

Nº 96

November - December 2007

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STEAM IN THE GARDEN



Inside.....

The New Aster SNCF 140 C

Portrait of a Craftsman - Paul Huntington

The Anti-Climax, Finishing Touches

Vintage Steamup in the UK

...and lots more!



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STEAM IN THE GARDEN

Vol. 17, N^o 6
Issue N^o 96

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

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FRONT COVER:

Jerry Barnes' Aristocraft Mikado thunders over a breathtakingly high trestle on Marty Cozad's railroad in Nebraska.

Photo by Stan Cedarleaf

<http://gold.mylargescale.com/StanCedarleaf/WebPageDecals/CustomDecalsx.html>
<http://www.trainweb.org/pcsr/indexx.html>

Editor

Ron Brown

Awesome Assistant

Marie Brown

CAD & Other Drawings in This Issue

Regular Contributors

Larry Bangham	California
Charles & Ryan Bednarik	New Jersey
Carl Berg	New York
Paul Blake	Australia
Tom Bowdler	New York
Keith Bucklitch	England
Jim Crabb	Texas
Les Knoll	Illinois
Joe Leccese	Massachusetts
Charles McCullough	Iowa
Jim Pitts	South Carolina
Jerry Reshew	Mississippi
Dan Rowe	Texas
Jeff Young	Canada

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Letters from readers are welcomed and encouraged. Offer advice, encouragement, suggestions or constructive criticism. Tell us about your current project (and don't forget the photos!) or just share live steam experiences. But please keep your letters to a reasonable length so everyone has a chance to use this forum. Letters may be edited for length or clarity. Send your letters & photos to: SitG, Dept. RPO, P.O. Box 335, Newark Valley, NY 13811, USA...or e-mail to <rbrown54@stny.rr.com>.

California
via e-mail

Hi Ron,

I'm the builder and owner of the unidentified loco shown in the National Summer Steamup 2007 report in issue no. 95 of *Steam in the Garden*. It's a 4-2-0 with a vertical boiler and Graham VR1A single-cylinder vertical engine. In fact, you graciously ran some earlier photos of this loco in the May/June 2003 issue of your wonderful magazine (no. 70). That was before some early trial runs with the loco started revealing a bunch of problems. A long siege of debugging of the piston o-rings, wick packing, chicken-feed alcohol fuel supply, boiler steaming rate, and burner setup finally produced a free-steaming loco and some advanced lessons in loco firing.

Keep up the fine job of publishing a great magazine. Why don't you come out to Sacramento next summer for the 2008 National Summer Steamup? It's quite a party.

Steve Shyvers



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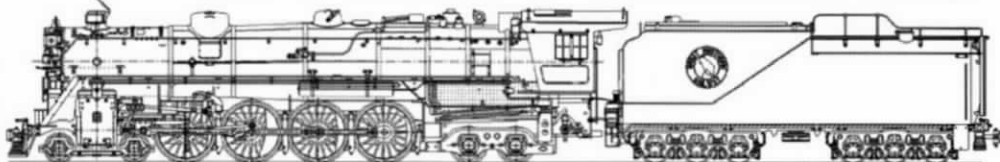
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WHAT'S NEW?

Tired of running light? Now offered by Bronson-Tate is a set of laser cut and scribed cargo crates. They come in kit form, are very simple to assemble and are ready to be painted, stained or left natural wood. The sizes offered are available seperately in 5 kits, or all 5 kits which make up 9 crates for \$25.00. They are scaled out for 1:20.3 but can easily be used in almost any scale. During assembly you can even make the lids working and use the crate for real storage like batteries or a switch for lighting. For more information check out www.bronson-tate.com or one of his dealers: www.showmelines.com or www.quisenberrystation.com.

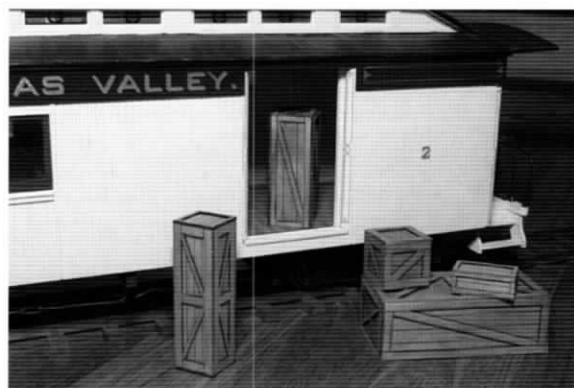
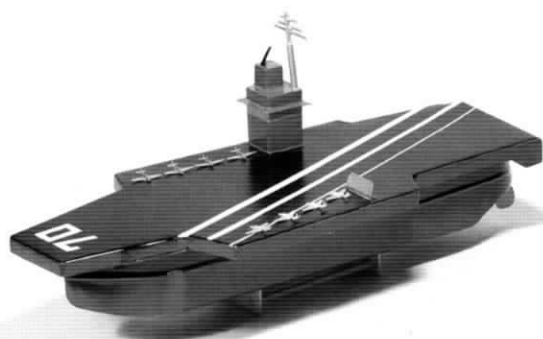
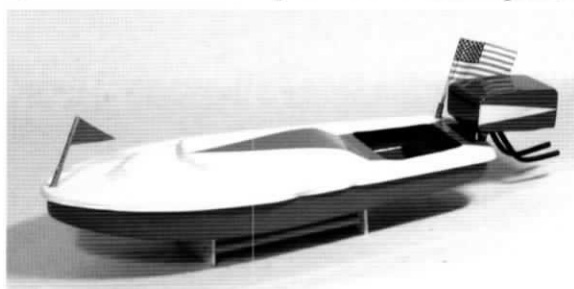


photo by Jason Kovacs

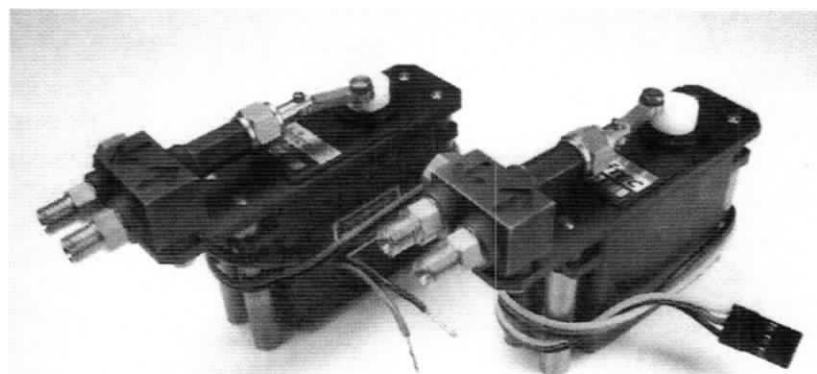


Buzz's BoatYard, e-mail: Buzz150@cfl.rr.com, has introduced 2 new steam powered models. An aircraft carrier and an outboard speedboat. These are putt-putt boats, which utilize the simplest form of steam power. This is the only outboard putt putt motor in the world! Both of these are limited editions....only 30 units of each will be available. Contact Buzz at

the e-mail address above, or by phone at 386-428-6417. Check out all the different items on his **web site: www.buzzboats.com**



The Train Department is offering the REGNER R/C Servo Driven Boiler Feed Water Pump (PN 20220), now fitted with a heavy duty Hitec HS 322 HD servo as standard equipment. This pump is rated at 100 psi and 360 ml/h capacity. It is compatible with any standard R/C system. The pump is also offered less the electronics (PN 20225), ready to connect to any 4.8-6 volt power supply for independent operation. A conversion kit (PN 20221) is available to upgrade the pump capacity to 540 ml/h. Both pumps and the conversion kit are carried in stock for immediate delivery. **Contact Ken Johnson or Dave Orwig at: team-regner@traindept.com or phone at 757-855-6364.**



Accucraft Trains, 33268 Central Ave., Union City CA 94587, phone: 510-324-3366, web site www.accucraft.com has released two new caboose models in 1:32 scale. The Southern Pacific C-30-1 caboose is available in 6 different liveries. They are all hand crafted from brass and stainless steel and feature metal wheels, slanted cupola, full underbody and interior details and operating marker lights.



The Union Pacific CA-1 Caboose (prototype photo left) is also available in 6 different liveries and has the same features as the SP caboose described in the previous paragraph.

finescale cars are constructed of plastic with brass castings. They feature die-cast trucks, metal wheels, working knuckle couplers, full underbody details and much more. These are available in 6 different liveries and multiple car numbers.

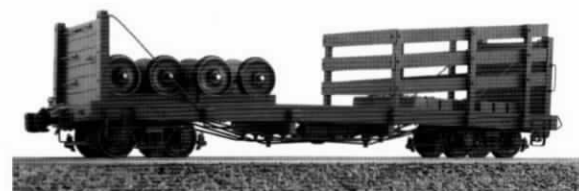


AMS is proud to announce the production of the D&RGW Drop Bottom Gondola in 1:20.3 scale. These



The D&RGW Open-Ended Gondola is also available in 1:20.3 scale. Features are the same as the drop bottom gondola, and there are 4 different liveries and multiple car numbers. Also available is a data-only 4-car set.

Yet another item in 1:20.3 from AMS is the Wheel and Tie Car. Featured include plastic construction with brass castings, die-cast trucks, metal wheels, working knuckle couplers, full underbody details and more. Available in 4 different liveries and multiple car numbers.



And finally, AMS has produced a D&RGW Idler Flat Car in 1:20.3 scale. Based on the Gondola design to accompany the Open Ended Gondola. Also available in 4 different liveries and multiple car numbers, as well as a 4-car data-only set.

See your Accucraft and AMS dealer for all of these new cars, as well as many other new items.

The Train Department of BAQS is pleased to announce that it has been named Exclusive American Dealer for Gartenbahnparts of German (GBP). Gartenbahnparts is a small manufacturer of high quality, hand crafted, RTR and kit



models. Product line currently is mainly American Logging Equipment in 1:20.3 scale. Products include models of Disconnects, Logcars, Boxcars, Watercars and a Blacksmith shop on wheels. Trucks are fully spring and wooden parts on finished car models are hand weathered with lead free paint. No 2 cars are exactly alike. The Train Department will also offer GBP's full line of wooden trackside structures. Wooden parts for all products are laser cut for precision fit. The full line of GBP products are made from durable materials,

such as steel, brass and red cedar and are very robust and long lasting in heavy use. **Contact Ken Johnson or Dave Orwig at: team-regner@traindept.com or phone 757-855-6364.**



CALENDAR OF EVENTS

Southern California Steamers - contact Sonny Wizelman for dates, places and any other pertinent information. 310-558-4872 • sonnyw04@comcast.net

Check the Calendar of Events on our web site (<http://steamup.info>) for regional and club events.

January 18-20, 2008 - International Small Scale Steamup and Arts Festival, Diamondhead Resort, Diamondhead, Mississippi. This the big one...don't miss it! For location, registration and further information, check the web site at: <http://www.diamondhead.org/>

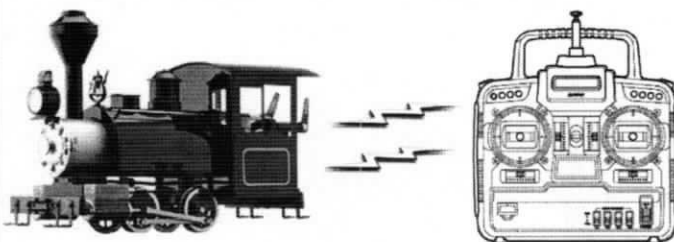
January 19-20, 2008 - Cabin Fever Steamup & Metal Working Show, York Fairgrounds Expo Center, York, Pennsylvania. \$10 Admission fee is good for both days plus Friday Auction - Check the website for more info.... <http://www.cabinfeverexpo.com/CFE/index.htm>

February 16-18, 2008 - 11th Annual President's Day Weekend Meet, Electric City Trolley Station & Museum at Steamtown National Historic Site Grounds, Scranton, Pennsylvania. 9 a.m. to 5 p.m. Live Steam, electric G scale and other assorted large gauges. Three tracks for live steam, one for electric and battery power. Sponsored by Pennsylvania Garden Railway Society, Warrior Run Loco Works and Aickenback Live Steamers. For more info on this event and local accommodations, call Clem O'Jevich, Jr. (570) 735-5570 or e-mail wrunloco@aol.com

Because of publication lead time, please send info for Calendar of Events well in advance. Include name of host and location of event, with address and/or phone number to contact for complete information. Some basic info about the site is also useful (i.e., ground level or elevated, minimum curve radius, ruling grade, etc.)

