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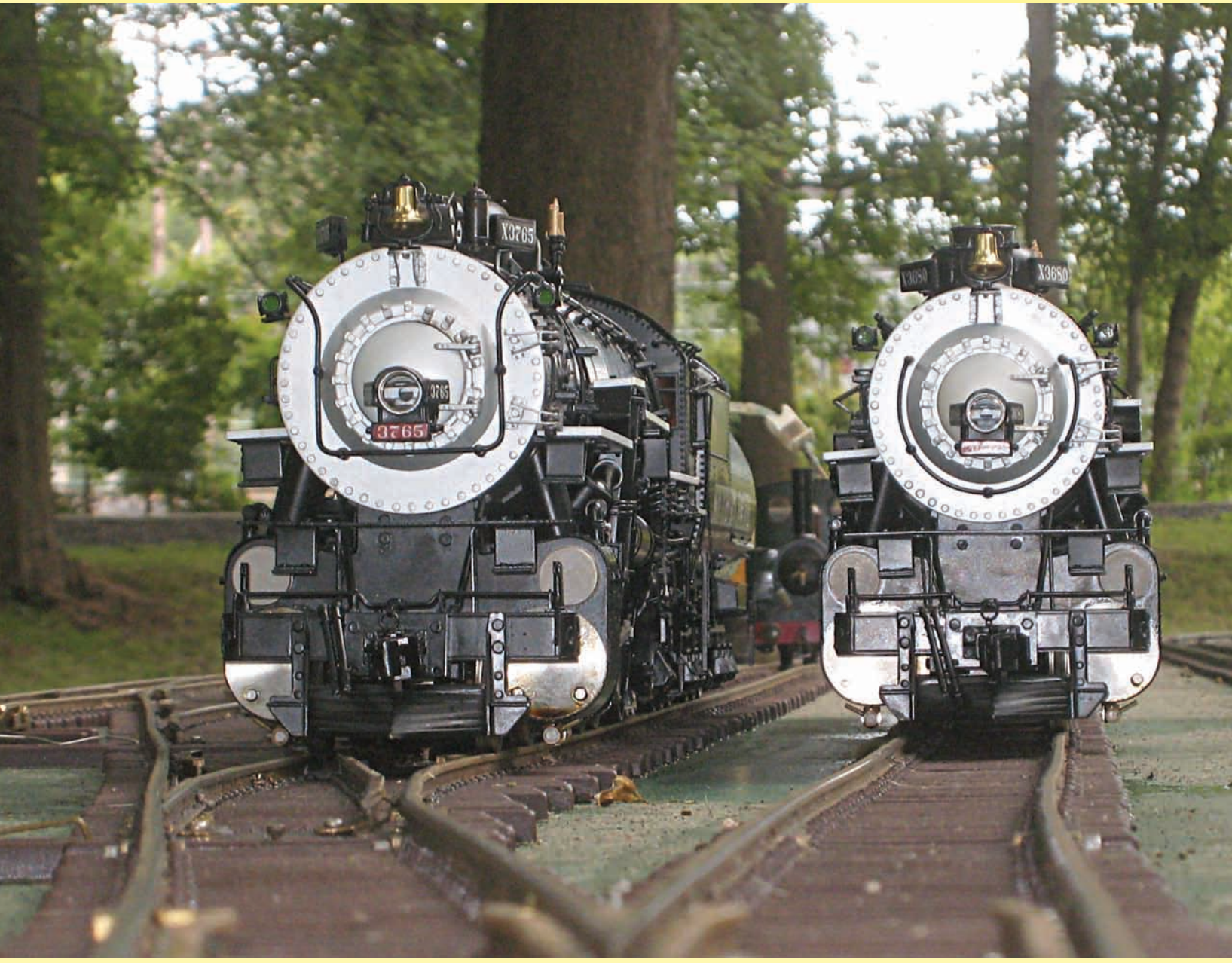
STEAM IN THE GARDEN



In this issue.....

Accucraft F4/F5 Loco Review

Mason Bogie - Part 1

Simpson's Folly - a portable track

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STEAM IN THE GARDEN

Vol. 19, № 6
Issue № 108

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

Articles

Departments

FRONT COVER:

Front view of Accucraft's mighty Southern Pacific 2-10-2. F5 on the left, F4 on the right.

Photo by Mike Moore

Editor
Ron Brown

Nurse & Roadrunner
Marie Brown

CAD & Other Drawings in This Issue
Jim Fainges, Howard Maculsay,
Mike Simpson

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CALENDAR OF EVENTS

Southern California Steamers - contact Sonny Wizelman for dates, places and any other pertinent information. 310-558-4872 - sonnyw04@ca.rr.com

Michigan Small Scale Live Steamers (MSSLS) hosts a large number of steamups. For details on What, When and Where, go to their web site at http://www.mssls.info/

Upstate Steamers, upstate New York steamup calendar. If you are in the area, come out and join us!
http://gold.mylargescale.com/Scottychaos/upstatesteamers/

Puget Sound Garden Railway Society steamup schedule: We have 2 steamups per month, one at the Georgetown Powerplant in Seattle on the second Saturday of every month, and a steamup at a member's track on the fourth Saturday of the month. Here is a link to our steamup timetable.
http://psgrs.org/livesteamtimetable.html

January 15, 16, 17, 2010 - International Small Scale Steam Up, Diamond Head Resort, Diamond Head, Mississippi. For more information, contact Jerry Reshew, 228-225-1747 or e-mail reshew_j@bellsouth.net Multiple, elevated portable tracks, 45 and 32 mm and HO, @4 hour steaming, dealers and clinics.

Feb. 13-14-`15 2010 President's Day Steamup, Scranton PA. For full info call Clem at 570-735-5570 or email wrunloco@aol.com.

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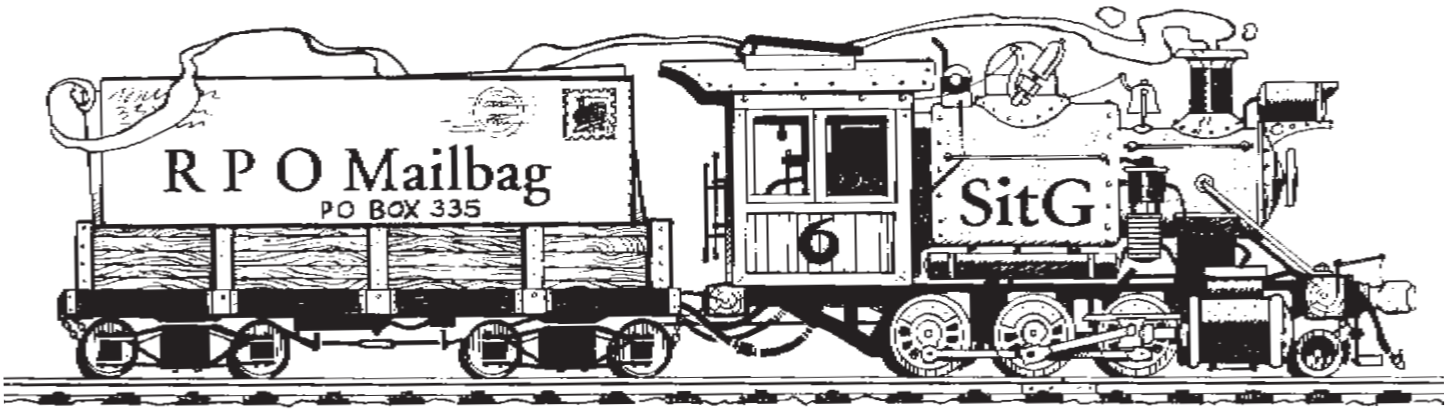


Austria
via e-mail

Dear Ron,

In my published letter to the editor (issue #107), regarding the order of preparing an engine. The most important thing seems to have got lost - maybe in the transmission. It should have been made clear that filling the gas tank FIRST! gives the gas a chance to warm up while we are filling the water and oiling around the engine. This was the actual main point of my letter.

Best wishes,
Bert Horner

* * *

Austrian Alps
via e-mail

Ron,

Wow, I think if I had read all this tech. info I would never have set out on my first boiler (technical discussion on an internet site). I just took a look at what others do and picked that which I thought was the best combination to fit the size I needed to look right. The result is my boilers make steam. Thats all I want.

Being a Brit. living in Europe and having also worked with ASSA standards. I have found that European things measured in mm are within a fine tolerance Imperial. 3-mm = 1/8" (3,2 to be exact) or a 114.3mm dia tube is a 4" tube 2" = 60,3 , etc.

If I'm working with my Myford imperial lathe I rough out in imperial then set my micrometer in the metric system for the fine cut. The ASA system is also the same. Things may have a different name but the rules are the same. I mean if I divide 1" by 1000 or 25.4mm by 1000 the distance is the same. etc. etc.

I think that most of us develop a feel for what is ok or not. When I should use a 1/4" BSF screw and I cant buy them on the doorstep I use a 1/4 UNF or a 6mm screw, then I can replace it on the door step instead of ordering in the UK and waiting until I get it in the post at a price including post, which would make my hobby dear.

In short my advice is have a good look around at what others do, see what material is available near to you and just do it. You can gain experience this way but you cant get experience out of a book, only info. Reading a book on how to ride a bike does not mean you can then ride a bike. As Mr Nike says, just do it.

Oh, and one other point. I think we all do a good amount of work for the local scrap dealer (well, I do), and others around me as well.

Have fun building your boiler, and pleasure playing with your engine later.

Theory is all done correctly but nothing works. Practice is everything works but no one cares why.

Bert Horner

Accucraft Southern Pacific F4/F5 2-10-2 Live Steam Locomotive

by Mike Moore

Technical Specifications:

Scale: 1:32 Scale, 45mm Gauge

Minimum Radius: 3 M (120 in.)

Length: 37 3/8 mm (950 mm)

Width: 4 3/8 mm (111 mm)

Height: 6 3/8 mm (162 mm)

Weight: 8.2 kg (18 lbs.)

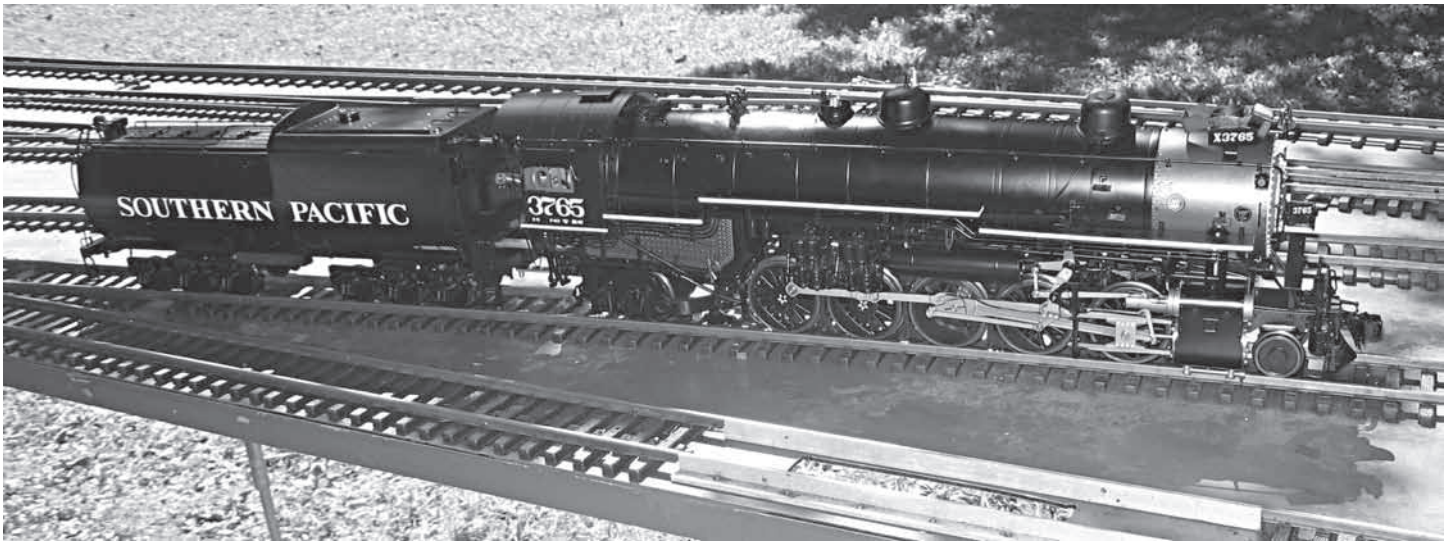
Fuel: Butane

Boiler Pressure: 60 psi

Cylinder: Two Cylinders w/D-valve

Valve Gear: Walschaerts valve gear

Fittings: Water Level glass, Check valve, Axle pump with bypass, Hand pump in tender, Displacement lubricator with metering valve, cylinder cocks



F5 on the track.

History

The 2-10-2 wheel arrangement was part of Southern Pacific's evolving battle with Donner Pass ("the Hill") over the Sierra Nevada Mountains. The 2-10-2s were called Decapods ("Decks") on the SP because Southern Pacific refused to call them the normal classification of Santa Fe for obvious reasons. Beginning in 1917, the first eleven Class F-1 2-10-2s were delivered. With their 63" drivers, the F class locomotives could lift 83% of a Mallet's tonnage over "the Hill" at 10 miles per hour, compared with only 8 miles per hour for the Mallets. And this was more than 1.6 times the tonnage of a consolidation!

The F-4 and F-5 classes were the final result of 2-10-2 development. Of the total of 170 SP 2-10-2s, 102 were class F-4 and F-5. The 50 F-4s were built between January and May of 1922, and 20 of them were coupled together and delivered as the "Prosperity Special" --- traveling only during daylight hours to maximize public exposure on their trip from Eddystone to Los Angeles. The F-4 "Decks" performed so well that an additional 52 of the 2-10-2s were ordered, and the F-5s were built between September 1923 and March 1924.

Beginning in the late 1920's the F-4 and F-5s were displaced on "the Hill" by new design 4-8-8-2 cab forwards. However, they then began another life as divisions competed for the reliable, good-riding, good steaming "Decks." They were mainstays on the grade out of Dunsmuir where close clearances ruled out cab forwards, and a favorite on the Salt Lake Division. They also were the helper of choice on the Coast Division for Southern Pacific's famed Daylights (and all other passenger trains) over the Cuesta Grade between San Luis Obispo and Santa Margarita.

One particular 2-10-2 story with the Coast Daylight involves the rule that helpers were always to be coupled in front of the GS class Daylight engines. EXCEPT if you were running late.... Clark Redeker reminisces about riding in the lounge/observation car of a Daylight that was running a few minutes late. The 2-10-2 helper was coupled on to the rear of the train and up the grade they went. He vividly remembers watching the helper cut off on the fly, totally against the rules. The fireman climbed forward on the engineer's side where the engineer could see him, then gingerly got down on the pilot to close the air-brake angle cocks. He then lifted the cut lever, and waved to the engineer to back off. Clark said, "After they cut off, the helper dropped back so fast it looked like they were in reverse!" Needless to say, the Daylight made up the time.

The F-4/F-5s were solid performers and remained on SP's roster until nearly the end of steam. Except for damage from accidents, they remained on the roster for over 30 years until they were retired beginning in 1954. By September, 1956 only 18 2-10-2s were listed on the Pacific Lines roster.

The Model

Accucraft is supplying both an F4 and an F5 version of the SP 2-10-2. Mechanically the two versions are identical. The differences between the two versions are in the detailing. The most noticeable difference is the smoke clamshell deflector on the F5 smokestack. The F4 model is numbered 3680 while the F5 is numbered 3765. Additional differences include the running boards and the railing on the smoke box front. The sample Accucraft sent for review is the F5 variant.

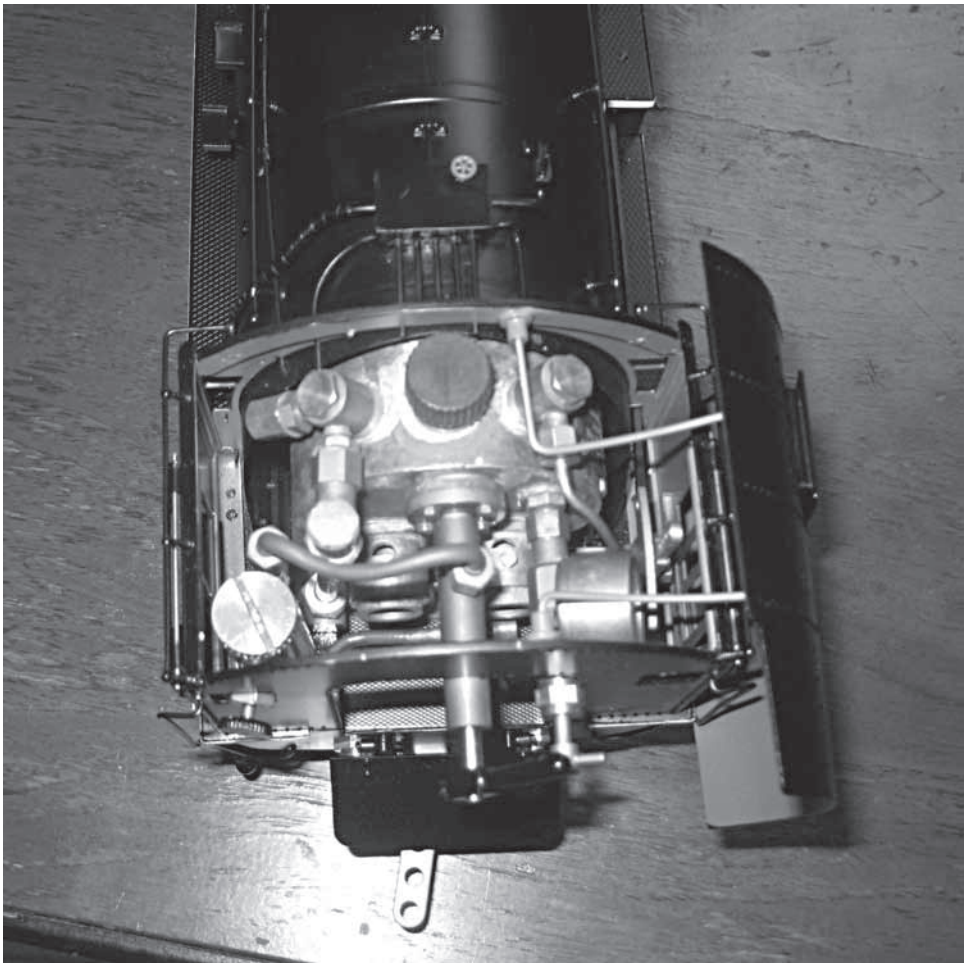
The locomotive arrived in a large heavy cardboard box. Surrounded by foam inside the large box were two cardboard sleeved, Styrofoam boxes. One box containing the locomotive and another for the tender. Both the locomotive and tender came strapped to a board and securely wrapped. Unlike previous Accucraft locomotives, this model did not come with a steel cradle.

