



HO Structure Kit

109' SINGLE-TRACK PRATT DECK TRUSS RAILROAD BRIDGE

933-4520

Thanks for purchasing this Cornerstone® kit. Please read these instructions and study the drawings before starting construction. All parts are styrene, so use compatible glue and paint to finish your model. As part of the Cornerstone Engineered Bridge System, walthers.com/bridgesystem, your new model can easily be used with other Cornerstone bridges and accessories to create a custom structure for your railroad. PLEASE NOTE: Parts are included to build your choice of an Open or Ballasted Deck Bridge. Additional parts are included to finish your model with Walthers Code 83 Bridge Track (#948-886 or 949-899), plus flexible, sectional, hand-laid track or your own rail, all sold separately.

While simple bridges had been around for centuries, railroads presented engineers with new challenges to design structures that could withstand the tremendous weight, vibration, pushing (compression) and pulling (tension) forces exerted by a moving train. Early spans were built of wood and if a longer or sturdier design was needed, engineers turned to the truss. This triangular-shaped assembly strengthened the floor supports and distributed the stress and strain over a larger area. Many styles soon appeared, including the Pratt Truss developed by Thomas and Caleb Pratt in 1844, which used vertical posts and diagonal cross members sloping up and away from the middle, the opposite of most existing designs. Within a few years, Pratt Truss bridges built entirely of iron appeared, in both through (trusses alongside the tracks) and deck (trusses below) styles. Provided there was enough room underneath, the deck style quickly became the new standard for US railroads. Their simpler design required less material, speeding construction and lowering costs, but their greatest advantage was unlimited side and overhead clearances for the right-of-way. With the rise of the steel industry, a new generation of Pratt Truss bridges took over, typically used for single-span bridges up to 250' (76.2m), and many are still in daily railroad service, or have been preserved as part of recreational trails. Typical of Pratt deck truss bridges built all over North America in the 20th century, your finished model will add a realistic touch to any layout scene. To complete installation in new or existing scenes, Single-Track Railroad Bridge Concrete Abutments (933-4551) are available for the finishing touch. The Single-Track Railroad Bridge Concrete Piers (933-4550) and the Bridge Shoes and Adaptor Assortment (933-4559) can be used to build a longer structure with approach spans - please visit walthers.com/bridgesystem for more ideas and information. For additional products to complete your scene, see your participating hobby dealer, check out the latest Walthers Model Railroad Reference Book or visit us online at walthers.com.

SIDE TRUSS ASSEMBLY

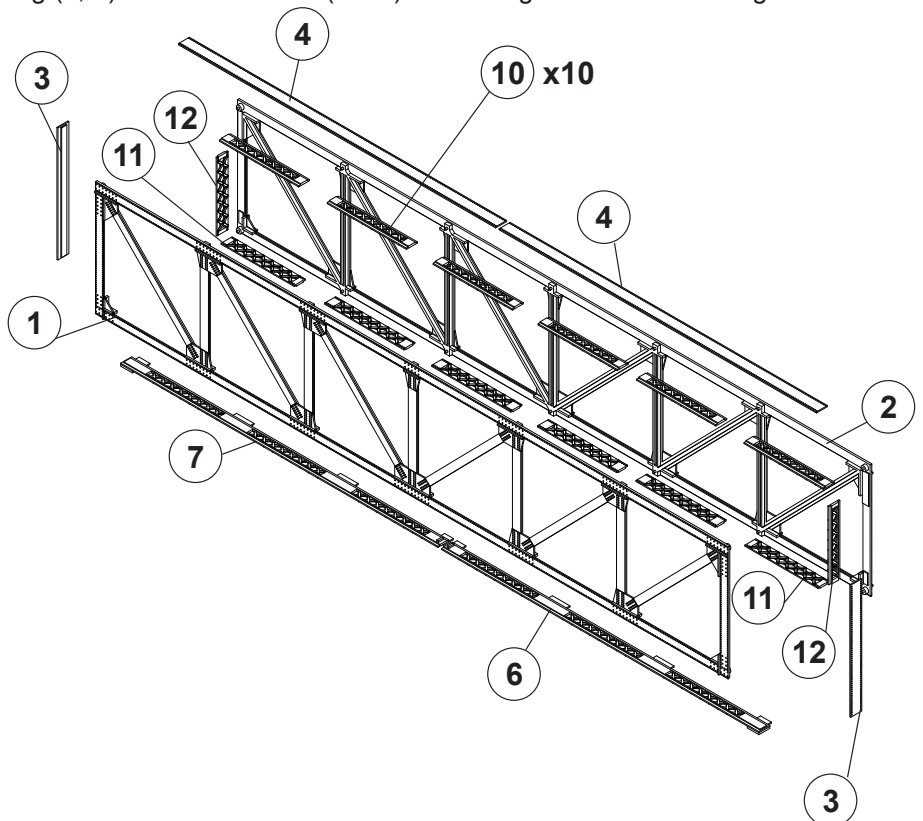
Make two identical Side Truss assemblies as follows:

1) Note the mounting points on the inside of the Left (1), and mounting pins on the Right (2) Truss Sections. Use these to align the sides and glue together.

2) Be sure the gusset plates on the Bottom Bracing (6, 7) are on the same (inner) side and glue to the lower edge of the Truss.

3) PLEASE NOTE: There are three different sizes of Lacings; each has locating ridges molded on the back to help with alignment. Begin by gluing a Medium Lacing (11) on the inside lower edge of each end as shown. Glue a Large Lacing (2x 10 - one at each end) to the inside upper edge. Glue the Upright Lacing (12) to the end post, between parts 10 and 11. Repeat these steps for the other end. At all intermediate locations glue the remaining Large Lacings (10 - eight per side) to the inside upper and lower edges as shown.

