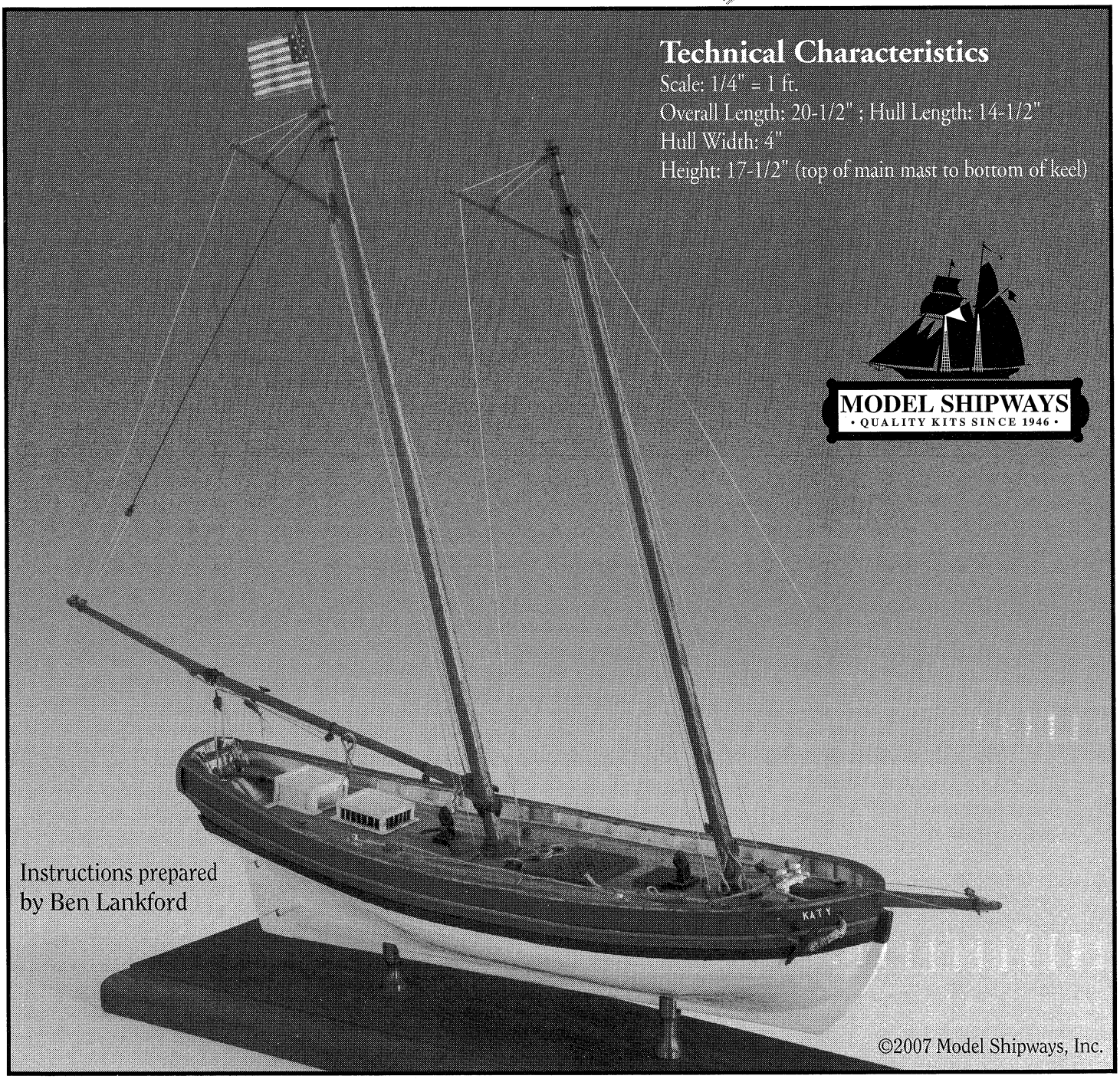
INSTRUCTION MANUAL

MODELING THE KATY OF NORFOLK

✦ VIRGINIA PILOT BOAT, CA. 1800 ✦



Manufactured by Model Shipways, Inc. • Hollywood, Florida
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Model Shipways Kit No. MS2001

HISTORY

The Model Shipways kit of the Virginia pilot boat *Katy* represents a reconstruction of a type, rather than of an actual vessel. The *Katy's* hull lines were taken from the lines of "a Virginia pilot boat" published by David Steel in his work on naval architecture in 1805. The rest of the vessel, including all the deck furniture and details, the masts, rigging and sail plan is a complete reconstruction based on existing knowledge of contemporary practices. Since the *Katy* kit does not represent an actual vessel, there are a number of possible correct variations, differing in appearance, which can be built. As long as the modeler utilizes the various source books which deal with this type of craft, and takes care in his work to portray the features of the period accurately, he cannot be faulted for giving his model one particular feature or set of features common to the type of that period preference over another. For this reason, the Model Shipways kit of the *Katy* is an ideal wooden model kit for both novice and experienced builders. It is basic enough in form and construction to provide the novice with a good, beginning experience in modeling, while allowing the veteran builder a latitude for customization.

As already stated, there is no existing documentation from the beginning of the nineteenth century to indicate that a vessel of this size and type named *Katy* existed. Just to give the kit model a name we think *Katy* was named after the wife of John Shedd, the original owner of Model Shipways.

Reference to "Virginia built" vessels, as a distinct type, begin to appear in contemporary sources at about the middle of the eighteenth century or just before.

The derivation of this type of vessel, characterized by finer lines, longer runs, greater dead-rise and increased drag cannot be pinned down with certainty, but it seems likely that the "Bermuda built" sloops and schooners of the first half of the eighteenth century had a great deal of influence on their development. The lines of a typical "Bermuda" sloop were first reproduced by Swedish naval architect F. H. Chapman in his work "Architectura Navalis Mercatoria" in 1768.

During the American Revolution, "Virginia built" boats, sloops and schooners were popular for use as privateers. In the period 1785 to 1805, the type gained a reputation in the British and French navies as being very useful as despatch boats and tenders. The French in particular developed a preference for this type of craft for use as privateers and inflicted severe losses on the British merchant marine.

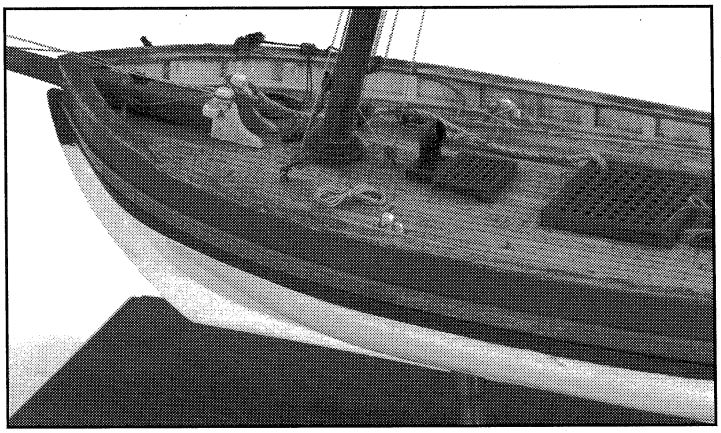
As the use and demand for this type of craft grew in the late eighteenth and early nineteenth centuries, the entire Chesapeake Bay area turned to building and refining the type. They became known as "Baltimore built boats" or Baltimore clippers, and enjoyed a fabulous reputation for speed and handiness. Many a fortune was started during the War of 1812 by privateer captains who sailed in Baltimore clippers. Before and after the war, many native Africans made a grim one-way voyage aboard vessels of this type.

KIT DEVELOPMENT

The Model Shipways kit for *Katy* has gone through several modifications since first issued. The first kit of the *Katy* was a solid hull kit developed in 1965 by the original company in Bogota, New Jersey. The plan was prepared by Merritt Edson, Jr., former Editor of the Nautical Research Guild. A limited four page instruction sheet was most likely prepared by John Shedd, the original owner of Model Shipways.

In 1982, Model Shipways had been sold and became a division of Model Expo, Inc. At that time, the kit was re-issued as a solid hull kit, but with an updated and extensive instruction manual and revised plan by Jim Roberts. The new plan contained more detail than the first draft with a few variances in the reconstruction. In 1994, the kit was re-issued as a plank-on-bulkhead kit. For this kit, Bob Evans prepared the hull conversion plan and instructions for the plank-on-bulkhead hull. The 1982 Jim Roberts plan was retained.

Our new 2007 kit is another re-issue by Model Shipways, Inc., dba Model Expo, now located in Hollywood, Florida, and it has returned as a solid hull kit. The 1982 Jim Roberts plan has been retained but the kit has been updated with a completely new instruction manual which follows the most recent format developed for Model Shipways kits. In addition, a more complete set of supplies for building the model is provided. The fittings are cast from lead-free Britannia metal and there are more laser-cut wood parts for ease of construction. Templates are now provided to aid in hull carving.



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Before You Begin

The *Katy* is an interesting model for beginner and expert alike. This kit contains a solid hull which has been machine-carved from select, medium-hard, fine-grained basswood. This style hull provides a quick and easy lesson in the basic shapes and proportions of hull design and helps to develop woodworking skills. Although the exterior of the hull has been carved close to the hull lines as shown on the plan, further carving is necessary for reasons of accuracy. Carving and finishing the hull to its final shape is discussed in the instructions.

Constructing the *Katy* model also will provide you with the opportunity to develop some scratch-building techniques. During construction, you may want to substitute some of the kit fittings with your own creations. By all means try them, especially if you think you can improve the model.

If you are a beginner, completing this model will prepare you for a more complicated solid hull model such as the *Dapper Tom* and *Kate Cory.* Eventually you can tackle models such as *Pride of Baltimore II* and *Constitution*, which are outfitted with a plank-on-bulkhead hull. In the meantime, happy modeling!

Working with Plans & Parts

Before starting model construction, examine the kit and study the plan carefully. Familiarizing yourself with the kit will serve two purposes. First, it will let you determine that all parts have been supplied as listed. And second, you'll be surprised at how quickly handling the parts allows you to better understand the kit requirements. Try to visualize how every part will look on the completed model. Also, determine ahead of time what must be done first. The instructions will help you in this regard, but a thorough knowledge of the plans at the outset is essential.

It is also suggested that all small fittings and hardware be sorted into labeled boxes or compartments to avoid loss during the building process.

One Plan Sheet and One Template Sheet are provided:

1. Hull and Rigging Plan

4. Hull Templates (heavy stock paper)

In addition, a set of sketches appears throughout the instruction manual to further illustrate the various stages of construction.

The *Katy* kit is manufactured to a scale of 1/4" = 1'0" and matches the plan. Consequently, most of the dimensions can be lifted directly from the plan using a "tick strip". This is simply a piece of paper (a roll of calculator paper tape works very well). Mark a dimension from the plan onto the tick strip and transfer it to the model.

The *Katy* kit is supplied with Britannia metal, brass, as well as wooden fittings to eliminate problems in making such parts from scratch. Because the Britannia metal contains no lead, there are no possible corrosion problems. Many of these fittings will require final finishing before installing on the model.

Before painting the cast-metal fittings, clean them up by removing all the mold-joint flash. To do this, use a No. 11 hobby blade to cut the flash, then sand with fine sandpaper. It is also suggested that you clean the fittings thoroughly with warm soapy water before applying primer. Make sure they are rinsed thoroughly and allowed to dry before painting.

What You'll Need To Start

The following tools and supplies are recommended for the construction process. Modelers who have built before may have their own favorites. Almost all are available at Model Shipways web site, www.modelexpo-online.com.

A. Tool Set
A small carving tool set, or individual chisels and gouges for shaping the hull.

B. Sharpening Stone
Necessary to keep the tools razor sharp

C. Knives and Saws
1. Hobby knife with No.11 blades
2. Razor or jeweler's saw

D. Files
Set of needle files

E. Clamps
1. A few small C-clamps
2. Several wooden clothespins
3. Rubber bands

F. Boring Tools
1. Set of miniature drills: #60 to #80
2. Larger bits for holes such as mast holes
3. Pin vise

G. Miscellaneous
1. Tack hammer
2. Tweezers
3. Small fine pointed scissors
4. Miniature pliers
   a. Small round
   b. Flat nose
5. Bench vise
6. Soldering iron or torch
   a. Solder (lead-free solder recommended)
   b. Flux
7. Beeswax block (for treating rigging lines)
8. Masking tape
9. Wire cutters (for cutting fine wire & strip metal)

H. Sandpaper
Garnet or aluminum oxide sandpaper (#100 to #400 grit)

I. Finishing
1. Paint brushes
   a. Fine point for details
   b. 1/4" to 1/2" flat square for hull

J. Supplies
(will be covered in detail in the Painting & Staining section and throughout instructions)
1. Paints
2. Primer
3. Stain and Varnish
4. White or Carpenter's (yellow) Wood Glue
5. Five-minute epoxy
6. Cyanoacrylate (Super) Glue

Note about glues: White or Carpenter's yellow wood glue will suffice for most of the model. Five-minute epoxy provides extra strength for gluing fittings. Cyanoacrylate (Super) glue, called CA glue for short, such as Zap is excellent for quick adhesion and is ideal for dabbing onto a rigging seizing to hold it in place. The best CA glue for most applications is a medium viscosity gap-filling type. The watery-thin type is recommended only to fill a narrow crack by capillary action. For CA glue, you can also purchase a liquid accelerator such as Zip Kicker. A spray or drop of the accelerator will instantly cure the glue. This is handy to eliminate clamping parts for long periods of time waiting for glue to harden.

Use CA glue with caution. You can easily glue your fingers or eyelids together and the fumes can burn your eyes. It would be a good idea to have a bottle of CA Debonder on hand. This product will dissolve the glue if you do get it on your body.

Painting and Staining

It may seem strange to begin an instruction manual with direction on applying the finishes to the model. Not so! Much time and effort can be saved and a more professional result can be obtained if the finishing process is carried out during construction. Proper timing in application of finishes and the use of masking tape to define painted edges should eliminate unsightly glue marks and splotchy stained surfaces. In the end, following these general suggestions will be to your advantage.

Paint Colors:

Paint as we know it today did not exist in the eighteenth and early nineteenth centuries. When any painting was to do done, the craftsman ground his pigments and mixed them in linseed oil and a little turpentine on the spot and then applied it. Enough paint was mixed for immediate use only. All colors at this time were derived from earth and min-

eral pigments Some of the more common colors during this period were yellow ochre, black, pearl, stone, slate (shades of gray), red (a dull brownish iron oxide hue) and green. White was rarely used and appeared yellowish when dry.

Most paint on vessels of this period was not paint at all, but pine tar (oil).

Several coats of this would be applied over the bare wood when the vessel was new to seal it. Periodically thereafter fresh layers were applied, sealing in the accumulation of dirt and gunk trapped in older applications. Eventually, this turned the hull from a natural oiled brown wood color to a warm brown black and finally to a rich almost black. With the possible exceptions of red and yellow ochre, ground pigment paints were applied sparingly as highlighting or decorative work.

In painting and coloring a model of a vessel such as the *Katy*, it is not enough to simulate the colors and their locations, but one should make an effort to reproduce the physical attributes of the coloring agent as well , i.e., depth, covering ability, penetrating ability, etc. In other words, try if possible to represent painted or other heavily coated areas with paint, and stained or oiled areas with stains or thinned coats of paint. Obviously, it you have sealed and primed the model, pure stain as such will not be effective, but must be represented with thinned paints. Avoid using muddy colors, especially muddy browns. To represent oiled wood, use medium browns, thinned with a few drops of clear coat to give a slight translucent effect.

At about this time (1785-1810), the practice of defining the load waterline was coming into vogue. Prior to this time, the bottom coating on vessels which were not copper sheathed was usually carried up to the underside of the main wale, covering the entire hull below this timber. The practice of defining the load waterline began with the introduction of copper sheathing about 1768, and was eventually applied to vessels which were not so sheathed.

The suggested color scheme for the *Katy* is as follows:

Hull bottom below waterline or below wale - Yellow ivory or off-white, to represent tallow coating.

Hawse cheeks & main wale - Brown black.

Hull planking (above wale and below wale to waterline if not tallow) - Dark oiled brown, or yellowish brown, not as dark as the wale.

(Note: the narrow band of strakes between the side sheer molding and the cap rail may be painted a dull dark green or iron oxide red).

Side sheer molding - Yellow ochre or dark red.

Cap rail - Natural oiled (stain and seal).

Bulwarks inboard - Off-white or dark pine.

Deck - Natural or weathered gray (driftwood).

Hatch coamings, bitts, and pumps - Brown oiled wood (stain).

Skylight and companionway - Off-white

Hatch gratings - oiled oak (stain and seal). Cherry strips are included in this kit for gratings. Leave as is or just darken with stain.

Ironwork - chimney, stack, anchor, cleats, mast and spar bands. eyebolts and ringbolts - Flat Black. Anchor stock would be wood so paint brown oiled color.

Masts, spars, and bowsprit - Natural oiled (rub with dry pigment or stained and sealed).

Blocks - Oiled "elm" brown. Blocks in kit are walnut. Use as is with a sealer coat.

Standing rigging - Black (to represent tarred line).

Running rigging - Tan (to represent light brown hemp line)

Paint:

Use a flat-finish paint. Model Shipways line of acrylic paints are available in the recommended colors. You may also purchase an already assembled *Katy* paint kit from the web site, www.modelexpo-online.com.

Primer:

Use a grey primer (one is provided with the *Katy* paint kit). The grey color will highlight sanding scratches and other defects better than white primer. Prime all wood to be painted, and prime all metal fittings. Lightly sand the primed items. Use a spackling compound such as Pic-n-Patch brand to fill any scratches and defects, then re-prime.

Stains & Finishes:

For natural finished wood, use a protective coating after staining, such as low-sheen or matt polyurethane varnish.

If the recommended color scheme procedures for natural wood finishes seem a bit too complicated, you can substitute Model Shipways stain or Minwax. These are a combination stain-finish available in a number of different tones. The deck plank edges can be painted prior to installation with any dark color to simulate caulking.

The staining of all wood parts should be done before gluing, especially if any CA glue is used. The stain will not penetrate dried glue and leave ugly white areas in the finish.

Brushes & Procedures:

Use good quality soft sable or synthetic hair artist's brushes. A small pointed brush is good for details. For the main hull areas, use a 1/4" to 1/2" flat brush.

Before painting, clean the model with a tack rag. Apply your paint in smooth and even strokes, overlapping them as you go. Thin the paint enough to eliminate brush strokes, but not run. You will need three or four coats of the light colors to cover the grey primer and maybe only two coats of the dark. Check your finish between coats, sand and add spackle as necessary to get rid of any blemishes.

Anywhere two colors meet, use masking tape. Electrician's black plastic tape or any of the hobby tapes made of plastic film are ideal. They leave a nice edge and are not overly sticky. Do not use drafting tape unless it is Chart-pak brand. The edges are somewhat wrinkled and paint may run under them. A good trick; seal the edge of masking tape with a clear flat finish and let dry thoroughly. This will really prevent paint from running under the tape.

STAGE A: SHAPING THE MACHINE-CARVED HULL

Sanding alone will not shape the hull enough to precisely match the hull lines. Some carving is required, especially at the keel, bow, stern, & cockpit areas.

