



HO Structure Kit **BLACK GOLD ASPHALT HOT MIX PLANT** 933-3085

Thanks for purchasing this Cornerstone Series® kit. All parts are styrene so use compatible glue and paint. Please read the instructions and study the drawings before starting.

Humans moving from place to place accidentally created the first “roads.” As wheels became common, these dirt pathways were slowly widened and compacted into a firm surface. Ancient peoples may have paved dirt roads with flat stones. But the Roman Empire elevated road-building to a fine art, constructing some 50,000 miles of all-weather, stone roads across Europe, some of which survive today.

Road building methods and materials remained largely unchanged until the 18th century, when crushed rock could be made in quantity for use as paving. This was later refined by a Scottish inventor named John McAdam. In his design, graded and compacted soil formed a sub-base for compacted layers of large, medium and small stones. Iron tires on wagon wheels gradually ground down the stone into a smooth surface on these “McAdam” roads.

As settlers pushed west into America, they created all-weather roads from readily available timber. Logs were split into long beams for a support and shorter planks for the road surface. These plank or “corduroy” roads gave a very rough ride and rotted quickly, but were an improvement over dirt trails.

The industrial revolution allowed road builders to try mass-produced paving bricks. While durable, the labor to build even a small road made them cost prohibitive, limiting their use to city streets. Though tightly packed, frost-heave and rain weakened the sub-roadbed, resulting in rough, uneven surfaces and increased repair costs.

The coming of rubber tires with treads for bicycles (and soon after, autos) proved troublesome for McAdam paving. Rather than grinding down the fine stones, rubber tires removed them, gradually destroying the smooth surface. To hold the stone in place, it was mixed with coal tar, creating “tarmacadam” later “tarmac.” This was a major improvement - until the roads became sticky in hot weather.

The move toward the modern all-weather highway began in 1870, when more temperature-resistant natural asphalt was first used for paving. And in 1891, the first concrete road pavement in America was laid near Bellefontaine, Ohio, where it remains in use today!

As more people bought cars in the early 20th century, demand for better roads grew. Concrete became the material of choice, as it was readily available, and easily transported and poured on site. Paying for new roads was another matter, as road building was the responsibility of individual counties. State governments began offering limited assistance, but real help first came in 1916, when the Federal Aid Road Act provided \$75,000,000 to assist individual states with road construction projects.

During World War One, the use of trucks became common in many parts of the US. But the weight of these faster and heavier vehicles badly damaged most of the country’s roads. With the discovery of large American oil fields in the 1920s and the subsequent boom in refinery operations, petroleum asphalt became readily available for the first time.

Mixed with fine rock and applied hot, it provided a low-cost, flexible surface that stood-up reasonably well under heavy traffic. During the Depression, cement production fell sharply, limiting the supply and raising costs. But as oil prices fell, petroleum asphalt became more affordable. It became the material of choice for many road building projects which were part of economic recovery programs. Mechanical paving machinery appeared at this time that simplified the work and improved the quality of the road surface.

By the late 1990s, some 93% - about 3-1/2 million miles - of American highways were built with asphalt. The paving work starts at hot mix plants, where fine aggregates (sand or gravel) are mixed with a binder made from bituminous, an oil by-product. This mixture is heated to 250° to 375° Fahrenheit; too hot and structurally weakening carbon particles form, too cold and it won’t compact correctly. (This is why road repair/building is done in summer and early fall, when outdoor temperatures remain stable for long periods.) Dump trucks deliver hot mix to specialized pavers that apply asphalt at a uniform depth, width, slope and temperature, ready for surfacing and sealing by compactors.

