Instruction Manual

MODELING THE *Chaperon*

1884 STEAMER

MODEL SHIPWAYS
• QUALITY KITS SINCE 1946 •

Manufactured by Model Shipways, Inc. · Hollywood, FL
Sold by Model Expo, a division of Model Shipways, Inc.
http://www.modelexpo-online.com

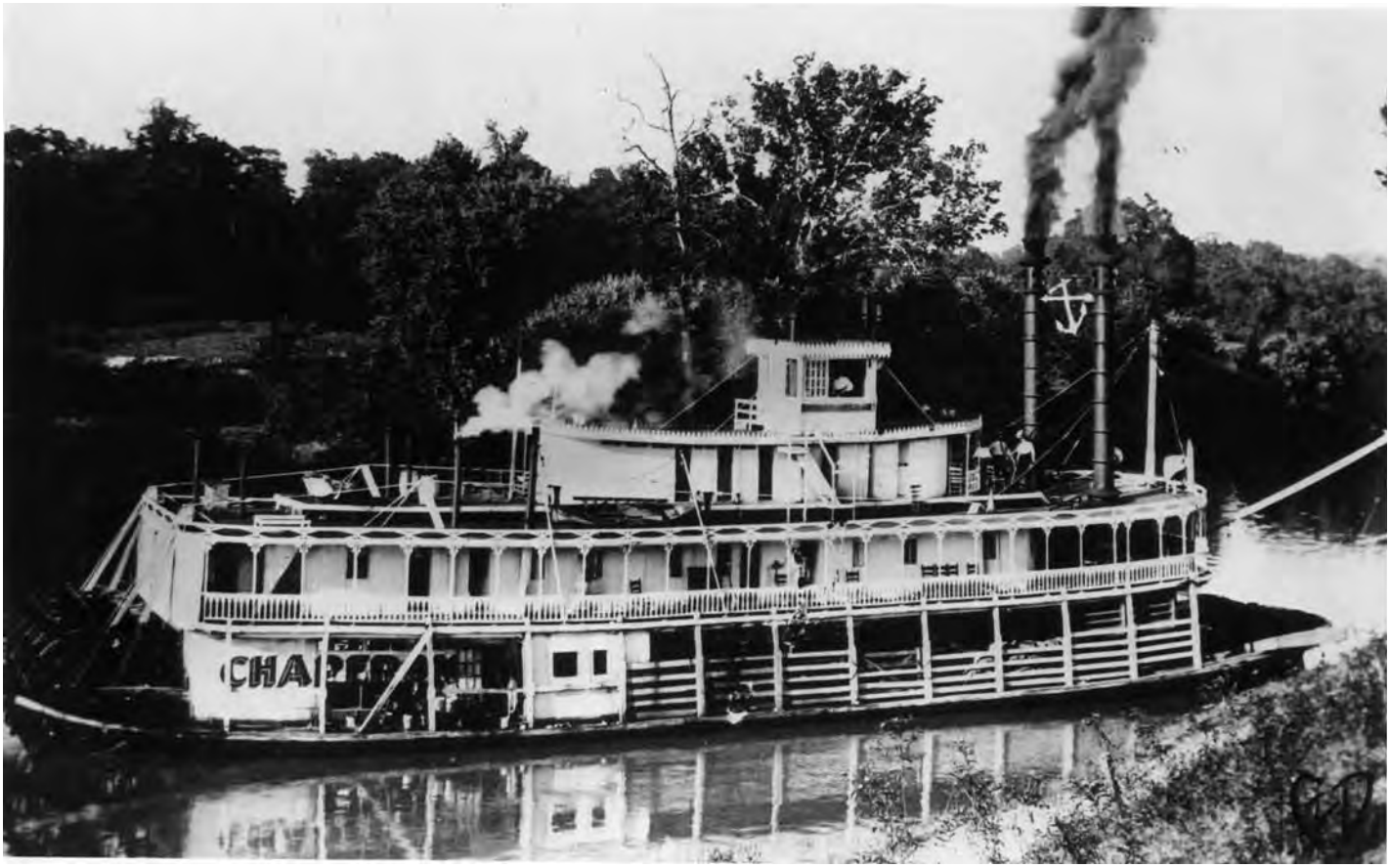
Model Shipways Kit No. 2190

History

The *Chaperon* was originally built in Chambersburg, Ohio in 1884 and was named the J. C. Kerr. The boat was 120 feet long, 21 feet wide and 4 feet deep. It was used as a trade boat in Kentucky on the Green River in the early 1890's. In 1904 the boat was renamed the *Chaperon* and was used in short trade routes and excursions between Bowling Green and Mammoth Cave.

A postcard printed in 1910 pictures the steamboat *Chaperon* docked at a river wharf, carrying hundreds of passengers up the Green River to visit one of the world's great wonders—Mammoth Cave. Women in long white dresses and men sporting straw boater hats hang from the boat's railings and bustle about on the wharf, excitedly anticipating their excursion to the longest cave on the planet. Earlier visitors had enticed them with tales of the "appalling spectacle" of the cave's "nether world," from which nitrous odors and eerie puffs of wind would emanate.

In 1906, just a few years before the photo of the steamboat *Chaperon* was taken, the U.S. Army Corps of Engineers had built a structure called Green River Lock and Dam 6, at a point nearly 300 kilometers upriver from the Green River's confluence with the Ohio River and just downstream of Mammoth Cave. Steamboats had been operating on the Ohio since 1811, but only with Lock and Dam 6 in place were the big boats able to reliably make their way over the mussel-laden shoals of the Green to reach the cave. The Chaperon was the first boat of its kind to pass through the new locks. These locks increased trade on the Green River. The Evansville & Bowling Green Packet Company had an "All River Excursion Route to Mammoth Cave" during the summer months on the steamboat Chaperon. She was sold just before World War I and was then taken to the Mississippi where she was named the Choctaw. She sailed the Tallahatchie River until 1922 when she burned.



Technical Characteristics

Scale: 1/4" = 1 ft. (1:48)
Overall length: 34.5" (876 mm) (Hull)
Beam: 7.5" (191 mm)

Design, plans, prototype model and instructions by Bob Crane, ©2007

Before You Begin

The *Chaperon* is an interesting boat and makes a splendid model. The model is well suited for the beginning ship modeler. At 1/4" = 1 ft. scale, it is easy to build and obtain precise detail. Plank-on-bulkhead hull construction with laser-cut parts offers a simple building method. It assures an accurate hull form built from interlocking self aligning parts. Britannia, brass, and wooden fittings eliminate creating many parts from scratch. However, some require final finishing before they are suitable for the model. This is especially true for the Britannia fittings and will be discussed later. Always complete one construction stage before moving to the next. When things go awry, consider doing them over.

Working With The Plans & Parts

The following modeling tips are general in nature and were written by Ben Lankford. Edits and additions for this particular model are by Bob Crane. For more of Ben's excellent tips see the bibliography.

Before starting the model, carefully examine the kit and study the plans. First, determine if all the listed parts are present. Handling them will produce a better understanding of the kit's requirements. Try to visualize how every piece will look on the completed model. Also, determine the building sequence—what must be done first—ahead of time. The instructions will help, but a thorough knowledge of the plans at the outset is essential.

1. The Plans

Five plan sheets are provided. The plans are done in an isometric format illustrating the construction sequence and identifying the parts and their placement. An additional sheet 6 shows the photo etched brass parts layout and identifies important features of the parts and their names. It also contains patterns and templates that can be cut out for various items of construction without cutting up the plan sheets.

These drawings are to no particular scale, being illustrative of the construction sequence. There are no parts to be made by referring to a full size plan. Some items are drawn to full scale and are so noted on the plan sheets. Occasionally an item will be shown at a larger scale for clarity, such as 2x for twice full size and 3x for 3 times full size.

2. Making Allowances Along The Way

Try to be exact when following the plans and instructions, but use common sense. Adjustments may be necessary to compensate for small differences in how your model shapes up. Perhaps a bit of shaving here, a little shim there, etc., will alleviate any annoyances. Use logic and do not fret over exactness. An old saying in the boat building craft is that "if it looks right, it is right."