1. Using the Templates

For exact carving to hull lines, a template is required for the hull profile and each of the stations. You will find a template set printed on heavy stock paper in the kit. Cut the templates out carefully with a No. 11 hobby knife. Do not use scissors! You will want a nice smooth edge.

2. Carving the Hull

Cut a wooden block from scrap to about 4" x 1" x 3/4" thick. Screw the block to the deck so the model can be held in a bench vise for carving. First, check the accuracy of the profile using the profile template and correct it as necessary. Glue sandpaper to a long wooden block. This will help sanding an area like the keel to keep it straight.

Next, mark the centerline, rabbet lines (where hull meets keel) and station lines on the model (Figure A-1). Note that the width at the keel, stem, and sternpost (rabbet to rabbet) is 1/8". Keep these areas flat as the 1/8" keel, stem, and sternpost will be glued on later. Place the station marks on the center of the hull bottom and on top of the rails so the marks won't be carved off as you work. Also, add marks for the width of the hull at each station on top of the rail. Measure the marks from the centerline of the model so the marks will be the same port and starboard.

As shown on the sketch, a good way to start is to cut a slope at the rail back to the hull width marks to establish the width of the hull at the rail for the entire hull length. You now have a line to carve to as you fit the templates. Next, start carving approximately at mid length (maximum beam) and progress forward, then aft, using chisels and gouges to cut away excess wood. Avoid carving against the grain by shifting forward or aft until you find a spot where you are going with the grain. Basswood carves easily, so you probably won't have much problem with the grain.

Carve very slowly and take off a little wood at a time. Fit the templates as you go. Carve until the template fits reasonably well, then use sandpaper to obtain the final shape. At first, the templates will not fit very well, especially at the stern where a fair amount of wood needs to be carved off. You must compare the template to the hull and visually decide where to remove wood. Cut a little off, then re-check the template.

Finally, draw a few horizontal pencil lines (like waterlines) and the vertical station lines on the hull. Use these to visually check the shape of the hull. Hold the hull at various angles, and look to see if the pencil lines are fair (even). If you have any unfairness, dips or bumps, they can usually be found with this visual check. You can also use a stiff stick of wood, about 3/32" square, and lay it on the hull at various locations. Dips and bumps in the hull will show up under the stick.

Wale, and side sheer moulding at deck level - The hull templates used for shaping the hull do not include the protruding wale planks and the side sheer moulding. For our solid hull model, it is much easier to shape the hull smooth according to the templates, then apply the additional thickness of the wale and side sheer moulding using basswood strips. The installation of these will be discussed in Stage B.

3. Carving the Bulwarks

Make yourself a temporary cradle to secure the hull while carving. This cradle can also serve to hold the model for most of the remaining work. Make the cradle so the model sits in it with its waterline parallel to the baseboard and table. This will be useful if you decide to have the bottom paint go only up to the waterline instead of to the wale. You can easily mark the waterline with a pencil on top of a block, sliding it along a table top.

The machine-carved hull has bulwarks thicker than scale so they won't break while inside the kit box and because of carving machine limitations. The upper surface is cut to the underside of the cap rail. After finishing the outside of the hull, check the thickness of the bulwarks. The finished bulwark should be about 1/16" thick so the bulwark and the 1/16" bulwark stanchions will fit under the 5/32" wide cap rail. If the bulwark is still too thick, you will also need to carve the inside of the bulwarks.

Carving the inside of the bulwarks is the most difficult part so work slowly as you carve (Figure A-2). After carving, sand the surfaces smooth. If you happen to have or want to buy a powered rotary tool like a Dremel, there are many cutters available to quickly reduce the bulwark thickness.

Option - If you find carving the bulwarks too tedious, cut off the bulwark flush with the deck and build the bulwark with basswood strip or sheet (not included in kit), then add the stanchions. One major advantage of this option, it allows you to cut the scupper slots in the bottom of the bulwark strip prior to installation. Much easier than cutting the slots thru the machine-carved bulwark.

4. Finishing the Machine-Carved Deck

The deck will be planked. All that is needed now is to smooth out the machine-carved deck with a scraper or sandpaper, making sure you have a nice smooth camber and the intersection with the bulwark is clean, ready for the planking.

5. Carving the Inside of the Stern and Cockpit Area

Cockpit sole - For some unknown reason, the machine-carved hull cockpit sole (bottom) has two levels carved. Most likely there was some machine limitation when the metal pattern was made back in 1965. Even the lowest cut level is not deep enough. You will need to carve the cockpit sole down further to match the profile shown on the plan.

Transom and counter - The transom will be a separate laser-cut wood piece. Cut the stern of the machine-carved hull between the bulwarks and down to the counter completely out. This eliminates having an end grain transom that could eventually crack. Carve the counter down to the sole to the shape shown on the plan.

Figure A-3 illustrates the stern and cockpit areas where carving is required. Detailing of the stern area will be covered in Stage B.

FIG. A-3 CARVING STERN & COCKPIT

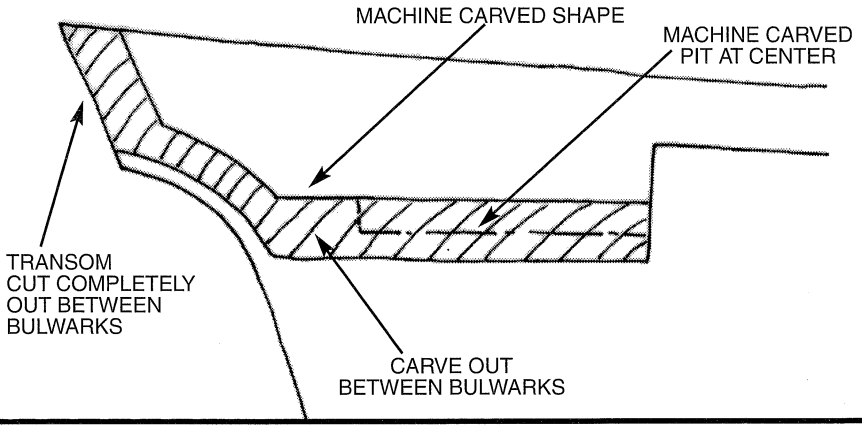


FIG. A-1 MARKING THE HULL

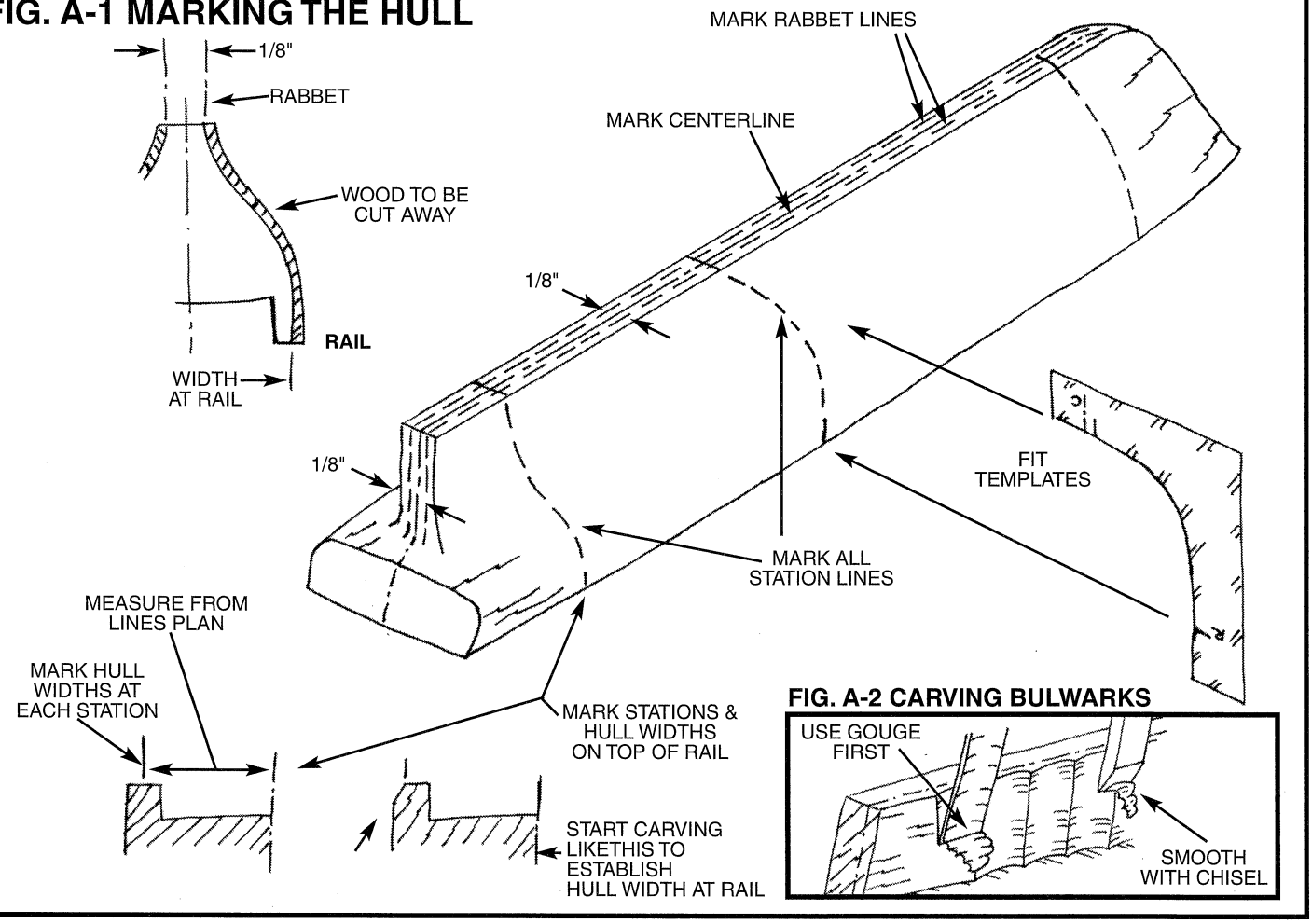


FIG. A-2 CARVING BULWARKS

STAGE B: COMPLETING THE BASIC HULL STRUCTURES

The following paragraphs are numbered in order of a suggested step-by-step procedure, but you are the final judge. Proceed in a way that suits your building methods best, keeping in mind how you will hold the hull while adding the various components, avoiding interferences, and preventing any damage to already assembled units.

Note - Basswood strips are used for a number of components. Narrow strips bend edgewise fairly well. However, when you run into a situation where the strip will not bend to conform to the proper curve, you will need to either steam-bend the strip or cut the part out of wider wood sheet. Several sheets are provided in the kit for this purpose. Also, even some strips need to be cut down a bit. This is especially true of 3/64" thick strips as only limited widths are available.

1. Mast Holes, & Bowsprit Slot

The plan shows the mast heels as they would appear on a real craft, seating at the keel. For our solid hull model, the mast holes should be about 1" deep. Later, cut the mast dowels to fit this depth. Make a guide jig for your drill so you get the correct rake angle aft and have the hole perpendicular to deck looking fore and aft. It would be a good idea to drill the holes a little oversize (say 3/8") and use shims around the masts for fine tuning.

Cut the 1/4" wide x 3/16" slot at the bow for the bowsprit. Pre-fit the strip provided for the bowsprit into the hole to make sure of a good fit.

2. Transom and Cockpit Details

Transom - Before installing the laser-cut transom, cut the slot opening in the counter for the rudder stock. You can now glue the transom to the hull. File or sand the bottom of the transom to the angle, and flush with, the counter. Sand the top edge parallel to the cap rail.

On the plan (body plan view) there appears to be three moulding strips across the back of the transom. One at the bottom of the transom, one above this, and one at the bottom of the counter. The two lower strips are also indicated on the profile view. However, none of the strips are labeled or sized on the plan. Most likely, the lower two are bottom boards for the transom and counter and the upper one just a moulding perhaps for the top of a stern name board. It is suggested you install 1/32" square strips sanded to half-rounds at these locations.

Cockpit - Plank the sole of the cockpit with 1/32" x 3/32" strips. Next, add the stern timbers along the counter and transom. The top of the timbers stop at the underside of the quarter rails that will be installed later. The two center stern timbers have ringbolts on the counter portion for the boom sheet blocks. Good idea to install the ring bolts before installing the timbers.

The benches can be installed now or wait and install along with the companionway. There are a few planks to add at the deck step and it may be easier to fit with the benches out of the way. Also, the bulwark stanchions in the cockpit need to be installed before the benches. The bulwark stanchions go from the cap rail down to the sole of the cockpit. The outboard most bench plank is notched around the stanchions.

Figure B-1 illustrates the transom and cockpit details.

3. Keel, Stem, & Sternpost

The keel, stem, & sternpost are laser-cut parts. Install the parts using pins or dowels to position the parts before gluing. Scrape off any glue squeeze-out. Fill any gaps remaining at the glue joints with wood filler and then sand (Figure B-2).

Note that the plan does not indicate any taper to stem, common on most ships. Most likely, this small ship did not have any taper saving some carving work.

4. Rudder & Tiller

The rudder and tiller are laser-cut parts. Taper the rudder and round the front edge per the plan. The pintles & gudgeons can be made from brass strip or self-adhesive copper tape. Cut the mortise in the post for the tiller, then install the rudder. Cut a tenon at the end of the tiller, file chamfers along the edges, and install the tiller. See Figure B-3 for construction.

The plan indicates a flexible (probably rubber or leather) covering over the rudder post slot and around the post. If you desire this detail a piece of stained cloth could be installed.

5. Deck Planking, Covering Board, & Margin Plank

Plank the deck with 1/32" x 3/32" planks starting at the centerline and working outboard. Don't plank over the mast holes. Carry the planks to the bulwarks. The aft end of the planks end at the edge of the cockpit deck step.

Reminder - Don't forget to darker the edge of each plank to represent the caulking between planks. Refer to the painting section.

Covering board and Margin Plank - Use 3/64" x 3/16" strip for the covering board over the deck planks along the bulwarks. Up forward where there is a lot of curvature, cut the covering boards from sheet stock. Round the inboard top edge of the boards. The margin plank is the same thickness as the covering board and is fitted on top of the planks at the cockpit deck step. Leave a gap in the margin plank where the companionway will be installed.

See Figure B-4 for deck details.

6. Bulwark Stanchions, Cap Rails, Quarter Rails, & Scuppers

Scuppers - If you elected not to add a separate strip for the bulwarks, you now need to cut the scupper slots thru the bulwark. Locate the slots correctly as each slot is centered on a bulwark stanchion inboard. There will be two other stanchions on the bulwark between the slots. The bottom of each slot is flush with the top of the covering board.

There is also a scupper (just a hole) port and starboard at the aft bottom of the cockpit.

Stanchions - Install the bulwark stanchions

FIG. B-1 TRANSOM & COCKPIT DETAILS

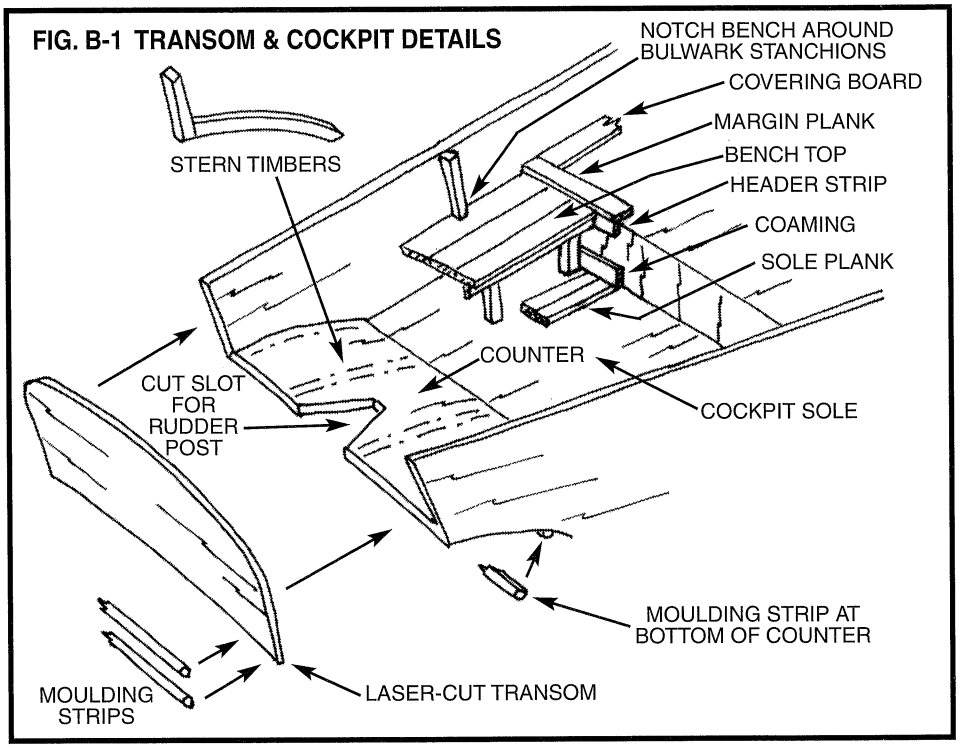


FIG. B-2 KEEL, STEM, & STERNPOST

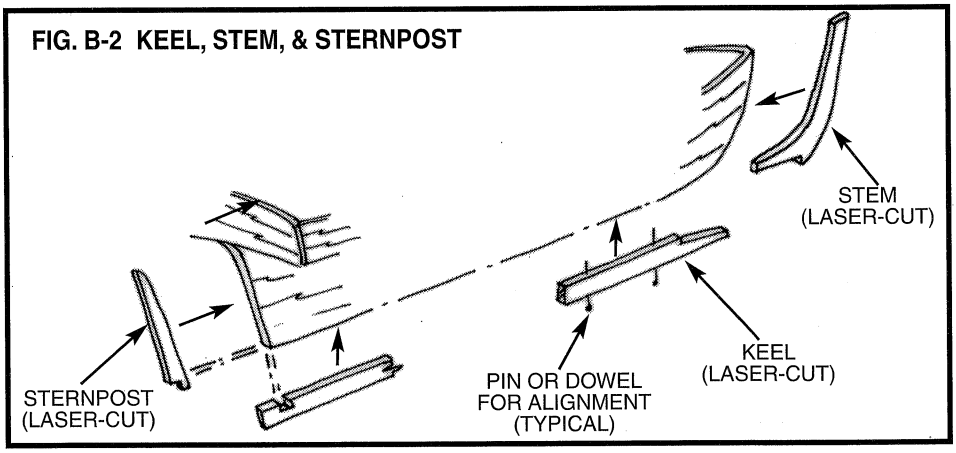
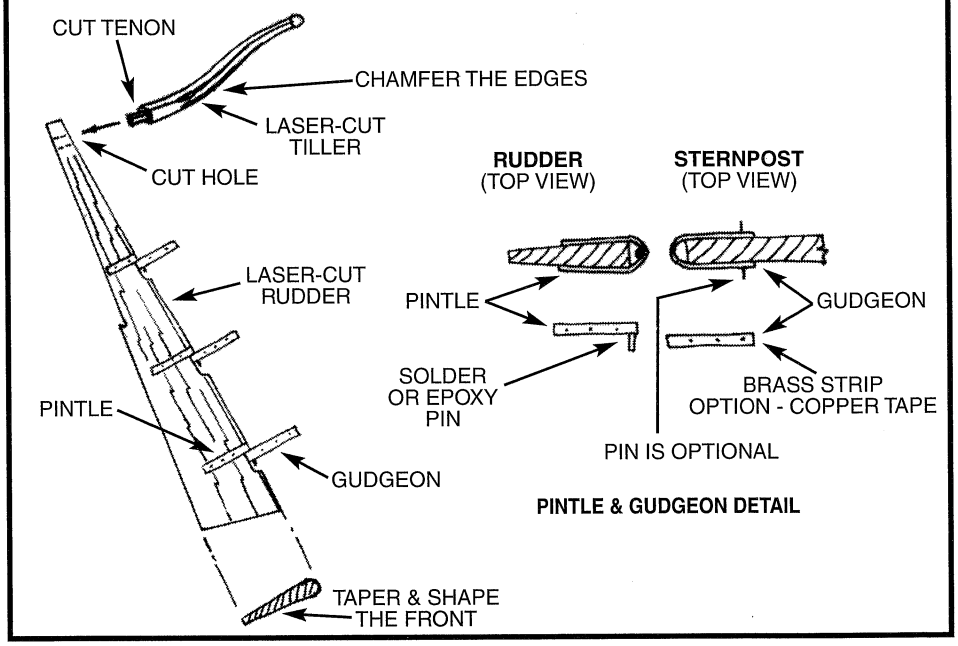


FIG. B-3 RUDDER & TILLER



on the inside of the carved bulwarks on top of the covering board. The stanchions are 1/16" x 3/32", with the 3/32" dimension fore and aft. Sand the top of the stanchions flush with the bulwarks ready for the cap rail.

