

September - October 1998

N° 47

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# STEAM IN THE GARDEN

**NEW! STEAM ON THE POND  
MODEL STEAMBOATING SECTION  
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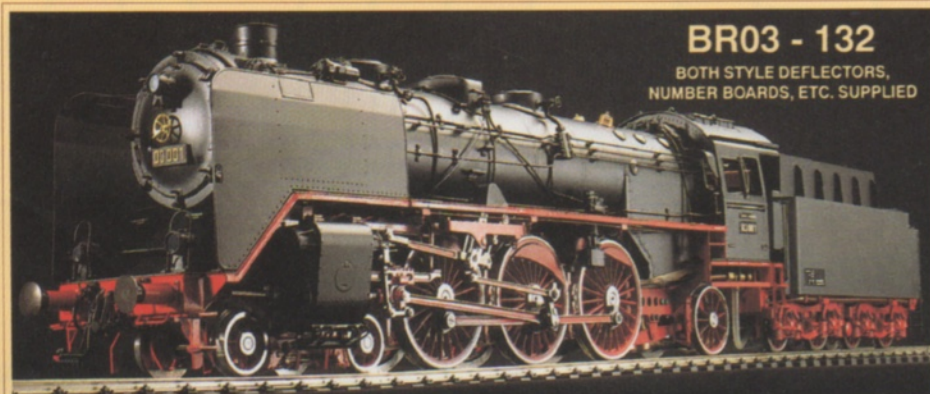


*H. B. Engineering's  
Lady of the Lake  
reviewed in this issue*





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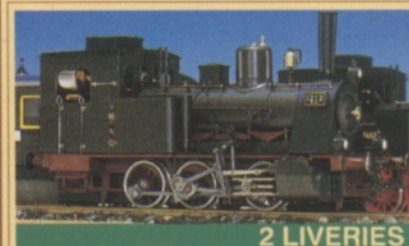
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# STEAM IN THE GARDEN

with Steam on the Pond

Vol. 8, Nº 5

Issue Nº 47

September/October 1998

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## ON THE COVERS:

**Front:** Is there anything more elegant and graceful than a British loco with those huge driving wheels and flowing lines? Check out the review of H.B. Engineering's beautiful LADY OF THE LAKE in this issue.

**Back Cover (top):** Aster's first steam loco, OLD FAITHFUL, is still bringing smiles to the faces of live steam enthusiasts around the world. Jerry Reshew's mint example performed flawlessly with a rake of coaches scratchbuilt by Jim Montgomery. Photographed on Chip Rosenblum's line in Ohio.

**Back Cover (bottom):** A colorful trio of CRICKETS, photographed on Jim & Jo Anne Stapleton's line in Virginia during the Sam Murphy Memorial Steamup in September, 1998. These sweet running little locomotives operated at the head of a triple-headed consist, and put on a good show. It's good to see these fine little locos available once again.

digital photos by Egroeg Dlanor Nworb

**Editor/Publisher**  
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**CAD (and other) drawings in this issue by:**  
Peter Jones, Gene Rutkowski, John Tepley

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**Steam in the Garden** (USPS 011-885, ISSN 1078-859x) is published bimonthly for \$27.00 (\$34.00 Canadian, \$35.00 overseas) per year (6 issues) by Steam in the Garden Inc., PO Box 335, 6629 SR 38, Newark Valley NY 13811. New subscriptions please allow 6 - 8 weeks for delivery (overseas via surface mail may take longer). Direct correspondence to PO Box 335, Newark Valley NY 13811. Periodicals postage paid at Newark Valley, NY and an additional mailing office.

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**In the U.K.,** contact Brandbright Ltd., The Old School, Cromer Road, Bodham, Near Holt, Norfolk NR25 6QG — phone 01263 588 755 FAX 01263 588 424

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Questions or comments? Call us Mon. - Thurs. at 607-642-8119 before 9:00 p.m. Eastern time, please...or FAX us any time at 607-642-8978. e-mail address: docsteam@spectra.net

Our web site, **Steam in the Garden Online**, is located at: <http://www.steamup.com>.

This publication is created on Apple Macintosh™ computers.







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.

\*\*\*\*\*

Edmonds, Washington - via e-mail

Dear Small Scale Live Steamers:

On an idyllic, sun-drenched afternoon in the not-so-distant past, a group of us were sitting under an awning in Jim Hadden's back yard watching Clark Lord run the K-4 that he had re-boilered on a picnic table the day before. The high level of social comfort felt by each individual, the tranquility of the setting, and the warmth of Park City's rarified air were all contributing to uninhibited freedom of expression in the prevailing discussions. The Book of Truth According to Small Scale Live Steamers was receiving august entries faster than even the most nimble court reporter could possibly have documented.

Bob Paule and I were busily comparing notes about our previous forays into 7-1/2" gauge railroading when someone next to us - maybe it was Morgan Jennings - interjected the query, "So what caused you to make the move into small scale live steam?" Without a moment's hesitation, Bob replied emphatically, "THE PEOPLE." I nodded in silent, thoughtful agreement. As I glanced around, it was obvious that everyone who had overheard the exchange was acknowledging the same sentiment. For some inexplicable reason, the people who choose to participate in this specialized hobby-within-a-hobby are truly exceptional. But dare to modify just one seemingly innocuous component of the shared interests which characterize our group, such as changing the scales in which you choose to model or substituting electric for steam propulsion on your layout, and you may find yourself surrounded by a completely different crowd.

One of the personal benefits of participating in this hobby was vividly demonstrated to me earlier this year with the receipt of the big get-well card sent by Jerry from Diamondhead. Many of you had taken the time to sign this while on your annual pilgrimage to Nirvana. The timing was perfect: Your encouraging thoughts helped me through a very difficult period. Thank you, everyone!

Here's something for you to reflect upon. I believe that the message destined to be flashed throughout the galaxy in 2010 will be slightly different for small scale live steamers than for mankind in general, and will read something like this:

"ALL THESE TRAINS ARE YOURS TO USE  
EXCEPT THE ELECTRIC ONES.  
DO NOT APPROACH THE ELECTRIC ONES.  
USE THEM WISELY.  
USE THEM IN PEACE."

Allan Starry

\*\*\*\*\*

Pueblo West, Colorado  
via e-mail

Ron,

I just received the latest edition of that other magazine that I instantly read from cover to cover. The Fall 1998 issue of *American Heritage of Invention and Technology* has a review of the second edition of John H. White, Jr.'s *American Locomotives: An Engineering History, 1830-1880*.

Interestingly, they chose a quote as being of interest to those of an eclectic nature, "A hint to restorers: an automotive finish that closely resembles Russia iron is Dulux Enamel Charcoal Metallic No. 4980-DX."

I wonder if that's the color I once used on that Steamlines Shay that I stalled out on and Russ Jones finished off so nicely.

Regardless, this may be of interest to other live steamers looking for a Russia iron color for their locos.

Keith Hawthorne

\*\*\*\*\*

Denver, Colorado

Dear Ron,

I wanted to write and tell you how much I enjoy SitG! Issue No 46 is a good example of the variety that I find so interesting, with the Big Boy on the cover, and Rich Chiodo's 7/8n2 0-4-0 and



the streamlined Commodore Vanderbilt article by Charlie Mynhier inside. The color photos on the back cover also show just how broad the small scale live steam spectrum really is.

Hope to see you in Diamondhead in '99.

Sincerely,

Alan Olson

\*\*\*\*\*

Williams, Oregon

Dear Ron & Marie,

Is it my imagination, or is *Steam in the Garden* getting better? Maybe it's because I'm reading the articles all the way through and not just looking at the pictures.

In regards to the new improved track system, I noticed that there does not seem to be any height adjustment. May I suggest something?

- 1) Take the regular supporting post and cut it off about 6" from the top.
- 2) Cut off several lengths of the 3" PVC pipe to (say) 5-3/4" length.
- 3) Raise the upper guide in your bandsaw to its topmost position, which on many will be 5-3/4".
- 4) Stand these short pipes vertically and cut two slots in the side so that a segment can be removed.
- 5) Now compress this modified tubing to fit in the longer piece of the supporting pipe and glue it in place using PVC cement.
- 6) Take the 6" long piece and force it over the modified pipe for a rather good fit.
- 7) Adjust the height accordingly and drill a few holes for anchoring screws, which can be removed later if another adjustment is needed.

Just an idea...it might work.

Best wishes,

James C. Newton

(J. C. Newton is the editor of the Gauge 3 Newsletter, Box 434, Williams, OR 97544 - phone 541-846-6647, annual subscription \$10.....ed.)



#### Model Steamboaters Write

Cape Coral, Florida

I was happy with the announcement that SitG is adding a steamboating section. The model marine periodicals have succumbed to the speedboat craze. The boats they feature are powered by either electric or gas engines. In the past they usually had some good articles featuring work boats, which were frequently steam

powered. This new department in SitG should expand circulation and bring in some new voices.

Those of us in the steam hobby will have usually acquired several small bore engines. Many just sit on the shelf and do nothing useful. With the addition of a suitable boiler and hull, they can really be brought to life and be turned into something to be proud of. There are many suitable drawings available, also machinable kits and some screwdriver assembly kits with all the machining done. I have several from Graham Industries which work very well.

As a means of modest introduction, my involvement in live steam started in 1955 with the construction of a 3/4" scale Pacific class locomotive. This was followed by several other locomotives at 1" scale. There was also a 20-foot steam launch, which was powered by several rebuilt antique engines.

In 1984 when I retired, it became evident that these heavy items would not fit into our new Florida lifestyle, so they were all sold. The period between then and 1991 was devoted to steamboat building. 1991 was the year I discovered SitG, which rekindled my enthusiasm for the steam locomotive. I have found that #1 gauge is more "sociable" because of the ease of transport. Presently my roster includes: one unaltered off-the-shelf locomotive, two which have been extensively altered and two scratchbuilt.

So much for history. I hope that in the following issues of SitG I will be able to show a unique method of building a hull, and will address the design and building of a boiler. The first project will probably be a generic steam tug. The railroads owned many of these for harbour work.

In the meantime, I encourage you to buy a copy of *Model Boilers and Boilermaking* by K. V. Harris, and acquire a catalog from Graham Industries.

Ken Parkinson

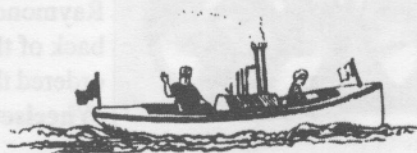
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Phoenixville, Pennsylvania

Many thanks to our editor for including the notice about the steamboating group we are forming in North America. The response has been good, and we now have 43 steamboaters in our correspondence circle and mailing list. We've had two steamups this summer. On June 7th, 17 model steamboaters came to South Orange, NJ for an event hosted by the South Orange Seaport model boat club, and I understand that a great time was had by all. The turnout for the Valley Forge Model Ship Society 2nd Annual Steamup on July 5th was slim, perhaps because of the very hot weather or the 4th of July holiday. Let me know your thoughts on scheduling our meet for next year. We're flexible, and your input would be appreciated.

Sincerely,

Ernest Morris





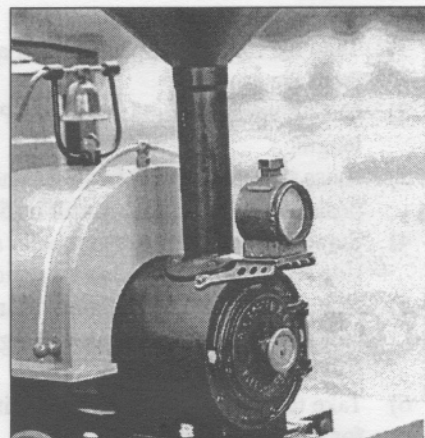


# WHAT'S NEW?

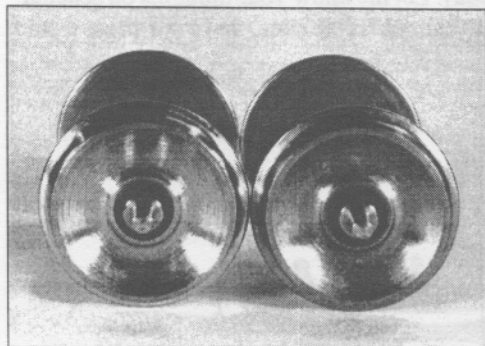


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**Bayou Ltd., PO Box 4394, Houma, LA 70360 • ph/fax (504) 857-9464 • e-mail: bayoultd@earthlink.net • web site: www.bayoultdgr.com** is packaging a neat cast brass headlight & bracket kit for the Mk I and Mk II versions of the Maxwell Hemmens Porter. Be sure to specify which model you have when ordering, as they mount differently. The photo at right shows the review sample mounted on GWENDOLYN, our own Mk I MH Porter. We drilled and tapped the smokebox casting for 0-80 brass hexhead screws from Micro Fasteners, and treated the brass castings with Brass Black from Sulphur Springs Steam Models. Bayou Ltd. uses Trackside Details castings to assemble these kits. Send \$3.00 for a Bayou Ltd. catalog, and be sure to ask Paul about their custom steam loco building service, plans and lots of other goodies to enhance our enjoyment of the hobby.



**Cheddar Models Ltd., Sharpham Road, Cheddar, Somerset BS27 3DR, England - Tel. 011 44 1934 744634 • Fax 011 44 1934 744733** has a number of items of interest to the miniature steam railroading enthusiast, the first being a gas-firing system for the Mamod locomotive. (*See the review of this unit elsewhere in this issue.*) Cheddar Models also produces a very full line of boilers, steam engines and complete steam plants. Boilers are available in both vertical and horizontal configurations, and in several different sizes. The steam engines range from single cylinder oscillators through 4-cylinder oscillators, and they have recently added steam engines with slide valve cylinders to their extensive line. There is also a line of useful accessory items, including displacement lubricators, valves, water pumps, water gauges, gas tanks and much more. Many items are available as kits or factory built. Most of these items are designed specifically for model steamboats, but many of them could be useful to scratchbuilders of miniature steam locomotives as well. Cheddar has an illustrated and well detailed catalog, which is available from any of their dealers or direct from Cheddar Models.



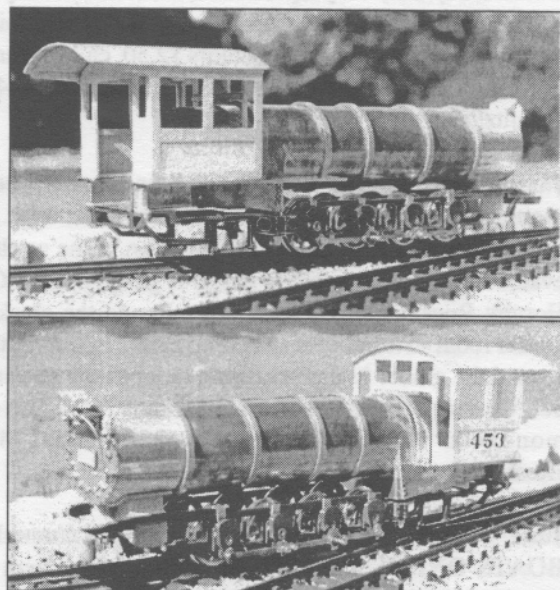
**Gary Raymond** is now shipping Ball Bearing wheelsets with electrical pickup for 1:32 scale brass passenger cars, such as those built by J & M Models. The 136 BDS wheelsets dramatically reduce the rolling resistance of these heavy cars, allowing much longer trains to be pulled by electric and steam locomotives. The 136 BDS wheelsets are one of seven models currently offered for Large Scale by Gary Raymond, all of which are unique in that the ball bearings are mounted from the back of the wheel, allowing an accurate looking wheel face. The 136 BDS can be ordered through local dealers or direct from **Gary Raymond Quality Large Scale Wheelsets, P.O. Box 1722, Thousand Oaks, CA 91360 - phone: 805-492-5858.**



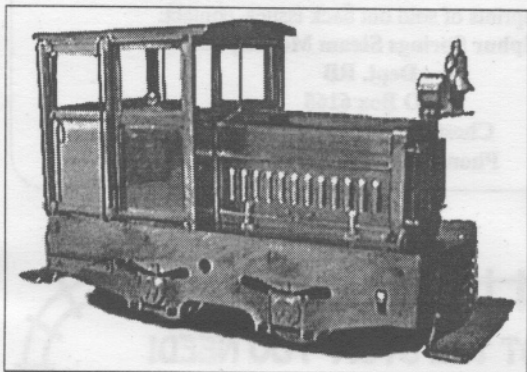
**Argyle Locomotive Works** has begun deliveries of their PHILADELPHIA 0-4-2T in pre-finished assembly kit form. Hand tools only are required to finish this live steamer. It is available in black, green, red or primer. **In North America, contact Sulphur Springs Steam Models Ltd., ph/fax 314-527-8326. In the UK, contact Wrightscale, Aboyne, Aberdeenshire, U.K.**

**D.J.B. Engineering, 17 Meadow Way, Bracknell, Berks RG42 1UE, England - Fax: 011-44-1344-423256 ●**

**e-mail: DJB\_ENGINEERING@COMPUSERVE.COM** sent the accompanying VERY impressive photos so we could see the progress on their "Mudhen". The frames are now built and the loco is on its drivers. The boiler shell and cab are in position. Patterns are in preparation for the cylinders, and laser cut parts for the spring gear and valve gear are on order. The tender design is in progress, and David Bailey tells us that he hopes to have the pilot model up and running by May, 1999. David promises to keep us informed of their progress, and we hope to be able to bring you a review of this magnificent loco sometime next year.

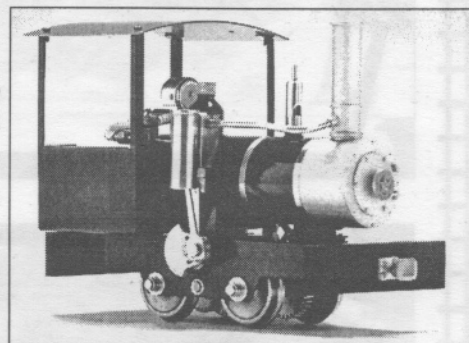


The new **Trail Creek Models Whitcomb** is a 1:20.3 scale model representing the gas-mechanical industrial locomotives that Whitcomb produced in many sizes. The model is constructed in brass, and the flip of a switch selects rail or battery power. The doors open and full cab detail is included. A standard four cell R/C battery can easily be connected to a connector under the hood. The model runs at a realistic scale 5-6 mph when powered by four 1.5V batteries. Three versions will be available. The Nevada County Narrow Gauge #11 will be available in dark Pullman Green per the prototype, and includes details of the prototype such as steps, bell, and light. This same locomotive will also be available in industrial yellow.



Another version will be available in industrial yellow with fewer details but closely following the configuration as delivered stock from Whitcomb. A 32mm wheelset will be available at a reasonable additional cost for battery-only operation on Gauge 'O' track. All three versions will be available in January 1999. These are not limited edition models, but manufacturing realities are such that these models will not always be in stock and are built in small batches. The models are in production now. A \$200 deposit guarantees the introductory price of \$659 (\$759 after January 1, 1999) and the version of your choice. **Contact Richard Finlayson at Trail Creek Models on the web at <http://www.steamup.com/trailcreek> (secure ordering site) or phone 408.871.0318. Trail Creek Models, 2408 Grandby Dr, San Jose, CA 95130.**

**Berkeley Locomotive Works, PO Box 99845, Emeryville, CA 94662-9845 ● info line 510-869-4338,** has announced that **THE CRICKET STEAM MOTOR IS BACK!** This great running and affordable little steamer is available in an Economy Model (with oscillating cylinder) and a Standard Model (with fixed cylinder). Give BLW a call on their info line for pricing and more information, or see their ad in this issue of *Steam in the Garden*. Don't miss out on getting one of these fine little steam locos!





# 1998-99 CALENDAR OF EVENTS

**October 24, 1998 – Olympic Model Railroad Society Swap Meet**  
- National Guard Armory, 515 S. Eastside St., Olympia, Washington. 10am - 4pm. Adults \$3, Seniors \$2.50, children under 12 free. For more information contact Jeff Schultz at 360-456-0546 or [tschultz@u.washington.edu](mailto:tschultz@u.washington.edu)

**January 15-17, 1999 – National Small-Scale Steamup, Diamondhead, Mississippi, USA.** Don't miss this one....it's the biggest miniature steam railroad convention in the world! Three elevated tracks to accommodate gauge 1, gauge 0 and HO steamers - Hornby Rocket Festival - Clinics - Round the clock steaming - Dealer room - Steamboats - Pop-Pop Boat Regatta - Attendees from around the globe! Make your reservations now so you don't miss out. Contact Jerry Reshew, 5411 Diamondhead Drive East, Diamondhead MS 39525. Phone (228) 255-1747, e-mail: [JReshew@aol.com](mailto:JReshew@aol.com).

**June 7, 1999 – South Orange Seaport 10th Annual "STEAM-BOATS ONLY", a radio controlled model steam boat meet.** Meadowland Park Pond, off South Orange Avenue, South Orange, New Jersey. For further information contact: Charles Roth: (908) 638-8341 or Ron Hermann: (201) 891-3020. Sponsored by the South Orange Department of Recreation and Cultural Affairs.

*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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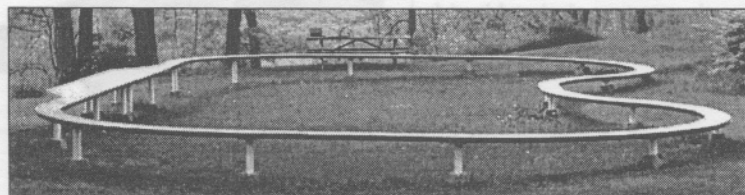
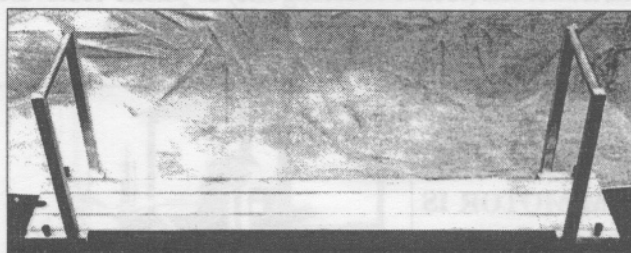
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# The Fitter's Bench

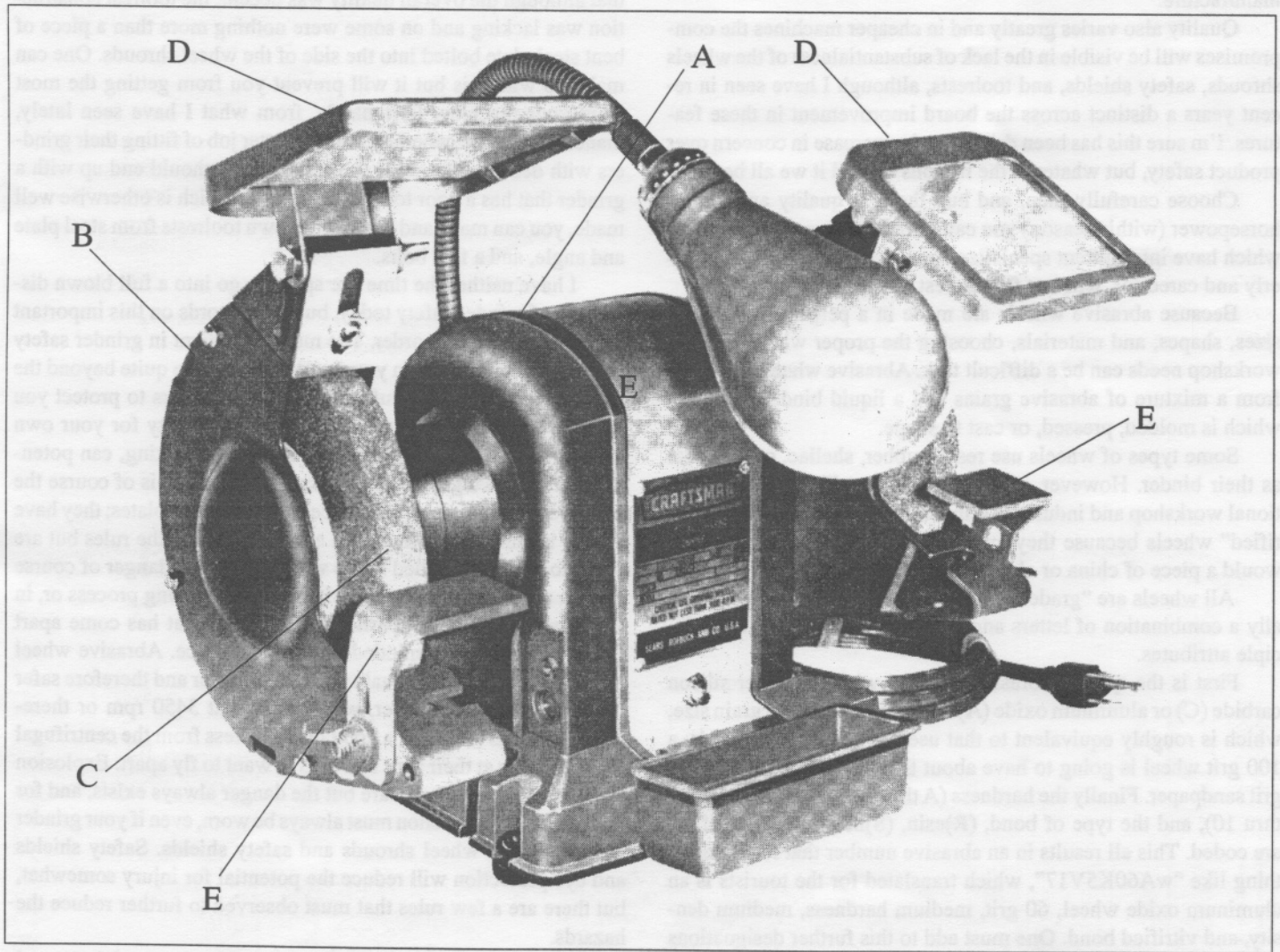
by Crankpin

## Back to the Ol' Grind.....

It seems only yesterday that I managed to escape for a bit of much needed holiday, but I must say that it did in fact bear little resemblance to a holiday because it was cram-packed with jobs of every description, both steam related and not. I'm sure I could have twisted our Dear Editor's arm and begged a few more weeks of rest, but the pen and paper beckoned and much remains to be written, so now it's back to it.

drills or chisels, anything in the shop with a cutting edge, something will be needed to grind and shape them, and for the greater part of the engineering world the bench grinder is it.