3. Kit Lumber

Strips and laser cut sheets of basswood are supplied in the kit. Sorting the wood in the kit by dimension will save time. After selecting and cutting what you need, return the remaining stock to the proper dimension pile. Don't worry about using a piece for one item intended for another. Model Shipways supplies enough extra wood to complete the model before running out.

4. Britannia Metal Fittings

There are a few Britannia fittings that will require final finishing before mounting. First, remove mold joint flash with a #11 hobby blade, then file or sand with fine sandpaper. Second, wash fittings in dishwashing liquid and warm water to remove traces of mold release agent and the body oils your fingers deposit. Allow the parts to dry thoroughly before applying primer and painting.

Glues

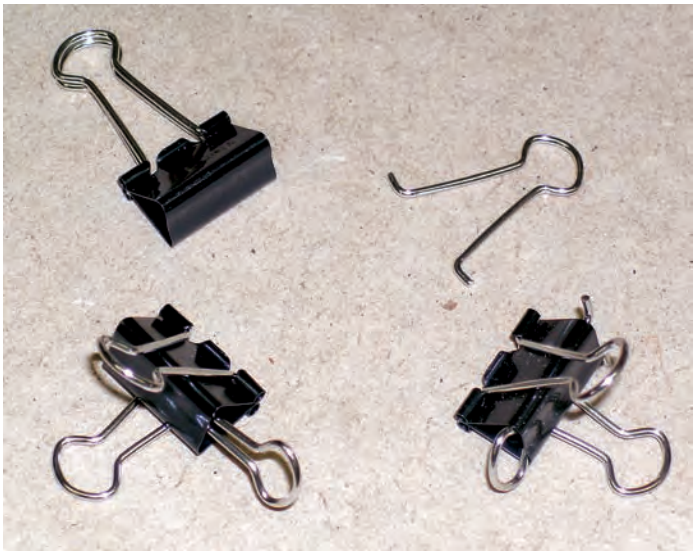
White or woodworker's glue in yellow or tan will suffice for most of the model. Five minute epoxy provides extra strength for some cases. Super glues, such as Jet, Flash, or Zap, produce quick adhesion. For most applications, the medium viscosity, gap-filling variety is best. For some applications the gel type works best. The thin type is recommended for filling a narrow crack and wicking into laminate joints.

A word about gluing laser cut parts. Laser cutting burns through the wood and leaves a charred surface. This charred surface does not make good glue joints. It is recommended to lightly sand or scrape away the loose char before gluing. It is not necessary to remove all the char, just what comes off with light sanding or scraping. In most cases simply scraping with a no. 11 blade is sufficient.

Clamps

Clamps are an essential part of the model building experience. In the full size boat building arena it is often said, "a boat builder cannot have too many clamps." This is true of model building also. There are so many situations in the course of building a model that require a particular type of clamp. The photo below shows a typical collection of clamps that are useful in model building.

Fortunately, most of these clamps are cheap and readily available. Note the spring type clothespin that has been reversed and pads added to the tips. The pads are covered with sandpaper to improve the grip. Of special usefulness are the office binder clips shown at the lower right. These are modified office supply items and their usefulness will become apparent later. They come in various sizes. The ones shown are 3/4" binder clips. To make the modifications refer to the picture below.



Painting & Staining the Model

Beginning this manual with directions on applying finishes may seem strange. Not so! Much time and effort can be saved and more professional results obtained if the finishing process is carried on throughout construction. Proper timing in applying finishes and using masking tape to define painted edges should eliminate unsightly glue marks and splotchy, stained surfaces. Many parts in the kit can and should be pre-finished before assembly. This is much easier to do before assembly than after. If you are not in a hurry to begin construction, think through what kind of finish you like, what parts are going to be exposed, etc. Not much is known about the finish of the Chaperon, except for a few artists' renditions. The basic color of the boat seems to be white with a touch of red and black here and there. We will address the finishing of individual parts as we proceed through the construction sequence. Take advantage of these general suggestions:

1. Sanding And Cleaning

Rub down external surfaces with 220 grit sandpaper, and then wipe off every speck of dust. Give surfaces to be painted two light coats of primer and sand lightly after the last application. You may find fine steel wool helpful as it doesn't load up with paint as sandpaper does. Don't sand down to bare wood. After washing your hands, gently dust the hull with a soft brush and clean, soft cloth or tack rag. Use a spackling compound, such as Model Magic, Zar, DAP, or Elmer's wood filler to fill any scratches and defects, then sand and prime again.

2. Choosing Paint

Glossy surfaces are not desirable on ship models. A flat finish or one with a slight sheen is best, because it doesn't reflect daylight or artificial lights. Consequently, details show up better. However, the undercoat or primer should be dead flat. A primer gives the surface a little tooth and helps top coats adhere better. A quick finish procedure for basswood parts is to spray them where possible with common aerosol primers, then steel wool with 0000 steel wool, this fills and smoothes the surface for painting.

Any of the hobby paints are satisfactory such as Model Shipways, Testors, Humbrol, and Tamiya. Jo Sonja artists' paints (used by bird carvers) are also acceptable. They are a combination acrylic-gouache and dry dead flat.

Hobby paints have a variety of reflectance levels from flat to gloss. When using a mixed group of reflectance levels, finish the completed model with a flat, clear coat. It also provides durability and seals any decals or dry transfer lettering.

3. Brush Painting

Painting with fine, soft bristle brushes is probably best for beginners. Many skilled model makers prefer the brushed-on technique, because its subtle imperfections impart a more lifelike appearance to the model. Brushes must be soft and of the highest quality. Artist grade sable or synthetics are the best. Use wider brushes for painting broad surfaces. If too narrow, the bristles will cause excessive streaking.

When applying paint or stain with a brush, lay down one thin coat in a single stroke, then move to an adjacent area and coat it with a single stroke. Never go back over fresh paint. That will tear up the surface. Wait until it has dried to a hard finish before applying a second coat.

4. Spray Painting

Although slightly expensive, a Paasche, Badger, Testors, Revell-Monogram, or similar airbrush will produce a first-rate job and is worth the investment. Airbrushes are either single action (trigger controls only airflow) or double action (trigger controls air and paint) and easy to use. Spray patterns can vary from thin to about 1/2" wide by either adjusting the needle or installing a different, sealed nozzle. In some brands, paint travels through the airbrush body to the needle. These require disassembling to clean. Other designs bypass the body and bring paint directly to the nozzle. These clean by simply spraying solvent through them.

Paints are either water (acrylic) or solvent based. Solvent-based paints spray best. Acrylics are difficult to spray and must definitely be used with the manufacturer's special thinner. Thinning water based paints with water creates surface tension problems, resulting in poor coverage and spray atomization. If a manufacturer's thinner is not available, alcohol can be used as a substitute. Experiment when using acrylics as some modelers have success and others don't.

When using solvent-based paints, work outdoors or equip your shop with a spray booth. These fumes are toxic.

Many brands of aerosol paints produce good results. However, test them on scrap wood before spraying the model. Aerosols put out a lot more paint than an airbrush, so be careful to avoid runs. Spray on several light coats. A tip from the automotive industry is to heat the spray can a bit which increases the internal pressure and produces a finer spray. Heat only in hot water from your household sink; do NOT use a flame of any kind or boiling water.

Most paint manufacturers have special thinners for their various paint lines. Follow each manufacturer's recommendations. Mixing brands is not a good idea, because they may not be compatible. Sometimes, however, no other option exists. If so, apply each brand separately and allow to thoroughly dry before adding the next. Always test to make sure the final flat or gloss finish is compatible with the paint it will cover.

5. Masking Surfaces

Masking can be a tricky process. Some brands of masking tape are worthless, because they allow paint to seep underneath their edges.