Cap rails and quarter rails - The cap rail is 3/64" x 5/32", cut from 3/64" x 3/16" stripwood and sheet. Cut the quarter rails from 3/64" sheet wood.

See Figure B-5 for details of the bulwarks.

7. Side Sheer Moulding, Wale, & Hawse Cheeks

Side sheer molding strip - Fit the moulding strips, 3/64" x 3/64" (cut from 3/64" x 1/8"), on both sides of the hull. Round the outboard edges. Keep in mind that the strip is to line up with the covering board on top of the deck plank inboard, and the top edge will be at the bottom of the scupper slots.

Wale - Use 3/64" x 3/16" strips for the wales, except they taper to about 1/8" forward. Locate the top of the wales about 1/8" below the underside of the side sheer moulding.

Hawse cheeks - Fit the hawse cheeks at the bow between the wale and side sheer moulding, then drill the hawse holes.

See Figure B-6 for some details of the above.

FIG. B-4 DECK DETAIL

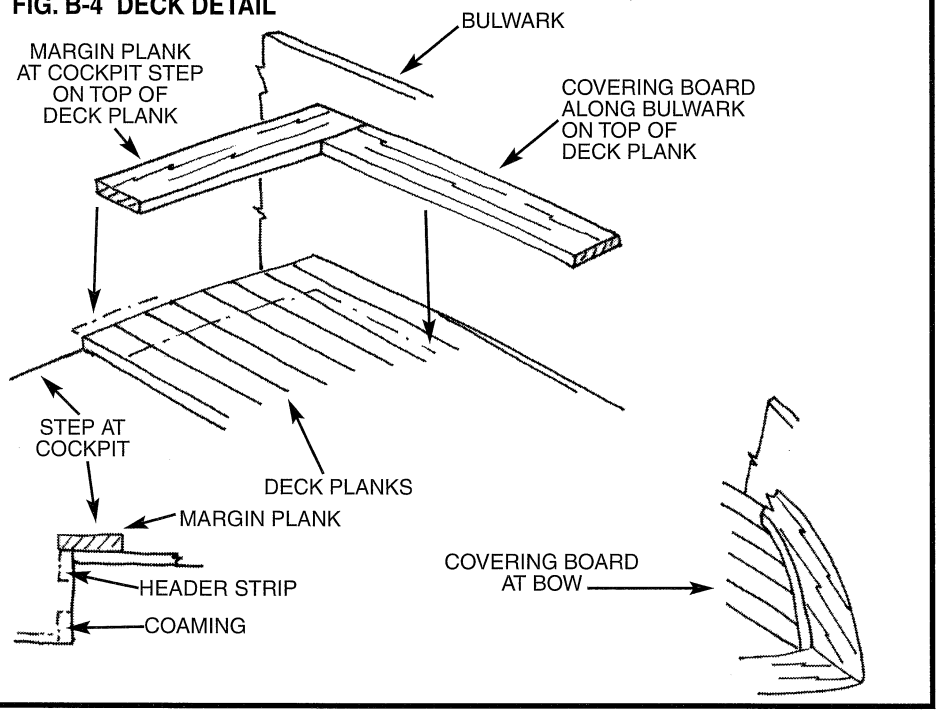


FIG. B-5 BULWARK DETAILS

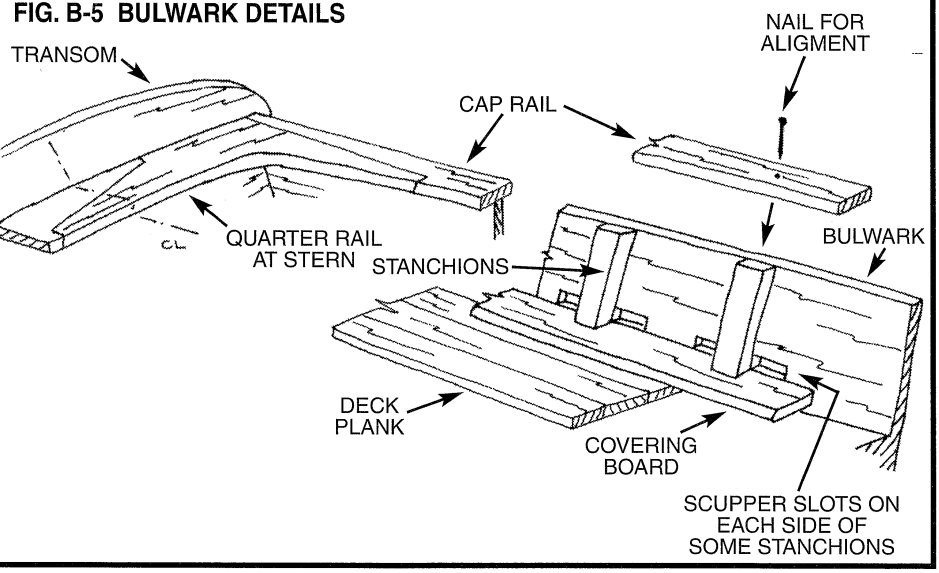
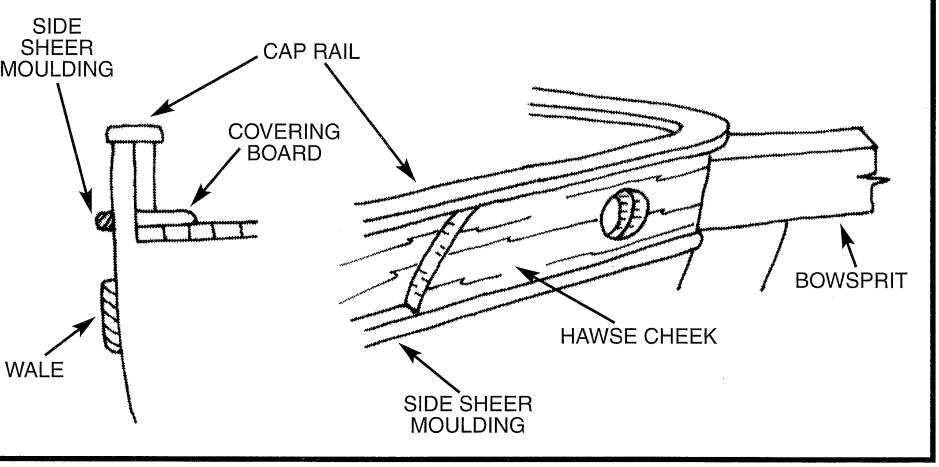


FIG. B-6 SIDE SHEER MOULDING, WALE, & HAWSE CHEEKS



STAGE C: MOUNTING THE HULL

Before proceeding with additional work it is best to mount the hull. This step will help prevent details from becoming damaged during handling and will allow you to make any alignments that require a true waterline. Proper mounting of the hull is very important and will allow the accurate building and aligning of the remainder of the model. The kit does not include any parts for mounting. However, the following mounting is suggested.

Mounting Board with Two Pedestals - A common mounting for ship models is a baseboard with two pedestals. For a homemade board, a nice looking hardwood such as cherry, walnut, and maple would be ideal. You can round the top edges of the baseboard, or cut a simple chamfer. If you own a router, or can borrow one, you will be able to cut a nice fancy edge on the baseboard. Stain the base if necessary and give it a few coats of varnish or finish like Minwax.

The pedestals could be wood or brass. One pedestal needs to be longer than the other because you should have the model mounted with the waterline parallel to the baseboard. If you decide on this type mounting drill pilot holes for the screws thru the keel. For *Katy*, the pedestals should be located near station F and 9. If something went awry and the waterline is not level, you can add a brass shim under one pedestal to correct it.

Baseboards and pedestals are available from Model Shipways web site, www.modelexpo-online.com.

STAGE D: ADDING THE HULL DETAILS

1. General Notes

Don't forget to file off any flash on Britannia metal fittings, clean the fittings and then prime them with grey primer before final paint.

Mark the positions of fittings and structures. Drill holes for the fittings or for locating pins or dowels. Before permanent installation, paint the parts according to the *Katy* color scheme. If wooden parts are not painted prior to installation, at least make sure you have the part sanded and ready for painting in place. Use as little glue as necessary on parts. Watch out for that glue squeeze-out. It's hard to remove if left to harden.

2. Companionway

The companionway is located at the break of the cockpit. The top is a lifting hinged panel rather than a sliding cover that would be found on craft of a later period. The plan does not show the aft side which could be double doors or a lift out panel. See Figure D-1 for model construction details.

3. Skylight

The skylight, like the companionway, is a built-up structure for our model. Actual bars over the glass panels can be represented by brass wire or pins. The glass can be glass or plastic sheet. If clear panels are used, paint the inside of the skylight flat black so you can't see any bare wood from outside. As an option to installing bars, paint or ink black lines on a panel painted light blue. Figure D-2 illustrates the details.

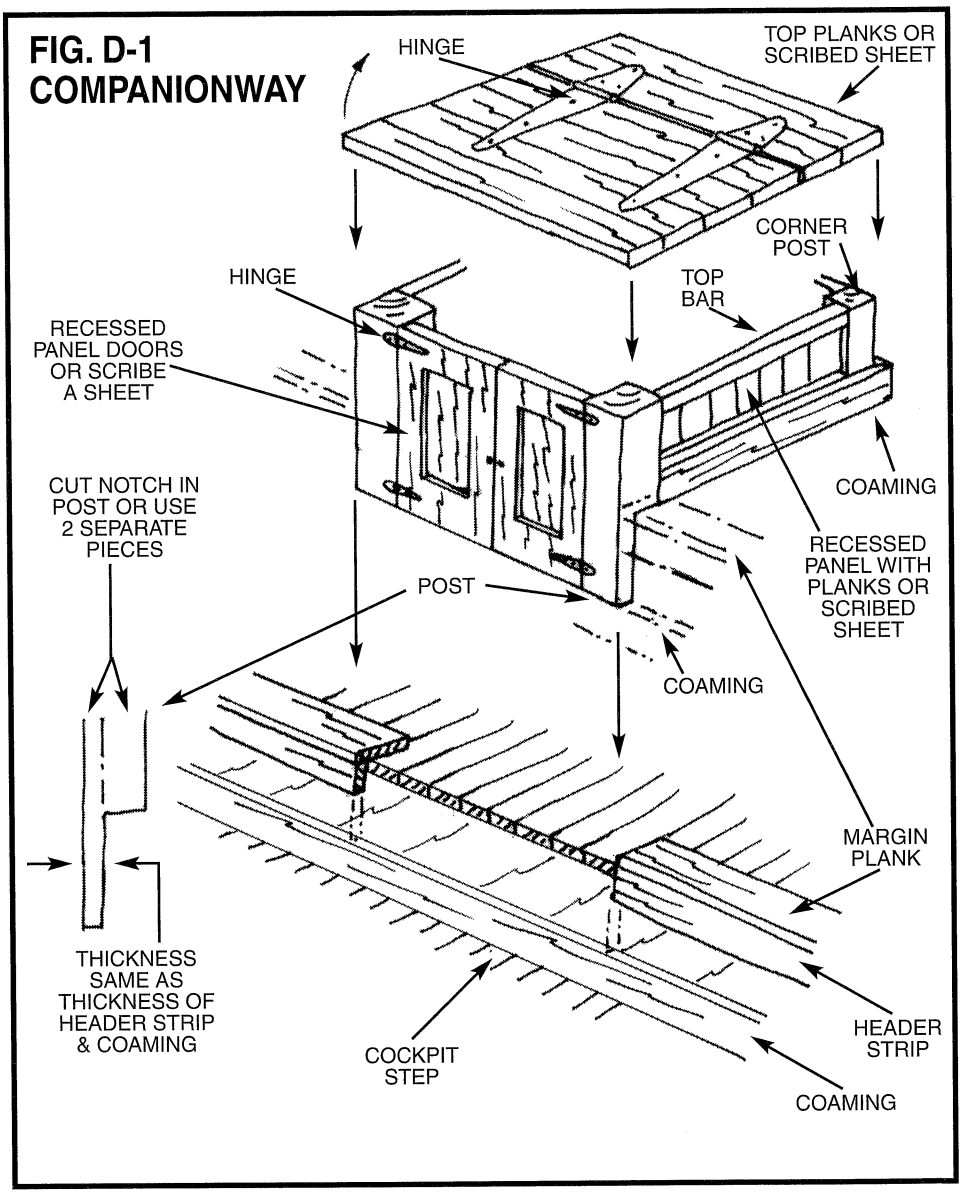
4. Main & Vent Hatch

Earlier solid hull kits of *Katy* featured metal castings for the gratings. For this kit, laser cut wood strips are provided for the gratings. Assemble the coaming, then add the grating (Figure D-3).

5. Cabin Chimney & Galley Stack

These fittings are Britannia castings and include the frame coaming. Just remember the coaming would be wood so paint accordingly. An interesting note - according to Jim Robert's research, the wood coamings were protected from the heat of the iron stacks by dried cow manure packed in the space between the stack and coaming.

FIG. D-1
COMPANIONWAY



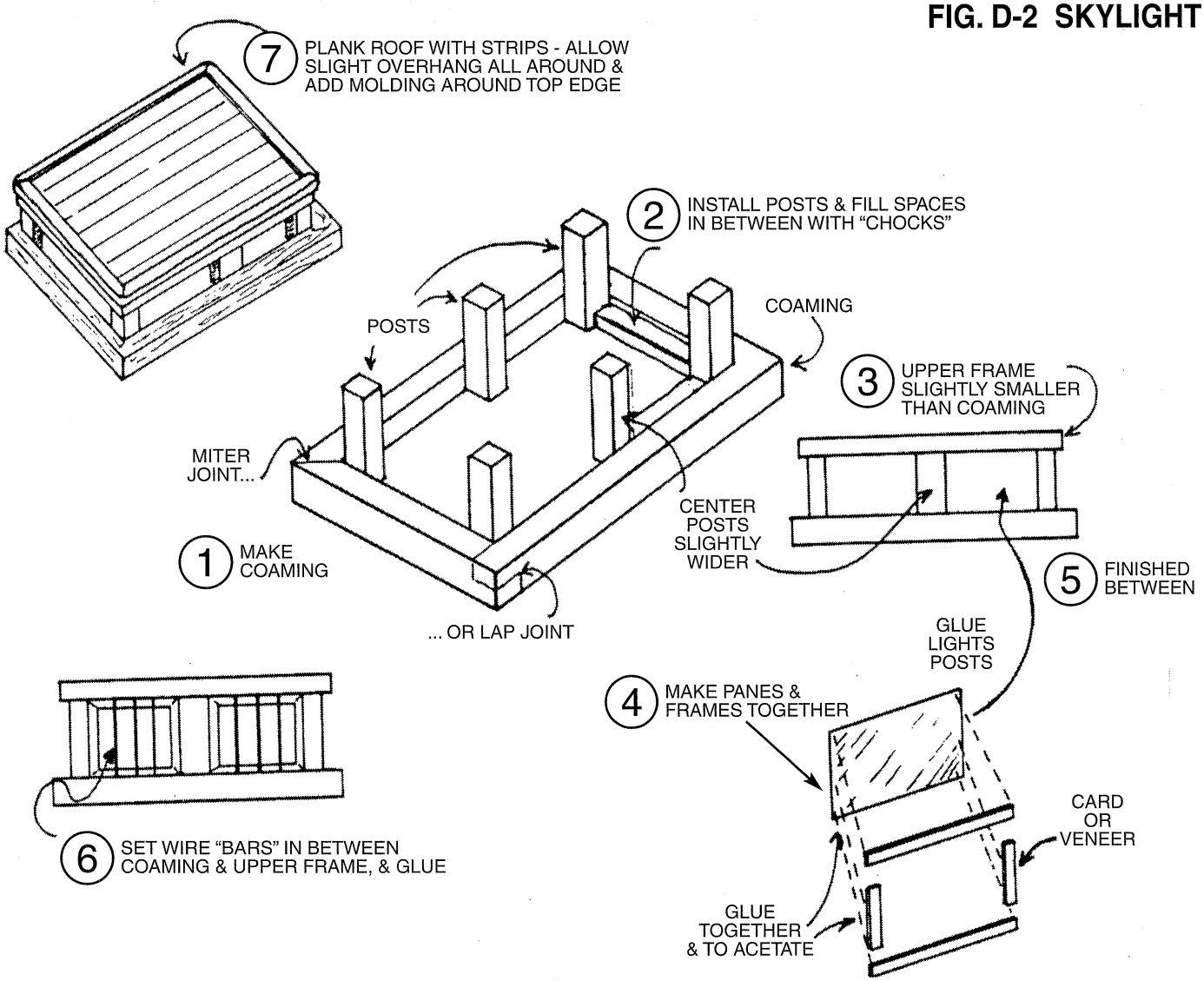
6. Bowsprit Bitts, Cross Bitts, & Cleats

The bitts and cleats are Britannia castings. Install the cross bitts port and starboard. The bowsprit bitt casting includes the knees. You might shape your bowsprit before installing the bitts so you can pre-fit the end between the bitts.

7. Ring Bolts

There are a number of ring bolts on the deck associated with rigging. It would be wise to install these now. Use the kit supplied eyebolts

FIG. D-2 SKYLIGHT



and split rings to form the ring bolts.