Included with the locomotive are an owner's manual, a boiler certificate, and a bag containing a pump handle, 2 syringes, 2 nut drivers, and a bag of spare screws. The manual I received did not seem to be a final version but provided sufficient information to prepare and operate the locomotive.

First impressions of this locomotive are good. The model does an excellent job of invoking the feeling of a large, hulking locomotive. The detail level is very good and includes things like flip up window shades. All ten drivers are flanged and the tender axles run in ball bearings. The semi-Vanderbilt tender is well executed and includes a lamp at the rear. It should be a relatively easy job to add bulbs to both the headlamp and the tender lamp if desired. Both the locomotive and tender are supplied with working knuckle couplers, a welcome improvement over previous standard gauge models from Accucraft. For me, having to lift a car to couple to the tender seems to destroy the fantasy. Reversing is accomplished by a Johnson bar in the cab.

The power for the locomotive is provided by a two flue, butane fired, copper boiler. Most of the fit-

tings expected for a locomotive of this level are supplied. A filler plug is atop the boiler in the cab. The backhead fittings include a pressure gauge, throttle, water glass, and check valve. The bypass valve is incorporated into the check valve. No blow down valve is supplied on this locomotive. A good sized hand pump is included in the tender along with a large butane tank with fuel valve. Water is also supplied to the boiler by an axle pump. A single gas line from the tender leads to a two jet manifold. The pressure gauge is positioned high in the right rear corner of the cab which makes it difficult to read through the cab window. Reading the gauge required either lifting the flip up roof or some contortions. The displacement lubricator is equipped with a needle valve metering system which with proper adjustment should reduce any tendency to spew excessive amounts of steam oil over the track. Of course, one must be sure not to close off the oil completely.



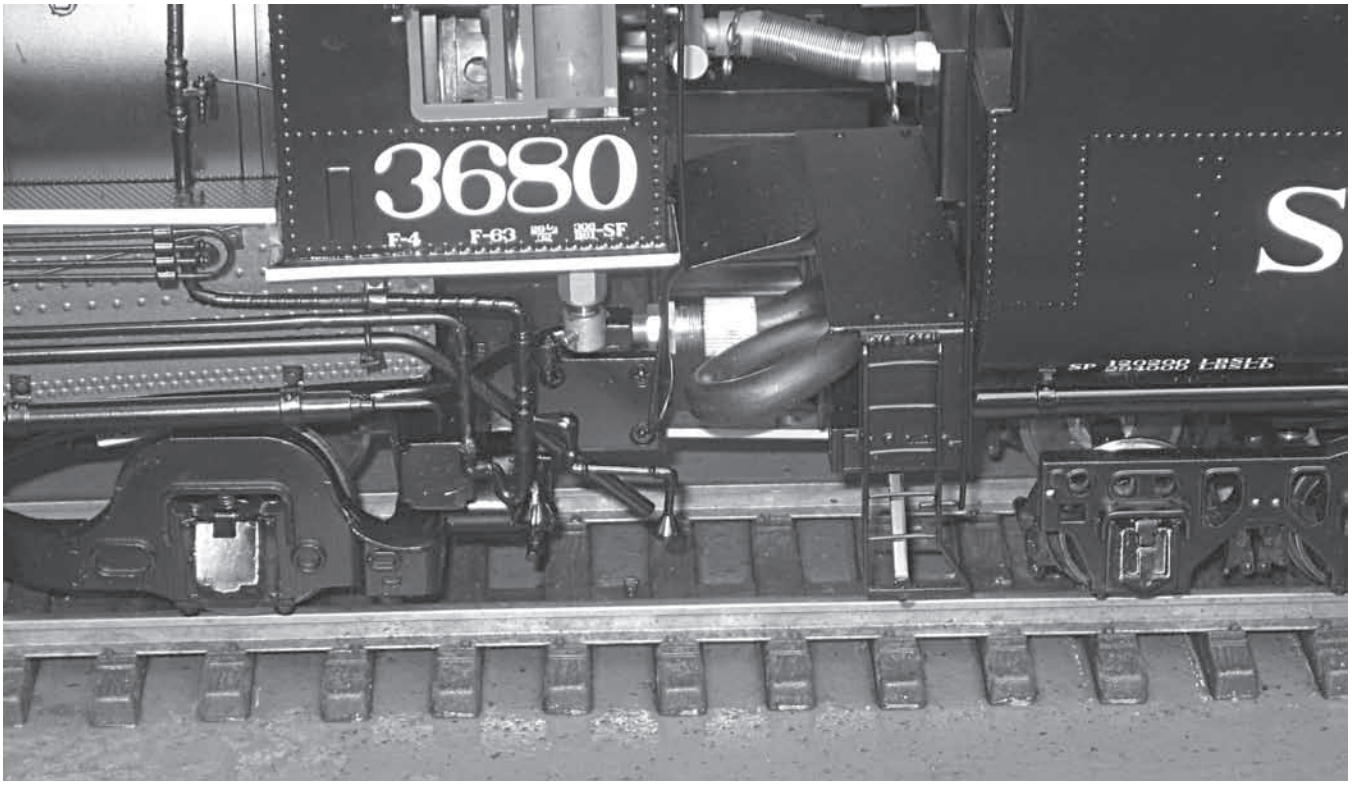
View into F5 cab.

Running Experiences

The locomotive arrived just in time for the Pennsylvania Live Steamers' Fall Meet. Alan Redeker was there with both an F4 and an F5 version so I was able to compare the two versions. When I unpacked the locomotive at PLS the first thing I did was to attempt to connect the locomotive and tender together. The tender is supplied with generous lengths of flexible tubing for gas and water lines which require shortening. The water line fittings are placed below the footplate at the back of the locomotive. The space between the locomotive and tender is very limited. This, in conjunction with Accucraft's compression fitting, makes it somewhat difficult to make up the water connections. I finally resorted to looping the water line up under the tender deck. The tubing between the gas valve and the jet manifold also required some trimming. This necessitated trimming the encircling spring reinforcement as well. Note that the gas jets must be fully inserted into their proper fittings in the rear of the flues.

After getting the locomotive to tender connections sorted out I proceeded to lubricate the moving parts of the locomotive and tender. Next I filled the boiler and tender tank with distilled water. Since I started with an empty boiler I filled the boiler through the cab filler plug rather than with the tender hand pump. At this point I opened up the displacement lubricator to add steam oil. I noticed that on my sample the clearance between the steam pipe and the lubricator wall was less than required by my gunk syringe. This may be due to the metering valve. Fortunately, I have a second gunk syringe with a smaller tube. Finally, after ensuring there was enough water in the boiler and oil in the lubricator I filled the tender gas tank with butane. The tank holds quite a bit of butane so a long run is possible.

When the gas tank was full I lit both burners



Detail of tender connection showing loop in pump line and a shortened gas line.

F5 on the left, F4 on the right.

through the smoke box. They both lit easily although when cold the flame on one burner was somewhat unsteady and could perhaps benefit from an adjustment of the air control collar. Steam was raised quickly and soon I was ready to move off onto the track. I coupled up to a train consisting of about 30 MDC hoppers and boxcars. The locomotive moved off easily with this train. Since this is a model of a relatively slow running freight locomotive I kept the speed down. The locomotive ran almost flawlessly.

I did have some problems with the cylinder cocks. With the levers at a horizontal position no water issued from the cylinder cocks at starting. I had to rotate the control lever down to nearly fully vertical before the cylinder cocks worked properly. This position caused the control levers to foul the rails while crossing turnouts so I decided to forgo the cylinder cocks and put up with the condensate from the smokestack.

There was some noticeable surging at slow speed. This seemed to be due to the action of the axle pump. With the bypass closed the axle pump had no problem keeping the boiler water level up but pumping against the boiler pressure seemed to be a challenge for it. Alan discovered that one of his two engines exhibited the same surging while one did not. Turning both locomotives over showed that the axle pump eccentric positioning was 90 degrees different between the two locomotives. Alan moved the eccentric on the surging locomotive to match the good locomotive. This seemed to resolve the problem. I moved the axle pump eccentric on my sample and the surging all but disappeared.

A good strong chuff was generated so an observer definitely can tell the locomotive is working. The steam plume was somewhat disappointing. The steam meanders out of the stack rather than shooting from the stack with force. This is most likely due to the configuration of the blast pipe.

On my 10 foot radius portable track the locomotive slowed noticeably on the curves so I doubt the locomotive would perform well on tighter curves. My run lasted nearly a full hour on one butane fill. I did top off the water in the tender tank several times during the hour. At the end of the run there was still some oil in the lubricator but plenty of water as well. I had adjusted the lubricator needle valve by closing it fully and then backing off about 1⁄2 turn. The locomotive ran quite well out of the box without much fiddling other than trimming the tender connection hoses and adjusting the axle pump eccentric.

Acknowledgements

I would like to thank Alan Redeker for providing the section on the locomotive's history.

Workshop Project

Mason Bogie - Part 1
The Chassis & Engine

by W. Winn Erdman

I have loved things driven by steam ever since I was a kid with a little stationary steam engine. I remember my grandfather having a live steam locomotive, but no one else in the family remembers it! The idea of building my own steam locomotive has been with me for a long time. When David Fletcher came out with the Mason Bogie Masterclass I knew that had to be the one. Fortunately for me he also made available the laser cut power bogie and valve gear. This model of the Mason Bogie locomotive was built using plans drawn by David Fletcher and published on MyLargeScale.com. The plans were for the construction of an electric powered plastic model, I modified them as necessary accommodate live steam operation. The engine has fully functional Walscharts valve gear. The cylinders are 9/16 bore X 7/8 stroke with "D" valves and the engine runs at 20 to 40 PSI boiler pressure. The throttle and Johnson bar are radio controlled.

I procured parts from the following sources:

Boiler, gas tank and oiler: ..... Roundhouse

Power bogie chassis and valve gear:. laser cut stainless steel by David Fletcher

Drive wheels and bell rig: ..... Jim Barron and Rich Shiffman

Main and side rods: ..... Barry's Big Trains

Rear bogie kit: ..... Bronson Tate

Cab and cow catcher kits: ..... Vance Bass

Decals: ..... Stan Cedarleaf, Decal Design - David Fletcher.

Radio control: ..... Spectrum DX6

All the rest of the model is fabricated using brass sheet and barstock. The power bogie seemed like a logical place to start, if I couldn't get an operating engine there wasn't much point in going any farther. Originally I planned to use Roundhouse Lady Anne boiler and cylinders. The boiler is a little short but the diameter and location of the steam and sand domes came out about right so I used it. The cylinders were too far from matching the drawings so I machined a new set of cylinders and valve boxes which closely follow the drawings. The basic specs are the same as the Roundhouse items, however the stroke has been increased from 5/8 to 7/8 inches and the valve box is offset inboard of the cylinder center-line.

Photo 1 is a comparison of the Roundhouse cylinder to the one I designed. The Roundhouse cylinder is the one on the lower right. My cylinder and valve box are mounted by sandwiching the pilot deck in between. The valve ports are in the pilot deck extension instead of directly on top of the cylinder body and the D valve slides on the pilot deck extension.

Photo 2 shows the pilot deck, valve chests, cylinders with intake and exhaust piping. The pilot deck extensions are sandwiched between the cylinder and the valve chest. The square thing in the center is a valve that allows the exhaust to be routed through the two small pipes exiting under the cylinders or up through the stack. This allows oil and water from the cold cylinders to exit under the cylinders instead of blowing out the stack. The drain cocks are a later addition. I may eliminate the valve if the drain cocks do the job OK.

The main frame consists of a cradle for the boiler, longitudinal members with the running boards attached and cross members which support the bogie pivot. My silver brazing abilities are nearly nonexistent so these parts are assembled with 2% silver solder. I have had good luck using this solder on a kit bash of a Ruby even on parts attached to the boiler wrapper which is insulated with 1/16 inch Fiberfax.

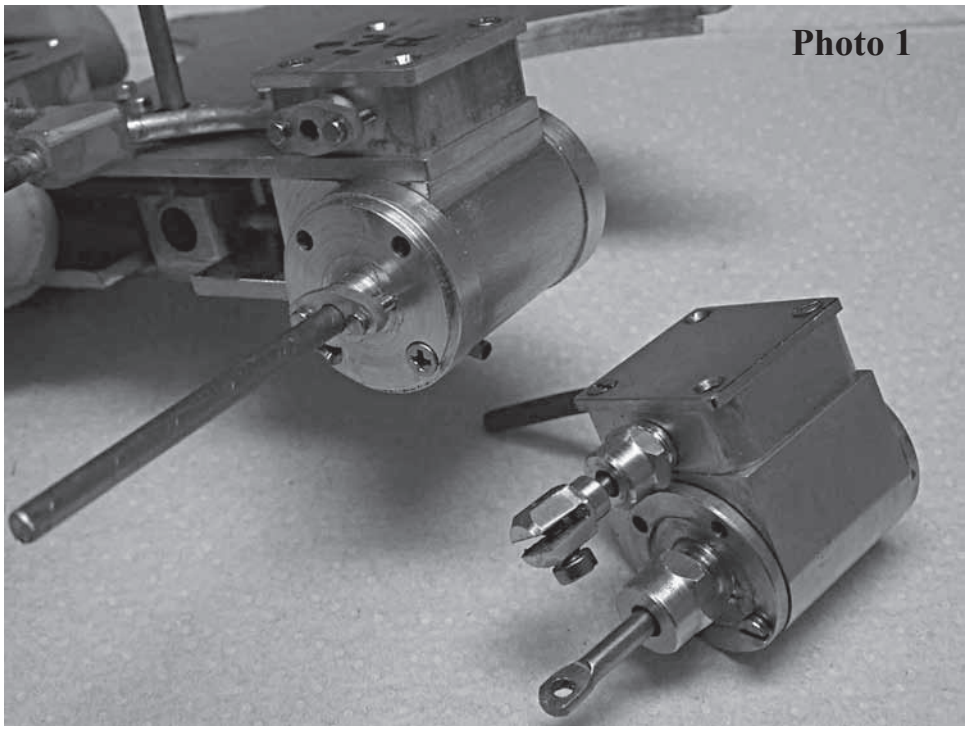
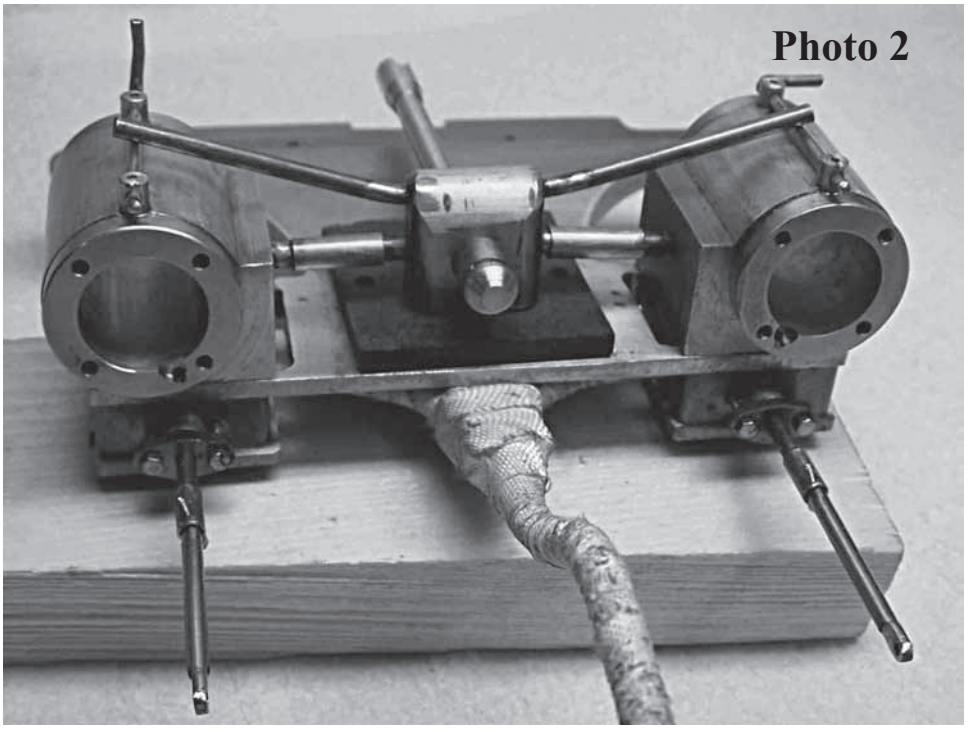


Photo 1



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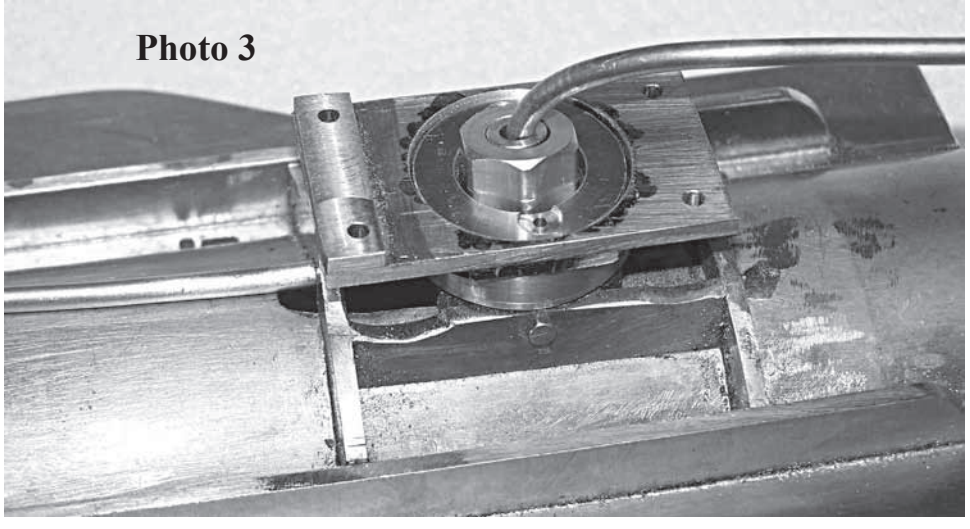