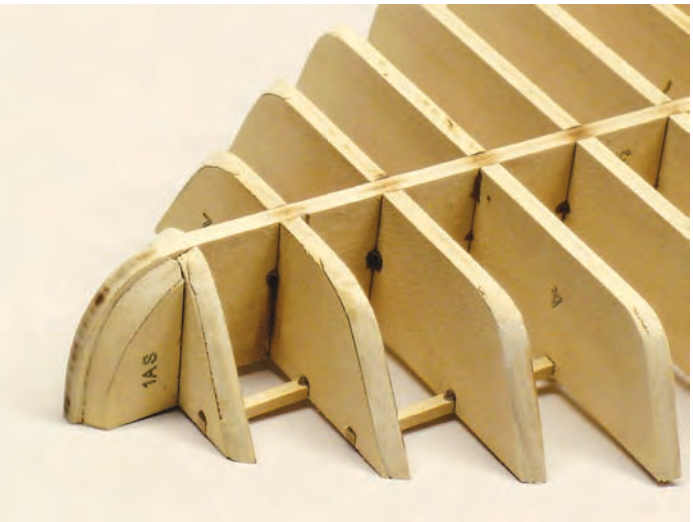
For masking fine stripes or straight and curved lines, use a graphic arts tape such as Chart Pak. It comes in widths as fine as 1/64". Chart Pak tapes have superb adhesion and won't bleed when firmly applied (burnishing is recommended). Scotch Removable Magic Tape is also excellent. Scotch's tape has the same, low stick adhesive as its famous Post It pads. In fact, Post It tape flags can be used for masking.

Stage 1: Building the Hull

Many parts for the Chaperon kit are labeled with a number followed by P/S. This is nautical terminology for port and starboard. Port is the left side of the ship looking forward and starboard is the right side. The Chaperon hull is built in the plank on bulkhead manner. Refer to plan sheet 1. Get out the bulkheads, keel parts, parts 1A P/S, parts 29A and 29B. Assemble the keel over the plan and glue the keel parts together using reinforcements B1 and B2. Don't forget to use wax paper or cling wrap under the glue joints. When thoroughly dry turn the assembly over and apply parts B1 and B2 to the opposite side.

Begin gluing on the bulkheads somewhere in the middle of the keel and work toward the ends. Use a square or a 90 degree block of wood to ensure the bulkheads are square to the keel. It is a good idea to assemble a few of the bulkheads and allow them to dry before proceeding. If you glue in too many at one time it is likely that some bulkheads will be bumped out of square. While your bulkheads are drying you can tackle the fairing of parts 1A P/S and bulkheads 1 through 5 as shown on plan sheet 1. These parts are easily carved using a No. 11 blade then sanding to a smooth contour before gluing to the center keel. Laser engraved lines are provided on these parts to guide you. Study plan sheet 1 and photo 1. Glue in parts 29A P/S to the keel and bulkhead 29. Rough carve parts 29B P/S to the engraved line and glue in place then sand fair as in photo 2.

Photo 1: bow



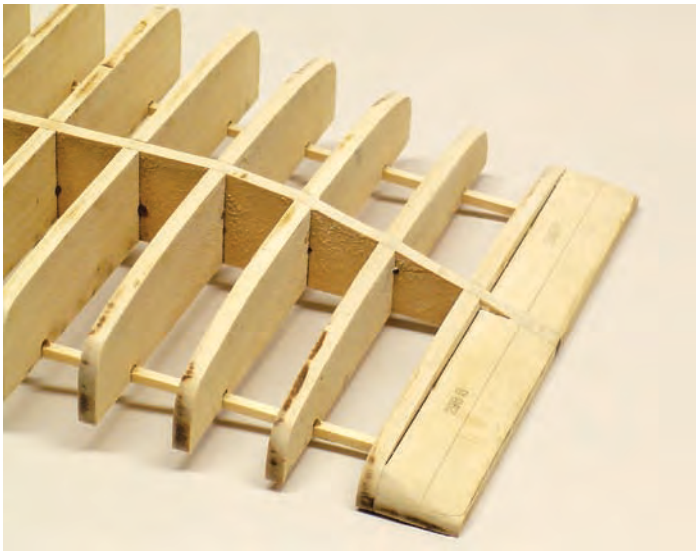


Photo 2: stern

We are now ready to install the 1/8" square stringers. Note that if any curvature has crept into your keel it can be easily straightened and held straight by the stringers. The stringers impart a great deal of strength and stiffness to the structure to withstand the rigors of the next step, fairing. With the stringers installed we are ready to fair the hull. Use a sanding block about 4" long to sand the edges of the bulkheads and fair them to a smooth curve at the bow. At the stern sand the blocks 29B to fair smoothly into the bulkheads. If you have an electric finishing sander it can make short work of this task but be cautious as these tools can remove material rapidly. It is not necessary to totally remove all the char from the bulkhead edges but do remove enough to assure a clean gluing surface for the planking. Note that in photo1, 2, 3, and 4, the fairing has been completed and the hull is ready for planking.

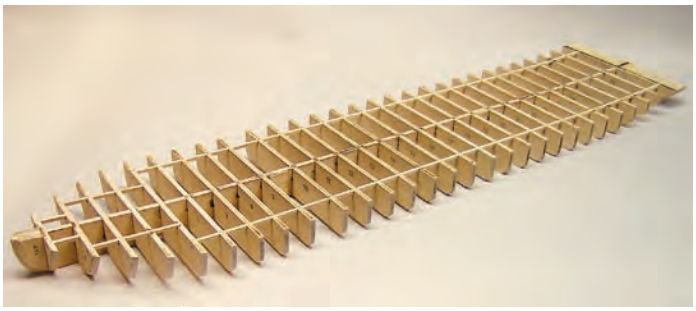


Photo 3: hull assembly faired, cleaned of char, and ready for the deck

1. Planking the Hull

With the hull faired and cleaned of char we are ready to begin planking. Two sizes of planking are provided, 1/16" x 1/8" strips for the sides, and 1/16" x 1/2" strips for the bottom. No difficult tapering of planks is required if the following procedure is followed. In order for the planks to follow the curvature of the hull and fit tightly to the bulkheads it is a good idea to pre-bend each plank. This can be accomplished by soaking the plank end in hot or boiling water until it becomes pliable and then clamping the plank to its intended location on the hull until dry. Another approach and the one that was used on the prototype model is to soak the plank end in a tall bottle of ordinary household ammonia. Ammonia has the

effect of lubricating the cells of the wood making bending easier. It also dries faster than plain water. The planks not only bend around the hull but must twist to lie tight to the bulkheads. Secure enough appropriate clamps to accomplish this.

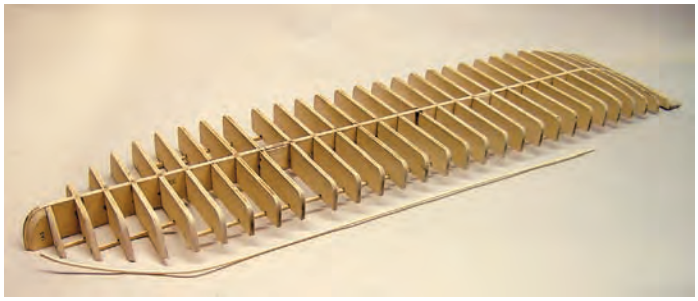


Photo 4: hull bottom faired, cleaned of char, and ready for planking, 1st plank pre-bent

Begin planking at the sheer with 1/16" x 1/8" strips. There will be 13 runs or strakes as they are properly called of these strips used. The strip wood supplied is not long enough to reach the full length of the hull so butt joints will be necessary. Make the butt joints over a bulkhead and stagger the joints. Photo 4 shows the first plank at the sheer pre-bent and ready for installation. It is proper practice to install planks to both sides of the hull as you go to avoid any built up stresses that might warp the hull.

Photo 5: 8th plank being installed at bow

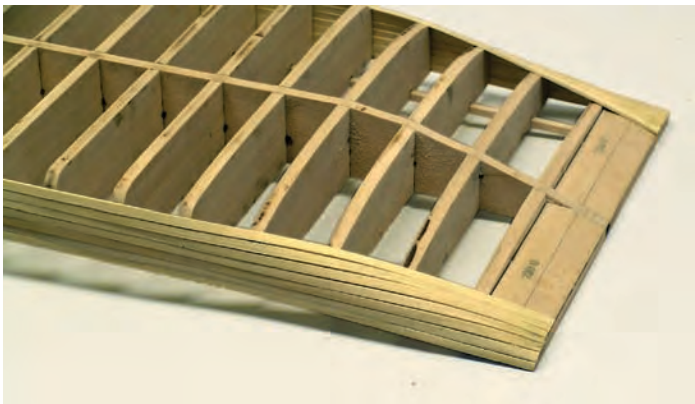


Photo 6: illustrating the run of the planks at the stern

Continue adding planks until 13 full length planking runs have been completed. This takes us around the turn of the bilge and we are ready to plank the flat bottom with the wider 1/16" x 1/2" planks.