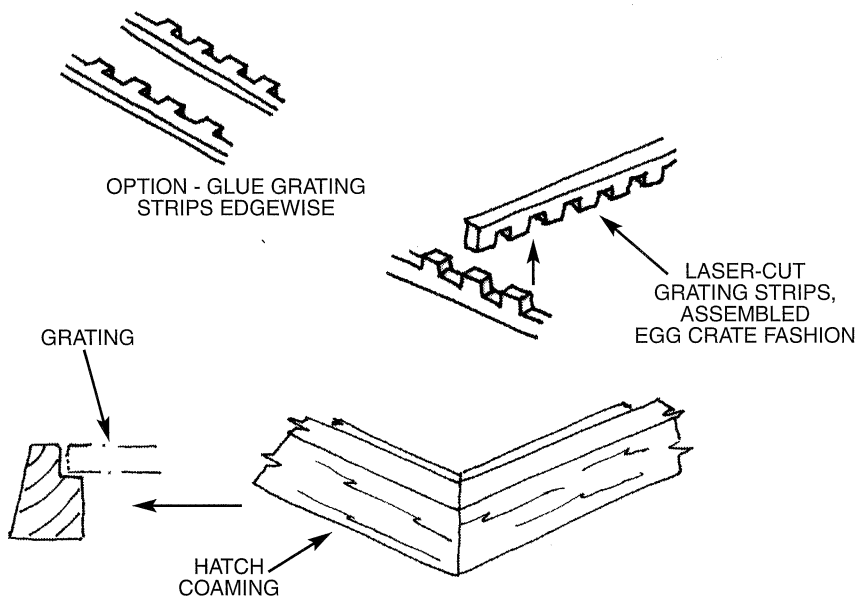
8. Pumps

The pumps, port and starboard, are Britannia castings. Drill holes in the deck and insert the pumps. These are log pumps, so the barrel and possibly the lever would be made of wood, so paint to represent wood.

9. Anchoring

The anchor and anchor stock are both Britannia castings. Paint the stock to represent wood. The plan shows the anchor cable with a messenger tackle attached for hauling in the anchor. The anchor could be fitted either port or starboard. The plan also shows the anchor cable going below thru the grating. You could coil the cable on deck behind the bowsprit bitts as an option. The cable messenger tackle should be considered optional. It may have never been used or would be stowed below when not in use. The plan also notes that two messenger tackles would be used. However, for our kit we are assuming that only one is used as shown on the plan.

FIG. D-3 HATCH DETAILS



STAGE E: GENERAL MASTING & RIGGING INFORMATION

1. Rigging Identification

All of the rigging is identified by name on the plan. If you are not familiar with the names and functions of rigging lines, the book *How to Build First-Rate Ship Models From Kits* by Ben Lankford contains a description of Nautical terms (See Bibliography).

2. Block, Deadeye, Bullseye, and Line Sizes

The sizes for the blocks, deadeyes, bullseyes, and rigging line are given on the plan but are in full ship sizes (line sizes are in line circumference). The list to follow identifies the kit supplied sizes (to nearest available size) to use for the various rigs. Block sizes are given in length inches. Bullseye, Deadeye, and Rigging Line sizes are in diameter inches. "S" indicates single sheave blocks, and "D" are double blocks.

Standing Rigging (Black Lines)

Refer to Stage G for a discussion on standing rigging. Only shrouds are required and even these are optional.

Fore & main shrouds	0.028"	16-9/64" Deadeyes
Deadeye lanyards	0.012"	

Running Rigging (Tan Lines except where noted)

Jib

Sheets	0.018"	4-5/32" S
Halliard	0.012"	2-5/32" S
Downhaul	0.012"	1-1/8" S
Traveller inhaul	0.012"	
Traveller outhaul	0.018"	

Foresail

Tack	0.008"	
Sheets	0.018"	4-3/16" S
Gaff peak halliard	0.018"	1-3/16" S, 1-3/16" D, 1-5/32" S
Gaff throat halliard	0.018"	2-3/16" S, 1-5/32" S
Tricing line	0.012"	2-1/8" S

Main Topmast Staysail

Lower tack	0.012"	
Upper tack	0.018"	1-9/64" Bullseye
Halliard	0.018"	2-5/32" S
Downhaul	0.008"	1-3/32" S
Sheets	0.018"	

Mainsail

Tack	0.012"	
Gaff peak halliard	0.018"	1-3/16" S, 1-3/16" D, 1-5/32" S
Gaff throat halliard	0.018"	2-3/16" S, 1-5/32" S
Tricing line	0.012"	2-1/8" S
Boom sheet	0.018"	1-3/16" D, 3-3/16" S
Clew outhaul	0.018"	
Clew outhaul purchase	0.012"	1-1/8" S, 1-1/8" D
Reef tackle	0.012"	2-1/8" S
Boom topping lift pendant	0.028"	Black Line
Boom topping lift tackle	0.012"	2-5/32" S
Boom topping lift purchase	0.012"	1-1/8" S, 1-1/8" D

Flag Halliard 0.008" 1-3/32" S

Miscellaneous Rigging (Tan Lines)

Anchor cable	0.040"	
Anchor cable messenger tackle	0.018"	2-1/4" D

3. Sails and Sail Lines

Models with Sails

The plans for this model include a full open set of sails, but you have the option of building the model with sails furled, partially furled, or with no sails. Most of the rigging text and detail sketches provided in the instructions will be addressing the model without sails.

The following provides some typical model procedures if you prefer to add sails. The discussion and figures are general in nature and include yard sails not applicable to *Katy*. However, the procedures are basically the same for any type of sail. Follow the plans for the specifics on each sail.

Making a model sail (Figure E-1) - Choosing the proper material is critical. Sailcloth for models must be lightweight, yet fairly opaque. Although linen is ideal, most is too heavy for small scale models, so select tightly woven cotton fabric. Wash the sailcloth several times to pre-shrink it. When dry, iron the fabric, but be careful not to scorch it. Lightly pencil in seams, tabling (hem) lines, and other reinforcements, then sew the seams using light tan cotton thread. A sewing machine makes fast work of the project. Practice on scrap fabric and balance the needle thread tension so it doesn't pucker the material. Stitch lines to represent reinforcement patches.

Before proceeding, iron the sails again and be careful not to scorch them. Next, cut the sail shape using Line A shown in the sketch. Fold the hem, iron it flat, and sew as close to Line B as possible. Tuck the ends and hand stitch the comers. The sail is now ready for stretching.

Stretching the material assures the sail's proper shape, since sewing may have altered it. Using the original pattern, trace the sail's outline onto a piece of paper. Place the paper on a solid but porous backing, such as a wood or cork board. Now wash the sail again and lay it over the outline. Stretch the wet material to the sail's outline's, then secure with stick pins through its outer edges. When dry, the sail will have resumed its proper shape. Iron it one more time.

Boltropes and Reef Points (Figure E-2) - Although boltropes (rope sewed to the edge of a sail to give it strength and prevent the fabric from ripping) can be omitted on small scale models, they add immeasurably to larger ones. The sketch shows the correct way to sew boltropes and install reef points.

Sewing Aids - Visit a fabric shop and purchase a squeeze bottle of Fray-Chek, a light adhesive. Running or brushing a bead along the edge of a sail prevents the material from unraveling. Do this before attempting to roll the hem. Painting Fray-Chek on untreated fabric makes cutting easier and produces a crisp edge.

Stitch-Witchery and Wonder-Under are heat-fusing bonding tapes that resemble thin mat fiberglass. Stitch-Witchery comes in a roll and is bond-sensitive on both sides. To join two clothes, simply place a strip between them and iron. Wonder-Under comes in sheets with a thin paper backing on one side. It is useful for bonding letters and numbers to a scale sail. First, buy the colored fabric for the numbers. Place the Wonder-Under sheet on the cloth with the paper backing up. Iron the sheet to bond it to the fabric. Next, cut out the letters, numbers, logo, or whatever with scissors or a sharp blade. Peel off the paper backing, position the letter on the sail, and iron. This technique also works for making flags from colored fabric.

Material for Furling Sails - A sail cut to the original's scale size is impossible to furl. The fabric is usually too heavy, resulting in a bulky furled sail. To solve this problem, either buy a lighter material such as Silkspan (model airplane covering tissue) or proportionally reduce the size of a sail by one-third when using sailcloth (Figure E-3). Depending on their size, even Silkspan sails may require reducing by one-third. Test the percentage reduction to determine how much fabric is needed for a tight furl. Don't forget to add some seams and hems, for these details are visible even on furled sails.

Furled and Partially Furled Sails (Figure E-4) - Sails are often left partially furled, perhaps for drying the sail. This is a practice especially suited to square sails, with the sail pulled up with their clew lines and bunt lines. The sketch illustrates some "looks" of furled and partially furled sails.

Note: Model Shipways has silkspan and a balooner cotton sail cloth. Check their web site: www.modelexpo-online.com.

Model without sails

Even without sails, some of the rigging lines such as sheets, halliards, downhauls, and clew lines could remain, along with their lead blocks. Some of the lines are to be hooked together, such as jib halliards and sheets, and yard clew lines and sheets. The hauling ends of these lines should be belayed at their proper locations. Installing these sail rigging lines on the model adds tremendously to the look of the model, especially at the stays where a contrasting black stay and light running lines, along with their blocks, create interesting visual detail.

4. Applying Beeswax to the Lines

Before placing rigging lines on the model, run the line through a block of beeswax several times. Then, run the line through your fingers. This heats the wax slightly and rubs it into the line. The beeswax will cut down on fuzz and protect the line from moisture.

5. Seizing Rigging Lines

Seizing of lines (binding or securing two lines or different parts of the same line) can be done as shown in Figure E-5. To prevent seizings from unraveling, add a touch of CA glue. For seizings, use the smallest line in the kit or sewing thread.

6. Fittings & Block Strops

Making Fittings - Most of these fittings on the model must be made from scratch unless a casting is provided. Brass is a preferred material for these fittings, which may or may not require soldering, but there are other options that can be considered. Figure E-6 illustrates some rigging bands found around such items as masts, booms, gaffs, and bowsprit. The methods can be applied to any similar fitting.

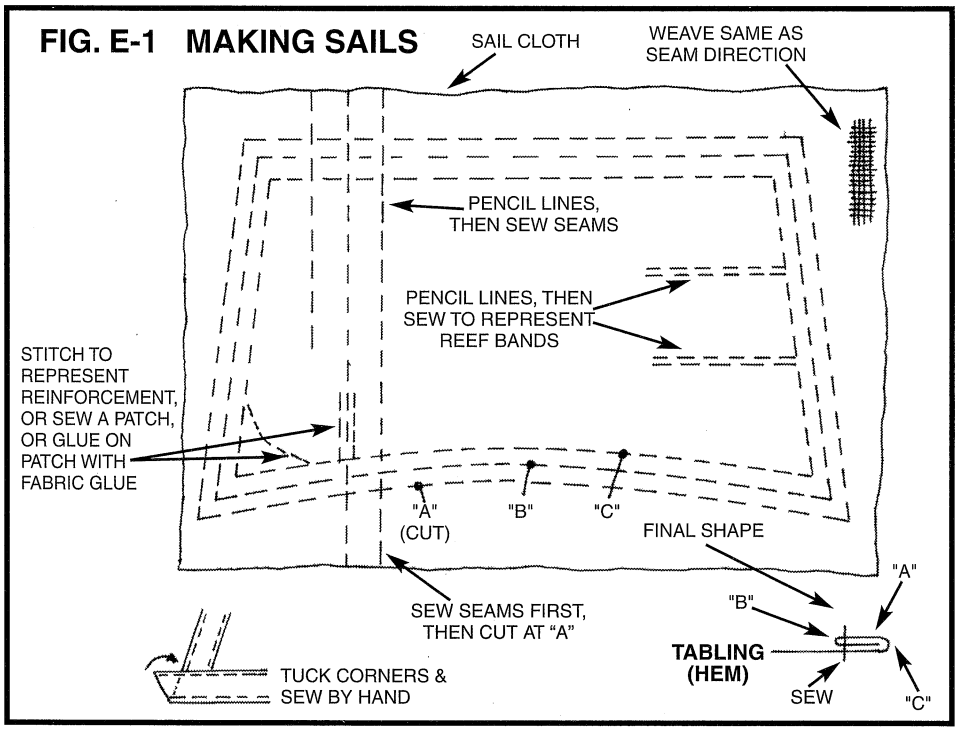
Note that brass strip, self-adhesive copper tape, and eyebolts are provided in the kit. Sufficient quantities are supplied no matter which method you choose for your fittings.

Block Strops - A strop is an iron or rope band or grommet around the shell of a block for attaching lines. The blocks in the kit are fairly small so it will not be easy for you to create the exact detailing. Some modeling shortcuts are in order. See Figure E-7 for some life-size ship details and model options. For *Katy*, rope stropped blocks are correct for the period, but for the model you could use the wire provided for the strops. Much easier to strop and secure to fittings.

7. Rigging Tools & Belaying Lines

To aid the rigging process homemade tools can be made from brass rod with a push fork end or a hook end (Figure E-8). Use a brass rod long enough to reach in where your hand cannot. Such tools are also available commercially.

When belaying lines on small scale models it is best to secure the line to pins or cleats first. Then add a coil of line on the belaying point separately. See Figure E-9.When rigging such items as yards, booms and gaffs, do as much rigging as possible with the item in hand before installing the part on the model. Seize the lines to the part and have enough running rigging line so it can reach to its final destination, such as a belaying pin, with a little line left. Better to be too long than too short. Standing rigging such as yard footropes are included as these would be very difficult to do with the spar hanging at the mast.



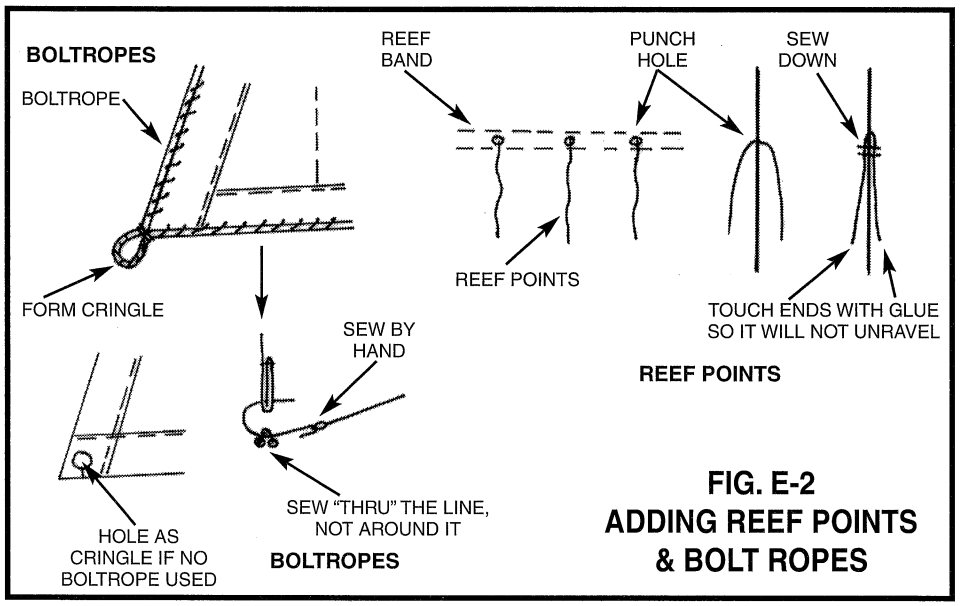


FIG. E-3 SAIL SHAPES FOR FURLING

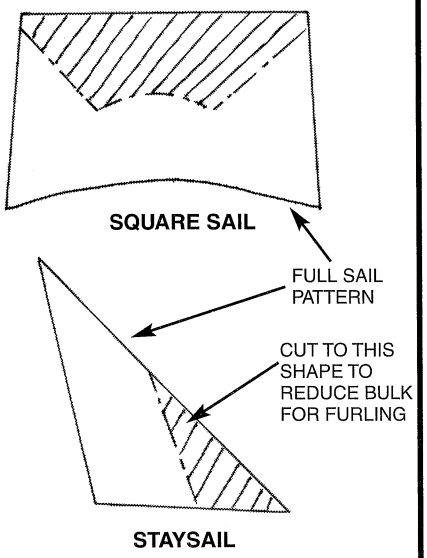


FIG. E-4 FURLED & PARTIALLY FURLED SAILS

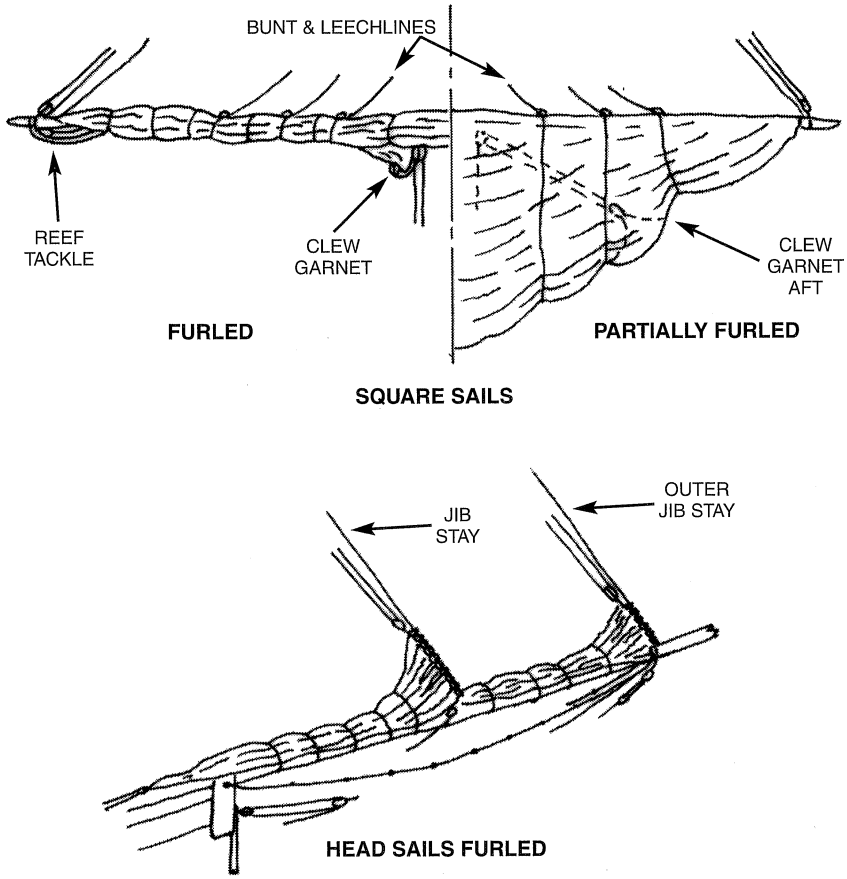
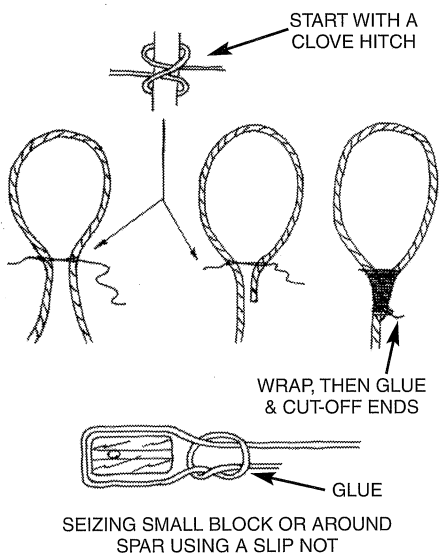