ON YOUR LAYOUT

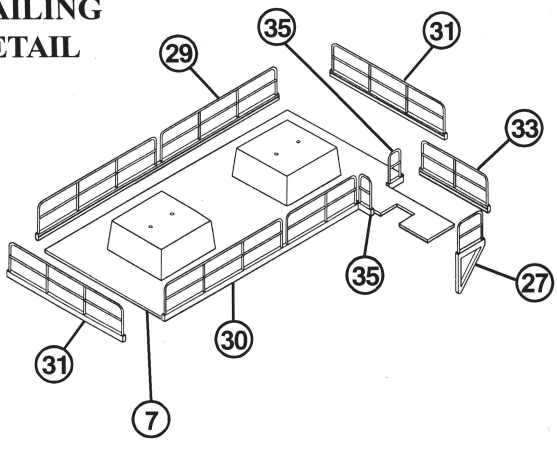
Requiring a steady supply of raw materials in bulk (A good paving crew can lay up to 3,000 tons of asphalt in a single shift!), your new hot mix plant will provide plenty of traffic for your modern, railroad. Built straight from the box, it’s typical of medium-sized operations found throughout the US.

Sand and gravel arrives in 3-bay hoppers like the Ortnier Aggregate Hopper. These distinctive cars carry money-saving loads of 100 tons and are fitted with rapid discharge, bottom unloading doors. Walthers cars are available as singles (932-7050 Series) and three-packs (932-37051 Series), which feature four different car numbers for each roadname. The aggregates can be moved at the plant with the Wheel Loader (933-3141). Bituminous is shipped in insulated tank cars to keep it in a fluid state while in transit and during unloading.

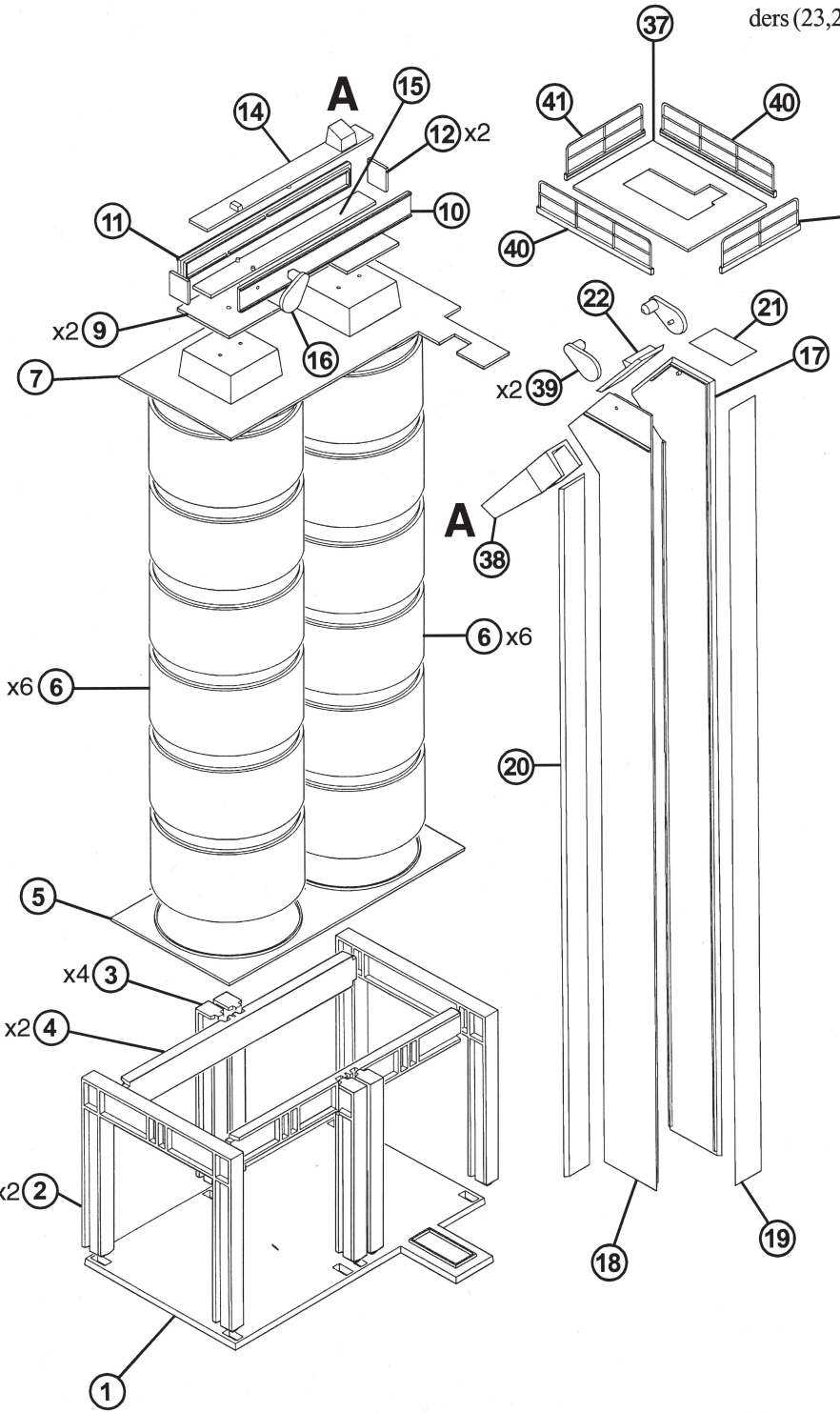
Loads-in/empties-out operations can be modeled with the Deluxe Glacier Gravel (933-3703) kit, served by the Heavy-Duty Wheel Loader (933-3162) and Terex Dump Truck (9333162).

