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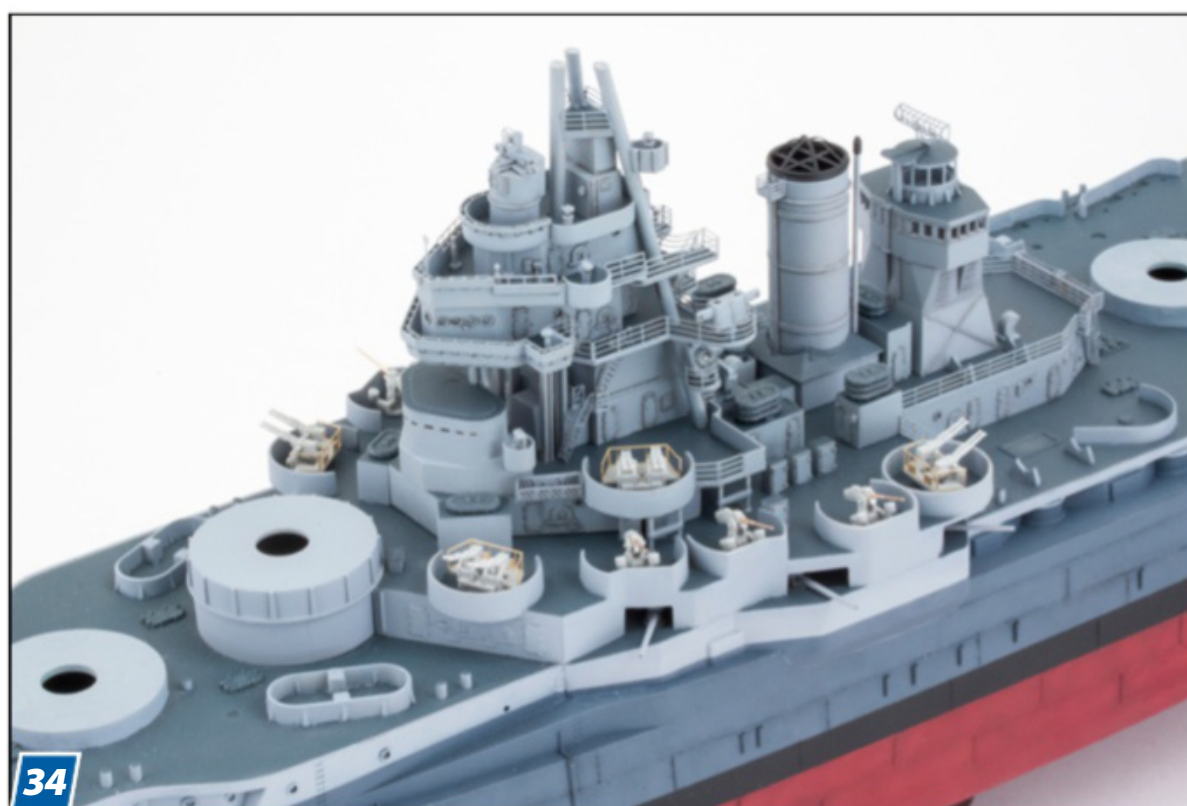
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By Mark Savage

Going overboard with ships!



Ever since I toured the USS *New Jersey* and later the USS *Wisconsin*, I've had a great appreciation for these giant battleships that served the U.S. Navy for so many years. Now we'll show you how to build a gorgeously detailed USS *Texas*. With a name like that, you know it's big.

Ship models are special builds with all their rigging, metal railings, radar equipment, flags, along with their water- and weather-worn hulls and superstructures. Then there's the task of putting them in context, on the water, be it rough seas or smooth sailing on glassy waters.

Ship building takes special skills and more than a niggling amount of patience.

With all the variety, from battleships to sailing sloops, and then to U-boats that cruise mostly underwater, we felt it time to compile a special issue of our absolute best model ship building stories. These are excellent how-to and step-by-step builds from the past 10 years of *FineScale Modeler* gathered together to serve as an authoritative source for ship modelers.

You'll find everything here that you'll need to build a fine ship model.

We start with ship building basics and work our way up to detailing war ships, how-to create awesome sails for sailing ships, and even show the makings of a story-telling diorama

about the night the passenger liner *Titanic* sunk.

Aaron Skinner's fine four-part "Builder Basics" series kicks off the basics section. We follow with a bevy of ship tips and then Alfonso Martinez Berlanga's story that delves into accurate ship painting.

Along the way you'll see how to build a waterline ship model, sculpt realistic waves, highlight weld seams and build fantastic ships like the USS *Texas*, *Nagato*, SMS *Seydlitz*, a Russian missile destroyer, a German schnellboot, and a U-boat. Finally, we wrap it up with tips for making sailing ships, and include the popular John Hazard piece on proper sail construction and rigging.

If you've always dreamed of making a stellar ship model, *Build Better Ship Models* is a how-to guide that should float your boat.

Enjoy!

editor@FineScale.com

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Art Director Tom Danneman

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Digital Editor Elizabeth Nash
Editorial Associate Monica Freitag

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EDITORIAL

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ADVERTISING DEPARTMENT

888-558-1544

Advertising Sales Representative
Michael Wieloch, Ext. 630
Advertising Services Representative
ads@FineScale.com

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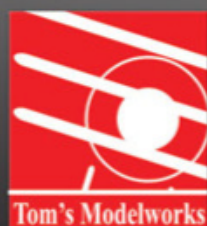
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BUILDING HULLS ***& subassemblies***



With a trimaran hull and stealthy shape, the USS Independence looks cool cutting through the Gulf of Mexico during July 2009 builder's trials. Clean lines and uncluttered surfaces make for a relatively easy introduction to ship modeling. U.S. Navy photo

Part 1 of 4: We use a littoral ship for teaching ship building basics

BY AARON SKINNER

I build a lot of different kinds of models — civil and military aircraft, armor, cars, science fiction — but it's been a long time since I set out to build a ship kit. As a kid, all of the small parts were difficult to handle and I was never happy with the way those clunky models looked with misaligned or broken parts. During the time I've worked at *FSM*, I've planned to build another maritime subject, but it wasn't until Trumpeter's 1/350 scale USS

Independence littoral combat ship showed up that I felt inspired to get my feet wet.

The *Independence* is a good choice for a first ship. The oddly shaped hull has clearly defined decks, making masking and painting easy. The number of small parts is not overwhelming. Similarly, the photo-etched metal is not excessive. There aren't a lot railings, which minimizes frustration while still providing a challenge.



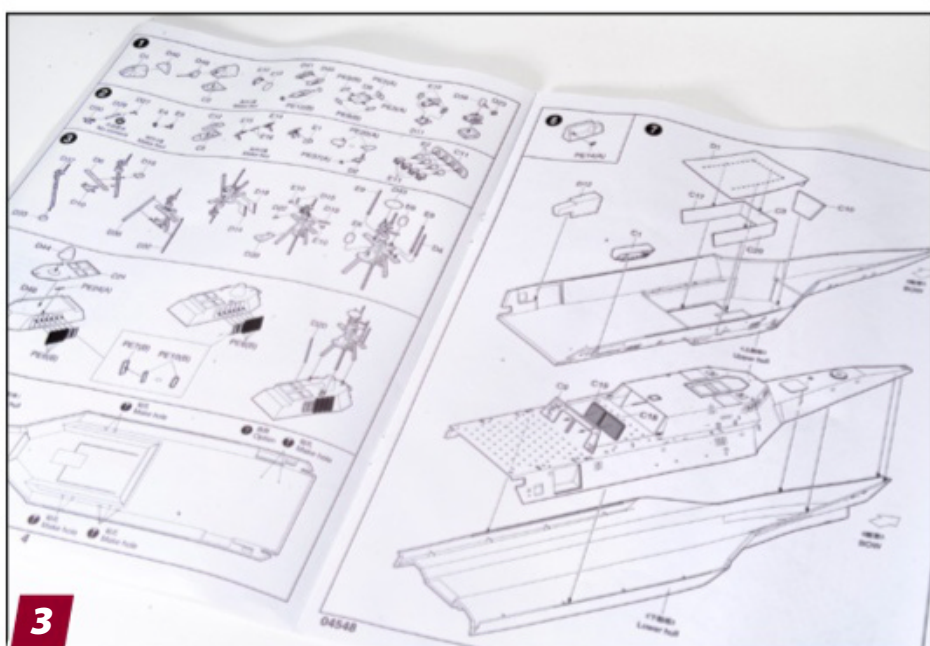
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Ship kits usually consist of a couple of large hull and deck parts plus several sprues of details. Trumpeter's *Independence* is no exception. Before starting construction, I looked over the parts and instructions.



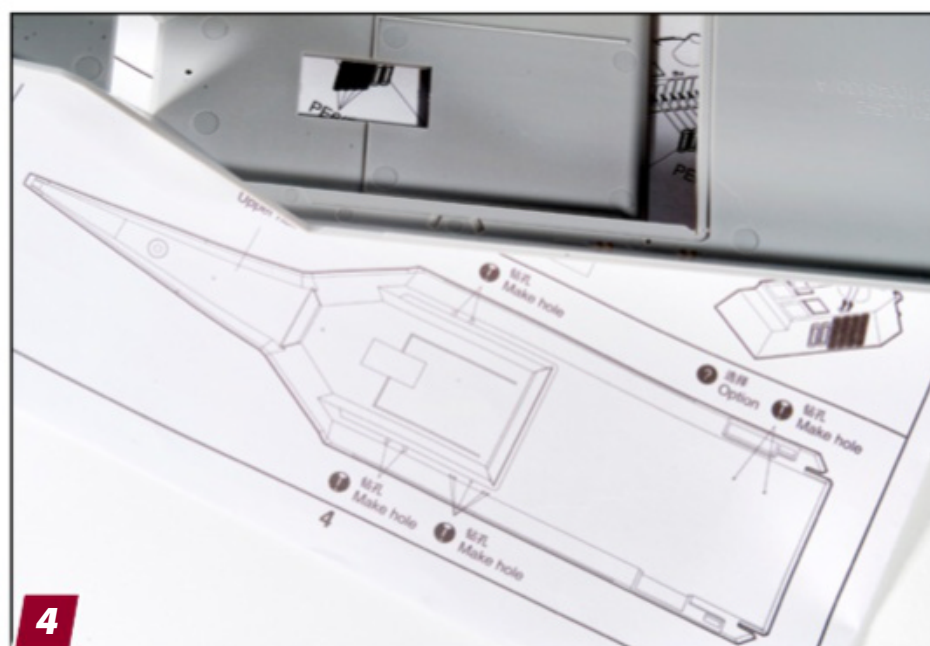
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Most new ship kits include photo-etched metal. The delicate brass parts are great for replicating small-scale railings, ladders, vents, and tie-downs, but they can be fiddly. We'll look at them in more detail later.



3

Sometimes, kit instructions don't seem to have been written by modelers. On a ship model, the hull and decks almost always require clamping and sanding. I've seen instructions in which hull assembly is the last step, after all the fragile parts are installed — a risky sequence. Don't be afraid to go your own way and put the hull together first.



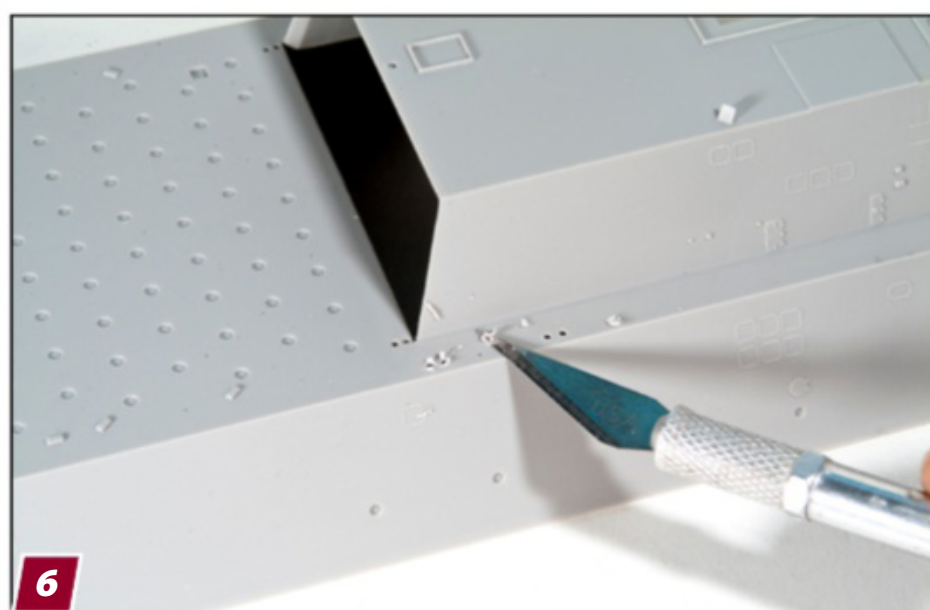
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Double-check the instructions for locators that may need to be opened prior to closing the hull. The *Independence* has several small round holes starboard of the superstructure, two rectangular cutouts on either side, and two optional holes on the helicopter deck for the UAV pad.



5

I chucked a mini drill bit in a pin vise to open the circular holes. To find the right size, insert the bit in the flashed-over hole until you find one that fits snugly without chewing up the sides. Then simply turn the pin vise until the bit pops through.



6

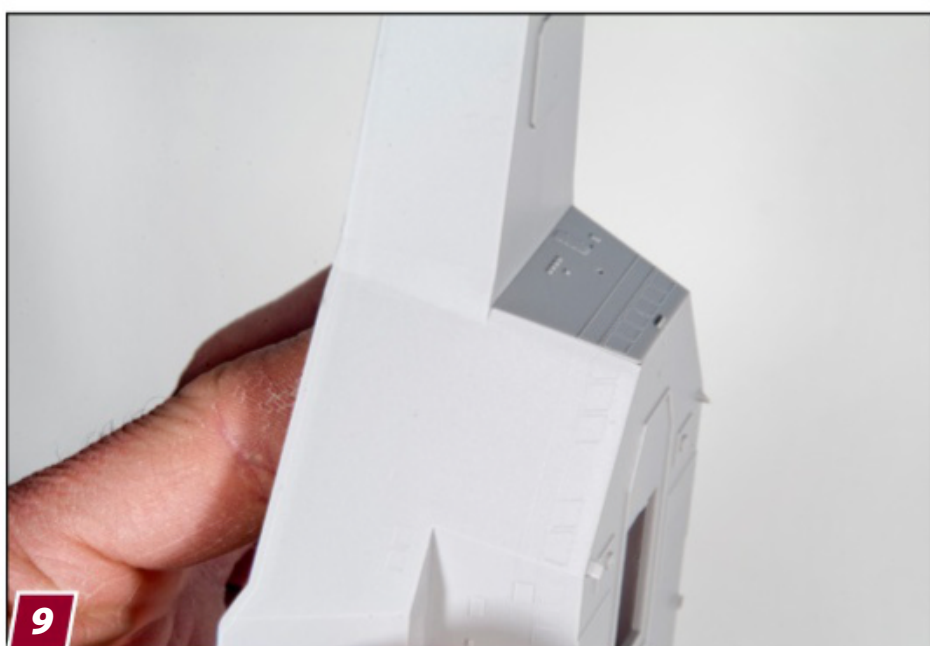
I flipped the part over and sliced the burr of plastic from each hole with a sharp hobby knife held flat against the surface.



To improve fit, I put the tip of a No. 11 blade into the hole and rotated it to remove the lip of plastic around the edge. Be careful not to bore the hole too big.



The square holes required a slightly different method. I could have drilled pilot holes, but instead I held the tip of a No. 11 blade against each side of the opening and gently pushed it through. I removed the burr with the blade and fine sandpaper.



Dry-fitting to test part placement is always a good idea. On the *Independence*, many of the body parts butt to form sharp edges. Testing showed the bridge front insert wasn't perfect.



The culprit turned out to be the remains of a sprue attachment point along the upper edge. I removed it with a medium-grit sanding stick, running it along the edge, rather than across, to prevent creating an uneven spot that would leave a gap and require filling.



To attach the part, I held it in place and touched a brushful of liquid cement to the join and let the glue run along the seam. After a few seconds, I pushed it lightly into the gap to ensure a tight fit (but not hard enough to push molten plastic out). This minimizes sanding later.



The hull inserts feature nasty ejector-pin marks that would be obvious on the finished model. To fill them, I found a punch that matched the marks' diameter to produce disks of .010" styrene I glued into place and sanded flush.



13

To smooth rough plastic left after sanding, I brushed Testors liquid cement onto the parts and let it sit. It melted ridges and gouges in the difficult-to-sand area.



14

Finally, before joining the hull halves, I sanded off mold seams around the bow and ejection marks between the hulls. They were fine enough that a few strokes of a sanding stick was all it took.



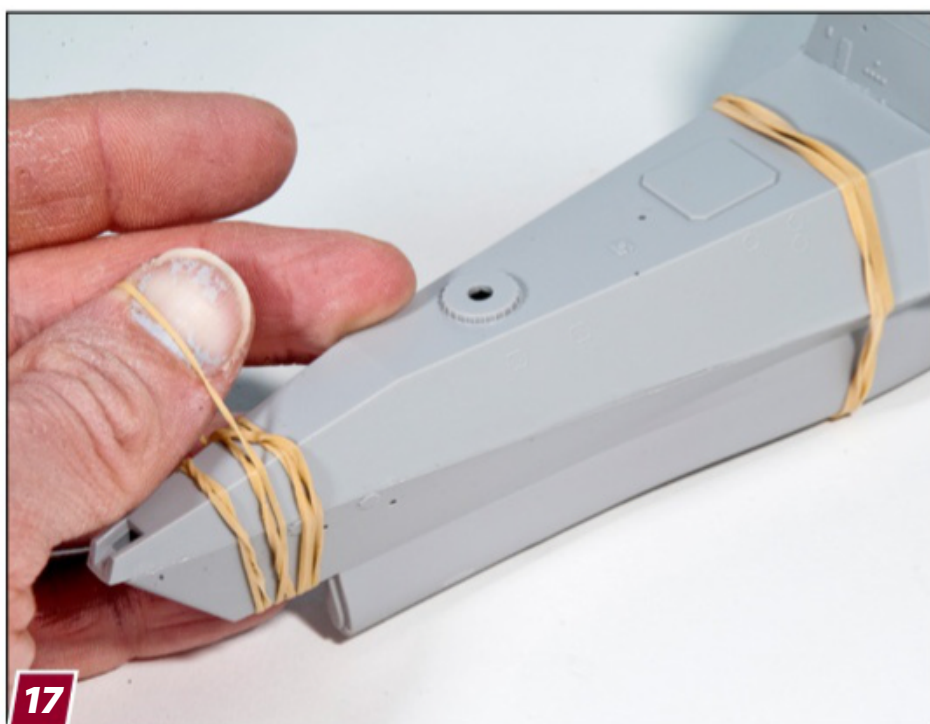
15

The hull halves fit pretty well, but the upper part needed to be stretched just a little to meet the lower. To make things easier, I joined the parts in sections starting at the bow. To ensure solid structure, I applied a bead of Testors cement along the joining surfaces.



16

Then I pressed the two parts together hard and held them for several minutes while the plastic melted along the seam.



17

Rubber bands strapped around the hull held the bow together as the glue set overnight. Be careful with rubber bands: If you strap them on too tight they can distort the parts and cause mismatches along seams.



18

The next day I applied liquid cement to the hull seam, starting from the front and working 2 inches at a time, squeezing and holding as I went to produce a neat, clean seam. After adding the stern plate, I let everything cure overnight. **FSM**

WORKING WITH *small parts & PE basics*

Part 2: Detailing the masts, weapons, and radar systems

BY AARON SKINNER

The USS *Independence* (LCS 2), approaches Naval Station Mayport, Fla., for a port call in April 2010. *Independence* was en route to Norfolk, Va., for initial testing and evaluation.
U.S. Navy photo

In this second part of “Builder Basics” I’ll get into adding fine details to our sample ship, Trumpeter’s sharp-looking 1/350 scale USS *Independence* LCS-2. The littoral combat ship’s simple shapes and lines, along with a minimum of photo-etched (PE) metal, offer novice ship modelers a good introduction to the genre.

In the first part I assembled the hull. In this segment I’ll touch on weapons, masts, and radars. That means dealing with small parts and PE. I have a love/hate relationship with the latter. I think it looks great, because the thin

metal lends finesse to a model that plastic just can’t achieve. But, it’s also fiddly and easy to mess up or lose during construction.

All of that means special care should be taken during construction. I assembled some small parts, such as the Phalanx CIWS, gun turret, and smoke launchers, but left them off the model for painting. Other items, such as the helicopter deck lights and PE tie-downs, were attached before painting. I based those decisions on whether or not the parts were going to be painted the same color as the surrounding deck or hull. If not, I left them off until later.





Before adding delicate parts — plastic or metal — to the model, it's a good idea to make sure all the heavy handling is done. Check for gaps between panels. I filled a couple of minor openings on the *Independence* by flowing thin super glue from the end of a toothpick.



I took care of some messy joins — mild overlaps and glue residue — with a few swipes of 1000-grit sandpaper. Work gently and sand with the sides to avoid creating flat spots along the edges.



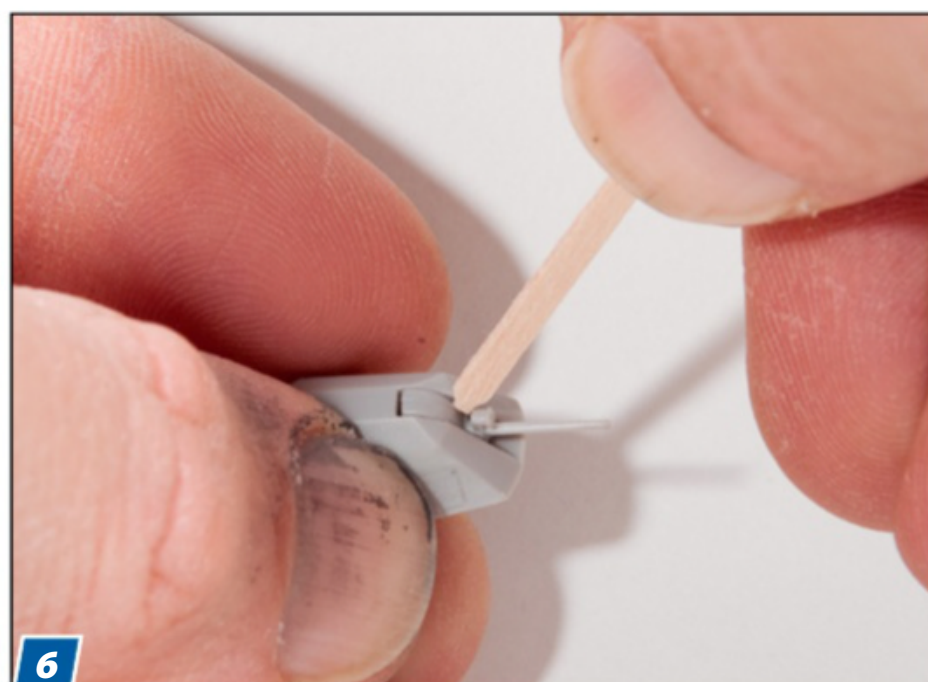
Small-part tools: I put a new No. 11 blade in my hobby knife and made sure I had pointed tweezers, a fine razor saw, and good sprue cutters handy.



I cut larger small parts, such as the turret, off the tree with sprue cutters. Placing the flat edge of the jaws close to the part minimizes sanding and cleanup.



Even small parts, like the gun, may have mold seams to remove. I used a No. 11 blade to gently scrape the blemish from the part. You also can use a sanding stick, but be careful not to press too hard and break parts.



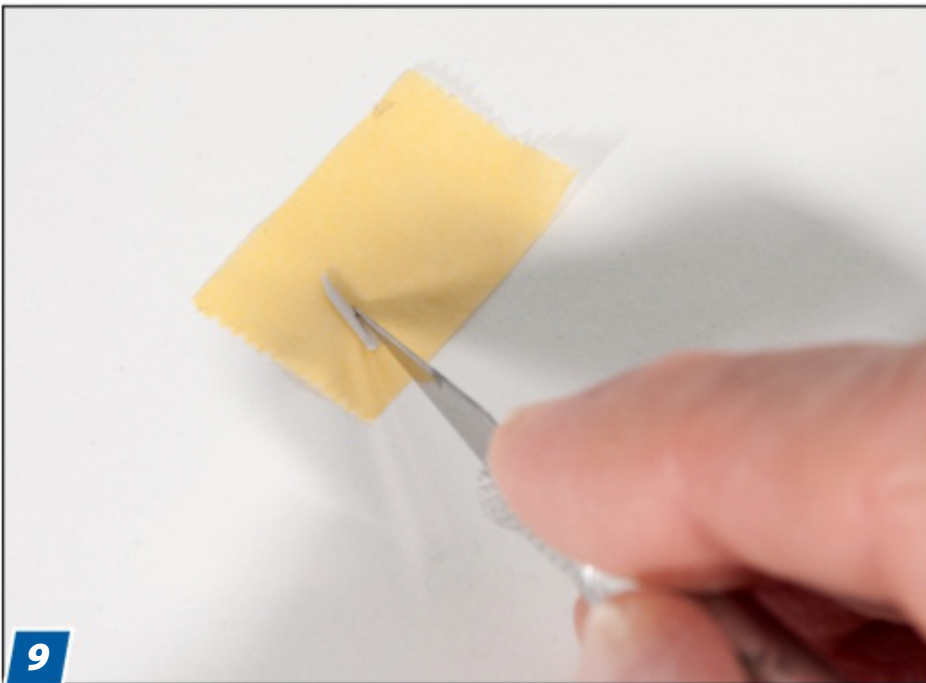
Tweezers can help place a part, but I find a wooden toothpick handy for pushing delicate parts into place. The softer wood has some give and is less likely to damage the plastic than metal.



7 To control flyaway parts, I apply a piece of low-tack tape to the sprue and press the part into it before cutting it off with sprue cutters.



8 Then I can peel the part off with the tape. It still pays to be gentle, as the part can come off the tape if you bend it too abruptly.



9 While the part is still on the tape, I place it on a hard, flat surface and trim any remaining plastic at the attachment point.



10 With the part cleaned up, I install it on the ship's mast with tweezers. I add a drop of liquid cement — just enough to make it tacky enough to hold the parts — to the attachment points before positioning the part. Once it's in place, I add a little more glue to secure it.



11 Sometimes, what a tiny part really needs is a handle. Clip the sprue about 1/2 inch from the part so you have more to hang onto.



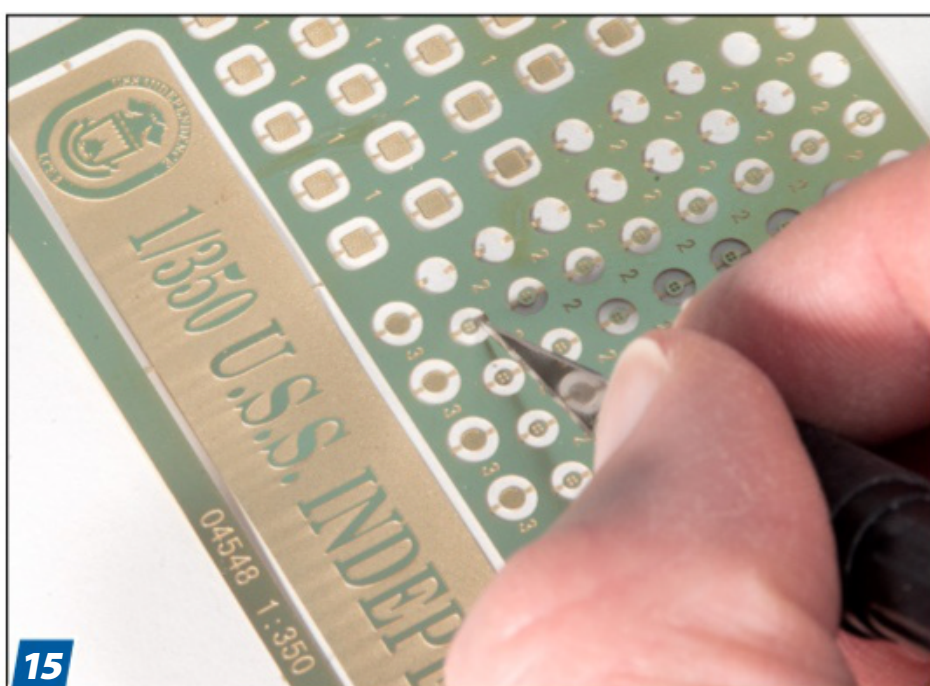
12 Now you have a little more control, and the part is big enough to position by hand. Once the glue dries, gently clip off the handle with sprue cutters or a razor saw.



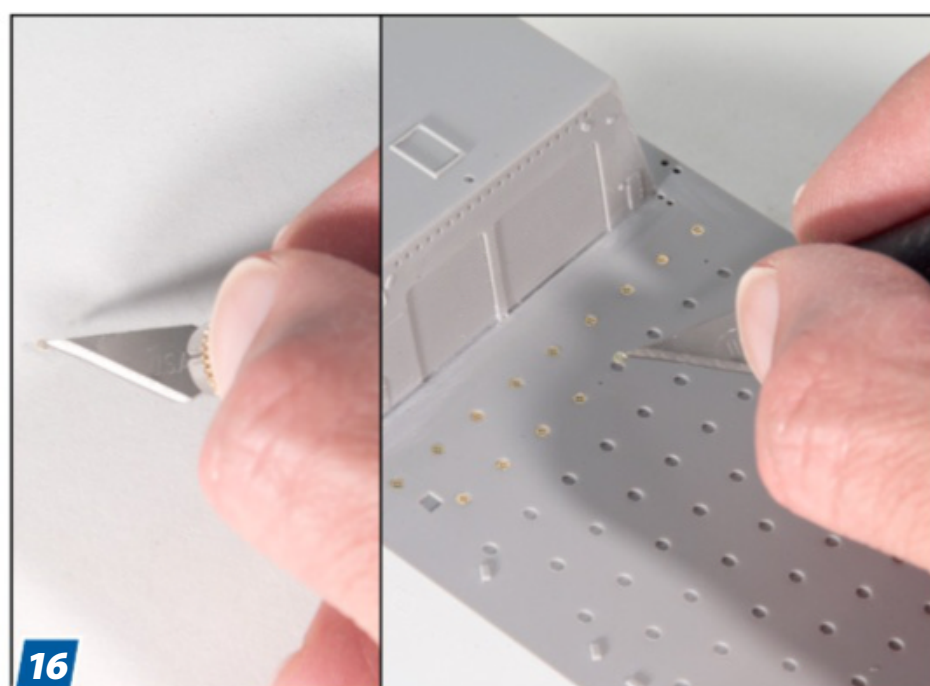
Thin parts like antennas might break if removed with sprue cutters. Gently saw the part off with a razor saw to avoid bending parts.



Attach thin plastic parts like this antenna with super glue; it'll secure the part without melting or distorting the delicate plastic.



To remove a PE part from a fret, place it on a hard surface. (A soft surface, such as a cutting mat, allows the part to bend.) Then, place a new, sharp blade against the edge of the part and slice through the attachment point. If the blade is dull, it may damage the part.



As long as the blade is sharp, you can pick up the part by gently pushing the knife tip into it. (Make sure it's still on the glass.) Now transfer the part and locate it on the model. For the tie-downs, I applied a little thin super glue to the holes before placing the parts.



For items like the ladders on the ship's side, I place the part, then flow a little thin super glue from the tip of a toothpick. Assembling or attaching all of the small parts takes time and patience.



If you need to bend small PE parts, arm yourself with a pair of pointed-tip smooth-jawed pliers. They allow you to get a good grip on the part and produce a crisp bend without scratches. **FSM**

PRIMING, *masking, painting*

Part 3: An airbrush and masking tape are key in this step

BY AARON SKINNER

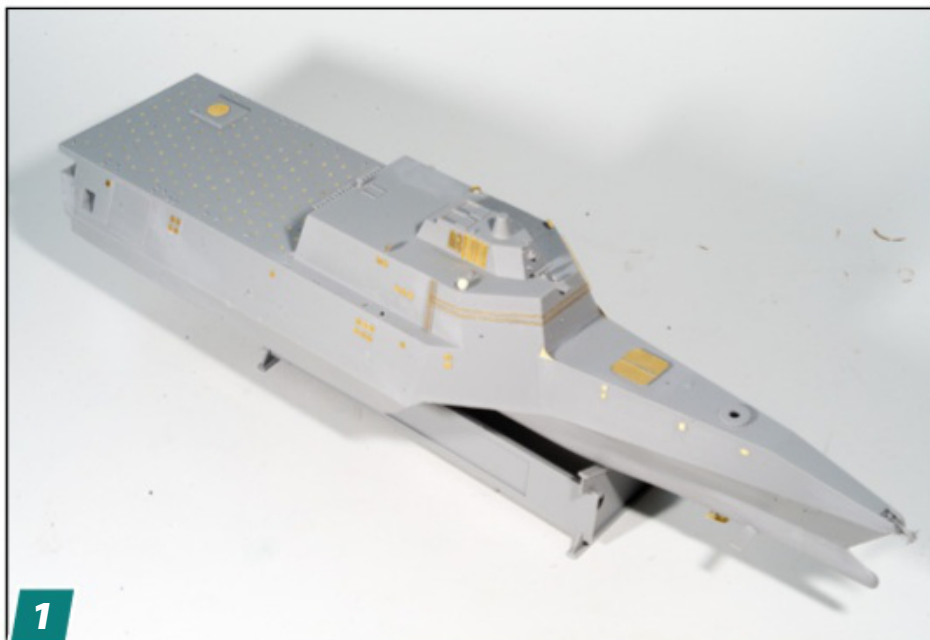
USS *Independence* arrives at Mole Pier at Naval Air Station Key West in March 2010 on the way to Norfolk, Va., for initial testing and evaluation before sailing to its homeport in San Diego, Calif. Modern navy ships are gray, but that's not the whole story (as Aaron discovered). *U.S. Navy photo*

Our “Builder Basics” ship series uses Trumpeter’s 1/350 scale USS *Independence* littoral combat ship to demonstrate all the techniques you’ll need to complete a ship model.

Earlier, in Part 1 you learned to assemble the trimaran hull and other major components. Part 2 focused on adding details, both plastic and photo-etched metal.

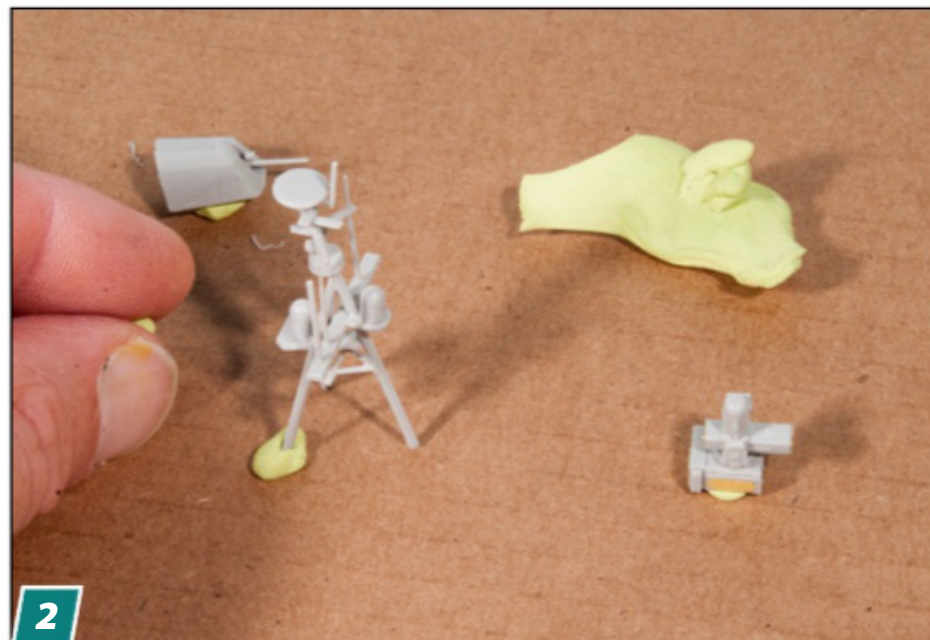
In this segment we’re off to the paint shop where we’ll have fun airbrushing various grays and using a lot of masking tape.





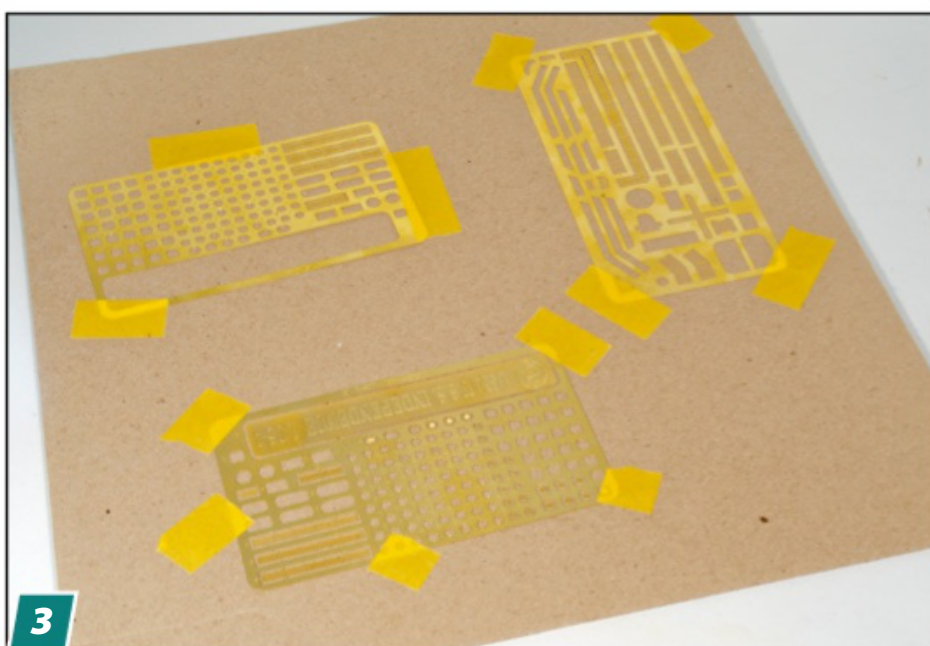
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After all the details and photo-etched metal were added, my *Independence* was ready for paint. You could apply the top coat directly to the model, but I recommend priming. Not only does it help cover inconsistencies caused by the different materials, but primer reveals more gaps and rough spots.



2

Remember to prepare the rest of the small parts for priming and painting. Some parts were painted while they were still on the sprues. I used poster putty to attach small subassemblies, such as this mast and turret, to a sheet of cardboard for painting.



3

I taped the photoetched-metal frets to another piece of cardboard. Don't forget to flip the frets over after the paint dries so both sides get sprayed.



4

Mr. Surface 1000 is expensive, but it covers extremely well and produces a solid foundation for paint. I used a spray can for general coverage.



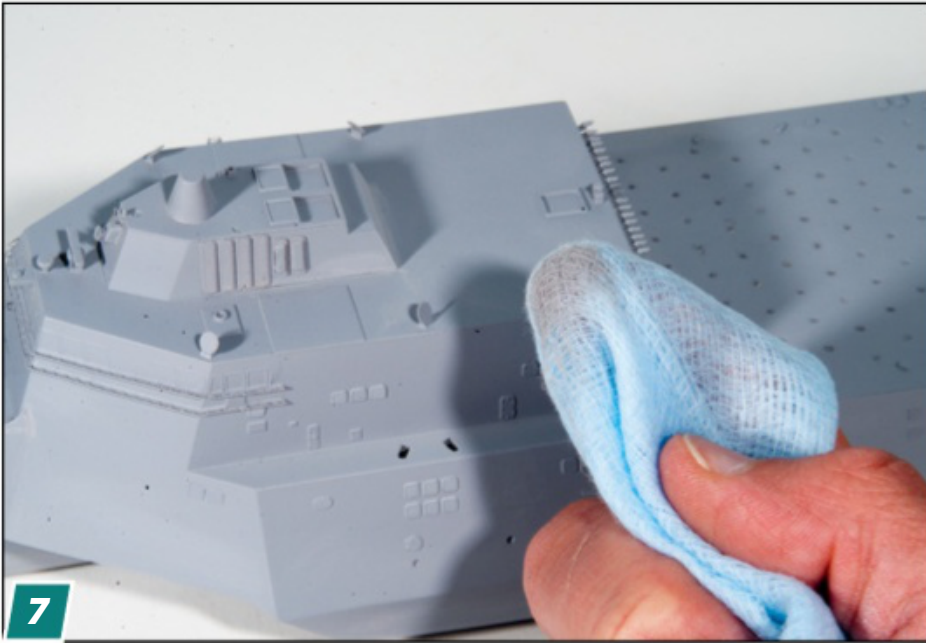
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Primer revealed gaps around the funnel assembly; I filled them with thin super glue applied with a sharpened toothpick. I just touched the seam, and capillary action pulled the glue along the line. I gave the ship another coat of primer after correcting such gaps and blemishes.



6

Lightly sand the primed surface before applying paint. I used a fine sanding stick (3200-grit). This removes roughness as well as any dust and fuzz that may have settled in the wet primer, leaving a velvety smooth surface that's receptive to paint.