FIG. E-5 SEIZINGS



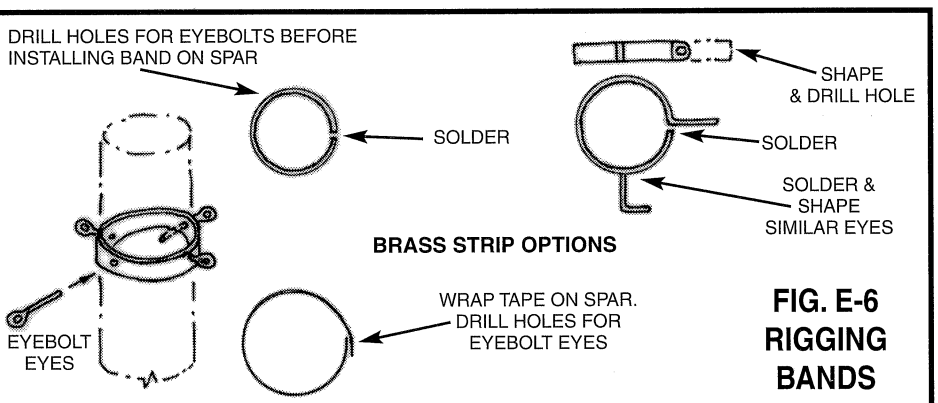


FIG. E-6 RIGGING BANDS

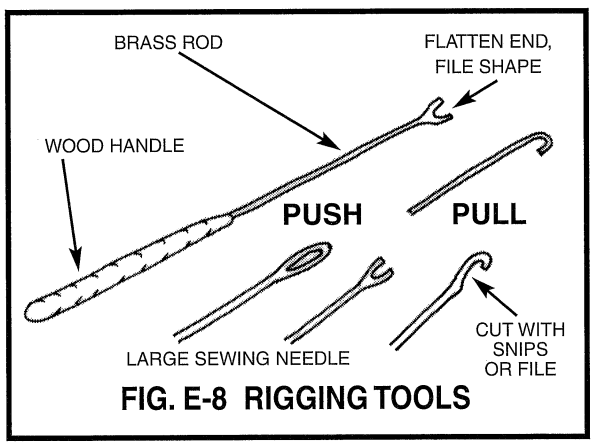


FIG. E-8 RIGGING TOOLS

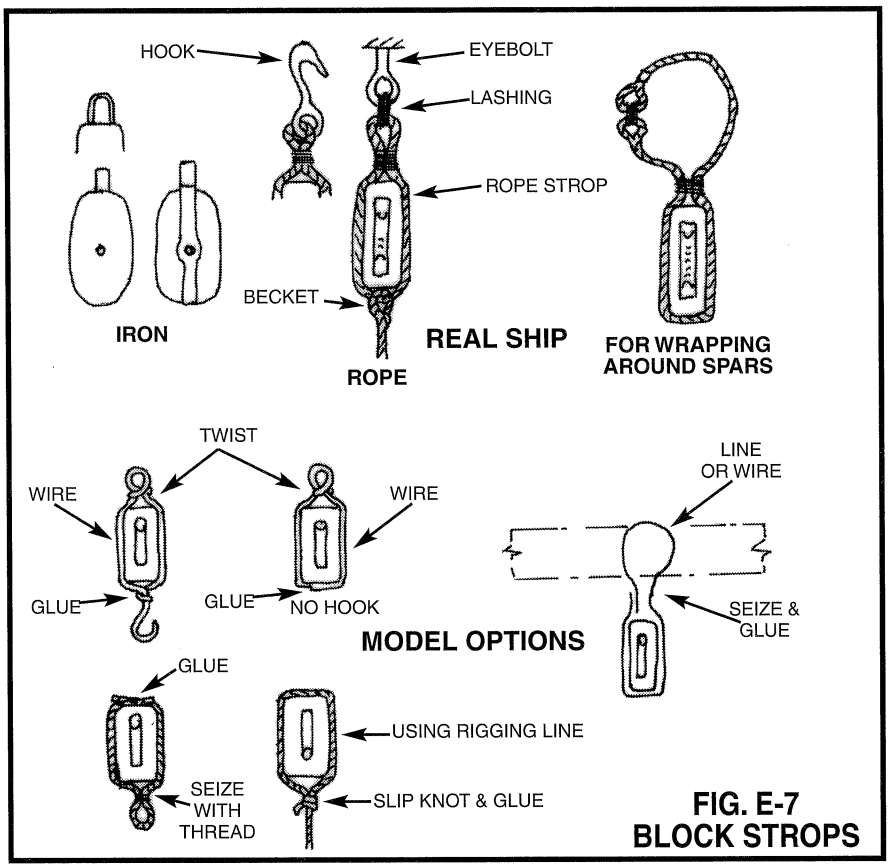
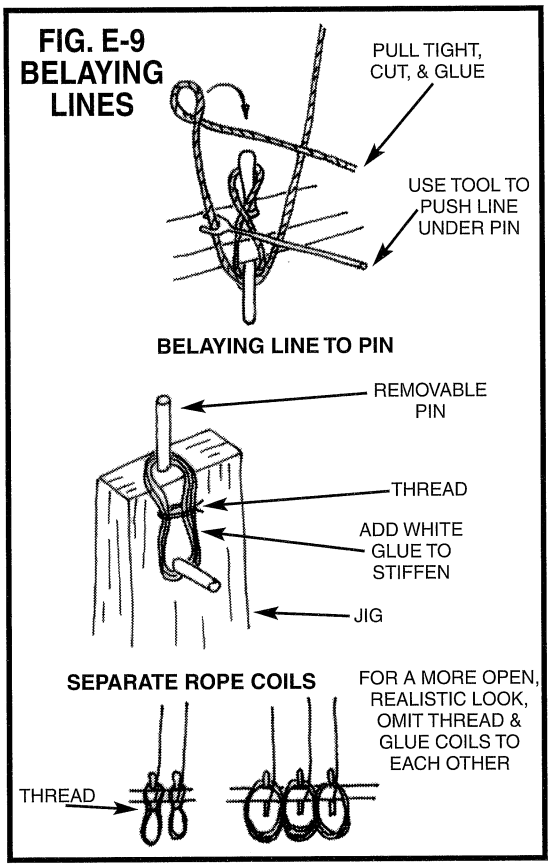


FIG. E-7
BLOCK STROPS



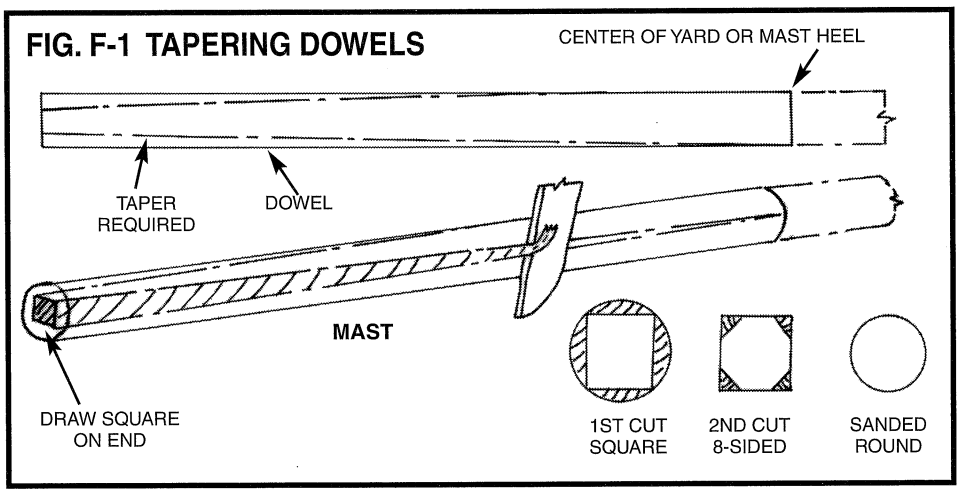
STAGE F: MAST & SPAR CONSTRUCTION

Most references call a mast a mast, and anything else such as a boom, yard, gaff, and bowsprit a spar. Let's stick with that definition.

1. Tapering the Masts and Spars

Except for the bowsprit, the mast and spar dowels included in the kit are round. True to scale, masts and spars must be tapered for their full length.

The correct shape of the masts and spars are shown on the plans. Each of the mast and spars are generally tapered in a slight (parabolic) curve. However, for models, it may be difficult to accomplish a parabolic shape. A straight line taper should be sufficient. The best way to taper masts and spars from dowels is to cut the taper into squares, then octagons, and finish by sanding into a round shape (Figure F-1).



2. Shaping the Mastheads & Heels

The mainmast extends as a single mast above the main gaff to support the staysail and the flag halliard. The plan also shows an alternate mainmast which has a separate topmast secured to a shortened mainmast by iron cap rings. The single mast is a simpler solution and recommended for this model, and was selected for our prototype model shown on the cover.

At the top of the single mainmast, or the alternate topmast, there is a pole which steps down (a rigging stop). A rigging stop is simply a shoulder formed by the reduction of the mast diameter going above. The shoulder for this model prevents the staysail halliard block strop from sliding down the mast. There could be a similar shoulder where the flag halliard block is seized but the plan does not indicate any shoulder at this point. For the model, the pole is getting rather thin at the step. To actually cut this particular shoulder could weaken the mast and it could break. Instead, as an option, wrap the mast with thread or the self-adhesive copper tape and glue to form a fake shoulder (Figure F-2).

The alternate mainmast has a shoulder where it is assumed the lower iron cap ring is fitted. The detail of the alternate stepped masthead is confusing regarding where optional

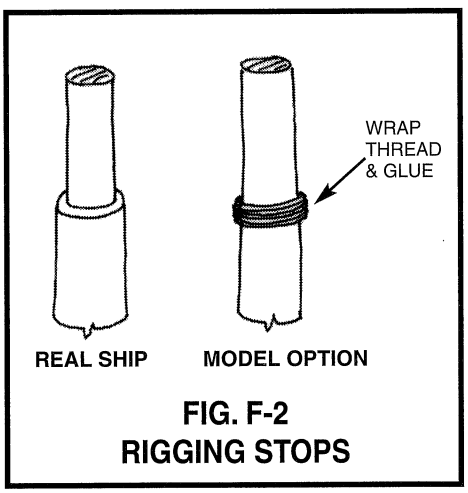
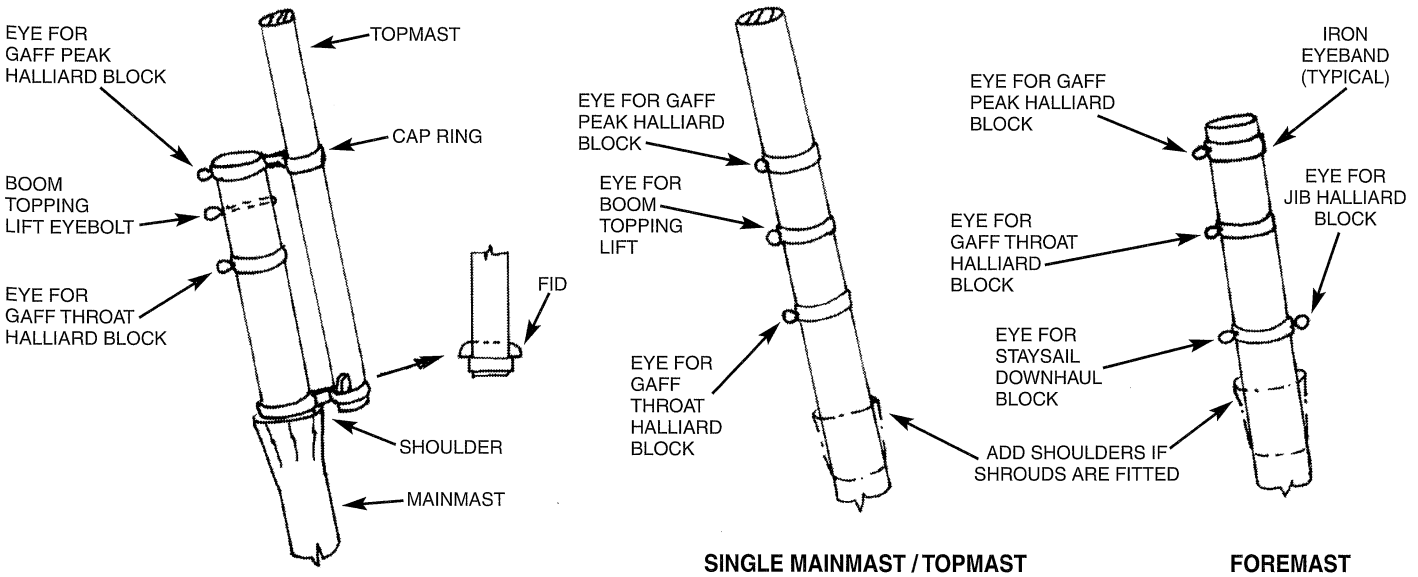


FIG. F-2
RIGGING STOPS

FIG. F-4 MAST DETAILS



shrouds would be fitted. The detail shows a rope grommet around the mast apparently to act as a stop for the optional shrouds if fitted. However, it would seem more appropriate to fit the shrouds at the lower iron cap band on top of the mast shoulder.

The alternate main topmast has a round heel but you need a fid slot and a fid to prevent the mast sliding down thru the iron cap ring.

For the foremast and single mainmast, a shoulder is required on the foremast and the single mainmast if you intend to install the optional shrouds. The plan of the masts marks the locations of the shoulders. Figure F-3 illustrates the addition of the mast shoulders.

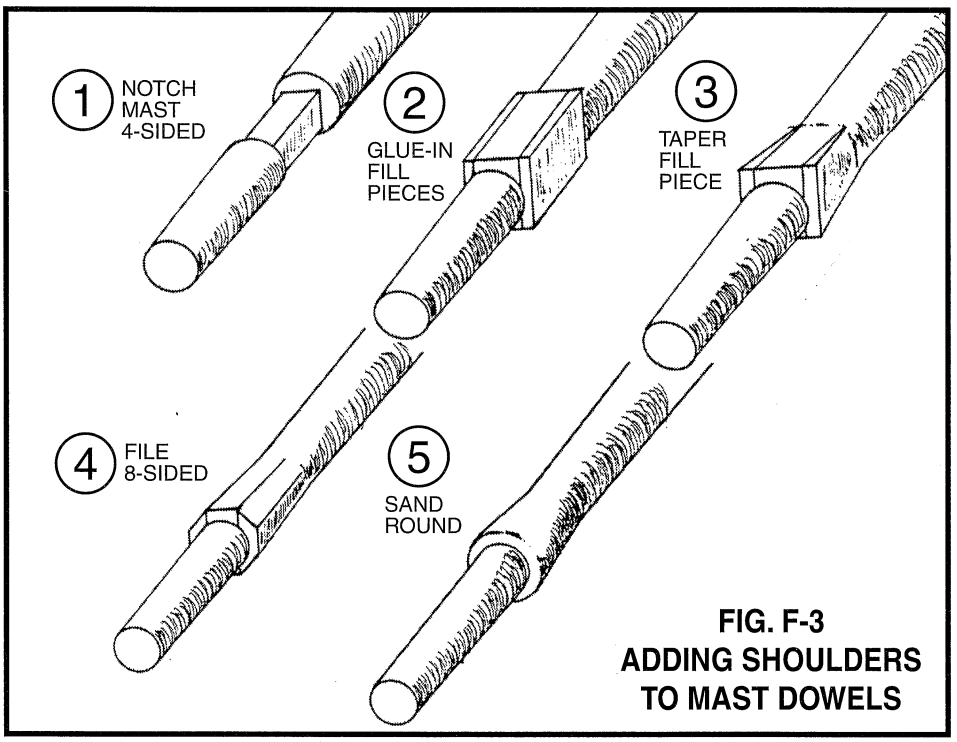


FIG. F-3 ADDING SHOULDERS TO MAST DOWELS

3. Detailing the Masts

Before painting and staining the masts there are a few details to add. The mainmast has a rest for the boom. This is a casting provided in the kit. Slide and glue the casting onto the mast. Add the cleats on the foremast near the deck. Add the throat and peak halliard bands, and any eyebolts required for rigging. Figure F-4 illustrates some assembled mast details.

Foresail and Mainsail Mast Hoops - The hoops are laser-cut and would be on the masts with or without sails. The hoops for the foremast are smaller than the ones for the mainmast, as indicated on the plan. This is probably because the mainmast has more rake aft than the foremast and the hoops could jamb if to small. Make sure you put the hoops on the mast before any interferences are fitted.

4. Shaping & Detailing the Spars

Boom & Gaffs

The boom and gaffs also taper, but the maximum diameter of each spar should be about one-third from its fore end. Add all the fittings like the boom sheet chocks, gaff halliard block strop chocks, and any cleats.

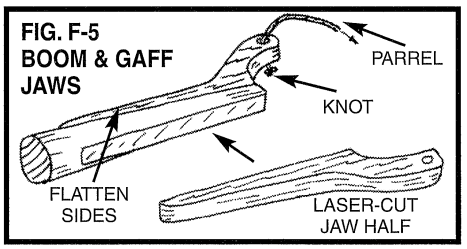
The boom and gaffs also require that jaws be added to their throats for joining to the masts. The jaws are laser-cut wood parts (Figure F-5).

Bowsprit

The bowsprit is rectangular inboard, changing to round outboard. A 1/4" wide x 3/16" basswood strip is provided for this spar.

5. Installing the Mast Assemblies

Install the mast assemblies in the holes drilled into the deck. Check the alignment and shim as necessary, then add the mast coats. The mast coats are actually canvas covers over the wedges on a real ship holding the masts in place. For the model, mast coat halves are laser-cut parts. Shape and add these at the deck around the masts.



STAGE G: STANDING RIGGING

Standing rigging was generally set up in a semi-permanent fashion on this type of craft. Most often there was no standing rigging at all. The jib for example was left flying and not secured to a jib stay. However, the plan shows shrouds for the fore and main masts as a standing rigging option. Our prototype model shown on the cover was built without the shrouds. This is recommended to simplify the rigging.

If the shrouds are fitted you need to add channels for the chain plates along the hull and add the shoulders at the mast heads as noted earlier. Place a pair of shrouds at each mast. The forward most shroud in each pair should be about in line with the front of the mast, and the aft shroud in the pair about 7/8" aft of the forward shroud. Figure G-1 shows a recommended layout.

The shrouds are set up with deadeyes and lanyards at the channels and attached along the outside of the ship using chain plates. The deadeye strop/chain plates are fittings provided in the kit, but there are some other model options you can consider. For the period, Option 1 with the flat bar is most likely similar to the type used on the real craft (Figure G-2).

To set up the shrouds, make a temporary jig of wire to space the deadeyes as you do the seizings (Figure G-3). The sketch also shows the sequence for reeving the lanyards and the proper sequence for the shrouds going around the mastheads. Keep an eye on the masts as you rig the shrouds, so you will not pull them out of line.

