

November-December 1994

Nº 25

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# STEAM IN THE GARDEN



THOMAS ALFRED on the LWR



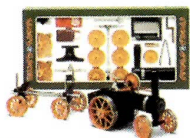
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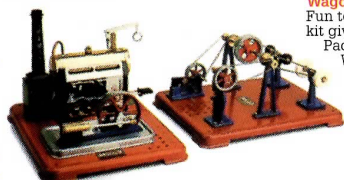
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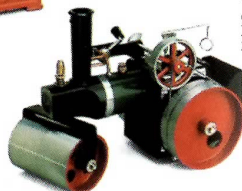
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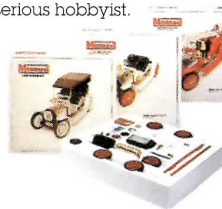


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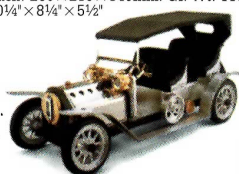
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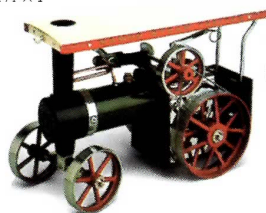
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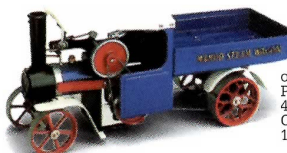
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A magnificent working model of a steam car which captures the elegance of the Edwardian era.  
Pack: 450 x 150 x 210mm.  
Gr. Wt. 2450g.  
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Attractive working model of traditional English traction engine.  
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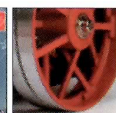
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## ON THE COVER:

**THOMAS ALFRED** roars down the bank from Tremerton on Tag Gorton's Longlands & Western Railway, launching a napping seagull into flight as the immaculately polished and maintained little loco rounds the bend and emits a piercing shriek from the whistle.

Tag, who has a well-deserved reputation as a wizard with ailing Merlin steamers, "cobbled together" this beautiful engine from Merlin and Pearse parts.

*Photo by Tag Gorton*

## FROM THE SCRAP BIN

Some live steamers are content to run factory built engines, while others have the itch to hack their own out of chunks of brass and steel and copper.

Which category do you fall into? Have you ever admired a really nifty scratchbuilt steam loco and thought to yourself, "Gee, if I only had one of those Hi-Zoot Techno-Turbo lathes with all the tooling and a Swarfmaster mill with DRO and power feed, I could build a model like that!"

No one loves fine tools more than I do (not even Tim the Tool Man Taylor or our own Crankpin!), but it takes more than a fully equipped workshop to build anything worthwhile.

A few years ago I decided that Paradise East was not complete without a small lathe and milling machine, and since then have managed to acquire two lathes, a mill, various drill presses and assorted gizmos for making neat things from chunks of metal.

Guess what? I provided a warm, well-lit workshop for all these tools to live and work in, but so far as I can tell in my infrequent visits, they haven't built a thing thus far!

And then I meet someone like Leslie Starr, the 82 year old craftsman whose projects are shown and described in Steam Scene in this issue, and I realize that it takes more than a workshop full of fancy tools to get the job done.

Since adult education in the metal working trades is a thing of the past in this part of the country, a friend and I are taking matters into our own hands by meeting one night a week to work together in my shop to expand our range of skills and knowledge, and to enjoy the pleasures of working with tools and metal.

I expect the experience to be even better because it will be a shared experience. Why not plan to spend a few winter evenings in the workshop with a friend and learn something new? You will be pleasantly surprised to find how much your skills have improved when summer rolls around again.

*Ron*

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## Steam in the Garden

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**Graphics Director**  
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Randall Sauter ..... Oklahoma  
Gene Rutkowski ..... Washington

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Questions or comments? Call us at 607-642-8119 before 9:00 p.m. Eastern time, please - or FAX us at 607-642-8978.



# R P O Mailbag

Letters from all over

---

*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. Send your contributions to: SitG, Dept. RPO, P.O. Box 335, Newark Valley, NY 13811, USA. Letters may be edited for clarity and space considerations.*

\* \* \* \* \*

Redlands, California

Dear Ron & Marie,

I was astounded when I pulled the July/August '94 issue from the envelope and saw the cover. Amazing. It was beautiful. Congratulations for a major improvement. Keep up the good work.

Sincerely,  
Dee Dostaler

Costa Mesa, California

Dear Ron,

I enjoy your magazine very much. My only suggestion (like so many others) is that you publish more on construction (even if subassemblies or sketches/pictures) of how someone else has done it. Please add my name, address and phone number to your list of live steamers who would like to communicate with others of like interest. Thank you and keep up the good work.

Jim O'Hearn  
770 Hudson Ave.  
Costa Mesa, CA 92626  
714-545-4809 (days & nights)

Niantic, Connecticut

Dear Ron & Marie,

CONGRATULATIONS! The latest issue is a smash -- all that color and all those good articles. I well remember the ol' wire ring binding and grainy b&w pictures -- and of course the articles of yesteryear. Now with all that color and added pages it is even better. Please make sure we continue to hear

from Crankpin and The Old Curmudgeon.

My check enclosed for another year of informative enjoyment with Steam in the Garden. Thank you.

Yours sincerely,  
Warren G. Young

Essex, England

Dear Ron,

When I read Ed Kabak's letter in the May/June issue concerning preventing runaways by non-R/C engines, I knew that I had seen the answer somewhere. The question was -- where and what? I let the subconscious go to work on it and finally remembered seeing a suitable system described in the G1MRA newsletter about five years ago.

It consisted of a four wheel brake van (Britspeak for Caboose) with a belt drive to a centrifugal device in the van body. Whether this itself contained the brake, or whether it operated brakes on the axles, I cannot remember. The latter would seem the better idea, although more complicated, as it would prevent surge due to elasticity in the belt.

Its advantage over anything fitted to the loco was of course that it could be attached to any train. By virtue of its action, it would have no effect going uphill, but would steady the train on the level and, up to the point of wheelslip, accurately limit the downhill speed. Thinking about it a bit more, if the wheels started to slip the centrifugal brake would slow down and the brakes would come off again -- primitive ABS?

If anyone can identify the original author, perhaps he can be persuaded to let you reprint the article. Otherwise, it looks as though someone will have to reinvent the wheel.

Meanwhile, back on my hobbyhorse, research into my proposed narrow gauge C-16 continues. Short of a Baldwin works drawing, I think I have enough information to proceed with working drawings of No. 268, which I propose to model in its original wood burning form, a bit like the electric Delton model, but in 1:20.3 scale for 45mm (gauge 1) track. The postbag has been full of letters telling me that 1:20.3 is the scale for the garden. Okay, I've got the message.

Actually, I have recently had several enquiries for coal fired locos, so this is a distinct possibility for the C-16. We shall see.

Kindest regards,  
Mike Chaney

P.S. Colour on the covers, eh? Is there no holding this man?



*I've heard of such devices being used for speed control of live steam locos, but have never seen one in use. Sounds like a fine idea to me -- how about some of you engineer-types out there designing, building and testing a speed control system that could be installed in a caboose (or coach)...then writing up a construction article for your fellow SitG readers? Mike, I am really pleased to hear that you've seen the light and will be building to the correct scale for 3-foot narrow gauge on gauge 1 track. As for the possibility of a coal-fired C-16...WOW! -- ed.*

Cornwall, England

Dear Ron,

I've just returned from a flying visit to three East Anglian railway meetings over a long weekend, courtesy of Austin Major. Among others, I visited Stephen Bazire's Southwold Railway in Norfolk. I hope to have some more suitable slides to forward within the next month, however, it is difficult setting up suitable shots when there are so many legs about.

I've also received the "new look" SitG, and Ron, it looks great. Contents are a good mix of stuff for the amateur engineer (that's the British definition -- not an engine driver!) together with information and help that will not frighten the convert from indoor electric. I do think it's time to see scenic live steam on the newsstands so that we can convert "the great unwashed".

I am still working on an article which will hopefully assist the newcomer in his (or her) selection of a suitable locomotive. We will see how it goes!

Yours Aye  
Tag Gorton

*Tag, your articles are always interesting and informative, while your photos are always clear, sharp, well composed and won-*

*derfully spectacular! Both are welcome in the pages of SitG any time -- ed.*

San Francisco, California

Dear Ron,

The enclosed article is from RAILFAN magazine. As you can see, the Baldwin 4-4-0 (see photo at bottom of this page) really is a generic. The main difference between the Argyle model (see SitG, July/August 1994) and the Eureka and Palisades No. 4 is the pilot. It's amusing that all three surviving Baldwin 4-4-0 locos were woodburners with Radley & Hunter stacks. No. 4, by the way, is black with the lettering and striping in bright metal leaf as original.

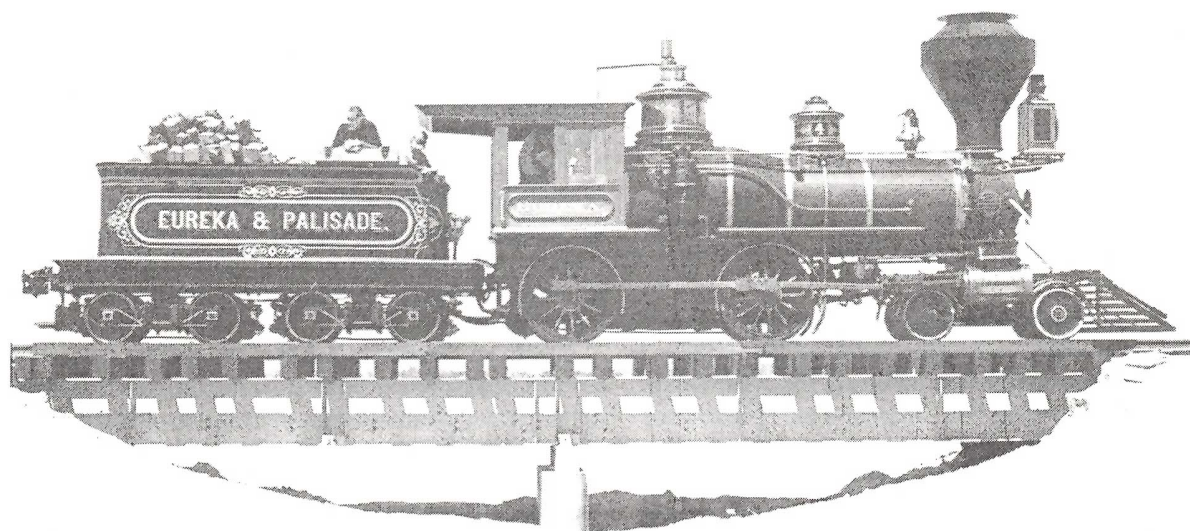
Cheers!  
Reg Stocking

Bellevue, Washington

Dear Ron,

Yes, SitG is worth the extra 50 cents. In fact, I'm enclosing a check for a two-year subscription to be sent to my local library. I showed them a copy of SitG, and they said that they carried nothing like it and believed that it would be of interest to many of their patrons. I think this will also inspire people in my city to get interested in our hobby. Maybe the interest could result in a local club.

Dumping the grate for now --  
Gene Rutkowski



Eureka & Palisades No. 4, a narrow gauge Baldwin 4-4-0 built in 1875, looks fresh as a daisy after a full restoration to original condition by owner Daniel Markoff in the late 1980's.

*Photo from August 1993 RAILFAN magazine -- used by permission of Carsens Publications*



Madison, Wisconsin

Dear Ron,

Here's a check to renew my subscription to SitG. Keep up the excellent work!

Still working on my Mogul. The TAIG lathe I bought this spring is very good for a tabletop machine. For parts & pieces in our scale it's excellent.

Yes, I like the color in the magazine. As they say, "one picture is worth a thousand words"; more so in color.

As much as you can, please include articles on construction, maintenance, etc. I value your advice & opinions we've shared over the phone. Thank you.

Sincerely,  
Terry Seese

Renton, Washington

Dear Browns,

Thanks a million for a terrific magazine! To borrow a phrase, "Live long and prosper!"

I was browsing through some back issues the other evening, and the Jan/Feb 1993 issue Steam Scene caught my attention. On page 30 is a picture of some of Charles Mynhier's work. On page 31, Bob Raikes's Mogul is pictured. On page 32 we find Vic Sager's Forney. On page 34 we find two pictures of Don Beach's Lady Anne conversion.

In the captions with a couple of the pictures, you make mention of possible articles by the builders. Well, you whet our appetites. Now...when can we expect these "promised" articles?

Seriously, I appreciate Charles Mynhier's series, and I'm really hoping that Don Beach and Bob Raikes can be talked into writing. And we need to put the twist on Vic Sager's arm for an article on that nifty Forney.

As I said at the outset, that was the Jan/Feb 1993 issue. Can we expect some of those articles? And when?

Thanks-a-million,  
Ron Crase

P.S. The color is great!

*Thanks for your kind words about SitG -- and for your queries about our plans for articles on locos pictured in past "Steam Scenes". Gosh, I sure have to be careful about what I say. Our readers never let me forget a word I put in print, and at least one of them is sure to hold my feet to the fire if I fail to meet a commitment!*

*As you know, we are currently running at least one of those articles you asked about -- the series by Charlie Mynhier on building a locomotive (or parts thereof) from scratch. Don Beach has written an article for us describing some of his efforts (coming soon!), and there are several others in the pipeline. Wish we could give them all to you at once, but we can only print so many pages per issue! Speaking of which, I hope you noticed that we added four more*

*pages to the last issue.....*

*As for some of the other individuals and locos you mentioned...I'm sorry to say that Bob Raikes is not a SitG subscriber, and I have no idea how to contact him. The individual who sent in the photos promised to try and put us in contact with Bob, but nothing ever came of it.*

*Vic Sager is a longtime subscriber, but he hasn't submitted anything for publication. Vic, if you are reading this...how about an article on your fine looking little Forney with photos and/or drawings?*

*Producing a series of articles (with accompanying drawings and photos) for publication is no simple task, as I'm sure you can appreciate. My job as editor is relatively simple compared to the amount of work involved in designing, drawing, building -- and then photographing and writing about it all. We do have commitments from qualified model engineers to do a series for us, but it could take years to take it from idea to printed page.*

*And finally -- don't forget that this is an all-volunteer publication. We all owe a great debt of gratitude to those who give so generously of their time and talents for the benefit of all.*

*We will keep on doing our best to keep you informed, educated, entertained and enthusiastic about this great hobby. And thanks again for your input, Ron -- that's exactly the sort of feedback we are looking for from our readers -- ed.*

Lansdowne, Pennsylvania

Dear Ron,

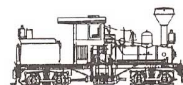
Congratulations on the most recent issue of SitG. Still shaking down I think, but the magazine has come a tremendous way and does you credit.

As a tinplate enthusiast I'm just about as far from being a rivet counter as it's possible to be, but I am something of a stickler for accuracy in terminology. If SitG tells me a locomotive has Walschaerts valve gear, then that's what I suppose it has. However, the Russian loco on page 26 & 27 (#24, September/October 1994) has only a basic link valve gear, what Henry Greenly described as "the genesis" of Walschaerts. Little wonder it didn't notch up in a satisfactory manner -- it could not be expected to, it isn't Walschaerts.