Photo 7: the 13th plank run being installed

Begin the bottom planking with 1/16" x ½" strips by installing the first strip down the center of the keel. Taper both sides of this center strip at the bow to fit nicely against the 13th planks. Refer to photo 8. Note the small block of material on the keel at the bow end of the center plank. This allows fairing of the plank into the keel.

Photo 8: installation of the bottom planking. Note fairing block and staggered joints

Continue adding planks tapering them at bow and stern to fit nicely where they meet the 1/8" planks. Refer to photos 8 and 9.

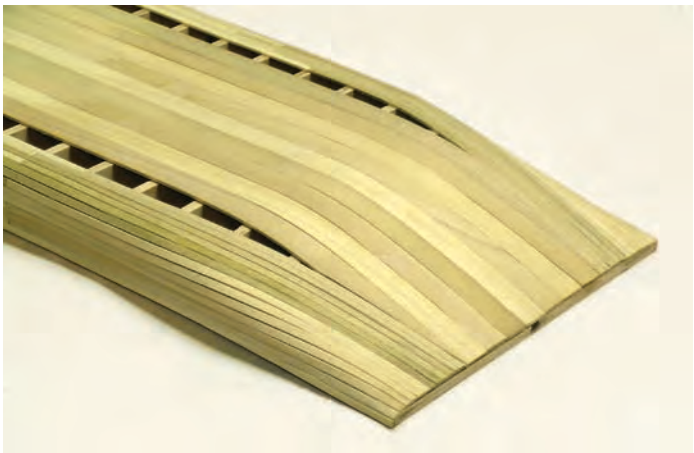


Photo 9: the bottom planking at the stern

With the planking completed, sand and fill the hull to your satisfaction in preparation for painting. Some common wood fillers are Elmers, Zar, Minwax, and some modelers use spackling compound. At this point add the center keel strip, 1/16" x 3/16", down the center of the hull wrapping around the bow to the sheer. As with the planking, soak and pre-bend this strip at the bow before installation.

Photo 10: hull filled and sanded ready for finish

Finishing and mounting the Hull: It is best to now prime and paint the hull bottom before proceeding. On such a large surface common spray can primers and paints such as Krylon brand can be used to great advantage. The first coat of primer will undoubtedly show up some flaws missed during the filling and sanding process. Fill, sand and paint until you are satisfies with your hull finish. Steel wool works well when smoothing primers as it does not load up as sandpaper will. The prototype hull was painted white.

It is a good idea to now mount your hull to help prevent dings and damage as you continue to build up the upper decks. The bottom being flat makes this a relatively easy task. Make a suitable mounting base and make uprights to your own design. A suggested design is given on plan sheet 1. Drill through the uprights and base for an appropriate screw. Determine where these screws are to be placed on the hull and drill into the center keel. It is a good idea to glue pieces of scrap material to either side of the center keel where the screws are to be placed as it is not likely that you will get the screws in the exact center of the keel.

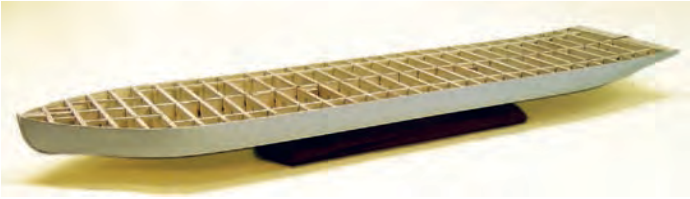


Photo 11: hull finish painted and mounted ready for the main deck

Stage 2: Main Deck and Structures

With the hull planked and finished the main deck can be installed. The main deck is comprised of 4 pieces, 35 P/S and 36 P/S. It is time to decide how you are going to finish the deck. If you are going to stain the decks now is the time to do it, before installing them. As separate pieces they can be stained without risk of accidentally getting stain on your finished hull. The decks of the prototype model decks were stained with Minwax driftwood stain. Also sand away the char on the edges of the pieces to prep for the installation of the 1/16" x 1/4" strips that form the rub rail and go all the way around the deck.

Refer to plan sheet 1, stage 2, and begin construction with part 35S. Align it with the centerline of the center keel and flush with the aft end of part 29A S and glue it in place. Use clamps and/or weights to ensure that the deck conforms intimately to the curvature of the keel and bulkheads. This is important as the fit of the upper deck parts depends on maintaining this curvature. In the same manner install the foredeck part 36S. Locate the cast metal capstan and check for fit into the hole in the foredeck. You will likely have to whittle away a bit of the center keel to allow the capstan to seat properly. This will save the frustration of doing this in the later stages of construction. Complete the main deck with pieces 35P and 36P.

At the stern glue in part 57. Note that part 57 needs to be plumb. A template is provided on plan sheet 1 as well as sheet 6 to aid in keeping part 57 plumb. Glue the template to card stock or scrap wood and cut out. This needs to be a strong joint so epoxy is recommended here. When cured, glue parts 51 P/S to part 57 only, not to the deck. Again this needs to be a strong joint so use epoxy. When cured the aft end of the deck can be bent upward and glued to parts 51 P/S. Install the 1/8" square as shown. Now is the time to drill the 1/8" holes for the rudder shafts. There are holes on the main deck to determine their location. Use a smaller pilot drill first. Using care to keep the drill plumb and square, drill down through the hull. The template used for part 57 will help here. Then use a 1/8" bit and drill a short distance up from the bottom. This will prevent tear out on the bottom of the hull when the drill comes through. Finish the holes by drilling down from the top. Make up, finish, and install the two rudder assemblies.

Building the foredeck companionway: Study the exploded drawing on plan sheet 2. Construction of the companionway is straightforward but a few tips are in order. First about finishing, it is wise to pre-finish these parts as much as is possible. For example, if you have decided that the treads and risers should be red as on the prototype model, these can be painted before removing them from the laser cut sheet. Similarly other parts in this assembly are more conveniently pre-finished before gluing together. Remember to remove any finish in the way of the joints to ensure good glue adhesion.

Begin by gluing 3/32" square strips to parts 38P and 38S. Do this over the full size plan shown on plan sheet 1. Note that the outboard sides of 38P/S will be down during this step. Maintain the angle of the posts as shown. Glue parts 37P/S to these pieces ensuring that you have a right angle joint. Before attaching parts 37A P/S it is necessary to shape the upper ends to receive the 1/4" diameter mast. First cut a triangular notch then use a round file or sandpaper wrapped around a dowel to shape these surfaces. Also now is the best time to attach the 4 small cleats to parts 37A. Use epoxy for this and ensure that you have scraped away any finish under the cleats. We don't want these coming off later when we are trying to rig lines to them. A professional modeler would likely drill and pin the cleats.

Glue parts 37A to parts 37. When these port and starboard assemblies are dry test fit onto the deck and make any adjustments so that the parts fit nicely into the slots on the deck with part 37B clamped between them. Check the fit of the mast between parts 37A and make any adjustments. When you are satisfied with the fit and have finished the parts they may be glued to the deck. Parts 62A P/S may now be attached. Assemble the staircase by first gluing parts 46 P/S to parts 54P/S followed by part 45. Ensure the assembly is square. Glue in the risers first, followed by the treads, and then attach to the deck and parts 37A as shown.

1. Main Deck Aft Structures

Glue down the 1/8" square strips inside the laser engraved lines as shown on plan sheet 1, stage 2. Pre-finish all side and end walls with your finish of choice. A neat way to paint the lettering CHAPERON is to not paint at all but instead use fine tip markers.

The letters are red, the outlines are black. On the prototype model the panels were first painted white and the letters painted last. If you are brushing on a finish over the letters test first that the finish will not smear the lettering. Another variation is to paint or stain the doors, windows, and louvers a contrasting color.

Photo 11a, boiler deck structure parts pre-finished and ready for assembly

When you are satisfied with your pre-finish, glue parts 41, 40P, and 40S in place. Note that parts 40 overlap part 41. Glue the remaining walls in place. At the bow assemble parts 58, 59, 60, and 61, pre-finish and glue in place.