The illustration shows a typical bench or pedestal grinder and you will find that virtually all grinders today are of similar construction. Typically the motor housing (A) is designed to provide the main structural body of the grinder. This encloses the motor



In this issue I will tell you about the common Bench Grinder, sometimes called pedestal grinders when mounted on a freestanding pedestal stand rather than a bench. By whatever name, this easily overlooked machine is often forgotten amid talk of lathes and milling machines and such, but if you have tool bits or twist

shaft and bearings and provides the base to which the other features of the grinder are attached.

The wheel shrouds (B) should enclose the abrasive wheel (C) to the greatest extent possible for safety while still allowing full access to the edge of the wheel. The safety shields (D), when in-



stalled, are for eye protection, and the adjustable toolrests (E) are just what the name implies. They provide a solid surface on which the work rests while being ground. The toolrests are very important and I will say a few more words about them a bit later on.

Bench grinders are usually sized first by motor horsepower and then by wheel size, although there is not necessarily a direct connection between the two. Common sense tells us that higher horsepower grinders will use larger wheels and will handle larger work. The power range generally available begins with 1/4 or 1/3 hp and moves upward in 1/4 hp steps up to 1 hp. From that point power increases in 1 hp increments to 5 hp for the largest industrial machines. For our purposes however, a grinder of 1/4 to 1/2 hp will do very nicely and will use wheels of 6" or 7" outside diameter and 1/2" or 3/4" thickness. Disc type abrasive wheels range in size from 5" x 1/2" to 14" x 3" and are all designed for a standard shaft speed 3450 rpm in the U.S. and 2800 rpm in the UK.

Prices vary greatly, from \$40 (£25) for 1/4 hp models of Asian origin to several hundred dollars for up to 3/4 hp models of U.S. manufacture.

Quality also varies greatly and in cheaper machines the compromises will be visible in the lack of substantialness of the wheels shrouds, safety shields, and toolrests, although I have seen in recent years a distinct across the board improvement in these features. I'm sure this has been driven by the increase in concern over product safety, but whatever the reasons behind it we all benefit.

Choose carefully then, and buy the best quality and largest horsepower (within reason) you can afford. Like many other tools which have intermittent specialized use, the grinder, if used properly and cared for, will last for the rest of your modeling life.

Because abrasive wheels are made in a perplexing array of sizes, shapes, and materials, choosing the proper wheel for your workshop needs can be a difficult task. Abrasive wheels are made from a mixture of abrasive grains and a liquid binder or matrix which is molded, pressed, or cast to shape.

Some types of wheels use resin, rubber, shellac, or a silicate as their binder. However, most wheels you will see on conventional workshop and industrial grinders are what is known as "vitrified" wheels because they are fired in an oven, much like one would a piece of china or clay pottery.

All wheels are "graded", and given a marking number, actually a combination of letters and numbers, based upon five principle attributes.

First is the type of abrasive material which is either silicon carbide (C) or aluminum oxide (A). Next is the abrasive grain size, which is roughly equivalent to that used in sandpapers, that is, a 100 grit wheel is going to have about the same grain size as 100 grit sandpaper. Finally the hardness (A thru Z), the grain density (1 thru 10), and the type of bond, (R)esin, (S)hellac, or (V)itrified, are coded. This all results in an abrasive number that reads something like "wA60K5V17", which translated for the tourists is an aluminum oxide wheel, 60 grit, medium hardness, medium density, and vitrified bond. One must add to this further designations of shape and size and you can easily see how confusing this whole business can become!

Fortunately you and I don't have to spend time agonizing over this choice because our requirements are quite narrow and a new grinder will come with two properly sized aluminum oxide

vitrified wheels installed on the machine, one of about 40 grit which we consider "coarse" and one of about 60 grit which can be considered "fine". These wheels have been selected because they have proven over time to be the most useful for general workshop use by both amateur and professional, and properly used and cared for they will last many years. The 40 and 60 grit wheels on my grinder are the original ones and have been in use now for over 25 years with many more years service left in them. However, should you decide for some reason to change wheels, to go to a finer finishing wheel, say an 80 grit, or to replace a broken wheel, the cost per wheel should be less than \$10.

The tool rest is one of the most important components of the grinder and money spent to find a machine with sturdy, solidly mounted toolrests will be money well spent. On the larger or more expensive grinders you will find their toolrests are adjustable in as many as three axes, which is very desirable because you can then set and rely upon the tool rest to be a guide for grinding the faces of lathe tool bits to the proper angles.

Unfortunately, I found in some smaller or cheaper grinders that although the overall quality was decent, the toolrest construction was lacking and on some were nothing more than a piece of bent steel plate bolted into the side of the wheel shrouds. One can make-do with this but it will prevent you from getting the most from your machine. Fortunately, from what I have seen lately, manufacturers are generally doing a better job of fitting their grinders with decent, adjustable toolrests. If you should end up with a grinder that has a poor toolrest design but which is otherwise well made, you can make and install your own toolrests from steel plate and angle, and a few bolts.

I have neither the time nor space to go into a full blown discussion of grinder safety today, but a few words on this important subject are always in order. The main ingredient in grinder safety is YOU. When you are in your workshop you are quite beyond the ability of designers, manufacturers and legislators to protect you from yourself, so you must take the responsibility for your own safety. Any grinder, though innocent enough looking, can potentially be very dangerous and the source of danger is of course the abrasive wheels themselves. Wheels are like china plates; they have a long, useful life when used in accordance with the rules but are liable to break if handled in the wrong way. The danger of course is from abrasive and metal debris from the grinding process or, in the most extreme case, particles of a wheel that has come apart while at speed, or "exploded" in shop parlance. Abrasive wheel technology and product quality control is better and therefore safer than ever before, however, when turning at 3450 rpm or thereabouts, wheels are under a good deal of stress from the centrifugal forces pulling at their rims and tend to want to fly apart. Explosion or fragmentation is very rare but the danger always exists, and for that reason eye protection must always be worn, even if your grinder has substantial wheel shrouds and safety shields. Safety shields and eye protection will reduce the potential for injury somewhat, but there are a few rules that must be observed to further reduce the hazards.

If you should buy a used grinder, and that is certainly a good way to find a good machine at a reasonable price, be prepared to replace both wheels. This is because you know nothing of their condition or how they've been treated, and the cost of new wheels is negligible considering the margin of safety new wheels will af-



ford. If the wheels appear to be new, or otherwise in good condition, or if you elect not to replace the wheels, use the following test procedure to determine the soundness, and therefore safety, of the wheels. Before running the grinder, remove the wheels and, holding each on a screwdriver blade, and tap it ever so lightly at its edge with a small hammer or short metal bar. The wheel should have a slight ring to it, a "tink" sound. This indicates that the wheel is sound and no cracks or weak areas are present. If there is a dead sound, more of a "thunk" than a "tink", discard the wheel. For new grinders and new wheels the same tests apply, although I see no compelling reason to remove and test the wheels from a brand new machine fresh from a sealed box. If a wheel is dropped on the floor, or suffers any marking impact from some other source, don't even consider installing the wheel. The wheel should be taken directly to the dust bin and discarded. Finally, after testing and installing both old or new wheels to the manufacturer's recommendations, stand clear and run the grinder under no load for a full five minutes. Although there are no guarantees, it is during this time when a newly installed wheel is most likely to come apart.

There is little to say about maintenance because there is essentially one moving part - the motor shaft, and bearings these days come lubricated for life, so an occasional cleanup of accumulated abrasive dust should do it for the grinder body. The wheels, however, will need occasional attention and this is known as "dressing" the wheel. An abrasive wheel is like a file in that it does after

time become dull and it does get clogged with metal bits and needs to be cleaned. The metal clogging is called "loading" and occurs most often when a soft metal, particularly aluminum and sometimes brass, is ground on a wheel meant for much harder metals. Little bits of metal stick to the surface of the wheel and will soon clog and cover up the abrasive grains, making the wheel useless. The remedy for both these problems is to start the grinder and apply a "dressing stick" to the face of the rotating wheel. The dressing stick is a short stick of very hard abrasive which quickly removes a thin layer of the wheel, leaving a clean, sharp-grained surface and a crisp edge on the wheel. These sticks are very inexpensive, a couple of dollars each, and are available at most tool or abrasives suppliers. After dressing, an old wheel will cut like new.

There it is in a nutshell. Of course there is much more to tell about bench grinders and much written on abrasive wheel selection and safety, but that will have to wait for another day. In our next column, we'll have more on grinding and a description of what in my humble opinion is one of the most useful tools you can have in your workshop.

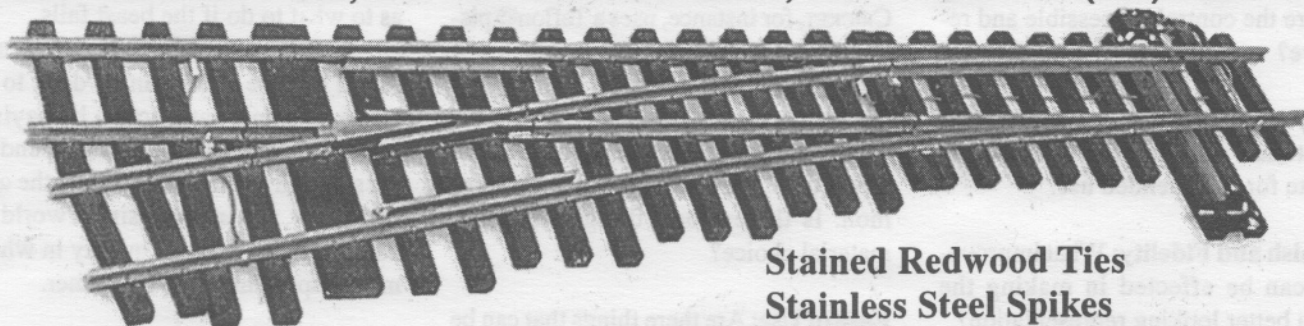


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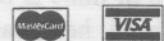
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# Notes From The Backyard

by Rich Chiodo

## The next generation...

My Employer, who graciously compensates me for running their sales operation, is launching a Next Generation series of products. The usual applies; faster, more powerful, more efficient, more cost effective. In our universe of small scale live steamers does the 'new model year' have any significance?

Since we are modeling technology that was obsoleted some 50 years ago it would seem none of the improvement dynamics which affect other hobbies, say R/C model airplanes, would apply. Or does it?

Let's do some focus group product marketing. What factors or features are candidates for improvement?

**Performance:** This takes on several guises. Raw tractive effort is the first to come to mind. Duration is certainly key. Low speed controllability is one of my pet peeves. I am sure there are others.

**Ease of Use:** How easy is it to fire up the locomotive? Is it easy to fill the boiler to the proper level? Is it easy to fuel? Is it easy to lubricate all that needs lubrication? Are the controls accessible and responsive?

**Quality and Reliability:** Construction and materials need to be robust and appropriate for the intended use.

**Fit, Finish and Fidelity:** What improvements can be effected in making the model a better looking representation?

**Bells and Whistles:** Literally! Are there 'must have' options which should be standard fare?

**Cost:** Can we get more for our money, a better value?

Okay, marketeers...let's see what we can do.

**Performance:** Small scale live steamers are inherently inefficient beasts. I have heard numbers as low as 10%. Several members of our live steam community have written articles, and some even operate small businesses attending to the improved performance of live steamers. Generally, improved performance focuses around the burner/boiler, attempting to convert as much of the available heat as possible to steam. Have the manufacturers explored burner/boiler design since the days of LBSC? A 10% improvement to 20%, for instance, doubles the efficiency and all the good things that come from that.

Moving down the line, so to speak, we come to the "engine" as it is properly termed. The throttle, cylinders, pistons, valves and valve gear. It won't make much difference how efficient that boiler is...it will all be wasted if the engine is a poor performer. What improvements are possible with slide valves, piston valves, or other more exotic arrangements? My CRICKET, for instance, uses a Teflon® piston. Hmm, thermally stable, self lubricating, wears well. Is this a better material than brass?

And how about the throttle? The screw type, needle valve layout is common. Is there a best design, location, material choice?

**Ease of Use:** Are there things that can be improved upon to make these locomotives easier to operate? Can filling the boiler be made foolproof, and the same for the alcohol burner? Can lighting up be made easier so that burning meths doesn't dribble down your arm? And can gas-fired locos be made easier to light,

and once lit, stay lit? How about a sight glass that works?

Radio control is not one of my favorites. However, it's installation is becoming more prevalent. It could use some help deglitching the signals. Are there ways of including a foolproof antenna? (See two articles on this very subject in this issue - are we on top of the situation, or what? - ed.)

**Quality and Reliability:** For the most part, small scale live steam locos are built in cottage industry fashion by skilled craftsmen who are also hobbyists. This usually means their products can be counted on to be of respectable quality and reliable operation, but there have been some notable exceptions. Can the quality of locomotives be improved, such as tolerances, castings, and care in assembly and finish?

One item that should be included under ease of use is a well written and properly detailed operating manual and service guide. A manual should be supplied with all R-T-R locomotives. Much of what is provided today gives scant insight as to what to do if the beast fails.

Another point is the service after the sale. I believe much can be done to improve customer satisfaction by paying a bit more attention to the "back end" of the sale. All of this comes under the quality banner, and in the business world this has overtaken product quality in what is most important to the consumer.

**Fit, Finish and Fidelity:** Looks are important. Parts should fit together well, indicating a high quality product. Fasteners should be selected to do the job while being more true to scale. And speaking of fasteners, a pet peeve of mine is the random use of cheese head, hex head,



socket head, etc. screws, nuts and bolts. Consistency as appropriate to application would be a boon. And how about supplying a tool kit with the loco that fit the fasteners used?

The paint job will either highlight a mechanical marvel or become the "Halloween mask" transforming an otherwise lovely loco into a beast. Things like lining, lettering, two-tones, and such are best left undone unless they can be accomplished to the highest standards.

Paintwork durability seems not to be much of a problem...except over brass. This is where a baked on finish over an etching primer should be the norm.

Fidelity to prototype applies if there was a prototype. Here, a brief description with photos of the locomotive upon which the model is based should be supplied. If the loco is freelance then some words on what it represents and why particular dimensions, valve gear, firing method and so on was used. It is always of interest to know what the builder had in mind.

**Bells and Whistles:** In this publication much has been written on the construction of an acceptable whistle. This "state of the art" design seems a terrific candidate to be include as an option in those locos where a whistle is wanted.

How about lighting? Very few locos I know of come with working marker lamps or headlamps. I would go for a battery system, leaving the expense and complexity of a steam generator to others.

Other accessories like a carrying case, tool kits, flasks, vials and funnels are less important options...however, a proper miniature oil can is a must.

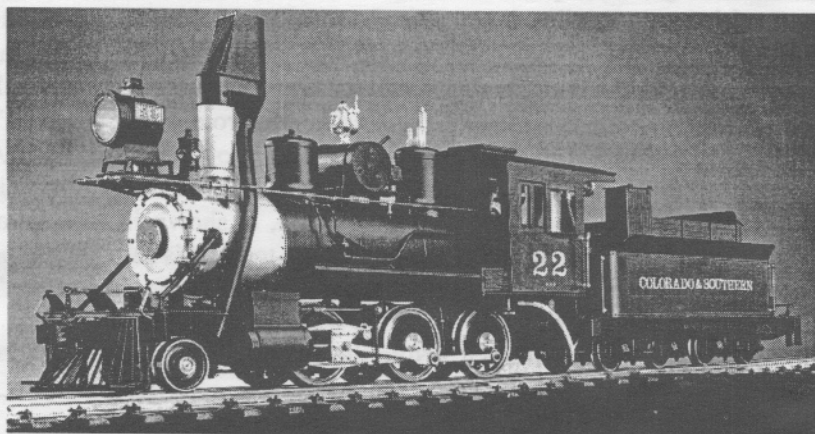
**Cost:** Having thus specified the perfect small scale live steamer, expecting to pay less than the cost of an HO plastic diesel is a bit unreasonable, as is having to pay several months mortgage. I would like to see a trend toward ala cart ordering, and even more availability of "knock down" locos. This is not quite a kit, but more like a well integrated set of major

components that need to be assembled.

Another thought would be to offer locos without paint, leaving the finishing to the owner.

I look for the highest value, especially with regard to operation and quality of construction. Paint, bells and whistles, ease of use are factors I will give up to keep costs down.

So, what do you think? Can we improve the breed? Drop us a letter and let us hear your thoughts on the subject.



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# Casting About

by E. V. Rutkowski

drawings and photos by the Author

## Chapter V - Wheels Up!

For my first castings I thought it would be easiest to start with the relatively simple wheels for the pilot truck. The first task was to generate a design drawing for the wooden pattern for these wheels. The drawing for this pattern is shown in Figure 5, which illustrates some of the typical features of a simple sand casting pattern when compared to the final machined dimensions desired for the wheel, as shown in Figure 6.

The features to be noted are: (1) that the diameter and thickness of the pattern are slightly larger than that of the final wheel to allow for shrinkage of the metal as it cools and for machining and (2) that "draft", or a taper is provided to permit the pattern to be easily withdrawn from the sand. In sand molding any undercuts must be avoided which would ruin the mold when the pattern is withdrawn. My reference books told me that the standard allowance for shrinkage when casting bronze is 1/8 to 1/4 inches per foot or,

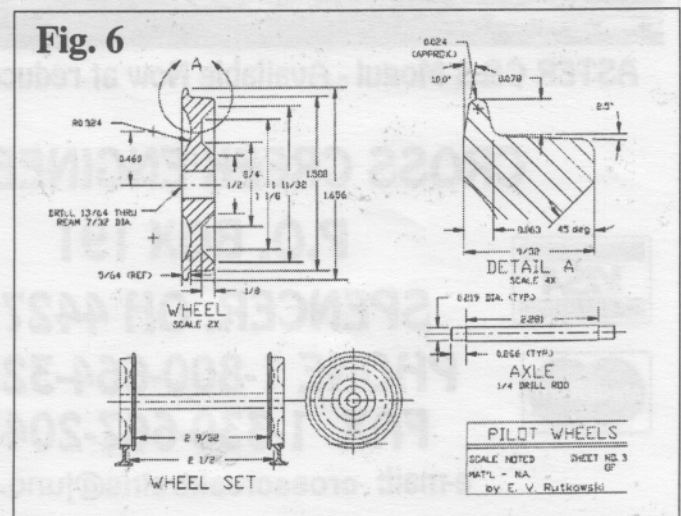
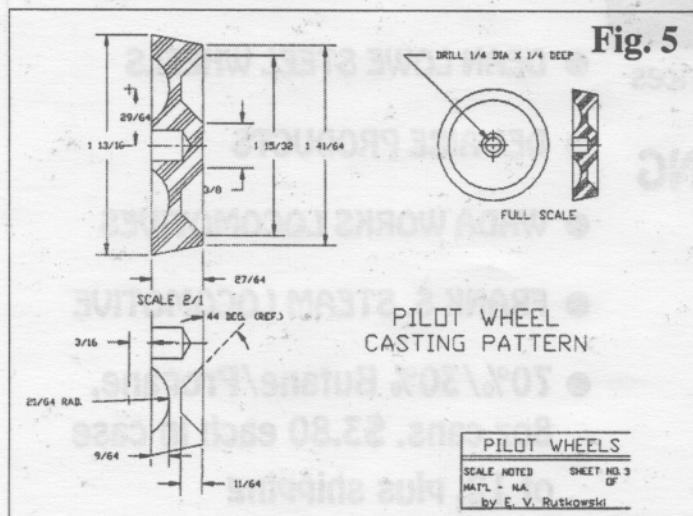
on average, 1/64 inch per inch. As seen, I allowed much more to be on the safe side.

The wooden pattern for the pilot truck wheel was made from fine grained maple obtained by buying some toy wheels from a local craft shop. A lathe was used to turn these toy wheels down to the final pattern dimensions. Since the pattern is larger than the final machined wheel, the pattern dimensions need not be more precise than + or - 1/64 inch. I finished the pattern by sanding it smooth while still on the lathe. I then gave the pattern several coats of lacquer, sanding between coats.

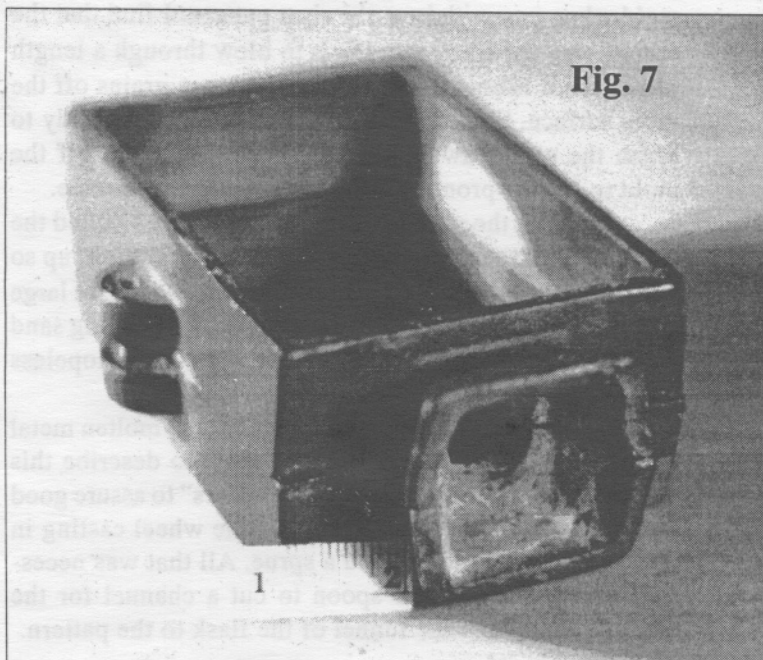
Most texts on sand casting say that to withdraw the pattern from the sand a pointed tool, somewhat like an ice pick, is jabbed into the pattern and used to lift it out. That didn't seem like a prudent way to withdraw a small pattern from the sand with the attendant risk of jarring the pattern and distorting the cavity during withdrawal. I

tried another tack. For withdrawing the pattern I incorporated a threaded insert into the pattern. These inserts, available at hardware and hobby stores, have an outer thread similar to that of a wood screw and an inner, machine screw thread. My insert was about 1/4 inch in diameter with an inner, 10-32 machine screw thread. This insert allowed me to thread a machine screw into the pattern and use it to withdraw the pattern from the sand without disturbance.

In order to use the pattern, I needed a form, called a "flask", made up of two halves called the "cope" and the "drag". The wheel pattern was small enough for me to use a small flask available from jewelry maker's supply houses. I got mine from ALPHA Jewelry Supply. This flask, which is made of iron, is shown in the photo, Figure 7. The top half is called the cope and the other half is the drag. (Don't ask me why - that's just the way it is.) Note the alignment pins which assure







that the two halves always go together in the same way. Note that when both halves are joined a funnel is formed at one end into which the metal will be poured. When I ordered this flask I also ordered some parting powder. Some other things I found to be useful were: about a foot and a half of 1/4" inch rubber tubing to use for blowing loose sand grains out of the mold - a short length of straight stick, a ruler might do, for scraping excess sand off the mold after it is filled - and a household strainer to sift an initial coat of sand over the mold.

