

# Lehigh Valley Models

LVM20

## BROWNHOIST PILLAR CRANE

Although the Industrial Brownhoist Pillar Crane hasn't the fascination of a massive steam locomotive or a sleek diesel, it has been an indispensable back stage worker in all railroad drama and makes an ideal companion to the LVM18 freighthouse, a warehouse, an unloading platform, or it could be used in any small yard area. It has unloaded countless tons of everything from I-beams to beer barrels.

Of interest is the fact that Brownhoist didn't furnish the cab as standard equipment; its design was left to the individual railroads. Some cranes never had a cab.

Before construction, check the drawings first to prevent removing small lugs or projections, then clean up each of the castings with a fine file. Use a fast drying cement for assembly. Super Glue is recommended, but be careful in handling it. Duco can also be used but not near as good. Sand stripwood, etc. with fingernail emory boards.

### PAINTING

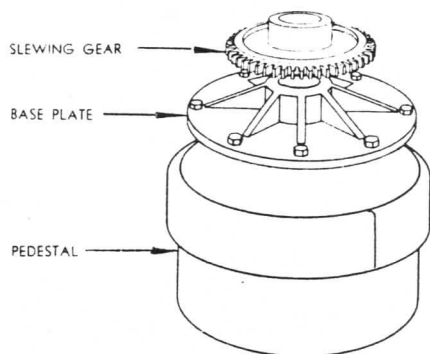
This step is mentioned first because some parts must be painted before complete assembly for easier accessibility. Paint entire crane flat black except the cab which should be painted with a thinned flat black stain. Grimy black or a dark grey can be used to high light gear teeth and other metal parts. The pedestal is coated with a light grey or concrete color.

### BASE ASSEMBLY

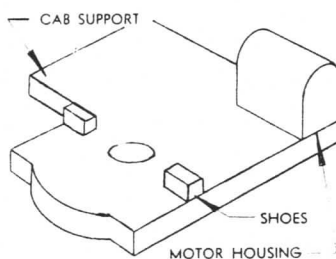
Glue the  $\frac{3}{8}$ " x  $4\frac{1}{4}$ " card strip around one end of the  $1\frac{1}{4}$ " diameter dowel (pedestal) keeping it flush with the edge. Trim the ends so they meet snugly. Glue it in place and wrap with a rubber band until dry. Then sand the flush edge round.

File the center hole in the base plate and slewing gear castings so that the  $\frac{3}{16}$ " dia. brass tubing will fit snugly. Glue these two castings to the pedestal top as shown. Be sure they are centered and holes line up perfectly.

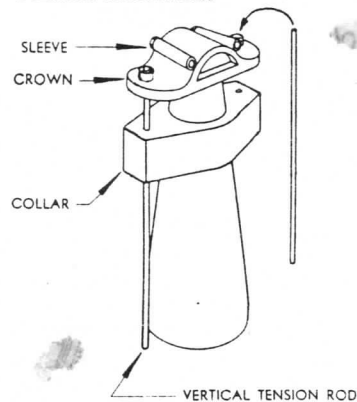
BASE ASSEMBLY



PLATFORM



PILLAR ASSEMBLY



### PLATFORM ASSEMBLY

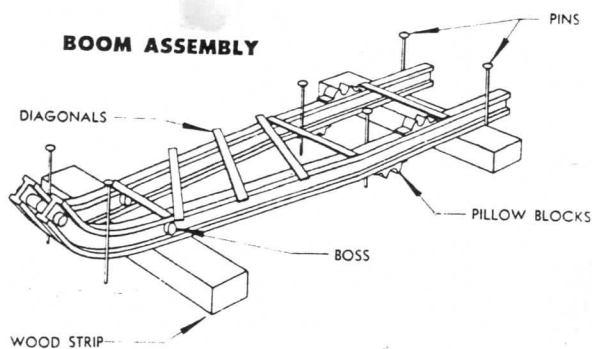
Cut both pieces from card stock as outlined and glue them together to form a thicker unit. Drill a  $\frac{3}{16}$ " hole where marked and insert  $\frac{3}{16}$ " O.D. tubing into this hole leaving  $\frac{1}{32}$ " of it extend above the platform top. Secure with glue. File the platform edges smooth. Now round one edge of  $\frac{1}{4}$ " x  $\frac{3}{8}$ " x  $\frac{1}{2}$ " wood motor housing supplied and glue it to corner of platform as shown. Cut  $\frac{3}{32}$ " sq. x  $\frac{1}{8}$ " long shoes from short piece provided and glue ahead of the marks on either side of the platform.

