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STEAM IN THE GARDEN

Regner Heisler

Blue Comet Build, Rolling Stock Conversions,
Workshop Projects, Locomotive Review... and lots more!

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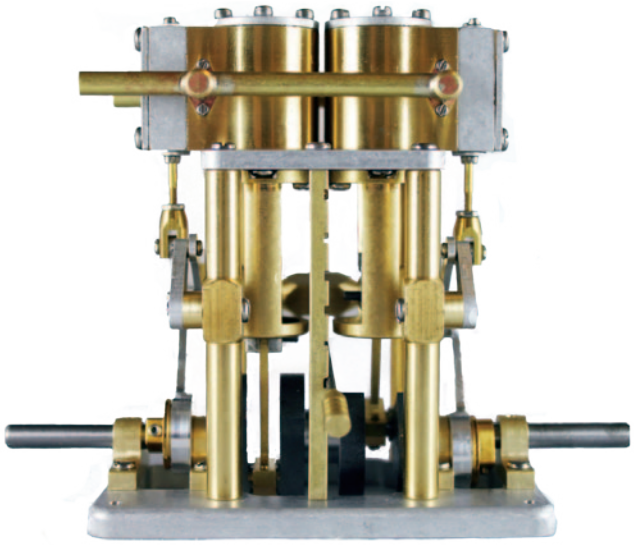

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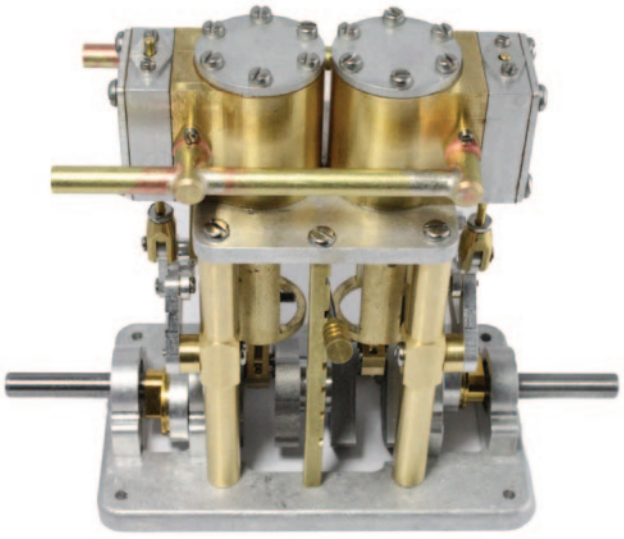

TVR1ABB

Ready to assemble steam engine kit: $295
Fully assembled and tested: $400
Includes all hardware
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Dimensions: Same as TVR1A
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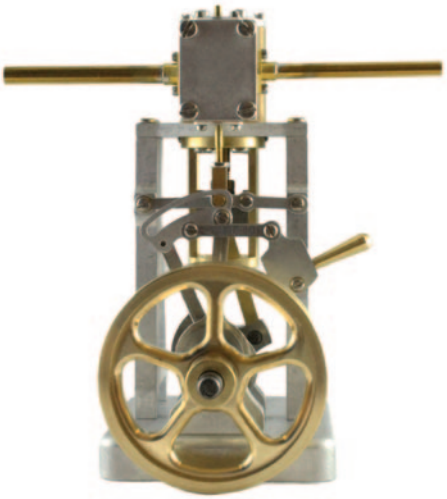

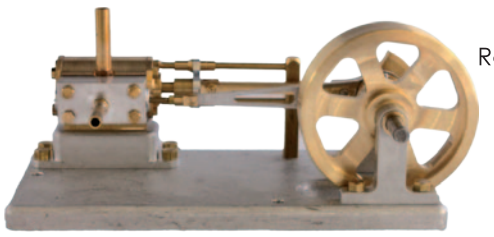

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STEAM IN THE GARDEN

Gather friends, while we inquire,
into trains, propelled by fire ...

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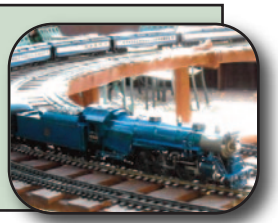
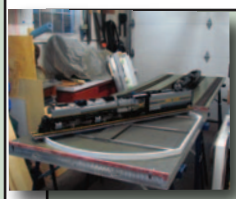




Cover: Spring thaw has arrived and the Regner Heisler basks in the glow on the Kittatinny Mountain Railway.
Photo by Sean Viggiano

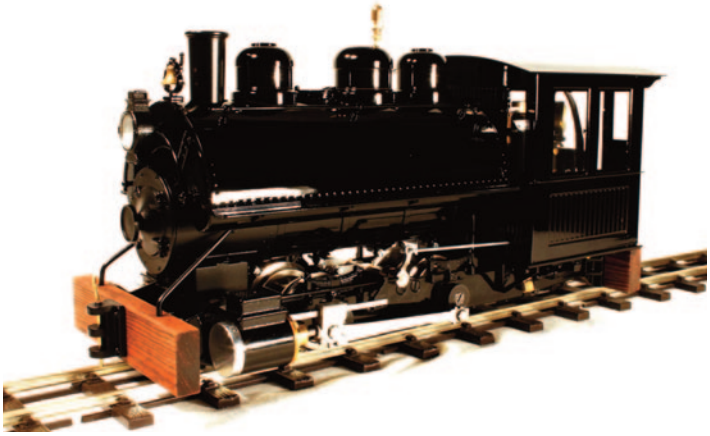
Also inside:

LATEST WAYBILL

Stoke'm & Smoke'm, Mt. Airy, MD - Bob Clark, of Stoke'm & Smoke'm announces an Anniversary special package. This April 30th will mark 120 years since the famous Illinois Central train wreck that killed engineer John Luther "Casey" Jones! Bob is offering a special price package consisting of the outstanding Bowande 1/32-scale ready-to-run Rogers built 4-6-0 Illinois Central Locomotive, which has an average run time of over 45 minutes, plus three complete passenger car kits! You will have a complete and accurate train for under $2,900! This is considerably less than many other engines alone! Please contact Bob for reservations at 301-467-3348.

National Summer Steamup 2020 - The ad in the previous issue showed incorrect dates. Steamup is from 8 through 12 July 2020.

Roundhouse Engineering, Doncaster, UK -



Roundhouse Engineer has announced their signature model for 2020, a Davenport locomotive.

The Davenport Locomotive Works started producing these 0-4-0 saddle tank locos in the early 1900s for industrial uses. While the majority of these engines were built for American clients, they found their way all over the globe to places such as: Australia, New Zealand, Philippines, Cuba and Europe. Orders are now being taken for late 2020 delivery. Contact your Roundhouse dealer to get on the waiting list for yours.

Regner Heisler

Text and Photos by Shawn Viggiano

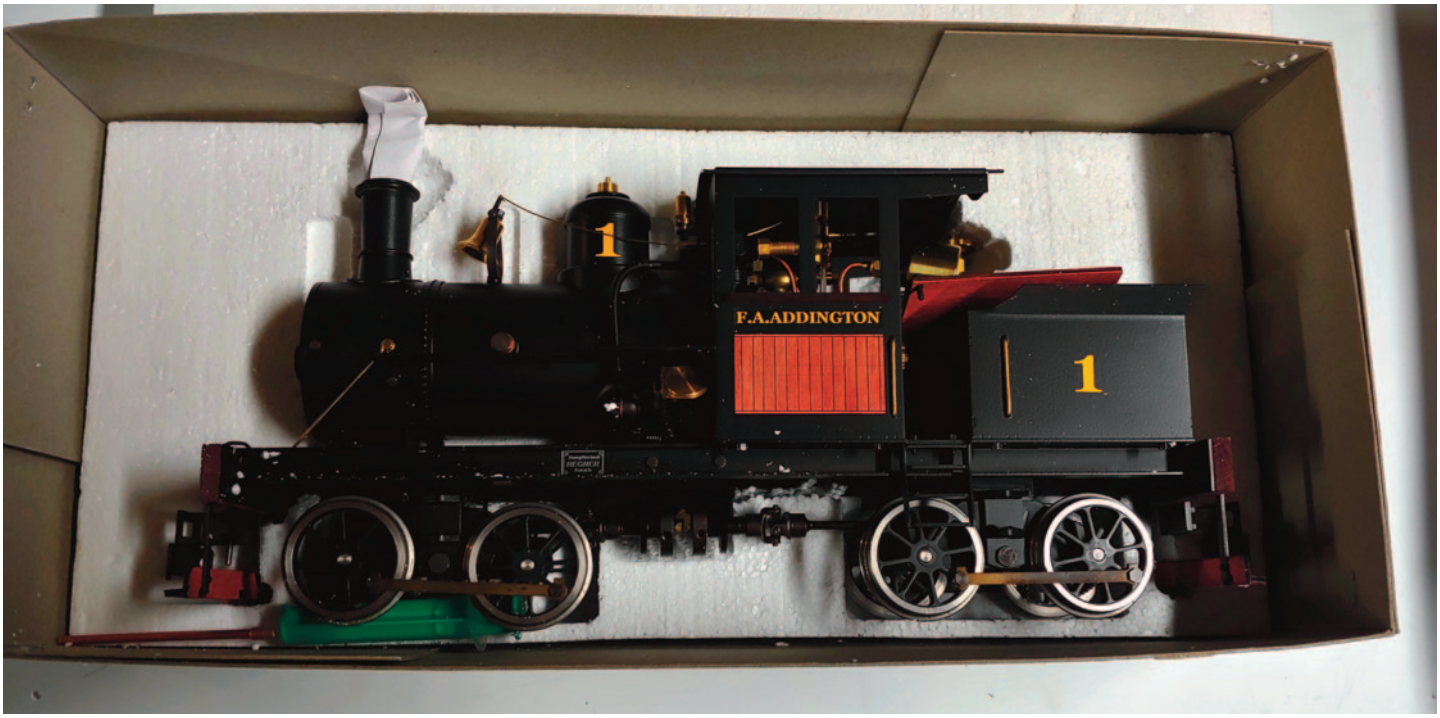
Introduction

Just when I thought I was done buying live steam trains for a while, Regner decided to come out with a new US based live steam train. To make matters worse, it was a logging style engine that I needed to complete my roster of geared logging engines. A few weeks before its arrival, I saw an ad on The Train Department's web site that Regner had just released a brand new Heisler steam locomotive. This was a joint effort between Jay Kovac of the Train Department and Regner of Germany. Of course, with my love for logging locomotives, and being a huge fan of Regner's Easy Line locomotives, this purchase was a no-brainer for me. After selling a few things and my left kidney, my order was placed. The package arrived on the Kittatinny Mountain Railroad in less than two weeks.

Brief Addington History

Before I get into the review of the new Heisler Locomotive, let's look at the history. While not an exact replica, Regner's Heisler is based on the very first Heisler ever built in 1891. F.A. Addington of Little River, NC sent an order for a small 10-ton locomotive that would be able to handle rough mountain terrain. Mr. Addington sent his request accidentally to the Dunkirk Engineering Co. instead of the Brooks Locomotive Company. Both companies were located in Dunkirk, NY and were owned by Edward Nichols. Since Dunkirk Engineering was into hydraulic and special machinery, not locomotive production, the request was sent over to Brooks Locomotives, where Charles Heisler took an interest in the engine. Because of the engine's small specs, he felt it would be a good opportunity to present a new locomotive design. Heisler spent the next 30 days designing and studying the evolution of the motor and trucks, where he came up with many different options.

The first model was built and delivered 70 days later to Mr. Addington and proved to be a very capable and reliable locomotive. The Heisler was becoming more well-known in the logging industry until the death of Edward Nichols, when all the interests were handed over to the inventor, Mr. Heisler. In 1893 Heisler spoke with George Burnham, president of Baldwin Locomotives. Burnham



Custom cut styrofoam cradles the Heisler in its shipping box.

was intrigued by the design. Since they were unable to build the Heisler in the Baldwin shop they decided they could build it in their independent shop located in Erie, PA. This became the official start of the Heisler Locomotive Works.

Unboxing

Like all the other Regner Locomotives I own, the Heisler arrived in perfect condition. The Train Department has always done a great job making sure all items are packaged well. The same holds true for Regner. The locomotive came in Regner's typical light-gray colored box, with a printed label of the Heisler and description. Once I opened the box I found the locomotive nestled in between two thick pieces of foam formed in the shape of the Heisler. Regner also thought ahead and made cut-outs into the foam for the optional light, cow catcher and diamond stack. Inside the box was Regner's generic instruction manual that covers their Easy Line locomotives (not specific to the Heisler). Also in the box was a small syringe with a piece of copper tubing attached to the end.

The locomotive was carefully taken out of its bedding and inspected for any damage or loose screws. Like all my other pre-built Regner locomotives everything was damage free and there were no loose parts..

Specifications

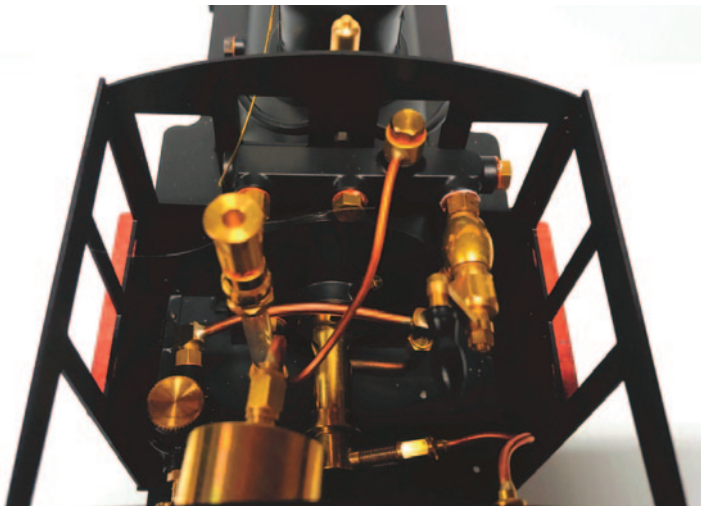
Scale: 1:20.3
Length: 12.5-inches (318mm)
Width: 3.7-inches (96mm)
Height with balloon stack: 6.3-inches (162mm)
Height with straight stack: 5.6-inches (144mm)
Weight: 5 Lbs (2.3 kg)
Engine: V Oscillating steam engine, cylinders opposed 86°
Piston: 0.3-inches (10mm) Teflon
Stroke: 0.5-inches (14mm)
Reversing valve with teflon control piston
Fuel: Butane fired boiler
Boiler: Single tube burner 2-inches (52mm)
Fittings: Sight Glass 0.25-inches (6mm), Pressure gauge 0-6 bar (0-87psi)
Operating pressure: 43 psi (3 bar) but will run at 14.5 psi (1 bar) with no problems.
Minimum Radius: 4-feet
Manual and RC ready
Optional Parts: headlamp
cowcatcher
diamond stack
radio control

MSRP: Kit - $2050.00 RTR - $2350.00

Straight out of the box with the supplied extras. (L-R) Top-off valve, oiling syringe, European style coupler bracket.

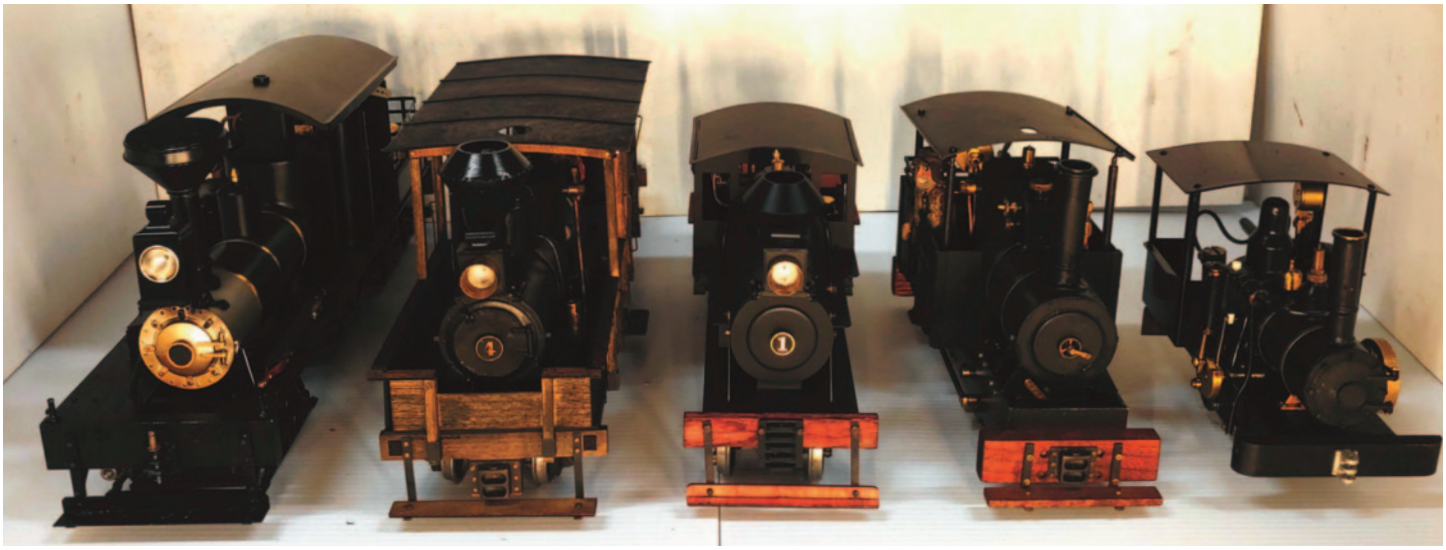
Overview

The Regner Heisler comes with their standard oiler, shaped as an air cylinder, located inside the cab. There is also a sight glass that has a top-off valve on top for refilling the boiler during runs.



Heisler Cab Interior

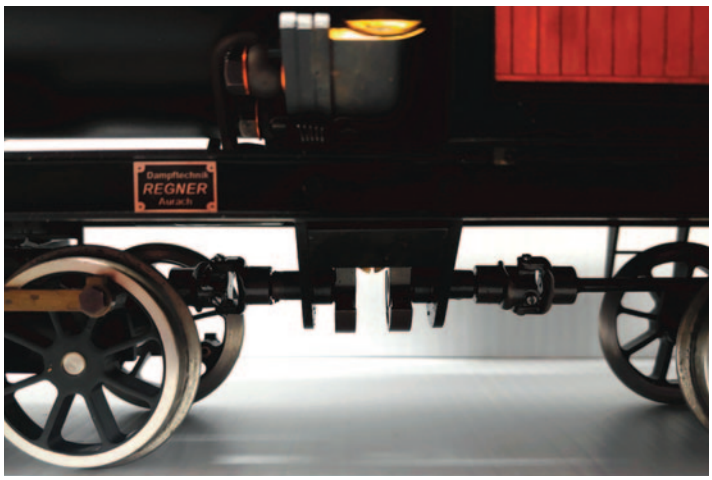
This is the first Regner locomotive I've purchased that came with a top-off valve, and it's the first one I have seen that was attached to the top of the sight glass. The pressure gauge is Regner's standard gauge found on all the Easy Line locomotives. The Heisler comes with U.S.- style link and pin couplers but also comes with the European style coupler that attaches to the link and pin coupler. The front and rear bumpers are made from wood. The reversing lever is located in the tender as well as the gas tank. The gas tank comes with the standard Regner gas valve but I swapped mine out for the more common Ronson valve. It's an easy swap by unscrewing the Regner valve and screwing the Ronson valve in its place. The tender has a wood cover so that if you want to add radio control to the locomotive everything will be hidden. You can also add a coal or wood load on top of the cover for some realism. The Heisler comes with a straight stack but you can order a diamond stack separately.



