can work for other surfaces, too, such as tails and fuselage bands. Try it!

P-47s in Europe –The Real "Miss Behave"

A CAREFULLY RESEARCHED MODEL is a miniature snapshot of a real machine at a precise moment in time. "Miss Behave" was a Republic P-47D-22-RE Thunderbolt assigned to the 82nd Fighter Squadron, 78th Fighter Group, 8th Air Force, and based at Duxford, England, in November 1944.

Her USAAF serial number was 42-26387, the second from the last of 850 block 22s built. As such, she was equipped with the round-dome Hamilton Standard Hydromatic paddle-blade propeller, not the tapered-dome Curtiss Electric cuffed-blade propeller normally associated with the "razorback" P-47. The Monogram 1/48 scale razorback kit comes with the Curtiss Electric prop, but the Hamilton Standard prop can be found in its "bubble-top" P-47 kit.

Starting late in 1943, all P-47s were delivered in natural metal finish to save weight and production time. Since air superiority had been achieved over the skies of Europe (more or less), camouflage was felt to be of decreasing value. However, the planned invasion of Europe and the possibility of having to operate fighters from forward air strips on the continent brought about renewed interest in camouflage.

"Miss Behave" and other 78th Fighter Group aircraft were painted in England using British paints. The scheme was Dark Green upper surfaces with Sky "Type S" (S for smooth) underneath. They were not, as often modeled, painted in U.S. Olive Drab and Neutral Gray.

To help distinguish the pudgy P-47 from the similar (at a distance) German Fw 190, the Army painted white stripes on the front of the cowl and the tail surfaces of all camouflaged P-47s. The stripe on the fin and rudder was 12" wide and the stripes on the stabilizers were 18" wide, outlined in black underneath on the 78th Group aircraft to contrast with the Sky camouflage paint. Black I.D. stripes were applied to natural-metal aircraft.

On June 29, 1943, the Army ordered oversize 55" insignias underneath both wings of P-47s as an additional identifying feature.

GROUP AND SQUADRON COLORS

In April 1944, 8th Air Force Fighter Command directed all groups to paint their cowlings in a distinguishing color for easier recognition. The 78th Fighter Group was assigned the black-and-white checkerboard, which did not please the ground crews. They had to apply the markings with elaborate stencils, requiring far more labor than a single color.

"Miss Behave" also carried the last vestiges of D-day markings under her belly. The upper-surface invasion stripes were painted out in July 1944, and the underwing stripes were removed in September.

In November 1944, the 78th Fighter group painted the rudders of its aircraft for squadron identification. "Miss Behave" and the rest of the 82nd squadron's rudders were painted red, while the 83rd's were painted white and the 84th's black. The white tail band could still be seen faintly beneath the red paint on the rudder of "Miss Behave." Her white codes were MX (squadron) and W (individual aircraft). The bar below the W indicated that this was the second aircraft in the squadron with this letter.

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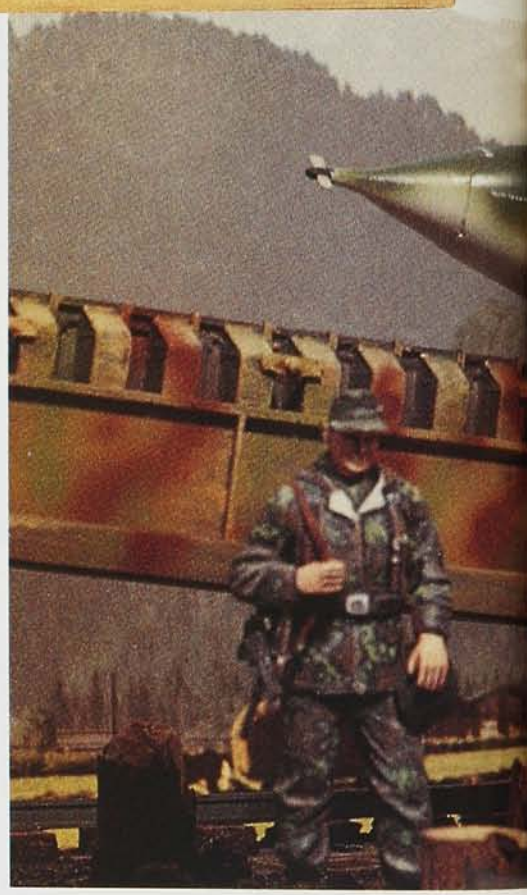
Modeling Germany's V1 buzz bomb

One of the best known of Germany's terror weapons was the Fieseler Fi 103, also known as the V1, Buzz Bomb, or Doodlebug by the British. It carried nearly a ton of high explosives for 149 miles. Steve's model features a realistic setting, a figure for scale reference, and a scratchbuilt steam-generator trolley.



BY STEVE ZALOGA

I HAVE LONG BEEN interested in missile history, so I hastily placed an order when Accurate Armour announced a V1 in 1/35 scale.It's a fine kit, but it can be made even better. This article will help you build this and other V1 kits and will cover marking and base details.

Accurate Armour's resin missile has good detail, but the most prominent element of the kit is a portion of the massive Walter WR 2.3 Schlitzrohrschleuder transportable catapult rail launcher. The real launchers had from six to eight sections, and Accurate provides three; good thing, or the model would have measured about 40" long and cost a small fortune. (As it is, the kit retails in the United States for about $160.) I decided to build mine with only two sections, the base and one extension, a comfortably sized display.

Accurate's missile captured the fuselage shape and wing thickness well, but the mold halves were slightly misaligned when the resin was cast, resulting in a prominent seam line on either side. Filing and sanding this away could produce an oval, rather than circular, cross section to the fuselage, so I proceeded with caution. My sample's castings had a slightly grainy texture, and sanding this smooth eliminated some of the fine engraved panel lines. I ended up rescribing some of the detail.

The pulse-jet engine, wings, and tail surfaces required little cleanup. It would have been impossible for the exhaust tube of the pulse jet to be molded hollow, so Accurate sensibly indented the opening. I started opening it with an electric drill with a 1/4" bit then followed with smaller bits in a motor tool. The resin was soft, so the cutting was easy but messy.

The kit provided simple mounting plugs for the wing and tail surfaces, but the wing mounts looked feeble, so I drilled holes in the wing and the fuselage and inserted brass rod to reinforce the joints.

NOW THE HARD PART

I made the base from a 7" x 14" piece of 1/2"-thick sound board left over from a bedroom remodeling project. Sound board is a composite material made from compressed paper pulp. It's easy to cut, fairly dense, and inexpensive.

I usually build small diorama bases to fit into premade picture

and launcher in 1/35 scale

A realistic resin replica of the first Nazi terror weapon

frames, but the long, narrow shape of the V1 and launcher dictated a new approach. I made my own base frame from 1/2"-deep L-shaped pine molding with the corners cut in an X-Acto miter box. One side of the L can be hidden under the base, or if you wish, overlap the top.

I glued the wood trim to the sound board with yellow carpenter's glue and used masking tape to hold the base together while the glue dried.

LAUNCH RAIL IMPROVEMENTS

Perhaps the most tedious job of the project was removing a huge block of resin from the base of each of the catapult sections. The initial launcher section in my sample was warped, and even the recommended hot-water treatment wouldn't straighten it out. Fortunately, it's not obvious on the finished model.

The kit instructions don't show the shape or size of the concrete slab that supported the catapult launcher. My references were

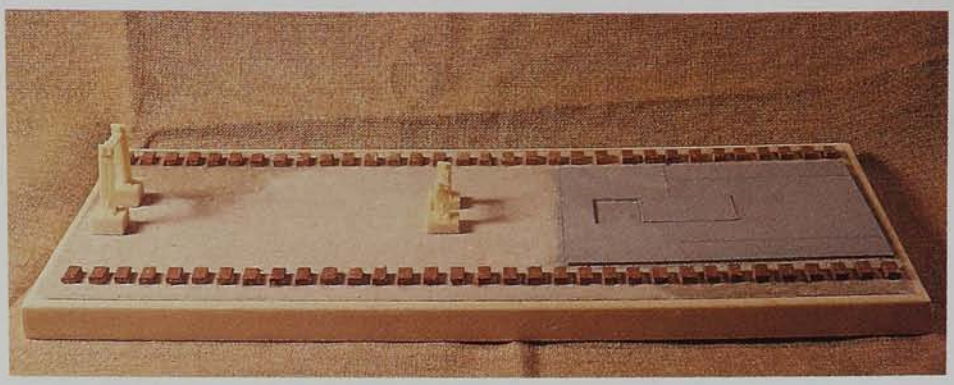


Fig. 1. The diorama base ready to paint. Steve used matt board for the concrete slab. The rail ties are made of basswood and the girder pedestals are from the Accurate Armour kit.

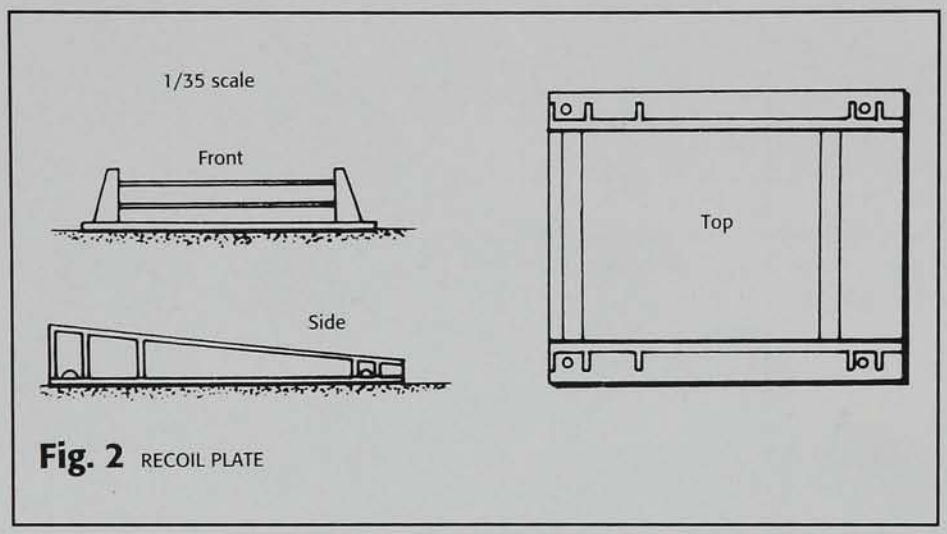


Fig. 2 RECOIL PLATE

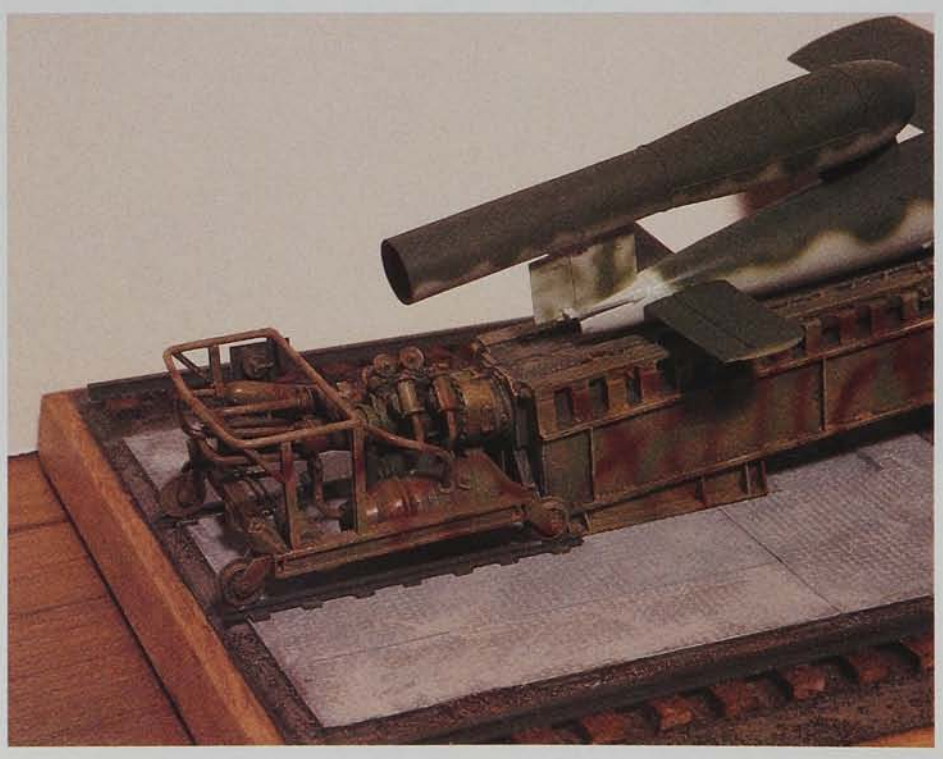


Fig. 3. Steve scratchbuilt the steam-generator trolley from sheet styrene and plastic rod.

either incomplete or contradictory, but the Grenneville book (see page 69) has a plan of the concrete launch pad. The normal pads were 13' wide (115mm or 4¼" in 1/35 scale) and extended back toward the assembly sheds. There was a small drainage channel behind the launcher, but this was too far back to be included on my diorama base.

I made my slab from scrap matt board. This 1/16"-thick cardboard gives the pad texture and a bit of separation from the ground, Fig. 1.

The end of the launcher rested on a recoil plate that transmitted the shock of the launching to the concrete base plate. Views of this recoil plate are rare; the only clear photo I found was on page 103 of the Young book. My scale drawing is based on that photo, and I made my plate with .030" sheet styrene, Fig. 2.

I dry-mounted the launch rail with the girder pedestals and recoil plate to make certain that they mated properly. The launch rail is elevated 6 degrees; I had to trim the blocks at the base of the girder pedestals to get everything to line up properly.

Several years ago I examined the only known surviving example of the Walter WR 2.3 catapult at the Imperial War Museum collection at Duxford, England. I took several photos of it, though I would have taken more had I realized I would be involved in this modeling project years later! I concluded from my research that the steam-generator trolley would be a critical ingredient in a diorama of a V1 ready for launch, but I never could find accurate scale plans of the trolley, and I hadn't taken measurements at Duxford. So the trolley I assembled from sheet styrene and plastic tubing is a close guess, Fig. 3. I simplified some shapes, otherwise it would have taken months to complete.

The trolley was pushed up to the end of the catapult on Deauville track, a narrow-gauge railroad track used at industrial sites. I made this with Plastruct I beams and small squares of .010" sheet plastic for the mounting plates

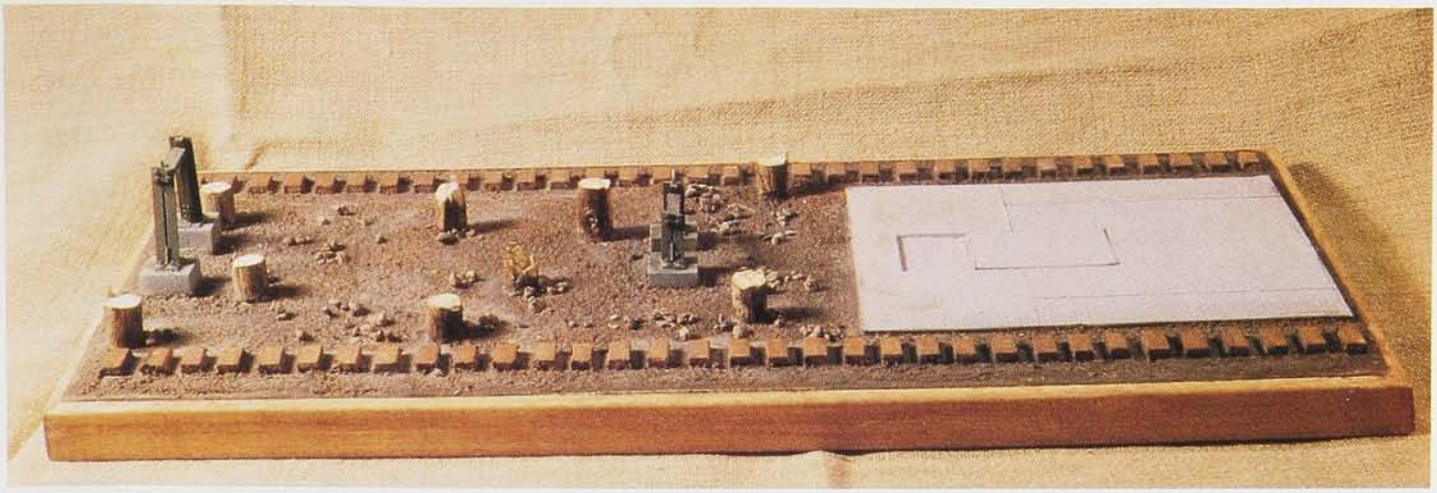


Fig. 4. Twigs were used for the stumps around the launcher. Steve uses acrylic wallpaper paste for groundwork, then sprinkles on Woodland Scenics ballast and cat litter for texture.

which fit into depressions cast into the base.

NATURAL SURROUNDINGS

Many of these launchers were assembled in wooded areas where trees could hide them from roving Allied fighter-bombers. I made stumps from tree branches of suitable diameter. Use old, dry branches rather than live, green ones. I peeled away the overscale bark and replaced it with a mix of black paint and medium brown wood stain. I secured the stumps to the base with carpenter's glue, Fig. 4.

I decided to add the outer crane tracks to the base. These were used early in the construction of V1 launch sites to guide a large overhead crane used in assembling the catapult. They were simple railroad rail on short ties. I made the ties from basswood and the rails from Plastruct I beams. I couldn't see how the rails were attached to the ties in the photos, so I didn't add any hardware. At this point I attached the girder pedestals for the catapult to the diorama base with silicone bathroom adhesive.

PASTY EARTH

Vinyl wallpaper paste gives the base texture. This is an acrylic paste similar to spackling compound, but stickier. I use this or spackling compound to provide the first coat of natural material for the base. I mixed a small container of the paste with Vandyke Brown artist's gouache to get a dark earth color. This works better than painting the groundwork, and if my base is chipped, I won't have to retouch.

I applied the brown paste with an old brush and my fingers, building it up thicker around the base of the tree stumps to suggest roots. A top coat of paste and carpenter's glue thinned with water served as the adhesive for a mixture of Woodland Scenics dark brown ballast and clay cat litter. This produced a gritty texture punctuated with cat litter rocks.