2. Boiler Construction

Begin by gluing parts 65 P/S on top of part 70. Add the remaining parts to form the boiler box. Note that part 67A is 1/64" plywood. Glue the boiler doors to part 66 and part 66 to the boiler box. Now is a good time to sand and seal the boiler box assembly. Part 71 (bottom) has tiny laser cut holes where the brass nails should be placed. Install these nails and adjust their length on a flat surface. Construct and attach the steam drum and mud drum as shown. Note that the steam drum has a 1/16" diameter hole drilled part way through it on the aft side in the center. This will later locate the steam line.

The smoke manifold is the only tricky part of the boiler assembly. Begin by gluing parts 74 to part 73. Study the plans and note the required bevels on parts 74. Use a knife and a sanding stick to achieve these bevels testing the fit of part 76 as you go. Part 76 has a laser engraved line on the back side to assist you in beveling it. Part 76 will also need to be beveled to fit parts 77 and 75. When the manifold is finished glue it to the boiler front as shown. Paint the boiler assembly flat black. The cast pressure gages and safety valves may now be installed in the approximate locations shown.

There are two 1" diameter dowels, 2-5/8" long in your kit. These are the smoke stack covers. They were sheet metal cylinders that surrounded the smoke stacks to prevent the crew from coming into contact with the hot stacks. The bottom ends will be beveled to match where they seat on parts 75. Patterns are provided to assist you in shaping these parts. The patterns are on plans sheet 1 as well as on plan sheet 6. Glue the patterns to the ends of the dowels. Draw a line around the circumference of the dowel 5/8" from the end. Carve the bevels as shown. If you have a stationary disc sander it will make this an easy job. The two 5/8" ID rings are on the 1/8" ply sheet in your kit. Glue the rings on center to the other end of the dowel as shown. Sand seal and paint the stack covers a flat black. Do not glue them to the boiler yet, we will do this at a later stage. The boiler assembly may now be glued to the main deck. Install the 1/16" diameter dowel steam line by first making a crutch to support the aft end. The forward end inserts into the hole we made in the steam drum.

Finishing the Main Deck: Glue in the 1/8" squares to the tops of the aft walls. These will serve as a landing and gluing surface for the boiler deck. Note that the drawing shows these pieces as full length and nicely fitted. This is not necessary. They can be shorter pieces of scrap and serve their function just as well. Next lay parts 39A P/S on the deck in their respective positions and use the 3/32" square holes to mark the location of the verticals. Then install parts 39A P/S. Use the laser etched lines when aligning these pieces. . Install a couple of 1/8" square braces port to starboard to stiffen the structure as shown in Photo 12. Also note that parts 39A P/S will have to be cut away at the forward ends where they are in the way of the smoke stacks. The 3/32" square verticals may now be installed. At this point forward we will assume that the builder has decided to pre-finish parts or not so we will dispense with the mention of pre-finishing. Parts 64, bull rail hangers and parts 63, bull rails, may now be installed. It is best to put them in now as it will be difficult to install them at a later stage. Note that in photo 12 the mast has been made and fitted. This is the best time to do this as the fitting will become more difficult as construction proceeds. Do not glue in the mast at this time, just get it made and fitted. Also note that the smokestack covers are fitted but not yet glued in place, this will come later. This completes the main deck and its structures and we are ready for the boiler deck.

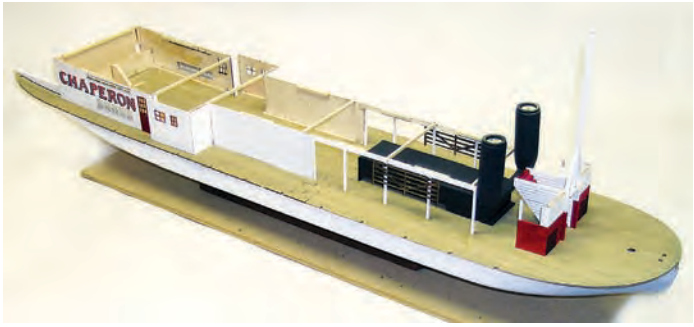


Photo 12: completion of the main deck structures and boiler

Stage 3: Boiler Deck and Structures

Curiously the boiler deck is misnamed. Old drawings label it as such, but the boiler was never on this deck. The boiler deck receives a 1/16" x 1/8" capstrip all around the edge. It is best to prepare these strips now rather than try to bend them on after the deck has been installed. This requires bending the strips around the corners, something that can't be done with dry wood. The easiest method to bend these strips is with household ammonia. This is the method used for the prototype model and is illustrated in photo 13. Soak the strips in the ammonia for about 10 minutes and try the bend. Clamp as

shown and let dry.

Another method is hot/wet bending. Hot wet bending means just that. It is done in the following manner. Bring a tall can of water to a boil on a stove and immerse the strips deep enough to include the

Photo 13: bending the boiler deck capstrips

bend area and let soak for a few minutes. You can test the readiness of the wood by attempting to bend it in your fingers. The wood will cool rapidly after removal from the hot water but do be cautious about burning your fingers. When you think the wood is sufficiently pliable quickly bend it around one of the corners of the deck pieces and clamp. The bend at the stern is of a smaller radius and may take a few tries to accomplish. Allow these pieces to dry overnight. Wood absorbs water much faster than it releases it.

All wood is not the same, varying in hardness and grain direction. A straight grained piece is easiest to bend. If the grain runs out along the piece it may suffer tensile fracture on the outside of the bend. Sometimes the wood will suffer compression failure on the inside of the bend. If you have one of the hot irons sold for bending wood, all the better. The shank surface of a hot soldering iron can also be useful. Some claim success with a curling iron. Once you have four corners prepared you are ready to proceed.

Begin with parts 49S and 50S. Turn them upside down on a flat surface and align the center line with a straight edge. Use a few scraps of 1/16" material to glue them together ensuring to locate these scraps so that they will not be in the way of the underlying structure. Do the same with parts 49P and 50P. If you are going to stain your decks this would be a good time to do it. At the forward end the boiler deck aligns with the slot that goes around part 37A. At the aft end the centerline of the boiler deck aligns with the center of part 41. Align and glue down the boiler deck halves. Use weights to ensure that the deck makes intimate contact (important) with the structure below so as to preserve the curve of the decks.

With the deck firmly down install the 3/32" square stationaries. Note that the stationaries project above the boiler deck by 1/16". It is important to accurately maintain this 1/16" projection as any over length or under length can have an effect on a later step when the railing is installed. Now install the capstrips around the edge of the deck. Pre-finishing these strips will make a much neater job than trying to paint them later. With the stationaries in place the 1/16" x 1/4" rub rail can now be installed on the main deck. Start by soaking a length of the stock in water and bending around the bow. Clamp this piece and let dry. At the stern the bends are gentler but still it is a good idea to soak and pre-bend before attempting to attach the rails. On the prototype model the rub rails were pre-painted black. Continue the rub rail all the way to the stern first pre-fitting, then finishing, then install. At the bow, cut away a bit of the 1/16" x 3/16" keel strip to fit the rub rail. Parts 59 – 61 P/S can now be installed or at a later time. Glue parts 48 to the sides of the stationaries and install the 1/32" x 3/32" bullrails port and starboard as shown. Suggestion: As the bullrails are rather fragile and may be installed at any time, you may want to put them in later to avoid handling damage.

Assemble the bending jig for parts 84 as shown on the plans and let dry. Parts 84 P/S have laser engraved vertical lines forward where a bend is required. Their purpose is so that the basswood will yield at these lines when bent but not break. Because of the variance in hardness of basswood and the settings of the laser machines the engraved lines may or may not be deep enough to allow the wood to yield nicely when bent around the bending jig as in the illustration below. Do not soak these parts. Soaking such a wide piece will likely cause cupping that will be very difficult to remove. Gently try to bend a part 84 and if it does not readily yield you will have to deepen the laser engraved lines. To do this draw the point of your model knife with a #11 blade down the length of the laser lines several times and try bending again. A pair of needle nose pliers comes in handy to coax the wood to yield. Do this until you have a nice even bend without any hard spots and the bend resembles the illustration below. Patience is the key here.

