CORNERSTONE®

HO Structure Kit
SAWMILL OUTBUILDINGS
933-3144

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

Like most industrial processes, making lumber produces by-products. At one time, most of this bark and scrap wood was dumped or burned. Today, it can be converted to wood chips for fuel, paper making or landscaping.

LOG DEBARKER

The first step in converting logs Into lumber Is the removal of bark. This used to be done In the sawmill, by squaring the sides of each log with the head saw. The resulting half-round waste products, called “slabs," were usually burned or sometimes sold for fire wood. Since a lot of valuable wood was lost from each log, this became too expensive in later years. The Log Debarker handles the job with a series of grinders that strip the bark with minimal loss of wood. The bark can then be sent to the chipper and ground into wood chips.

WOOD CHIPPER

Wood chips are made from logs that are cracked or otherwise unsuitable for lumber production and from small pieces (called board ends) created when lumber is cut to length. This is usually the final operation at the saw mill so the chipper is located at the rear of the facility.

The pieces are removed on a conveyor, which feeds the leftovers into the grinding machinery. This produces small chips about 1/8” thick and 1/2 “ square. Using air pressure, the chips are blown into pipes and routed to nearby trucks or rail car loaders.

WOOD CHIP LOADERS

Unlike most bulk loads, wood chips are so light that a huge quantity can be carried in a rail car or trucks. Some railroads converted older box cars for this service by removing the roof or doors. Others added side extensions to hoppers to increase carrying capacity. Eventually, large capacity wood chip hoppers were developed. Some have hinged ends for dumping, while others are top unloaded using rotary dumpers.

Specialized wood chip loaders insure the car is filled to capacity. Most loaders are just a simple elevated platform that supports the pipe coming from the wood chipper and a large box-like device that directs the flow of chips into the car. In turn, the box has a large lid, or plenum, that allows the car to be filled over the top so more chips can be carried. Since the plenum doesn't cover the entire length, the car must be moved slowly during loading. This is done with a car puller housed alongside the support framework.

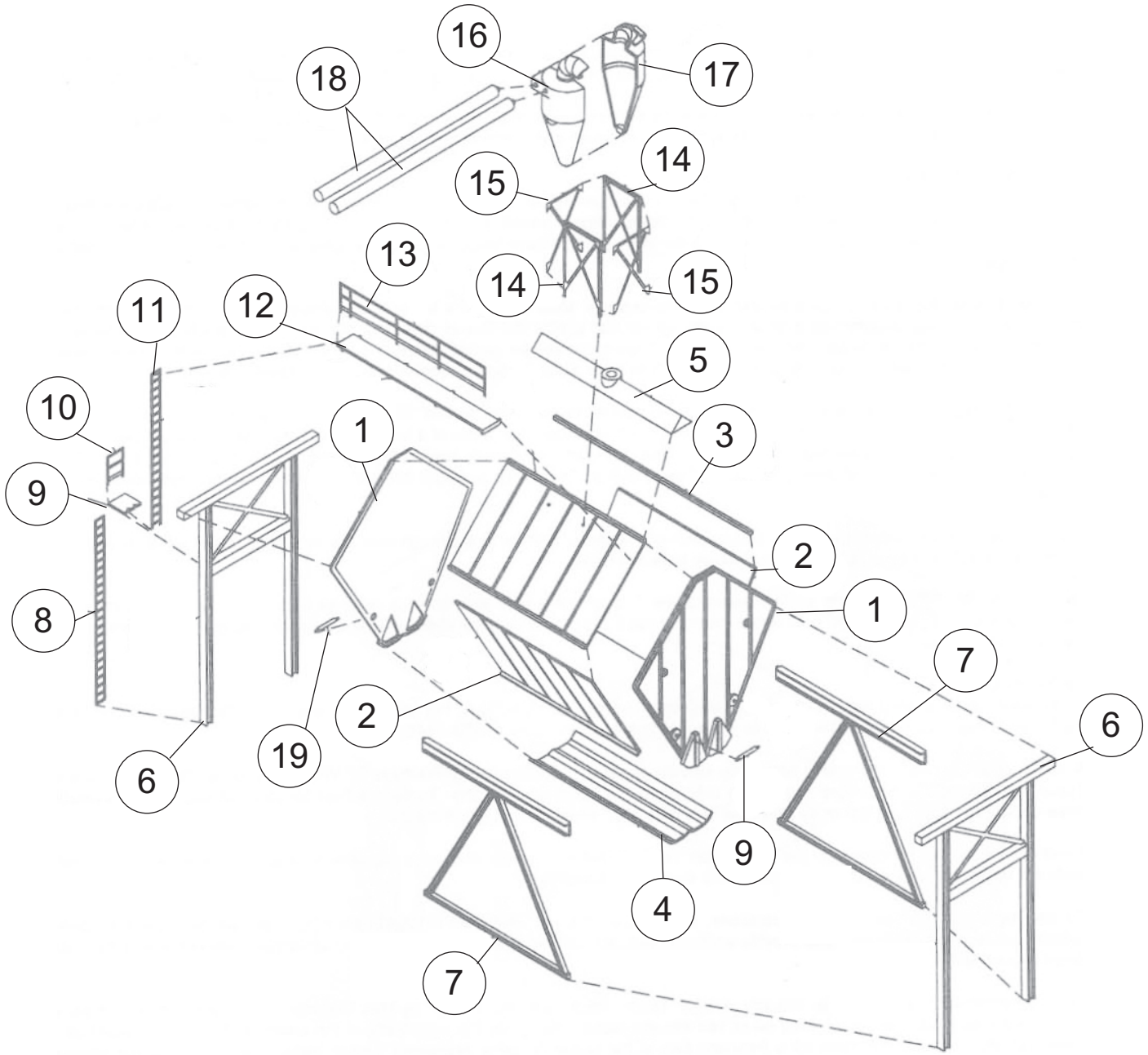
Smaller shipments of wood chips are handled in semi trailers. While some "retired" 40 or 45' van trailers are used, special open-top designs are favored for their increased carrying capacity. A typical loader consists of a large hopper supported on a steel framework. The pipe from the chipper enters the top and the chips settle to the bottom. Gravity speeds the loading, but the hopper has sloped sides to force the chips downward and also Increase storage capacity. The trailer is driven through slowly and the process takes just a few minutes.