Finally, I mixed oregano leaves, carpenter's glue, and water, and dabbed little heaps of the leaves around the scene to simulate dead vegetation. Once the entire base was dry, I dry-brushed the ground with light earth shades to give it a dry look. I tried to keep the overall base color fairly dark to represent the soil of a wooded area.

PAINTING THE MISSILE AND LAUNCHER

It isn't clear what color the Walter launcher was painted. The Duxford example wears a mustard and green pattern reminiscent of German armor camouflage. This seemed as plausible as anything.

I first airbrushed the launcher and starter trolley with Floquil Pullman Green to produce a used and grungy appearance. I dry-brushed the entire model flat Wehrmacht yellow made by mixing Testor flat mustard-yellow and sand enamels. Adding zinc white oil paint to that mixture, I dry-brushed the highlights. After allowing the enamels a few days to dry, I airbrushed Gunze Sangyo dark green and red brown acrylics for the camouflage colors. The Gunze Sangyo Aqueous colors are perfect for replicating sprayed-on German finishes.

The Young book and Monogram profile give detailed accounts of V1 paint schemes. Photos of captured V1s show a wide range of mangy-looking paint finishes. Part of the confusion over precise paint schemes is that final assembly of V1s occurred shortly before launch, so the individual components might come from different sources with different paint patterns.

I decided to stick to a conventional scheme of Dunkelgrun 71 over Hellblau 65 with a wavy demarcation line. I used Gunze Sangyo Aqueous colors since they produce a semigloss sheen that will accept decals.

No decals came in the Accurate Armour kit, so I used various German stencils from my spare decal box which were roughly the right size and shape. The markings were generally black on the light blue and white on the dark green. No national insignia or swastikas were carried.

As a finishing touch, I added a

The Imperial War Museum's V1 is the only example with the Walter catapult launcher. The steam-generator trolley is posed at the rear of the catapult. The dumbell-shaped piston (lying on the ground) was pushed through the catapult cylinder by a chemical reaction.

A close-up of the steam-generator trolley reveals chemical cylinders, valves, and pipes. Note stenciling on the V1.

BUZZ BOMB!

The Fieseler Fi 103, better known as the V1 Buzz Bomb, was the first successful cruise missile. It was a primitive ancestor of the Tomahawk that figured prominently in the 1991 Gulf War.

Gyroscopically stabilized and guided by an internal compass, the V1 would "buzz" along on its pulse-jet engine until the small nose-mounted airscrew had rotated the requisite amount, cutting off the fuel supply. The bomb then would fall to earth with its 1,870-lb warhead. V1s were aimed at various targets, but most fell on London and Antwerp, Belgium.

More than 30,000 V1s were produced during the war, but less than a third of those launched reached their targets. Launch mishaps and systems failures caused many to crash shortly after takeoff. Their relatively slow speed (400 mph) and low cruise altitude (less than 9,000 feet) made them vulnerable to Allied AAA and fighters. Nearly 1,200 V1s were launched from Heinkel He 111 bombers, but only 65 of them hit London – at the cost of 77 launch aircraft.

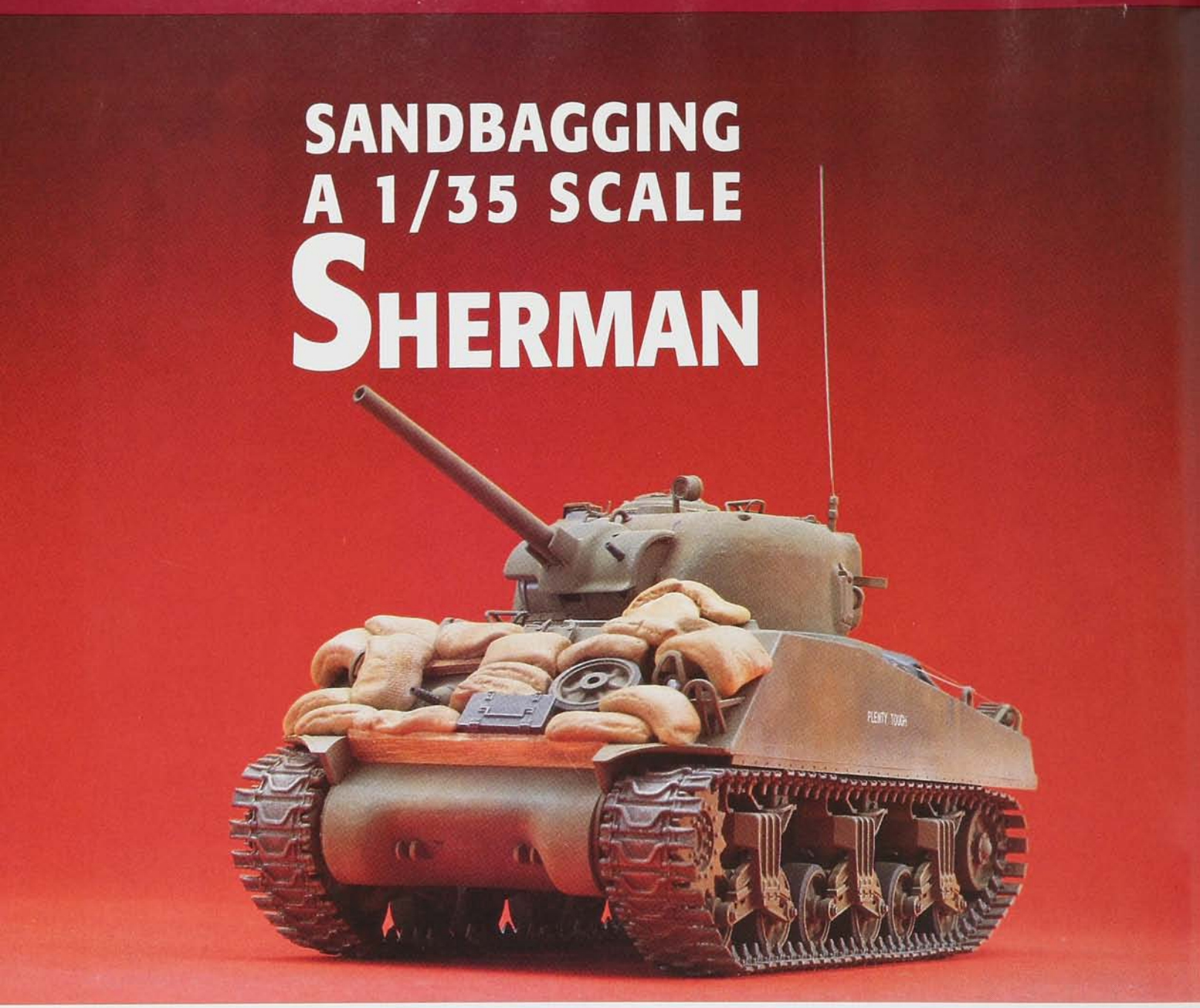
The Fi 103 was powered by a simple Argus pulse-jet engine. Unlike more conventional turbojet engines, there were no internal fan blades to move the air through the engine. It needed a forward boost before it could function.

THE WALTER WR 2.3 CATAPULT

To launch the missile, hydrogen peroxide and sodium permanganate stored on a trolley attached to the rear of the catapult would be injected into a steam chamber. (The trolley was called the Dampferzeuger, also known by its code name Kinderwagen – baby stroller.) This chemical reaction drove a barbell-shaped piston along the length of the catapult, carrying the V1 with it. The piston would fall away at the end of the rail, and the missile would be moving fast enough to start the pulse jet.

The first V1 launch sites erected in France in 1944 were elaborate, hardened-concrete structures. Expensive and time-consuming to build, they attracted the attention of Allied bombers, so the Germans developed a cheaper and less conspicuous alternative. The new wooded sites required little structure, and all the launch equipment was transportable. A V1 unit could quickly erect the launcher, fire several missiles, then dismantle and move the equipment before Allied planes could retaliate.

SANDBAGGING A 1/35 SCALE SHERMAN



Sandbags are easy to model with epoxy putty – and stowing them on the hull gives this Tamiya M4A3 character. Jim Forbes photo.

by JIM ZESKE

AMERICAN TANKS overwhelmed Germany's Panzer Korps by sheer numerical strength. Shermans were no match for German Tigers – but Allied tanks outnumbered Germany's, 10-to-1.

The Sherman's vulnerability to German firepower drove American crews to desperate countermeasures. Sherman hulls sported anything that might detonate enemy shells away from the hull and prevent them from penetrating – including stacks of sandbags.

The bags were held in place by field-fitted retainers. Some units built elaborate metal cages, others simply stacked the bags against sticks of wood or metal jammed between the front fenders.

I chose the latter style of retainer, cutting a balsa strip to fit a Tamiya 1/35 scale M4A3 (kit No. 35122).

Once you've made a retainer, you need only add sandbags. You can buy them, either with kits or as aftermarket items, but why not make your own?

I make sandbags from A+B two-part epoxy putty. The slow-setting "regular" A+B hardens in 30 minutes, allowing time to work. You can lengthen the curing time by chilling the putty. Conversely, you can speed the process by warming the putty with a heat lamp or hair dryer.

Other brands of epoxy putty will work as well. Check your local hobby shop or a hardware store's plumbing department before contacting the sources listed at the end of this article.

EXTRA PROTECTION

With the Sherman's October 1942 combat debut in North Africa, its crews realized their armor was far from impenetrable. Built to withstand 1940-vintage tank and antitank guns, the Sherman instead encountered high-velocity weapons that could penetrate it easily.

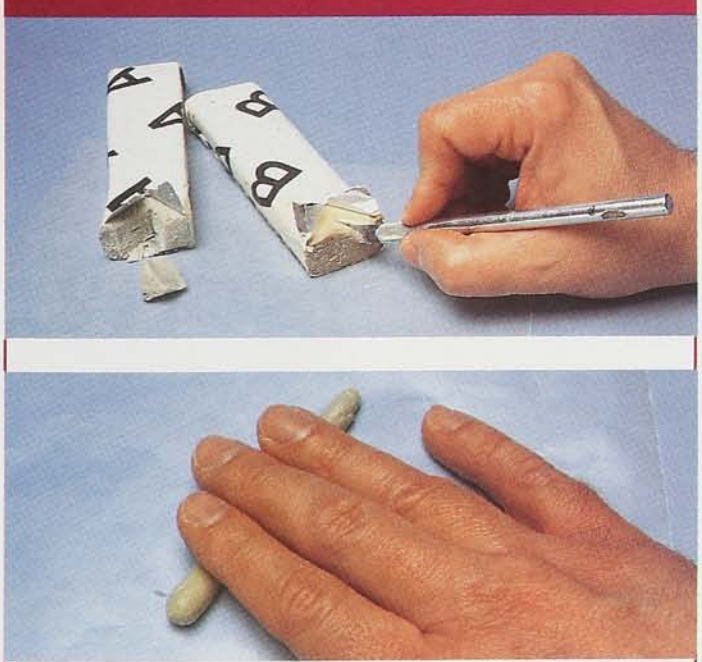
To be fair, Sherman designers had to allow for the weight restrictions of ship cranes (35 tons) and the U.S. Army's early-war portable bridging. And they were under pressure to produce the new tanks quickly. The armor was deemed adequate.

Manufacturers attempted to increase survivability by welding 1"-thick appliqué armor plates over the most vulnerable areas, such as ammunition stowage racks, bow hatches, and the right turret front/gunner's position. Cast-hull thicknesses were increased selectively, and heavier plate was used on welded hulls, but with little effect.

Sherman crews took matters into their own hands, rigging every type of extra protection imaginable. These would include overlays of spare track (any track!), sandbags, wood planking, bed springs, welded-on sections of cannibalized armor, stacked log siding, and complete glacis-overlay kits of 1"-thick plate.

The above late-war photo shows a heavily protected M4A3(76)W near the Rhine River. Allied commanders, notably Gen. George S. Patton, frowned on such innovations because they hampered tank performance and showed dissatisfaction with American equipment. However, the tank crews seemed determined to put survival first. – *GEORGE R. BRADFORD*

1. ROLL IT.



Knead the two parts of putty together, then roll it into a ¼"-thick rope. Waxed paper makes a good non-stick work surface.

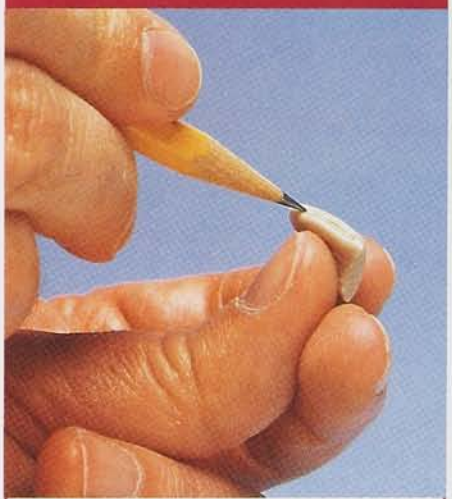
2. SQUASH IT.

Use a hobby-knife handle or any other smooth cylindrical object to flatten the rolled putty into a ½"-wide strip.

3. CUT IT UP.

Cut the flattened putty into ½" squares. These will become the individual bags.

4. MAKE SEAMS.

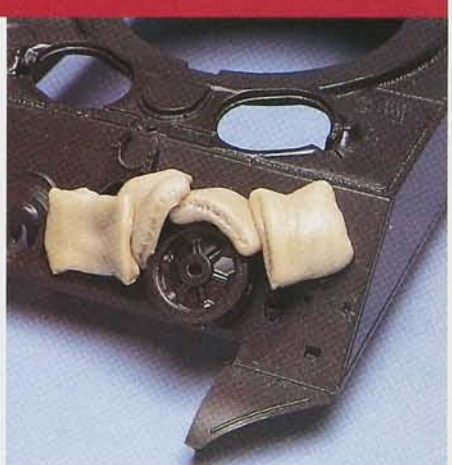


Use a sharp pencil to jab a line of tiny holes on the edges of the bag to replicate seams.

5. IMPRESSIVE CLOTH TEXTURE.

The putty will be smooth and shiny when it dries – not the look you want for sandbags. Gently press the bag with cloth to leave a pattern in the still-soft putty – and to prevent it from shining later.

6. NOW FOR THE FUN!



How you pose the bags determines how convincing they are. You can stow sandbags either before or after painting the rest of the model. A spare road wheel on the hull is a good place to drape bags for extra realism.

After I positioned the sandbags I let them dry for a day, then airbrushed them with Polly S dirt (No. 500069) acrylic paint.

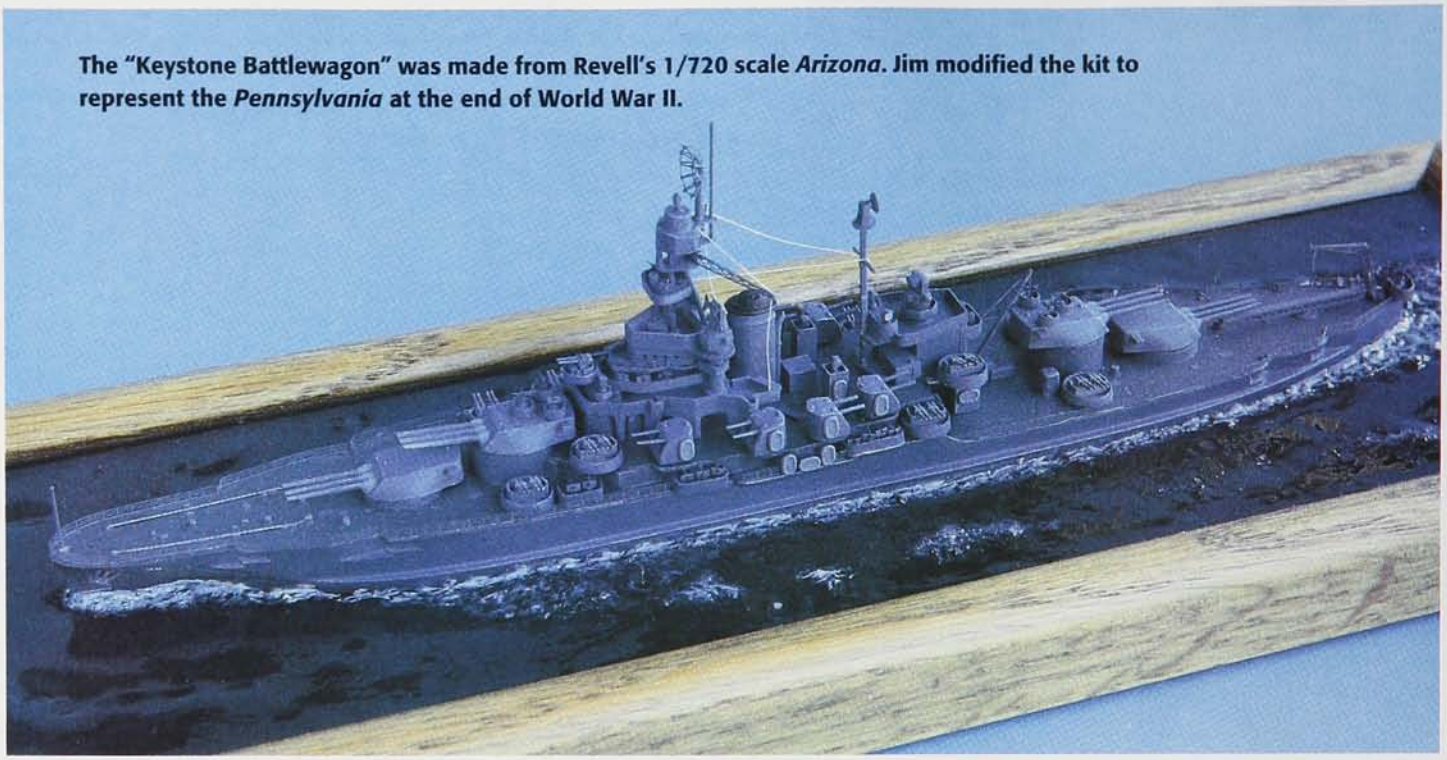
While I had the airbrush out I simulated the painting out of the American star insignia (said to be a good aiming point for enemy gunners). It was another way of showing that this tank's crew was a veteran group using all the tricks to win!