For additional details and modeling supplies to finish your new hot mix plant, check out your local hobby shop, or visit Walthers Web site at www.waltherscornerstone.com.

PLATFORM RAILING DETAIL

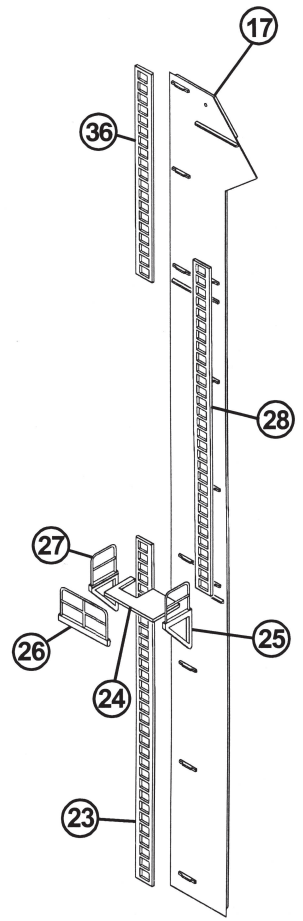


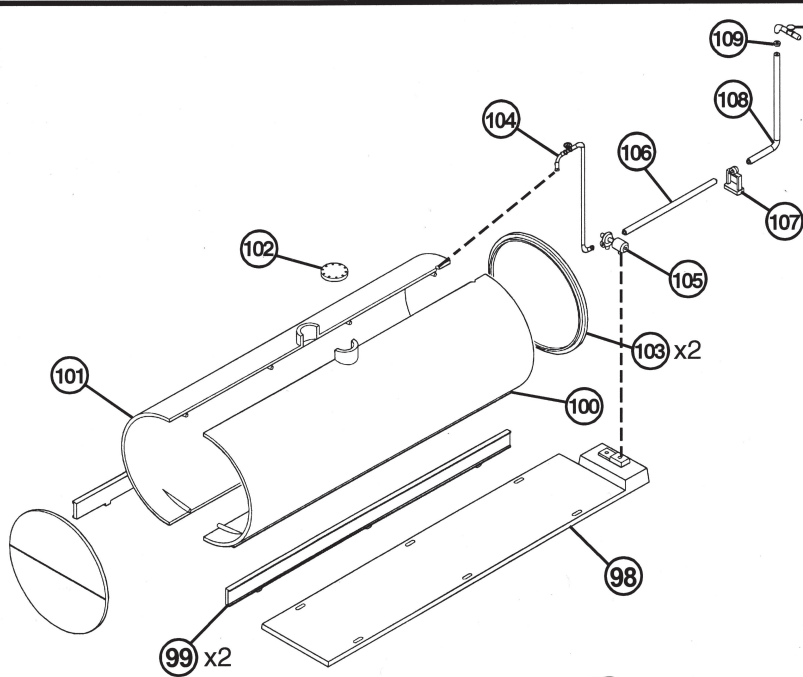
1. Glue the support beams (4) into the inside notches on top of the end supports (2). Make sure arrow on parts #4 is pointing upwards. Then glue these into the silo base (1). Next, glue the side supports (3) to the beams and the base. Glue the silo floor (5) on top of the supports.
2. Glue together two groups of six silo sections (6) each, and then glue these to the top of the silo floor.
3. Glue the top silo platform (7) on top of the silos. Next, glue the box tops (9) in place.
4. Glue the top conveyor (10,11,12,14,15) together and in the holes of parts #9. Glue the motor (16) to the side of part #10 and the top of part #14.
5. Use the "Platform Railing Diagram" to guide you in gluing the platform handrails (29,30,31,33,35) in place onto part #7. Note: End handrail (27) should be glued on after assembling the elevator and gluing it to the base and to part #7.
6. Glue the elevator sides (17,18,19,20) together. Then glue the top (21) and slanted top (22) in place.
7. Consult the "Elevator Ladder Diagram" to glue the platform (24) and railings (25,26,27) in place on part #17, along with the ladders (23,28,36).