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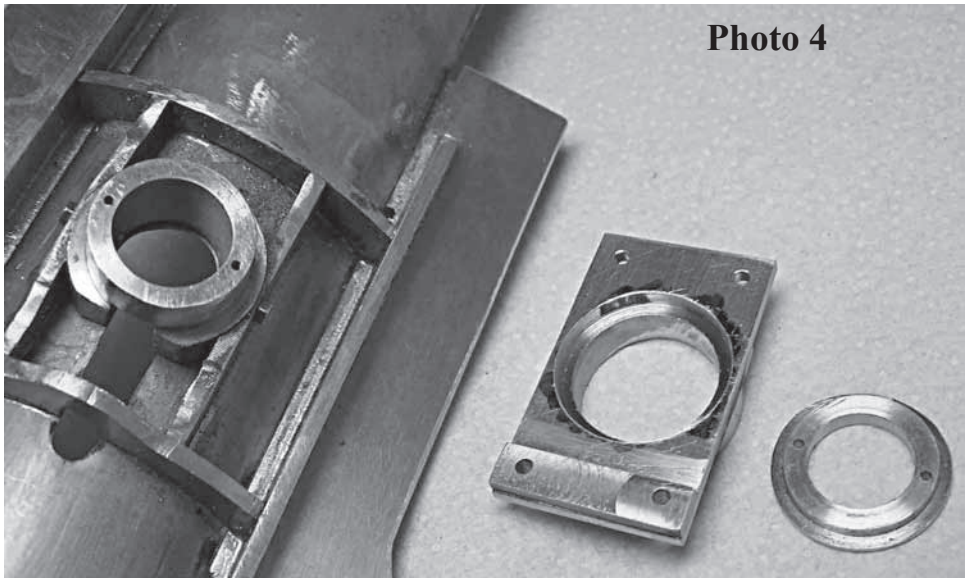
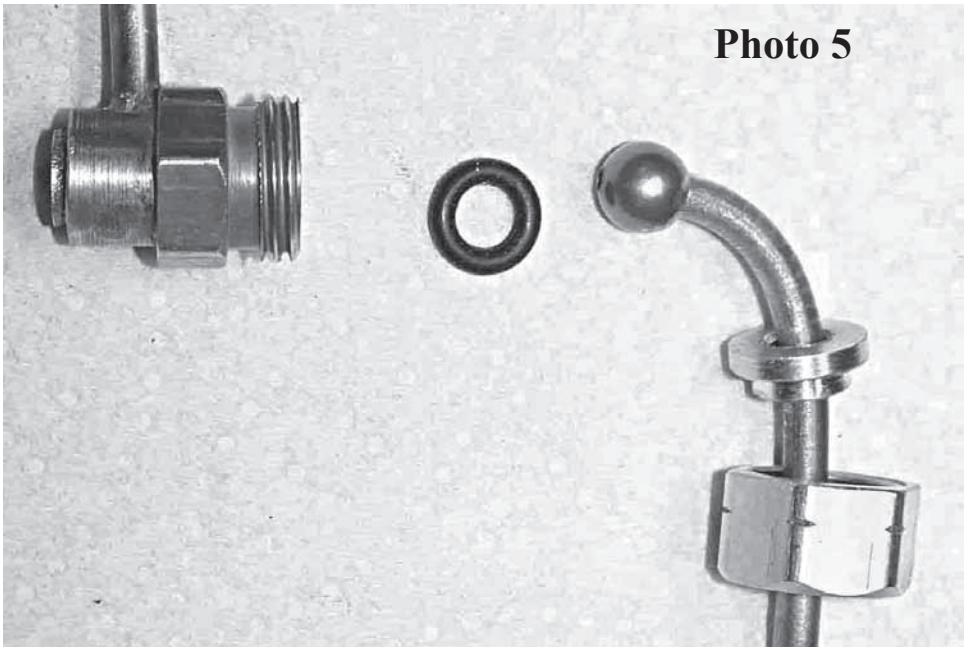


Photo 4



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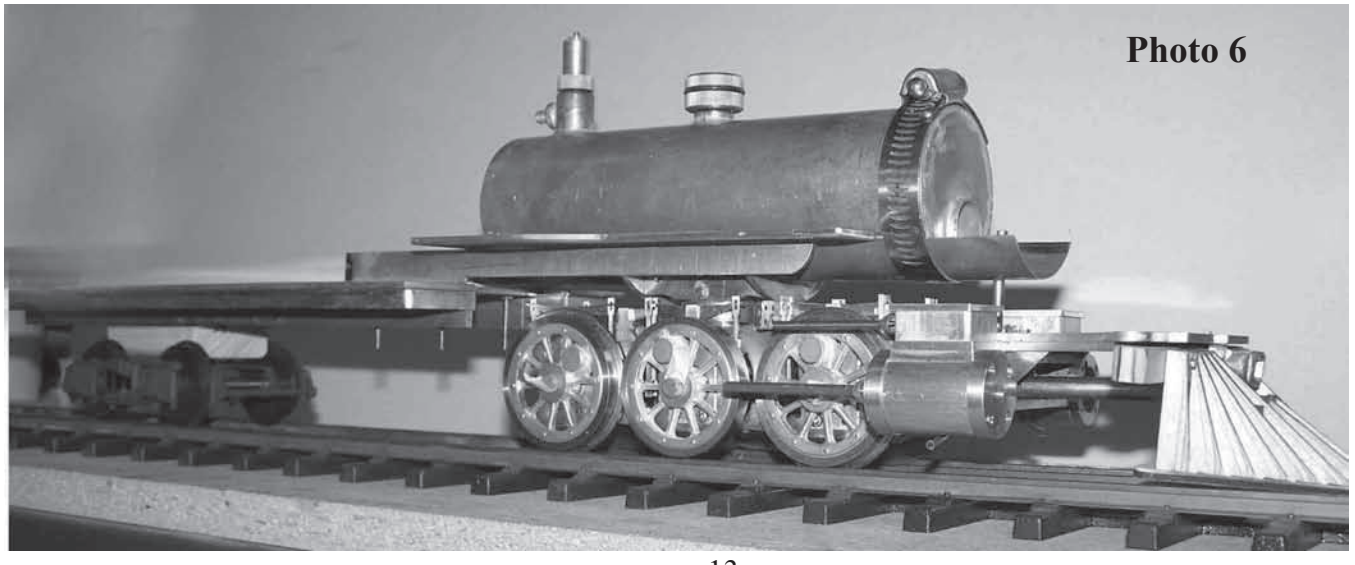

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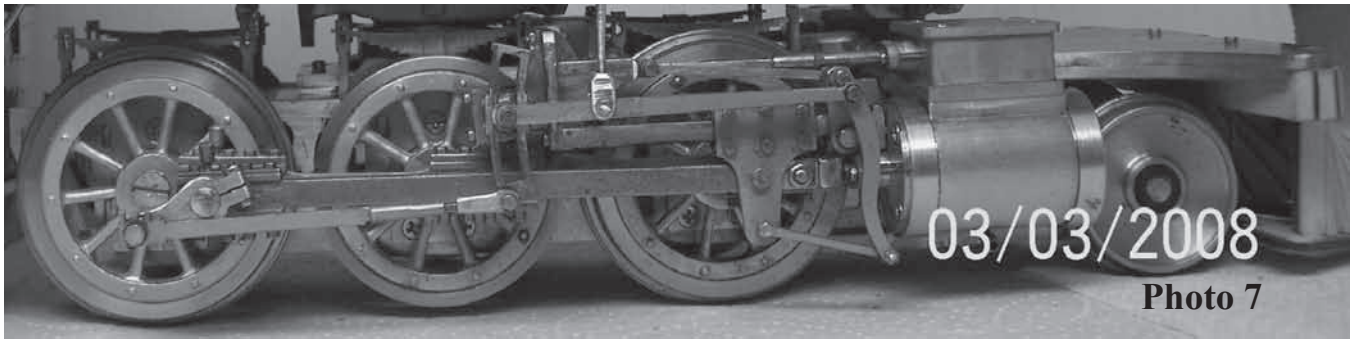


Photo 7

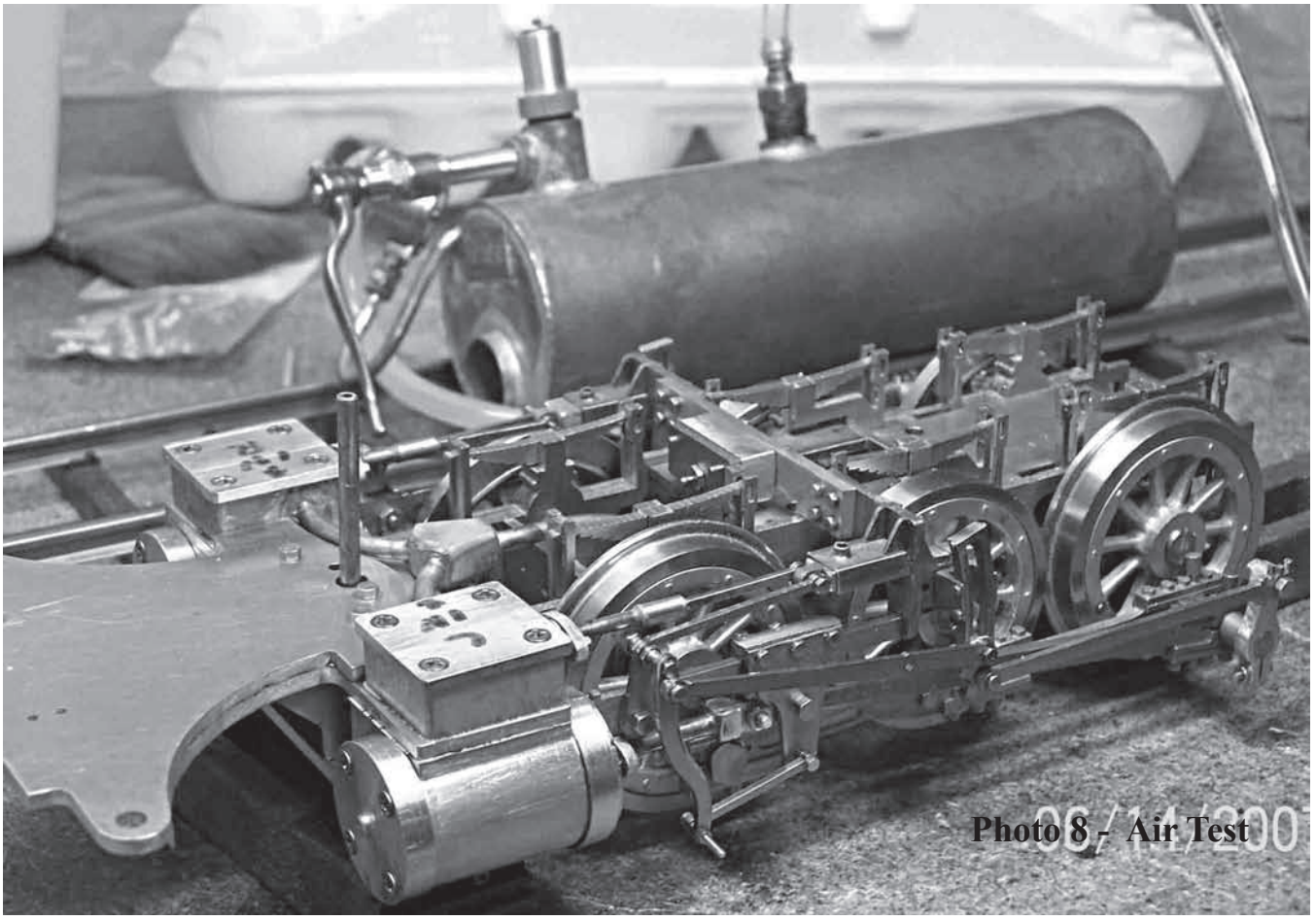


Photo 8 - Air Test

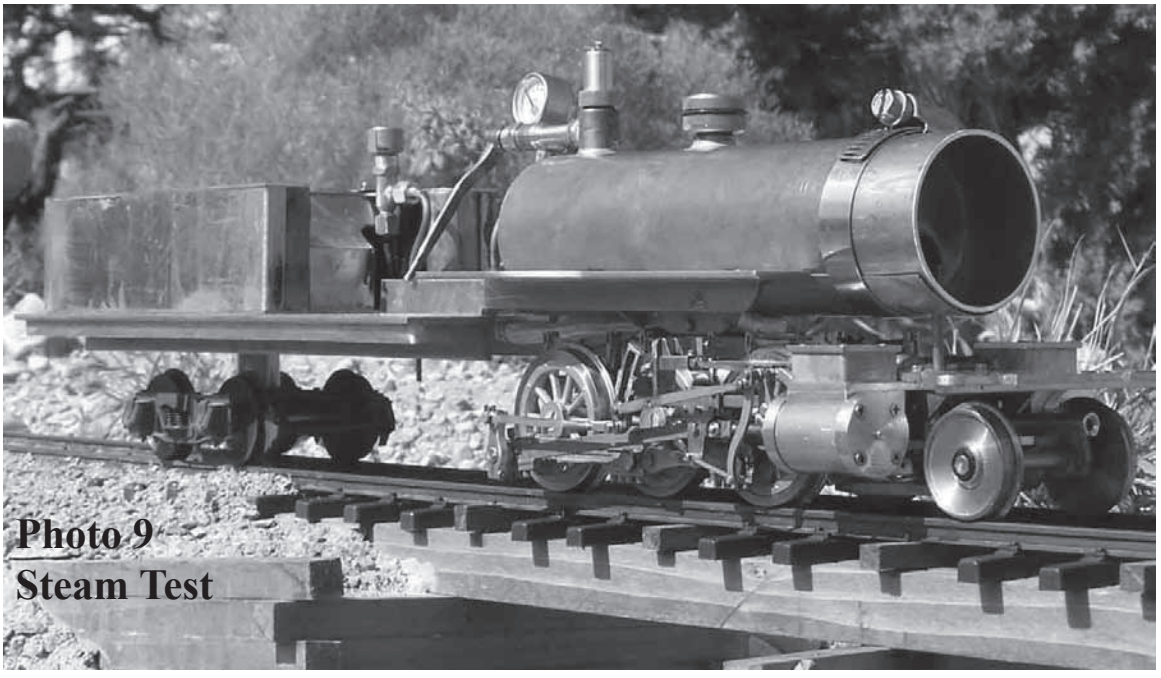


Photo 9
Steam Test

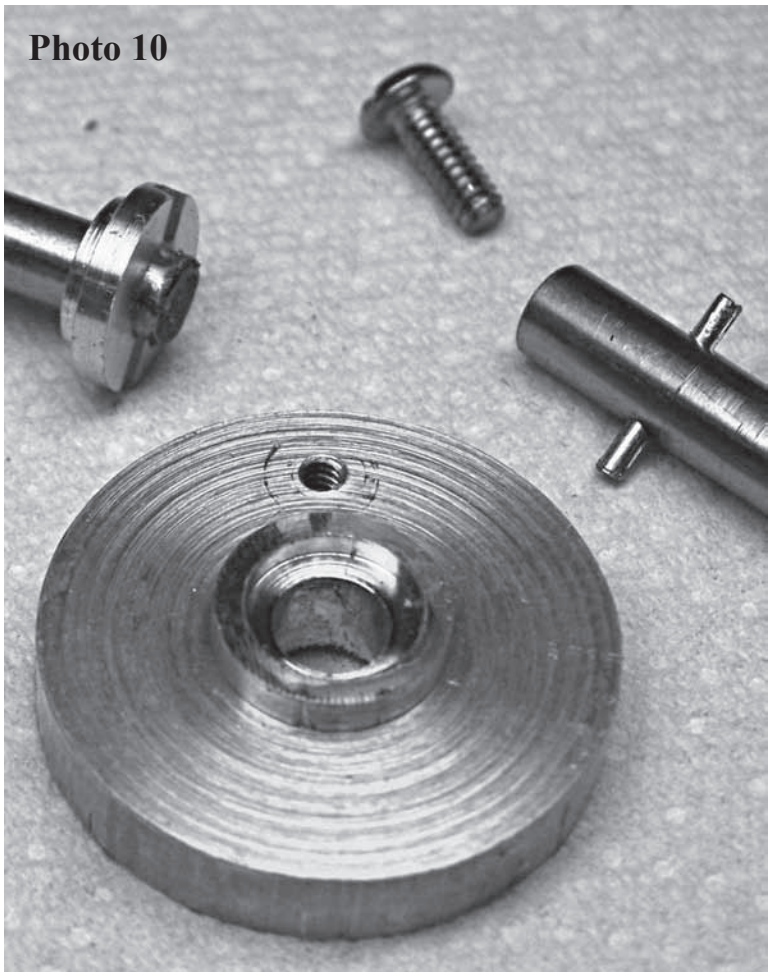


Photo 10

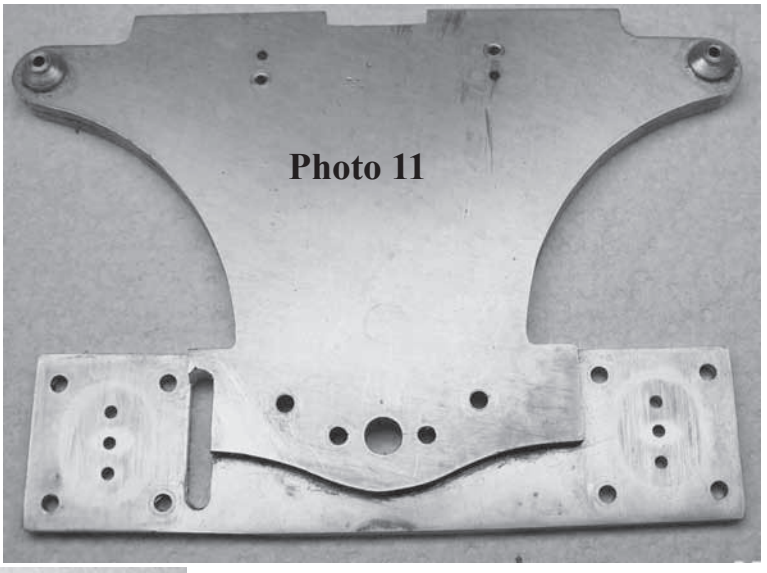


Photo 11

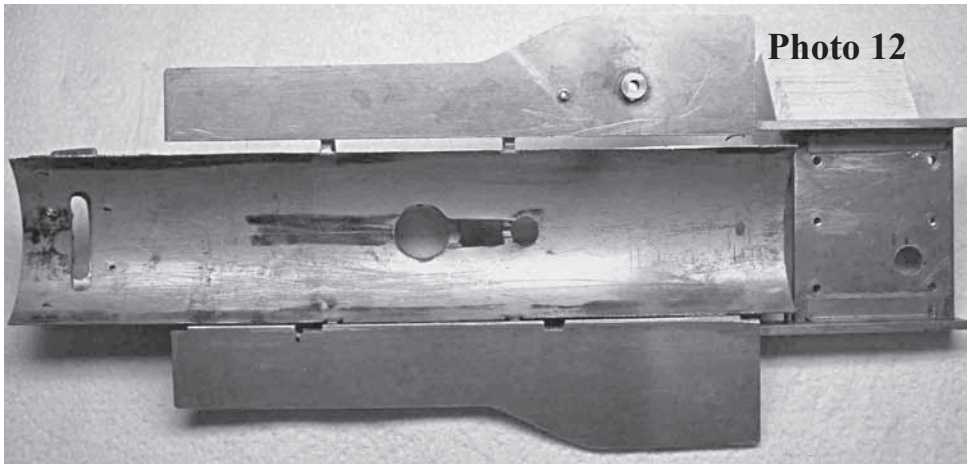


Photo 12

Photo 3 shows the main frame as seen from the bottom, showing the pivot for the power bogie assembled and the steam line pivot.