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Portrait of a Craftsman: Paul Huntington

by Jim Curry

Paul Huntington, working in a basement workshop in Randolph, MA has produced Gauge 1, 3.5" and 5" gauge live steam locomotives as well as stationary engines for the past 25 years. Laboring in the "New England Locomo-

A graduate of Wentworth Institute, now an engineering school of the University of Massachusetts Paul did a stint in the Navy during WWII. After the war he built a career at the Burroughs Corporation. Paul retired in 1984 after 37



Paul Huntington with his Boston & Albany 4-6-4 commuter tank engine..

tive Works", as he calls his workshop, Paul has turned out a steady stream of engines from his workshop, ranging from 0-6-0 switchers to large articulated locomotives. A self taught machinist, Paul is putting the finishing touches on his 27th scratch built locomotive, a coal and/or alcohol fired USRA Mikado.

years as a field engineer at Burroughs.

After a life time of ship model building Paul turned his sights to model engineering in retirement. He assembled a workshop comprised of a Unimat lathe, a Sherline mill, and a table top drill press. Over the years he acquired a horizontal mill, a brake/shear/roller combo and most unusu-

al, a foot powered treadle lathe from the 1890's. Now Paul may be traditional in many ways but he did put a motor on that lathe.

His first scratch built locomotive was a LBSC 4-4-2 design. When I say scratch built, I mean he typically will buy the drivers, couplers and pressure gauge, but all other components are scratch built. He'll even make his own Boxpok type drivers where none are available commercially. He quickly developed or adapted designs to his liking so he could build models with similar running gear. Most of his models utilize a fabrication of outside cylinder with inside valve arrangement, with the valves driven by slip eccentrics. Paul will take two pieces of 1" round stock and braze a connecting bar between them to form the cylinder set. He machines that assembly to include spacers for the frames, cylinders and valve ports, then starts assembling the locomotive. While most of his models are slip eccentric design, "They're simple and foolproof". He has scratch built Walscherts and Stephenson. When he utilizes slip eccentrics he'll hang faux valve gear on the outside of the frame which is so realistic most people won't realize it's fake without being told. All models incorporate springing for the axle boxes so traction is dependable and he can generally pull everything in sight. He has a 250' elevated railroad for a test bed. When the chassis is complete he'll take it and lash it to another locomotive under steam and haul it around to check for binding and general tracking traits under way.

Always modest, he calls himself a "smithie",

as in blacksmith, Paul has built coal, alcohol and butane fired boilers with alcohol firing being his favorite. He has a fantastic design for a safety valve with a very satisfying fffttt! when the valve lifts. Five lbs. of pressure bleed off in a second or two and the valve reseats with narry a weep. After the boiler is mounted and the model has passed steam and track tests the time consuming effort of detailing the engine begins. Starting at the front buffer he works his way to the rear of the tender. Working from drawings he'll find in books and photographs and research informa-

tion from historical societies he'll spend several months finishing the typical model. After a season of running it's off to the paint shop for a strip down, painting, decaling and re-assembly. Paul has built everything from switchers to narrow gauge to mainline freight and passenger engines. With early standardization of his construction methods he was ready to tackle an Allegheny as his sixth engine.

Never one to shy away from a project,

Paul has enjoyed building unique locomotives that make them the eye candy at the steamups he attends. I've sent Ron a CD chock full of photos of his roster to include with this article or use at other times. Enjoy!



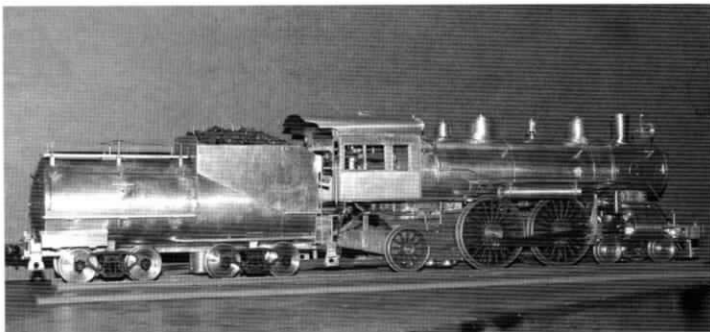
Mike McCormack checks out one of his own scratchbuilt locomotives prior to running it on Paul's track.



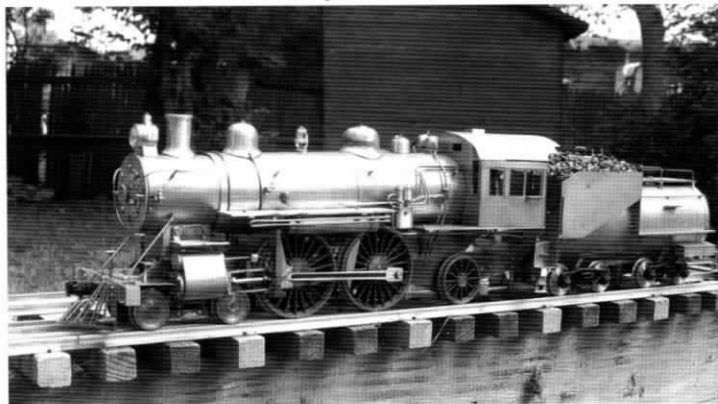
Some of Paul Huntington's masterpieces.....



Boston & Albany 4-6-4 commuter tank engine built 2004.



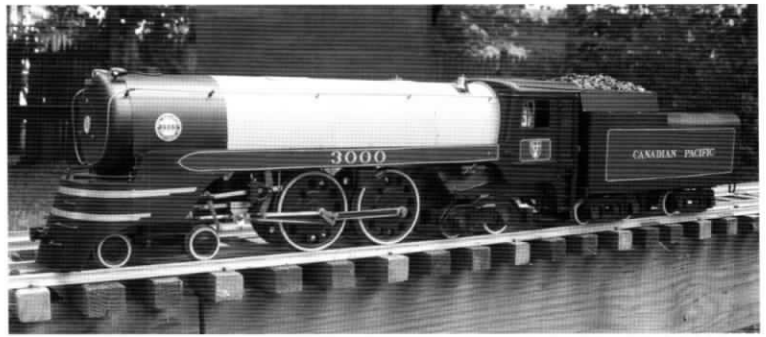
Southern Pacific 4-4-2 built 2005.



Southern Pacific 4-4-2 built 2005.



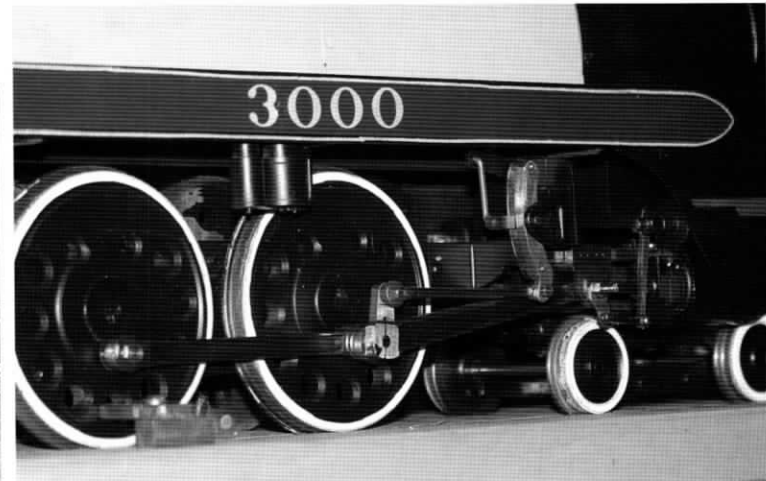
Boston and Maine 4-4-0 built 2003.



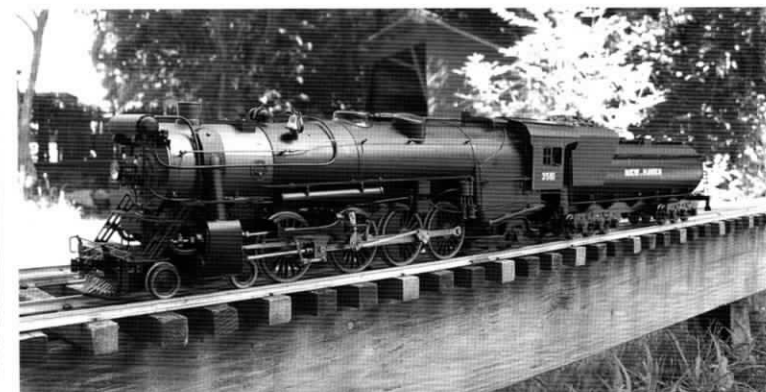
Canadian Pacific Passenger engine 4-4-4 built 2005.



Typical valve gear and burner arrangement.



Close up of CP 4-4-4.



New Haven 4-8-2 built 2001.



Above: Paul with his hand on his C&O H8 2-6-6-6 built 1994, at knee B&M 4-6-2 built 1999, second row B&A Tank and New Haven 4-8-2.

Below: Paul Huntington, Mike McCormack and Jim Curry at Paul's track.



The Anti-Climax - Finishing Touches

by Les Knoll

In Part II, the third incarnation of my Climax finally yielded the right mix of components to make the locomotive run well. Having found that, I set about to give those British prototype components a 'made in USA' appearance. The final steps involved painting, finishing, debugging and fine tuning to get a good looking, good running Climax locomotive.

With the locomotive running successfully, I made many runs testing performance, fine tuning, and running just for the fun of it. During that testing period, a number of times the locomotive fell out of time, drive components came out of adjustment, and other glitches developed. This turned out for the good since each glitch pointed out where some adjustments were not as permanent as they should be, the effect of certain things coming out of adjustment, and what the symptoms of various problems with the locomotive are. I thought that since I have lived through these things at least once I would record them in a form of a checklist for locomotive builders to use when building and debugging. This is not by any means an all inclusive list. The three inventions of man that are the most maintenance intensive are: early Harley-Davidsons, theater pipe organs, and steam engines. Having owned two of the three, I can attest to this. I can also attest that all three are more than worth the trouble.

The following is a checklist of things to look for to insure good operation. These are all items I encountered while building the Climax:

Steam leaks: All lines from throttle to engine must be completely steam tight.

Valve chest gaskets free from leaks: Replace gaskets and/or tighten down chest covers.

Cylinder head gaskets free from leaks.

Piston seals sealing properly: If they are not, there will be 'blow by' in the cylinder. Power will be reduced and you will hear a constant exhaust hiss instead of a chuff as in normal operation. Locomotive power will be significantly reduced, and it may appear that the

locomotive is out of time. The 'out of time' symptom will be especially noticed on geared locomotives.

Piston rod seals (glands) sealing properly: If they are not, diminished power may be noticed. Running under steam, you may see wisps of steam coming out of the back of the cylinder.

On rare occasions, a piston may become detached from the piston rod. As a result, one cylinder is essentially out of commission. The locomotive, if it runs at all, will appear to be greatly out of time, especially geared locos. The 'blow by' symptom as seen in a piston seal failure will probably be present. The locomotive will run as if the steam line to one cylinder is blocked, yet steam is actually still getting to the cylinder. If you suspect this, take off the front cylinder cover and look inside the cylinder. Check this out before looking for something more involved like blocked steam lines.

A lot of testing of the engine assembly was done using compressed air. This is the best way to adjust timing without getting burned fingers, but it does not tell you everything about your engine and steam delivery system. If your mechanism runs well on air, this is not necessarily an indication that your plumbing is leak free. The average air compressor can supply much more air than a Gauge 1 boiler can supply steam, and is often capable of replenishing the air lost through leakage. A boiler cannot always do this, and you may get poorer performance with steam than with air if you do have a leak. The one plumbing defect an air test will detect is plugged lines.

Solder joints kept melting on that 'tee' fitting coming out of the superheater under the front of the boiler that distributes steam to the cylinders. This occurred when the locomotive was steamed and resulted in small leaks. I would time the locomotive in on air, and everything seemed OK. When I ran it on steam, the locomotive was a weak puller and under load appeared to run out of timing. This was due to the small leak in the 'tee' which was only detected by seeing the small wisp of steam under the frame. The air sup-



The Climax emerges from the Lothlorien Forest on Les Knoll's Rivendell & Midland Railroad.

ply 'kept up' with the leak and it was unnoticed when running under air.

Another thing to remember about running on air is that the engine receives no lubrication like it does running on steam. The moisture in the steam and the oil added by the lubricator keep the piston and rod seals as well as other internal moving parts lubricated. Without this lubrication, seals will drag and introduce excessive friction. This can occur in both the piston

and rod seals. Both seals create drag on the piston rod and this has the effect of creating an extra load on the engine. I usually time-in on 20 psi or lower and at these pressures frictional resistance hampers efforts to time the engine or evaluate its performance.

