



# GATX PRESSURE-SLIDE HOPPER aka Whalebelly Cement Hoppers



SAL Pilot Model By Bob Harpe

Photo Dave Lotz

## PROTOTYPE CAR HISTORY

In 1965, General American Transportation Corporation (GATX), designed a new-style covered hoppers called "Pressure-Slide" for the transporting of dry bulk material. They provided only one compartment that was pneumatically discharged using an elaborate low pressure (50-80 p.s.i.) air ductwork system. The unique shape of the tank quickly led to their nickname, "whalebelly hoppers." The 38' 7" long cars had a capacity of 2,800 cubic feet (100-ton) of material.

The Seaboard Air Line (SAL) was the first railroad to purchase this car, buying a total of 50 from GATX in 1965. Classed LS-21, they were assigned road Nos. 7050 through 7099. These were equipped with A-3 Ride Control trucks and Timkin roller bearings. All cars were assigned to service out of Lehigh, FL.

The SAL cars became Seaboard Coast Line (SCL) cars 747050 through 747099 in 1967. Initially, the only change being the Empty Return instructions in a yellow box from "Return Agent SAL Lehigh FLA" to "When empty return to SCLRR Lehigh Fla". These later received the charcoal gray paint scheme with the large white SCL letters.

After the 1983 creation of the Seaboard System Railroad, some of these cars were converted to be 23,000 gallon oil sludge service cars with double shelf couplers. They were repainted a company service red with a broad yellow vertical stripe down the center of the car and given SBD reporting marks and 9766xx road numbers. After June of 1986, these cars received their CSXT reporting marks, retaining their 9766xx numbers.

Prototype photos are on Page 2 & 3 of the instructions.

## THE MODEL

Our GATX Whalebelly kit, our first ever resin and etching kit, was a joint project with Wright Trak Railroad Models and Q Connection. We also worked closely with Microscale Industries to provide accurate decals for these models. The kits are a three-piece cast resin body design with brass photo etchings. Athearn's A-3 Ride Control roller bearing trucks, Kadee® #58 couplers and High Tech Details HTD-6038 Air Hoses are included. While we have provided the major components, there are some mountings and supports that you will need to create for a highly detailed model.

**WARNING** - This kit is NOT a beginner's kit - if you have never assembled a resin and etched kit before, we highly recommend that this not be your first!!

This project has taken much longer than anticipated due to personal setbacks and we thank all of our customers who patiently waited for the kit's release.

## TOOLS

- Adhesives - We suggest using either a high-quality ACC or C-Pox with their activator
- See: [www.gowest2.com/c-pox/systems.html](http://www.gowest2.com/c-pox/systems.html)
- Testors Clear Parts Cement & Window Maker
- Sharp Hobby knife with extra blades
- #800 wet/dry sandpaper
- Pen-vice
- 1/16" drill bit
- 3/16" drill bit