Photos 4 and 5 show the power bogie pivot parts and the steam line pivot parts..In Photo 6 we see the boiler sitting on the main frame, the power bogie with Jim Barron wheels, the cylinders, valves, pilot deck and Vance Bass cow catcher. The cab and tender frame is bolted to the main frame.

To attach the wheels I made a slotted insert which is soldered into a shallow counterbore made in the back of the wheel. The axle hole is then drilled through the assembly. The axle is drilled and tapped on the end for a #6-32 screw and a roll pin which mates with the slot in the adapter is inserted through the axle. To get the wheels properly quartered I mounted the inserts on the axles then rotated the wheels into position with the crank pins at 90 degrees and then soldered them in place. The blank disc in this photo (See Photo 10) was used to try out the idea before messing up the beautiful wheels and to set up the main rods and crossheads.

The complete power bogie with valve gear, main and side rods ready for air testing (See Photo 7). It took quite a lot of fiddling to get all the parts operating smoothly. I had to make the eccentric rods adjustable, build a pivot for the expansion link and add the slide box to the crosshead guide. The valve gear is hooked up using all the combination levers and gives the valves a very nice motion, a little pause at each end of the stroke. By using nuts instead of spacers in several places I was able to tighten things up and get rid of most of the play. It is a great credit to David's valve gear that this can actually be done.

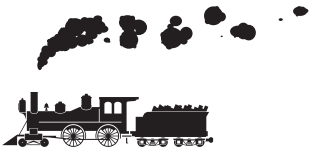
At this point (See Photo 8) I was ready to run on air. At 20 PSI air, a little hand coaxing and I was thrilled to see it actually run. It was pretty rough and only ran in forward but with some tuning and the addition of the adjustable eccentric rods I could also get reverse.

After chasing down some air leaks I tried it under steam (See Photo 9).. I found that there were a lot more leaks than I had realized and the boiler could not keep up. I used a stethoscope and air pressure to track down the leaks and corrected them with silicone sealer, more lapping of mating surfaces and doubled up on some of the head gaskets made from a dollar bill. There was quite a lot of blow-by in the cylinders. I did more lapping of the bores and had to make one new piston of a slightly larger diameter. I had trouble keeping the burner lit and finally solved that by blocking the hole for the super heater tube in the burner mounting plate, I am not using a super heater. After all this I ran 4 laps around my 217' main loop pulling an AMS coach. I had to add 45 CC of water after each lap so I have decided to build a trailing water car with a Regner servo pump to keep the water filled.

The running boards and pilot deck (Photos 11 & 12) were getting quite hot and thus wasting a lot of heat, so I milled slots to help isolate them from the boiler and cylinders. Photos show the slots on one side. The pilot deck still gets pretty hot but that seems to be mostly due to heat from the bottom of the smoke box. The running boards are now cool enough to touch.

I want to thank the many members of MyLargeScale.com who answered questions and gave me tremendous support and encouragement throughout this project.

To Be Continued in the next issue.....



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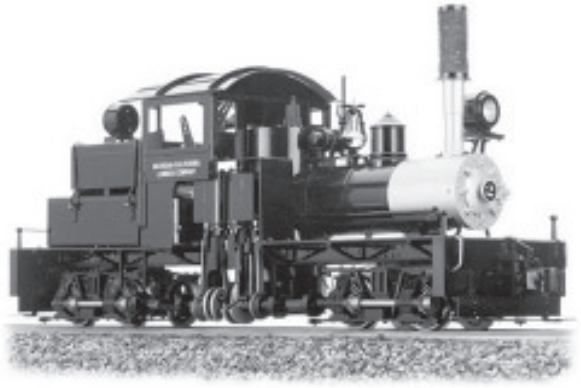

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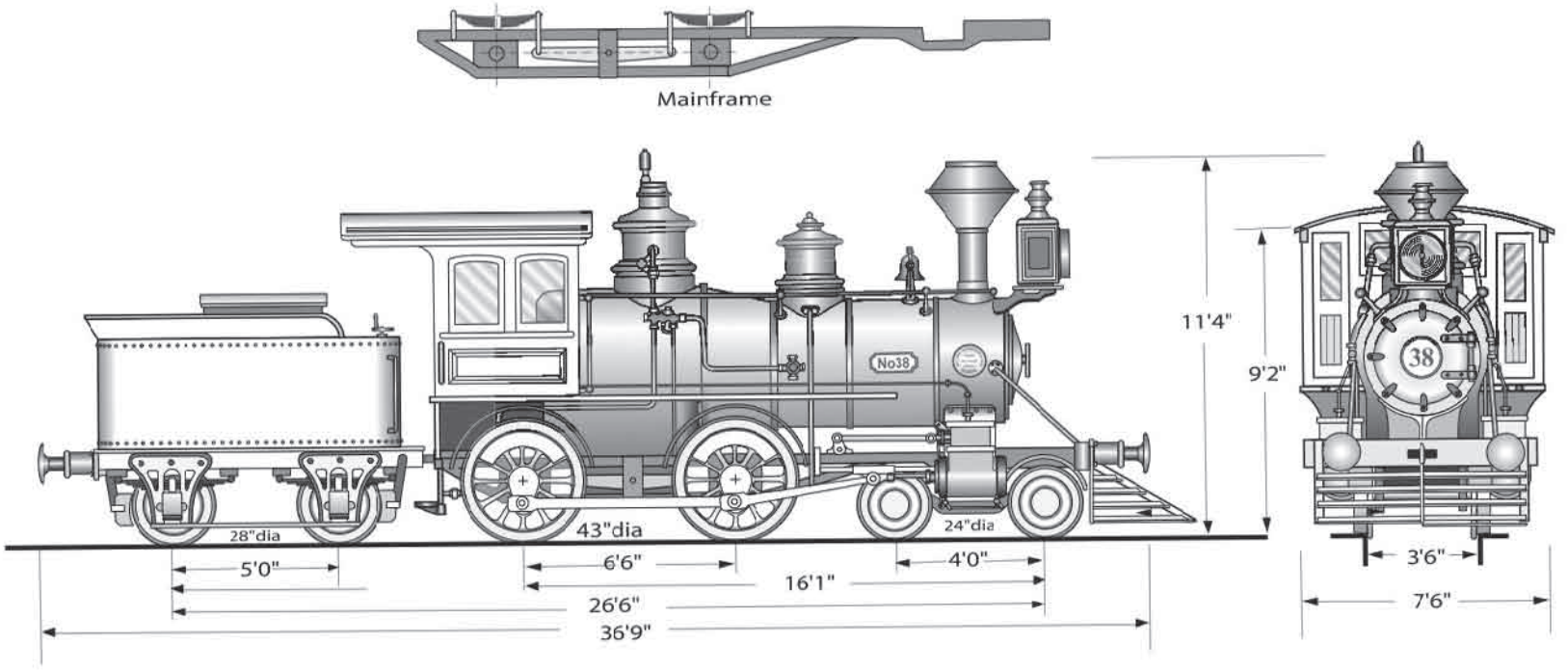

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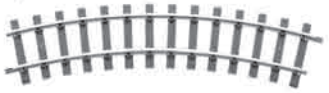

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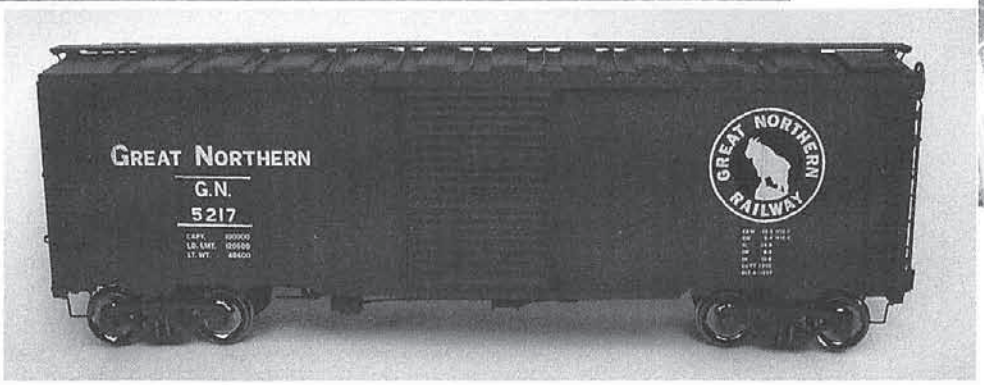

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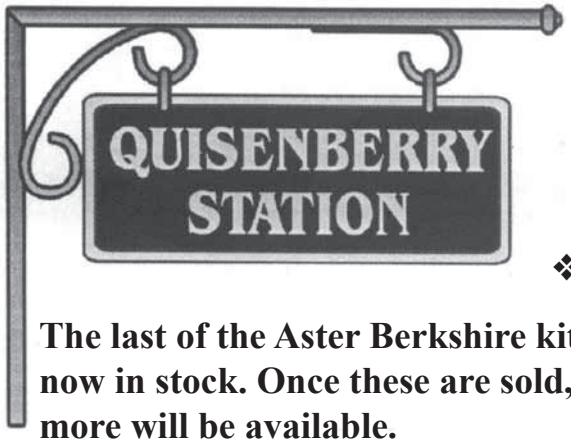

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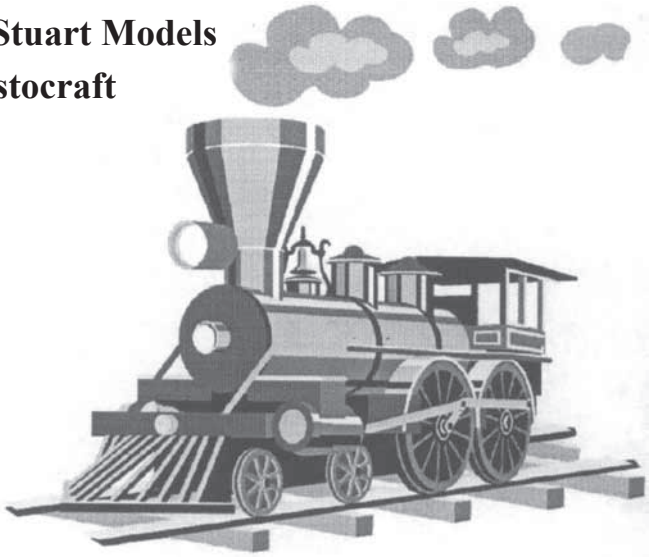

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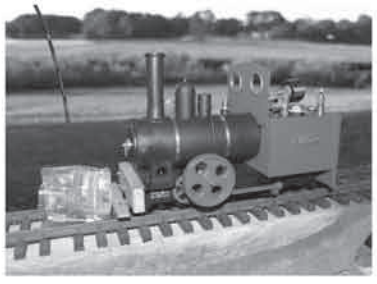
Wilma		$843.50	$759.00
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Workshop Project

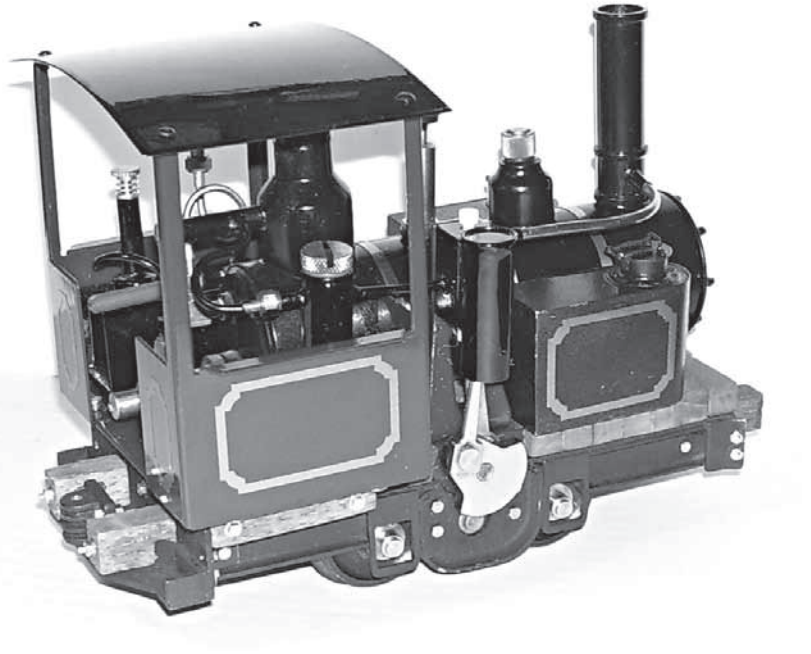
A Mark II Cricket Looking for Its Ancestry Part II (Conclusion)

by Howard Maculsay

An Attempt to Mimic the John F. Byers Geared Locomotive

Fabricating the Rear End Beam & Coupler

The rear end beam is fabricated from brass plate, .125" thick x .961" wide x 3 5/8" wide as the base onto which .311" wide x .125" thick strip brass is soldered on edge to match the pattern. All of this is soldered to a brass backing plate, .062" thick x .750" high x 3.591" wide. I used a brass "Link & Pin type Coupler Pocket for Engines" TD-177 by Trackside Details attached to the end beam using 2-56 hex head screws. Like the front buffer, the under-carriage frame's simulated oak beams protrude. Through the end of each of these oak beams I drilled a hole along its length for a rod; each end threaded for 2-56 nuts and washers. The backing plate and under-carriage is drilled for these 2 rods for attaching the rear end beam to the under-carriage.



Making the Decking

For the Deck Beams I used poplar wood. The deck beams are 11/32" square x 2 31/32" long. The center of each beam is milled out so that a single beam covers not only the top of the under-carriage, but also covers the sides. By doing this, only 3/32" is added to the height of the under-carriage. Cutouts have been made for each of two boiler supports and the steam motor's mounting bracket. Some additional relief for the middle boiler band screw is also needed. In the interest of being non-invasive to the existing under-carriage's powder-coat finish, all of beams are attached (CA'd) to a 2" wide sheet of .006 brass shim material. The shim material extends under the forward boiler support, so that when re-attaching the boiler support, the deck beams are all secured in place as a removeable unit. Although to install or remove the deck, the flywheel needs to be removed first and the rear boiler support's screw needs to be loosened.

The Side Tanks

I used .010" brass sheet stock to make the 1.375" high x .750" wide x 2.0" long tanks. The brass sheet was bent around a wood form made for the rounded front of the tanks. A half-round clamping piece was cut from 3⁄4" O.D. aluminum tubing.

In conjunction with a c-clamp, it was used to hold the brass work piece tightly to the wood form for soldering the tank's top and bottom in place.

Soldering was done with a butane micro-torch. Once soldered, the wood form was removed and the end portion of the tank was bent over to form the

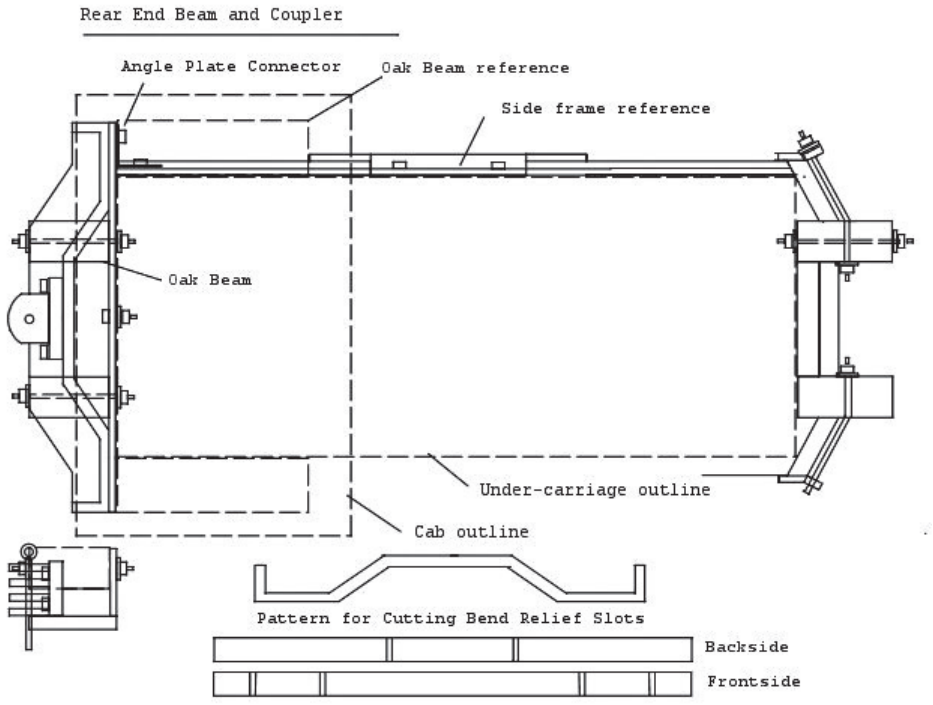
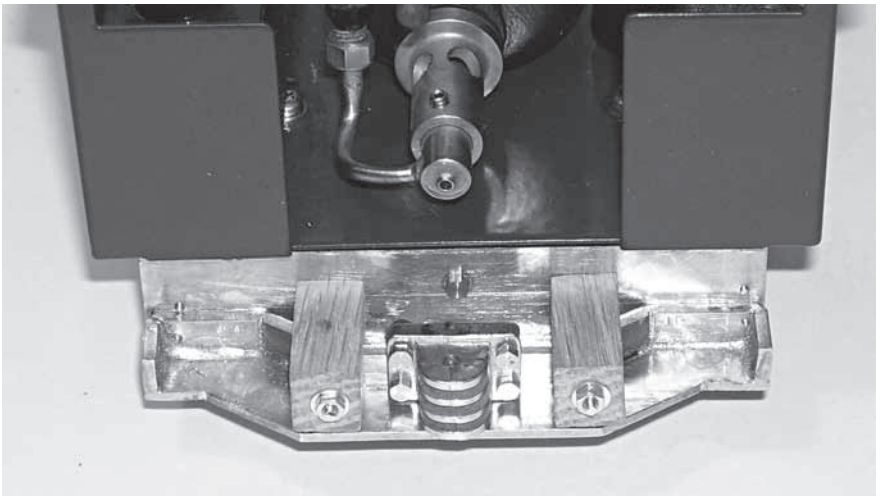