SOURCES

■ **A+B epoxy putty:** available from Creations Unlimited, 2011 Plainfield Ave. NE, Grand Rapids, MI 49505

■ **Milliput epoxy putty:** available from VLS, 811 Lone Star Drive, O'Fallon, MO 63366, ✆314-281-5700

■ **Polly S acrylic paints:** Floquil-Polly S Color Corp., 4715 State Highway 30, Amsterdam, NY 12010-9204, ✆518-843-3610



The "Keystone Battlewagon" was made from Revell's 1/720 scale *Arizona*. Jim modified the kit to represent the *Pennsylvania* at the end of World War II.

USS *Pennsylvania* - 1945

Converting Revell's 1/720 scale *Arizona* to its surviving sister ship

by JIM KLOEK

THE APPEARANCE of warships changed dramatically as World War II wore on. New armament, radar equipment, and paint schemes were just part of the process of updating a ship for battle against ever-improving enemy weapons.

Among the U.S. Navy's battleships launched before World War I were *Pennsylvania* and its ill-fated sister ship *Arizona*. Although newer and better battleships had been commissioned, these and other similar vessels were still front-line equipment when WWII broke out.

Pennsylvania survived the war, and by 1945 looked different than it and *Arizona* did at Pearl Harbor on Dec. 7, 1941.

I wanted to add a late-war *Pennsylvania* to my 1/700 scale waterline ship collection, but no kit was available. The only logical move was to update Revell's 1/720 scale *Arizona*. (Ship models in 1/720 scale are only three percent smaller than 1/700 scale.)

I obtained plans of the *Pennsylvania* from Floating Drydock, and with several Skywave Weapons sets (SW-700), Gold Medal Models photoetched parts (Nos. 700-3, 700-7, and 700-20), and my spares box, I got down to business.

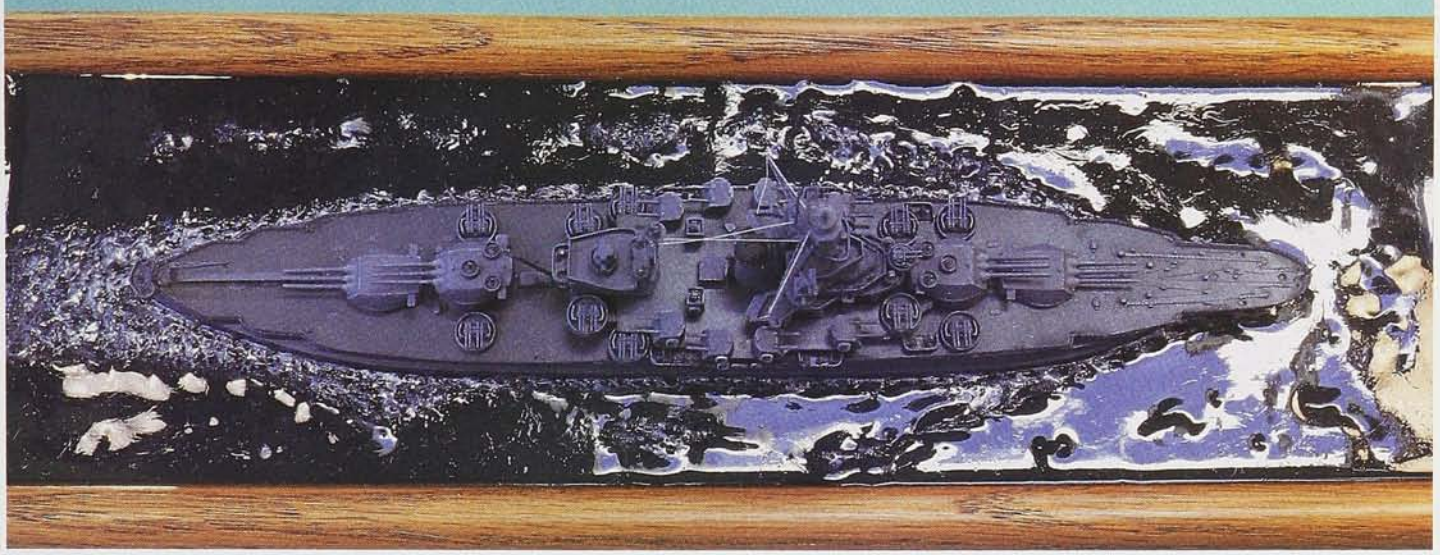
REFERENCES

- ***Keystone Battlewagon***, Myron J. Smith Jr., Pictorial Histories Publishing Co., Charleston, West Virginia, 1983
- ***U.S. Battleships, An Illustrated Design History***, Norman Friedman, Naval Institute Press, Annapolis, Maryland, 1985
- ***U.S. Battleships in Action, Part 1***, Robert C. Stern, Squadron/Signal Publications, Carrollton, Texas, 1980

SOURCES

- **Skywave weapons sets:** The Naval Base, 558 Willow Ave., Cedarhurst, NY 11516, ✆516-295-9525
- **Photoetched parts:** Gold Medal Models, 12332 Chapman Ave., No. 81, Garden Grove, CA 92640
- **Ship plans:** No. G-BB38, The Floating Drydock, c/o General Delivery, Kresgeville, PA 18333, fax 610-381-2001

An overhead view shows the layout of the secondary battery and antiaircraft guns that were added in late 1942-early 1943. Jim posed the battleship in a sea of polyester resin.



Step 1: HULL AND DECKS

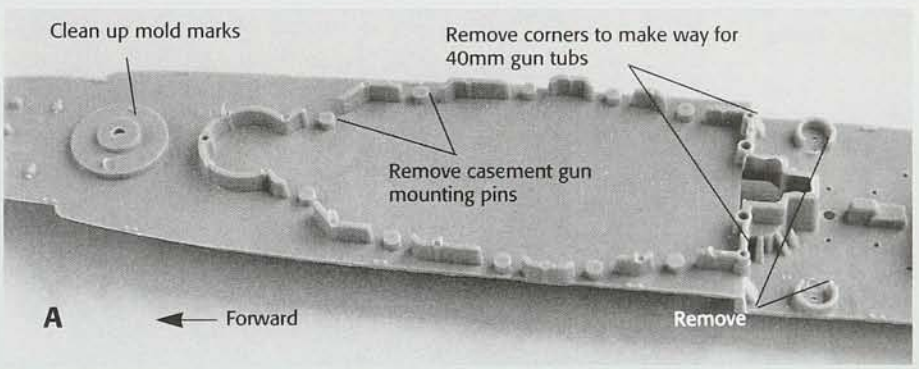
I built the model in subassemblies from the bottom up.

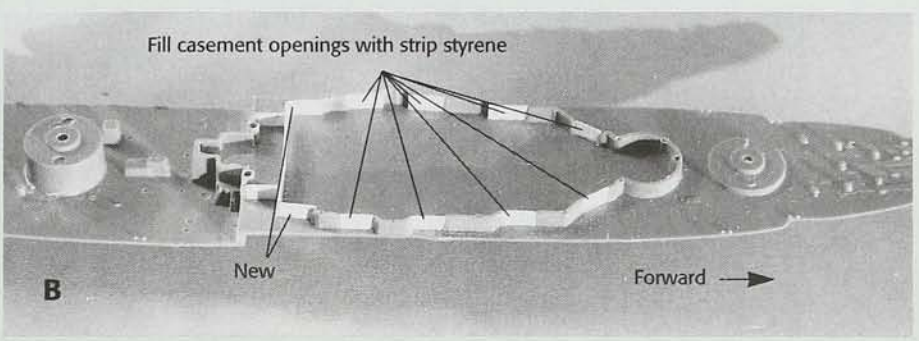
I filed away the portholes and anchors from the hull sides. Next I removed the mounting pins for the casemate guns on the main deck, the winches next to the aft barbettes, and the AA gun tubs from the aft deck (**A**). I removed the anchor chains and cleaned up the flash and other mold marks.

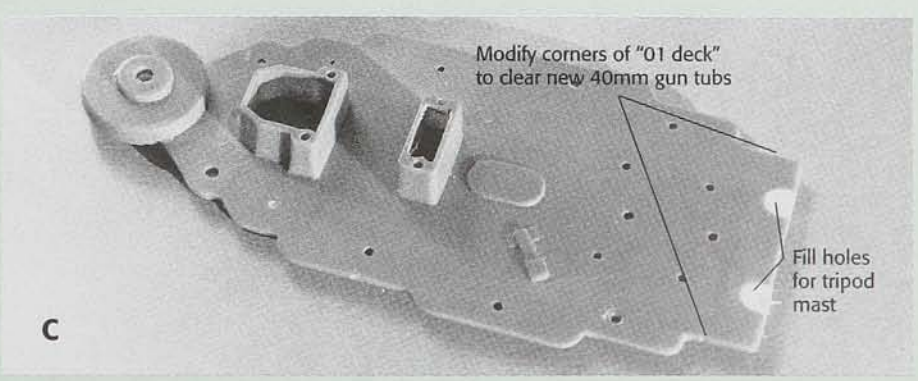
The aft corners of the main deck house had to be removed to make room for a new pair of 40mm gun tubs. I used strip styrene to fill the casemate openings and build the new corners (**B**).

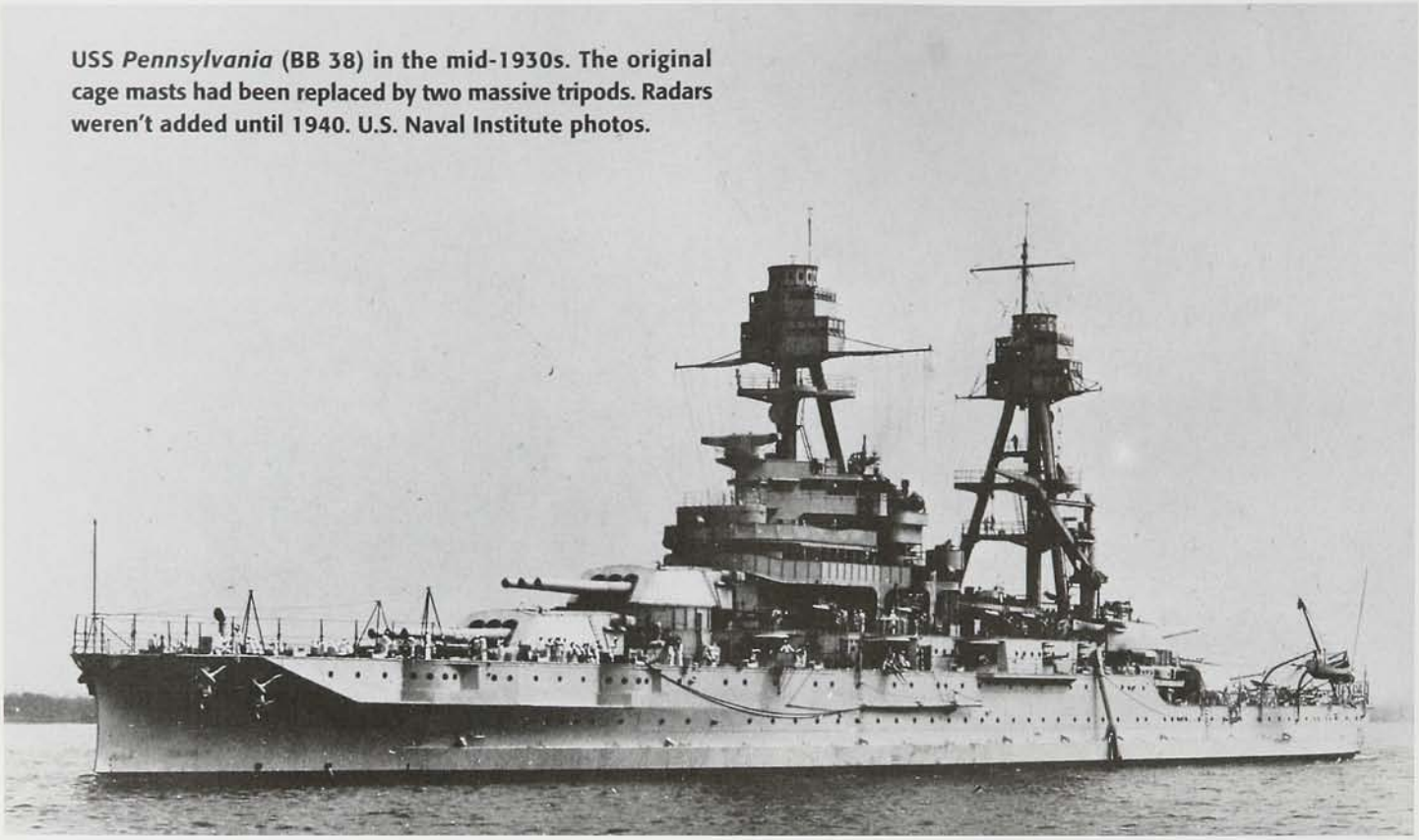
I removed all of the splinter shields and other detail from the superstructure deck (**C**). I filled the holes, then cut the aft corners to match those below to make room for the new 40mm mounts. The aft edge of this deck was squared off, so I removed the extensions and filled the holes for the old tripod mainmast.

The hull and decks were assembled, seams filled, and this subassembly was set aside.









USS *Pennsylvania* (BB 38) in the mid-1930s. The original cage masts had been replaced by two massive tripods. Radars weren't added until 1940. U.S. Naval Institute photos.

After the war, the *Pennsylvania* was partially stripped and sent to the Bikini Atoll to serve as a target for atomic blasts. Here it sails slowly to its fate with two portside twin 5-inch 38-caliber turrets removed and several "quad 40s" missing. The two obsolete Kingfishers on the fantail are cocooned.

Pearl Harbor Survivor

THE KEEL OF USS *PENNSYLVANIA* (BB 38) was laid down Oct. 27, 1913, and the ship was launched March 16, 1915. The "Keystone Battlewagon" was commissioned on June 12, 1916. Its sister ship, USS *Arizona*, was commissioned Oct. 17, 1916. The main battery on these ships comprised four triple 14-inch 45-caliber turrets, complemented by 22 5-inch 51-caliber guns in armored casemates around the hull.

The ships did not participate in World War I. They were driven by oil-fired steam turbines as opposed to the standard coal burners, and at the time, the U.S. Navy lacked fleet oilers for refueling at sea.

On Dec. 7, 1941, the *Pennsylvania* was in dry dock at Pearl Harbor. Its gunners fired more antiaircraft rounds than any other ship in the harbor. Casualties included 15 killed, 38 wounded, and 14 missing, but structural damage was minor.

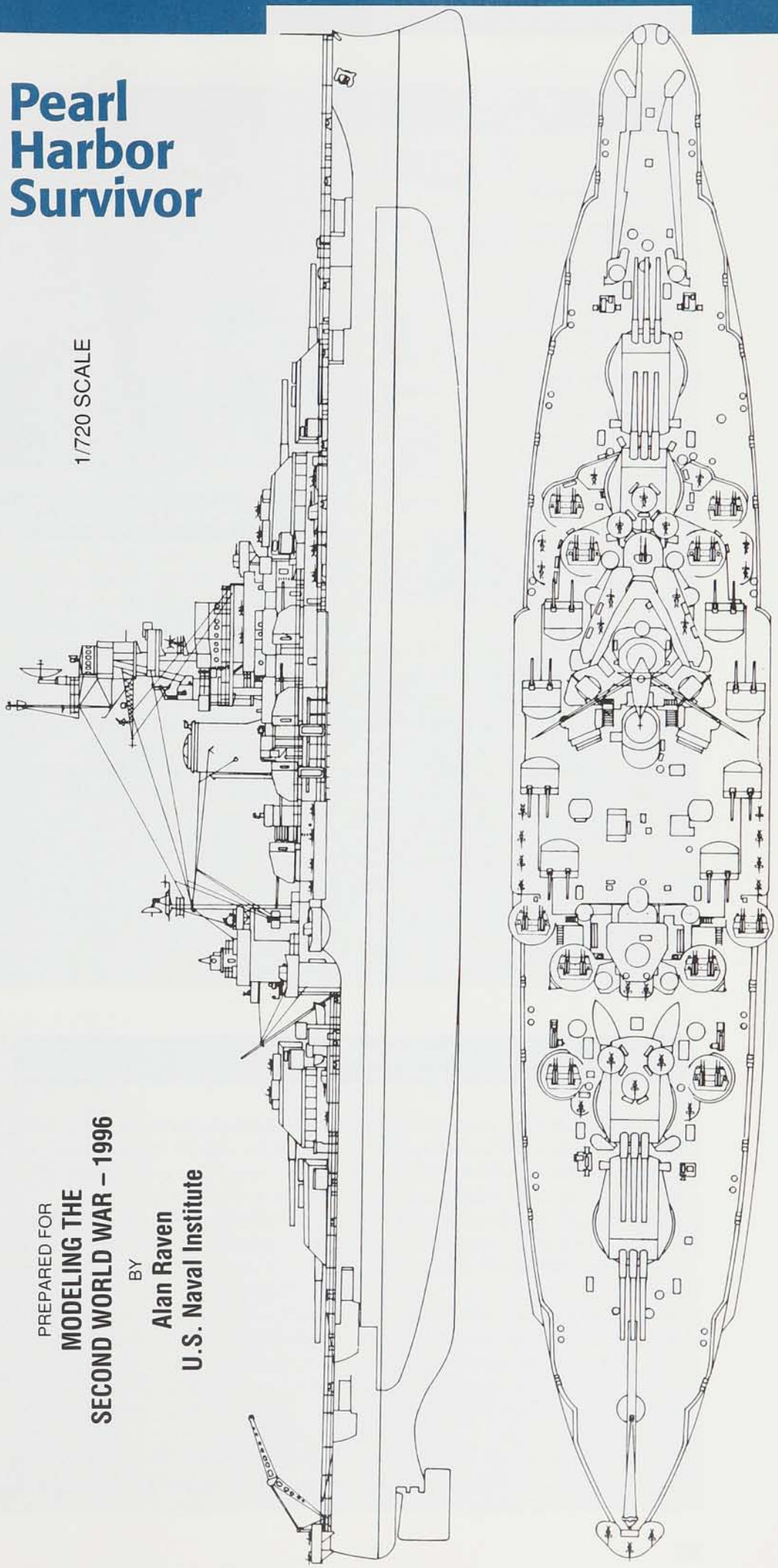
Pennsylvania saw action in the Aleutians, Gilbert Islands, Marshall Islands, Marianas, Western Caroline Islands, Leyte, and Luzon. A refit in late 1942-early 1943 replaced earlier secondary batteries with eight radar-directed 5-inch 38-caliber twin turrets. Also the ineffective 1.1-inch and 50-caliber antiaircraft guns were swapped for dozens of "quad 40s" – Bofors 40mm guns – and 20mm Oerlikon cannons.