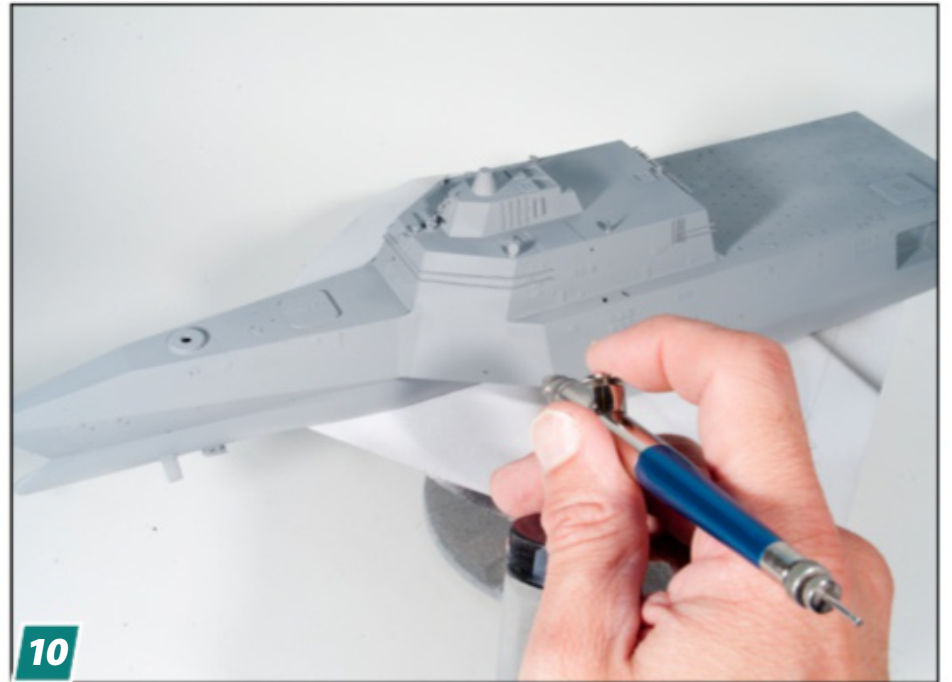
7 Lightly run a tack cloth over the model to pick up any sanding residue. You can find them at hardware and auto-supply stores, but I prefer the ones from Testors; they are less tacky and won't leave a sticky residue on your model. Be careful not to snag delicate parts with the cloth though.



8 Modern U.S. Navy ships are painted haze gray; Testors neutral gray is a good match. I used Model Master enamel neutral gray mixed with Model Master enamel thinner; I added two parts paint to one part thinner.



9 I set the air pressure at about 20psi and set the nozzle on a Badger 200 single-action airbrush to a narrow spray pattern to paint nooks, crannies, corners, and other hard-to-reach areas first.



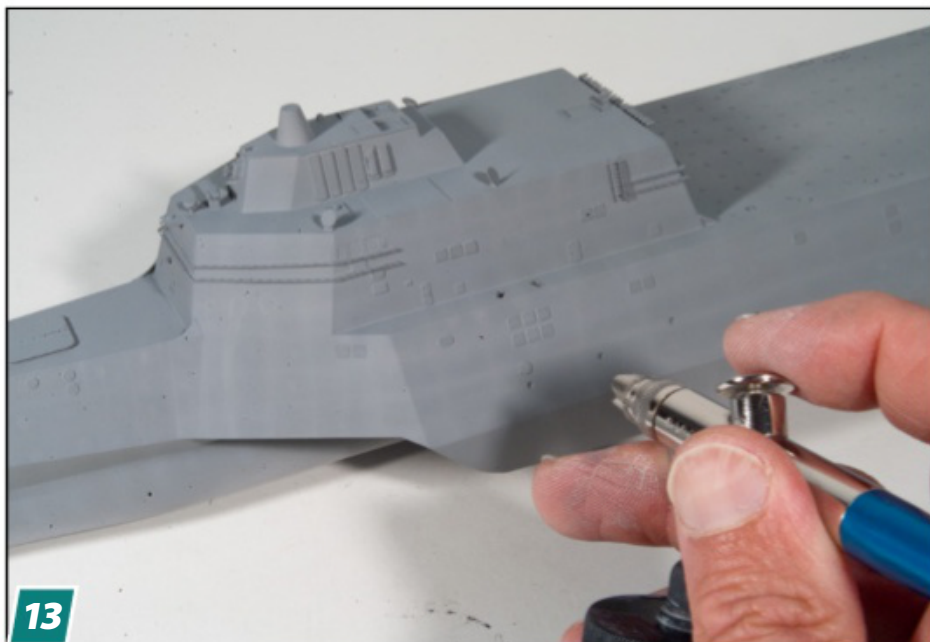
10 Then I opened the nozzle to a wider pattern and turned up the pressure to 25psi for airbrushing the rest of the model.



11 Looking at photos like the lead image in this article, I noticed the hull is not a uniform gray but a patchwork of different shades. I added a few drops of flat white to neutral gray and, testing on paper, set the nozzle to the finest line possible.



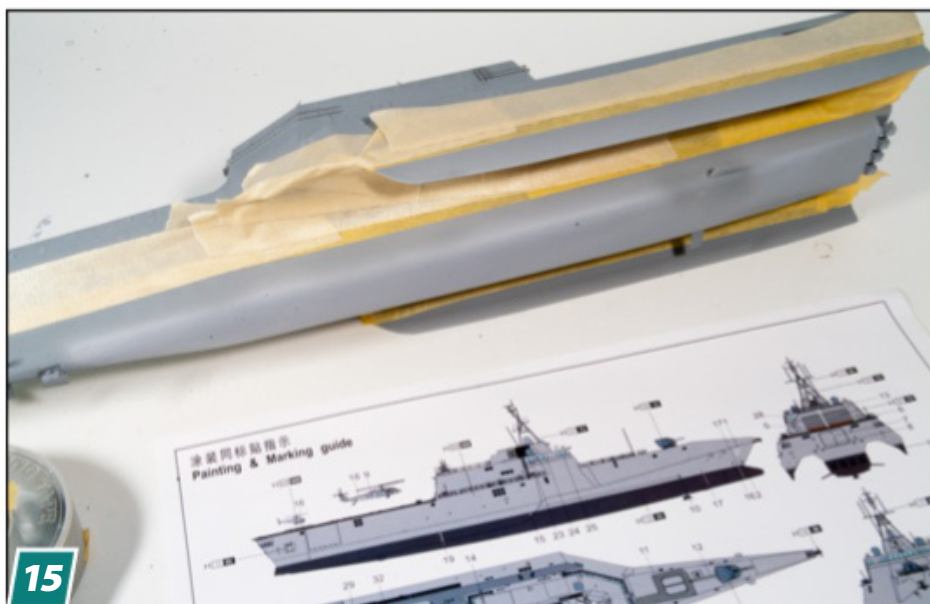
12 With the pressure set to 15psi, I sprayed thin vertical and horizontal lines on the hull sides, keeping them as straight as possible to match photos.



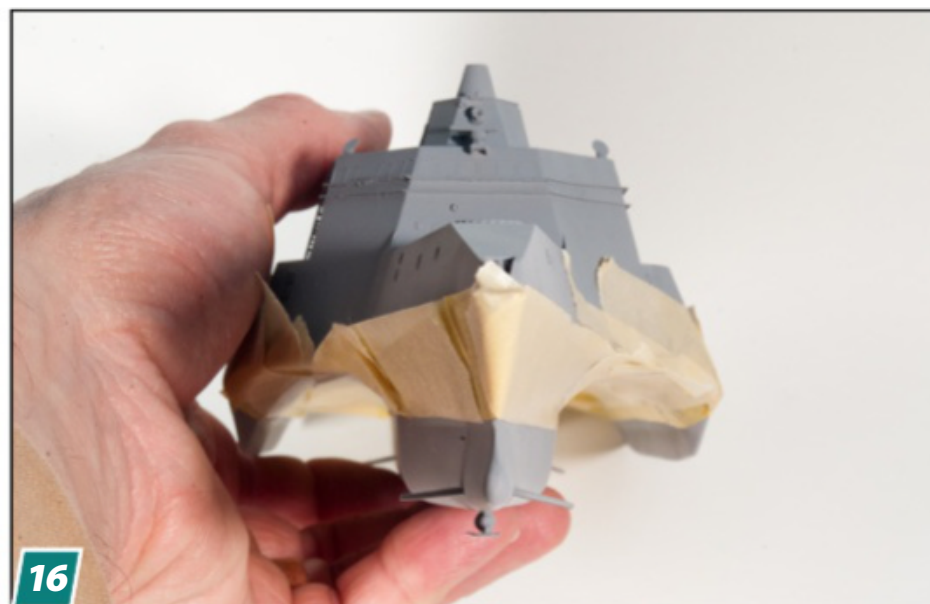
13 The contrast looked a little stark, so I misted a 1:2 mix of neutral gray and thinner across the hull to soften everything. Don't spray mixes with a lot of thinner too heavily or they may damage the paint.



14 I masked the helicopter deck with Tamiya masking tape and airbrushed it Model Master gunship gray. Be careful applying tape around the delicate photo-etched metal on the superstructure — it's easily crushed or removed by the tape. I burnished the tape only along the paint edge.



15 The lower hull on the *Independence* is all black rather than the more-common oxide red with a black boot stripe. You'd think that would make things simpler. But masking around three hulls and keeping everything straight is no mean feat. Constantly refer to drawings and double-check reference points to be sure the alignment is right.



16 Look at the model head-on to verify that the lines match from port to starboard. Clearly they don't in this image — so, I repositioned the tape along the port side of the main hull.



17 I started spraying with a fine line along the edge of the tape masks. This helps seal the mask to prevent paint from bleeding under it, and it minimizes the ridge that might form along the edge if you lay the paint on too thickly.



18 Removing the tape as soon as the paint is touch-dry also minimizes the chance of a ridge forming along the masks. After a few touch ups, the *Independence* was ready for detail-painting and final assembly. **FSM**

APPLYING *decals, fiddly bits*

Part 4: Adding details like decals and photo-etched metal railings put the finishing touch on a ship

BY AARON SKINNER

With the decals and small parts in place, Aaron's 1/350 scale littoral combat ship is ready to take to the sea and proves that ship modeling doesn't have to be impossible.

This wraps up the “Builder Basics” series for creating a fine ship model, no matter your experience level. In this final segment we put the emphasis on small details to give your ship a finished, realistic look.

So far you've learned how to build the hull and other major components, add small parts and photo-etched (PE) metal that help detail modern ship kits, and then paint the vessel, after carefully and properly masking it.

Now it's time to paint tiny details and apply decals before adding the last of the parts, including PE metal railings.





1 First it's time for a little detail painting and it's best done by hand because many of the components are tiny. I used Testors Model Master enamels for all painting, including the hatches and boxes on the flight deck, which I colored neutral gray to match the hull.



2 Based on the kit's instructions, I painted the hangar doors and the conical object on the ship's top aircraft gray. Thinning the paint slightly helps it flow from the brush better and minimizes brush strokes.



3 I used flat white for the radar dishes on the bridge roof and mast as well as the SeaRAM anti-missile defense system.



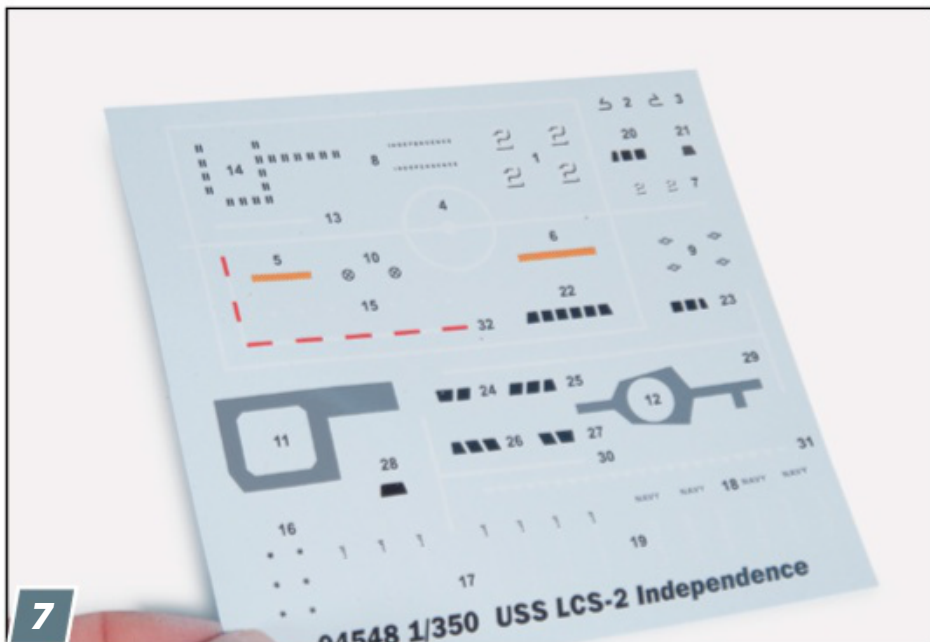
4 The *Independence* is covered with vents — represented in the kit by tiny PE parts — that look different from photo to photo. To set them apart from the hull, I painted each dark ghost gray.



5 I painted the recessed squares on top of the superstructure with thin black enamels letting it flow into the corners rather than having to push the brush into them.



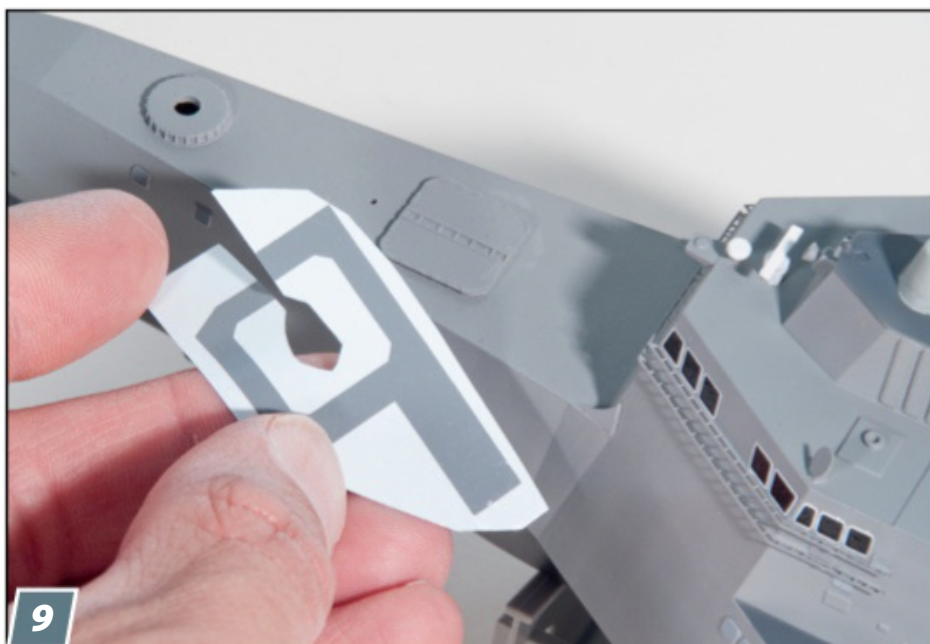
6 The next day, I airbrushed the model with Testors Glosscote to provide a smooth surface for decals. I used Testors lacquer thinner and sprayed several thin coats to build up the shine.



7 The kit's comprehensive decal sheet has bridge windows, foredeck walkways, and all of the flight deck's stripes, including the large rectangle and center stripe. Unfortunately the latter has markings inside the shapes so it's difficult to slide it off the backing paper in one piece.



8 I started with smaller decals such as the hull numbers. Experience with Trumpeter decals taught me it's best not to pre-treat the area with setting solution, or the marking can't be moved. Instead, I flood the area with water and float the decal into place then blot it with a cotton swab.



9 The walkway decal that goes around the missile launcher on the front deck is printed without clear film in the center but it's still a tight fit. I cut through it so I could wrap it around with little risk of damaging the decal.



10 Rather than trying to get the largest flight-deck decal aligned at once I cut it into several parts and applied the center stripe and circle first lining it up with the stripe between the hangar doors. I left a little of the side stripes at each junction to aid their placement. Keeping the decal wet gave me plenty of time to get everything straight.



11 While the surface was glossy, I applied a wash of thin lamp black artist oils to the vents to deepen the shadows and make them appear to be open.



12 I airbrushed a generous layer of Testors Dullcote to kill the shine and seal the decals.



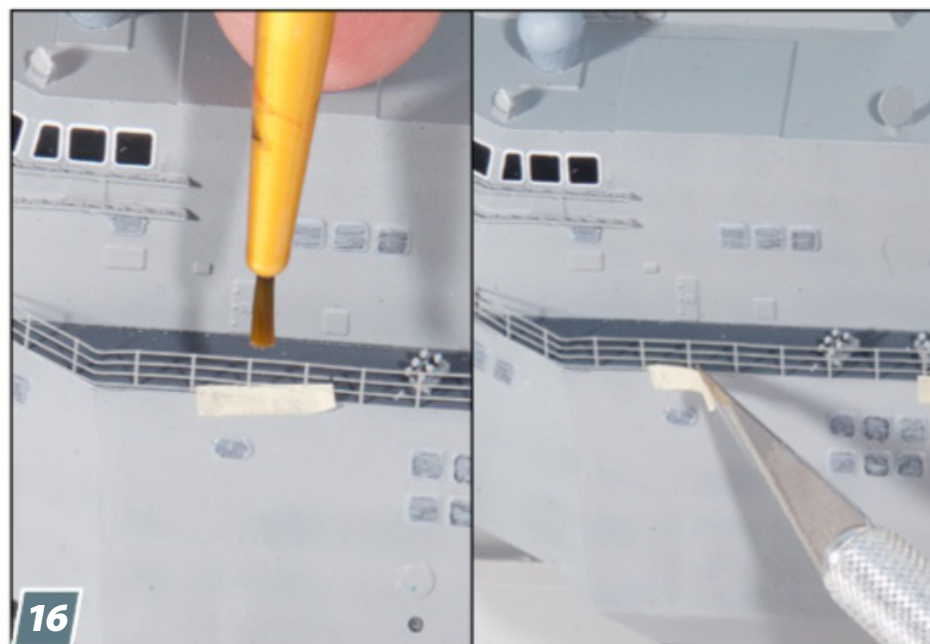
13 I added the remaining plastic parts such as the life rafts, smoke dischargers, turret, CIWS, and this crane using tweezers for precise placement and thick super glue to allow for adjustments.



14 The PE railings are provided in flat sections that need to be bent to fit. I measured the sections with dividers, then transferred the information to the railing and bent it to fit. Most needed a little fine-tuning, but be careful not to bend a piece too many times to avoid breaking the part.



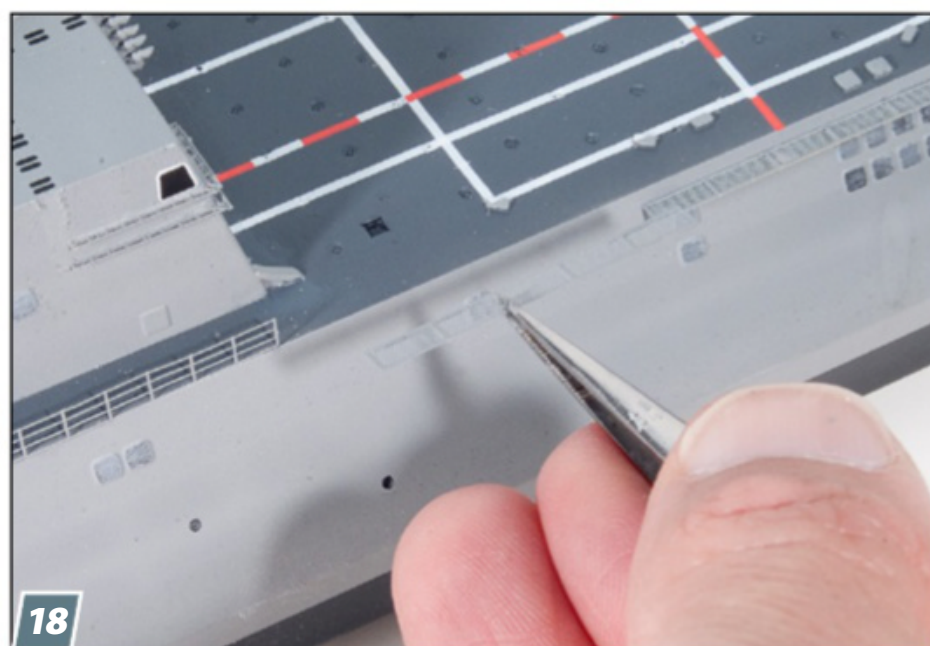
15 I tacked the railing in place with short pieces of automotive masking tape from an auto parts stores. Use as few pieces as necessary to hold the part and be sure the part's bottom is in-contact with the deck. Apply thin super glue to the join allowing capillary action to pull it in place.



16 Next I brushed accelerator on the railing, concentrating it around the tape (left). It sets the glue instantly, and dissolves the adhesive on the automotive masking tape. Then you can lift the tape off using the tip of a hobby knife without damaging the delicate railing (right).



17 For complex shapes, such as the railing on the foredeck that goes around the missile tubes, I placed the bent metal part in place, then glued a section at a time, fine-tuning the alignment as I went.



18 The PE nets around the flight deck attach to the hull just below the edge, so there's no easy way to tape them in place during gluing. I dipped the edge of the part in a shallow puddle of thin super glue and held it in place with tweezers until the glue set. A little glue run along the seam reinforced the join. That finished the build. **FSM**



13 tips for building great ships

Award-winning modeler
describes his techniques

BY AARON SKINNER
MODEL BY KEVIN WENKER

Inspired by the 1953 movie, *The Cruel Sea*, about British convoy escorts during World War II, as well as a visit to the HMCS *Sackville* in Halifax, Nova Scotia, Canada, Kevin built the HMCS *Fennel*. The model is a conversion of Matchbox's 1/72 scale Flower-class corvette with photo-etched and white-metal details from David J. Parkins (www.djparkins.com), as well as a lot of scratchbuilding. Not only is the model big — 34 inches long — it's packed with detail and realistically weathered.

Kevin Wenker's HMCS *Fennel* attracted a lot of attention several years ago at an IPMS/USA national convention in Omaha, Neb., and collected its share of awards, including best ship and Popular People's Choice. Kevin started with Matchbox's 1/72 scale *Flower*-class corvette, converting it to the Canadian navy's *Fennel* with photo-etched (PE) metal and scratchbuilt parts. Along the way, he used several unique techniques that he happily shared with *FSM*.

1 Plan ahead

"I have learned the hard way to plan ahead in my shipbuilding," Kevin says. "It is easier to lay out a plan of action to account for the various features of a ship than to try and go back and correct them after the fact."

He also advises breaking such a large undertaking into small subassemblies to prevent confusion and frustration. It also provides a sense of accomplishment and an incentive to continue as you see progress being made, he says. He established daily goals, taking into account the various parts and subassemblies, so the project did not seem so overwhelming.

2 Strong hull construction

Kevin built the corvette's four-piece hull by filling the seams with Milliput

two-part epoxy putty smoothed with a damp towel. He reinforced the joins with 5-minute epoxy applied inside the hull.

3 Blocking see-through holes

After filling several portholes not on the *Fennel*, Kevin glued sheet styrene inside the remaining portholes. He later filled those portholes from the outside with 5-minute epoxy to represent glass, then painted them over per wartime practice. "The reason I filled them with epoxy was, even after painting, the sheen through the paint was slightly glossier compared to the hull," Kevin says.

He glued sheet styrene vertically between the hawse pipes so observers couldn't look through the bow.

4 Scale appearance

The keel, porthole eyebrows, and hull plate were out of scale, so Kevin thinned them with a hand-held orbital sander and progressively finer grits.

He replaced the kit braces and ladders with Plastruct styrene stock. "My experience in building ships has shown that the smaller the cross section or thickness of braces, masts, bulkheads, ladders, etc., the better and more to-scale the model looks,"

Kevin says. "I almost always build under-size by 10-20%, as it looks

more delicate. It also blends in better with photo-etched brass, which is seldom thicker than .010 inch."

5 Use white glue as filler

Kevin uses full-strength white glue (such as Elmer's) to fill gaps. He says it fills well, conforms to the area, and rarely needs sanding because you can smooth it with a damp finger. "I find it's really good for any gaps between horizontal and vertical parts," Kevin says.

6 Working with styrene

Scratchbuilding the superstructure with styrene corrected errors in the kit. Kevin used a tip gleaned from the late Ben King, a model railroader: Ben cut the styrene sheet to size after attaching it, making a perfect fit each time. "For example, I built the lower superstructure using two lengthwise pieces cut to shape for the curve of the deck and scribed for the plating," Kevin explains. "I then glued pieces of styrene sheet across the front and rear of the two long pieces, forming a rectangular box."

"Once the glue dried, I used a new single-edge razor blade — I have more control with this [than a long-handled hobby knife] — to trim those pieces to match the lengthwise pieces." Not only does this method allow Kevin to save time — no tedious and error-prone measuring and cutting and fitting — but also it is more accurate. After lightly sanding the edges, Kevin primed the bare styrene pieces with thin Mr. Surfacer.

7 Working with photo-etch metal

"I really like forming and assembling photoetched metal," Kevin says. "Using the right tools and methods helps immensely."

First, he washes the PE parts with soap and water while they are still attached to their sheets or frames. Then he rubs them with white vinegar, etching the metal slightly to aid paint adhesion.

He airbrushes the parts before attaching them to the model. By painting them before installation, the parts' small details and engraving are better preserved. Some of the paint will come off during bending, but it's easier to touch up the chips than painting the parts in place.

Kevin removes parts from their frets with fly-tying scissors, rather than a hobby knife. Knives often warp or kink metal parts and complicate bending or folding. The scissors also produce a square edge.

To fold the parts, Kevin uses the Hold and Fold from The Small Shop and the Etch Mate from Mission Models. He also has a pair of flat-jaw pliers, which have





Almost all of the detail on the deck of the *Fennel* is either PE or scratchbuilt. That includes the weapons, weapons mounts (above), and even the decks themselves (below).



their sides ground square, to fold small parts. To get sharp, straight bends, Kevin uses a 2x3x1½-inch chunk of copper (steel or aluminum would work as well) with perfect 90-degree edges. He uses the copper to push against the part in the bending tool.

The *Fennel* has more than 3,000 PE parts, many of them identical. Kevin built in assembly-line fashion, switching to other subassemblies when the work became tedious.

Kevin replaced flat PE metal with round or square brass or styrene stock, when appropriate, to better represent the full-size parts.

8 Applying super glue

Kevin prefers medium viscosity super glue for most applications. He places a couple of drops on an old CD or DVD, transferring it to the model with a short piece of .010-inch brass wire, an applicator that gives him a lot of control, especially when running super glue along a long seam. Then he applies accelerator with a sharp wooden skewer.

9 Painting

Kevin prefers painting the main hull and superstructure prior to adding details. On the *Fennel*, it provided a cleaner edge for details and let him weather the hull to achieve the appearance of corvettes operating convoy escort duty in the North Sea. He painted the decks medium dark gray, masked, and painted the non-skid areas dark gray. He painted the hull brick red below the waterline and off-white above. The light blue camouflage is a mix of Tamiya white and blue.

“Weathering, for me, begins with the painting,” Kevin says. “Each time the airbrush cup runs dry, I slightly change the tint before refilling the cup. Sometimes I add a little white, sometimes a little dark gray with no set ratio. This produces the random fading I see in most ship pictures from WWII.”

10 Painting wood

To recreate the wooden surface on the PE forward deck, Kevin painted Tamiya desert sand, then covered it with burnt sienna, raw sienna, and burnt umber oil paints. “I had no set ratios, I just dabbed and stroked the different colors randomly,” Kevin says. After 30 minutes, he wiped the deck with a soft rag front to back to produce a wood color and texture.

11 Weathering

Kevin masked the waterline with 3M painter’s tape, then set the hull in a large

plastic tub. In two bottles, he mixed artificial turpentine and artist's oils — raw umber in one, burnt umber in the other. He brushed these washes very liberally on the decks and let the excess run out the scuttles the same way seawater washing over the ship would pour out of the scuttles. Doing this over and over, reusing the runoff from the tub, produced vertical staining beneath the scuttles, recreating the effect he saw in pictures of real corvettes.

After coats of Pledge Floor Gloss (PFG) and decals, Kevin applied rust using acrylic and oil paint. Based on pictures of rust and firsthand observation of corrosion on vehicles and storage tanks, Kevin determined that rust has sharp-edged lines of demarcation, rather than being smeared on.

Kevin brush-painted a mix of Model Master tar and red brown using small, jerky strokes. "I made no effort to be uniform in the paint mix — some areas were darker, some more brown, some of the interior areas had no paint beyond the base coat," Kevin says. "I did make sure that the strokes were smooth."

Next, he dabbed burnt sienna artist oils over the painted areas. "I made no effort to be uniform or worry about smooth strokes; some areas were stippled," he says. After 30 minutes, he wiped the paint off with varying pressure. "I went back and wiped off most of the oil paint from the non-rusted areas adjacent to the rust painted areas," Kevin says. After two days drying, the rust had a three-dimensional, flaky effect.

Kevin added dark gray rub marks in areas the paint would be worn. Then, he applied a raw sienna wash to the hull plating that dried to a subtle, faded appearance. He ran a wide brush loaded with raw umber wash along the edge of the hull at the deck and along the gunwale and let it run down the hull. "Once dry, I lightly sanded across the plating, lightening the center of some plates — almost like a reverse pre-shading," Kevin says.

"I sprayed the model with Testors Dullcote to kill the shine and even everything out," Kevin says. In places where air-brushing Dullcote was impractical, such as the bridge with its clear windows, Kevin applied a thin wash of white glue with a drop of detergent.

12 Canvas, floater nets, and other details

Corvette bridges had railings covered with canvas, so Kevin cut white facial tissue to fit. "Cutting tissue is difficult," he warns. "Use sharp scissors, keep tension on the tissue in all directions, and be prepared to do it several times to get a usable piece —



The scalloped lifelines along the sides of lifeboats presented Kevin with a challenge, because there were no obvious attachment points. He used HO-scale wire lift rings, drilling holes for each in the side of the boats, then gluing in the rings and threading the thread through the eyes.



Pictures of wartime corvettes often show soda cases — empty and full — stowed under the aft 2-pounder gun tub. Kevin gleaned several from model railroad supplies, modifying each slightly before attaching them. Note the weapon's open muzzle; Kevin bores each open with a Mini-Dremel motor tool.



As if the detail wasn't enough, Kevin's weathering makes the *Fennel* come alive. Repeated washes of artist's oil recreate the effects of constant seawater on the ship's decks and hull, a reminder of the brutal conditions these ships served under in the North Atlantic.

After a failed attempt to use a cast-metal mast, Kevin scratchbuilt a replacement from brass tube. The mast bracing is .005-inch monofilament leader from his fly-fishing vest, colored by running a Sharpie over it several times. The stack bracing was .003-inch monofilament, and the radio wires from the mast to the rear radio shack were made from .005-inch monofilament, with sleeves from Bob's Buckles to form the turnbuckles. Note also, the hull is discolored with multiple artist oil washes.

growing a third arm would help." He soaked each piece of tissue in thin white glue with a drop of dish soap added to remove surface tension, then applied it to the railing. The tissue shrinks as it dries becoming taut across the rails.

He made floater nets by threading round beads on thick brown thread, soaking it in the thin white glue and draping it across scratchbuilt stanchions heat formed from Plastruct I-beam.

He built the flagstaff from brass wire and made pulleys from thin styrene disks (made with a Waldron punch-and-die set) stacked and glued.

The Canadian flag was scanned from a photo, printed on bond paper, soaked in the white glue, and glued to the flag line.

Life vests on the bridge were formed from small rectangles of styrene connected with straps cut from wine bottle lead foil. Tie downs for the oars in the lifeboats and rafts were made from thin strips cut from tinted bond paper.

13 Enjoy! Have fun, Kevin says. "I enjoyed HMCS *Fennel* so much, I am building another, earlier version of a Canadian-built *Flower* with all the minesweeping details and the short forecastle," he adds, advising modelers to challenge themselves. "Never settle for less than your best effort, and build for your own enjoyment, not to win contests." **FSM**

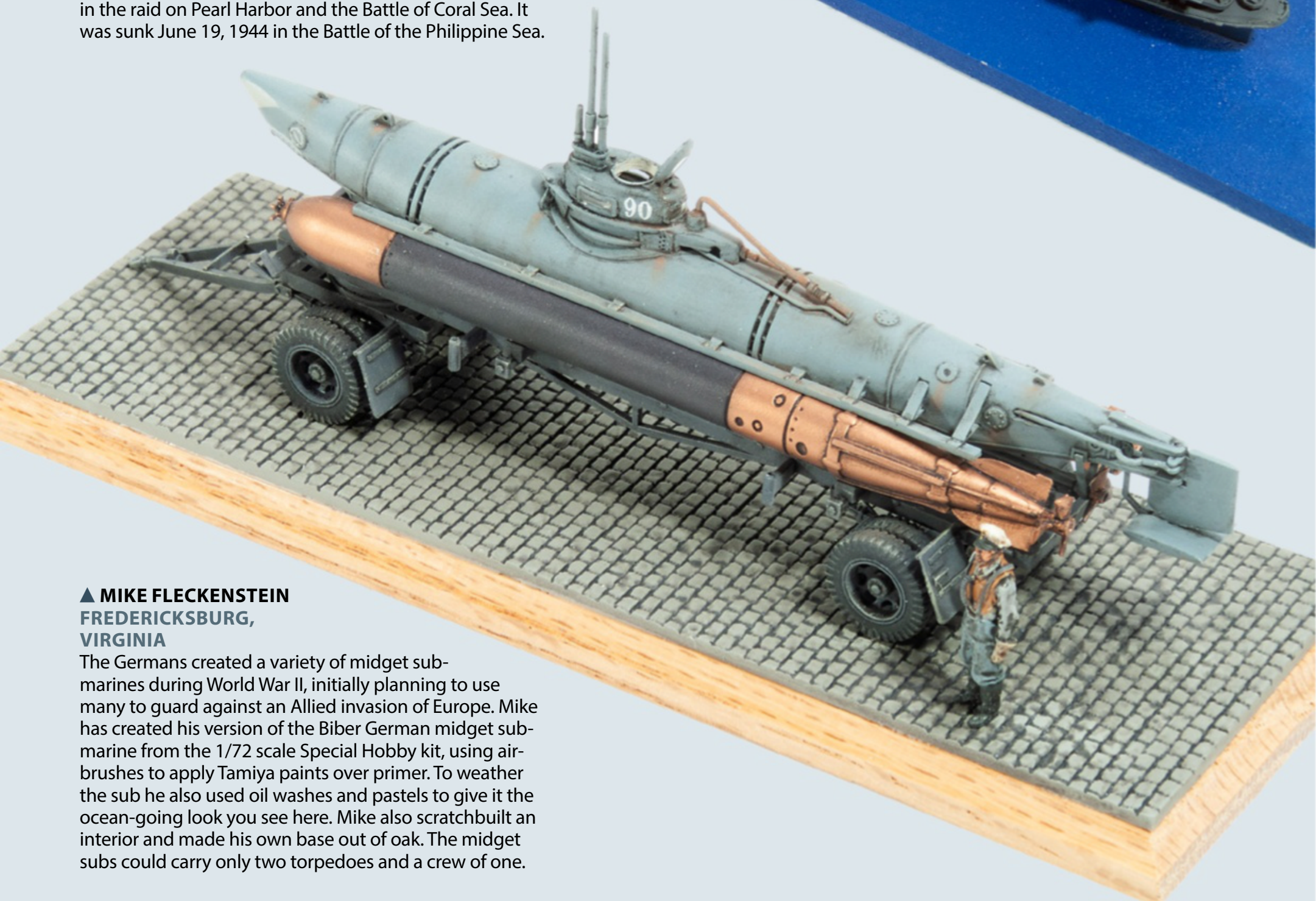
Meet Kevin Wenker

Kevin, 68, has been building models since he and his dad built a Strombecker wood B-24 in the early 1960s. "Ships are my absolute favorites, as I love doing the photo-etch and all the fine detail," he says. Kevin, a Lutheran pastor, lives in Peoria, Ariz., with his wife, Cathy. He has two daughters, Keri, 46, a doctor, and Sarah, 44, a business executive, and a son, Joshua, a U.S. Navy commander, recently skipper of VAW-116. He offers one final tip, join a local modeling club for friendship and fellowship, but also so you can get honest feedback on where your models need to improve, and they will!



▲ **ELIAS ALI**
HONOLULU, HAWAII

Aircraft carriers are always fascinating because so much seems to be going on aboard, especially during wartime. That's what Elias created here with Fujimi's 1/700 scale IJN *Shōkaku* as it appeared in 1944, shortly before it was sunk. Elias sprayed the kit with Tamiya Sasebo gray (TS-67) and added a variety of photo-etched parts to increase realism. He also added Fine Molds' 25mm anti-aircraft guns to the carrier, along with modifying the deck for a proper wooden appearance. The *Shōkaku* took part in the raid on Pearl Harbor and the Battle of Coral Sea. It was sunk June 19, 1944 in the Battle of the Philippine Sea.



▲ **MIKE FLECKENSTEIN**
FREDERICKSBURG, VIRGINIA

The Germans created a variety of midget submarines during World War II, initially planning to use many to guard against an Allied invasion of Europe. Mike has created his version of the Biber German midget submarine from the 1/72 scale Special Hobby kit, using airbrushes to apply Tamiya paints over primer. To weather the sub he also used oil washes and pastels to give it the ocean-going look you see here. Mike also scratchbuilt an interior and made his own base out of oak. The midget subs could carry only two torpedoes and a crew of one.

Ship ***PAINTING TIPS***

A colorful account of
World War I Germany's SMS König

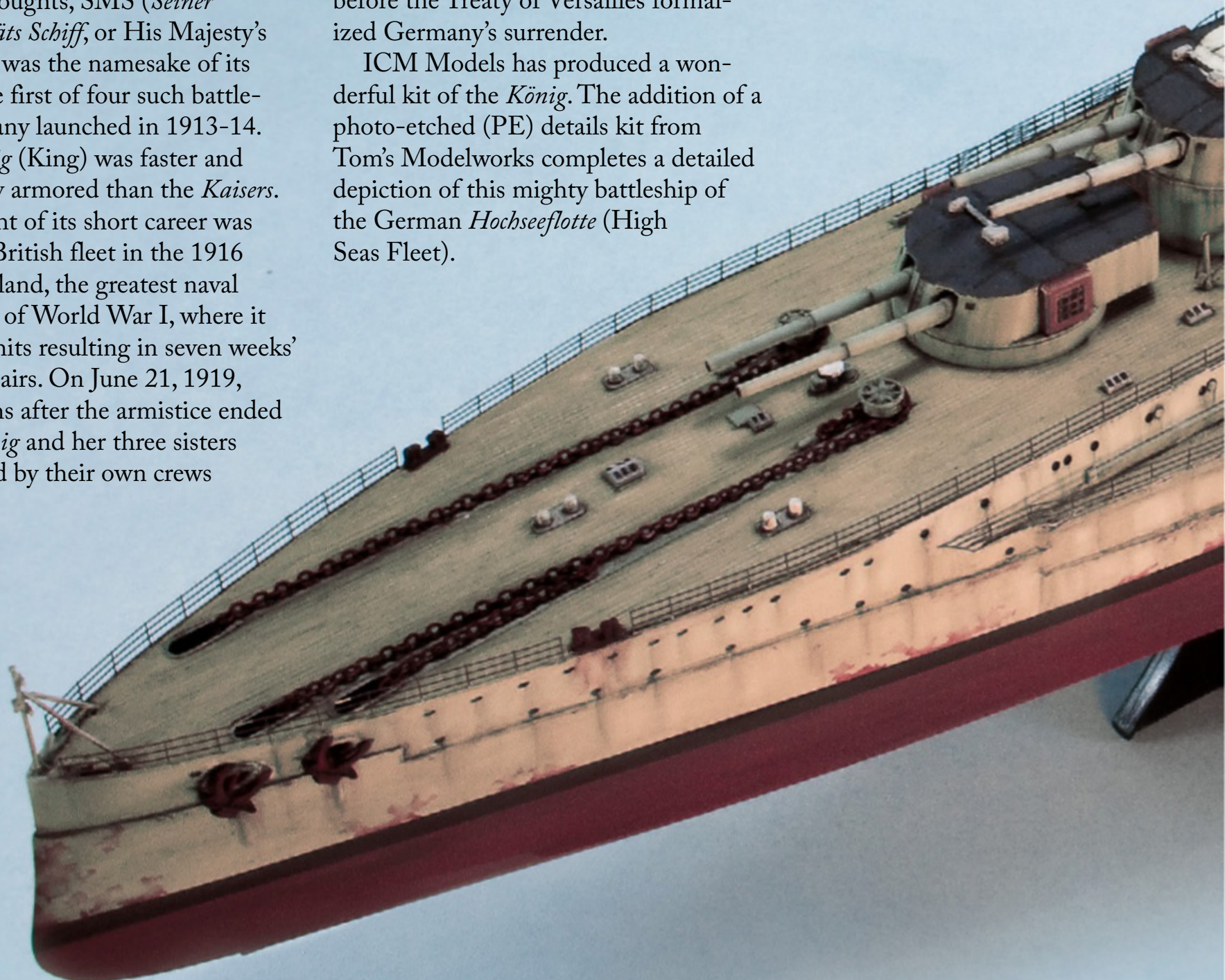
BY ALFONSO MARTÍNEZ BERLANA

Successor to the *Kaiser*-class dreadnoughts, SMS (*Seiner Majestäts Schiff*, or His Majesty's Ship) *König* was the namesake of its class and the first of four such battleships Germany launched in 1913-14.

The *König* (King) was faster and more heavily armored than the *Kaisers*. The highlight of its short career was against the British fleet in the 1916 Battle of Jutland, the greatest naval engagement of World War I, where it suffered 10 hits resulting in seven weeks' worth of repairs. On June 21, 1919, seven months after the armistice ended the war, *König* and her three sisters were scuttled by their own crews

in a single day at Scapa Flow, just a week before the Treaty of Versailles formalized Germany's surrender.