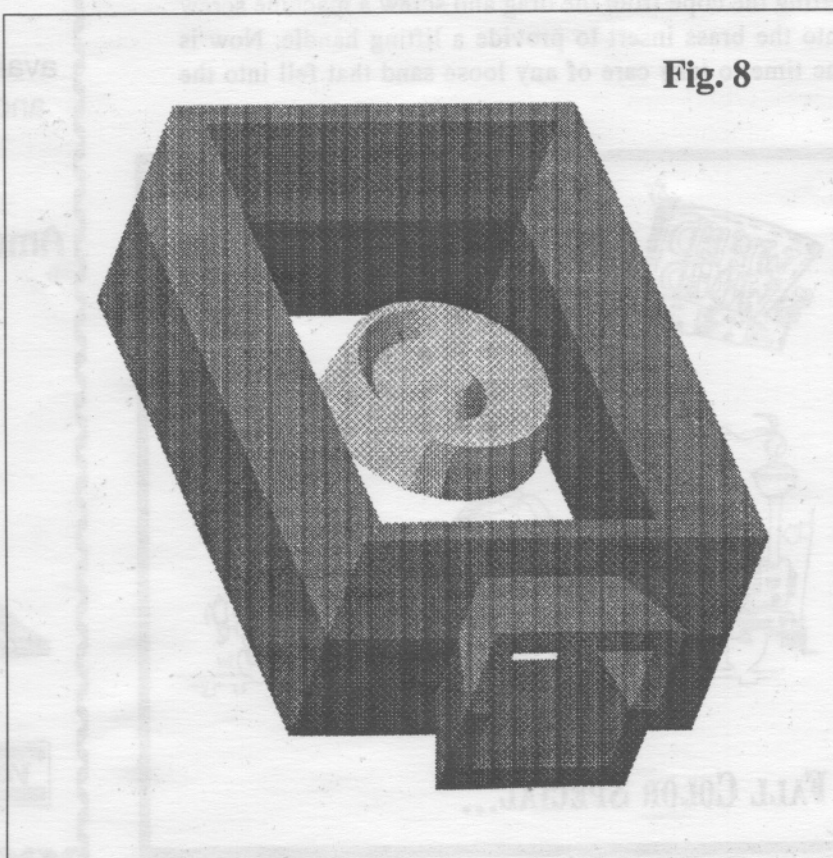
Some of the books on amateur casting suggest finding some molding sand of the right composition and digging up a supply of it or making up a mix of sand and Bentonite clay of the right consistency. I tried that when I found a potential source of molding sand while digging a hole in my yard to plant a small tree. As a learning experience this was very valuable. It taught me that it is much easier to buy the proper molding sand from a supplier. You should also buy some parting powder since I know of no good substitute. Parting powder, or sand, is used to define the line separating the pattern, cope and drag. It can be just fine, dry sand as used in large foundries but a better material is powdered gypsum, lycopodium or the proprietary materials available from foundry, jewelry and furnace suppliers. About a pound has lasted me through the casting of all wheels on my 4-8-4, including many mistakes.

Figure 8 is a drawing which shows how the pattern, cope and drag are arranged in the process of making a sand mold. For this simple job, the "drag" is placed on a smooth flat surface with the side of the drag facing the parting line facing down. The pattern is then centered in the drag with the taper, or "draft" facing up. Parting powder,

mentioned previously is sprinkled on the pattern to insure that the damp sand doesn't adhere to it. My technique is to cut a leg off of a pair of panty hose and pour about a cup of parting powder into it and close it with a knot. I shake this sock of parting powder over the pattern before putting in the sand. I like to use a strainer to shake the first layer of sand onto the pattern to assure a nice smooth surface, followed by scooping additional sand into the drag and ramming the sand around the pattern between scoops. This process of scooping in sand and ramming is done repeatedly until the drag is filled.

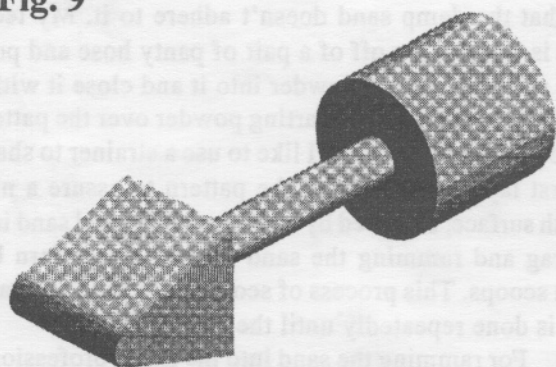
For ramming the sand into the flask, professional rammers, similar to that shown in Figure 9, are used. It has a small, somewhat pointed end for ramming sand around and into the pattern and a blunt end for generally tamping the sand into the flask as you add layers of sand. I found such rammers listed in foundry supply catalogs but they were much too big for my small, hobby casting flasks. I was going to whittle one out of wood when, while in my second home, the hardware store, I noticed that hammer handles are almost perfect little rammers; blunt at the handle end and small at the head end. What's more, they are made of tough hickory and are relatively cheap.

After ramming the drag full of sand I used the straight stick (ruler) to shave the excess sand level with the drag walls, forming a flat surface. Following instructions in the texts, I sprinkled a little sand on the filled drag and covered it with a flat board, with a sort of wringing motion. Now I had a sandwich consisting of a bottom





**Fig. 9**



board, the filled drag and a top board. Since the whole sandwich was small enough to grasp with two hands I could pick it up and turn it over so I could proceed with the next step - filling the cope.

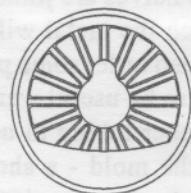
I removed what was the bottom board revealing the pattern imbedded in the sand of the drag. The threaded insert that I put in the center of the pattern could be seen. Since everything looked good I put the cope part of the flask in place and dusted the pattern and the face of the sand in the drag with a thin layer of parting powder. In this case the parting powder serves not only to prevent the molding sand from adhering to the pattern but also to define the surface between the cope and drag so their faces don't adhere. This small flask didn't need a sprue so I now simply rammed sand into the cope until it was filled.

The next step was to carefully open the mold by lifting the cope from the drag and screw a machine screw into the brass insert to provide a lifting handle. Now is the time to take care of any loose sand that fell into the

mold when you withdrew the riser pattern. I find that the easiest way for small moulds is to blow through a length of plastic or rubber tube to chase the loose grains off the mold surface. Sometimes a soft brush might be handy to brush the grains away, but I find blowing them off the mold to be less prone to doing damage to the surface.

Using the machine screw as a handle, I pulled the pattern out of the drag, being careful to pull straight up so that the sand walls of the pattern weren't damaged. In large molds such damage might be repairable by troweling sand into the damaged area, but on small molds this is hopeless and you had best start over.

I needed to provide a passage for the molten metal to enter the cavity. The books I referred to describe this "sprue" in various forms along with "risers" to assure good metal flow to the cavity. For my simple wheel casting in this small flask I didn't need a sprue. All that was necessary was to use a small spoon to cut a channel for the metal to flow from the funnel of the flask to the pattern.

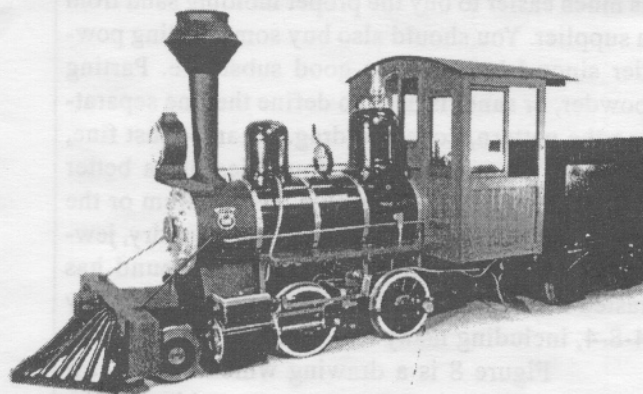


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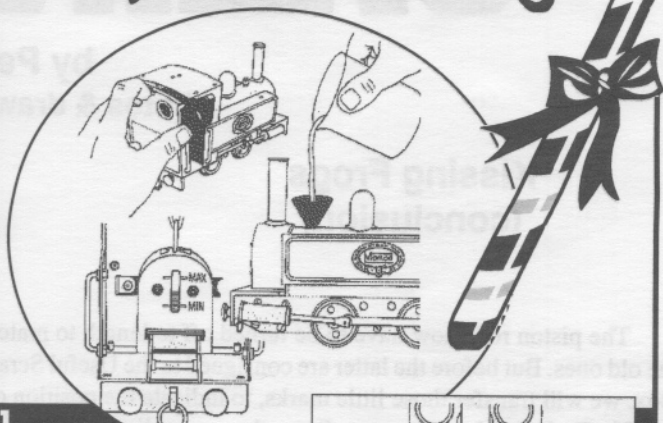
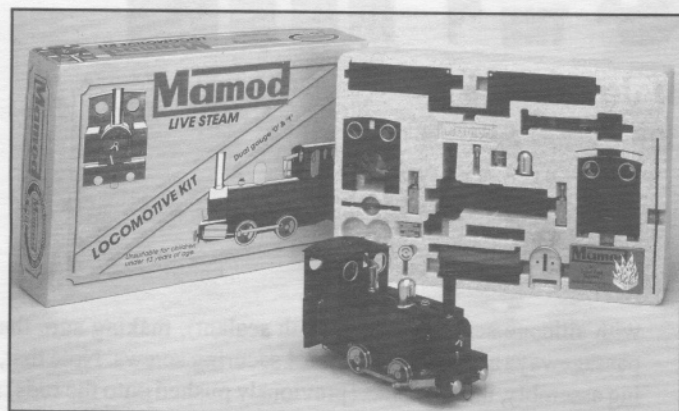
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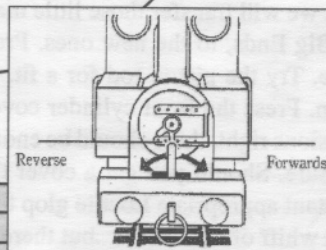
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## Wilesco LUCAS SPREEWALD LOCOMOTIVE Affordable Easy-to-Build Live Steam Locomotive

Yesteryear Toys & Books Inc. has been appointed the exclusive North American distributor for the WILESCO LUCAS steam locomotive (45 mm - GAUGE G. The Spreewald model is a replica of the tank locomotive built in 1917 by the Jung Co. for the Pulkau Narrow Gauge Railway Company in Germany.

It arrived in 1944 at the "Spreewaldbahn" at Cottbus and received the name loco 09-27. With the "Spreewald" the history of the steam railway came to life again. Like the great prototypes the model loco "Spreewald" is really driven by steam, complete with boiler, steam cylinder valves. When the small "Spreewald" is in steam, you will be delighted with its power and authentic steam sound. Both from the engine and typical steam whistle.

The model "Spreewald" is supplied in kit-form. All necessary parts are in the assembly-box. Detailed building instructions lead graphically over the individual production steps.



After the complete assembly the model stands in front of you and waiting for the first trip. For the assembly - exclusively screwing work - approximately 20 hours are required. Necessary soldering works are already completed. The boiler is governed by the safety standards and is inspected in our house.

The model is produced exclusively of rust proof materials. The wheels of the model "Spreewald" are manufactured of zinc casting according to the original drawings. "Spreewald" is gas-fired and can be filled with commercial lighter-gas. After you have placed the machine on the rails, the burner can be lit by a match or a lighter at the smokestack. The running period lasts approximately 20 minutes without interruption. In case of stop-and-go operation the running period extends accordingly.

The steam loco "Spreewald" can be assembled so you can operate the steam model remote-controlled easily. The steam model can be operated by you to run forward or backward, more quickly or more slowly or to stop.

An optional steam pressure-regulating valve prolongs the durability. The regulating valve controls the gas flame by the gas pressure. As soon as the pressure in the boiler increases the valve shifts down the gas supply. When the boiler pressure decreases the valve opens automatically. This regulation guarantees an exact supply of required gas volume. So the running time of the loco will be increased and energy-and water consumption will be reduced.

### LUCAS TANK LOCOMOTIVE SPREEWALD SPECIFICATIONS:

Length: 320mm (12 1/2")	Width: 109 mm (4 1/4")	Height: 165 mm (6 1/2")	Weight: 2.25 kg (5 lbs.)	Track Wheel Dia.: 39.9mm (1 1/2")	Flm Diameter: 43.7 mm (1 3/4")
Stroke: 14 mm (1/2")	Cylinder Bore: 10 mm (5/8")	Gauge: 45mm (45mm)	Scale 1:22.5	Pressure (approx.): 1.5 bars (21 PSI)	Boiler Volume: 238 cm <sup>3</sup> (8 oz.)
		Double-acting cylinders			Boiler made of 1 mm stainless steel

<input type="checkbox"/> LUCAS SPREEWALD LOCOMOTIVE KIT	\$1195.00	<input type="checkbox"/> D-001	OPTIONAL GAS-PRESSURE REGULATING VALVE	\$179.95
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# GAZING INTO THE FIRE

by Peter Jones  
photos & drawings by the Author

## Kissing Frogs (conclusion)

The piston rods now have to be turned off to length to match the old ones. But before the latter are consigned to the Useful Scrap Box, we will transfer those little marks, to indicate the position of the Big Ends, to the new ones. Press the rear cylinder covers in place. Try the piston rod for a fit. It should move silkily up and down. Press the front cylinder covers on. If you have got the dimensions right, there should be enough stiction to withstand steam pressure. Should you get a cover that blows out, then use a heat resistant appropriate Loctite glop to hold it in place: me, I prefer a faint whiff of soft solder...but there is a good chance that the need won't arise.

The gland is packed next. A piece of yarn is wrapped around the piston rod four or five times and the surplus cut off. The gland nut is then screwed up. If you are going to get this wrong it will be because things are too tight. From a full size Big Boy down to a Mamod, glands should always be packed so that they stop steam passing: only just and no more. Our little Mamod really can't afford having power mopped up by overtight glands.

The cylinder pivot pins now need to be shortened so that the cylinders, when the spring is fully compressed, do not lift more than 1/64" from the face. This is a trial and error process. Put a 5BA die on the pin and cut just two more threads deep. File off the end of the pin so that three threads remain. Try this out. If it is still loose, cut another thread deep and file one off the end of the pin. On no account overtighten the thread. Not only can we not spare the power to overcome the tightness but it is possible to distort the cylinder.

We come now to the final assembly. Place a gasket between the cylinder port face (backside) and the mainframe and secure the assembly in place with a couple of screws, nuts lightly tightened. Smear the sides of the valve block

with silicone sealant (sold as bath sealant), making sure that the passageways are clear. Insert the 4 securing screws. Note that, during assembly, the Big Ends (previously pushed onto the rods) must be placed on the crankpins. Because we are now working to much better tolerances, we can no longer simply 'spring' the big ends onto the crank pins.

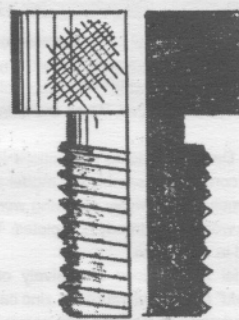
If possible, try a steam test here. Something like a Mamod stationary boiler will do - especially if it has been fitted to run at a higher steam pressure. The steam chassis will turn over stiffly at first. But after 1.1/2 - 2 hours running it will be sweet as a nut. During this running in time apply oil copiously.

This completes the engineering of the chassis, and the rest of the loco can be assembled. But to do justice to our work, there are some other improvements which can be made. Messrs. Mamod are obliged to use the wretched solid pellets as fuel As this is a

respectable magazine I will content myself by saying that these are not very good, rather than use the phrase I had originally planned. A spirit or gas burner, combined with a Goodall-type valve can keep the loco going indefinitely. For lubrication, the simplest solution is to get hold of a really thick steam oil: real brown treacle stuff. A couple of blobs of this on the cylinder/block joint will get hot and thin down; running down on the faces. A commercial or homegrown displacement lubricator is obviously a better ploy.

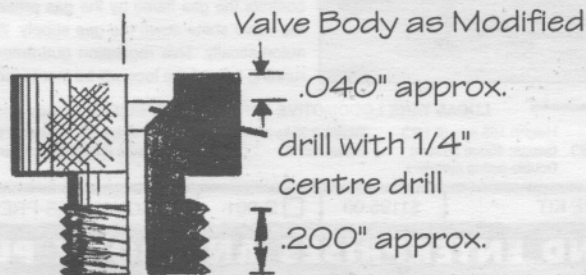
One job we can tackle ourselves is to uprate the safety valve. The thought of this sends cold shudders through many an experienced engineer but, in this case, we are quite safe. We can buy a replacement but a simple mods will do the needful for us. At this stage it would be appropriate to mention that Mamod steam engines are considered as toys. They have to comply with tough EEC restrictions - some almost ludicrous. To cover themselves, Ma-

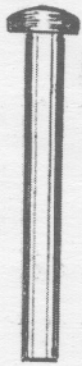
Fig 33a



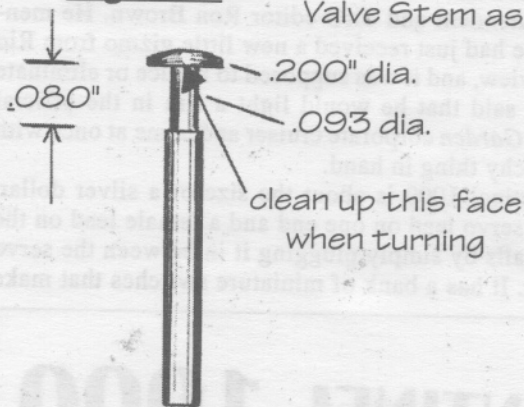
Valve Body as Built

Fig 33b



**Fig 34a**

Valve Stem as Built

**Fig 34b**

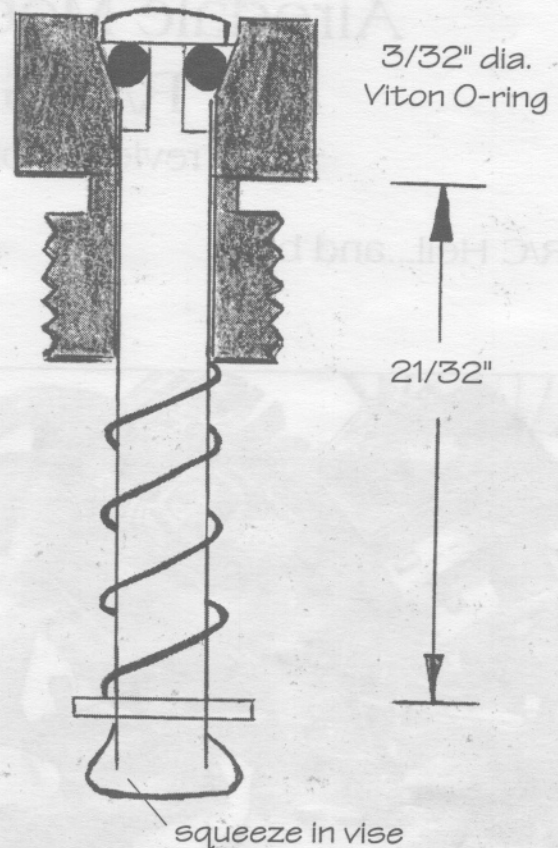
Valve Stem as Rebuilt

.200" dia.  
.093 dia.

clean up this face  
when turning

**Fig 35**

Rebuilt Safety Valve Assembly



3/32" dia.  
Viton O-ring

21/32"

squeeze in vise

mod have to say that they cannot be associated with ANY modifications - either commercial or home engineered.

The modification to the safety valve will uprate it to around 20psi and make the exhaust go upwards, rather than fizzle sideways. The valve is dismantled by sawing off the valve stem just above the crimping. This is a wonderful opportunity for components to fly away, never to be seen again. Put the body of the valve in the 3-jaw, bottom outwards, and shorten the threaded portion to .200".

Put a scrap of brass in the chuck. Drill and tap 1/4" BSF in the centre. Screw the body into this tapped hole. You will need a centre drill which has a 1/4" dia. body. This is used to drill into the top of the valve body. We need to go in just far enough to give a sharp parallel opening which is .040" deep (see fig 33) Run the lathe at about 200 rpm when drilling this hole and go in gently. It is essential that there are no chatter marks on the newly cut surface.

The stem is modified as per figure 34. It is a simple turning job (in a crush collet) and calls for no comment.

The valve is reassembled, as per figure 35, using a 3/32" 'O' ring. This must be in Viton or similar to withstand the heat. Using the existing spring and washer, you will now have a valve that lifts at around 20psi.

The engineering is now complete. There are plenty of other improvements, but those outlined above will transform the Mamod out of all recognition in performance.

The beginner, by now, will have realized that accuracy is called for but that there are ways of almost guaranteeing it, often simply by the order in which stages are tackled. But the biggest secret is to take the job steadily. I know of no competition where marks are awarded by how fast you did a job. Enjoy....

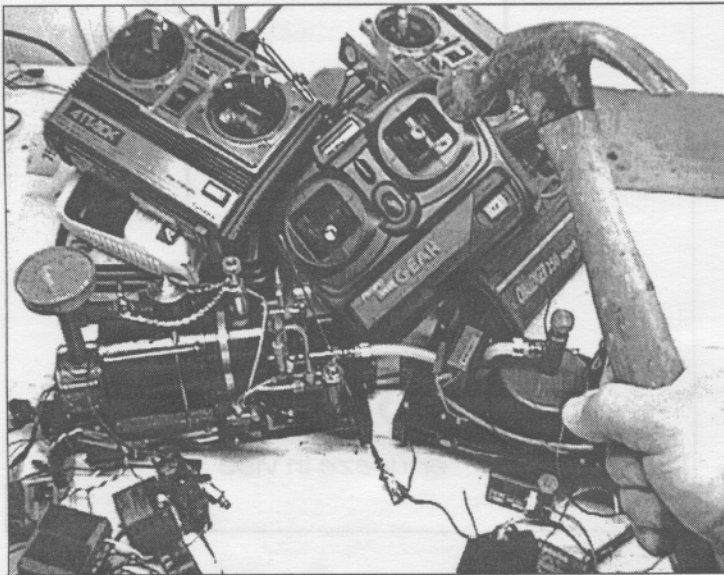




## Airedale Models' Sentinel 1000 R/C Glitch Buster

review & photos by Gary Lantz

To R/C Hell...and back



The author succumbs to "Glitch Rage" and wields an instrument of destruction on his pile of worthless, glitching R/C gear.

Anyone who has ever tried operating a locomotive with a servo driven radio control throttle has had them. You know, you're pulling that train of scratchbuilt cars that you are so proud of with a locomotive that costs more than you care to admit, and bang, bang, bang. Your priceless rolling stock crashes together in instant deceleration, and then suddenly is hurled forward faster than a lawyer can get to a car wreck. This is why they're called Glitches!

Ever since I nixed track power, minutes after the first tree leaf fell on the tracks, I've been trying to make large scale trains operate with onboard R/C. Hundreds of dollars in R/C equipment now lays in a dusty pile, having been replaced with so called "better" radio equipment that will end those wicked Glitches. FM radios seem to offer the best results, but are not totally glitch free.

At a recent steamup on the editor's new elevated track at Paradise East, I pulled a new locomotive out of the box and hastily installed the 27MHz AM radio that came with it. Figuring that it would be crazy to think that this setup would work glitch free, I stayed with the engine to catch it if it ran away. Amazingly, the expected glitches never came.

Well...maybe this radio is different? Whatever the reason, it was great and I took it home to run it on my home track.

Wrong answer! It seems that Paradise East is located in some "black hole" of the earth, sorta like Montana, that is impervious to outside RF interference.

I explained this weird RF phenomenon to Paradise East track superintendent and SitG editor Ron Brown. He mentioned that he had just received a new little gizmo from Rio Pecos for review, and it was supposed to reduce or eliminate glitches. He said that he would light a fire in the official *Steam in the Garden* corporate cruiser and come at once with this anti-glitchy thing in hand.

The Sentinel 1000 is about the size of a silver dollar, with a male servo lead on one end and a female lead on the other. It installs by simply plugging it in between the servo and receiver. It has a bank of miniature switches that make

### SENTINEL 1000



Glitch Buster to the rescue! With this little unit installed, the author's radio controlled locos respond smoothly and cleanly to his every command.

for quick and easy adjustment of the level of suppression needed for any given installation.

We quickly installed the unit with the el-cheapo AM radio and set the dip switches for the lowest level of glitch suppression. You can also reverse the servo direction with the glitch buster if desired. This is very useful if your radio transmitter doesn't have servo reversing switches, and you find that the controls all respond backward from what you had hoped for.

When we tried it, results were a little better than before, but it still glitched. After stopping and resetting the dip switches to increasingly higher suppression levels, there was noticeable improvement.

