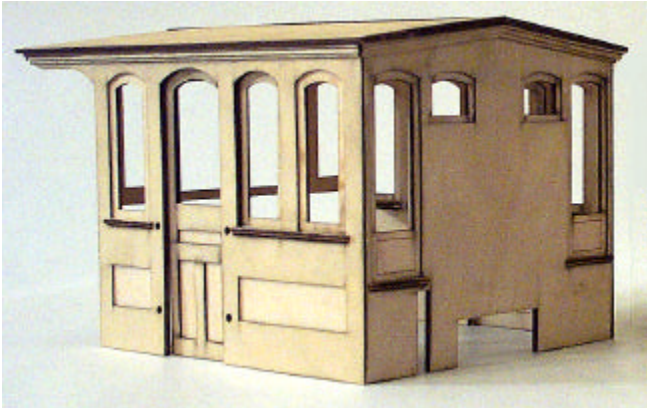




**FH&PB
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MASON BOGIE WOOD CAB KIT



You have before you a wood cab kit for David Fletcher's *Master Class 2002* Mason Bogie project locomotive. The 1870s cab represents the original cabs supplied by the Mason Locomotive Works, with a peaked roof, arched window frames and ornate decorative molding. The 1880s cab is based on the later type with a rounded roof and squared-off windows. The kits are laser-cut from birch plywood, and include window "glass" and handrail stanchions.

Tools and Supplies.

You will need some basic hobby tools and materials to assemble the wood parts of this kit: a hobby knife (X-acto 11 or similar), wood glue and cyanoacrylate glue (CA or super-glue), paint or stain, extra-fine sandpaper, clamps (we recommend office binder clamps) and a small square. To glue the cab, we recommend a good outdoor-grade wood glue. You must apply this sparingly, however, as some glues may warp the wood. A slow-setting CA will work for some parts, but should not be the only adhesive used. Alignment of some parts is critical, and CA does not give sufficient time to make these adjustments.

Preparing for Assembly.

We have included check-off boxes to help keep track of your progress during assembly. **Read through these instructions completely before beginning assembly.** If you wish to stain the cab, you may do it before or after assembly. Painting window frames or the inside

walls may be easier before assembly. Keep stain and paint off the surfaces to be glued, if possible, and definitely keep glue off surfaces you want to stain later. Painting suggestions are at the end of these instructions. To achieve the furniture-grade finish typical of Mason's new locomotives, we recommend several coats of paint, with sanding in between coats. The first coat should be a sealer (shellac, clear varnish), applied before the panels are glued together. When the sealer is dry, sand with extra-fine sandpaper down to the bare wood, leaving the sealer only in the open grain of the wood. Even if you don't seal the wood, lightly sand all the parts to smoothe the wood's grain. Also, wipe the edges of the parts with a damp cloth to remove the soot from the laser-cutting process.

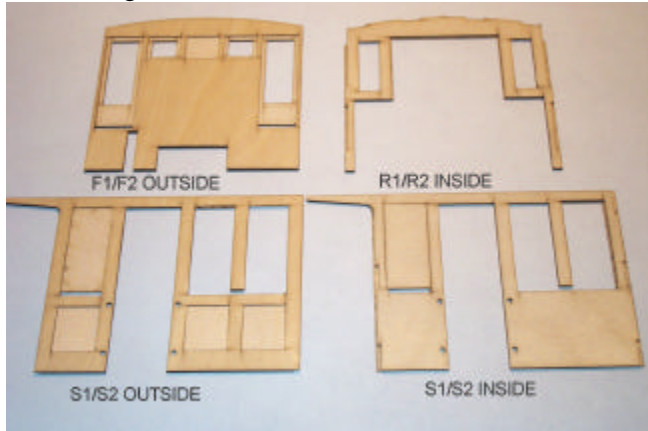
Each wall comes in two layers to create the effect of recessed paneling, window frames, etc. Unless noted otherwise, the $\frac{1}{32}$ " thick wood is the outside layer. The walls must be laminated together before the whole cab can be glued together. The layers are notched and offset to form strong joints at the corners, so no additional reinforcement should be necessary, but you may want to glue a $\frac{3}{16}$ " square post (not included) in each corner as a mounting point. You must take care to align the wall parts correctly to get a good fit and insure rigidity. We suggest that you check the fit of all pieces and familiarize yourself with how the walls go together before gluing. When gluing the side panels together, use the supplied window plug to align the specified openings, which will insure the tightest joints at the corners.