A tip you might like to pass on. Most people know the trick of filling copper pipe with a soft metal while it is being bent, but the really low melting point alloys have been expensive to get hold of. I just found that Walther's sells a 3 oz. pkg., ample for our needs, for about \$5. It's their part #949-525, "Templow". It melts in very hot water.

My Aster "Americanised Mogul" really is Americanised now. I raised the boiler 5/16" to get that characteristic daylight between it and the frame, deleted the buffers and couplings and added a pilot plus Kadec couplers. I can't run it at home because my curves are only 5' radius, but it appeared at the Pennsylvania Live Steamers again on Labor Day weekend.

All the best,  
Murray Wilson





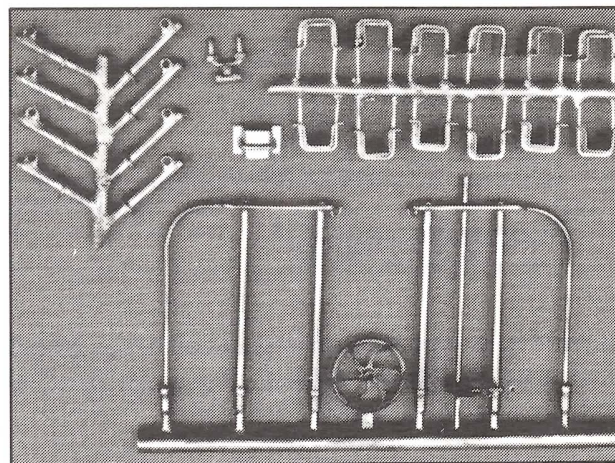


# WHAT'S NEW?



**Pete Thorp of Trackside Details, 1331 Avalon Street, San Luis Obispo, CA 93405** (one of those lucky guys out there in the Land of Endless Summer) sent us the following press release: TRACKSIDE DETAILS has a big bunch of new items coming in the next month or so. Send an SASE for the newest catalog. Most recent releases include Bracket-type handrail posts; Air pump governor; Stake pockets -- single strap-type -- for freight cars; Passenger car end railings with ratchet/pawl/wheel; and Larger sized pilot and tender steps.

In addition to the above, more items are also being cast and should be available by the time you read this. Firing valve/stand; four sizes of both regular and angled Globe Valves (8 total); and two different types of backhead lubricators/valves. All these items will be lost wax castings in lasting, beautiful brass. Send a LSASE for a catalog of all the excellent detail castings offered by Trackside Details.



**Micro Fasteners, 110 Hillcrest Road, Flemington, NJ 08822, phone 800-892-6917 -- FAX 908-788-2607,** has socket head sheet metal screws in #2 (\$4.50/100) and #4 (\$4.75/100) sizes. They also have a great assortment of other small fasteners useful to small-scale modelers at sensible prices. And for your convenience, they take VISA, Mastercard or personal checks -- or they will ship COD. Call, fax or write for their FREE CATALOG.

**High Noon Loco Works, High Noon, Gorway, Teignmouth, Devon TQ14 8PX, England -- phone 011-44-6267 79908,** has issued the following press release (edited for space considerations): **VEST POCKET CLIMAX** -- Since you last saw the pilot model (many of us admired it and saw it running at Diamondhead '94 -- ed.), a number of radical changes have occurred which can only enhance the model in every way. Firstly, because the correct scale for representing 3 ft. narrow gauge on gauge 1 track is 1:20.3, and this scale is being adopted by modelers in the U.S., the Climax is now 1:20 scale.

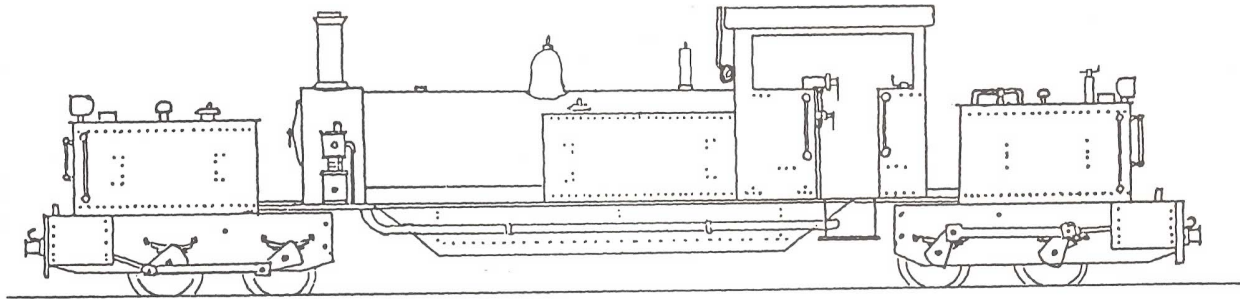
The original concept was for a relatively inexpensive loco using existing components such as Wilesco cylinders, etc., to fulfill the market demand at that time. Such is the progress being made in our specialised niche of the hobby that a rethink was in order, and consequently, the Climax now sports scale detailed cylinders and over 100 individual lost wax castings from the fully detailed smokebox cast with integral saddle to the ornamental acorns adorning the ends of each handrail. The boiler capacity has been increased to 200ml., giving a run of about 30 minutes without the need to top up and, because of the refueling facility, will give nonstop performance...with the exception of the displacement lubricator, which will require periodical draining and top-up from time to time.

Quality of appearance is certainly as good as the best, and hopefully, performance should far exceed other locos now on the market. The first production model is now in the process of being assembled on the shop floor, but please be patient a little more. A few gremlins need to be sorted out on the castings front, but with good luck, a batch will be delivered to Diamondhead in January for those still interested. A final price has still not been worked out, but as it is a 'VEST POCKET CLIMAX', it should in every way meet your requirements. *Write or phone for more information -- and be sure to mention that you saw it in SitG.*

**Salem Steam Models, Salem, Llandeilo, Dyfed SA19 7HD, Wales, U.K. -- phone 011-44-1558 822530,** announces a new addition to their line of quality battery and steam locomotives...a 16mm/'G' scale, narrow



gauge, live steam Beyer Garratt. This loco has 4 cylinders, driving all wheels on both fully articulated bogies (trucks to those of us in the States). The large, silver soldered copper boiler produces ample steam due to its efficient external butane gas burner (the model has a duration of over 3/4 hour on a single filling). It has a 40 psi safety valve, regulator, water level/blowdown valve and a Goodall boiler filler valve. Twin displacement lubri-



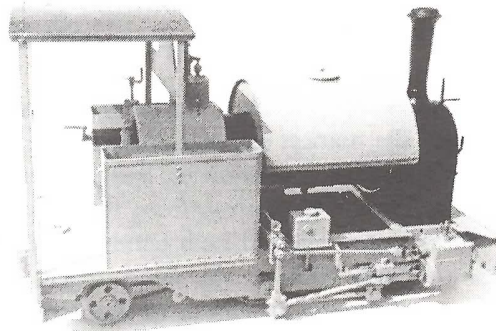
cators of large capacity supply steam oil to the cylinders, which are fitted with 'O' rings on the pistons and rods. Plated steel wheels are adjustable for either 32mm or 45mm gauge. This loco can easily negotiate 2' 6" radius curves, despite being over 2' in length.

Platwork has sharply embossed rivet detail and brass handrails are fitted. Livery can be maroon, black, blue or green. Although free-lance in design, the model captures the style of a typical small narrow gauge Garratt oil-fired locomotive, ideally suited to tight curves where locos of equivalent size and power cannot be operated.

Price: £745.00. Postage, packing & insurance extra. Several optional extras are available, including pressure gauge, water level gauge and working headlights. Contact Salem Steam Models for more information.

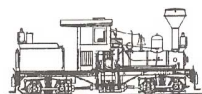
MTH has cancelled the Gauge One S.P. C-9 advertised in the September/October issue due to lack of response.

**Doubleheader Productions, 3725 Pageant Place, Dallas, TX 75244, phone/fax 214-247-1208** sent the following press release: The latest offering from Wrightscale is a 16mm model of a Kerr Stuart "TATTOO". This is a bigger brother to the Wrightscale model of the "WREN". The really good news is that Tattoo has all of the features of the Wren, and it is regaugeable between 32mm and 45mm track gauges (gauge 0 and gauge 1 respectively). Now those modelers operating on gauge one track can enjoy all the pleasures of operating Wrightscale locomotives.



The platwork for Tattoo was drafted using state of the art CAD equipment and working from Kerr Stuart plans. Every visible bolt and rivet are represented on the model. The platwork is nickel silver and the axles are silver (stainless) steel. The boiler and fuel system are silver soldered. The boiler is internally gas-fired, and a 25-30 minute run can be expected. The boiler is refillable while under steam.

Tattoo is 8-1/2" long, 5-1/2" tall and 3-1/2" wide. This model is supplied ready to run, and is available through Ken & Jerra Matticks' Doubleheader Productions. Write, fax or phone for more information and prices.

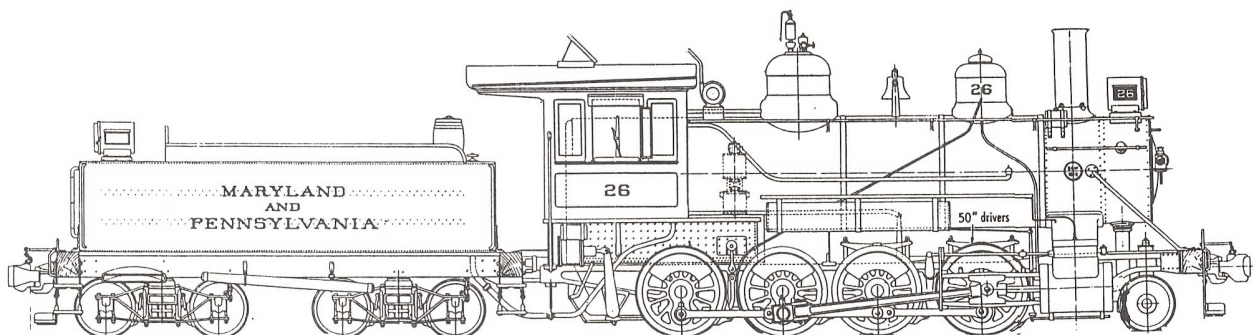




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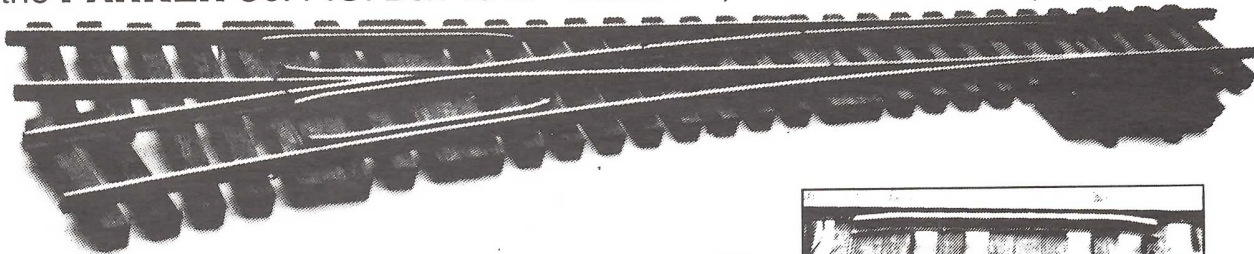
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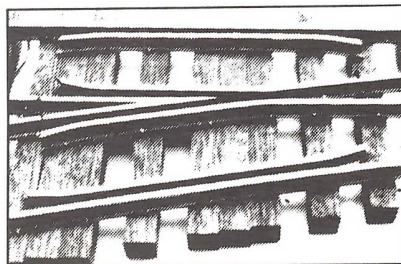
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# The Fitter's Bench

by Crankpin

In our last issue I promised that I would take up where I left off with an explanation of the "Gib" as applied to machine tools, and so I shall. If a lathe, or any conventional machine tool, is to enjoy a long service life it must of course be well made and then be properly cared for; good tools are ever so much happier if they are kept clean, lubricated, and properly adjusted. However, since you now know from our previous deliberations on the effects of friction that some small accumulation of wear on the moving parts is inevitable, regardless of how much care they are given, what is needed is some means of removing the looseness, or "taking up the slack". In a previous issue I described the provisions that are usually made for adjustment of headstock and spindle bearings, but now on to other bits and pieces, and additional capabilities that you should look for.

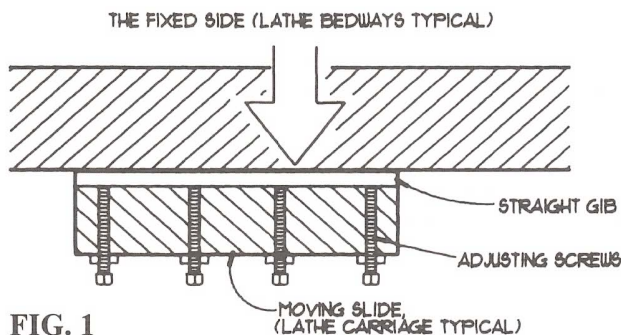


FIG. 1

The most commonly provided means of making adjustments to the working clearances of the sliding components of the lathe is called a "Gib". This device is very little more than a machined strip of metal that acts as a rather sophisticated form of shim or packing. Gibs are fitted to the inside of the sliding assemblies, between the moving and fixed components, and are usually always affixed or pinned to the moving component and work (rub) against the stationary component. For instance, the gibs fitted to a lathe cross slide for keeping it tight against the dovetail slide of the carriage will always move with the cross slide, not with the carriage.

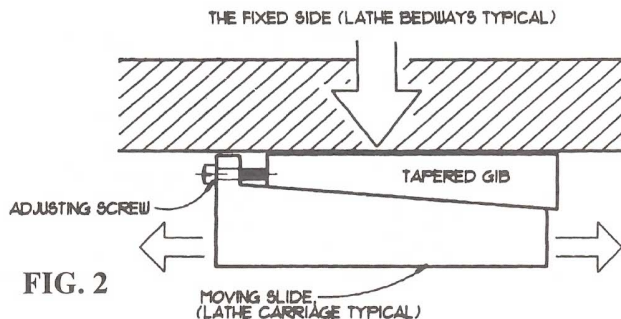


FIG. 2

I'd best not wander into an explanation of this at this time, but if you will take some time to study the shape and motion of the typical lathe slide you will see why this is so.

Gibs are shaped to fit the profile of the ways or slide against which they must work and generally there are two categories which are designated by their shape. The first of these is the **Straight gib**, which is illustrated in Figures 1 and 3. This gib is less expensive to make and fit and therefore will tend to be found on less expensive machines, or on many machines with flat or rectangular ways regardless of their cost. Straight gibs are set by adjusting a series of set screws, usually accompanied by jam nuts, set along their edge.

