

Constructing the HSB-850 Stationary Horizontal Boiler

by Brett Gallant



Start by Downloading: **“Working with SierraWest 3D Printed Castings”**. These instructions cover all of the basics and provide essential information you will require before proceeding. There are two ways to approach the construction of kits with super detailed small parts. Paint and weather all the parts prior to assembly, or create logical assemblies, then paint and weather these as a group. I prefer to paint and weather all the parts before I begin using the techniques explained in the “Working with SierraWest 3D Printed Castings” download. In some cases you will find the glue does not adhere well to the weathered parts You will need to scrape it away where the glue is applied. For larger parts, I use a five minute epoxy. Super Glue (Cyanoacrylate or CA) works great for small part adhesion.

The Barrel and Firebox Assembly

Lightly scuff the mating surfaces of the Firebox Assembly and Barrel. This texture will greatly increase the strength of the bond once epoxied together.

Follow the detailed instructions in the “Working with SierraWest 3D Printed Castings” download to very carefully ream the bore holes so the appropriate brass/styrene rods easily slides through. Once assembly begins you will not want to apply force to make the brass/styrene fit. Use care, these are finely detailed parts and are fragile. Check the fit of all parts together now. Do not force a boss in a hole or it will break off. Use care and a drill to slightly enlarge any hole if necessary where a reamer is not suitable. Use a bit *just slightly larger*. Do not be intimidated by these steps. The tooling resin I use is actually quite resilient but the parts are so finely detailed they must be handled with thought and care.

Check the fit of the Steam Dome and Smoke Collar in the Barrel. It will be a very tight fit to ensure a clean appearance. Do not force them into position. File the opening in the Barrel until they seat correctly, if necessary. Note the orientation of the Steam Dome. The seam on its side aligns with the left side of the barrel if you were standing at the front where the boiler doors are.

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Next, check the fit of the styrene tube Smoke Stack in the Smoke Collar. Carefully file the inside of the collar if necessary so the stack easily slides in. Now epoxy both the dome and collar to the Barrel.

Epoxy the Firebox to the Barrel. Ensure it is straight, flush, and level. When you look at the front of the Barrel you do not want the boiler doors or the Steam Dome and Smoke Collar to appear unlevelled. Take your time, this is important. Allow the epoxy to fully set before proceeding. Now epoxy the feet in place. Allow the epoxy to fully set.

Paint and Weather the Boiler Assembly

Spray paint the entire assembly flat black and allow to dry fully. Now dry brush a very light coating of any sliver colored water based paint. More information on this technique can be found in the "Working with SierraWest 3D Printed Castings" download.

Follow the detailed instructions in the "Working with SierraWest 3D Printed Castings" download to paint and weather the parts. Pay special attention to the sections that discuss "Creating a Simple Metallic Finish", "Create a Metallic Finish on Top of a Color", and "Alternative Base Layer Color Choices".

Tee or Ell (ell included in kit)

The Tee is used here to carry steam to the log deck, sawmill whistle, and any other machinery that required live steam as opposed to direct belt drive. The belt drive is powered by the boiler and mill engine. This detail is denoted "a" in the drawing.

A little dark rust can also be applied on top. You don't want the assembly rusty appearing as a working boiler would be generally well maintained and not allowed to rust. A little around the seams is very prototypical. Notice in the photographs the subtle light gray chalk streaks around the rivets and tailing down the barrel at appropriate points. Apply these after the boiler construction is complete. This is a great finishing weathering detail. These photographs are of the O Scale Sawmill Project and are provided to illustrate the way to accurately connect the Mill Engine and Boiler. The notations that accompany the photographs provide the detail to accomplish this (when you are ready to install your models on a diorama). These kits were constructed and weathered by Karl Allison.

File one end of the 1/16 brass wire flat, blacken, then epoxy this end in the bottom of the Barrel assembly. Once set, measure and cut

Boiler Steam Pipe
(Connects to Mill Engine Steam Supply Pipe)