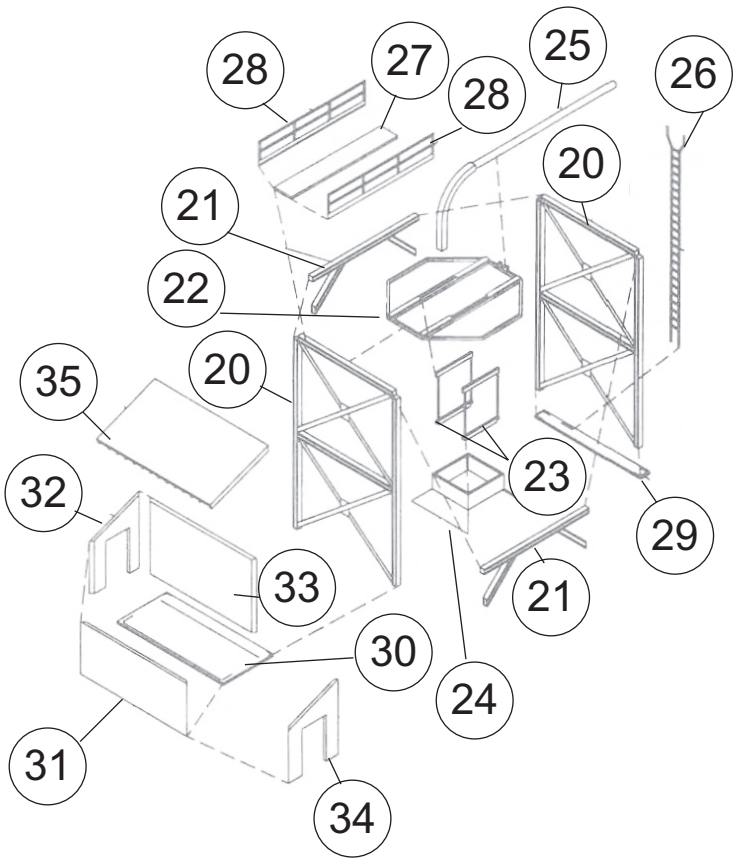
Chip loaders are built close to the mill, in an area with clearance for a siding or a through road. As mills grew, it was easier to add loaders rather than build larger ones, so a modem mill may have five or six.

See your dealer, check out the latest Walthers HO Scale Model Railroad Reference book or visit waltherscornerstone.com for more ideas to detail your new model.