Size comparison with other 1:20.3 models.
From L-R: Accucraft Mich-Cal Shay, Regner Class A Climax, Regner Heisler, Regner Lumberjack, Bellflower Cricket

It's an easy swap to do as the stacks fit snug into the stack base. You can also order a headlight and cow catcher; both are easy to add with the pre-drilled holes. I added a Regner headlamp to my Heisler as well as the diamond stack. Both went on easily. I opted out on buying the cow catcher as I felt it was not common to see on a logging engine.

The roof is removable so you can get easy access inside the cab. The safety valve is located under the sand dome. There is also a nice bell with a pull string for added detail as well as spoked wheels, wood panel on the side of the cab and a whistle between the sand dome and cab. As I mentioned earlier, although the Regner Heisler is not a direct replica of the F.A. Addington, a comparison reveals a very close resemblance between the two; close enough to satisfy all but the most adamant rivet counter. There is also a close resemblance to the Mike Chaney 14-ton Heisler. When looking at the Regner model, one has to take into consideration that the Heisler was built to a dozen different specifications and the F.A. Addington was a small locomotive to start.



Heisler Drive Train

One of the characteristics of the Heisler is the V type motor arrangement. Power goes into a longitudinal drive shaft in the center of the frame that drives the outboard axle on each powered truck through a bevel gear. The inboard axle on each truck is then driven by the outboard one through external connecting rods. This type of arrangement reduces the number of expensive moving parts, lowering the cost and making maintenance easier, especially while out in the woods. Regner's version has the same arrangement, but uses oscillating style cylinders, and Regner did not add the gear box under the trucks like the prototype.

For Regner's oscillating motors they developed a Teflon spool-controlled reversing valve located in front of the motor under the boiler. Some might not like the look of the oscillating cylinders as it's not prototypical. But for me the oscillating cylinders just add to this model and make it more interesting to watch the extra moving parts.

I always like to test my live steam locomotives out on my layout rather than on blocks indoors. I feel I can get a better idea of how it will run out of the box. The first test run was done on a cool day, the temperature was around 40 degrees Fahrenheit. I prepped the locomotive indoors by oiling all the moving parts and gears. I added steam oil to

the oiler, filled the boiler with distilled water until the boiler was full (approximately 170ml) and then took out 30ml. I added butane to the gas tank until that was full, although I've found when using the Ronson valve on a Regner gas tank that I don't always get the spray back telling me the gas tank is full. I slowly turned the gas up and held a flame over the top of the stack. The burner fired up on the first try and stayed lit the entire run. Once the safety went off, I slowly turned up the throttle and rocked the locomotive back and forth until all the cold water was out of the cylinders. I set the throttle and off the Heisler went. I was very impressed at how smooth the first run went. The speed was just right for a geared logging engine. I was also very impressed by how the Heisler handled the grades on my layout. It barely noticed any of the grades, keeping the same speed. At the time of the test I was pulling three log cars with real logs and a logging caboose. Because the weather was cooler that day the pressure seemed to stay at one bar throughout the run, but that had no effect on keeping the locomotive from running the entire time. Like most of the Regners I own the water will run out before the gas, so it's important to keep track of the water level.

The second test was done in my basement where conditions were more ideal for a test, around 65 degrees. The same steps were done as before. It took approximately six minutes for the safety to lift at three bars. I got about 18 minutes run time with one filling of the boiler. (You could probably get more time but I did not want to run the boiler dry.) After adding water into the top off system, I got another 10 minutes of run time, giving it approximately a 27-minute run time with one full gas tank. During my second test run I ran the locomotive in forward and reverse. The Heisler ran smooth and about the same speed in both directions. Overall I was very happy with the run time. I would imagine the time will get better once the locomotive is broken in, and in warmer weather.

Later on I had the chance to run the Heisler in the snow. The temperature was around 27 degrees Fahrenheit with a few inches of snow on the ground. In these type of conditions I like to prep the engine indoors and fire it up on the layout. This helps keep everything warm and makes firing up and gaining pressure faster. Like the first two runs the Heisler performed flawlessly in the weather extreme. Prepping indoors helped though.

I am very pleased with the Heisler like all my other Easy Line locomotives. Like all Regner products that I own, the Heisler is a smooth runner, a strong and reliable puller, and has lots of potential for some detailing to give it a personal touch. One thing I would have liked to have seen was the option to buy the Heisler with either the diamond stack or the straight stack rather than having to buy the diamond stack separately. Like the rest of the Easy Line it would be nice if it came with the headlamp already, but that also gives you the option to use a different style headlamp if you wanted to. Regner is also producing the Heisler as a kit although at the time of this review it was not available. For those that want to save some extra money, they will have the option to buy the kit. Once the kit comes out I plan on putting one together and also writing a review on that version. Stay tuned.

A look at the right and left side of the locomotive as it hauls logs on the author's Kittitanny Railway.

Building the Blue Comet Part 2

Rick Parker Photo

Text & Construction Photos by Bill Allen
CAD by Mike Martin

Part 2 - Chassis

Frame

he frame of our Blue Comet is made of two sections. The main frame is straight with cutouts for the axle boxes and clearance for the pilot truck wheels. Holes were drilled for the cylinder mounts, cross members (stretchers) and rear section mounting. This was all done on the CNC mill by Dennis Mead. You can see it in **Photo 2-1**. The rear section is angled up at a 1:16 ratio so the CNC-drilled holes in the main frame are also at that angle. The rear section was made by me from a one-eighth by one-half inch brass bar. It has six holes drilled and tapped to 0-80 matching the six in the main frame. In order to have the rear buffer square with the track, the ends are cut at the 1:16 ratio by clamping a spacer onto the table saw cutoff sled at that ratio (**Photo 2-2**). The rear section is then bolted and soldered to the front section with a spacer between them in order to have clearance for the pony wheels. You can see this in **Photo 2-3 (arrow)**.

Wheels & Trucks

We covered the machining and painting of the wheels in the last issue. Now that the frame has been assembled we start with the axles. I used tight tolerance stainless five millimeter rod for this. With a centering drill bit, I drilled a dimple in the ends for mounting in the quartering jig (**Photos 2-4 & 2-5**) You can see how the quartering jig works in the photo. The two screws are turned to a point and hold the axle in place. Long studs are screwed into the crank pin holes and the wheels are turned so

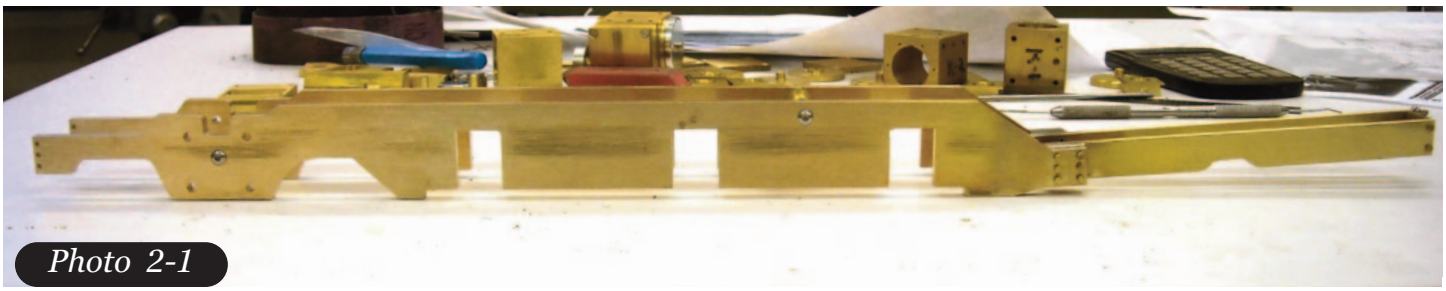


Photo 2-1

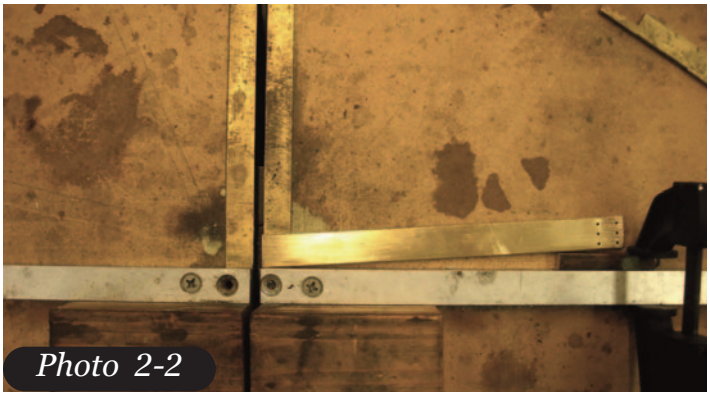


Photo 2-2

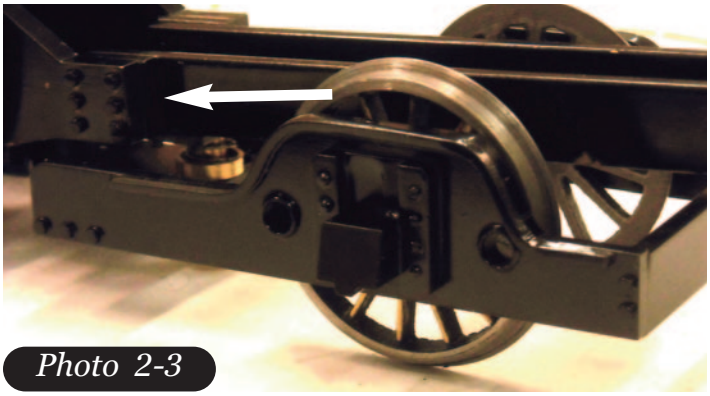


Photo 2-3

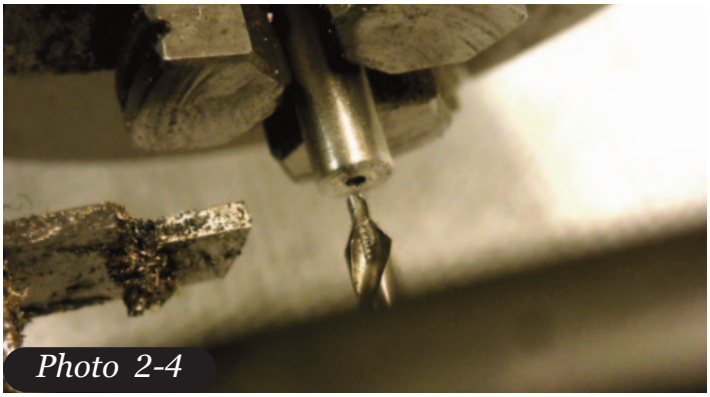


Photo 2-4

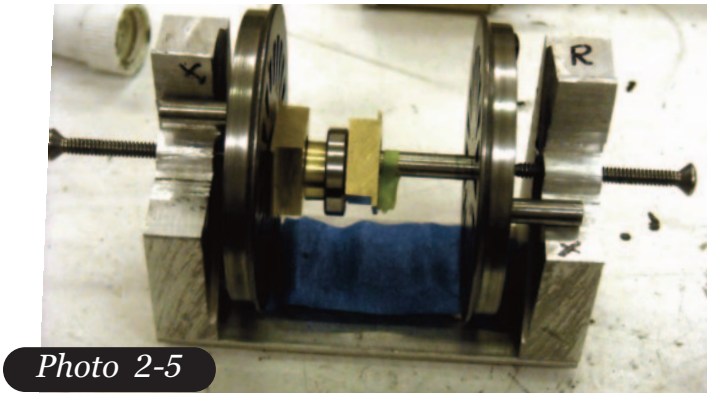


Photo 2-5

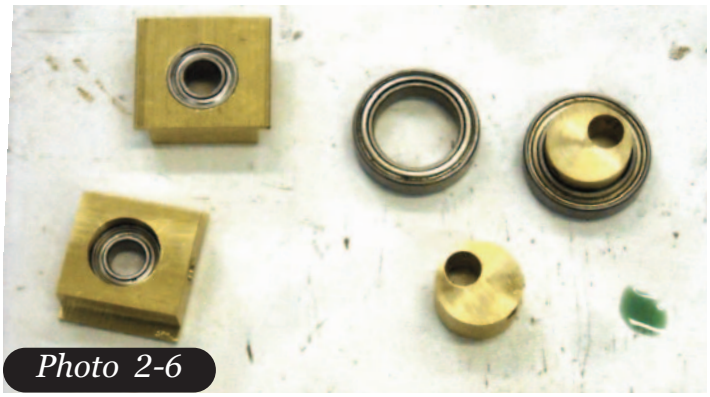


Photo 2-6

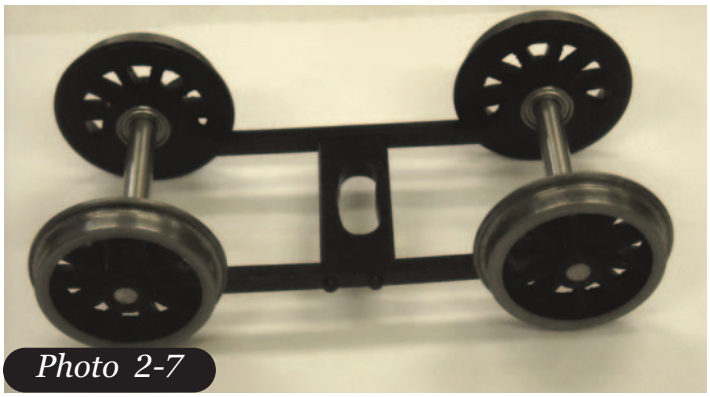


Photo 2-7

that the studs rest on the two sides which are 90 degrees apart. The studs are made from five millimeter stock so the jig is offset to account for this. Mine is hand made but I have seen them for sale online.

When the wheels are properly quartered and the axle box slots and side rods are centered with exactly the same dimensions, the chassis will roll freely. The axles, axle boxes and axle pump eccentric go together before the wheels are attached with 680 Loctite. The axle boxes and eccentric are shown in **Photo 2-6**. The axle box slides up and down in the frame slot. If you look at the bottom box, you can just see a hole on the right where a spring goes, which gives the engine an independent suspension. The eccentrics are on the right; one with, and one without the ball bearing in place. All of the axles in this model have ball bearings, including the tender. With that and the ball bearing axle pump, there is no need to turn the engine over for lubricating purposes.

The pilot truck needs to be low slung like the prototype, but the dimensions must be a little different to allow for the shorter radii track and the larger wheel flanges. It needs to be designed so that the wheels clear the cylinders on tight turns and turnouts. I didn't get a photo of the Comet truck before assembly but **Photo 2-7** shows a truck from another project which has the same design and **Photo 2-8** shows the Comet truck in place.

I started with one-eighth inch flat stock for the pony truck. The reinforcement ridge is made from one-sixteenth inch square stock which is annealed and bent to shape and then soldered on. The round

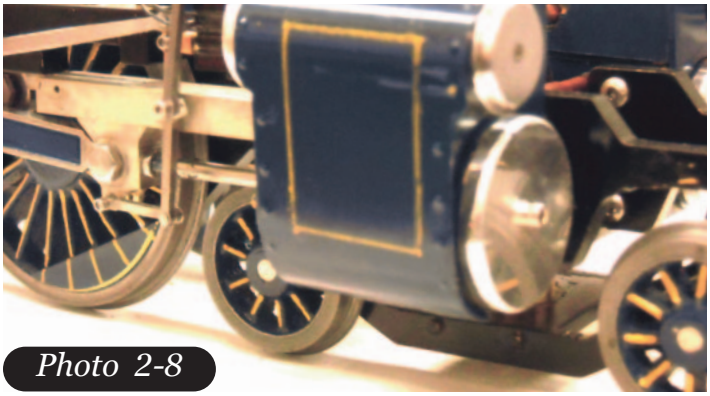


Photo 2-8

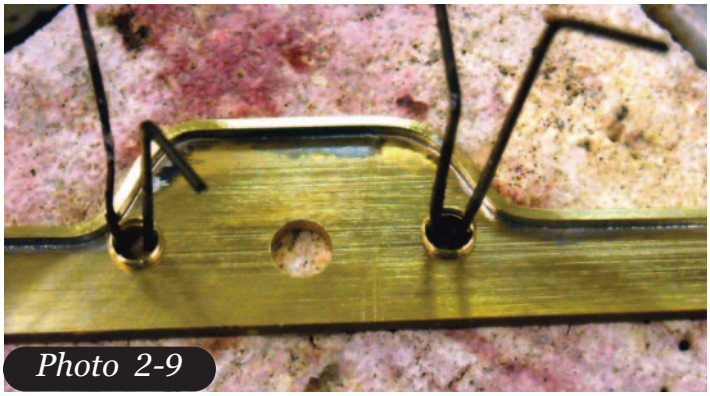


Photo 2-9

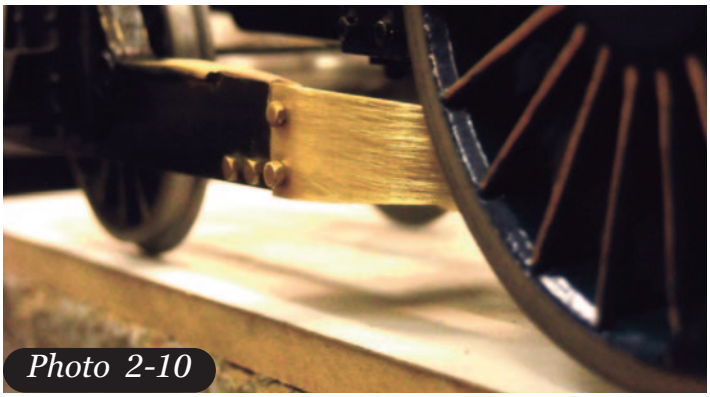


Photo 2-10

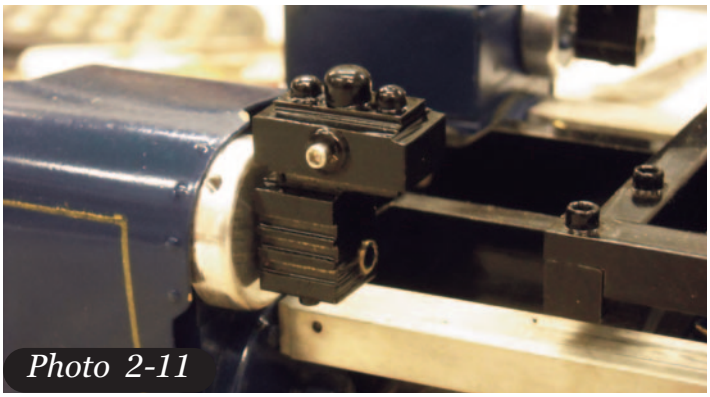


Photo 2-11

ridges are made by drilling out some quarter-inch round stock on the lathe, rounding over with a file, and parting off. The two holes were drilled on the mill and the rings are held in place by music wire pins pushed into the soft fire brick for soldering (**Photo 2-9**). The axle box detail is done as follows: from one-sixteenth inch sheet stock, a square piece is cut for the base. Then the two side pieces are cut and four rivets are set in holes drilled out in the mill. A length of three-eighth inch square stock is cut at an angle for the center piece and a matching piece of sheet stock with a tab at the bottom is made for the lid. Everything is soldered together and the hole for the seven millimeter ball bearing is drilled from the back side (refer back to **Photo 2-3**). Per the prototype, a tapered front section is bolted on to complete the truck (see **Photo 2-10**).

