



HO Scale Structure Kit

ROTARY DUMPER

933-4170

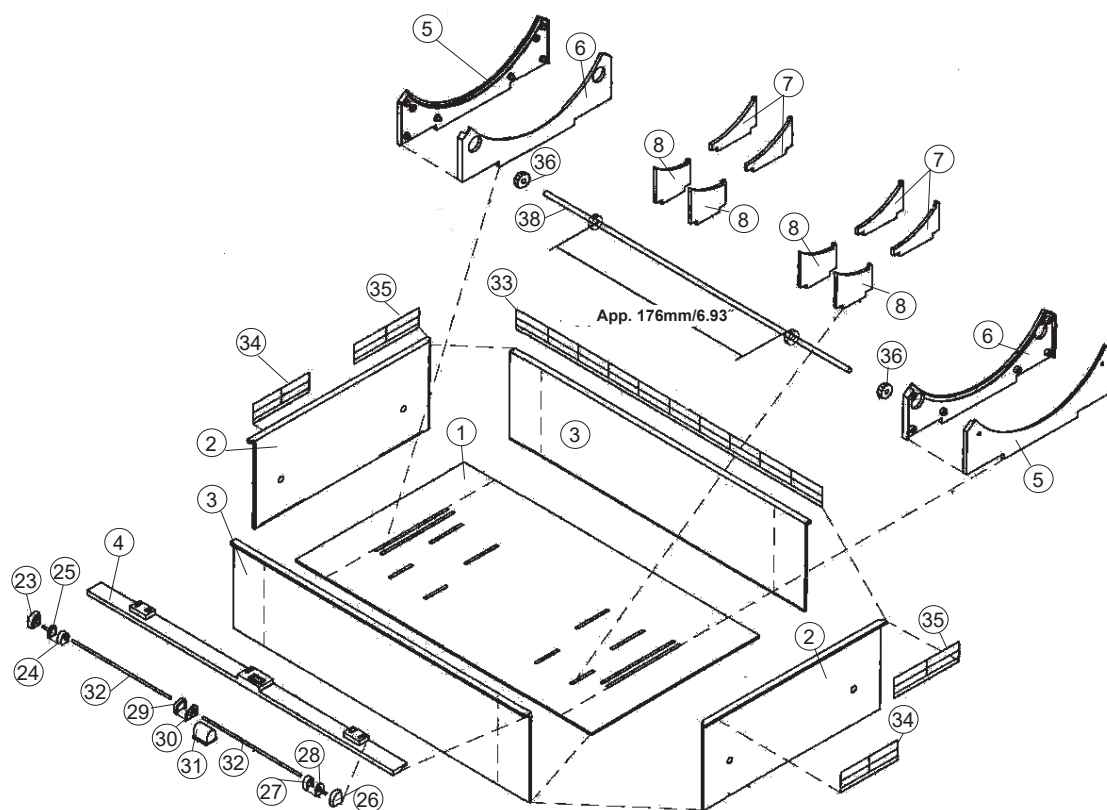
Thanks for purchasing this Cornerstone kit. Please take a few minutes to read these instructions and study the drawings before starting construction - if you're not sure how parts go together, test fit before gluing! Most parts are styrene plastic so use compatible glue and paint to assemble and finish your model. You may find it easier to assemble larger parts and paint them as subassemblies, while smaller parts can be painted on the sprues and touched up after installation. If you wish to paint your model, wash all parts in warm water and plain dish soap, rinse thoroughly and allow to dry before painting. PLEASE NOTE: With careful assembly following the instructions, your model can be positioned to simulate any point in the dumping process, or parts may be glued in place if desired. Grooves on the Floor Deck (11) are designed to accept Code 83 rail, such as Walther's Track® #948-83000 for a positionable model; you can also remove ties from a section of Code 83 Flex Track #948-83001 for a fixed model, both sold separately. For ease of assembly and final installation on your layout, you may wish to have these on hand before starting construction.