Putting a few drops of steam or machine oil in the steam line and putting a few drops on the piston rod and even on the valve stem will make the engine run as easily as if it was running on oil bearing steam.

When running on air for more than a couple of minutes, you can sometimes see the engine visibly slow down. Putting just a few drops of oil on the piston rods will bring the engine back up to speed quickly.

I ran into a snag late in the construction involving the valve gear and "D" valves. I found that I had to replace the steam piping to the cylinders because all the joints up to and including the 'tee' fitting that feeds the cylinders had to be silver soldered due to the heat in the lines coming out of the superheater. This involved removing the steamchests, drilling out the old tubing and replacing it. When I put the left side steam chest back in place, I accidentally left the valve nut inside the chest without its flattened side down, and the valve gear on that side became bound up. I tried to run the loco, and of course it stalled, but not until after throwing the left side return crank totally out of whack. Note that I do not pin my return cranks as Roundhouse recommends. This is mostly because I mess around with timing every so often and I also want the freedom to disassemble down to the bare crankpin if necessary. I spent some time trying to reset this by 'eyeball' and even with all the Roundhouse locos I have worked with. I was not having success.

It seems that my 'lack of success' was due to the fact that the crankpin had come loose. This led to another lesson learned: when assembling crankpins into drivers, especially if your loco is equipped with Walcharets valve gear, use Loctite™ on the threads to insure lack of movement. There is a red 'Thread Locker' available at Ace Hardware stores that keeps these pins and other things on the locomotive tightly bound, but can be released with a little elbow grease or heat from a small torch if need be.

There are two major operations involved in timing in Roundhouse running gear. The first is getting the return crank to be oriented exactly 90 degrees advanced of the crankpin, and the other is setting the position of the "D" valves so that both front and rear cylinder ports are covered when the cranks are at front or rear dead centers.

Of the two, the first is by far the most difficult. I used to think that since Roundhouse was in England and therefore fairly close to Stonehenge that they employed Druid wizards to do this. It seemed to be a mystical art. Fortunately, on the Climax this is a relatively easy task. That's because the flywheels to which the cranks are attached have a counterweight machined in them whose edge runs through the center of the flywheel and is oriented exactly 90 degrees to the crankpin. This was prototype Climax practice and I duplicated it exactly on the model. This is easy to

do if you are milling these parts and using the mill to locate the hole for the crankpin as well.

To get a quite accurate 90 degree relationship on a Climax flywheel: first put your main rod onto the crankpin, then slip on the return crank. Make sure the return crank is right at the edge of the crankpin, or later the return rod may strike it, knocking you out of time or damaging the return rod. Take the motion pin that connects to the return rod out of the return crank leaving the hole for the motion pin open. Turn the return crank so it is approximately 90 degrees ahead of the crankpin. Now sight through the motion pin hole until you see the edge of the flywheel weight running through the center of the hole. This should be a very close 90 degree relationship. Tighten the return crank down on the crankpin.

The other timing operation is just as Roundhouse describes. With the steam chest uncovered, set the valve gear exactly in neutral (center of the expansion link) and adjust the valve stem until the "D" valve covers both ports. If there is play in the linkage, just make sure that the play in the "D" valve is equal in both forward and reverse direction, centered around the covering of both ports.

If everything is perfect your engine will spring to life. Usually there is some small adjustment to be made, most often in the positioning of the "D" valve. While the engine is running, I will push the stems either forward or reverse with a small screwdriver and see if this makes any difference in engine performance. If it does, I adjust the valve spindle accordingly. If I pulled the spindle away from the cylinder with the screwdriver and the performance improved, I turn the valve spindle a half turn clockwise as seen facing the rear of the cylinder. If performance was improved by pushing the stem towards the cylinder, I turn the valve spindle a half turn counter clockwise (The Brits say 'anti-clockwise') as seen facing the rear of the cylinder. If doing this does not cure a rough running engine, look again at the timing relationship on your return crank. Make absolutely sure that the crankpin cannot rotate! I have had a number of occasions where this came loose and the timing just goes in and out for no apparent reason at all. If this is the case, provided your crankpin threads are not stripped, remove the pin, put in some Loctite™ or Threadlocker as sold by Ace Hardware, and re set your return crank.

Since you had to remove the tops of the steamchests to set the "D" valve position, it wouldn't hurt to make sure that these have been firmly tightened back down. Leakage here can also lead to poor

performance. If there is leakage in one cylinder only, it can look like bad valve timing.

This has been said before, but I must repeat because it is important: When you air test, keep the cylinders, piston rods and valve stems lubricated with oil. Seal drag can also look like bad timing. Sometimes just a little lubrication brings an engine that looks like it is timed badly back to life.

Painting of a completed project has always been one of the two aspects of locomotive building that I dread the most (the other is valve timing). I feel that it is a total injustice to have built this model, got everything fit together and running well only to have to tear it down stem to stern and reassemble and adjust it all over again. It is, however, the only way to have a decent looking model in the end because if you paint things as you assemble and fit them, many times the paint job will become worn out in the fitup and adjustment process. Scratchbuilders especially have no guarantee that what they are building will fit up the first time, and often even a well planned model will go through some revision or improvisation during the building stage that never showed up in the plans. This cutting and fitting totally messes up a good paint job, so it's best to do this after you know for sure everything fits and works.

That 'improvisation' stage is one of my favorite stages of a project. I do carefully plan all major aspects of my projects using CAD and fabricate parts as closely to my prints as possible, but when a desired change or improvement suggests itself 'on the bench', I often improvise without the benefit of drawings. This occurred with the pilot assembly of the locomotive. This was originally to be a single sheet of brass running from behind the smokebox pedestal over the front beam. I revised this to leave the smokebox pedestal and its mount to the frame exposed, and the sheet brass was replaced by real wood planking. I can't pick the locomotive up by the pilot as I used to be able to do, but that front end sure looks a lot better.

The teardown for painting was done in several stages. First all the valve gear and the two flywheels were taken off and blackened using Blacken It. These parts were put in compartmentized boxes so that everything could be kept straight for the left and right sides.

The boiler wrapper, cab and smokebox were next. The actual Roundhouse boiler was not painted since it is completely covered by the wrapper and never seen. All parts except the smokebox were cleaned, slightly roughened with a Dremel™ wire brush, then de-

greased using paint thinner and a toothbrush. They received an initial coating of etching automotive primer which dries in about 1/2 hour. As a precaution, I let the larger parts dry at least overnight. Automotive engine paint was used for all surfaces due to the heat involved. A flat black was used for most of the locomotive, and 'Cast Finish' was used to simulate the graphiting on the smokebox and stack. The smokebox was not primed because it was questionable whether or not the primer could withstand the high heat. The engine paint can withstand a minimum of 500 degrees. Since I had incidents of soft solder melting on plumbing joints near the superheater, I wasn't about to take chances with a primer that might not withstand the heat. The smokebox was painted with automotive engine paint directly.

The paint instructions say to add additional coats either within one hour, or after 7 days. I took this to mean that the paint itself takes 7 days to cure. I waited that long before heating any painted parts. There was plenty to do in the meantime.

Having a well organized compartment system for each painted assembly as well as the hardware that goes with it is a necessity. The small brass screws that hold most of the detail parts on the locomotive were blackened as opposed to painted because the paint would wear off when sockets were used to fasten them. All these screws were kept in the bins with the parts they attach. My work bench started to look like one big Aster kit.

In addition to painting, another operation that took place at this time was the wood planking of the front and rear deck. I mentioned improvisation earlier. I changed over the front and rear pilots and decks, and moved the fuel bunker further back all in the course of building the loco. This changing of the pilots and beams was done to make the planking look better. To plank the deck, I first removed everything from it, degreased, primed and painted it, then laid down stained basswood planks. Side sill beams, or wood beams parallel to the frame but at right angles to the planks, were added next. I put glue on the top surface of the side sills, and attached them to the underside of the planking. There is another similar side sill on the inside of the metal frame which serves as an attachment piece. It is not smart to just glue the wooden planks to the metal frame, you may want to remove or replace the wooden assembly some time, and making it a separate assembly that can be removed using screws is the best way to facilitate that.

I took one exception to that technique when I planked the deck under the cab and bunker. That is

not an assembly like the front and rear pilot decks are. For that planking I first painted the brass sheet that forms the deck, then attached pre-stained planks on top of it using JB Weld™. The cutouts for wiring were already established in the brass deck sheet, so the planking just had to be cut out where the holes in the brass were cut out.

I have to say that this Climax was by far the longest scratchbuilding project I have attempted to date. I have built two 2-4-4-2 Mallets, a 2-8-0 Rio Grande style Consolidation, a 15 ton Shay, and a steam streetcar. None of them took the number of design iterations or evolutionary stages that this Climax did. Some portions of this project sat idle for a long time before I either obtained the modeling skills or learned of the availability of ready made parts to complete them. In some cases major portions of the project had to wait until funds were available. All in all, the project spanned between 2 1/2 and 3 years and during that time essentially three different locomotives were built before I arrived at the final result. Although I actually 'gave up' at least twice, this turned out to be relatively short term when solutions to my construction problems were discovered.

In this series I have tried to share a good number of the pitfalls and successes I encountered in the project and most importantly techniques and lessons learned. It would be great if some readers would undertake a similar Climax project now that the methodology has been worked out. If some of these techniques can be used in other types of modeling projects, then the information has still proven helpful. Finally, if someone succeeds where I did not and does build a Ruby based Climax, hats off to ya!



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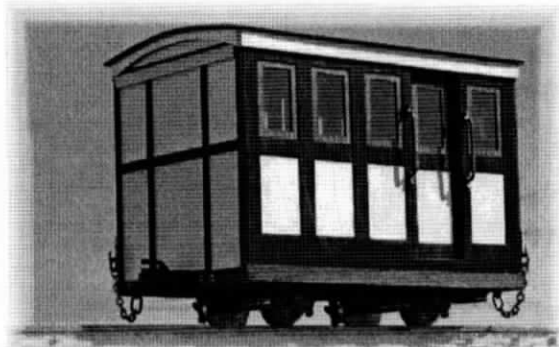
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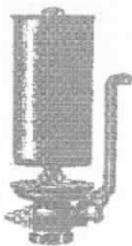
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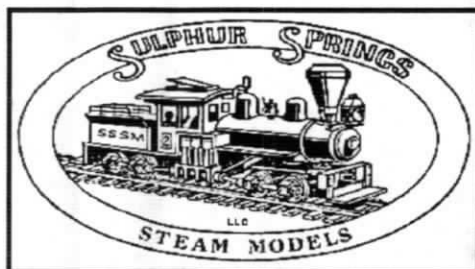
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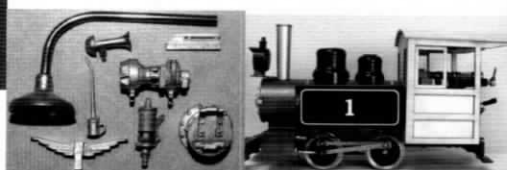
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Too Much of a Good Thing

by Murray Wilson

A few months ago I bought a commercially made, alcohol fired, Smithies boilered 0-4-0. The seller told me it was a poor runner but I was optimistic that could be corrected. The engine in question is gauge 0, but the following is at least as relevant to gauge 1.

The first glance suggested the burner and firebox as the problem, but a look into the smokebox showed the designer had apparently put the chimney where

he thought it looked best, ignoring the fact it was 1/4" ahead of the blast nozzle. I didn't want to change the appearance of the engine, so I repositioned the blast nozzle, which involved considerable thought and work.

Doubly disappointing then to find negligible improvement. So back to the burner.

The burner had three cylindrical wicks in line,



The engine is a gauge 0 "Adelaide", made in Australia in the early 1980s.

each .475" diameter. A traditional design, but fundamentally wrong. Cylindrical wicks are the least effective shape possible as the combustion air is unable to reach most of the wick. Rectangular wicks or linear wicks have much better geometry, and fit the typical firebox better.

So I built a new burner.

I don't know of a reliable rule of thumb for wick size, but to my eye the existing ones looked far too big. The new burner has two rectangular wicks in line, each .75" x .25". That's a reduction of 30% in wick area and of 40% in air inlet area, for I closed off the space where the third wick had been.

As a further improvement I included a feature that was first described ninety years ago and recently redescribed in the G1MRA Newsletter. It is the drilling of a circle of small holes through the wall of the wick holders just below the top. Flames will develop at these holes and improve the burner and engine performance, usually quite impressively.

The new burner transformed the engine from running out of steam after tottering about ten feet with no train, to running continuously with a full train until the fuel is exhausted.

