HO Scale Structure Kit

ROTARY DUMPER

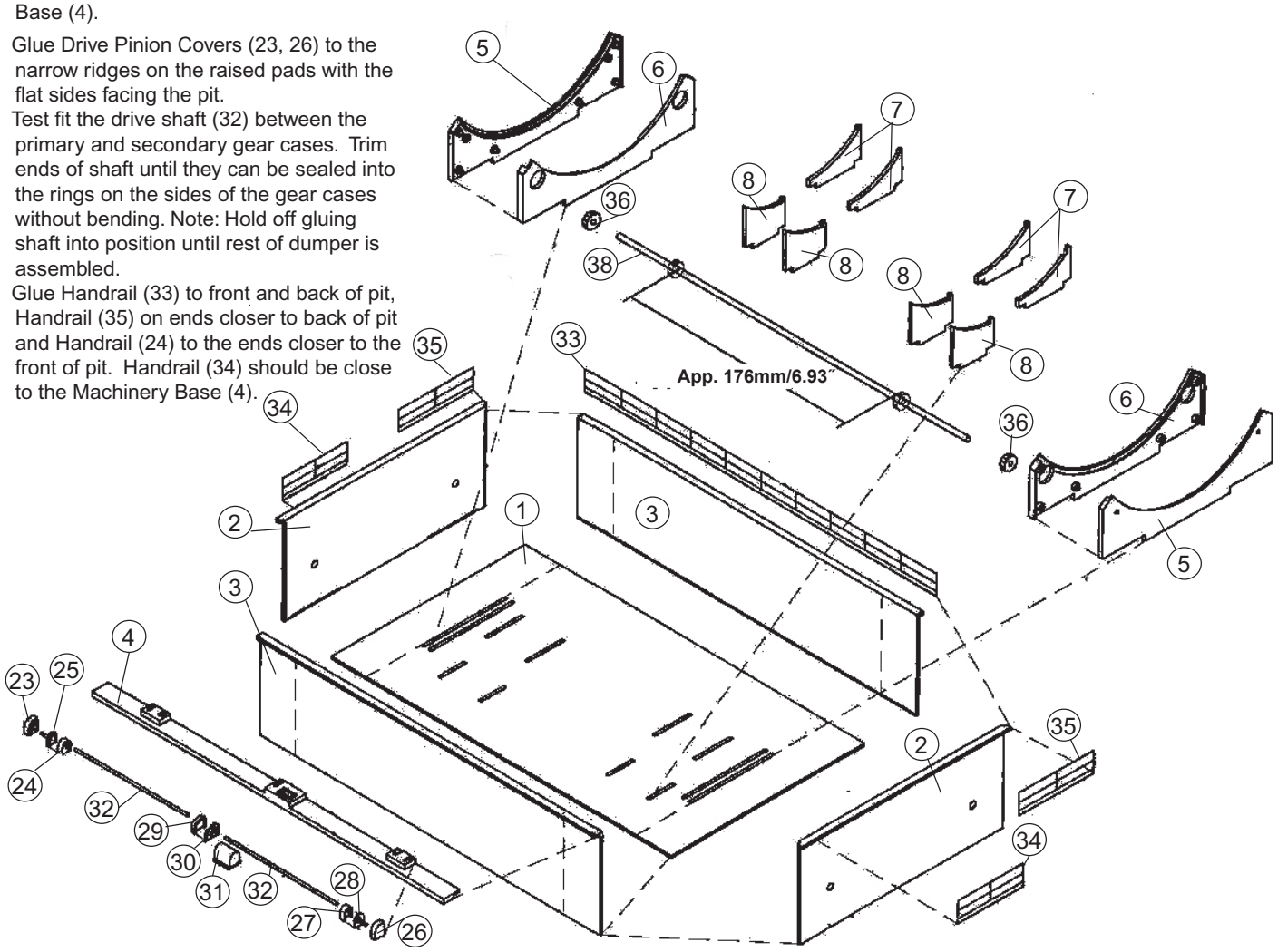
933-3903

Thanks for purchasing this Cornerstone Series® kit. All parts are made of styrene plastic, so use only compatible paint and glue. Please read the instructions and study the drawings before starting. With careful assembly, your model can be positioned to simulate any point in the dumping process; gears and a shaft are included, which experienced modelers can combine with after-market parts for a working model.