The Glitch Buster works, at least in part, by slowing down the servo transit speed, giving a sort of momentum effect in response to control movements at the transmitter. The highest level of suppression, or slowest speed, takes about 9 seconds for the servo to complete its full travel. This takes some getting used to but the response is more like what you would get from a real steam engine. The hardest part is getting adjusted to slowing it down and stopping where you want it to stop.

After changing the radio to a 75MHz FM unit, nearly glitch-free operation was achieved. However, it wasn't until

a Deans base loaded whip antenna was installed, that we got totally glitch-free operation.

It must be mentioned that I can take my R/C equipped locomotives almost anywhere on earth and get less glitching than I do at home, so chances are you may not need to go to this extreme to get your locos running the way you like. *(If Paradise East is at the most glitch-free end of the radio spectrum, the author's home railway is located in R/C Hell! No matter how mild mannered the system is anywhere else, it is almost guaranteed to glitch itself into a frenzy at his place. If the Sentinel Glitch Buster works well on the author's railroad, and it certainly does, it should offer performance as smooth as whipping cream anywhere else! - ed.)*

Rio Pecos, 27136 Edenbridge Ct., Bonita Springs, FL 34135 - phone: (941) 495-0491 • Fax: (941) 495-7264 • e-mail: [riopecosatsteamteam-com@msn.com](mailto:riopecosatsteamteam-com@msn.com) offers the Sentinel Glitch Buster in 1- or 2-channel configurations. Buy what you need for your installation. Both are reasonably priced at less than \$40.00 for the single channel version and less than \$70.00 for the 2-channel version.



## CUSTOM CARRY CASE

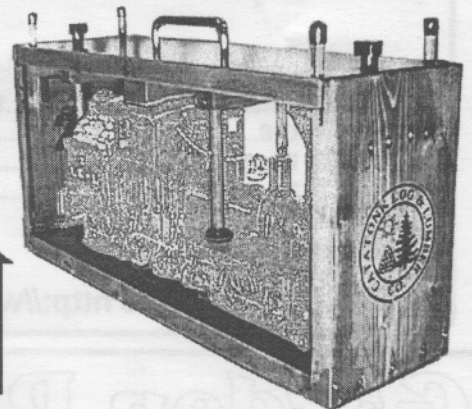
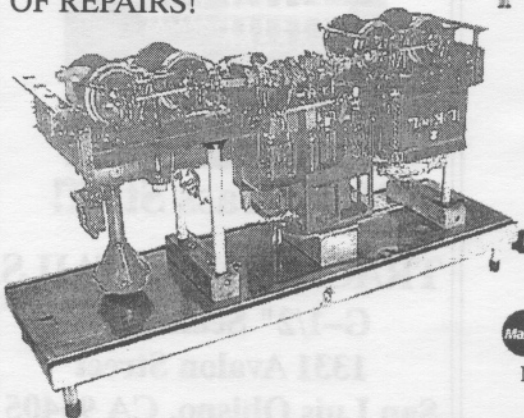
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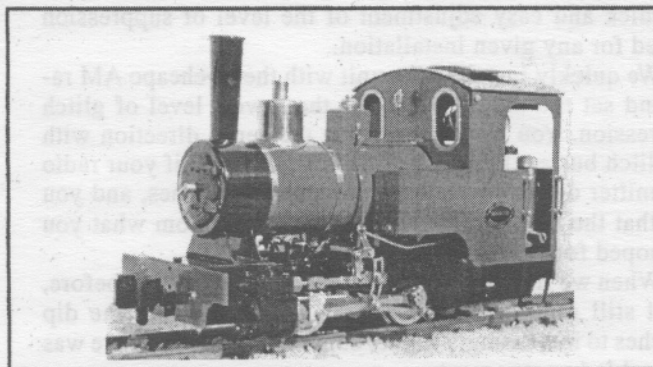
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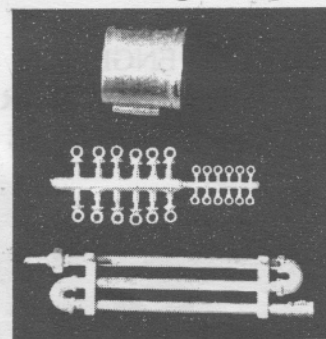
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## New Brass Stuff!

## TRACKSIDE DETAILS

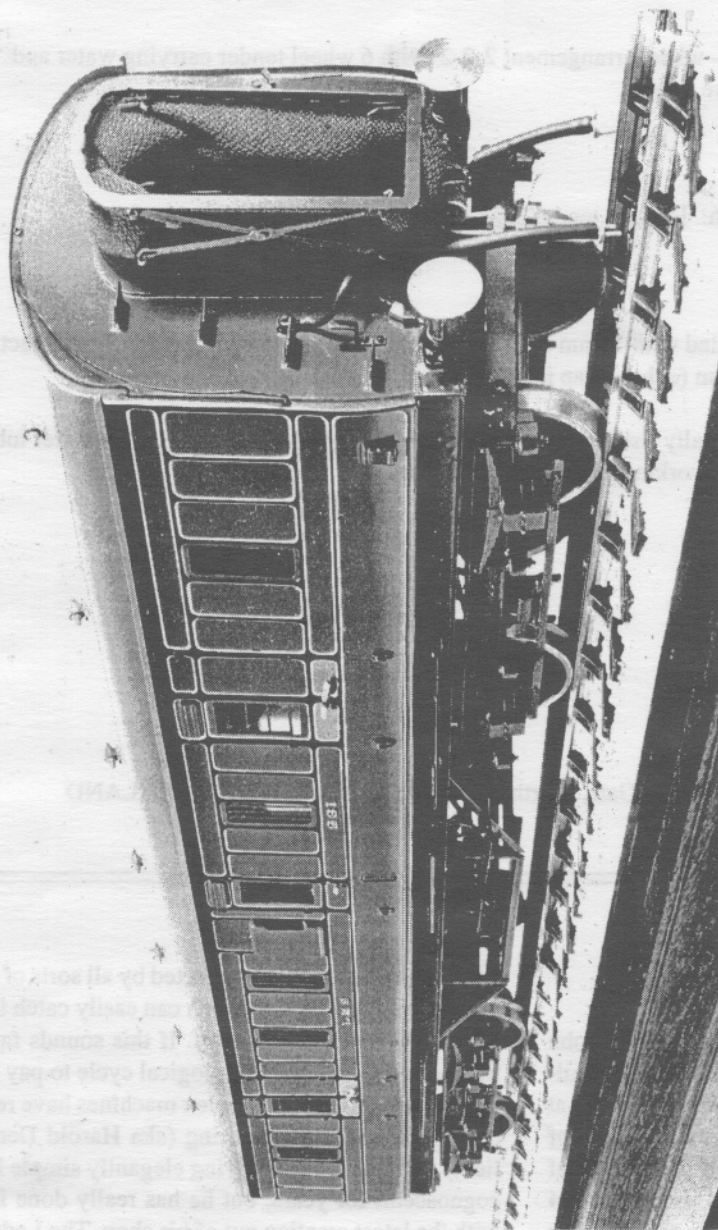
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## L. M. S. Period Piece....

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At a glance specification summary:

- Length over buffers: 510mm
- Availability: April 1997
- Wheels: steel insulated finescale
- Finish: hand painted and lined
- Weight: 1.6 Kg
- Material: 95% brass, including roof
- Price: £ 660 plus shipping

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# Loco Review –

## HB Engineering's LNWR LADY OF THE LAKE

by Jerry Reshew

### Specifications

Description:	"Problem" class locomotive - wheel arrangement 2-2-2 ,with 6 wheel tender carrying water and fuel. Leading and trailing axles are sprung.
Scale:	1:32
Dimensions:	Length: 18" overall ● Width: loco 3", tender 3.5" ● Height: 5-3/8" ● Weight: 5 lbs.
Gauge:	Gauge 1 (45mm)
Cylinders:	External , slide valve controlled with 14mm bore and 15mm stroke. Slip eccentric reverse direction control. Valve travel 4mm, lap 0.53mm (exhaust lap is nil)
Boiler:	Silver soldered copper , internally fired single flue, with dry firebox and transverse flue water tubes Capacity: 114 cc maximum - working volume about 100cc
Burner:	Three wick chicken feed type
Lubricator:	Displacement type
Price:	\$2300.00 plus shipping
Built by:	HB Engineering, England
Available from:	Sussex Model Centre, 1 & 2 Teville Gate, Worthing, West Sussex BN11 1UA ENGLAND

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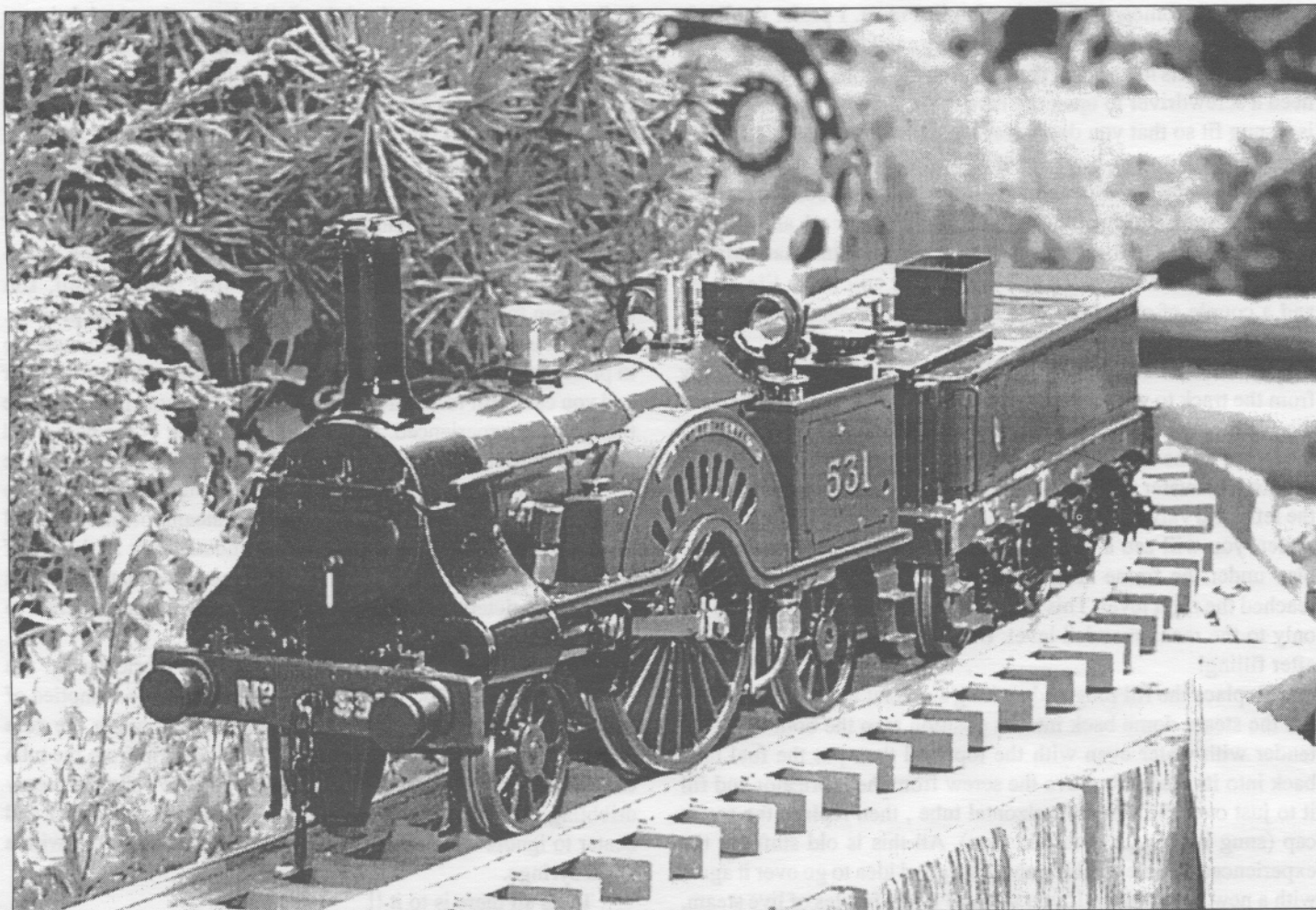
### THE PROTOTYPE

The "Problem" class of locomotives was designed by John Ramsbottom , and 60 were built for the London North West Railroad in the late 1850's and early 60's in the company works at Crewe (the Jaguar motor car is today's most famous product of that area). The increasing weight of trains caused the demise of this diminutive workhorse and the last of the class (Number 1434 - EUNOMIA) was retired at the beginning of the 20th century. Our model is typical of the early production.

### OBSERVATIONS, ETC.

There seems to be a cycle in the production of gauge one 1:32 steam models which defies any stochastic system yet uncovered in the halls of the world's universities. We have for years been offered large models which are rather significant in the number of

wheels, which are then connected by all sorts of rods and bushings and little wiggly pieces which can easily catch in the sleeve of the driver and invariably fall off. If this sounds familiar, now is the time in the solar/lunar/astrological cycle to pay heed. Some of the guys who make these complex machines have rediscovered the art of SIMPLE. HB Engineering (aka Harold Denyer) is a true believer and has been supplying elegantly simple locomotives to the cognoscenti for years, but he has really done it up brown for us with the latest creation out of his shop, The Lady of the Lake. The recent Stirling Single and the upcoming Lion (both Aster products) share the same general appearance - a large driving wheel and a couple of support trucks. Other builders are announcing simple tank locomotives to become available in the near future (sort of a Y2K thing), and we are all salivating over the prospect of getting a small and simple machine onto the track for a run, and then tossing it into a small case for the trip home. There is most assuredly a place for the 'Big Iron', but frequent airplane travel



The Lady of the Lake, another beautiful yet simple model from Harold Denyer at HB Engineering, strikes a classic pose on a sunny summer day on Chip Rosenblum's railway in Ohio.

*digital photo by Ron Brown*

really cries out for the smaller, simpler end of the gauge one spectrum.

Following close behind the Taff Vale and GER tank locomotives (both reviewed in previous issues of SitG) comes HB's Lady. A small 2-2-2 high wheeler with amazing performance capabilities and almost no fiddly tricks to worry with. Even with a tender it seems to satisfy my need for simple (you'd have to try and break something off). I'll give you a tour of the machine and some of its operating characteristics:

The general appearance is one of almost funky quaintness - a bit like the Volkswagen Beetle. The entire Lady is painted in a dark green with black lining out. The only touch of color is in the numbering on the sides and on the buffer beam (wood, as on the original). The brass engraved arc of the nameplate is a striking touch and the perforated driving wheel fenders give the model its unique appearance. The smoke box assembly is set off in a soft black, as is the fuel tank in the tender. The paint is an epoxy finish which is rugged, but which requires a bit of heat application to set up if you ever need to do some scratch touch-ups. This is tough stuff!

The backhead is completely exposed in this model, as it was on the original. What strikes me as amazing on a model of this size

is that all of the backhead controls duplicate the controls of the original Lady. The blower and regulator are levers located at the right and left sides of the cab, and the auxiliary pump control valve is located forward of the cab on the left side (again as on the full sized locomotive).

On the backhead are two additional valves, a blowdown and a (get this) lubricator control valve. Down below is a lubricator drain covered by a cap which is best described as "cute". A miniature pressure gauge is also on the backhead. The tender plumbing completes the machine with a hand pump and the meths fuel tank (removable - as good design dictates). The smokebox door opens for any cleanup. The steam dome covers a brass knurled plug which we'll address later, and there is a cleverly made cover for the tender water fill which resembles the hatch on the original. The locomotive is delivered with a small assortment of spares and a small tool for adjusting things. I needed touch-up paint and it was sent off as soon as I called Harold's attention to it.

#### OPERATIONS DEPARTMENT

As with all model steam locomotives, you'll need some basic equipment and consumables to get started. Since this is an inter-



nally fired locomotive, a suction fan is a must. I prefer the Wada Works device, but the Aster fan is readily available and works well. Some hobbyists have made their own, so the choice is yours. You'll need a screwdriver to open the lubricator. Try and find one which is a snug fit so that you don't scar the paint. Some distilled water, steam cylinder oil (a bottle of this stuff comes with the locomotive), and some fresh denatured alcohol are obvious necessities. You will need a syringe for inserting the lubricator oil, and a means of lighting up (a barbecue torch works well). I think that adding a large syringe for the water and the alcohol will make life easier, and a couple of absorbent rags for cleanup are also nice to have around.

The fuel tank should be lifted from the tender and filled away from the track to within about a quarter inch from the top. Replace the fill cap and make sure that the valve is closed. Next, remove the steam dome and unscrew the knurled plug. Fill the boiler with the distilled water to about a half inch from the top. If you unscrew the left hand valve on the backhead a couple of turns as you fill the boiler, you will see a few drops of water coming from the little pipe under the frame at the left rear of the driver when you've reached the right level. This nicety isn't really necessary if you fill only to the recommended level. Be sure that you close the valve after filling!

Replace the fill plug and making sure that it is snug, and then put the steam dome back into its position atop the boiler. Fill the tender with water even with the top, and then put the fuel tank back into its place. Remove the screw from the lubricator and fill it to just over the visible horizontal tube, then replace the screw cap (snug it up with determination). All this is old stuff for the experienced steamer, but it's always a good idea to go over it again with a new locomotive. If you are new to the foibles of live steam, let me assure you that it takes longer to write about it than to do the actual job.

Make sure that the blower lever (that's the one on the right side) is all the way forward, and that the left lever, the regulator, is all the way back. The lubricator valve should be closed, and the auxiliary bypass wheel should be slightly open. Open the fuel valve a half turn, place the suction fan into the stack, turn it on, and wait about a minute.

Here's the fun part - light the wicks with your barbecue torch, and you should hear a purring sound as the locomotive starts to breath fire. In a few minutes (about three or four) you'll see the pressure gauge starting to come alive. When the pressure gets up to about twenty or so pounds, you should pull the blower lever back about half way. The blower will now take over for the suction fan and the fan should be removed. As the pressure starts to rise you can move the blower control lever towards the backhead and reduce the blast to just barely a whisper. The locomotive is ready to run when the pressure reaches about sixty pounds. Before opening the regulator, move the locomotive back and forth to clear the cylinders of water - **DON'T USE BRUTE FORCE OR YOU WILL MESS UP THE VALVE SETTINGS** (not a major problem, since the instructions tell you how to correct this if it occurs).

At this point you are ready to go - open the regulator, close the blower, and you are off. You might have to move the locomotive a few inches to get it going, but since it is a slip eccentric valve arrangement it won't disturb anything.

Now is the time to think about replenishing the water in the

boiler. You may have noticed that I didn't mention the lubricator control valve again. This wasn't an oversight - you can ignore it since the locomotive gets adequate oil with the valve closed (this might be peculiarity of my model and you'd better check to see how yours behaves). The boiler is small and the axle pump can fill it easily so there is no need to use the tender pump. After about three minutes of running, close the auxiliary bypass wheel until it is barely open. This should fill the boiler in about five minutes. If you notice droplets of water coming from either the stack or the safety valve, it is an indication that the boiler is almost full. You should run for another five minutes before repeating the process. At this point, open the wheel slightly and you will see an increase in pressure on the gauge. You should have an almost empty tender and you can refill to extend your run, using the same pump routine that you just experienced. A well timed handling of the pump and regulator will result in about a half hour run. This is really a simple operating procedure that sounds complex, but playing with the controls is the fun part of running a model steam locomotive, and as you get to know your engine you'll undoubtedly find a lot of satisfaction in attempting to get a longer run. Eventually the fuel will be completely consumed and it will be time to get the train to the yard for a post-run checkup.

The only thing left to do is to service the lubricator for the next run, fill up, and do it again. The lubricator can be emptied of water by unscrewing the filler cap and then removing the cute knurled screw at the right hand side. Water will drip from the tube until the lubricator is empty and then you will have a slightly messy dribbling of oil onto the work surface. I find that it is easier and neater to ignore this method and just siphon the water out with a small syringe.

That's all there is to it !!

## SECOND TIME AROUND

There are some "tweaks" I performed on the locomotive which you might consider as engineering improvements.

Replace the fiber washers on the fill plugs for the boiler, lubricator, and the fuel tank with 'O' rings from the hardware store. This will allow you to snug up the plugs without putting much pressure on them.

If the controls for the regulator and blower seem a bit sloppy, remove the screw holding the footplate in place and just tighten the gland nuts on the levers with a small wrench until they feel right.

The fuel tank was being pushed up at the front by the close fit of the coupling pin. I took the pin and flattened one side of the top with a small file - end of problem.

Since Live Steam is the coin of the realm and should not be wasted, it is easy to just use the suction fan to build up to operating pressure without using the blower at all. This will give you a bit more steam to run on when you attempt to set a personal best record.

Most of all - have fun with your LADY OF THE LAKE.



# Steam on the Pond.....

We invite you to send your favorite photos for this feature. PLEASE label each photo with vital information like photographer, subject, where, when and why. Stick-on mailing labels work great for this. Don't try to write directly on the back of the photo....it embosses the front and ruins it. Mail them to SitG, PO Box 335, Newark Valley NY 13811. Please include a SASE with sufficient postage if you'd like your photos returned.



Charlie Roth of South Orange, New Jersey prepares his African Queen for a run at the Valley Forge Model Ship Society's "Steamboats Only Fun Float" in Pennsylvania. She sails like a charm, and is a great crowd pleaser.

photo by Ernie Morris

Extensively modified Midwest Seguin, built by Stefan Siegel of Fogelsville, Pennsylvania.

photo by J.  
Rittershofer





Right: Midwest Steam Launch, built by Ed Kolba, North Arlington, New Jersey. These little boats are easy to build and a pleasure to sail, and they make an excellent and affordable first steamboat model.

*photo by J. Rittershofer*

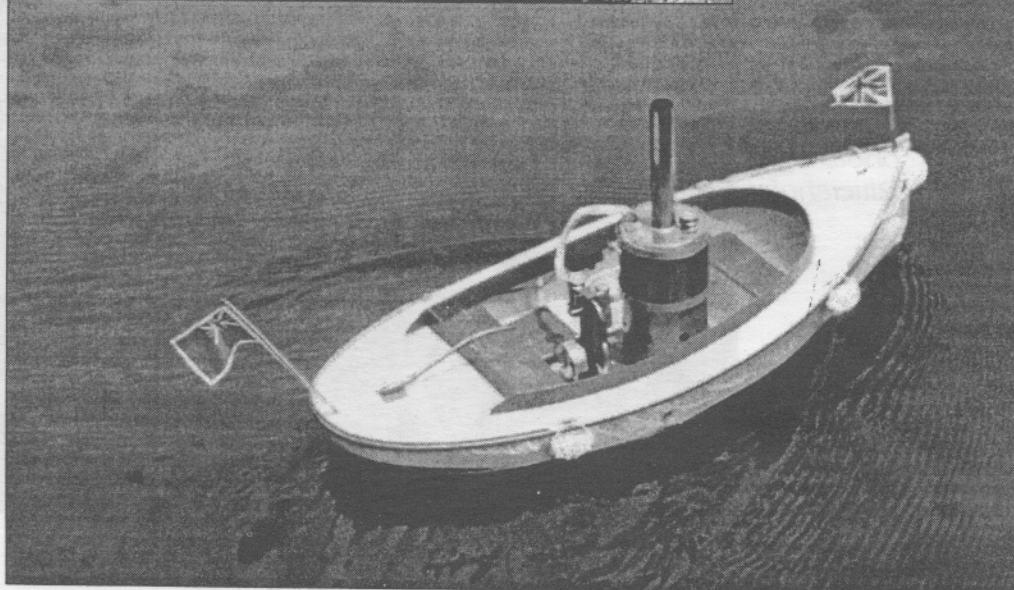


Left: Sam Patchell (l.), New Jersey, chats with Ernie Morris (c.) and Charlie Roth (r.) at the steamboaters table at the Pennsylvania Live Steamers Labor Day Steamup. Ernie and Charlie had some interesting steamboats on display, and they were signing up anyone interested for their North American Steamboaters Association.

*photo by Ron Brown*

Right: Another Midwest Steam Launch, this one built by John Dexter of Scotch Plains, New Jersey. The Midwest kit lends itself to expression of individuality, and every completed model reflects a little bit of the builder's personality.