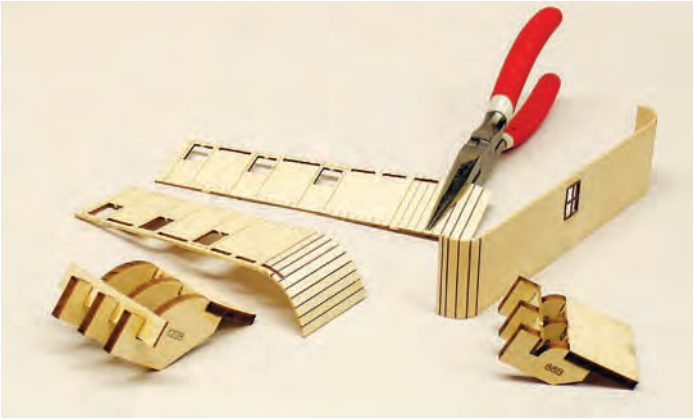
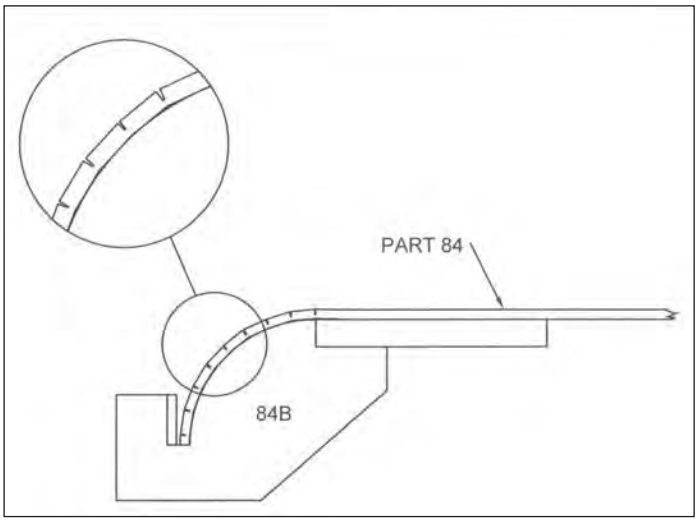


Photo 14: typical bending of cabin sides radii



Bending the cabin sides radii

When you have the bend nicely behaving, try fitting a part 84A to the bend. If it will conform to part 84A, glue parts 84A top and bottom to part 84 thus securing the bend.

The cabin sides of the *Chaperon* (parts 84 P/S) were of board and batten construction. Vertical boards were secured with battens along the seams. On the model the battens are 1/32" squares and there are a lot of them. While this may seem like a daunting task it actually goes fairly quickly once you have developed a routine. Measure and prepare a batch of battens that are cut overlong. With part 84 laid flat on a surface align a batten to the laser marks and apply a few dabs of CA glue. Leave the overlong battens extending beyond part 84 at each end; they can be snipped off later. Apply the doors, part 92, and the windows, part 95. The 1/32"square battens can be made to look more scale like by sanding their thickness down to about 1/64". Use a sanding stick or block. A finishing pad sander can be used as well, but carefully.

Make up the bending jig for part 86 and bend the ends as you did for part 84. Apply the 1/32" square battens and window, part 91. Trim the tops of the battens to be a little more than 1/32" short of the top of part 86. This is to allow for the later addition of the 3/32" wide deck edge trim. Add battens and doors to part 85. Glue pieces of 1/8" square stock inside the laser engraved line on the deck in preparation for installation of parts 84 P/S.

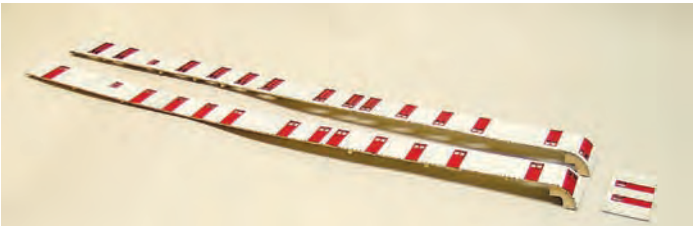


Photo 15: boiler deck cabin parts bent, finished, and ready for installation

With all cabin sides installed glue pieces of 1/8" square stock along the upper edges as well as cross pieces as shown on the plan sheet. Assemble the two stair cases. Install the forward stairs but leave the aft starboard stairs until the hurricane deck is in place to ensure its proper location and fit.

Photo 16: boiler deck structures

If you have not made your mast yet now is a good time to do so while you still have access to the tops of the arched mast supports. Masts were generally tapered and yours will look much more realistic if has a slight taper. The mast is made from 1/4" diameter dowel. Tapering masts can be done in a variety of ways, from carving to spinning the dowel in an electric drill while lightly pinching it with a folded piece of sandpaper. Carving the ball at the top is much easier than it may look. Cut into the circumference of the mast a distance below the top approximately equal to the diameter at that point. Then work the knife downward removing small chips until it looks like the bottom of a ball. Then carve the top into a ball shape and finish with sandpaper. You have plenty of dowel stock so if at first you don't succeed, try again. Check the mast for fit between the arched mast supports and make any final adjustments. Now is the best time to fully fit out the mast with bands, eyebolts, and the gooseneck for the stage boom, before final installation of the mast. Refer to the full size drawing of the mast on plan sheet two. Complete the mast as shown. The sequence for forming the gooseneck is shown on plan sheet 4. Also make up and finish the stage boom at this time ensuring that it fits the gooseneck.

Stage 4: Hurricane Deck and Structures

As you did for the boiler deck pre-bend the 1/16" x 3/32" capstrips that go around the edge of the deck before installing the deck parts. Make up the port and starboard halves of the deck gluing together using under side reinforcement and aligned with a straight edge as you did with the boiler deck. The hurricane deck was covered with tarred felt and/or tar paper. If painting your model this deck should be flat black. Painting before installation will make a neater job. To align the deck halves dry fit a few of the 1/16" square vertical posts and establish where the hurricane deck should go. Make appropriate marks on the underlying structure. Glue down the decks one half at a time. Again it is important that the deck make intimate contact with the underlying structure to maintain the design curvature of the decks.

Install the 1/16" square vertical posts noting that they project above the deck by 1/4". At the stern the posts are stubs 5/16" long which will project 1/4" when inserted into the deck. Install the pre-bent pre-finished 1/16" x 3/32" cap strips around the perimeter of the deck.

The smoke stack covers may now be glued in place on top of the smoke manifold of the boiler. Make up and dry fit the remaining items that go on the hurricane deck. It is suggested that these parts be finished and fitted but not installed until a later time when more of the structures are completed to lessen the chance of damage during handling. The fore and aft guard rails around the staircases are best glued up on deck so that you can match the sweep of the deck at that point. Spacers under the horizontal rails are helpful. It is interesting to note that these guard rails are only about 7/16" high, which at our scale 1:48 means that on the real vessel they were only about 21" high.

Patterns for the conical smoke stack caps are provided on the plans as well as on sheet 6. Cut these out and form into cones observing the alignment marks. Glue the overlap and trim away the excess. The excess is there to give you something to hold onto while forming and gluing.

Paint the stacks flat black.

With the vertical posts installed we can now address the remaining parts that attach to them on the boiler deck, the rails and the decorative support brackets that go at the top of the posts. These

are on the brass photo-etched sheet. Place the brass sheet on a hard surface and use your hobby knife to cut through the tabs that hold the parts in the sheet. Press hard on the tab and the knife will cut through. File or sand the remnants of the tabs leaving a smooth edge. It is best to install the decorative support brackets before the railing as you have more room between decks for your fingers. When gluing brass to wood the gel type of CA glue works well. If you are painting the brass paint these pieces before installation scraping away a bit of the paint at the points of contact. Spray cans work well here, painting the parts before they are released from the photo-etched sheet. The railing is in two pieces for each side. Note on sheet 6 which are the forward ends and which are the aft ends. Bend the forward pieces to shape before installing. The rails sit on top of the 3/32" square stationaries. It is important that the height of the stationaries above the deck be uniform. If your deck sheer curvature complies well with the design curvature, these rails will fit well. If you have trouble with the rails wanting to buckle and not follow the curvature neatly simply snip through either the upper rail or the lower rail depending on whether the rail needs to go up or down and this will relieve the buckle.