How does reducing the wick size improve the performance? There is an ideal ratio of air to fuel, the stoichiometric ratio or "stoke" for short. In practice the ideal is not achieved, there is inevitably some excess air in good combustion, but designers aim to run as close to 'stoke' as possible at all loads and speeds because excess air carries away heat needlessly. On a commercial boiler a monitoring and control system attends to this, but on our models the control has to be intrinsic in the geometry of the design. It isn't possible for such a simple arrangement to give ideal perfor-



Two different burner types, as described in the article.

mance over a wide range of speeds and loads and usually the best compromise is accepted. Typically at low speed some engines will require the blower to be used, others will lift the safety valve. The balance may go either way.

In my engine with its original inefficient wick shape the de-

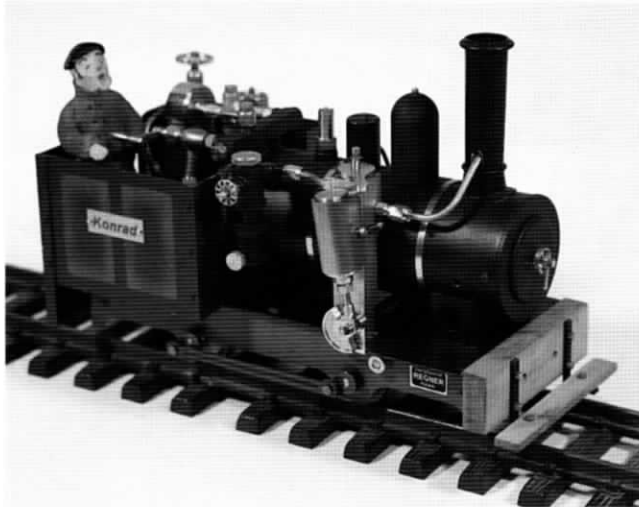
signer allowed a great deal of excess air, presumably in order that the smell of partly burned alcohol would not be overpowering. The flames were long and comparatively cool, the boiler short, so little steam was made. Reducing the wick area by 30%, the air induction area by 40% and directing the air close to the wicks produced hotter, shorter flames with much less excess air. The result was the transformation in the engine's running.

None of these ideas is original. Noted experts Eddie Cooke and Clarry Edwards wrote of them and their advantages. However I expect many more cylindrical wicks and yawning firebox openings will be produced, so if you do get a dud you'll know one place to start looking.



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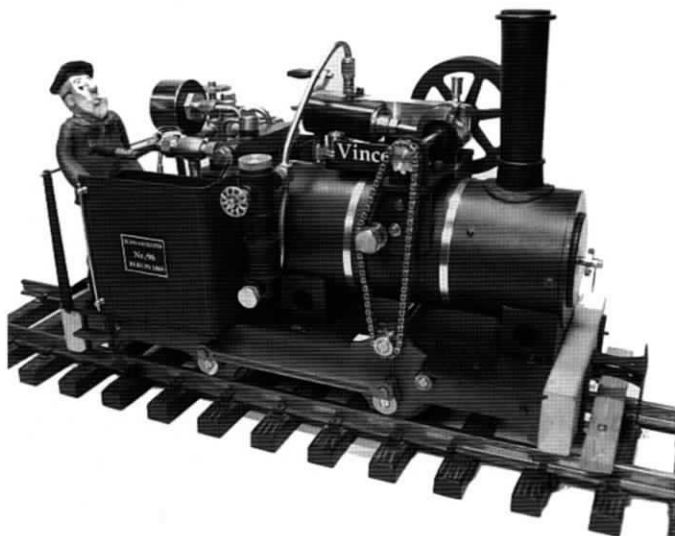
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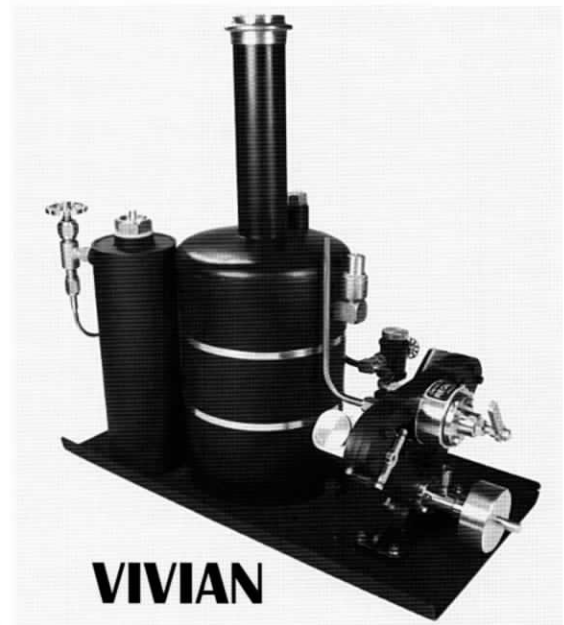
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US Railroad Steam-Up in Switzerland

by Werner Jeggli

photos by Christian Schmutz

First of September 2007 was American Day for the Gauge 1 live steam scene in Switzerland. US engines and rolling stock only were permitted to participate. The event was organized by the EiWi Group. EiWi means "Eisenbahn Witterswil" and Witterswil is a small village in the vicinity of Basel/Switzerland.

Outside the village, in a small wood and adjacent to a little stream they have built up their tracks on a surface of 35m x 8m and at a height of 1.1m. The layout features 4 loops, 6 rolling stock parking tracks, 6 steam rising bays, 6 additional loco parking tracks and a manually operated turn table. And that's where the problem came in!

Aster Big Boys were expected to show up at this meeting – as many as possible – and the turn table simply was not big enough to accommodate this type of locomotive. So, the group put in time and money to bring the table up to US size for the big event.

It was amazing. 33 enthusiasts turned up. The biggest group naturally came from the German speaking part of Switzerland. But also fellow live steamers from Germany and Austria had followed the call. They brought along an impressive number of different locomotives and rolling stock. Trying to keep track of action and actors, I came up with the following figures. Present were: 12 Big Boys, 1 Allegheny, 2 Berkshire, 2 NYC Hudson, 1 Pennsy K4, 1 Daylight, 1 Shay, 1 Climax, 1 Reno and 2 B&O Grasshoppers – all ASTER models! About half of the engines had been built out of a kit by the present owners. The others had been bought factory assembled or from a previous owner. Still, there was quite a bit of money standing on – or running around the tracks. "Must be a clacks for those rich Swiss", I seem to hear rumours. But no – there wasn't a single banker

around. Two thirds of the participants are or had been employees. The others ran or run small enterprises. Average age exactly 64.05 years (you have to face the negative facts too!).

Beside this impressive fleet, three scratch builders ran the following engines: Milwaukee Road Hiawatha, B&O Cincinnatian and an American 4-4-0.

On the rolling stock side, two goods trains of 74 and 35 wagons respectively were available besides a Daylight, a Cincinnatian, a Pennsy Pullmann and a logging train consist. For an impression of the days action see the pictures with the corresponding legends. The 74 wagon train tended to make a single Big Boy slip. Double traction not only alleviated the problem, it also made sure, that all the engines had a good workout. No accidents happened on any of the four loops. This is to be credited to Willi, the track marshal, a most important man. The day ended with a common dinner prepared on site, roast meat from the grill, rice cooked boy scout style in a kettle above the open fire and mixed salad. To top it, a country singer in western look showed up and entertained the crowd with his guitar and a few songs. All in all – a most satisfactory Day!

For additional viewing – here are the links:

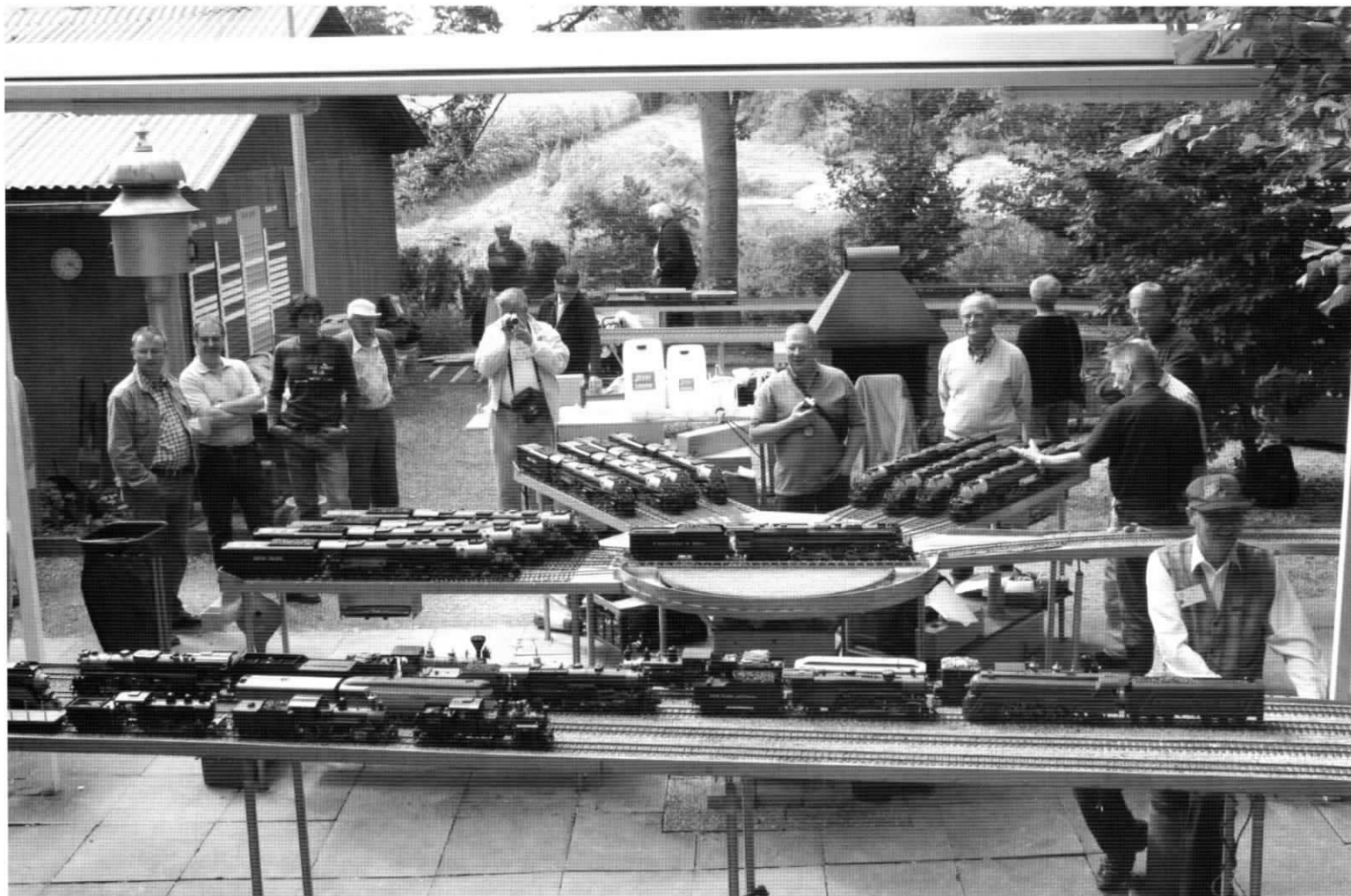
You will find pictures of the event on the EIWI homepage
<http://www.glmra.ch/>

And videos:

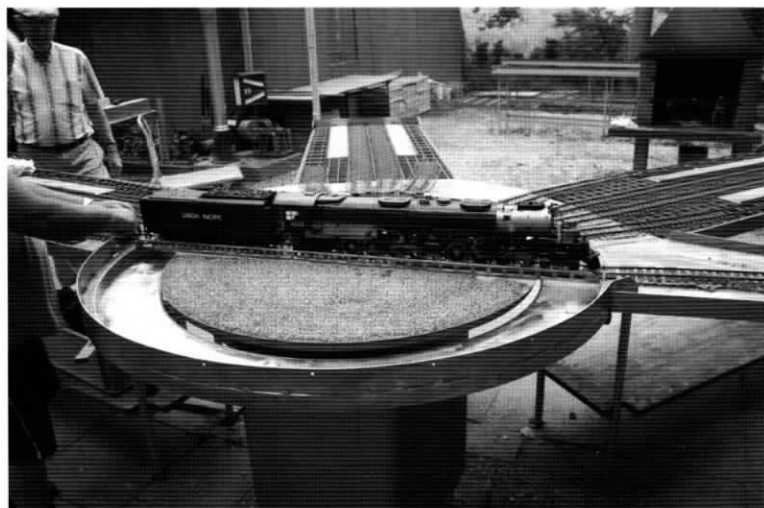
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Overview of the EiWi service and visitor area. All engines assembled for photo shooting.



Prior to the event: Final test of the rebuilt turn table.