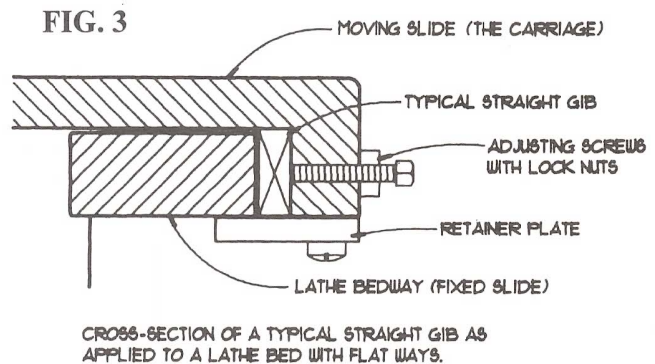


FIG. 3

If there is a disadvantage to the straight gib it would be that it sometimes takes considerably more time to adjust than would the tapered gib, although it would be no less accurate. If there are, let's say, four adjusting screws along its length, all four screws would need to be individually adjusted in order to achieve proper clearance along the full length of the gib. Nevertheless, the majority of lathes of the size that we will

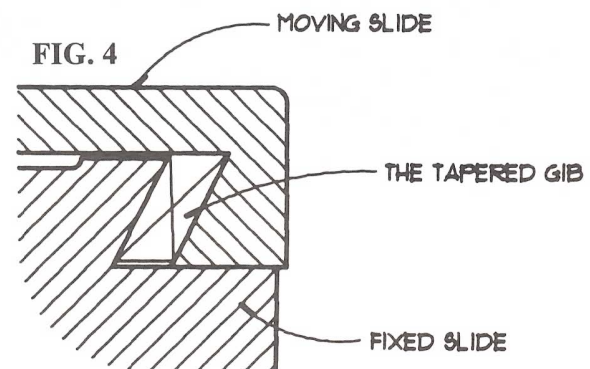


FIG. 4

CROSS-SECTION OF A TYPICAL TAPERED GIB AS USED WITH A DOVETAIL SLIDE.



use will be equipped with straight gibs.

The Tapered **gib**, as shown in Figures 2 and 4, acts as a sliding wedge between the fixed and moving surfaces of the slides and tightening an adjusting screw at one or both ends of the gib draws it further into the joint. With this type of gib the amount of clearance between the opposing faces of the slides may be adjusted to extremely fine limits by a single adjusting screw, and since the degree of taper is uniform along its length, the snugging effect takes place uniformly over its entire length. Very handy.

The **tapered gib** is also beveled as required to fit the profile of the slide into which it must fit, such as a dovetail. This increases the cost of producing and fitting this type of gib and is one of the reasons why it is usually found only on the larger and more expensive machines. Also I might need to clarify at this point that the reference to a "taper" or "straight" gib refers only to its shape in plan, that is, when viewed from above as in Figures 1 and 2. Either type may be rectangular or trapezoidal in section, by which I mean sliced across the middle as in Figures 3 and 4, depending upon the slide faces it is intended to fit. Both types will do the job just fine, but if one is to be recommended over the other it would be the tapered style due simply to its ease of adjustment. As with a few other desirable features of lathe construction, I know of no one who ever bought a machine simply because it had tapered gibs, but given a choice for the same money, I would pick them.

In the curious trivia department, many of you will know that on a typical steam locomotive the tapered gib is a common method of taking slack out of many of the sliding components, such as the driving axleboxes, and for adjusting running clearances on crossheads, particularly the two bar, or "alligator" crosshead to those of you in the USA. Also, lathes with round or another non rectilinear shaped bedway or slide profiles very often are not able to take advantage of any sort of adjustable gib for slack removal, although they may indeed use gibs for maintaining alignment of their components.

#### **Motors, controls, and other odd fitments:**

Most new lathes nowadays, particularly those with floor cabinets, come from the makers with motors and electrical controls already installed, a condition which simplifies matters greatly. Only a few years ago this was not the case as more often than not, especially when the lathe in question was a bench lathe of the type used by the amateur, the selection and installation of a motor and controls for was left to the buyer. Consequently many older machines tend to have motors and controls cobbled together from what was found lying about the shop and, thus equipped, have operated very well. Sometimes they have none at all and if you should find a machine which is in every other respect a good buy but has no motor or controls, don't be put off, as this may actually be a blessing in disguise. You can then tailor the motor and electricals to suit your specific needs.

Not so many years ago the now-humble 1/2 horsepower

motor was often the largest motor one would see fitted to lathes of up to 10" swing, but in recent years the trend has been towards more power; predictable I suppose. However, I urge you to resist the temptation to install a motor that is too large, as the average amateur's lathe does not benefit from having a great deal of horsepower in excess of its basic need, principally because you will present it with very little work of the size and speed to make use of it. For lathes of up to 5" center height, a motor of no more than 1/2 horsepower should provide adequate power for normal workshop needs and have a bit to spare.

Motors of greater than 3/4 horsepower may become a liability of sorts for the model engineer. One of the most common causes of injury while doing lathe work is from loose clothing or jewelry which has somehow gotten caught in a revolving component of the lathe or the workpiece. The result is that the lathe becomes an extremely capable winch that will quickly draw into the revolving machine whatever part of you has become caught, often resulting in the annoying inconvenience of dislodged skin tissue or broken bones. In light of this, I should not need explain why the wearing of cravats, foulards, gold chains, and various other forms of exposed neckwear while working at the lathe is absolutely Forbidden!

The second liability is that on lathes which have a right-hand threaded spindle nose, which is practically every machine made for the amateur, a capacitor start motor of 1/2 horsepower or greater equipped with a drum type reversing switch is capable of instantly reversing the rotation of the spindle. Instantly. The net result is that the inertia of a rotating chuck will cause it to continue to turn towards you, while the spindle is now quite busy going in the other direction, and the chuck will be spun off the spindle into your lap, after first bouncing off the lathe bedways! One of the reasons for the development of more complex spindle nose designs in industrial machines, such as the D-series cam-lock and the L-series tapered nose (both rarely found on amateur lathes), is that these designs eliminate accidental chuck spinoff.

Many of you will be looking for one of the smaller mini-lathes, which are just the thing for garden gauge work, and you will find that most of these nowadays come ready equipped with fractional horsepower motors and controls. These lathes have been engineered to provide the best all around performance from both the machine and the motor and will rarely benefit from fiddling about with larger motors. My own small machine, which happens to be a 90mm Cowell's lathe, is factory-equipped with a mere 1/6 hp motor, which provides more power than can be transmitted to the spindle by the small belt drive used on this machine. Although the 1/6 hp motor does have a limit as to how much metal it will remove with each pass of the cutting tool, an attempt at increasing the motor size on these small machines will rarely be beneficial.

As for motor controls, a simple on-off switch will of course suffice, but you will benefit in the long run by



installing a reversing switch, which will allow the rotation of the lathe spindle can be reversed. Because the spindle and drive train of a lathe add significantly to the starting load for the motor, especially if there is a loaded chuck on the spindle, the switch should also be rated to exceed the horsepower of the motor which it controls so that it will hold up against thousands of on-off cycles without the risk of burned circuits. One of the most commonly installed switches is the single phase drum-type reversing switch, which are reasonably priced and available at most electrical suppliers in a 1 or 2 horsepower rating.

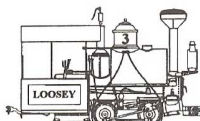
The type and mounting location of the switch you choose to install is also of paramount importance, and two guidelines come to mind. First, it needs to be placed in a location where it cannot be accidentally switched on; the potential problems associated with the starting of the machine before you are ready should be obvious. The second and no less important rule is that the switch should be mounted in a location where it may be easily reached in order to turn the machine off in case of an emergency, such as if a piece of work were to come loose in a chuck, or if you have been foolish enough to work at the lathe in a paisley cravat and are about to be hanged by the neck until dead!

#### Odd Fitments:

While I am on the subject of electricals, it seems a logical thing for me to say a few words about one other basic aspect of lathe setup, and that is lighting; one cannot do good work unless one can see what one is doing. There is no need to get overly complicated about this business, but your first priority should be a well-lit workshop; it is a simple matter of the more light the better. This is known as the ambient light level. Once you are well-lit in that area, a simple adjustable gooseneck lamp with a small incandescent bulb should do nicely. This is known as task lighting. There are all sorts of specialized light sources coming to the market, such as halogen, quartz, etc., but they tend to be a bit pricey and the tried and true household bulb will do very well here.

With task lighting two things are important; first is that the light fixture be truly adjustable and once adjusted that it firmly hold its position. The second is that your light source should be positioned so that your eyes and the light source are on the same side of the work. A task light shining into your eyes is worse by far than no task light at all; those of you who have been compelled to drive west into the sun on a late Summer's afternoon will know why. Put your head and the light source on the same side of the work and you will do fine.

Enough of this for this time, but I will be back in the next issue with the first of my discussions of lathe tooling and accessories, beginning first with what you will get from the factory when you buy a new machine, or more importantly, what you won't. Until then, get the garden work done and scour out the teapot, for it will soon be time to dive back into the workshop for the Winter.



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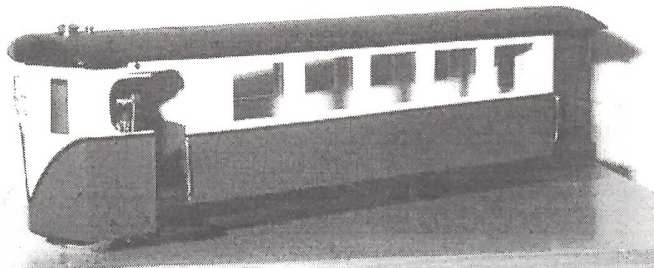
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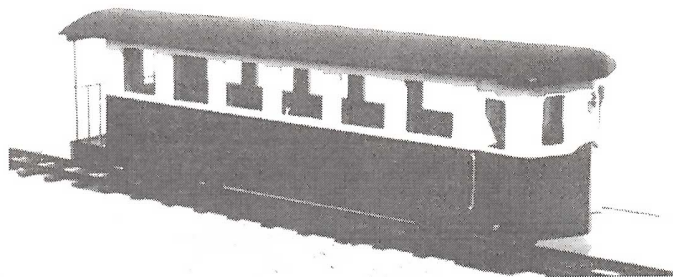
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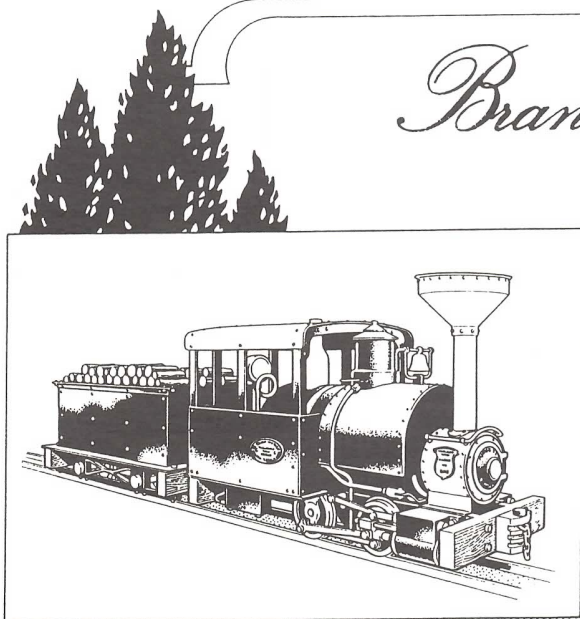
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# Gazing Into the Fire

by Peter Jones

## Grecian Formula for Aging Dragons

You can cheat on your taxes; you can cheat on your wife. Both practices are dubious, but it has been known to happen. But there is one thing you just can't cheat: that gadget on the wall that ticks and tocks. The cute little kids just out of diapers last for only the blink of an eye. You don't see any changes whilst you're watching, but blink an eye and twenty years have gone by and they are having children of their own. As for you...well, nothing seems to change. You are forever in your twenties, but somehow the working bits have got a bit worn and the bodywork isn't what it was.

So with the model steam engine. You buy it all shiny and new and each time you steam it, it cleans up afterwards nice and fresh. But somehow, ten years down the line, it can turn into a scruffy wreck that can barely haul itself around. We never actually see it happen, but there it is, in front of our eyes.

So I want to look at maintenance from a slightly longer perspective; to look at a kind of steam engine Grecian 2000 that will help hide the grey hairs. The easiest way to keep an engine in as-new condition is never to take it out the box. There are those amongst us, primarily concerned with the investment angle of owning steam engines, who go this route. I suppose I must try to be tolerant and restrict myself to saying that this is rather a long way from my own outlook. I guess it takes all sorts... But assuming that you want to run your engines, then some practical advice may be helpful.

When you have finished a run or two, especially in the good company of friends, it is all too easy to blow the fire down and stuff the engine on a shelf whilst you get into the serious business of apres-steam in the comfort of an armchair. It is kinder to do your maintenance on an engine whilst it is still warm, rather than leaving it until the next steam session. Wash any crud off. I have tried various commercial cleaners but they don't seem any better than a drop of Kerosene mixed with engine oil. An old toothbrush works the liquid into the motion and wheels nicely. Brasswork wants cleaning with care. I like shiny brass but not at the expense of worn body paintwork or white deposits everywhere. Nameplates are very difficult to clean with polish. I usually keep a very worn piece of fine emery paper handy for these. An old fashioned hard typewriter rubber will also clean brass without leaving deposits.

If you run a steam engine in the hostile environment of the garden - particularly at ground level- you may well have a scratch or small dent from time to time. Keep a bit of touch up paint handy [black is an easy colour to match, of course]. You may not be able to get the original paint because it could well be a heat fired commercial enamel finish. You will have

to match it yourself from a few tinlets of ordinary paint.

Me, I like the pleasure of rubbing down a warm engine with an oily rag [at my time of life, I take my pleasures where I can...] There is something about a thin film of oil on warm metal that cannot be imitated by paint alone.

I am not a good advertisement for the advice offered so far. I don't like to keep my engines hidden away in boxes. They live on shelves in the lounge where I can see them. Which means that they get dusty. And, if I am honest, I don't worry about the odd scratches and dings. So the locos look a little careworn. Now that's OK by me, but maybe you want to be a bit more fussy.

So now we turn to internal good health. Imperceptibly, performance drops off over the years [!]. Potboilers gunge up. Wicks become senile and the packing in glands needs replacing. I won't waste valuable space by detailing various bits of obvious advice on how to do the routine maintenance jobs and how important they are. It has been written up elsewhere. But there are one or two items that become defective over a longer period of time. The pistons can get sloppy in the cylinders. A new set of O-rings or packing can work wonders in bringing back freshness to the running. Steampipes can get clogged with gunge. They are virtually impossible to clean...so renew them.

The insides of boilers get coated with crud over the years. Various bits can be seen floating round. There have been some good traditional remedies written up over the years: oven cleaner, loose ball bearings, various chemicals etc. I have found that scrunching up a denture cleaning tablet and soaking the inside of the boiler in a solution of that works well. But whatever you do, never use soap or washing up liquid. It is very hard to get rid of the last traces by rinsing and it will cause dreadful priming. Lots and lots of rinsing through is essential. In fact, there is one stage further. What our engines don't usually enjoy is a blowdown valve such as 3½ inch gauge and larger scale models delight in. This is a large opening valve down at the bottom of the firebox wet wall. Traction engines also use them. You have a little pressure in the boiler and open the valve. This blasts out a lot of the rubbish that is swimming around inside. For our small gauges there is a version of this. You can screw in a large opening valve somewhere into an existing bush. But the simpler option is to have some water boiling away, build up a bit of pressure and then unscrew something! This is a somewhat dangerous procedure which runs counter to every bit of good advice you have received thus far. If you do it, it is at your own risk. It is certainly not for children to do. I've been doing it for 30 years now without harm. It works well but needs do-



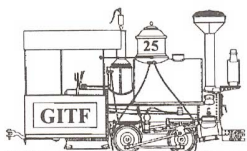
ing with extreme care. Try it at 2psi for your first attempt.