ICM Models has produced a wonderful kit of the *König*. The addition of a photo-etched (PE) details kit from Tom's Modelworks completes a detailed depiction of this mighty battleship of the German *Hochseeflotte* (High Seas Fleet).

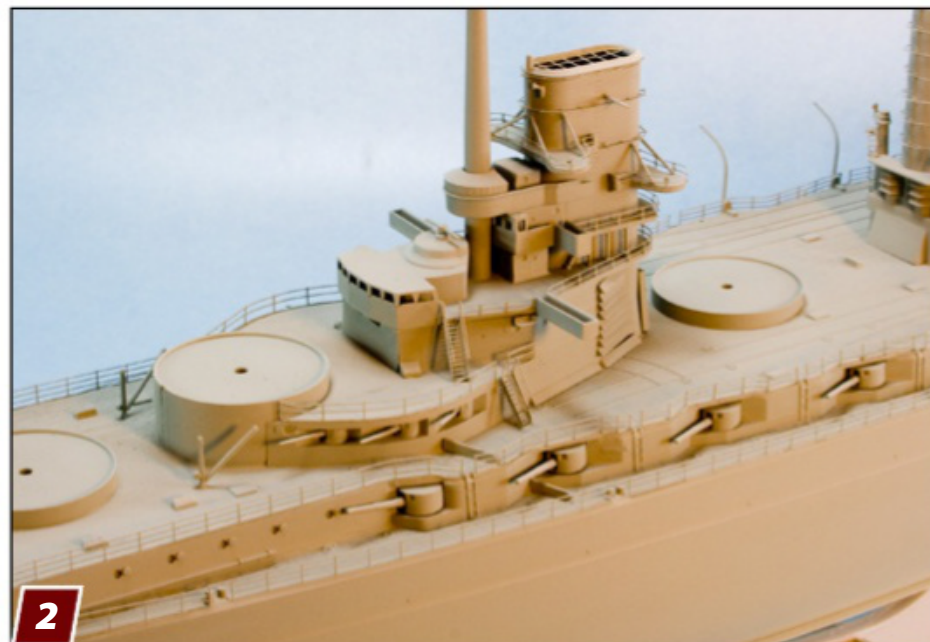




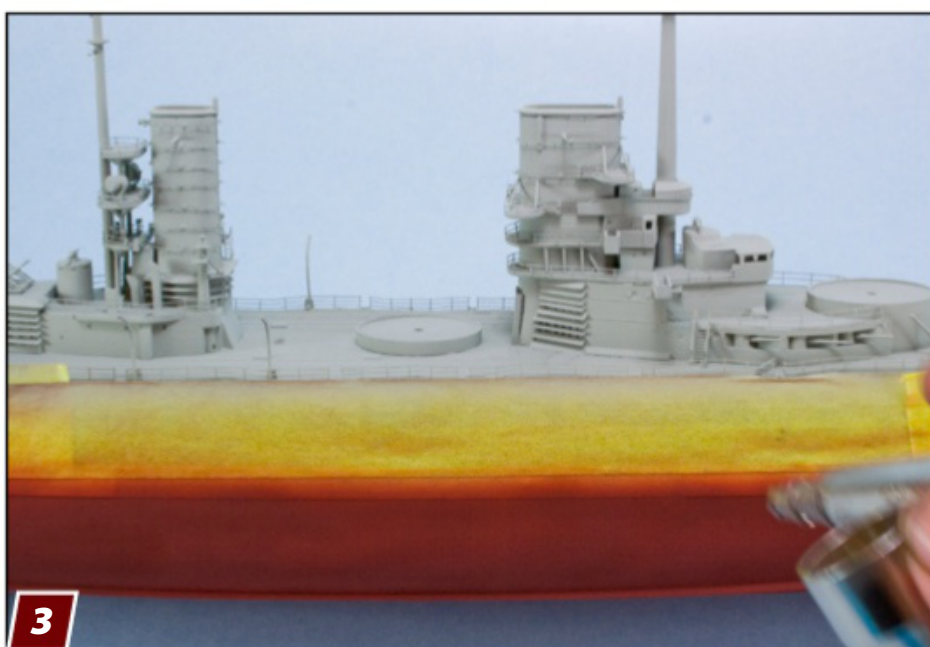
ICM Models' kit, a PE detail set from Tom's Modelworks, and the author's artfully applied painting techniques make a showy schlachtschiff (battleship) of World War I. The SMS König was one of four ships in its class.



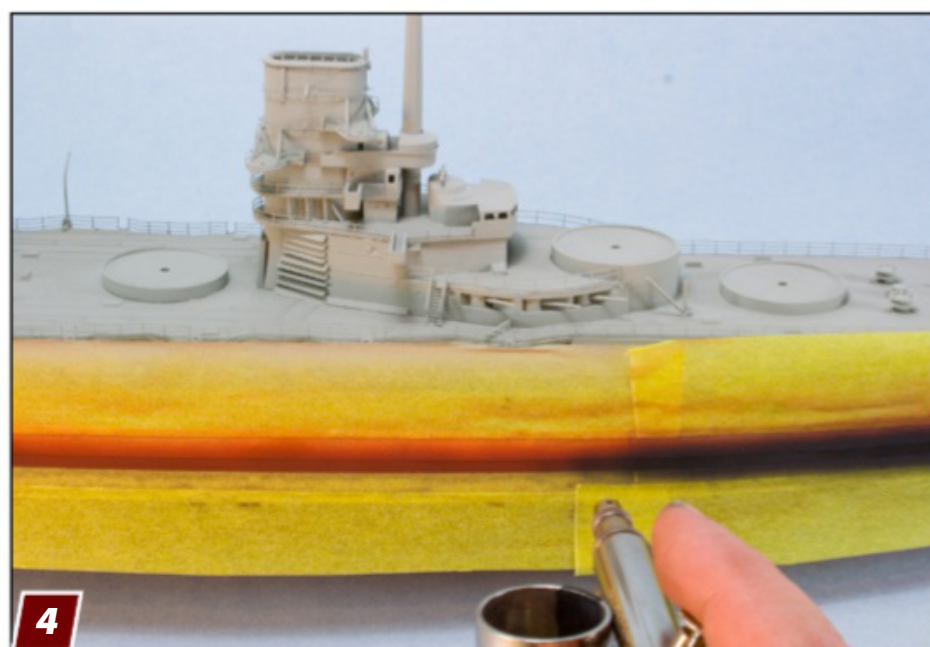
Alfonso says the PE kit's instructions are cryptic and must be thought through to the end. With few exceptions, he installed the PE before painting it. "Take your time," he says, "and you won't be obliged to take pieces back off as I did."



The base coat is an airbrushed mix of Tamiya acrylics, light sea gray (XF-25) and deck tan (XF-55). This flat base improves adhesion of subsequent layers of hand-brushed acrylics and artist oil washes.



Next, Alfonso masked above and sprayed the lower hull with a mix of Tamiya flat red (XF-7) and hull red (XF-9). Wait at least an hour before applying masks to fresh paint, he advises.



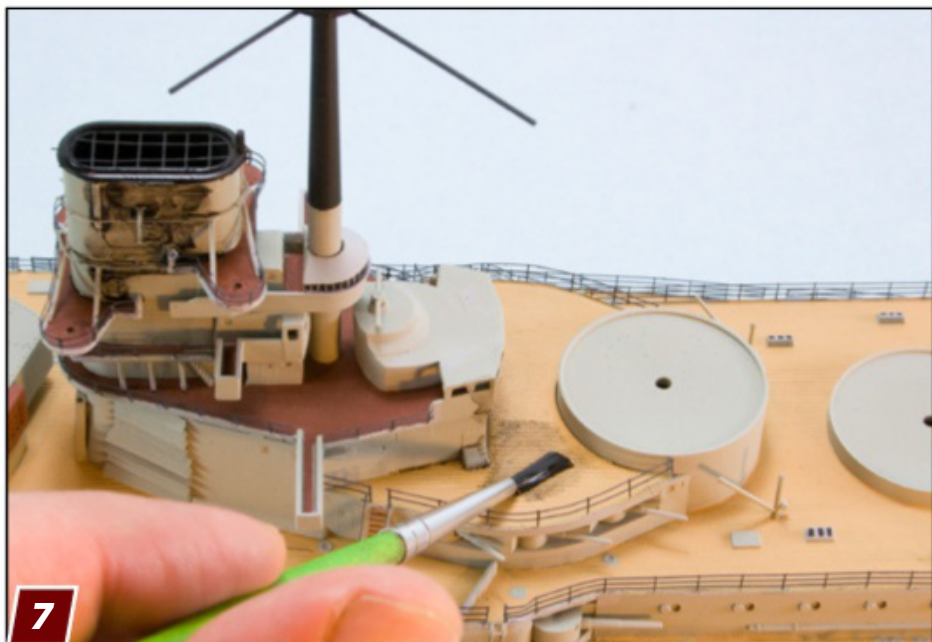
Tamiya thin masking tape produced clean lines of demarcation between the hull red below and the hull gray above, with a blank spot in between where Alfonso airbrushed a boot stripe of Tamiya flat black (XF-1).



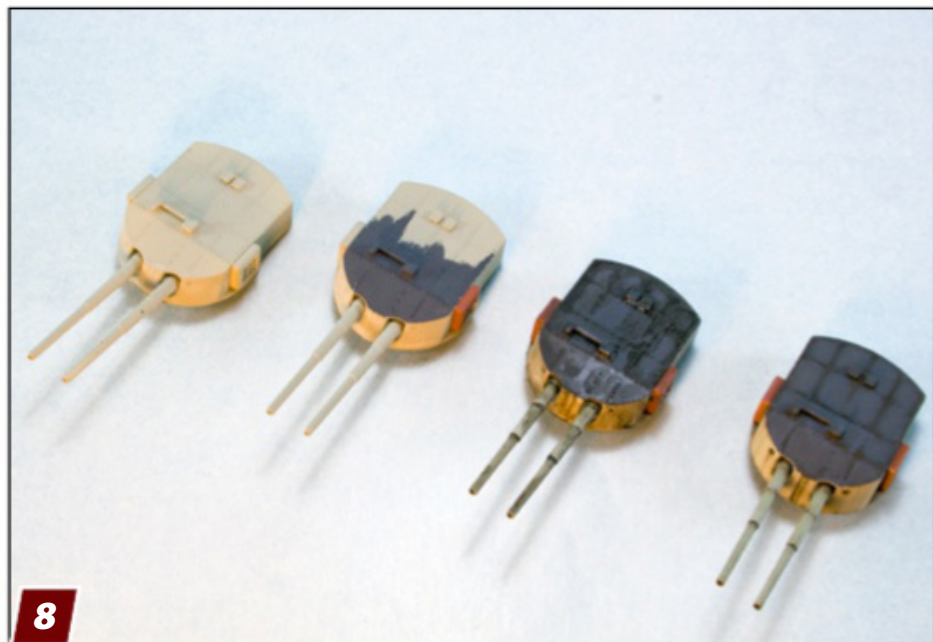
Vallejo acrylics are great for hand-brushing: Here, Alfonso paints deck planks with Vallejo tan yellow (912). Hand-brushed Vallejo mahogany brown (846) replicates non-skid linoleum deck surfaces.



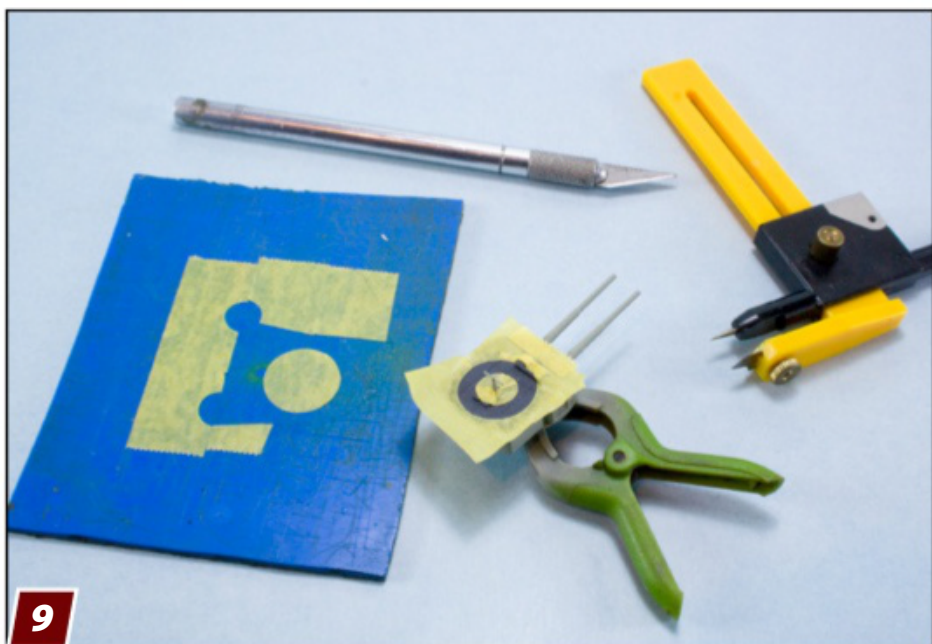
The funnels and upper masts are Tamiya flat black. The two hull-colored lines at left are the anchor-chain races. Alfonso used a fine brush to paint the rails Vallejo dark gray (994), then proceeded to dark washes.



Washes deepen recessed details and weather the finish. Alfonso uses black and burnt umber artist oils with mineral spirits for thinner, which will color or tint without cutting through the acrylic colors underneath. Heavier touches of rust are tinged with Humbrol scarlet matte (60).



Alfonso's turrets demonstrate his painting process. From left: 1) Tamiya base coat; 2) Vallejo dark gray (994) on the top, hull red (985) on the rafts; 3) a black wash overall; 4) thinner blends the wash and brings raised details into greater relief.



Alfonso used a circle-cutter and thin Tamiya tape to make masks he cut out for painting air-recognition marks on the tops of two turrets.



A light, thin coat of the Tamiya base mixture on the vertical surfaces, and similar, hand-brushed layers of the deck colors blend other effects into the finish. Sundries such as anchors, boats, cranes, and towers were painted off the model, then added. The battle flag is from a Revell kit.



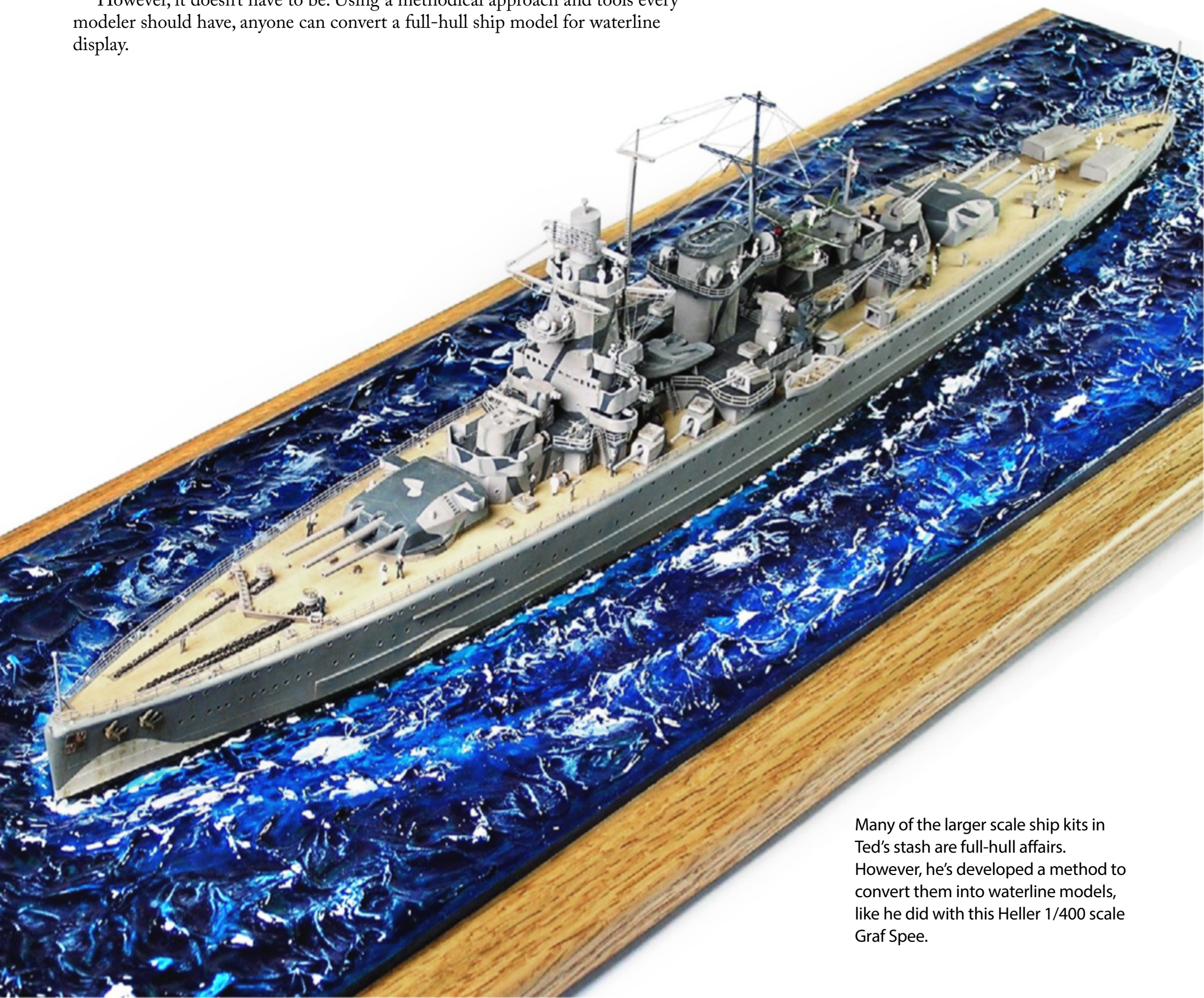
With stretched-sprue rigging super glued and Kriegsmarine battle flag flying, Alfonso's König begins its reign. He enjoyed building the model, but noted, "It's a pity there are no ships of its time from other nations to oppose it in my display cabinet." **FSM**

Do-it-yourself **WATERLINE HULL**

Learn how to make your full-hull ship kit a waterline model /// BY TED BUNN

Waterline ship models have become popular in larger scales, but, for a long time, kits with a waterline option typically came in 1/700 scale or smaller. Many of us have larger-scale ships in our stashes that don't offer the waterline display, which means cutting the hull: a daunting prospect to be sure.

However, it doesn't have to be. Using a methodical approach and tools every modeler should have, anyone can convert a full-hull ship model for waterline display.



Many of the larger scale ship kits in Ted's stash are full-hull affairs. However, he's developed a method to convert them into waterline models, like he did with this Heller 1/400 scale Graf Spee.



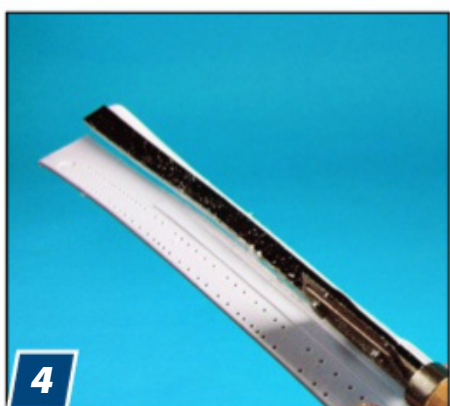
On some models, the waterline is marked with a raised line on the hull. It's up to you to decide how high or low you want your ship to sit in the water. Once satisfied with the waterline location, mark it with plastic labeling tape.



Ted carefully runs a scribing tool along the hull, using the labeling tape as a guide. He makes several passes to cut a deep groove.



"Continue to use the scribing tool until you see a thin line on the hull's inside," Ted says. "You could cut all the way through with the scribing tool, but it's easier to finish with a razor saw."



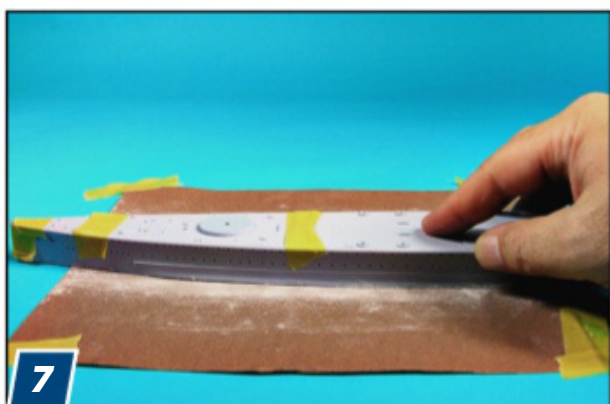
Starting at the bow and working toward the stern, Ted cuts along the groove with a razor saw. "If you find the cutting difficult or the saw binds, go back to the scribing tool and cut deeper," Ted says.



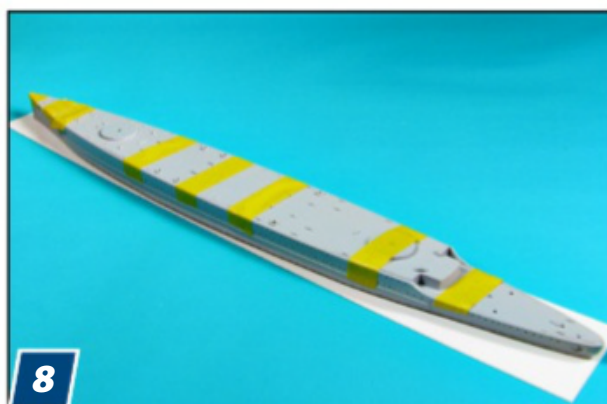
Once the cut is complete, you have the beginnings of a waterline ship model. But it's not ready yet.



Ted glues the hull halves together, temporarily taping the deck in place to ensure proper alignment.



To make sure the hull halves match along the waterline, Ted sands the cut edges even with a sheet of coarse-grit sandpaper taped to his workbench.



Ted adds a waterline plate to stiffen the ship's sides and add an illusion of depth in the water. First, he traces an outline of the hull on .030-inch styrene sheet.



He cuts along the line with a pair of scissors. "No need to be exact," he says. Make sure to leave some space around the edge for final shaping.



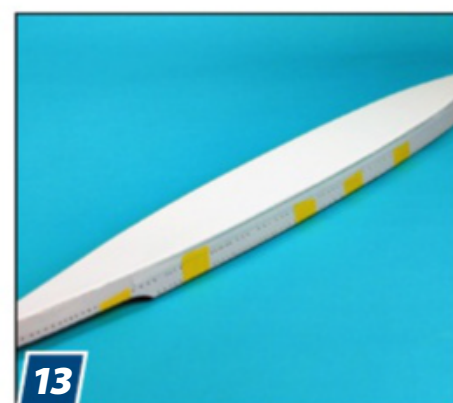
Ted super glues the hull to the waterline plate and allows the assembly to dry overnight.



Trim the waterline plate's excess plastic with a sharp hobby knife.



Once the plate is almost even with the hull, Ted starts shaping it with coarse sandpaper, shifting to medium, and then fine to finish it off. Use putty as needed.



Then, assemble the ship as usual. You can attach the model to a finished wood base or create a sea for the ship to sail through. The choice is yours! **FSM**

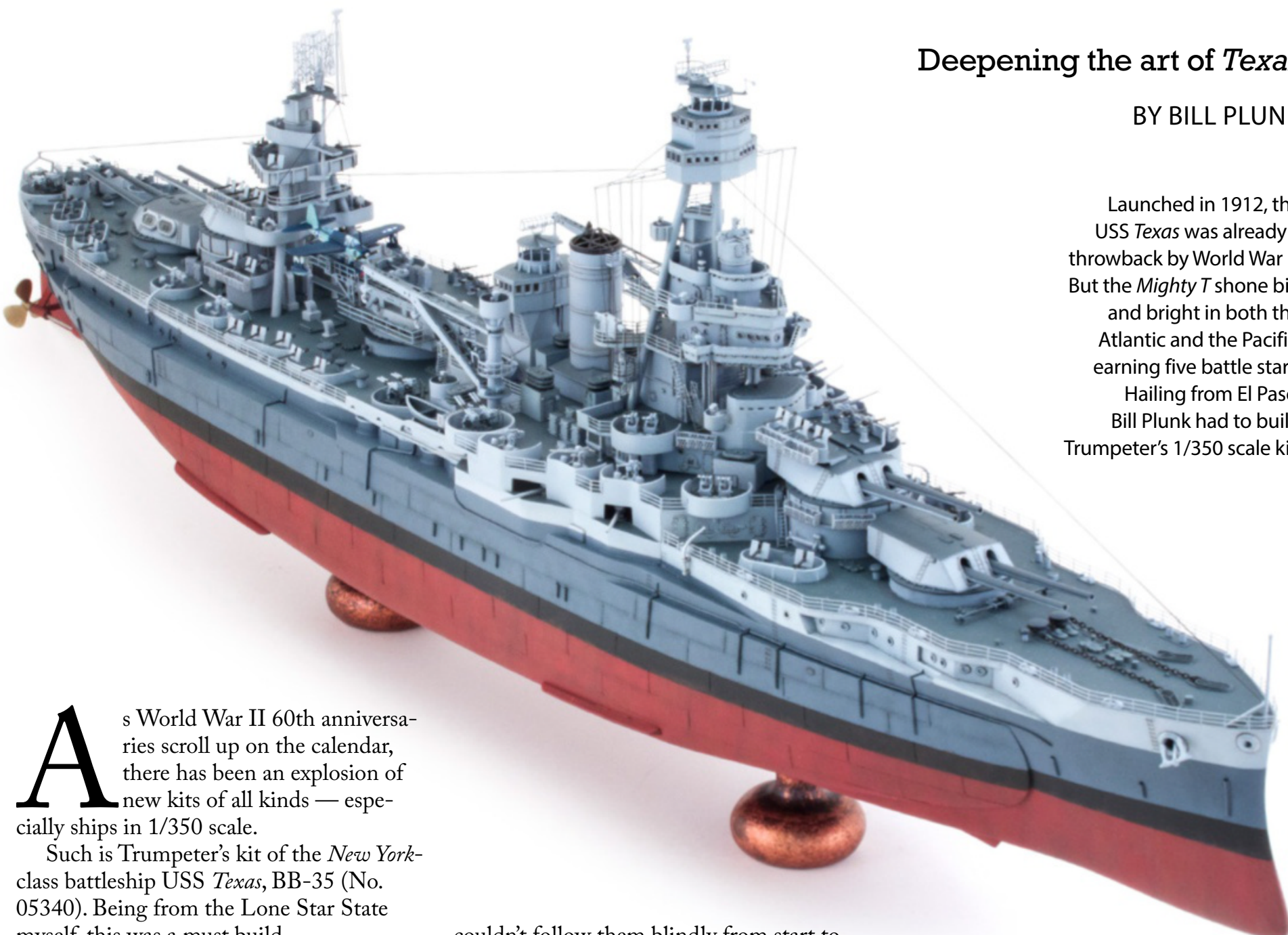
How to build a **BATTLEWAGON**

Deepening the art of *Texas*

BY BILL PLUNK

Launched in 1912, the USS *Texas* was already a throwback by World War II. But the *Mighty T* shone big and bright in both the Atlantic and the Pacific, earning five battle stars.

Hailing from El Paso, Bill Plunk had to build Trumpeter's 1/350 scale kit.



As World War II 60th anniversaries scroll up on the calendar, there has been an explosion of new kits of all kinds — especially ships in 1/350 scale.

Such is Trumpeter's kit of the *New York*-class battleship USS *Texas*, BB-35 (No. 05340). Being from the Lone Star State myself, this was a must build.

Even though the kit depicts features that date from October 1944, after a refit and subsequent transfer to the Pacific, I decided to depict *Texas* in the Measure 22 scheme she wore for most of the war while in the Atlantic Fleet. I grabbed an after-market set of Master turned-aluminum and brass barrels for *New York*-class ships, along with a copy of *Squadron at Sea: USS Texas*, by David Doyle, as my main reference.

I knew the Measure 22 scheme would complicate things. So, the first order of business was a careful study of the instruction sheet and planning for a “modular” approach to assembly, painting, and finishing. The 37 steps outlined in the instructions will get it all together, but I knew I

couldn't follow them blindly from start to finish and get the best results. Skipping around within the steps was essential, so I developed a checkoff system on the instruction sheet to avoid missing anything.

Hull

The primary assembly module was the hull. Split in half lengthwise, it had over-scale molded weld lines. I sanded these down to make them more in-scale. Vertical lines lost in the sanding were rescribed using a metal ruler and a sharp pushpin to restore lost detail, **1**.

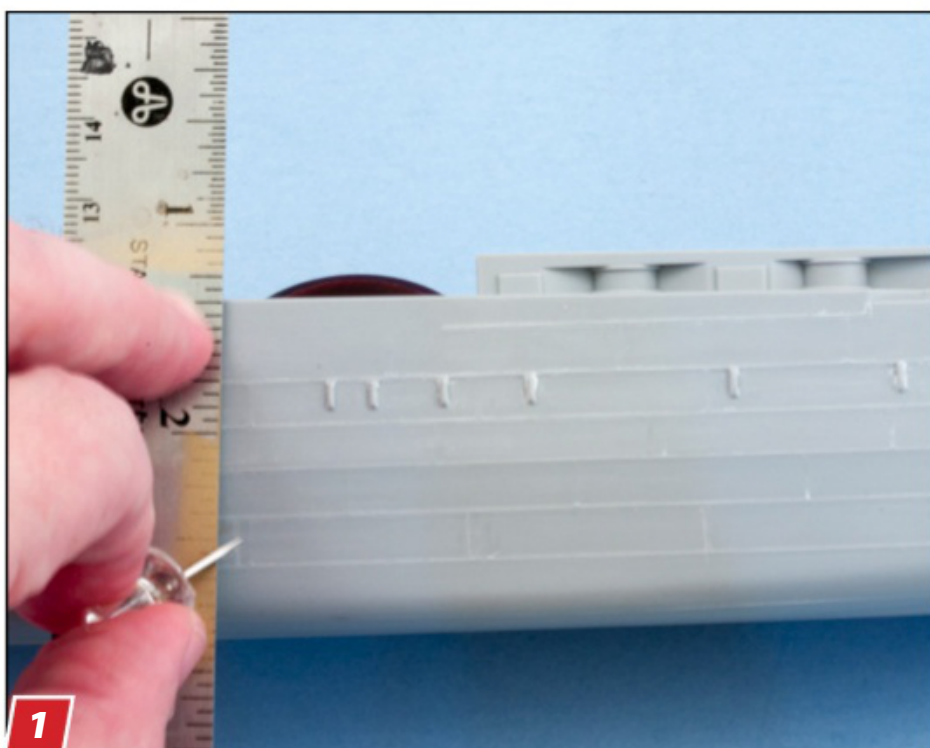
Getting a solid join was a combi-

nation of the kit-supplied bulkheads, rubber bands, and bar clamps, along with a combination of tube and liquid glue in strategic spots. Left overnight in traction, the hull set nice and solid, **2**.

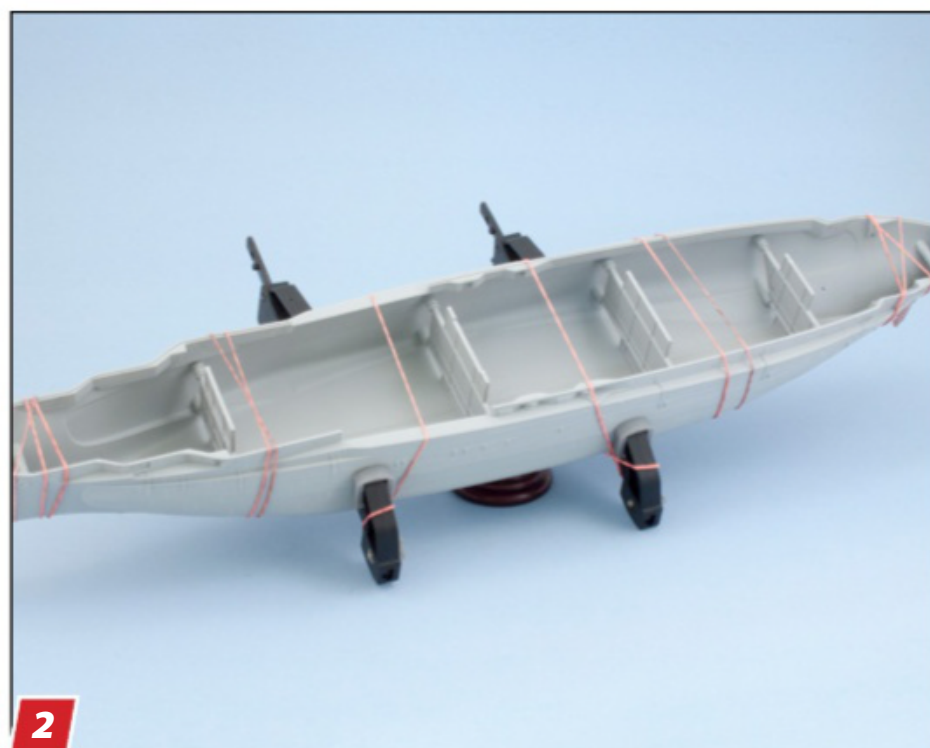
The stern details for the propulsion gear were added next. I replaced the kit's plastic drive shafts with brass rod for greater strength and durability, **3**. The shafts and rudder were left removable to avoid damaging them during the rest of the build.

Test fits of the main

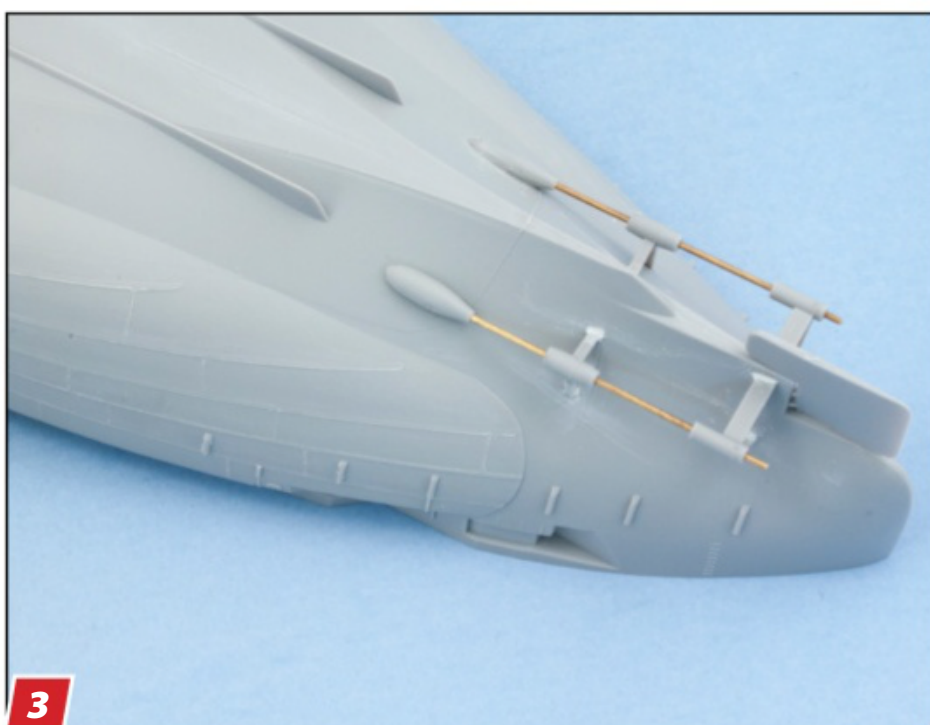
2,800
Pounds of ordnance
delivered by a two-gun
salvo from one of
Texas' 14-inch guns.



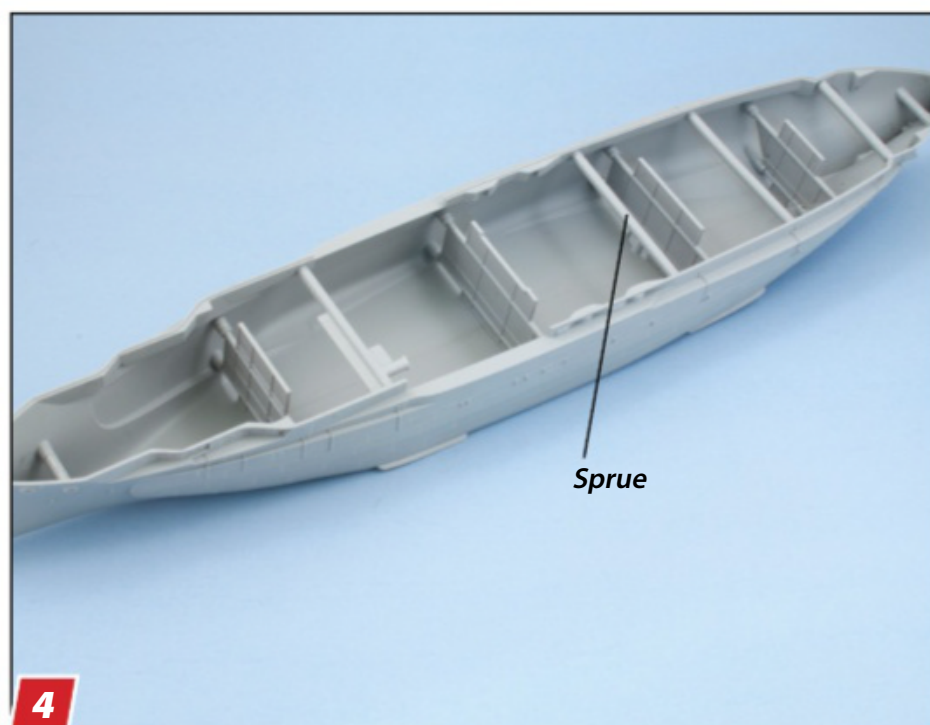
1 After sanding away overscale lines, Bill rescribes them. Though there are fancier tools, he gets it done with a pushpin and straightedge.



2 Persuasion, gentle and otherwise: Rubber bands help distribute the force of the clamps.



3 *Straighter and stronger* is the name of the game as brass rod replaces plastic propeller shafts.



4 Segments of sprue runners spread and strengthen the hull for a better fit with the deck.



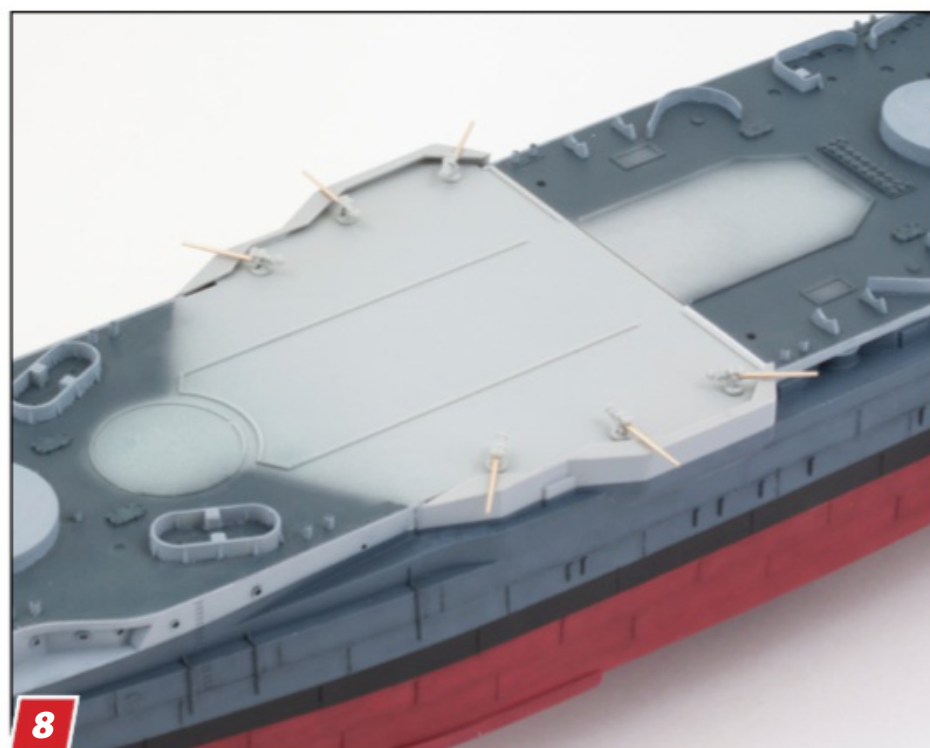
5 After a flat black prime coat, Bill airbrushed insignia red for the antifouling red.



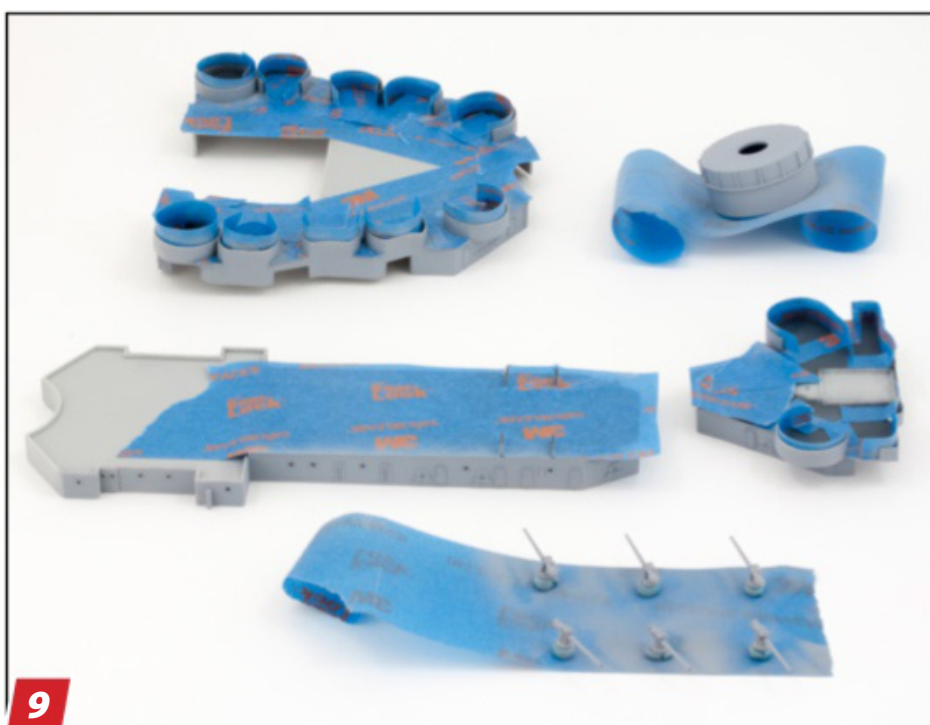
6 Masking the red and the proper amount of black, then airbrushing 5-N navy blue, masking again, and airbrushing 5-H haze gray at the top produced the boot stripe and upper-hull colors.