## OTHER MATERIALS NEEDED

- Weights
- .020 Styrene

- Paint
- Decals

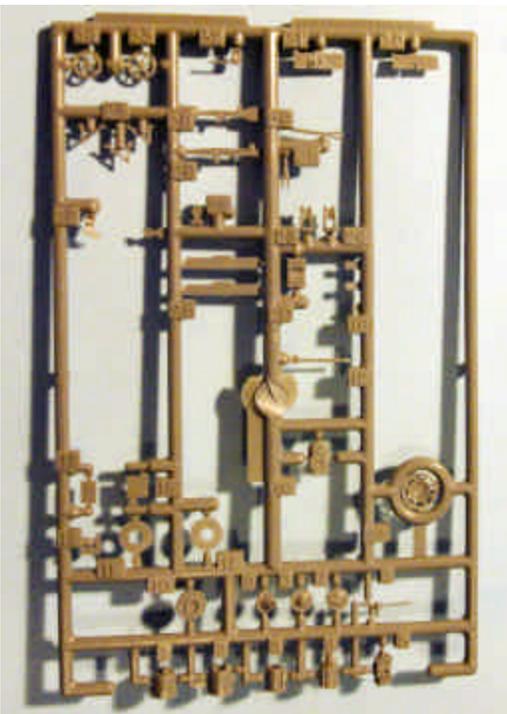
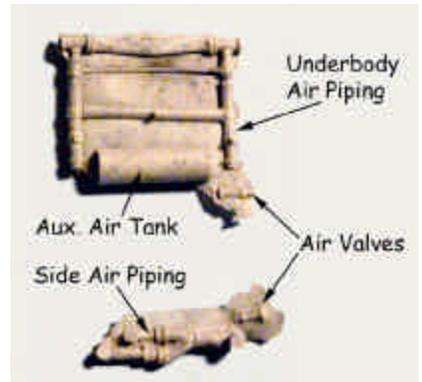
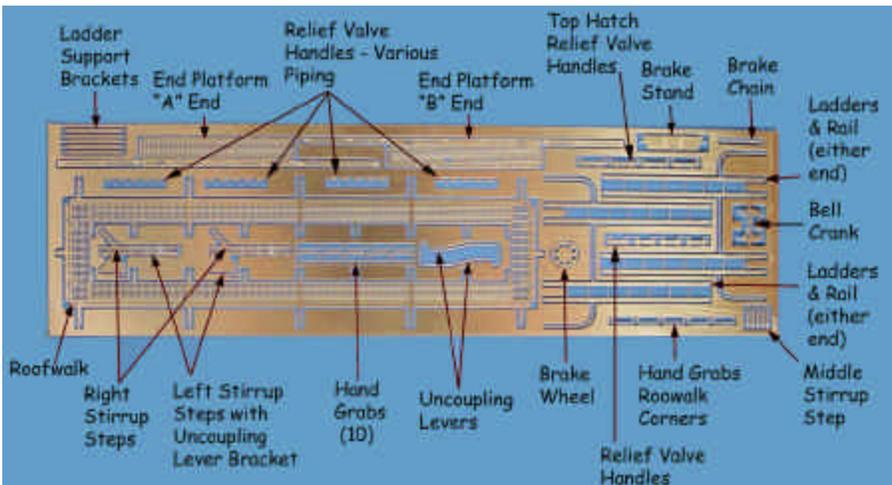
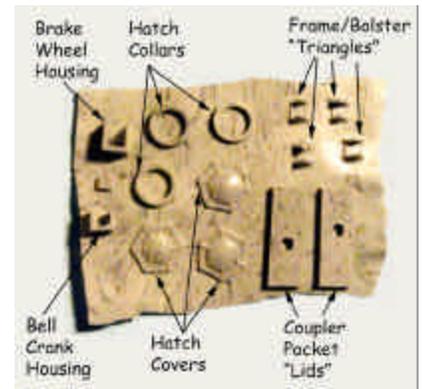


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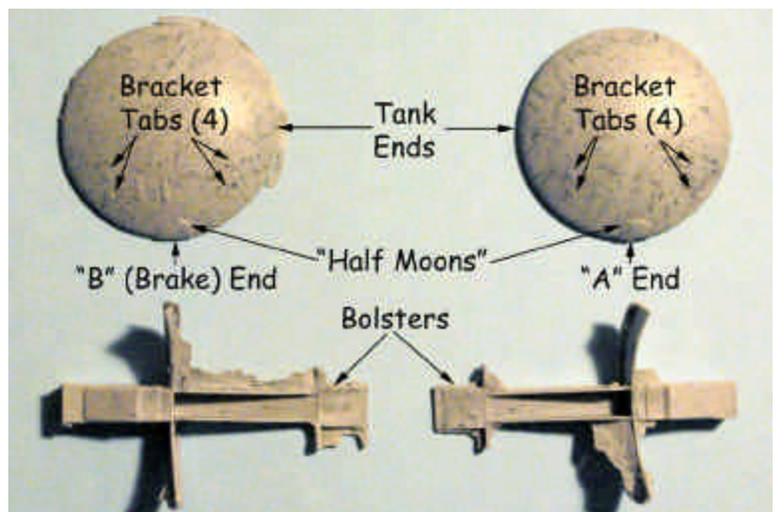
# Pre-Assembly

**PLEASE - READ THE INSTRUCTIONS THOROUGHLY BEFORE BEGINNING TO ASSEMBLE!!!**

1.1 Locate and identify all the parts of the kit  
 (Not pictured - 1 - .0125" x 8" brass wire; 1 - .015" x 8" brass wire; 4 - 3/16" 2-56 machine screws)



NOTE: Parts are shown prior to being removed from their sprues and prior to removal of casting flash.