Many items of maintenance can be tackled on the kitchen table. But there are one or two mechanical things that may need re-engineering. Depending on the manufacturer and what he used, the various pins and rods in the valve gear may need renewing. A bit of slop is desirable, but when it adds up to a total of a lot of lost motion, performance is affected. There is nothing for it but to ream out holes or fit new bushes and then make new pins. They need to be accurately made. I like to use mild steel which I then case-harden, but that is a personal preference.

The other item likely to become worn is the eccentric and its strap. Again, there is nothing for it but to make a new bit. It tends to be quickest in the long run. I have always found that the eccentric strap is easier to make. It's less work because it can be replaced without taking the wheels and axles off the engine.

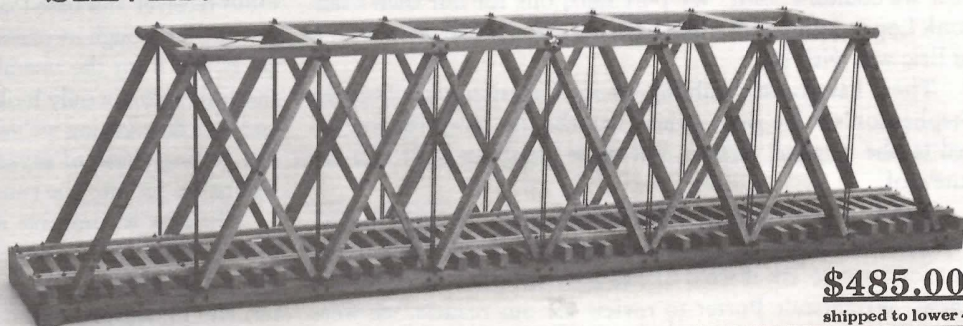
Gas jets and burners get a bit weary. The fuel tank filler valve can also deteriorate over the years until it becomes a bit leaky. Like everything else, it can happen so slowly that you don't notice it at any one time.

With this hobby being new to so many, all of these problems may not happen immediately. But, with passing time, the manufacturers keep building away...and not many models get scrapped. So we face a future where there will be an increasing pool of older engines that need some tender loving care. I am going to suggest that there will come a time when there will be a market for the home engineer to set up in business offering to overhaul and refurbish locos -- taking on the jobs that the non-engineer might be nervous of tackling. It will be another interesting chapter in this unending, fascinating book that we call steam in the garden.



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# Locomotive Review -- "New" Wrightscale Porter

by Ron Brown

**Description:** Model of a turn-of-the-century 8 ton, 0-4-0 Porter saddle tank locomotive with short smokebox and spark-arresting diamond stack, as supplied for mining, logging, contracting and shortline railways all over the U.S.A. and Canada.

**Price:** Introductory priced at \$1449.00 delivered in the U.S.A. This includes shipping, insurance and customs.

**Availability:** In North America -- Sulphur Springs Steam Models, P.O. Box 6165, Chesterfield, MO 63006-6165, phone/fax 314-527-8326. Doubleheader Productions, 3725 Pageant Place, Dallas, TX 75244 -- phone 214-247-1208. Outside North America -- WRIGHTSCALE, Burnside, Aboyne, Aberdeenshire AB34 5ES, Scotland, U.K. phone 03398 86494.

## Technical Specifications:

**Scale** -- 1:20 (same size as LGB's Porter)

**Gauge** -- 45mm (gauge 1) -- will negotiate LGB 1100 curves (2 foot radius) A gauge 0 version is available

**Length over beams** -- 8 inches

**Width** -- 3-3/4 inches

**Height** -- 5-3/8 inches

**Weight** -- RTR, 5 lbs.

**Boiler** -- fired by butane gas, tested to 120 psi. Center flue design of silver soldered copper construction, fitted with fine control regulator, pressure gauge and safety valve. Working capacity of approximately 75cc of water. A working pressure gauge is also fitted.

**Cylinders** -- two double-acting with slide valves, pistons fitted with Viton O-rings

**Bore & Stroke** -- not given

**Valve Gear** -- full working Stephenson's

**Lubrication** -- displacement lubricator in cab, fitted with drain plug below cab floor

**Duration of run** -- 20-30 minutes

**Control** -- factory fitted with miniature servos, on-off switch and rechargeable nicad battery pack (charger not included), customer supplies and installs the receiver & transmitter.

**Couplers** -- link & pin as per prototype

**Paint** -- Cab, tank & chassis finished in black, smokebox and chimney in graphite, cab roof oxide red. Cabs and tanks can be painted in specified colors by special order at no extra cost.

**Extra-cost Options** -- shotgun stack, small spark arrestor stack, extended smokebox and a four-wheel tender.

**Other Features** include a removeable cab roof for easy access to backhead controls, lubricator, fuel tank, boiler filler, etc.

---

We first published a review of the "old" Wrightscale Porter by Eric Lloyd in issue #11, February/March 1992 (out of print). Eric loved this little locomotive, and he spoke so highly of it that we couldn't resist. We purchased one for our own Cata-tonk Log & Lumber line and have been just as delighted with it as Eric was with his.

There have been rumblings about a version with working Stephenson's valve gear, rather than the slip eccentric gear fitted to the original version, but none had been built that we knew of.

Bob & Carol Paule of Sulphur Springs Steam Models Ltd. represent Wrightscale in North America, and when Bob called not long ago to ask if we'd like to have the pilot model of the "new" Wrightscale Porter to review for our readers, we were naturally enthusiastic about it.

The loco arrived late in the afternoon of the day before our

annual steamup, so there was only time for a quick look. It was displayed on the Show and Tell table for our steamup guests, but nearly a week went by before we were able to fit it with a radio receiver and base-loaded vertical whip antenna, and start putting it through its paces. It was really a shame that we didn't get to run it for the assembled throng at our steamup, because this little loco not only looks like the real thing, it runs as smooth and nice as anything we've ever had the pleasure of testing. But I'm getting ahead of myself, so let's talk about how it's built before we get into the running characteristics.

The new locomotive is identical to the old version in appearance, which is to say that it is a beautiful, well engineered, well built, accurate, nicely detailed model of an 0-4-0 8-ton Porter. Did I mention accurate? This locomotive is as close to museum quality in appearance as any steam powered model I've had my hands on. The builder's task was made a bit easier by



the fact that these little engines were not festooned with lots of details to begin with, but everything that was on the original (within reason, of course – it wouldn't be practical to have a fully accurate and detailed backhead) has been faithfully reproduced on this model. It really looks terrific hauling a cut of log cars across a bridge or through a forest of dwarf Alberta Spruce trees!

Platwork is photo-etched, for a high level of detail and clean, crisp lines. Accurately scaled and detailed builder's plates are mounted on both sides of the smokebox. The frames, which have the brake detail and spring rigging cast in place, and which are now fitted with generous bearings, are lost wax castings, as are the many other (more than 40!) detail parts, including a lovely lost wax cast whistle which slips over and disguises the safety valve. The cast smokebox has a working door, which is opened to light the fire.

As you can see in the photo, the pilot model as supplied to us didn't have the oil headlamp (though the bracket was there), but all the details will be included on the production models.

The model has prototype inclined cylinders & steamchest, with full working Stephenson's valve gear controlling "D" valves, just like on the full-sized locomotive.

Though the appearance is identical, there are some major differences between the new version and the old, not the least of which is the addition of working Stephenson's valve gear and factory installed radio control.

Actually, the builder installs the micro-servos, on-off switch and batteries, but the buyer must furnish his (or her) own radio receiver and transmitter. This is really for the best, as R/C units coming from overseas are always on the 27 MHz band, and this is not as desirable (read that as a lot more likely to glitch) as the

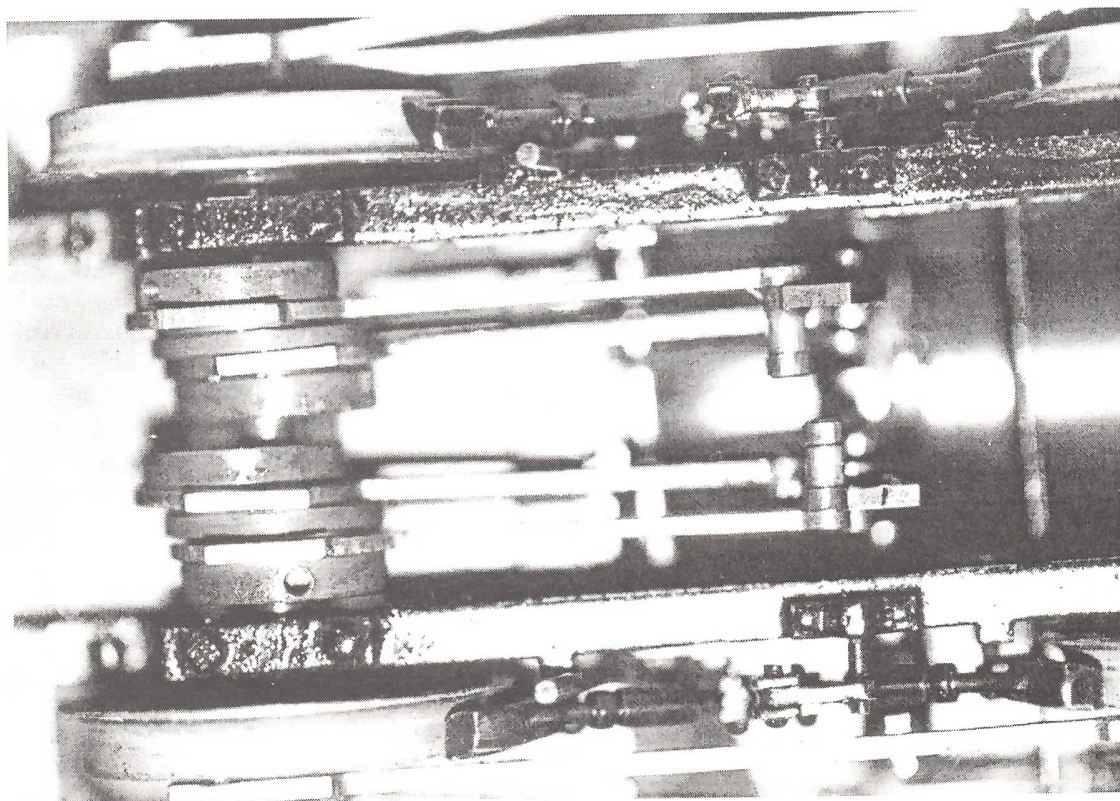
75 MHz band available here in the States. And we can buy a two-channel R/C system here for about \$60, which is a heck of a lot less than it would cost if furnished by an overseas builder! R/C installation consists of plugging the leads from the servos and switch into the receiver and sliding the receiver into position in the cab.

Another big change is that the saddle tank is no longer functional for water storage, because the saddle tank now carries the rechargeable nicad batteries for the R/C unit. Malcolm has soldered the tank lid shut so we won't forget what we're doing and fill it with water!

The boiler is now easily filled with a syringe through the clack valve (check valve) on the backhead. NOTE! If you are wary of check valves because of problems with them failing to seal or sticking, Malcolm Wright has come to your rescue by fitting his check valve with one of the new hard rubber balls. It will seal even if a speck of dirt gets in the way, and it will not stick. The check valve on our review loco did weep a tiny bit upon first lighting up, but as soon as there was some pressure in the boiler it sealed up tight as a clam.

Okay...the radio receiver has been fitted, control throws have been checked and our loco is sitting on the steamup track. We've carefully lubricated all moving mechanical parts with a good grade of motion oil. The boiler is filled with distilled water, the displacement lubricator has had the water drained and has been topped up with a good grade of steam oil, and the fuel tank has been filled with butane. It's time to open that smokebox door, crack the gas valve and light the fire!

One of the improvements I noticed right away upon lighting up is the gas control valve. Far too many of these are little more than on-off switches, but this new valve has a satisfactory



Up close and personal look at the underside workings of the Stephenson's valve gear, an outstanding feature of the new Wrightscale Porter. As is the case with all Wrightscale locos, the engineering, materials and quality of workmanship are all top notch.

*Photo by Ron Brown*



range of control. Very nice. Thank you, Malcolm!

It's a pleasant day at the end of summer, and steam is raised quickly while we take a walking tour to make sure the track is clear of debris.

To get started, we move the transmitter stick to set the Stephenson's valve gear for forward, then we slowly advance the throttle. It takes a few short runs back and forth on the steamup track to clear the condensate from the cylinders, and then we roll out of the yard and onto the mainline. Close the throttle for a moment and climb down to set the switch for the main, then climb back into the cab (yep -- this is a one man operation!) and open the throttle again.

The locomotive starts slowly and smoothly, then picks up speed as we roll down the main line toward the new wooden arch bridge at Great Bend. The air is cool in the deep forest shade here, but we're quickly through it and over the stone bridge at the foot of Garter Snake Grade. Time to open the throttle another notch or two, and the little loco responds nicely with a deeper bark from the stack as it maintains a comfortable pace up the grade.

There's a spot near the top of the grade where the track swings to the left around a stand of dwarf Alberta Spruce trees. Visiting engineers and locomotives with marginal power often have a tough time here. Locos tend to stall quite often at this spot, and the track maintenance crew has orders to replace the rusty, deeply pitted steel rail and do something to ease the curve radius and the 4% grade. For now we must live with it, and I'm interested to see how the little Porter will handle the situation.

Add another notch of throttle as we come up to the evergreens, and we're through the turn without any noticeable loss of speed. No time to think about it now, as we have crested the grade and are picking up speed quickly as we roll down a gentle grade past the brilliant colors of the Marigold National Forest on our right. Better back off a couple of notches on the throttle and slow down, for we'll soon be running through Catatunk Cut and starting down the steepest grade on the line.

We ease the throttle way back and drift downgrade with no problems...the engine is handling beautifully and we're really enjoying the whole experience. Before we know it, we're rattling through the switch to the yard lead and opening the throttle again as the grade levels out and kicks up to a 1% climb on the way to the bridge at Great Bend.

We make several more circuits of the track, stopping and starting, reversing and just getting the feel of the engine and controls. No unpleasant surprises here -- just smooth, consistent response to the controls and quiet, powerful running.

Don't get me wrong when I say that this engine is powerful. I don't mean that it should be coupled up to a dozen large coaches and pressed into service as your crack passenger locomotive, hauling the varnish at 80 m.p.h.!

It would probably not fare well if it were coupled back to back with an Aster K4 in a pulling contest, either.

But it does a great job doing exactly what the prototype was designed to do -- hauling logs, coal and other loads over light, narrow gauge rails and tight curves, at relatively low speeds, day in and day out without complaint.

If you are nuts about high speed passenger or freight trains,

this is not the locomotive for you. But if you have an incurable passion for small, narrow gauge railroads, backwoods railroads and logging railroads...you're gonna love this little Porter!

Golly -- I got to gabbing on my favorite subject and almost failed to notice that we've run out of fuel, the burner has gone out (it's so quiet you really can't hear it) and steam pressure is dropping! We got lucky this time, though, as there's just enough pressure to back down into the yard and bring our little iron horse to a stop on the steaming track, right where we started this tour about 30 minutes ago.