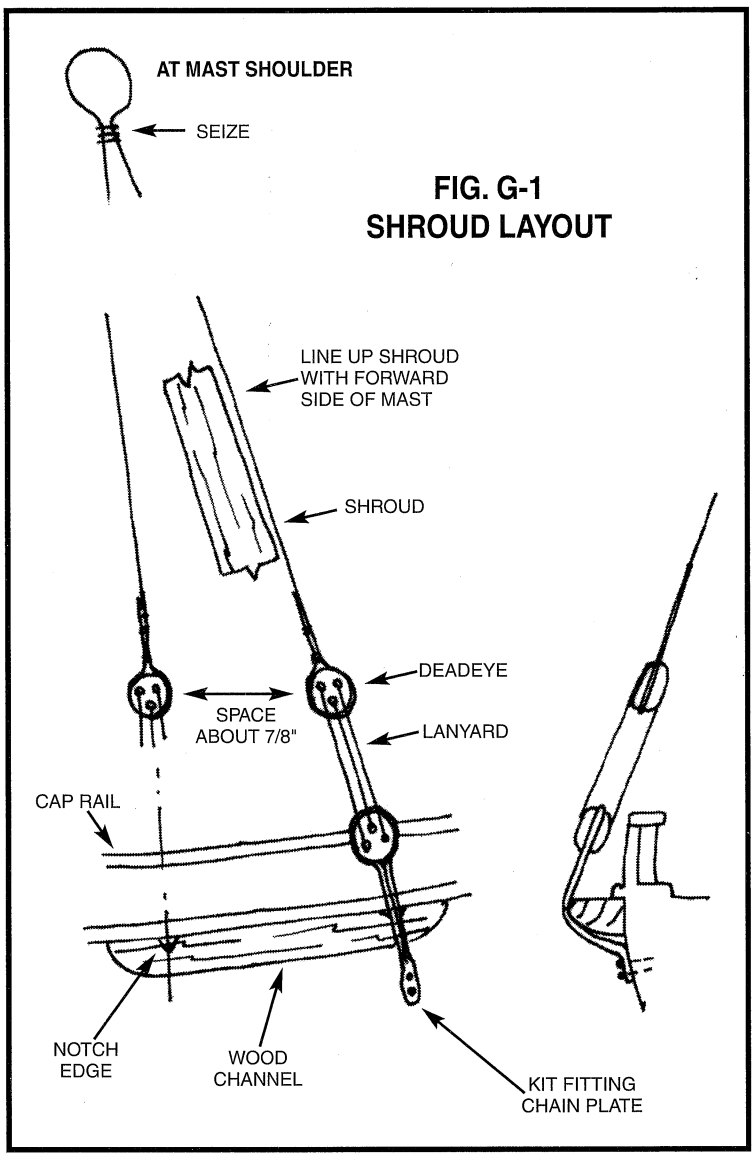


FIG. G-1
SHROUD LAYOUT

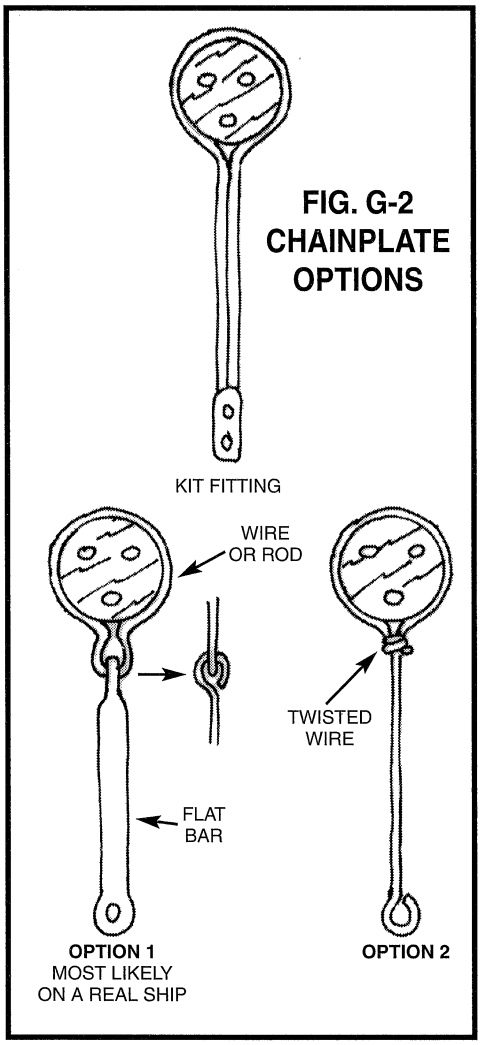


FIG. G-2
CHAINPLATE OPTIONS

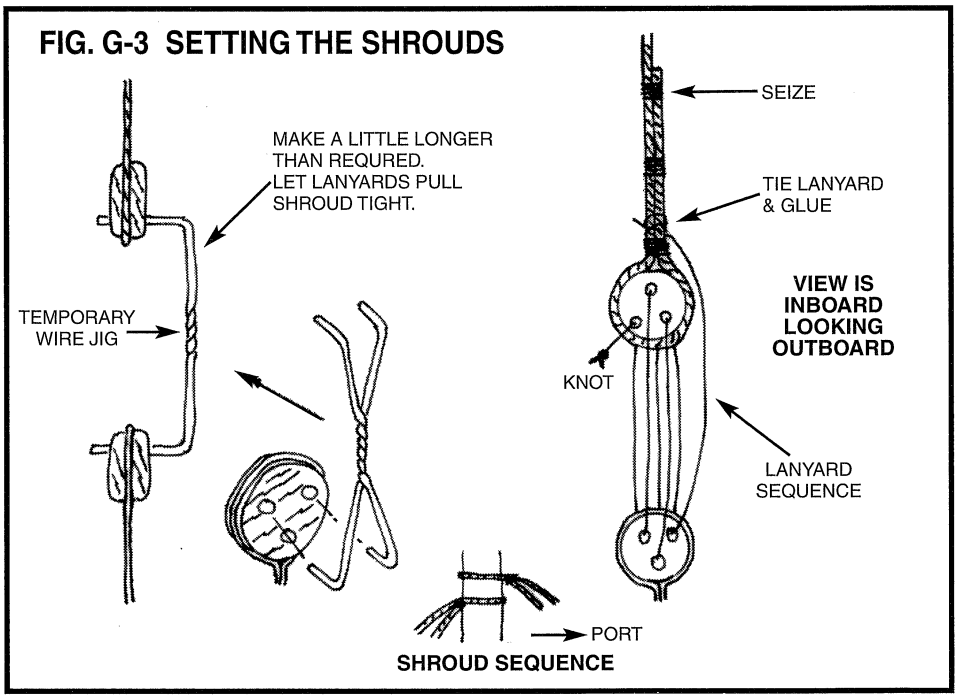


FIG. G-3 SETTING THE SHROUDS

Before starting on the running rigging, have all your blocks stropped and/or seized to a line as much as possible.

Note that all that all the rigging names have a circled number by the name on the plan. The same circled number will also be found at a bitt, cleat, or belaying pin to identify the belaying location.

1. Jib

The jib has a tack, inhaul, outhaul, halliard, downhaul, and port and starboard sheets.

Inhaul and outhaul - There is a traveller ring over the bowsprit with a hook on top of the ring. The outhaul is seized to the ring, passes thru a hole (sheave hole) in the bowsprit, then thru a starboard hole next to the hawse hole in the bulwark and belays to the starboard cleat on side of bowsprit. The inhaul goes from the ring, thru the port hole in bow and belays to the port cleat on side of bowsprit.

Tack - This is a short line attaching the tack (forward corner) of the sail to the hook on the inhaul-outhaul traveller ring around the bowsprit.

Halliard - The upper halliard block has a becket for the standing end of the line. the block is hooked to an eye of a foremast head band. The lower block is hooked or hitched to the head of the sail. The hauling end of the halliard goes down and is belayed to the cleat on forward side of the foremast

Downhaul - The downhaul also hooks or is hitched to the head of the sail, proceeds down and thru a block secured to the traveller ring, then aft across the bow and is belayed to the cleat on top of the bowsprit.

Sheets - The sheets are detailed on the plan. The lower blocks hook to the ringbolts port and starboard near the bulwarks forward of the cross bitts and the hauling ends are belayed to the bitts.

Model without sails - Install all the lines except the sheets which are assumed to be removed along with the sail. Hook or tie the halliard and downhaul together, and bring the halliard block down to just above the bowsprit. Figure H-1 illustrates the jib rig without sails.

FIG. H-1 JIB RIG

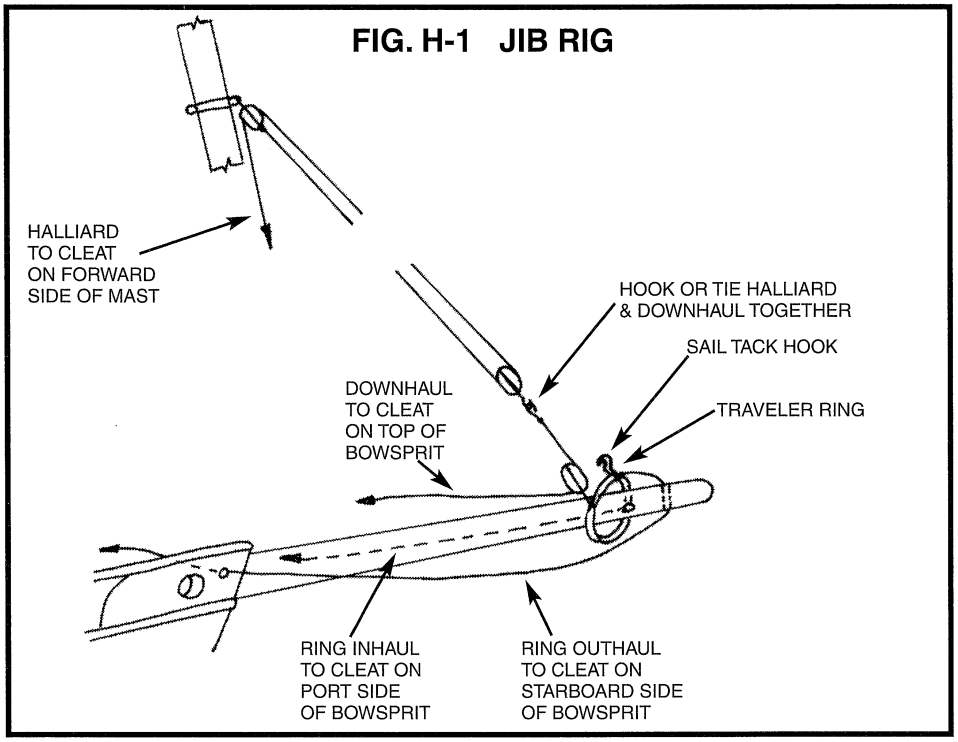
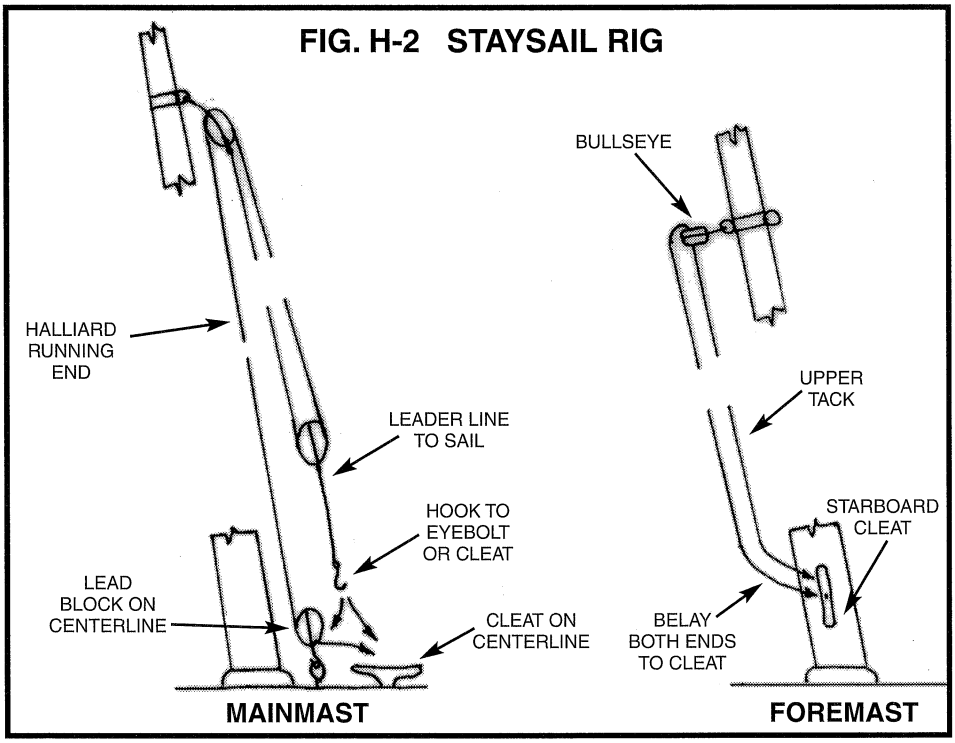


FIG. H-2 STAYSAIL RIG



2. Staysail

The staysail has a lower and upper tack, halliard, downhaul, and port and starboard sheets.

Lower tack - The lower tack is eyespliced to the tack cringle (lower forward corner). The line goes directly to the port cleat on the foremast and belays.

Upper tack - The upper tack is eyespliced to the throat cringle (upper forward corner). It passes thru a bullseye that is hooked to the aft side of the foremast eyeband (same band as used for the jub halliard block). The line then proceeds down to the starboard cleat on the foremast and belays.

Halliard - The upper halliard block has a becket for the standing end of the halliard line. The block is stropped around the mainmast pole rigging stop. The line passes thru a block at the peak of the sail (upper aft corner), back thru the block on the mast then down to a fairlead block hooked to the ringbolt on deck just forward of the mainmast. The line goes thru the lead block and is belayed to the cleat on deck forward of the block.

Downhaul - The downhaul is hooked or hitched to the sail peak, then thru a bullseye that is secured to the throat of the sail, then proceeds down and belays to the port cleat on the foremast. Note this is same cleat used for the lower tack.

Sheets - The sheets, port and starboard, have no blocks. Lines are eyespliced to the clew of

the sail (lower aft corner) and belay to the outboard belaying pins in the quarter rail at the stern.

Model without sails - Without the sail, the sheets and lower tack would be removed along with the sail. Also, since the downhaul passes thru a bullseye on the sail itself, it would also be removed. The only lines remaining are the halliard and upper tack. These need to be in place so the sail could be replaced and hoisted in position.

For the upper tack, pull the standing end that would be attached to the sail down and belay it to the same cleat where the running end is belayed. Likewise, bring the lower halliard block and leader line down to the deck. The leader can be hooked to the ringbolt used for the halliard lead block or to the cleat. See Figure H-2 for the suggested rigs.

3. Foresail

The foresail is a loose-footed gaff sail. It has throat and peak halliards for the gaff, port and starboard sheets, a tack, and a tricing line. The Tricing line (or tackle) is a bit unusual and may not be as familiar as other rigging lines. The tricing line is used somewhat like a reef tackle except where the reef tackle pulls the sail down to reduce the sail area during bad weather, the tricing line pulls the tack of the sail up for the same reason. Another use is to provide better visibility under the sail when entering port.

Tack - Eyesplice a line to the tack cringle, then pass the line several times between the cringle and the ringbolt on the deck in back of the foremast. Finally, wrap the bitter end around the lines and hitch the end.

Peak halliard - Eyesplice the standing end of the halliard at the end of the gaff. Pass the line thru the double block hooked to an eye band on the foremast head, down to the single block stropped around the gaff, and back thru the double block. The running end continues to the deck, passing thru a single lead block hooked to the ringbolt on the port side of the foremast, then back to the deck cleat near the galley stack.

Throat halliard - The upper block has a becket for the standing end of the halliard. Hook the block to the eye band on the foremast head. Run the line thru the single block hooked to an eyebolt on the fore end of the gaff, up thru the upper block, then down to the deck, passing thru a single lead block hooked to the ring bolt on the starboard side of the foremast. Then, belay the line to the starboard deck cleat near thr galley stack.

Tricing line - Hook a single block with becket for the standing end of the line to an eyebolt under the starboard gaff jaw. Pass the line thru a single block hooked to the sail tack cringle, back up over the upper block, then down and belay the line to the starboard cleat on the foremast. Note that this is the same cleat used for belaying the staysail upper tack.

FIG. H-3 FORESAIL RIG

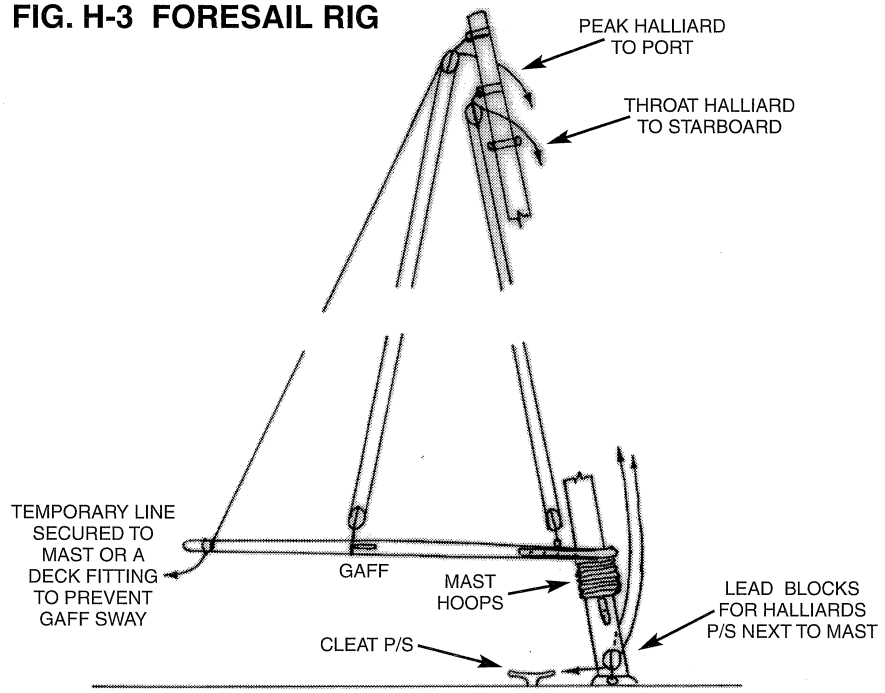
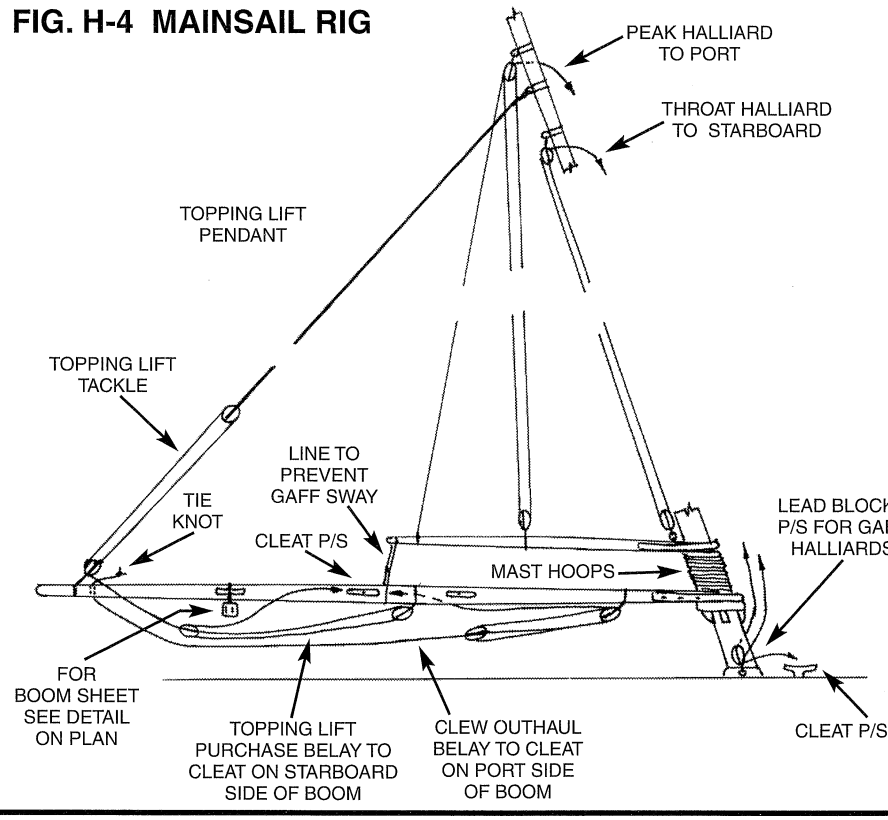


FIG. H-4 MAINSAIL RIG



Sheets - The sheets are identical to the jib sheets except the lower blocks hook to the ringbolts aft, then belay to the deck cleats behind the ringbolts near the bulwarks.