### PILLAR ASSEMBLY

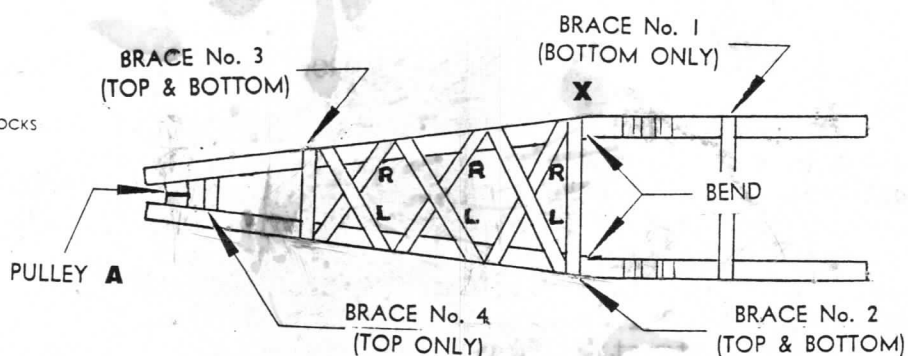
Drill a tiny hole in the back of the pillar collar for power line (to be added later). Drill a #65 hole through the crown where the vertical sleeve projects (on both sides) and down through the collar holding the drill as vertical as possible so the tension rods will be vertical when inserted. Drill #55 holes about  $\frac{1}{8}$ " deep into the horizontal sleeves on the top of crown. Mount the pillar over the projecting platform tubing and liberally glue in place. Now insert the .030 piano wires. They should touch the platform and extend  $\frac{1}{32}$ " above the sleeves. Glue them in place.

#55 = about  $\frac{7}{64}$   
#65 = about  $\frac{1}{32}$

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## BOOM LAYOUT (FULL SIZE)



### BOOM ASSEMBLY

The drawings show the assembly of the booms and braces. Booms must be bent inward at "X" before adding any braces. Using a vice or a pair of pliers, bend the booms carefully until the proper angle is obtained. Use the drawing to check and increase or decrease bend as necessary. The projections at the top of each boom join on the inside to form pulley "A". File the ends of these projections to meet evenly and file the outer portions flush with the outer sides of the booms.

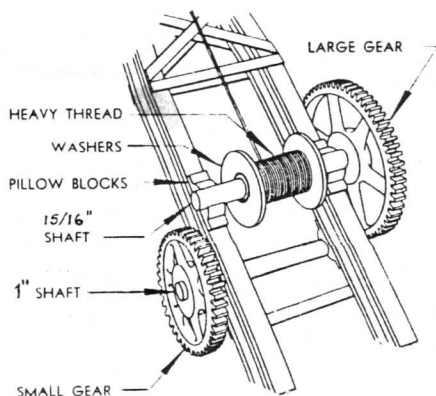
Next, lay the booms bottom side up directly over the drawing. Raise the ends with small strips of wood (to clear pillow blocks) and pin them in place as shown. Then cut braces 1, 2, 3, from .020" x 1/16" stripwood and cement to the booms in the positions shown. When dry, add diagonals "R" and "L" trimming flush as needed.

Now remove the boom unit from the plan and turn it rightside up. Paint the inside face of each boom now as they aren't very accessible after the next step. Following the same procedure as above, add all the top braces and diagonals.