Something interesting about the Blue Comet is the central lubricating system with a pump mounted to the valve guide on each side and driven by the combination lever. I assume it was a ratcheting type of pump. The drawing I had gave me a start and the photos helped me to reproduce something that was very close to the prototype, see **Photo 2-11**. I then added replica lube pipes and a pump arm and linkage to complete the job (**Photo 2-12**).

To me the heart and soul of the chassis is the

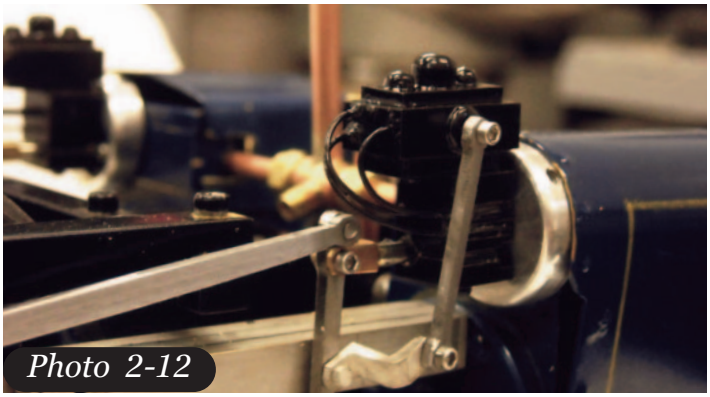


Photo 2-12

valve gear. Early on simple gear with one eccentric per cylinder was used in locomotives, which got the job done but somewhat inefficiently. Later on the Stephenson gear was invented, which used one eccentric for forward and one for reverse and had a shifting mechanism to go from one to the other. This allowed for timing each eccentric independently for the best performance. It also allowed for notching the valve-throw back for more efficient high speed operation. The drawbacks from this system were that the mechanisms between the frame rails were hard to maintain and subject to excessive wear. Also, while notching back the valve-throw resulted in an earlier cutoff, thus taking advantage of the steam expansion, it also cut off the start of the power stroke, which caused late timing.

Finally the Walschaerts gear was developed, and the Baker gear soon followed. These gears use a

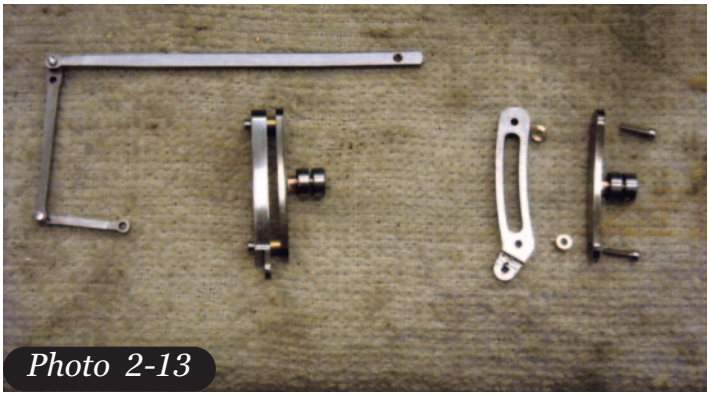


Photo 2-13

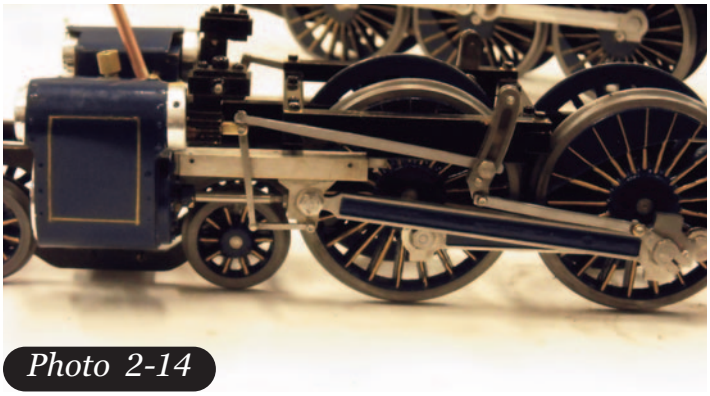


Photo 2-14

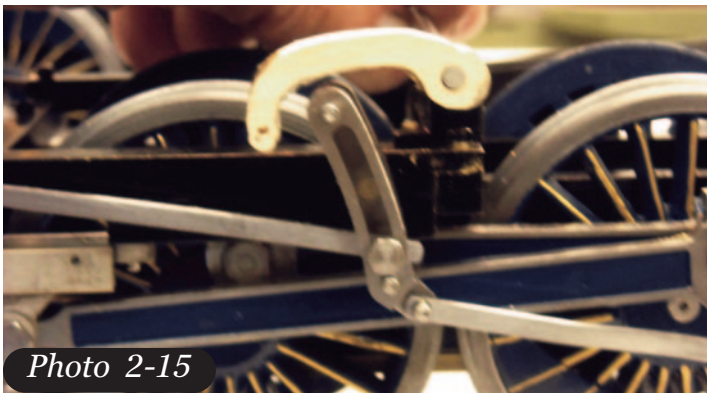


Photo 2-15

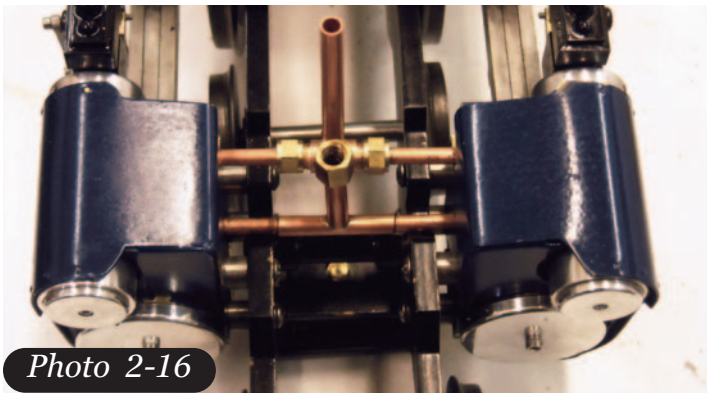


Photo 2-16

single eccentric, which is normally in the form of an eccentric crank mounted on the outside of the main driver. The problem with single eccentric systems not being able to have admission at the top of the stroke in both directions was eliminated by the addition of the combination lever.

This lever actually combines two actions of the engine. The eccentric action, which is 90 degrees out of phase with the piston, and the crosshead which is in phase with the piston, are combined into one motion with the combination lever. The eccentric has its maximum throw when the piston is in mid-stroke, and no movement when the piston is at forward or reverse dead center. The combination lever works exactly the opposite, so that when the piston is at forward or backward extreme, the combination lever is at its extreme and moves the valve to where it begins to open. As the piston moves toward the end of the stroke, the eccentric is opening the valve as the combination lever is backing off. The operational advantage of this is that the combination lever opens the valve a little more and faster than an eccentric would and when the valve throw is notched back, the combination lever is not affected, so the precise valve timing remains intact while the cutoff is increased. There are several good books and articles on the subject as well as animations online.

Photos 2-13 and **2-14** show my Walschaerts setup. **Photo 2-15** shows the curved expansion link which controls forward and reverse direction. The loco is in forward with the radius rod at the bottom of the slot, and in reverse when it is at the top. The curvature (radius) of the slot is the same as the length of the radius rod. This expansion link is my own design using a double set of ball bearings, which makes for effortless movement with zero play. The combination lever has two holes at the top. The bottom of the two will attach to the valve rod, shown as the brass piece in **Photo 2-14**, and the bottom of the expansion link attaches to the return lever which is driven by the eccentric crank, also shown in **Photo 2-14**.

Photo 2-16 shows the cylinder mountings. Four stainless 4-40 screws are bolted through the frame into the cylinder block. Spacers are made from quarter-inch stainless round stock. The exhaust tubing at the front of the engine is K&S tubing with slip fittings. This is sufficient to have a fairly leak proof connection in this low pressure piping. The steam admission tubes have brass fittings with Viton o-rings sealing things up. This allows for easy lining up of the fittings in the smoke box.

I have gone through several designs for the axle pump. **Figure 2-1** shows the most current one. The pump is fairly simple with just a piston or ram, an

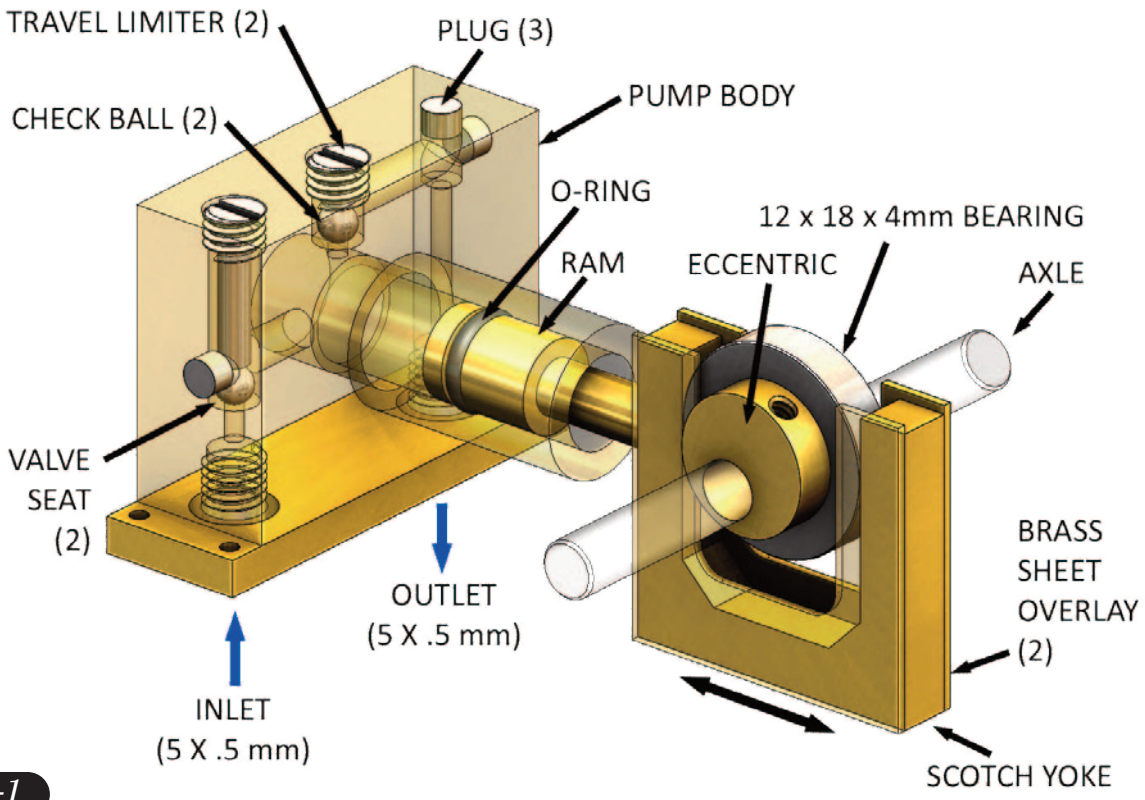


Figure 2-1

inlet valve and an outlet valve. However, it gets a little complicated when you try to put it all together. The valve seems to be the thing that doesn't always work. According to the research I have done, the most reliable check valve is made from a stainless ball on a brass or bronze seat, with the valve in a vertical position and the ball being held on the seat by gravity. The ball lift should be limited to one-eighth of the ball diameter in an axle pump and one-sixth the diameter in a hand pump. A spring should never be used to hold the inlet valve ball in place, because the suction is not enough to overcome the spring pressure. A spring can be used on the outlet ball if the valve can't be mounted vertically, or if better sealing is desired, but keep in mind that it will just add to the pressure needed to overcome the boiler pressure, and put more strain on the drive train and pump. A one-eighth inch ball has a seat diameter of 0.093 inches and an area of 0.007 square inches, so a one-ounce spring pressure on the ball would need a 9 psi pump pressure to overcome it. **Figure 2-1** is pretty busy, but you can get the idea. The exhaust outlet is drilled from the top down to the center of the cylinder and the check valve ball is set in the hole. Another hole is then drilled transversely to another vertical hole which goes down to the fittings at the bottom of the pump. I always have my fittings at the bottom. I have seen some pumps where you have to remove the boiler from the chassis to access the exhaust valve or remove the pump.

The access holes are plugged off by soldering pieces of rod in place and then cutting the protrusions off (**Photo 2-17**). Then the two holes which house the check balls are tapped out to 8-32 (**Photo 2-18**), a ball is set in place and a depth measurement is made with the digital caliper (**Photo 2-19**). A plug with a ball stop is then turned to the proper length with a protrusion to work as a ball limiter. It is then screwed in place with thread sealant to touch the ball, and then backed off to get the proper lift. The bottom of the pump is then threaded to accept a 5 millimeter banjo bolt for inlet and outlet, (**Photo 2-20.**)

I use a Scotch Yoke for my eccentric follower **(Figure 2-1)**. The scotch yoke is great for close quarters applications — it doesn't need any pivoting linkages because the eccentric just slides up and down in the yoke while pushing it back and forth. One drawback with this setup is that the sliding causes wear and has a need for constant lubrication. I get around this by using a ball bearing eccentric (**Photos 2-21 & 2-22.**)