*photo by J. Rittershofer*

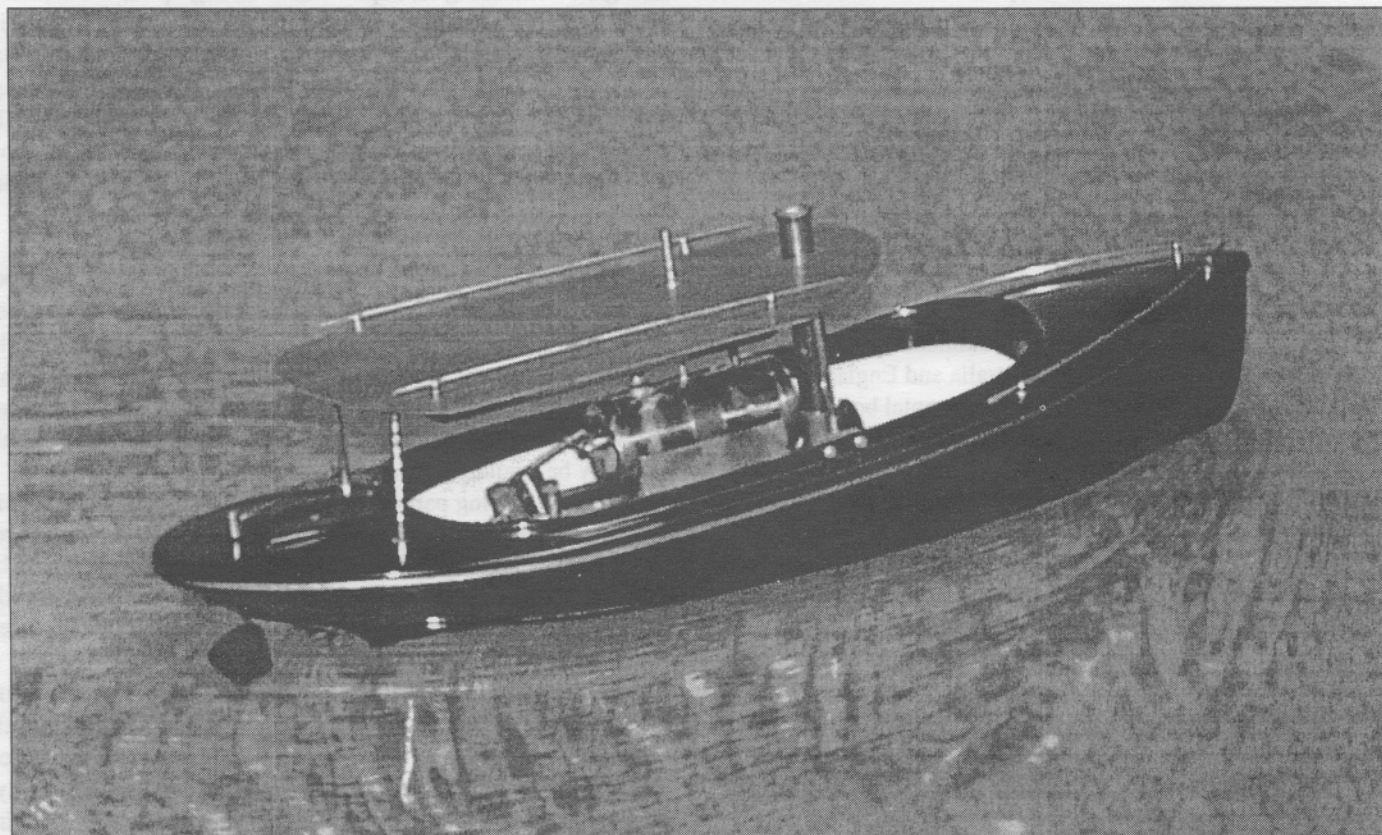


# Steamboat Review – Steamco's LINDA-MARIE

text and photos by Ron Brown

## Specifications

- Description:** Ready to run, generic steam river launch
- Dimensions:** Length overall: 25-3/4" Beam: 7-1/2" Weight (dry): 5-1/4 lbs. Cockpit opening: 6" x 14"
- Engine:** Single oscillating cylinder, double-acting type - 5/16" bore x 1/2" stroke
- Boiler:** Horizontal configuration, brass construction, with water level plug & safety valve/filler plug
- Lubricator:** Displacement type
- Hull:** Fibreglass hull & deck - color in the gelcoat
- Other:** 3-bladed, 2" diameter brass prop, brass rudder and tiller arm - mounting for R/C steering servo provided - boat stand included
- Price:** \$749.00 delivered in the USA
- Options:** Maroon or white hull & deck color (sorry - no two-tone!)
- Built by:** Steamco Engines of Australia
- Available from:** Sulphur Springs Steam Models, P.O. Box 6165, Dept. RB, Chesterfield MO 63006  
Phone/Fax (314) 527-8326 ● e-mail: SSSMODELS@aol.com



On test.....steam launch LINDA-MARIE glides gracefully by on a lazy summer afternoon.





The LINDA-MARIE is the first entry into the world of miniature steamboating by the Australian firm of Steamco Engines. This boat is aimed at the toy market, and it uses the smelly, dirty Eshit fuel pellets for fuel. But don't stop reading just yet...this boat is worth a closer look, particularly by those who would like to get into steamboating but don't have the time to build their own boat. LINDA-MARIE is well built and a good runner, and there's more than one way to boil water!

The boiler holds 150cc's of water, but the recommended two fuel pellets yields a run time of just 6 minutes, leaving 105cc's remaining. The manufacturer tells me that the use of solid fuel pellets and their very conservative recommendations are due to strict regulations on steam toys in Australia and England.

The steam plant consists of a brass horizontal boiler with water level plug, combination filler plug and safety valve, a very tiny (but adequate) in-line lubricator, a single cylinder oscillating steam motor w/brass flywheel, utilizing a simple spring universal drive attachment to the propeller shaft.

The propeller is a 3-bladed brass unit, 2" in diameter. The rudder is of brass, and is attached to a manual tiller arm. There is a hatch for installation of a servo to operate the rudder. A servo mounting tray is cast into the fiberglass, and mounting holes have been predrilled.

The hull is fiberglass, with the color in the gelcoat, and is very solidly built. The finish is mirror smooth, and the details like hand-rail stanchions, handrails and standoffs for the canopy are all of brass, neatly finished and attached to the hull.

The overall size of the boat is perfect for my needs. Small

enough to take along on trips without taking up all the available room in the car, but large enough so that it would not be easily swamped by the least little ripple. All in all a very nice little boat.

Now about that fuel system..... It occurred to me that perhaps one of the Cheddar Models ceramic gas burners would fit into the space provided for the solid fuel tray, and there's plenty of room for the fuel tank and other necessities. A complete Cheddar Models marine steam plant should drop right into the Steamco hull if one were so inclined.

Okay.....how about performance on the water? We removed the filler plug and water level plug, filled the boiler with distilled water until it started to flow out of the water level hole, and the filler plug and water level plug were replaced. Steamco suggests using hot water to speed the process of turning water into steam, but we opted to use cold water, which is probably all that would normally be available at pondside.

Next all moving parts were lubricated with light machine oil, and the displacement lubricator was filled with the steam oil provided. I'm sure you all know that only genuine steam oil should be used for this purpose! The oscillating cylinder was pulled slightly away from it's mating surface and a drop of steam oil was placed on the port face to ensure adequate lubrication.

As recommended by Steamco, two solid fuel pellets were placed on the burner tray and fire was applied. Once the pellets were burning, the burner tray was slid into place under the boiler.

In about 4 minutes things were perking, so I gave the fly-wheel a counterclockwise spin. Nothing happened on the first spin, but on the second try the engine turned over on its own...slowly at

first, and then building speed as the steam pressure increased.

The boat was lowered into the water and the tiller arm set for a wide circle. Unfortunately, we didn't have R/C installed in the LINDA-MARIE for this test, and we had to settle for watching her make graceful circles in the pond.

There is no throttle on LINDA-MARIE's engine, but the speed seemed to be just right for a boat of this size and type. The hull cut cleanly through the water, a nice steam plume issued from the copper stack, and we settled back to watch the little launch carve graceful circles until the fuel gave out, steam pressure dropped, and LINDA-MARIE came to a stop. Actual running time in the water was approximately 6 minutes, and 2/3 of the water was left in the boiler.

We repeated the above procedure for the next run, except that when steam had been raised we slid the burner tray out and added a third pellet before lowering the boat into the water. When the fire went out and the run was completed 11 minutes later, there was still 90cc's of water left in the boiler. It seems reasonable to draw the conclusion that runs of 20 minute duration would be possible given the boiler capacity and rate of steam consumption. Of course the water level should be closely watched to be sure that the boiler is not run dry.

The steam motor and boiler are mounted on a sturdy metal platform, which can be quickly removed from the hull by taking out four easily accessed screws. Nice engineering.

Documentation is slim, but adequate to the job. This is, after all, a very simple boat.

I like this little steam launch a lot just as it comes from Steamco. Fitted with R/C and a different fuel system, I believe that it has even greater potential.

What don't I like about the boat? The use of pop rivets to hold the steam engine to its mounting plate is not up to the quality of materials and workmanship in the rest of the boat.

The fuel system is unfortunate, but as already explained in earlier paragraphs, it is apparently a necessity for entry into the toy market. It wouldn't be much of a job for a steamboating enthusiast to make some improvements.

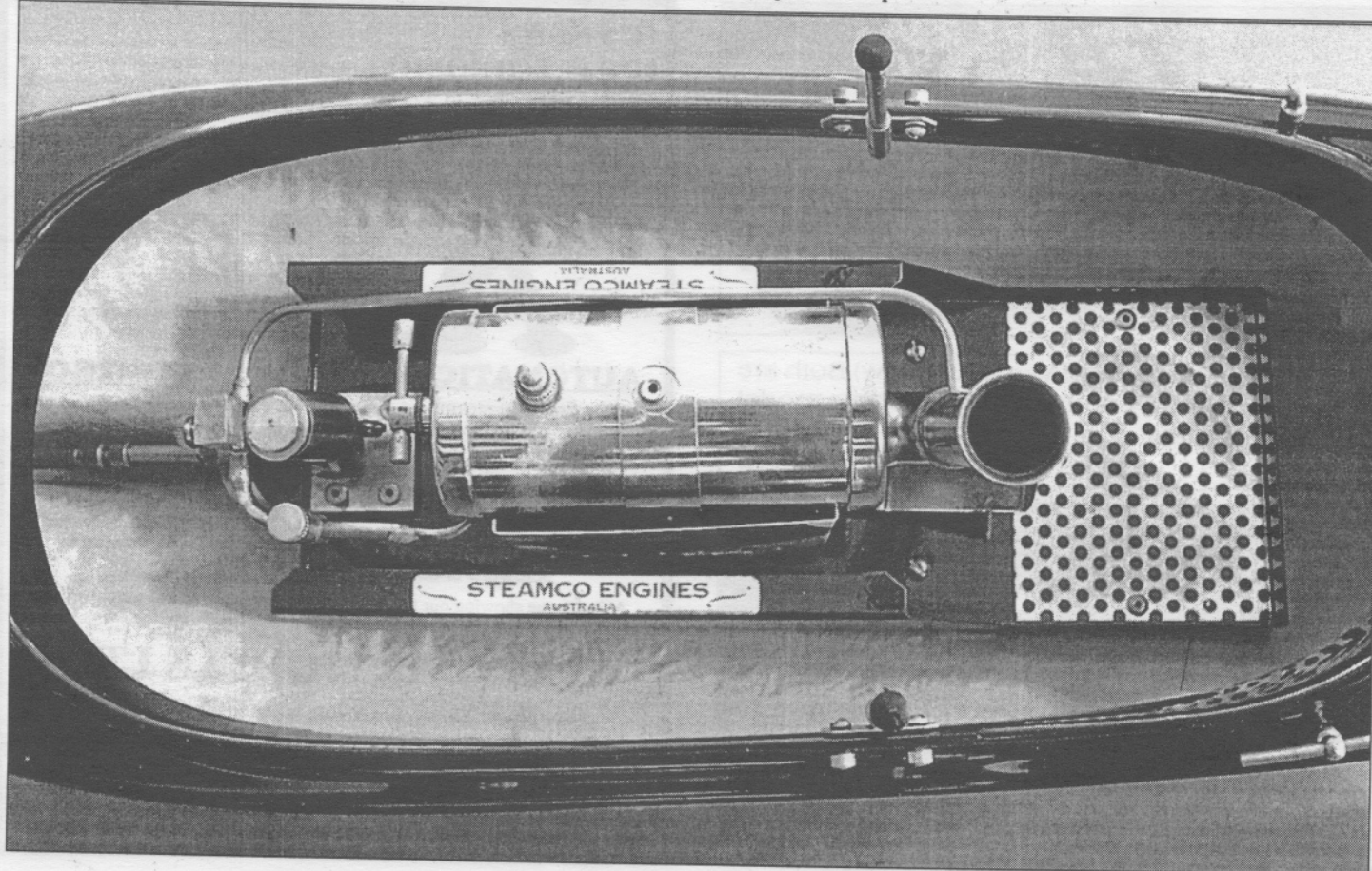
The operating instructions mention a spindle bearing lubricator, and it is even shown in the drawing.....but our review sample didn't have one. This was not a problem, as it is easy enough to get at the lube points with an oiler, but it could be confusing to someone unfamiliar with such things.

I'd like to see a parts list included in the operating instructions. If a widget breaks, it would be nice to be able to order a replacement part from your friendly local Steamco Engines dealer...or from the manufacturer.

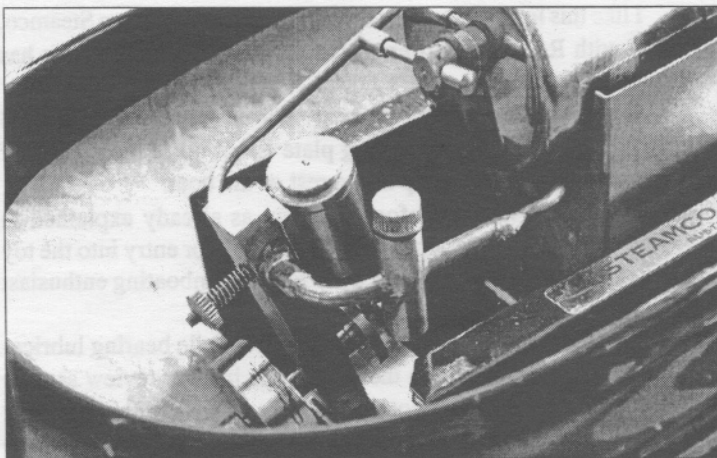
With these noted exceptions, LINDA-MARIE gets high marks for quality, durability and fun potential.



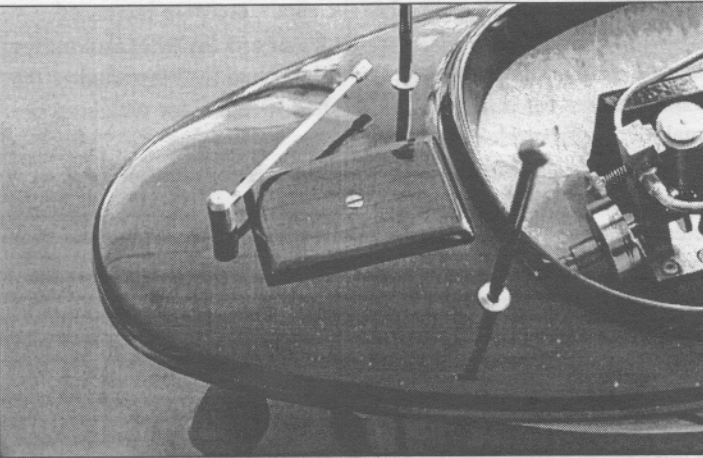
Bird's eye view of the power plant.







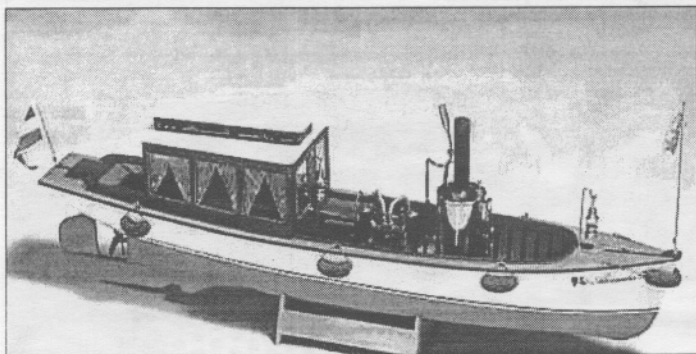
Top: The double-acting cylinder is robust, and should provide many years of pleasant operation. This photo shows the in-line displacement lubricator and the water level plug in the boiler.



Bottom: The hatch shown here is left in place for manual operation, but when radio control of the steering is desired it can be removed, exposing a servo mount R/C installation instructions are included in the operating instructions.

Welcome to our very first steamboating section, tentatively named *Steam on the Pond*. We hope that this section will continue to grow, and that we will be able to serve the North American model steamboating community as a source of information and a forum for the exchange of ideas. In order for this to happen, we need photos, letters, articles and a constant flow of information. Drop us a note to let us know what you would like to see in these pages. More importantly, drop a note of appreciation to the advertisers who are supporting this effort. Thanks! See you in the next issue.

*Ron & Marie*



ALEXANDRA (above), and VICTORIA (below). Both are fine examples of commercially available model steamboat kits.

*photos courtesy Krick Boats*



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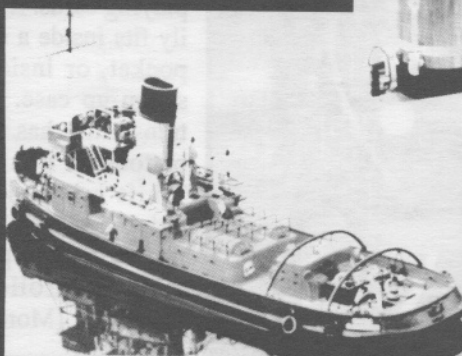
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## Remote Control Systems' R/C Servo Driver Throttle for Live Steamers

by Kevin Strong

Finally! An R/C system designed for model railroaders...

If you are one of the "purists" who believe that the only way to run a live steamer is by burning your hand on the throttle, then you may want to skip on to the next page. This is aimed at the rest of us heathens whose fingers are not quite so calloused.

Radio control of our live steamers is a must for anyone who has either a ground level line, or operates on any kind of a grade. The ability to be able to adjust the throttle without contorting your body into strange positions is certainly an advantage, unless you enjoy regular trips to the chiropractor.

Until recently, the only systems available to us were the "standard" R/C car and airplane systems. Despite the advances in technology, these systems are prone to interference which can make an otherwise mild-mannered steamer rocket off the end of the steam-up bay, or slam into reverse at the highest point on the trestle. Typically, this interference doesn't cause such cataclysmic results, but it is nevertheless very annoying. You can get filters for these systems which have varying amounts of delay to limit the problem, but the more you try to limit the problem with technology, the lighter the wal-

let gets in the process.

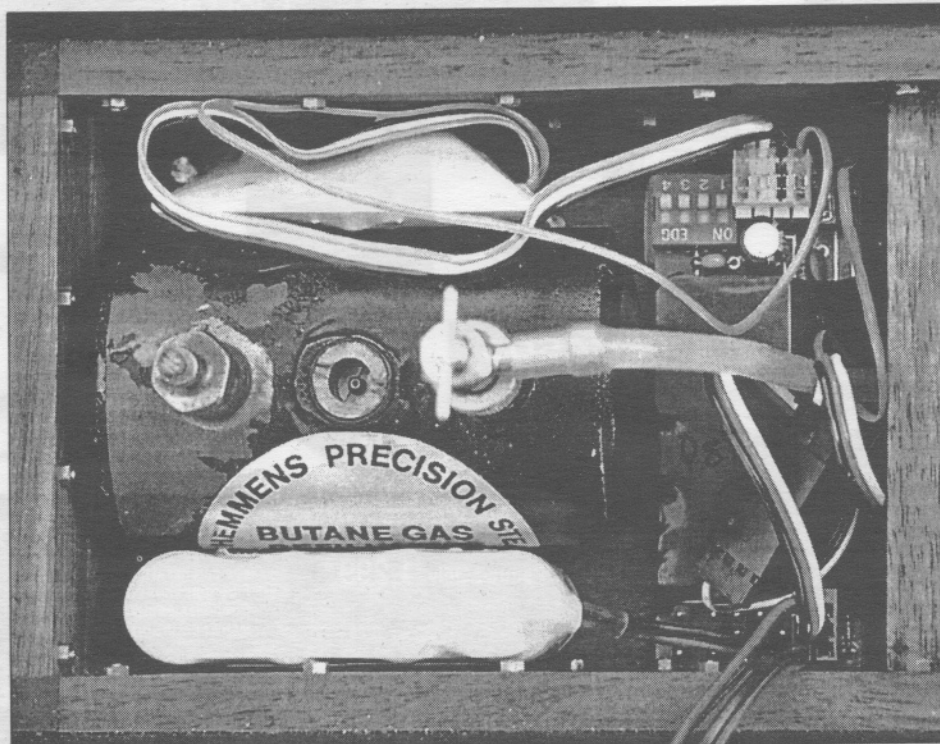
There has to be a better way...and there is. The DSD-1 and DSD-2 from RCS in Australia are cousins to that company's line of battery R/C products for our "other" trains...the sparkers. This system, created by RCS owner Tony Walsham and fellow steamer Mike Zemek, is designed to eliminate the "glitching" common to the standard systems.

Before I go any further, let me shed some thoughts on the installation of the system. The instructions are fairly straightforward and easy to understand. You shouldn't have any trouble following them. They don't tell you how to in-

stall the servos, but that's a matter of engineering, and is very locomotive specific anyway. **IMPORTANT NOTE:** The circuit boards are unprotected from the elements. That means they can get wet, or if metal touches the wrong parts...ZAP! I strongly recommend putting the boards in plastic baggies before installing them in the locomotive. This is important, especially when our locomotives 1) are metal, and 2) carry water. The receiver is shrink-wrapped, but this is not going to be enough. Obviously, putting the components into neat plastic boxes would have limited the ability to fit everything in a locomotive, and added to the cost. Plastic baggies are cheap enough. Use them.

The transmitter is about the same size as a pack of playing cards. It easily fits inside a shirt pocket, or inside a steam-up case. The transmitter has four buttons on it, and a "shift key" on the side, giving the transmitter up to eight controllable functions. (More on this later.)

The throttle is available on seven different frequencies, and each frequency has 16 different channels you can select. No worries about not having enough channels for all your different locomotives! The transmitters transmit in the 27MHz range,



RCS system shown installed in the tender of a Maxwell Hemmens Porter. The wires leaving the photo at the bottom right are attached to the on-off switch, which was moved out of the way for this photo.

*digital photo by Ron Brown*

and the frequencies use the same color system as the standard 27MHz radios. That means, if someone is operating a locomotive on the red channel using a standard radio, and your RCS system is also red, you better blow out your fire. While the signals don't interfere with each other, the standard system transmits at a much stronger strength, and will drown out your little signal.

The RCS transmitter only sends out a signal when the button is pushed. When it is not transmitting, there is no signal for the receiver to get confused over, hence eliminating the glitching. (A standard transmitter is constantly transmitting a signal, which leads to reflection and glitching.)

The receiver and the control circuit are small, and can fit inside a tender or the cab of the locomotive without much trouble. NOTE: You still have to buy the servo motors, batteries, and switches needed for powering the system. The advantage here is that you can buy mini-servos for the loco, leaving more space for the rest of the stuff.

Okay, let's get down to the nuts and bolts. First, this system takes quite a bit of getting used to. I ran my loco for four or five hours before I finally got a feel for the throttle. It responds a lot slower than a standard system, due to its inherent differences. Let's take the simple opening of the throttle as an example. On a standard system you move the joystick up, and the locomotive springs to life, clearing the cylinders, etc. Once inertia is overcome, you back off the throttle, setting it at a good "cruising" speed. With the RCS system, things work a bit differently. When you hold down the "+" key, the servo slowly moves the throttle open until you let go of the button. It takes about 5 seconds to complete the travel from closed to open. This system works best if you "notch" the throttle up, that is, holding the "+" button down for short periods of time, bumping the throttle up until the locomotive starts to move. This lets the expansion of the steam do more of the work than the sheer volume, and will actually give you



Here you can see the layout and the very compact size of the RCS transmitter. Also note that there's no long antenna to poke out your eyes or get caught in the shrubbery.

*photo courtesy Remote Control Systems*

slower starts. Keep bumping the throttle up until you get to your desired speed. You do have to hold the button down for about 1/2 second before the receiver acknowledges that it hears a signal it should listen to. Keep the cab roof open so you can watch the servo movement when you first install this system, and play with the transmitter until you have a feel for the movement. It may also be a good idea to paint a visible mark or line on the throttle or linkage so you can see where the throttle is from a few feet away. Slowing down is done the same way, by pushing the "-" key. There is a third key, labeled "S", which closes the throttle down at twice the normal speed.

The fourth key is for changing the direction. Again, this is different from the standard system. The best way to describe this is identical to the old Lionel E-units. When you push the button, the valve gear is set in forward. The next time, it is set to neutral. Push it again, and it goes into reverse. A fourth push will set it back into neutral. Easy enough to understand, but with Stephenson's valve gear, it may be hard to tell where your gear is set without a visible marker. (Again, a mark on the servo may help here.) A really nice feature of this reverse system is that it also acts as an emergency brake. Every time you push the reverse button, it automatically closes the throttle. Really nice to avoid going off the edge of the steam-up bay. (And with

the amount of oil present on the rails, the risk of a "flat spot" is minimal.)