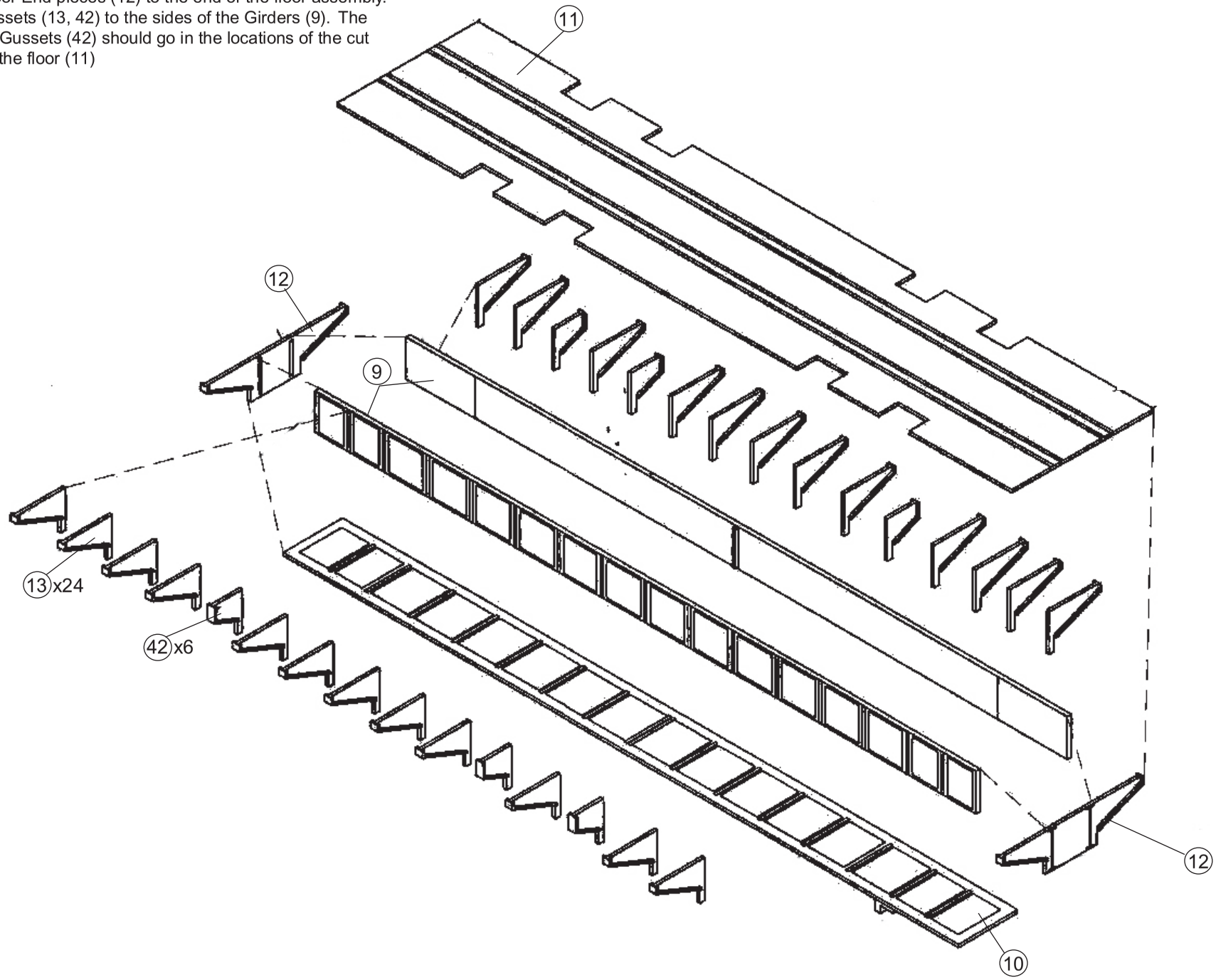
With the arrival of units trains and - just in time - delivery of raw materials, the rotary dumper has become a key piece of machinery at many large industries. At paper mills, these machines make short work of emptying hoppers carrying wood chips, which are processed to make pulp. In operation, cars are shoved one at time into the machine and held in place by large L-shaped steel clamps. Next, the entire car is turned 180° to clear its payload in a matter of seconds. Gravity moves the chips into a dump pit, where they're fed into a conveyor and stockpiled as needed elsewhere.

In addition to paper mills, rotary dumpers serve modern power plants and similar large coal-burning industries, and can also be found handling inbound loads of fluxing stone and coke at steel works.

