

TIMBER TUNNEL PORTAL

"N" Scale

Kit #346

Assembly Instructions

In the early days of the railroads, some tunnels were lined and the portals faced with wood timbers. Many of these have been abandoned or replaced with concrete, brick or stone, but some are still in use today.

In this box are two bags, each bag contains one complete Timber Tunnel Portal, do not mix the contents of the bags. Before beginning construction, stain or paint all of the parts in the bags a weathered gray-brown. This should be done before gluing since the glue will seal the wood and the stain will not "take" over the glue later when the Tunnel Portal is complete.

NOTE: Temperature or humidity changes sometimes cause the paper to shrink or swell, causing the drawings to be slightly out of scale. If your wood parts do not quite fit the drawings, work from the center, splitting the difference. Familiarize yourself with the parts and steps before starting construction.

Step 1 ASSEMBLE FRONT FACE

A 1 pc. 1/16 x 27/64 x 2-1/4 in. Portal Face
B 2 pcs. 1/16 x 1-3/4 x 3/8 in. Portal Face Sides

Spread waxed paper over the templates and fasten it so it will not slip. Assemble the face of the Portal on Figure 1. Start with the horizontal piece A. Fasten it to the waxed paper with a dab of glue. Glue the Side sections (B) to the bottom edge of A with the outside left and right edges flush.

Step 2 ASSEMBLE INNER FRAME

C 4 pcs. 1/16 x 1/16 x 1-1/2 in. Inner Frame (top beam)
D 8 pcs. 1/16 x 1/16 x 1-39/64 in. Inner Frame (side timbers)

Assemble the Inner Frame of the Tunnel opening. Starting with one part C, glue it to the bottom edge of A and the inside edges of the parts B. Next glue the two parts D to the inside edges of parts B and part C. Do not add the Angle Braces, parts F, until Step 4. When the completed assembly is dry remove it from the waxed paper. Save the remaining parts C and D for Step 4.

Step 3 ADD FRONT TIMBERS

E 4 pcs. 1/16 x 1/16 x 2-3/16 in. Front Timbers

Glue the four Front Timbers (E) into their respective positions on the Portal Face per the drawing.

Step 4 ADD TUNNEL LINING INNER FRAME & BRACES

All remaining parts C and D
F 6 pcs. 1/16 x 1/16 x 1/2 in. Inner Frame, Angle Braces

Using the template drawing again, assemble three more Inner Frame assemblies for the Tunnel Lining using the remaining parts C and D and referring to Step 2. Cut six 45° Angle Braces (F) as per the drawing and glue two of these in place as shown on the drawing, to each of these three Inner Frame assemblies.

Step 5 GLUE INNER FRAME TO BACK OF FACE

Glue one of the Inner Frame assemblies to the back of the Portal Face. Refer to the Figure 2. Side View. Note that parts D do not come down to the ground line, but allow space for the Sills, indicated as X on the Front View.

Step 6 GLUE PORTAL TO SILLS

X 2 pcs. 1/16 x 1/16 x 3-1/8 in. Sills

Glue the Portal to the Sills so the rear surface of the Face is 1-1/2 inches from the back ends of the Sills, see Figure 2. Be sure the Portal is square with the Sills.

Step 7 INSTALL FRONT BRACES

G 2 pcs. 1/16 x 1/16 x 2 in. Front Braces
H 2 pcs. 1/16 x 1/16 x 1-7/16 in. Front Braces

Cut the angles of the Front Braces G and H per the Figure 2, Side View drawing. Cut two of each and glue in place on either side of the Tunnel opening to hold the Face perpendicular to the Sill.

Step 8 GLUE INNER FRAMES ATOP SILLS

Glue the remaining two Inner Frames on top of the Sills, one on the back ends, and the other halfway between as shown in Figure 2.

Step 9 ATTACH LININGS TO INNER FRAMES

I 2 pcs. 3/64 x 1-3/4 x 1-1/2 in. Tunnel Lining (sides)

Glue the Linings to the outside of the Inner Frames with the planks on the inside and running horizontal.

Step 10 GLUE CEILING ATOP TUNNEL

J 1 pc. 3/64 x 1-3/4 x 1-1/2 in. Tunnel Lining (ceiling)

Cut the ceiling to fit across the top and glue it in place matching the plank direction of parts I.

Step 11 CUT CRIBBING

K 5 pcs. 1/16 x 1/16 x 2-1/4 in. C ribbing

Cut the wood pieces to form the Cribbing as shown in Figure 1. There are five pieces of wood, one piece is cut to fit and will match the drawing for the longest Cribbing part. Next cut the center Cribbing piece per the drawing. Then from a third piece of wood cut the top Cribbing piece. From the remaining pieces of wood cut ten smaller pieces as in the Side View, Figure 2. Glue the thirteen pieces of Cribbing together angling them back from the Portal Face to fit your hill or mountain.

Step 12 ASSEMBLE WINGS

L	2 pcs.	1/32 x 13/32 x 2-1/4 in.	Wing section
M	2 pcs.	1/32 x 13/32 x 1-13/16 in.	Wing section
N	2 pcs.	1/32 x 13/32 x 1-13/32 in.	Wing section
O	2 pcs.	1/32 x 13/32 x 15/16 in.	Wing section
P	2 pcs.	1/32 x 13/32 x 1/2 in.	Wing section

The remaining pieces of gang planking in one bag will make up the Portal Wings. Fit the planking pieces to the left and right Wing templates and glue them together.

Step 13 GLUE PILINGS TO WINGS

Q	2 pcs.	3/32 Dia. x 13/32 in.	Pilings
R	2 pcs.	3/32 Dia. x 13/16 in.	Pilings
S	2 pcs.	3/32 Dia. x 1-7/32 in.	Pilings
T	2 pcs.	3/32 Dia. x 1-5/8 in.	Pilings
U	2 pcs.	3/32 Dia. x 2-1/32 in.	Pilings

Glue the Pilings over the planked Wing assemblies as shown. When the glue is dry lift the Wings from the paper.

Step 14 STAIN & AGE

Touch up any unfinished edges or ends with stain or paint. The inside top of the Tunnel and Face above the entrance should be smudged with black as from smoke. Glue the Wings to the Portal Face according to your Tunnel opening.