Okay, now for the road test results. First a word about just how I run my locomotives. I am an operator. I enjoy moving freight and passengers around the railroad just like the real ones. This, so far as I can tell, is the exception to the norm, but I figured if the throttle could prove reliable in that situation, then it would certainly work for running around a track at Diamondhead.

Let me state again, this system takes a bit of getting used to. You may not like the immediate results, and write it off as a bad system. Don't let yourself fall into this trap. Give yourself some time to get past the learning curve.

The control is smooth, and I can get the locomotive down to a crawl and keep it there without any trouble. Sudden or jerky movements are not possible, again keeping performance in check. After a bit of practice, I got to where I could spot a car almost exactly where I wanted it to go, and couple up to cars without risk of slamming into them or damaging the couplers.

The range seemed adequate. I was able to control the loco from 80' away without any trouble. (*RCS specs on this unit claim 100' range when properly installed*) I personally wouldn't want to be any further away from a steamer than that anyway. The instructions suggest you connect the antenna to the frame of the locomotive for best performance. The theory is that the frame conducts to the wheels, and onto the rails, giving you a nice long antenna. I initially had the antenna connected to just the tender shell, and that seemed to give me good results. I saw one installation inside a trailing boxcar, with only eight inches of antenna wire exposed. The system seemed to work with no trouble there either. Make sure the batteries are freshly charged though. While the transmitter only uses



power when the buttons are pushed, the receiver is constantly on. If the batteries go, it's deaf as a post.

Now for the bells and whistles, literally. Remember the "shift key" I mentioned? When you press this key, the buttons control four different functions. These four extra functions can either be electronic functions, or can control extra servo motors, although currently they are only able to turn a servo full on or off, such as for a whistle, uncoupler, or a water pump. Otherwise, you can use the extra functions to turn on the lights (which are directional, in conjunction with the reversing servo) and run an electronic sound system should you so desire. The instructions include a section on using these features, and even goes so far as to "suggest" that one could hook up an electronic "chuff." Sacrilege!!! Bells and whistles maybe, but...

Okay, lest you think I am on RCS's payroll, there are some limitations to this system as well. The system is not able to variably control a third servo for something like a blower. This may be a hindrance for those with alcohol fired locos which need a draft to survive. It would be nice to be able to bring the loco to a stop and have the ability to remotely turn on the blower. (Tony tells me that he is working on adding more options and more flexibility in future versions.) Also, the throttle circuit board is one extra thing to put into a locomotive where real estate may be at a premium. The receiver is a bit smaller than a standard one, but the throttle circuit measures 2.25" x 1.125". This will limit its installation in really small locomotives.

Finally, this is not an inexpensive system, especially when you compare it to a standard 2 channel AM system at

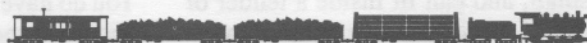
roughly half the price. You have to consider, however, that you not only have glitch-free control of the locomotive, but you have control over other "accessory" functions as well. Finding a standard radio which offers that level of performance and flexibility tips the cost scale in favor of the RCS system.

Summing it all up, the RCS servo-driver system is a quality control system which I think represents a large step in smoother remote control of our little engines. It can do everything its "big brother" can do, and a few extra things as well. You have to consider just how much you want to control on your locomotive, and what you think you will be able to get away with as far as interference goes. If you don't like to be frustrated by sudden and sporadic movements in your locomotive, I would recommend you check out this system.

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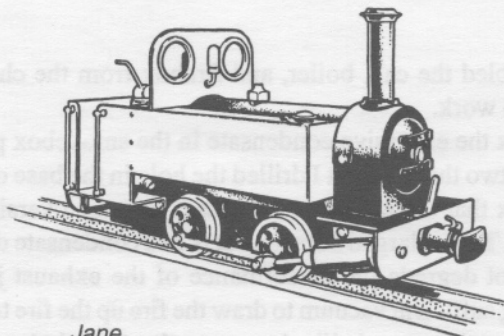
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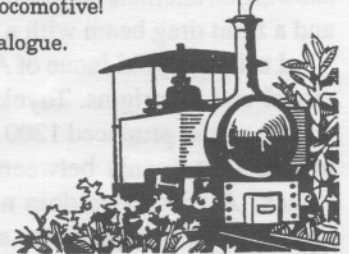
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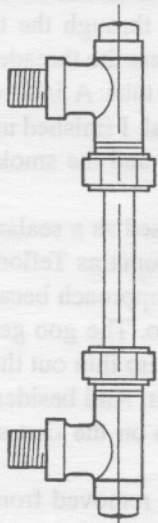
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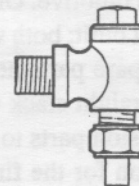
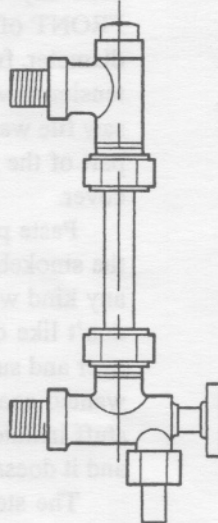
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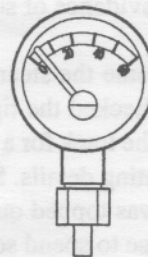
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# Putting the Spark in Old Faithful

by Kevin O'Connor

## Improving a classic

In 1976 the Aster Hobby Company of Yokohama, Japan released their sorta scale rendition of a 0-4-0 tank locomotive called OLD FAITHFUL. It was based on a style of Japanese logging locomotive found operating in the Kiso forest in the northern part of Japan, near to where the 1998 winter Olympic Games were held. The original locomotive was wood fired, and so was fitted with a spark arresting diamond stack as well as an impressive "cow catcher" out front. The kit box for this locomotive has a top cover illustration showing an alternate outline that features a shotgun type stack and a front drag beam with a link and pin coupler.

I called Toyoki Inoue of Aster to inquire more about the model and its origins. Toyoki told me of the Kiso Forest, and that Aster produced 1200 of the little locomotives, more or less split evenly between the two outlines. The 1995 "black" Aster catalog does not have an official portrait of Old Faithful, but one of the straight stack examples is featured on page 36, lower left hand picture, behind a Frank S. at a water tower.

During the last few years I was lucky enough to purchase two excellent examples of this locomotive. One was a factory built unit while the other was kit built; both were the diamond stack variant. I ordered the spare parts needed to turn one of the locomotives into the straight stack version, and while I was waiting for the conversion parts to arrive I decided to steam up the kit built version for the first time. The locomotive's wheels had no sign of wear and there were no wicks in the burner, though there was evidence of some soot in the boiler flues.

Down to the shop we went and out came the steamup kit. I packed the wicks (more later) and checked the tightness of all the fasteners. Then I headed to the track for a test run. I will not bore you with all the frustrating details. Suffice it to say that my exasperation index was topped out in less than an hour and I repaired to the house to spend some quality time with a Wild Turkey.

As I pondered the problem I came to the conclusion that the biggest issue besetting me was excessive condensate upon start-up. Clearing the condensate caused the locomotive to jerk its way down the track, with the result that the condensate trapped in the smoke box sloshed down the two lower fire tubes, thus extinguishing the front wick. Prior to retiring for the night, I jotted down all my thoughts concerning the locomotive. When I awakened the next morning I had a plan of action. After breakfast I headed for the shop and

disassembled the cab, boiler, and firebox from the chassis and set to work.

To fix the excessive condensate in the smokebox problem I did two things. First I drilled the hole in the base of the smokebox that the exhaust tube passes through oversize to 9/64" dia. This enlarged hole now acts as a condensate drain. It does not degrade the performance of the exhaust jet in producing sufficient vacuum to draw the fire up the fire tubes. I know that this sounds like heresy to the Al Cohols of the hobby, but it does work. My theory is that the departing condensate, following the call of gravity, seals off the annulus just enough to maintain a vacuum.

Secondly I opted to shield the fire tubes from the spray produced by the exhaust jet as it vented up through the petticoat. To do this I fitted a short piece of 3/8" dia. K&S brass tubing up into the stack's threaded extension into the smokebox. The 3/8" dia. tube is just a light press fit into this extension; no machining required. I set the brass tube's lower length at 1/8" below, and overlapping, the nozzle of the exhaust jet. This may be all that is required, but not having done anything like this before, I decided to file away the FRONT of the brass tube to half way through the tube's diameter, from where the brass tube enters the threaded extension down to 1/8" from the end of the tube. A 5/32" chain saw file was used to remove this material. I finished up this part of the job by reinstalling the stack and the smokebox cover.

Paste pipe dope from a tube was used as a sealant for the smokebox doors. The newer stuff contains Teflon, but any kind will due. I like the pipe dope approach because I don't like cleaning up after silicone goo. The goo gets all over and subsequent wipings only serve to thin out the unwanted coating, but not really remove it. And besides, the stuff irritates eyes. Pipe dope cleans up on the first swipe and it doesn't feel icky.

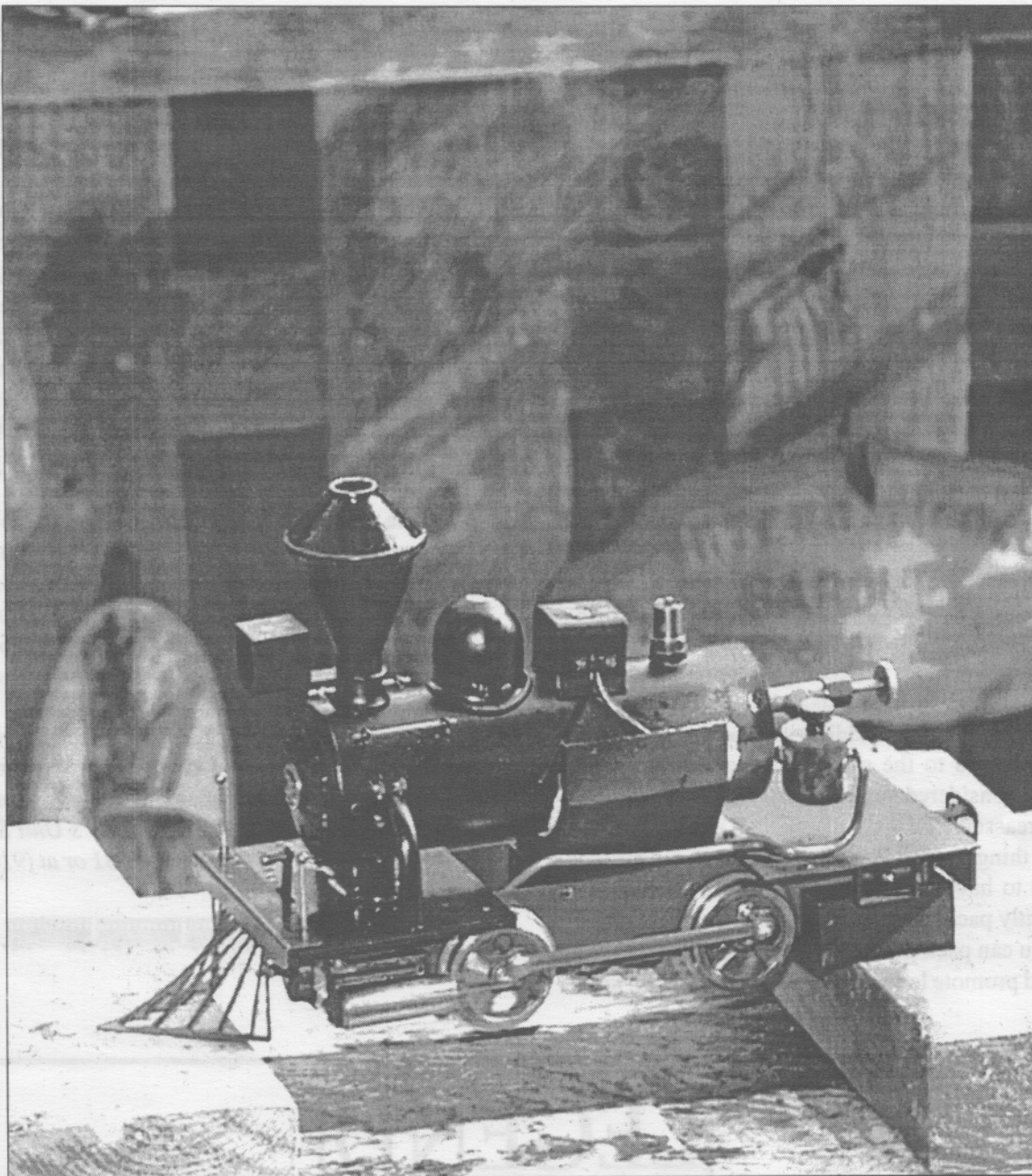
The steam regulator assembly was removed from the boiler's backhead. I found that the long copper tube that fits into the boiler was straight as a die. This meant that if the boiler was more than half full that the pickup end of the regulator was in the water. I had noticed that, when the locomotive was assembled, the regulator gland nut was positioned right against the rear cab bulkhead; actually contacting it, and that the nut was screwed down all the way on the regulator body. Even so, the gland nut was leaking ever so slightly, but would not pull up; more packing was needed. A

problem.... if more packing was added, the gland nut would no longer fit within the cab. I hacksawed 1/8" off the threaded end of the regulator and ran the M7 x .50 thread further down the regulator's diameter to allow the gland nut to move out of the way of the bulkhead. Aster's graphited yarn was removed from the gland nut and replaced with three turns of Teflon coated valve packing.

I like to have

gauges on my boilers and so I drilled out the side of the regulator body between the valve seat and the backhead flange and soldered in a 1/16" dia. siphon, to which I attached a 0-50psig x 3/4" dia. pressure gauge. Prior to reinstalling the regulator into the boiler's backhead I removed the dummy sand dome (box?) and its stud from the top of the boiler. I filed the steam end of the copper pickup tube to a 45 degree angle and then bent the business end of the copper tube to poke up through the sand dome boss as the regulator was slid into place and screwed to the backhead.

Since the copper tube now stuck up into the boss that the sand dome stud screws into, something needed to be done to



Jerry Reshew's Aster Old Faithful, with cab removed for diagnostic purposes, shown running on blocks. (Check out the color photo of this loco on the rear cover)

*digital photo by Egroeg Dlanor Nworb*

effective, steam dome. The 45 degree angle insured that there was no chance that the copper tube would seal itself off from steam flow

Modifications were made to the valve spindle. Its steam metering end was drilled and bored out to accept a .065" dia. insert which protruded 1/8". This insert was turned to .058" dia. with a 45 degree chamfer for steam sealing purposes where it meets the stainless steel spindle. A 6 degree included (3 degrees per side) angle is machined onto the .058" dia. right up to the 45 degree chamfer angle.

The addition of this machined insert "tames" the throttle settings and allows for easily adjusted prototypical speeds un-

in a kitchen. I wanted the tube in this position in order to pick up steam from a point the greatest distance from the surface of the boiling water. This was intended to cut down on condensate carryover. The threaded end of the boss was drilled 5/32" dia. x 5/16" deep, which allowed the copper tube to nestle within the stud at assembly and formed a tiny, but



der varying, especially light, load conditions. I turned the brass valve wheel to 3/8" dia. and chucked up a piece of 1/2" dia. hardwood dowel, faced it off, and counterbored it with a 3/8" dia. endmill about 1/16" deep, then parted off the end of dowel about 1/8" thick. A tiny amount of JB Weld™ was sparingly applied to both the brass valve wheel and the 3/8" counterbore in the wooden disk. The brass wheel was inserted into the counterbore and firmly pressed together. Black Magic Marker was applied to the wooden disk to blend it in with the cab's interior. Now there is no chance of burning fingers while fiddling with the throttle.

The stock steam supply line runs from the backhead forward to the steam cylinder distribution valve via the outside of the firebox. This line is not only very long and is unlagged, but it also runs through a large displacement-type lubricator that presents ample area to radiate heat into the atmosphere. Since the locomotive's operation suffers from an excess of steam condensate in the smokebox and exhaust, I decided to reroute the steam line forward through the firebox. To do this two slots have to be filed in each of the left hand firebox baffles right at the level that the steam line passes along. A 5/32" dia. chain saw file is perfect for this purpose. The slots are just deep enough to let the steamline snuggle in. In rerouting the steamline, some additional heat energy from the firebox is imparted to the steam passing within, but not enough to be considered superheat. At this point the locomotive was reassembled.

The last thing needed is wicks in the burner. This locomotive likes to have both its wicks made from fiberglass and very tightly packed into the burner's wick cups. I don't think that you can pack them too tight. Tight wicks use fuel sparingly and promote long runs. Trim both wicks no higher

than 1/4" above the burner cup tops and contour both till they resemble the business end of a .45 caliber dum dum round. Attention to this detail will pay dividends later in proper combustion. If the wicks are higher, or loose, the flame will burn too hot and the safety valve will lift and shorten the run.

I have found that this locomotive likes to be steamed up on blocks. Any thickness block will work as long as the wheels are above the track's surface. Steaming up on blocks allows the locomotive to clear its exhaust of condensate (it's a real "slobber stack") without jerking its way down the track. Once the locomotive's exhaust is running clear at a slow throttle setting just lift the locomotive off the blocks and send it on its way. If you are pulling a consist it is necessary to shut down the throttle and add the cars/vans prior to moving off.

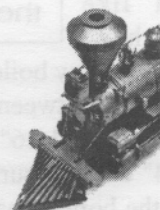
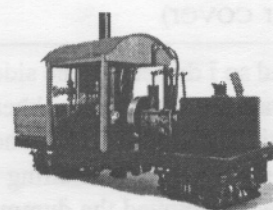
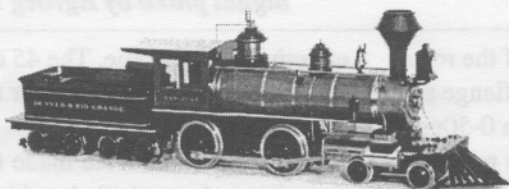
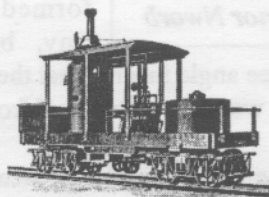
One might ask "Why go to all the trouble?" To me the answer is clear. It is because the locomotive runs so much better after the attention. This kit built locomotive, depending on temperature (my runs were in the 40F to 50F degree range), runs 30+ minutes pulling two Aster #51 four wheel gondolas weighted with 4oz. each of fishing sinker, over a distance of 3700' to 4000'.

When time permits I intend to rework my diamond stacked OLD FAITHFUL as I did this one. Why not join me? If you have any questions, or are in need of conversion parts, I may be contacted at *Kevin O'Connor's Unit Shop, P0 Box 161631, Sacramento, CA 95816-1631* or at (916) 447-5433.



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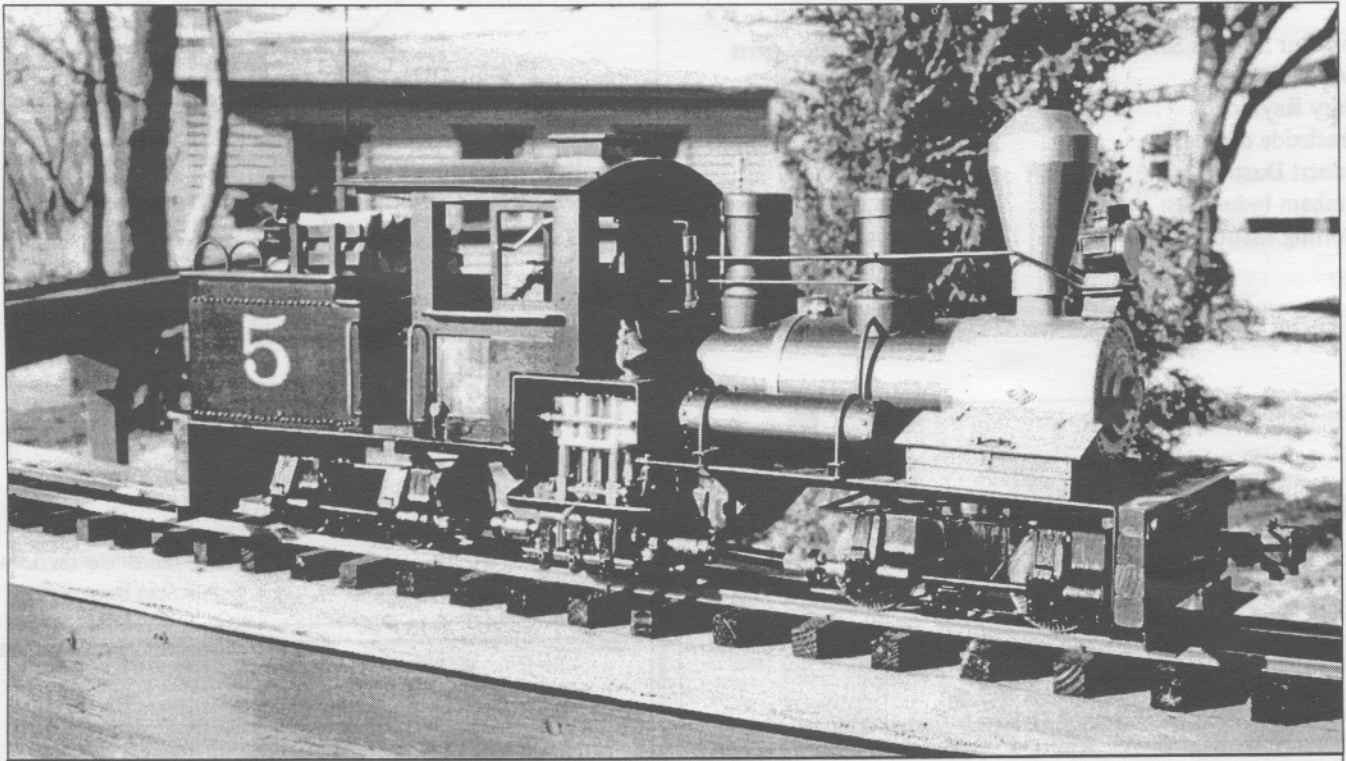
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## How I Did It –

# 7/8" Scale Scratchbuilt Shay

text, photos & drawings by John Tepley



The author's 7/8" scale Shay, ready to haul some logs out of the Wisconsin woods.

About a year ago I got the idea of building a 7/8" scale Shay after reading an article in *Steam in the Garden* about Steve King and his 7/8n2 Forney. I thought that it would really be neat to have a huge engine and rolling stock.

This is how I did it, and I hope that my experiences will motivate you to try it for yourself. Let's start with a few specifications.

Size:	24" long, 5 1/2" wide, 8.3/4" to top of cab
Weight:	18 lbs. (dry)
Engine:	Graham Twin (Gage TVRIA)
Valve gear:	Hackworth
Fuel:	Butane
Boiler:	2.1/2" x 9" with 3/4" center flue
Fittings:	Safety valve, pressure gauge, goodall-type valve, steam regulator, sight glass and whistle.

The engine is based on the Lima 18 ton Shay (Woodland Books *Shay Catalog 1919*).

I first started with the foot plate or frame (see figure 1) all metal is 16 gauge steel. The frame work below the foot plate is

steel L angle (see figure 2). These two pieces run the full length of the foot plate.

To fasten the trucks and fire box, I used 1/2" sq. steel in between the L brackets. I had these spot welded, but be careful to keep work clamped flat until it cools or you may get warpage of the foot plate. This could be fastened with 4-40 hex bolts. Figure 3 shows the spacing I use for the 1/2" stock to receive the trucks and fire box.

The engine is centered on the footplate. The opening is 3" x 1.5/8". I used the entire engine and mounted it to the side of the fire box with brackets (see figure 4).

Before I could plan on making this Shay, I had to find 3:1 ratio gears with the wheel gear big enough, and also find 1.60" drive wheels. Later I will list these suppliers. The trucks were built similar to the prototype drawing in *Shay Parts*, available from Woodland Books. I have a friend who is a tool maker. I am a carpenter. He needed carpentry work and I needed trucks. He really did a fine job on the trucks and universals. The journal lids are hinged and the axle is oiled from one side and the pinion gear shaft from the other side.