During the Guam offensive (July 12 through Aug. 3, 1944), *Pennsylvania* fired 1,797 14-inch rounds, 9,543 5-inch rounds, 14,010 40mm rounds, and 1,580 20mm rounds – the most fired by any warship in history in one campaign.

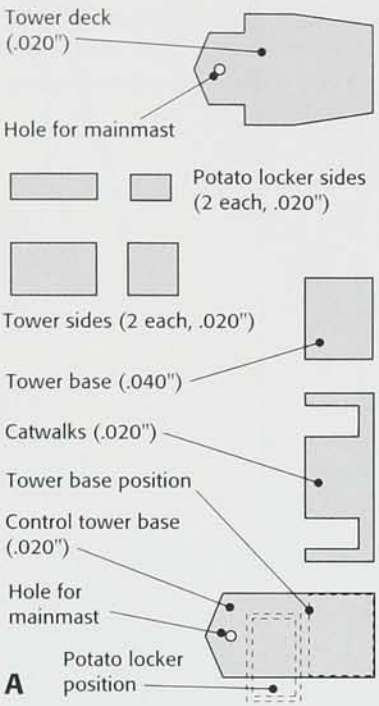
On the night of Aug. 12, 1945, *Pennsylvania* was hit by a torpedo plane off Okinawa. The explosion caused flooding and took 20 lives. The ship was repaired enough to make a slow return to the States.

There, it was patched up to be seaworthy again, but it was assigned to its last detail – target ship for atomic bomb tests at Bikini. The *Pennsylvania* remained afloat through two nuclear blasts in 1946, and was towed to Kwajalein. Determined to be too "hot" (radioactive) for further duty, the ship was scuttled Feb. 10, 1948.

1/720 SCALE



PREPARED FOR
MODELING THE SECOND WORLD WAR – 1996
BY
Alan Raven
U.S. Naval Institute

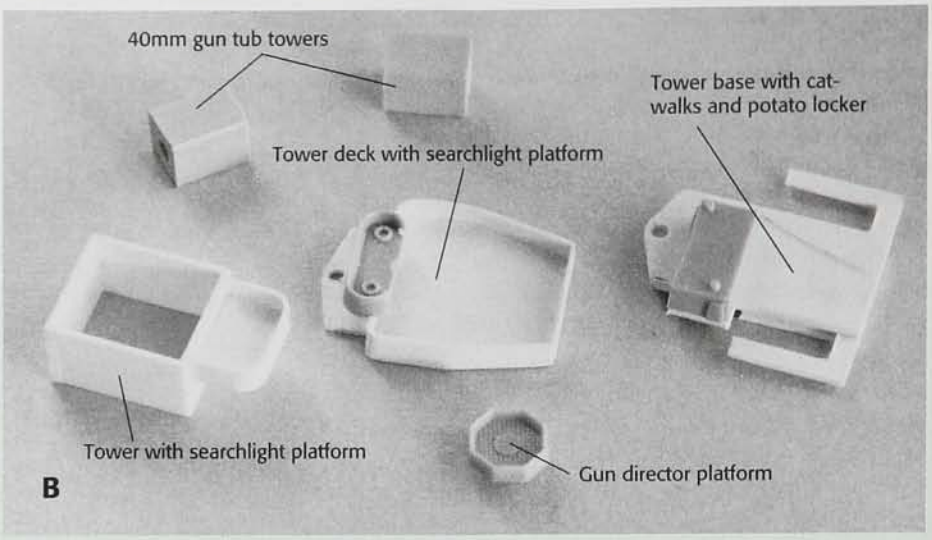


The *Arizona* did not have the new aft fire control tower, so I needed to scratchbuild it. Templates for the structures are shown in **A**. Starting from the bottom, I cut the base and catwalks from .020" sheet styrene. On top of that I glued an .040" base for the tower and the potato locker.

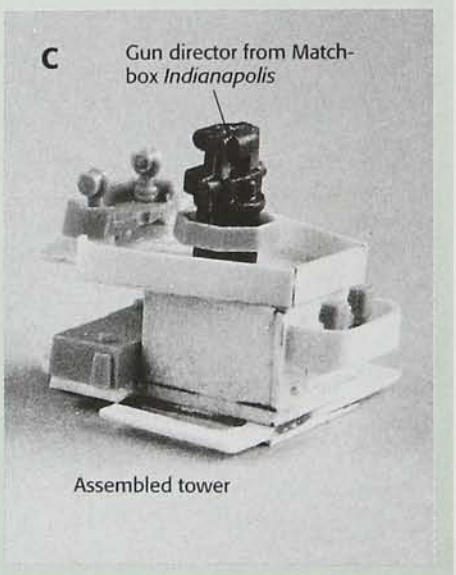
I made the tower sides from .020" sheet styrene, attached them to the base, and filled the seams. I found a suitable potato locker from my spare parts box, but it's simple to make from scrap and .020" sheet styrene.

The deck on top of the tower also was made from .020" styrene. The hole accommodates the mainmast later on. All splinter shields were made from strip styrene and the searchlight and main director platforms came from my spares box (**B**).

The aft main battery director came from a Matchbox USS *Indianapolis* kit. The searchlights are spares, but the 40mm gun directors came from a Skywave weapons set. I made the overhanging platform for the directors from styrene. The completed tower then was ready for paint (**C**).



Step 2: AFT FIRE CONTROL TOWER



Assembled tower

Step 3: MAIN SUPERSTRUCTURE

This subassembly was made with altered kit parts, scratchbuilt additions, and Skywave accessories. I removed the splinter shields from the emergency cabin platform (kit part No. 16), enlarged the deck with sheet styrene (**A**), and added strip splinter shields.

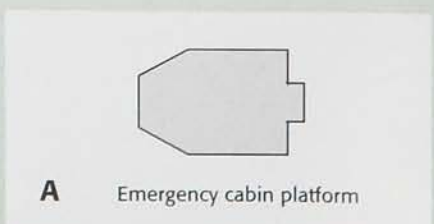
All of the splinter shields and bulkheads were removed from the navigating bridge (part 17) except those around the holes for the fire control director supports. I left the locator pins on the bottom.

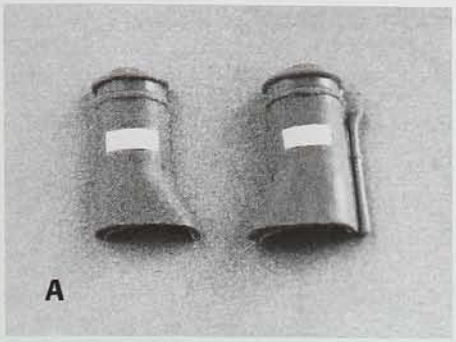
I removed the mount for the main battery director from the front of the sky lookout platform (part 18), then the splinter shields, and the molded-on 5" fire control directors. The observation hut was left in place.

A new bridge was needed, so I built one from strip styrene, drilled portholes, and glued it to the bottom of part 18. More strip styrene was used for the splinter shields on the top of part 18. At this point I assembled the superstructure per the kit instructions.

The twin 40mm mount and the 40mm directors were added from the Skywave weapons set. Photoetched railings and tiny 20mm Oerlikon cannons came from the Gold Medal detail set. The Mk37 directors were Skywave, with Gold Medal radars added.

I removed the splinter shield from the foremast machine gun platform (part 22), refined its shape, then added new strip shields. After assembling this to the tripod mast, I installed the subassembly to the superstructure (**B**). A pair of 20mm cannons and a 40mm director were installed on this platform (**C**).





A

Step 4: MORE DETAILS

All the twin 5" mounts came from Skywave weapons sets. I removed most of the molded-on detail from the smokestack, including the searchlight platforms, then filled the resulting holes with sheet styrene and super glue (**A**). The stack was assembled and set aside.

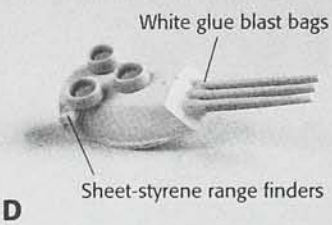
The remaining deck houses and 20mm gun tubs were built from sheet and strip styrene (**B**). The aircraft catapult and crane and 35 Oerlikon cannons were built from the Gold Medal parts, while 10 quad-40mm gun mounts and tubs were assembled from the Skywave weapons sets. The mainmast came from the spares box, and the radar on top of it is also Skywave.

I removed the bottom level from the foretop (parts 25 and 26), glued them together, and covered the bottom with sheet styrene. A new open bottom level was made from sheet styrene with a styrene rod extension of the foremast (**C**).

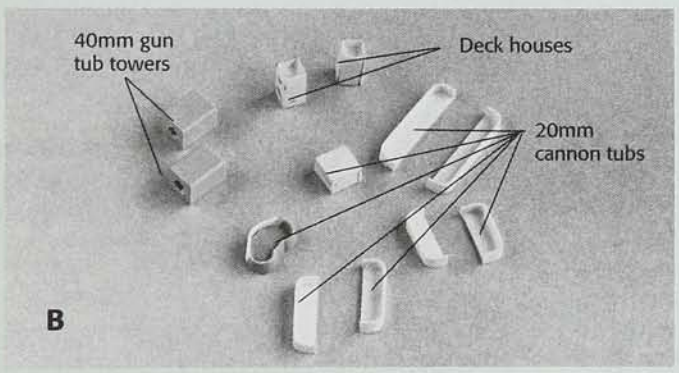
Sheet styrene shapes make up the two small platforms that support the foremast top and the SC-2 radar antenna. I made the yardarms from Gold Medal photoetched radio towers for an *Essex*-class aircraft carrier. They were shortened slightly, and only three of the four sides produce the triangular shape necessary.

I made the SC-2 radar antenna from photoetched parts and mounted it on stretched sprue. I mounted this antenna and the styrene-rod foremast top to the small platforms.

I cleaned the slots for the main gun barrels, then made blast bags from several applications of white glue (**D**). The range finders on the rear corners of the main turrets were made from sheet styrene, then three Skywave single gun tubs were added to the top of turrets two and three, and a photoetched 20mm Oerlikon was installed in each.



D



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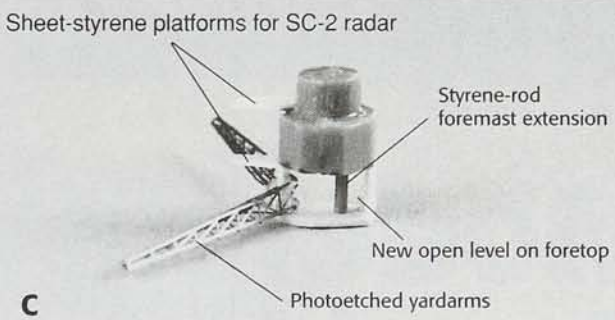

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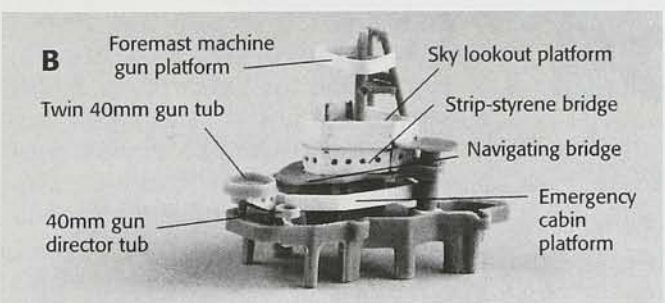
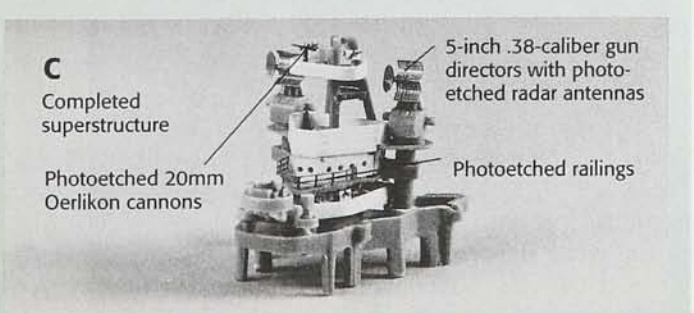




Step 5: FINISHING

I painted each subassembly before final assembly. By mid-1945, the *Pennsylvania* was finished in "Measure 21" camouflage. The vertical surfaces and deck components were painted navy blue, while the decks were painted deck blue. I mixed my colors from enamels, but the new Floquil Marine paints match these colors.

After installing all the subassemblies, I added photoetched anchor chains and anchors. I scratchbuilt the ammunition crane just behind the aft fire control tower.

The last touches were photoetched railings and stretched-sprue rigging. The display base is dyed polyester resin on Plexiglas sheet mounted in a wood frame.

This was the most ambitious ship conversion I've ever attempted. I didn't keep track of hours, but I worked on my *Pennsylvania* for four months.

Modifying a 1/35 scale Tamiya M3 Stuart produced this plucky M2A4, one of the few and the proud that helped wrest Guadalcanal from the Japanese.

Modeling a Guadalcanal Marine Corps M2A4

Converting Tamiya's 1/35 scale M3 Stuart

by JOE MORGAN

MOST PEOPLE imagine rumbling behemoths when they think of armor. But the M2A4 and M3 tanks were anything but impressive or heavy.

What was impressive was the courage of the U.S. Marines who operated the lightly armored vehicles in combat on Guadalcanal in 1942.

The M2A4 was rarely seen in combat elsewhere, and it's not easy to find a 1/35 scale kit of the tank. However, I can show you how to convert the easily available Tamiya M3 Stuart (kit No. 35042) to an M2A4.

Action plan. Buy two Stuarts; you'll need the extra parts. I also saved time and trouble by buying Verlinden's resin M3 "Honey" conversion set (No. 723), which provided the turret, glacis plate, and weapons I wanted.

There are four major obstacles in this conversion course. The bogies must be repositioned. You should install new idler wheels; M3 tanks had 30" idlers, but the M2A4 idlers measured 24". Tamiya's round M3 turret must be replaced with the earlier, faceted version. Last but certainly not least, the rear of the upper hull needs major surgery; the M2A4 was shorter and much of its back deck was screened.

STEP 1. DEALING WITH WHEELS.

The scale drawing (**A**) shows an M2A4 suspension. Photo **B** shows an M3 suspension (upper view) and the M2A4 conversion (lower).

To reposition the bogies, cut the Tamiya hull into four sections. Make the first cut immediately aft of the raised riveted panel in the hull middle, the second cut forward of the next vertical line of rivets (**C**). Remove the mounts for the idler swing arm and the rear return roller. Cut a ¼" section from the front of the rear piece and move it to the forward hull section (**D**).

I cut .060" sheet styrene to the hull length and width and glued it to the front-section floor for backing. I also reinforced the hull joints with Plastruct angle on the inner surfaces (**E**).

Add the rear hull plate from the Tamiya kit (part B6), then putty the seams and sand them smooth.

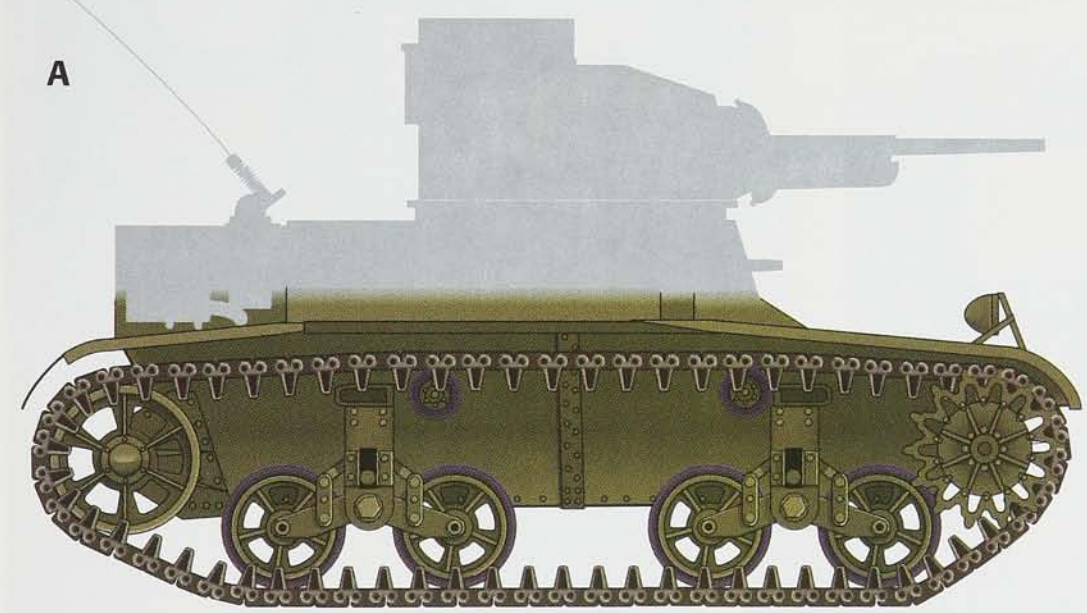
The idler-wheel mount is similar to that of a Sherman (**E**). I sacrificed a Sherman hull, cutting off the idler mounts and thinning them to fit the M2A4.

Glue the Sherman mount even with the bottom of the hull, with 1¼" between the center of the rear bogie and the mounting pin for the idler wheel. Be careful of left and right (they only work one way) and don't go any farther back or the tracks won't fit.

Of course you need the idler wheel to complete the alignment. I scratchbuilt a master to cast copies in resin (**F**), turning the basic wheel on a lathe, but it would be easier for you to use idlers from Heller's 1/35 scale Hotchkiss (kit No. 81132). Check your spares for a similar wheel.