The 12 Big Boys in the steam rising and parking bays. An Allegheny on the turntable and the smaller engines lined up on the loop tracks.



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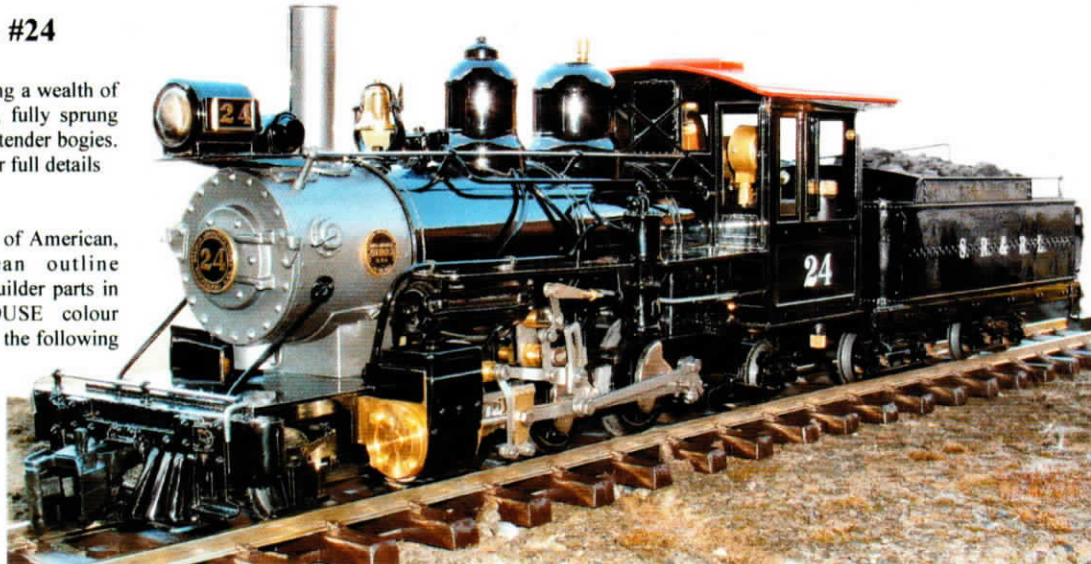
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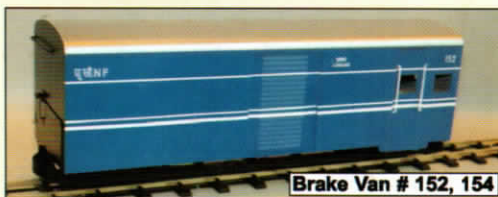
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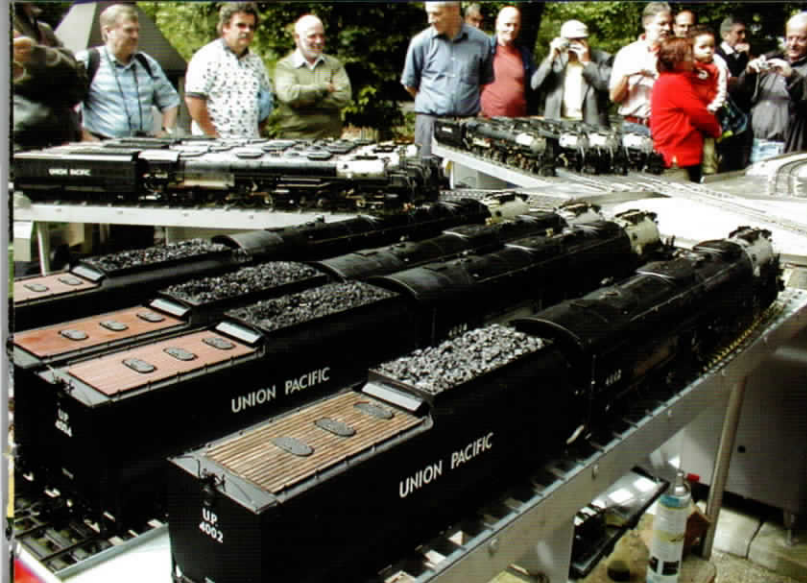
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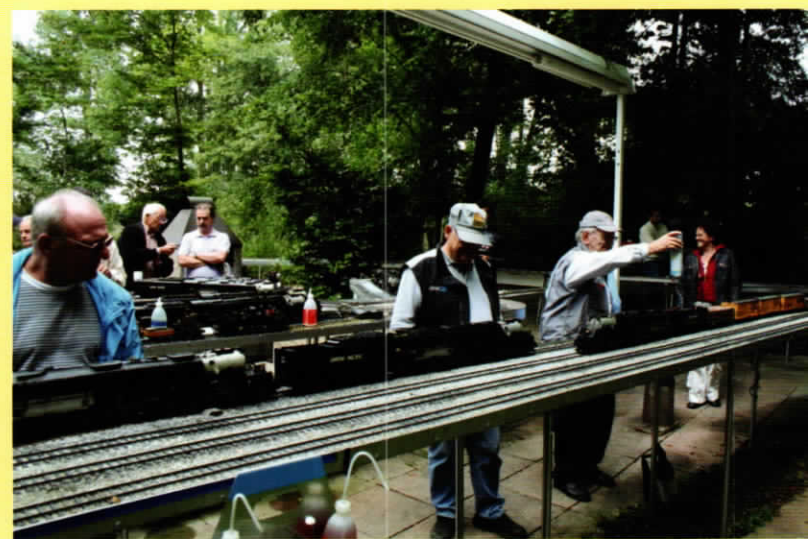
An impressive sight indeed!



Can you identify the individual models? In lower left hand corner of the picture the levers to hydraulically operate the switches can be seen.



The "scratch builds", from left to right: American, Hiawatha, Cincinnati.



Big Boy trains crossing each other.

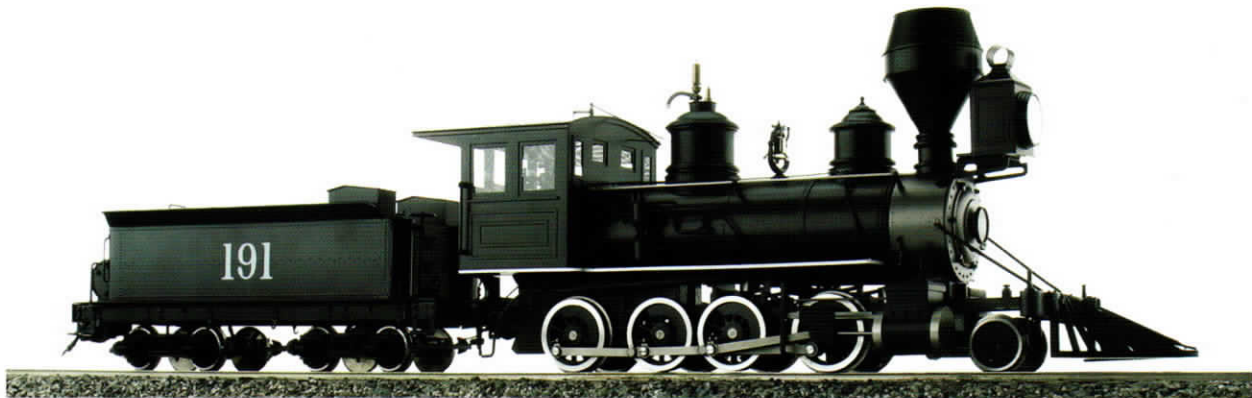


Willi, the track marshal (with red hat), instructs Hans Peter, one of the Big Boy drivers.



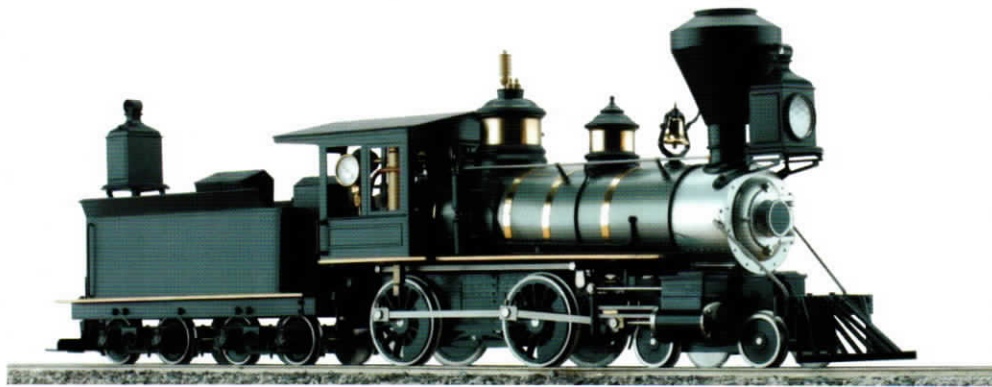
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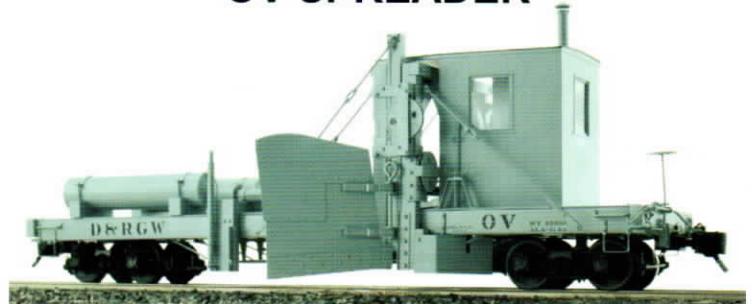
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A Vintage Steamup in the UK

by Jeff Young
Mississauga, Ontario CANADA

In May 2007, Peter Foley and I ventured across the pond to England and Wales to ride some narrow gauge railways, see some Diamondhead friends and generally enjoy ourselves. One of our stops was a steamup at Dave Pinniger's Ambledown Valley Railway in Berkshire. Both Peter and I were drawn into the live steam hobby in the late 1970s by evocative articles in the British model railway press by Jack Wheldon, Dave Rowlands and Dave Pinniger on the joys of simple 16mm scale potboilers.

Knowing this, Dave Pinniger, Mike Dockery and Dave Lamar treated us to a parade of the very locomotives that we had read about so very long ago. A truly amazing afternoon steamup! What follows is a photo essay of the pieces of small scale live steam history.

Photo captions, page right - clockwise from top left:

"Archangel Rheidols": A pair of Archangel Vale of Rheidol locos belonging to Mike Dockery wearing some rather unique Archangel paint schemes.

"Lord Snowdon": An Archangel single Fairlie locomotive belonging to, and recently restored by Dave Pinniger.

"Lupin": A very historic locomotive: Jack Wheldon's own Pooter-class locomotive from 1984. One of only a dozen or so Pooters that Jack himself built before Roundhouse assumed production.

"Richard III": Owned by Peter Armstrong, this is probably one of the rarer engines of the afternoon. This meths fired pot boiler is a model of one the 2-6-2 locomotives on the Vale of Rheidol Light Railway in Wales, built in the 1970s by Harvey Watkins.

"Prince of Wales": Dave Pinniger's Archangel "Prince of Wales" (built in 1982) basks in the warm afternoon sun while lifting its safety valve.

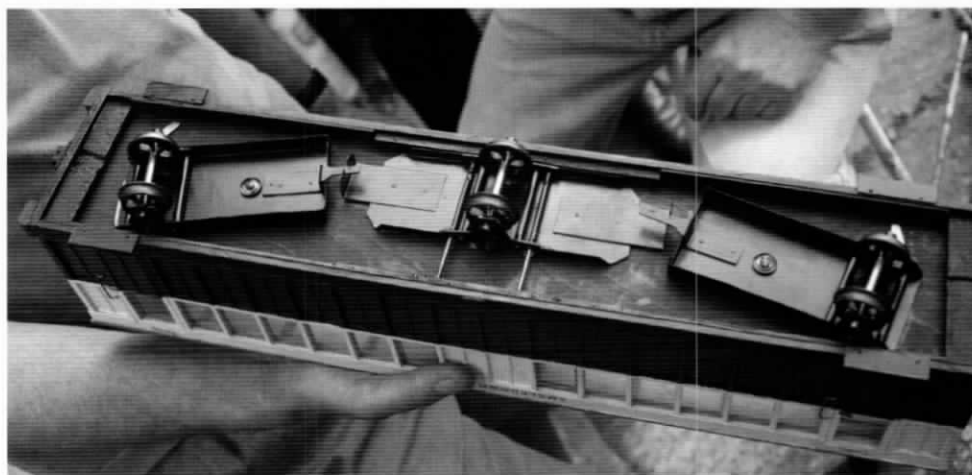
"Lucy": Locomotive number 1 on Dave Pinniger's Ambledown Valley Railway, an Archangel "Brick" originally owned by Dave Rowlands. The Archangel "Brick" was the first 16mm scale live steamer produced by Archangel in 1971, this example dates from 1975.