The smoke box is a 2.1/2" copper coupler with a copper plate

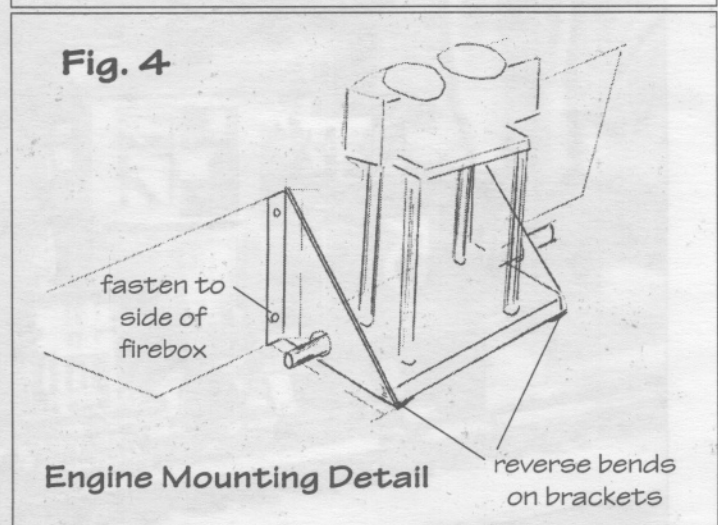
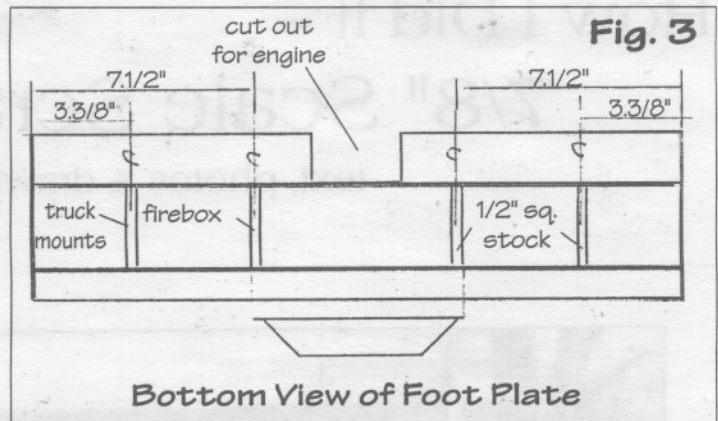
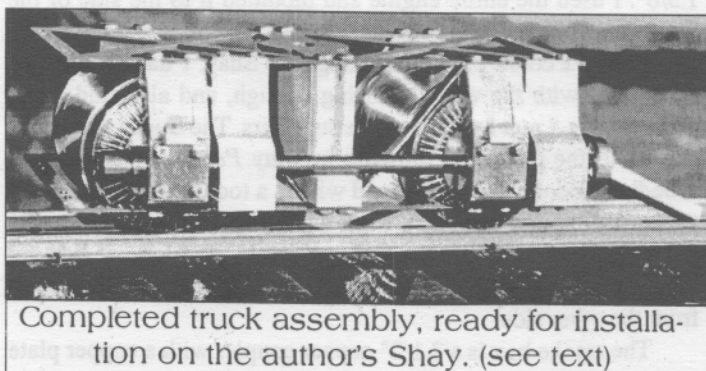
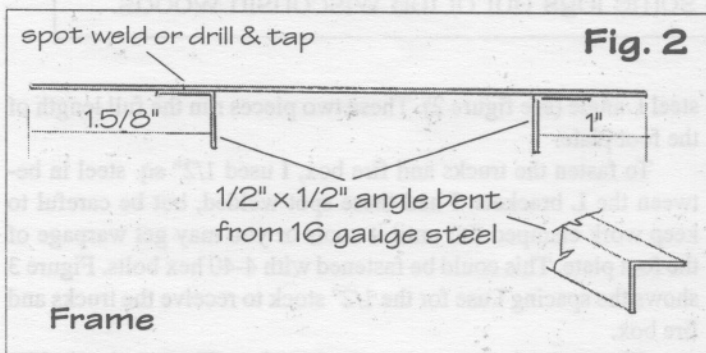
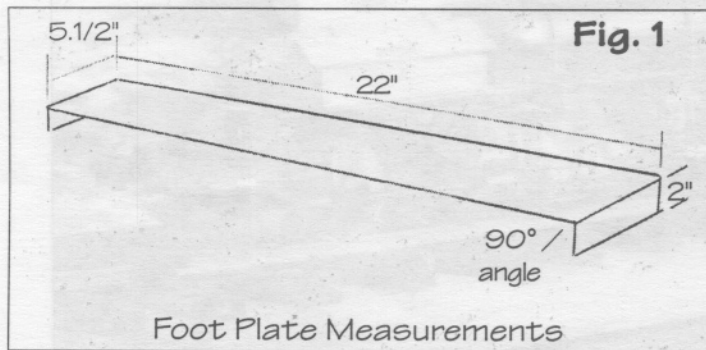


on the front. The steam dome and sand dome are copper plumbing fittings. The cab and tender area are made of 1/8" birch plywood (right up my alley).

The Shay is remote controlled with 2 servos - one for the regulator and one for the valve gear. It runs very well and it was a joy to build. It negotiates a 48" radius providing you keep the universals to the outside of the radius. My next project is an American 4-4-0 in 1:20 scale. I want to keep it very simple.

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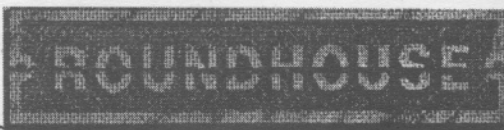
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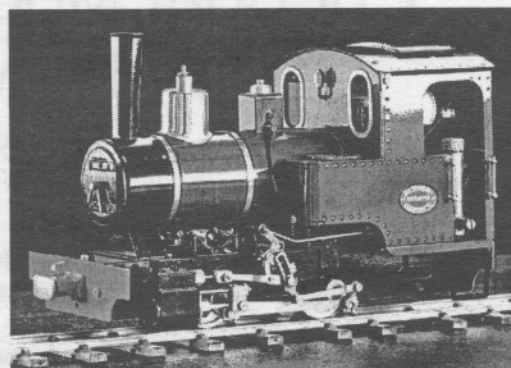
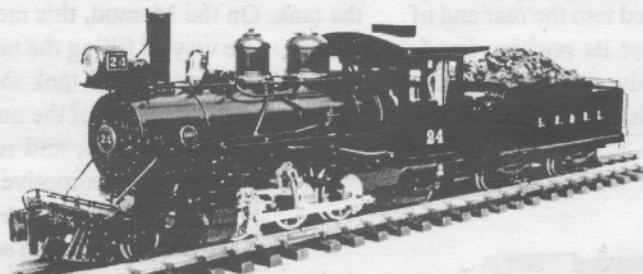


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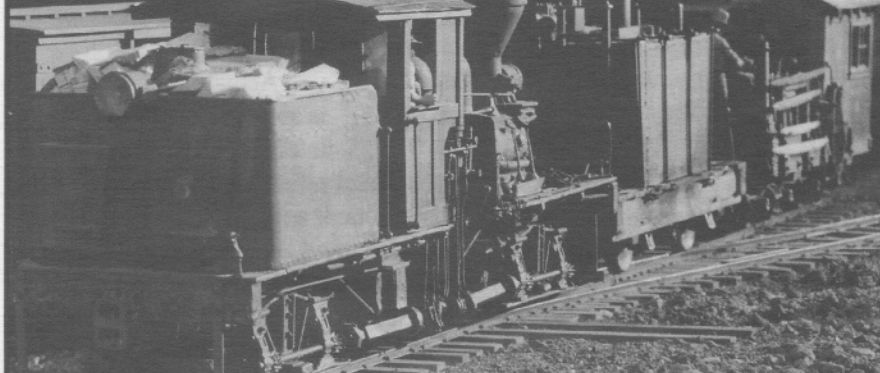
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## Cheddar Models, Ltd. Gas Burner for the Mamod (& Jane)

by Rob Kuhlman

Because I am a confirmed alcohol-firing steamer (I had never operated a gas-fired locomotive before in my life), the editor thought I'd be the ideal person to give the Cheddar Models' Mamod Gas Burner a try. My Mamod has been rejuvenated in the past year to "one-of-my-favorite-locomotives" status with the help of a replacement boiler, new wheels, new cylinders, a real throttle, and an exhaust restricting regulator. (see the author's review of these I. P. Engineering aftermarket Mamod parts in issue N<sup>o</sup> 45) The Cheddar gas burner would take the place of my ancient three wick alcohol burner for the purpose of this test.

The Cheddar burner is composed of three parts: the tank, a delivery pipe with the jet, and the burner head. The burner has a ceramic head enclosed in a brass box 5 cm long, 1.5 cm wide, and 1.8 cm deep.

The ceramic head has three rows of 15 holes each down its length and eight rows of 5 holes apiece across its width. Two rows of 7 little ceramic cones - miniature versions of the conical partitions among the egg cavities in an egg carton - separate the rows of burner holes. Running across and soldered to the bottom of the brass box is a piece of square brass tubing which is designed to replace the chassis frame spacer. When this is screwed into place, the burner head is held in rigid alignment with the boiler.

The jet on the forward end of the de-

livery pipe is inserted into the rear end of the burner, and after its position is adjusted so the jet delivers the fuel for the ideal combustion (this adjustment is cov-

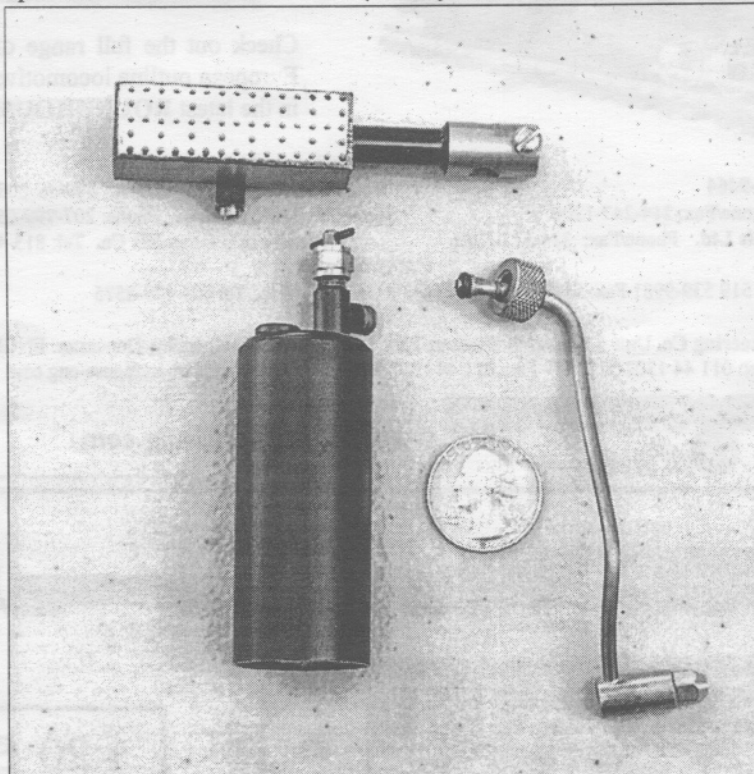
the tank. On the Mamod, this means the roof is in the way of filling the tank. The instructions state that the tank should be disconnected, by means of the nut on the delivery pipe, and removed from the locomotive for refilling. I'm not sure but that I may devise a way to easily tilt up or remove the cab roof so I don't have to disconnect the tank each time for refilling; I'm always leery of accidentally cross-threading nuts if I don't pay attention, and this pipe connection is a critical one. (An easy solution to this would be to drill a hole in the cab roof and fill the tank through a simple extension made from brass tubing - such as that used on the Berkeley Locomotive Works CRICKET - ed.)

On my Mamod, I have a displacement lubricator on the left side of the cab deck so I decided to mount the tank on the right side. This was easily accomplished with a few discrete bends of the delivery tube.

Actually, because my cab is so crowded with the regulator, lubricator and associ-

ated steam pipes, for the purpose of this test the tank actually hung out the right side doorway! Had I installed the I.P. Mamod accessories reviewed in the last issue of SitG with the utilization of this gas burner in mind from the start, I would have laid out the plumbing differently. Advance planning has got to be the most valuable shop skill of all!

How does this burner operate? Quite well. Lighting up is a snap, and inspec-



This is what you get (quarter not included!). Fuel tank with filler and flame adjustment valves, ceramic burner with mounting lugs and screws, and a fuel line with jet carrier and jet. Note the large, knurled nut on the fuel line. This allows easy removal of the fuel tank for safely filling away from the loco and steamup area.

ered clearly in the instruction sheet), its position in the jet holder of the burner is secured with a locking screw. The rear end of the delivery pipe has a robust knurled nut for attachment to the tank.

The tank itself is 6.5 cm tall and 2.8 cm in diameter. It's designed to be positioned vertically on the fireman's side of the Mamod cab.

The tank filler and delivery control valve are positioned on the upper end of

tion of the burner head in action shows multitudinous 1/16" high blue cones, and the ceramic element glowing bright red - a gorgeous sight! With the efficient I.P. copper boiler I can raise steam with my alcohol burner in four minutes and blow the safety in five.

I set the gas flow rate of the Cheddar burner to minimum and matched this performance. I see no need to burn the gas more quickly, and Bob Paule, of Sulphur Springs Steam Models, cautions that burning the gas at too high a rate risks burning the paint.

In operation, the burner is essentially silent. During steamup there's a gentle whisper of gas, but once the boiler comes alive you'll need to use your other senses to remind you that the burner is doing its job.

What are the burner's drawbacks? Installing the tank according to Cheddar's instructions leaves only 1/4" to 3/8" clearance between the gas adjustment valve and the cab roof, which would make precise flow adjustments during operation difficult.

Secondly, Cheddar claims that the gas tank will empty before the boiler does. Perhaps due to the efficiency of the burner head or of the I.P. copper boiler on my Mamod, I ran out of steam well before I ran out of gas. If you're running a stock Mamod with the soft-soldered boiler, you MUST pay attention to the sight glass. And get yourself a Goodall-type water injection valve so you can refill the boiler quickly if necessary.

In summary, the Cheddar Mamod gas burner is an efficient, high quality item. If you're fed up with the stinky Mamod rabbit pellets or the aftermarket alcohol burners, I'd encourage you to consider this burner.

JANE owners -- this burner should really be right up your alley. It fits your locomotive perfectly, the left side of your cab is empty, there's no roof to impede access to the tank, and your silver-soldered boiler can more easily take the higher temperatures of gas combustion. And for you scratchbuilders and kit bashers out there - if you need to heat a pot boiler, think of how this burner might

be utilized in your projects as well. Cheddar Models has earned a reputation in steamboat circles for quality products. To my knowledge, this burner represents their first foray into miniature live steam locomotives. I hope there's more to come!

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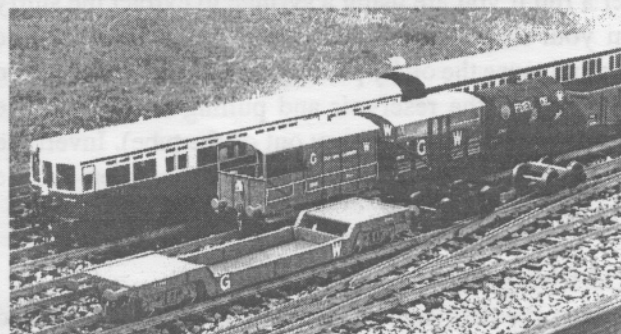
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# Inside Track

by Larry Bangham

Paramount Piddlings and Stellar Smidgens...  
useful tips and hints to keep those steamers  
running at their very best.

*This column will be a semi-regular feature, and will depend to a great extent on input from you, our readers. If you have a useful tip that has worked for you, send it in and share it with your fellow steamers!*

## 1. Good smells

If you're running a gas fired loco, but love the smell of a coal burner, try putting a small piece of coal in front of the burner tube in the smoke box. The coal also absorbs some oil and moisture which is returned to your exhaust under a good hot fire. I have been running the same piece for almost a year and it still gives off good aromas.

## 2. Shop tip

Plastic soap dispensers (pump-type) make great shop containers for Kerosene. The solvent does not attack the plastic and it is always handy on your bench for a quick squirt when you need it.

## 3. Separating the oil from the water

After a run if you are using a syringe to extract the slurry from your displacement lubricator, you can extract the water and reuse the oil by placing the end of the syringe on the bottom of the reservoir and pulling through on the plunger (pulling it all the way out of the tube). Invert the tube quickly and pour off the water. What's left can be returned to the reservoir.

## 4. C&S Mogul safety valve access

Reducing the diameter on the dummy safety valves and enlarging the hole in the steam dome will allow you to reach into the steam dome with a sharp pair of tweezers (modify by grinding as required) and test the safety valve by pulling up on the stem. Reduce the valve diameters to .200 and open up the hole to .180 dia. This will save you from trying to blindly stick that tiny Allen wrench in the screw to remove the dome.

## 5. Whistle talk

The whistle on a locomotive is much more than a warning device. Before the days of radio it was a major means of communication between the engineer, conductor, train crew

and station master. The following are some of the signals, and their primary meanings, that might be useful to model engineers. This information was gathered from several sources and may differ slightly from railroad to railroad.

- 1 short ..... apply brakes - stop
- 1 long ..... approaching station
- 2 short ..... acknowledgment - answer to any  
signal not otherwise provided for
- 2 long ..... release brakes - proceed
- 3 short ..... reverse
- 4 short ..... questioning a red board - call  
for signals
- Many short ..... alarm for persons or livestock  
on track - emergency
- 1 short + 1 long ..... inspect train line for leak or  
brakes sticking
- 1 long + 3 short ..... flagman protect rear of train
- 2 long + 1 short ..... approaching meeting or  
waiting points
- 2 long + 1 short + 1 long approaching grade crossing

## 6. Plastic lenses

If you have a need to make round lenses out of plastic sheet (i.e., marker lamps, signal lights etc.), a hole punch normally used for leather, with the proper inside diameter, or a piece of brass tubing sharpened on the end, can be chucked up in a drill press and, running at a medium speed, will burn its way right on through. I have done sheets up to 1/8" thick using this technique. Allow the punch to cool then push out the core. It will even have polished edges. It will be necessary to polish the face though, as the punch leaves a burr to be trimmed off. A piece of cake!

## 7. Pressing small parts

The drill press makes a nice arbor for pressing in small shouldered parts. Chuck up the part to be pressed and put the receiver in a vise or on a block.

## 8. The screw pin

On assemblies that you want to index or secure by pin-

ning, but want the convenient disassembly of a set screw, try a screw pin. I have never seen them offered commercially but have been making them for years with excellent results. Turn down the end of a screw into a pin leaving at least three complete threads at the head end. The pin diameter should be equal to or slightly less than the thread minor dia. Drill through your assembly with the tap size drill, then tap one wall of the outer member. The accuracy in your various operations will determine your minimum pin clearance hole size in the inner member and far wall. A slight countersink of the shaft hole and a corresponding chamfer on the thread transition will provide accurate indexing. The black oxide alloy steel set screws or socket head cap screws make the strongest pins.

#### 9. Weeping steam domes

On the Aster C&S Mogul, if you have condensation and safety valve weep dripping from the bottom of the dummy steam dome, try sticking some soft foam weather-stripping with the adhesive backing around the inside of the dome. Trim the strip to 3/16" square.

#### 10. Track radius tool

If you saw an ad like this would you want this tool? A tool for modifying the radius of track in place. No need to take track up, just remove hold down screws in area to be modified. Infinite radius adjustment - increase, decrease, straighten. Aluminum, steel, brass, nickel silver. All mfgs., all codes. Forms right up to and including rail ends. Works

across rail joiners. No kinks! Start with a large radius and work it down smaller as needed, alternating between tracks. Fast hand operation. Well, it can be yours for about \$10.00 and about ten minutes work. It is made from a sheet metal style vise grip. Place the jaws in a big vise one at a time and hit with a big hammer to form the ends to approximate a 4ft. radius. It works great!

#### 11. Cleaning safety valve seats

Quite often a weepy safety valve can be restored by the following method: Take a 2.1/2" length of hardwood dowel and turn a 5 degree by 1" long taper. The small end should be slightly less than the bore diameter of the valve seat. Chuck up the dowel in the drill press and run it down into the bore at medium speed. Make sure the valve body is square and apply a little pressure. It will remove the varnish that accumulates and polish the seat.

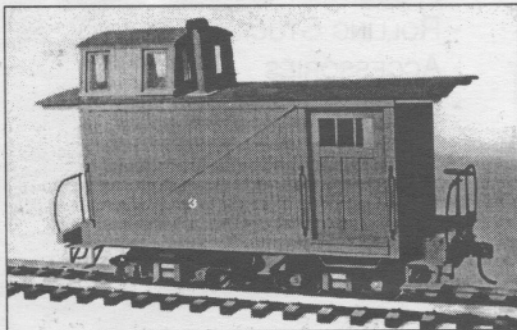
#### 12. O-ring care (sent in by Frank Ulman, Pennsylvania)

To keep O-rings in top shape and prevent drying out and sticking, coat them with O-ring lube & sealer, available from your hardware store or swimming pool dealer. (I use Jack's Formula 327 Multilube™ by Hayward Pool Products...it works great - ed.)



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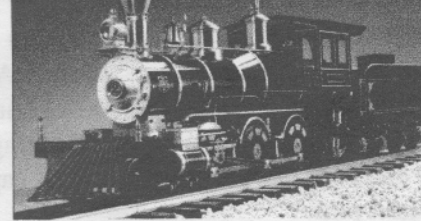


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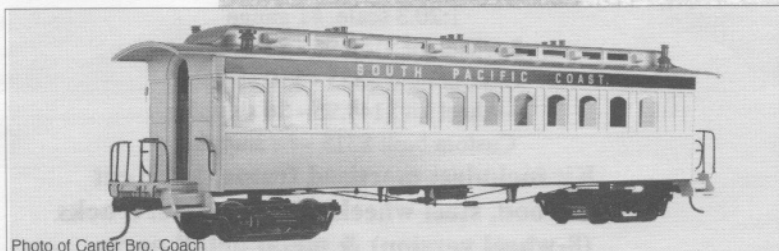


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## Product Review –

# the Parker Co. Turnout

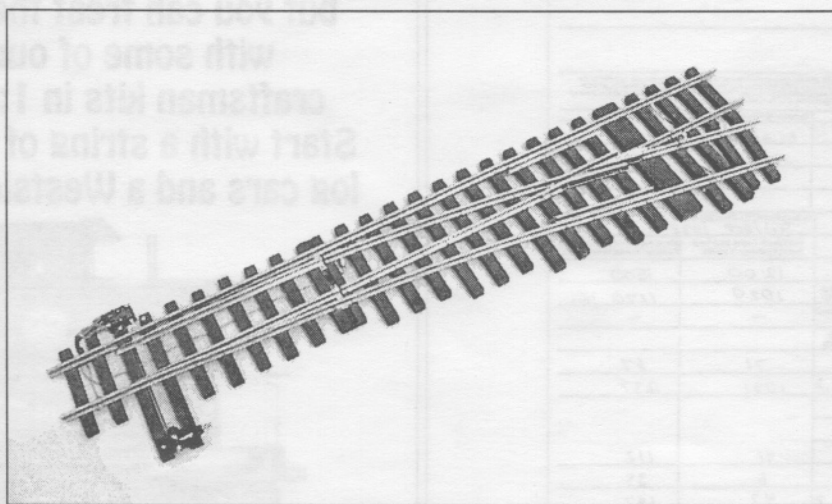
by Tom Bowdler

<b>Description:</b>	Large-Radius Turnout
<b>Gauge:</b>	Gauge 1
<b>Construction:</b>	Redwood ties, treated with water repellent stain to protect against weather damage. Code 332 rail is 100% compatible with Aristo Craft, LGB and Istra Nickle Silver. Rail is secured with stainless steel spikes. Rail and points are milled to create a smooth transition. Molded frogs are also used. Turnouts are available wired and ready to use on track powered railways, or without wiring for steam and battery operation. Turnouts come standard with Tenmille ground throw or Del-Aire pneumatic switch machines.
<b>Options:</b>	Turnouts are available wired or unwired, and in the following radii: #4, #5, #6, #7, #8 and #10.
<b>Price:</b>	varies depending on options - prices start at \$90.00 + shipping
<b>Available from:</b>	Direct from the manufacturer
<b>Manufacturer:</b>	the Parker Co., P.O. Box 1546, Camarillo, CA 93011 ● Fax: (805) 987-6432 web site: <a href="http://www.vcnet.com/~coparker/">www.vcnet.com/~coparker/</a>

It would be difficult to not like the Code 332 large radius turnouts from the Parker Company. The favorable impression begins on opening the packaging. I discovered foam pieces cut to shape surrounding the switch and two layers of stiff cardboard to protect the contents. I couldn't imagine a Parker switch arriving at its destination in damaged condition. The beauty of the redwood ties and brass rail attached with neatly placed and evenly spaced spikes continues the good impression. Deck stain applied to the ties gives an excellent creosoted look. The spikes are driven all the way through the ties and the ends ground off to prevent the freeze-thaw cycle from pushing the spikes back out of the ties. It is recommended that a wood preservative such as Thompson's™ be sprayed on yearly.