Familiarize yourself with the kit by comparing all parts to the pictures on the parts list.

Assemble the cab.

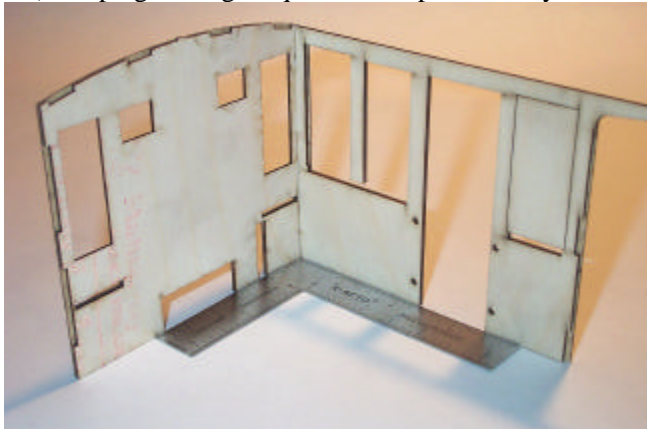
On the 1880s cab, the rear side window is blocked, as it was on many Bogies late in their lives. If you want to put glass in this window, remove the panel from the inner layer now. If not, leave out the rear window instructions below. Take one inner side wall (S1 and S2) and lay the pieces on your work surface. Apply glue to the inside of the outer layer and press the two sides together. Adjust the sides until the door opening and the grabiron holes are perfectly aligned. Clamp or place a heavy weight on the

walls, and let dry. Repeat for the other side, making a mirror image of the first one.



□ Glue together the front walls (F1 and F2) so the outer edges are aligned and square. Make sure that the rectangular cutouts below the doors and at the bottom edge are exactly aligned. □ Glue together the rear walls (R1 and R2) so the outer edges are aligned. If you will be leaving the rear sliding windows closed, glue them into the center opening at this time. Clamp and let dry.

□ Glue together the two layers of each door (D1 and D2), keeping the edges square. Clamp and let dry.



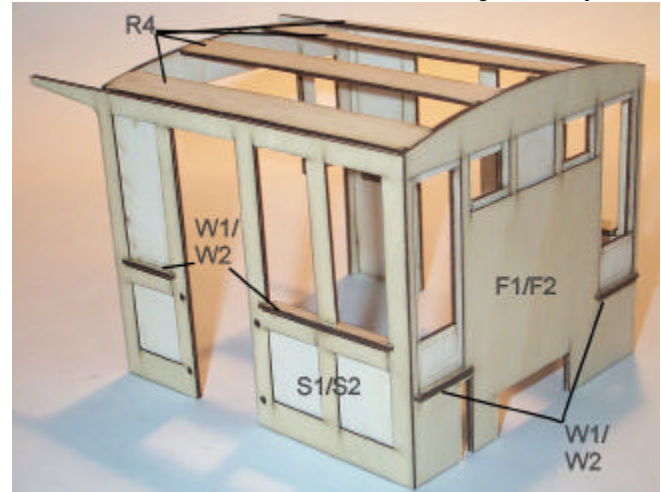
□ Glue the front panel to one side wall, using a square to keep the corners at *exactly* a 90° angle. **Keeping these corners perfectly square is extremely important; take care in this step to insure success later in the rest of the project.** If you do not have a square, use one of the roof panels to check the angle. Make sure that the tabs in the side panel fit snugly into the notches on the front panel. Let dry. □ Repeat with the back panel and the other side wall.

□ When both joints are dry, assemble the complete cab.