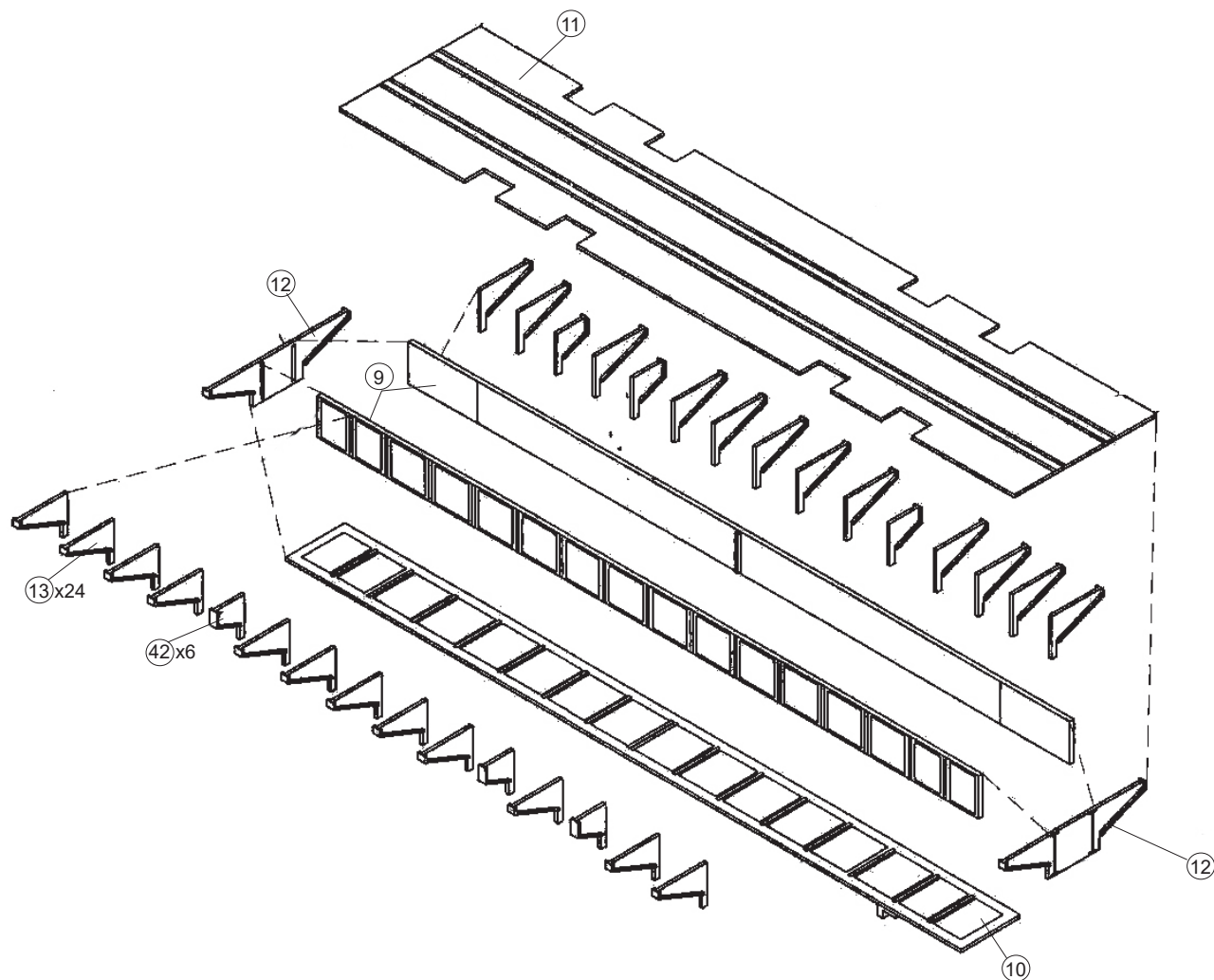
With the rise of unit trains and just-in-time delivery of raw materials, the rotary dumper has been a key piece of machinery at many large industries since the 1970s.