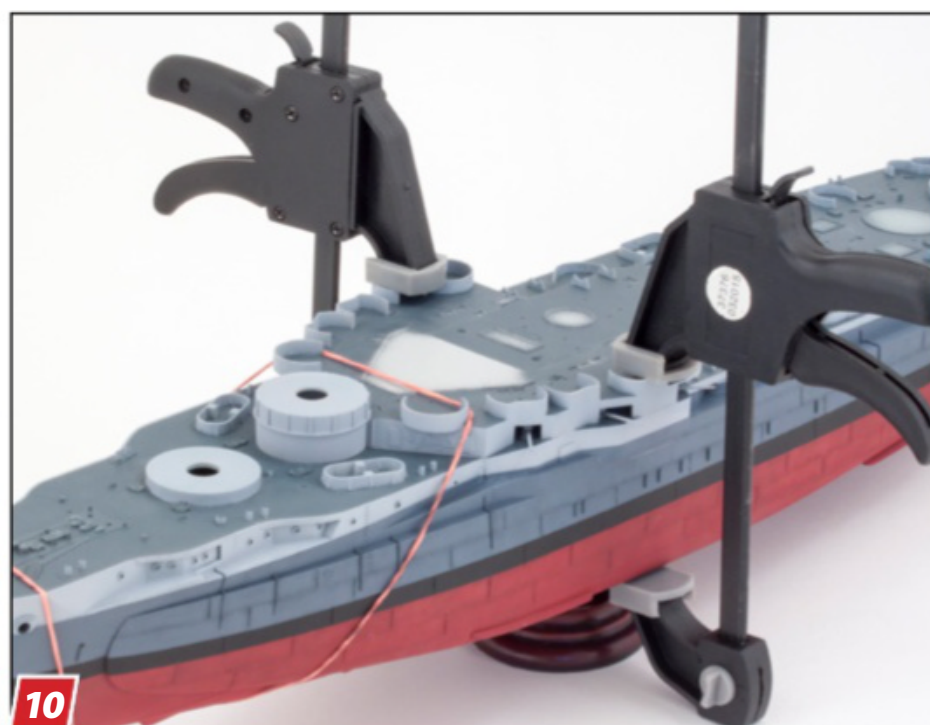
Bill airbrushed horizontal surfaces 20-B deck blue and vertical surfaces haze gray. Dry-brushing medium gray highlighted details.



The 5-inch guns on the sponsons received Master Model brass barrels.



Deck blue was followed by careful masking and an airbrushing of haze gray.



It's more rubber bands, more clamps, and more ship as Bill glues down the decks.

deck sections revealed the top edge of the hull needed to be spread slightly in places. I glued in thick segments of sprue runners as spacers, **4**.

Commence painting

All paints are Testors enamels except where otherwise noted. I began the hull with an airbrushed coat of Testors Model Master flat black enamel that served as a primer, pre-shading, and a simple way to create the boot stripe. I masked the bottom edge of the boot stripe and airbrushed insignia red to create the antifouling layer, **5**. Then I masked the top side of the boot stripe and airbrushed 5-N navy blue, **6**. Another round of masking, then airbrushing with 5-H haze gray, completed the hull's Measure 22. I airbrushed sponsons for the 5" guns in the secondary armament separately to match the hull, since I couldn't

install them until after the main deck was in place.

Hands on deck

I painted and detailed the decks, airbrushing wood areas with 20-B deck blue and adding Ammo of Mig Jimenez's "Blue Filter for Dark Gray" to slightly shift the tone from that of the adjoining steel decks. Wearing an Optivisor and wielding a fine detail brush, I hand-brushed gun tubs and other elements on the deck with haze gray. To bring out some of the molded detail in the deck blue, I dry-brushed with medium gray, **7**.

With spacers installed, the decks fit tightly; liquid styrene

cement secured them. Side bulges for the secondary gun mounts completed the first major module of the build.

Order of assembly/painting

When building ships with multiple decks and superstructure elements, I work from the bottom up and the inside out.

I started with the 02 deck components, which include six 5-inch guns. Master

Model's turned-brass gun barrels replaced the kit's barrels, **8**. I airbrushed 02 deck components and the 03 deck above it with deck blue, then masked with small strips of tape cut to size using a cutting mat, metal ruler, and a sharp No. 11 blade, to protect odd angles and areas. Haze gray was airbrushed where

3
Number of
grand pianos
equal in weight
to a two-gun
14-inch salvo
from USS Texas.



11 Bill assembles the forward superstructure from the bottom up, adding PE rails one level at a time.



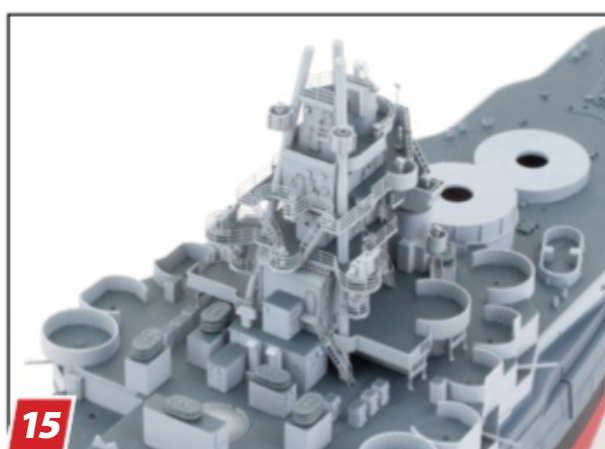
12 The tripod comes last; if the decks are straight, the tripod is true.



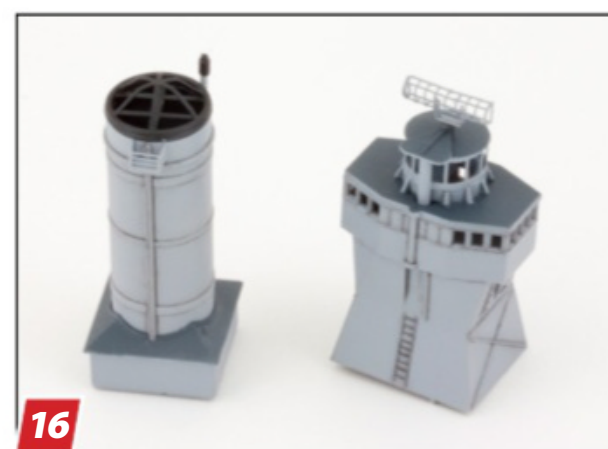
13 A burnt umber pinwash lends subtle emphasis to molded details.



14 Throughout the ship, it's deck blue, masking, then haze gray. But the funnel top received flat black.



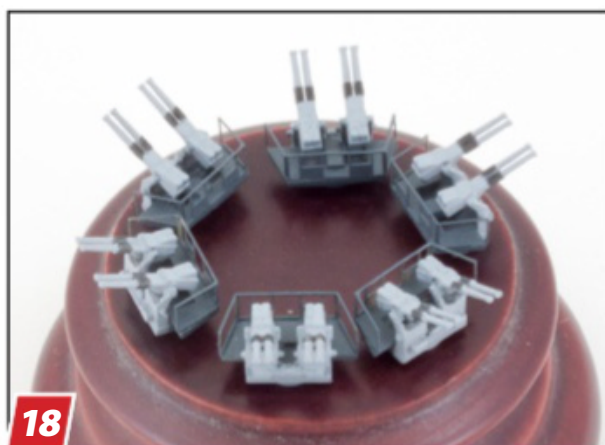
15 Looking aft, PE and styrene details accumulate on the roundhouse and secondary tower.



16 Again, burnt umber pinwashes deepen recessed details.



17 Bill assembled and test-fitted the guns in their tubs, then pulled them back out for painting.



18 Airbrushed deck blue and hand-brushed haze gray readied the 40mm quads.



19 With the guns mounted, Bill stepped outside the tubs to erect more PE rails and ladders.

needed on the decks, **9**, along with the No. 2 turret barbette and 5-inch guns. The guns were installed and the decks secured along with the No. 2 barbette. Rubber bands and clamps helped level everything while the glue set, **10**.

Forward superstructure

The forward superstructure builds up around a tripod mast and multiple deck levels. After preparing the main levels and structural components, I airbrushed deck blue, masked, and followed with haze gray.

Three different levels of construction went into the superstructure module, each

dealt with separately, including adding photo-etched (PE) railings. The PE rails were individually shaped into their complex curves and angles, hand-painted, then installed, **11**. Levels were permanently stacked one at a time; then PE ladders were formed, painted, and installed. Finally I could add the tripod legs and their supporting structures and railings. The pass-through holes in the deck ensured they were true, **12**.

With all the levels fully integrated, I airbrushed Pledge Floor Gloss (PFG) and applied a pinwash of thinned burnt umber enamel, picking out details with a 10/0

pointed brush and touching up with clean thinner, **13**. A coat of Testors lusterless flat clear dulled and unified the sheen. Then, I could permanently install the superstructure. I left off the fire-control structure for the time being.

Fitting and proper

Moving aft on the 02 deck, several small structures, ammo lockers, and other details are installed, along with the funnel and the secondary tower. Tight spaces require test-fitting to prevent problems. These were airbrushed deck blue, masked, and airbrushed haze gray; the funnel received extra atten-



20 For now, the bow area provides plenty of space to mount 20mm guns, anchor chains, and various fittings.



21 Aluminum barrels replaced the plastic on the turrets. No. 1 and No. 2 are mounted temporarily on their barbettes for test-fitting.



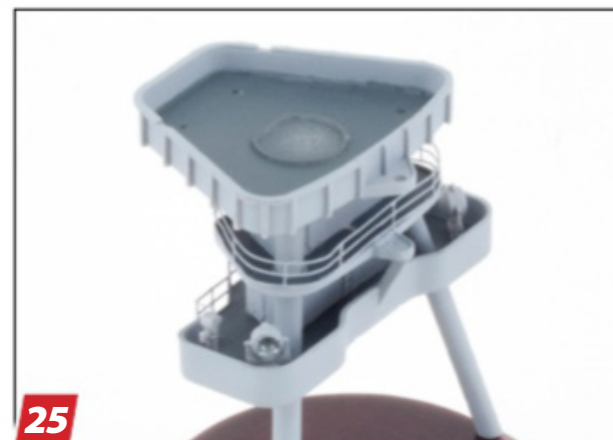
22 At the stern, turrets 4 and 5 are lined up aft of the barrette for No. 3, which will have a seaplane catapult.



23 While he was airbrushing the turret and barrel tops deck blue, Bill brought more deck surface around for the same color.



24 Then he masked and airbrushed haze gray on the same pieces.



25 While building the mainmast tripod, Bill shuttled the subassembly in and out of position between turrets 3 and 4, checking position and clearance for all three elements.

tion for its cap, which I airbrushed flat black, **14**.

I shaped and hand-painted the PE roundhouse structures for the secondary tower and fire control before combining them with styrene components to complete their assembly, **15**. PE railings around the back of the 02 deck were shaped, painted, and installed.

A coat of PFM, followed by burnt umber pinwashes and a coat of lusterless flat, finished the small fittings as well as the funnel and secondary tower, **16**. Then I mounted the funnel and tower on the deck.

One goal of modular construction is to maintain ease of handling for as long as possible during the build. Moving out from the center of 02 and 03 decks, I saved the 40mm quad and single 3-inch guns for the anti-aircraft tubs for last because they are so delicate and easy to snag, **17**.

I replaced the 3-inch gun barrels with the Master turned-brass barrels. The 40mm guns were assembled in whole, including their PE back braces, for easier painting. I hand-painted the 3-inch guns haze gray; the 40mm guns were first airbrushed with deck blue, then hand-painted with their haze gray components and to pick out details such as the recoil springs, **18**. Precise pinwashes of burnt umber enhanced other details before the guns were mounted in their tubs.

With this area secured, I shaped, painted, and installed PE between the tubs, using tweezers in some of the tight spaces, **19**.

The bow and big guns

The next module was the bow area, which received all of its various fittings as well as four of the single 20mm guns, which I built, painted, and mounted in their tubs, **20**. Anchors, chains, and PE grate covers were hand-detailed and installed next to take advantage of the open space available before the big gun turrets come into play.

It's not a battlewagon without big guns — and *Texas* has 'em! Each of the five turrets mounts two 14-inch guns. Because No. 3 turret also mounts a seaplane and catapult, I saved it for last.

I worked on the other four turrets as a group and replaced the kit's barrels with Master's turned-aluminum barrels; I test-fitted each turret to check the barrels for elevation clearance, **21, 22**.

The barrels were airbrushed with a primer coat of Italian dark brown, reducing the likelihood of paint lifting after masking for the Measure 22 scheme. Taking advantage of the airbrush deck blue ses-

sion for the turrets, I touched up the aft superstructure and deck components at the same time as the turrets, **23**. This also meant more masking before I could air-brush haze gray, **24**.

The turrets were fully assembled and left to sit overnight in their mounts so the guns' elevations would hold. I kept the full turrets in all four mounts removable to maintain maximum flexibility throughout the rest of the deck detailing.

Dancing with details

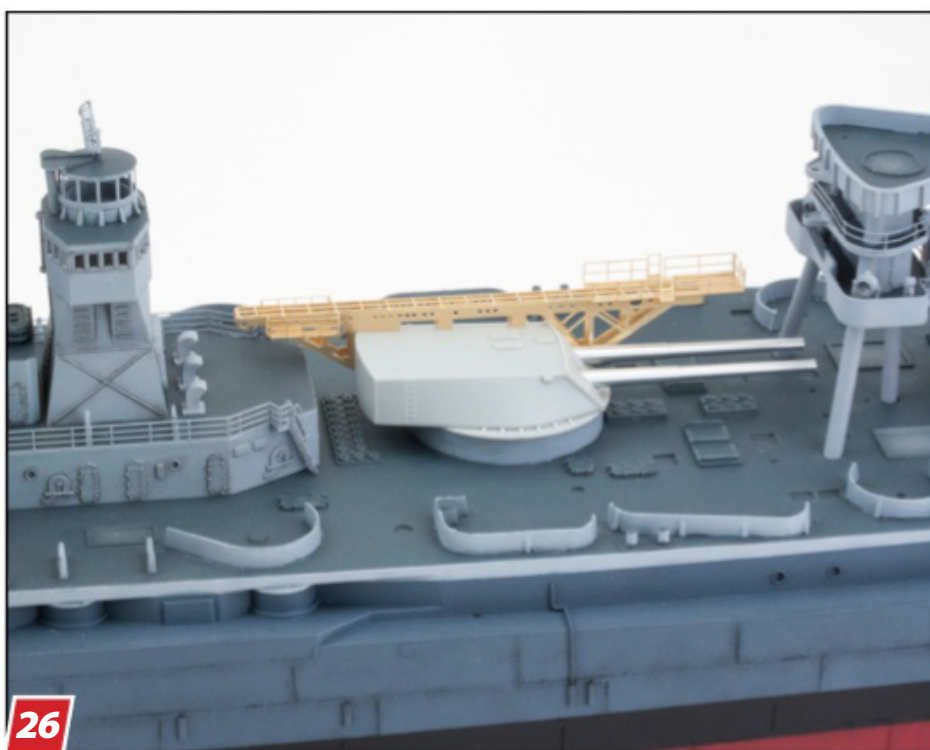
The next module involved a complex dance with the No. 3 turret, the aft mainmast tripod superstructure, and the No. 4 elevated turret barrette.

I built up the lower half of the mainmast tripod, including the railings and details required to hold the tripod legs in alignment, **25**. The No. 3 turret's barrels were built up and test-fitted with the bar-

rels aimed level, along with the PE seaplane catapult, to ensure everything would play nice, **26**.

There were also 50 different small fittings installed on the aft main deck that needed to be included in the Measure

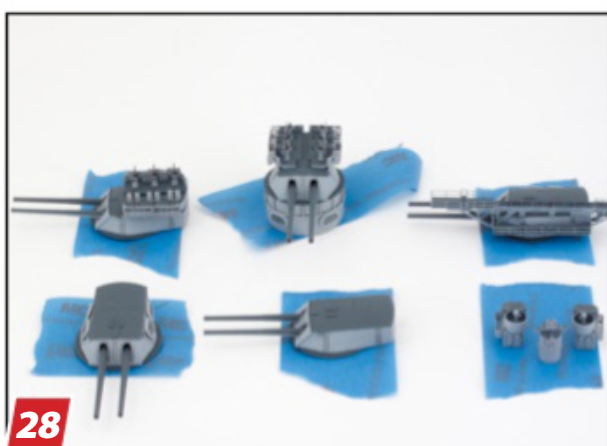
255
Number of
14-inch shells
fired by *Texas* in
34 minutes
prior to the
D-Day landings.



26 There's not much extra room between No. 3 turret and its seaplane catapult, the mainmast tripod, and No. 4 turret.



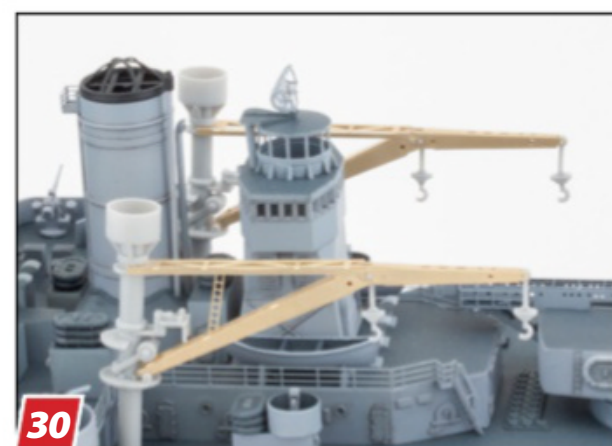
27 Details continue to proliferate on the aft main deck, including Carley floats on the turret sides. Bill kept everything removable as long as he could to be able to test fits.



28 Guns upon guns: Turrets 2 and 4 each mount six 20mm weapons.



29 If you like PE, you'll love the radar atop the aft tripod.



30 Boat cranes combine PE and kit plastic.



31 Bill painted the cranes off the model and kept them removable as long as he could to attach all the stuff around them.



32 All that fragile PE is why the fire-control structure was saved until the end. One false move could ruin that yardarm's day.



33 Rigging with black EZ Line, Bill begins at the yardarm with lines for the signal flags.

22 scheme. I cleaned them up and prepped them for paint, along with the No. 3 turret's parts. Then it was time again for deck blue, masking, and haze gray. The No. 3 turret was then fully assembled and the PE catapult components permanently attached.

Keeping the tripod structure and the three aft turrets removable definitely made life a lot easier when it came to installing all those fittings on the rear deck! Small details, such as the Carley floats, were

hand-painted and added to the turret mounts at this stage, **27**.

The *Mighty T* bristles with 44 individual 20mm guns. I tackled these in several shifts, depending on where they were installed. The first batch of 18 were added to the No. 2 and No. 4 turrets, **28**, along with the aft tripod and the elevated platforms at the tripod base.

The tripod received the rest of its levels, including the large PE radar antenna, **29**.

All five turrets and the tripod received their sequence of PFM, burnt umber pinwash, and lusterless flat. Then the No. 4 barbette was permanently installed.

I built up the two boat cranes at this point, **30**, and — once again — airbrushed them deck blue, masked, then airbrushed haze gray, **31**. I kept them dry-fit to avoid complications. The mainmast tripod was permanently installed on the main deck in anticipation of the rigging.



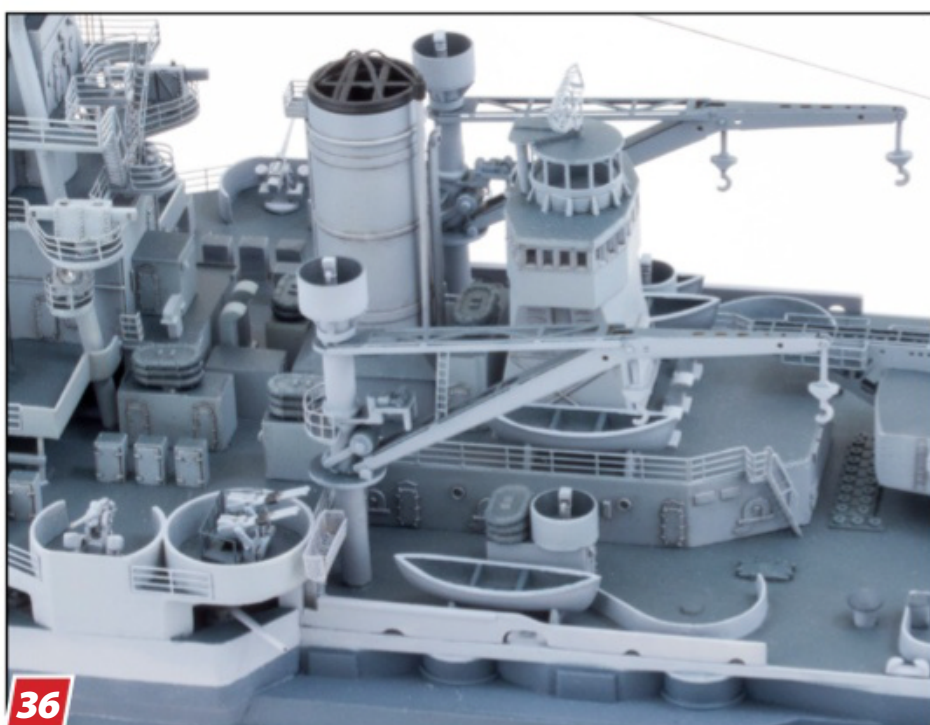
34

Another line runs from fire control to the jack staff on the bow.



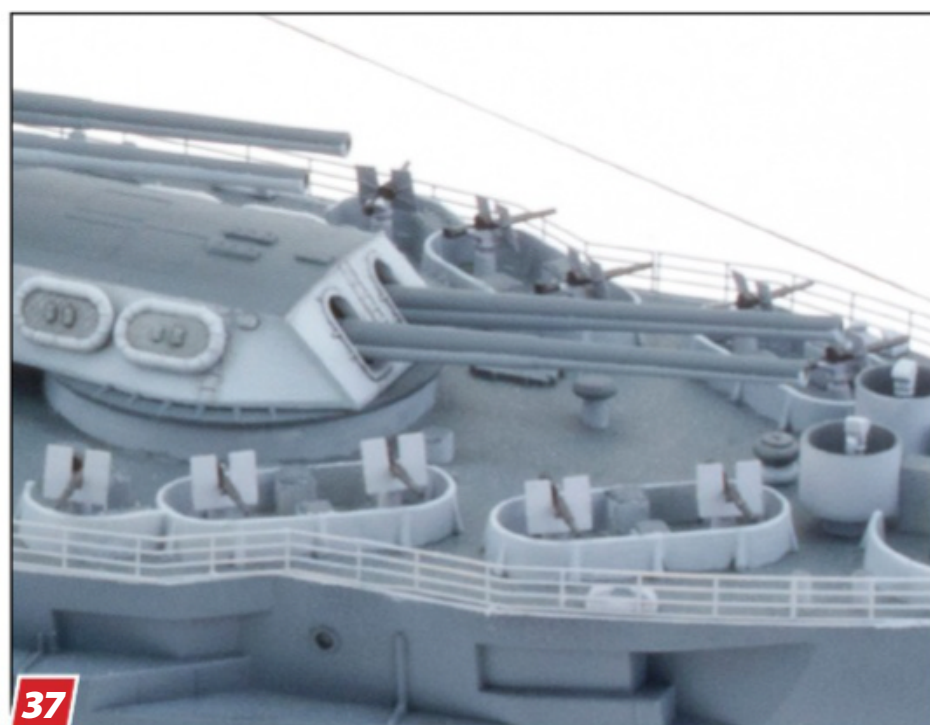
35

Rigging on the aft tripod includes a line that runs to the fire-control structure on the foremast.



36

Bill finally glued down the whale boats and their cranes.



37

More guns, anyone? Anti-aircraft guns line *Texas*' stern. Bill placed the rails first, then dropped the guns into their tubs.

On to rigging and more fittings

It was time to move to the foremast tripod and complete the fire-control structure. I installed all its PE details top and bottom, including the delicate yardarm, **32**. These details were hand-painted with haze gray and treated with PFM, pinwash, and lusterless flat. I attached the top to the tripod with styrene cement and let it sit overnight so it would be rock solid for the rigging.

I worked the rigging in multiple stages using EZ Line fine black elastic thread and super glue. First came the 10 signal-flag lines, run from the yardarm to the 03 deck, **33**. Then I shaped, painted, and installed the bow railings along with turrets 1 and 2, which made it possible to run the rigging line to the jack staff at the bow, **34**. The aft tripod was rigged next, **35**, including the connecting line to the foremast fire-control structure. Doing that cleared the way to

add the boat cranes and whale boats, **36**.

Aft end and weathering

After I shaped, painted, and mounted the aft deck rails, I added the remaining aft deck anti-aircraft guns to their tubs, **37**. Starting on one side at the boat cranes and working aft, I mounted the remaining four 40mm guns, a score of 20mm guns, and four 3" guns in their tubs. Then I added the final rigging line, connecting the mainmast to the stern, and seated turrets 4 and 5. I painted the propulsion gear and rudder and installed them so they could be included in the weathering, **38**. A light wash of thinned burnt umber bronzed the propellers and toned down the non-buff-

ing Metalizer brass. Careful light passes with lusterless flat removed the gloss to make the sheen consistent.

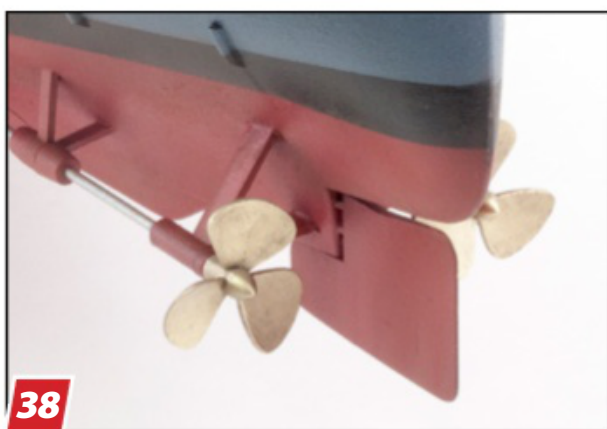
I airbrushed the hull with PFM and decaled the hull number on the stern. I didn't want to heavily weather *Texas*, so the focus was mostly below the waterline, **39**. I applied dot filters using burnt umber, rust, and leather to create streaking and tonal

variations. A burnt umber pinwash on haze gray portions of the hull picked out portholes and other features, **40**.

And an OS2U, too

That left just one last detail: the OS2U Kingfisher seaplane for the No. 3 turret. I dealt with it as a separate little build; it's all

13/3,000
Range in miles
of Texas' 14-inch
guns; in yards
while firing at
German
defenses above
Omaha Beach



38

Propulsion gear is attached to be part of the weathering below *Texas*' waterline. Bill "bronzed" the propellers with a burnt umber wash.



39

Dot filters add depth and a degree of wear to *Texas*' hull plates.



40

Burnt umber pinwashes pick out portholes and other molded features.



41

The Trumpeter kit features a Kingfisher seaplane molded in clear plastic.



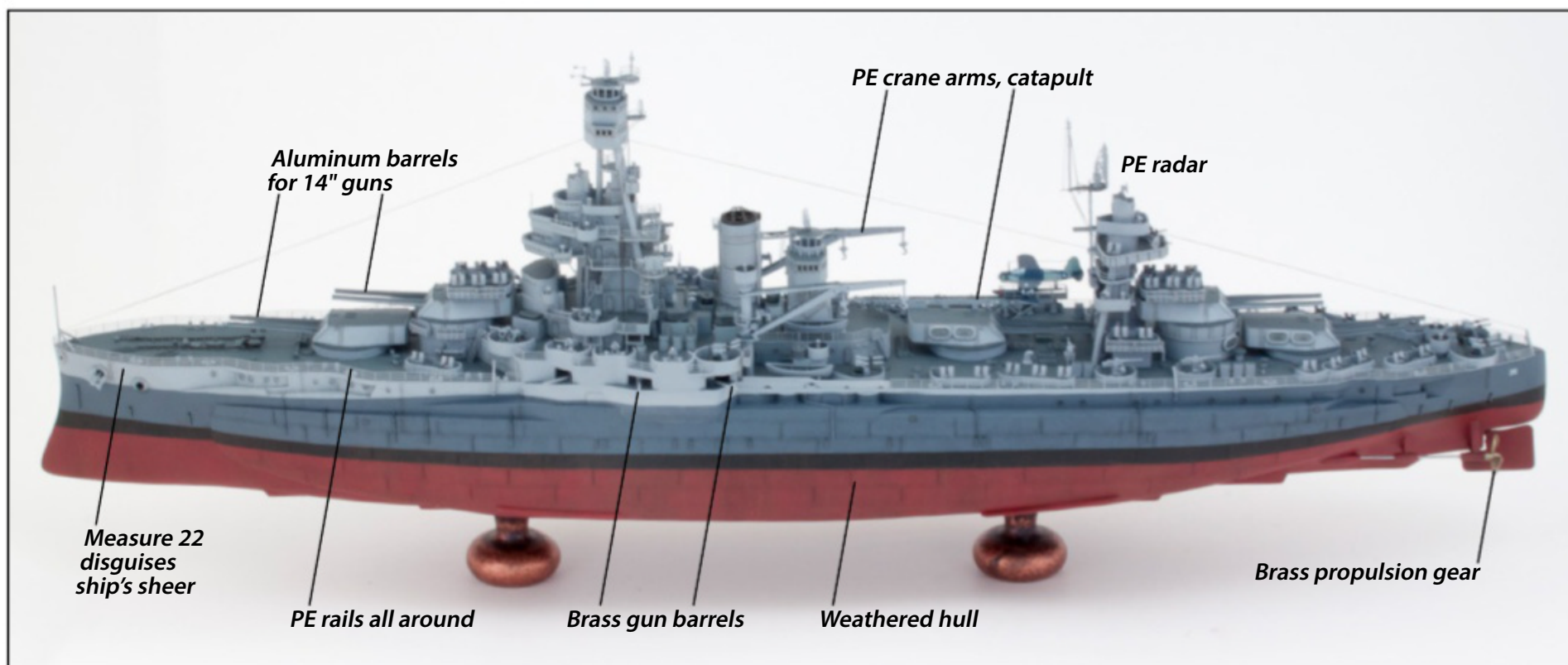
42

With the visual aid of an Optivisor, Bill airbrushed the plane and hand-painted the canopy frame.



43

One more good reason to keep the turrets removable: It was easier to position the plane off the model.



More than 100 years old, the USS *Texas* is a relic of the dreadnought era. But she fought with distinction through two world wars. Now a museum, she stands proud at her berth in San Jacinto State Park near Houston.

clear plastic and has its own paint scheme, **41, 42**. I kept the pontoons separate and masked clear areas for the canopy with blue poster putty. The upper surfaces are airbrushed sea blue, light gray covers the undersides, and RLM 78 *hellblau* serves for intermediate blue midsections. After pulling the putty from the canopy, I airbrushed the plane with PFM and applied the decals, then over-coated with more PFM. I put

more putty on the canopy and airbrushed lusterless flat to dull the finish without fogging the canopy. I donned my trusty Optivisor and hand-painted the canopy frame with a steady hand and a 10/0 pointed brush. I added a scratchbuilt radio mast and a bit of EZ Line for the aerial, then carefully super glued the Kingfisher onto the catapult, **43**. Then the No. 3 turret was permanently installed as the final module.

To provide a permanent stand for USS *Texas*, rather than the kit's plain plastic base, I had drilled holes in the hull bottom at the beginning of the build in anticipation of this moment. I used a pair of aged copper drawer knobs that I found in the hardware aisle of a home improvement center. Once I screwed these into the hull bottom, USS *Texas* was on her feet and ready to report for duty! **FSM**

Sculpting rough seas

Shape waves, wake, and spray to put ships in stormy weather /// BY CHRIS FLODBERG

There's something truly magical about seeing a model ship depicted at sea. But there are significant technical issues to overcome for realistic results, as anyone who has ever modeled an ocean scene can attest.

A seagoing diorama comprises three components — basic sculpt, waves, and paint — and each element must be realistic for the illusion to work. I wanted an easily replicable method using easy-to-obtain materials to reproduce just about any type of sea.

I lived and breathed this problem every day for two years and produced a heap of really poor sea bases until I figured out what worked. I spent hundreds of dollars and thousands of hours experimenting with just about every material I could get my hands on.

I continue to experiment, but I've discovered techniques that produce a range of realistic ocean surface conditions. The following description is my go-to method for choppy-to-rough seas.

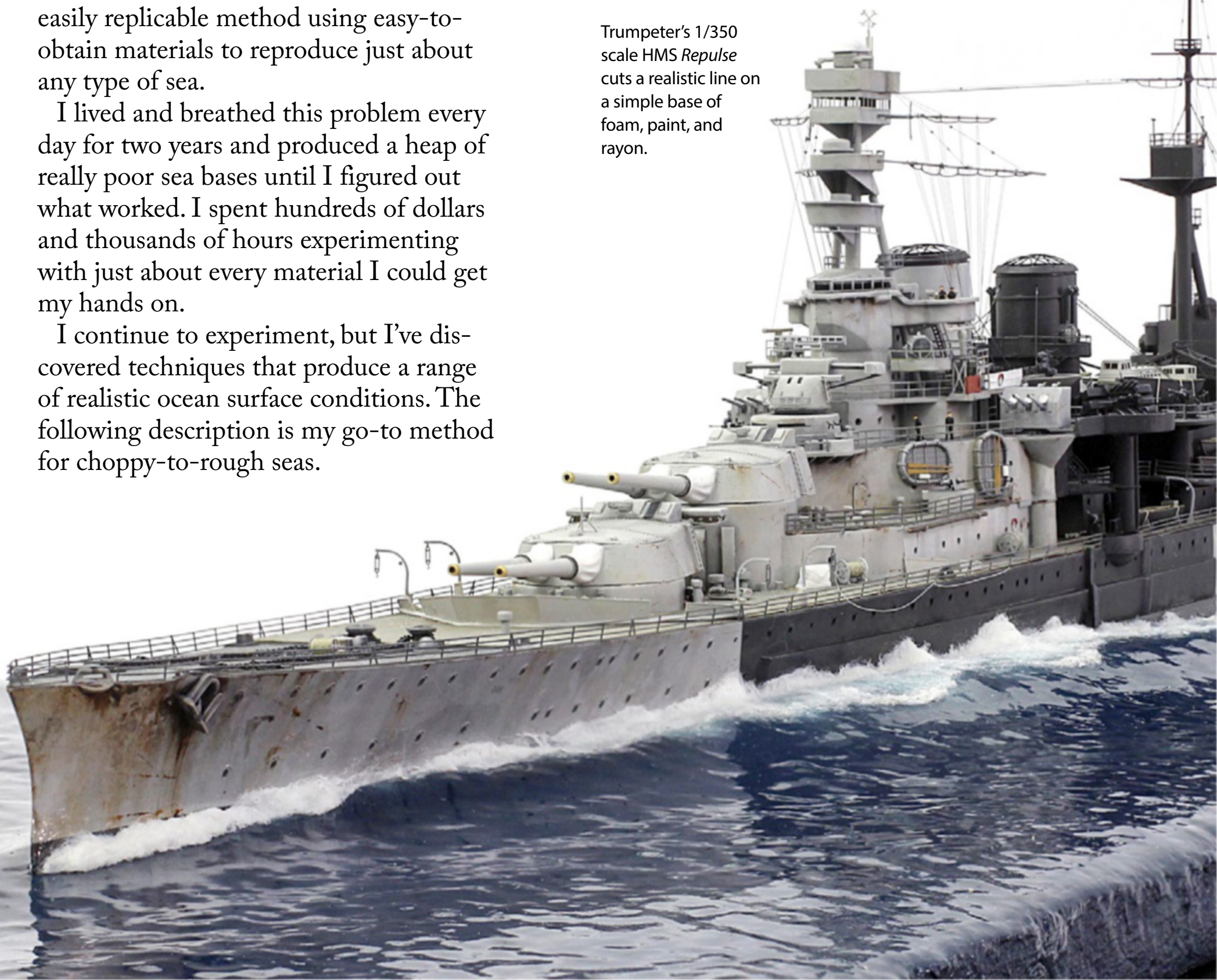
Meet Chris Flodberg

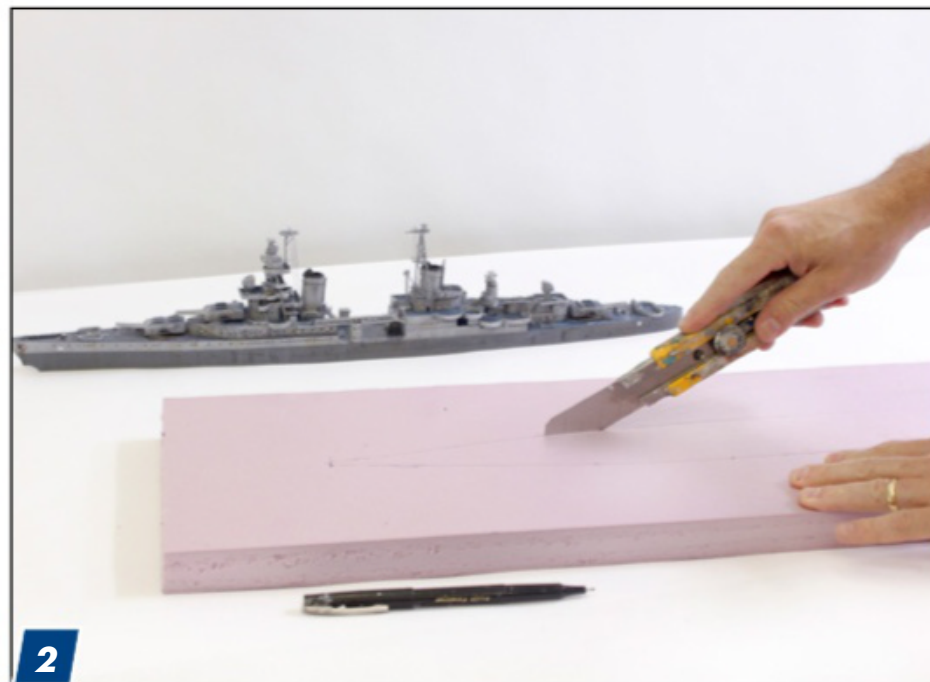
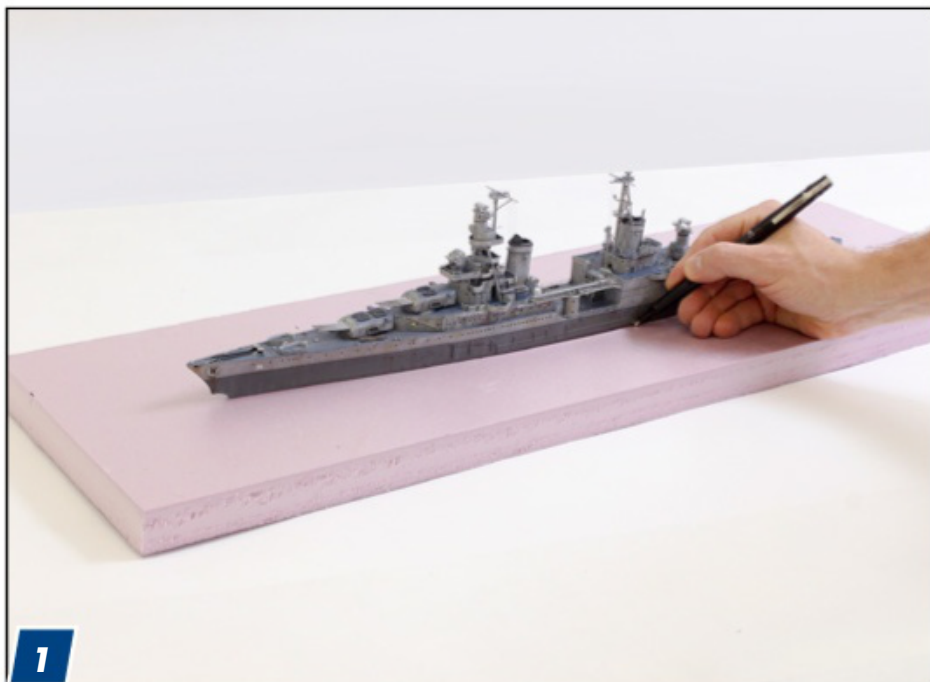
A professional artist, Chris lives in Calgary, Alberta, Canada. He returned to modeling after years away when he set out to create a series of large-scale ship paintings. The models served as references for paintings, but building them quickly grew into a passion. His models and dioramas

were shown alongside his paintings at the Military Museums of Alberta. "The first time I saw a realistic depiction of a ship at sea in small scale, I was hooked," Chris says.



Trumpeter's 1/350 scale HMS *Repulse* cuts a realistic line on a simple base of foam, paint, and rayon.





1 The technique starts with foam insulation, in this case a 1-inch thick piece. I place the ship where I want it and trace around it with a pen.

2 I cut nearly all the way through the foam along the outline. I keep the cutout in place for the next two steps to protect the opening edges.