Stage 5: Skylight, Texas, and Pilot House

Assemble the skylight as shown on plan sheet 3. The entire skylight, inside and out, as well are the roof are painted flat black. The 1/16" x 3/32" strip around the roof edges is painted white. The next structure atop the skylight is called the 'Texas". The origin of this name is not known but it is labeled as such on old plans that were used to research the model.

The Texas is constructed of four panels labeled 120SF(starboard/forward), 120SA(starboard/aft), 120PF(port/forward), and 120 PA(port/aft). Assemble the bending jig for parts 120 as shown. Applying the same technique as previously used for bends, work in the bends in parts 120. Assemble using parts 124A and backing strips at the midsection joint. Apply the doors, battens, and 1/8" squares. You may find it advisable to also put in a few transverse pieces of 1/8 material to help hold the shape of the Texas. The roof of the Texas was also tarred and is painted flat black. The Texas roof trim is found on the photo-etched brass sheet. Remove these parts and paint flat white. Spray paint works best here. Scrape the paint away where the trim contacts the roof. Shape the curves with your fingers to roughly the curvature of the roof ends. Note that there is a laser etched line on each end of the roof indicating the center line. Apply a few dots of CA gel along a portion of the roof edge from the center line and for a few inches of the roof. Apply the brass and let the glue take hold. Then proceed with glue dots for a few more inches. Note that the trim pieces are identical but that there must be a port and starboard side when scraping the paint for the joint.

Assemble the pilot house from the parts as shown. Note that the pilot house sides overlap the ends fore and aft. Notch the pilot house slightly for the brass strips. The brass strips were tie downs for the pilot house. It is convenient at this point to attach a length of 0.021 white rigging line to the brass in preparation for later rigging of these lines. The pilot house roof is painted flat black. Apply the brass roof trim, noting that the roof sides are slightly longer than the ends. Note the orientation of the roof and glue in place. Assemble the walkway, posts, and rails at the aft side of the pilot house. Leave the rails long for later trimming when the stairway is installed.

With the skylight, Texas, and pilot house installed you can build the stairway that gives access to the pilot house on the starboard side. This is a delicate structure with little to hold things in place during assembly. A full size side drawing is on plan sheet 3 as well as on the smaller sheet 6. The prototype structure was built in the following manner. Cut the 1/16' square vertical posts leaving them a little long. Cut the horizontal pieces again leaving them long. They can be easily trimmed to length after assembly. Position the longer vertical posts on the plan aligning the bottom with the plan and letting the over length extend at the top. Use weights to hold them in place. Now glue on the horizontal pieces and let dry. Do the same with the shorter forward section. Trim off the excess ends. Position these two sub-assemblies on the plan with weights and glue on the temporary 1/16" square piece as shown. This will hold things in place. Turn the assembly over and glue on parts 137 and 138, using a square piece to ensure that they are square to the posts. Assemble and glue on the staircase and handrail. When attaching to the model note that part 137 butts to the trim piece on the side of the skylight while part 138 fits under the Texas roof.

Photo 17: pilot house stairway assembly

There are 5 pieces that make up the railing around the hurricane deck. Identify these pieces on plan sheet 6, finish and install using CA gel glue. A few dabs of glue here and there are all that is necessary. Again any tendency to buckle may be relieved with a snip here and there as needed.

There are five 1/16" square posts at the forward end of the Texas and a short piece of railing. The railing should be raised above the deck by 1/16". Use spacers to accomplish this.

Stage 6: Final Details

1. Cranks and Pitman Arms

Note that it is necessary to make up the cranks before determining the final length of the paddle wheel axle. Refer to plan sheet 3 and identify the parts that make up the cranks and pitmans. Three plywood parts and two brass parts are laminated together to form a crank that resembles a cast iron part. Take care to keep the parts aligned when gluing with CA glue. Use the 1/16" dowel and 5/32" dowel to aid in alignment. Take care not to glue the dowels in place. Clamp the laminates together and use tiny bits of CA to initially

hold the parts then remove the dowels and do the final gluing. Assemble the pitmans in the same manner.

2. Paddle Wheel Assembly

Find the two pillow blocks and loose fit the blocks on the 5/32" dowel. Place a crank on the outside of each pillow block and space this assembly on the stern. Our purpose here is to determine the length of the paddle wheel axle. The axle must end flush with the outboard side of the cranks. When satisfied, cut the axle to length. Make up 4 wheels of parts 56, parts 56A, and parts 56B as shown. Place the 4 wheels on the axle and place on the model, then determine the desired spacing for these wheels. Mark the axle accordingly and glue the wheels in place on the axle. It is very important to keep the wheels square to axle and the paddle arms aligned. Using a piece of strip stock marked with the spacing of the wheels and clamped to the arms is helpful. Use a slow drying glue to allow time to make adjustments. Determine the length of the paddle boards and glue to the arms keeping all nice and square. It is not known if the Chaperon's paddle wheel was painted. In old photographs the paddle wheel appears very dark. This may be because it was painted a dark color, or more likely it was soaked in oil or the preservative of the day. On the prototype model the wheels were stained a dark color and the paddles were painted red. The finish is up to you.

3. Stern Timbers

The stern timbers are made from 3/16" x 5/32" strip stock. A full size layout is on plan sheet 3 as well as on plan sheet 6. Cut the angles and assemble over the plan sheet. You might want to leave the bottom ends a bit long to allow for fitting. Do not glue these in place until the paddle wheel assembly is ready to be fitted. The paddle wheel pillow block locations and the stern timber fitting should be determined simultaneously by fitting to the model. When satisfied that all is well fitted the paddle wheel, pillow blocks, stern timbers, cranks, and pitmans may be installed. Note that the paddle wheel is not intended to rotate. It is simply glued in place. Assemble the cranks to the pitmans with a short piece of 1/16" dowel, then attach to the paddle wheel. Of course you want both cranks to be at the same angle.

Photo 18: Paddle wheel, stern timbers, cranks and pitmans

4. Hog Truss Posts and Rigging

Pre-finish the hog truss posts, part nos. 123A, 123B, and 123C. Make up the hog truss post caps as shown on plan sheet 3. Look closely at the brass cap parts and you will see small indentations at the end of the bend line. Using a pair of needle nose pliers bend the parts to shape and to fit to the tops of the posts. Assemble the hinges using brass nails. Insert the nails and nip off the excess leaving a short nub. Squeeze the cut end with heavy pliers to flatten it a bit and secure the pin. The posts and caps were painted white on the prototype model. It is more convenient to rig as much of the hog truss cable as possible off the model, before the posts are installed. Use the 0.021 diameter white rigging line. Once the posts are glued in place the final connections can be made to the turnbuckles. The hog truss cables appear to be white in old photographs and probably were heavily coated with paint. Complete the hog truss rigging with eyebolts on the deck and stern as shown.

Photo 19: typical hog truss post and rigging

5. Smokestacks

The stacks are made from 5/8" diameter dowels. Fill and sand the dowels to eliminate any obvious wood grain. Layout and mark the locations of the holes at the top of the stacks to receive 1/32" dia. brass rod. Note the dimensions on the full size layout of the stacks on plan sheet. Drill the holes to fit the brass rod. A depth about 1/4" is sufficient. At the top of the stacks is a ring made of 1/8" plywood supplied in the kit. File and sand these rings to a half round shape before gluing to the dowel. Refer to plan sheet 5 for their location. The other rings (actually joints) can be made with narrow tape or thin strips of card stock. Chartpak tape was used on the prototype. You can also make your own narrow tape by slitting masking tape on a hard surface such as glass. Wind enough layers of tape at each location to give the appropriate appearance.

A paper pattern is supplied to attach to the top of the stack to aid in getting the proper spacing of the decorative pieces at the top of the stacks. There are six of these pieces. Note that the foremost piece points directly forward 90° from the holes that were drilled. For the decorative flare at the top of the stack use the paper pattern supplied. Glue the pattern to card stock and cut out the shape

with a sharp knife. Form to fit the stack and glue in place. When the glue has dried use your fingers to shape and form the flare. At the bottom of the stack is a cone shaped shield. Use the paper pattern supplied to form the cone. On the prototype model the paper alone was adequate, no card stock was needed. Paint the stacks flat black and glue in place. Don't forget the brass wires!