Step 1 continues on page 40

A



1/35 SCALE

M2A4 SUSPENSION

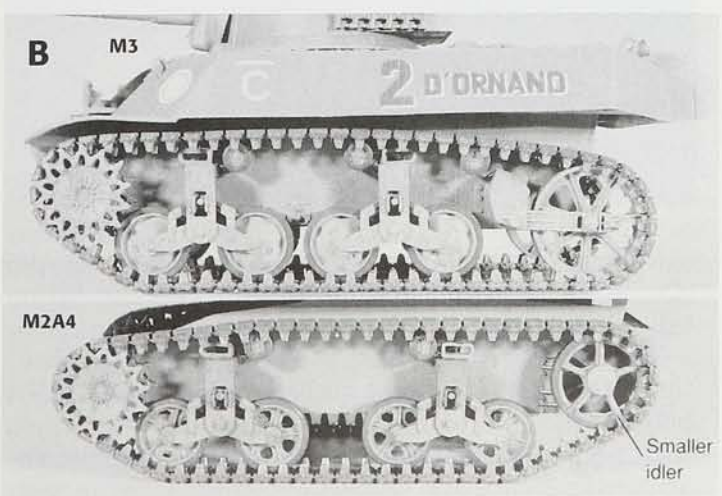
These drawings may be copied for your own use only. To convert them to other modeling scales, make copies at the following percentages:

1/48 - 73%

1/72 - 48.6%

1/76 - 46%

B



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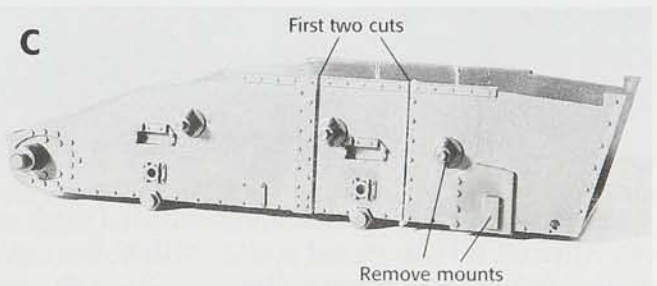

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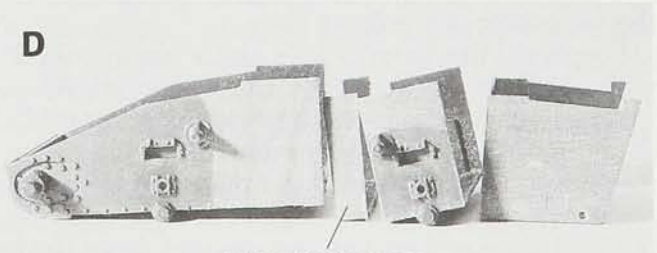
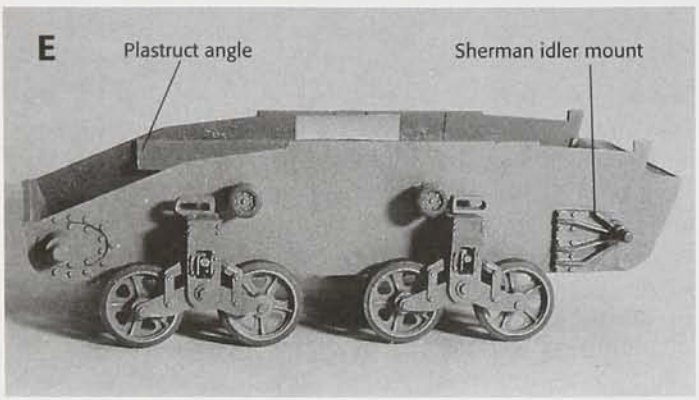
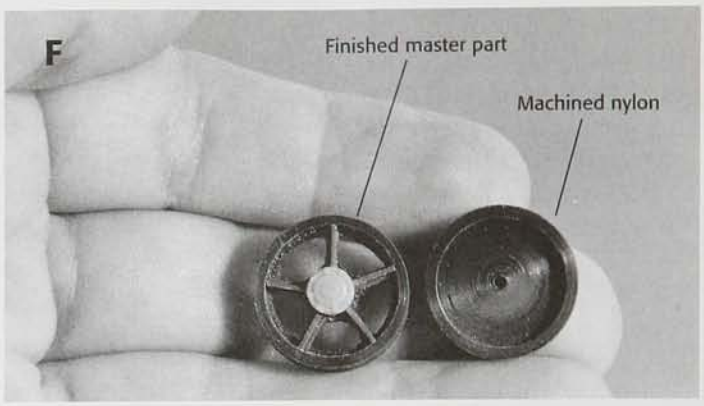
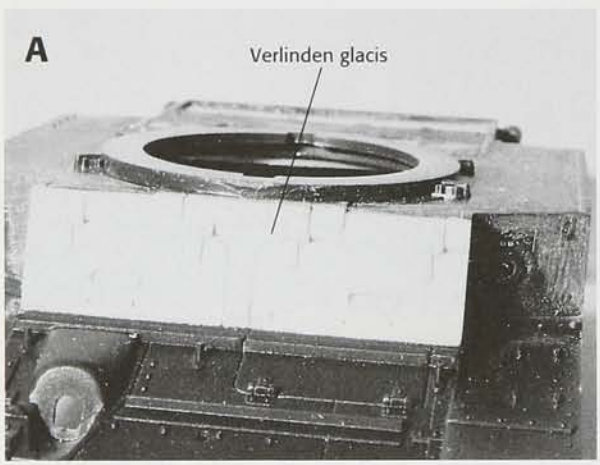


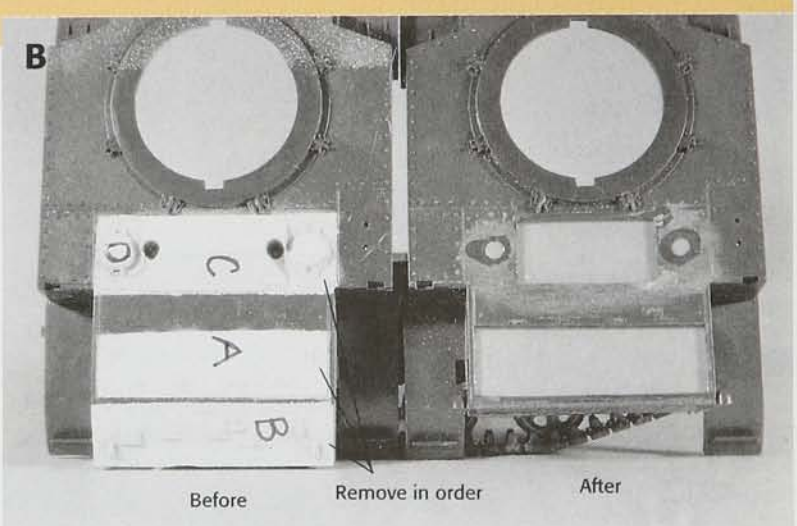
STEP 1. DEALING WITH WHEELS (continued).

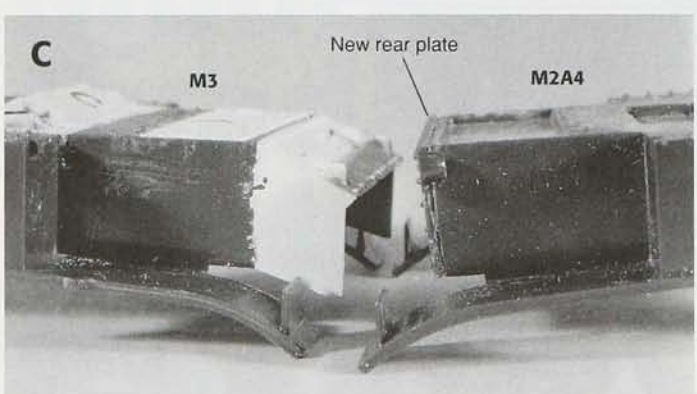


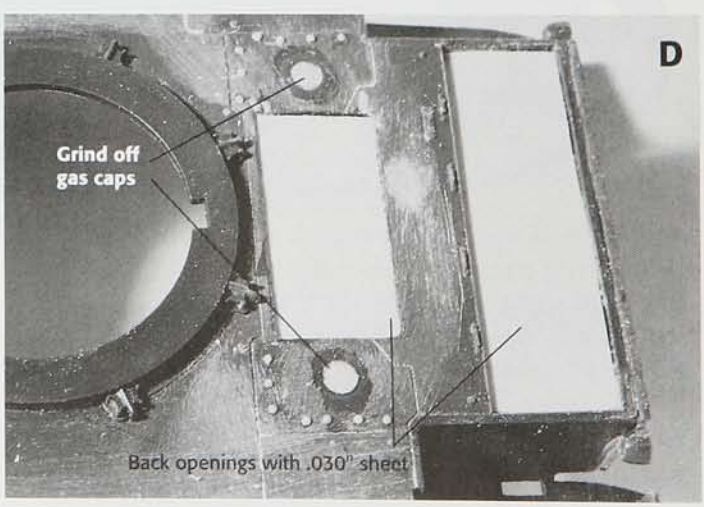


STEP 2. UPPER HULL.









Produced in peacetime, M2A4s featured flush rivets. Slice off all the raised rivets, with these exceptions: around the gas caps; the top row on the rear plate; the access plate next to the right gas cap; and the top center of the front plate.

I replaced the Tamiya kit's glacis plate (part B18) with one from the Verlinden conversion set (**A**).

Three cutouts convert the rear deck to an M2A4 (**B**). The hull rear will be pretty flimsy when you're through cutting, so follow this order to avoid breakage. Start with area A. Then cut out area B, starting at the hull slope and continuing straight down the hull sides.

Make a rear hull plate from two Tamiya parts A25 (**C**). This part should be the original width and 13mm tall.

The raised grille in area C must go. I roughed out the cut with a motor tool and carved the rest with a hobby knife.

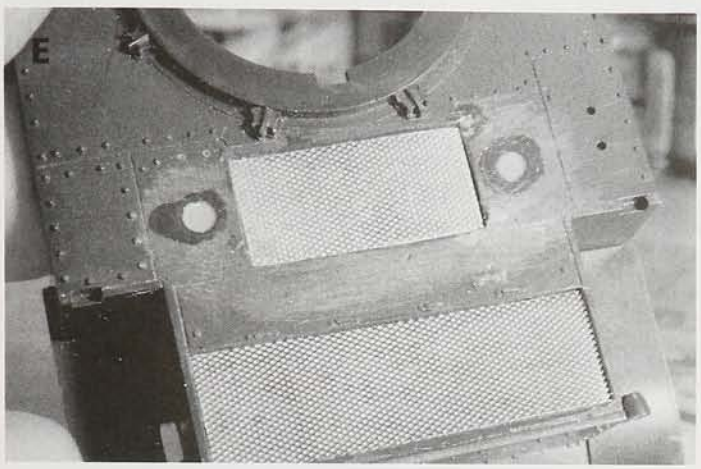
Don't put that motor tool away yet! Remove the armored gas caps and rear-fender stowage-box mounts (**D**).

Back the openings with .030" sheet, paint these

STEP 2. UPPER HULL (continued).

areas black, and mount fine-mesh screen flush with the hull surface (**E**).

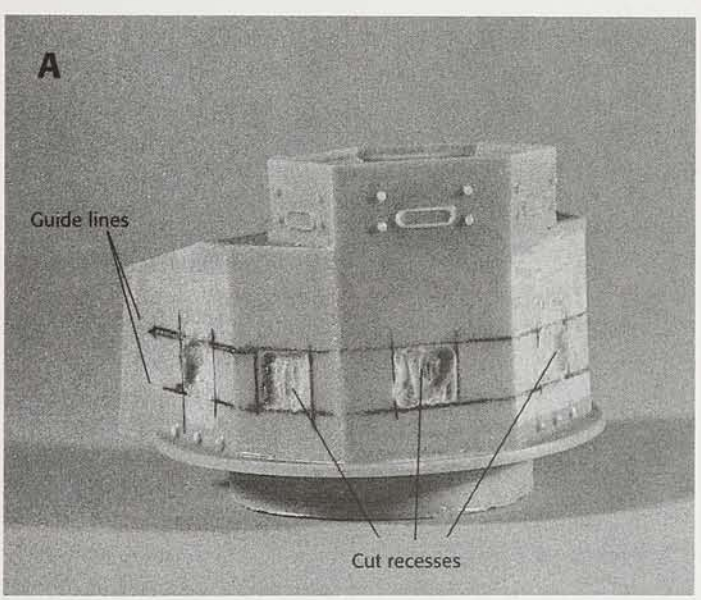
I cleaned up the upper hull, gave it a primer coat, touched it up, then mated the upper and lower hull.

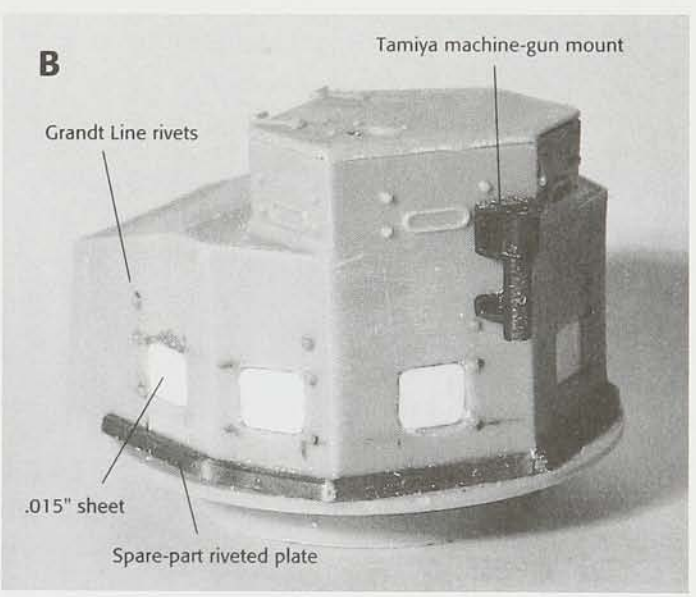


SOURCES

- **Airwaves M3/M5 photoetched detail set:** available from Squadron Mail Order, 1115 Crowley Drive, Carrollton, TX 75011-5010, ✆214-245-3504
- **Rivets, nuts, and bolts:** Grandt Line, 1040B Shary Court, Concord, CA 94518, ✆510-671-0143
- **Brass sheet and strip:** K&S Engineering, 6917 W. 59th St., Chicago, IL 60638
- **Styrene sheet and structural shapes:** Plastruct, 1020 S. Wallace Place, City of Industry, CA 91748, ✆818-912-7016
- **M1 Combat Car conversion:** Soldat, 6 Marisa Drive, West Bridgewater, MA 02379, ✆508-587-8067
- **Verlinden M3 "Honey" conversion set:** VLS, 811 Lone Star Drive, Lone Star Industrial Park, O'Fallon, MO 63366, ✆314-281-5700

STEP 3. TURRET, PISTOL PORTS.





The Verlinden M3 turret is the right shape; changing the details converts it to an M2A4.

The M2A4 pistol ports were recessed shutters that slid inside the turret. Grind off the Verlinden ports with a motor tool, finishing with an emery stick.

Measure 4mm up from the turret ring and draw a horizontal line across all but the front facet (**A**). Repeat this line 4mm higher. This marks the bottom and top of the pistol ports.

Each port is 5mm wide. The forward ports are placed 3mm forward of the first seam; the rest are centered in each turret facet.

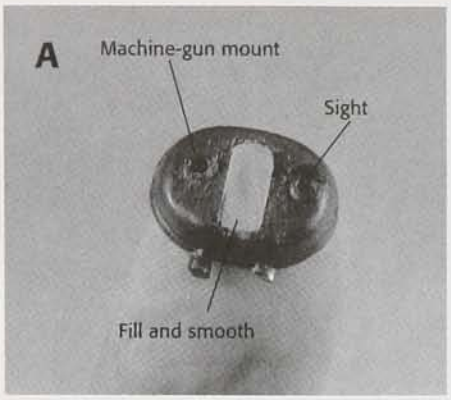
Rough out each port with the smallest cutter you can chuck in your motor tool, then finish more precisely with a knife. The shutters are made from .015" sheet styrene and are recessed about 1mm (**B**).

Each port has three rivets on the right except the one on the left front port, which has rivets on its left side. Using Grandt Line .043" round-head rivets, put two rivets at each corner of the port, and the other one directly in line and about 2mm above. Drill .018" holes to accept the rivets.

The M2A4 had a riveted plate running around the bottom of the turret. I found this in my spares box (I think it's a sand-shield attachment for a Crusader). It's a bit thick; you could improve on it with thin plastic or brass sheet detailed with Grandt Line rivets.

Glue the Tamiya machine-gun mount (parts A9 and A13) to the back of the turret (**B**).

STEP 4. AIMING THE GUNS.



Start building the M2A4's external recoil mechanism by grinding off the bulge in the middle of the Tamiya mantlet (part A27). Avoid the sight, with its delicate "eyebrow" shield, and the machine-gun mount on the other side (**A**). Fill the rectangular slot in the middle with plastic scrap and putty, then sand it to conform to the curve of the mantlet.

I mounted Verlinden's machine gun first to make it easier to align other parts.

Pull half of a two-piece gun barrel (I used a 90mm) from your spares box and cut off a 15mm segment (**B**). Sand the mantlet end of the barrel to match the angle of the machine gun.

Sand one side of a 15mm segment of 1/16" Plastruct I beam to fit the gun-barrel half. Now glue either Tamiya's or Verlinden's

THE DESPERATE FIGHT FOR GUADALCANAL

Japan's conquest of the Western Pacific seemed irresistible in the summer of 1942. Its undefeated ground forces had taken the Philippines, East Indies, Burma, Malaya, Singapore, and most of the 900-mile-long chain of the Solomon Islands. By June they had seized an excellent anchorage at Tulagi on the island of Florida and started building an airfield on Guadalcanal. From there, air and naval strikes against the Fijis, New Hebrides, New Caledonia, and Samoa threatened Australia's lifeline to the United States.

American commanders, executing Allied policy in the Pacific, determined to attack Tulagi and Guadalcanal. The 1st Marine Division, under Maj. Gen. Alexander Vandegrift, would bear the brunt of the fighting on Guadalcanal. Time was short, and because European operations took priority in Allied plans, supplies were scarce. The Aug. 7 offensive, officially code named *Watchtower*, was informally designated *Operation Shoestring.*

An M2A4, followed by an M3, skirts the jungle's edge on Guadalcanal in 1942. Photo courtesy of R.P. Hunnicutt.