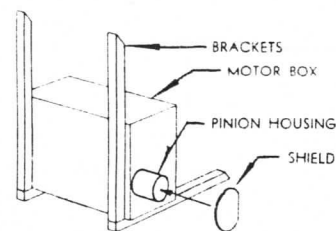
When the completed unit has dried, place the lower ends of the boom onto the platform deck against the shoes and cement the boom unit in place. With the platform level, block up the curved end exactly 2 3/4" (Right Elevation) until the cement has set.

The two lateral tension rods connecting the booms and pillar are made from the soft .046 wire supplied. Straighten the wires and flatten one end of each rod for a distance of 1/16". File this flattened area to a disc as shown in the right elevation and trim each rod to length checking with your model. The flattened end attaches to the boss on the side of the boom while the other end fits into the hole drilled in the horizontal sleeve, Glue the rods in place. Super Glue will work best.

### GEAR & DRUM ASSEMBLY



### MOTOR BOX & BRACKETS



### GEAR AND DRUM ASSEMBLY

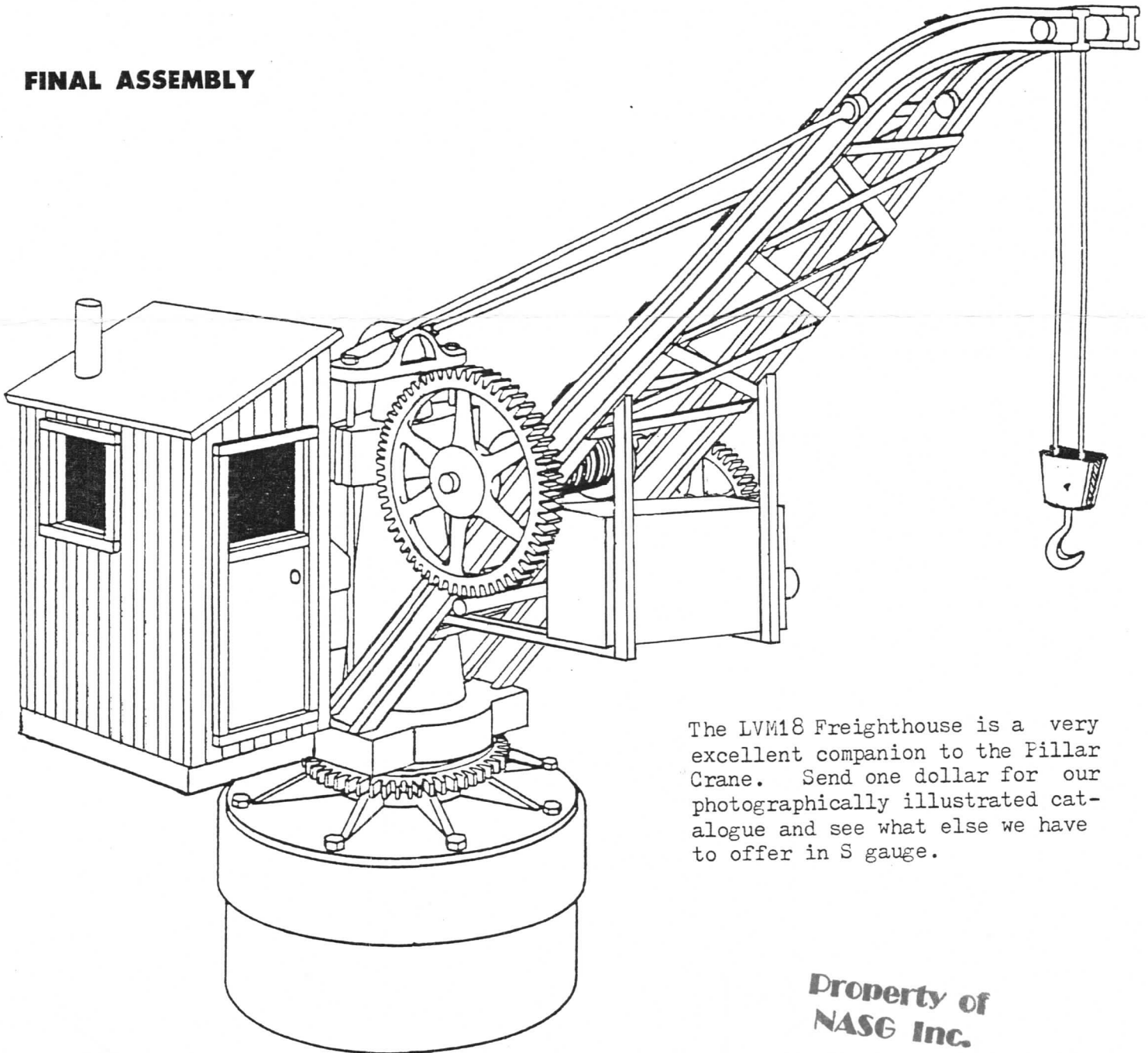
Smooth ends of the 1" and 15/16" steel 1/16" diameter shafts. Glue the longer shaft to the small gear and the short shaft to the large gear. Be sure the gears are at right angles to shafts. Form a cable drum by centering and cementing the brass grommets into the holes in the 3/8" dia. washers. Place them 3/8" apart on the 1" shaft. See drawing. Cement the small gear and shaft in pillow blocks. Save the small gear and drum assembly until later.