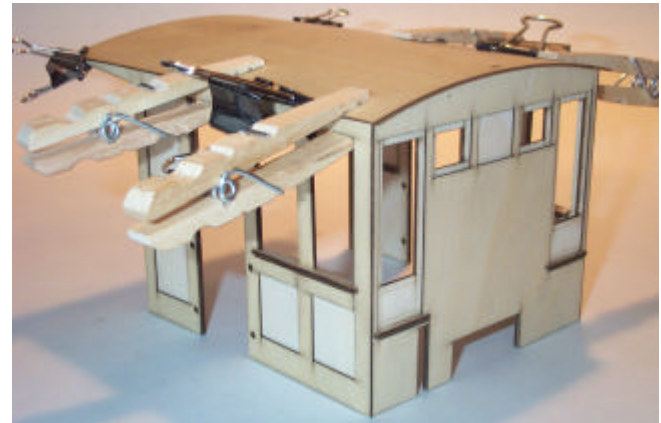
□ For the 1870s cab, glue the roof support (R3) into the tabs cut in the top of the side walls. Apply glue to the notches in the support.

□ Glue the roof stringers (R4) into the notches in the top edges of the front and rear walls (1870: glue and clamp them to the roof support. It's especially important

to insure that the stringers lie perfectly flat on the 1870s cab so the fascia ornamentation will line up correctly.)



□ Separate the window sill parts from their carriers (W1 and W2). Slide one $\frac{1}{32}$ " thick, long piece into a slot under the two side windows, then slide a long $\frac{1}{16}$ " on top of it. Glue in place. Repeat on the other side. Attach the short sills under the rear windows and front doors in the same manner.



□ Attach the roof. The inner layer of the roof has locating notches, which fit over the tabs in the center of the front and rear walls. Glue the inner layer (R1) to the cab, clamp and let dry. Look to see that the roof is straight all around the edges, and add more clamps as necessary to get a straight edge. □ On the 1870s cab, lightly sand one long edge of the outer roof halves to put a slight angle on them. This will make a tighter joint on the finished roof. □ Glue the outer roof layer (R2) to the inner layer, taking care that the outer edges of both layers are aligned. On the 1880s cab, the scribed guidelines should be visible on top (unless you don't plan to attach rain strips to it, in which case the plain side should be on top).

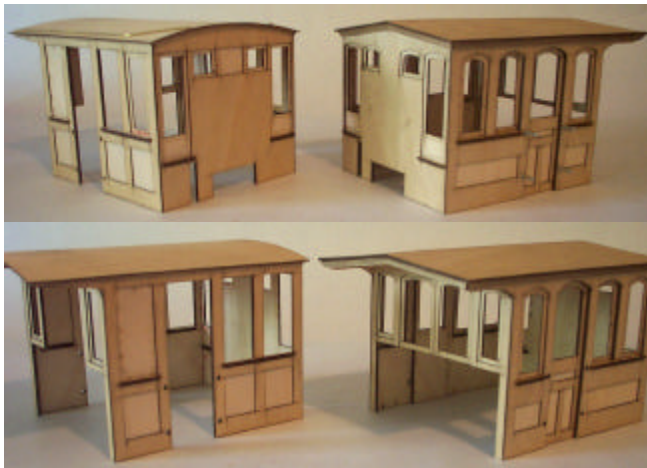
Separate the fascia strips (S3, S4) from their groups with a hobby knife. □ For the 1870s cab, take three peaked strips (S4 thin, medium and thick) and glue the three layers together with the peaks centered to make the rear fascia trim. Make sure the top edge of this trim as-

sembly is flush. 1880s: Glue the $\frac{1}{16}$ " thick roof arch (not shown; it is attached to the roof stringers) to the underside of the roof, in between the ends of the rear roof extension, followed by the rear fascia strip. Glue the rear fascia trim to the top of the rear extensions and to the underside of the roof. Center the rear fascia trim so it extends past the edges of the rear extensions equally on each side.

Glue the side fascia trim (S3) to the top of the side walls. 1870s: glue one of the wide strips to each side, then apply the remaining wide peaked strip to the front wall, overlapping the side strips. Repeat with the medium and thin strips. The last fascia strip you apply will be the thin front strip.

The 1880s cab has only one trim strip per wall -- attach the side strips, then the front strip.

Attach the doors as desired. They may be glued in a closed position in the door openings, glued in an open position, hinged or omitted altogether.