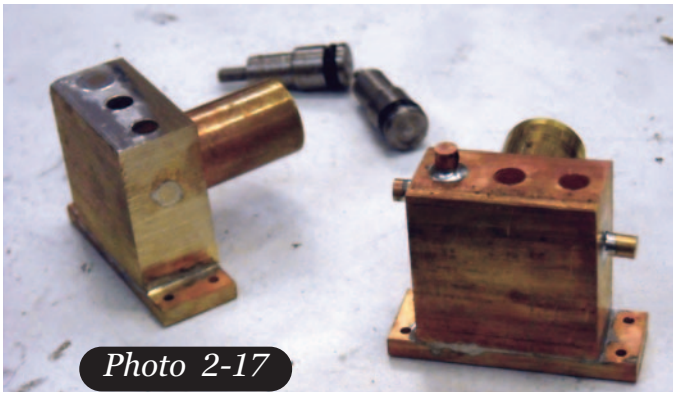


Photo 2-17

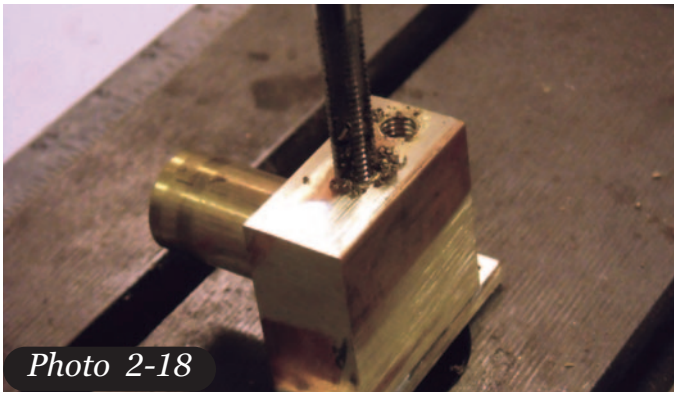


Photo 2-18

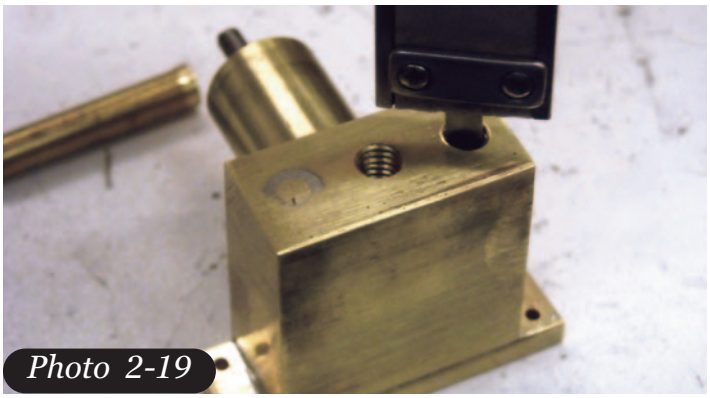


Photo 2-19

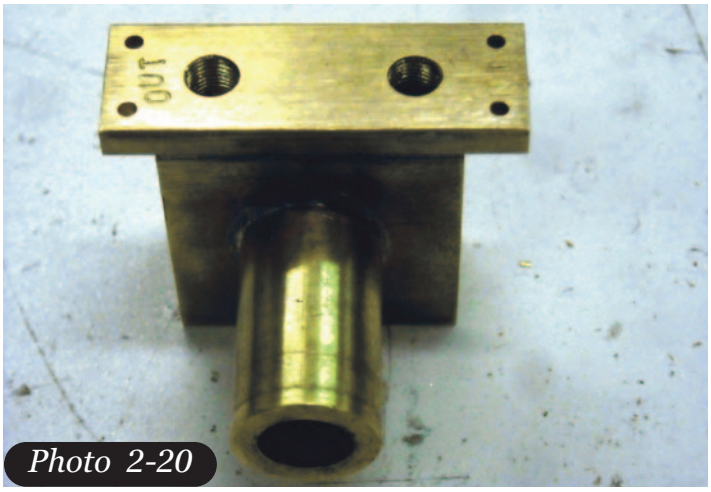


Photo 2-20

Photo 2-21

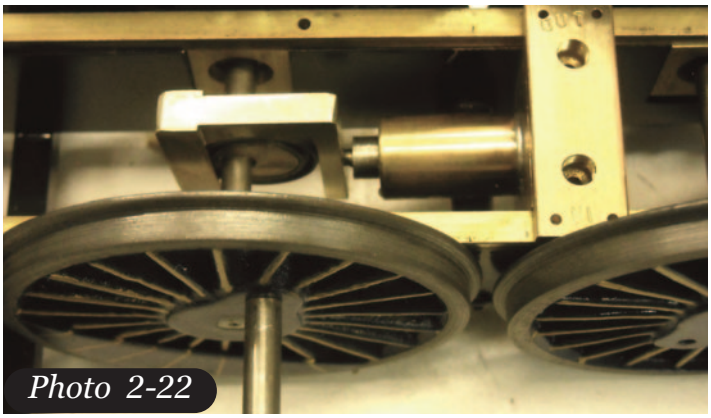
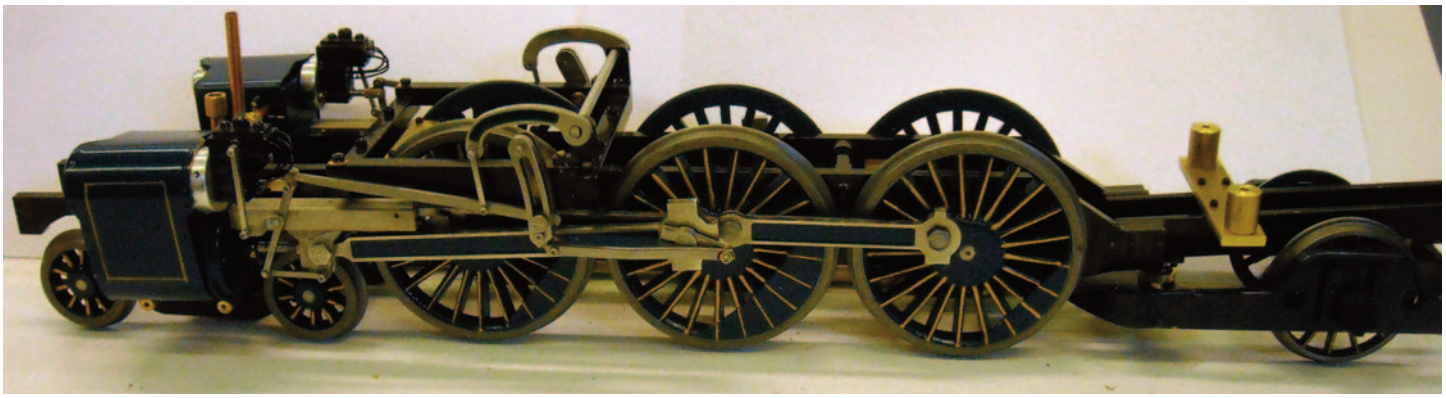


Photo 2-22



Completed chassis waiting for the boiler and smokebox.

In the next issue, we will cover the boiler and smokebox construction

International

Photo Essay by Daniel Tilden

Truly an International Steamup, Rod Blakeman from Totton, UK, lights off his Aster Duchess for a run around the large track.

Dan Fuller of Carolton, TX tends to his Aster Schools. Hard to believe that these venerable veterans of small scale live steam are now forty-five years old. For many live steam locomotives, they are actually considered young when you see 100 year old antiques still running around.

Small Scale Steamup 2020

Diamondhead, MS

Above: An ASTER Big Boy locomotive gets ready to take to the mainline at ISSS 2020.

Left: Larry Green of Middlebury, Vermont readies his Accucraft 7/8ths Bagnall that he is modifying to represent a contractor's loco as built by the Glover Machine Works of Henrietta GA.

Long time Diamondhead attendee Dan Rowe relaxes poolside with one of his latest creations a Sykes, vertical boiler, geared locomotive.

Danny Ineich of Metairie, LA basks in the steam of his Accucraft Mogul as he prepares to let it loose for a run on the large track.

Steam in the Garden author Les Knoll of Denver, NC poses with his Freelance Heisler and his Magazine cover from the construction series he produced for Steam in the Garden in 2019-2020.

Eric Bowles of Sequim, WA assists Art Gibson of Houston, TX with the steaming of an Aster Challenger.

Cliff Whitestone, Madisonville, LA and Donald Helsel from Winder, GA bring a coal-fired Accucraft Ruby into steam.

Pat Darby of Covington, LA, and ISSS Staff readies a Catatonk Heislerfor a run on the medium, (Narrow Gauge) track.

Kendrick Bissett of Clarks Summit, PA readies his Catatonk Climax for a go on the small track. Kendrick gave a presentation on Catatonk Locomotives with an impressive display of one each of the models produced. Look for a future article in SitG on the History of Catatonk locomotives.

Ernie Noa of Champaign, IL keeps a watchful eye on his Mikado as it circumnavigates the large track.

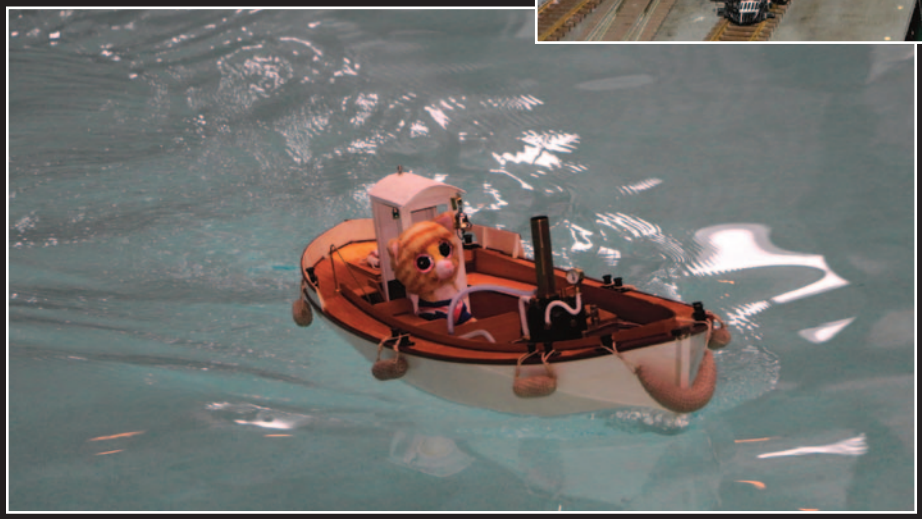
It was either late night or an early morning session for the ladies running trains. Lindsey Temarantz of Wilkes Barre, PA (l) and Brittany Grimm of Garnet Valley, PA (r) ready their locomotives for a night-time run on the "medium track in the back".

How strong is your locomotive? AT the ISSS there are two ways to find out; enter the pulling contest or take your locomotive for a ride on the elevated riding track.

Gary Franke of Gilford, NH, (l) captures the moment as Aidan Whitestone, Madisonville, LA gives a 7/8ths Accucraft Fairymead the ultimate test.

First look and steam for a newly delivered Accucraft 7/8ths Forney. L-R Mark Tilden, Hoschton, GA, Donald Helsel, Winder, GA, and Channing Cheng of Accucraft bring this monster of a locomotive into steam. Weighing in at twenty-six pounds, it rivels the largest of the 1/32 mainline locomotives in heft.

ISSS Staff Member Richard Jacobs gets a moment to enjoy some steaming under the watchful eye of his fellow staff member Patrick Darby and a picture of ISSS Founder, the late Jerry Reshew.



The other steam from the garden is represented with Miss Kitty taking a Midwest Models steam launch out for a spin in the cement pond.

A favorite activity of the steamup is the annual luncheon of local Cajun cooking. This feast is brought to the steamup each year by Richard Jacobs and his wife Robbie. The Menu: Chicken and Andoulle Gumbo served over white rice; potato salad, french bread and butter, veggie and sandwich trays. The pecan pies were a real treat and did not last very long.

Time for the group photos:

Members of the North American sector of the 16MM Narrow Gauge Associaiton rally together for their organization. Check out the Timetable section of the magazine for more information about their 2020 steamup in September.

Members of the Gauge One Model Railway Association (G1MRA) pose in solidarity representing their international organization. Eighteen U.S. members and two UK were present for ISSS 2020.

Class Picture 2020.

Don't let the size of the group photo fool you, there were 124 live steamers in attendance at the 2020 venue.

See you there next year!

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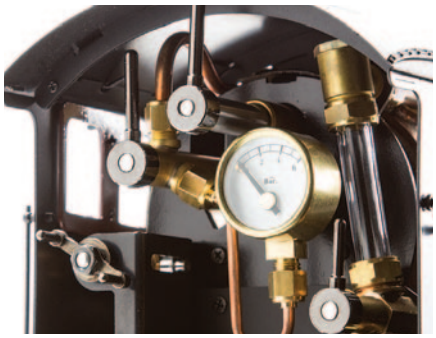

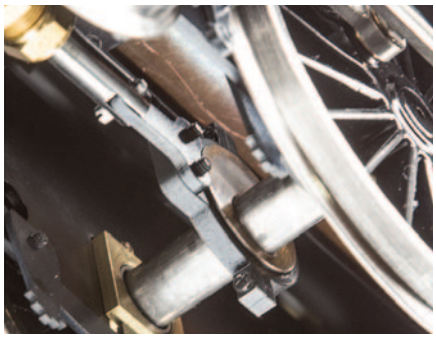

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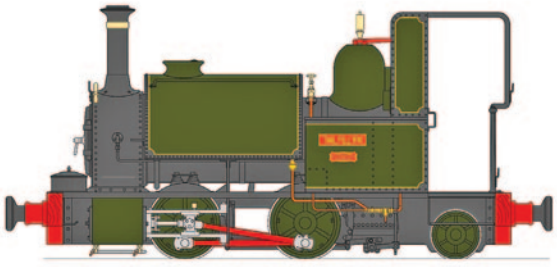

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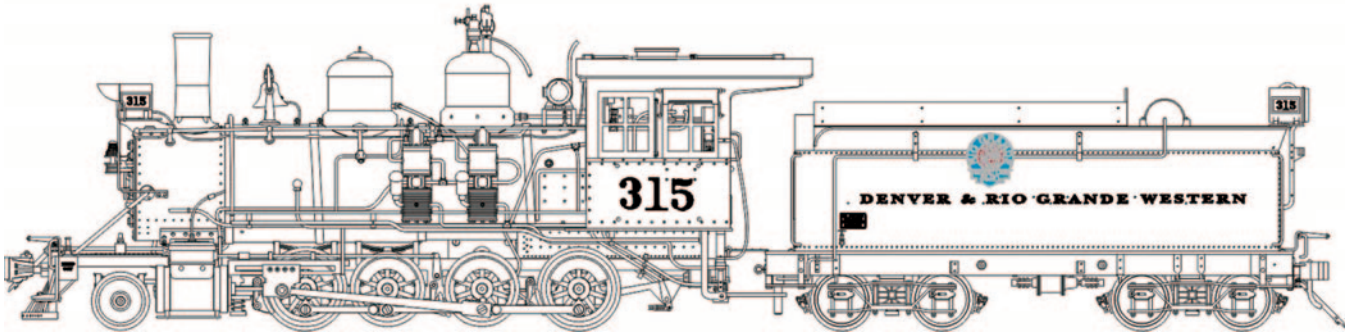

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Interesting Modifications for Coaches

Text and Photos by Jeff Campbell

I am a big fan of historical realism in our hobby. I enjoy weathered buildings, rolling stock, and of course locomotives that look authentic. I think we all are interested in realism to some extent or we wouldn't go to the considerable expense and trouble of running trains that are actually powered by steam. Honestly, plugging in a transformer and running two little wires to the track has some logistical advantages over oil, hot water, and burnt fingers. But electric trains just aren't as cool, not even close. There is just something special about a realistic depiction of a rustic old train clamoring down the track. It was with all of this in mind, and my recent acquisition of a set of Accucraft San Juan brass coaches from a good friend, that I set off to see how realistic I could make coaches look with passengers, weathering, and lights, but without the help of a transformer.

When I took custody of the coaches, a few of the windows were popped out and laying on the floor. This removed any of my growing hesitation about removing the body from the chassis, which would be necessary for any interior modifications and window repair. Initially this seemed like a daunting task due to the dozens of small and delicate parts. But as so often happens, a little investigation provided the most logical route to disassembly, and after a few apprehensive moments the process was

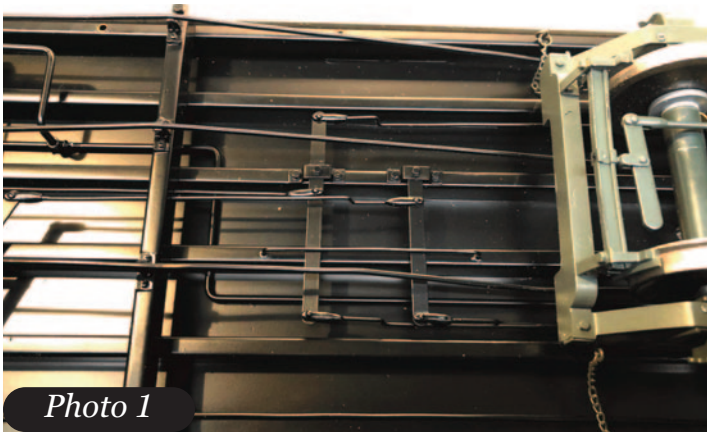


Photo 1

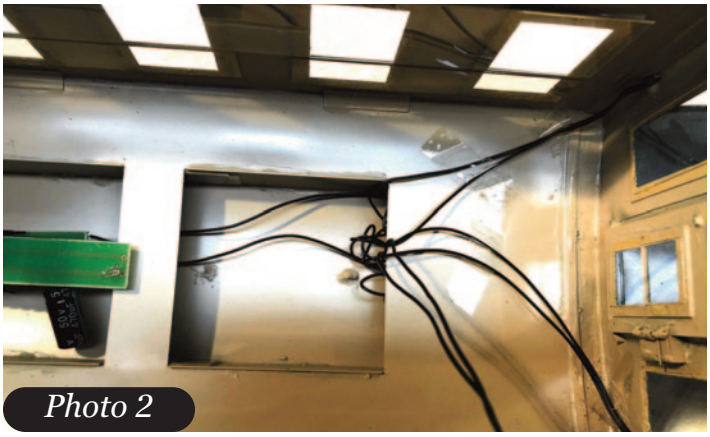


Photo 2

Photo 3

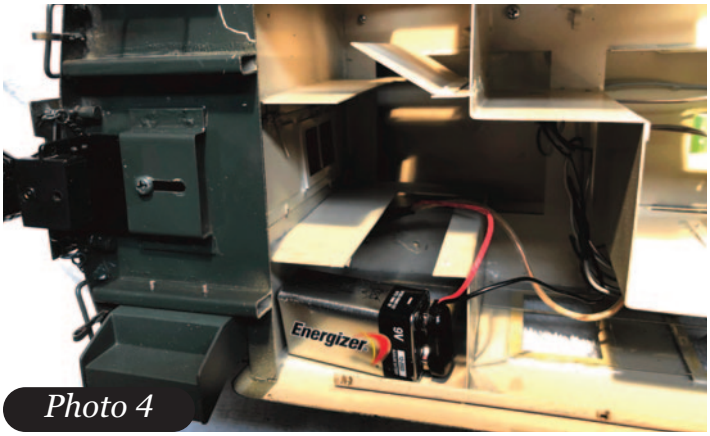


Photo 4

underway.

There are 16 small bolts that must be taken out of the bottom of the cars, and then the uncoupling levers are removed by carefully bending their mounting tangs open enough to release them. I tried to separate the shell without taking this step but there is just no way around it. (**Photo 1**).

Once the shell is carefully liberated from the chassis, (**Photo 2**), you are confronted with the stock wiring harness that allowed the interior lighting to be track powered through the wheels. The biggest problem here is that because of the wires you can't move the body and the chassis far enough apart to get a good look at them, but you didn't expect this to be easy did you?

I considered just cutting all the wires and starting from scratch. But then I started thinking about the future and if there was ANY possibility that I would want to have these cars run off track power again. That unlikely occurrence slowed progress to a crawl. The whole project was pushed to the end of the workbench for a week while this ethical question was pondered. Has this ever happened to you? Anyway, I decided that I should leave the stock wire harness stashed in the coach to guard against the future, and run a new set of wires for battery power. If you wanted to be dramatically clever, you could install a three-way switch that went to track power on one side, off in the middle, and battery power on the other side with just a bit of soldering. I have rarely been dramatically clever, and with the debate about these cars ever hitting live rails again still raging, the possibility of the three-way switch went out of one the popped windows. It would be batteries only.

Besides, there was another nagging debate to resolve. Do I put batteries in each coach or use just one big cell and wire the coaches together?!?! I had already determined that one nine-volt battery in a car produce a nice glow from the existing celling lights. I did this by very scientifically placing the coach on a piece of electrified track and turning up the transformer till the glow looked right and then using a volt meter to see what voltage the coach was receiving. Nine and a half. It just seemed to fall into place. Nine-volt in each coach! (**Photo 3**).

Now it's just logistics. First, I needed a place for the battery and wires. I bundled the wires from the existing lights and routed them to the bathroom in the coach, which just happens to be slightly bigger than a nine-volt battery. See where I'm going here? (**Photo 4**). I tidied up the wires that went to the trucks and wheels by hiding them under the seats, just in case an unmentionable track re-powering did occur. At this stage of the game it's a good idea to make sure none of the wires from the trucks get sent to the battery/bathroom area or you will end up battery powering the track and killing a perfectly innocent nine-volt battery.

So I had a place for the battery; all I needed was some kind of an on-off micro switch. Unfortunately, the usual investigation was not giving me the most logical route for placement. It had to be convenient to reach yet invisible, historical accuracy and all.

After doing far more thinking than I am comfortable with, I noticed that the nicely sprung doors on the enclosed vestibules swing open to a wall outside of the bathroom. Hmmm... Could it be? Yes! I could just use the doors as an activator for the switch! Reluctantly, (very reluctantly) I drilled a hole high in the bathroom wall, installed the micro switch, wired it to the nine-volt battery holder, and lo and behold! Now when you push open the door with your finger, the door hits the micro switch and all is illuminated. Another push and the lights go

Photo 5

off. Niiiice. (**Photo 5**). No switches under the coach and no wires flopping against the windows. A clean installation.