3 Using a broad, wire cup brush in a drill, I make eye-shaped gouges in the foam. Keep them running in the same direction and vary the size of the grooves so they look like waves.

4 It is important to even out unusual peaks or holes at this stage or they can become permanent flaws and spoil the finished model.



5 Thoroughly vacuum the foam, your workspace, and your clothing to keep debris out of the paint to come.



6

I coat the entire sea with a generous layer of clear gloss acrylic medium.



7

While the medium is wet, I lay a single, long piece of paper towel over the sculpted foam, taking care to avoid tearing the paper.



8

I gently press the paper towel into the waves with my fingers.



9

Before the underlying layer dries, I liberally apply more medium, taking care not to brush or press too hard to avoid wrinkling the paper.



10

I squeeze air bubbles from under the paper with my fingers to ensure a snug fit against the foam. Again, avoid creating wrinkles that will spoil the realism of the waves.

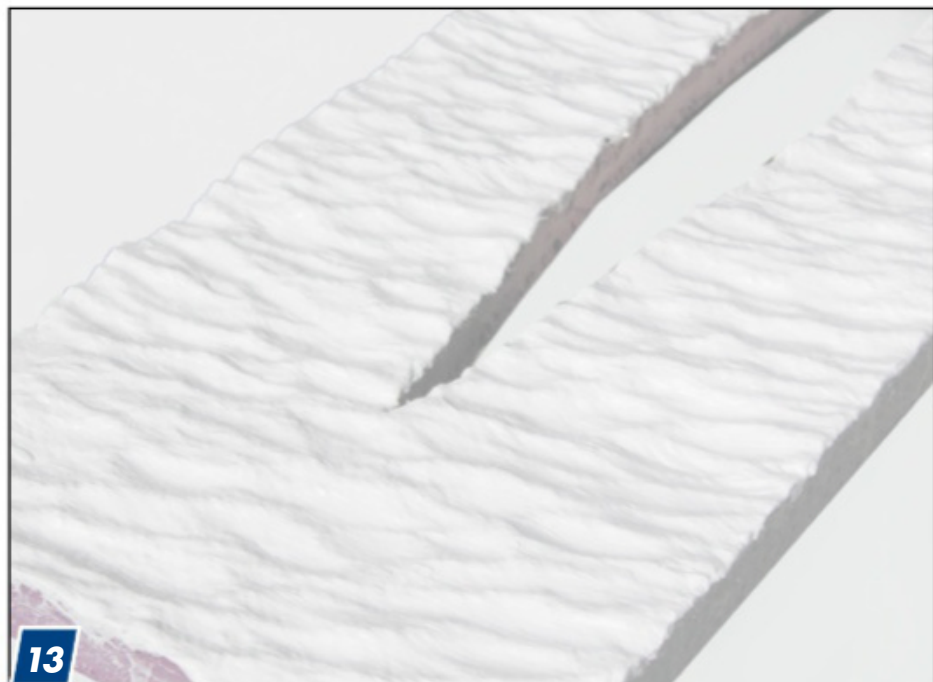


11

Once everything is dry, trim the paper from the opening for the ship and the outer edges of the base.



12 Next, I apply several coats of artist acrylic gesso to the surface. Always brush in line with the grooves so any brush marks will be going with the waves rather than against them.



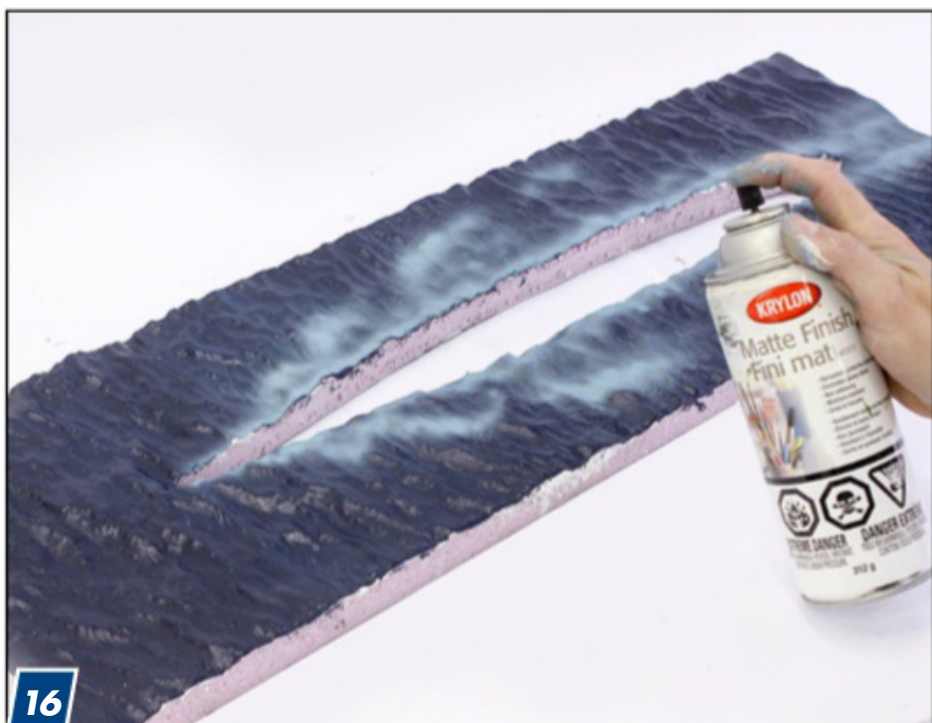
13 After more than a dozen coats of gesso, the sea looks smooth, most of the towel texture is gone, and it's ready for paint. I sand debris out of the finish.



14 I base-coat the sea with a mix of phthalo blue, black, and white acrylic paint; I would describe the resulting color as denim.



15 Guided by photos, I airbrush dull, mint green to suggest subsurface churn created by the ship. The color is a mix of white and turquoise with a tiny bit of black to dull the shade.



16 I seal everything with a clear flat acrylic to prevent subsequent layers from affecting the mint green.



17 For white-water effects, I use medical rayon balls (far superior to cotton balls). You can pull the fibers between your fingers to create webs.



18

I attach the rayon fibers with Liquitex high-gloss varnish, a watery clear, shiny finish. First, I brush a little on a spot where I want to attach the fluff.



19

While the medium is wet, I place a web of rayon.



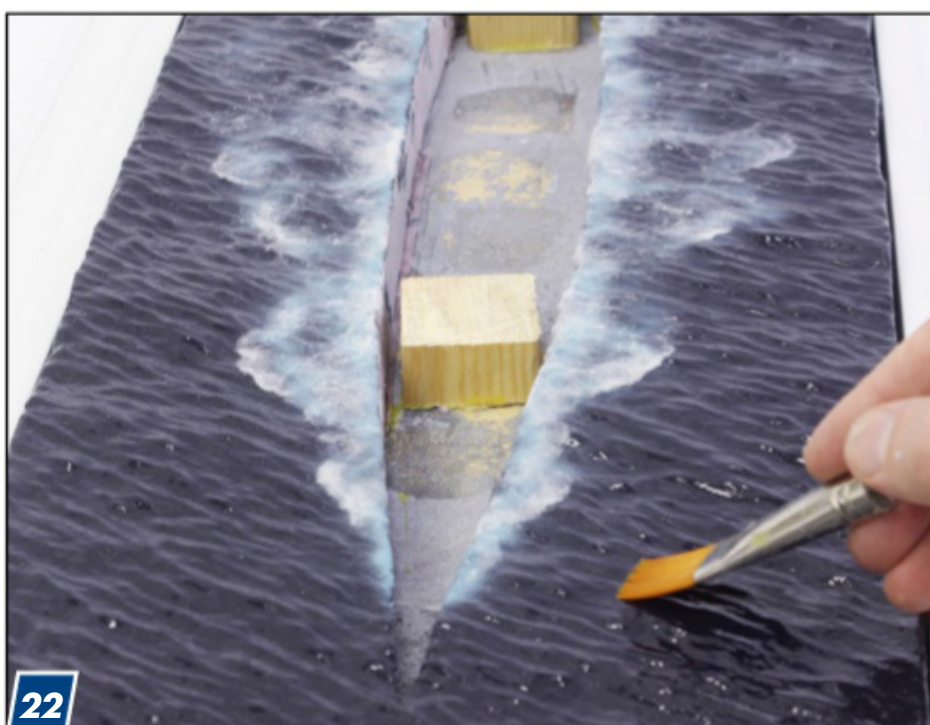
20

Lightly applying medium with a brush causes the strands to bunch up and become coarser. The results can be quite realistic.



21

Brushing on more medium tamps the rayon onto the surface of the sea.



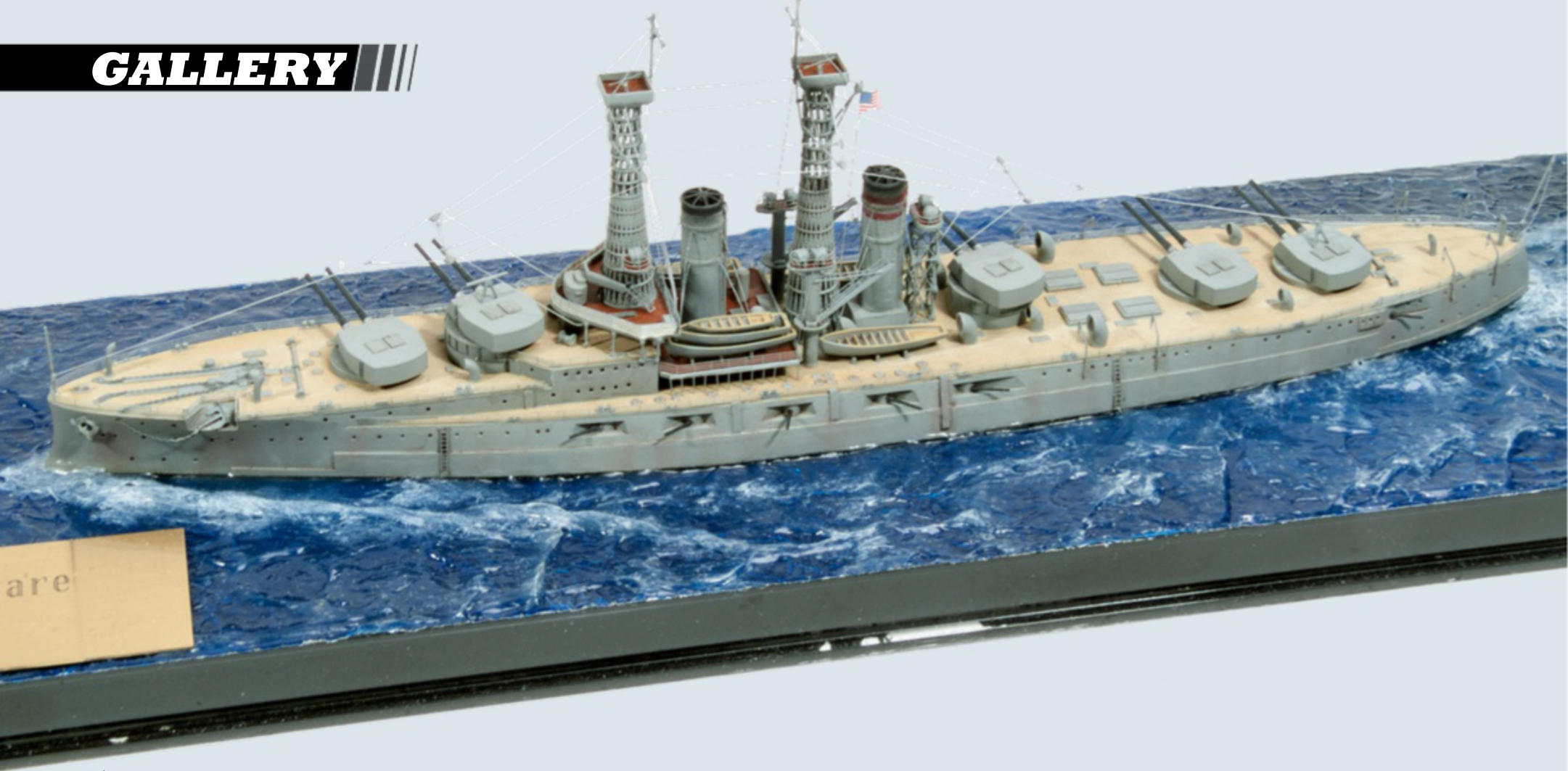
22

Once the rayon is on, I coat the entire base with multiple layers of Liquitex high-gloss varnish. Gluing wooden blocks into the hole makes attaching the ship easier.



23

Once the ship is in place, I patch the crack along the waterline with rayon and gloss medium. I like to create an up-and-down undulation along the waterline to suggest the movement of water. **FSM**

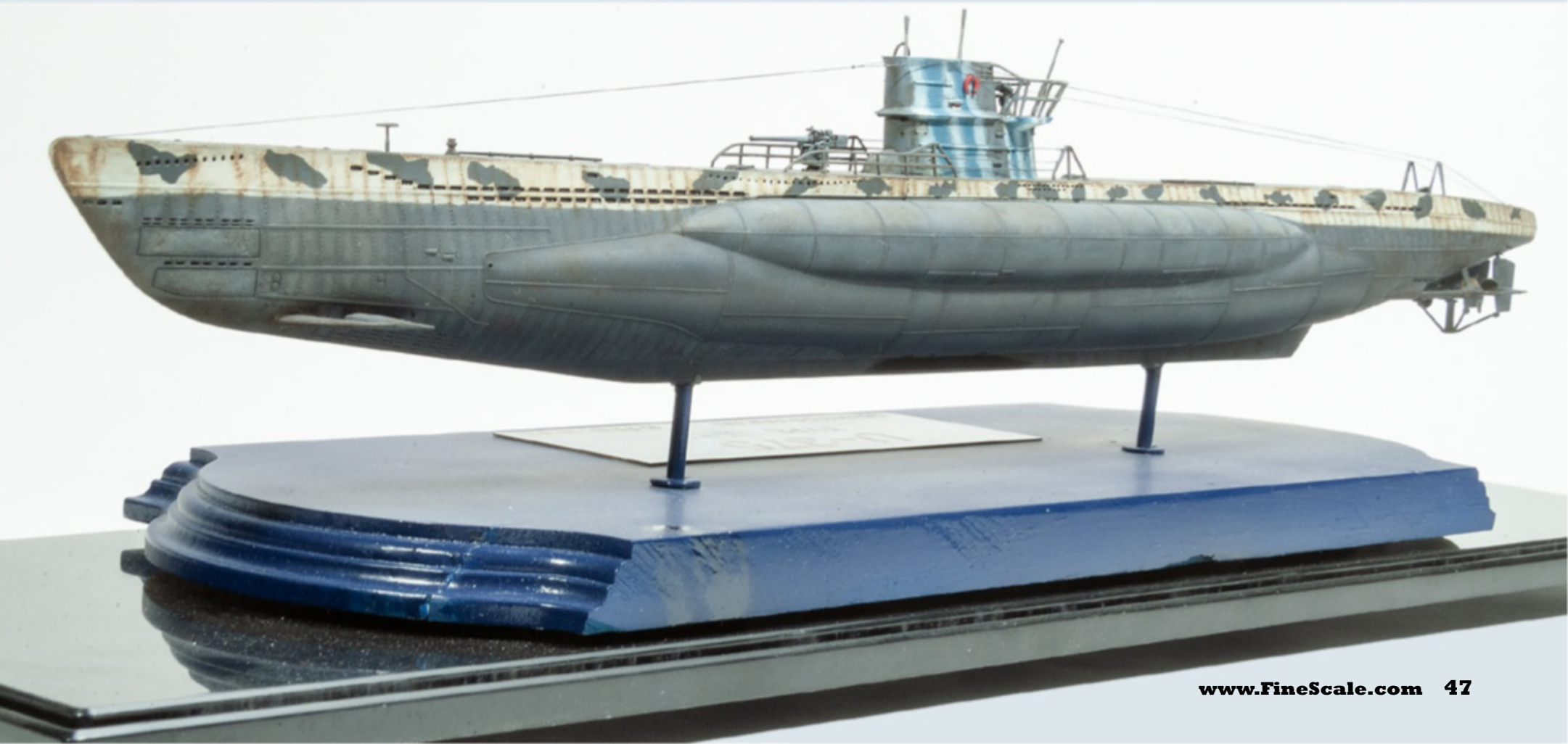


▲ **SEAN FALLESEN**
DOWNEY, CALIFORNIA

Launched in 1910, the USS *Delaware* BB-28 was designed as a dreadnaught style battleship complete with ten 12-inch guns. Sean's 1/700 scale version of the Samek kit is modeled as the ship would have appeared in 1912. Sean did a lot of extra work to give it such impact, starting with the addition of brass main gun barrels and 3-D printed cage masts and photo-etched railings. The ship was airbrushed with an Iwata Revolution and Sean used Testors Model Master enamels. He says he masked between airbrushing the main areas and hand-brushed deck fittings, the superstructure, and decks. He also weathered the ship between gloss and dull coat layers, adding oil washes and Ammo by Mig Jimenez rust pigments.

▼ **JIM STUTE**
TEMPE, ARIZONA

Hard as it may be to imagine, Jim says this 1/144 scale Revell *U-375* Type VII-C German U-boat is an out-of-the-box build. This class of sub could dive 750 feet, but that was not enough to keep it from being sunk in the Mediterranean Sea on July 30, 1943. Jim did all the painting by hand, using tube oil paints over a Tamiya black undercoat. Pre- and post-shading also were employed. Jim says he diluted the oils before stippling them on the sub until he had achieved the look he was after. He adds that the sub build was a nice break from all the figures he had been painting!





Once Adm. Isoroku Yamamoto's flagship, the Japanese Navy's Nagato was relegated to coastal defense by June 1945. Harvey modified Hasegawa's 1/350 scale kit to model the battleship's final wartime configuration.

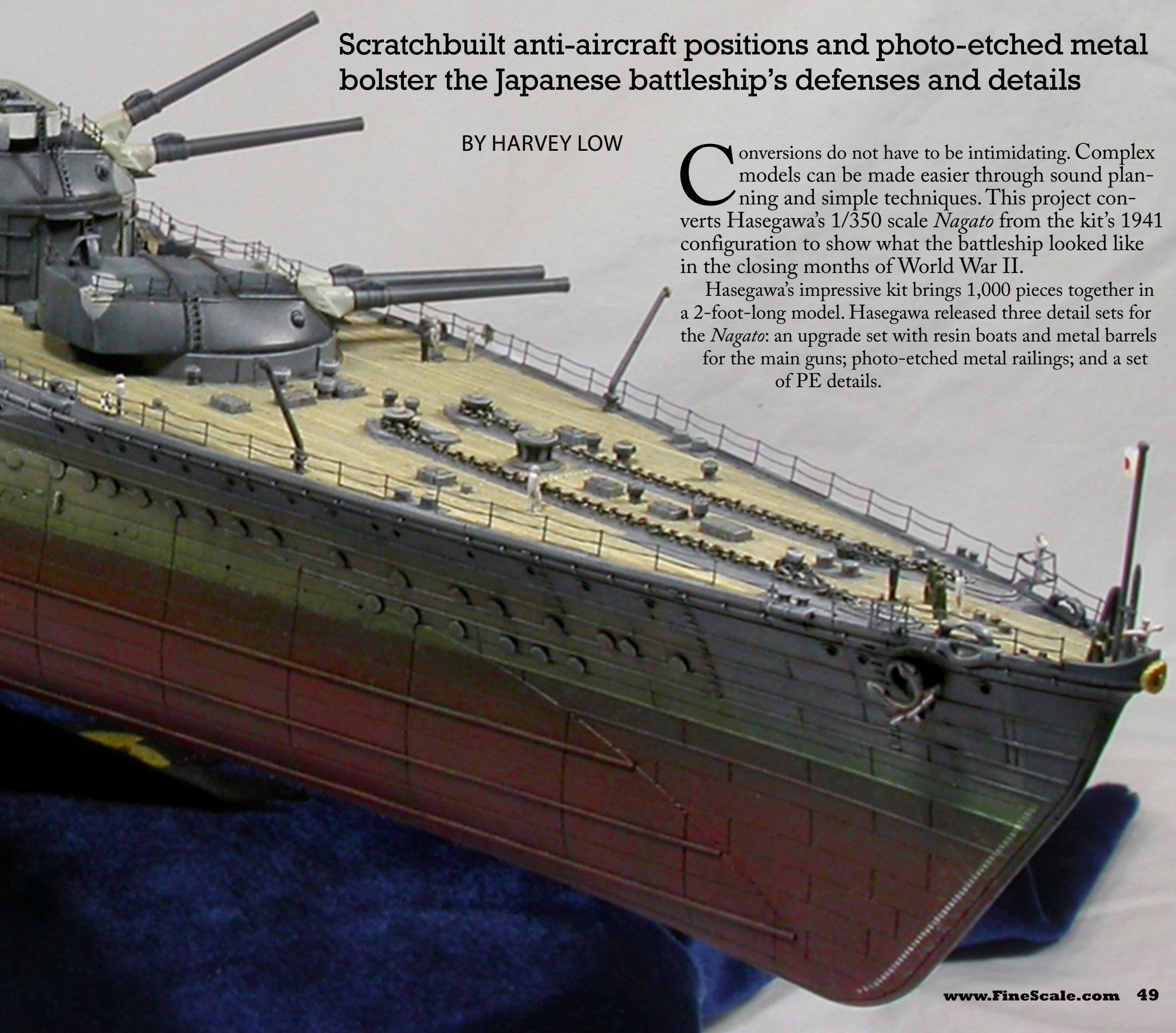
Build **HASEGAWA'S** **NAGATO** **in late-war trim**

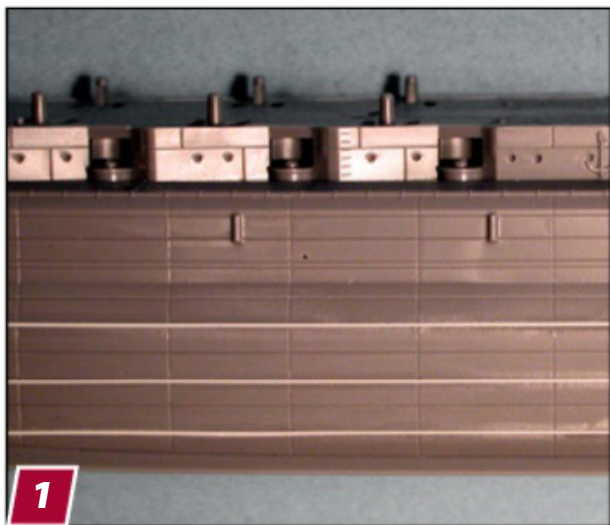
Scratchbuilt anti-aircraft positions and photo-etched metal bolster the Japanese battleship's defenses and details

BY HARVEY LOW

Conversions do not have to be intimidating. Complex models can be made easier through sound planning and simple techniques. This project converts Hasegawa's 1/350 scale *Nagato* from the kit's 1941 configuration to show what the battleship looked like in the closing months of World War II.

Hasegawa's impressive kit brings 1,000 pieces together in a 2-foot-long model. Hasegawa released three detail sets for the *Nagato*: an upgrade set with resin boats and metal barrels for the main guns; photo-etched metal railings; and a set of PE details.





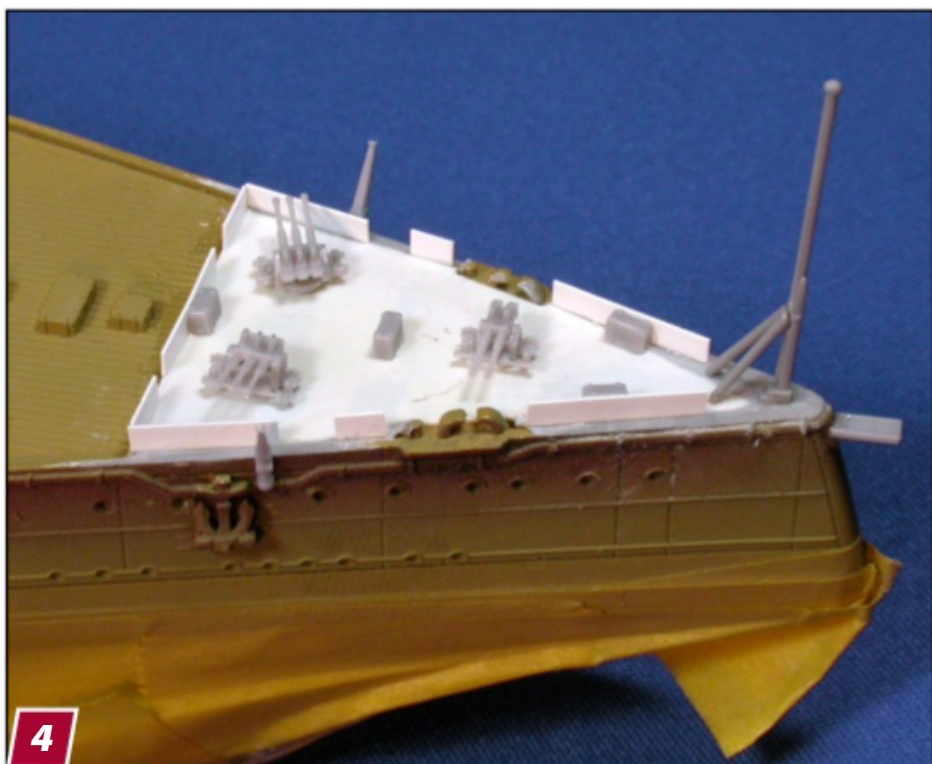
1 To correct (or at least minimize) heavily engraved hull-plate detail, Harvey glued styrene rod into several of the horizontal lines to represent raised weld seams.



2 Barnacles or algae? Actually, it's Humbrol Maskol. Harvey weathered *Nagato's* lower hull by applying different shades between random applications of Maskol.



3 Harvey removes Maskol with tape. He toned down the garish appearance by airbrushing streaks of thin Tamiya hull red.



4 Before painting the deck, Harvey scratchbuilt an anti-aircraft position at the *Nagato's* stern using sheet styrene.



5 After painting a base of Tamiya dark yellow, Harvey masked selected planks with thin tape, then airbrushed dark yellow mixed with white.

Research, research, research

Good planning is key in an ambitious conversion. Individual ships can vary considerably, depending on the period represented. After determining the time you want to model, acquire as much data as possible on the vessel at that date and note all major modifications.

I wanted to build the *Nagato* as a coastal defense ship at Yokosuka naval yard just prior to her last combat in July 1945.

While line drawings and profiles are useful, they are sometimes based on artistic interpretations. I prefer photos as primary references for color, camouflage patterns, and structural dimensions. The ship was well photographed after her capture by the U.S. Navy.

The hull

I always assemble and paint the hull and main deck first, then mask off the area below the waterline. This makes it easier to

handle the model as I work my way to the upper structures.

The engraved pattern on the bulges and armor plating was wrong, with deeply recessed panel lines for raised weld seams. Rather than filling everything with putty, I glued .5mm styrene rod along some of the horizontal recesses, **1**, and softened the others with weathering.

Before gluing the hull halves together, I trimmed the polycaps (P1) to better fit Part G12. I added a strip of .030" (.75mm) styrene on top of bulkhead G4 for a flush fit with the deck. I needed a little putty at the bow and a strip of .010" styrene between deck parts B3 and F6. Otherwise, minor sanding and Mr. Surfacer 500 were sufficient to finish building the hull.

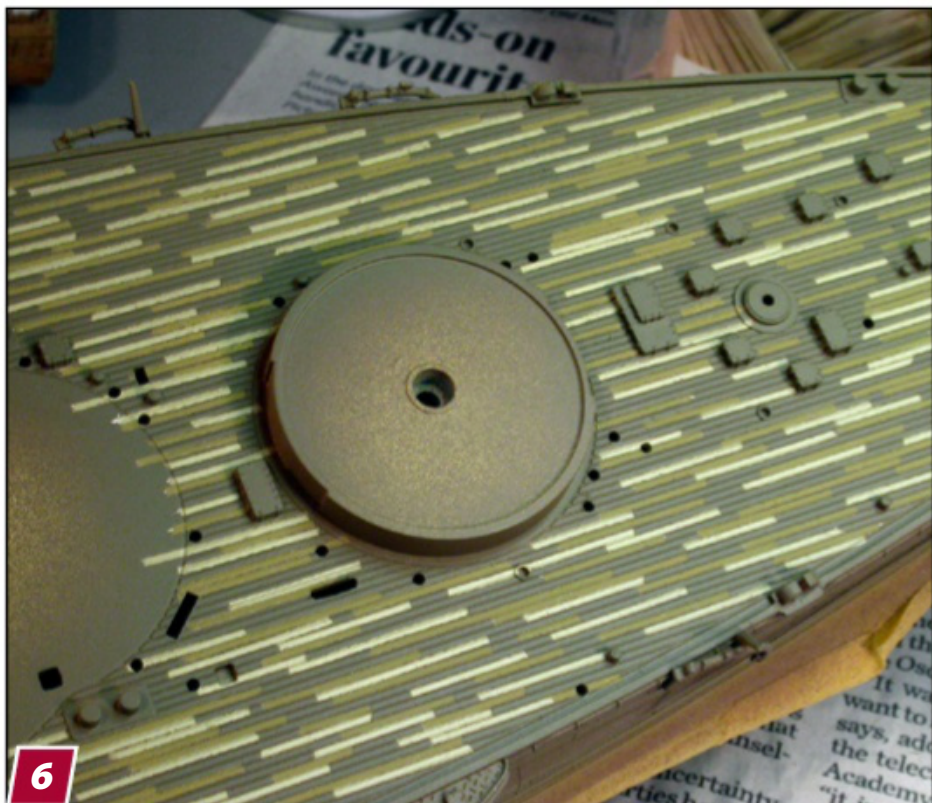
I left the deck fittings off, preferring to paint them separately later. Using a No. 62 bit in a pin vise, I deepened the portholes for a better effect, taking care not to drill all the way through.

After spraying the hull and deck with Tamiya fine white primer and correcting flaws, I applied an overall coat of Tamiya spray-can olive drab (TS-28). Next, I brushed on Humbrol Maskol liquid mask in random, downward strokes, then applied a coat of Tamiya linoleum deck brown (TS-69), **2**. After another Maskol application, I finished with Tamiya dull red (TS-33). The Maskol came off easily with masking tape, **3** – but the lower hull looked like a disco ornament! Airbrushing thin shades of hull red toned it down.

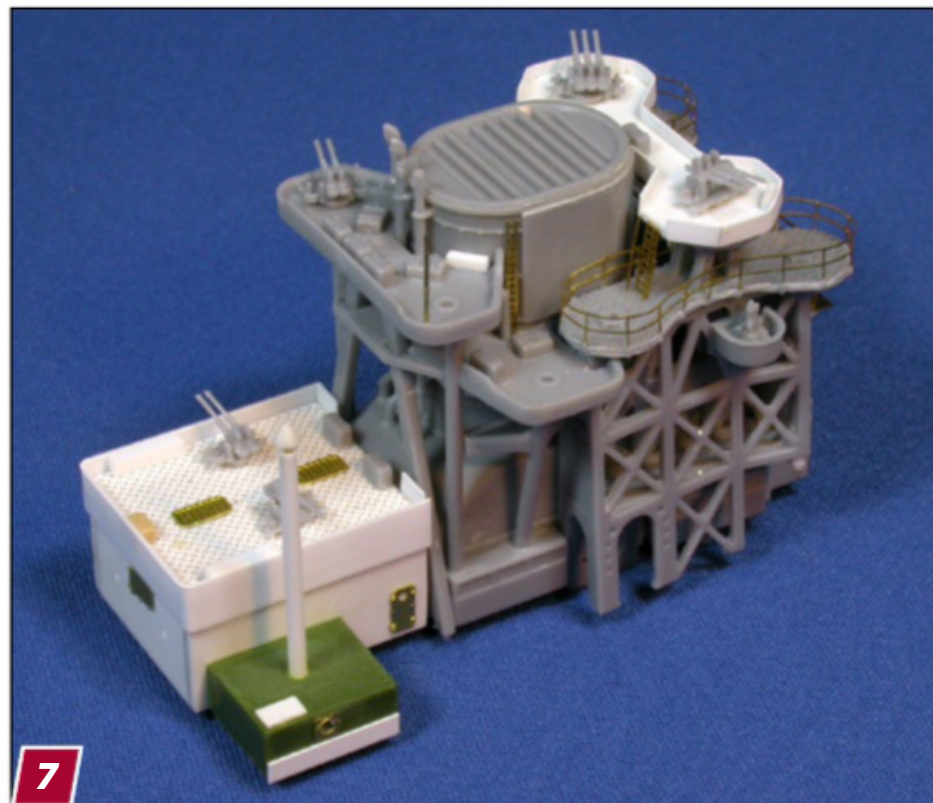
I airbrushed Tamiya acrylic semigloss clear to protect the paint from washes of raw umber, burnt sienna, and Venetian red artist's oils. After sealing with another clear coat, I masked the hull below the waterline.

Decks: wooden and linoleum

I assembled the bridge base and second level but left them separate to paint the wooden decks.



6 More masking and a darker shade of dark yellow resulted in a multicolored deck. Misted coats of the lightest shade softened contrast.



7 Harvey added a scratchbuilt boiler room behind the funnel, detailing it with model railroad tread plate and kit guns.

Photos showed a triangular gun emplacement at the stern deck. I scratch-built it using scale drawings provided in the kit as a template. I omitted the deck fittings (parts M9, M10) in that area, armed it with extra anti-aircraft guns from the kit, and added a .010-inch styrene-strip gun shield, **4**.

After a base coat of “tan” – I used Tamiya dark yellow – to represent teak, I applied lengths of .75mm JammyDog masking tape randomly over the deck, using the plastic’s engraved lines as a guide, **5**. I mixed white into dark yellow, airbrushed the decks, then added more tape strips. I mixed a darker shade by adding black and dark brown to dark yellow and airbrushed a final layer, **6**. I misted the unmasked decks with the lightest shade to blend the colors, sealed with a clear, then “stained” the wood with a wash of raw umber artist oils.

I painted the aircraft deck Tamiya spray-can linoleum deck brown (TS-69). Then I airbrushed a thin mixture of Tamiya linoleum deck brown (XF-79) and brown (X-9) along aircraft handling rails and raised lines. A final coat of diluted XF-79 (a warmer shade than TS-69) blended the colors.

Next, I masked the deck with Tamiya tape cut to shape on a sheet of glass. I masked around as many molded-on fittings as possible and planned to hand-paint the remaining ones later. This is tedious but well worth the results! I primed the remaining areas with Tamiya flat black (XF-1).

Funnel structure

During the *Nagato*’s refit, her funnel was

shortened to improve the anti-aircraft guns’ field of fire. After assembling the funnel and attaching it to its base (parts S1, S8, and S9), I cut off the cap with a motor-tool circular saw, removed a 12mm section from the middle, and reattached the cap. The excision meant I no longer needed to install the upper walkways, but I shortened the ventilation pipes (parts S6, S7, S35, S36, S38, and S39). Note that funnel cap S4 should be replaced with Part S40 if you use PE set QG16; PE Part MA18 is used with Part S40.

In 1945, a boiler was installed just aft of the funnel superstructure to provide heat and furnish steam to the galley. I built the boiler room from .030-inch styrene panels and installed it over the rear of the funnel base; I had to trim its walls slightly so the structure fit snugly. On the roof of the boiler room are two twin anti-aircraft guns surrounded by an .010-inch styrene strip shield. I super glued S&S Hobby Products E-Z Safety Tread to the roof, then added a tall ventilation pipe and a small adjoining structure made from a block of styrene to the starboard side, **7**.

Searchlight platform

The kit-supplied searchlight towers were solid moldings, so I thinned the plastic from behind with a grinding stone in a motor tool, **8**, and cut out the areas between the cross members with a No. 11 hobby-knife blade, **9**. Then, I assembled the searchlight platforms (parts S2, S3, S27, and S28) separately.

Using the searchlight mounts (parts Q37 and Q38) as a base, I scratchbuilt an anti-aircraft platform to mount above the

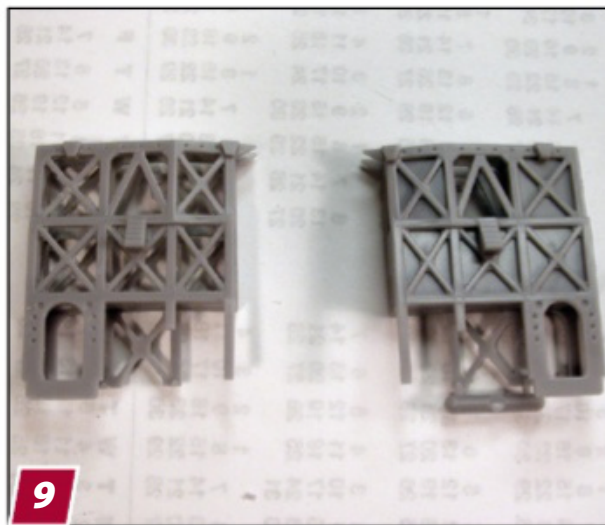
Six simple tips

Here are six simple yet important tips that will make complex projects more enjoyable.

1. Become thoroughly familiar with the instructions before you begin cutting plastic. Develop a plan of attack; while following instructions is always sound advice, there may be alternative sequences that make better sense for your project.
2. Inspect all parts beforehand and correct flaws such as sinkholes and ejector-pin marks.
3. Lay out all the sprues in sequence to make finding parts easier. I pin the sprues to a wall with clearly marked labels.
4. Place a large white towel on the floor. This will help locate those pesky parts that fly off the table.
5. Dry-fit all parts, particularly PE items that will require bending prior to installation.
6. Build the model in subassemblies to aid painting. Attach parts, including PE, into assemblies that can be painted as a single component in one color. Avoid adding too much to a component, because it can be hard to reach all the details.



8 To improve the kit's solid-molded searchlight supports, Harvey grinds much of the plastic away from the back side of the parts.



9 He made quick work of the newly thinned plastic, cutting away the excess from the framework with a sharp blade.



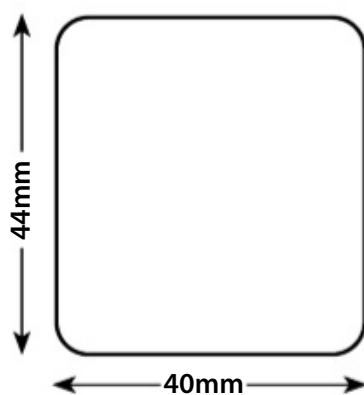
10 To form the anti-aircraft platform wrapped around the funnel, Harvey drew its outline on a folded piece of paper.

Templates for anti-aircraft positions

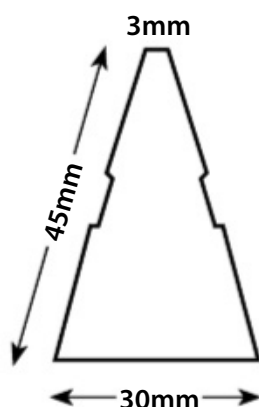
1/350 scale

Dry-fit and trim parts to refine shapes

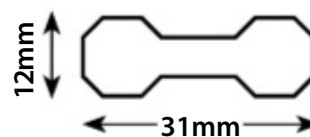
Large anti-aircraft platform (x1)



Stern deck anti-aircraft position (x1)

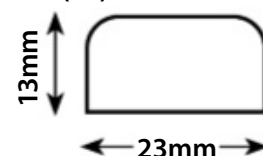


Searchlight platform anti-aircraft gun tubs (x1)

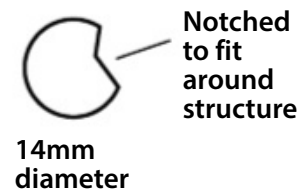


Note: The octagonal shape is also the basis for the shape of the upper gun tubs on the aft superstructure (x2)

Turret anti-aircraft position (x2)



Aft superstructure gun tub (x2)



searchlight platform (Part S10). I folded a piece of paper in half, then drew one half of the gun tub, using the fold as the centerline. Cutting it out and unfolding the paper gave me a symmetrical shape I used as a template on .030" styrene, **10**. I added guns and a .010" styrene strip shield, then dry-fitted this platform to the funnel structure but left it off to paint it separately.

Some of *Nagato's* 20mm gun mounts and searchlights were moved to land installations in early 1945, and many of the remaining guns and searchlights were moved port-side to face an anticipated attack. The kit provided just enough 25mm guns and ammo bins to equip the new gun platforms, leaving some starboard mounts empty.

Aft superstructure

After attaching parts R4, R19 and R20 to R3, I cut off the large forward rangefinder mounts on Part R3 and replaced them with anti-aircraft gun tubs similar to those on

the searchlight platform. I added triple gun mounts to the third-floor decks (parts R11 and R12), then extended them under the mounts with .030" styrene. I used .015- x .250-inch styrene strips, cut and bent to match the new floor edges, to enclose the deck up to the fourth level.

Circular gun tubs (14mm in diameter) made of .030-inch styrene with .010-inch styrene strip shields were added to the rear of the third floor; I notched the tubs to fit around Part Q16 and added twin anti-aircraft guns. Attaching two 3/64-inch styrene rods to the undersides of the tubs and sides of the lower tower replicated the structural supports.

As with her funnel, *Nagato's* tripod mast was cut down to clear a field of fire. I hollowed out the mast, then cut according to references – photos show the legs were cut at different heights. Finally, I made an aircraft derrick from styrene rod and attached it in a downward position, **11**.

Bridge tower

To make it easier to paint, I built the forward superstructure, or "pagoda," in deck-level sections, **12**.

The upper DF loop was replaced with a photoetched-metal Type 21 radar unit from my spares box. (One from a 1/700 scale *Yamato* works well, or you can use Lion-Roar's 1944 conversion set.) I installed the radar, sandwiching tiny styrene strips for framing, and replaced railings with .010-inch styrene to simulate armored shields.

