Micro Engineering Company

ASSEMBLY INSTRUCTIONS
HO, HOn3, & N DECK GIRDER BRIDGES

Micro Engineering, Co.
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75-501 HO 50' Open Dck **75-507 HO 50' Ballast Dck** **75-503 HOn3 50' Open Dck** **75-150 N 80' Open Dck** **75-152 N 80' Ballast Dck**
75-502 HO 30' Open Dck **75-508 HO 30' Ballast Dck** **75-504 HOn3 30' Open Dck** **75-151 N 40' Open Dck** **75-153 N 40' Ballast Dck**

I. GENERAL

• Deck girder bridges are found on railroads in every part of the country. The Micro Engineering Deck Girder Bridges are modeled after the plate girder type of bridge and can be used for straight or curved track.

• Most parts in this kit are made of injection molded styrene plastic and should be glued with a styrene solvent cement (such as Testors®). Glue the Delrin® bridge track and the white metal parts with a cyanoacrylate (CA) or a rubber based cement (such as Pliobond®, #49-101 or #49-102 available from Micro Engineering).

• Read each instruction step completely before proceeding with that step.

II. PARTS

• Before beginning assembly cut the plastic and white metal parts from their sprues and file or trim off any flash, ejector pads, and gate nibs. Use care when handling the parts as some are thin and are easily broken. If a part breaks, lay it on a flat surface and cement it back together. The Micro Engineering Rail Nipper #48-102 is excellent for cutting these small parts.

• The parts and the number needed to assemble your kit are listed below and keyed to the photo. See fig. 1. Part size and sprue configuration will vary between kits from the parts shown. Extra parts that will not be used may be included in your kit.

		Parts per Kit	
		Open Deck	**Ballasted Deck**
①	**girder**	2	2
②	**lateral bracing**	2	2
③	**X-brace***	9 or 5 or 3	9 or 5 or 3
④	**long rivet plate****	2	2
⑤	**bridge shoe** (not shown)	4	4
⑥	**guard timber**	2 or 4	-
⑦	**Bridge Flex-Trak™*****	1	-
⑧	**concrete deck**	-	1

*Number of X-braces: **9** for 75-150, 75-152: **5** for 75-501, 75-507, 75-503: **3** for 75-502, 75-508, 75-504, 75-151, 75-153: Note, the N 40' bridges can be built as a special heavy duty bridge using 5 X-braces instead of 3.
**Not used for N 40 ft. bridges.
***Bridge Flex-Trak™ sizes are HO Code 83, HOn3 Code 55, or N Code 55.

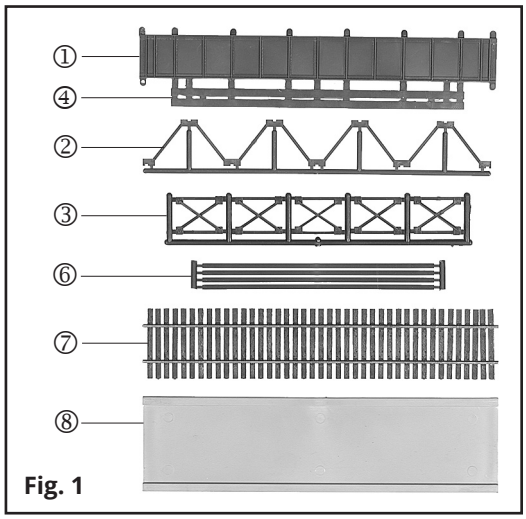
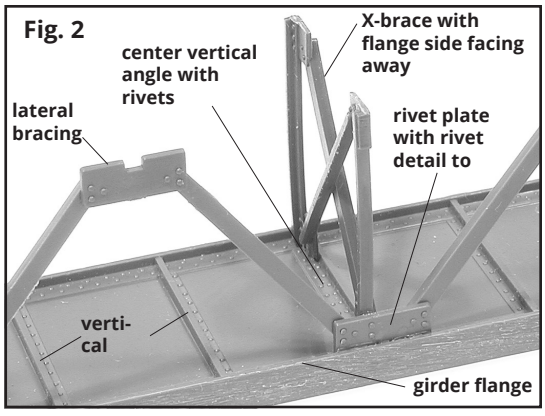