"The Host at Work": Dave Pinniger tends to his Archangel "Prince of Wales" locomotive. The silver teapot for water adds a level of sophistication to the afternoon.



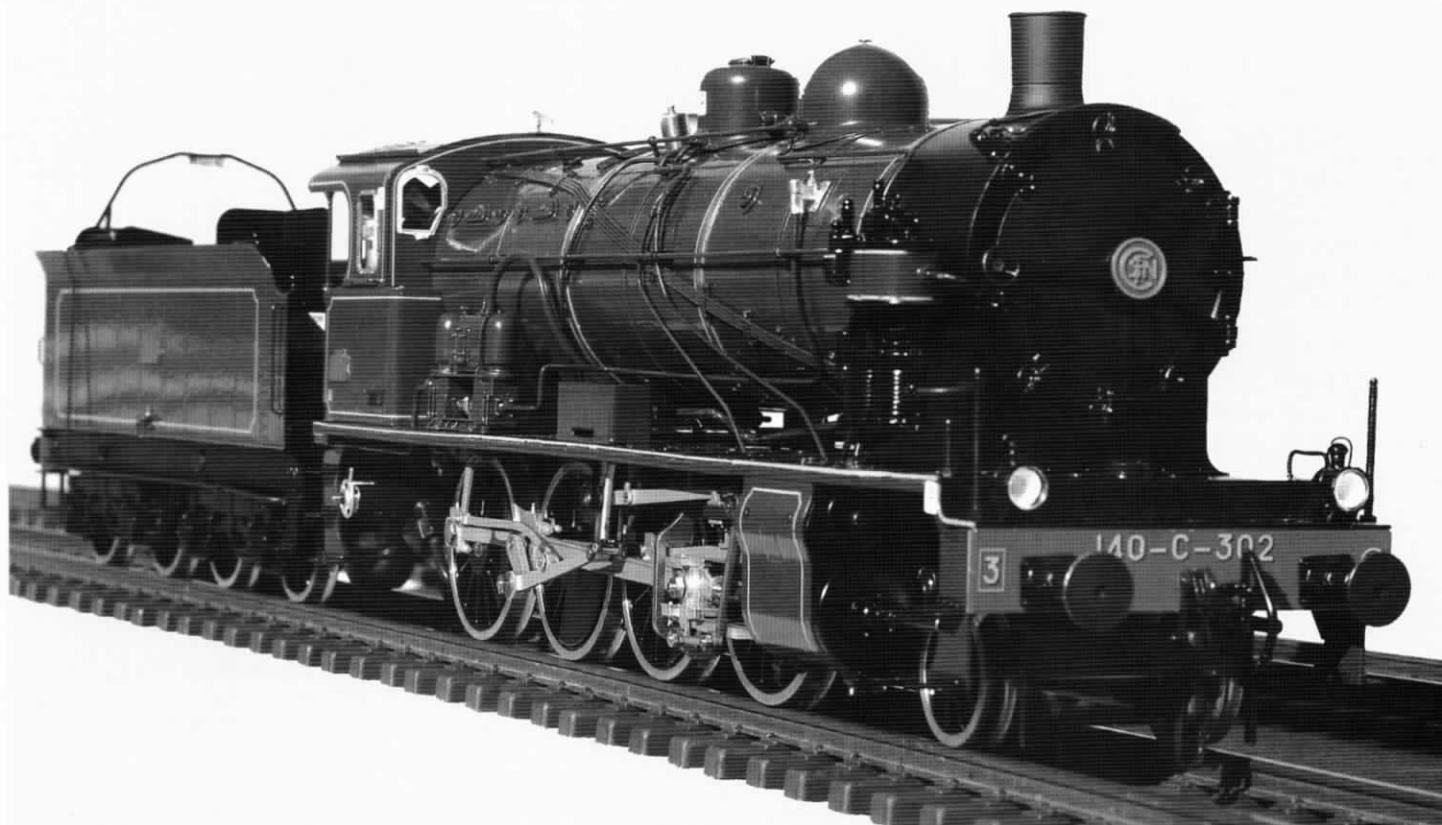
Photo right:

"Cleminson Coach": A vintage Archangel Vale of Rheidol coach using the unique Cleminson arrangement to allow long wheelbase 3 axle coaches to travel around tight curves.



The new Aster SNCF 140 C

by Howard Freed



The prototypes of these French two-cylinder superheated steam locomotives were constructed from 1913 to 1918 for both freight and passenger trains. Two versions are available from Aster as specified below.

SNCF type 140C 302 (Dabeg)

Engine type 140-C-302 (SNCF)

- Green livery with yellow lining
- NORD smoke box door
- Compound air pump
- Dabeg feed-water pump with mechanical drive
- Tender with coal bunker extension

SNCF type 140C 287

Engine type 140-C-287 (SNCF)

- Black livery with red lining
- Original ETAT smoke box door
- Compound air pump
- Lemaître exhaust
- Tender with coal bunker extension

From the first time I saw the picture of the new Aster SNCF 140 C I wanted one. It's a refined, sleek looking locomotive. The green color was a welcome addition to the several all black colored locomotives in my collection. This is also the first opportunity I've had to add a French locomotive to my collection.

Once it arrived I couldn't wait to start work-

ing on it. The manual was in the exploded drawing format with a separate manual of written instructions. The assembly follows the same sequence as most Aster locomotives. You start by lapping the cylinders, and next you assemble the main frame. It is a very well designed engine and it went together without any difficulty. Once built it is a very nice looking locomotive.

This engine has one extra feature that interested me. It has an arm that extends from an eccentric rod, and this runs the Dabeg Pump that is mounted on the running boards on the right side of the locomotive. I love watching all the workings on the undercarriage, and this added something new. After finishing the build, I was ready to give it a test run.

After letting the silicone cure for a day I took the "140 C" out for a test run on the track. I decided to pull two carriages Pete Comley had built for me. It fired up beautifully, and built a head

of steam in only a few minutes. As with most "just built" locomotives it took a little coaxing to move the first time, but once it started it ran like a champion. It's rare when a new engine doesn't stall a few times on the first circle of the track, but this one started running and never slowed down until it was out of water.

The Dabeg Pump moves with the eccentric rod and adds an additional dimension to the running gear. The axle pump kept up with the water consumption and it ran for about 20 minutes on its maiden voyage. I was very pleased with its performance. Since then, it usually pulls around five carriages without any trouble. I have run it many times since then, and it has performed beautifully every time. This is not only a good looking locomotive; it's a great runner as well.



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The Car Works' Darj Coach Set

by Jeff Young and Peter Foley

This is a most welcome addition to the large-scale hobby inventory. The modern era (1960s), steel-bodied three coach boxed set consists of a luggage/brake van, a center door third class coach and a second 3rd class coach with two side doors. The cars are constructed from etched brass sheet soldered together and are painted in the plain blue scheme, with 3 horizontal white stripes, black underframe and silver-grey roofs. Additional single coaches are available if you

and gauge O. The obvious mate for these coaches is the Roundhouse Darj loco (in the blue scheme if you want to be prototypically correct) and they looked good behind it when I saw the coaches running before picking them up for this review.

Taking the cars out of the standard fitted foam interior packaging, they feel solid. They weigh in at 1.5 kilograms each...call it 3.4 pounds in old money. So, the 3 cars in the set make up a decent 10 pound



3-car Darjeeling Coach Set from The Car Works on the track. The center door car is only available as #89, the 2-door coach is available in several numbers, as is the baggage/brake. Note the grille over the dog compartment on the side of the baggage car.

want to beef up your train. There is fixed glazing in place in the windows and the coaches have interior seats (although not necessarily matching any known Darj coach seat layout). The trucks are prototypically correct and the metal wheels are the correct diameter, with fine-scale flanges. The set is built to 16mm=1' - "O" (1:19) scale and is available in both gauge 1

load for a loco. In order to keep the price down and to improve the rigidity of the bodies (these are meant for garden operation, after all), doors and windows are fixed and do not open. Couplers are prototypically correct, and unlike many such efforts, operate very well, even down to some tight radii. The downside of the couplers is they are VERY fiddly and require



The scale couplers. To couple the cars, lift the looped pin (on the left car), fit the link (on the right car) into the slot and drop the looped pin to engage the link. Note also that the couplers are hinged under the body, which allows the couplers to swing when running through tight radii curves.

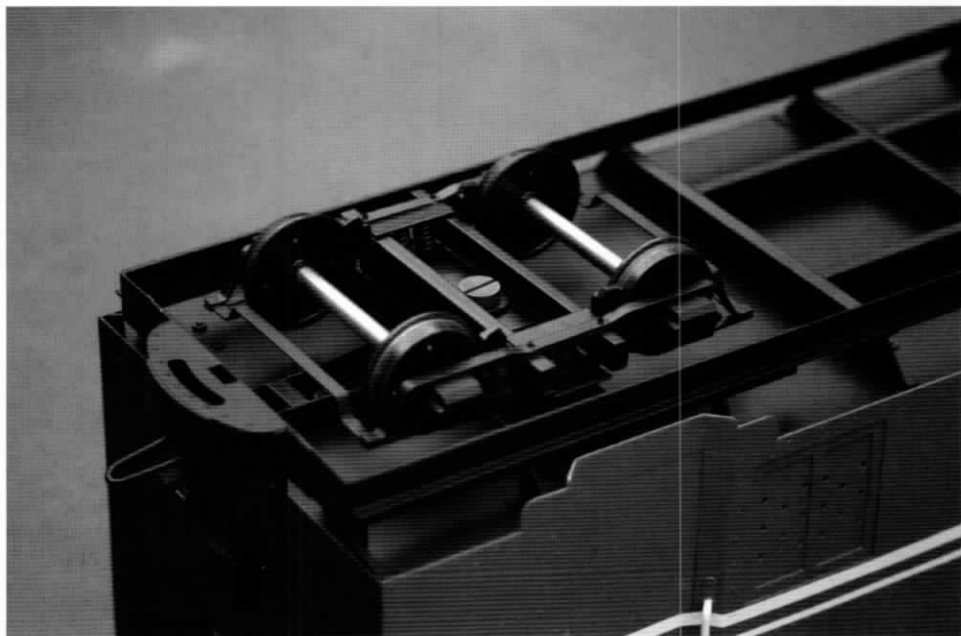
both good vision and good hand-eye co-ordination to make the connections. Once hooked up, the appearance of the train is improved over the norm by being close-coupled. They also work with the couplers on the Roundhouse Darj loco, which is nice to find in a hobby not noted for coupler uniformity between manufacturers.

The paint is applied in a thin coat and does not distort or obscure any of the fine detail. My sample (which is the manufacturer's demo set) has seen some use and shows minor paint damage - a chip below the baggage door and another on one of the window frames, these most likely due to some kind of impact. The paint is hard and resists marks, but is prone to chipping, as all paints are on brass (except for the powder coatings and such, but then you lose the fine detail). The windows are individually fitted in each window opening. A minor niggle is the automotive striping material used for the striping. It looks great, is applied straight and adheres well. The exception is at some inside corners where it had pulled away because of tension in the tape from being stretched in applying it. It's

minor, but it does detract from an otherwise first rate job of painting/finishing.

Take care if you intend adding passengers! The screws used to assemble the floor to the body (8 screws) are very small and have a fine thread. Careful handling and care in reinstalling them should avoid lost or cross threaded fasteners. Care is the operative word! The background of the manufacturer in the HO, S and O-scale brass loco market is evident in the size of the fasteners. This is a caution, not a criticism.

Not having a suitable 16mm Darj locomotive at hand to pull them, I fired up my trusty Roundhouse "Lady Anne" to take them for a journey around my humble garden railway. Placing the coaches on the track, I found them to be quite free rolling. As mentioned, the scale couplers are fiddly to work. I found that I needed a pair of tweezers in one hand (gripping the coupling bar on one coach) and a pair of needle nose pliers in the other hand (gripping the inverted "U" coupling link in the other). Once coupled to the locomotive, I found that they tracked extremely well, thanks to the sprung trucks. My garden railway has



The underside of the car, showing the springing on the truck.

fairly tight curves (42" radius) and I found that the coaches could easily navigate the tight curves-- even being propelled backwards. The coaches made a wonderful sight travelling around my line.

As mentioned, the wheels have fine-scale flanges/tread width and are really too fine for garden operation. This is my only real niggle with the product. They have a penchant for dropping down into flange-ways on the higher rail-code turnouts. Something with a wider tread/deeper flange would go a long way to improve the tracking of the units.