I lined up all of the coaches in the order and direction that looked best, and decided that the rear left door would be the most logical place for each switch. This is important because when the pressure gauge reads 50 pounds and the train is ready to go, I want to know immediately what doors to push open to turn on the lights, thus avoiding a scavenger hunt on each car.

On the mail car there are no swinging doors, so a different solution needed to be found. An L bracket was installed on the wall that holds the switch, and it is activated when the sliding door is opened.

Now it's time for detailing. The windows were reinstalled using model aircraft canopy glue. It holds well and dries perfectly clear, eliminating all "glue push out" anxiety. Then came passengers (affixed with earthquake clay), table cloths (textured paper towels misted with water), glassware (clear straws cut to size), and art(**Photo 6**). Since this consist was called the San Juan and was running in the San Juan mountains, I decided to pay homage to them by hanging "paintings" of the mountains on the interior walls (**Photo 7**). I did this by locating photographs of the mountains on the internet, shrinking them down on the copier to one inch by two, and gluing them on the walls. It's one

Photo 6

Photo 7

Photo 8

of those modifications that most folks don't see at first, but it gets a great reaction once it's pointed out. Last came a light dusting of dusty chalk on the outside to give the cars a used but cared for appearance. Done.

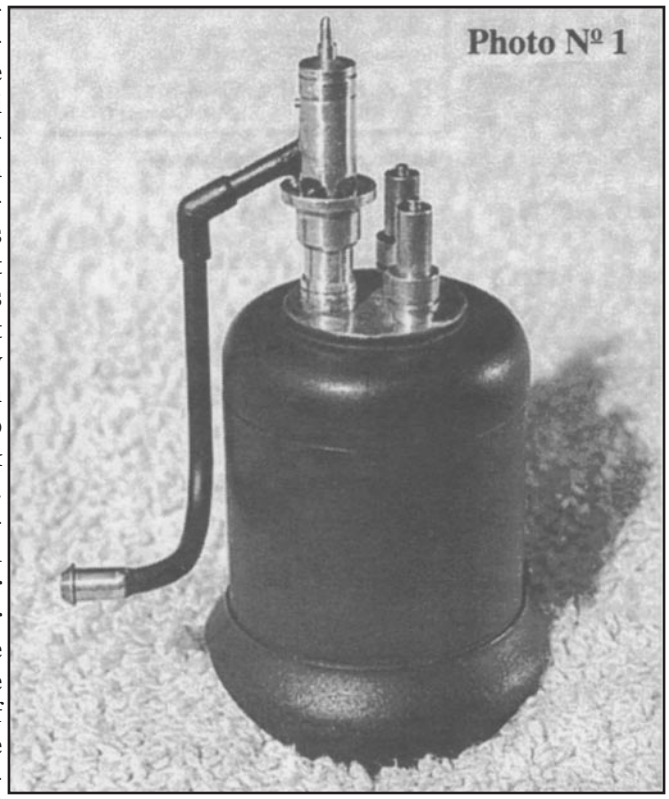
I know that this kind of modeling isn't for everyone; heck, just getting an old live steamer to run is enormous challenge enough. But if your engines are all running to your satisfaction and you have some time Saturday afternoon, look at your existing rolling stock for projects. See what kind of historical realism you can install. (**Photo 8**).

HARMONIC STEAM WHISTLE REVISITED

By Larry Bangham
photo and drawings by the author

More whistle magic from the wizard

I just wanted to share with all you whistle lovers the latest episode in the continuing saga of the Harmonic steam whistle. As you can see, the whistle on my C&S Mogul is back where it belongs – on top of the steam dome (see **Photo No. 1** & **Figure 1**). I had been contemplating building a more prototypical steam dome (fatter), when inspired by Murray Wilson's astute remark (*RPO Mailbag SitG Issue 36*) that "The resonator can be any shape." I checked the volume available and discovered it was more than adequate for my new mini aperture to produce a low pitch. The mini aperture was developed as a result of several requests for a whistle for the Maxwell Hemmens Porter (see **Figure 2**). This aperture uses about 30 percent less steam than the previous whistle (*SitG No. 35*), and yet still gets a nice tone. The new dome was made from 1-inch copper plumbing fittings, a cap for the top, and a 1-inch to 1 & 1/2-inch transition for the body. The base was made from 3/8-inch brass plate and soldered into the body. The resonator cavity is made from copper sheet and wraps around the safety valve. By mounting the aperture upside down on top of the dome and bringing the steam in from the side, it captures the appearance of a real whistle. The deflector sends the steam plume straight up (a sight to behold).



Recently I completed yet a smaller version of the dome whistle which would be more suitable for 1:32 scale and the smaller size locomotives. I believe this smaller version is right at the lower limit of attainability. I tried one even smaller (0 scale), but could not coax it into working. It made plenty of noise, everything from a tug boat air horn to a party noise maker, but would not sound like a steam whistle. Scaling down volumes while trying to keep full size sound waves — or at least realistic ones — may have reached its limit.

These are by no means peep—peep whistles. It is surprising that such a big sound emanates from such a small device. I have installed a stationary steam plant in my shop, and I would like to thank Ed Warren of Steam 'n' Stuff for his excellent little vertical boiler, and Harry Wade and Kevin O'-Connor for all the accessories. This will make steam tests much more convenient with hopefully less finger burning during hook ups and adjustments. Peter Trounce of Canada sent me some very interesting articles on whistles. One article detailed an early version (1949) of a resonator type whistle by L.B.S.C. In this article it mentions an even earlier type (1909). So the technology has been around awhile but apparently was never developed to the point of practicality. Hopefully this time it will be different. Allan Starry of Washington state also sent me challenging articles on a multiple chime whistle and automatic snifter valves which got me to thinking.

After reading all of this interesting information I decided to change some of the names of my whistle parts to bring them more into agreement with traditional whistle terminology. **Figure 2** has been revised to reflect these changes.

When I prepare more definitive drawings on the steam dome whistle I can put together a construction article on it, along with a few words and a drawing of the worlds first (I think) double chime harmonic whistle, already successfully tested. Also on the back burner is a combination safety valve/whistle valve mounted under the steam dome whistle, a multiple tone whistle with a big voice for the Big Boy, along with an improved whistle valve, automatic snifter valves and maybe an inertia motor installed on a tender truck, and....who knows what else? I hope I live that long. I am learning all kinds of things about whistles. Just think, had I enrolled in Beginning Whistle Design 101, I might have at least learned the proper terminology for all the whistle parts. On the other hand I might have learned that experimentation has been going on for one hundred years and that everything had already been tried. As always, I will be glad to talk to anyone with a question or a solution. Happy Quilling!

Editor's Note: *From the Archive* presents older articles from issues of *Steam in the Garden* no longer available in print. There may have been references that are out of date. Article has been edited to convey key information relevent to the hobby today.

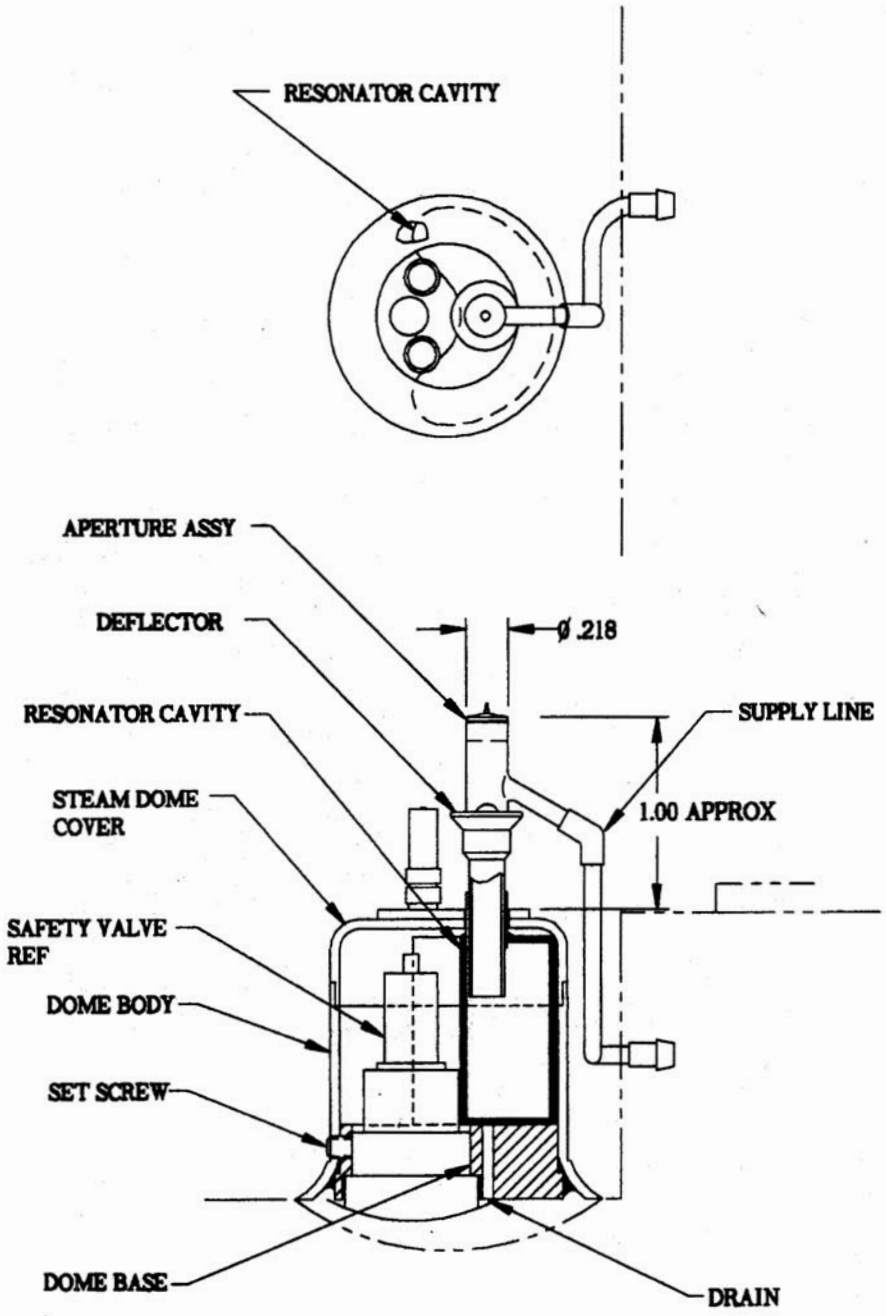


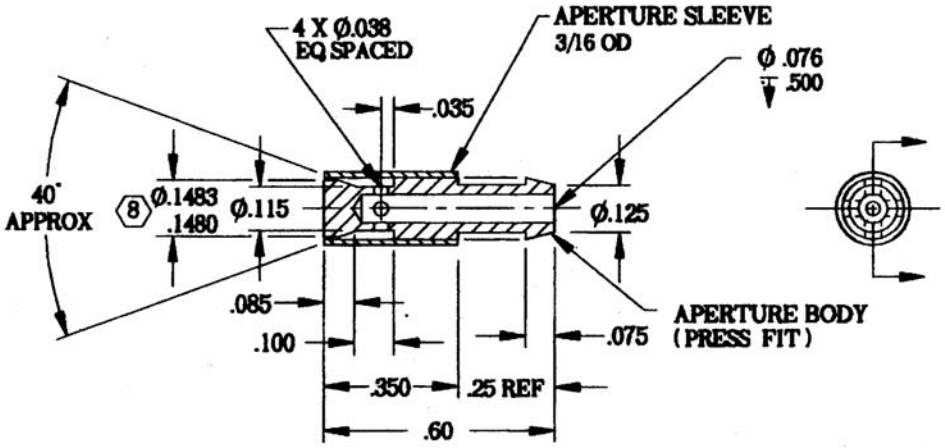
FIG. 1

OUTLINE DRAWING
HARMONIC STEAM WHISTLE –
STEAM DOME , C & S MOGUL

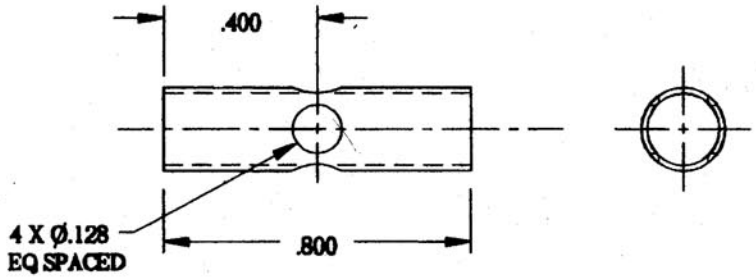
L. BANGHAM 2-25-97

SCALE : 1/1

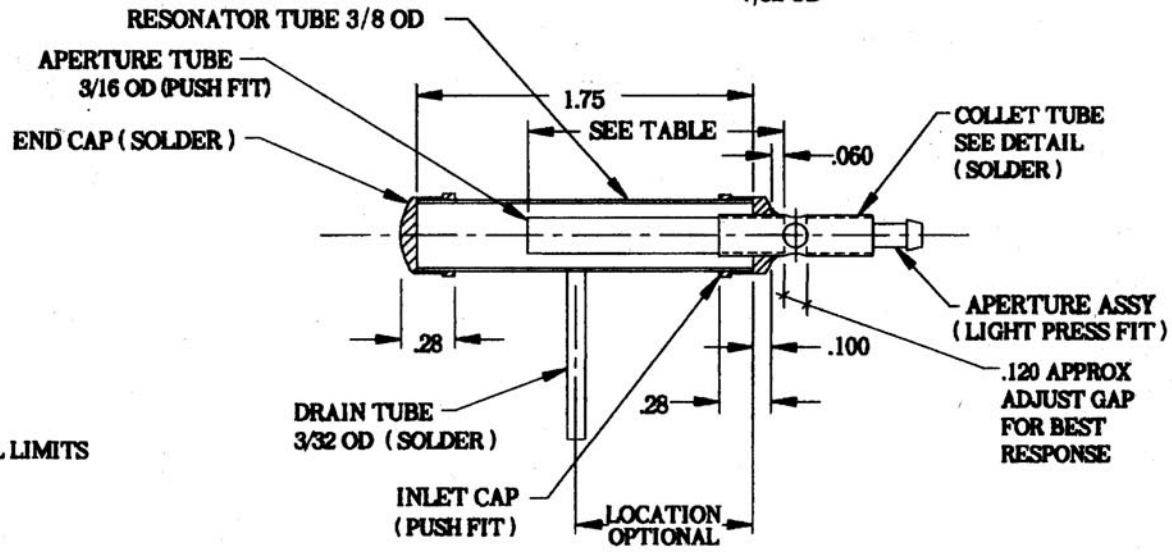
SUPPLY TUBE	
HARMONIC	LENGTH
1ST	OMIT SUPPLY TUBE
2ND	.437
3RD	.875
4TH	1.312



APERTURE ASSEMBLY SCALE: 2/1



DETAIL COLLET TUBE SCALE:2/1
7/32 OD



NOTE:
1. TIN JOINTS WITH SOLDER AS REQUIRED AND MACHINE TO NOTED FIT
2. ALL MATERIAL IS BRASS
3. ASSEMBLY TO BE CO-AXIAL WITHIN PRACTICAL LIMITS
4. TUBE ENDS TO BE NORMAL TO AXIS
5. SYMBOLS PER ANSI Y 14.5M-1982
6. DIMENSIONS ARE IN INCHES
7. ALL TUBING IS .015 NOMINAL WALL THICKNESS
8. DIMENSION IS BASED UPON AN APERTURE SLEEVE ID OF .161 CHECK TUBING AND ALLOW FOR AN ANNULAR GAP OF .0063 TO .0065
9. DRAIN TUBE TO BE NEAR FLUSH TO INSIDE OF CHIME TUBE

HARMONIC STEAM WHISTLE

MAXWELL HEMMENS
PORTER

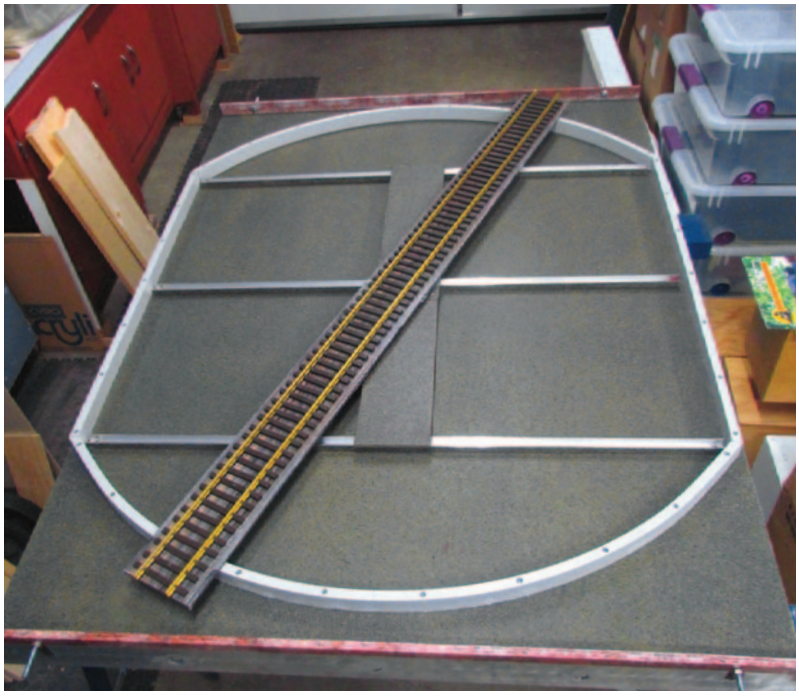
L. BANGHAM 1-28-97

SCALE: 1/1 & NOTED

FIG. 2

Transfer Table with a Twist

Design, Photos and Drawings by
Dan Pantages
Text by Scott E. McDonald



Let's face it. There never seems to be enough space on a portable layout for storing locomotives. And if the locomotives attending the steamup are of the multi-axle, extended length type with a tender equaling more than half the length of a locomotive, then constantly moving them on and off the layout to a separate table in-between operations gets old quick. These beasts can be heavy and cumbersome. But boy do they look great in operation. They impress the crowds, and we love running them.

Using a marshalling yard configuration of multiple switches on a tailing section of the layout limits its total storage space. As you move towards the siding furthest from the mainline the amount of space gets shorter. And if space for your layout at a venue is limited, you want to put into use the space you have to its best advantage.

Solution, enter the transfer table. It eliminates the stair stepping of switches thereby allowing for maximum siding length for all sidings.