Photo left:

Rear End Beam
&
Coupler Drawing

Photo right:

Rear End Beam



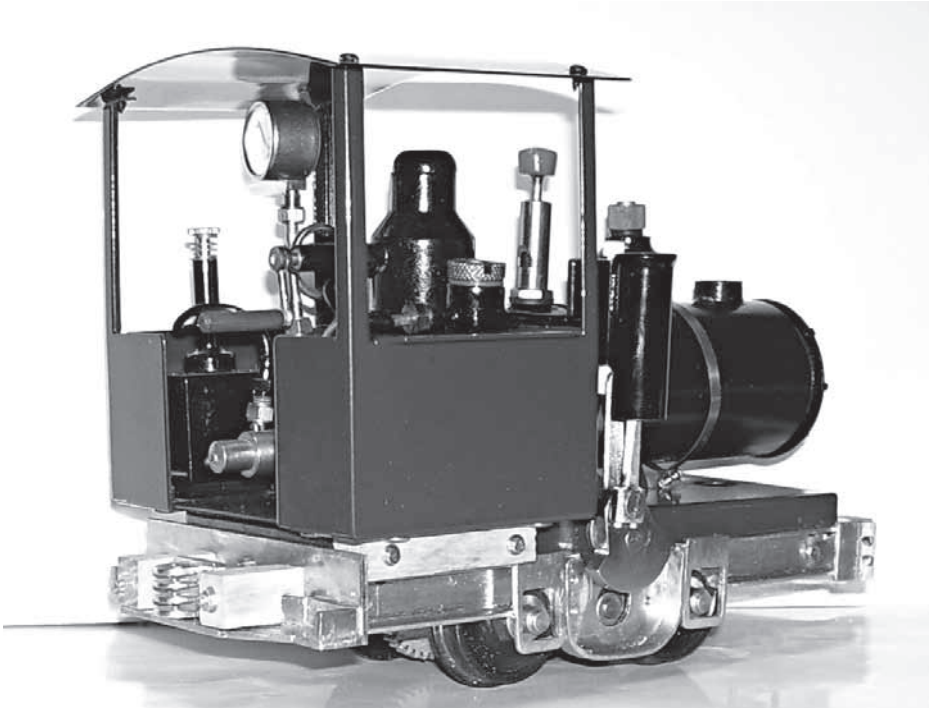
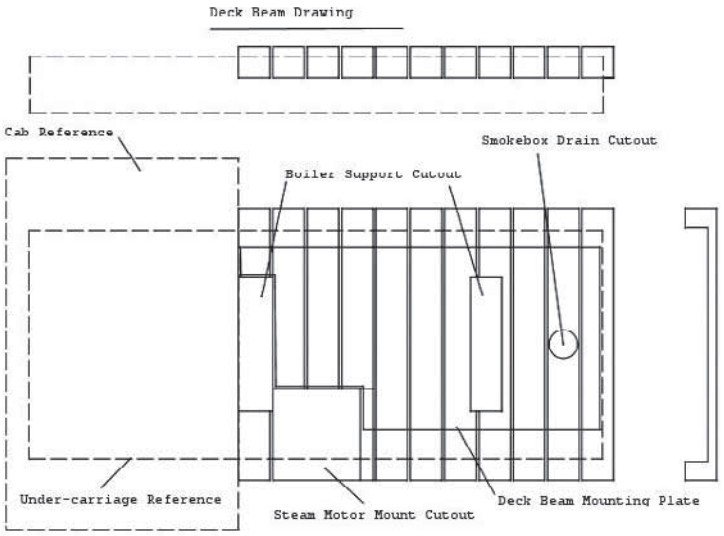
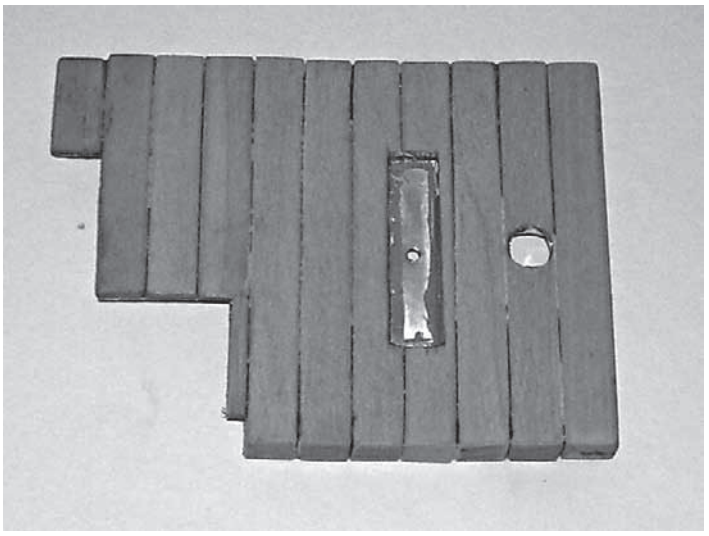


Photo left:

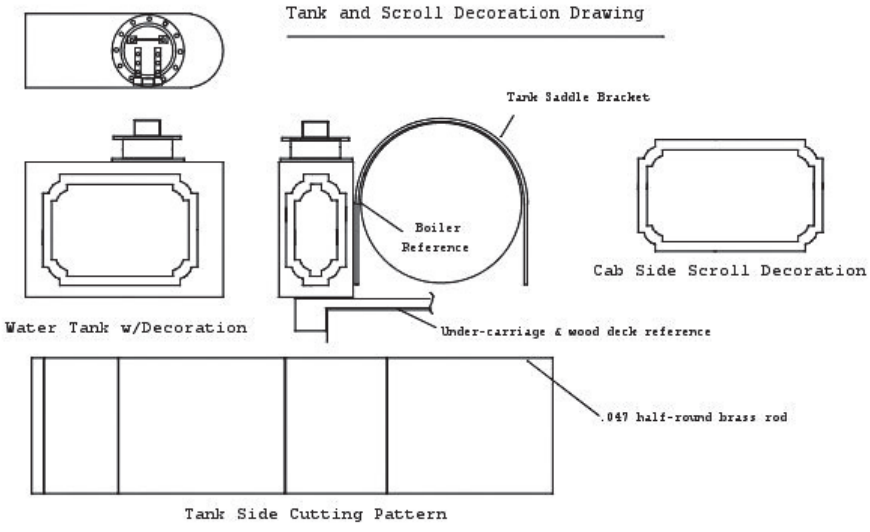
Side Frame Fitted
with
Rear End Beam



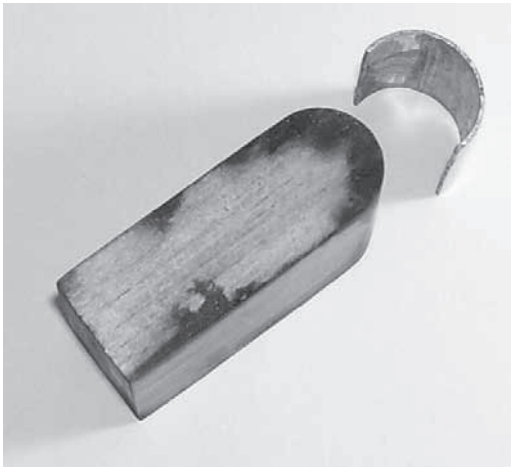
Deck Beam Drawing



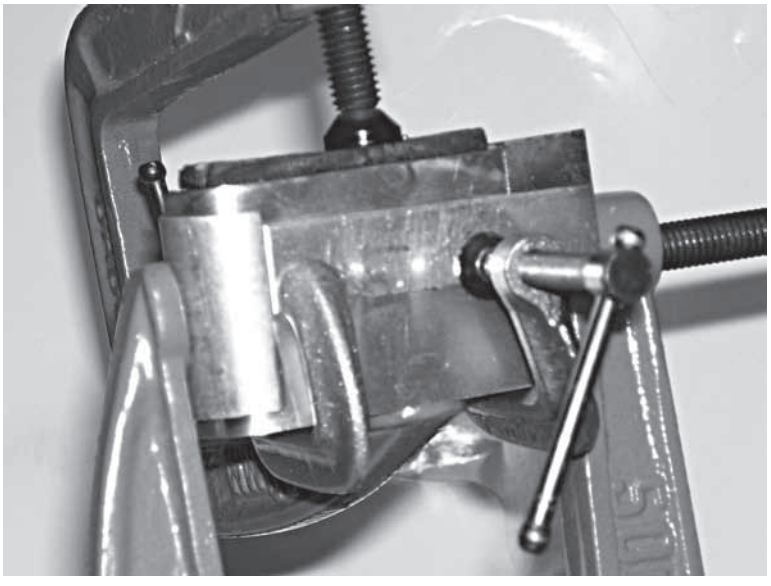
Deck Beams Mounted on Brass Backing



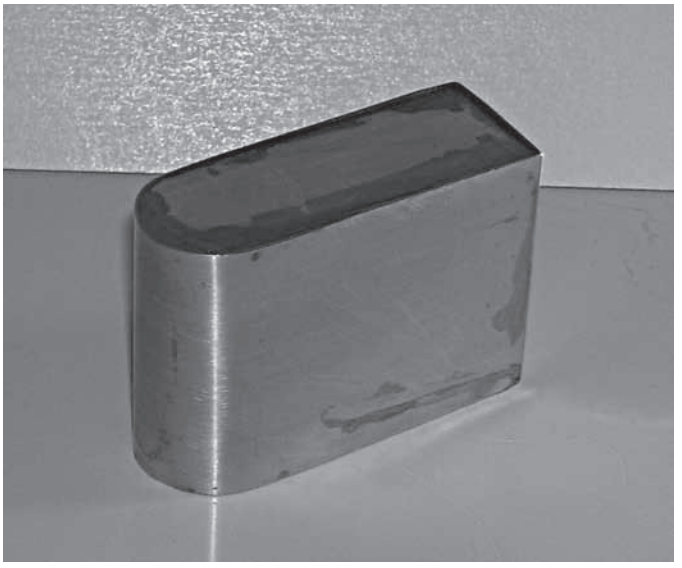
Side Tank Drawing



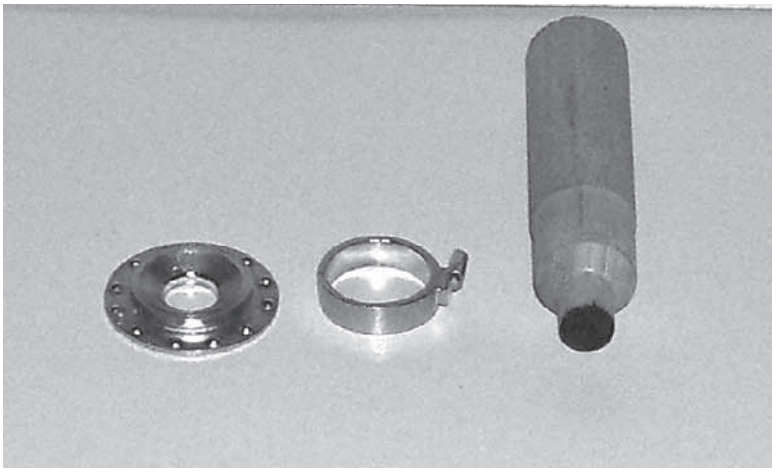
Wood Form & 1/2 Round Clamping Piece



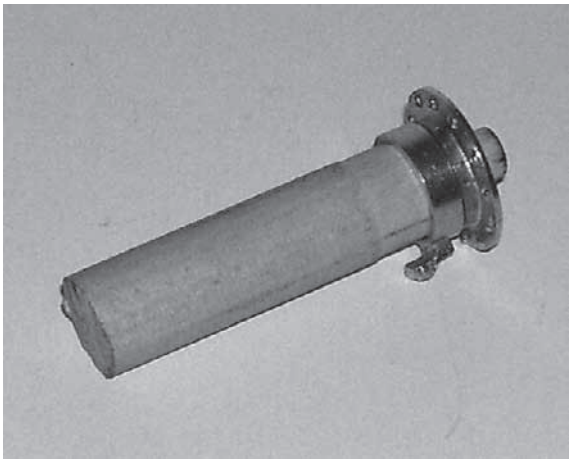
Brass Sheet Clamped on Wood Form



Soldered Tank

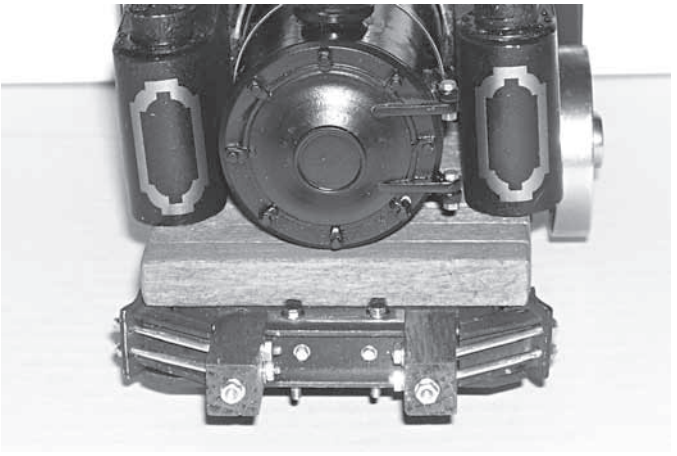


Water Hatch & Soldering Mandrel

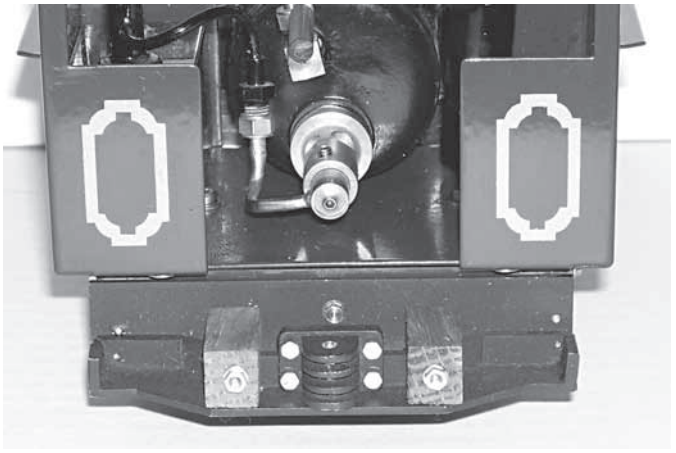


Water Hatch Ready for Soldering

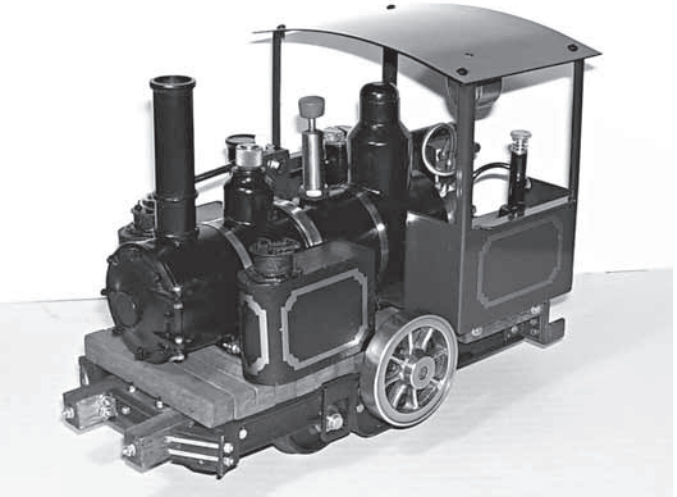
Completed Side Tanks



Completed Front Buffer Showing Tank & Vinyl Scrollwork



Completed Rear End Beam Showing Cab's Vinyl Scrollwork



Completed Side Frames with Front Buffer, Side Tanks & Vinyl Scrollwork

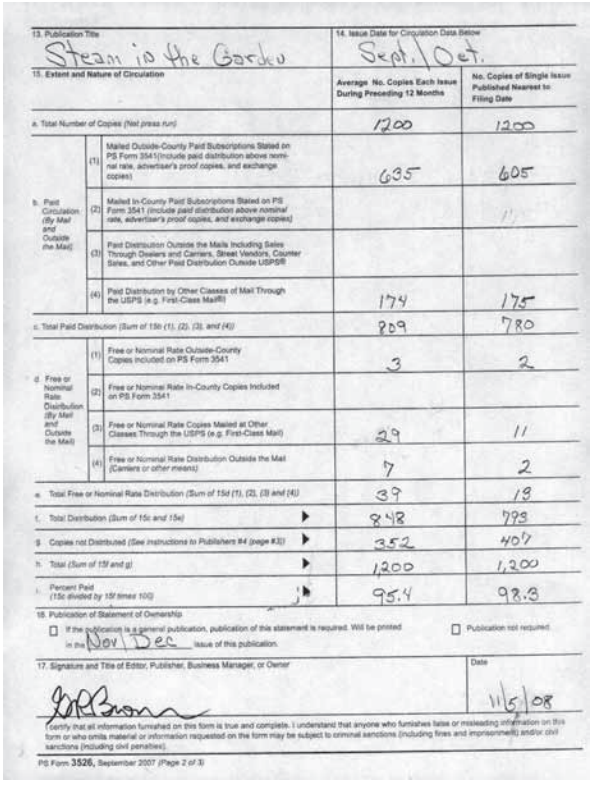
tank's end and the final soldering was done.

A Water Hatch, TD-37X from Trackside Details, was soldered on the top after reducing its height by 3/16" using my lathe. I created a soldering mandrel from a piece of 7/16" dia. hardwood doweling. Using the lathe, I turned the dowel down to a tight fit for the main barrel of the Water Hatch, then turned the end of the dowel down to fit the 7/32" hole drilled in the base of the Water Hatch. This yielded a perfect way to precisely hold the 2 pieces of the Water Hatch together for soldering.