Finishing

Now is the time to complete the painting or staining. Apply the finish you have chose, let the first coat dry thoroughly (several hours), then sand lightly with extra-fine sandpaper or steel wool. This sanding should be only enough to get a smooth surface. Repeat until satisfied with the surface finish. Paint or varnish the window frames (W2, W3, W4) at the same time, but keep them in their groups.

On the prototype, the roof would be covered with canvas or asphalt roofing paper. You may simulate this spreading a very thin coat of wood glue over the top of the roof decking. While the glue is still wet, lay $1\frac{3}{4}$ " (45mm) strips of rough paper on the roof. Overlap the strips about $\frac{1}{16}$ " (1.5mm). Allow to dry overnight. Another method is to glue emery paper (extremely fine sandpaper) to the roof. Or you can leave it bare wood. (Paint and sand a bare wood roof several times before attaching the rain strips to eliminate all wood grain.)

1880s only: Attach the rain strips to the roof. Take some thin ($\frac{1}{32}$ " or .75mm) brass wire, bend it to the shape of the scribed lines on the roof, and trim to length. Attach with CA glue.

Paint the roof with flat black or red oxide paint.

When all the paint or varnish has dried hard, separate the four fixed window frames and glue them into the forward and rear openings inside the side walls. Separate the two middle window frames and glue them in place (open or closed) inside the middle opening of the side walls. Separate the glass parts from their group and use CA or silicone glue to attach them to the inside of the window frames. The grabiron stanchions may be painted with brass paint, or polished by brushing them lightly with steel wool. Cut two grabirons from $\frac{1}{16}$ " (1.5mm) brass rod. 1870s: $1\frac{7}{64}$ " long (28mm). 1880s: $1\frac{1}{16}$ " long (27mm). Insert the grab irons into the stanchions (C13), and glue the stanchions into the holes and the rod into the stanchions with CA glue. Holes for the stanchions are pre-cut, but if glue has blocked them, you may need to open them a bit; test fit before gluing. The cab is now complete.

Assemble the tender form (optional).

The tender form consists of ten wood parts (T1-T7) and a guide for measuring the flare of the top edge (T8). The floor has slots to accomodate a sound system speaker; installation will depend on your system, of course.

Start by applying glue to one short edge of the bulkhead (T3) and inserting the tab into the slot in one of the sides (T4). Apply glue to the long edges of this assembly and attach to the top (T1). Make sure the tabs of T4 are in the slots of T1. Apply glue to one long edge of the other T4 and short edge of T3, attach T4 to the top assembly. Fit the bottom sheet, T2, to the assembly *without gluing*, so you can clamp everything in position. Use your square to make sure the sides are perpendicular to the top. Let dry.

If you intend to install batteries in the tender and need more room than the bunker provides, you may want to remove the center section of the bulkhead (T3). Use a razor saw to cut out the section as needed before attaching the T2 permanently.

If you are installing a sound system speaker, detach T2 and install it now. Glue T2 to the top assembly, clamp. Glue the rear sheet (T5) into the slots at the rear of the tender. Glue the coal bin sides (T6) into place inside the "U"-shaped water legs. Glue both parts T7 to the ends of the water legs, inserting their tabs into the slot in the front of T4. Clamp and let dry.

Depending on the material you use for the tank wrapper, you may need to install corner pieces to keep the wrapper in a smooth curve. There are several ways to go about this, depending on your tooling. One is to use wood

corner pieces. Cut a 1⁵/₈" length of 3/4" diameter wood dowel. On a table saw, split it into four pieces lengthwise to make quarter-round inserts. Glue one of these into each of the rear corners and the inside water leg corners. You can do something similar with 1/2" nominal PVC pipe, using a razor saw or motor tool. This will take a little more fiddling to get the pieces the right size to fit into the gap, but a sanding block or file will do the job.

□ If you want to apply "rivet" detail to the tank wrapper, print the paper templates (ShortTenderSheets.PDF or LongTenderSheets.PDF), cut them out and tape them to the wrapper, then use the circles to locate the rivets. □ Before attaching a brass wrapper to the tender form, wash the brass thoroughly. Use hot water, an old toothbrush and a degreasing detergent (there are many brands sold in spray bottles for home use). Avoid touching the metal with your hands until after painting.

Thank you for buying this FH&PB kit! We hope it will add to your enjoyment of your model for years to come.

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