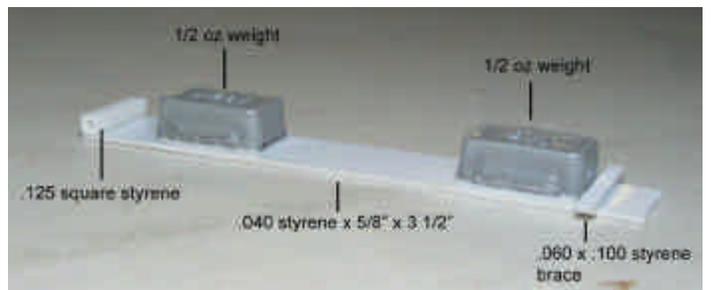


- 1.2 Study the prototype photos to aid in the assembly process
- 1.3 Removing the stainless parts from the sheet is a challenge - the process requires a sharp hobby knife with a stiff blade, a flat wood surface, and a considerable, steady pressure to cut the small attachments to the sheet.  
**WARNING** - The stainless parts that need to be bent (especially the small parts) are very fragile. Try to bend them only once. Bending them back and forth may cause them to break.
- 1.4 The type of resin used in this kit is not harmed by CA adhesives.

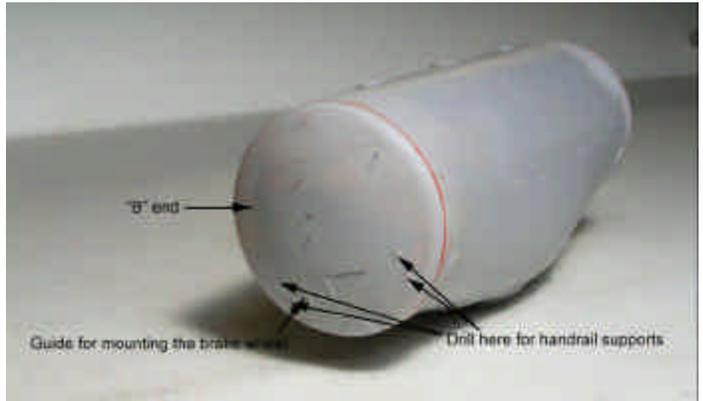
Let's begin!

## Body & Weights

- 2.1 Carefully remove all flashing found on hopper body with a sharp hobby knife.
- 2.2 True up the tank ends using sandpaper on a flat surface.
- 2.3 Using #800 wet/dry sandpaper, remove any mold imperfections from the tank. Make sure not to remove any of the elements intended to remain - study pictures carefully!
- 2.4 Using .040 styrene, cut a strip 5/8" wide and 3 1/2" long. You may bevel the long edges approximately 45° on a piece of course sandpaper on a flat surface for a tighter fit against the interior of the hopper.
- 2.5 Cut a section of .125" square stock styrene and glue to the very end as shown. Cut a short section of the .60 x .100 styrene with the ends beveled to fit snugly against the hopper's interior. Glue this to the top of the .040" styrene at the opposite end as shown.
- 2.6 Using weights of your choice, glue them on the top of the styrene strip (on the side opposite the bevel). Allow it to dry.
- 2.7 Mark a centerline along the bottom of the body shell.
- 2.8 Run a bead of ACC along the beveled edges of the styrene strip.
- 2.9 Carefully insert the styrene strip, with weights attached, into the open end of the tank. Leave approximately 1/4 inch of space on each end and eyeball to center the strip from side-to-side in the bottom of the tank using the centerline you marker earlier. Apply additional ACC as necessary. Allow it to dry.
- 2.10 Trim flashing and imperfections from the two tank ends and test for a tight fit.
- 2.11 Make sure that the tank end that has mounting points for the brake end equipment is attached at the brake or "B" end of the tank. You can use the tank details to differentiate the "A" end from the "B" end (see pictures for reference). Also make sure that you rotate the tank ends so that the "half moon" at the bottom of each end lines up (centers) with the mounting bar on the bottom of the tank body at each end. **WARNING** - This placement is critical for further assemblies on the car!!
- 2.12 One at a time, put a bead of ACC around the lip of the tank end, and carefully placing them, press each into the tank body.

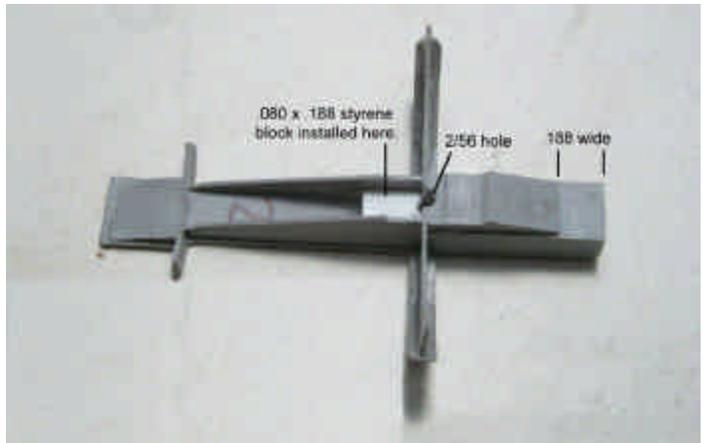


- 2.13 Repeat this process with the remaining tank end. Allow them to dry.
- 2.14 After the ends are COMPLETELY dry, you may add filler if there are any gaps in the end seams. Note on the prototype photos that there is a welding bead around this seam, so it should not be sanded smooth.
- 2.15 Drill #77 holes in the "A" and "B" ends for the handrail supports. **WARNING** - DO NOT mount the brake wheel supports on the "B" end at this time!! See further details for mounting the brake wheel.