Large anti-aircraft platform

One of the major additions in 1945 was a large platform just aft of the main superstructure for six triple 25mm guns. I scratchbuilt it as a subassembly using .030-inch styrene. I applied E-Z Safety Tread to the platform, as well as a small blockhouse made from a chunk of styrene 21mm long x 10mm wide x 7mm high. After detailing the platform's underside with styrene support beams, I added two 21mm-long 2mm



11

Harvey pruned the aft mast, then added anti-aircraft gun tubs and armor shields.



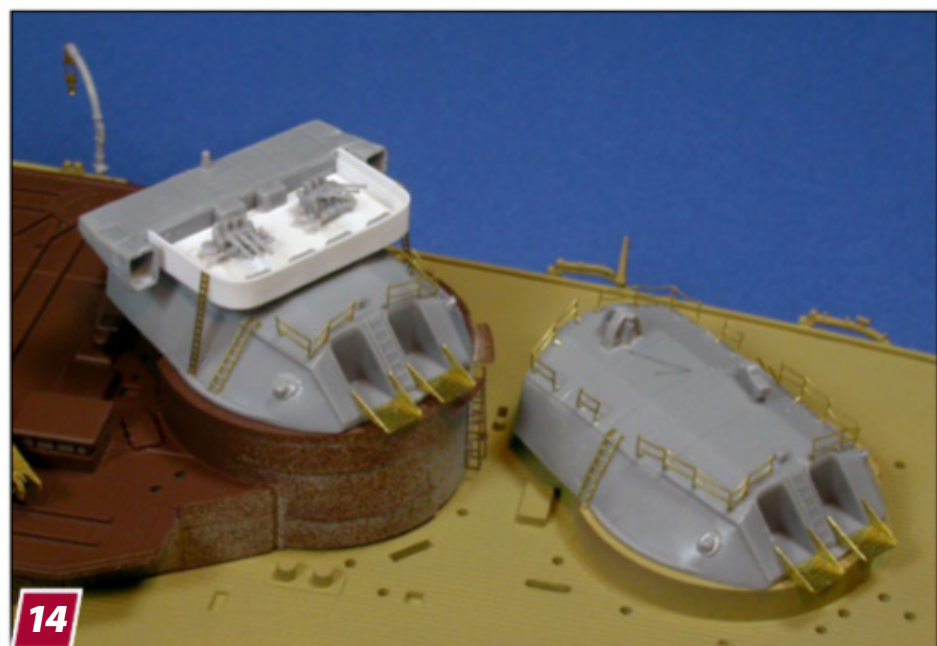
12

Unlike the rear mast, the bridge tower needed little modification. Harvey added new radar and replaced rails with solid barriers.



13

Harvey built the large anti-aircraft platform from sheet, strip, and rod styrene, detailing it with kit guns and ammo lockers, and extra photoetched-metal doors and hatches.



14

Before adding turned-metal gun barrels, Harvey attached photoetched-metal railings and scratchbuilt anti-aircraft platforms.

plastic rods as supports that fit into holes in the deck where the 9-meter lifeboat (AE39) would have been, **13**. Small supports for the platform at the opposite end were added to Part J13. I omitted parts AE19 and AE34, as they would obstruct the installation of the anti-aircraft platform.

Additional AA platforms were installed on *Nagato*'s No. 2 and No. 3 turrets. I replicated them with a 13mm x 24mm sheet of .030-inch styrene and added .010-inch shields and two triple anti-aircraft guns, **14**. Tiny styrene shims leveled the platforms.

Painting

Late-war photos of *Nagato* show a hard-edged camouflage scheme. Some sources suggest she was camouflaged in grays, browns, and olive to blend into the shore – as on other Japanese battleships, such as *Ise*

and *Hyuga* – but definitive information is hard to come by. I interpreted black-and-white photos to determine the patterns and color combinations. Sources suggest camouflage nets and wood scaffolding were added around the funnel and turrets to disguise the ship's shape. I omitted these for lack of photographic evidence.

I painted and weathered the subassemblies separately, priming all parts with Tamiya flat black. Layering thin coats – 60% thinner, 40% paint – over the black primer left shadows in recessed areas, providing depth. I intentionally applied paint sporadically, allowing some black to show.

Tamiya IJN Kure Arsenal gray (XF-75) is the base color. The other three colors for the hull camouflage are Tamiya dark gray (XF-24), khaki (XF-49), and olive drab (XF-62). Airbrushing varied shades of each

color provided additional depth.

I hand-painted random camouflage patches on the superstructures with Vallejo medium sea gray (158), and used Vallejo paints for other details, too: windows on the deck hatches (medium blue); AA gun magazines (Panzer uniform black); and railing canvas (off-white).

Weathering

By mid-1945, war-weary Japanese ships still in service were far from pristine. I achieved a dirty, worn appearance with a series of hand-brushed filters that provide tonal variation. If you don't have a flat or satin finish, the effect will be lost. Filters – unlike washes – are supposed to cover surfaces evenly and not collect in recesses. I mix filters much thinner than washes – 95% thinner and 5% paint – and prefer

enamels (in this case, Model Master mixed with Humbrol thinner) over an acrylic base.

My filters consisted of dark blues and light grays over the grays; tan over khaki; and green over olive drab. I applied them in light coats and streaks.

I flowed an oil wash of raw umber mixed with blue-black into recesses, using a thicker wash on the anchor chains and hull near the waterline. While the wash was still a little wet, I removed most of it with a brush dipped in clean thinner.

Next, I lightly dry-brushed the model with pale gray.

After removing the masking from the lower hull, I used a pencil to add tiny chips along the waterline. The waterline was sprayed with a diluted mixture of Tamiya clear orange (X-26), clear blue (X-23), clear green (X-25), and a touch of brown (X-9), to simulate an algae-infested waterline. I applied rust around the anchors using an artist's oil wash of burnt sienna with a touch of orange. (Keep the rust to a minimum.)

Final touches

I airbrushed the PE deck railings on the frets, then attached them and the accommodation ladders with super glue. I bent the parts first, then applied glue to each stanchion, working my way the length of the railing. I touched up places where the paint flaked off.

Next, the fun part: installing all the sub-assemblies, remaining deck fittings, and flags. The funnel assembly must be installed to the deck first and then the searchlight platform, before installing the forward superstructure.

Tiny figures – all 200 of them – from Fujimi and L'Arsenal were added at each stage. It's a good idea to glue figures on as you attach the subassemblies so they appear throughout the ship – under overhangs and behind railings – not just in open areas.

I super glued thin, stretched sprue for rigging (black for standing rigging, beige for running rigging). After misting on Model Master Acryl semigloss clear, I attached the remaining clear parts with Weldbond glue.

A year and 2,000 parts later, I had a beat-up battlewagon, a model of a weary warship that's a little different from the pristine Imperial Japanese Navy subjects I'm used to seeing.

This isn't a project for beginners. But if you plan and take your time, such an ambitious project will be easier. Remember to enjoy the process. **FSM**



Scratchbuilt gun tubs, PE details, nicely done camouflage, and a multitude of tiny figures bring Harvey's Nagato to life.

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Mysteries/Untold Sagas of the Imperial Japanese Navy – Nagato's Last Year: July 1945-July 1946, Tony Tully, www.combinedfleet.com

GALLERY

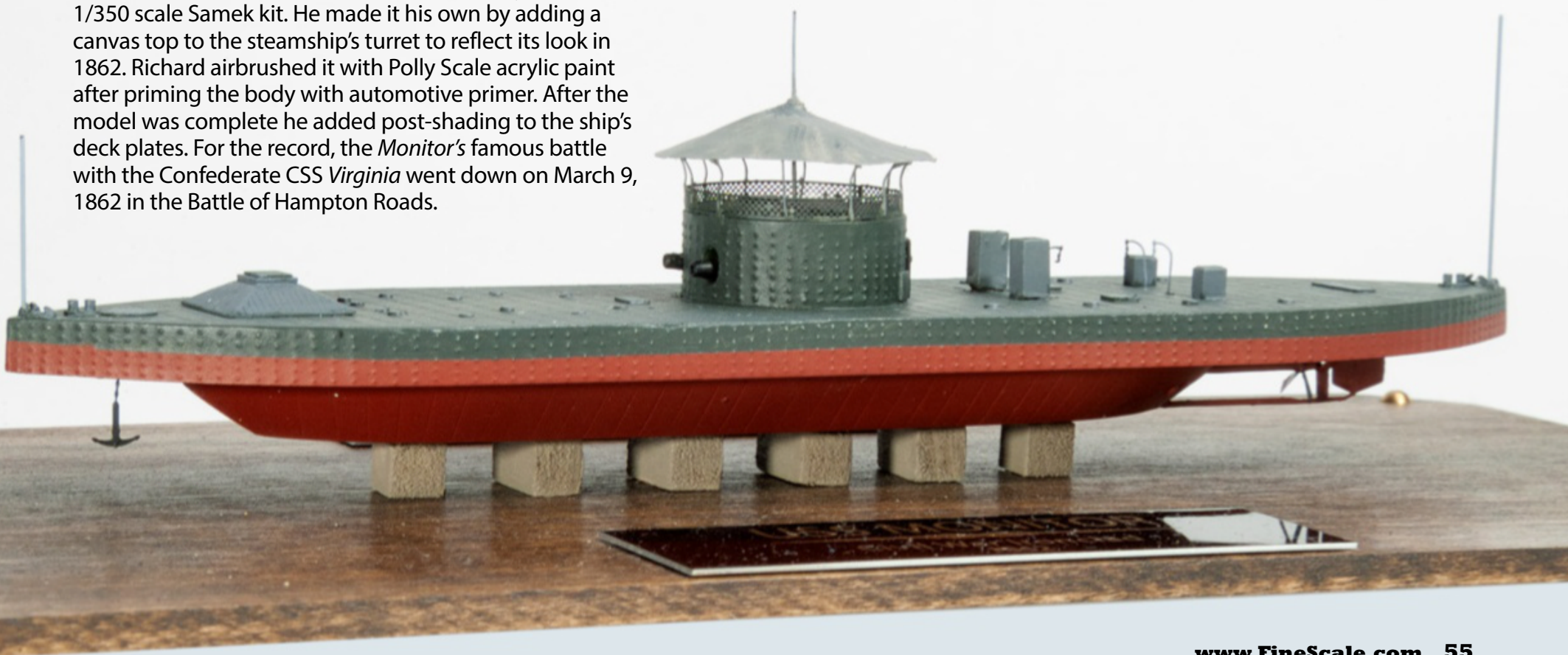
► SAMUEL X. PARENT WINONA, MINNESOTA

And now for something completely different. Samuel scratchbuilt this WWI SC-1-class 110-foot sub chaser from the deck up. The hull is from a 1/64 scale 1940s Marine Model Company solid wood kit with basswood deck planks. The deck housing and deck gun are made from scrap brass tubing and all lights on the ship are glass beads. Samuel used a single-stage air-brush to apply Testors Model Master paint. Some detailing was hand-painted and the base is made from oak.



▼ RICHARD SLIWKA WARRENSBURG, MISSOURI

Who doesn't love the old Union ironclad, the USS *Monitor*? Richard does and created this beauty from a 1/350 scale Samek kit. He made it his own by adding a canvas top to the steamship's turret to reflect its look in 1862. Richard airbrushed it with Polly Scale acrylic paint after priming the body with automotive primer. After the model was complete he added post-shading to the ship's deck plates. For the record, the *Monitor's* famous battle with the Confederate CSS *Virginia* went down on March 9, 1862 in the Battle of Hampton Roads.





Superdetailed schnellboot

The boat was fast — but Fred Brinks' model took three years

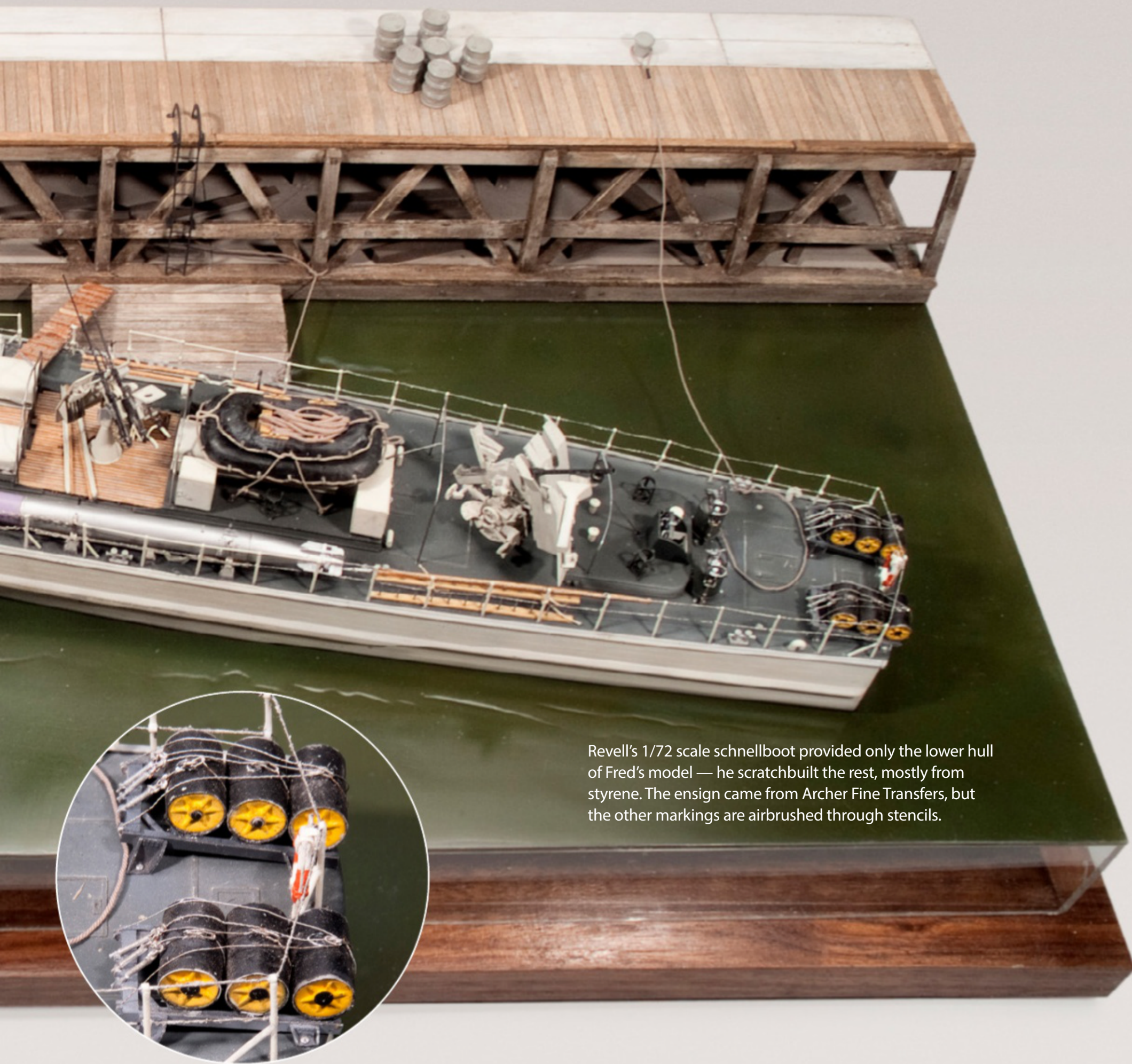
Streamlined and speedy, Germany's World War II torpedo boats fascinated Fred Brinks. "I liked their looks, and they were easily the fastest thing on the water," he says.

Although his initial interest in schnellboots was impulsive, once he got Revell's 1/72 scale kit in hand he took his time. An architect and pro modeler from North Hollywood, Calif., Fred is all about the details: Correcting everything he could, he would discard all

but the lower hull of Revell's kit and spend 2,200 hours over three years on the project.

Even the Revell part he did use came in for major changes. He reworked the stern to correct the propeller-shaft housings, rerouted all three rudders, and reshaped the propellers. At the bow, he slightly reshaped the lower hull but scratchbuilt the upper portion.

Much of the modification was related to his desire to show the



Revell's 1/72 scale schnellboot provided only the lower hull of Fred's model — he scratchbuilt the rest, mostly from styrene. The ensign came from Archer Fine Transfers, but the other markings are airbrushed through stencils.

torpedo tubes open. He turned styrene tubing on a lathe to get exact dimensions. "You can only get the styrene in rough sizes," he says. "If you look inside the starboard tube, you'll see a torpedo in there."

He scribed sheet styrene to replicate decking. The color of the dark gray decks is dead-on, says Fred, who was advised by his friend Randy Short, of Snyder & Short, American distributors of White Ensign Colourcoats. "He is *the* authority on World War II paint," Fred says. He used dark gray (*grau*, White Ensign No. KM05) on the decks. But he says the off-white on the hull (*schnellbootweiss*, White Ensign No. KM10) gave him fits.

Fred must feel fairly safe in the armored bridge by now. "The bridge structure took seven tries to get right," he says. He credits

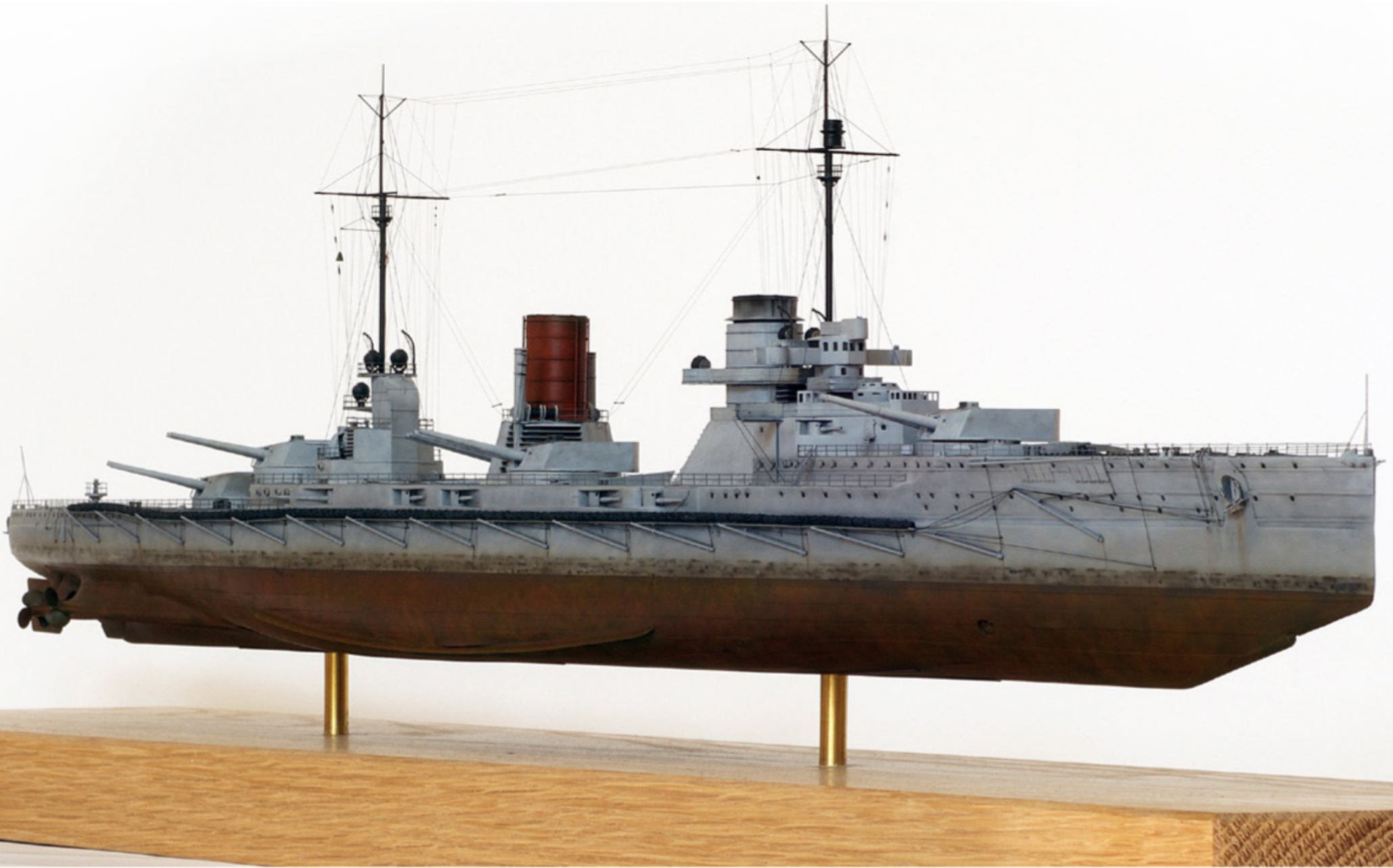
friend Dave Krakow and his website, www.prinzeugen.com, for numerous photos and answers to questions about details.

It may seem like a lot of trouble, but that's just the way Fred rolls — right down to 3,000 rivets individually hand-pressed in .005-inch sheet styrene and dimpled with a dull needle. Rather than waterline the hull, he made cutouts in a sheet of Plexiglas as well as a top sheet of clear acrylic that he painted with a custom mix of enamels. His color guide was the water around USS *Pampanito* (SS-383), moored near Fisherman's Wharf in San Francisco. "Much better than deep sea ocean blue," he says. The dock is built from basswood.

So, what's the next big thing? Fred won't say — except that it's scratchbuilt and will take even more time. **FSM**

One tough ship

Building, painting, and detailing a resin SMS *Seydlitz* /// BY ULF LUNDBERG



It's not easy to find a 1/350 scale World War I battlecruiser of the German *Hochseeflotte* (High Seas Fleet), and if you do it's likely to be resin. Ulf shows how to work with Combrig's resin kit.

The German battlecruiser SMS *Seydlitz* went down in history as a ship that took some terrible beatings but gave as good as she got, and more. She fought with distinction in World War I before being scuttled along with the rest of the German fleet at Scapa Flow in June 1919.

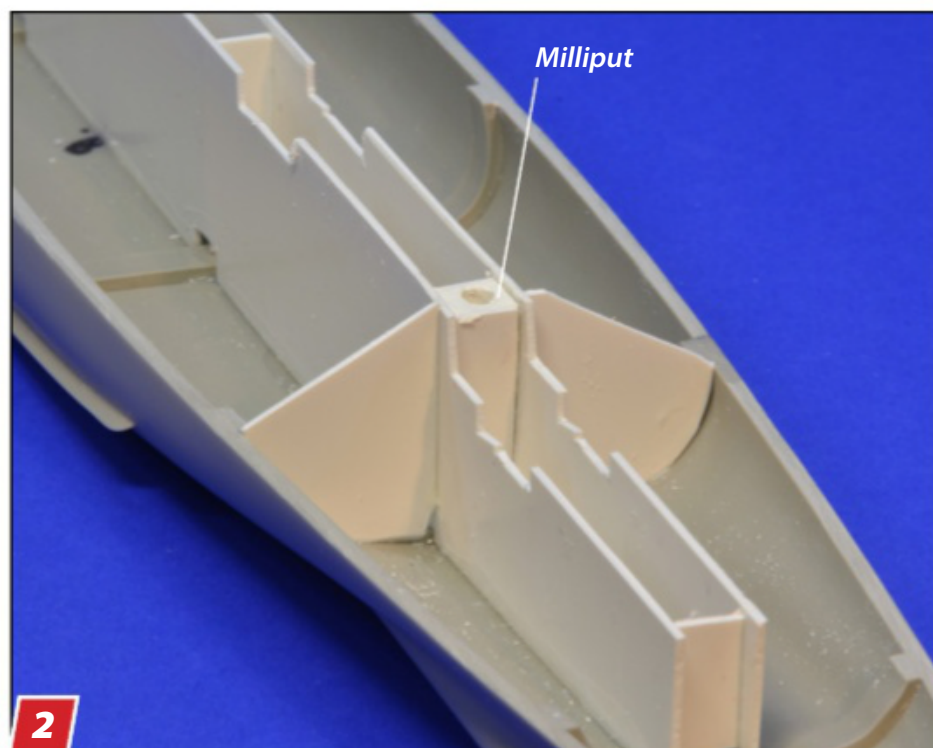
Combrig's resin kit is a good model that produces a worthy replica. The instructions are inadequate, though, so good references are essential for a successful build.

21

Number of heavy shells that hit SMS *Seydlitz* in the Battle of Jutland.



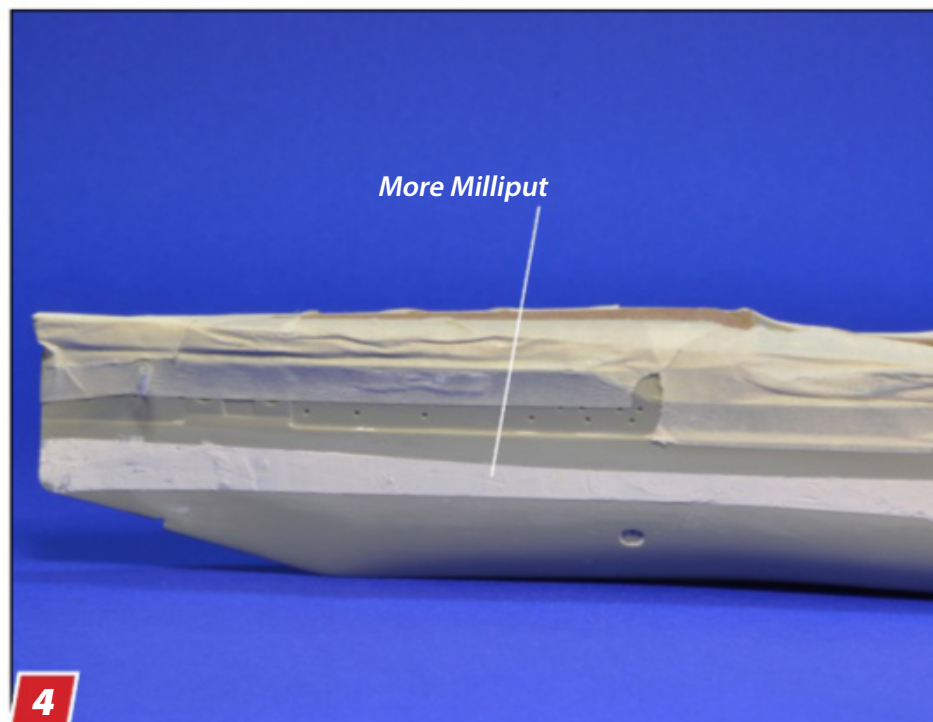
1 Clear markings made it easier to cleanly saw the hull along the waterline.



2 Plastic-card bulkheads reinforce the hull. I filled a box between the bulkheads with Milliput to house brass posts for the display stand.



3 Gentle force, a lot of tape, and a firm clamp were required to align the hull halves.



4 The waterline seam is covered with Milliput and waiting to be sanded. Thankless work!

The hull

The kit can be built as a waterline model or with a full hull. I prefer the latter, putting the ship on a stand, so I must take on the task of concealing the joint between the upper and lower hull.

Before the two hull parts could be joined, I had to clean up their edges with a saw, **1**. Then I reinforced the hull with plastic-card stock so it would stand securely on its brass posts, **2**. As usual with a resin hull, there was warpage. But tape and strong clamps straightened it, **3**. I used two-part epoxy glue for all major joins.

I covered the seam with Milliput and sanded it flush, **4**. To further conceal flaws, I applied a thick layer of Mr. Surfacer, sanded it flush, then repeated the process. I did not achieve perfection, but I was able to hide minor flaws with weathering at the waterline.

Note: Wet-sanding is recommended for resin, as the dust is highly irritating and should not be inhaled.

Hull plates were prominent on the *Seydlitz*. I replicated them by gluing styrene strips, cut from .1mm Tamiya Pla-Paper, to the hull sides with ethyl acetate (which acts like liquid cement for polystyrene), **5**. The discovery that this could be used to glue polystyrene to resin made detailing the model much easier. (I wouldn't use it for any joint that is subject to stress, though.) With patience and some gentle stretching, the Pla-Paper strips can be made to follow the hull's compound curves.

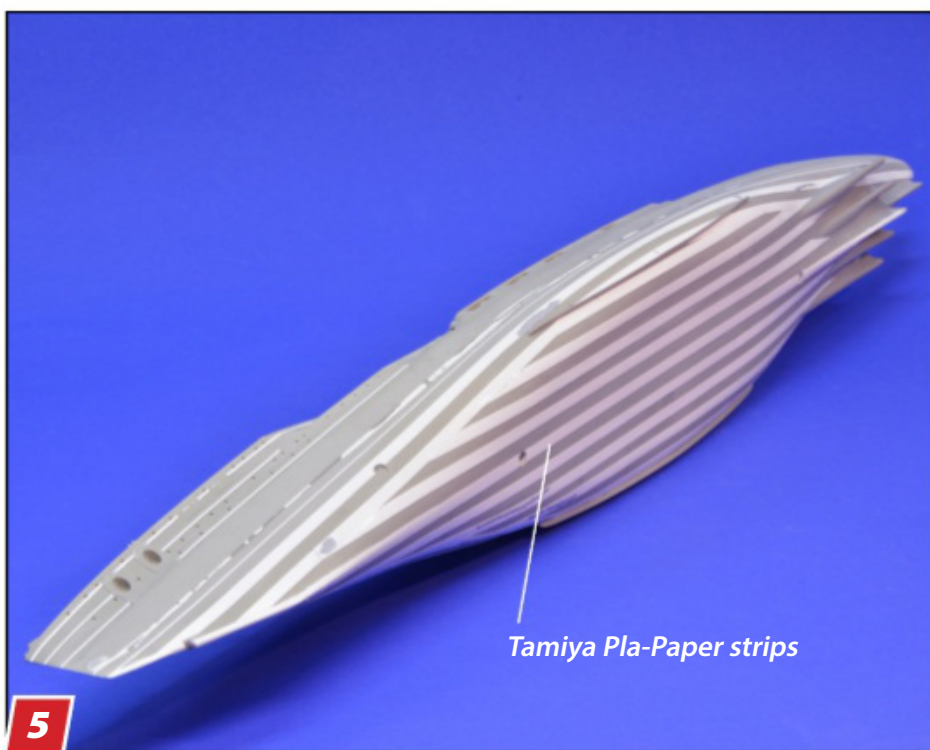
Then I added "eyebrows" made from thin copper wire to all portholes, **6**. I rolled the wire around a pin and cut the resulting spiral into rings, each of which I cut into three segments. These were attached with diluted white glue. White glue, unlike super

glue, gives you time to position the parts, then shrinks into invisibility as it dries. Again, it's not the best glue to use for joints under stress.

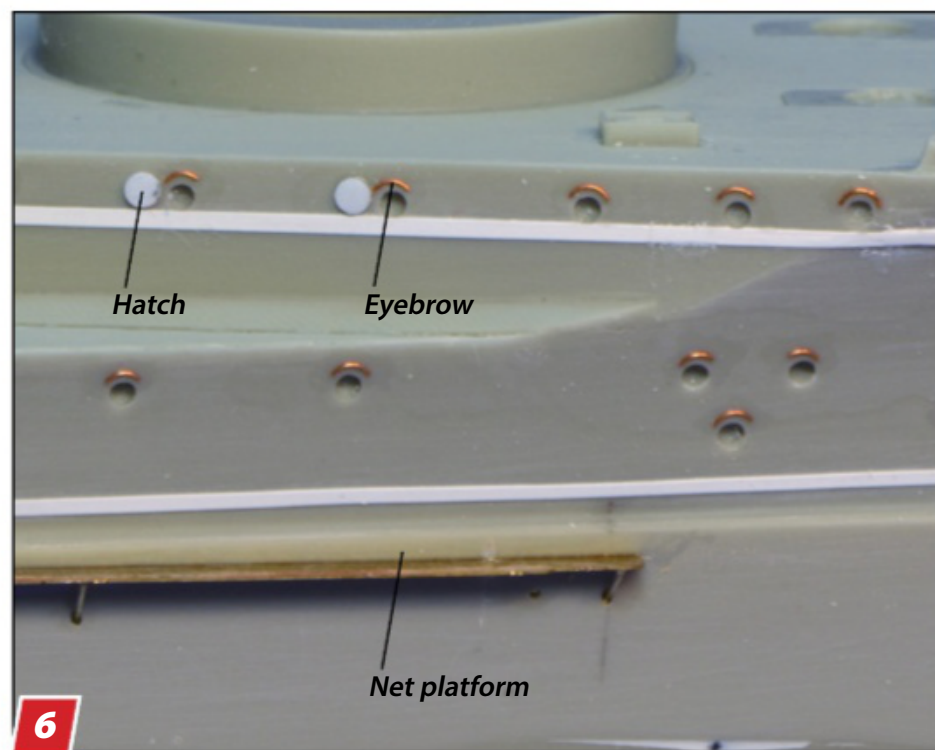
Torpedo net

Warships of *Seydlitz*'s era were fitted with torpedo nets that hung from booms to protect the ship at anchor. They turned out to be more of a hassle than a help. For a short while during the Battle of Jutland, the German battlecruisers actually took the terrible risk of lying still while their crews frantically cut away damaged nets that were hanging over the sides of the ships, threatening to foul the propellers.

The kit's instructions say nothing about how the nets should be fitted and rigged, but there are markings in the hull sides for the booms and photo-etched (PE) parts for their platforms.



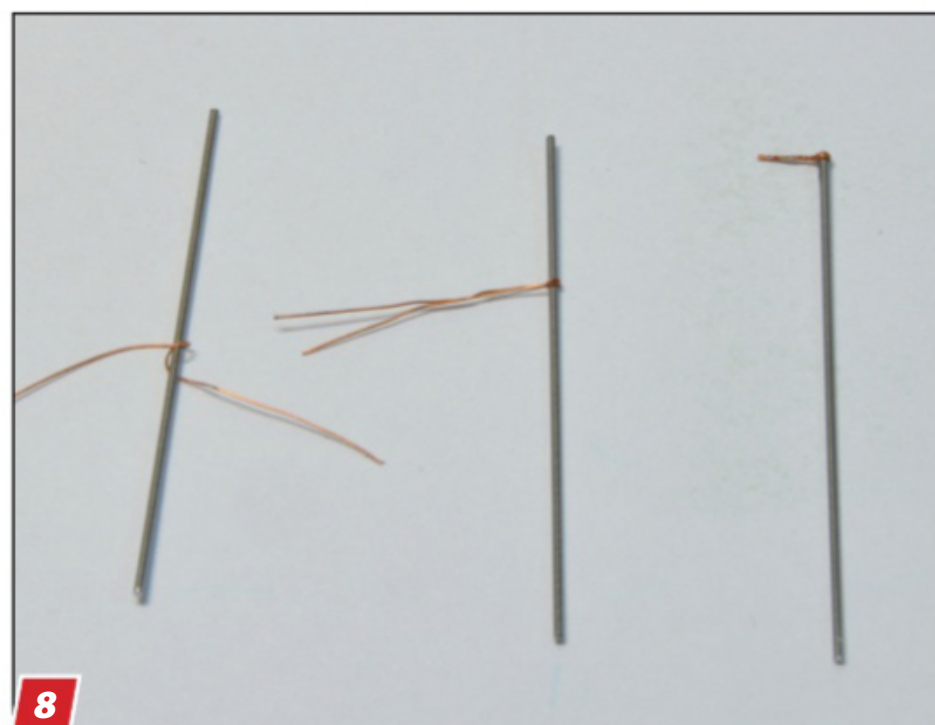
5 Hull plating raises the detailing level and brings out the beautiful lines of the ship, too.



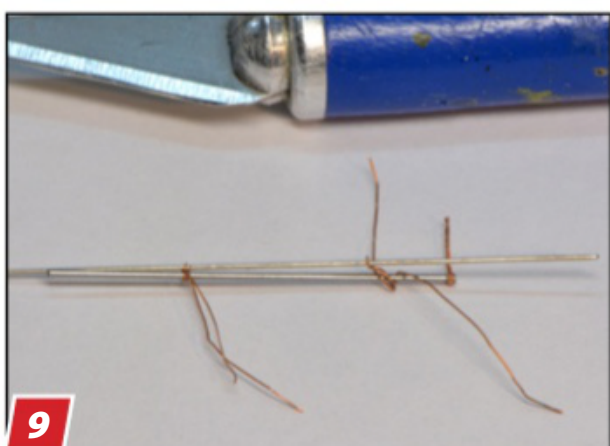
6 Eyebrows and hatches for the portholes further enhance the detail. Also visible is the torpedo-net platform.



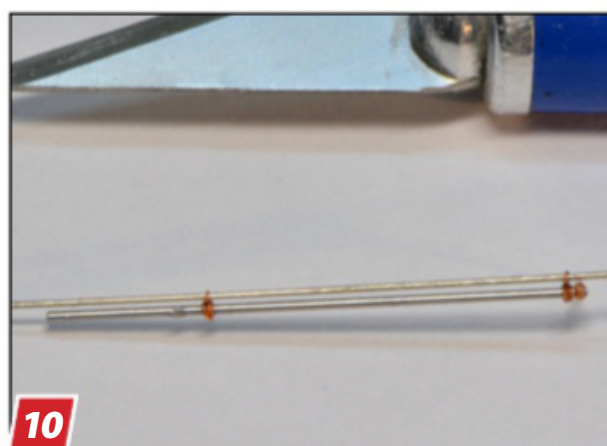
7 A flexible steel straightedge, securely taped to the hull, served as a guide for scribing a locating groove for the torpedo net platform.



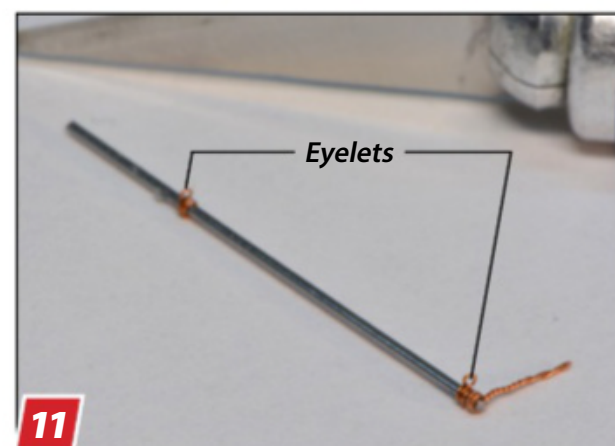
8 Winding copper wire in three steps creates an attachment point for the booms.



9 I made eyelets for the boom lifts by winding the wire once around a piece of .2mm music wire, then twice around the boom.



10 The attachments were super glued. Then excess wire was cut off.



11 I pulled the music wire away, leaving eyelets for the net attachment.

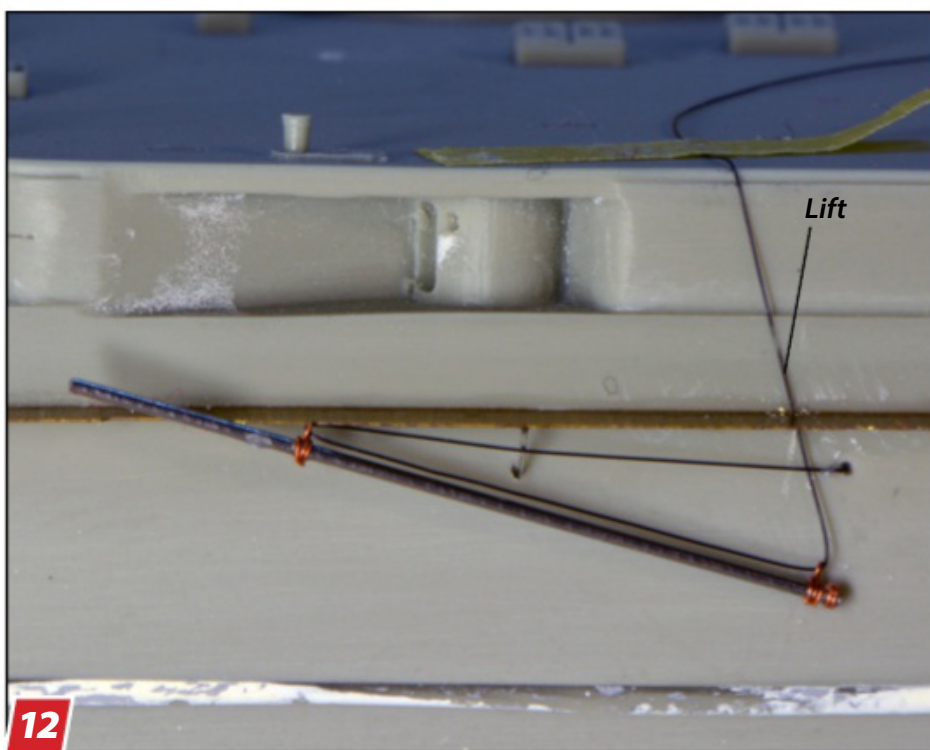
To install the platform that you see in Photo 6, I used a steel ruler as a guide and scribed a locating groove into the hull's side, **7**.