Now...let's take care of a few maintenance items while we think about impressions gained during the ride. First, we should drain the lubricator and refill it for the next run. It's easier to do this while the engine is still warm and there's a few pounds still showing on the clock.

Close the throttle, remove the lubricator drain plug and then crack the throttle open again. Of course we leave our valve gear in the neutral position while we're doing this so we don't get run over! The steam pressure will blow the contents of the lubricator out onto the track, so this exercise is best done where you don't mind an oily mess. If you're a real fastidious type and don't want steam oil all over your ballast and ties, you could blow the lubricator contents into a catch-container if you have a steaming bay with elevated trackage.

Since this loco is not equipped with a boiler blowdown valve, I prefer to leave the throttle open and the drain plug (or the filler plug) off the displacement lubricator until the boiler is completely cooled. Otherwise the boiler will form a vacuum as it cools, which can pull steam oil out of the lubricator into the boiler...and that's not where you want it to be!

This is a good time to wipe down the metal parts with a soft cloth, checking for loose or missing bits and pieces and indulging in a little hands-on bonding with your loco. I'm sure there are those of you who will think I'm a few pints short of a full boiler for that statement, but I've found that fine machinery (like human beings) responds favorably to gentle, considerate treatment, and thus treated will serve you long and well.

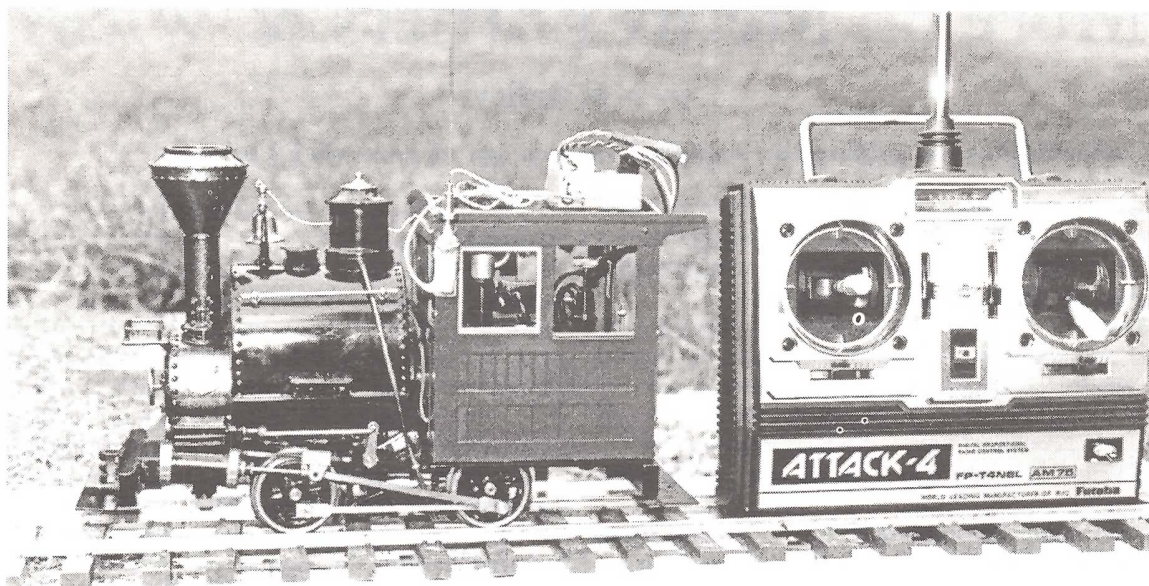
Now that the locomotive has been serviced and made ready for the next run, it's time to sit back with a cool drink and talk about our impressions, opinions and test findings.

We didn't encounter any serious problems with this locomotive, but we do have our usual ration of minor complaints. I didn't like the R/C receiver antenna as provided. The builder suggests using a drastically shortened antenna wire and disguising it as the bell pull cord. This may win points in the appearance department, but troublefree operation is a higher priority and this is a lashup guaranteed to promote furious glitching. We rate the factory antenna Not Acceptable.

Our recommendation is simple...the Deans base-loaded vertical whip antenna, which we've been recommending as the solution to 90% of the glitching problems on small-scale live steam locos (no, we don't own stock in the company!). As you can see in the photos, this is what we fitted to our test engine. We experienced zero glitches (none, nada, nothing -- not even one) during the entire test session.

The lubricator drain is between the frame rails and hard to get at, a situation that is made worse by the fact that the drain





Our Wrightscale Porter review sample, set up for testing. The cab roof was left off so we could temporarily attach our Novak 2-channel test receiver to the top of the throttle servo mounting bracket. Permanent receiver installation location is tucked down inside the cab and attached to the cab wall on the right side with servo mounting tape. That's our Deans base-loaded vertical whip test antenna mounted on the front corner of the cab. Futaba 4-channel transmitter included in photo for size comparison. Does it seem somewhat ludicrous to use a transmitter named ATTACK for a gentle pursuit like operating miniature steam trains? Have you speared any of your fellow live steamers with your antenna lately? Or bonked them over the head when they were attempting a tricky switching move? I'm thinking of renaming my transmitter TRANQUILITY.....

*Photo by Ron Brown*

hole is so small that it's very difficult to get the water to drain out on its own. Sucking it out with a syringe would be okay, but access to the lubricator from the top is difficult because of the throttle servo mounting location. Blowing the lubricator out at the end of a run isn't easy because the drain plug is so inaccessible. If I had one of these engines, I would get a nut driver or tiny socket wrench to fit the drain plug. At the end of each run I would back the engine over the steaming bay and remove the drain plug, then blow out the lubricator. The best solution of all would be for the builder to use a fitting having a larger drain hole -- or better yet, an easily accessed drain valve.

The safety valve on our test loco was sticky. Every time it lifted, it stayed open until I tapped it on the stem. Then it would close and seal reliably, only to stick open again when it lifted the next time. Easy to take care of -- repair or replace the valve!

Boiler working capacity is 70-75cc's. It's real easy to fill -- just suck up 75cc's of distilled water into your syringe and shoot it into the boiler through the filler. But what if your last run was cut short for some reason, and there's still water in the boiler? How much is left? If you overfill the boiler, it will cause priming and you will be annoyed...and possibly embarrassed.

There's no gauge glass to show the water level in the boiler, and no water level plug to indicate when it's full. I'd like to see

the builder fit a water level plug (or valve) to the boiler back-head. At least make it available as an extra-cost option, which wouldn't add much to the price of the loco.

As you can see, our list of negatives is short and contains no serious problem items. Mostly matters of personal preference.

Now for the list of positives! As I've already mentioned, this little loco is well engineered, solidly built, accurate, well detailed, great looking and a fine performer. Add a few super features like full working Stephenson's valve gear, radio control of speed and direction with smooth-as-cream response to control inputs, exceptional slow speed running ability, plenty of low speed grunt and more than enough power to handle heavy loads, steep grades and tight curves.

Bottom line...this is a great little locomotive, lots of fun and very satisfying to run, and a great buy. I predict that the first batch will sell out very quickly, so if you want to take advantage of the introductory price of \$1449 you may want to contact Sulphur Springs Steam Models or Wrightscale Engineering and reserve one today.





# More on Meths Burners & Wicks

by Mel Ridley

## Valuable information for getting the best performance out of your wick burners

I read with interest Marc Horovitz' column, "The Steamchest" in *SitG* (July/August 1994). On the subject of meths/alcohol firing, the following is offered as further in depth guidance on wick lengths, etc., as many people still seem unsure of what to do.

It would seem the most common misunderstanding is that, in order to boil water, a large fire is necessary. Whilst this may be true for a campsite, exactly the opposite is required in the tiny confines of our small locomotives. The ideal, in forced draught locos at least, is to have a cool front end, which, in addition to fuel saving and a kinder to handle engine, enhances the cloud of exhaust steam.

Mention was made of fine screen mesh as a wick material, something I have now used for many years with excellent results, so more on this at the end of the article.

Wick length is dependent on two variable factors, the type of boiler in use and diameter of the wick tubes. As it says in *The Steamchest*, the hottest part of the flame is at the top of the blue cone and, in the case of the straightforward potboiler, it should come into contact with the bottom of the barrel (boiler) at that point.

For example, Jack Wheldon's 'skinhead' wick, (e.g. 1/16 inch maximum length), was adopted as the optimum in his design for it was a relatively fat boiler sitting low down in the frames. Any increase in wick length would have offered less heat and wasted fuel, in addition to making the loco hotter to handle (see Fig. 1). A meths fired Mamod loco should work in the same way.

For forced draught boilers, (i.e. the *Smithies* and various types of *firetube* boiler, where you need a suction fan to raise steam initially, and a blower when the loco is stationary) a somewhat longer wick is required because the flame gives up its heat over a greater surface, the blue cone has to be part way into the boiler, and each type is different (See Figs. 2-4). Steam raising ability is fairly critical and can best be done by trial & error, starting with a generous wick height and shortening by stages until the optimum is achieved.

It is important to remember that for a forced draught boiler to operate effectively, a partial vacuum must be created at the smokebox end in order to draw the hot gasses through. When locos are stripped down from time to time, seals around the smokebox door and other openings and screw holes fail – but this can be easily and cheaply remedied by using silicone sealant of the type used in bathrooms, etc.

Taking the potboiler first, measure the distance from the underside of the boiler to the top of the wick tube. If this proves difficult, remove the burner unit and measure to the centreline of the feedpipe holder. Now measure the distance between the top of the wick tube and the centre of the feedpipe and deduct one from the other. Mounting the burner securely but without squeezing it in a vice, carefully administer some alcohol into the wicks (without overflowing if you are using the front end of a chicken feed type) and light up. Measure the height from the top of the tube to the top of the blue cone – best done in low light – and trim, so that the distance to the top of the cone measures the same as that to the underside of the boiler. You should now be in business.

For the *Smithies* type, measure along the length of the boiler

from the rear burner (i.e. *cab end*) to the front tubeplate (where the smokebox adjoins) and try to estimate where you want the tip of the cone to be. Bear in mind that because of the forced draught necessary, a longer wick will be required (it could get sucked out) and with a typical 3 burner unit they all won't be in the same place, so it's best to give the front burner a shorter wick length than the middle and rear. The rear one will be called on to give more heat, but be mindful of fuel starvation to the front wick. Again, a test in the vice will show how it is performing.

For boilers with downcomers (e.g. the *Aster Baldwin 0-4-2T*), aim for the cone top to reach the top of the flame tube. For JVR 'C' types, where the flame travels backwards before entering the flue tubes, calculate that extra distance as boiler length.

A further avenue of approach in enhancing performance is to restrict airflow around the firebox. Particularly in some of the earlier models, e.g. *Aster Shay*, *Reno*, *Mogul*, etc., this could result in fires blowing out under windy conditions, but just as importantly, allowed too much air to get into the "mix". From personal experience, I have found that an airspace roughly three times greater than the sum of the wick cross sectional areas gives adequate combustion and enhanced calorific value. A very simple baffle can be cut and folded from brass shim stock, held in place by the firebox walls and retained by the burner assembly.

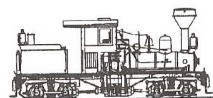
Finally, **USING SCREEN MESH AS A WICK MATERIAL.** First of all, what is it? Typically, it is made of copper or brass, is used in the automotive industry as a petrol filter and is extremely fine, though various grades seem to be available. Strands seem to be about 40 gauge (.0045" to .0055") with between 60 to 100 strands per inch.

In my opinion, there are NO DISADVANTAGES in our application that I know of. There are however, a GREAT NUMBER OF ADVANTAGES. Apart from being user friendly, these are the necessary ability to soak up fuel by capillary action; easy to cut with household scissors; no guesswork is required in wick packing and once fitted, won't clog, won't fall out and should last indefinitely.

Having decided on length of wick (bearing in mind that it must reach as far down into the tube sump as possible), cut off a strip to this dimension and, starting with the smallest fold you can make, keep tightly rolling until the desired overall diameter is reached. I generally go over a couple of turns and trim back to fit.

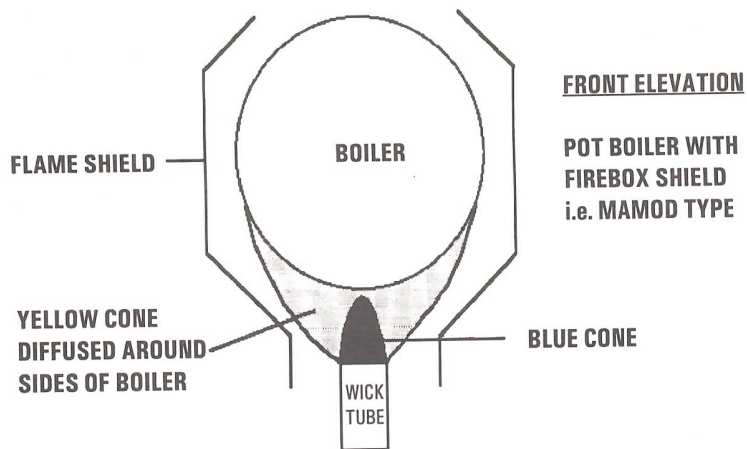
When experimenting with wick height for the first time, it is best to go oversize, and keep trimming by unwinding, cutting and re-rolling. DO NOT rely on other existing wick materials for height, as they all perform differently. Good luck!

A North American source for the mesh mentioned in this article (and a whole lot of other nifty items you probably didn't even know you needed) is Small Parts Inc., P.O. Box 4650, Miami Lakes, FL 33014-0650, phone 305-557-8222. Write or call for their catalog, and please tell them you saw it in *Steam in the Garden* - ed.