A tank support (saddle bracket) to suspend the tanks from the boiler was fashioned from .05" thick x .1875" wide brass strip and attached to the tanks using JB Weld epoxy. This makes the side tanks removable. I decided on using epoxy because I didn't want to mistakenly unsolder any of the tank's joints. I secured the epoxy joint with a mechanical joint, a short 1/8" dia. pop-rivet. I also used JB Weld epoxy to attach the Water Hatch to the tank top. I had to add a .2750" spacer behind the flywheel to move it outboard on the crankshaft to get clearance for the tank.

The Finishing Steps

All of the new brass pieces were primed with Rust-Oleum brand Self-Etching Primer. The frame, buffer & end beam brass parts were painted with Rust-Oleum Hi-Heat Matte Black Enamel. The tanks were painted with Dupli-Color Gloss Black Ceramic Engine Enamel. The tank's saddle bracket was left natural brass color to match the existing boiler bands. All wood pieces were stained with a dilute India ink, then I sealed with Krylon Clear Matte polyurethane. And lastly, the vinyl transfer scrolls were added to each of the tank's front and outside facing surfaces, and to the existing cab sides and back.



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PS Form 3526, September 2007 (Page 2 of 3)

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The Nuts and Bolts of Shays
Project Updates
By Dan Rowe

The research for Plan 1553 has been a lot more extensive than most of my Shay drawing projects to date. The Lima Locomotive Works document that describes this very popular plan is Index No. 73. The other documents used are the Drawing Card Index for the two shop numbers for the project: S/N 2091 and S/N 2800. This unfortunately does not give a complete list of drawings used to build Shays to this plan.

The things that are listed in the many pages of Index 73 include common parts such as the reverse lever and tumbling shaft and truck plan. The problem is that this was a popular plan and the Index does not have enough column space to hold all the changes or special cases of the plan. The point I am making is that even with all the LLW records for this plan in my collection I still cannot always say for certain which drawing was actually used, as there are usually several to choose from.

All the research and drawing has slowed my progress in the shop. Now for the good news! I am extremely pleased to announce that the Union Steam Model Company has joined forces with the Dripping Springs Loco Works and will be producing castings for the Mapleton Shay project in 7/8ths scale. The guys at Union Steam are doing some very high quality locomotive castings. Their knowledge of lost wax casting gives me a chance to learn the art of scaling model castings from some real pros.

If you are interested in a set of 7/8ths castings for this project please visit by the Union Steam Model Co. website and forum, and express your interest at http://www.unionsteam.co.uk/ They might be able to help on a special casting project you have been thinking about. You could also let Editor Ron know and he will pass the information to me. Please form an orderly line. The truck castings will be the first ones to be produced.

The rest of this article is a list of known errata; only folks attempting to use the drawings need to read any further. The drawings are all from LLW original drawings. Most of the assembly drawings that show additional parts do not show the dimensions of the extra parts. I hope to find all the drawings required for the details, but that might not be possible in all cases so the builder's options are to scale the drawing as I did from the original or, in the case of 7/8ths scale, make it paper size.

The frame drawing in issue #101 is a composite of the erecting card 16205 and the frame print 16725. This was done to reduce the number of fold out pages. Drawing card 16205 is located at the Allen County Historical Society at Lima OH. Anyone serious about this project should order a copy of the print. This series of Shay articles and the work I did as an early staff member of the website Shaylocomotives.com would not have been possible without the help and support of the Museum Railroad Curator, Mr. Charles Bates. Contact info at: http://www.allencountymuseum.org/

The running board brackets in issue # 101 at the top and the bottom of the frame page are drawing card 10913 set 1, and the quadrant bracket shown between them is card 10912 set 2.

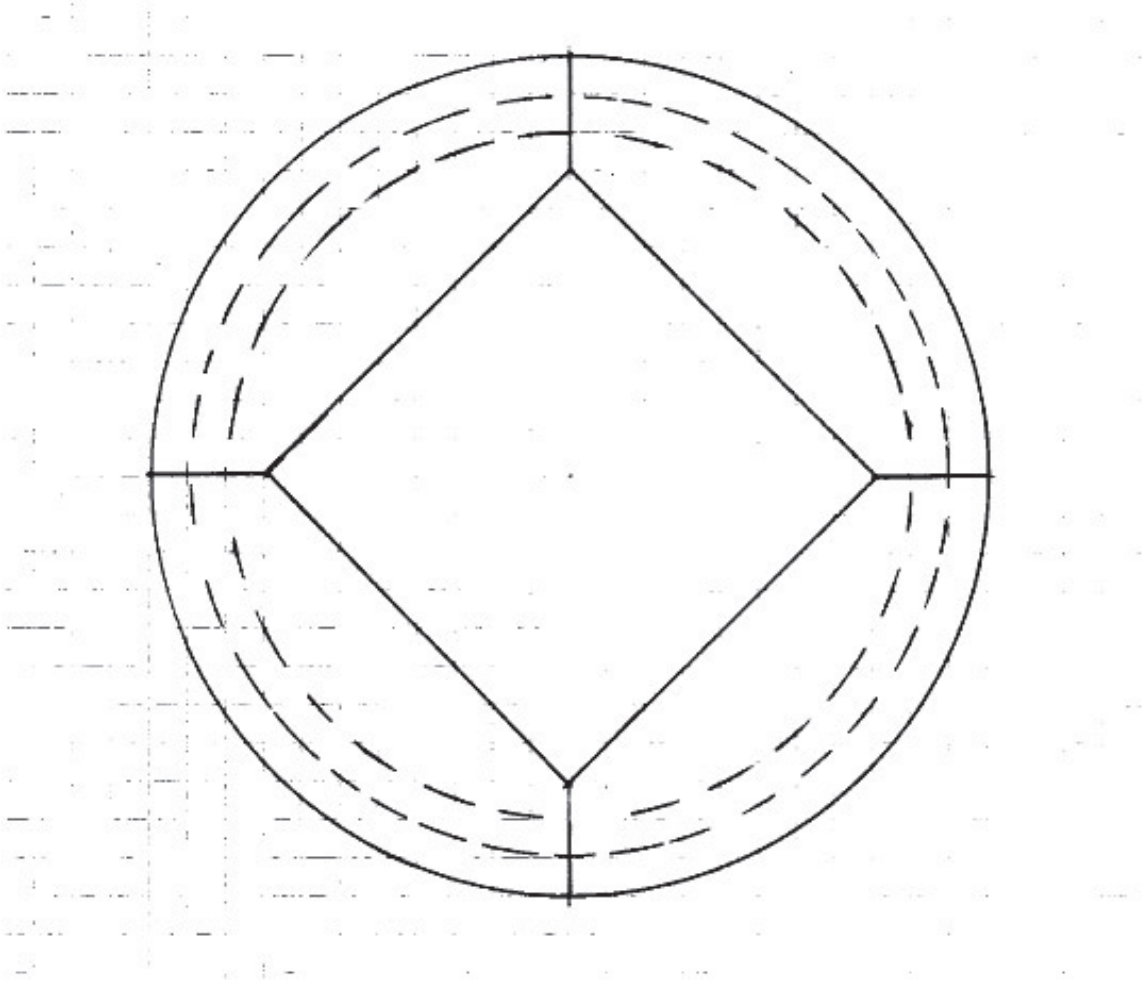
In issue #101, the width of the flat section on the grab iron on card A10386 is 2". In issue #105 the cylinder head drawing is card 7200 set 4. The eccentric strap is card 8406 set 1. The dimension from the center of the tumbling shaft bearing and the center of the cylinder on card 317-A-5001 is 6.75". In issue #106 the diameter of the tumbling shaft card 8203 is 1.75" and 1.625" at the bearings.

There are a bunch of hole sizes missing. Most can be found on the detail part drawings, but for the rest the nearest bolt size for the builders scale should not be that hard to determine. Any critical connections should of course be checked for strength and should not be simply scaled from the drawings.

Simpson's Folly -- A Portable Layout

by Mike Simpson

I came to live steam through ***Garden Railways*** and ***Steam in the Garden.*** To the novice, the casual competence of the old pros is intimidating. Fear not. This project shows that the modestly talented can build a useful portable layout. And it only took six months longer to build than the Transcontinental Railroad.



After Diamondhead 2004, I wanted to run trains without crawling on the floor. I already had nine and ten foot diameter circles of Aristocraft track. The Diamondhead layouts work well under heavy traffic, but I don't cut precisely and am hard on the furniture. My brute force approach is based on half-inch plywood, sweat, and saw horses, with a smidgen of inspiration. If you emulate my efforts, be careful with power saws and drills. I know enough guys called "Stubby" and "Nub."

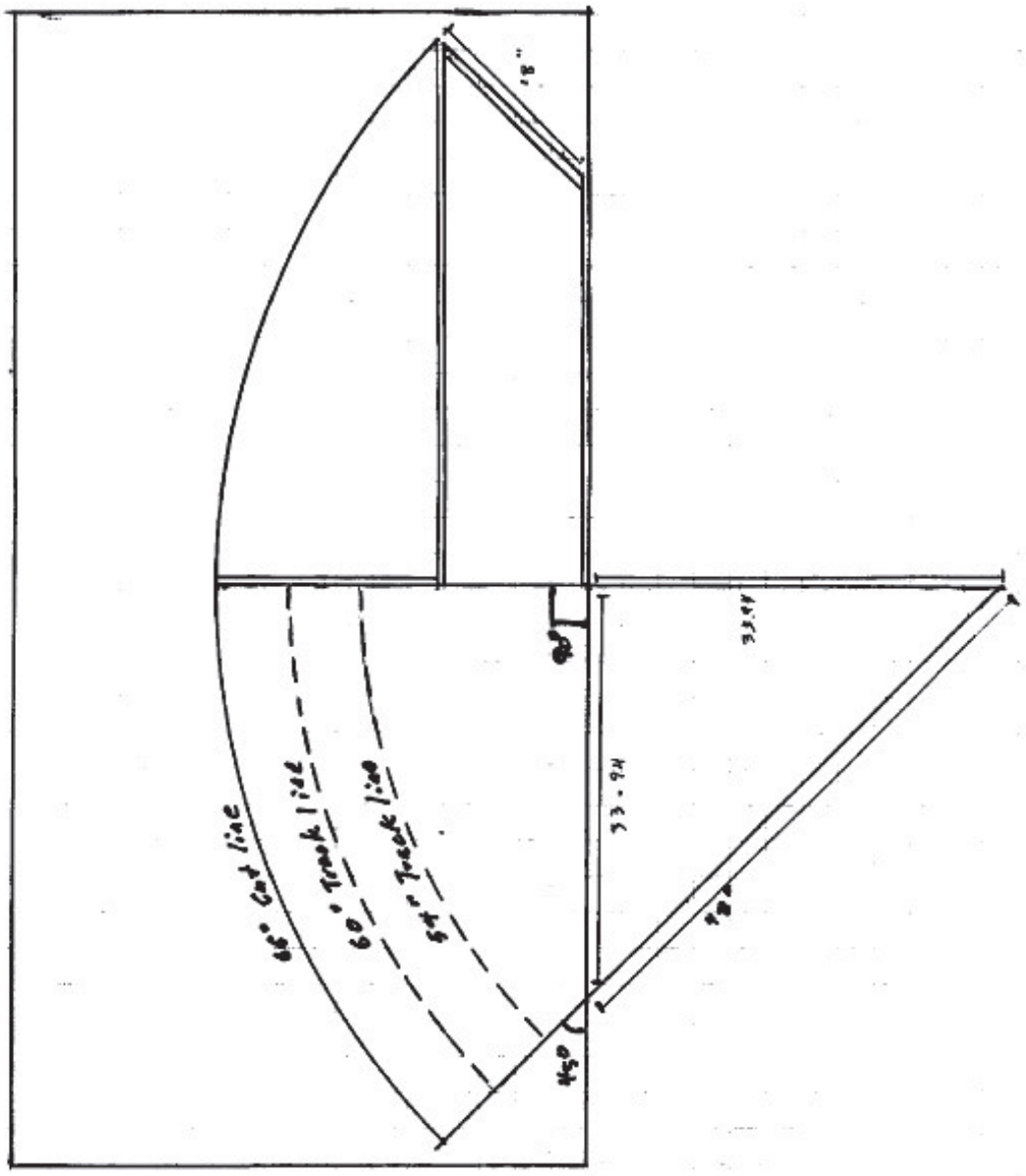
A quarter of a five and a half foot radius circle can be cut from a four by eight foot sheet of plywood. Points on the rim of that circle which are 90 degrees

apart, one quarter of the way around the circle, will be about 93.34 inches apart on a straight line, a bit short of eight feet. (Trust me – the math is boring. And yes, any resemblance between the decimal points and the wood as cut is both coincidental and surprising.)

I wanted an eighteen inch wide right of way – an outer tabletop curved edge at 66 inches radius, an outer track centered on 60 inches, an inner track centered at 54 inches, and at least six inches of tabletop inside that, a 48 inch circle. The straight side of the layout is a straight line between quarter circle points on a 48 inch radius circle, about 67.88 inches long. The center of the layout and the point from which to mark the outside curve is perpendicular to the center of the straight side and half that side's length from the edge, 33.94 inches.

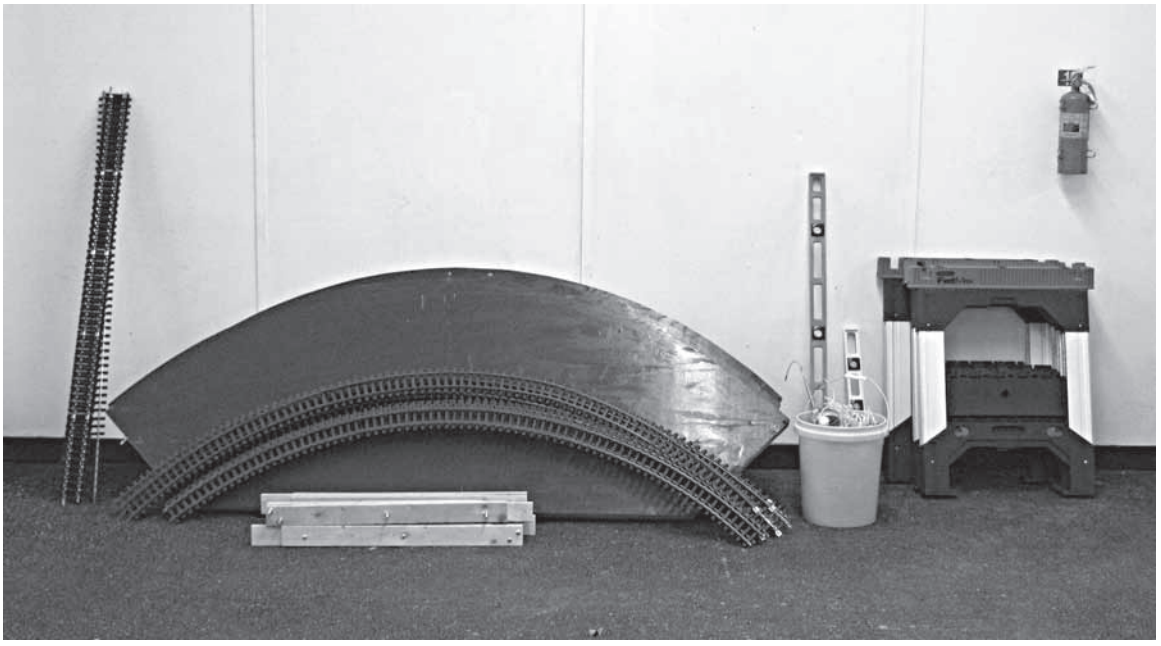
I made a template from a sheet of quarter-inch plywood. Stack two six-foot lengths of 1 x 2 pine evenly on the wide sides and clamp together. Drill a quarter-inch hole through both boards, a couple of inches from one end and on the centerline of the boards. On one board, mark the centerline. On the other, measure 66 inches from the center on the hole and drill a second hole. Run a quarter-inch bolt through the end holes, separate the boards with a couple of flat washers, and add a nut. This trammel will mark the outer edge of the corner/quarter sections.

Clamp the one hole board to the underside of the quarter-inch sheet, so that the marked centerline is perpendicular to the midpoint of the long side of the plywood, with the center of the hole 33.94 inches away from the edge. In my rough carpentry, a hundredth or two isn't critical. It is important (and I would be happier) if the trammel is as close to perpendicular as possible. When satisfied, run a couple of wood screws through the plywood into that leg of the trammel.



Bolt the other trammel leg back on. Stick a pencil in the remaining hole and mark a 66 inch radius curve. Towards each end of the plywood, mark the point on the edge 33.94 inches from the center. These points mark the inside of the quarter section of layout. Draw lines through these points, crossing the edge at 135 degrees, and continue to the 66 inch curve, to mark the ends of the corner sections.

Learn from my mistake. Measure these ends before cutting. Done correctly, the ends are 18 inches, the difference between the 66 inch curve and



I thought you had the instructions.