A. WOOD CHIP LOADER FOR TRUCKS.

1. Glue lower sides (2) to the back of one end (1), with the bottom edges touching the W-shaped locating lines inside (1).
2. Glue the other end (1) to the two lower sides (2).
3. Glue the upper sides (3) in place between the ends (1) and against the lower sides (2). Note that the small indentations on part #3 are towards the top.
4. Glue the top (5) in place, and then the bottom doors (4).
5. Glue an end supports (6) to one end (1), locating the pegs on #1 into the matching square holes in the back of #6. Then glue the side braces (7) into the slots in the back of #6. Finally, glue the other end supports (6) to the end (1) and to the side braces (7).
6. Assemble the dust collector support by gluing ends (15) to sides (14). Glue support assembly to recesses in upper sides (3).
7. Glue the dust collector halves (16, 17) together. Glue this to the support assembly. Holes for pipes (18) should face toward one side.
8. Glue support platform railing (13) to the upper platform (12). The wide lower bar of the railing goes on top of the platform and the vertical bars line up with the corssmembers on the bottom of the platform.
9. Glue the upper platform (12) onto the upper side (3, either one), positioning it snugly against the dust collector support. One end of the platform will extend slightly beyond the end of the structure.
10. Glue the lower platform railing (10) to the lower platform (9), opposite the side with the 2 notches. Again, the wider lower bar goes on the top of the platform. Glue platform (9) to the end support (6) underneath the overhand of the upper platform (12). You will see a horizontal ridge on the end support which will locate the platform, going underneath it and between crossmembers.
11. One the upper ladder (11), note that the runners extend slightly beyond the last rung at one end. Glue these into the notches in the lower platform, and then glue the ladder to the upper platform at the third rung from the toop, making sure that the ladder is vertical.
12. Glue the lower ladder (8) to the vertical column of the end support (6) alongside the lower platform. Some of the rungs of ladder 8 have tabs which fit into the channel of the column.
13. Look closely at the door operating cylinders (19). The flat ends are plain on one side and have a bolt molded into the other side. Glue the plain sides to the ends (1) Locating them between the pairs of small lines on the vertical braces.
14. Glue the 2 pipes (18) into the dust collector. These pipes are provided as a “start”. This should connect to the chip generator operations in the sawmill complex. These may include a free-standing chip grinder like the one in this kit or machinery inside the mill buildings. The actual routing of the piping will depend on your sawmill layout.