## Bolsters

- 3.1 Trim the flashing and imperfections from the two resin bolsters. Be sure to study what is to be kept and what needs to be trimmed! Once trimmed, there are very delicate parts, so handle gingerly.
- 3.2 Using files and/or fine sandpaper, carefully remove enough resin from the top front of the bolster so that the "shelf" for the walkway is .188" wide.
- 3.3 For additional strength for the truck mounting screw, insert a .080" x .188" styrene block inside the top of the bolster body as shown. When dry, carefully drill with a 1/16" drill bit and pen vise, then tap for a 2/56" brass screw.
- 3.4 Turn the bolsters over and with the 1/16" drill the coupler mounting hole deeper into each bolster to within approximately 1/16" of the surface opposite - gauge the drill bit depth with a small piece of cellophane tape measured on the outside of the coupler box around the circumference of the drill bit. Then tap for a 2/56" brass screw.



## Remaining Resin Parts Preparation

- 4.1 Using a hobby knife, sandpaper, and files, cut the remaining resin parts from the resin sheet, trim, sand, and file, and set aside. **WARNING** - When cutting the flashing from the sides of the Hatch Covers, note that one side of the Hatch Cover has hinges - do not cut the hinges off.
- 4.2 There are four sets of small "triangles" that are actually flanges to mount the sides of the End Platforms to the car. These are very fragile, so handle gingerly!!
- 4.3 Use a 3/16" twist drill, followed by a small round file to clean the flashing from the inside of the Hatch Collars.
- 4.4 With the same equipment, trim, sand, and file the underbelly pneumatic air piping and also set aside.
- 4.5 Put a small bead of ACC to the edge of the Hatch Collars in only two places on opposite sides. Using the molded positioning plugs, glue the Hatch Collars to the top of the car body. **WARNING** - do not cement the Hatch Covers to the Collars until just before painting - because the Hatch Collars are flat on the top and bottom, once attached to the car body they will allow you to place the car upside down on a flat surface to allow bottom parts to dry.



## Attaching the Bolsters to the Body

- 5.1 Test fit each bolster to the underbody, and as needed, carefully sand the edges that attach to the body to ensure a snug fit. The top of the bolster should align with the mounting tab on the underbody and the "half moon" shapes on the bottoms of each end. The thin verticle webbing of the "I" beams should be centered on the bars molded into the tank. The large webbing is fragile and each may need to be gently aligned after ACC is applied.
- 5.2 Apply ACC to the two main mounting points of one of the bolsters and mount to the underside of the main body using the guides provided. Adjust the webbing as necessary.
- 5.3 When both are in place, use a straight edge to make sure these two frame pieces line up end to end on the bottom of the car, and make any final adjustments before applying the accelerant.
- 5.4 There are two, brake wheel mounting boxes provided, one in cast resin and the other on the stainless sheet. Test fit each of the Brake Wheel mounting boxes to the brake end of the car to determine which you are going to use. The angle should match the slope of the car so the top of the box is level.
- 5.5 Once you have chosen, put a small bead of ACC to the two mounting edges of the Brake Wheel mounting box and glue to the car. Set the car aside to dry.
- 5.6 Once completely dry, using Testors Clear Parts Cement & Window Maker (or similar filler product), outline and fill in any gaps around the flanges of the main frame pieces, the Hatch Collars, and the Brake Wheel mounting box. Do this process several times if necessary. Set aside to dry.
- 5.7 When dry, using a sharp hobby knife, trim any excess around applications.



## Test fitting the trucks and couplers for proper coupler height

- 6.1 Install the Athearn trucks/wheelsets included in the kit and install the two Kadee® No. 158 "Whisker" couplers in the coupler boxes to check coupler heights. On the pilot model, we found that the couplers, mounted in the coupler boxes, were approximately 3/64" too high when lined up to a Kadee® coupler gauge on a rail track. You may correct most of the coupler height by carefully grinding down the high mounting point of the trucks and/or filing the mounting pads on the bolsters.