Fig. 1

III. ASSEMBLY

1. Orient the **girder** part **(1)** correctly on the work surface.

Note that the girders have a number of vertical angles, each with an adjacent row of rivets. See fig. 2. The bridge span should be assembled so the row of rivets on the center vertical angles, on the inside face of both girders, are toward the same end of the bridge. Place a girder on the work surface so the row of rivets on the center vertical angle is to the left. (For the 40' N girder, place the girder so the rivet detail is against the work surface and the three slots on the opposite side are along the bottom edge of the girder.) With the girder in this position, the lateral bracing will be cemented to the bottom edge of the girder.



2. Cement a **lateral bracing** part **(2)** to the girder.

Hold a lateral bracing on edge with the five (or three) rivet plates down and the rivet detail to the outside of the bridge. See fig. 2. Match the notches in the rivet plates with the appropriate vertical angles on the girder. Starting at the center vertical angle cement the rivet plates against the inside edge of the girder flange. (For the N 40' girder, cement the lateral bracing rivet plates in the appropriate slots in the girder.) Hold the rivet plates square to the girder while the cement dries.

Note: Check the lateral bracing for fit before cementing as it may be necessary to file the slots in the two end rivet plates for proper fit to their vertical angles.

Tip: To avoid breakage when cutting the lateral bracing from its runner, place it against the cutting board for better support. This can be done by hanging the thicker sprue off the edge of the cutting board.

3. Cement the second **lateral bracing** part **(2)** to the second girder.

Align and cement the girder and lateral bracing in the same way as the first girder in steps 1 & 2. **Note:** The second

lateral bracing must be cemented to the bottom edge of the second girder, **not** the opposite edge of the first girder.

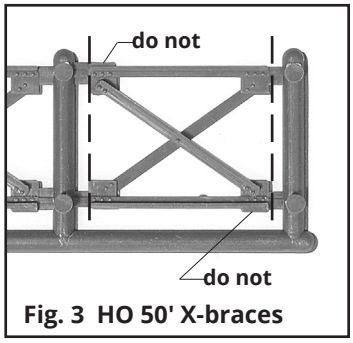


Fig. 3 HO 50' X-braces

4. Cement the **X-braces** part **(3)** to one of the girders.

Note that the girder X-braces have three angle flanges on one side (called the 'flange side') and one angle flange on the opposite side. (N X-braces are flat on both sides.) Place an X-brace on the girder, positioned on the rivet side of the center vertical angle with its flange side facing away from the vertical angle. See fig. 2. Cement the X-brace against the vertical angle and against the lateral bracing rivet plate (that is cemented to the girder), holding it square while the glue dries. Cement the other X-braces to the same girder locating them at the other vertical angles opposite the other rivet plates. Position them in the same manner, i.e. on the rivet side of the vertical angles and with their flange side facing away from their vertical angles. Some of the X-braces will be facing left, some will face right. (Position and cement the N 40' X-braces against the correct side of the ribs so they are centered on the lateral bracing rivet plates.)

Note: On HO 50' X-braces there is a spacer that looks similar to a gate on two diagonal corners. Do not cut the spacers off when trimming off the four gates. See fig. 3.

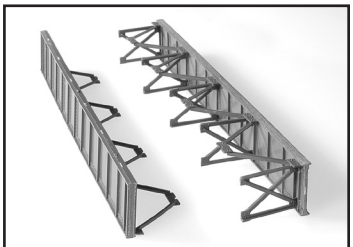


Fig. 4

5. Cement the two **girder assemblies** together.

a. Place one of the girders on edge with the lateral bracing down. Place the other girder on edge with the lateral bracing up and slide the two assemblies together. See fig. 4. Use rubber bands to hold the span assembly together while positioning the bracing as described in steps 2 and 4.

b. Cement the X-braces to the opposite girder.

c. It is important that the two girders are assembled square and as with a prototype bridge, the lateral bracing holds them square. Remove the rubber bands and place the girder assembly in a square as shown in fig. 5. Cement the lateral bracing while holding the girders against the square.

Tip: Assemble the span in one work session, cementing the lateral bracing immediately after cementing the X-braces so it is easier to square up the span.