The Guadalcanal landing began smoothly as the airstrip on Lunga Point was taken without a fight. However, two hours later an air-raid warning scattered the invasion fleet. Subsequent threats caused the fleet to withdraw, leaving 10,000 poorly supplied Marines stranded on Guadalcanal.

Conditions were miserable as dysentery, malaria, and the tropical climate took their toll. With the American carriers gone, Japanese planes and ships bombarded the island at will. Nevertheless, Marines completed the airstrip in two weeks with materials the Japanese had left behind, and American fighter planes landed at the newly christened Henderson Field.

Meanwhile Japanese troops gathered at Taivu Point, 20 miles east of the American position, and attacked on Aug. 20. They were repulsed in an all-night battle, and M2A4 and M3 tanks mopped up the next day. Of 1,000 attackers, 800 had been killed and the rest scattered.

The Japanese attacked again in mid-September with 6,000 troops. Most of them came ashore near Taivu Point, while another smaller force came from the west. Lt. Col. Merritt A. Edson moved his Marines to face the main advance along a grassy rise – known later as Bloody Ridge – and told them, "This is it. If we don't hold, we will lose Guadalcanal." That night the enemy drove up the ridge to within 1,000 yards of the airstrip, but Edson's men held. The other wing of the Japanese assault also failed.

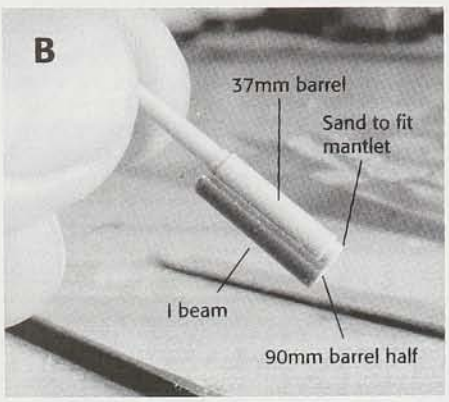
A full division of the Japanese 17th Army attacked in October – but Vandegrift had been reinforced and the Americans again stood their ground.

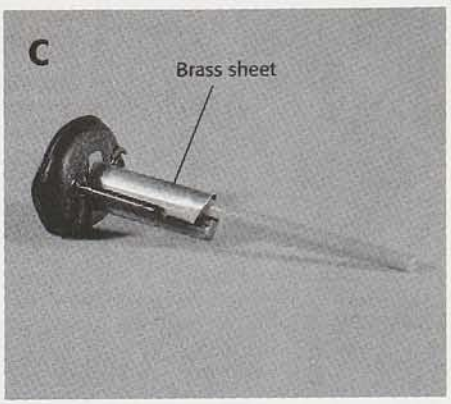
By December the U.S. Navy controlled the waters off Guadalcanal, and the 1st Marine Division was relieved – having earned a Presidential Unit Citation for its services.

Still the fighting continued. Not until early February 1943 did the Japanese leave Guadalcanal – the place they called the "Island of Death."

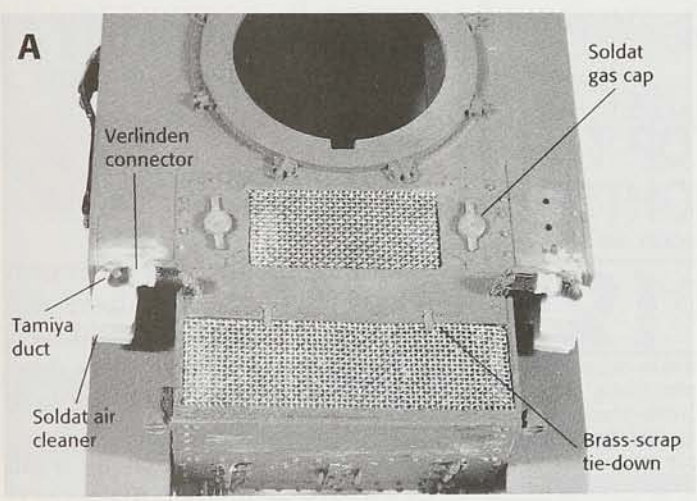
37mm barrel on the I beam and glue this assembly on the mantlet, aligning it with the machine gun.

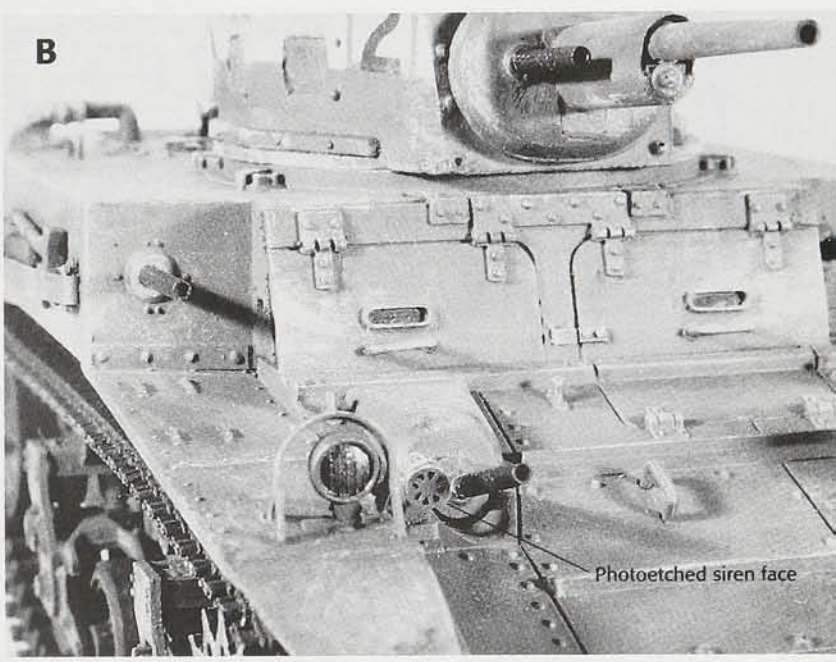
I covered the gun barrel with .005" brass sheet, bent in a semicircle over the handle of a small rattail file and angled to fit the mantlet (**C**). A 10mm x 7mm plate of .045" styrene sheet inside the mantlet adapts it to the Verlinden turret.

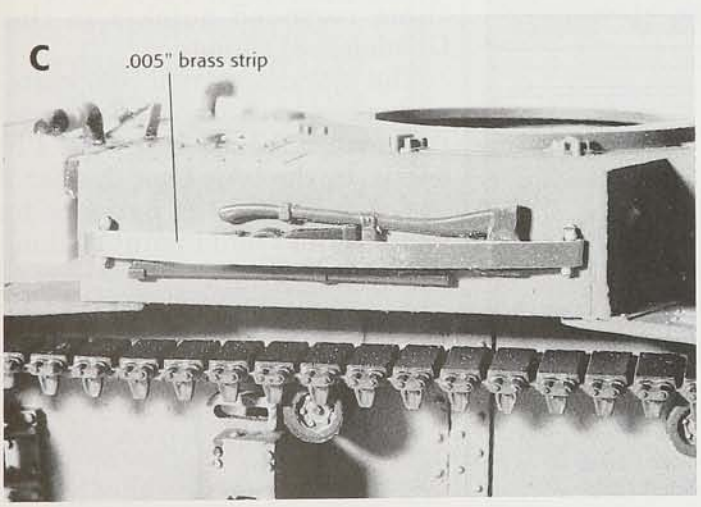


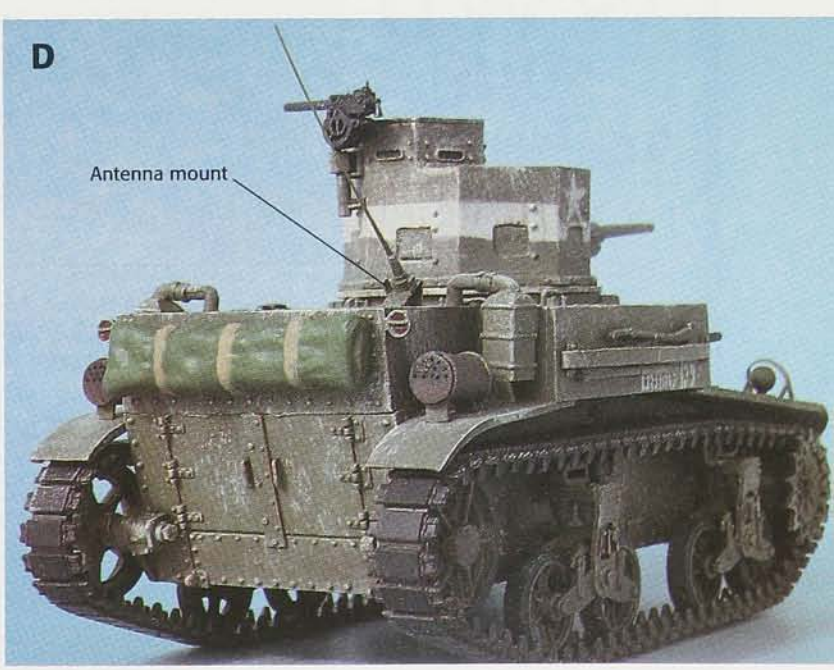


STEP 5. TOPPING OFF THE TANK WITH DETAILS.









The M2A4 air cleaners and exhaust system also are different from the M3. Square air cleaners would be easy to scratchbuild, and Tamiya's round air cleaners could be used for mufflers.

I took a short cut, though. Soldat makes an M1 Combat Car conversion with the air cleaners, mufflers, and gas caps I wanted (**A**). I detailed the air cleaners with Verlinden hose connectors and Tamiya

ducts. The exhaust pipes are spare parts; I bored out each muffler with an .015" bit. While I was in the area, I detailed the screens with tie-downs made from photoetched-brass scraps.

Airwaves' M3/M5 photoetched set provided additional hull details and stowed equipment. I sanded the siren's face flat and glued the Airwaves part over it (**B**).

Unlike later Stuarts, tools were stowed on the sponsons and guarded by metal strips, which I replicated with .005" brass strips (**C**).

I combined the Airwaves antenna mount with Tamiya part A7 and used stretched sprue for the antenna (**D**). Stowing a tarp aft covered a nasty seam.

STEP 6. EXPEDIENT COLORS.

Knowing that in 1942 the urgent situation in the Pacific superseded USMC paint specifications, I base coated my tank Pactra olive drab (FS 34087). I dry-brushed with light tan and rust.

Why weather a relatively fresh tank with rust? Because everything corroded quickly in the Guadalcanal climate.

The markings are a composite of those used on the island, made from what I had on hand. I'll admit, by the time I got this far I just didn't have the patience to research and hand-paint custom markings!

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- ***Stuart: U.S. Light Tanks in Action,*** Steven Zaloga, Squadron/Signal Publications, Carrollton, Texas, 1979
- ***U.S. Marine Tanks in World War Two,*** Steven Zaloga, Arms and Armour Press, London, 1988

"The Little Gramper" was a war-weary B-24D relegated to assembly ship duty for the 491st Bomb Group at North Pickenham, England. George painted the Minicraft/Academy kit gloss yellow and added red polka dots and letters.

Modeling four assembly ships of the 8th Air Force

Eye-popping paint jobs for 1/72 scale Minicraft B-24s

by GEORGE F. WRIGHT

RECENTLY PUBLISHED BOOKS with loads of color photography from World War II and the new B-24 kits from Minicraft/Academy helped set the stage for modeling some of the gaudiest aircraft ever – the assembly ships of the U.S. Army's 8th Air Force. These war-weary aircraft assisted bomber crews into their formations for missions against the Reich.

Research. Despite the new information, many assembly ships are only partially documented: a color shot of one side of an airplane, a top of another shown in a drawing in a book – I can only guess at the rest. Aircraft probably were repainted more than once, too.

My plan was to build the 12 assembly ships shown in the color profiles of Roger Freeman's *The Mighty Eighth*. To measure the diameter of the circles, width of the bands, and size of the letters on these colorful bombers, I enlarged the profiles to 1/72 scale on a copier.

Kit modifications. The new Minicraft/Academy Liberators are fine kits, with recessed panel lines and good detail. Straightforward modifications were necessary to model the assembly ships. These aircraft were stripped-down airframes, so dorsal turrets were either removed or sealed off. The tail turrets (and nose turrets on H and J models) also were disarmed and sealed.

The kit's design allowed me to build and paint the bombers in subassemblies, Fig. 1. That's good, because painting and marking a completed model would have been difficult.

"The Little Gramper." This ship was a B-24D and served with the 491st Bomb Group based at North Pickenham, England. My paint scheme is based solely on the profile in *The Mighty Eighth*, so I guessed at what the right side and top looked like.

I removed the dorsal turret and left

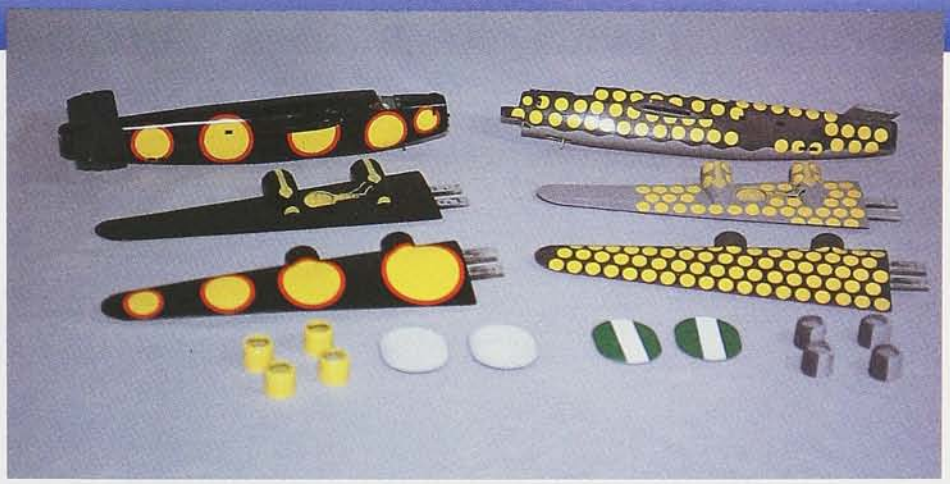
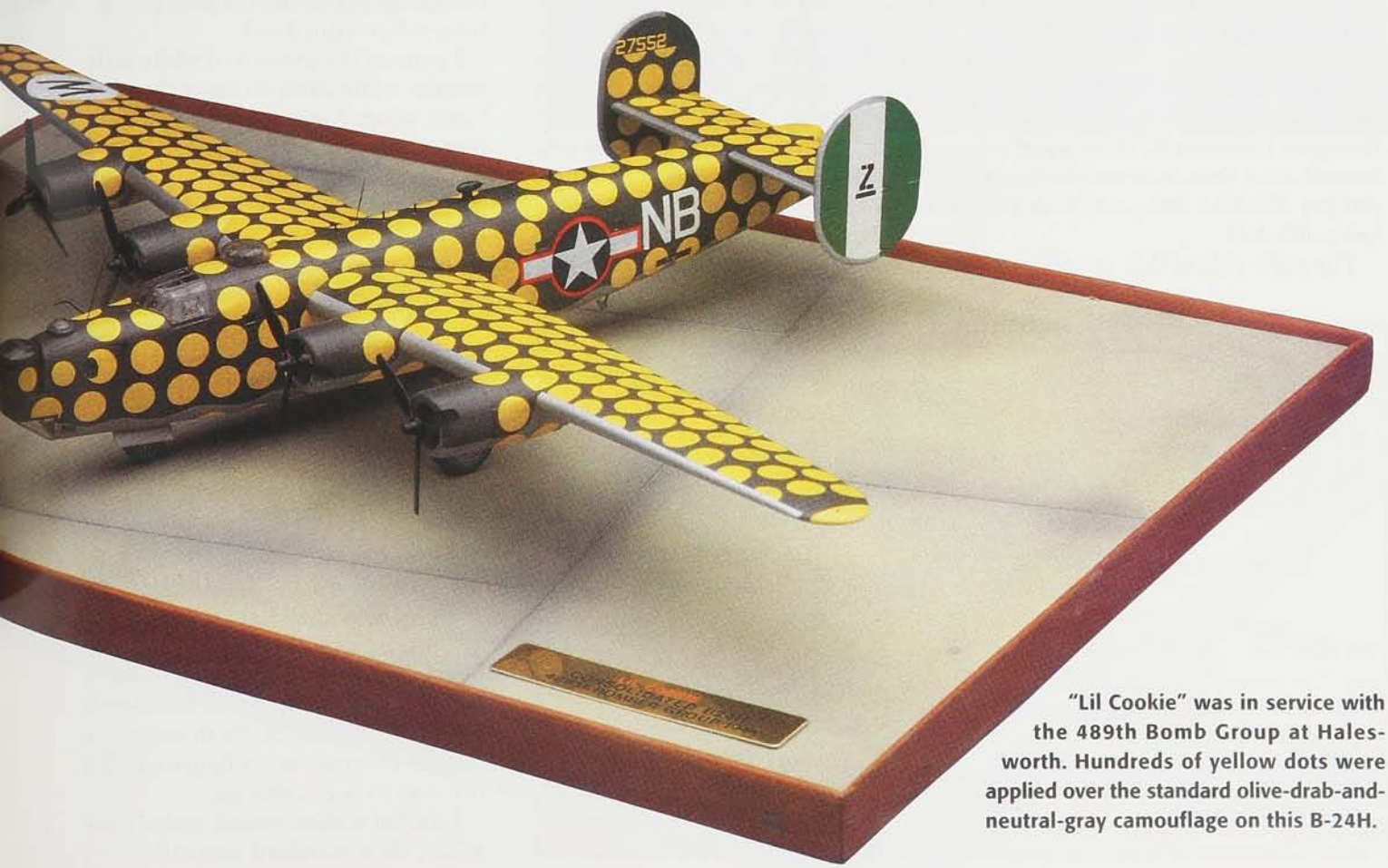


Fig. 1. The design of the Minicraft/Academy kit permits building and painting the model in subassemblies.

Fig. 2. T-handled punches, a compass cutter, and cuticle scissors are needed to cut the colored discs from solid-color trim decal.