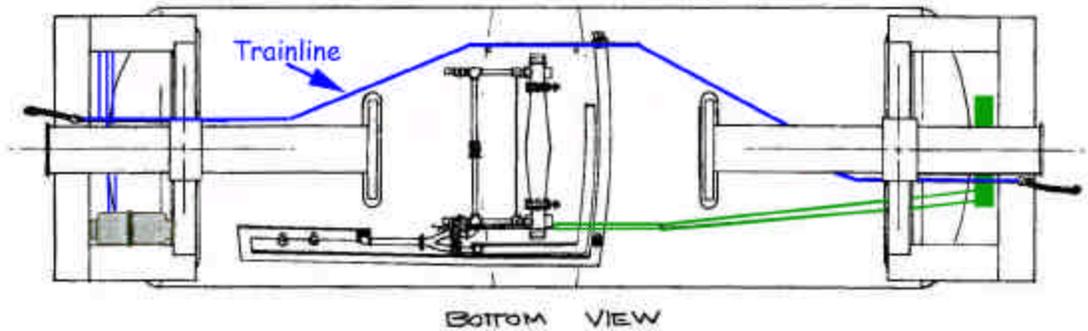
## Underbody Piping

- 7.1 The large piece of underbody piping stands off from the bottom of the car, but should remain parallel to the ground - see pictures and diagrams. I used two .020" strips of styrene cut .005" wide and appx. .1" long as support the piping assembly. (again, refer to pictures and diagrams for placement and orientation to the brake-end of the car).
- 7.2 Using two small dots of ACC, glue the underbody piping in place as shown. The small "pin" in the center of the cross support glues down just behind the cross-piping on the body. Allow this set securely. If they are not secure, you will get very tired of putting them on over and over. Then add the styrene supports. The small "pins" on the top ends of this piping are intended for adding relief valve handles as shown on the prototype photos.



## Brake Assemblies

As you determination where to mount the various brake assembly parts, remember to include installing the wheel and truck assemblies to check for turn radius clearances. Photos I have of these cars do not show a



brake cylinder, brake levers or brake rods, so they have been omitted from the instructions.

- 8.1 From the Tichy brake parts sprue that is supplied with the kit, remove, and/or assemble the following: "AB" Valve (Part 5), Air Reservoir (Parts 1,2 & 10) including a mounting pad, and Brake Stand (Part 16). You have a choice of brake Wheels, either use the one from the photo etchings or the Tichy part 13. Locate the Bell Crank and Brake Chain from the photo etchings and the resin Bell Crank Housing.
- 8.2 Fold the photo-etched Bell Crank in half, matching the halves as closely as possible. Apply ACC to the mounting point of the Bell Crank and using small tweezers, place the Bell Crank down into the center of the open side of the resin Bell Crank Housing (leave the ends of the Bell Crank with the small loops exposed on either side of the Housing - the chain will later be hooked to these loops).
- 8.3 **(Bob H. Comment here!)** Air Reservoir  
Using a small drop of ACC, glue the Bell Crank assembly to the side of the frame/coupler box housing just behind the flat End Platform mounting point and very near the upper surface.
- 8.4 Mount the Brake Wheel of choice to the Brake Wheel Stand. **Warning:** Do not, at this time, mount the Brake Wheel and Stand assembly to the Brake Wheel Housing already on the body. We recommend doing this after assembling the "B" end photo-etched ladder assembly, allowing you to make adjustments as needed.
- 8.5 Test-fit the Brake Wheel and Brake Wheel Stand assembly enabling you to line up the Bell Crank chain loop so that it is directly below the bottom left side of the of the Brake Wheel Housing. Install the brake end trucks with wheels to check for radius clearance - then remove. Drill a 1/32" hole in the brake end "I" beam directly behind the Bell Crank so that the Brake Cylinder may be mounted behind the "I" beam.
- 8.6 Mount the "AB" Valve as shown in the prototype photos. Ater all brake assemblies are dry, install brake lines using the .015" brass wire included in the kit.



## Pneumatic Air Tank and Lines

- 9.1 On the non-brake end of the car sits an air tank which on the prototype aids in the process of using air to load and unload product. The tank included in the kit is a very non-descript piece of resin in the form of a cylinder.
- 9.2 I manufactured a mounting platform for the air tank from sheet .020 styrene, making two pieces just slightly longer than the tank that when assembled at 90°s and mounted on the angled surface of the coupler box allows the air tank to sit level on the surface.
- 9.3 Glue the tank to the platform, test fit, and glue the platform to the angled surface. The photos I have do not show how this tank is plumbed with the car body, air lines, or molded air races. Use your best judgement from the drawing and photos included to add these lines with the .0125" brass wire.