How the nets were rigged was hard to determine. After studying all my references,

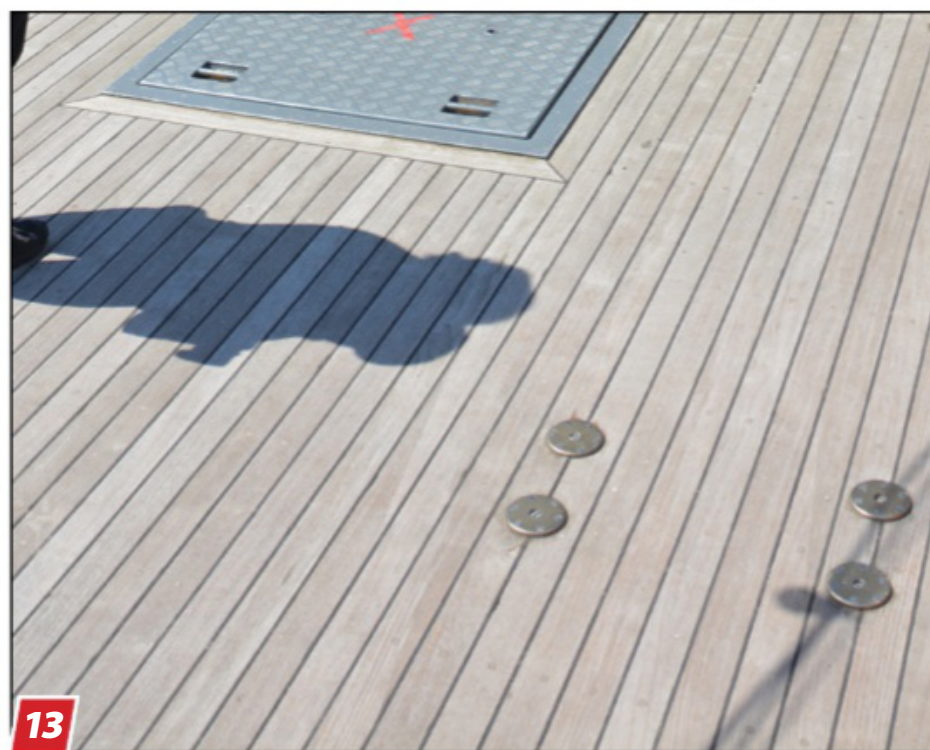
including photos I took of models at the Deutsches Marinemuseum in Wilhelmshaven, Germany, I concluded that the torpedo-net rigging differed from ship to ship. I did find some common features, though, and was able to come up with something

that was sufficiently convincing.

First, I cut booms from .5mm piano wire. Next, I made attachment points from copper wire, **8**, and eyelets for the boom lifts, **9**, **10**, **11**. Then I dry-fitted the boom arrangement, **12**.



12 Dry-fitting a torpedo-net boom: The lift goes through a .3mm hole carefully drilled through the brass platform.



13 The teak deck of the minesweeper *Weilheim* in the Deutsches Marinemuseum in Wilhelmshaven is weathered to an exemplary gray.



14 The first round of masking individual planks; the following two rounds were easier, as the pattern had already been laid out.



15 After the masking was removed, the color contrasts looked too stark.



16 Thin mists of the base color softened the contrasts. Later, black washes brought out detail.



17 Hull sides, Round 1: a mottled pattern of light gray over a Citadel chaos black prime coat.



18 Round 2: A mist of light gray overall.



19 Round 3: Discoloring along the waterline is depicted with light brown.



20 The effect is softened with a thin layer of light gray. Later, surface detail was brought out with black washes and dry-brushing with a lighter gray.

Walking the planks

Teak decks subjected to seawater, rain, and sun quickly turn gray, **13**. Pictures show *Seydlitz's* decks to be rather dark, probably because she was coal-fired; coaling a ship is dirty work.

Accordingly, I mixed a dark brown gray as a base color and sprayed it over the main and foredeck. Then I masked about ¼ of the deck planks with tiny strips of tape, **14**, and sprayed the base color with some brown mixed in. After another round of masking deck planks, I sprayed the decks with a grayer tone of the base color, masked planks

again, and sprayed the decks with the base color lightened by some white.

Removing all the tiny masking strips revealed contrasts between the colors that were a bit too strong, **15**. So, I sprayed the decks with a mist of the base color. Last, I sprayed a browner tone along the edges of the deck houses, hatches, etc., places where the decks would have less wear, **16**.

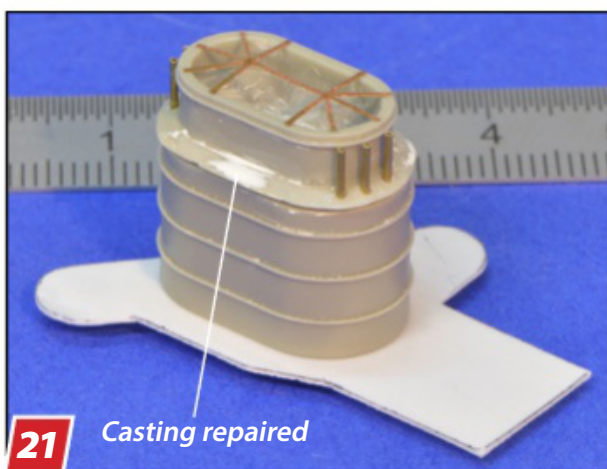
Hull sides

After priming the hull with Citadel Chaos black and letting it dry, I sprayed a meandering pattern of light gray, **17**, followed by

a mist of the same color, **18**. Ships' sides are often bleached and dirty just above the waterline, so I sprayed some light brown on this area, **19**. Another thin layer of gray evened out the contrasts, **20**.

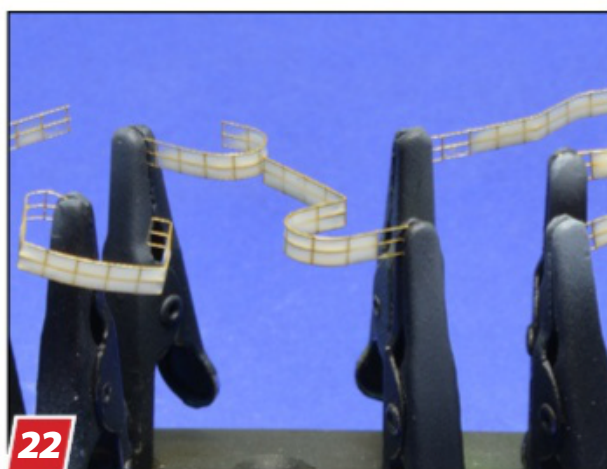
Superstructure

The parts for the deck houses, funnels, etc., are well cast, but there is room for improvement. I replaced all platforms with .5mm styrene card, **21**. Bulwarks on the cast platforms are incorrect; they were railings covered with canvas. I bent PE railings to shape and covered them with Deluxe



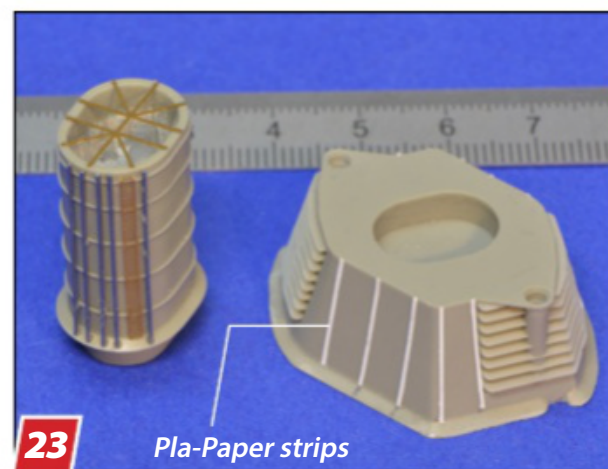
21 Casting repaired

A replacement platform made from styrene card being dry-fitted. Note the repair to the funnel resin casting.



22

Ship's rails were covered with Glue'n'Glaze, seen here in different stages of drying; eventually it dries clear and can be painted.



23

Pla-Paper strips

The aft funnel is detailed with pipes and ladders. Note the thin strips of Pla-Paper replicating plates on the deck house.



24

Diluted white glue stabilized the yarn and eliminated fuzz.



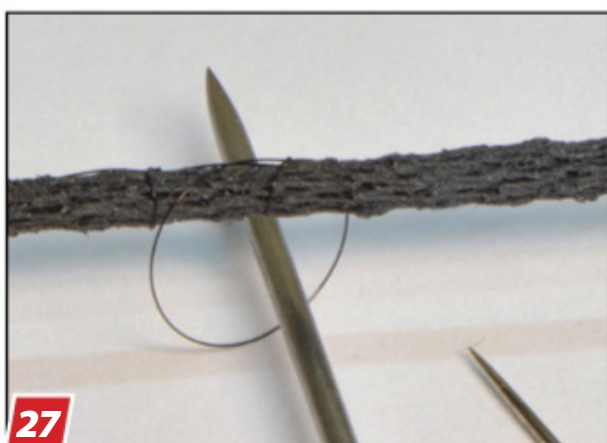
25

Alligator clamps served as weights to straighten the glue-soaked yarn.



26

Rigging the booms: After the lifts had been stretched, they were held fast with pieces of tape, then secured with tiny drops of super glue at all points of contact before I cut away the excess. Note the grimy streak along the waterline.



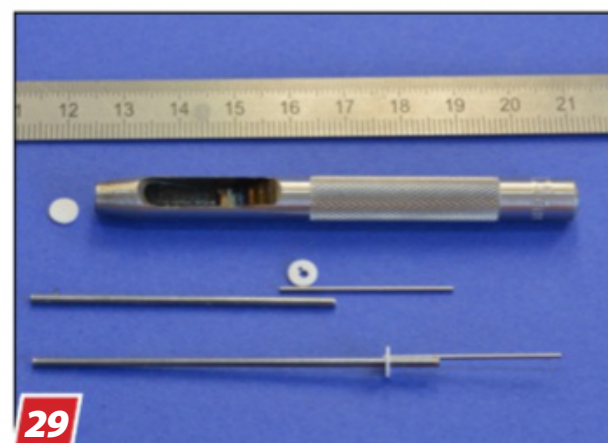
27

Lashing: Fly-tying line is threaded in a sewing needle and secured with super glue for easier knotting. A large pin holds the knot in place.



28

Now the nets are fitted; more lines would be added later.



29

Punched styrene discs help hold the upper and lower masts together.

Materials Glue 'n' Glaze, **22**; it's made to model clear windows, but when painted it looks like stretched canvas.

I drilled out the funnels and fitted them with pipes made from thin metal tubing from Albion Alloys, **23**. There is no mention of these pipes in the instructions, but there are guiding marks for them on the parts.

I painted the superstructure the same way as the hull, then brought out details using thin black washes and dry-brushing with lighter shades of the basic colors.

Lashing the nets

The greatest challenge of this build was making torpedo nets. It started with a tour

of Berlin's sewing supply stores to find a suitable yarn.

I dipped lengths of the yarn in diluted white glue, **24**, and hung them up to dry, **25**. I made six of them to allow room for failure.

While the yarn was drying, I glued the booms and their tackle in place, **26**, grateful that I had test-fitted these parts before painting the hull.

I painted the dried yarn dark gray and spiced it up with rust brown before the tedium of tying their lashings began, **27**. In reality they were held with chains, but since there are no chains thin enough for this job I did it with fly-tying line.

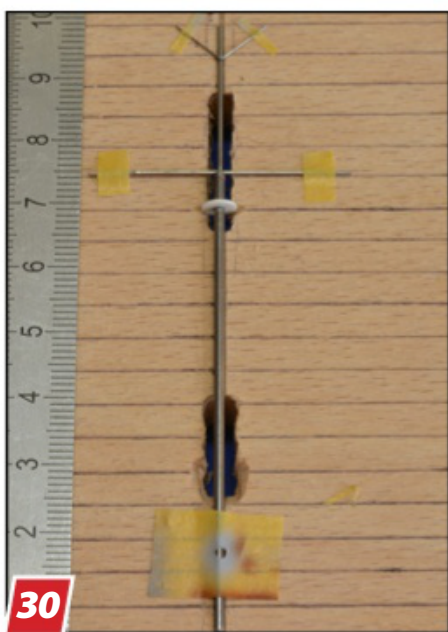
Lashings done, I glued the nets in place

with diluted white glue, **28**. I had succeeded on the first try! That was the greatest surprise of this build.

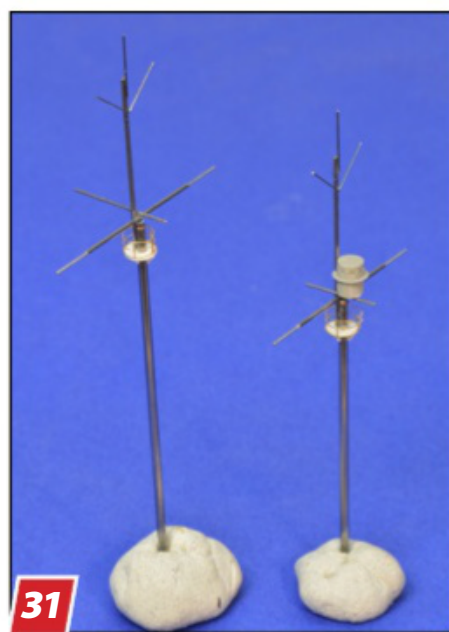
Raising the masts

The kit provides no parts for masts and yardarms. That is just as well, since plastic or resin spars bend under the strain of the rigging. The instructions give measurements of all the major spars, but not the smaller ones.

This is where you must go deep into your references to figure out how the ship was rigged. Complicating matters, the rigging was changed several times during *Seydlitz's* career. So, rigging model ships of this period is often a case of making edu-



30 Mast-building jig: The mast rests in a shallow groove. Lines perpendicular to the groove help adjusting the yardarms. Everything is tacked down with small pieces of tape while the super glue cures.



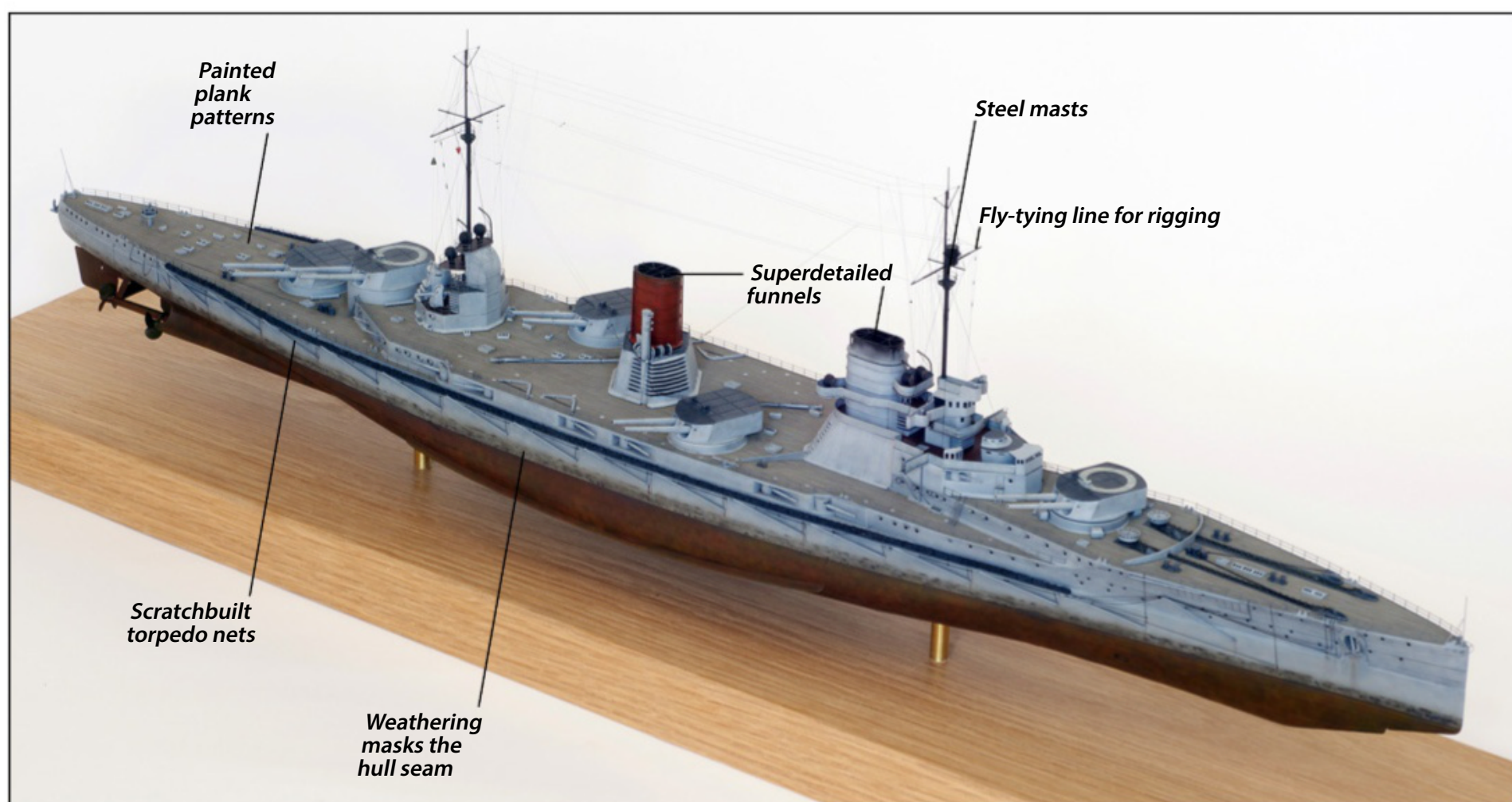
31 The finished masts before painting: Except for the crow's nest, the foremast and mainmast were almost identical.



32 Dying transparent line with a marking pen: The line can be straightened by hanging it up with a weight at the lower end.



33 Rigging is attached with white glue when time is needed for adjustments, and with super glue where strength is essential.



SMS *Seydlitz* served with distinction in World War I, only to be scuttled at Scapa Flow — an ignominious end to a courageous career on the high seas.

cated guesses based on hazy and sometimes conflicting pictures as well as general knowledge of how a ship's rigging works and looks.

I made the masts and yardarms from piano wire, sometimes beefed up with steel tubing, **29**. I punched out the tops from .5mm PVC and glued the masts and yardarms together in a jig I made for this purpose, **30, 31**.

Rigging the outcome

For rigging thread, I use two gauges of fly-tying line. You can tint transparent line

with a marker, **32**. I attach it with super glue or diluted white glue, depending on whether the thread is under stress or if I need time to adjust it. Mild heat, such as the glowing ember of a matchhead, will tighten the line, **33**.

With the rigging done I mounted the main deck railings with diluted white glue. I used IJN railings from Gold Medal Models, which look similar to the chain rails that were used by the *Hochseeflotte*. Only then did I glue the artillery, range-finders, searchlights, and other pieces of equipment in place.

I sprayed the entire model with semi-gloss varnish to conceal glue stains. The finishing touch was to make all the surfaces come alive by working them with different mixes of flat and glossy clear. The wooden decks and area along the waterline got the flattest finish; the hull below the waterline got the glossiest.

So there she is, the SMS *Seydlitz*, a tough and proud battlecruiser that distinguished herself in several major naval battles of WWI. Now I'm eagerly awaiting more 1/350 scale kits of German WWI warships. **FSM**

Joe Simon's top 10 tips



Russian missile destroyer *Otlichnyy* /// BY JOE SIMON

Model shipbuilders know better than anyone: Good projects take time – lots of time.

Somehow, Joe Simon, an electrical engineer from Jackson, Wis., balances work, children, and his hobby to achieve about the same turnaround time as most serious ship modelers. He spent three years and about 1,000 hours building Trumpeter's 1/200 scale *Sovremenny*-class destroyer Type 96 as the Russian missile destroyer *Otlichnyy*.

Fortunately, Joe's wife, Amy, is onboard with his shipbuilding. As a matter of fact, you could say it was her idea; Joe got back into modeling about 20 years ago when she bought him Tamiya's 1/350 scale HMS *King George V*. And it was she who suggested he build the *Otlichnyy*. ("She thought it looked cool," Joe says.) While

Trumpeter's kit provides options for several different ships of the *Sovremenny* class, Joe chose *Otlichnyy* on the strength of photos from its visit to Norfolk, Va. in 1989.

The name *Otlichnyy* is most often translated as *Perfect*. But, according to Joe, the kit was anything but that. "It demands a lot of time, filling, and patience," he says, "a lot of TLC."

But there was nothing tender about how Joe mounted the superstructure. When he found it was too wide for the hull, he placed a wood beam inside that was slightly short of the superstructure's width, squeezed the plastic in the middle to capture the beam, and glued it in place. Although it became slightly deformed, the superstructure matched the hull width.

Many of the main- and upper-deck fittings were supposed to mount in molded

indentations. "These left ugly spaces around many parts," Joe says. "Instead, I filled the indents with styrene and drilled locator holes for each item."

Along with doctoring kit parts, Joe fabricated replacements and improvements. He painted nylon thread to install on hose reels and winches. Antennas were replaced with .010-inch styrene rod. He also cut out solid-molded windows and installed clear plastic panes, painting their backs black to make them reflective yet opaque. And, Joe says, "The kit had no hawsepipes for the anchor chains. I drilled those out, shaped their races with a file, and 'borrowed' anchor chains from my wife," he says. He blackened the erstwhile jewelry by holding it over a stove burner.

Joe likes to load a ship with as many aftermarket parts as he can muster. White



Good ships take time: Joe Simon took three years to build Trumpeter's 1/200 scale Sovremenny-class Type 96 as the Russian missile destroyer Otlichnyy – with award-winning results.

Ensign Models provided resin replacements for the main gun turrets as well as a ship-load of photo-etched metal details. "The main radar sets took more than two months to build and mount," he says.

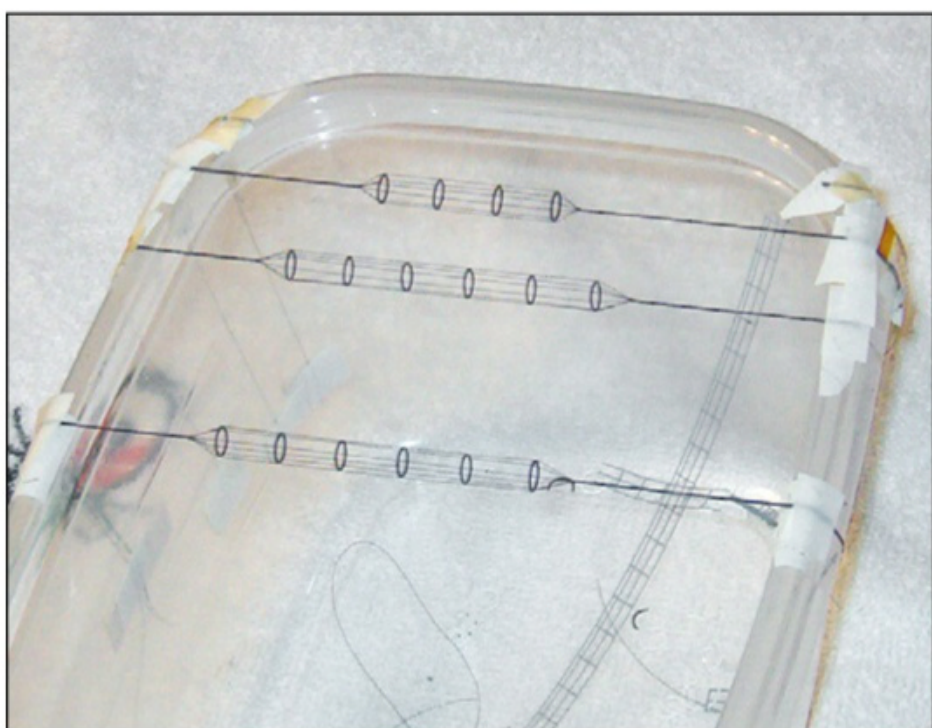
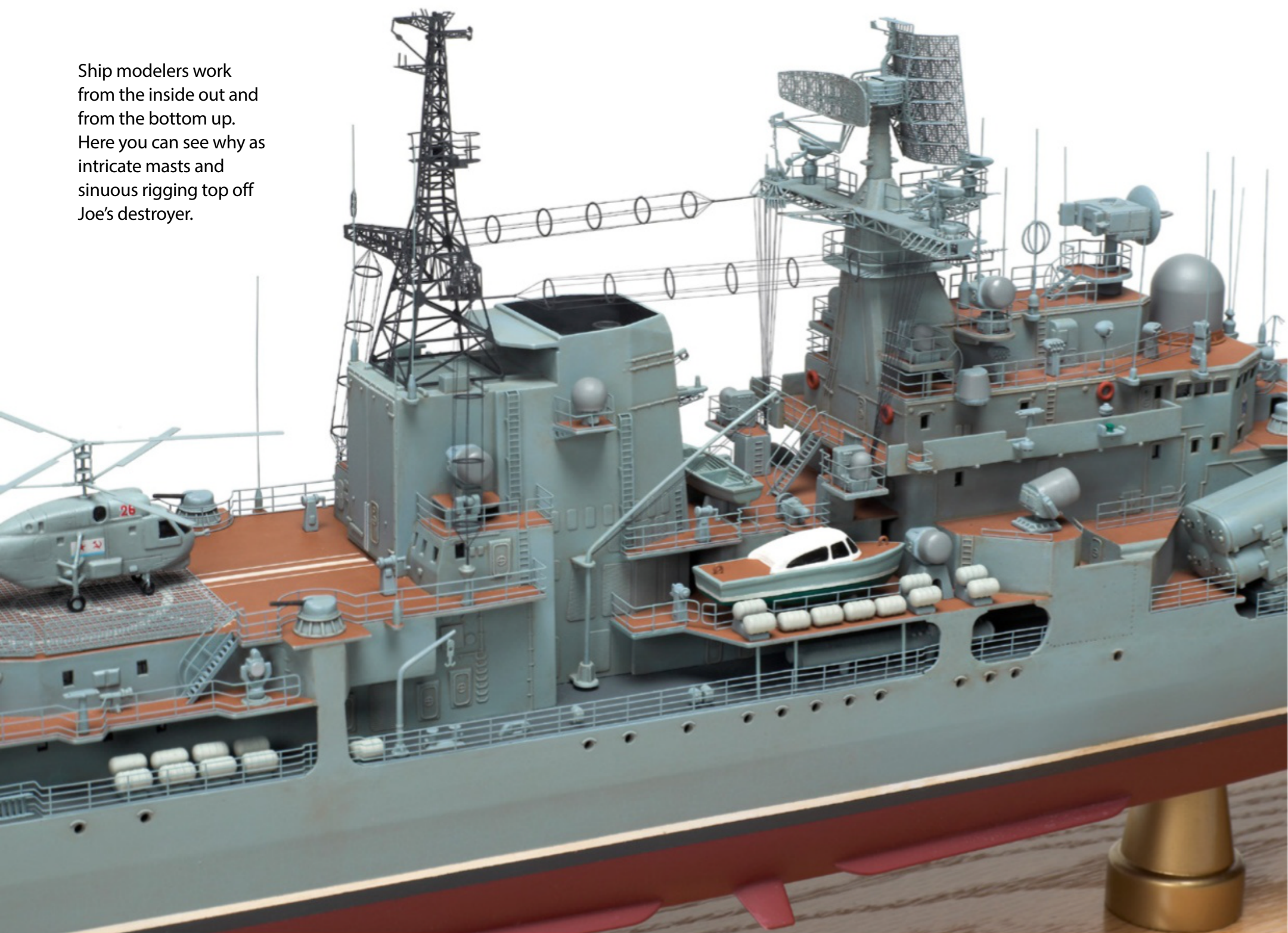
PE metal railings were painted prior to installation, then taped in place before gluing. "I would cut them to length and form them," Joe says, "then place two or three thin strips of tape between the lowest levels on the railing, carefully align them, and apply thin super glue, wiping away any excess." This process made the rails neater and straighter, he says.

Joe painted with White Ensign Models Russian Fleet colors – Russian Northern Fleet grey and Russian deck orange – but "U.S. standard deck gray is an almost perfect match for the main deck," he says. British crimson replicated anti-fouling red.



Building the superstructure was one thing – but fitting it to the width of the hull required corrective surgery. Joe says the fix slightly deformed the assembly, but it's hard to see here.

Ship modelers work from the inside out and from the bottom up. Here you can see why as intricate masts and sinuous rigging top off Joe's destroyer.



Wrapping styrene rod around a screwdriver and thermoforming it in boiling water produced the rings Joe needed for his aerials, stretched out here on a plastic food-storage container jig.



When the rigging gets tough, the tough get ... a firetruck? Joe employed his son's turntable-ladder rescue unit as a rigging jig.

Simon's top 10 'secret' tips for ships

1 Review the International Plastic Modelers Society handbook, specifically the section on judging ship models. Learn it and follow it. The IPMS/USA handbook is available at ipmsusa.org/NCC/NCC.htm.

2 Enter contests and accept judgments and criticism graciously; you'll become a better modeler.

3 Paint PE metal before putting it on. This will make the glue less obvious.

4 Position PE metal parts with automotive masking tape before gluing.

5 Remove the automotive tape with super-glue accelerator to prevent damaging the assembly.

6 Fill seams with Milliput or Apoxie Sculpt putty; it can be shaped and removed with water before it dries, without damaging details.

7 Replace delicate plastic masts with brass that can support rigging.

8 To make rigging easier, research the rigging patterns and drill anchor points before assembly.

9 Do as much research as you can before starting.

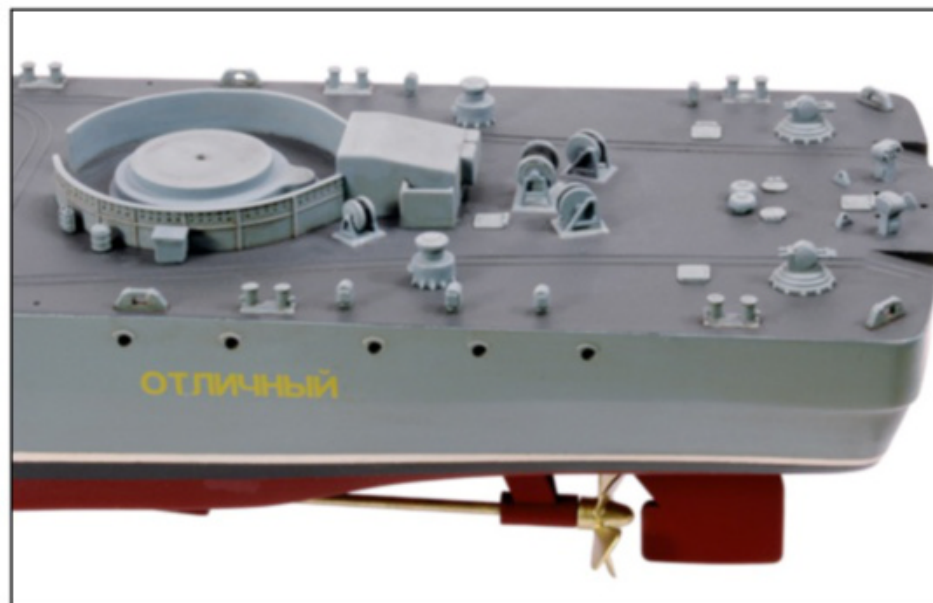
10 After you mask off an area to be painted, seal the tape edges with Testors Dullcote to prevent paint from seeping underneath. The Dullcote will disappear with another clear coat.



Why do ships take so long to build? Well, for one, Joe spent more than two months building this radar configuration, painstakingly fitting PE metal pieces and cleaning up as he went.



Joe drilled out hawsepipes for the anchor chains, which he obtained by raiding his wife's jewelry. Fellas, don't try that last trick at home!



Unsatisfied with the kit's system of deck fittings, Joe drilled many of his own locator holes to mount parts.

After weathering with a mix of burnt umber and raw umber artist oils, Joe dry-brushed raised details with gull gray and overcoated everything with Testors Dullcote to homogenize different paints and cover shiny glue spots in a uniformly flat finish.

The rigging presented a unique challenge, Joe says: "I usually just string a line between two points. But this ship has six-wire aerials spread apart by rings. I taped six pre-painted nylon lines across the top of a plastic storage container. Then, I wrapped .015-inch styrene rod around a screwdriver,

dipped the screwdriver in boiling water, and cut the plastic free. I joined the ends of the resulting rings, painted them, worked each ring into the six lines, glued it in place, and tied off the ends of the aerials. To fit them to the ship, I tied long nylon threads to each end of the aerials and tied those to posts just off the bow and stern of the ship, then worked the aerials into position and glued them in place."

For vertical aerials, Joe got serious – he brought in his son's big toy firetruck. Joe hung the threads from the ladder, then attached the lower point to the ship and,

using the weight of the truck for leverage, pulled it tight and glued the upper end in place, cutting excess thread with a hot knife.

Joe's efforts have been amply rewarded. His *Otlivnyy* took first place in its category at the 2008 IPMS/USA national convention in Virginia Beach, Va., as well as gold medals at the Midwestern Model Ships & Boats Contest and Display at the Wisconsin Maritime Museum in Manitowoc (including another prize for best paint) and the Military Miniature Society of Illinois annual contest. **FSM**

Drawing weld seams *on small-scale ships*

Step-by-step outline of a simple technique to boost detail

BY GREG EMBREE

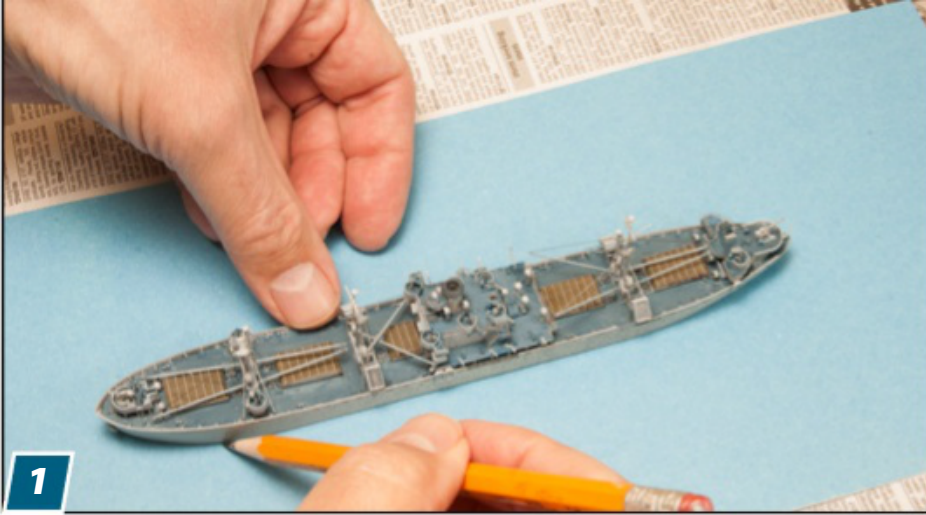


Pencil weld seams supplement faded paint and streaks of rust to give Sky Wave's 1/700 scale Liberty ship a proper seagoing appearance.

Many American vessels built during World War II had welded rather than riveted hulls. Notable among those were escort carriers, destroyer escorts, and cargo ships. Welding the hull plates sped construction, helping U.S. shipyards crank out 2,710 Liberty ships, the armed cargo vessels that formed the backbone of Allied supply lines on the way to victory.

These weld seams are clearly visible in photos of the ships. Reproducing them adds subtle realism to models. It's important not to overdo the effect, especially in small scale. So, I draw them on the hulls with a pencil. One challenge is replicating the gentle curve of the seams on some ships.

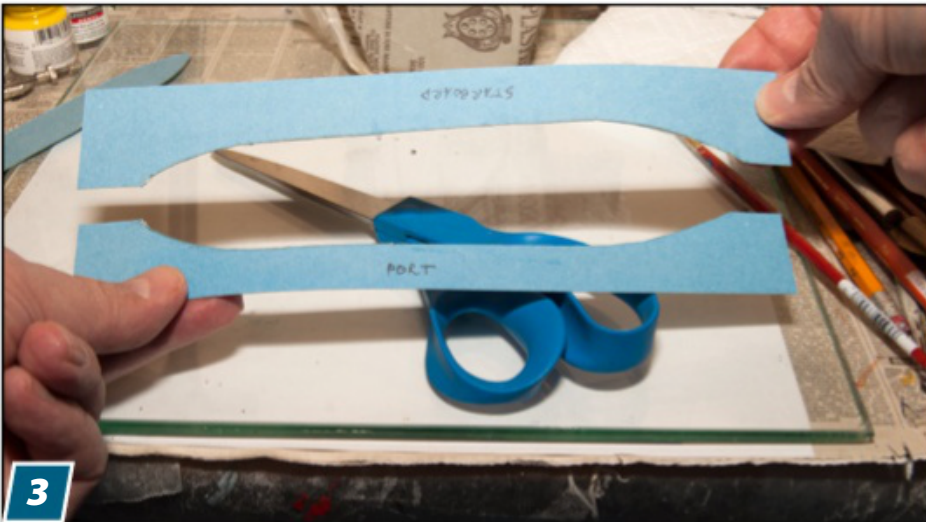
I developed a simple, inexpensive method to represent those seams with a No. 2 pencil, poster board, hobby knife, scissors, and modeling clay.



1 First, I traced the outline of the hull — in this case an almost complete Sky Wave 1/700 scale Liberty ship — onto poster paper.



2 I cut around the outline with a hobby knife using a steel straightedge to guide it along the sides.



3 After discarding the cutout, I separated and labeled the outer edges. These will be the seam guides.



4 Next, I packed modeling clay against the hull using a finger and a butter knife to smooth and shape it to match the weld seam; photos are invaluable. Here I angled the clay up slightly at the bow and stern.



5 I placed half of the template against the hull, adjusting the clay and trimming the poster board for the best fit. Then, I lightly traced a line with a sharp No. 2 pencil along the edge of the template.



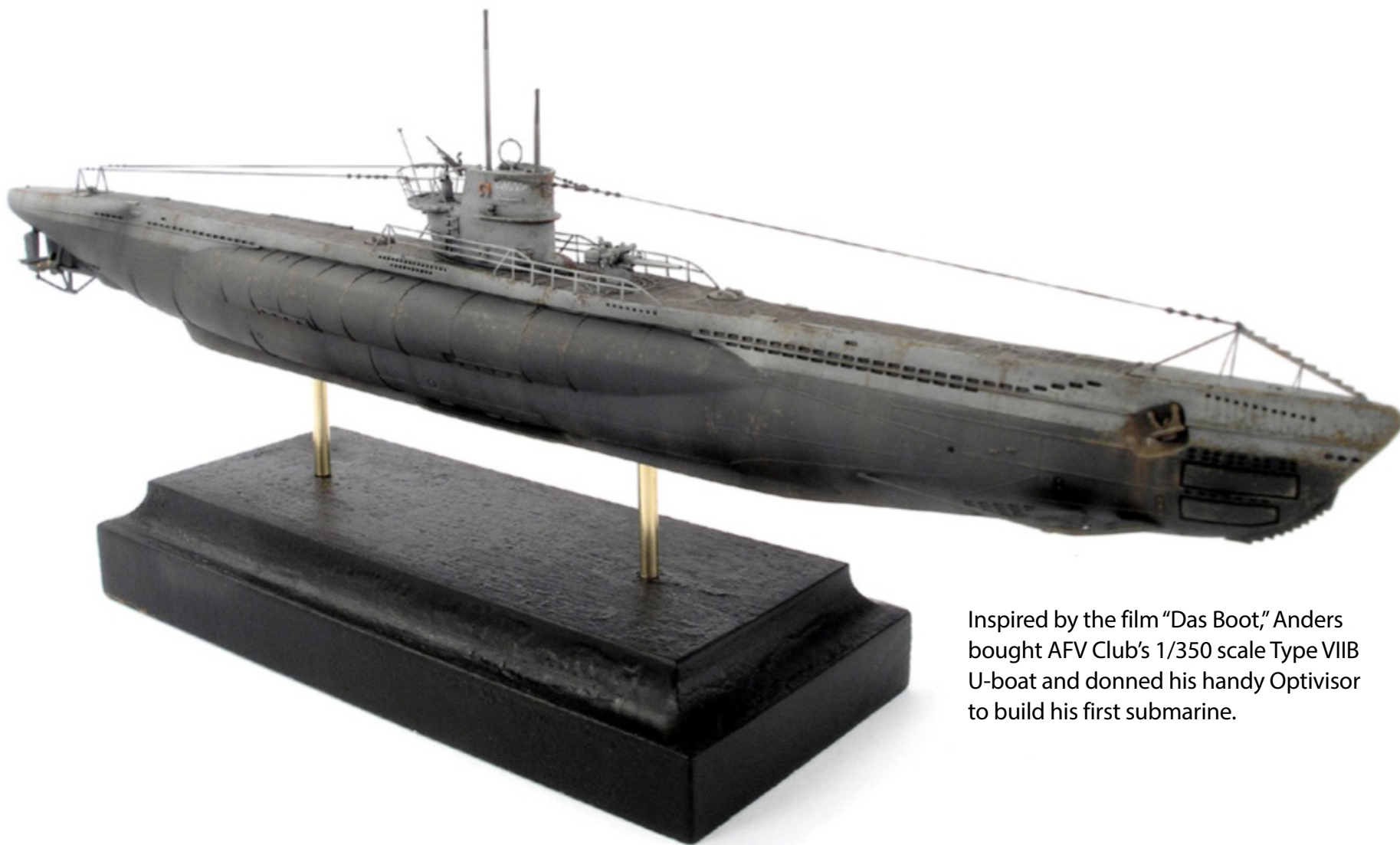
6 That was easy: Now I have a curved horizontal weld seam. If you aren't pleased with the result, simply erase it and try again. Repeat the process on the other side.



7 I drew the vertical seams next, using a square to ensure they were perpendicular to the horizontal seams. Photos are again indispensable for getting the lines right.



8 For rust, I traced some lines with a pale vermilion Prismacolor pencil. A mix of cadmium orange and burnt sienna artist oils produced heavier rust around the anchor, while pastel chalks added another subtle layer. I sealed the pencil and weathering under a coat of clear flat. **FSM**



Inspired by the film “Das Boot,” Anders bought AFV Club’s 1/350 scale Type VII B U-boat and donned his handy Optivisor to build his first submarine.

Building and detailing a **U-BOAT**

The right tools make all the difference

BY ANDERS ISAKSSON

I watched Wolfgang Petersen’s World War II submarine epic “Das Boot” in the mid-’80s and have had an interest in contemporary submarine warfare ever since.

Strangely, it took me until recently to get around to building a U-boat model. I settled on 1/350 scale because of the convenient size and the ample selection available. While the film depicted life aboard *U-96*, a

Type VIIC, I went with AFV Club’s Type VII B because reviews hailed it as an outstanding kit.