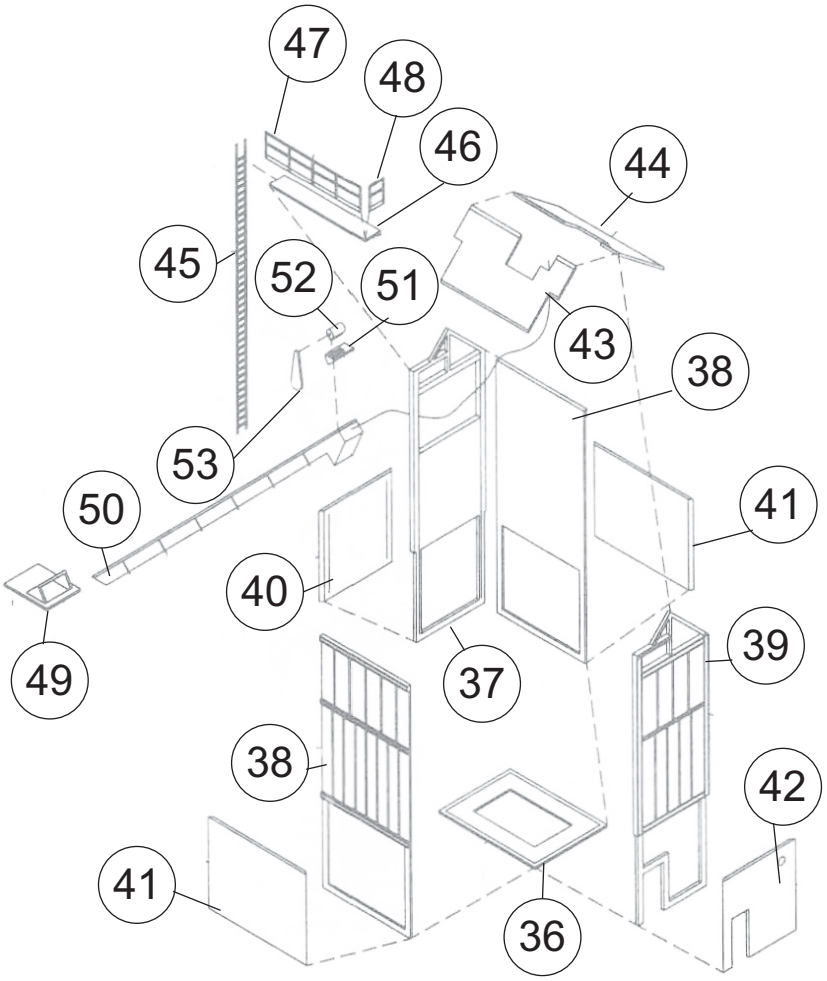
B. WOOD CHIP LOADER FOR RAILCARS

1. Test fit the 8 sided top brace (22) to one of the support frames(20). Note that the top crossmember of #20 had two vertical lines near the center to locate the brace. Also, the U-Shaped pipe support should be along #20 and point upward. You may need to file off some of the draft angle on the U-shaped pipe support so that the top brace can fit all the way into the channel on the #20 crossmember. When you are satisfied with the fit, glue #22 to #20.
2. Glue the two end braces (21) to the support frame (20) and the top brace (22). Then glue the other support frame (20) to this assembly, making sure that it is all square.
3. Glue the two hood supports (23) to the top brace (22) inserting the top angles of #23 into the notches in the crossmember of #22. Glue the hood (24) to the hood supports with the wings of the hood extending to the sides.
4. Glue the shed walls (31, 32, 33, 34) together and to the large base pieces (30). Then glue the shed roof (35) to the shed.
5. Glue the small base (29) to the support frame (20) that is next to the U-Shaped pipe supports, and with the two parallel raised lines on the outside. Then glue the large base with shed to the other support frame. The support uprights should be snugly against the shed walls.
6. Glue the platform (27) to the platform railings (28) resting it on top of the angles at the bottoms of the railings. Glue platform assembly between the tops of the support frames (20). Note the two parallel lines on the small base (29) for locating the boot of the ladder (26). The platform should be located above this point, with the inner railing just to the center of the crossmember of #22.
7. Glue the ladder (26) to the end of the platform (27), making sure that it is vertical and that the bottom end touches the base (29). The two parallel lines on the base are to help locate the foot of the ladder, but some side to side variation is possible. Glue at the base also.
8. Glue the delivery pipe (25) into the U-Shaped pipe support. These are two lines on the underside of the pipe to locate it into the support. This pipe should be extended as needed to the chip-producing facility in your sawmill complex.