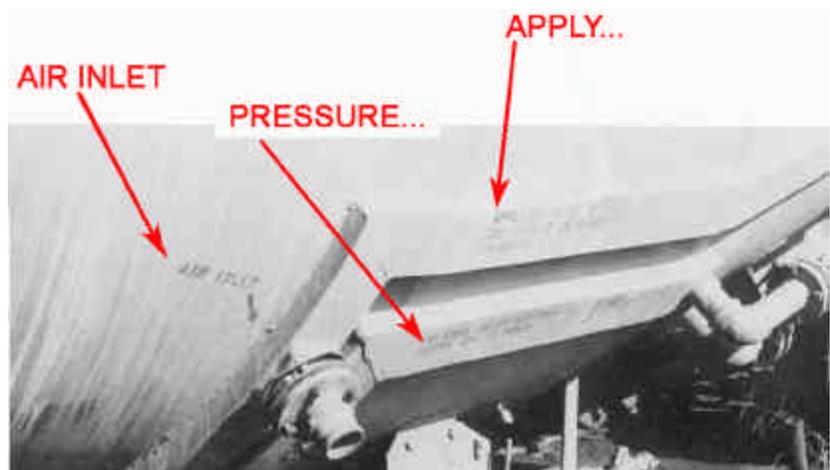


## Ladder Support Brackets and Hatch Covers

- 10.1 From the brass photo etched sheet, cut four of the Ladder Support Brackets. Bend the brackets at the indicated soft points and bend the mounting surfaces in (rather than out which will make the Support Brackets too long).
- 10.2 Using small drops of ACC, mount the Ladder Support Brackets to the car ends on the raised mounting points.
- 10.3 Mount the brackets with the long sides on the bottom (doing it the other way will look very wrong). The brackets should be approximately perpendicular to the car ends, and you need to watch this until the ACC sets up.
- 10.4 Using small amounts of ACC, glue the top hatch covers to the hatch collars. Mount them all with the hinges facing the same end of the car.

## Painting & Decals

- 11.1 Due to the delicate parts that are to be added next, we recommend painting, decaling then sealing with clear coat, the main body at this time.
- 11.2 Choose an appropriate color for the prototype you are modeling and after removing the couplers and trucks, paint the entire car assembled to this point.
- 11.3 When you are completely happy with your paint job, set the car aside for several days to dry completely.
- 11.4 Using Microscale Decals sheets already produced for these kits, applied the decals exactly as instructed in the Microscale Decal directions. We recommend the use of a decal setting solution.
- 11.5 A word of caution when applying decals. Start with the large side decals, (one on each side) and line them up with the faint, but distinguishable, straight line that runs full length of the car sides.
- 11.6 Using the raised protrusions in the form of a "V" and the large side decals, apply all other decals as instructed. **WARNING:** Because of the shape of the car, with curves and angles running everywhere, trust the large side decals and a good quality straight edge to level all other decals. The curves and angles can be very deceiving and cause decals to look level when they really aren't.
- 11.7 To apply the car road number decals that go on each end, again, do not trust your eyesight. Use a straight edge to line up center and level (level with the top of the coupler boxes). There are very small decals in the decal set with printing so small you can't even read them with a magnifier. Positioning is not illustrated on the Microscale directions, but are shown here on the air races that travel along one side of the car.
- 11.8 Re-install the Kadee couplers and paint the outside of the coupler plates, including the screws. When you are happy with the bottom of the car, re-install the trucks and wheels checking clearances coupler heights.



## The Hard Part...

We are now finished with the easy part, which of course leaves the hard part. Actually, some may not see it that way, however, for me, taking brass parts from the photo etched sheet, making the extremely fragile bends at the photo etched soft points without breakage, and making the required bends in non-photo etched soft points (mounting tabs, etc.) without destroying the parts, has been difficult. These parts all start out flat as part of a sheet of photo etched brass. Although the process of cutting these parts from the sheet takes considerable patience and a very sharp, yet sturdy hobby knife. I found that the wire hand grabs were easier to extract from the sheet by bending them at a 90° and then repeating the bend process until they came off. Bending the parts into recognizable adaptations to mimic the parts as they appear on the picture or diagram of the car without having the pieces just fall apart was near impossible. Visualizing what the parts should look like, once complete, was some mental strain as well. The use of ACC simply became part of this portion of the construction process.