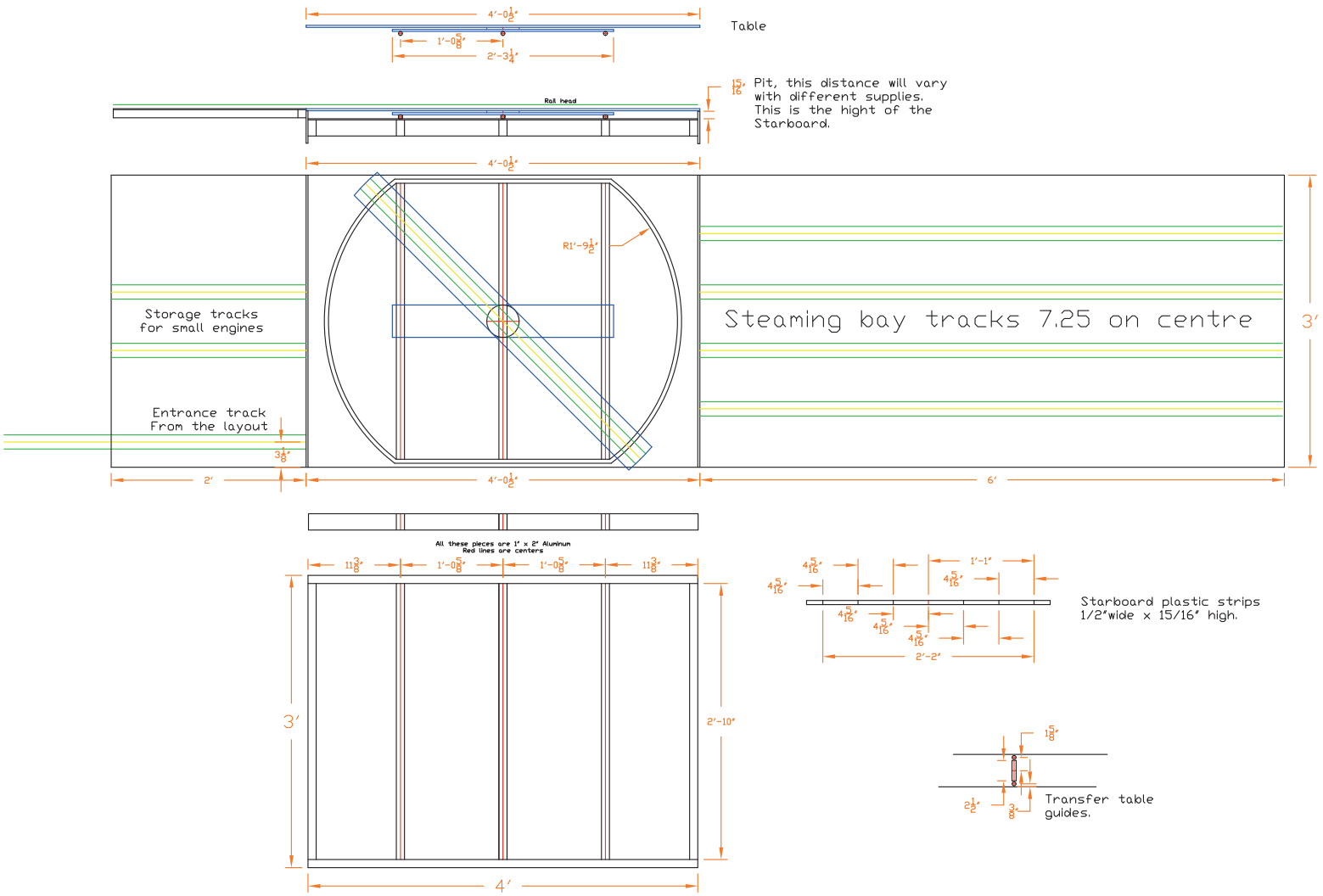
The transfer table shown in **Photo 1** was built for use with the Greater Vancouver Garden Railway Club (GVGRC). In addition of facilitating the movement of locomotives between sidings, it also has a turntable function that assists in getting the locomotive turned if necessary; an extra added benefit.

Design

This is the second transfer table that Dan Pantages has built. The first one was made 10 years ago and was two feet wide. The turntable section length should be twice the width of the "pit"; a three-foot wide pit should have a six-foot long turntable. With this ratio no matter where the transfer table is on the pit, the turntable will not come off the plastic rub strips when turned. With this version, the transfer table must be centered to use the turntable. Dan made this for his Club's new modular layout and the membership wanted the yards to be three feet wide. The table is four feet long which will handle any commercially available Gauge One engine (as of this writing). With this proportion, when you use it as a turntable, the track must be positioned in line with the middle of the module when turned or it will come off the plastic rub strips. As long as you remember this there is no problem in not following the "best size" rule stated earlier. The size table you build will depend on the width of the modules your layout has and the frames you use to support layout decking.

Figure 1 shows the dimensions used for the GVGRC transfer turntable. The transfer table module is constructed with aluminum tube, bar, and channel stock, HDPE board, aluminum/foam composite sheeting and a Lazy Susan swivel base. The

GVGRC Portable Layout Transfer/Turntable & Steaming bays V2



MATERIAL LIST
all inch dimensions

1″ x 2″ rectangular aluminum tube
2ea - 48″
5ea - 34″

1/4″ x 4″ aluminum
1ea - 48″
2ea - 36″
1ea - 28″

DiBond
1ea - 36″ x 48″

1/2″ x 1/2″ aluminum channel
3ea - 36″

1/2″ thick Starboard sheet
1ea - 48 x 12″

1/2″ round Delrin dowel
1ea - 12″

1/2″ Ball Bearing Race
6ea

Cabinet turntable
1ea - 4″

Stainless Steel Machine Screws
6ea - 10 - 24 x 1/2″
6ea - 8 - 32 x 5/8″
8ea - 6 - 32 x 3/8″
3ea - 6 - 32 x 3/4″
38ea - 6- 32 x 1 1/2″

Red lines are centers
Yellow lines are track centers
Green lines are rail
Blue lines are transfer/turntable

Dan Pantages
November, 2019


Photo 1

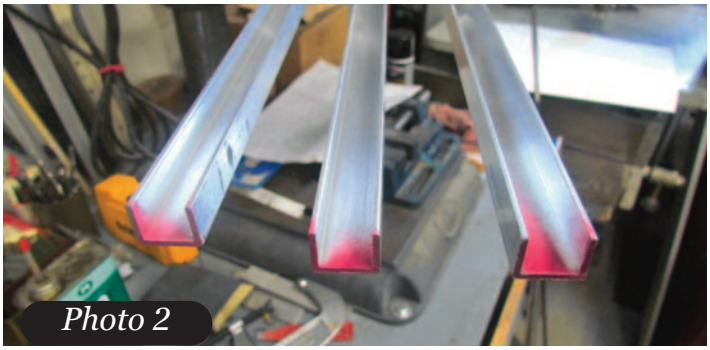


Photo 2

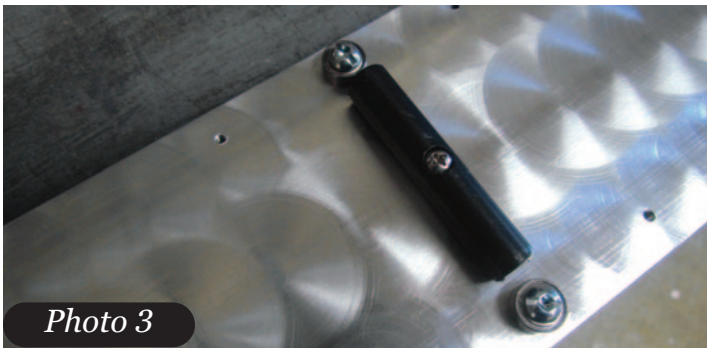


Photo 3

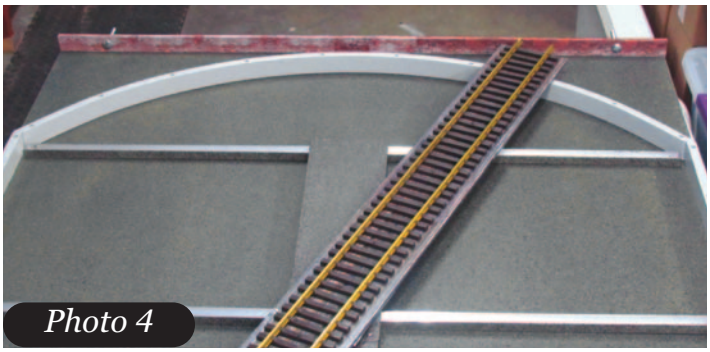


Photo 4

whole thing is dressed up with some paint and vinyl graphics to make for a nice presentation.

Construction

Photo 1 shows the base/pit. It has a frame of one by two-inch aluminum tube that supports the Dibond. The sliding support table and turntable are quarter-inch by four inches by the length you decide. The end plates are from quarter-inch by three inch aluminum, and these are how the unit is attached to the siding modules of the layout.

Photo 2 shows the half-inch by half-inch aluminum channel used to guide the plastic sliders that will be attached to the underneath side of the turntable support. Three pieces of half-inch round plastic support the slider, (one for each slide channel), and are placed longitudinally on the bottom of the sliders to align with the slide channels. There are two half-inch ball bearings located on either end of the the slide supports which keep the table from jamming when sliding back and forth **(Photo 3)**. As you can see, Dan took a little off both sides so it's easier to line up with the channels when you remove and replace the unit during transport. The support sliders are made of Delrin.

The pit has rub strips to support the turntable when in operation. These are made from half-inch thick plastic High Density Polyethylene (HDPE) sheet, the same material used in marine applications and cutting boards **(Photo 4)**. It was cut on a table saw to allow it to stick up about 0.005-inch higher than the depth of the pit. This allows the turntable bottom to rub on it for support. The brand name for the material Dan used is "Starboard."


Photo 5

Dan wanted the transfer table to fit in with scenery that the GVGRC places on their layouts, so he used vinyl graphics to spruce it up. Wood plank graphics were placed on the turntable section under the track and brick graphics were used on the end plates to give the unit a little more of a prototypical look **(Photo 5)**. These can be ordered from Big Jon of Model Decal Depot at adlionprint@shaw.ca.

The bottom of the pit was painted to look like it was filled with gravel. Rust-Oleum "Accents" texture paint was used to accomplish this **(Photo 6)**. Before applying the paint to the aluminum foam composite you must first sand with 300 grit. It was also sprayed after sanding with self-etching primer

to ensure the paint would get a good purchase on the surface of the aluminum composite.

The turning mechanism is a Lazy Susan swivel plate. It is attached at the centers of the top of the turntable support and the bottom of the turntable **(Photo 7)**. When completed the entire mechanism sits onto the grooves of the slide supports, and you're ready for business once the track has been added.

Summary

This is a simple solution for a transfer table. Attention must be given to its operation at a steamup to prevent accidents. The turntable stays in place by friction and alignment to the sidings is visual. No locking mechanism has been created and as mentioned earlier, when you swivel the turntable it must be aligned with the center-line of the module so that each end is supported on the HDPE rub strips. Also note that there are no track stops at the end of the sidings that align with the transfer table to prevent locomotives from running into the pit.

Of course, you could always design your own method to overcome these minor inconveniences. Maybe a small sliding bolt lock on the edge of the turntable. On the adjoining siding module removable blocks with dowel pins could easily be fashioned as a possibility for track stops. With a 3D printer, you could get fancy like these used at the Pennsylvania Live Steamers designed and executed by Joseph LaRue **(Photo 8)**. With care in operation however, the module can provide you with more locomotive storage, and at a fraction of the cost associated with having multiple switches on a module.

Photo 6

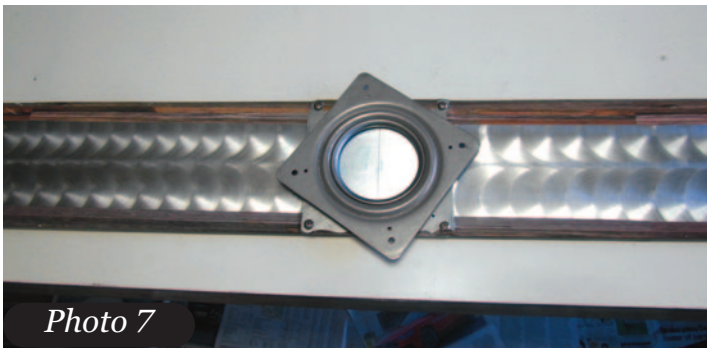


Photo 7

Photo 8

Ready for operations!

Bob's Bit's

Weekend Projects for Steamers
by Bob Sorenson
CAD by Dan Pantages

Gas Jet

The biggest obstacle to making a gas jet is drilling the orifice hole. The orifice on a gas jet is typically 0.008-inch to 0.009-inch, which is nearly impossible to drill on a regular shop machine. Fortunately, there is a simple workaround which will yield a very serviceable gas jet. To the best of my knowledge, the technique comes from the late Jerry E. Howell. Jerry was the designer and builder of several model hot air and gasoline engines. His technique to make gas jets is shown on his plans for the fabrication of a micro Bunsen burner.

Jerry's technique originally used old fashion, solid ruby wrist watch bushings as the gas jet orifice. The hole through the ruby bushing was the ideal size for the burner orifice. A 2 x 56 brass hex bolt served as the orifice holder. Jerry specified drilling through the brass bolt and pressing the ruby bushing in place.

Ruby watch bushings are no longer available. However, commercially available bronze wrist watch bushings can serve as the gas orifice. The bushings are the "KWM German Made" type available from the TimeSavers company in Scottsdale, Arizona (https://timesavers.com/). TimeSavers has two bushings that will work. The size L-01 (part number 11301) has an orifice diameter of 0.20mm. The size L-56 (part number 11356) has an orifice of 0.25mm. Brass model hex bolts are available from Micro Fasteners (http://www.microfasteners.com)

Figure 1 shows the dimensions of the bronze wrist watch bushings from Timesavers, minus the chamfer. **Figure 2** shows a 3D rendering of the bushing from the Timesavers website.

To make a jet, start with a jig to hold the model hex bolt. Cut a one and one-half inch or so length of quarter-inch brass rod and face both ends clean. Drill a # 42 hole 1/16-inch deep. Then drill all the way through with a #50 drill. Tap a 2 x 56 thread about a quarter-inch deep. Finally

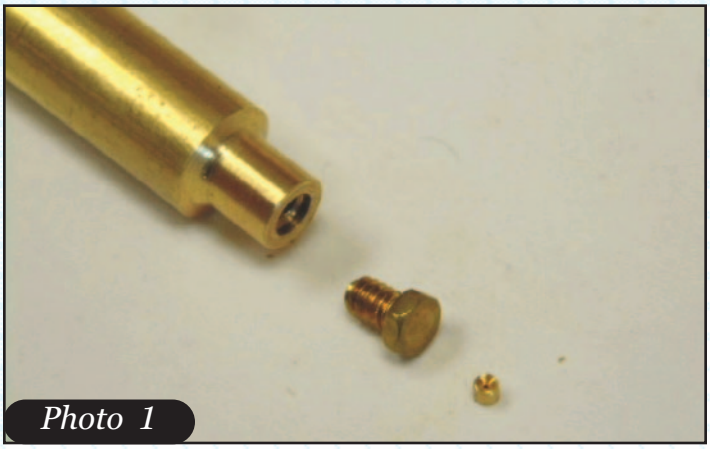


Photo 1

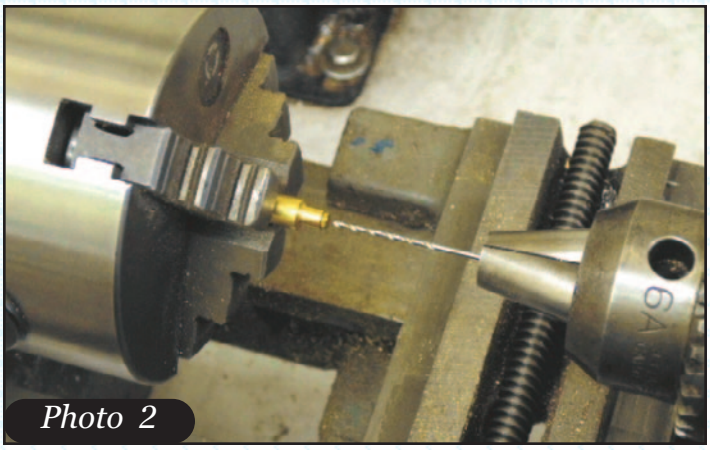


Photo 2

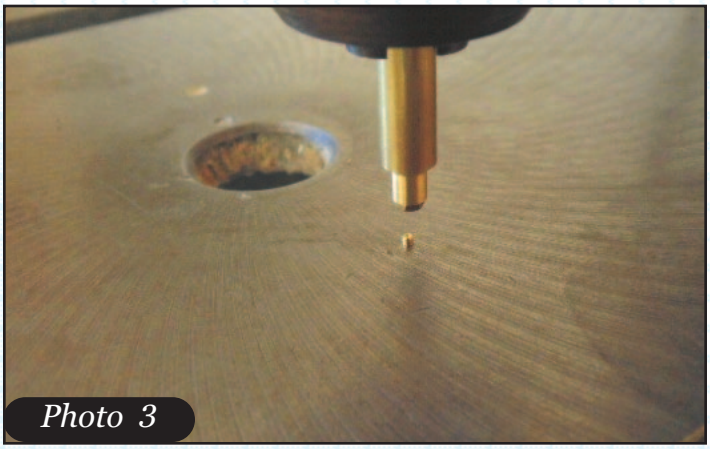


Photo 3


Photo 4

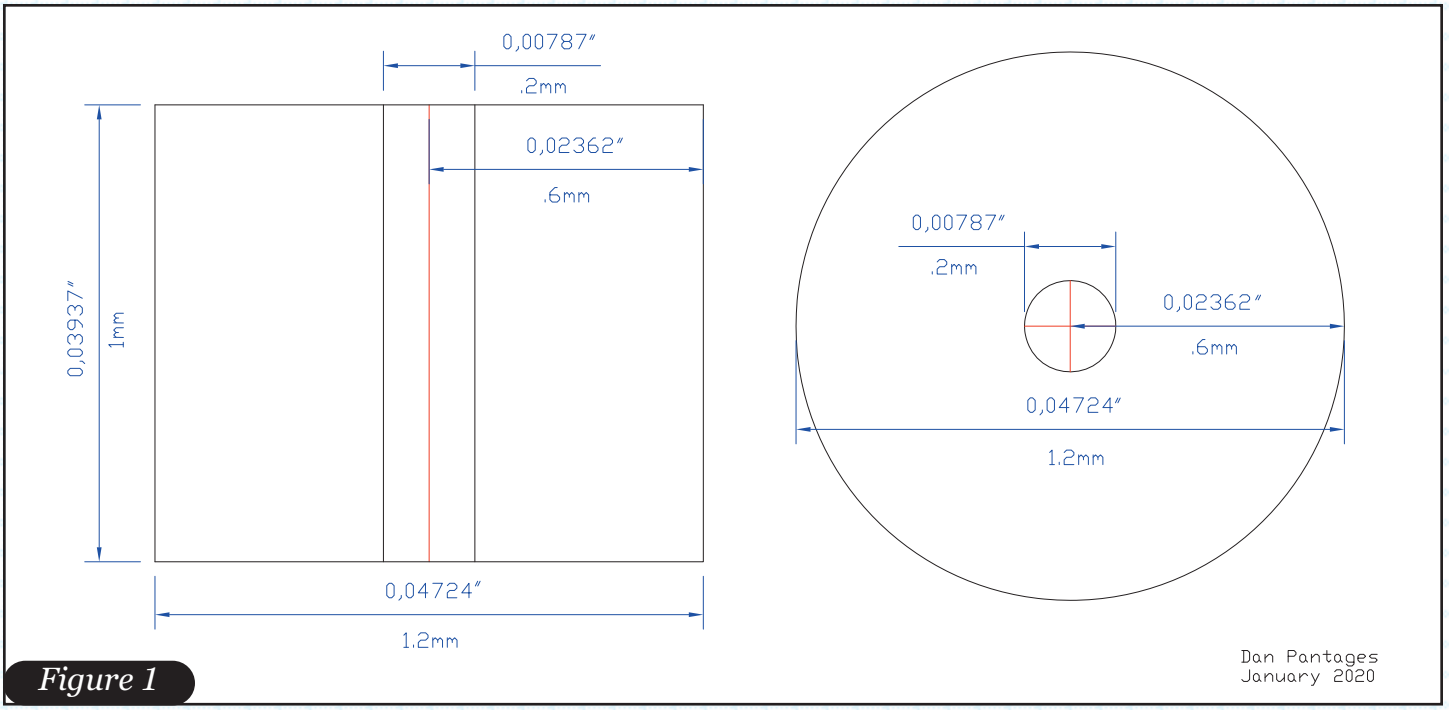


Figure 1

turn the fixture down to about 5/32-inch diameter or so for a length of one-quarter inch. Screw in a one-eighth inch long 2 x 56 model hex bolt. The #42 spot drill ensures the bolt rests flat on the head. **Photo 1** shows the jig, with a bolt and a watch bushing.