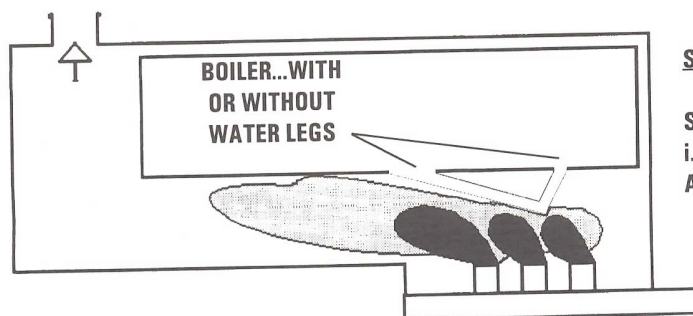


**FIG. 1**

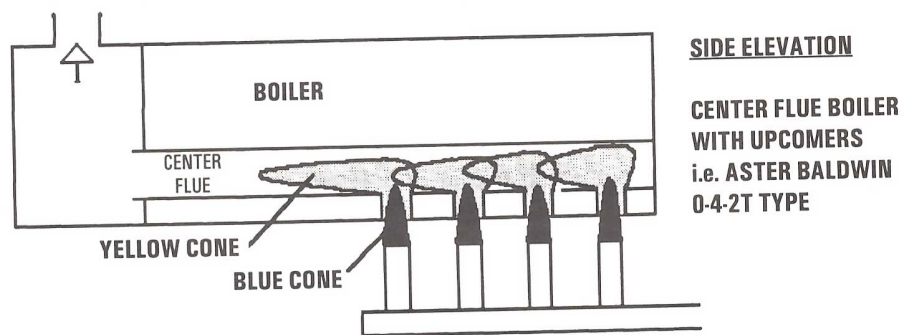


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TO SCALE**

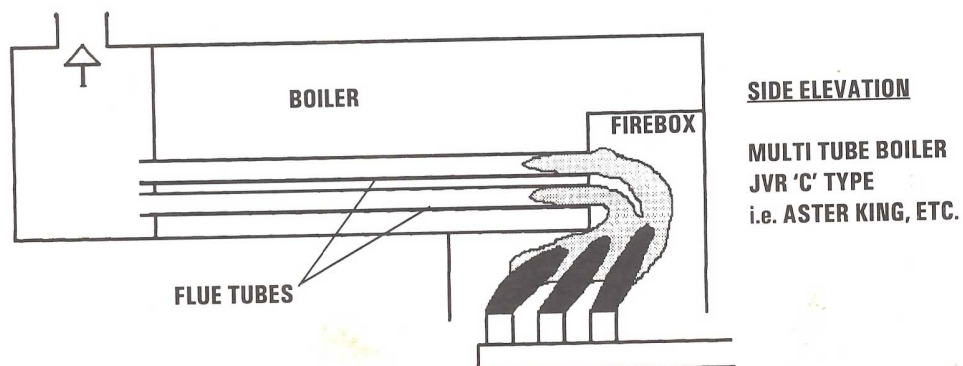
**FIG. 2**



**FIG. 3**



**FIG. 4**





# Product Review --

## Glendo Corporation's Accu-Finish Series I

by Harry Wade

Grinding tool bits correctly is a science in itself, and bits that are properly ground can do more than anything else to improve the finish you get on your machine work and extend the life of your cutting tools. In the average workshop the approach is to hand grind them on the trusty bench grinder to a shape which "looks about right". Ideally, this should be followed by a few strokes on an oilstone to hone and polish the cutting edge. There are two shortcomings in this process; what "looks about right" may not be right at all -- and then we regularly go directly to the lathe, bypassing the honing step. This small omission has a significant detrimental effect upon the quality of finish and tool life expectancy.

The Accu-Finish Series I, made by the Glendo Corporation of Emporia, Kansas, is a compact benchtop tool grinding machine which can change all that. This machine uses diamond abrasive wheels, running at low speed, to grind and hone flat surfaces on any type of metal or cutting tool, including carbides. The Accu-Finish is convertible, and in its normal position the grinding wheel is vertical. In front of the wheel is a sliding table which carries the tool to be finished and which can be tilted at 45 to 90 degrees (X) to the wheel. The table also has a miter-type tool guide which is adjustable through 120 degrees for side to side (Y) angular grinding. There are built-in protractor guides in both the X and Y axes, with knurled set screws to hold the position of the table once its location has been set. This arrangement will allow tool points to be finished very accurately to the angles required for optimum performance on specific metals. The sliding table also allows tools to be moved back and forth across the wheel face in order to evenly distribute wear.

In its alternative position, the entire table assembly, which is pivoted on the bottom of the machine case, is rotated away and the machine is set with the diamond wheel on top in a horizontal position. In this configuration

metal parts can be applied to the diamond wheel by hand, which is just the ticket for hand-finishing mating surfaces such as valve faces, cylinders, flanges, heads, or any other parts which need to be finished bright and flat.

The Accu-Finish is of all-metal construction and is very well made; there is no skimping on materials or finishes. All visible parts are either painted, plated, or black oxide finished, which gives the machine a no-nonsense appearance.

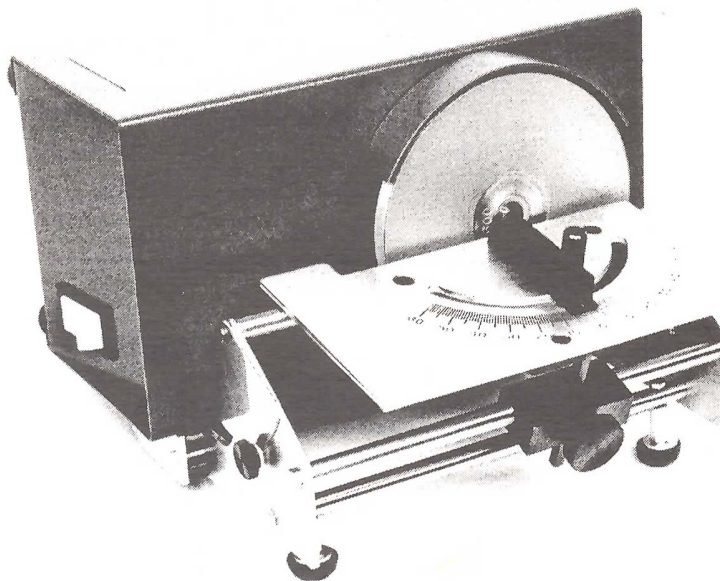
The cabinet serves as the enclosure for the motor and spindle drive system and is made in one piece from heavy gauge steel which is painted in black crinkle enamel.

The components of the table assembly are all either turned, milled, or punched from steel bar or plate stock, and are bolted together to form a rigid supporting framework for the sliding table.

The power switch is mounted in the end panel, which is accessible enough, but a more convenient location might be on the top or face of the cabinet. For ventilation the cabinet has an open panel along its underside which is fitted with a metal screen and this, along with the motor-mounted fan, keeps the Accu-Finish cool, even during extended operation. The standard machine operates on 115 volts at 60 Hz and is supplied with a grounded plug cord of generous length.

The wheel drive consists of a spindle shaft running in bronze bearings driven via dual 1/8 inch round rubber belts from a fractional horsepower motor. The 1800 rpm motor speed is reduced by vee-groove pulleys to approximately 240 rpm, which delivers lots of torque and showed no tendency to bog down under normal grinding pressures. I did choose not to check for maximum torque by attempting to stall the wheel, for fear of damaging the surface of one of the diamond wheels. Although this drive system will have a long life without undue attention, there were a couple of details that I felt represented minor problems.

### ACCU-FINISH SERIES I





Although wear should be minimal, the drive belts are difficult to get to, and it appeared that the cabinet would have to be disassembled in order to do a belt replacement.

Secondly, I was disappointed that the spindle bearings were plain bronze, that there were no oil holes or cups present to allow for direct lubrication, and that no mention is made of lubrication in the owner's manual. Although bronze bearings are certainly adequate, for the price asked for the Accu-Finish I feel that ball bearings on the spindle would be more in keeping with the quality and ruggedness of the rest of the machine.

To use most machine tools to their full capacity, features must be changed to suit the job. Our tendency is to find one setup that suits the most different types of work to be done and leave it in that setup to save time...often at the expense of good workmanship or finish. There was no such tendency when working with the Accu-Finish, as the angular adjustments to the table and tool guide are very easy to make. Likewise, the diamond wheels are mounted by a single bolt and can be changed with speed and ease; it takes less than 15 seconds to replace a wheel, even without hurrying, so there should be no reluctance on the part of even the laziest of us to change to the appropriate wheel as needed.

There are three 5" diameter diamond abrasive wheels available for the Accu-Finish I: a 260 grit wheel for "roughing" a 600 grit "medium", and a 1200 grit "fine finishing" wheel. In order to get a better feel for the finishes produced by the Accu-Finish wheels, as compared to the average workshop bench grinder, I carried out several test grinding operations on a 1/4" square high speed cobalt steel tool bit. My test bench grinder was equipped with conventional abrasive wheels in 40 and 60 grits, which are typical of the average home workshop grinder, and my observations were made using a 10x magnification loupe.

The 250 grit diamond wheel is referred to in the owner's manual as a "roughing" wheel and, even though this wheel did indeed cut much more quickly than the finer wheels, I found it to be too fine for speedy roughing work -- that is for grinding bits where a relatively large amount of metal needs to be removed, say from 1/16 inch to 1/8 inch. The finish obtained from the 260 grit wheel was rougher than that of the 60 grit abrasive wheel and slightly finer than the finish left by the 40 grit wheel.

The 600 grit diamond wheel produced a finish that was a bit finer than the 60 grit abrasive wheel, which for the average machinist would provide an edge that would be good enough for most general purpose work. If you were to be limited to only one wheel, the 600 grit would be the one to have -- which is why the Glendo Corp. chooses to supply the 600 grit wheel in their Basic Machine + One wheel package (see below).

The 1200 grit wheel, while not intended to be a polishing wheel, produced the finest finishes of all on the cutting edge of the test sample. To the unaided eye the tool edge appeared nearly polished, and when viewed under 10x magnification its finish equaled that of oilstone honing. In my opinion, the 1200 grit wheel has the most versatility, especially when

used in the honing mode described earlier.

One thing that was noticeably absent during grinding on the Accu-Finish was heat, which those of you who have ground tool bits before know is always a problem with conventional abrasive wheels. This is a great advantage and is due to the low rotational speed of the diamond wheels, and to the use of a cutting lubricant which is furnished in concentrate form with the basic machine. This water-based fluid resembles a non-foaming industrial detergent and its purpose is simply to keep the ground metal particles in suspension by keeping the wheel wet while cutting is taking place. Although I could see little difference in the actual surface finish of bits ground wet or dry, the manufacturer recommends using the cutting fluid to extend wheel life, and I agree that the grinding did seem to go much easier when it was used.

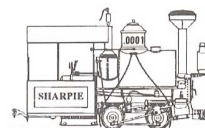
Overall I found the Accu-Finish Series I to be a well-made and versatile tool which has been designed to do a specific job and does it well. Although the owner's manual is somewhat elementary, it is written in lucid, straightforward language that gets right to the point. The same is true of their advertising literature; I found no claims that stretched the truth, only fair and honest descriptions that could easily be substantiated and performed by the product in my own shop.

The Accu-Finish Series I Starter Package (Catalogue No. 01-600) is priced at \$588/US, plus shipping. This includes a #01-599 machine and basic accessory package (cutting fluid and spray bottle, wheel dressing stick, wheel wrench, and one #01-131 600 grit diamond wheel). Additional wheels are available at \$109 each, and a broad range of attachments are also offered, most of which are designed to satisfy specific grinding needs in commercial industry such as automotive, tool & die, and aircraft work.

The Accu-Finish Series I is a superb piece of equipment which has been developed primarily for the commercial user, but the home shop machinist who plans to do a lot of metal work and/or who has a commitment to good workmanship and finishes will want to consider the Accu-Finish Series I as a valuable addition to your workshop.

Though we did not have an opportunity to review one, Glendo Corporation also has less expensive units available for the home shop machinist on a tight budget. Call or write for more information on their **Grind-R-Table**, a low-cost option for precision sharpening in the small workshop.

*The Accu-Finish Series I is available from Glendo Corporation, P.O. Box 1153 / Dept. SitG, Emporia, KS 66801. Phone 800-835-3519 or FAX 316-343-9640.*





# LETTERS FROM THE OLD CURMUDGEON

*"Never say anything on the phone that you wouldn't want your mother to hear at your trial."*

Sydney Biddle Barrows



The Old Curmudgeon

Dear Gene -

As I promised in my last letter, here is the scoop on one of the simplest and most useful things you can make for your shop; a tool height gage for your lathe. I assume you have a lathe which has a rotary tool holder block that allows you to swing a tool over the ground surface of the compound, as is typical of most imported and domestic lathes.

Start by putting a piece of round bar stock in your lathe chuck. Now get a FLAT-TOPPED (i.e., No top rake) carbide lathe tool. Round nosed is best. If you don't have a carbide blank, HS will do -- but no top rake! Using the point of the center in your tailstock as a guide, shim the tool to the center height as accurately as you can and take a facing cut across the bar. There will be a small pip at the center of the face cut which shows how much your tool is off dead center. Shim the tool as needed to bring the cutting edge to dead center. Test each adjustment with a new facing cut until there is no more central pip.

Now go to your Inexhaustible Scrap Box (ISB) and get a rectangular (not circular) piece of bar stock and cut it to a length about half inch greater than the distance from the ground surface of the lathe compound. Mill one end flat and place this end of the stock down on the ground compound surface. Now swing the tool around to scribe a line on the bar. This line is the exact distance of your center above the ground surface of the compound. Now mill a second surface on the bar, parallel to the first, almost down to the line.

Place the bar on the ground flat surface of the compound and test for a difference in height between the top edge of the lathe tool and the top of the test bar you've just milled. A fingernail drawn across both surfaces is very sensitive to differences in height. When no difference can be felt you now have an invaluable precision tool for setting the height of the cutting edge of your lathe tools. Don't rush these steps, because if you overshoot you have to start over.

Keep turning -  
Marv

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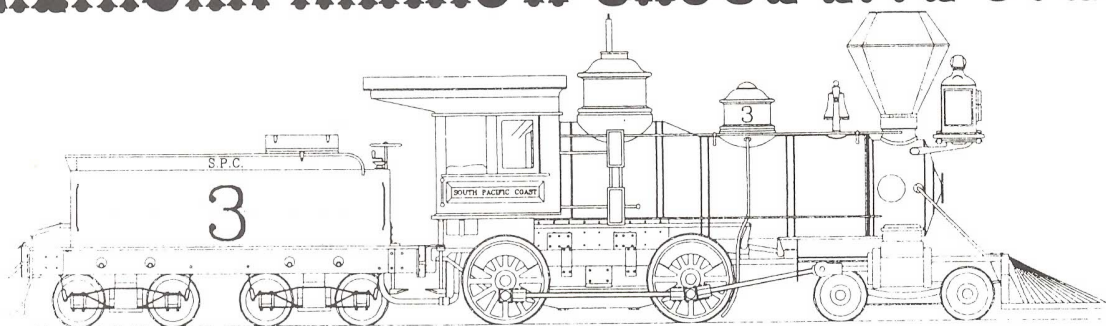
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# Build Your Own Boiler

Part IV of a series  
by Charlie Mynhier  
drawings by John D. Cone, Jr.  
(drawings not to scale)

I used 1/32" thick gasket material for insulation. I know it's not the best insulator, but I had it on hand and it works OK. Since the front extension is smaller in diameter than the main boiler shell, we will use 2 layers of material there so the front extension will be the same diameter as the main boiler shell, then we will cover the entire assembly with 2 more sheets. Remember to allow 1/8" of the front extension to be without insulation. The smoke box will cover this. Scotch™ tape is used to hold the insulation strips on while fitting the next piece.

The boiler jacket was cut from stove pipe, and the boiler bands were made from 1/16" thick X 1/4" wide brass strips found at the hobby shop. You will need to elongate the 1" dia. hole, somewhat like a football, so the jacket will lay flat around the outside of the boiler. You can do this job with a smooth cut half round file. Use 2 screw type hose clamps to hold the jacket in place while installing the 3 boiler bands, then the hose clamps can be removed. Hose clamps can be found where auto parts are sold.

The super heater union is made from brass and soldered together with 45% silver solder to form a little threaded elbow. The 5/8" long thread sticks in through the hole on the "engineers side" of the smoke box, and is held in place with the 13/16" rad. nut. The outside thread should point straight back. The nut is radiused to fit the inside of the smoke box.

The super heater is made from 1/8" copper tube found at the auto parts store. I have heard that super heaters should be made from stainless steel because copper would not last. I have never had a super heater fail, and if it ever does fail, I will replace it with another copper one. I believe that will be easier than trying to make one out of stainless. The bending tool was made from C.R. steel, the milled flats are for clamping it in a vice. The union uses the flared tube principle, but instead of flaring the tube I silver soldered a short length of 5/32" dia. brass tube over the copper tube, squared it off with a file, reamed the inside taper with a #1 center drill in a pin vice. The union nut was made from 1/4" hex brass.