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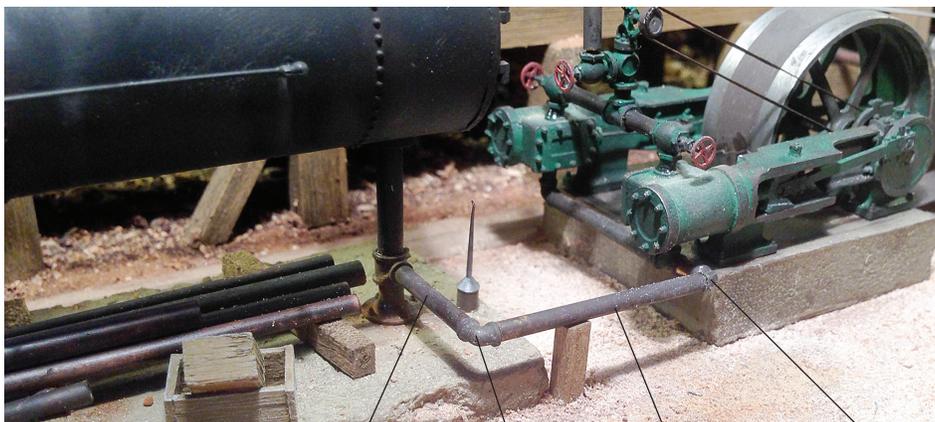
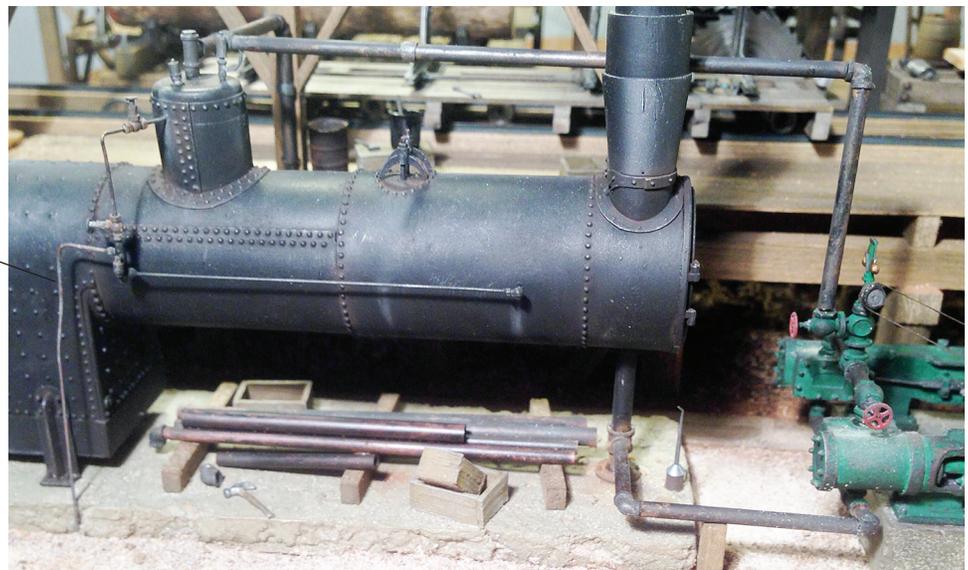
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this Smoke Box Support to length so that it levels the boiler. Slide the Exhaust Tee on the wire but do not glue it in place. You will do this when you are ready to install and connect the Mill Engine and Boiler together. Now test the fit of the Support Base to the bottom. If needed, file the bottom of the wire so the boiler remains level then epoxy the Support Base in place. The base will add less than 1/64 inch height.

Now CA the Pop Valve and Whistle in place. Do not glue the Steam Tee in place until you are ready to connect the Mill Engine and Boiler. CA the two Man Hole Crabs to the top of the barrel. Carefully snip the tiny Gauge/Try Cocks from the sprue and CA them in place along with the Hand Hole Crab. Bend and

blacken the Syphon Tube then CA it to the Barrel with the Steam Gauge. Now bend the Injector Steam and Injector Delivery Pipes. Blacken these. Slide a Globe Valve on the long end of the steam pipe then CA the Injector on this end. Check and adjust the length then slide a second Globe Valve on the short end and CA this end in the hole on the side of the Steam Dome. CA the Check Valve in place then the delivery pipe. Cut the Smoke Stack about 2-3/4" long and file both ends flat. Spray paint black, chalk weather once installed to keep fingerprints off. CA the Guy Ring about 1/2" from one end then epoxy the other in the Smoke Collar opening. Guy Wires are added once installed.

Water Supply Line
This line connects to the open bore on the injector and connects to the water supply. In this case it drops into the ground. This detail is denoted "c" in the drawing.



Exhaust Pipe Ell Exhaust Pipe Ell

The Mill Engine is provided with live steam via the Exhaust Pipe and connects to the Tee located under the right cylinder. There are four Ells provided in the boiler kit to accomplish this connection. The length of the piping will be determined by your specific arrangement. This detail is denoted "b" in the drawing.

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