



HO Structure Kit **BULK TRANSFER CONVEYOR** 933-3519

Thanks for purchasing this Cornerstone Series® kit. All parts are made of styrene plastic, so use compatible cement and paint to build your model. Please take a few minutes to read through the instructions and study the drawings before starting construction.

From their invention, railroads have been used to move all kinds of bulk materials that don't require protection from the weather. But for the customer, the actual unloading and moving of the materials has required a variety of creative solutions.

Early on, small loads were hauled right on the decks of flat cars. On arrival, the load could simply be shoveled off the deck on to the ground, or directly into a wagon.

But as consumers needed more material and it was shipped over longer distances, the gondola was born. Early cars were simply converted flat cars, fitted with removable wooden sides to increase the carrying capacity, and the sides could be removed and stored if more flat cars were needed. There was still a lot of shoveling to load or unload the car, but labor was cheap and plentiful.

Mines and quarries built on hillsides had long used gravity to load cars. But once steam was harnessed to drive machinery, lifting conveyors and free-standing loading buildings appeared. Bigger gondolas were built that used gravity to speed unloading. The car floor was designed with a series of parallel doors that could be opened, allowing most of the load to spill out quickly. Larger customers built trestle-style unloading ramps (either open or enclosed) where the loads could be stored. While much quicker, there were still areas inside the car that had to be shoveled out by hand. This was eventually overcome with purpose-built hoppers, which were taller than gondolas. In this design, both ends sloped toward the middle, forcing the load to the center. These slopes ended in chutes on the bottom of the car, which were also fitted with doors. Once open, the load would spill out very rapidly (as long as it wasn't frozen), helped along by the weight of the material above and the steep slope inside.

Smaller customers were still faced with the prospect of hand shoveling their materials. As a result, they simply used the car for storage, unloading it over a period of several days or weeks. This could create problems for the railroad that served the customer. If it was their own car, it wasn't making any money while it sat on the siding, especially if there was demand for hoppers and gondolas. If the car came from another railroad, a daily fee had to be paid to that line while their car waited to be unloaded.

With the arrival of practical electric and later gasoline powered motors, small and portable conveyors appeared. While the load was still dumped by gravity, it was much easier to shovel it onto the conveyor. This made it possible to unload a car at any location, and the load could be dumped away from the tracks, or reloaded into a truck or wagon on the spot. In later years, a smaller conveyor was introduced that went directly under the car and eliminated the need to hand-shovel the load onto the larger conveyor.

For customers who received considerable amounts of materials, these two systems were later combined. Large underground pits were built where the loads could be dumped, while a conveyor lifted the material for reloading as needed. As many customers required different sizes (coal and gravel are commonly sold by sizes ranging from less than one inch to several inches in diameter to meet the needs of customers) or grades of materials, it became necessary to keep them separated. A second above-ground conveyor was added, but fitted with steel wheels (later rubber tires) so that it could pivot in a half circle around the unloading area. This made it possible to unload a car much faster, as the entire load could be dumped in the pit, lifted on the conveyor and then moved into its own pile away from the main unloader. As self-propelled end loaders appeared in the 1950s, they were also put to work here, speeding the work of reloading materials into waiting trucks.

Today, installations like this are still used wherever large amounts of bulk materials are moved. Sand and gravel pits, cement plants, fertilizer plants, asphalt hot mix plants, road builders and some state and county highway departments use unloaders of this type.

ON YOUR LAYOUT

Representing a modern unloading facility, your new model can be used as a stand-alone industry alongside the tracks or as part of a larger operation.