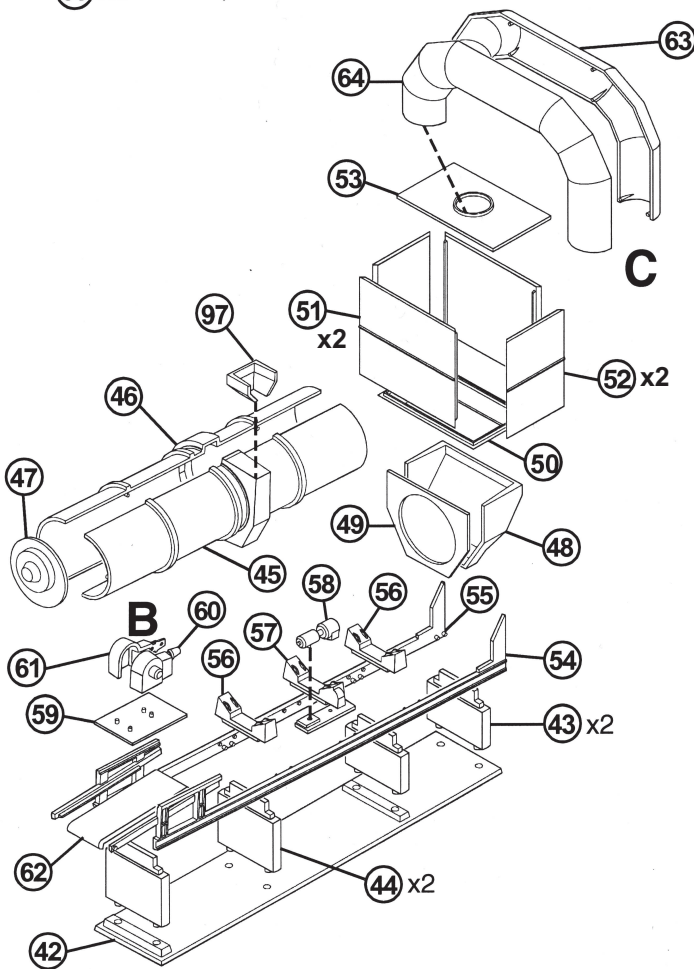
8. First, place spout (38) inside opening in elevator without gluing. Then glue the elevator to the base (1) and the bottom of the spout to the raised box on part #14. "A" to "A" on the illustration.
9. Glue the elevator platform (37) on top of the ridges on the elevator sides. Then glue the motors (39) into the holes in part #'s 17 & 18 and the ridge on part #22.
10. Glue the railings (40,41) to the platform.