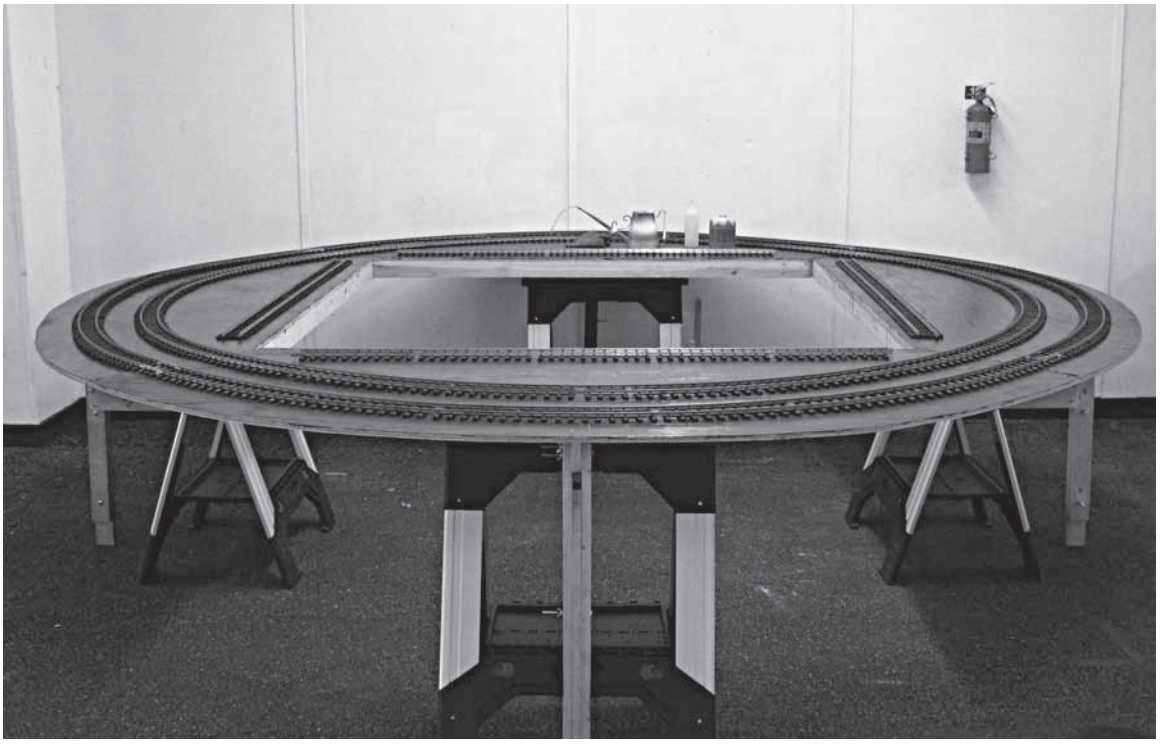
the 48 inch point at which the trammel met the edge. Since I didn't check, my template is 18 1⁄2 inches long on one end and 17 1⁄2 inches long on the other. So are the tops made from this pattern. This is embarrassing, but not fatal.

A saber saw with a new blade makes short work of quarter-inch plywood. Support well and take your time. (For a more even edge, you might be able to mount the saw so the blade is at the 66 inch point on the trammel and swing the whole thing.)

C a l l some friends. Clamp the template to a half-inch sheet of plywood, aligning the long straight edge. Outline the template in pencil. With the sheet well braced (that's what friends are for), cut the outer curve with the saber saw. I clamped a 1x2 at 135 degrees to run a skill saw along, for straight ends. Repeat on three more sheets.

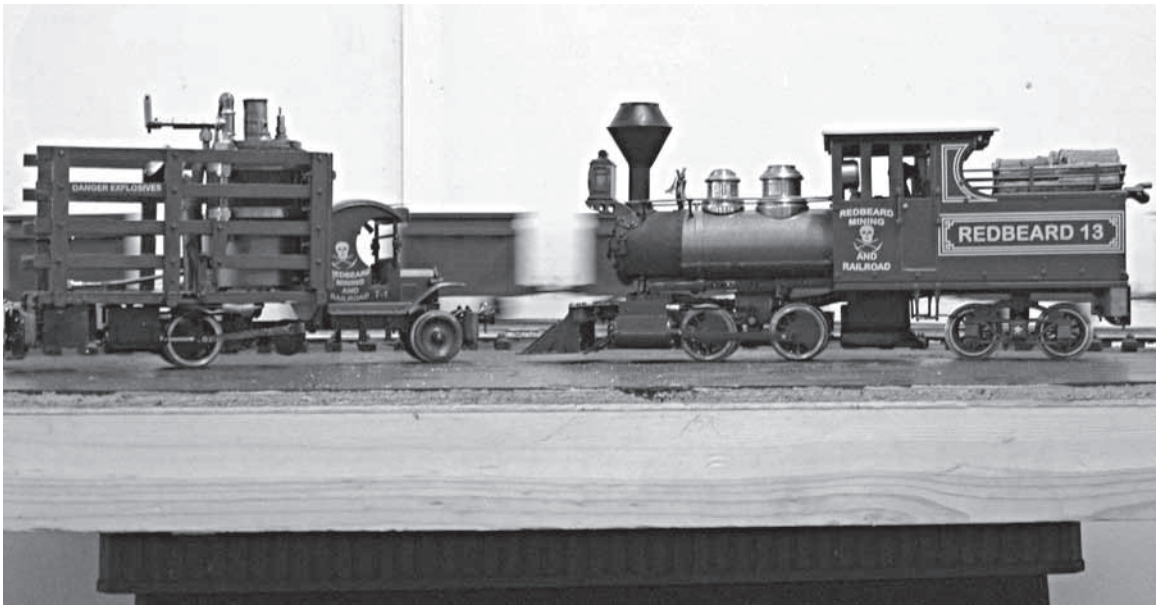
Find a flat open space and fit the four corners together. If your ends are a little off, don't get upset and put it aside for a year, like I did. Shuffle them around until you get the best fit when aligned at the outside edges. Spectators seldom look across the table's width – much less past smoking, steaming, highballing trains - to the inside corners. Mark the "matching" edges on the underside.

The tops are supported on a box frame of 1x3



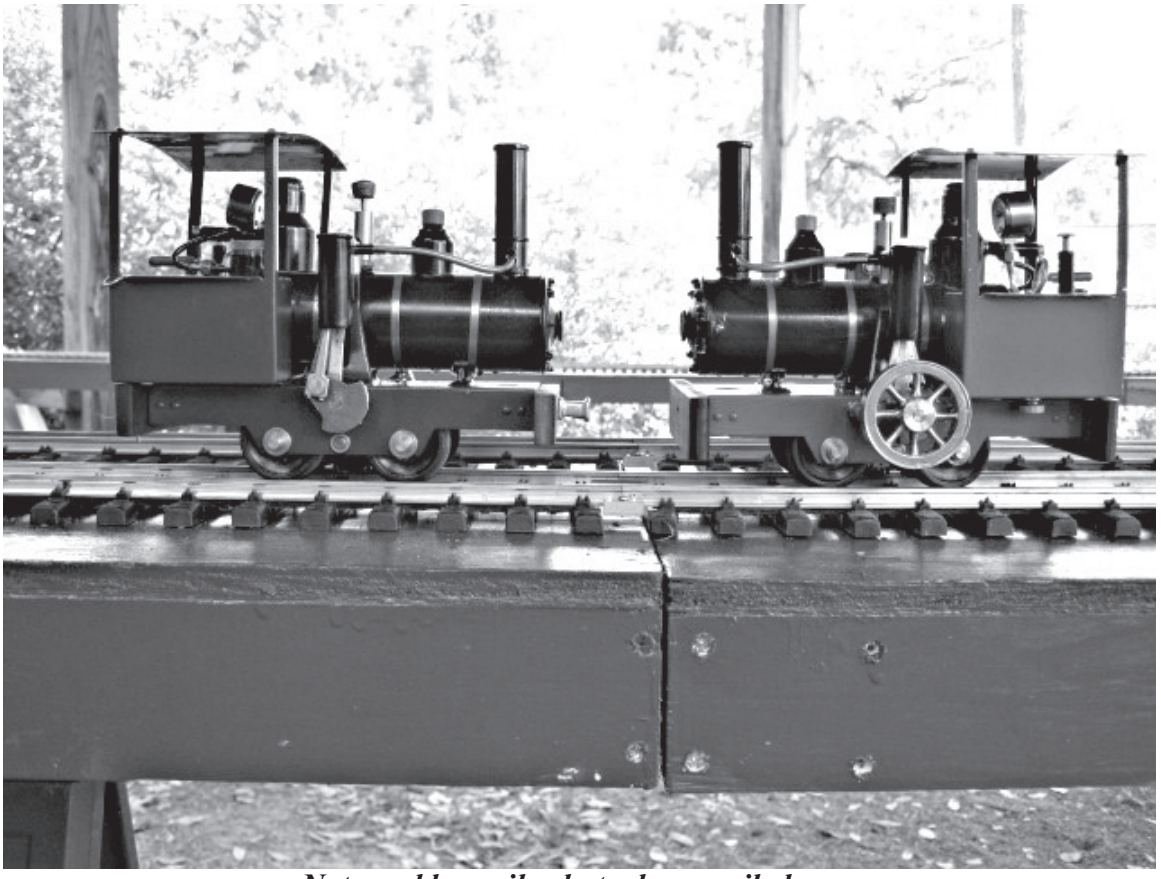
You've got me going round in circles. 11' x 11'.

beams. Mark a line on the underside between the pointy ends of the top, the 93.34 inch line. Use the compound miter saw with laser line to cut a 1x3 to match, with the ends of the 1x3 at 45 degrees to the sides. (Projects make you buy tools.) New to this saw, I cut long and shaved with additional cuts until it fit. Run a line of wood glue, clamp to the top and nudge to a precise fit by tapping with a hammer. Tighten clamps. Flip the assembly, so that the top is on top. I used a pilot bit in the corded electric hand drill and a Phillips head in the drill-driver to counter-sink 1 1⁄2 inch # 8 wood screws through the top and into the 1x3, about every eight inches. Life is too short to swap bits.



First guests – Redbeard's Railtruck and Mason Bogie.

Cut a beam to match the 67.88 inch inside edge and mount the same way.



Not a golden spike, but a brass rail clamp.

Move to either end. Cut 1x3s for the end edges, between the long beams, in theory 18 inches less 3/4" (center beam) less 3/4" (edge beam) or 16 1⁄2". On these end beams the ends are parallel to each other, still at 45 degrees to the sides.

It's the end beams that bolt together, not the tops. If the edge of

the top is uneven, push the end beam out so that no point of the top is beyond it, still at 45 degrees to the straight edge of the section. Even if the tops are a little off, the important parts will square up.

Remember to put glue on the ends of these pieces, as well as on the top. It helps if you didn't run a screw into the very end of the long beams, so that you can screw through the sides of the long beams, into the ends of the end beams, without hitting screws.

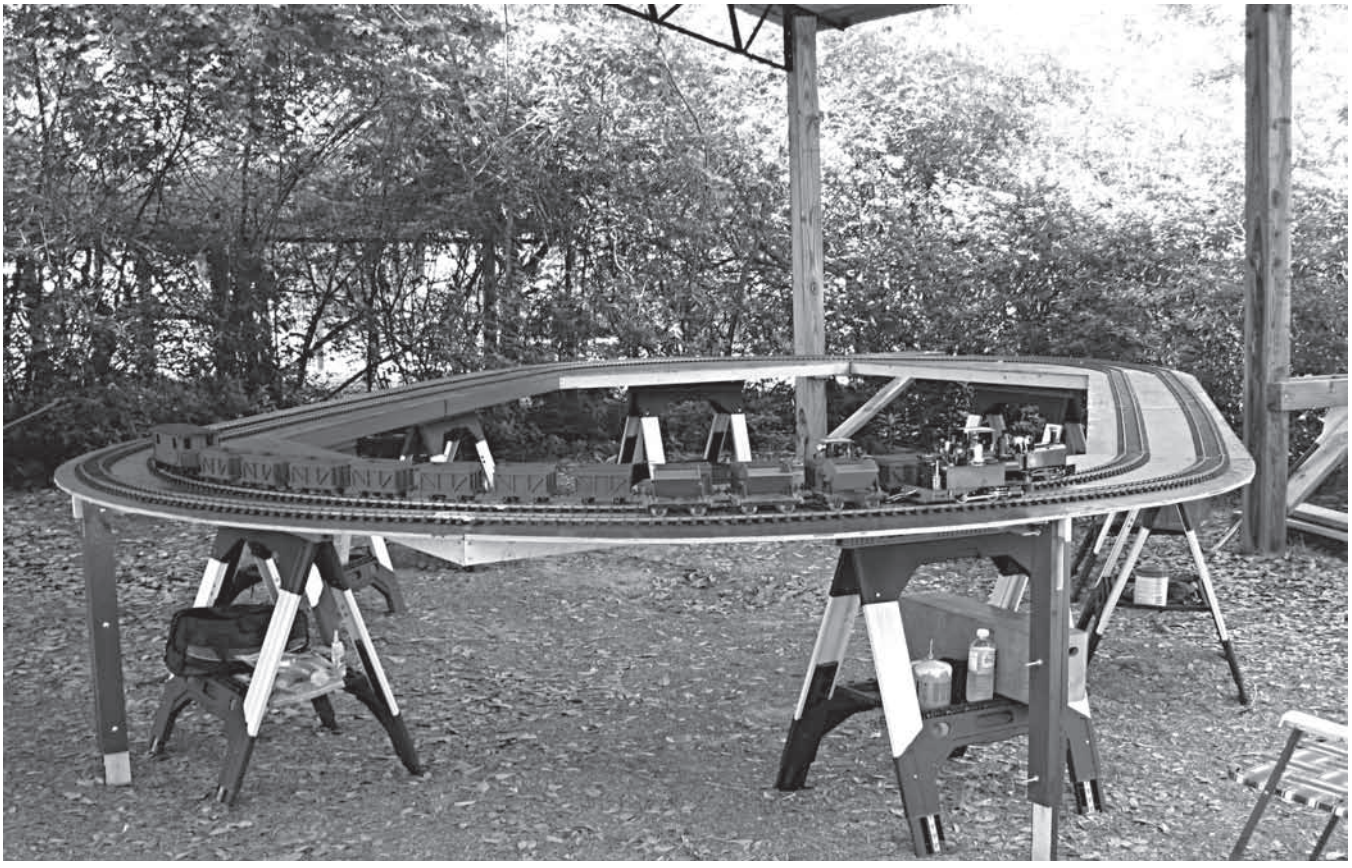
I also built straight sections. Six are simple boxes, 18 inches wide and 59.055 inches long. (An Aristocraft ""five foot" section is really only 1500 mm long.) These weigh about 20 lbs.

The other two sections join to make a ten foot yard, with a single siding trailing from each main line. I run trains counter-clockwise, to put the busy sides of Shays and Crickets on the spectator's side (outside). This put the switch end of the yard at the left, from the operator's side (inside). The left end of the yard section is 18 inches wide, with the middle (joining) and far ends 30 inches wide, to accommodate four tracks on 6 inch centers. Using Aristocraft "wide radius" switches, I have about seven useable feet in each siding.

This layout can make up in many different configurations, depending on how many straight sections are used and where. The possibilities include an 11 x 11 circle, a 21 x 21 rounded square, a 16 x 26 rectangle, and an 11 x 31 rectangle.

Section ends bolt together with a pair of bolts and wing nuts. Use an 18 inch piece of 1x3 for a template. Mark the centerline and drill two quarter-inch holes spaced nine inches apart on this line. Careful use of the template minimizes problems where sections join. I used a drill press to drill these holes squarely. Mark the template clearly, showing which edge goes up and which end meets the outside of the layout sections.

Put a layout section on sawhorses. Align the template to the top and outside edges of the section, checking each time to be sure that you haven't flipped it over. Clamp. Check again and tap into precise alignment. Tighten clamps. Drill through the template, keeping the drill square to the work. Repeat on the other end of the section. The straight layout sections won't line up if you reverse the ends. I painted the inside edge of the layout a contrasting color, for easy recognition.



Bigger is better – 11 x 21.

Portable layouts are known for their ingeniously-designed, precisely-made support system, a/k/a "the legs." This was a major hurdle, given my problems

with precision. After much dithering, I found "Fat Max" sawhorses at Lowe's. These are aluminum and tough plastic, with each leg independently adjustable in inch increments. I spent more on sawhorses than on track, but finally got the layout off the ground.

Each section is supported by its own sawhorse. Each corner's horse supports the center (93.34") beam in the Vee along the top of the horse. Each straight section has a central lengthwise beam for the same purpose. The legs of the horses stand wider than the straight sections, about 20 inches. I set the central beams back ten inches from the outside edge, so the outside feet of the horses stand under the edge of the layout. So far, spectators have avoided them.

There was no support under the outer part of the corner sections. These sagged under the weight of the lumber alone. Add some track, engines, and cars, and they resembled wooden potato chips. Oops!

On each corner, I ran another 1x3, perpendicular from the middle of the center beam to the middle of the outside (curved) edge. Attach as before. The corners now weigh about 40 lbs.

Cut three 30 inch 1x3's. Using a template, drill two quarter-inch holes through the ends of two of the boards, spaced within the last two and a half inches. (A finished 1x3 is 2.5 inches wide.) Sandwich these ends around the end of the new radial beam, at right angles to the beam, and clamp them together. Re-drill the holes, this time going through the end of the radial beam. I inset the legs 3/4 inch inside the edge of the table, because I want to "face" the outside edge of the corners.

I made two eight-inch slots in the center board of the leg, using the drill press. I clamped a board to the edge of the table, so the inner leg could only move laterally and "Woody Woodpecker-ed" chains of quarter-inch holes. A rasp and a file turned these into rough but serviceable slots. The slots are spaced 4 1⁄2 inches from the ends of the board and 5 inches from each other. Another pair of quarter-inch bolts with wing nuts holds the three boards together as one leg. Loosening the bolts lets the leg extend up to the eight inches of the slots.

Match each leg to the corresponding corner section by painting the inside of the leg and the underside of the radial beam the same color. Before extension, the legs are shorter than the sawhorse. You always lengthen the legs to level the layout.

The top is 36" off the ground, putting eyes at engine height when the backside is in a lawn chair. Sometimes things work out.

The tops and legs are painted hunter green, with the inside of the tops painted barn red. The green pulls the layout sections together into a whole and hides irregularities. In operation, the eye looks to the trains, not at the carpentry.

To set up, join the sections used and support them on sawhorses. Use a level to check the long axis, the direction that track runs. These are brought to level by extending appropriate sawhorse legs. Now level cross-ways on the corners, extending the outer legs. It is easiest to over-extend the legs and then tap them down to level.

My track is not fastened to the tabletops, so track alignment and table alignment are independent. There has been no problem with track movement, so far.

I use Aristocraft code 332 brass track. The curves stay joined in quarter sections, fixed with Aristo hex head screws. Setting up, I join these sections, and the 1500 mm straights, with Aristo rail clamps on the outside rail. I leave the original rail joiner on the inside rail, for alignment, but don't bother with the screws. The rail clamps secure with a Phillips screwdriver. (The tiny hex heads are best inserted in private, with no witnesses in earshot.)

Long after buying the track, I decided that a six inch separation, track center to track center, might not be enough. I "cheat" out to about eight inches, by adding a three inch straight to one end of each quarter section of curved track on the outside (60 inch radius) track. Even 7/8n2 models should have enough room now.

At our club show in June, the layout debuted with just the four corners, overall an 11 foot circle. Set-up by two people took an hour, and takedown about half that. Minimal leveling was required, mostly setting the outer legs. Crawling under the layout was no fun, so I mostly stayed in the center. The only other problem came from the short length of track – with only 31 feet, the track gets oily fast. Wipe often.

Everything worked well. The tabletop inside the curves was convenient for displaying and servicing engines. The sawhorses have 12" x 16" shelves towards the bottom, good places for toolboxes, water jugs, spare gas cans, etc. Only trains and paraphernalia actually in use were on stage.