6. Stage, Stage Boom, and Rigging

Install all eyebolts as on plan sheet 4 in preparation for the standing rigging. Refer to plan sheet 4 and 5 for the run of the rigging. Use the white 0.021 diameter line for all standing rigging. Assemble the stage as shown on plan sheet 4. Prepare all blocks as shown on plan sheet 4 and attach where indicated. Attach the stage boom to the gooseneck if not already done and reeve the tackle. Use the 0.012 diameter tan rigging line for all the working lines at the bow. Reeve the tackles as shown and gently tighten the lines to give the configuration shown. The spreader sling should hang straight down plumb. The line that attaches to the rear of the stage, then to the bow is the key to achieving this.

Photo 20: stage and stage boom rigging

7. Small Boats

There were two small boats stowed on the hurricane deck of the Chaperon. These are supplied in your kit as Britannia metal parts. As the hurricane deck was an unprotected weather deck it is likely that these boats were covered and the launching tackles stowed. On the prototype model one boat was covered as if stowed and one boat was fitted out with interior detail and shown as if ready to be deployed.

Photo 21: small boats

The cover was made from ordinary bond paper, creased and glued to the gunnels of the boat. Small scissors was used to cut away the scallops and the cover painted to simulate weathered canvas. Details for finishing out your boats are on plan sheet 4. The boats were deployed by swinging them from booms. Details of the booms and tackles are on plan sheet 4. Use the 0.008 tan rigging line to rig the tackles and secure to the deck with the small cleats provided.

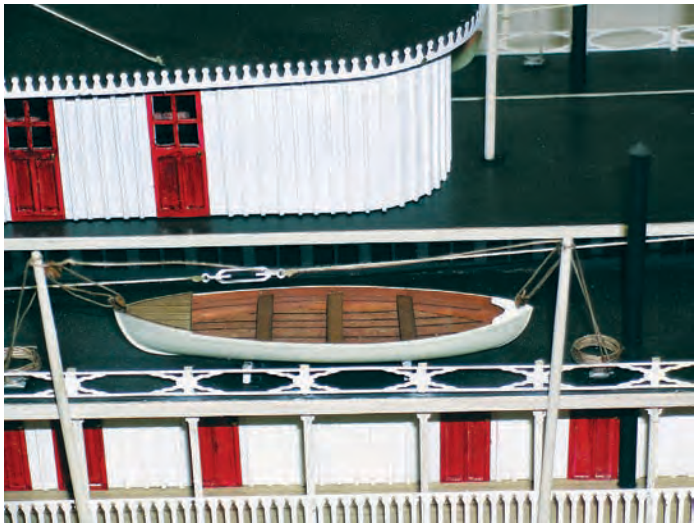


Photo 22: small boat ready for deployment

If you have added all remaining details your Chaperon is finished. Congratulations! Take a moment and revel in what you have accomplished. You've persevered through the toughest of tasks and reached the end. You have probably developed skills you never knew you had. Admire your work and enjoy.

Bibliography

How to Build First Rate Ship Models from Kits by Ben Lankford. Hollywood, FL. Model Shipways, Inc., 2000.

A book designed especially for the kit builder. Covers all facets of building models from kits, and features Model Shipways kits as well as others. The Appendix has a wealth of nautical terms defined, especially useful for the beginner.

Ship Modeler's Shop Notes edited by Merritt Edson, Jr. and others. Nautical Research Guild, 1979.

Valuable collection of shop hints and articles extracted from early issues of the Nautical Research Journal. Many quality illustrations, tables, and techniques. Available from model expo

The Ashley Book of Knots by Clifford Ashley. New York: Doubleday & Co., 1944.

The best book ever written on the thousands of knots used aboard old sailing ships and boats. Outstanding illustrations.

Chaperon

Parts List MS2190

3/14/2013

PART #	ITEM	QUANTITY	DESCRIPTION/NOTES
BRITANNIA CASTINGS 1 pack			
WP7909	Whistle	1	
WP7910	Capstan	1	
WP7911	Lanterns	2	
WP7912	Safety valves	3	
WP7913	Water level gauges	3	
WP7914	Boat	2	
BRASS AND MISCELLANEOUS FITTINGS AND MATERIAL			
WP0046	Cleats 3/8”	4	
WP0426	Bell	1	
WP0428	Eyebolts	30	Brass
WP0806	Cleats 3/16”	10	
WP0940	Nails	30	
WP160k-12	1/32" dia.x 12” rod	1	
WP2590	Photo etched sheet	1	
DEADEYES, BLOCKS, AND OTHER WOOD FITTINGS			

Note: All deadeyes are boxwood and blocks are Walnut unless otherwise noted.

WP0302	1/8” Single Blocks	12
WP0304	3/16”” Single Blocks	2
WP0308	1/8” Double Blocks	8
WP0310	3/16” Double Blocks	2

RIGGING LINE

Note: Rigging line is Cotton/Poly mix.

WP1221	0.021” Dia. White	6 yds
WP1241	0.008" Dia. Manila Hemp	3 yds
WP1246	0.012" Dia. Manila Hemp	6 yds

WOOD DOWELS

Note: All dowels are Beech unless otherwise noted. Dowels are supplied in lengths as noted. Cut to length as required.

WP5101-24	1/8" x 24"	2	
WP5102-24	5/32" x 24"	2	
WP5103-24	3/16" x 24"	1	
WP5104-24	1/4" x 24"	1	
WP5100-12	5/64" x 12"	2	
WP5113-36	5/8" x 13"	1	cut to 6 ¼” (2pc)
WP5114-36	1" x 6"	1	cut to 2 5/8” (2pc)

WOOD STRIPS, SHEETS, AND BLOCKS

Note: All wood is Basswood or Limewood (European Basswood) unless otherwise noted. Wood strips, sheets, and blocks are supplied in lengths as noted. Cut to length as required.

STRIPS

WP3600-24	1/32" x 1/32”x 24”	30
WP3602-24	1/16" x 1/32” x 24”	4
WP3603-24	1/32" x 3/32”x 24”	12
WP3618-24	1/16" x 1/16” x 24”	8
WP3619-24	1/16" x 3/32”x 24”	10
WP3620-24	1/16" x 1/8” x 24”	52
WP3622-24	1/16" x 3/16” x 24”	4
WP3623-24	1/16" x 1/4” x 24”	4
WP3624-24	1/16" x 1/2” x 24”	18
WP3625-24	3/32" x 3/32” x 24”	8
WP3631-24	1/8" x 1/8” x 24”	10
WP3671-24	3/16" x 5/32” x 24”	1

LASER CUT AND MACHINE CUT PARTS WOOD PARTS

Note: All Laser-Cut wood is Basswood or Limewood (European Basswood) unless otherwise noted.

WP4638-24	1/16” X 3”	5	
	LC1		1 part
	LC2		1 part
	LC7		1 part
	LC8		1 part
	LC17		1 part
WP4607-24	1/16” X 4”	8	
	LC3		1 part
	LC4		1 part
	LC5		1 part
	LC6		1 part
	LC9		1 part
	LC10		1 part
	LC11		1 part
	LC12		1 part
WP4608-24	1/16” X 6”	4	

	LC13		1 part
	LC14		1 part
	LC15		1 part
	LC16		1 part
WP4631-24	3/16” X 3	4	
	LC18		1 part
	LC19		1 part
	LC20		1 part
	LC21		1 part
WP4619-24	3/16” X 4	2	
	LC22		1 part
	LC23		1 part
WP4656-20	1/64” PLY	2	
	LC24		1 part
	LC25		1 part
WP4633-20	1/16” PLY	1	
	LC26		1 part
WP4630-20	1/8” PLY	1	
	LC27 Paddle wheels, rudders		1 part

PLANS AND INSTRUCTIONS

WP2190MB	Instruction Manual	1
WPPL2190-A	Plan, 6 Sheets	1 (plan # 6 is together with laser I.D sheets)
WPPL2190	Parts List	1
WP2190L	Laser I.D sheets	1

NOTE:
On instruction book;

- Page 7, Stage 2, paragraph 5
  On plan referred to the numbering 38S and 38P should be reversed.
- Page 12, Section 3, Stern timbers.
  Last sentence should read “of course you want the two cranks to be 90 degrees to each other”