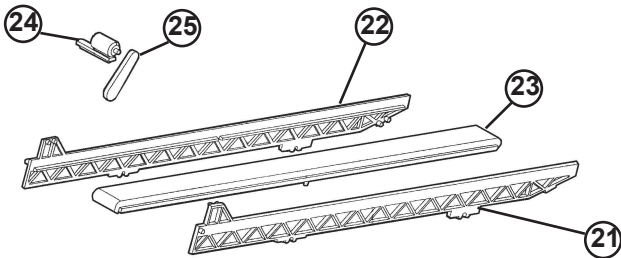
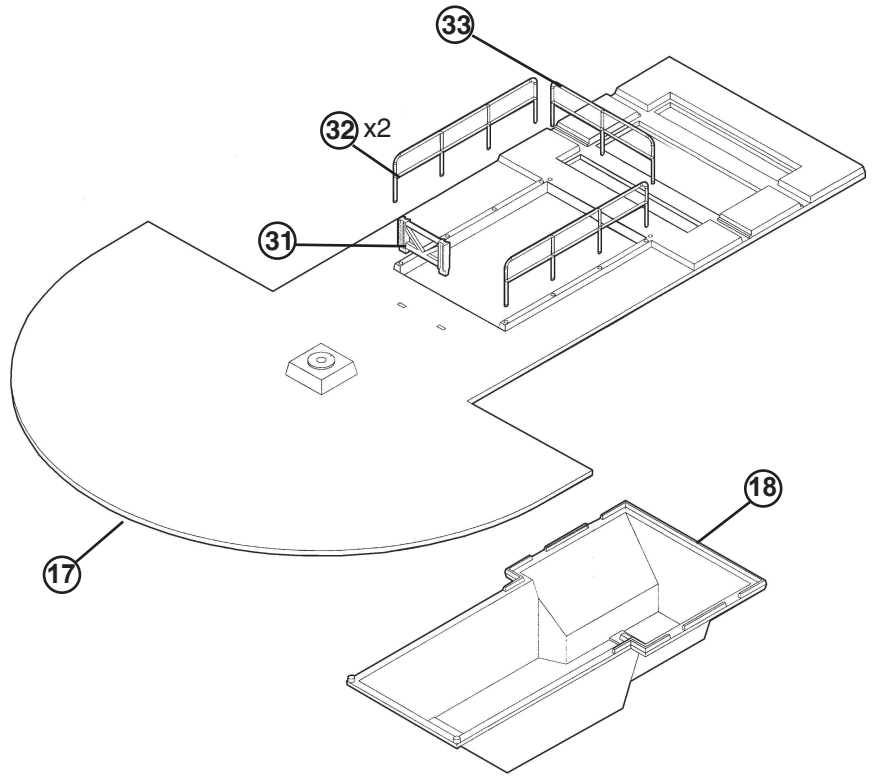
Used alone, it's ideal for modeling a retail facility that sells small quantities of sand, gravel, landscaping stone and similar materials to local customers. It can also be painted and lettered to model a receiving facility owned and operated by a larger company on or off your layout that receives rail shipments in bulk and moves them to the plant by truck. For safety and security, the facility would be protected with a Chain Link Fence (933-3125).

Serving a larger industry, your new unloader looks great serving the Blue Star Ready-Mix (933-3086), Medusa Cement Company (933-3019), the Black Gold Asphalt Hot Mix Plant, or loading at Glacier Gravel (933-3062).

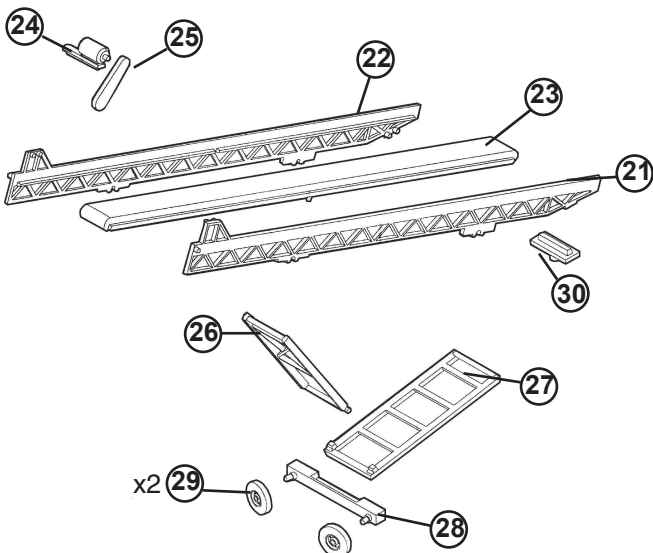
Virtually any modern open car including the Greenville 100-Ton Twin Hoppers (932-7400 Series) and Ortner 100-Ton Open Aggregate Hoppers (932-7050 Series) can be found unloading here. A two-pack of cast loads, item #933-1054, is available for the Ortner Cars to simulate loads-in/empties out operations if desired.

Figures, landscaping materials and vehicles can be added if desired to make your model part of a complete scene. See your local dealer, or check out the latest edition of the Walther's HO Scale Reference Book and our Web-site at www.waltherscornerstone.com for additional ideas.

1. Glue the railings (32,33) and the pit conveyor support (31) in place on the base.
2. Glue the pit (18) to the bottom of the base. Note: Before installing on your layout, cut a hole the size of the pit where you wish to place the base.