The layout proved stable. The trains stayed on track. I ran a train of AMS ore cars behind a Roundhouse Sammie and an Accucraft Shay on the outside track. A Roundhouse Millie and an Accucraft Edrig alternately pulled a string of Accucraft UK cars on the inside track. Larry Newman ran his Ruby/Mason Bogie and Railtruck. We also had a swarm of (three) Crickets. Trains ran constantly on both tracks for

seven hours, to my delight and that of the spectators. (Thank Roundhouse for long run times.)

Last week, I had the four corners and four straight sections set up under a pole barn, in an 11 x 21 loop. This ground was much less level, so that six of the horses had legs extended up to four inches. Setting up twice as much layout with half as many workers (just me) was more than four times the work. This is definitely a two-person job. But sitting trackside with a cold beverage and watching trains go around the 50+ foot loop was great. Now, all I need to do is:

(1) paint the insides of the corners;

(2) paint the four remaining straights;

(3) face the corners;

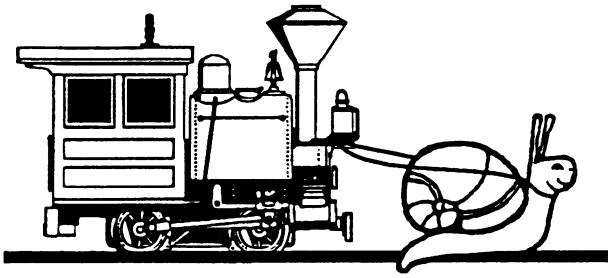
(4) buy more rail clamps;

(5) build a box from plywood scrap to store the track;

(6) find someplace to store all of this; and

(7) boil more water!

Let me know when you are coming. You can help set up Simpson's Folly. I've got plenty of rolling stock, but bring an engine. Or two.



Building and Operating Aster Locomotives Conclusion

by David Stick
Photos by the Author

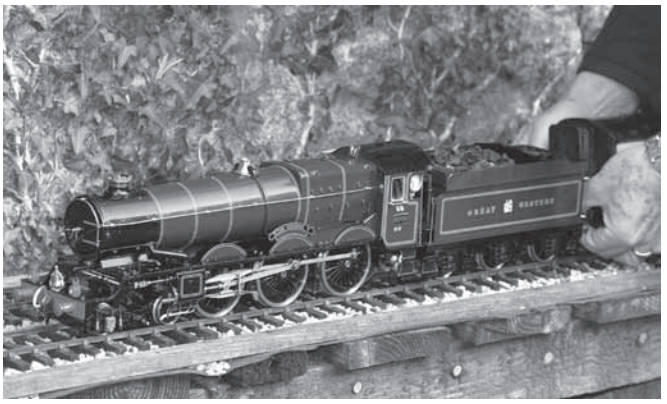
OPERATING LIVE STEAM

Whilst every locomotive has its own idiosyncrasies there are some basic methods that must be used for all. Your enjoyment of the operating experience will be largely dictated by how seriously you learn and apply these whenever you run.

First in preparation is to take the engine to the bench and make a close examination to make sure there are no loose nuts or bolts and that there is no damaged mechanism. Repair must be completed before you go any further. I never try and repair anything I take to run at a venue, no matter how far I have travelled to get there because one will almost certainly make a bodge! It is far better to make this inspection BEFORE you leave your own workshop.

Having completed the examination the next job is oiling around all moving parts. Do this accurately and don't just slap it over everything. You will not be popular with the other runners who will all suffer for the rest of the day because of the oil you will lay all over the track. Fill the oil reservoir with steam oil to

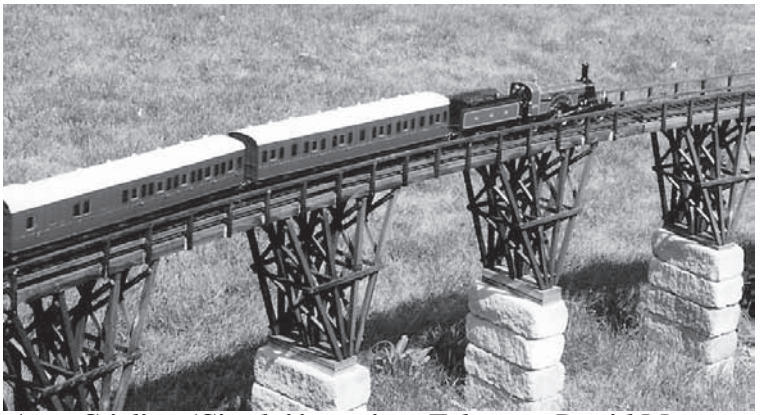
Aster C & O 'Allegheny'. Ted Chatfield's huge engine is on the electric blower and under starter's orders. This loco will pull just about everything we have on rails!



Aster 'King George V'. My KGV backed on to its load and being connected up. This engine has run for fifteen years without trouble.

'Duchess' cab view. The level of detail is here very high.

KJ5 has the front end to make a magnificent entrance.



Aster Stirling 'Single' in action. Taken on David Morgan-Kirby's wonderful track in Ottawa, complete with Brunel timber viaduct. This view shows the engine on its first run after I had completed it. A beautiful little locomotive though definitely not one for the tyro!

about three-quarter full only. Most displacement systems don't like to be full and you must leave space for some condensate to start the system.

Establish its Capacity

Next fill the water tank with water and open the bypass valve on the loco. Use the hand pump to prime the system and get rid of any sticking clacks in the system. If you haven't run for a while you may find a clack in the hand pump stuck. A good fix for this is to tip some hot water into the tank and try and pump again. This almost always clears the ball from its seat. Next close the bypass, open the regulator and then fill the boiler about two thirds full. If you have a gauge glass you can watch the glass rise till well up the tube. Don't overfill as this will result in priming and will flood everything with water. You will frequently find that there will be so much water that it goes down the flues into the combustion chamber and may well put the fire out by drowning the wicks. It's a good idea during the boiler's construction to establish its capacity so that you can ensure that you don't overfill. Some people remove the dome nut (often found on Asters) and fill the boiler through this opening. You can keep a close eye on how near the top of the boiler you are if you use a flashlight.

Close the regulator and the blower if you have opened it and refit the dome if you've used that method, and then open the bypass again. Next you need to fill the fuel tank with meths. Now I always use industrial grade but others use the ordinary commercial hardware store variety with equal success. All I would say here is that you need to ensure that you keep the meths in a sealed bottle with very little air space left. Being hygroscopic, the concentration will rapidly decay if the air is allowed to get to the liquid. Make sure that the fuel tap is closed and fill the tank carefully. Don't let it spill on the loco or the track. If you have an accident, mop it up quickly and no harm will be done. Leave it on you paintwork and you may well suffer damage. If you leave it on the track you may well have a conflagration!

Lighting up. Next attach your electric fan blower to the chimney and switch it on. This will draw air through the burners and on via the combustion chamber and flues into the smokebox and out through the fan. Turn on the fuel tap and watch for the fuel to pass through the fuel tube to the burner. If your fuel has been coloured, (food dye works well here) you will be able to see it flowing. After a minute or two you can put a light to the burner and it should light. If it fails as it sometimes does with new burner wicks, allow them to soak a little longer and try again. If it refuses to light you may find that the wicks have been flooded by water (see above). It is essential to have a good draught to light the burner and to keep it going until pressure has risen enough in the boiler to allow the locomotive steam blower to be turned on.

Aster Set the Valves

Once alight the boiler will only take four to five minutes to bring the boiler up to 2bars or about 30psi. You can now open the blower and remove the electric fan. Don't open the blower too much – just enough to see the pressure gauge needle continue to slowly climb. When the safety valve blows we are nearly ready for action. However, if the loco is fitted with two safety valves it's a good idea to make sure that the second valve will open at somewhere close to when the first valve blows off. I aim for them to be about 1⁄2bar apart. Aster set the valves at the factory and they are normally set this way. However, it is not unknown for them to be out of adjustment. It is relatively easy to adjust the blow off pressure if you know what you are doing. However, you can seek the assistance of a model engineering society boiler tester to help you with this, using his calibrated gauge. He will also provide you with a boiler certificate – something you will need at many club running tracks where the public are watching. Most G1MRA area groups have a boiler tester who will fulfil this task for you.

Well, we now have a loco with a full head of steam and all ready to go. Now is the time for extra caution. When you open the regulator, steam will pass though the system to the cylinders and being cold, some will condense and will be forced out of the chimney as a jet of hot water. So, gently does it and make sure nobody has his face near the engine. By cracking the regulator open a very small amount you will allow steam into the cylinders and they will begin to warm up. For this reason it's a good idea to try and run the loco up and down a siding for a few minutes to get the cylinders warmed through. I try and complete a lap or two of the tracks to clear all the condensate before connecting up to my train.

Connect up and set the reversing gear in full forward gear and open the regulator slowly until the train moves. Don't allow it to spin the driving wheels – you should drive it carefully and as expertly as if you were in a full sized cab. Remember to look at the water level in the water gauge and after a lap or two of the track close the bypass valve for to allow the

axle pump to top up the boiler. Don't leave it fully closed for long or priming will start or the boiler pressure may start to drop. To drive successfully you need to balance regulator, bypass (and if you care to), the reverser setting to obtain optimum performance. In fact you need to drive it exactly like the full size loco. Now isn't that fun?

Low Water Level

As the run continues you need to constantly monitor the water level and adjust the bypass to keep about two thirds of a glass full of water throughout the run. Watch for priming as an indicator of overfilling and open the bypass a little more to correct. Sudden speeding up of the train can often indicate low water level, particularly if you haven't been paying attention. It may occur that you have the tender water tank cover closed and that you have run out of water in the tender. If so, stop and refill the tank. If this does happen, it's a good idea before restarting to close the bypass valve and use the hand pump to refill the boiler. Remember to do this carefully and, if the engine has very low water level in the boiler, refill the boiler slowly. If you pump cold water too quickly into an empty boiler you may damage it, so the message is to not allow this to happen. This means concentrating when you drive and trying not to be distracted. This is not just important from the locomotive handling point of view but also for safety reasons. Before you started your run you should have walked around the track to make sure you know the road and where the signals and speed restrictions are. I'm sure you get the picture!

When you run comes to an end try to arrange to come to closure with enough steam pressure left to be able to unhook from your train and negotiate the engine to the steaming bays. We all hate to see hand shunting and it is quite unnecessary if you take this activity into account. Besides, it is a demonstration of you ability to control your loco and manage it correctly.

Back in the steaming bay you haven't finished yet! Firstly, blow out any remaining flame left on the burner by blowing down the chimney. Then open both the regulator and blower slightly to avoid seizure during cool down. If you forget this DON'T try and force them open. You will have to bring the boiler back up to temperature to release them both either right away or next time to run. I have seen serious damage done to a regulator by forcing it open – so be warned!

Next, as the engine cools, open the oil reservoir and drain off the condensate. I use a syringe and aim to empty the container of all water and any oil left over. If you do this with the engine still hot the oil will be thinner and easier to draw off. Refill with new steam oil and then oil around all of the mechanism with machine oil whilst checking for loose nuts and bolts. If you are unlikely to run again for several weeks it is good practice to 'blow down' the boiler. Most Asters have a means of doing this and the aim is to drain off the boiler of all water. His lessens the possibility of any sediments or corrosion forming in the boiler.

Valve Gear and Connecting Rods

Finally, give the engine a good clean off to remove any water, oil or dirt that has deposited itself on the externals. Do this and the paint will stay bright and you will prevent any 'sludge' ending up in bearing surfaces. Besides which I for one like my engines to look spick and span and am not an admirer of grubby locos for the sake of it!

In the long life of your engine you will need to conduct regular maintenance. Cleaning and oiling after a run is important and I always do this at the track after the run as described above. When I get home I upend the locomotive and carefully examine everything to make sure things are OK. Just as for your car, things need to be kept in good order and slow the inevitable wear out process. To give you an example of likely failures, my 'King' had to have a new regulator and superheater after fifteen years of regular running. Spares are usually available from Aster, although there has to be a limit to the stock held. Neither part is particularly difficult to make though and when the day comes that you can't get bits, you will have to make them or make arrangements to have them made for you.

The parts I have mentioned are probably the commonest items to wear out and the remainder of the loco should last for many years. Valve gear and connecting rods may need re-bushing which is a simple task but unlikely to occur inside ten years operation if regular maintenance and cleaning is done. Naturally, both steam and water leaks can occur during running. These are usually due to gaskets or washers failing are normally easy to replace. Don't leave leaks, fix them as performance will suffer or more serious damage may occur otherwise.

Every two years you should re-certify your boiler through your local boiler tester. Failure to do so may inhibit your operating your locomotive in public and some clubs are quite strict about this. Always check

with the organiser before you go as a long journey may otherwise be in vain!

So in closing I would urge you to make the step into live steam. You will never regret it. You will have the pleasure of reliving the wonderful days of steam whilst in the company of those of like mind and most are the friendliest of folks only too keen to help and share their experience. Gauge 1 in particular offers the old familiar pictures of steam that we all so miss, though if you are a narrow gauge fan, there is nothing to stop you indulging in both forms providing you take appropriate measures to cope with track clearances. Many enthusiasts operate in both scales and I believe are even more fulfilled by doing so!

SWAP SHOP

FOR SALE: Aster USRA Light Mikado. I am selling my Aster USRA Light Mikado. It has the full detail kit on it and it also has a dual chime whistle but it is not hooked up to a steam line. It runs great. I really like the engine but I much prefer butane fired engines over alcohol. You can call me at 330-881-4897 or email me at viperbpt@yahoo.com. I would be interested in a trade for a butane fired engine or sell for $2900. (9/04/09)

FOR SALE: D&RGS class K27 coal fired live steam locomotive. Scale 1/20.3 gauge 1.Detailed as engine number 459 with pre speed lettering. A one of a kind museum quality model built by the well known David Bailey of DJB engineering, England. The engine is truly a locomotive in miniature. For a full description see the review of engine no. 455 in Steam in the Garden no. 69.
This engine was built with full working suspension using compensation bars and levers on all wheels. A minor problem occurred during shipment to the former owner in that a rivet joining one of the compensation levers was torn loose. This has been secured with wire so that the engine is fully functional, but not as originally supplied. The previous owner was the late Arnold Hoffman, and the engine currently resides at his home in Atascadero, California. The asking price is $7600, which does not include packaging or shipping. Larry Bangham has agreed to help answer any questions and has offered his railroad to test run the engine if desired. Contact Marian Hoffman at 805-466-2398, or e-mail marianhoffman@mac.com (9/14/09)

FOR SALE: Aster Hobby Nickel Plate Berkshire. New in the Box, Factory Built Model. $6000 plus shipping. Please contact Tony at 209-617-4441 or e-mail - suddjian@tds.net (9/16/09)

FOR SALE: Accucraft C-21 Live Steam Engine. PRICE REDUCED!!! It was tuned, rejetted and timed by Norm Saley. I'm selling it with 5 cars and a caboose. The cars are AMS D&RGW - 2 boxcars #3297 & #3194, 2 reefers #56 & #72, 1 gondola #1667 and caboose #0528. $2600 plus shipping. E-mail Tom Toth at steamtom2@sbcglobal.net or phone 586-786-1918. (9/17/09)

WANTED: Roundhouse Forney. Contact Steve Robertson at donna.robertson@att.net or call 245-528-3445 (9/22/09)

FOR SALE: ACCUCRAFT K-28 THIS LOCO HAS ABOUT 2 HRS. RUN TIME. EXCELLENT RUNNER AND IN PERFECT CONDITION. PRICE $3750.00 PLUS SHIPPING OR MAY DELIVER HALF WAY. MUST SELL TO COVER ANOTHER PURCHASE. EMAIL ME AT DANSVILLE44@YAHOO.COM OR CALL ME AT (517) 294-0772. DAN SAMUELS (9/29/09

WANTED: Colin Binnie Steam Motor. Contact Noel Crawford at georgecrawfordsr@comcast.net or Mike Moore at mike@aikenback.net (9/29/09)

FOR SALE: New Accucraft Live Steam Garratt. Edison Green Color. Displayed in its own case only, never used, or fired. Will be repacked in all original boxes with everything that came with it from the maker. Price $4,700 plus shipping. charlietusa@yahoo.com 10/30/09)

Wanted: Wrightscale Porter or Argyle Philadelphia in excellent or new condition or as a kit. Also looking for a kit version of the Aster Baldwin Porter. Contact John Polen at jpsgarage@aol.com or 310 377 6264. (10/30/09)

FOR SALE: NEW/UNUSED SP Daylight tender in full color for the famous Daylight streamlined passenger train. These tenders were never made available separately from Accucraft unless the locomotive was damaged by UPS. This model has a Phoenix Sound System installed [Ser. # G1628]. Two of the magnetic pickups have come unglued. This may be your only opportunity to run a prototypical train with dual tenders. The price is $1,200 OBO. Contact me at Thumper12225@prodigy.net (10/30/09)

FOR SALE: Accucraft K-28 DRGW #478, includes Accucraft snowplow attachment. New in the box. $ 4200 plus actual shipping from Virginia. John Reeder, 703-757-5989 or JFR1945@gmail.com -- email me for pictures or additional information. (10/30/09)

END OF THE LINE

Sorry this issue is so late! Just before completing it to send to the printer, I fell and broke my ankle, putting me in the hospital for a few weeks. As you can see by the attached photos, Faithful Assistant brought all the essential office equipment to my hospital room so I could finish the mag. Late, but hopefully not TOO late.

As always at this time of year, FA and I want to wish all our readers, advertisers and dealers a very .....

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If your passion demands 1/32 scale live steam models of highest precision, aesthetic presentation and prototypical functionality, look no further than Aster. All locomotives are designed and manufactured by Aster Hobby Co. Inc. of Yokohama Japan.

Great Northern Railway Type S2 (4-8-4) is now available from our inventory

New Release this Fall ! Baldwin Tank 0-4-2 Narrow gauge in 1/20 G Scale

As operated by the Kiso and Tsugaru logging Railways in Japan around 1906

Main features: Alcohol firing, slip eccentric reversing gear, D-slide valve, axle water pump, water gauge glass, pressure gauge, Roscoe lubricator and limited cosmetic detailing. An optional kit for conversion to full functional Stephenson valve gear and a separate super detail kit will be offered later this year at extra cost. Additional pictures are posted on our website. For more information, please contact us at our website: www.asterhobbyusa.com

Pilot model shown subject to changes.

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