## HOIST CABLE AND HOOK

When the large gear and drum have been painted, wrap the drum with several turns of masking tape to make it fuller. Then wrap with several turns of thread to cover the tape holding the ends with a bit of glue. This assembly may then be glued in position in the upper pillow blocks of the booms. The rim of the large gear should touch the small gear shaft. If not, file pillow blocks to allow both parts to touch. Now, run black thread from the drum over pulley "B", then over pulley "A", through the hook and back up to be tied or glued to the inside of pulley "A". If there isn't an opening in the lower part of the hook, carefully drill a small hole so that the thread can be passed through it. Use a pin vise and drill by hand to prevent breaking the hook. An alternative is to glue the ends of the thread to their proper places on each side of the pulley part of the hook. See drawings.

The bushing on the crane platform should fit into the hole in the slewing gear and base plate to allow it to revolve. Touch up any areas that need paint and that should complete your model of the Brownhoist Pillar Crane.

## FINAL ASSEMBLY



The LVM18 Freighthouse is a very excellent companion to the Pillar Crane. Send one dollar for our photographically illustrated catalogue and see what else we have to offer in S gauge.

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Pulley "B", a piece of  $1/16$ " wood dowel cut to fit between the booms, is now cemented in place to raise the cable over brace #3.

#### MOTOR BOX AND BRACKETS

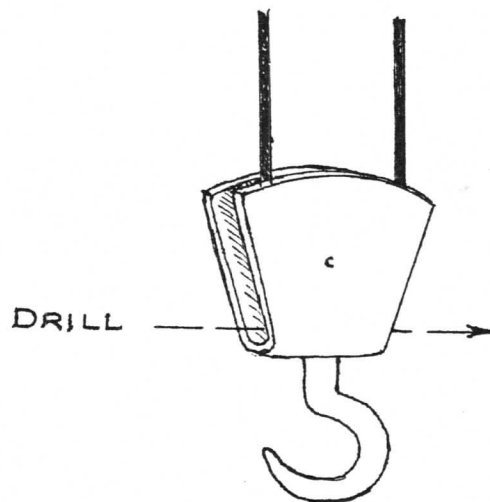
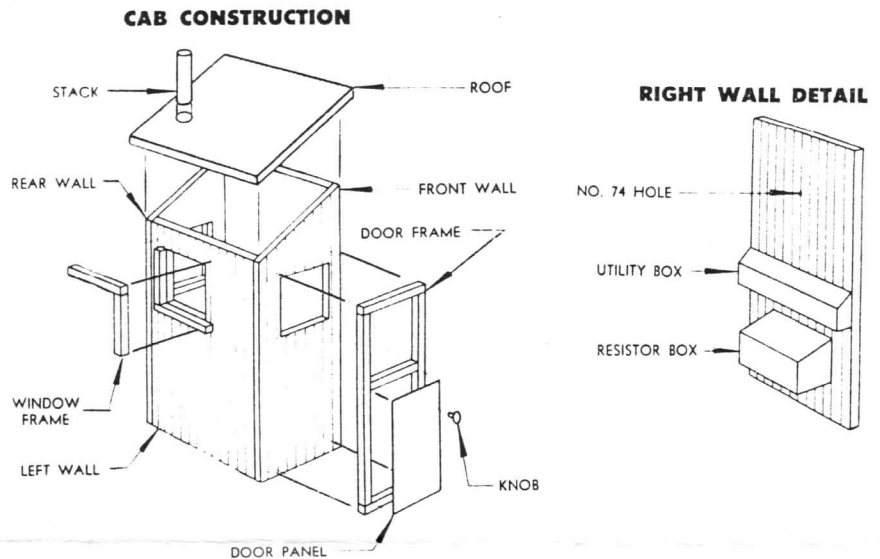
Make up the two right angle motor box brackets from  $3/64$ " sq. strip, cutting each arm about  $1/16$ " longer than the size shown in the right elevation. Test fit and carefully trim one of the brackets until the lower arm is horizontal while both ends rest against the two booms as seen in the final assembly drawing. Trim other bracket to match and cement both brackets to motor box ( $1/4$ " x  $3/8$ " x  $3/4$ ") as shown.