1. Glue Pit Sides (3) to Pit Bottom (1). Glue Pit Ends (2) to Pit Bottom (1). Glue two Cradles (5,6) together.
2. Assemble the two Drive Gears (36) onto the metal shaft (38). Note: to make this step easier taper the metal shaft ends with a file. Press a gear onto the shaft. One gear should be positioned 1/8˝ (3.1mm) from end of shaft. Second gear should be positioned 176mm (6.93˝) from the other gear. Gear Teeth should be aligned.
3. The side of the Pit Bottom (1) with the short slots is the front. The operating gear shaft (step 5) should be at the front. Make sure the longer portion of the shaft is located at the convenient side of the model for operations. Face Cradle assemblies toward each other. Insert the Metal shaft into the large holes in the cradle assembly and slide the cradles until the gears fit inside of each large hole.
4. Glue the 4 long cams (7) into the longer slots on the Pit Bottom. Glue the 4 short cams (8) into the short slots on the Pit Bottom.
5. Glue Machinery Base (4) to the lip on the front of pit assembly. Glue Motor Housing (31) to raised pad in the middle of Machinery Base (4).
6. Glue pieces (29) and (30) together to form the primary gear case. Glue the case over the ridge next to the motor housing (31) with the shaft touching the motor housing.
7. Make 2 secondary gear cases, one right and one left, using parts (24, 25, 27 & 28). Glue these to the pads on the end of the Machinery Base (4).
8. Glue Drive Pinion Covers (23, 26) to the narrow ridges on the raised pads with the flat sides facing the pit.
9. Test fit the drive shaft (32) between the primary and secondary gear cases. Trim ends of shaft until they can be sealed into the rings on the sides of the gear cases without bending. Note: Hold off gluing shaft into position until rest of dumper is assembled.
10. Glue Handrail (33) to front and back of pit, Handrail (35) on ends closer to back of pit and Handrail (24) to the ends closer to the front of pit. Handrail (34) should be close to the Machinery Base (4).



11. Glue Floor Girder (9) to Floor Deck (11).
12. Glue Floor Bottom (10) to the girders.
13. Glue Floor End pieces (12) to the end of the floor assembly.
14. Glue gussets (13, 42) to the sides of the Girders (9). The Shorter Gussets (42) should go in the locations of the cut outs on the floor (11)



15. Glue Spacer Tube halves (18) together. Glue Truss Facing (17) to Trusses (16). Glue the Caps (22) to the left truss assembly.
16. Glue the Car Support (19) to the channels on the right truss assembly.
17. Drop the Car Clamps into the channels on the trusses with the extensions facing inward.
18. Slip the coil spring (37) over the bottom end and glue on cam follower (21). Hold follower in place until glue dries. The spring can push the follower off if not dry. Do this to all 8 Car Clamps
19. The End Bulkheads (14,15) are mirror images. Noting the part number on the sprue, remove #14 from the sprue and place it outer side down so the 3 circular ridges are showing. Glue Spacer assemblies to Bulkhead using circular ridge for locators.
20. Glue the truss from step 16 to the right side of the opening on the bulkhead (14). Glue the truss from step 15 to the left side of the opening on the bulkhead (14).
21. Glue Bulkhead (15) to the other end with spacers and trusses in place.
22. Glue the floor assembly to the bulkheads. The mounting pads on the floor bottom piece (10) locate between small ridges on the bottom of the opening in the bulkheads.

Installing the Dumper into the Pit

1. Orient the assemblies by placing the pit on a surface so that the machinery base overhang is to your left.
2. Hold the dumper assembly so the truss with the solid car support piece is to your right.
3. Turn dumper upside down and lower it into the pit so the bulkheads come to rest on the cradles.
4. Slowly rotate the dumper clockwise. After a little less than a ¼ turn the dumper should drop slightly into the cradles, as the securing ridges on the inner circumference of the bulkheads engage the slots in the cradles.
5. Rotate the dumper counter-clockwise towards its upright position. The cam followers may hit the edge of the pit. Carefully lift them over the edge.
6. The gear teeth on the bulkheads should mesh smoothly with the drive pinions on the shaft. When dumper is fully upright, the cam followers should be against the stops on the cams.

Lubrication

Use dry powered graphite lubricant. Apply it to the gear teeth on the rim of the bulkheads and the cams.