## The "Triangles"

- 12.1 There are four pair of small, cast resin triangles that are to be placed on the inside ends of the end platforms and curved "I" beams as shown to the right.
- 12.2 Put a small drop of ACC on the bottom side of the square holding the triangles. Attach these to the top side of the flat surface ends of the frame flanges (see pictures and diagrams for location). Set aside and let dry. As the pictures and diagrams will show, each flange end receives a pair of triangles.



## End Platforms and Ladders

- 13.1 Cut free from the sheets the End Ladder and Rail units (complete units with ladders and hand rails all in one piece). Note again that one of the End Platforms is for the Brake End of the car.
- 13.2 Identify where the Ladder Units should install on the platforms (note - the Brake End Platform has a hole towards the back of the platform for the hand brake chain).
- 13.3 Attach the ladder/hand rail pieces to the back side of the end platforms. There seems to be points in the grill work where the ladders insert, but the hand rail ends seem to just go through openings.
- 13.4 Let the glue dry.
- 13.5 Mount the end platforms with ladders/hand rails to the space created by kit or modification on each car end on the top of the coupler boxes.
- 13.6 Let the glue dry.



## Finishing Brake Wheel and Chain

- 14.1 Mount the Brake Wheel Housing (with Wheel attached) to the Brake Wheel mounting box already on the brake end of the car. Push as far to the left on the box as possible and flush the bottom of the Brake Wheel Housing to the bottom of the mounting box. Let the glue dry.
- 14.2 You may use the etched brake chain, or substitute it with any HO scale black chain to run from the fork end of the Brake Cylinder to the back end of the Bell crank, and from the hole in the bottom of the brake wheel housing, through the hole in the brake end End Platform to the front end of the Bell Crank. Let the glue dry.

## Side Braces and Stirrup Steps

- 15.1 Attach the side braces from the end platforms to the small triangle mounting points on all four corners of the car frame. These pieces seem to have soft spot bending points along the full length. Bend them to a 90° angle. When installed, the side pieces will extend approximately 1/32nd of an inch past the inside triangle.
- 15.2 The stirrup steps and braces go to the very end and sides of the end platforms. Note - the left side braces (looking at the car from each end) is a solid triangle and has mounting points for the cut bars (bend out at a 90° angle the small tabs with the holes in them before installing).
- 15.3 If you have been lucky enough to make the bends in the stirrup steps without them breaking, install the stirrup steps. The ends that attach at the inside edges of the end platforms simply mount to the outside edge of the end platforms just behind the side braces. If you have had stirrup steps that have fallen apart, not to worry, simply use a little more ACC to solve the problem. Let the glue dry.

## Roof Walk Platforms

- 16.1 Extract the car top platforms from the photo etched sheet.
- 16.2 Form the edges of the platforms by making the appropriate bends full length, sides and ends, and because these bends are again on soft spot bend points, bend carefully to avoid these pieces coming apart at the bend points.
- 16.3 Bend inward the small mounting points at the ends of each mounting brace.
- 16.4 Test fit the car top platforms numerous times, each time bending the mounting braces slightly until you like the way the top platform looks on the top of the car. As this test fitting process continues, be sure to consider the end ladders so that the top platforms and the top mounting points of the end ladders match up.
- 16.5 Once you are happy with the way everything associated with the top platform fits, begin the installation process by using small amounts of ACC to mount the ladder ends in place on the back sides of the top platform end edges. Hold all of this in place with some small weights until the glue dries.
- 16.6 To strengthen the entire unit and make the mounting points look as if they have been affixed to the top of the car, I put a small drop of Faller Expert Plastic Cement (this product is very liquid and has a small metal applicator which allows pinpoint application.) at the base of each down support of the top platform.
- 16.7 Once dry, the top platform and end ladder units should seem rigid and well fixed to the car. Using small drops of ACC I installed eight hand grabs from the photo-etched sheet; four of the offsets, two to each end of the end platforms, and four regular, to the top/ends of the top platforms.
- 16.8 Install the cut bars by inserting them through the holes in the solid support triangles on the left sides of each end of the end platforms and gluing the flat ends of the cut bars to the underside of the coupler boxes.
- 16.9 At this time install the High Tech Details HTD-6038 Air Hoses included in the kit.