C. CHIP GRINDER

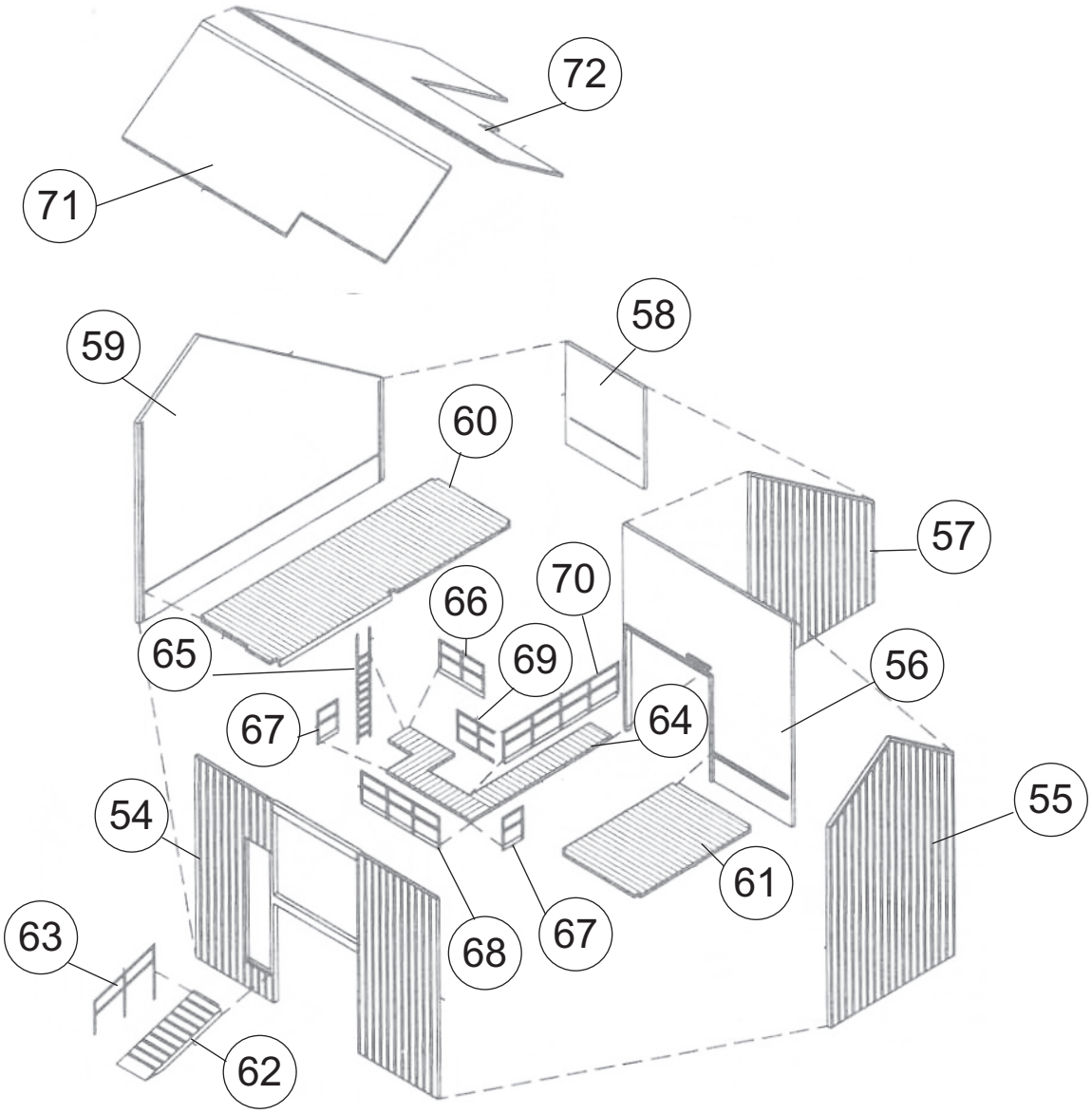
1. Glue the long corrugated pieces (21) into the side walls (38). Glue corrugated piece #40 into end wall (37) and corrugated piece 42 into end wall (39).
2. Glue the wall assemblies together and to the base (36).
3. Glue the roof pieces (43, 44) together and to the walls.
4. The bottom side of platform 46 has a ridge along one edge. The long handrail (47) is glued to the other edge, with the ridge along the lower edge of 47 going underneath platform #46. Glue the short handrail (48) to the end of the platform as shown. The platform assembly is glued to the horizontal braces on walls #37 and 39.
5. Locate the ladder (45) onto wall 37 so that its side is even with the edge of the wall and the top rung is level with the platform and glue in place.
6. Glue the motor (52) to the motor platform (51). Glue the platform to the upper end of the conveyor (50). Glue the small end of the drive chain housing (53) to the motor shaft. Before glue sets have the bottom of conveyor resting on work surface so it sets into a normal angle or slant with the structure. Position the housing so that it is vertical, and glue the lower shaft where it touches the side of the conveyor.
7. Choose location for chip grinder. Insert the conveyor through the opening in the roof and through the opening in wall 37. Lower it until it rests on the ground and the upper end still sticks out through the roof. DO NOT GLUE. Note where the lower end rests on the ground. Lift it slightly and place the conveyor base (49) at this point, and replace the conveyor so that it disappears into the base. Glue in place when satisfied with location.

NOTE: Additional piping (supplied by modeler) is needed to connect the grinder to your chip loading facility. The location for the piping would be on wall #42.



D. DEBARKER SHED

1. Glue wall (58) to wall (59). Glue floor (60) on top of the horizontal ridges on the insides of the walls.
2. Glue wall (54) to wall (59). Glue to floor (60).
3. Glue wall (55) to Wall (54). Glue floor (61) to the wall assembly.
4. Glue wall (56) to Wall (55). Glue to floor (60).
5. Glue wall (57) to walls (56, 58). Glue to floor (60).
6. Glue handrail (70) to walkway (64). The bottom stringers of all the handrails go underneath the walkway with the vertical post to the outside. Make sure the end of the handrail (70) is even with the back end of the walkway.
7. Glue handrail (69) to the walkway so the free ends of the railings overlap the end post of handrail (70).
8. Glue handrail (66) to walkway.
9. Glue handrail (68) to the walkway so the end vertical posts line up with the lengthwise stringers on the underside of the walkway.
10. Insert the walkway through the upper opening in wall (54) from the inside and push down until the length side stringers on the underside rest on the crossbeam on wall (54) and the rear rests on the ridge on the inside of wall (58). Glue in place.
11. Glue two handrails (67) to the ends of the walkway that protrudes from wall (54)
12. Glue ladder (65) to the walkway and to floor (60).
13. Set the structure on a level surface, and glue the ramp (62) to the bottom edge of the raised opening in wall (54) so that it slopes down to touch the ground. After the joint has set, glue the handrail (63) to the sides of the ramp and to the wall.
14. Glue the roofs (71, 72) to the structure.
15. Position the structure so that the conveyor from the pond to the sawmill passes through it.



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 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®.