Note: On some lateral bracing there are notches in the short side rivet plates that do not align with anything when the girders are assembled.

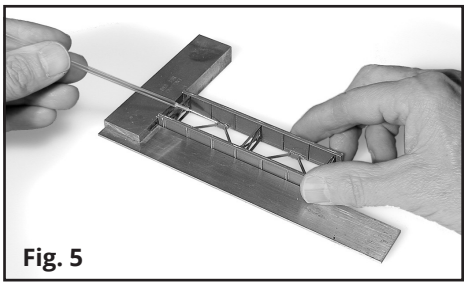


Fig. 5

6. After the cement has dried sufficiently, place the span assemblies on a sanding block and sand off the draft angle and parting line from the top and bottom edges of the girders. See fig. 6. (Sand only the top edges of the N 40' bridge.)

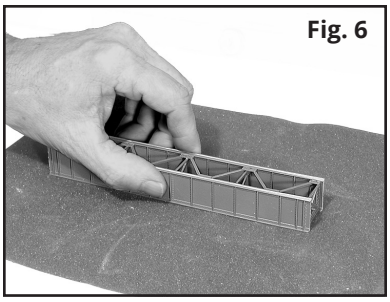


Fig. 6

7. Center and cement a **long rivet plate** part **(4)** to the bottom edge of each girder. (The N 80' uses two rivet plates per girder, the N 40' bridge does not use long rivet plates.) Cement the **bridge shoes** part **(5)** on the bottom edge and at the ends of each girder.

8. Open Deck Bridge Only - Cement the **guard timbers** part **(6)** to the top of the **Bridge Flex-Trak** part **(7)** ties.

If your bridge is on a curve, bend the bridge track to the proper radius. Adjust the position of the ties so they are spaced evenly. Position the guard timbers, with the bolt head detail up, two scale inches (.023" HO, .012" N) in from the tie ends and cement in place. See fig. 7. For curved bridges cut the guard timbers to shorter lengths and install them at an angle to follow the curvature.

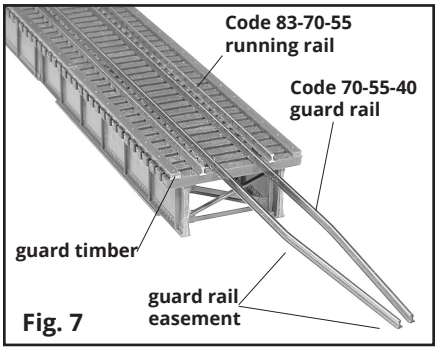


Fig. 7

9. Open Deck Bridge Only - Cement **guard rails** (not included) to the Bridge Flex-Trak.

On prototype bridges lighter rail than that used for the running rails was usually used for guard rails. See fig. 7. Extend the guard rails 20 to 40 scale feet (2¾" - 5½" HO, 1½" - 3" N) off the ends of the bridge, onto the regular track. Using CA or Pliobond, cement the guard rails between the rows of guard rail spikes molded on the Bridge Flex-Trak. Form the easement at the guard rail ends by curving the last 1" to 2" of the guard rails in toward the track center until the rail ends almost touch.

10. Paint and weather the **bridge** and **Bridge Flex-Trak** or **concrete deck**.

Prototype deck girder bridges are usually a flat black or silver color. Weather some of the metal structure with areas of rust color. After the paint has dried, remove paint with emery cloth or a file from those areas where cement will be applied.

11. Open Deck Bridge Only - Cement the **Bridge Flex-Trak** part **(7)** to the top of the bridge.

Lay the bridge track up-side-down on a flat surface. Apply Pliobond cement to the top edges of the girders and center the bridge on the track. Place weights on the bridge until the cement dries.

12. Ballasted Deck Bridge Only - Cement the **concrete deck** part (**8**) to the bridge.

Lay the concrete deck up-side-down on a flat surface. Apply cement to the top edges of the girders and center the bridge on the concrete deck. Place weights on the bridge until the cement dries. Since ballasted deck bridges do not use bridge track, cement your normal track and ballast across the concrete deck once the bridge is installed on your layout.

13. Install the bridge on your layout.