"Lil Cookie" was in service with the 489th Bomb Group at Halesworth. Hundreds of yellow dots were applied over the standard olive-drab-and-neutral-gray camouflage on this B-24H.

The shark-mouthed "Spotted Ape" assembly ship for the 458th Bomb Group at Horsham St. Faith, was a surplus B-24H.

off the remaining guns. The overall color is gloss yellow. Instead of masking all those red dots, I cut them from Super Scale red trim decal with suitably sized punches, Fig. 2. I painted the cowl flaps gloss red, then used trim decal for the narrow triangles on the cowls, Fig. 3.

I applied small red dry-transfer letters on clear decal film for the legend on the nose, then used strips of yellow and red trim decal to frame the transparencies.

"Lil Cookie." This B-24H served as the assembly ship for the 489th Bomb Group at Halesworth. It retained its overall olive drab over neutral gray scheme, but was festooned with yellow polka dots.

The right side of this aircraft was featured as a color profile in *The Mighty Eighth* and the left side is shown in a color picture in *The Mighty Eighth in Color*. The picture showed the red border of the national insignia, so I decided on those to add a dash of color – as if it needed more!

I retained the dorsal turret, but removed its guns. The tail turret was easy to modify. I simply turned it 180 degrees so that the opening faced into the fuselage, faired it with filler putty, and painted it.

After applying the standard camouflage, I oversprayed the model with clear gloss, then punched out several hundred dots from yellow trim decal.

I painted the green and white tails and the white circle on top of the starboard wing. Appropriately sized letters and numbers came next, along with the national insignia. I hand painted the legend on the right side of the nose.

The photo shows the signal lights in the tail turret, and I produced these with pinheads painted white, dry-brushed silver, and topped with a dab of Micro Kristal-Kleer.

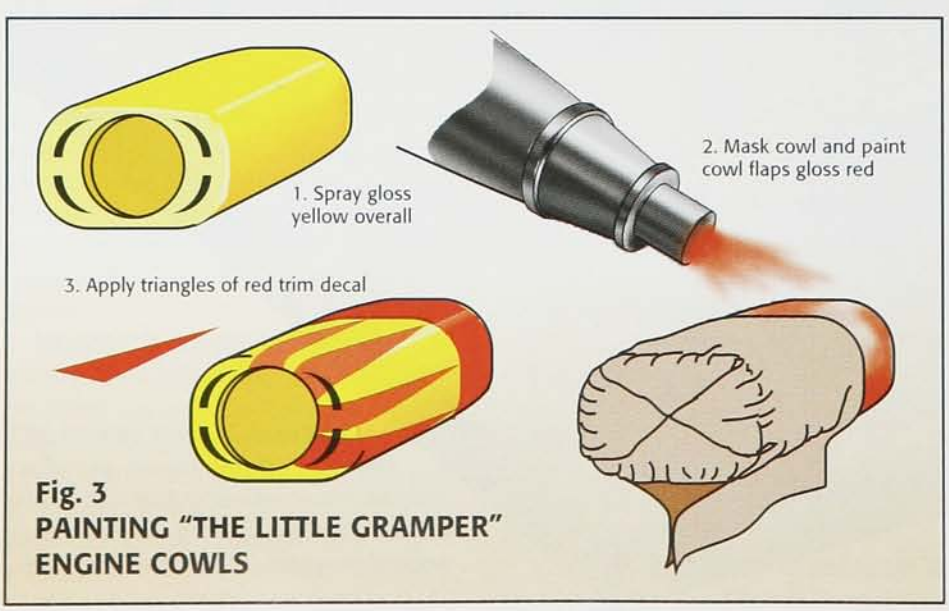


Fig. 3
PAINTING "THE LITTLE GRAMPER" ENGINE COWLS

"The Spotted Ape." Reference photos of both sides of this famous assembly ship of the 458th Bomb Group at Horsham St. Faith make this model's scheme easy to figure out. It's not easy to paint, though.

I started with an overall coat of gloss white, then standard camouflage on

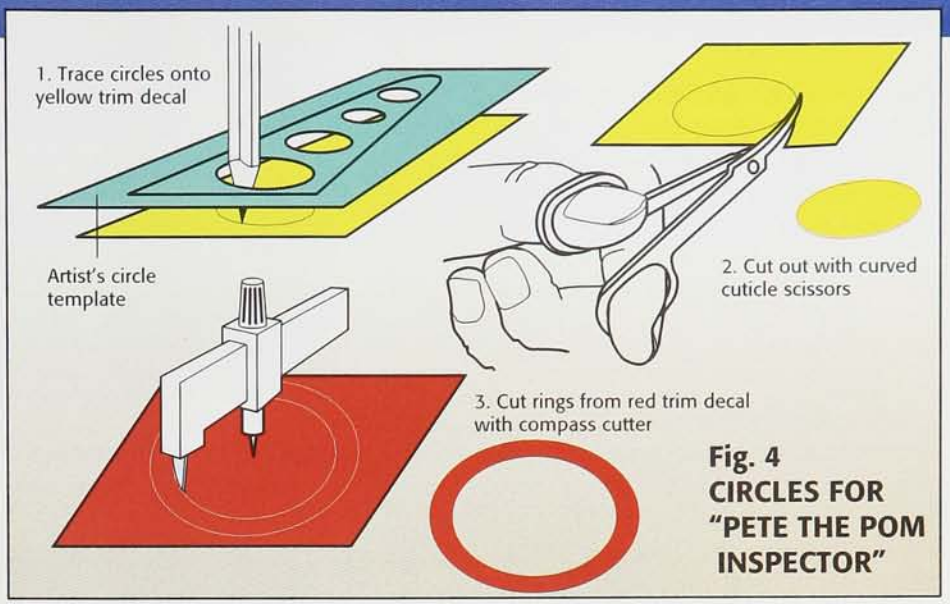


Fig. 4 CIRCLES FOR "PETE THE POM INSPECTOR"

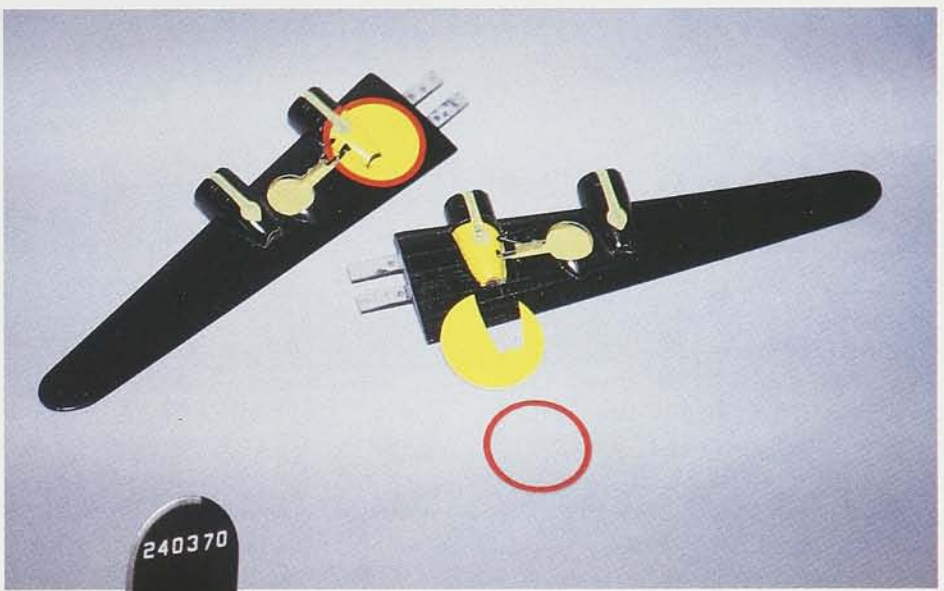


Fig. 5. The yellow discs under the inboard engine nacelles had to be made in two pieces to fit the compound curves.

"Pete the POM Inspector" was striking in its yellow-circle-festooned gloss-black finish. George traced the outline of the complicated nose art onto trim decal stock and painted the details.

the rear half of the fuselage and tail, and under the wing.

Clutching the punch in one hand, I produced dozens of red, black, and yellow dots from trim decal sheets. I also used trim decals for the shark mouth and eyes on the nose, and the large red circle on the fuselage. Pinheads once again became the signal lights in the red circle.

"Pete the POM Inspector." This scheme is more challenging. I followed the excellent color photos in *The Mighty Eighth in Color*. ("POM" stood for Preparation for Overseas Movement, an inspection stage.) "Pete" served as the assembly ship for the 467th Bomb Group at Rackheath.

After covering over the hole left by the dorsal turret and turning the tail turret inward, I airbrushed the entire model gloss black.

The colored circles on "Pete" were too large to cut out with the punches, so I traced the outlines of the circles onto yellow trim decal with a circle template and cut them out with a curved cuticle scissors, Fig. 4. I cut the red rings with a compass cutter and laid them over the yellow circles. I had to produce the large yellow circles under the inboard engine nacelles in two parts, Fig. 5.

The large P's on the fuselage sides and top were tricky. First I cut them out of white trim film and placed them onto black trim film. When they were dry, I carefully cut around the white letters, producing a thin black outline.

Once again, pinheads were used for the signal lights in all three P's.

The nose art was the biggest challenge. I reduced the photo in *The Mighty Eighth in Color* to 1/72 scale and traced its outline onto white and blue (for the lettering) trim decal sheets. I carefully painted the details with Humbrol enamels and outlined them with black ink. After a coat of clear gloss, the nose art was applied like any other decal.

That completed my fourth model, and I have at least eight to go.

You can't miss the 489th Bomb Group's "Lil Cookie" as it gets a wheel change at Halesworth, England. Photo via Jeff Ethell.

8th Air Force over Germany

THE NUMBERS WERE IMPRESSIVE. From more than a hundred air bases carved out of farmland in southeast England, the United States Army's 8th Air Force launched hundreds of heavy bombers and escort fighters every day the quirky weather would allow. Combined with RAF night raids, Germany's overextended Reich came under almost continuous bombardment.

The 8th Air Force was formed in the spring of 1942, but would not stage its first bombing mission until Aug. 17 of that year. It was a small start, with only a dozen B-17s hitting a railroad yard in Rouen, France.

As American factories cranked out bombers and fighters for the war effort, England became the world's largest aircraft carrier. The mighty 8th Air Force ultimately fielded more than 45 bomb wings, 17 fighter wings, and several smaller units of transports and utility aircraft.

When major missions were mounted, the sky was filled with so many similar aircraft that pilots found it difficult to find their flight leaders and get into the proper positions in the mass formations. To the rescue flew war-weary bombers painted in bright, "can't miss" motifs – the assembly ships.

Once he recognized his unit's assembly ship, each pilot followed it until all the other planes of the group were in formation. With all the bombers lined up for the run, the assembly ships would return to base, their missions accomplished for the day.

The 8th Air Force flew its largest mission on Christmas Eve 1944, with 2,034 heavy bombers raiding airfields and transportation centers in Germany. Even a few assembly ships were hastily armed with waist guns and sent along.

Thanks to Edward Jones and Hannah Timmins for their assistance with this article.

SOURCE

■ **Solid-color trim decals:** Super Scale International Inc., 2211 Mouton Drive, Suite E, Carson City, NV 89702

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■ ***Flying Review International***, December 1964, Purnell and Son, London

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BEEFING UP ITALERI'S 1/24 SCALE JEEP

Improve your model with details and aftermarket add-ons

Italeri's jeep is bigger than most scale fighting vehicles – and that gives detail-minded modelers room to stretch out!

BY PAT COVERT

THE MOST FAMOUS product of America's World War II auto industry undoubtedly was the jeep – a name that became a household word from the halls of Montezuma to the shores of Tripoli.

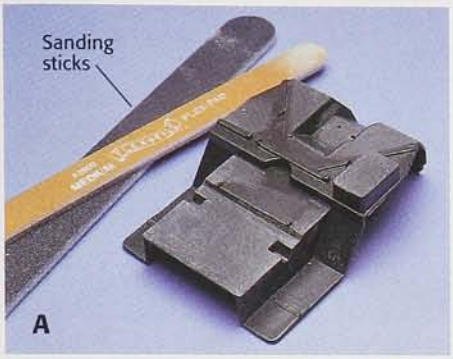
Many people know of two jeep manufacturers – Willys-Overland and Ford – but did you know there was a third? The American Bantam Co. built the first jeep prototype, but yielded to the greater production capabilities of Willys-Overland and Ford.

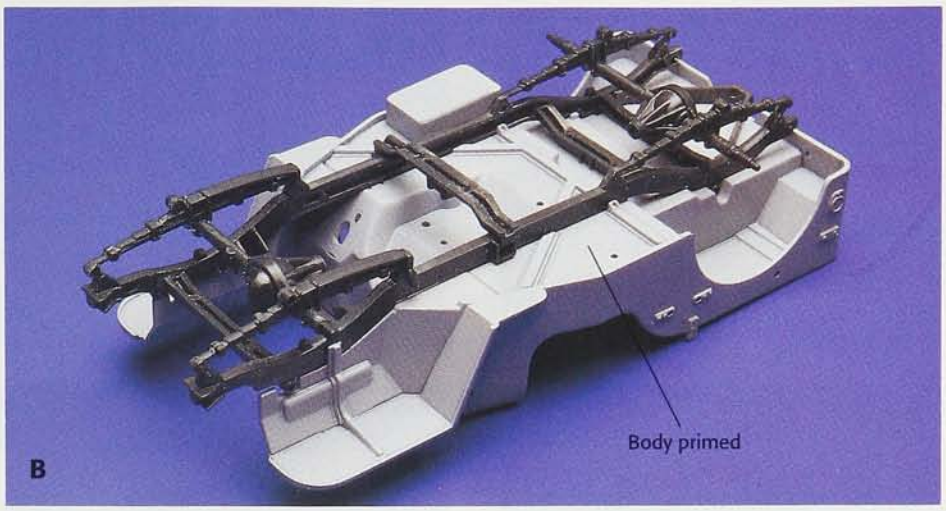
There's more jeep history in the sidebar on page 82 – but right now we have a model to build!

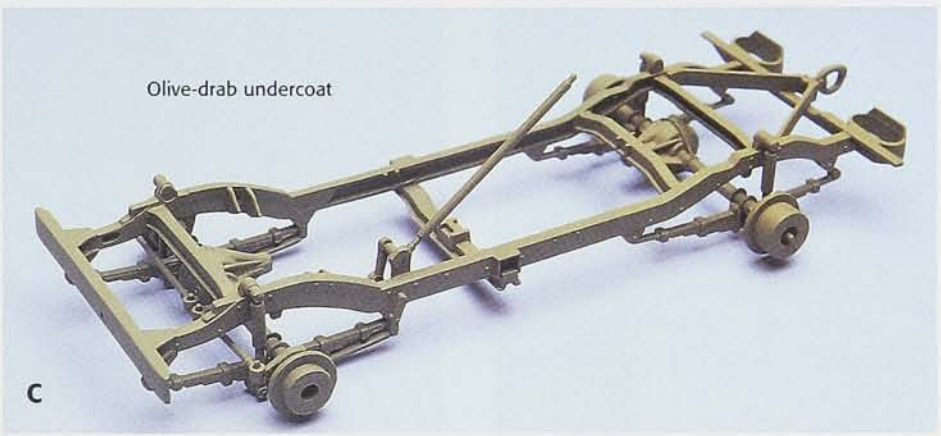
Room to work. Military vehicles bigger than 1/35 scale are in the minority – too bad, because larger scales yield much more room to add detail. That's why I built Italeri's 1/24 scale Willys Jeep (kit No. 0721).

However, dyed-in-the-wool builders of 1/35 scale shouldn't stop reading yet – many of these techniques will work for that scale, too.

STEP 1. BUILDING THE BODY, CHECKING THE CHASSIS.







The first order of business is removing all those nasty little marks left by kit manufacturing: ejection-pin marks, flow lines, and sink holes. Fill holes with putty and sand them smooth. I like to use Flex-I-File sanding sticks (**A**). They're (yes) flexible and padded, allowing you to follow curved surfaces more closely.

After smoothing flaws I assembled the body with slow-setting liquid cement, which allows time to adjust panels as the glue dries.

I undercoated the body with Gunze Sangyo Mr. Surfacer 1000, a thin primer that doesn't fill in surface details. I left off smaller items such as the mirror, handrails, and blackout light until later.

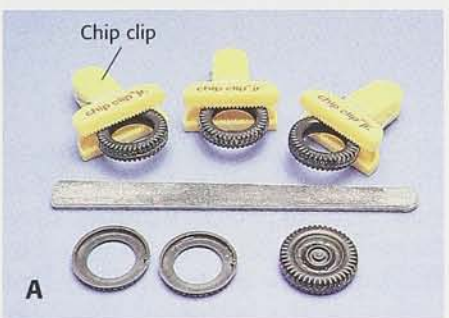
I glued together the chassis and test fitted it to the body to make sure the fit was straight and snug (**B**). I spray painted it Testor olive drab (**C**). Warming the spray can in hot water beforehand improved the paint's performance.

STEP 2. HEAD FOR THE TREAD.

I paired up the tire halves and sanded away unrealistic seams. Pairing the tires from the start made for better matches; chip clips kept them together until they were ready to be painted flat black (**A**).

I sprayed the painted tires with Dullcote clear flat and smothered them in real dirt (**B**). After the spray had hardened I brushed off the excess dirt, using a pastel stub to reach tight spots – although I left some dirt in the treads.

Next, I treated the wheels with a wash of Professor Weathers grimy-black pastel powder



mixed with a 50-50 solution of water and Windex glass cleaner. The Windex helps the wash flow – rather than bead – on enamel.