Chuck the jig with bolt in the three-jaw chuck. Lightly center drill and then drill through the brass bolt with a #56 drill, as shown in **Photo 2.** A number 56 drill provides a very nice press fit for the 1.2mm diameter watch bushing. For best results, rough drill with #57 or #58, then finish drill with a new, sharp #56. Finish the bolt drilling with a very small chamfer to break the sharp corner left by the drill. Just twist a countersink bit with your fingers.

Now chuck the hex bolt and fixture in the drill press, as shown in **Photo 3**. Place a watch bushing on the drill press table with the flat face down. Lower the drill chuck, aligning the watch bushing with the hole in the hex bolt. Use a needle or long pin to move the watch bushing around. When aligned, press the watch bushing home. The little chamfer helps align the watch bushing and prevents it getting hung up on the hole edge.

Photo 4 shows two gas jets ready to go. At this point, fabricate a jet body that accepts the 2 x 56 jet and install in your burner.

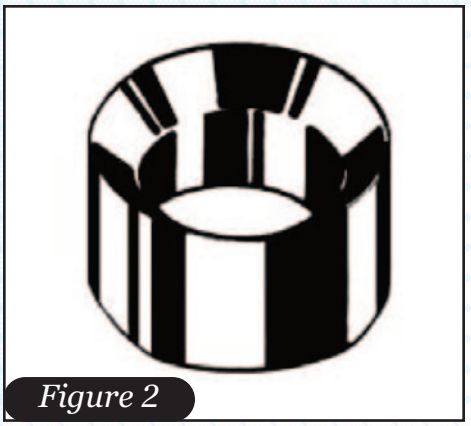


Figure 2

It is highly likely you have a number of hopelessly plugged gas jets that already fit your locomotive. Resurrect those old jets by making a drilling jig that accepts them, instead of a 2 x 56 bolt. Drill #56 and press in a bushing. That will put those plugged jets back in service. After a lot of experimentation with different burners, it seems that the 0.20mm orifice (size L-01) generally works best. The 0.25mm orifice (size L-56) flows a lot of gas and is not as easy to throttle. Timesavers also has a 0.15mm orifice, but those are too small.

https://timesavers.com

Workshop Project

Building the Nellie G. - Part 1

Text & Photos by Joe Rothwell

Getting Started

The Nellie G. was offered as a kit in 1991 by a firm called 'Freedom Song Boatworks' (FSB). The company has been out of business for a while now, but the Nellie G. kit and the rest of their line of classic boat kits are still showing up on eBay from time to time. FSB was located in Maine, so this explains why the Nellie G. was on the roster of kits. This little ferry has endeared itself with the populace of Maine and rightly so. At 1/24th scale, she measures out at 21 inches long. Just big enough to carry a Midwest Products Model VI vertical steam boiler and engine. I found both on eBay...$85 for the FSB kit of the Nellie G. and $75 for the kit version of the Model VI boiler and engine. Both will have be assembled from supplied parts, so this will be fun and rewarding.

FSB kits are all hard chine hull designs, making it much easier to build than a round bottom boat. This is a good thing because FSB kits have very few pre-stamped parts, being mostly plan sheets, flat

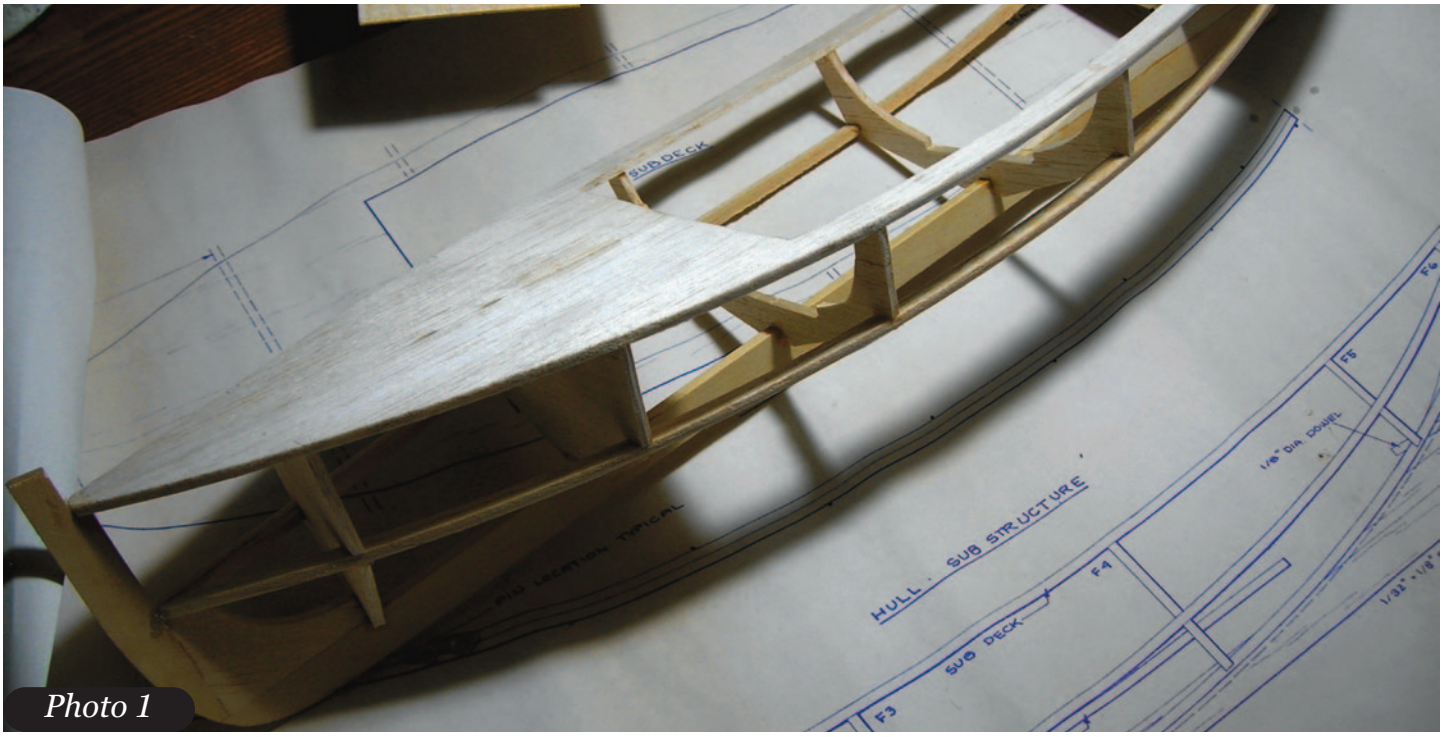


Photo 1

Brief History of the Nellie G.

By the 1870's, the once wild and rugged coastline of Maine, with its thickly wooded forests and desolate winters, had become the summer playground of the wealthy. The steam engine in all its applications had revolutionized both travel and shipping over land and water and then set the foundation for modern factories. For the first time in history, the average Joe could get way ahead with hard work and determination.

This new and ever-growing tycoon-class of Americans needed a cool and comfortable place to pass the summer months, and Maines' coastline and coastal islands filled this need then, as it does today. Large summer cottages were erected on expansive lots and if your mansion ended up on an island, then you'd need a steam ferry to get from the mainland to the island.

Such is the case for Squirrel Island, named for its squirrel-like shape when the island is viewed from above and not from a rodent problem, as there are no squirrels that inhabit this large rocky, forested island. In 1871, the island was surveyed and divided up into about a hundred large parcels with interconnecting roads and paths. Building commenced immediately and by 1920, all the lots were mostly occupied with grand summer homes.

The steam ferry that served this island back then was called the Nellie G., and like most boats designed and built in Maine, it was practical without giving up style and grace. The length of her sweeping, upward curved deck (both fore and aft), was 42 feet, with a beam of about 12 feet; large enough to carry about 35 or so people. The fantail at the stern gave the ferry the final touch of elegance. Launched in 1895, she served for the next 37 years, carrying passengers from Boothbay Harbor (there was rail service to Boothbay) to Squirrel Island. It's about three miles from port to port, so there were many round trips scheduled in a single day.

The Nellie G. fulfilled her duties as a steam ferry for Squirrel Island until 1932 when she was sold to another ferry line and then converted to gasoline. She ferried passengers from Falmouth Foreside, Maine to the Casco islands, which are scattered in the wild Atlantic off the Maine coast like a child's handful of jacks tossed across the playroom floor. This she did until 1951 and when worn out, she was hauled ashore and died a Viking death, being burned to ashes on the beach.

sheet wood, sticks and dowels. All the proper widths and thicknesses are furnished, of course, and the quality of the wood is far superior to most other brands. Same thing with the hardware package, very few pre-cast parts, but the raw material is furnished to make all the parts. This kit has a period correct, 4-blade propeller and that's it for castings. Still, it's a good beginners' line of kits and the availability of aftermarket parts will help with the hardware, if time is an issue. The model is built in sub-assemblies, keeping the interest up as completion of each major part spurs the project forward.

Assembly

I started on the hull by laying down the keel pieces over the plan and gluing it together with thick CA (**Photo 1**), followed by a spritz of CA accelerator which causes it to set immediately. I used this method throughout the construction of the boat, mostly using thin CA for joints as this has great penetrating properties, and FSB states that they designed the kit to be assembled with the two types of CA glue. The paper frame templates are already glued with spray adhesive to sheets of balsa by FSB, as are most of the parts, so all you have to do is use a straight edge and a hobby knife to cut them out, then peel the paper templates off and it's ready for installation. A cutting mat is helpful here.

The frames are CA'd to the keel, being careful with alignment here as this will affect the final shape of the hull. The pre-stamped one-eighth inch thick sheet-balsa sub-deck is glued on next, giving you a second chance to keep things aligned. The chines are made up next and installed onto the frames, without gluing them just yet, giving you a third chance to keep things in alignment. Each time it gets a little easier to square things up and when satisfied, CA all the joints.

The grain of the hull planks run vertically which seems a bit counter-intuitive, but is actually quite

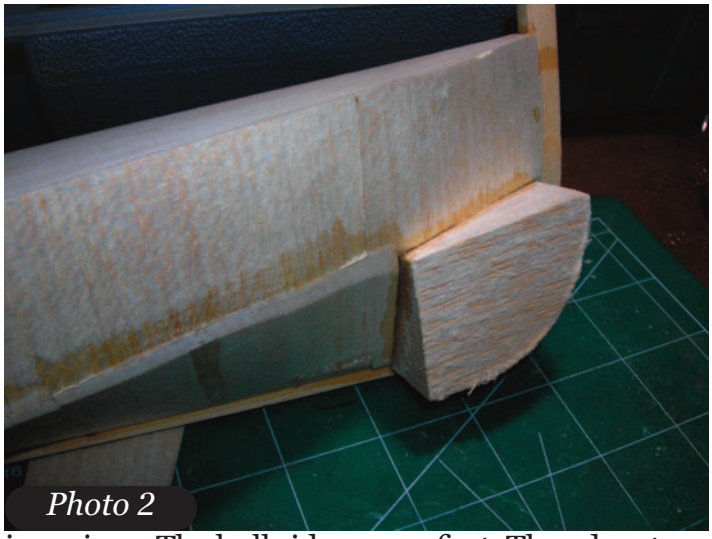


Photo 2

Photo 3

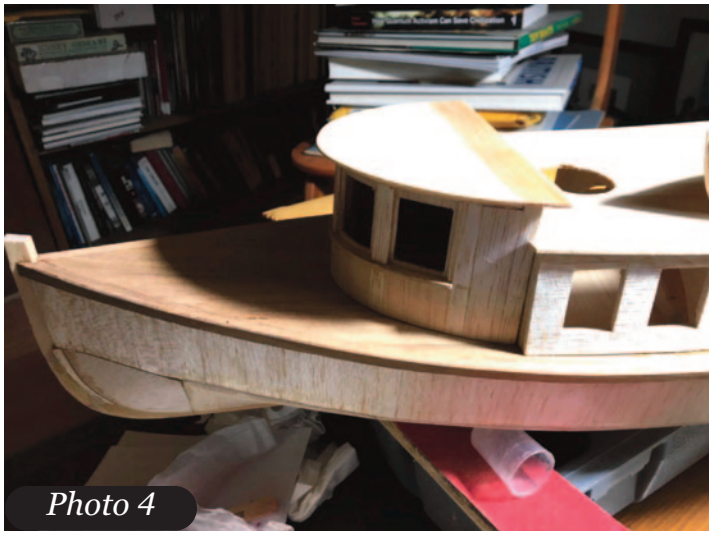


Photo 4

ingenious. The hull sides go on first. The advantage of hard chine allows the planks to only have to bend in one direction (x) instead of two (x and y), making things a pleasure. And if that's not enough, the planks can be run long at both ends when applied to the hull sides and easily trimmed flush when the CA cures, using the sub-deck at the top and the chine at the bottom for trim lines. The hull bottom planks go on next and the edge that lays against the keel must be trimmed to fit; easy enough as it is square to the keel (**Photo 2**). The other end can be run long again, also trimmed at the chine once more. Solid balsa blocks fill the lower bow section and the area under the fantail. The curves at these locations bend in both axes, so carving and sanding these shapes is easier than trying to plank them.

Sand the hull fair with a sanding board. The sanding boards are made by gluing sandpaper to strips of balsa wood eight inches long, one and a half-inch or so wide, and a quarter-inch thick. Each board gets a different grade of grit. Smaller, thinner boards are also made up for some of the finer sanding that the pilot house and other areas will need. I always liked to use garnet sandpaper as this semi-precious stone gave consistent results and stayed sharp longer, but now the modern stuff is much better. It stays much sharper longer and resists clogging better than my old standby.

The last step to complete the hull is laying the deck planks on top of the balsa sub-deck (**Photo 3**). I didn't use the deck planking supplied with the kit, but used some black walnut strips from my wood pile. The outer edge planks were CA'd onto the balsa sub-deck and these have to bend in both x and y, so it takes a bit of time to get these to lay flat on the sub-deck. Two courses were laid and then the rest of the interior planks were laid straight, which is much easier. Each plank is trimmed and checked for fit before the glue is applied. The rub-rail, using the same deck planking, is wrapped around the hull twice and then everything gets sanded fair once more. After the hull and deck planking is done, the next phase starts.

The deck structures are started next (**Photo 4**), which consists of a pilot house, main cabin and fantail awning cover. The pilot house is too tall (why it's this way on the plan sheet is a mystery) when compared to photos of the Nellie G, so the bottom half of the house was shortened two scale feet to match the photos. After the pilot house, main cabin and fantail awning were made, the pieces were all stacked together, and what a handsome boat she was turning out to be!

And that's when things took a big right turn. In the next issue — a problem of scale!