Although hoppers designed for bottom/gravity unloading had been introduced in the 19th century, the system was time-consuming and could leave behind some of the load. Large capacity rotary dumpers were introduced in the 1890s, designed to hold a car securely and turn it at an angle, emptying it completely and quickly. These early examples were limited to high volume operations, such as ports, and also required each car to be spotted individually for unloading. By the 1970s, increasing concerns for air quality and acid rain led many coal-fired power plants to switch from high sulfur eastern coal to more environmentally friendly western coal. Moving the fuel quickly became a job for railroads, with dedicated unit coal trains cycling continuously between mines and power plants. To improve efficiency, a new generation of purpose-built higher capacity (western coal was significantly lighter) hoppers and gondolas were introduced. A rotating coupler at one end (some cars have them at both ends so locomotives can be used at the front and rear of the train) identified by a large colored panel so that cars are properly aligned, allows each car to be rotated without uncoupling. In turn, more compact rotary dumpers were developed for installation at power plants. In operation, the train enters the dumper, and stops so that each car is correctly positioned for unloading. Large steel clamps secure the car in place and the machine turns 180°, emptying the car into a below ground pit in a matter of seconds. From there, conveyors move the coal to stockpiles nearby. As gondolas are now the preferred equipment for this service, and can only be unloaded by dumper, many facilities have since installed a second rotary dumper to speed unloading and as a backup in case of a breakdown. Today, similar rotary dumpers can be found at paper mills and steel works and other heavy industries that require large quantities of bulk materials. For additional freight cars, figures, scenery materials and additional structures to finish your scene, see your participating dealer, check out the current Walther's Model Railroad Reference Book or visit us online at walthers.com.

PLEASE NOTE: While the finished model can be installed wherever space permits, for ease of assembly, the left side as shown here is considered the front.

- 1) Align Pit Base (1) with small slots at the front as shown. Align and glue Left End Pit Wall (2) and Front and Rear (3) Pit Walls to Base and at inside corners where parts meet: remaining End Wall will be installed in step X.
- 2) Before assembling the drive, use a small file (sold separately) to slightly taper both ends of Shaft (38). Press a Gear (36) into position on Shaft 1/8" (3.1mm) from one end. On opposite end, press remaining Gear on Shaft, 6-15/16" (176.2mm) from the first gear. Make sure gear teeth align.
- 3) Cradles - make two: Glue Outside (5) and Inside (6) Cradle Halves together as shown.
- 4) Insert - do not glue - Gear into large hole on Inside Cradle (6), and end of Shaft through opening on Outside Cradle (5), and Right Pit Wall (2). Repeat for remaining Cradle Assembly. Align tab on bottom of Cradles with large mounting points on Floor and carefully glue where parts meet. Align end of Shaft with opening in Right Pit End Wall (2); glue wall to Base and Front and Rear Walls where parts meet.
- 5) Insert and glue Long Cams (4x 7) into longer slots on Pit Base. Align and glue Short Cams (4x 8) to small slots at front of Pit Base.
- 6) Glue Machinery Base (4) to lip on Pit Front Wall. Glue Motor Housing (31) to raised pad at center of Machinery Base. Glue Left (29) and Right (30) halves of Primary Gear Case together. With the shaft touching the Motor Housing, glue the Primary Gear Case over the ridge next to the Motor Housing.
- 7) Assemble Left (24, 25) and Right (27, 28) Secondary Gear Cases as shown. Glue these to the pads at left and right of the Machinery Base. With the flat side facing the pit, glue Left (23) and Right (26) Drive Pinion Covers to the narrow ridges on the raised pads. PLEASE NOTE: Test fit - do not install or glue at this time - Drive Shafts (2x 32) between Primary and left and right Secondary Gear Cases: trim if/as needed until the shaft ends seat without bending in the rings on the sides of the gear cases.
- 8) Glue Long Handrails (2x 33 one per wall) to top of Front and Rear Pit Walls. Glue Rear Side Handrails (2x 35 one per wall) at top rear of Sidewalls. Note that both Front Side Handrails (2x 34 one per wall) will be close to the Machinery Base: glue handrails at top front of Sidewalls.
- 9) Grooves in the Deck (11) accept Code 83 rail, sold separately. If you're building a positionable model, cut two lengths of rail to fit. Attach rails to Base using a water-based contact cement or CA adhesive. Run electrical feeder wires (sold separately) to each rail: some modification of the Pit Base and Floor Deck may be needed, and test for operation.
- 10) For a fixed installation, remove enough ties from the center of a length of flex track to fit the Deck - do not install track at this time.