ELEVATOR LADDER DIAGRAM

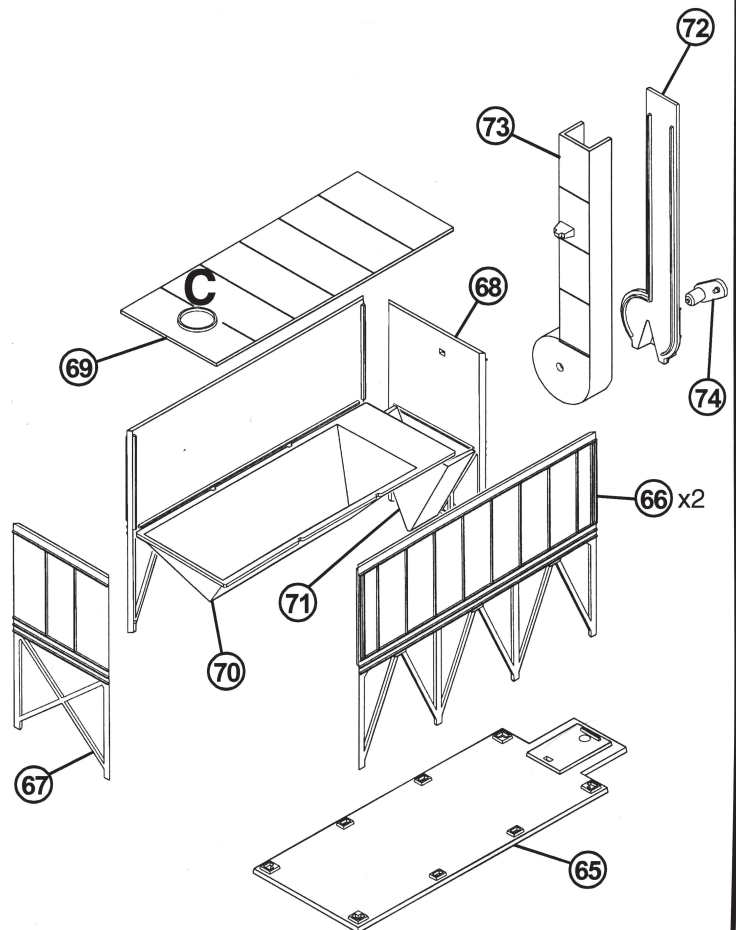


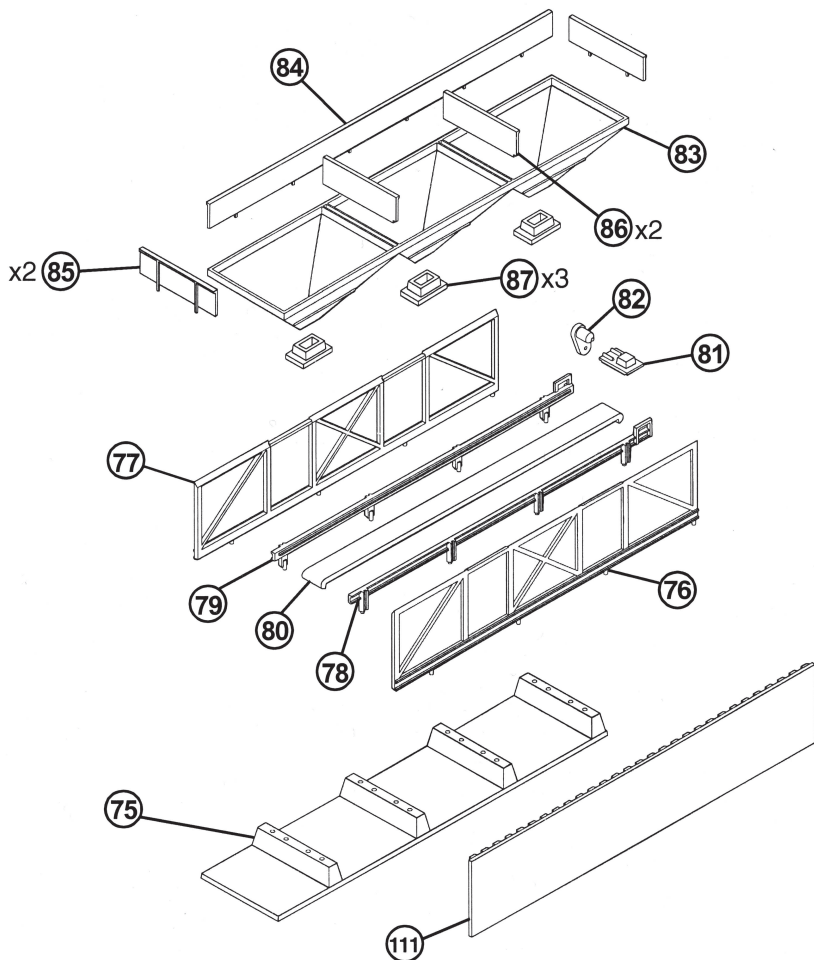


11. Glue the tank (100,101,102,103) together. Next glue the supports (99) to the ridges on the bottom of the tank halves. Then glue this assembly to the tank base (98).
12. Following the illustration, glue the piping (104,105,106,107,108, 109,110) together. The top pipe #110 should be glued at a right angle to the rest of the piping as shown. Note: The end of #110 will go into the hole on the side of part #61, found in step 15. Then glue this assembly into the hole in the top of the tank, at the end, and part #105 to the base. "B" to "B" on the illustration.
13. Glue the two short supports (43) to the end of the base (42) that does not have a raised ledge. Then glue the tall supports (44) to the base.
14. Glue the drum girders (54,55) to the supports. Then glue the rollers (56,57) to the girders, and glue the motor (58) to part #57.
15. Glue the conveyor belt (62) in place first, and then, glue the machinery platform (59) in place on top of part #'s 54 & 55. Next glue the drum machinery (60,61) together and to the platform.
16. Glue the hopper bottom (48,49) together and then to part #'s 54 & 55. Next glue the hopper (50,51,52,53) together and then on top of part #'s 48 & 49.
17. Glue the drum (45,46,47) together. Align the molded-on bands with the grooves on the rollers and set in place with the open end in the hopper bottom. Glue part #97 in place on the drum.
18. Glue the U-duct (63,64) together and set aside for the time being.