DIAMONDHEAD

JANUARY 17 to 23 2021

◆ International Small Scale Steamup ◆

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THE CUPOLA VIEW

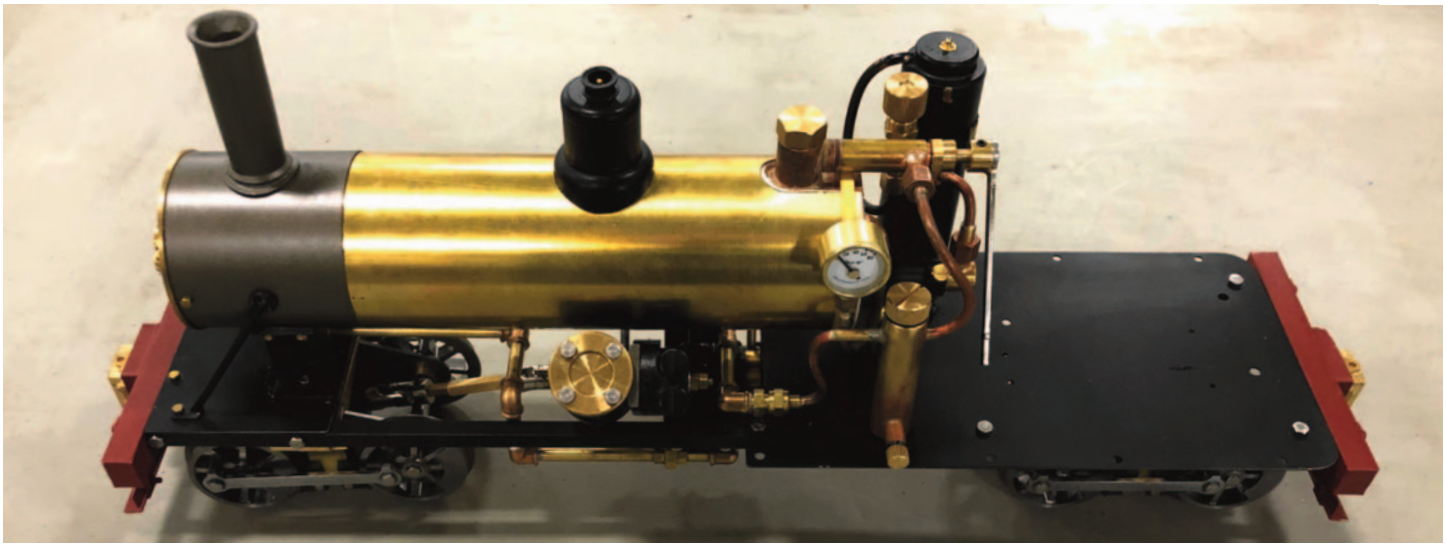
Cabin Fever Model Engineering Expo

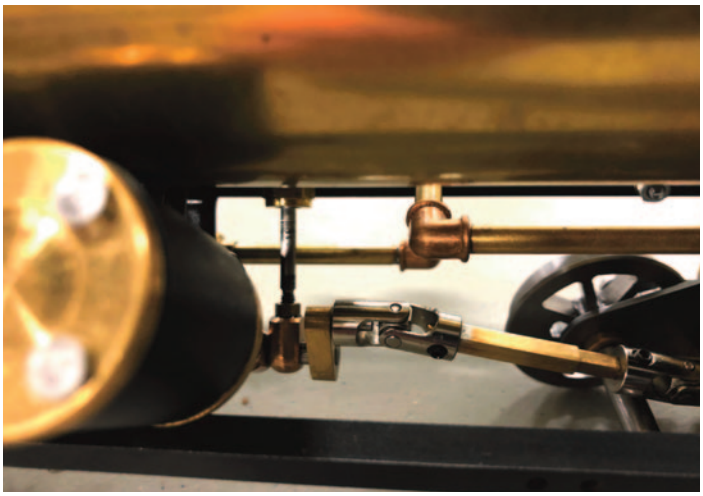
In addition to the National Steamups like Diamondhead, MS and Sacramento, CA there are also opportunities to provide a steam experience to the general public through other model based events. The Bay Area Garden Railway Society Live Steamers generally set up at their local "Maker Fair", an event that celebrates using your imagination to "make things." Here on the East Coast in January we have the Cabin Fever Model Engineering Expo held in Lebanon, PA. The local group often referred to as the Aikenback Live Steamers participates in this event which celebrates, as the name suggests, model engineering. This expo includes both live steam and internal combustion with tables of stationary and other gadgets on display and in operation.

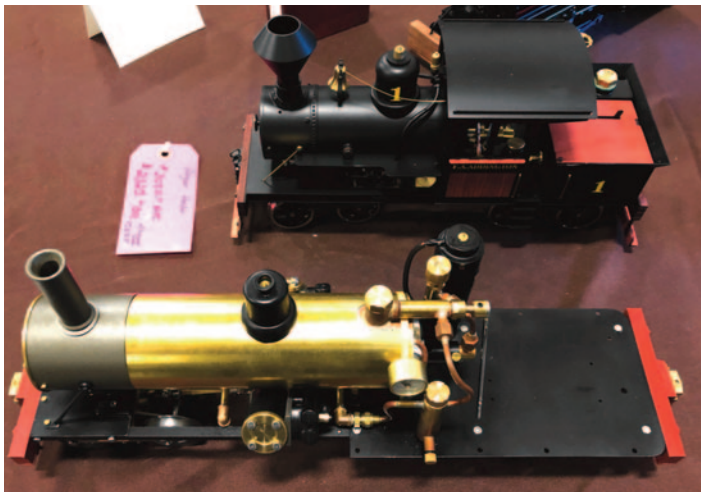
Mike Moore of Ellicott City, MD provides the tracks and we are usually put into a building where other models are actively engaged in operations. Trains, boats, radio controlled Semi-Trucks and construction equipment all have their own area to operate. A few tons of dirt are brought in and during the weekend roads are built, goods loaded and moved about and work space is provided to build, modify or repair these miniature marvels of engineering.

At this year's event lo and behold a Freelance Heisler at the 5/6ths completion stage was on display on the table of one of the model boaters. Scott Baldridge, whom I met at Cabin Fever a few years ago, in addition to his boat building has also moved into Gauge One with the Heisler. His workmanship is impeccable, so I snapped a few photos and was also able to get some video of his creation in action.

While I looked over his craftsmanship, I noticed







that he had "stepped up" the construction with some beautiful chrome universals for the drive train. His searching on eBay came up with a hit for model universals designed for the afore-mentioned R/C trucks; they are a wonderful and easy way to get the locomotive moving instead of having to make a set on your own. With the Freelance Heisler project the goal was to bring together as many ready-made materials as possible in order to keep construction at the novice level. So here is a way to knock off some time from construction.

Scott used the three-millimeter set from the pack he purchased and it fits just fine. During the run of the locomotive, which should be pointed out was only run number three since assembly, movement around the tracks was smooth and effortless. Congratulations to Scott for his successful creation.

At this time I have been able to confirm four of these being built since publication of the series. I'd love to be able to share your builds here in the pages of *Steam in the Garden*, so send your photos in and celebrate "making something".

Scott

'Cupola view' is written by Editor Scott E. McDonald: you can contact him at sitgeditor@gmail.com or P.O. Box 1539, Lorton, VA 22199.

Page 46 Photos:

Top Left - Side view of Scott Baldrige's Freelance Heisler at the 5/6ths completed stage.

Bottom Left - Closeup of the chrome universals Scott found on Ebay. These are the three millimeter size.

Bottom Right - Size comparison of the Freelance Heisler with the new Regner Heisler.

Special or Annual Meets

Staver Locomotive Spring Steamup - April 23-26, 2020. Staver Locomotive, Portland, Oregon. Visit *www.staverlocomotive.com* for latest information.

Sacramento Valley Live Steamers Spring Steamup - May 15 - 17, 2020, Sacramento, CA. We have room for trailers and overnight camping.
Visit http://www.svlsrm.org for more information .

National Summer Steamup 2020 - July 8-12, 2020. McClellan Conference Center, McClellan, California. Visit *www.steam-events.org* for more information.

The Denver Garden Railway Society Colorado Railroad Museum Steamup - August 1-2, 2020, from 9:00 am - 5:00 pm. Steamup will be held at the DGRS Garden Railway at the Museum and the garden railway will only be open to those registered for the event. Fuel, water, lunch and entry to Museum grounds is included with the registration fees.

Registration Fees :

DGRS Member Steamers:	Sat $20.00	Sat/Sun= $30.00
DGRS Member Non Steamers:	Sat $15.00	Sat/Sun= $20.00
Non DGRS Steamers:	Sat $25.00	Sat/Sun= $40.00
Non DGRS Guests/Family:	Sat $20.00	Sat/Sun= $35.00

Checks should be made out to : Denver Garden Railway Society and sent to: Mike Harris,12457 E.Amherst Cir.Aurora, Co.80014. Contact Mike Harris: dgrssteam@q.com or call @ 303-750-4423.

Fourth Annual Gathering of North American Members of the Association of 16mm Narrow Gauge Modellers - September 25-27, 2020. Hazlet, NJ.
Visit *www.northamerican16mmmodellers.org* for registrations and venue information.

Cabin Fever Model Engineering Show January 15-17, 2021 - Lebanon Valley Expo Center & Fairgrounds, Lebanon, PA. Gauge One Tracks available for steaming. Visit *www.cabinfeverexpo.com* for more information.

International Small Scale Steam Steamup. January 16-24, 2021. 103 Live Oak Drive, Diamondhead, Mississippi. Visit *www.diamondhead.org* for more information.

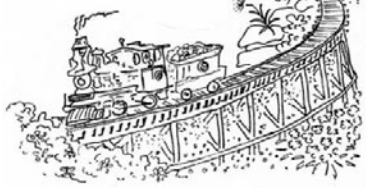
Regular steamups

Crescent City High Iron. Steamups as necessary on an elevated backyard layout on Northern California's upper coast. Info: Don Cure, diamondd1947@msn.com.

Greater Baton Rouge Model Railroad Club Open House and Gauge One Steamup. Info: Ted Powell, (225) 236-2718 (cell), (225) 654-3615 (home), *powell876@hotmail.com*.

Puget Sound Garden Railway Society. Two steamups per month, one at the Johnsons' on the second Saturday and a steamup at a member's track on the fourth Saturday.
Info: *http://psgrs.org/* or call Pete Comley at (253) 862-6748.

Southern California Steamers. Contact Jim Gabelich for dates, places and other pertinent information. (310) 373-3096. *jfgabelich@msn.com*



CONTRIBUTOR BIOS

The magazine couldn't exist if it were not for the dedicated individuals who take time from the hobby to chronicle their endeavors, interests, and joy of live steam. If you get a chance to meet any of our contributors at a steamup, please thank them for their contribution.

Bill Allen - Bill lives in Woodside, California and first became interested in live steam in 2008 when he saw Richard Murray's layout at a BAGRS open house. He proceeded to buy a Ruby, C16 and Forney before deciding to start building his own. He bought a mill and lathe and with the help of some BAGRS members learned to use them and was soon making chips. Since then he has completed 20 projects some of which have been featured in Steam in the Garden and currently has a multi part article running in Live Steam. All of his builds are one-of-a-kind as he only builds those which have never been done before and probably will never be done again in G gauge live steam. Bill's prior hobby was building fine furniture and he uses some of those skills and tools in hie engine building.

Jeff Campbell - Jeff Campbell was infected with the train bug at an extremely early age. Thanks to his father, Jeff's first bedroom held a crib, dresser, and a 4'X8" HO layout. Years later, at the local fair with his family, Jeff noticed a G scale layout in the garden exhibits and a fuse was lit. Under the guise of getting his young son a "Toy Train" for Christmas, Jeff's empire was launched. Jeff's interest in live steam began while riding on the tender of a 2-4-0 at Disneyland. All the valves, pipes, and gauges were so intriguing and within weeks a kit form Accucraft Ruby was running in the back yard which turned him into an avid live steamer.

Joe Rothwell - Joe started building models as far back as he can remember, mostly due to having an older brother. He would simply follow his brother's lead. Plastic kits gave way to balsa/tissue planes. U-control planes gave way to R/C planes. The family always had a train set, O scale at first (both wind-up and electric), then HO and ending with N scale. Joe now has a 4-foot x 6-foor table top N scale layout, running mostly NYC equipment. Steam interest was rather late, he purchased his first engine in 2006. Joe finds the hobby very satisfying still looks forward to working on the various projects he has lined up. In real life Joe is a Land Surveyor in order to foot the bills.

Shawn Viggiano - Shawn Viggiano is from Wantage, NJ and has been into model trains all his life. His early collections entailed Lionel and N scale trains and by 2006, the dream of having a garden railway became reality. In 2010 his first live steam train, an Aristocraft 0-4-0, had its first run on the rails and he has been hooked ever since. "I like running mainly smaller geared steam trains like Regner Easy Line and Accucraft geared locomotives. They have a charm to them that works with a backwoods logging line. I enjoy sharing my garden train hobby with my wife and three kids". Shawn currently work as a Park Police Officer for the NJ State Park Service.

***Your Name Can be on this Page!* -** The whole world is waiting to hear from you! We are always looking for Live Steamers to share their thoughts, experiences, projects, latest acquisition... The list goes on!

We need Locomotive Reviews, Tips & Hints, Steamup Reports, etc. All contributors are compensated for their submissions. Submitting is easy. Just e-mail your idea to sitgeditor@gmail.com and we'll work with you to bring your article to our pages. Visit www.steamup.com to view our Contributor Guidelines to see how easy it is to show the world your small scale live steam interests!

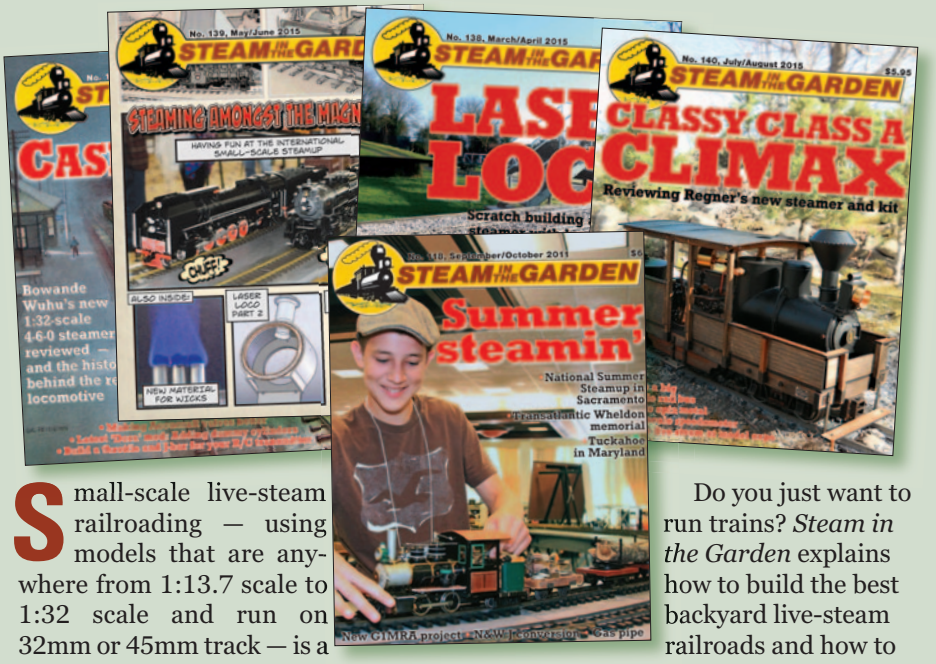
Advertiser Index

Coming Soon!
Issue #168
July/August 2020

Building the Blue Comet
Part 3 of the series by
Bill Allen

Rick Parker Photo

Steam ... it's the real thing!



Small-scale live-steam railroading — using models that are anywhere from 1:13.7 scale to 1:32 scale and run on 32mm or 45mm track — is a fun hobby that has room for rivet counters and freelancers, prototype purists and lovers of whimsy.

Steam in the Garden is the only magazine devoted entirely to covering the small-scale live-steam hobby. Since 1990 the magazine has taken readers inside the railroads and inside the workshops of the leading modelers and shown how fun and easy live steam model railroading can be. Six times a year, *Steam in the Garden* gives subscribers a look at the current trends in the hobby and reviews the latest products available.

Are you a builder of live-steam models (or do you want to be)? *Steam in the Garden* has detailed articles that explain how experienced builders create those once-in-a-lifetime projects that can't be found anywhere else.

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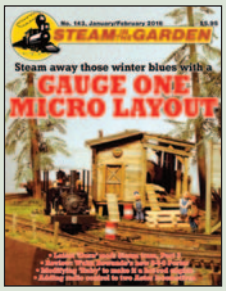
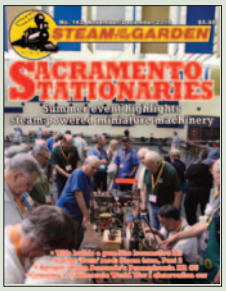


Vol. 26, No. 1; Issue 143; Jan./Feb. 2016
Micro layout: Building an indoor Gauge One track • Review of Wuhu Bowande Porter • Hot-rod 'Ruby': Hopping up a 1:20.3-scale engine • Rolex Asters: Adding radio control • Learning to model in tinplate with a 'Dora' modification, Part III • Latest waybill: Llagas Creek Railways sold, U.K. distributors merge.



Vol. 25, No. 6; Issue 142; Nov/Dec 2015
In memoriam: Andre Anderson, Wuhu G5: Locomotive review — 1:32-scale, 4-6-0 , Topaz: Alchemy, building an Accucraft 'Ruby' kit, Tram: Learn to model in tinplate, Sacramento stationaries: NSS 2015 highlights miniature machinery. WWI car: Creating a 7/8ths-scale Fort Benning railroad observation car.

Vol. 25, No. 5; Issue 141; Sept./Oct. 2015
Mamod's latest: 'Brunel' • Learning to model in tinplate with a 'Dora' modification, Part I • Live-steam group makes sixth appearance at Maker Faire • Adding mesh to Accucraft burner • Salute to Tom King • New products: Aster 0-4-0, Wuhu Bowande German 2-6-2T, Train Dept. with two 7/8ths-scale.

Vol. 25, No. 4; Issue 140; July/August 2015
Classy Class A Climax — Regner steamer and kit review • Big 'Dora' — Making it a 1:13.7-scale rail bus • Spinning metal • Cabin Fever • Speedometer • Latest waybill: Garratt from Roundhouse; in memoriam — Peter Jobusch; Accucraft UK goes with an African steamer; Mamod saddle-tank loco.

Vol. 25, No. 3; Issue 139; May/June 2015
Steaming amongst the magnolias: Diamondhead 2015 • Laser Loco: Aspinall 0-6-0 (series Part Two) • Workshop: sample tools and equipment • Wicks: A new material • Open cab 'Dora' • Latest waybill: Swiss, U.S. locomotives on the way; a new version of Saxonian in 1:20.3 scale.

Vol. 25, No. 2; Issue 138; March/April 2015
Laser Loco: Scratch building with laser-cut brass. Part 1 • How steamers in Seattle created a community • Getting an LED onto the front of Accucraft's C-19 • Two former ride-on live steamers decide to go to Gauge One • Romance, realism of coal firing: factors to consider before taking the plunge.

Vol. 25, No. 1; Issue 137; January/February 2015
Expand Accucraft cylinder ports • Casey Jones: a new 10-wheeler from Wuhu and the engineer's history • R/C J-bar: adding steam controls to transmitter • Dummy cylinders: Give 'Dora' a more realistic look • Railroad librarian: 'Great American Railroad Stories'; 'The State Belt.'

Vol. 24, No. 6; Issue 136; November/December 2014
Sacramento steams. The 2014 National Summer Steamup provides a fun time for more than 150 steamers • Replacing axles • Scratch-building the four-cylinder Heisler, Part Three • The backyard Rivendell & Midland Railroad, Part Two • 'Dora' gets a snow plow (and a bell and a ...).

Vol. 24, No. 5; Issue 135; Sept./Oct. 2014
A big little locomotive: Accucraft's 7/8ths-scale 'Fairymead' • Scratch-building the four-cylinder Heisler, Part Two • The backyard Rivendell & Midland Railroad, Part One • Build a train barn • Review: Regner's 'Otto' • Latest Waybill: Accucraft 1:32-scale rolling stock; end of boiler detection; new wheels..

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