The kit offers some options regarding plastic or photo-etched (PE) metal details, but many of the fine plastic details and rails are undeniably thick for the scale. To increase my model’s scale fidelity, I purchased the Type VII B U-boat detail set from Voyager Model (No. VN35001).

I chose to finish my U-boat as *U-48*. Famous for sinking 55 ships over the course of the war, it accounted for more than 300,000 tons sent to the bottom, making it the most successful Type VII B commissioned.

To begin my build, I put on my Optivisor, because helping your eyes is not only good for you, it makes for a good model.



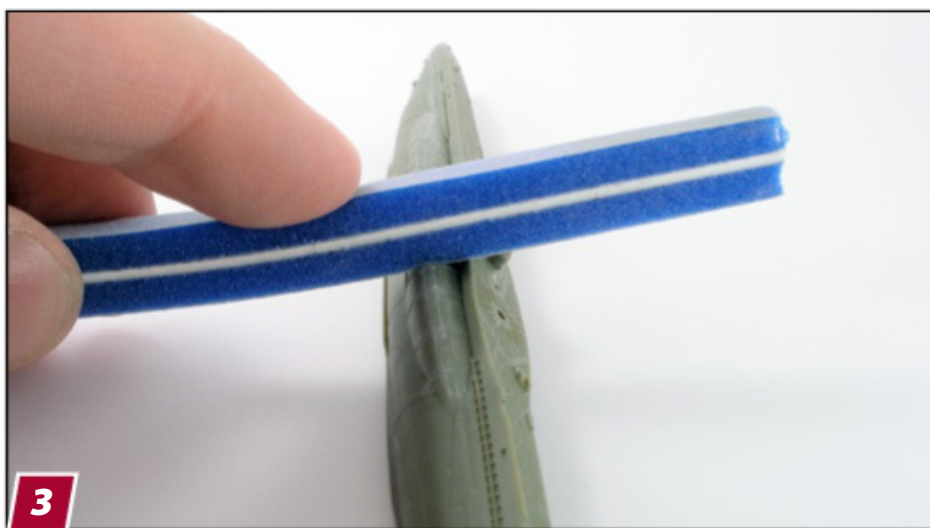
1

Following the kit instructions, Anders assembled the pressure hull first and then installed it between the light-hull halves.

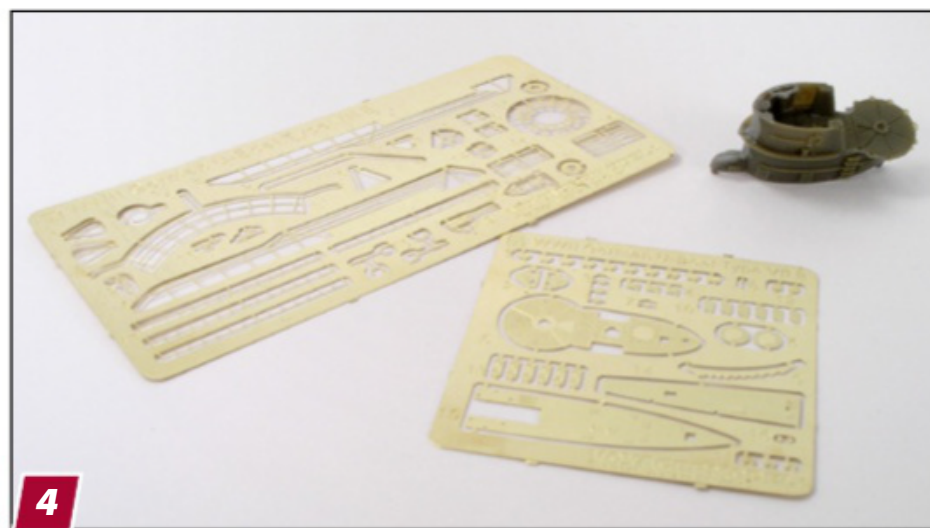


2

A pair of spacers cut from styrene strip widened the light-hull topside, creating a better fit for the upper hull and deck.



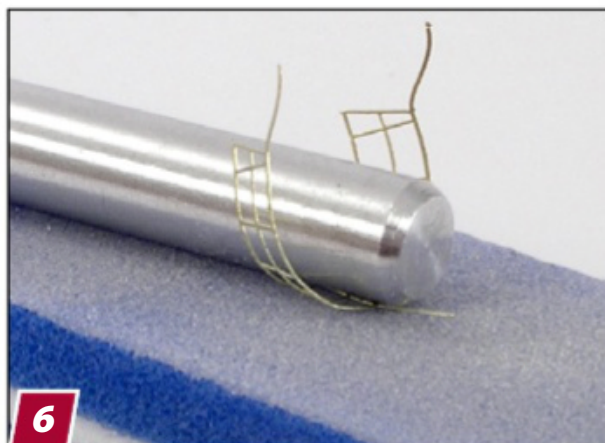
3 A little putty and sanding cleaned up the join between the upper and lower hull. Anders prefers sanding sponges to refine curved surfaces.



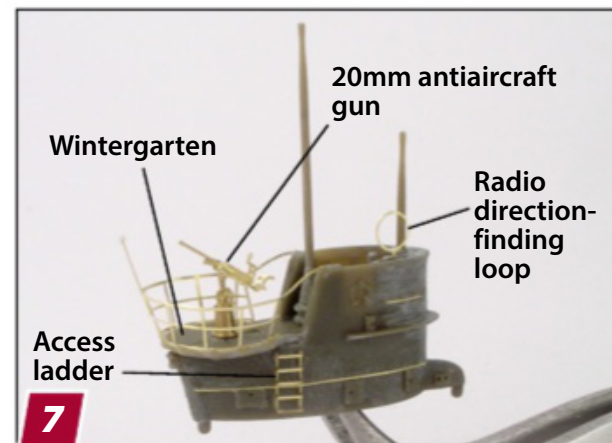
4 The conning tower was the first area to receive PE details from the Voyager set.



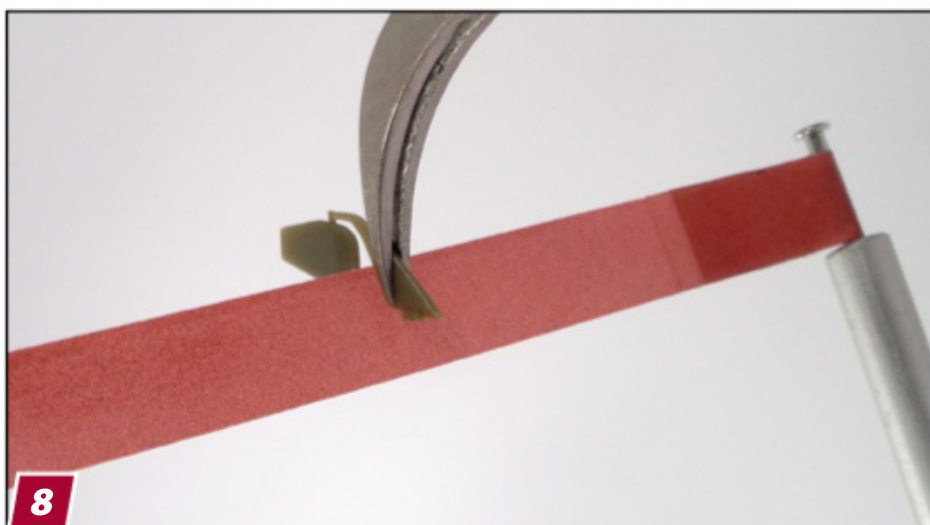
5 "The right tools make the job easier," Anders says. He uses a bending tool to shape most of his PE parts.



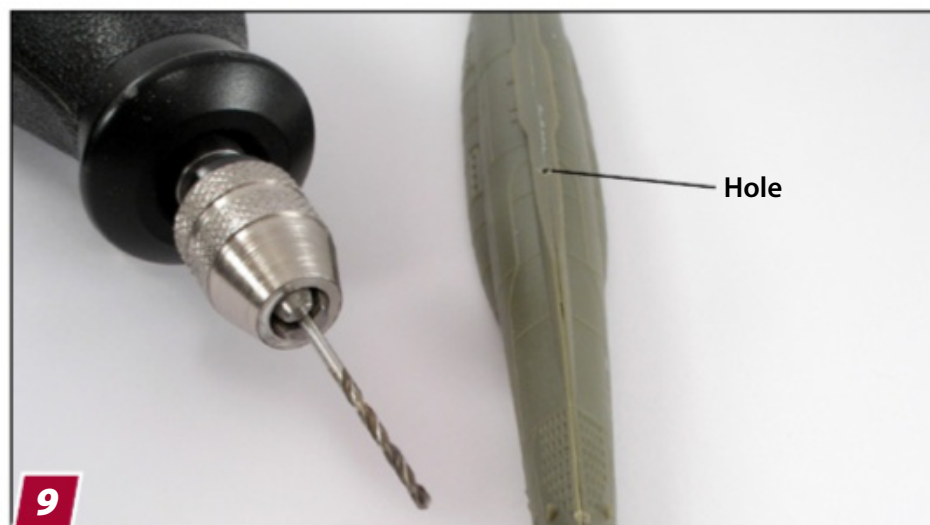
6 However, sometimes you have to use ingenuity. "I shaped the rail for the *wintergarten* by placing it on a fine-grit sanding sponge and gently rolling a hobby-knife handle over it," Anders says. "It fit perfectly!"



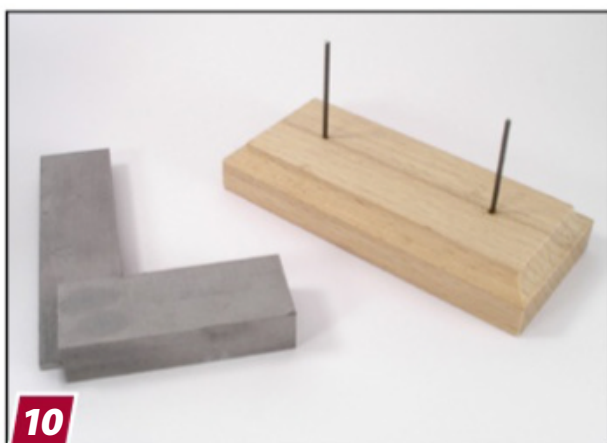
7 Although the Voyager set provided PE hatches and covers for the conning tower's sides, Anders found the kit's details acceptable.



8 A Flex-i-File and fine tweezers make cleaning up small, irregularly shaped pieces easier, if not easy.



9 AFV Club's stand left Anders wanting more. He made his own, drilling two holes in the keel with a pin vise to accept the stand's metal posts.



10 He drilled matching holes in a decorative wooden base and inserted the posts, made from steel pins. A modeler's square helped ensure the pins were straight.



11 Anders disguised the pins with brass-tube sheaths he cut with a razor saw and miter box.



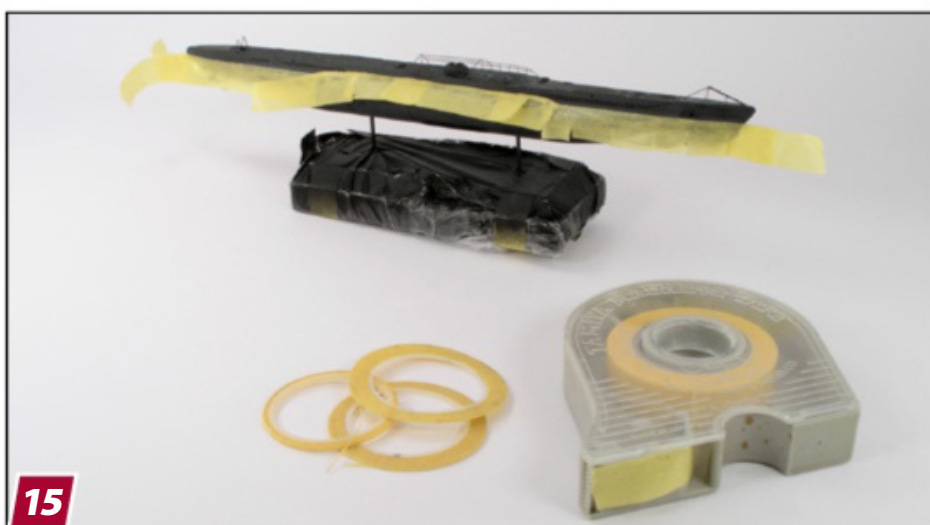
12 Citadel Chaos black primer from a spray can base-coated the model.



13 A few weld beads had disappeared while Anders sanded the join between the upper and lower hull. He restored them with Tamiya putty thinned with nail-polish remover and applied with an old brush.



14 With the base completely masked, Anders airbrushed a thin coat of Tamiya German gray (XF-63); he thought it a good match for *Schiffsbodenfarbe III Grau 1* (RAL 7016).



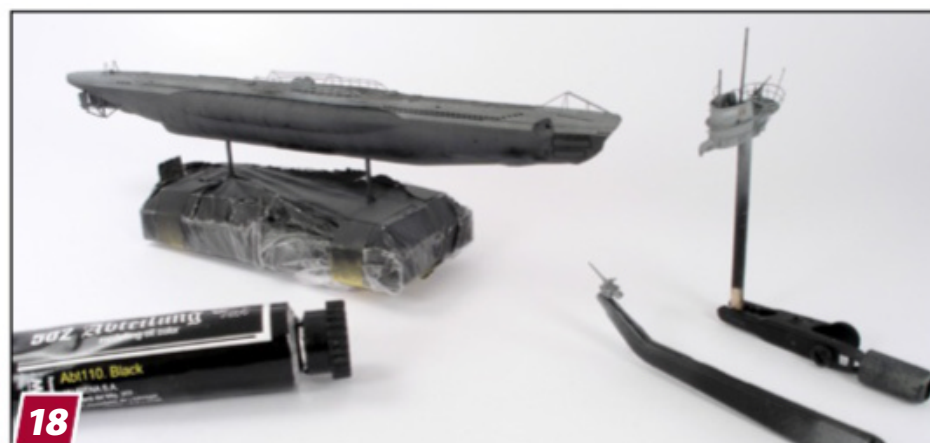
15 Anders masked the lower hull with short lengths of masking tape to make sure to get a good seal. Note that the ballast tanks are masked above the waterline.



16 Everything above the waterline (except the ballast tanks) received a coat of Tamiya medium sea gray (XF-83).



17 To achieve a weathered appearance, he airbrushed the deck with a mix of Tamiya German gray and flat brown (XF-10). "The deck was done freehand, except near the bow and stern where I used Post-it notes," Anders says.



18 The deck received a wash of AK-Interactive engine grime to deepen engraved details, while a wash of black artist oils emphasized recesses along the hull and around the conning tower.



19 Various shades of red and brown Vallejo acrylic paints stippled onto the hull simulated rust.



20 Anders applied more rust patches and stains with a sponge. First, he dipped the sponge in the desired color. Then he dabbed off most of the paint on scrap paper before sponging the model.



21

Not satisfied with the weathering on the deck, Anders completed another round with AK-Interactive and Mig Productions pigments.



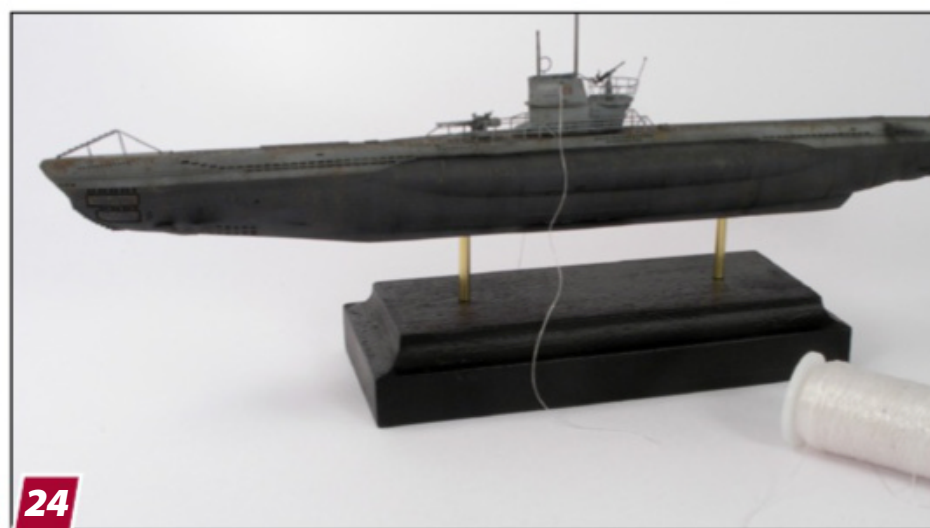
22

Anders used an artist pencil to pick out tiny rust spots. Dots of brown artist oils, pulled down the sides of the hull with a broad brush dampened in mineral spirits, simulated more general rust and grime.



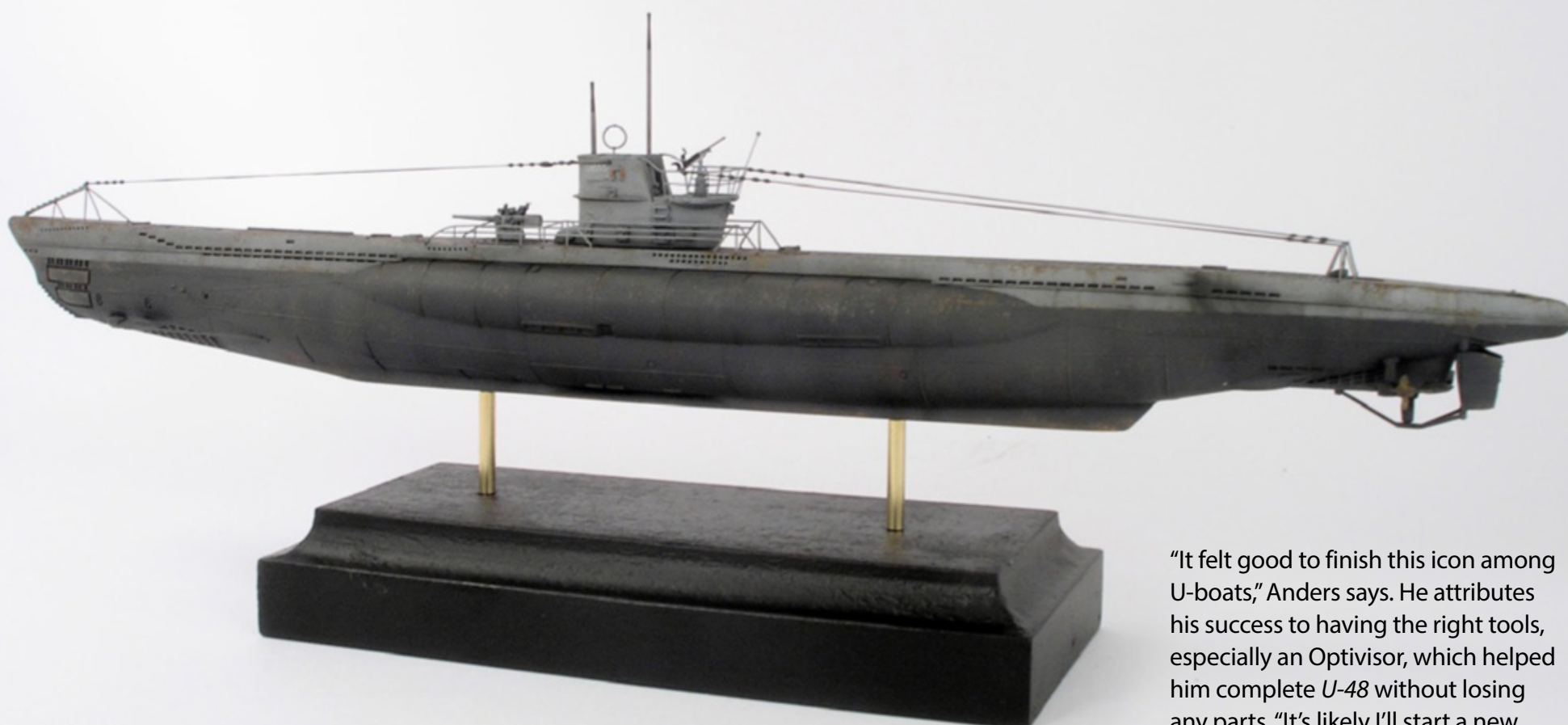
23

Heavily thinned Tamiya NATO black (XF-69) airbrushed on the rear made convincing diesel exhaust stains.



24

At this point, Anders finished the base, slid on the brass rods and permanently attached *U-48*. Lycra thread attached with super glue provides the boat's rigging. Once the rigging was run, he hand-painted it with Vallejo black gray (No. 862). Tiny, carefully placed drops of paint made the boat's blocks.



"It felt good to finish this icon among U-boats," Anders says. He attributes his success to having the right tools, especially an Optivisor, which helped him complete *U-48* without losing any parts. "It's likely I'll start a new submarine project soon, and I might include a few crew members. Maybe I'll build a diorama!" **FSM**

A NIGHT to remember



April 15, 1912: Down at the bow, the Titanic's fate is clear – but earlier, many passengers had stayed with the ship rather than board lifeboats like the lightly loaded one in the foreground. Mike's shadow-box diorama features a forced perspective, with the 1/35 scale lifeboat making the 1/87 scale ship, figures, and attached lifeboat seem more distant.

Forced perspective in a shadow box tells the tale of *Titanic*

BY MIKE MCFADDEN

Many people find the famous tragedy of the *Titanic* fascinating – and a few, like Mike McFadden, become obsessed with the story.

Mike writes: “When *Titanic* sailed in April 1912, she was the fashion statement of her day – luxurious, massive, and safe. Within a few days, the ship and much of what she stood for lay at the bottom of the Atlantic.

“The subject was just too enticing to pass up. Armed with Ken Marschall’s book *The Art of the Titanic* – and my imagination – I decided to make a forced-perspective night scene of the sinking.”

A shadow-box diorama seemed the perfect medium. For the ship section that would be the endpoint in his perspective, Mike chose 1/87 scale – HO scale to model railroaders – for its wealth of period figures and accessories, from dapper businessmen to bushel baskets.

Building the hull and decks from sheet styrene, Mike showed about 150 scale feet of the doomed ocean liner. The layered construction allowed installation of and access to intricate interior lighting. Most of the 175 bulbs are dollhouse lights, with some Christmas stuff thrown in for good measure. If he had to do it over again, he would use more LEDs for ease



The ship's internal lighting is provided by a variety of light bulbs and power transformers. "A friend of mine said [the opened decks] looked like the inside of R2D2," Mike says.



Collapsible boat C is lowered over the side with a mix of first-, second- and third-class passengers. Mike cast the lifeboat in resin, making a master with planks of strip styrene glued to a vacuum-formed hull, then installed a tiller and benches made of styrene sheet and strip.

of maintenance, although he likes the old-time ambience of the yellow, incandescent glow. A felt backdrop hides external wiring and is perforated above by fiber-optic strands of various diameters to show the star-filled sky recalled by survivors of that frigid, moonless night.

To Mike, much of *Titanic's* tale was to be found on the boat deck and bridge, the area where the last remaining lifeboats were launched – "most infamously, collapsible boat C, which carried J. Bruce Ismay, head of the White Star Line," he says, pointing out the lifeboat hanging over the side. In

the boat are more than 40 figures representing passengers from first to third class. "Even in HO scale, I wanted to convey the emotions of that night," he says.

Many of the ship's fittings, as well as the collapsible lifeboat, were cast in resin from plastic masters. The davits comprise 25 pieces of resin: Each has three pulley mechanisms and a hand crank. Mike contoured curves with thick super glue to show the

Mike thermoformed two sheets of styrene around a dowel for the funnel, then used styrene-rod half-rounds and brass for details.





The 1/35 scale lifeboat is a plank-on-frame construction of wood strips. At the tiller, an officer holds a working flashlight powered by a 1.5-volt transformer. Mike modeled water with Envirotex resin painted with enamels and artist's oils, making a wake and ripples with Woodland Scenics water-modeling products.



A reluctant maker of millinery, Mike rejected several attempts in Magic Sculp epoxy putty before he was satisfied with the female passengers' attire. Of course, as you can see, Mike paid close attention to details, such as the flowers he made from bits of resin and plastic.



Behind the scenes in the shadow box, a tangle of wires and transformers reveals Mike's ambitious lighting plan.



Mike's shadow box is appropriately dressed in the news of the day as a Boston newspaper's headline announces the scale-model drama inside.

davit bending under the strain of its load. To keep appropriate tension on the nearby empty ropes, Mike followed the advice of a 10-year-old student and glued iron filings to the rope ends, then placed small magnets to pull them taut.

In the foreground, a 1/35 scale, 25-foot lifeboat, light of passengers, begins to pull away from the ship. The boat's passengers and crew are a modified collection of Verlinden and Warriors figures, some with Hornet heads. "There are no *Titanic* figures commercially available in that scale," Mike says, adding, "With my figure-painting

skills, I figured 12 was plenty." Clothing and several accessories were formed from Magic Sculp epoxy putty. Mike notes that the officer's flashlight works, too.

The unifying element in Mike's scene is a 3/4-inch sea of Envirotex resin, colored with green and blue enamels and detailed with waves and wakes of Woodland Scenics water effects. Mike highlighted with more green/blue enamel and titanium white oils.

The entire scene is contained within a box just 20- x 24- x 24-inches. "It was a lot to compact into such a confined space," Mike says. "The hull connects to the trans-

formers/power sources via alligator clips. This allows removal for maintenance, although that's a scary thought at this point. The lifeboat in the foreground is highlighted by 'Mini Maglites' which can focus on individual figures, like lighting for a movie set."

Mike chose the angle at which the scene should be viewed, then placed a view port in the front of the shadow box, which is adorned by ID plaques and a copy of the April 16, 1912, *Boston Daily Globe's* front-page story – news of which still makes the *A* section nearly 100 years later. **FSM**



Phillip proves that building a great plastic model sailing ship doesn't always require a great sailing-ship builder. By following some basic guidelines, he built Revell's 1/56 scale yacht *America* into a beautiful addition to his collection.

7 TIPS FOR BUILDING PLASTIC SAILING SHIPS

Improve your next model ship today /// BY PHILLIP GORE

Always attention-grabbers, sailing ships can be some of the most fulfilling — and most challenging — models to build. Intricate rigging, delicate sails, bright colors, and weathered wood add up to a dazzling display.

However, these same features can scare off modelers. Don't be afraid! Any modeler can build a plastic sailing ship.

First, choose a simple model with a small part count, few sails, and minimal rigging — such as Revell's 1/56 scale

yacht *America*. Take the time to cover any ejector-pin marks inside the hull with .015-inxh sheet styrene. These marks will otherwise mar your finished model. Similarly, cover ejector-pin marks on deck furnishings. Now, you're ready to build.



Tall masts that come in hollow halves are susceptible to warping and bending under the stress of rigging. Gluing a brass rod in one half of the mast before assembling it adds strength and keeps it arrow-straight.



To achieve a subtle, multicolored deck, first apply a light base color, such as Tamiya deck tan (XF-55). Then, spread a medium brown pastel powder over the deck with a soft, thick brush, wiping away excess. Lastly, airbrush a dilute mix of the base color randomly over the deck. (The deck on the left is finished; at right is awaiting a final coat.)



Hull painting should start with the lightest color first: in this case, a white waterline stripe. Metallic paints should be applied last to avoid mixing metal flakes with other colors.



Dry-brushing raised wood grain is a great way to pick out detail and transform a nice-looking model into a remarkable miniature.



To model plastic sails realistically, first airbrush a coat of flat white and let it dry. Then, brush medium gray pastel powder over the entire surface. Last, using a very soft cloth, buff the sail to remove most of the pastel powder, leaving enough to accent the raised and recessed areas. Easy!



Use fine tweezers when running rigging or adding reef points to keep from damaging surrounding parts. Super glue locks the thread in place.



When rigging multiple blocks, gently pull the thread tight along its entire length before gluing. Make sure the line is taut, but not so much that it bends spars or masts. **FSM**



Revell launched its 1/96 scale USS *Constitution* in 1965, but the kit's just a kid next to the real thing — at 220 years, the oldest commissioned warship afloat in the world. White plastic sails just wouldn't look right on Old Ironsides. But here's a way to make them look like they belong. *Photos by Bill Hottinger and Jane Indreika.*

Modeling sails for plastic ships

Shiny styrene has no place on the seven seas /// BY JOHN HAZARD



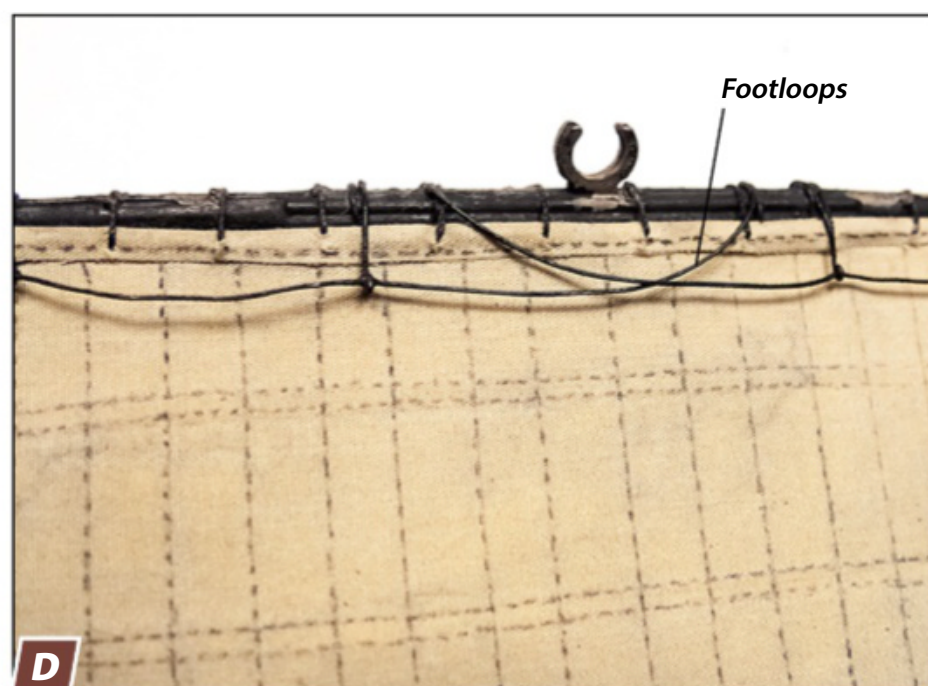
A A cutaway at the top shows thread glued to the top of the core and tied to the yard. Florist wire is on the side of the sail.



B Cutaway at the bottom shows florist wire and light brass wire combined to form a cringle.



C Attaching reef points: In this front view, the starboard edge of the sail is shown uncovered.



D Footropes hanging from the yard: If you are afraid of heights, this is no place to be.

Like many builders of period ship models, I found that making realistic sails was difficult. Cloth sails always look wrinkled and limp. Plastic sails are too flexible and brittle to hold tightly strung rigging.

After much mumbling and muttering, I hit on a solution that involves two counter-intuitive approaches: One is laminating the sails by putting cloth on both sides of a core of either plastic (from a ship model kit) or manila folder stock; the other is to use various kinds of wire to curve, reinforce, or stiffen the sails.

This creates sails that retain a rounded shape and are firm enough to hold taut rigging. As a result, they seem to tug at the rigging and billow in a stiff imaginary wind.

Preparing the core

Cut the shape of the sail from the core material. (My example shows molded plastic supplied by Revell's 1/96 scale USS

Constitution.) If the sail is to hang from a yard (horizontal spar attached to a mast), the top of the core should be cut to match the taper of the yard, **1** (*illustration, p. 81*).

All the preparation of the sail core is done on the back (concave) side. Super glue a strong thread to the back of the core as close to the top edge as possible, **A**. This will keep the core from tearing loose when the finished sail is attached to the yard. If the yard to which the sail is to be attached is too fragile or flexible to handle the tension needed for rigging, use 22-gauge piano wire here instead of thread, **2**. Super glue lengths of 22-gauge florist wire along the sides and bottom of the core, leaving 1/8-inch openings at the lower corners of the core. This wire stiffens the core yet allows it to hold a curve, **3**.

Make two cringles (the eyes at the lower corners of the sail to which rigging is attached) by bending 2 inches of 32-gauge brass wire around a good-size needle and

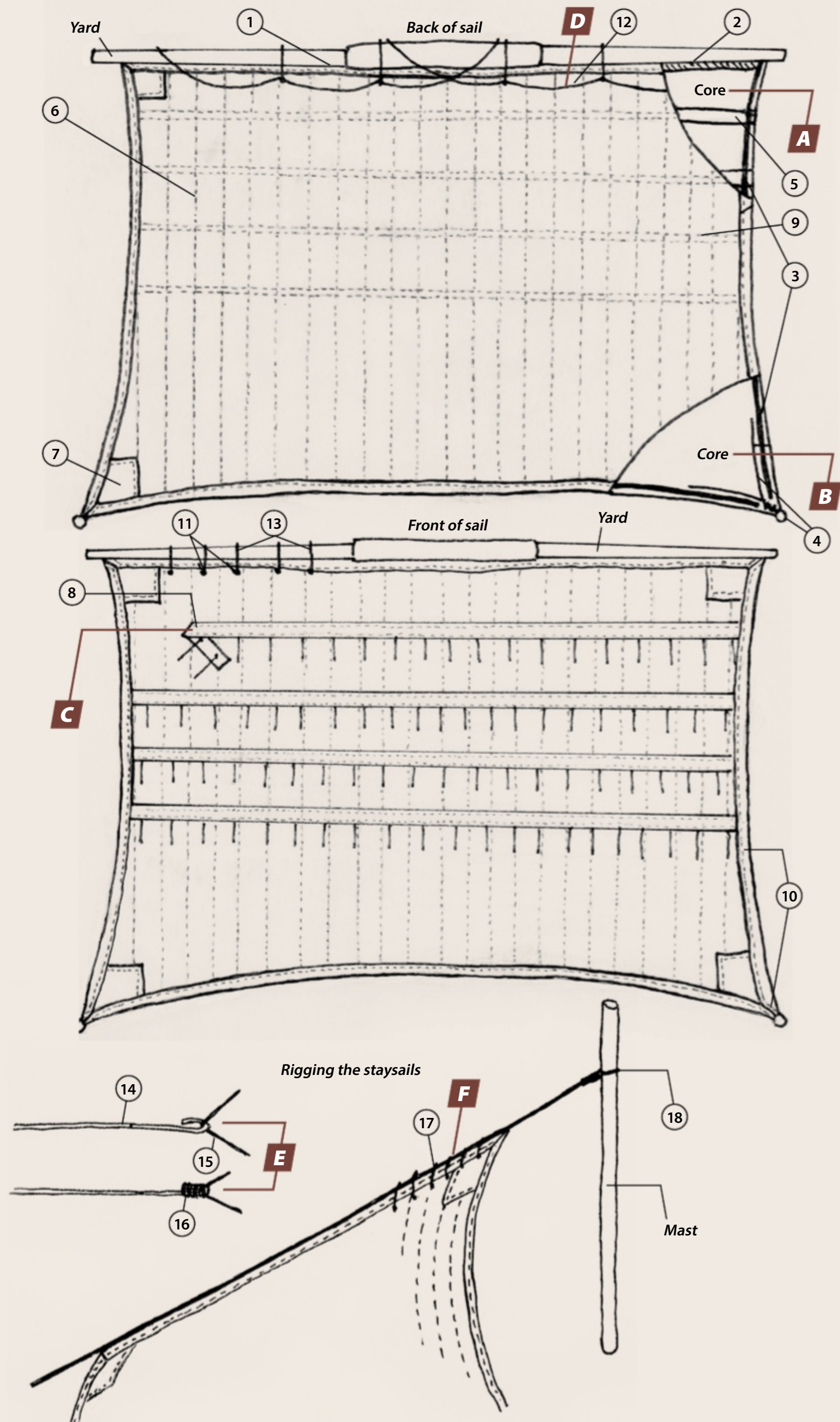
twisting a couple of times to form a tiny loop. Spread the two ends into a V. Super glue the cringles to the lower corners of the core along the inside of the florist wire and a little past the core's corner, **4, B**.

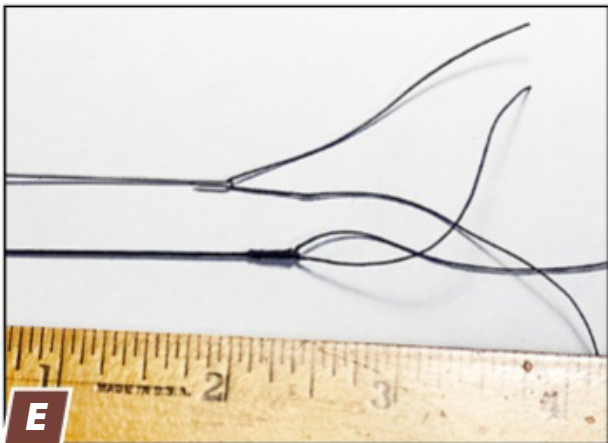
Some plastic sails have raised lateral bands across the front, leaving indentations in the back. Fill these indentations with paper strips so the back of the finished sail will be smooth, **5**. The core is now ready.

Building the sail on the core

Prepare some thin, tightly woven white cotton cloth to cover the core. Stain the cloth evenly with Minwax wood stain: 1 part golden oak (210B) to two parts natural (209). Cut pieces of cloth to fit both sides of the core. Be sure the cloth's weave is square to the shape of the sail; leave an extra 3/4 inch all the way around.

Before attaching the cloth to the core, draw "stitching." This is done with a .7mm mechanical pencil. To get straight, precisely





Two stages of preparation for the wire used as stays.

spaced lines, tape the cloth to a self-healing cutting mat that has a grid. Then draw vertical lines very lightly at $\frac{1}{4}$ -inch intervals. Pressing harder, draw each stitch along the vertical lines, about 10 stitches/inch, **6**.

The cloth surfaces can now be attached to the core. Spread a thin film of white glue on the entire front (convex) side of the core. (Careful: If the glue is too thick it may bleed through the cloth. Likewise, do not thin the glue with water.) Attach the cloth to the core, leaving no air pockets. Do the same to the back of the core, being sure the cloth is glued tightly around the wires and thread at the core's edge.

Trim the overhanging cloth to the edges of the core. Tack loose edges down with small dabs of white glue.

Corner reinforcements can be made by gluing small pieces of cloth to the corners on both sides of the sail. When they are in place, pencil the stitches on them, **7**.

Add reef points (short lengths of rope on the front of a sail that sailors use to furl it), **C**. For each row of reef points, cut a $\frac{1}{8}$ -inch-wide cloth strip a little longer than the width of the sail. As before, cut squarely to the weave of the cloth. The reef points are $\frac{3}{8}$ -inch-long cotton threads; they are attached to the strip every $\frac{1}{4}$ inch by dipping one end lightly in super glue and laying it on the strip with tweezers. Then, with white glue, attach each strip to the sail and trim the edges, **8**. Turn the sail over and, on the back of the sail, draw horizontal stitch lines corresponding to the stitches holding the bands on the front of the sail, **9**.

The sail's rough edges can now be finished. Cut a $\frac{1}{4}$ -inch strip for each of the four edges, allowing a little extra for each. Fold each strip along its length, wrap it around the edge of the sail, and attach it with white glue. Trim excess from the strips, mitering them at the four corners of the sail. Be sure to keep the cringles clear, **10**. Add stitch marks on all four edges on both sides of the sail. The entire sail can now be aged with a light wash of Testors flat-black enamel.



This stout wire rigging cannot be bent by the weight of the sail.

To prepare the finished sail for attachment to the yard, drill small holes at $\frac{3}{8}$ -inch intervals across the top, being sure to stay below the thread or wire at the top of the core, **11**.

Attaching the sail to the yard

Paint the yard with a flat brown or black. Use 28-gauge black annealed wire to fashion and install footropes on the yard, **12, D**. Also attach any blocks (pulleys) to the yard if they will be needed later for rigging. Tie the yard to the sail using coat thread with single overhand knots touched with super

glue and trimmed, **13**. The completed yard and sail unit is now ready to be mounted on the mast.

Attaching the staysails

Staysails hang from a stay (a heavy rope placed between two masts to brace them). On the model, the staysails are created in the same way as before. But the stay itself is modeled with wire instead of thread so the weight of the sail will not pull it out of shape. Usually, .032-inch piano wire is sufficient, although a slightly bigger gauge may be necessary if the sail being hung is especially large. Before cutting the wire, precisely measure the distance between the points where the ends of the stay will connect to the two masts. Then add an extra $\frac{1}{4}$ inch at both ends.

To prepare each end of the wire: Fold $\frac{1}{4}$ inch of the wire back on itself, **14**, and pinch a 4-inch piece of coat thread within the apex of the fold. This thread will serve to attach the wire to the mast, **15, E**. Wind another piece of thread around the folded part of the wire, super glue it, and cut off the loose ends. This will hide the fold in the wire and simulate the seizing that holds a real stay, **16**. Paint the wire flat black. Then attach the sail to the wire with coat thread, **17**, and tie the ends of the wire to the two masts, **18, F**.

The rigging is up to you

Most sailing ships include detailed rigging plans. A sail is not complete until it is connected to all the lines sailors need to control it from below. In fact, rigging may be the most interesting aspect of a ship model for the builder as well as the viewer.

I've given you better-looking sails. Now it's up to you to hoist them! **FSM**

Meet John Hazard



JOHN STARTED BUILDING period ship models in the early 1950s, making do with balsa, dowels, and the toxic glue of that era. Since then, being busy with many other things, he has built only a few models, all of them sailing ships kit-bashed from plastic kits. He spent four years building Revell's 1/96 scale USS *Constitution* and its 30 sails, working sporadically and often battling away Yoyo, the cat that wanted to help with the rigging. He tells us his wife, Colette, is a lovely and patient woman.



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