Next, test fit the entire unit in place. If all looks well, glue in place. Now cut a  $1/8$ " length of  $1/16$ " wood dowel for a pinion housing and glue to the motor box where shown so that it touches the rim of the small gear. Finally, cut a pinion shield from the fine card stock supplied and glue it in position as shown.

#### CAB CONSTRUCTION

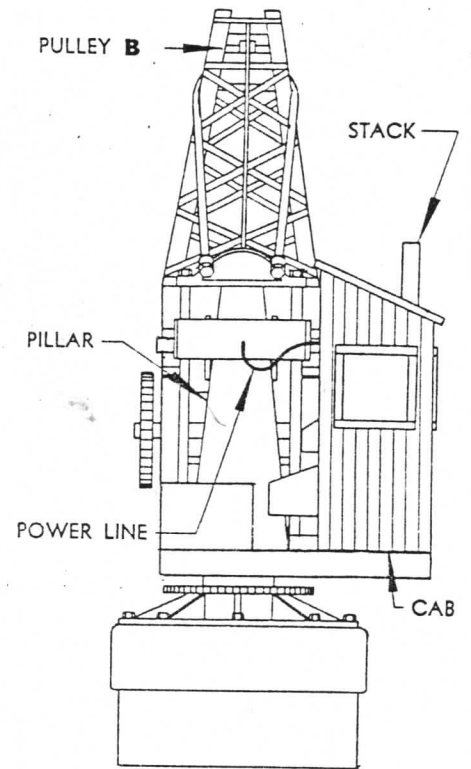
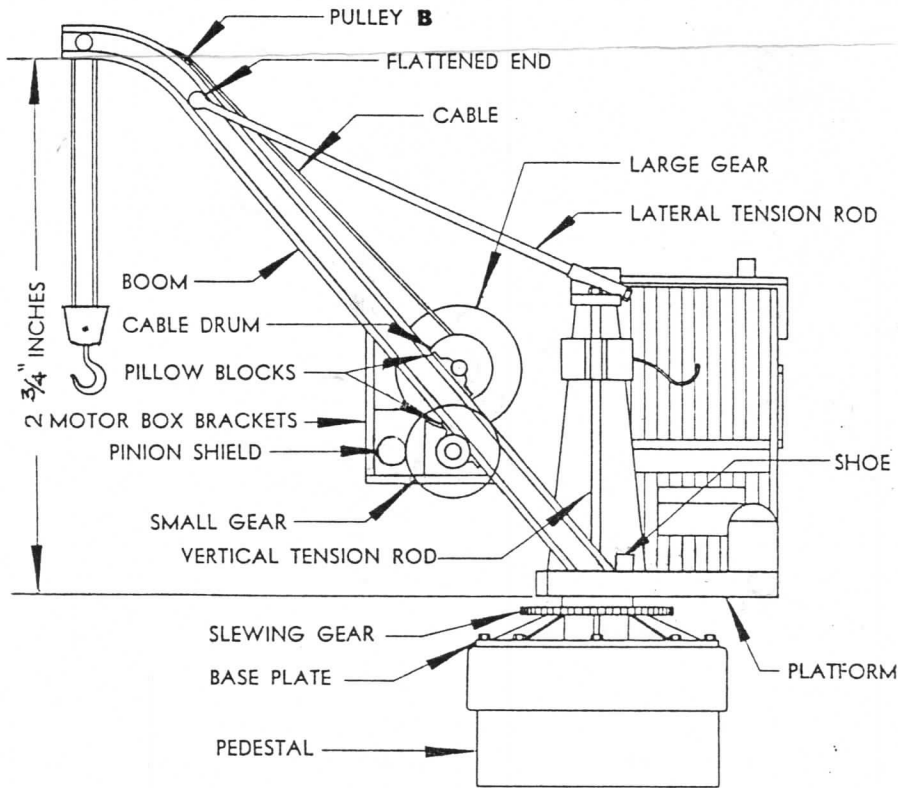
Select the cab style you desire from the full size cab layouts. Using the plan, layout the required four walls on the  $1/16$ " scribed sheet. Carefully cut out these pieces including the window openings (door window also) and glue them together as shown with end walls overlapping the sides. Glue the precut card roof in place centering it on the cab. The Pennsy round roof will have to be held until glue sets.