The very eclectic nature of the Darj organization and their penchant for casually re-jigging both the interior and exterior configurations of the passenger fleet, with total abandon, are a large component of what makes these coaches work. Since being built in the 60's many of these coaches have had a number of re-dos, changing the class designation, seat layout, interior layout and function/use (one of the baggage cars is now a coach, and vica versa). It's all but im-

possible for someone to pick any prototypical nits with these cars since there isn't any hard published data available on the coaching inventory.

At \$995.00 for the 3-car set I think they represent good value for money. Being able to buy 'em and run 'em, at a reasonable cost and without a lot of 'not-includes' is something you don't find that often in large-scale narrow gauge trains.

The sets are made in China and imported by/distributed by The Car Works, P.O. Box 4254, Warren NJ, 07059; e-mail stan@thecarworks.com; website is at <http://www.thecarworks.com/> (which includes a list of dealers). Stan is looking for another car set to do in a similar fashion. If you have a GOOD set of drawings for something you'd like to see done, that you own the rights to, drop him a line.



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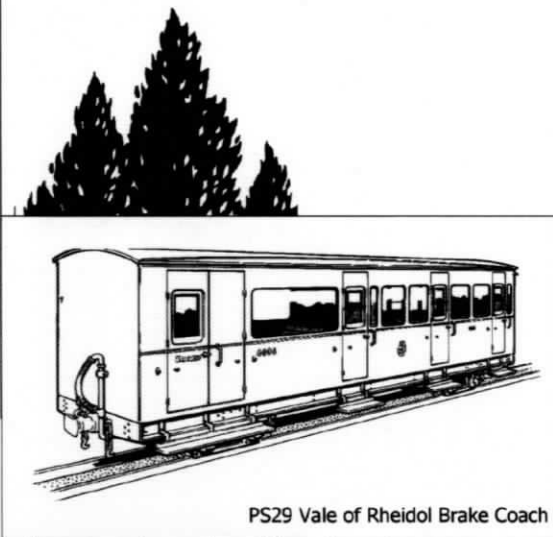
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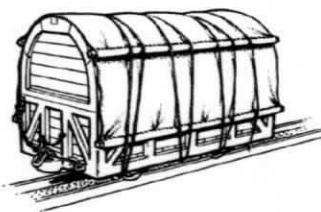
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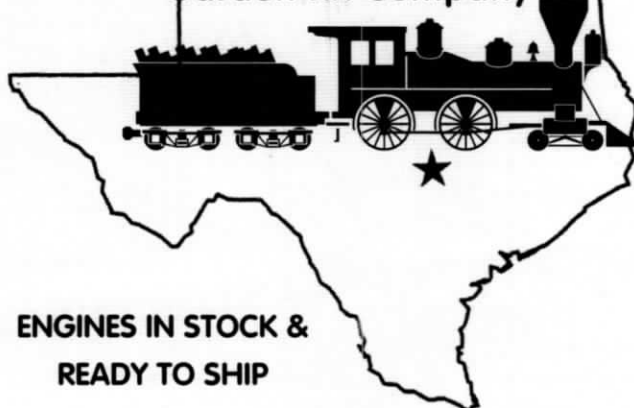
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End of an era...

Sunset on Seeley Street...

by Rob Kuhlman

Sunday, October 14th marked the final run on one of the more remarkable 32mm railways in North America. Bede McCormack was largely responsible for constructing this railway through the backyards of three adjacent homes in Brooklyn, New York owned by him and his two brothers Aidan and More. For many years the railway wandered through the shrubbery and tunneled through fences. Its hand laid ballasted track, partially ground-level and partially elevated, featured a yard, turntable, wye, a junction, and several routes – a creative and carefully-constructed railway which maximized the potential of small urban gardens. But, with the inevitable changes that occur in families over the years, it had become time to dismantle the railway.

The final run day dawned clear and nippy, which enabled steam plumes to linger and glow

in the sharp sunlight. Numerous extended family members and friends arrived throughout the day to watch the steamers put through their paces. Stan Richmond, Aidan, More, and I ran 16mm n.g. steamers while Murray Wilson and Bede fired gorgeous 7mm scale British standard gauge steamers on Bede's transportable 32mm gauge layout set up in the side yard. But October days are hasty, and time spent in the company of family and good friends goes by even more quickly; too soon the boilers were cooling down for the final time at Seeley Street.



Stan Richmond's gorgeous Roundhouse Darjeeling plus Stan's The Car Works Darj coaches.



Gauge O, 7mm scale LNER/BR D40 (ex GNSR Class V) in BR black. Single inside cylinder, slip eccentric, with silver soldered loco boiler, alcohol fired, fuel and water in tender. Boiler design based on Eddie Cooke's notes (Gauge O Guild publication). Originally it had a pot boiler with the burner under the cab and used the clearstory as a kind of vent/chimney for the vapors. It never ran well, so I stripped it down and designed and built a copper, silver-soldered loco-type boiler with a single flu, with crosstubes in the flu and in the firebox. The backhead includes a regulator, blower and pressure gauge. Runs at around 50psi. It runs better than it did with the pot boiler, but can still be a bit of an indifferent runner. When I have time (ha!) I'll re-work the blast pipe in the smokebox to see if I can increase the draught and generate more steam...



Aidan McCormack and his late Roundhouse DYLAN.



The Author's upgraded Accucraft EXCELSIOR pulling his cardboard coaches.



Stan's new Accucraft L&B Baldwin with some L&B coaching stock.



Bede's 7mm scale UK standard loco. This is an outside cylinder loco Bede picked up at a Manhattan hobby shop sitting in a window. Some unknown person scratch built it.



Murray Wilson tweaking his Australian ADELAIDE.



The author's meths-fired Roundhouse LADYANNE pulling his three cardboard coaches.

A Throttle Extension for the Accucraft Shay

(works on most steam locomotives)

by Bill Hendrick



*Straight extension (top) or dropdown.
Choose which one works best for
you.*

In order to adjust the throttle on the Accucraft 13 ton Shay, you have to remove the cab roof. Fred Gandolfi modified his Shay by using the throttle handle from a Ruby. I couldn't find the aileron control that would fit the 3/16" diameter (it's probably in mm) throttle shaft.

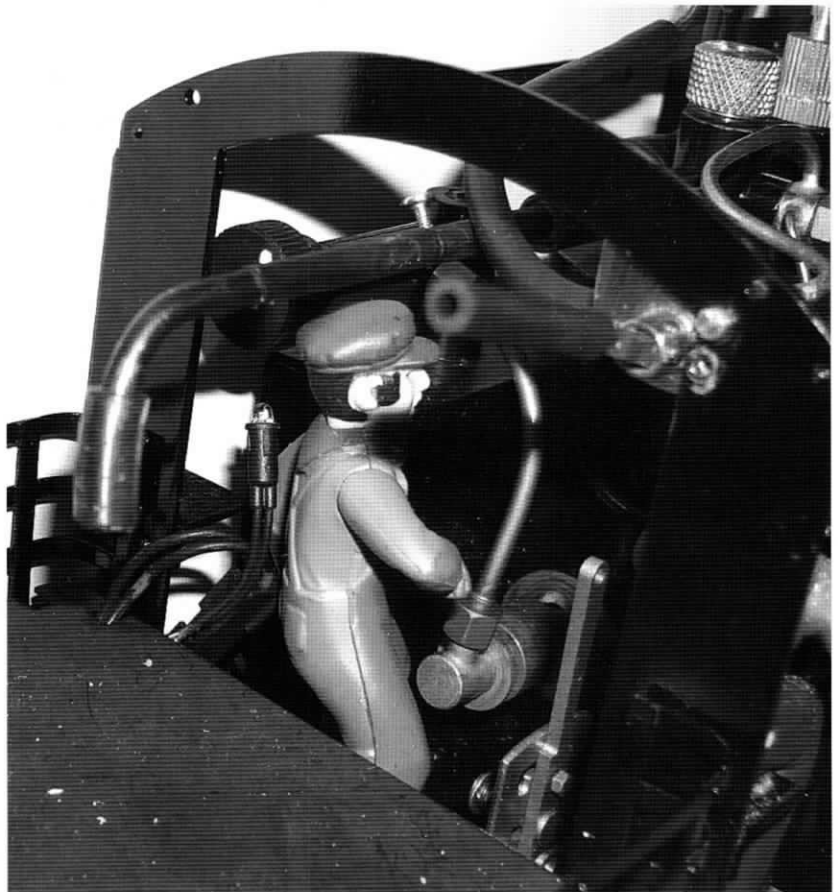
One day as I was looking at the problem, a light bulb went on. I had 3/16" brass tubing and 3/16" brass rod.

First I removed the knob from the throttle shaft (the set screw is 3mm). Turn the shaft so the notch is facing up. This makes it a lot easier to work with. Place a section of the brass tubing alongside the shaft (not touching the throttle column) and mark where the notch is located. The reason for not touching the throttle column with the brass tubing is to give yourself a little

leeway in case you drill the hole a little off (explained later).

Determine if you want a long shaft and one that drops down. Go just beyond the length of the throttle shaft and mark the tubing. Cut it off. Place it back on the throttle shaft. Insert the brass rod into the end of the brass tubing so it touches the throttle shaft. Back it off just a bit and mark the brass rod where it enters the brass tubing.

Now measure the brass rod the length that you want it. Mine extends far enough that I can reach it with the cab roof on. Add just a little to



*New throttle extension installed in the author's Shay.
No more burnt fingers!*

this length for the handle. I put this end into a vise and bent it to a 90 degree angle.

Slip the brass rod into the brass tubing, but only to the mark you made on the brass rod. You don't want the brass rod to go into the brass tubing beyond that mark so it touches the throttle shaft. This might throw off where you will drill for the screw to hold the extended shaft in the notch on the factory throttle shaft.

Solder the brass tubing and brass rod together. After cooling, I placed it back alongside the throttle shaft. My mark was still good for the throttle notch, so I drilled a small hole in the appropriate location. Make sure that you're drilling the hole so the throttle handle can rotate sufficiently for speed control.

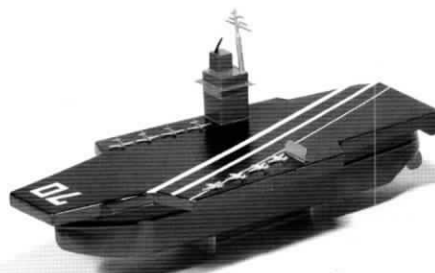
I painted the new handle black and installed a short piece of plastic tubing (model airplane fuel line works well for this) on the tip to keep from burning my fingers.



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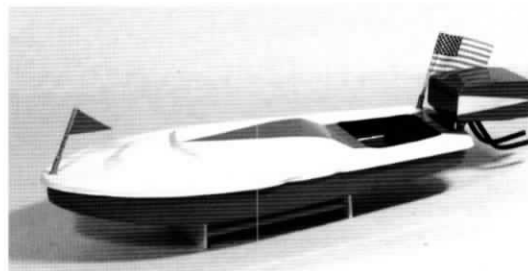


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Give a Toot

by W.C. (Will) Hickman

Apparently the idea among many model live-steam manufacturers and hobbyists is that one can either run steam engines or blow whistles – but not both! I was encouraged by the recent article submitted by Carl Weaver which provided a narrative for installing the Regner whistle in a Roundhouse “Billy”. Carl’s article offered an installation procedure for installing a whistle in an older Roundhouse “Billy”.

The latest Roundhouse models do not have an overflow plug in the boiler backhead. I’m suggesting an installation that could be used on many Roundhouse products, or any engine, with a boiler setup similar to “Billy”, old or new. As Carl mentioned, the whistle is a bargain and it works great!

Briefly, a word about the Roundhouse “Billy” and whistles. Most model live-steamers are familiar with Roundhouse products and their operation. I’m not going to review that information; I only have this to say,

“The Roundhouse “Billy” does produce enough steam to blow a whistle and run simultaneously – to a point. If one continuously blows the whistle the engine will certainly slow down; however, a “toot” now and again doesn’t hinder the operation of the locomotive and only adds a wonderful new attribute, it’s great!”

This installation is slightly different from Carl’s because the physical placement of the whistle is under the boiler, rather than within the cab area. Also, this approach requires an additional part, the “accessory plug” to complete the installation.

The installation is quick and simple

(two very important issues necessary for reliable operation). The operation is perfect with all the steam venting under the engine and away from the cab area and any future electronic controls.