19. Glue the hopper sides (66) and ends (67,68) together, along with the bottom (70). Next glue part #71 to part #'s 68 & 70. Glue the top (69) on as shown. When dry, glue this complete assembly to the base (65). Glue the halves of the stack (72,73) together. When dry, glue to the base and part #68. Glue the motor (74) into the hole in part #72. Note: If you wish to animate your model, a Seuthe Smoke Chimney (667-117, sold separately), can be installed in the completed stack. You may need to lightly file the top of the smoke unit to fit in the opening. The molded-on ridges near the top of the stack will hold it in place. Route the wires down through the base and attach to a suitable power source.
20. Place the completed mixer and hopper along side of each other and glue the U-duct from step 18 in place on both part #53 (mixer) and part #69 (hopper) as shown. "C" to "C" on the illustration.





21. Glue conveyor supports (78,79) to the conveyor (80). Glue this assembly into the middle holes on the base (75). Then glue on the motor platform (81) and motor (82).
22. Glue the backboard (84), sideboards (85) and middle boards (86) to the aggregate bins (83). Glue the bottom gates (87) on.
23. Glue the bin supports (76,77) to the outer holes in the base (75). Using the ridges on the sides of the bins to position, glue the bins to the supports.
24. If you wish to build an embankment leading up to the bins, you can use the retaining wall (111) to back it up.

25. Note: There are two small conveyors to build, the only difference between the two is the bases. The assembly sequence is the same for both. Glue the sides (88,89) to the belt (94) and then the motor (95) and pulley (96) in place on the ends of #'s 88 & 89. Next glue the back support (93) into the holes in the base (90 & 91). Glue the belt assembly to the end of #93 as well as to the pegs in the base. Glue the front support (92) in place on #93 and into the holes on the sides, #'s 88 & 89.

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®.