4) Glue the Top Plate (2x 4) to the outside upper edge and a Vertical End Plate (2x 3) to the outside ends.



INTERIOR BRACING

5) PLEASE NOTE: The small vertical raised ridges on the lower edge of the Right Truss (2); mark the interior side. For this step, lay the Truss flat with these ridges facing you.

Insert the tabs on the lower edge of each Cross-members (7x 8) between these ridges; align the upper edge in the recessed, open area between rivets at the top of each truss interior post, glue in place. When dry, align parts as before and glue the second Side Truss assembly to the opposite side.

6) Make six Lateral Braces by inserting - do not glue - part 13 through part 14 in an X-shape. Start by standing the Truss Assembly upright. Grasp each Brace at the middle (a longer tweezers works well for this) and insert each Brace between the bottom edges of the cross members. Adjust as needed so that parts fit square and snug and apply a little glue where the Braces meet the cross members.

DECK ASSEMBLY

PLEASE NOTE: An Open Deck (16) is included, which can be used with your own rail, or use Walthers Bridge Track (948-886 or 948-899 sold separately). We suggest test fitting your completed bridge on your layout to help with final alignment before securing the track.

7) Glue Loading Beams (2x 15) to cross braces and upper surface of each cross member.

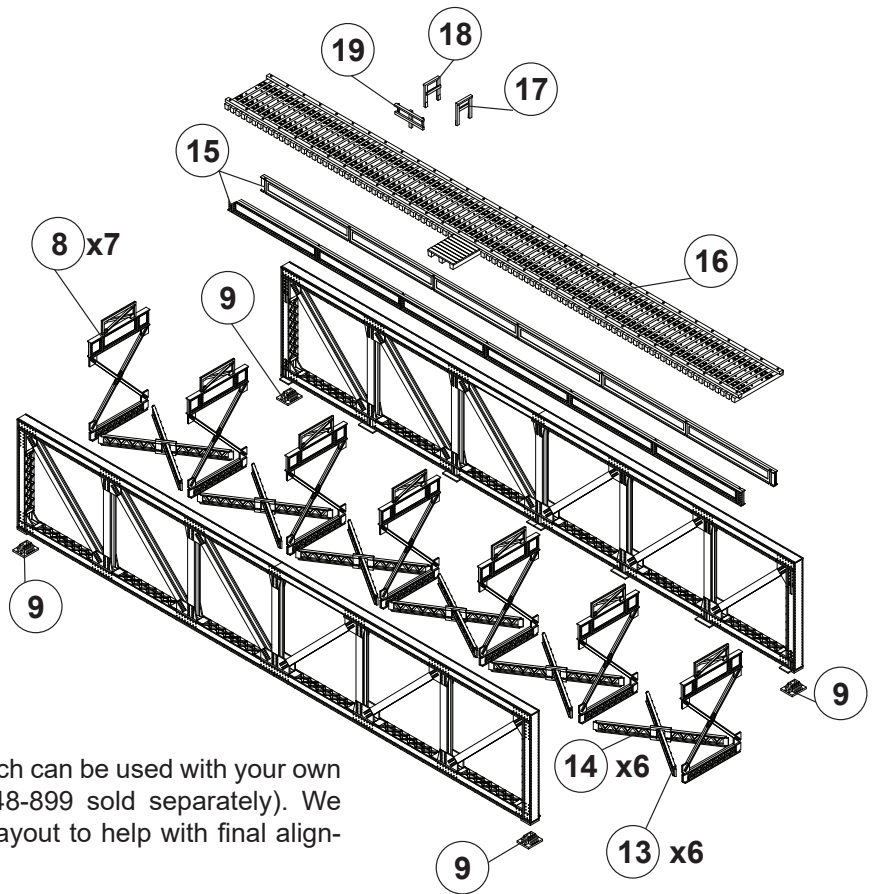
A) To use Rail (sold separately): make sure Deck is centered side-to-side on the Beams and glue in place. Note the two sets of raised alignment features on the Deck; the outside set with tie plates and spikes is for the running rail, the inside set with spikes only is for a guardrail. Align rails on the outside and glue rails in place. Cut guardrails to fit from lengths of rail and glue to inside mounting points.

B) To use Walthers Bridge Track (not included): align Bridge Track and glue in place if desired.

8) If using Deck (16), Glue Right (17) and Left (18) Side Handrails to lower edge of refuge platform. Glue End Handrail (19) between Side Handrails with center post on deck.

9) PLEASE NOTE: Bridge Shoes (4x 9) are included. For a custom installation using Cornerstone bridges of different heights, use parts from the Bridge Shoes and Adaptor Assortment (933-4559, sold separately) as appropriate: please visit www.walthers.com/bridgesystem for information and illustrations of specific bridge combinations. If you are using the standard Bridge Shoes (4x 9), align the top of the Shoe with the edges of the raised pads at both ends of the Lower Cover Plates and glue in place at all four corners.

10) PLEASE NOTE: To use your new model as an approach span with other Cornerstone Bridges of different heights, optional adapters are provided in this kit: please visit www.walthers.com/bridgesystem for information and illustrations of specific bridge combinations. Assemble the End Truss by gluing Ends (2x 20) and Top Chord (21) together as shown. The I-Beam Supports (2x 5) can be used as-is, but may require trimming to fit.



OPTIONAL ADAPTERS

- See Step 10