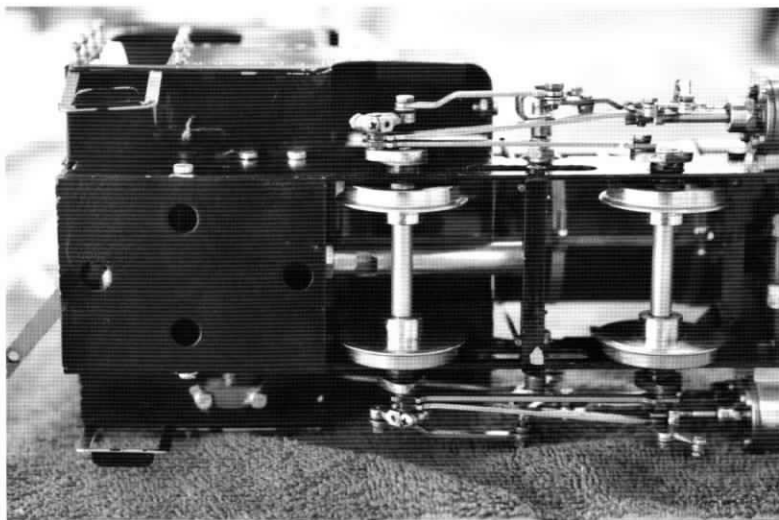
Fundamentally, this approach installs an accessory plug on the boiler, and then attaches a servo mounting plate, with the servo bracket directly attached to the whistle valve body, and finally, fitting the whistle under the boiler. What’s needed for this installation is a completed and working Roundhouse “Billy” locomotive, a Regner Whistle kit no. 20209 (BAQS*), a drill, a 5mm bit, basic hand tools, the adapter plug (Sulphur Springs Models**), some paper gasket material and pipe dope. Also, it is necessary to obtain a small (2" x 1") piece of .025" thick brass shim stock. The “adapter plug”*** is the key to this simple installation and Tom at Sulphur Springs makes an excellent plug. For the electronic control, motor control and transmitter I used RCS ***, with a Hitec HS-55 servo.

At the rear of the boiler, just above the throttle fitting port, is a cap with an “O” ring. Remove the cap. Keep the “O” ring and place it on the new accessory plug. Screw the plug into the boiler fitting just

enough to compress the “O” ring with the .5 mm port pointing towards the rear of the engine.

Next, find your 5mm socket and remove the nut and lever bracket from the whistle valve.

Find your fiber gasket (usually red) place it over the male threaded steam input end of the whistle valve and apply pipe dope to the threads.



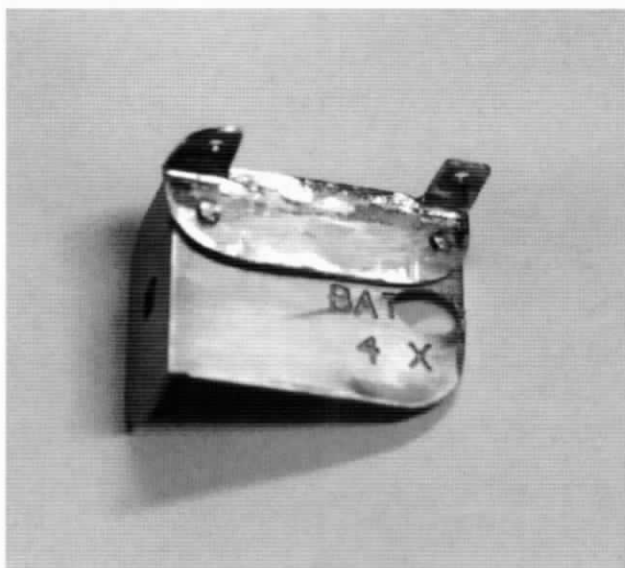
Whistle location.

Then apply some pipe dope (I use Yellow formula 55) and thread the whistle valve into the accessory plug. When you're done, the side nipple (steam output) should be pointing to the left at about 90 degrees from vertical. If not, make it so.....

You'll need that piece of (2" x 1"), .025" thick brass shim for the mounting plate. Bend and cut the brass until you have an "L" shaped piece that is 1 3/8" long x 1" wide forming a 90 degree bend with a 1" long x 5/8" wide section (this is now the front side of the brass). I usually apply a fillet of high temperature solder to the bends for added strength. Next drill a 5mm hole centered from all edges of the 5/8" wide front side. This hole will be used to attach the mounting plate to the valve body. Also, drill a 5mm hole at the rear of the adapter plate to provide clearance for the top screw of the accessory plug (some filing and fitting will be necessary). The mounting plate is attached directly to the whistle valve by slipping the plate over the threaded valve stem via the 5mm hole. Next, set the whistle lever in place and secure everything with the 5mm nut. This assembly provides a very secure mounting platform for the servo bracket. One can use a commercially available servo mounting bracket or make their own, as I did. I placed paper gasket material between the servo horns and the mounting bracket to avoid transferring too much heat to the servo. Worked just fine.

The length of copper tubing supplied with the whistle kit can be bent (with care not to kink) and passed through the hole in the left side cab floor (the square hole next to the directional servo). A tremendous advantage when bending tubing is using the smooth handle of a screw driver as a mandrel.

The "Billy" has a cover



Mounting plate with servo bracket.

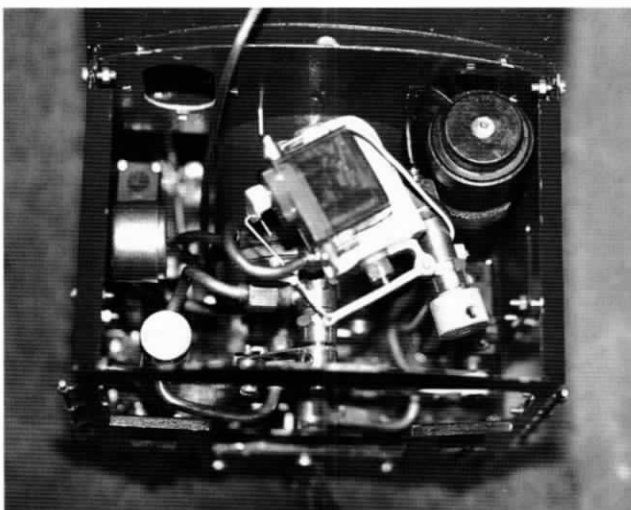
plate over the bottom of the engine directly under the cab. Remove this plate and drill a 5mm hole in the folded section centered from all edges. Slip the threaded end of the whistle through the hole – pointing forward with the whistle venting down when the plate is installed. The whistle must point down, otherwise it will fill with condensate and just blubber! Depending on one's need to remove the plate, the copper tubing can either be trimmed to length or formed into a coil. The coil works best if one must remove the cover plate now-and-again.

In any event, simply attach the tubing to the whistle and replace the cover plate. Done deal.

Things to consider! This installation makes it nearly impossible to have the battery pack in the cab roof. Also, the copper tubing in bottom makes for a very tight fit with any electronic components placed in the same location. I chose to attach a tender to the engine and placed all the electronics/batteries there. The tender provides plenty of room and adds favorably to the overall appearance of the engine.

Fortunately I live in the country with no close neighbors. The Regner whistle is loud and easily heard for 300 yards, even farther with favorable winds. The tone is nearly identical to the European train whistles we are all familiar with – that high pitched tone. I think the sound is delightful.

I'm a newbie to this hobby and have only been working with G scale a short time. I have enjoyed the many contacts with Roundhouse Engineering and Pete Comley at Sunset Valley Railroad ****. My first attempt at a steam locomotive, of any kind, is the Roundhouse "Billy". What I have presented here is merely the documentation of what I did to install a whistle. There are many other approaches to this issue, I offer only one.



Servo mounting assembly complete, top view.



"Billy" underway - whistle installed!

SOURCES:

*

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Locomotive Whistle Signals

Each ● means a short toot.

Each — means a long toot.

— —

Release brakes. Start or proceed

●

Apply brakes. Stop.

● ● ●

When stopped, back up. When running, stop at next station.

—

Approaching stations, junctions.

— — ● —

Approaching public road crossings at grade.

— ●

Warning whistle, when approaching points where view is obscured.

● ● ● ●

Call for signals.

● ●

Answer for any signal not otherwise provided for.

— ● ● ●

Flagman protect rear of train.

● ● ● —

Flagman protect front of train.

— — — —

Flagman return from west (north) on main track.

— — — — —

Flagman return from east (south) on main track.

● ● —

Engineman on second locomotive assume control of air brakes.

— — ●

Approaching point to meet or wait for other trains. Enginemen of each train will give signal at least one mile before reaching the point.

● —

Inspect train for air line leak or brakes sticking.

— — — ● ● ●

Call for section men.

— ● ●

To call attention of switch engines, extra trains or other trains to train markers indicating a following section.

● ● ● ● ● ●

A number of short toots closely spaced is an alarm for persons or live-stock on the track.

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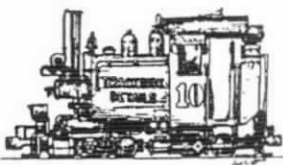
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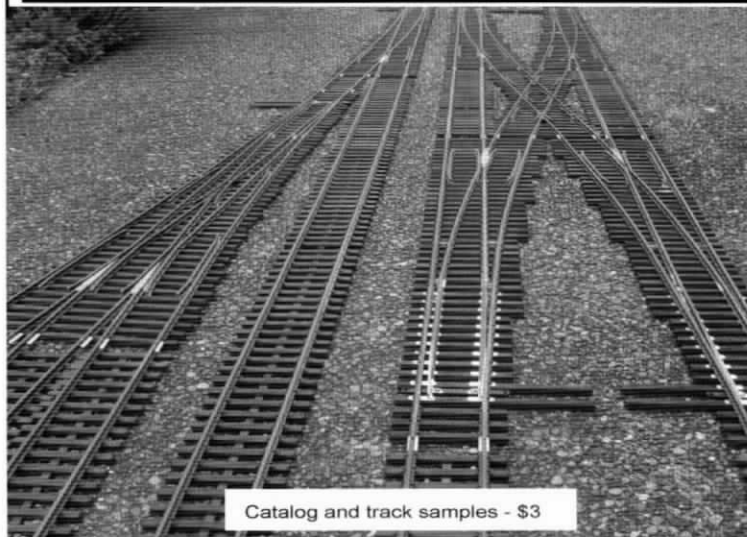
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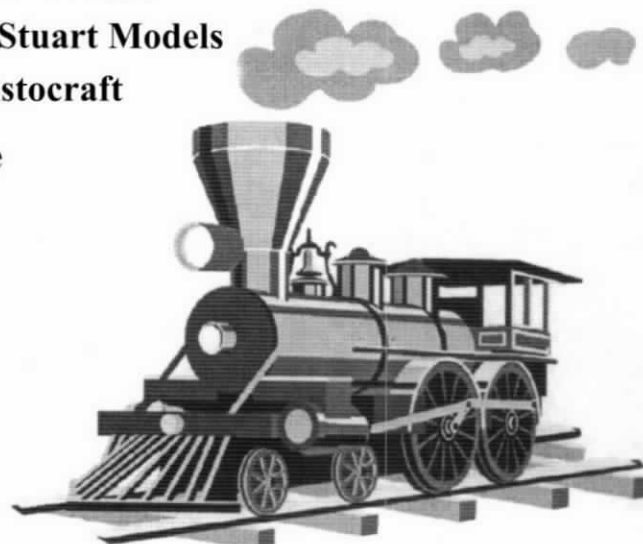
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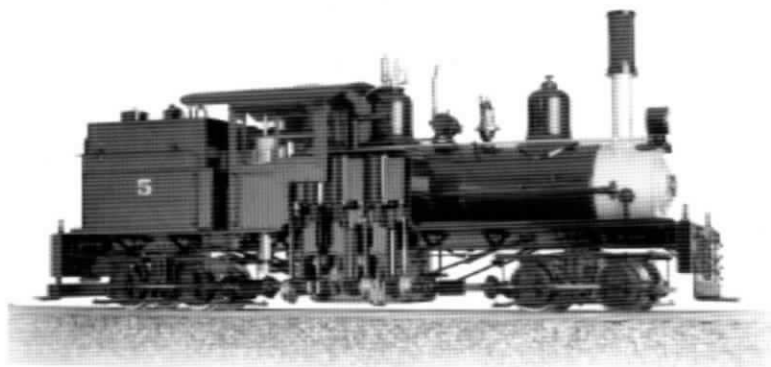
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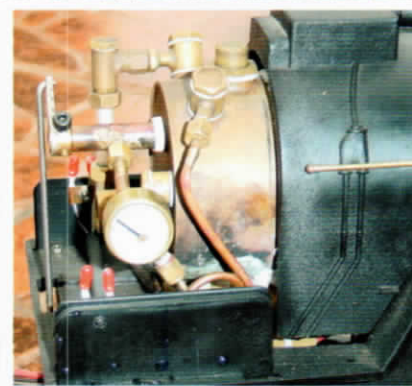


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