## Paint Touch-ups

Now, using a fairly small paint brush and full strength paint you painted the car body with, paint the brass parts, including mounting points (I left the chain pieces black). Being very careful not to get paint on the car body, also paint the down supports of the top platforms letting the paint run down covering the Faller glue drops applied earlier. Let the paint dry then give everything a second coat and let dry. I discovered that it might have been better to paint the backsides of the down supports for the top platforms before installation. Shake the paint again, remove the lid, turn upside down, put a half a dozen drops of paint thinner (or water if you are using a water based paint) in the paint lid, add a couple of brushes full (the same small brush used to paint the handrails, etc.) of paint, and mix it all up. Now carefully use this mixture to paint the surface of the end and top platforms. Do not leave any of the openings with a paint bubble if possible. Using a dry brush, and eliminate all paint bubbles (at least as many as possible). Allow the car to dry well.

## Finishing Touches

I found that all of the handling, especially on the large flat surfaces on each side of the car body to install and paint all of the brass parts left the car sides dull and a little gritty. Using cotton swabs, clean up the car sides carefully with isopropyl alcohol, soap, and water. Weather to match your operating period. Let the car dry completely. Your "Whalebelly" car is now complete, and with the effort you have put in, you should be very satisfied.

## Credit where Credit is Due!

I want to extend a huge **THANK YOU** to all the people who contributed to the making of this kit: Bill Glick for his modeling article drawings and photographs in *Prototype Modeler* that led the way, Gary Wright, Jeff Briggs and Kerry Davis; Bob Grenier and Bob Harpe for building pilot models *without* instructions; Steve Dunham and Microscale; photographers Gib Allbach, Peter Arnold, Warren Calloway, Doug Clark, Bob Courtney, John Engstrom, Dan Holbrook, Brian Fons, Tim Frederick, Stan Jackowski, George Speir, Doug Stark, Russ Strodtz, Hol Wagner; and other contributors Doug Bauer, Denis Blake, Doug Brown, Paul Faulk, John Gillies, Wade Griffith, Kevin Pytlak, Ed Reutling, Gary Riccio and Howard Robbins.

# Whalebelly Prototype Photos



SAL LO No. 7097 shown at Wildwood, FL on June 3, 1973

Stan Jackowski



SAL No 7067 as it appeared in May of 1966 before leaving General American Transportation Corporation. Courtesy Gary Riccio



SAL No 7087 May of 1966 at GATC.



Courtesy Gary Riccio "B" End SCL 747094 Courtesy Gary Riccio

# Whalebelly Prototype Photos



SCL LS-21 No. 747094 painted in the SCL dark gray in January 1971.

Courtesy Gary Riccio



SCL LS-21 No. 747094 painted in the SCL dark gray.

Courtesy Gary Riccio



SAL & SCL Original Roof Details.



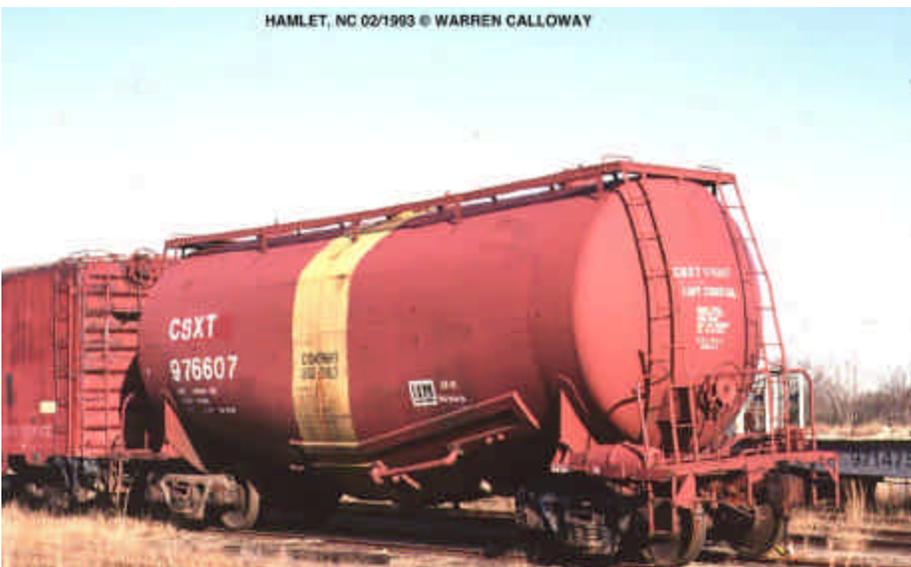
Bill Glick

# Whalebelly Prototype Photos



SBD No. 976612, painted in November 1984, photographed in service in 2004.

Tim Frederick



CSXT No. 976607 taken at Hamlet, NC in February of 1993.

Warren Calloway