Model without sails - Without the sail, the sheets, tack, and tricing line would be removed. The remaining lines are the gaff throat and peak halliards.

Our prototype model on the cover of the instructions shows the gaff in the raised position but this is not a likely position. Also, the model has a line from the end of the gaff down to the deck. However, there is no such line unless it is deliberately fitted. But why? Thousands of models have been rigged with the gaffs up, most likely to give an indication of the shape of the sail that would be there. But you won't find many photos of actual ships rigged in this manner. With sails off, why put the gaff back up? Anyway, these instructions will depict the gaff in a down

position with the gaff sitting on top of the bundle of mast hoops. Even here, there needs to be a line attached to the end of the gaff so it will not flop sideways.

Figure H-3 illustrates the suggested rig.

4. Mainsail

The mainsail has a gaff and a boom. There is a tack, gaff peak and throat halliards, tricing line, boom topping lift, boom sheet, reef tackle, and clew outhaul.

Tack - The tack is a short line from the tack cringle with a hook that hooks to an eyebolt in the top of the boom.

Gaff peak and throat halliards - These halliards are identical to the foresail except the running ends pass thru the lead blocks on deck going forward to the deck cleats.

Tricing line - The tackle is identical to the foresail except the running end belays to the starboard belaying pin in the boom jaw.

Boom topping lift - The topping lift pendant is a black line. At the single mainmast head it is set around a thimble an eye band. For the mainmast and topmast option, there is just an eyebolt thru the masthead with no band. See detail on the plan.

At the bottom of the pendant, a tackle is fitted with a single becket block and the tackle wove thru a single block stropped around the boom end. The running end of the tackle after leaving the lower block goes forward to a purchase tackle. The purchase tackle forward block is stropped around the boom. The running end leaves the aft block and is belayed to the aft starboard cleat on the side of the boom.

Note - The plan labels both the tackle attached to the topping lift pendant and the purchase along the boom as a "purchase". For clarity and reference to the rig , the rig attached to the pendant should be called "topping lift tackle" and not a purchase.

Boom Sheets - A nice detail of this rig is shown on the plan. The upper double block is collared around the boom and there are cleats at the collar to prevent it from moving forward or aft. The lower single block is stropped around a grommet and fitted to a traveller rod on top of the quarter rail. Single lead blocks are hooked to ringbolts in the center stern timbers. The running ends of the sheet belay to the inboard belaying pins in the quarter rail.

Reef tackle - A single becked block is stropped around the end of the boom just forward of the topping lift tackle block. The standing end goes up to a single block that is hooked to one of the three reef point cringles. The running end goes thru the block, then thru the block on the boom and forward to the forward starboard cleat on side of the boom.

Clew outhaul - The outhaul is hooked to the sail clew, then runs thru a hole (sheave hole) in the end of the boom and goes forward to a purchase consisting of a double and single becked block. The double block is stropped around the boom at the boom jaws. Reeve the purchase line and the running end leaves the double block and goes aft to the port cleat on side of the boom.

Model without sails - Rig the topping lift first to position the boom, then the sheet to hold it down. Bring the gaff down on top of the stack of mast hoops and put a line around the boom and gaff end to prevent it's flopping sideways.

Eliminate the tricing line. You can also eliminate the outhaul or for more detail tie a knot at the outer end of the boom. Likewise, the reef tackle could be eliminated or bring the upper block along the boom and hook it to a cleat.

Figure H-4 illustrates the suggested rig without the reef tackle. The boom sheet is noted but not shown on the sketch. See the large detail on the plan.

5. Flag Halliard

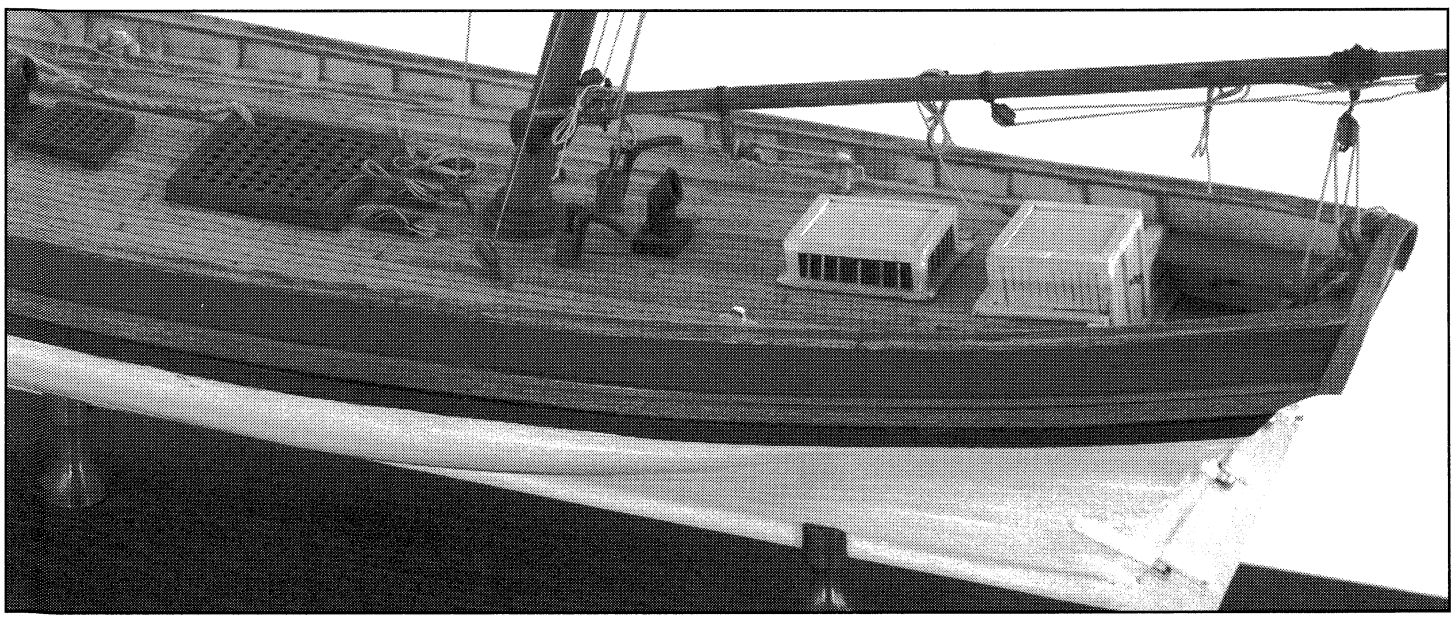
Strop a single block around the pole of the mainmast, or optional main topmast. The halliard ends are belayed to the belaying pin in the port boom jaw.

Final Touches

After all the rigging is in place, re-check every line, and make sure all the seizings are sound. If necessary, add another touch of CA glue to seizings. Check to see if there are any shiny places on the rigging. If necessary, tough-up standing rigging with black paint, or black liquid shoe polish. For running rigging, use a tan stain, or brown liquid shoe polish.

Check to see if any of the painted wooden parts were marred or scratched during the rigging process and touch-up as necessary.

MODEL SHIPWAYS
• QUALITY KITS SINCE 1946 •



BIBLIOGRAPHY

1. Elements and Practice of Naval Architecture

by David Steel, 1805.

Listed in Amazon.com books but is currently not available. A library or rare book store may be only source. Source of *Katy* hull lines.

2. Steel's Elements of Mastmaking, Sailmaking and Rigging

by David Steel. 1794 (reprinted).

Details of masts and spars, block, rigging practices, and rigging sizes.

3. The History of American Sailing Ships

by Howard I. Chapelle, 1935 (reprinted)

Includes discussion on Virginia built pilot schooners. Reference is made to lack of standing rigging on these boats.

4. The Art of Rigging

by George Biddlecombe1848 (reprinted).

This is essentially an update of David Steel's earlier work, giving rigging sizes for various ship types and tonnage.

5. The Young Sea Officer's Sheet Anchor

by Darcy Lever. 1819 (reprinted).

Block and spar details, and typical rigging techniques of the period.

6. The Neophyte Shipmodeller's Jackstay

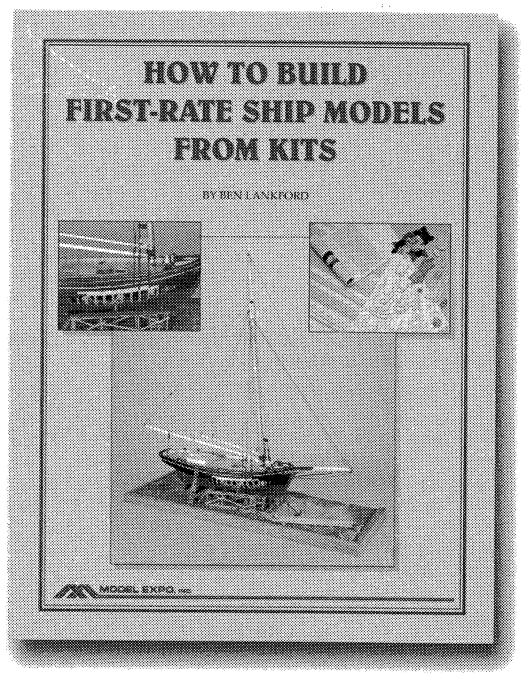
by George F. Campbell. Model Shipways, 1962.

Excellent visuals and background information on building models from kits. Good detail on hulls and rigging. Great for beginners.

7. How to Built First-Rate Ship Models From Kits

by Ben Lankford. Model Expo 2002.

Comprehensive reference covers construction methods for solid hull, plank-on-bulkhead, and plank-on-frame kits. The book is profusely illustrated and includes glossary of nautical terms.



Note: Many books are available through Model Shipways website, www.modelexpo-online.com. Please check current catalog or website for availability.

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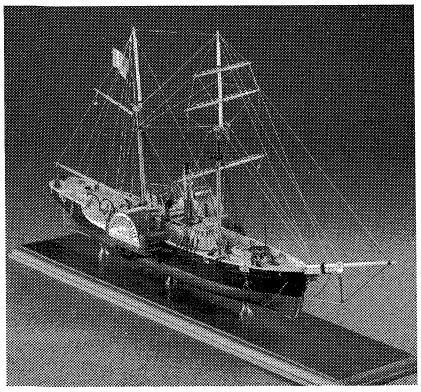


HARRIET LANE, UPDATED!
BACK BY POPULAR DEMAND

Built in New York for the U.S. Revenue Service in 1857, the *Harriet Lane* was powered by a combination of steam and sail. She was 180 ft. long, with a 30 ft. beam, and carried a 30 lb. Parrott rifle, plus three 9" smooth-bore Dahlgrens. Her design clearly illustrates the transition from sail to steam.

Harriet Lane features a machine carved hardwood hull which needs only light shaping and sanding. We provide plank-scored basswood for decking and cabins, spars and hardwood blocks. Ladders, anchors, paddle wheels, two ship's boats, four cannon with carriages and numerous other fittings are finely cast Britannia metal. We've upgraded the kit to include laser cut paddle wheel covers. Newly Detailed plans and newly written clear instructions by master ship modeler, Ben Lankford, are easy to follow. (Baseboard and brass pedestals are not included.)

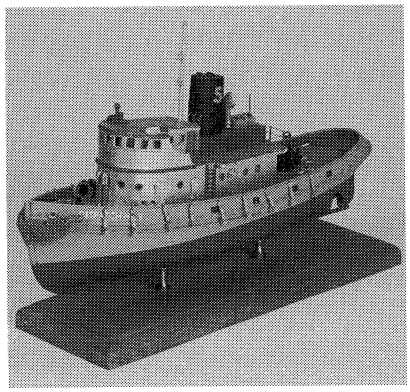
Solid Hull Kit • Entry Level • No. MS2010 • Length 13-1/2" / Height 13-1/2" / Scale 1/8" = 1 ft. (1:96)

Harriet Lane Paint Set: *Seven 1 oz. bottles of Model Shipways paint:* ***No. MS2010MS***

Walnut Display Base: *Routed and ready for finishing. 20" x 4-1/2".* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need three. Height 1-1/8"* ***No. MS0812***

DESPATCH #9
SOLID HULL KIT



The Diesel harbor tug Despatch #9 was built for the Marine Corps in 1945 at Tampa, FL from a US Army design. Later sold to Standard Oil of California, she worked oil barges in the San Francisco Bay area. Powered by a Busch-Sulzer 6-cylinder engine, she was equipped with practically every modern device of the time, including electric capstan, electric towing machine and watertight doors. Despatch #9 was 85 ft. long with a 23 ft. beam.

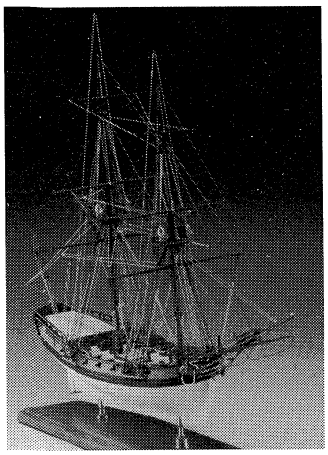
Kit features a pre-shaped, machine carved solid wood hull, shaped deck house and superstructure. Other wooden parts include dowels, strips, sheets and blocks. Brass wire and airports, plus over 80 cast Britannia metal fittings outfit your model just like the real tug. Clear plans and instructions make building easy. (Wooden display base and brass pedestals are not included.)

Entry Level • No. MS2011 • Length 13-1/2" / Height 7-1/2" / Scale 5/32" = 1 ft.

Despatch No. 9 Paint Set: *Eight 1 oz. bottles of Model Shipways paint: 1 each/MS4839 Primer, MS4830 Hull/Spar Black, MS4801 Bulwarks Dark Green, MS4816 Deck House Dark Buff, MS4835 Bright Red Trim, MS4828 Iron/Cannon Black, MS4823 Clipper Pearl Gray, MS4962 Aluminum.* ***No. MS2011MS***

Walnut Display Base: *Routed and ready for finishing.* ***No. RH4512***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two.* ***No. MS0812***



FAIR AMERICAN,
REVOLUTIONARY WAR BRIG, C. 1778
PLANK-ON-BULKHEAD KIT

Fair American is a reproduction of a model built over 200 years ago, now on exhibit at the U.S. Naval Academy Museum at Annapolis, MD. She is said to represent the 14-gun privateer Fair American sailing out of Charleston in 1778.

Plank-on-bulkhead construction uses high quality basswood, the preferred wood of professional modelers. All structural hull parts and major fittings are laser cut, so they fit together with remarkable ease. The kit contains over 60 cut or shaped wooden parts, plus 120 extra wood strips for a second layer of planking, should you wish to build your model with a double planked hull. More than 500 fittings of wood, brass and Britannia metal fittings include 14 brass guns on wooden carriages, cannon, chainplates, bell, anchors and wheel. Seven plan sheets a 48 page instruction book by Erik A.R. Ronnberg, Jr. and Ben Lankford, plus a 38-page guide to planking the hull make building easy.

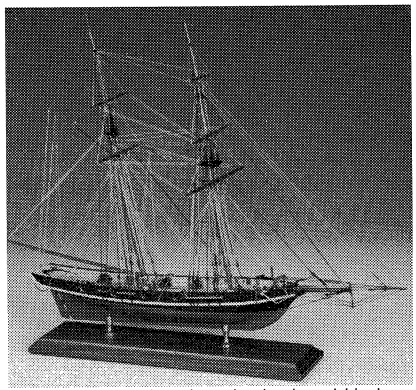
(Display base and brass pedestals are not included.)

Intermediate Level • No. MS2015 • Length 26-1/2" / Height 22" / Scale 1/4" = 1 ft.

Fair American Paint Set: *Six 1 oz. bottles of Model Shipways paint: 1 each/MS4839 Primer, MS4830 Hull/Spar Black, MS4803 Hull Tallow, MS4802 Bulwarks Red, MS4825 Deck Light Gray, MS4969 Gold.* ***No. MS2015MS***

Walnut Display Base: *Routed and ready for finishing. 20" x 4-1/2"* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two sizes for level display.* ***No. MS0812*** *Height 1-1/8"* ***No. MS0813*** *Height 1-3/8"*



DAPPER TOM
SOLID HULL KIT

During the early 19th century, many Baltimore clippers were granted privateering licenses by the US government. Only a fast, well handled ship could be reasonably sure of reaching its destination. Privateers like the *Dapper Tom* depended on their sailing abilities and fire power to prey on foreign shipping and to escape the British men-of-war patrolling the high seas.

Kit features a machine carved basswood hull with accurately shaped bulwarks and transom. Fittings include 8 cast metal cannon, mast caps, anchors, capstan and gratings, brass eyebolts and belaying pins, plus hardwood blocks and deadeyes. Scribed decking, wooden masts and yards, and three diameters of cotton rigging provide the finishing touches of authenticity. With the help of clearly drawn plans and illustrated instructions, even first time builders can finish an impressive model. (Display base and brass pedestals are not included.)

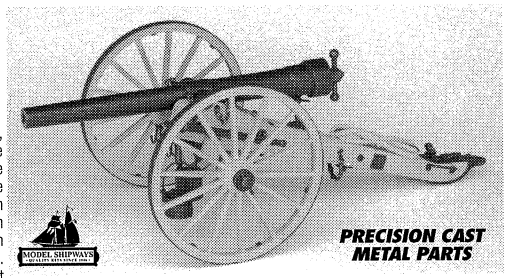
Entry Level • No. MS2003 • Length 24"/Height 18"/Scale 5/32" = 1 ft.