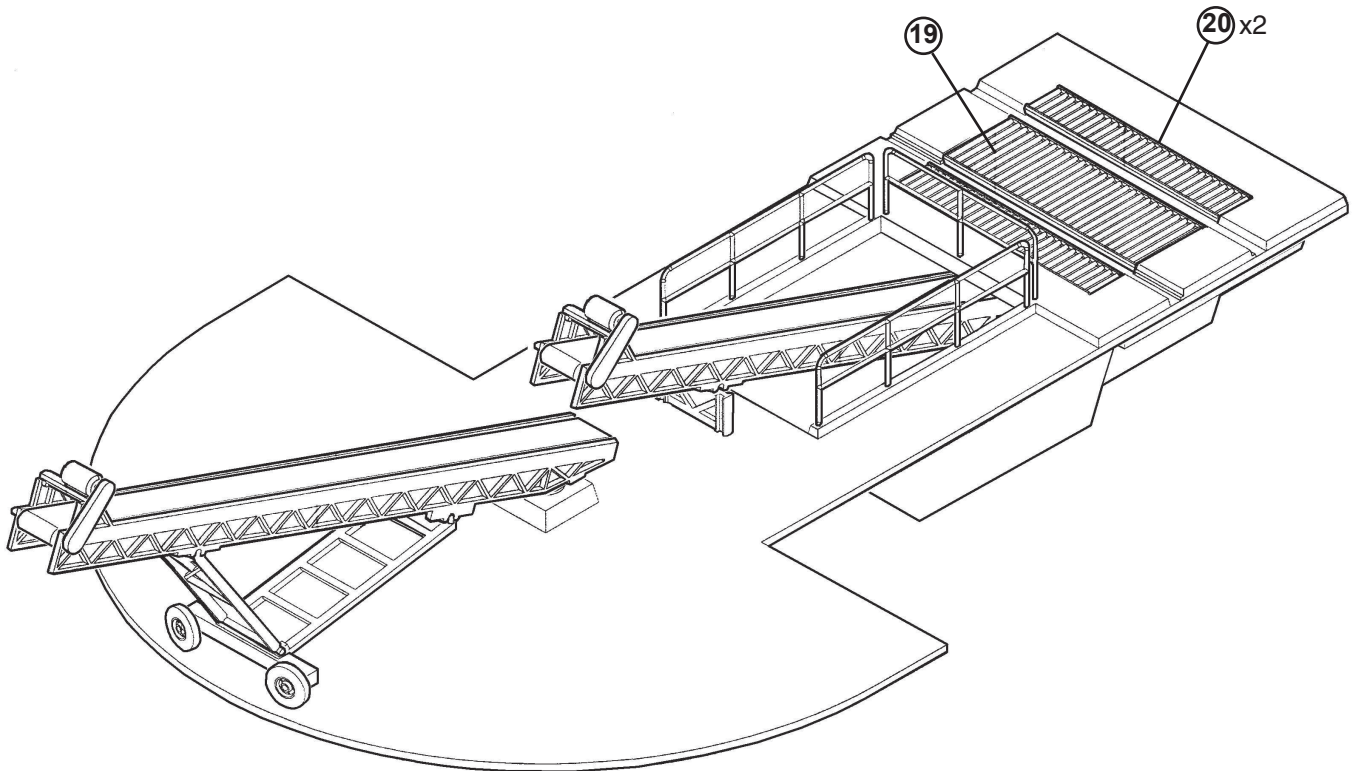


3. Assemble the pit conveyor by gluing the sides (21,22) to the belt (23), using the inside ridges on the sides to position the belt. Then glue the motor (24) and belt cover (25) on top of the side supports at the end.