The Parkers use guard rails with angle-cut ends and the movable points are neatly machined to fit tightly against the rails. The frog is cast silicon bronze, well fitted to the rail ends and with

flangeways deep enough for large-flanged plastic Bachmann or Aristocraft wheels. A Tenmille ground throw from the U.K. is used to move the points. There is an extension of the throwbar which activates a small electrical switch, routing power to whichever turnout leg requires it.



Okay...we have determined that the switch is a work of art, but how does it function? I have found it to work as well as it looks. When the editor asked me to evaluate this product on my railway, which is built using Code 332 rail, I was in the process of adding a combination locomotive turning wye and steamup spur. The mainline switch to one leg of the wye is one of the new Aristocraft five foot radius switches. The other leg has a custom-made curved wye switch

built by Kevin Strong and myself from Aristocraft sectional track pieces with home made points and a cast-in-place resin frog. When a locomotive is turned on the wye, it traverses three different switches, each of a different construction type, affording an excel-



lent comparison. I have run many forms of motive power through the wye and over the Parker Company switch. The shortest wheelbases have been my 0-4-0 Geoffbuilt Scorpion and a four wheel battery railtruck; the longest a 2-8-0 Consolidaton, with a Pearse Colorado, a couple of Shays and a Locomotion Railbus in between. All have sailed smoothly over the Parker Company switch. I found that all of our rolling stock, from small four-wheel cars to American-style eight-wheelers, pass through the Parker Co. turnout more smoothly than they do on the Aristocrat turnout.

I do have some gripes about the Parker turnout, but they are minor. The frog casting has some surface pitting, which is just a cosmetic issue and doesn't affect operation. I prefer the look of "bent" guardrails rather than straight ones with the ends cut at an angle, but turnout builder Roger Parker informs me he has found the flare on the guardrail unnecessary if the rails are gauged correctly.

The wire used to electrify the switch is a BRIGHT blue. It really stands out on my railway and I would like to see a black wire used instead of the bright blue. A non-electric version is available, and that would be my personal choice for my live steam and battery powered railway.

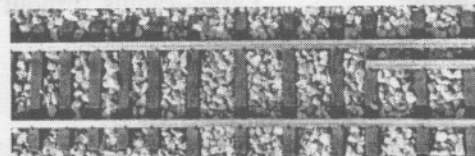
Overall, I rate the Parker Company turnout as excellent in material quality, craftsmanship, appearance and function. SitG readers who use code 332 rail should be highly satisfied with Parker Company turnouts on their railways.



United States Postal Service Statement of Ownership, Management, and Circulation		
1. Publication Title <b>Steam in the Garden</b>	2. Publication Number <b>9111-285</b>	3. Filing Date <b>10/1/98</b>
4. Issue Frequency <b>bi-monthly</b>	5. Number of Issues Published Annually <b>SIX</b>	6. Annual Subscription Price <b>\$27.00</b>
7. Complete Mailing Address of Known Office of Publication (street, city, county, state, and ZIP+4) <b>PO Box 335 NEWARK VALLEY NY 12851</b>		8. Complete Mailing Address of Headquarters or General Business Office of Publisher (if not same as 7) <b>PO Box 335 NEWARK VALLEY NY 12851</b>
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (do not leave blank) Publisher (please print complete mailing address) <b>G. Ronald Brown PO Box 335, NEWARK VALLEY NY 12851</b> Editor (please print complete mailing address) <b>SAME</b> Managing Editor (please print complete mailing address) <b>SAME</b>		
10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give the name and address as well as those of each individual owner. If the publication is published by a corporation, give the name and address.) Full Name Complete Mailing Address <b>George Ronald Brown ACADUE</b> <b>Marie Elizabeth Brown SAME</b>		
11. Publication Title <b>Steam in the Garden</b>		
12. Issue Date for Circulation Data Below <b>Sept/Oct 1998</b>		
13. Extent and Nature of Circulation		14. Mails Data by Circulation Data Below
a. Total Number of Copies (Net press run)		Average No. Copies Each Issue During Preceding 12 Months
1200		1500
b. Paid and/or Requested Circulation		Actual No. Copies of Single Issue Published Nearest to Filing Date
(1) Paid in Advance by Subscribers (Include advertiser's proof and exchange rates)		1020
(2) Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution		1170
(3) Other Classes Mailed Through the USPS		71
Total Paid and/or Requested Circulation (Sum of 13b(1), 13b(2), and 13b(3))		1261
c. Free Distribution by Mail (13c(1) Outside-County as Signed on Form 3541)		
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(2) In-County as Signed on Form 3541		
(3) Other Classes Mailed Through the USPS		41
Total Free Distribution Outside the Mail (Carriers or other means)		35
Total Free Distribution (Sum of 13c(1) and 13c(2))		47
Total Free Distribution (Sum of 13c(1) and 13c(2))		1138
Copies Not Distributed		77
Total (Sum of 13b and 13c)		1215
15. Payment of Postage and Prepaid Circulation (13d divided by 13b times 100)		95.9
16. Publication of Statement of Ownership (13d divided by 13b times 100)		89.4
17. Publication of Statement of Ownership (13d divided by 13b times 100)		
18. Signature and Title of Editor, Publisher, Business Manager, or Owner <b>G. Ronald Brown</b> <b>Oct 1, 1998</b>		

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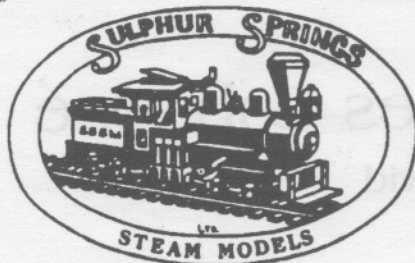


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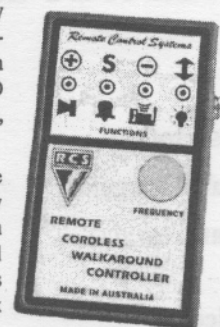


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## Product Review –

# Hartford Products' Hobart Estates Caboose

review and photos by Jim McDavid

<b>Description:</b>	Logging caboose
<b>Scale/Gauge:</b>	1:20.3 scale, Gauge 1
<b>Features:</b>	Laser and custom cut wood parts - High quality cast metal detail parts Carter Brothers swing motion trucks or Durocast II sprung pedestal journals
<b>Price:</b>	8-wheel kit - \$159.95 + \$6 shipping Custom built \$325.00 + \$8 shipping 4-wheel kit - \$149.95 + \$6 shipping Custom built \$315.00 + \$8 shipping
<b>Available from:</b>	Your local hobby shop or direct
<b>Manufacturer:</b>	Hartford Products, 18 Ranch Road, Cedar Crest, NM 87008 Phone: 505-286-2200 • Fax: 505-286-2141 • e-mail: hartfordpr@aol.com Web site: <a href="http://www.abqmall.com/HartfordPr.htm">www.abqmall.com/HartfordPr.htm</a>

The Sierra Nevada Wood and Lumber Company, later to be called the Hobart Estates Company, operated a logging railroad of 32 miles in Hobart Mills, California, just outside of Truckee. They ran with several cabooses that were apparently supplied by either the Carter Brothers or Hammond. This latest offering from Hartford Products is a model in 1:20.3 of Hobart Estates caboose #3. This caboose started out as a 4-wheel bobber with link and pin couplers and was later converted to swing motion trucks and knuckle couplers. Caboose #3 with the above modifications and some added exterior bracing lasted from the early 1890's to the end of operations in 1937.

Hartford Products supplies with the kit a tools and materials list, parts list, numbered drawings and easy to follow step-by-step instructions.

There are two versions of the kit, an eight-wheel version and a four-wheel bobber. I assembled the eight-wheel version with Carter Brothers swing motion trucks. The trucks also have to be assembled, but they are a snap to put together. If you choose the four-wheel bobber version, the kit will come with Hartford Product's new fully sprung pedestals, which are also available separately for \$10.95 w/o wheels or \$15.95 with wheels. They are Hartford Product's part number HP-49.

Both kits come without couplers. Hartford Products recommends either Kadee #820 couplers or HP-11 Link & Pin couplers.

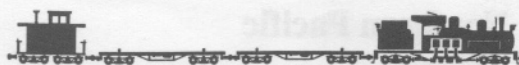
The caboose is built up in modules; you assemble the frame, sides, ends, roof and cupola and then glue these together. Al-

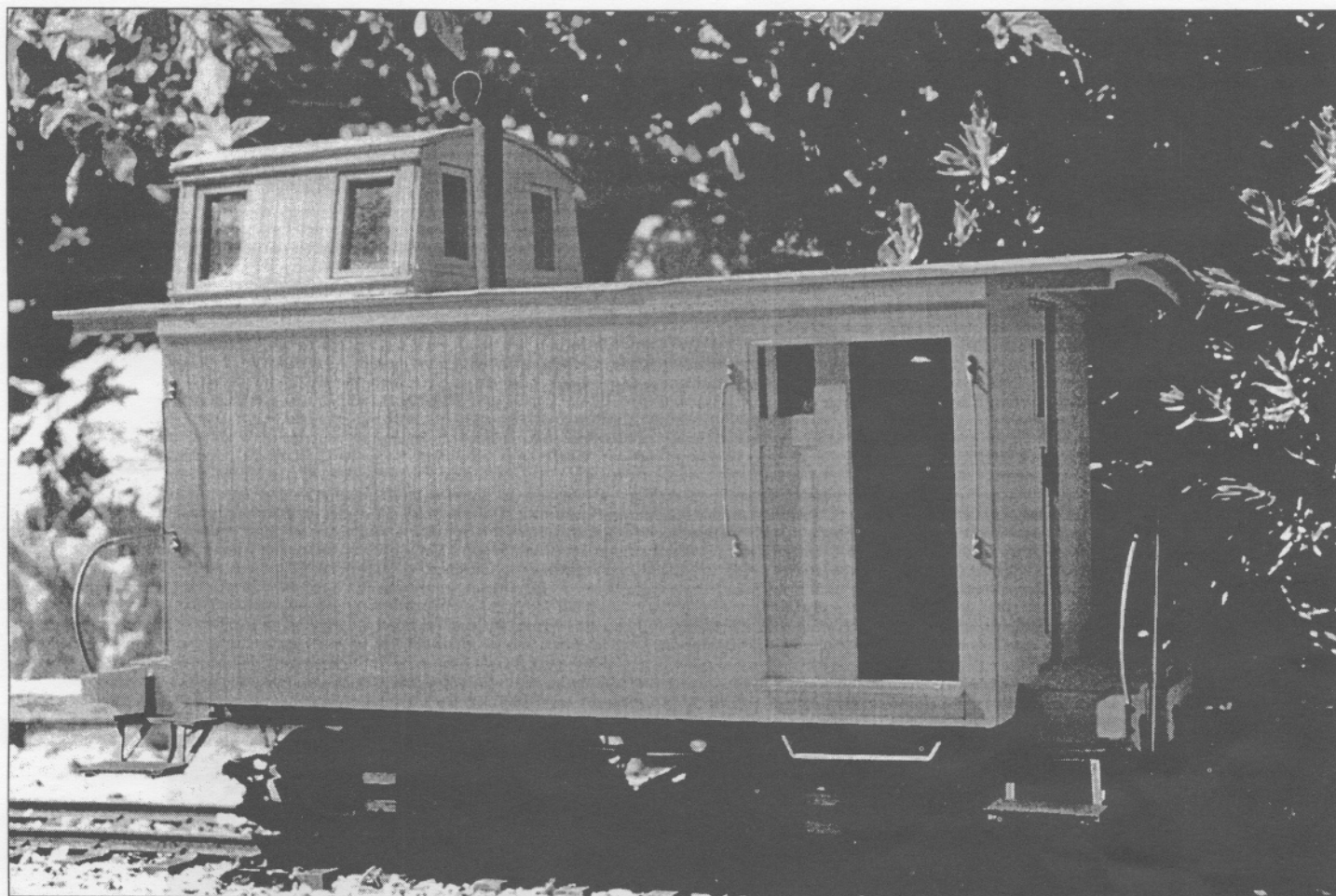
though not indicated, thought should be given to painting the interior prior to the final buildup. I painted the interior of my caboose a light green with the outside being done in caboose red. All metal detail parts were treated with Blacken-It. Bob Hartford gives some neat instructions on how to simulate tar paper for the roof, but in the name of speed I chose to use a commercial tar paper product from the local hobby shop.

The caboose as completed measures 12-3/16" long x 4-15/16" wide x 8" high. The kit did take a fair amount of time to assemble because you must set subassemblies aside to dry before gluing them together. The instructions are easy to follow, along with the referenced part numbers to the drawings. You should still give yourself around a week of relaxed evenings to put this kit together. I did stray from the instruction sheet when it came to the assembly of the roof. Knowing that I did not want to make the roof removable, I built it up in place over the assembled sides and ends. This did make it easier to glue the carlines to the roof beams.

Hobart Estates Caboose #3 served its time on a logging pike, but Hartford's beautiful model of this side door crummy would look just as good following your daily 12:00 o'clock mixed.

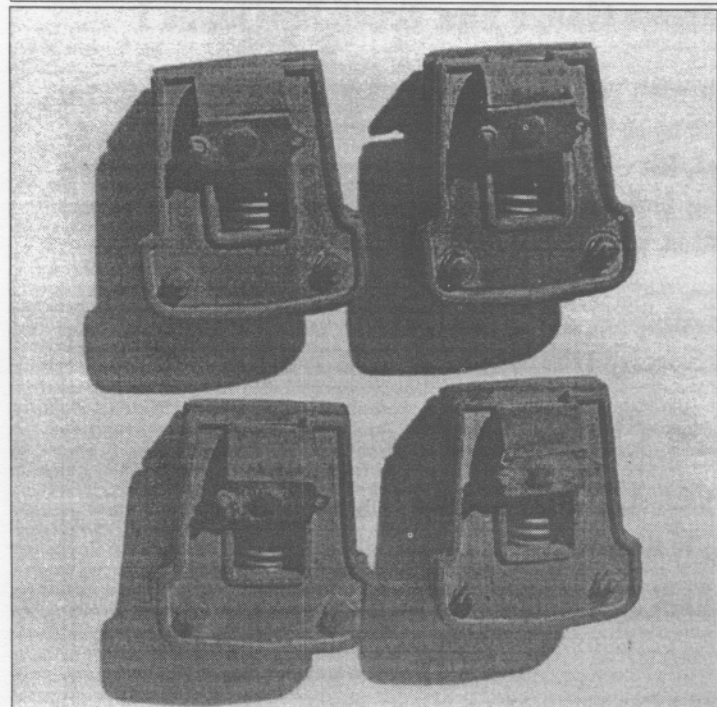
This is an outstanding kit from Hartford Products. You just can't buy a plastic model with the character of #3 at any price.



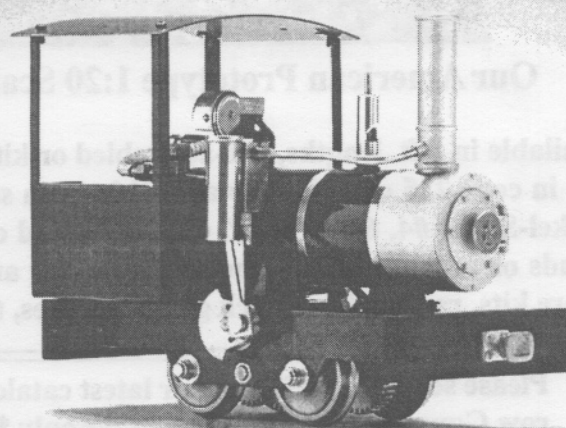


Above: The completed Hobart Estates Caboose awaits its first assignment on the author's logging railroad in California.

Below: Hartford Products' new sprung pedestal journals are excellent castings - crisp, clean and with no flash.



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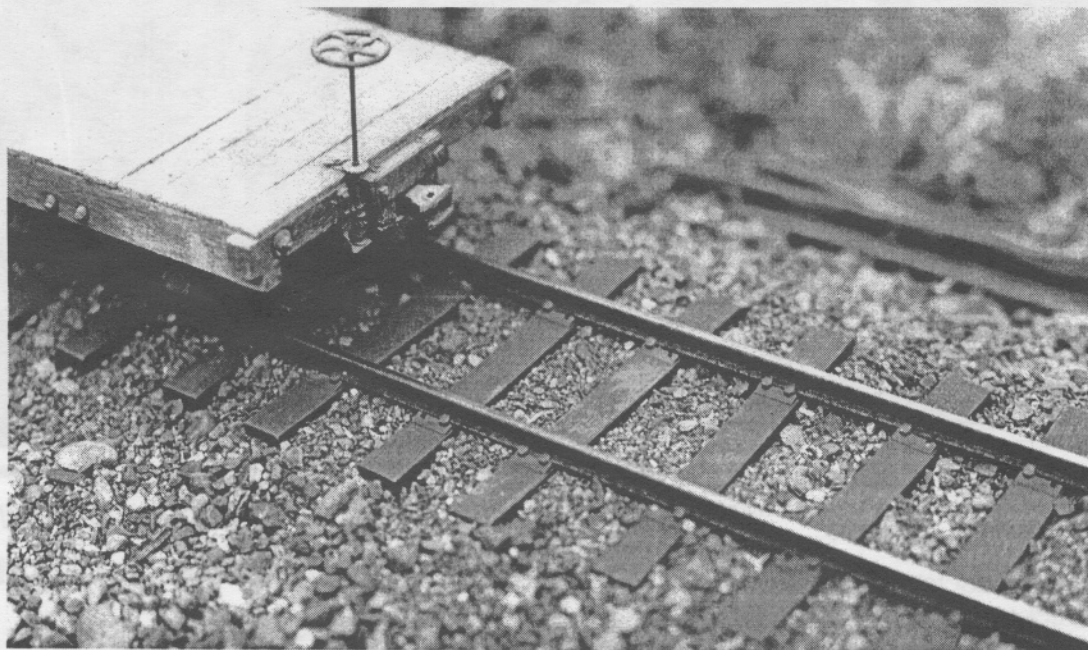
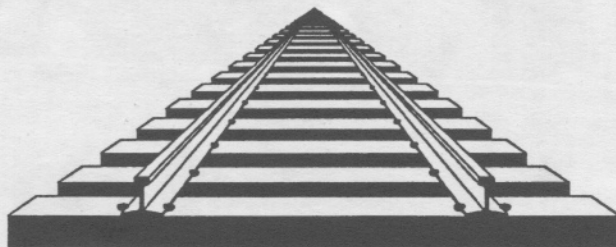
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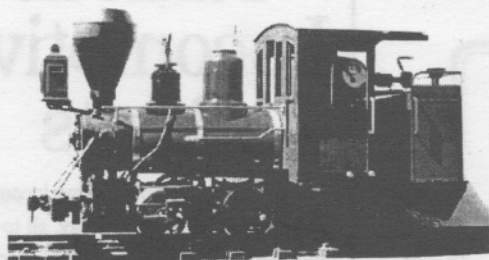
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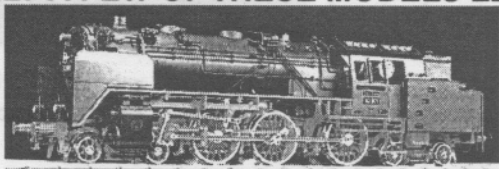


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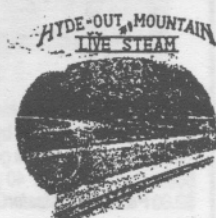


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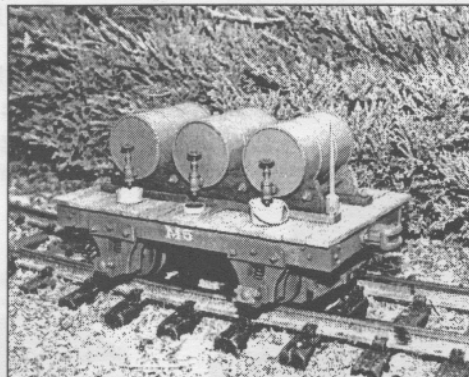


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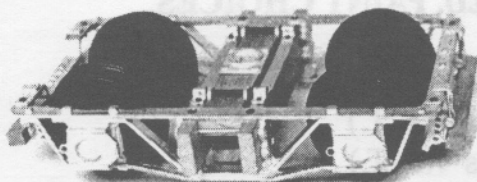
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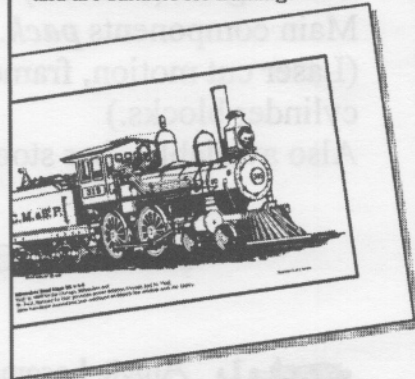
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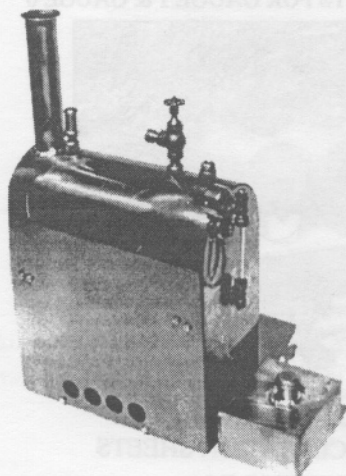
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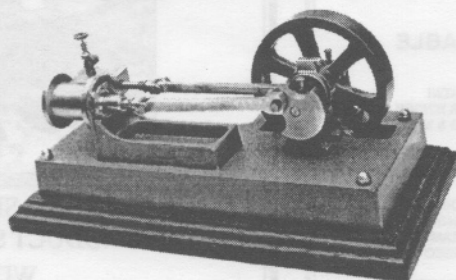
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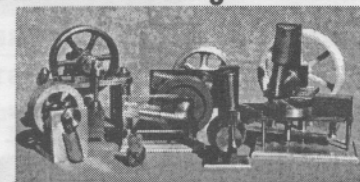
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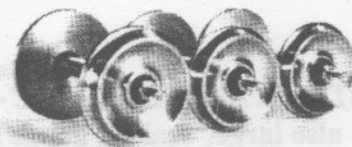
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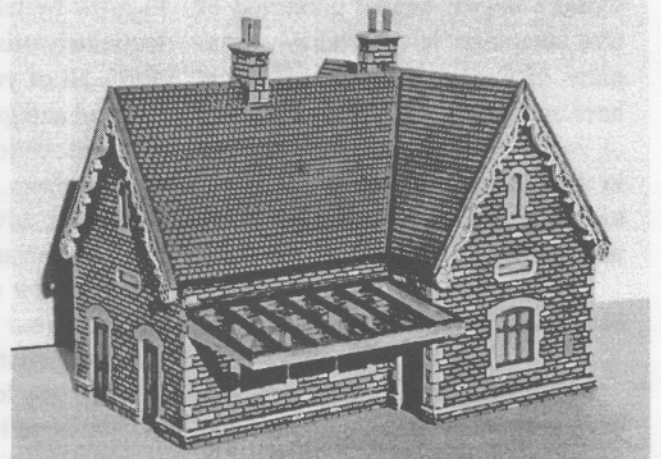
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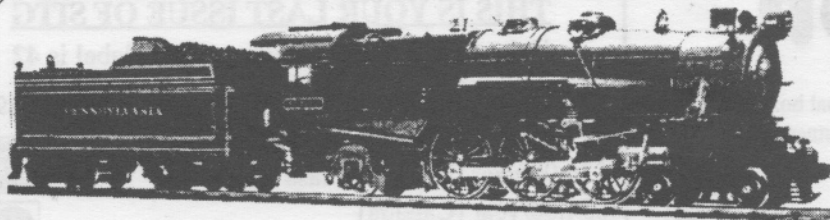
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### Steam on the Pond

Many of our regular readers will have noticed the banner on the front cover, announcing a new addition to this magazine. Some others may be reading us for the first time, attracted by the promise of model steamboat coverage in these pages. The feedback we've received since we announced this change in the last issue has been 100% positive, and we hope

that all of our readers will be pleased by our first efforts at bringing news and information to the North American model steamboat community. If you have comments, suggestions or offers of photos and/or articles, please let us hear from you. And you can help the *Steam on the Pond* section to grow by telling a friend or a potential advertiser. We need your support - all of you - if this effort is to succeed and grow.

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We hope to see you at the track or at the pond, and until next time...

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*Ron*

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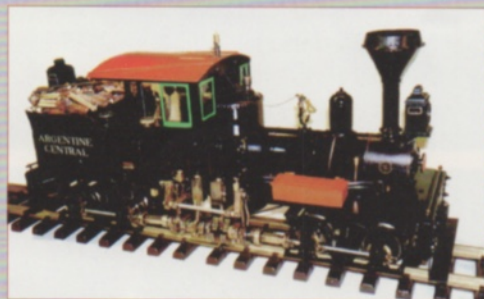
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