Window and door frames are cut to fit from  $1/32$ " x  $3/64$ " strip around the outside edge of the openings. Note that a panel of fine card stock is cut to fit the lower portion of the door. Precut pieces of wood are supplied for the utility ( $3/32$ " x  $3/16$ " x  $3/4$ ") and resistor ( $1/4$ "sq. x  $1/2$ ") boxes. Bevel the tops and sand to shape. Glue these in their respective places. Now paint the cab inside and out and when dry cement acetate windows neatly to the inside walls. The doorknob is made from the head of a small pin and the stack is cut from the  $1/16$ " wood dowel. Last, make a tiny hole in the right wall to accommodate the power line. Cut a piece of black thread; insert the ends in cab and pillar holes previously made and cement in place.



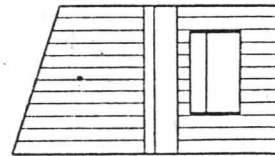
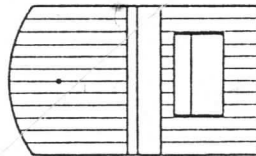
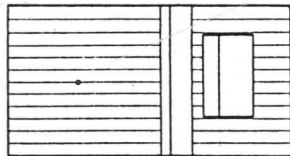
# RIGHT ELEVATION (FULL SIZE)

# REAR ELEVATION

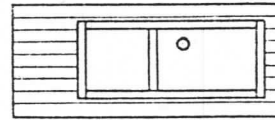
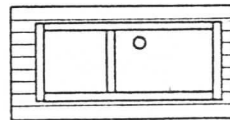
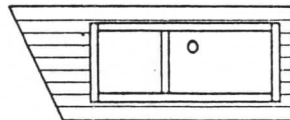


## CAB LAYOUTS (FULL SIZE)

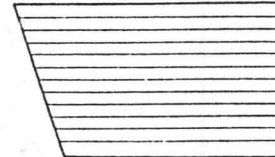
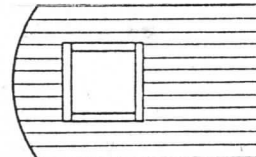
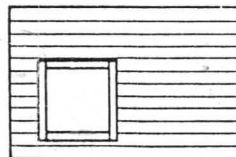
RIGHT



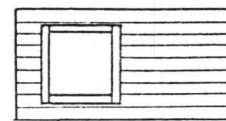
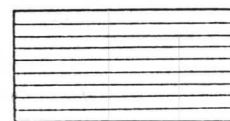
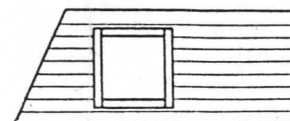
FRONT



LEFT



REAR



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