The exhaust nozzle was made from 1/2" dia. and 3/8" hex brass stock, with a short length of 5/32" dia. tube soldered in.

The safety valve is made from brass according to the drawing, and soldered together with 5% silver solder. The anchor screw is made from stainless steel, with a 10-32 thread and a 5/16" hex head. This screw needs to be made from

stainless in order to withstand the high torque required in installation -- a brass screw will break in the neck where the holes are drilled. Use "Permatex" hi-temp RTV silicone gasket maker where the safety valve abuts the steam dome, and under the head of the anchor screw. After the safety valve is installed, a 3/4" long piece of silicone tubing is slid over the valve body so that the 1/4" long X 7/32" dia. neck is covered with the tubing. Equal amounts of excess tubing should be above and below the neck. I have found this kind of safety valve to be very reliable, and it will blow between 30 - 40 lbs., depending on the diameter of the neck.

The throttle valve is made from 1/2" dia brass bar. Notice the 1/32" thick cap soldered over the end. First make the 1-5/16" long valve body, then cut a 5/8" to 3/4" square piece of 1/32" thick brass. Lay it on a fire brick and put a drop of flux in the center of it, then stand the valve body in the center of the square piece and put a 1/16" long piece of solder in the corner where the valve body meets the square piece. Heat the assembly up with a torch and the solder will flow into the joint all around. After soldering, put the assembly back in the lathe and turn the square piece round and flush with the valve body, then drill the 5/32" dia. hole.

Now the only thing left to do is install a #006 "O" ring into the cavity formed by the 1/32" thick cap. Viton is the best material for this application.

The next piece is the main assembly cap with the steam outlet nipple soldered in. 5% silver solder is sufficient for this job. You will need two (2) #010 "O" rings to install the valve body into the steam dome. Remember the .375" dia. x .065" deep counterbore in the steam dome? That's where the "O" rings go. After tightening up the valve body into the cap, the nipple should point straight down. The valve stem is made from 1/8" dia. stainless steel rod. The handle is simply a 1/2" dia. collar with a 2-56 screw into the side.

The sand dome is made from 7/8" dia. bar, with a 1" rad. milled into the bottom. The little "top hat" looking thing is the anchor for the sand dome. Let me explain how I made it: first I took a 3/8" dia. brass rod and filed a 15/16" rad. across one end, then I cut a 3/4" square x 1/16" thick piece of brass and bent it over a bar to a 7/8" rad. Then I soldered it to the 3/8" dia. bar with 45% silver solder, put it back into the lathe and turned the 3/4" square to 5/8" dia., then drilled and tapped the 4-40 thread and parted it off so the 3/8" dia. portion was 5/16" long.

In order to install the sand dome, first put the jacket



on the boiler, then locate and mark the insulation under the 3/8" dia. hole in the jacket. Remove the jacket and cut a 5/8" dia. hole in the insulation directly underneath the 3/8" dia. hole in the jacket, then reinstall the jacket after placing the "top hat" into the recess left by cutting out the insulation. Now the sand dome can be held down with a 4-40 screw.

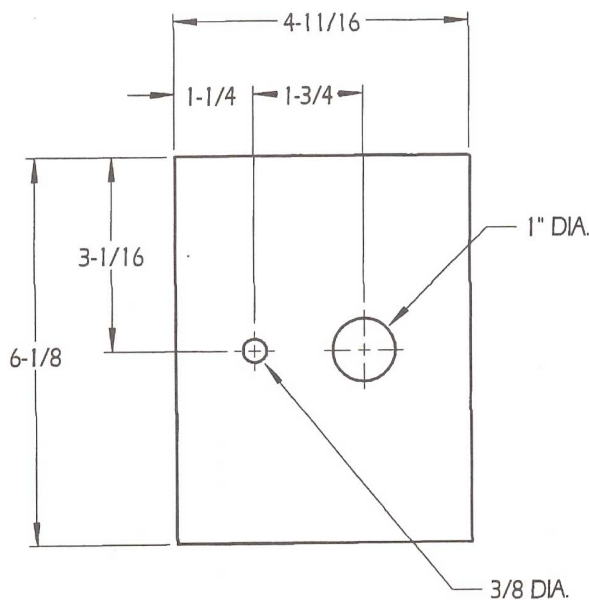
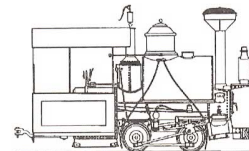
The sight glass is 1/4" O.D. x 1-9/16" long glass tube. In order to make the bottom holder, start with a 1-1/8" long x 3/8" dia. brass bar, chuck it up in the lathe and cut the 5/16"-40 thread as shown in the drawing. Remove it from the lathe and drill a 5/16" dia. x 1/8" deep hole in the side. This hole should be 3/8" from the start of the thread to the center of the hole. When I say drill x some depth, I am talking about the full diameter of the drill, not just the point. After drilling this hole in the side, solder a piece of 5/16" O.D. x 7/32" I.D. x 9/16" long brass tube into it with 45% silver solder. After soldering the side piece, put it back in the lathe and drill 3/16" x 1/2" deep, C. drill 1/4" x 3/16" deep and part it off so that it is 5/8" long as shown in the drawing. The top piece is made in similar fashion with the addition of the 3/8" O.D. x 1/2" long return into the top of the backhead. Here the side tube is 1/4" O.D.

The top glass holder is held on the backhead with a stud made from 1/8" dia. stainless steel and a cap nut. Use a piece of 1/4" dia x 1-9/16" long metal as a lineup fixture to

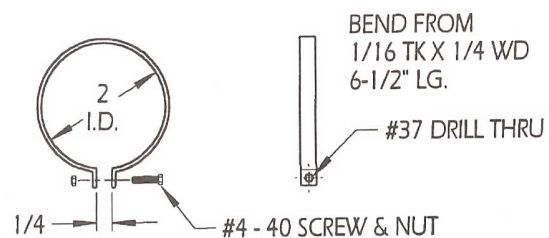
solder the bottom glass holder into the backhead with 5% silver solder. While soldering the bottom glass holder into the backhead check and see if you have about 1/16" to 1/32" vertical play in the lineup fixture. You may have to adjust the length of the glass tube in order to have this play, as you do not want to compress the glass from top or bottom. The glass will need 2 packing nuts, made from 3/8" hex bar. The packing is made from "tea bag strings". Cut this string so that it will make 2 turns around the glass, dope the string up with "Permatex", and tighten the nuts up with fingers only. Use a very thin coat of "Permatex" under the return and the cap nut.

Those glass tubes.....I have broken and made scrap out of several feet of tube trying to get one good sight glass. I finally learned to break the glass about 1/2" longer than needed and used the back of my vertical belt sander to grind the glass to the precise length that I need. The back does not have a platen underneath the belt, so it is much gentler than the front and does not chip the glass so much.

*Charlie will take a brief vacation for an issue or two, and then will be back with the next segment of this series, Building Your Own Cylinders.*