Dapper Tom Paint Set: *Six 1 oz. bottles of Model Shipways paint: 1 each/MS4839 Primer, MS4830 Hull/Spar Black, MS4801 Bulwarks Dark Green, MS4803 Hull Tallow, MS4835 Bright Red Trim, MS4828 Iron/Cannon Black.* ***No. MS2003MS***

Walnut Display Base: *Routed and ready for finishing. 20" x 4-1/2".* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two sizes for level display.* ***No. MS0812*** *Height 1-1/8"* ***No. MS0813*** *Height 1-3/8"*

1:16 SCALE AMERICAN CIVIL WAR ARTILLERY
WHITWORTH BREECH-LOADING 12-POUNDER



Designed by Sir Joseph Whitworth, the cannon that bore his name became a favored weapon of the Confederacy. Unusual in appearance as well as operation, the Whitworth was a breech-loader that fired an elongated 12-pound iron shell from a finely rifled 1,100 pound barrel. Accurate and easy to maneuver, it had a range of 4.5 miles and made a shrill, whistling noise which could be distinguished from all other cannon of the period. The Whitworth saw action at Gettysburg, Charleston, Vicksburg, Fredericksburg and many other American Civil War battlefields.

- Historically accurate and perfectly scaled
- Cleanly cast Britannia metal components
- Authentically detailed cannon barrel
- One-piece ready to assemble wheels
- Clearly written illustrated instructions
- Easy to build – assembly and painting time 5-10 hours

Entry Level • No. MS4001
Length 10" / Width 4" / Height 3-1/4"
Weight 1 lb., 4 oz. / Scale 1:16

GUNS of HISTORY
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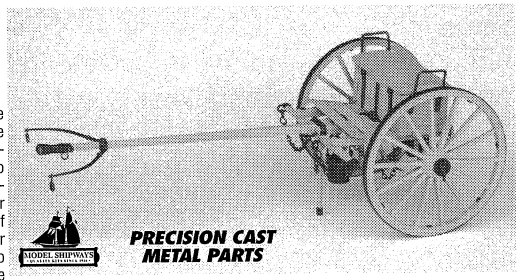
1:16 SCALE AMERICAN CIVIL WAR ARTILLERY
LIMBER AMMUNITION CHEST



The limber was an indispensable piece of equipment during the American Civil War. It was a simple two-wheeled cart designed to carry an ammunition chest containing gunpowder and shot for the artillery pieces. A team of horses was hitched to the limber and a cannon was hooked on to its rear when the army was on the move.

The ammunition chest lid was large enough to seat up to three men. However, sitting above the gunpowder was dangerous, so after the first few months of the War, only the driver rode on the limber. In times of battle, the limber and horses were left behind the lines of fire.

- Historically accurate and perfectly scaled
- Cleanly cast Britannia metal components
- Authentically detailed ammunition chest
- One-piece ready to assemble wheels
- Clearly written illustrated instructions
- Easy to build – assembly and painting time 5-10 hours

Entry Level • No. MS4002
Length 10" / Width 4" / Height 3-1/4"
Weight 1 lb. / Scale 1:16

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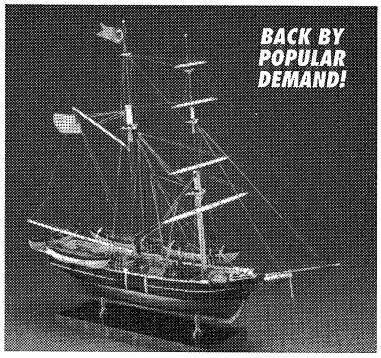


KATE CORY, WHALING BRIG
SOLID HULL KIT

The 132 ton whaling brig *Kate Cory* was built at Westport Point, MA in 1856. Seventy-five and a half feet long with a 22-foot beam, she was one of the last whalers built specifically for the trade. Originally rigged as a schooner, *Kate Cory* was converted to a brig in 1858. This rig made for smoother motion in heavy seas, and steadied the ship while the crew was cutting in whales.

Model Shipways' kit features machine carved basswood hull, which needs only light shaping. For an authentic plank-on-frame look, we're including over 50 feet of basswood strips for deck planking. Genuine copper covers the hull below the waterline. Plank-scored wooden sheets are supplied for the companionways, cabins and hatches. Deadeyes and blocks are pre-finished wood; all other fittings are brass and Britannia metal. Four laser-cut wooden whaleboats plus deck furnishings, including the try-pots (large iron pots for boiling down the whale oil), add life-like detail. Three sheets of plans by Erik A.R. Ronnberg, Jr. and new 36-page instruction book by Naval Architect and Master Modeler, Ben Lankford see you through construction. (Display base and brass pedestals are not included - see below.)

Solid Hull Kit • Entry Level • No. MS2031 • Length 24" / Height 18-3/4" / Scale 3/16" = 1 ft. (1:64)

Kate Cory Paint Set: *Six 1 oz. bottles of Model Shipways paint:* ***No. MS2031MS***

Walnut Display Base: *Routed and ready for finishing. 20" x 4-1/2".* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two.* ***No. MS0812***

GLAD TIDINGS, PINKY SCHOONER
PLANK-ON-BULKHEAD KIT

The Pinky received its name from its uplifted, narrow, or "pinked" stern. These sturdy, seaworthy craft ruled the New England fishing industry from 1815 to 1840.

Plans are based on original drawings by Howard I. Chapelle for a typical Maine pinky, a boat he had built and actually sailed.

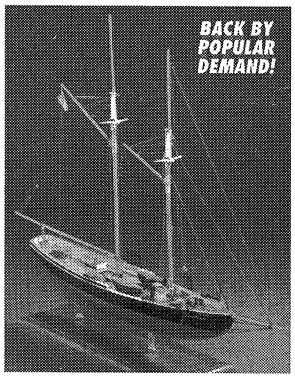
Our *Glad Tidings* contains features never before seen on any commercially available kit. We've laser cut the bulwark strakes, and our plans show the spiling and placement of the hull planking strips to exact dimension. Single plank-on-bulkhead construction uses laser cut plywood, basswood and cherry components. Expertly cast Britannia metal castings include anchor shanks, smoke stacks, windlass, cabin port-lights and turnbuckles. Brass is used for eyebolts, split rings, nail and other fittings. Keel, stem, hull and deck planking strips, dowels for masts and yards are fine basswood. Six diameters of beige standing and black running rigging, deadeyes and four sizes of blocks guarantee a realistic replica. Five sheets of detailed plans and illustrated step-by-step instruction manual assure trouble-free assembly. (Display base and pedestals are not included, see below.)

Intermediate Level • No. MS2180 • Length 29-1/2" / Height 23" / Beam 5-1/4" / Scale 1/2" = 1 ft. (1:24)

Glad Tidings Paint Set: *Ten 1 oz. bottles of Model Shipways paint:* ***No. MS2180MS***

Walnut Display Base: *Routed and ready for finishing. 20" x 4-1/2"* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two sizes for level display.* ***No. MS0812*** *Height 1-1/8" and* ***No. MS0813*** *Height 1-3/8".*



ELSIE, AMERICAN FISHING SCHOONER
SOLID HULL KIT

Built in 1910 at Essex, Massachusetts by Arthur D. Story, the *Elsie* was designed with a semi-knockabout schooner rig, reflecting the influence of the safer but costlier knockabout schooners. She was outfitted with power after her 1921 race with the Canadian schooner *Bluenose*.

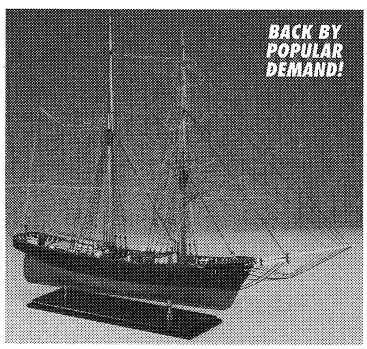
The model is easy to build with its machine carved solid hull, which needs only light shaping and sanding.Blocks and deadeyes are pre-finished hardwood; other fittings are expertly cast Britannia metal. Deck planking is basswood, and there's plenty of wood material for deck houses, furnishings, keel, stem, rudder and trim. Four dory nests and cordage complete the kit. Three sheets of plans by Erik A.R. Ronnberg, Jr. are based on surveys by Howard Chapelle and photographs of the original vessel. A thorough 32-page instruction book updated by Ben Lankford concentrates on modeling techniques for 1/8" scale. (Display base and brass pedestals are not included.)

Solid Hull Kit • Intermediate Level • No. MS2005 • Length 21-1/2" / Height 16" / Scale 1/8" = 1 ft. (1:96)

Elsie Paint Set: *Five 1 oz. bottles of Model Shipways paint:* ***No. MS2005MS***

Walnut Display Base: *Routed and ready for finishing. 20" x 4-1/2".* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two.* ***No. MS0810*** *Height 7/8"* ***No. MS0811*** *Height 1"*



NEWSBOY, 1854 BRIGANTINE
SOLID HULL KIT

The clipper-bowed merchant brigantine *Newsboy* is one of the earliest designs of Dennison J. Lawlor. She was built by Elisha Brown in 1854 at Owls Head, ME. She carried New England manufactured goods to the Mediterranean, where she picked up wine, oils and fruits bound for the West Indies. From there, she returned to New England, her holds filled with rum, molasses and sugar.

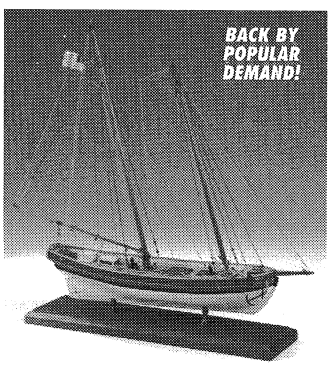
Kit features a solid wooden hull that's machine carved to the proper shape. We supply laser cut basswood parts for the cabin, companionways, keel, rudder and sternpost, plus beech dowels for masts and yards. Properly scaled Britannia metal castings include anchor, windlass, pump, binnacle, figurehead and lifeboat. Chains, nails, eyebolts, belaying pins and other small parts are brass and copper. More than 200 blocks and deadeyes plus five diameters of miniature rope recreate life-like rigging. Hull templates, two sheets of plans and updated instruction book by Ben Lankford help you build a beautiful model. (Wooden display base and pedestals shown are not included - see below.)

Entry Level • No. MS2108 • Length 24"/Height 18"/Scale 5/32" = 1 ft.

Newsboy Paint Set: *Six 1 oz. bottles of Model Shipways paint:* ***No. MS2108ms***

Walnut Display Base: *Routed and ready for finishing. 20"x 4-1/2"* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two.* ***No. MS0810*** *Height 7/8"* ***No. MS0811*** *Height 1"*



KATY OF NORFOLK
SOLID HULL KIT

Toward the end of the 18th century, "Virginia built" boats were used as pilot boats from the Delaware Capes to Hatteras. During the American Revolution and the War of 1812, the U.S. government issued privateering commissions to many privately owned vessels of this type.

We've designed the *Katy* especially for the novice modeler. The kit features a solid basswood hull, already carved to the correct shape. It needs only a bit of light sanding before you lay the deck and construct the cabin. Ready-to-use fittings include shaped and drilled wooden blocks and deadeyes. Precision cast Britannia metal parts faithfully replicate pumps, galley stacks, and anchors. Eyebolts, strops, rings and chainplates are brass. Accurately scaled rigging line is supplied in three sizes. And since real ships had wooden mast hoops, your model will too! Detailed plans, 40-page instruction book are also included. (Display base and pedestals are not included.)

Entry Level • No. MS2001 • Length 20" / Height 18" / Scale 1/4" = 1" (1:48)

Katy Paint Set: *Eight 1 oz. bottles of Model Shipways paint:* ***No. MS2001MS***

Walnut Display Base: *Routed and ready for finishing. 20"x 4-1/2"* ***No. RH4520***

Brass Display Pedestals: *Pre-drilled from top to bottom and slotted to fit the keel. You'll need two sizes for level display.* ***No. MS0812*** *Height 1-1/8"* ***No. MS0813*** *Height 1-3/88"*

H.M.S BOUNTY'S LAUNCH
PLANK-ON-FRAME KIT

In a remarkable feat of seamanship, Bligh navigated the dangerously overcrowded boat on a 47-day voyage to the Dutch colony of Timor, equipped only with a sextant and a pocket watch. He recorded the distance as 3,618 nautical miles. While struggling to survive, he kept a log and produced highly accurate charts and surveys of the seas and the terrain, such as the Fijian Islands.

The *Bounty's* launch was typical of boats issued to Royal Navy ships of the period. Historically accurate and highly detailed, Model Shipways' kit is based on original plans from the Nautical Maritime Museum in Greenwich, England. It features true plank-on-frame construction with laser cut wooden components, laser engraved rabbet and bearding lines. Beautiful cherry wood is provided for the frames and deck beams. Hull and quarterdeck planking, floorboards and mold stiffeners are flexible basswood. The fitting package replicates authentic gear, including ten oars, eight lathe turned wooden barrels, wooden chest, cast metal anchor, brass gudgeons and pintles, plus cotton sails and cordage. Five sheets of plans and illustrated instruction manual assure trouble-free assembly.

Intermediate Level • No. MS1850 • Length 17-1/4" / Height 14-3/4" / Beam 5-3/8" / Scale 3/4" = 1' (1:16)

Bounty Launch Paint Set: *Five 1 oz. bottles of Model Shipways paint:* ***No. MS1850MS***

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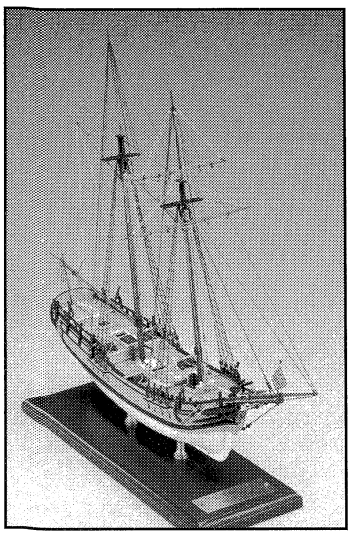
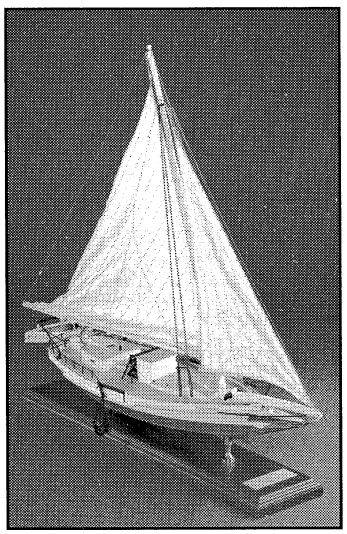


SULTANA
Model Shipways Kit No. MS2016



WILLIE L. BENNETT
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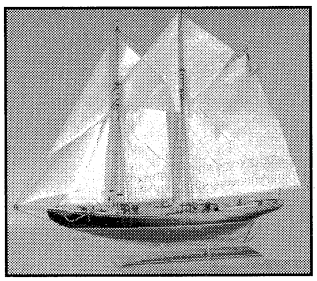
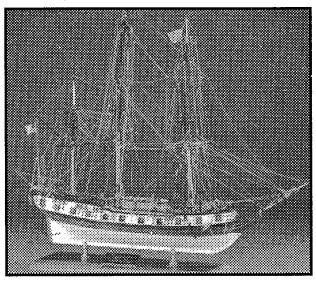
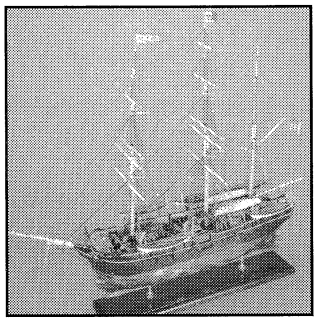


BLUENOSE
Model Shipways Kit No. MS2130



RATTLESNAKE
Model Shipways Kit No. MS2028



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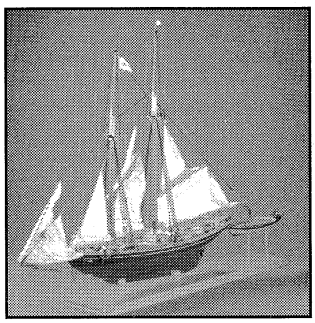

BENJAMIN LATHAM
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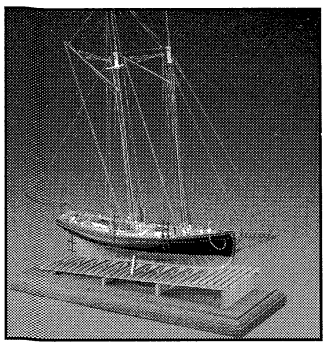
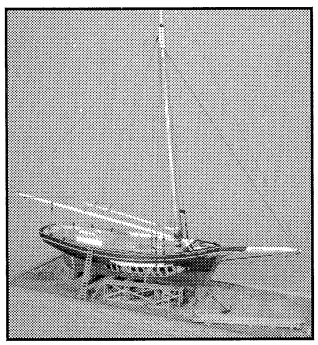


PHANTOM
Model Shipways Kit No. MS2027



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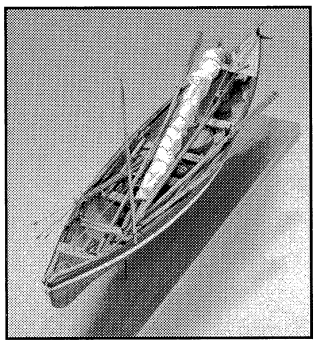
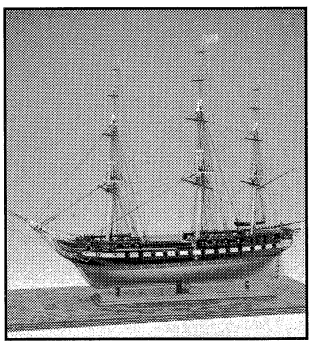


BEDFORD WHALEBOAT
Model Shipways Kit No. MS2645



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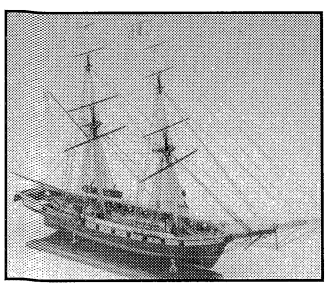

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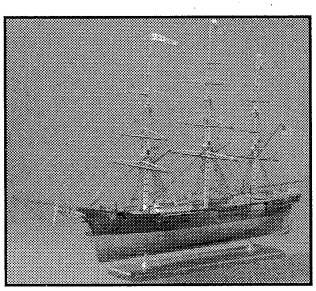
Model Shipways Kit No. MS2240



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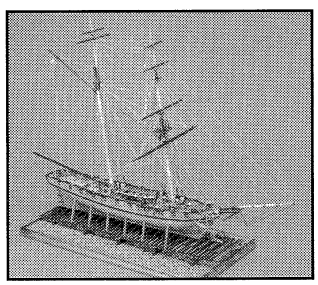

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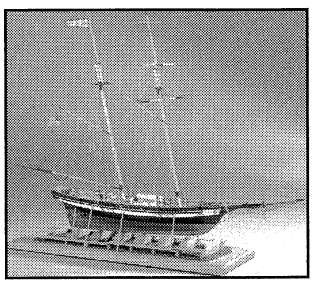

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