11) Glue Floor Girders (2x 9) to underside of Floor Deck (11). Glue Floor Deck (10) to underside of Floor Girders. Align raised ridges on back of Floor Ends (2x 12) between Girders and glue where parts meet. PLEASE NOTE: Two sizes of Gussets are included: Short Gussets (6x 42 - three per side) install under the cutouts in the Floor as shown. Align tabs on backs of Long Gussets (13; 12 per side) between panels as shown and glue where parts meet.

12) Spacer Tubes - make three by gluing Tube Halves (6x 18, two per tube) together. Truss assemblies - make two by gluing a Truss (16) to Truss Facing (17). On the Left/Front Truss, glue Caps (4x 22) to channels on Truss (16). On the Right/Rear Truss, align and glue Car Support (19) to channels.

13) Car Clamps - make eight: With top facing inward as shown, insert - do not glue - Car Clamp (8x 20 - four per side) into Truss channels. Place - do not glue - Coil Springs (8x 37 - one per clamp, four per side) on bottom of each Car Clamp. PLEASE NOTE: Because the springs can push the Cam Followers out of their mounts, hold the Followers in place until the glue is completely dry. Insert and glue a Cam Follower (8x 21 - one per clamp, four per side) to the flat bottom of each Car Clamp as shown.

14) PLEASE NOTE: Left (14) and Right (15) End Bulkheads are a mirror image. Noting the part number on the sprue, remove the Left (14) Bulkhead. Note the three raised rings are the inside: place this facing upward. Be sure parts are straight and glue Spacer Tubes over these rings.

15) Glue Rear Truss assembly to right side of center opening, and Front Truss assembly to left side of center opening on Bulkhead #14.

16) Align rings inside of Right Bulkhead (15) with Spacer Tubes, and left edge of truss assemblies with center opening. Glue where parts meet.