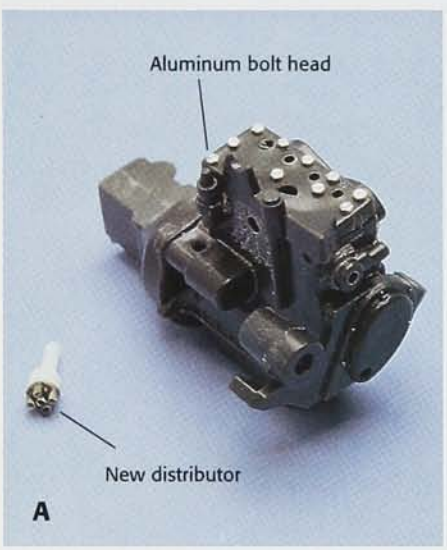
I dusted the sidewalls with Professor Weathers desert-tan pastel powder (**C**), but left the tire treads relatively clean. Subsequent handling may knock off some of the pastel powder,

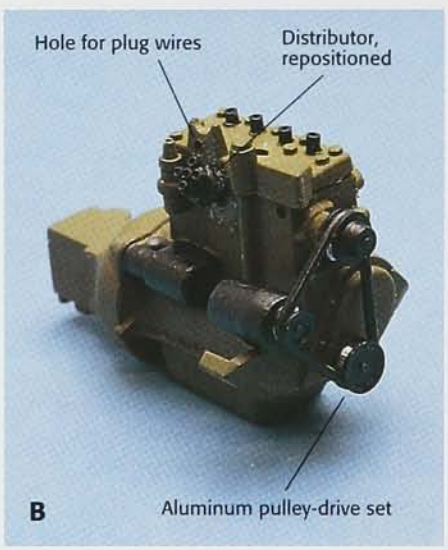
STEP 2. HEAD FOR THE TREAD (continued).

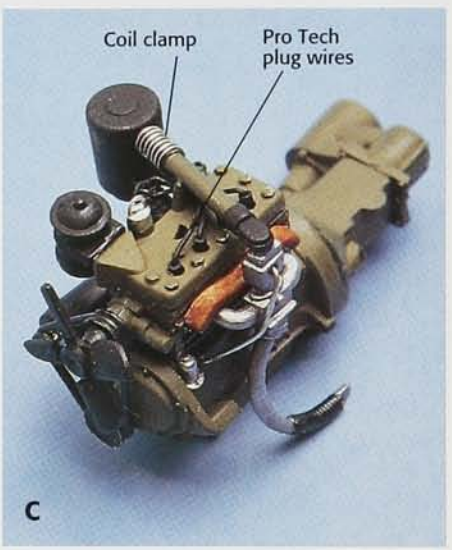
but those areas can be re-treated later.

After gluing the wheels to the axles, I pre-weathered the chassis with a wash of desert-tan pastel powder mixed with water and Windex (**D**). I added more pastel powder to this wash than before because I wanted a heavier, muddier, caked-on look.

STEP 3. ENGINE TUNE-UP.







Turning to the jeep's little four-cylinder engine, I glued together the block halves, filling the seams and sanding them smooth.

Because the cylinder head had an inaccurate bolt pattern, I sanded off the bolt heads and added new ones according to the jeep manual. I drilled locator holes and installed RB Motion machined-aluminum bolt heads (**A**).

I removed the molded distributor from the left side of the engine and made a more accurate one using ⅛" styrene tube for the casing and 1/16" rod for the shaft (**A**).

I glued the new distributor to the right side at a more-accurate angle and filled the hole around the shaft (**B**). I installed a Model Car Garage machined-aluminum pulley-drive set on the engine front, painting the pulley faces, generator, and starter flat black. The air-cleaner brace has a 1/16" hole drilled through it for routing the plug wires.

I added Pro Tech Model Parts' spark-plug wire and boots to the cylinder head and coil (**C**). The hose jacket connecting the air cleaner to the snorkel tube was wrapped in fine wire to replicate the coil clamp that connects the two. The dipstick handle, also formed from fine wire, is glued to the top of the filler cap. I drilled holes in the sides of the carburetor and fuel pump and used 20-gauge wire for fuel hose. I painted the exhaust manifold silver and topped it with Rustall to depict the red hue of exhaust parts.

Now the engine looks so good it's almost a shame to weather it. Nevertheless, I mounted the engine on the chassis and coated it with Rustall black wash (**D**) to replicate oil and grease. I finished the engine with the same pastel wash used on the chassis.

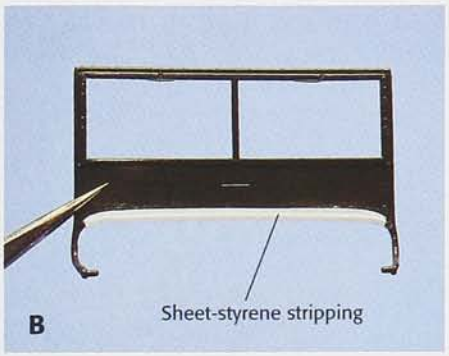
STEP 4. RADIATOR, WINDSHIELD, AND WIPER MOTORS.

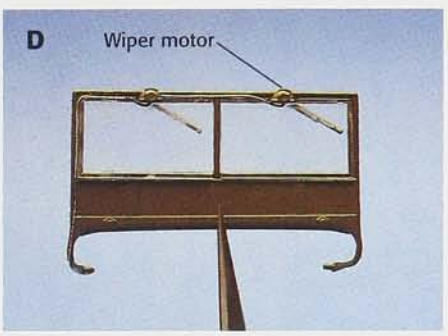
The radiator, cooling shroud, and headlights are molded as one piece (**A**). After I painted the whole piece olive drab, I masked off the shroud and headlights and painted the radiator flat black.

Jeeps have a bead of weather stripping between the cowl and windshield. Using the lower windshield frame edge for a guide, I cut two curved strips of .020" sheet styrene – one 1/8" and another 1/16" – to match the contours of the cowl and frame. I glued the 1/8" strip to the windshield frame, then glued the 1/16" strip to the top to add a crease to the weather stripping (**B**).

After the glue dried I sanded off the strip's hard edges to make it look more supple. I painted the windshield frame olive drab, then masked it to paint the stripping flat black.

For the windshield, I cut a wiper-pattern mask for each pane (**C**), placed the masks, and sprayed two misty coats of Dullcote. Peeling away the mask leaves windshield-wiper tracks on a hazy windshield.





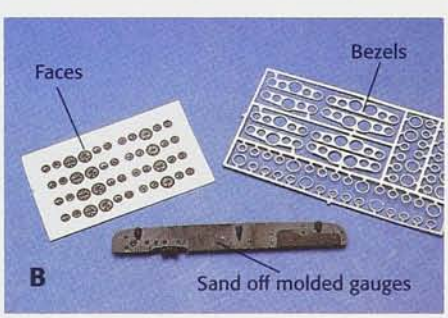
For further detail, wire the wiper motors on the back of the windshield (**D**). I drilled holes in the underside of each motor; stripped two segments of Pro Tech plug wire, leaving 1/4" of insulation on the end of each to replicate the boot at the motor; then glued the wires in the base of each motor. Wiring runs from the right to the left motor, then down the windshield frame to the pivot where it enters the body. After taking this picture I brush painted the wire olive drab.

STEP 5. SEATS, DASH, AND JERRY CAN.

Seats are magnets for oil and grime. I made this my first order of business in modeling the interior. I painted the seats olive drab and coated them with Rust-all black wash, which settled in the low spots and creases (**A**).

I shaved off gauges and plates on the dashboard and glove box, sanded the surfaces flat, and replaced the gauges with Detail Master faces and bezels (**B**). After the gauges were firmly affixed and the bezels painted olive drab, a drop of clear gloss replicated a glass lens for each instrument. The occupant-information plates on the glove box are decals from my spare-parts bin, cut to fit.

I spent extra time on the kit-supplied jerry can, sanding off the molded tie-down and replacing it with webbing made from satin strip (**C**). I threaded the 1/8" strip through two Detail Master seat-belt buckles, bending one to form a slot on the jerry-can brace. The entire unit then was painted olive drab.



STEP 6. MORE WEATHERING ON THE WAY.

I applied a thin desert-tan wash overall to dull the olive drab surfaces (**A**), then went to work with heavier coats of powdered pastels.

It's easy to damage a light coat of powdered pastels with spray, but when they're applied this heavily you can seal them in place with misty coats of clear flat. Easy does it – too much will lessen the effect of the pastels.

Underneath, the exhaust system received Rustall rust and black wash (**B**). I washed the areas around the U-joints, gearboxes, and brakes with a 50-50 solution of flat-black enamel and thinner to make them look greasier.

Under the hood, the engine received a thin black-pastel-powder wash (**C**). I applied the wash right up to the hood line on the front fenders; because it's covered by the hood, this area receives more exposure to oil than the outer fenders.

AMERICA'S LIGHTWEIGHT WAR-HORSE

What's in a name? In the case of the name "jeep" and its origin, plenty. Many believe the name came from the vehicle description "GP" (general purpose). However, both a military tractor produced by the Minneapolis-Moline Power Implement Co. in 1939 and Dodge's 1940 ½-ton 4x4 truck were called "jeeps."

Another alleged namesake was the Popeye cartoon figure Eugene the Jeep, which made its first comic-strip appearance in 1936. During the war the vehicle also was called "Peep," "Quad" (derived from its ¼-ton, 4x4 classification), "blitz buggy," "Midget" and "Leapin' Lena." There was even an amphibious version dubbed the "Seep."

In 1940 the U.S. Quartermaster Corps called on America's auto industry to build a light ¼-ton 4x4 truck, and American Bantam Co. stepped forward with its now-familiar jeep design. It was received enthusiastically by the Army – and incorporated quickly by larger companies Willys-Overland and Ford, which competed for the government contract with vehicles called Quad and Pygmy, respectively.

American Bantam couldn't compete with the production capabilities of the two bigger companies. Willys-Overland won the contract and began manufacturing its MB Model. Ford produced the GP-W under license from Willys-Overland, while American Bantam had to settle for making trailers – but not before building about 2,500 jeeps before the end of 1941.

Sources vary, but most agree that more than 600,000 jeeps were produced by the end of the war. By then the Willys-Overland plant in Toledo, Ohio, was turning them out at the rate of three every four minutes!

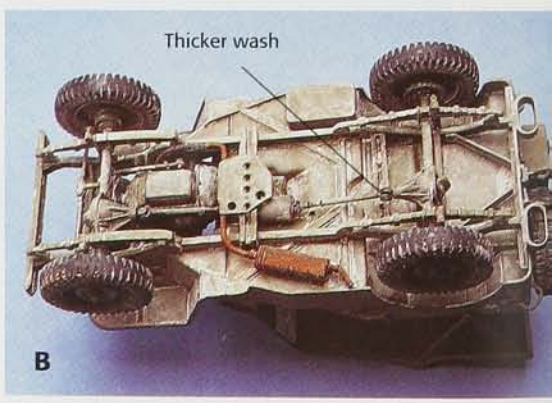
The jeep which the U.S. Army standardized in July 1941 weighed 2,450 pounds and was powered by Willys-Overland's durable 4-cylinder 134.2-cubic-inch engine. A 15-gallon gas tank under the driver's seat gave it a range of 300 miles.

Originally intended for command personnel and reconnaissance missions, the jeep quickly was put to many other uses, including cook stove for resourceful infantrymen, ambulance, aircraft ground support, even (with special wheels) railroad locomotives able to haul a 20,000-pound boxcar. The jeep could tow a 37mm antitank gun, mount machine guns, haul light cargo, and – best of all – go almost anywhere. It could climb a 60 percent grade, ford 18"-deep water, cross 72" ditches, and climb 2'-tall obstacles. Its four-wheel drive and 8¾" ground clearance provided excellent performance in snow and mud. And it was tough and stable enough to hit a bump, leave the ground, and come down on all fours, intact.

The jeep gave American forces precious mobility in a fast-moving, highly mechanized war. The supreme commander of Allied forces in Europe, Gen. Dwight D. Eisenhower, listed the jeep as vital to triumphs in North Africa and Europe. Decades later, Gen. William C. Westmoreland, U.S. Army chief of staff from 1968 to 1972, lauded the jeep's performance in the tangled terrain of the Vietnam War.

Today, Jeep/Eagle, a division of Chrysler Corp., makes Jeeps which look much as their forebears did 50 years ago. – *Mark Hembree*


A



B


C

STEP 7. STARS, LIGHTS, AND MUD.

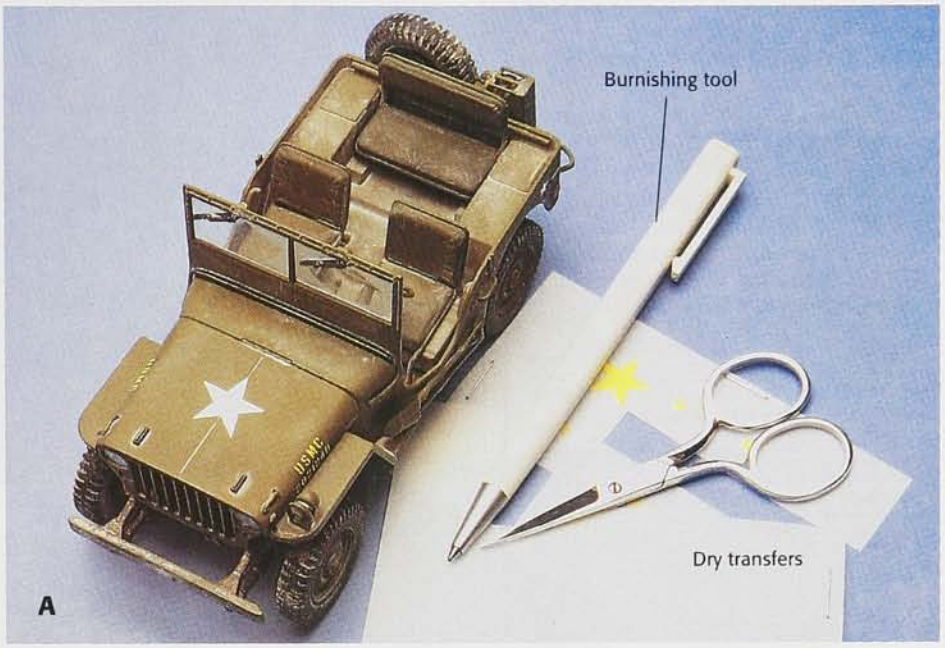
The kit-supplied decals were converted to dry transfers by Lithoplate, a company serving modelers. I applied the decals to a black surface for them to be duplicated on film, the first step in making dry transfers. Because I elected U.S. Marines markings for my jeep, I needed both a white and a yellow transfer sheet (**A**).

I burnished the transfers on the jeep surface with a ball-point pen. A heavy wash was applied to markings on the bumpers, while those on the hood and rear quarter panels received a lighter treatment.

The head lamps and taillights are detailed with lacquer paints. A coat of Floquil Barrier was applied to each lens, followed by LMG silver base. LMG candy redhot acrylic lacquer then was applied to all red lenses (**B**), and LMG clear to the others. These specific products are compatible – an important consideration with lacquers, which can damage other paints and plastic.

Lacquer beats enamel for detailing lights. Because it dries more quickly, it doesn't obscure detail or build up around edges like enamel.

A jeep wouldn't look right without mud splatters. I applied slightly thinned Testor armor sand with a short-bristled brush



A


B

SOURCES

■ **Flex-I-File sanding sticks:** Creations Unlimited, 2011 Plainfield Ave. NE, Grand Rapids, MI 49505

■ **Dashboard gauges and bezels, seat-belt buckles:** Detail Master, P.O. Box 1465, Sterling, VA 20167, ✆703-450-5708

■ **Floquil Barrier:** Floquil-Polly S Color Corp., 4715 State Highway 30, Amsterdam, NY 12010-9204, ✆518-843-3610

■ **Gunze Sangyo Mr. Surfacer 1000 primer:** available from International Hobby Supply, P.O. Box 426, Woodland Hills, CA 91365, ✆818-886-0423

■ **Rustall weathering system:** Kuras Design Group, 112 Point Lobos Ave., San Francisco, CA 94121, ✆415-752-5724

■ **Dry transfers:** Lithoplate, dry-transfer division, 2429 Third Ave. S., Birmingham, AL 35233, ✆205-251-7291

■ **Acrylic lacquer paints:** LMG Enterprises, 1627 S. 26th St., Sheboygan, WI 53081, ✆414-457-6033

■ **Engine pulleys:** Model Car Garage, 537 S. Sequoia Drive, Suite 309, West Palm Beach, FL 33409

■ **Styrene sheet, rod, and tube:** Plastruct, 1020 S. Wallace Place, City Of Industry, CA 91748, ✆818-912-7016

■ **Pastel powders:** Professor Weathers, P.O. Box 131391, Birmingham, AL 35213, ✆205-520-0801

■ **Spark-plug wires and boots:** Pro Tech Model Parts, 1351 Amberg Ave. N.W., Palm Bay, FL 32907, ✆407-951-3392

■ **Scale bolt heads:** RB Motion, P.O. Box 47, Bryan, OH 43506

STEP 7. STARS, LIGHTS, AND MUD (continued).

(**C**). Simply load the bristles, pull them back with your index finger, and let 'er fly! This technique is hard to control, so practice to get a feel for it.

I finished off with Professor Weathers powdered pastels, applying desert tan overall, and grimy black to the steering wheel, hand grabs, and places where grease and grime collect (**D**). These layers are easy to smudge, but just as easily repaired with another dusting.

Italeri's Willys Jeep provides a great base for all sorts of conversions. Want to start simple? Add a machine gun to the deck. Looking for a greater modeling challenge? You can convert the Willys jeep to a Ford GP-W, or even the rare MB/GP-W hybrid. Go to the library, pull out the reference books, and put your modeling in four-wheel drive!

REFERENCES

■ ***All-American Wonder: Information Regarding the History, Production, Features, and Restoration of the Military Jeep 1941-1945, Volume 1,*** Ray Cowdery with Merrill Madsen, Northstar-Maschek, Küsnacht, Switzerland, 1986

■ ***All-American Wonder: Information Regarding the History, Production, Features, and Restoration of the Military Jeep 1941-1945, Volume 2,*** Ray Cowdery, United States Metric Association, Boulder, Colorado, 1990

■ ***The Complete WW2 Military Jeep Manual,*** U.S. Army Staff, Portrayal Press, Andover, New Jersey, 1991

■ ***The Jeep: Its Development and Procurement under Quartermaster Corps 1940-1942,*** Herbert Rifkind, Portrayal Press, Andover, New Jersey, 1987

All of the above books are available from Classic Motorbooks, P.O. Box 1, Osceola, WI 54020, ✆800-826-6600.

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