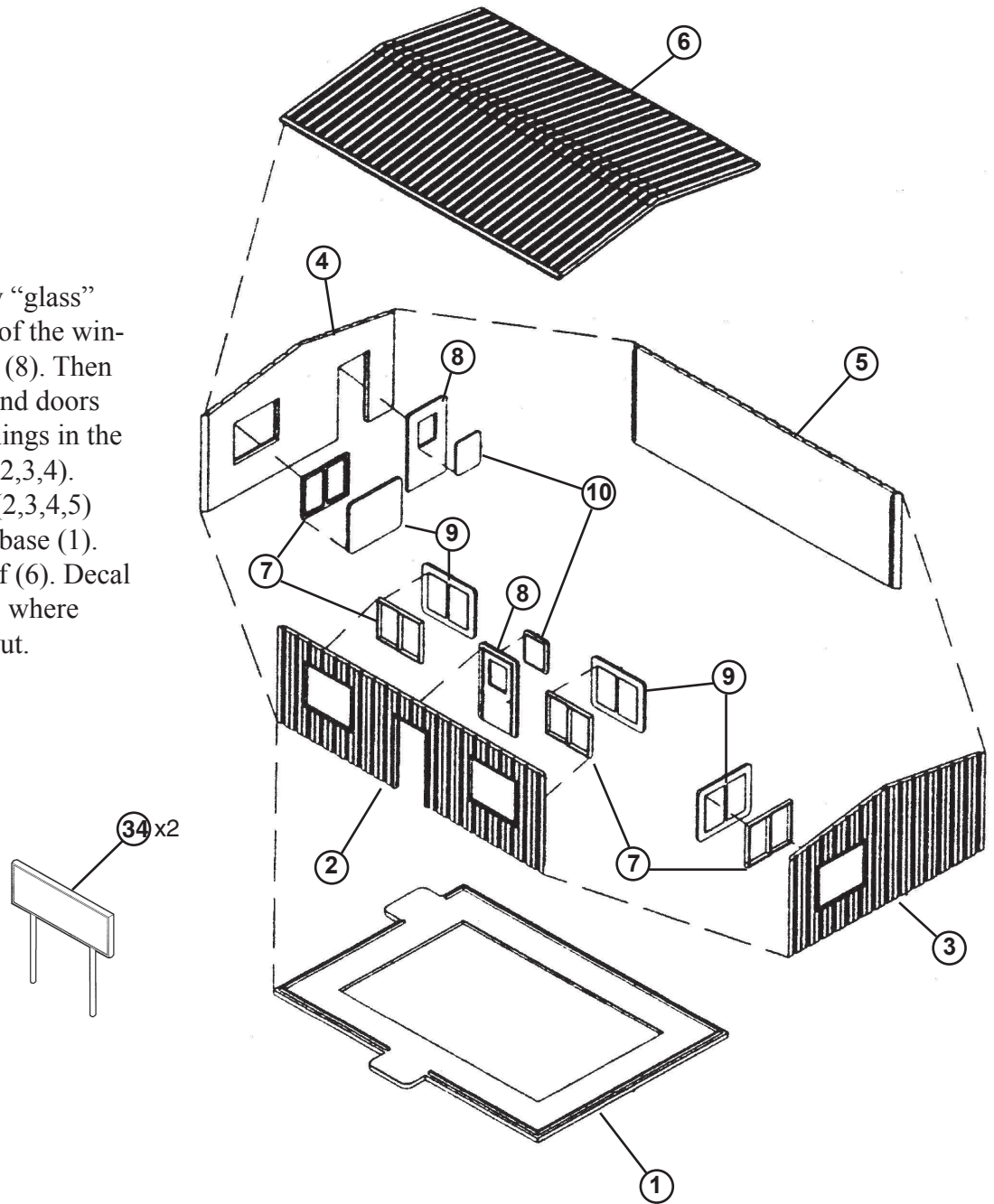


4. Assemble the moveable conveyor by gluing the sides (21,22) to the belt, again using the ridges to position the belt. Glue the motor (24) and cover (25) in place. Next glue the pivot plate (30) underneath, in between the pegs on the sides at the end opposite the motor. Glue the supports (26,27) together and into the notches on the bottom of the sides. Next glue the wheels (29) to the wheel base (28) and then the base to the end of the supports.

5. Glue the pit conveyor into position in the pit and resting on the support. Note: the attaching point in the pit is similar to the pivot plate (30) and attaches to the conveyor in the same manner.
6. Glue the side gratings (20) and middle grating (19) in place on the end of the base (17). Note: When laying track over this area, first remove the ties from the portion of the track that will go over the base. Then place the track rails in the grooves between the gratings.
7. Position the moveable conveyor on the base, with the peg from the pivot plate inserted in the hole in the mounting block on the base. **DO NOT GLUE!** You will be able to position the conveyor anywhere around the arc of the base.
8. Cut a hole 3-5/8 x 1-3/4" where you wish to put the pit on your layout and then place the completed assembly over that.



9. Glue the window "glass" (9,10) to the backs of the windows (7) and doors (8). Then glue the windows and doors in place in the openings in the backs of the walls (2,3,4).
 10. Glue the walls (2,3,4,5) together and to the base (1).
 11. Glue on the roof (6). Decal Sign (34) and place where appropriate on layout.



DECALING

1. After cutting out the decal, dip in water for 10 seconds, remove and let stand for 1 minute. Slide decal onto surface, position and then blot off any excess water.
2. Lightly brush on Micro Sol® on top. This will soften the decal allowing it to conform to irregular surfaces. **DO NOT TOUCH DECAL** while wet!
3. When the decal is thoroughly dry, check for any trapped air bubbles. Prick them with the point of a small pin or hobby knife blade and apply more Micro Sol®.