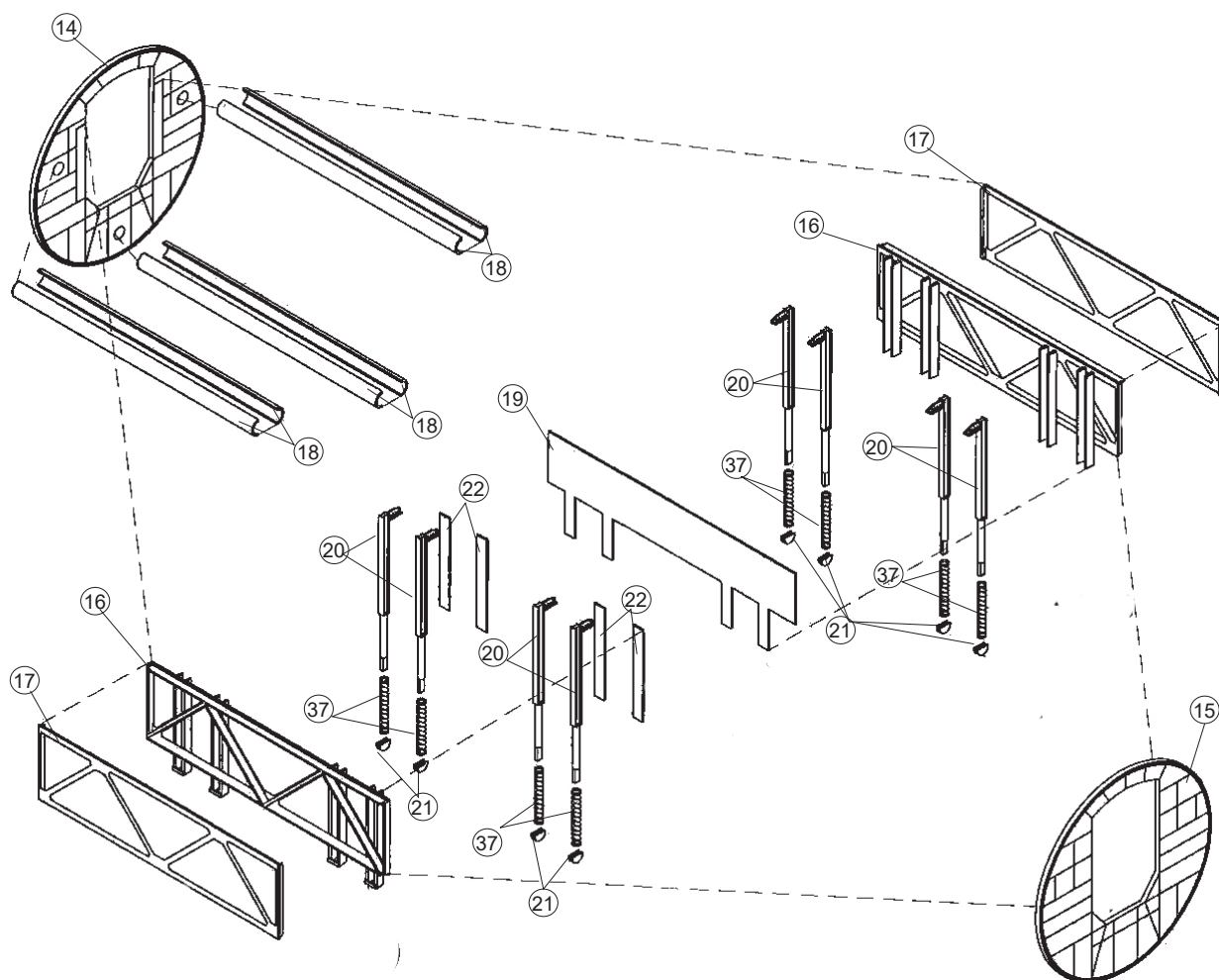
17) Align mounting pads on underside of Floor Bottom (10) between small ridge on bottom center of each Bulkhead and glue where parts meet.

Installing the Dumper into the Pit

- 18) Place the completed pit assembly with the Machinery Base on the Front Wall on your left.
- 19) Hold the Dumper so the Rear Truss with Car Holder is on your right. Turn the Dumper upside down and lower it into the Pit until the Bulkheads come to rest on the Cradles.
- 20) Slowly rotate the Dumper clockwise: after about 1/4 turn, the Dumper should drop slightly into the Cradles as the securing ridges on the inside of each Bulkhead engage the slots in the Cradles.
- 21) Rotate the Dumper counter-clockwise to its upright position. If the Cam Followers hit the side of the pit, carefully lift them over the edge.
- 22) The gear teeth on the Bulkheads should mesh smoothly with the Gears on the Shaft. If you plan to position the Dumper, apply a bit of powdered graphite (sold separately) to the gear teeth on the Bulkheads and the Cams. When the Dumper is fully upright, the Cam Followers should be against the stops on the Cams.

Installing Track on Part #11

Determine where you'll install your model on your layout. Remove enough ties from the center of a length of flex track to fit the Floor Deck. Thread the track through both openings on the Bulkheads, aligning the bare rails with the grooves on the Deck Floor; you may wish to secure these to the Floor with a water-based contact cement or CA-adhesive.



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