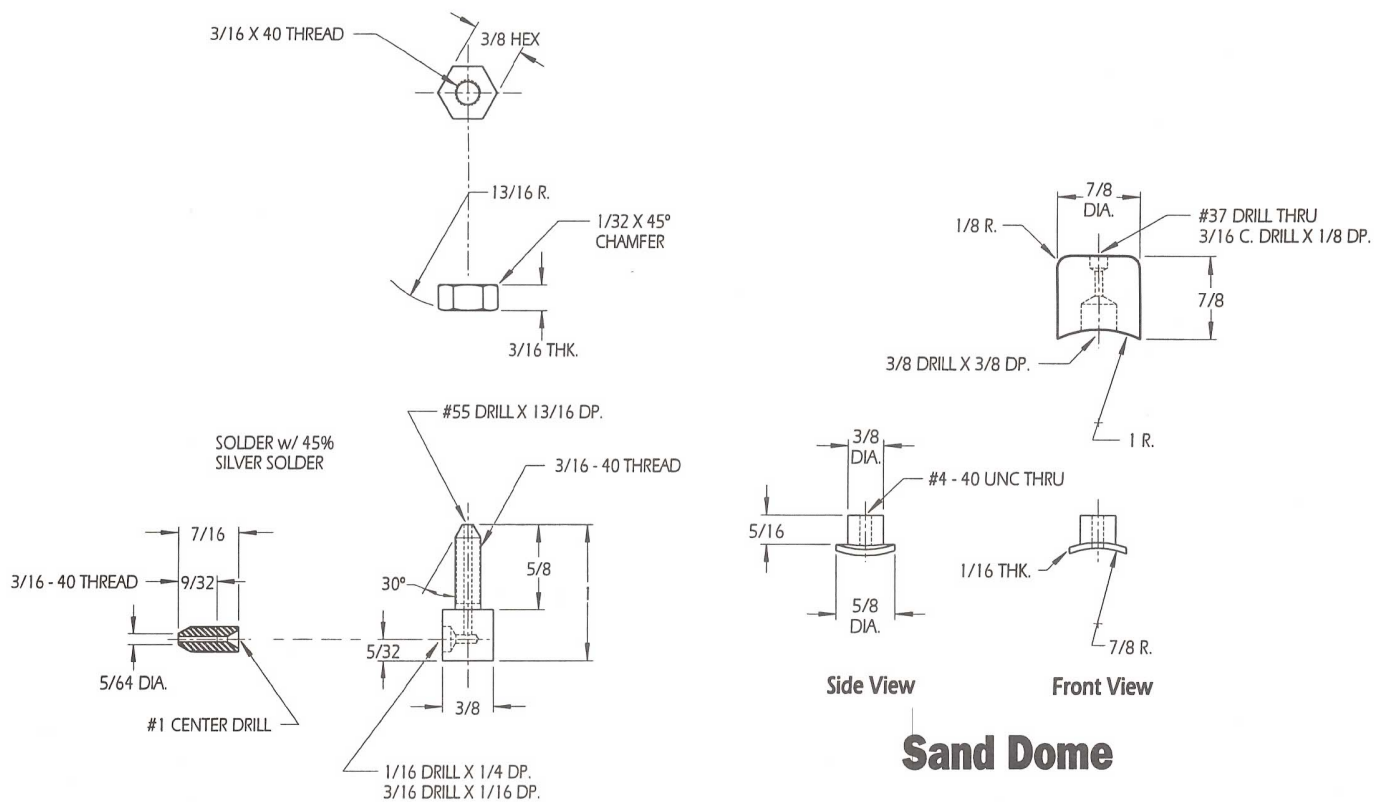


**Jacket**

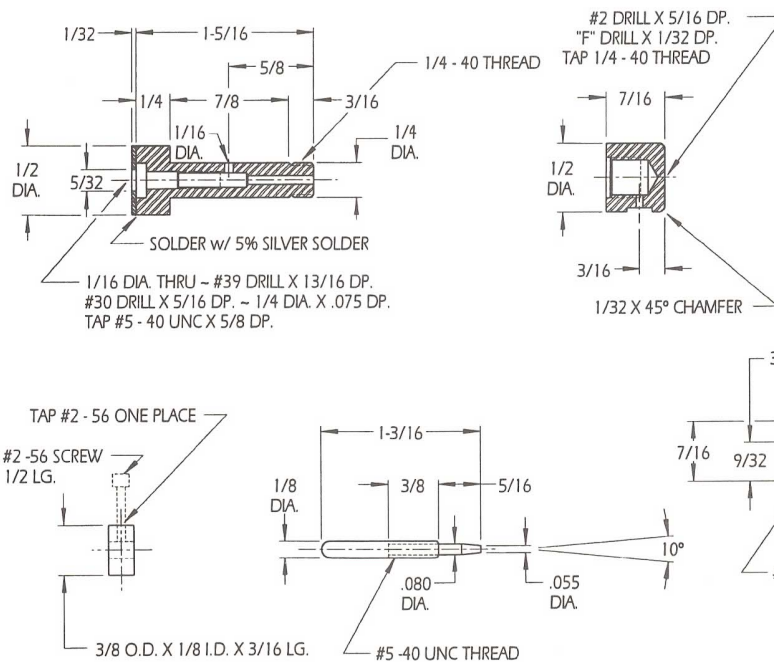


**Boiler Bands**

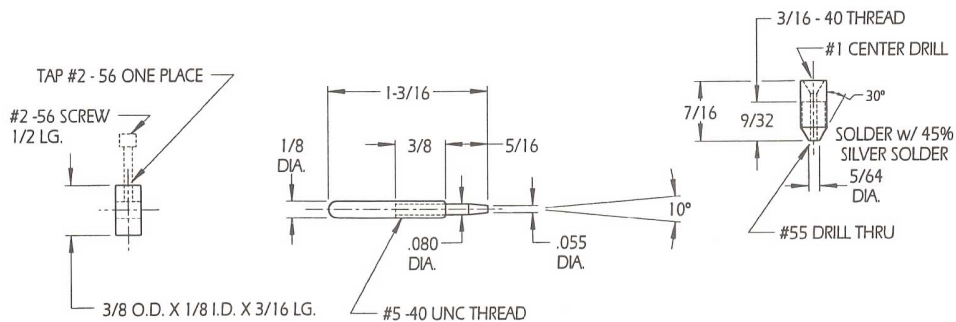




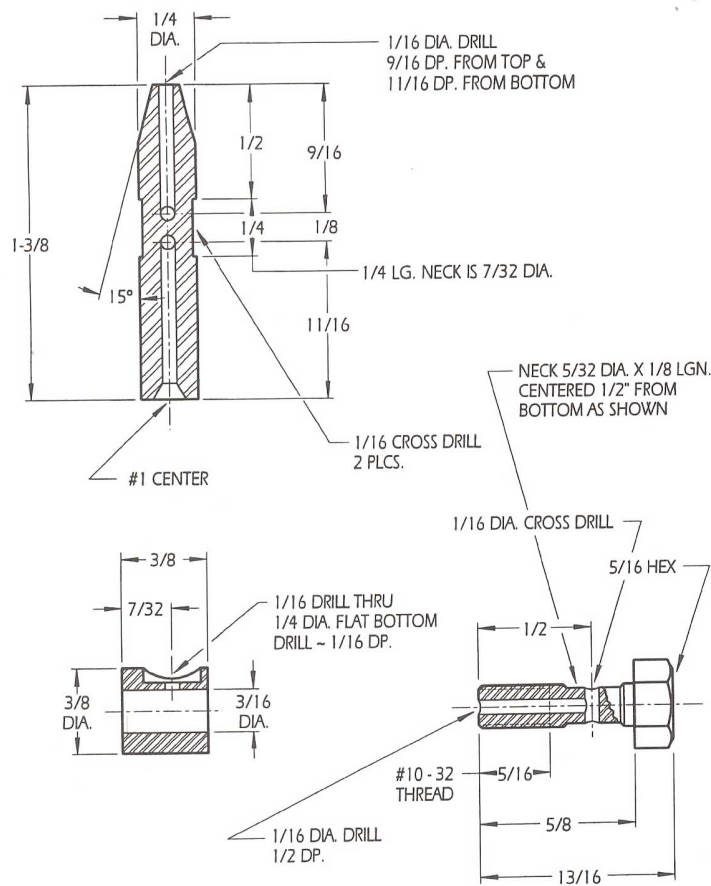
## Super Heater Union w/ Nut



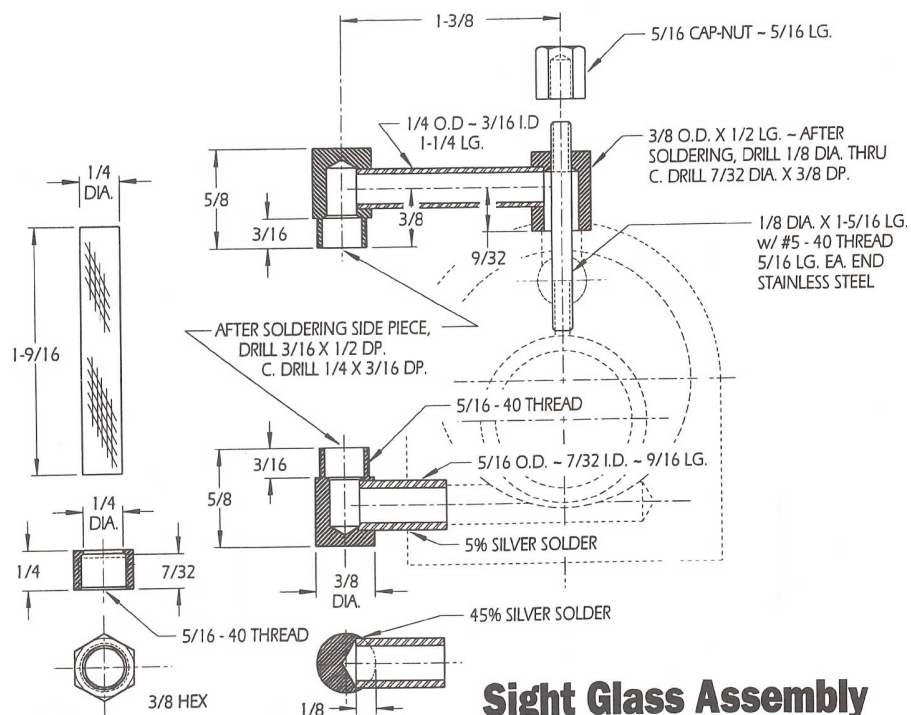
## Throttle Valve







## Safety Valve



## Sight Glass Assembly



# 10th ANNUAL GARDEN RAILWAY CONVENTION DENVER, COLORADO -- 1994

Dear Marie and Ron,

You were sorely missed at the 10th National Garden Railway Convention Steamup. Also, by all accounts, you missed a great time! The elevated gauge 1 track, supplied by J.J. Enterprises, was a whopping 33' x 55'. They also supplied a 20' diameter dual gauge track. The layouts were placed among evergreen trees which created a picturesque setting.

The track was open at various times throughout the convention. We had a lot of steamers as well as spectators. On Sunday morning during the "official" steamup, we had to hand out numbers because it was so crowded. Jim Hadden's beautiful Aster gold mogul and matching scratchbuilt snow plow received spontaneous applause as it chugged around the track. It also received Best 1:22.5 Scale Model from Roundhouse Modelers Group.

John Weiland's little Aster Grasshopper was also a hit. Now that there is a Cricket (Berkeley Locomotive Works) and a Grasshopper, several people were wondering how long it could be before a praying mantis was designed. Imagine the possibilities for a small locomotive with a name like that! Jerry Reshew coupled two Panniers together. He was quite sure offspring were created between the union. Jim and I got to show off the kit-bashing we've been doing to our Aster Americanized Mogul. New burners (dubbed Jimmy Burners), runners, air tanks and a cow catcher (all scratchbuilt) have transformed our 2-6-0 and we're not even finished yet. Mike Bigger brought out the engine he is building to Marc Horovitz's specifications. It is a prototype of a Heywood 15" gauge at 1-1/2 inch scale. Some of the pine boughs were a little too picturesque (read *too low hanging*) for this engine, so he ran it on the smaller track.

The weather cooperated about two-thirds of the time. One day we shut down because of severe storm warnings in the late afternoon and another afternoon it rained. A couple of days the cloud cover kept the heat down, so that was pleasant. In retrospect, I would have rented lights for evening track time but we didn't know how many people to expect. Past convention steamup attendance was not a good indication for this convention; the hobby is growing.

Steam dealers did well at the convention. Unfortunately, they didn't have much time to run engines because they were too busy selling them. I know of four people from our club alone who purchased new engines. We now have seventeen registered members in our DORS steam group. The hobby is growing in number and gender participation, as you well know. At least five women will be bringing their own engines to the Diamondhead Steamup. I'll bet you old timers never woulda thunked, eh!?! If someone had asked me two years ago to predict my future, I certainly wouldn't have included running live steam ..... or chairing a convention steamup. I'm glad I'm doing the former and have done the latter, though. Someone asked me if I would volunteer to chair a steamup convention again. Yup, you bet; with one qualification. I'd want the same hard working volunteers and track supplier, because without their help it wouldn't have happened.

On behalf of the steamup volunteers, Jim and I would like to thank all of the steamers who participated in the steamup and the spectators who enjoyed watching the engines run. You all made four days of running live steam engines a great success (and a lot of fun)! And, to everyone who attended the convention, thanks for being such great guests! You are appreciated by the Denver Garden Railway Society.

Sincerely,



Morgan Jennings  
Steamup Chairperson for the  
10th National  
Garden Railway Convention

Morgan and the outdoor  
steam track at the '94  
Convention in Denver.  
Nice setting!







**TOP PHOTO:** Aster S.P. loco, powered by fire and water (*Look, Ma! No transformer!*), hauls a 9-car freight to the delight of Garden Railway Conventioneers.

*Photos by Morgan Jennings*

**BOTTOM PHOTO:** John Weiland (w/cap and apron) keeps the train moving as Larry Lindsay (just over John's shoulder) answers questions about steam from interested Conventioneers.





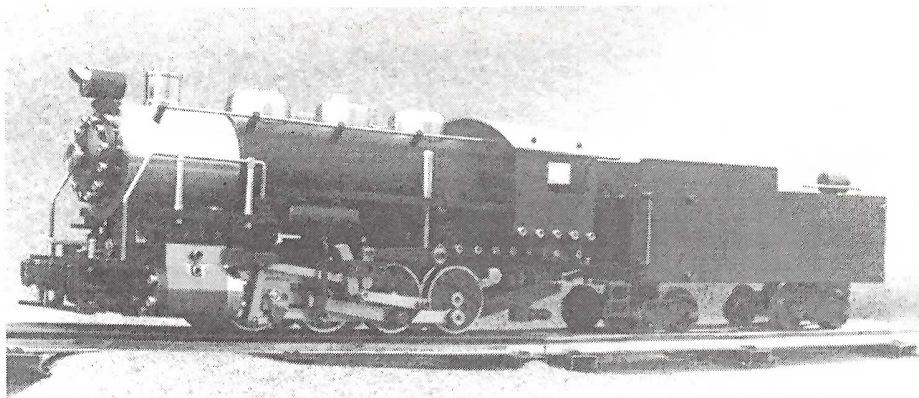
# Live Steam Switcher in "O" Scale

by Charlie Mynhier

## Is live steam practical in the smaller scales?

Description:	0-8-0 Switch engine
Scale:	1:48, 1/4" = 1'
Gauge:	"0" gauge
Length:	17-1/2"
Width:	3"
Height:	3-3/4"
Weight:	7 lb. 2 oz. locomotive, 3 lb. 5 oz. tender
Cylinders:	Aluminum Bronze, 7/16" bore x 5/8" stroke
Valve gear:	Simplified Walschaerts
Boiler:	Copper, centerflue, 35 PSI
Firing:	Propane gas
Lubricator:	Displacement type
Radius:	0-31, (15-1/2" radius)
Couplers:	Lionel

Switch engines were special purpose engines used to make up trains for the big boys to pull to distant locations. These kind of engines were easy to recognize because of their many unique features.



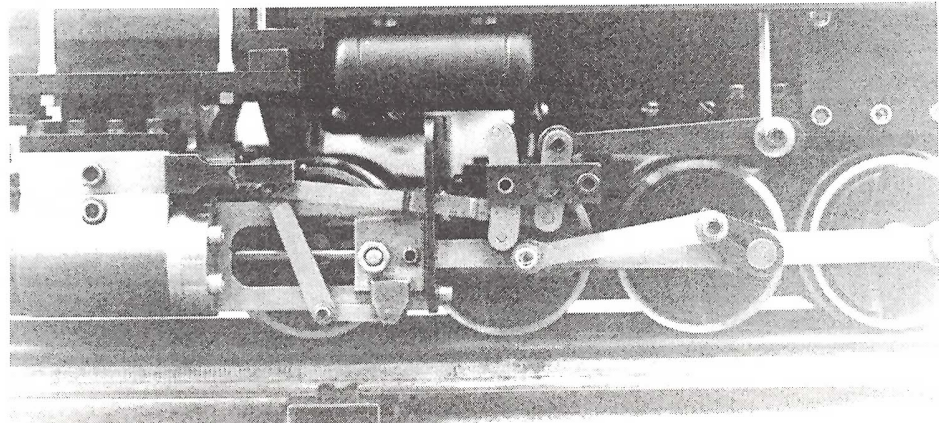
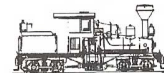
Switch engines never had "cowcatchers" because cows were not seen running loose in the yards where these engines worked. Leading and trailing wheels were not used so that all the weight of the locomotive would be on the driving wheels for added traction. Leading trucks were useful in helping a locomotive negotiate curves at high speeds, as well as support some of the weight of the engine. Switch engines were never operated at high speed so

leading trucks were not needed. The driving wheels were small, giving the engine high torque and low speed, sort of like low gear in your car. These engines had lights front and rear, as they did a lot of backing up as well as going forward. The headlight was generally mounted high on the smoke box where it could do some good while pushing cars around. If the head light were mounted in the center of the smokebox, then all it would do would be to light up the end of the car it was pushing and nothing else. Switch engines were very powerful because they needed to be able to handle the trains that the big mainline engines pulled. The only difference was that they could not go as fast or as far, sort of like going on vacation pulling your camper with a farm tractor.

Heat loss is a severe problem with small scale locomotives, and the smaller they are the worse it gets. In anticipation of this problem, I decided to machine the smokebox and the cylinder valve chest out of one solid piece of stainless steel. This way the hot gases coming out of the flue would lose some of it's heat into the smokebox before going up the chimney, some of this heat would migrate down and out into the cylinders, keeping them hot so the heat in the steam could be used to turn the wheels instead of trying to keep the cylinders hot. As you know, cold cylinders mean water out of the exhaust...and no power. Machining the smokebox integral with the steamchest...well, I did it, and the performance is worth the effort.

This engine is very powerful and it runs better than I expected. It will run for over 30 minutes on one tank of propane. However, due to the small capacity of the boiler, it needs to be pumped up every five minutes or so. This is accomplished through the one-way valve located in the steam dome.

I am very pleased with the sight glass. You can be sure that what you see in the sight glass is what you have in the boiler. A lying sight glass is worse than a lying hound dog.





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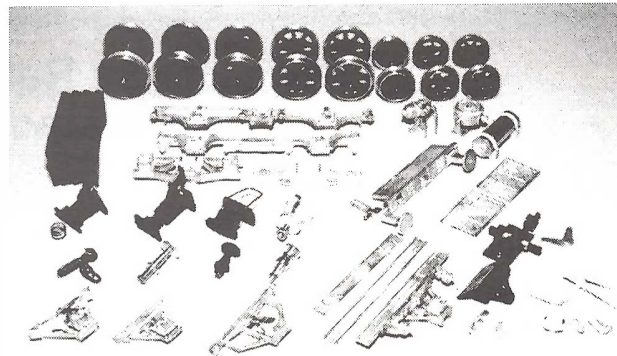
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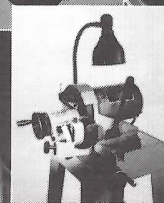
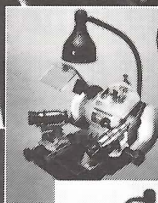
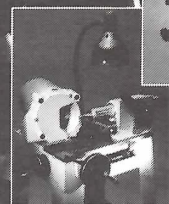
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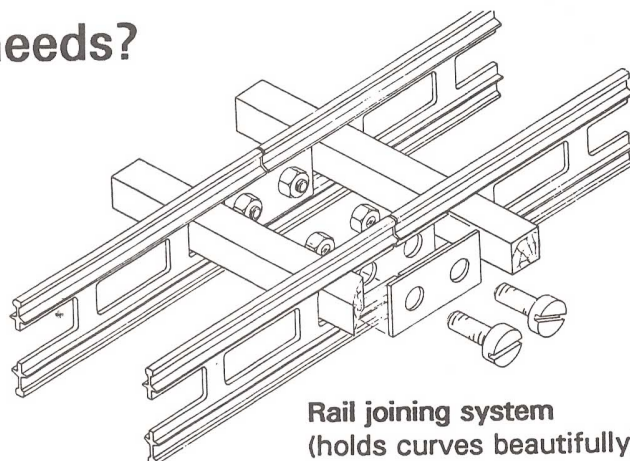
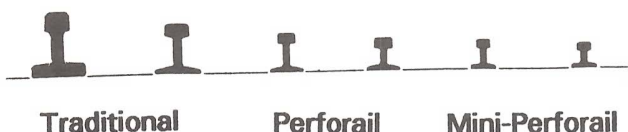
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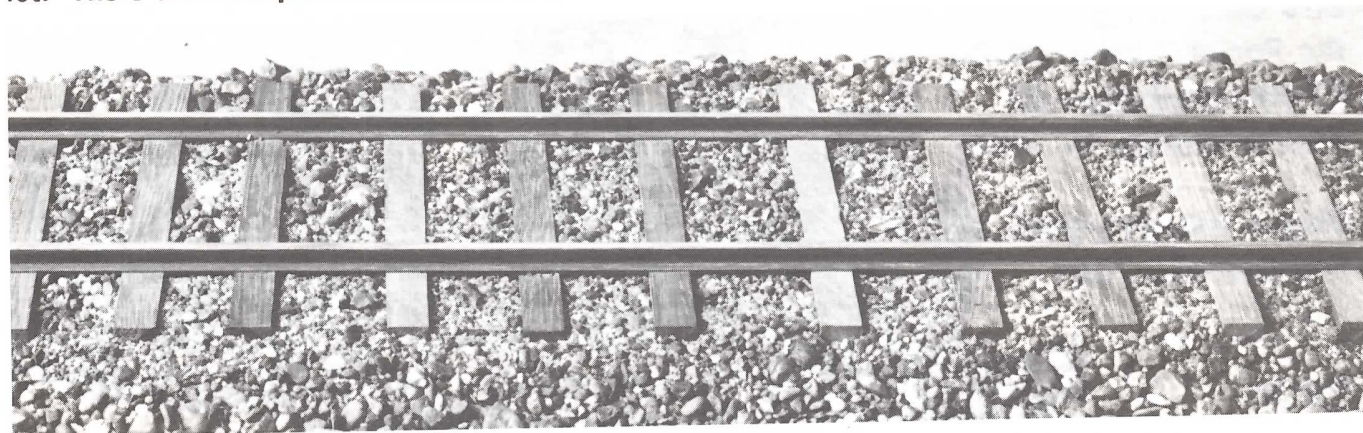
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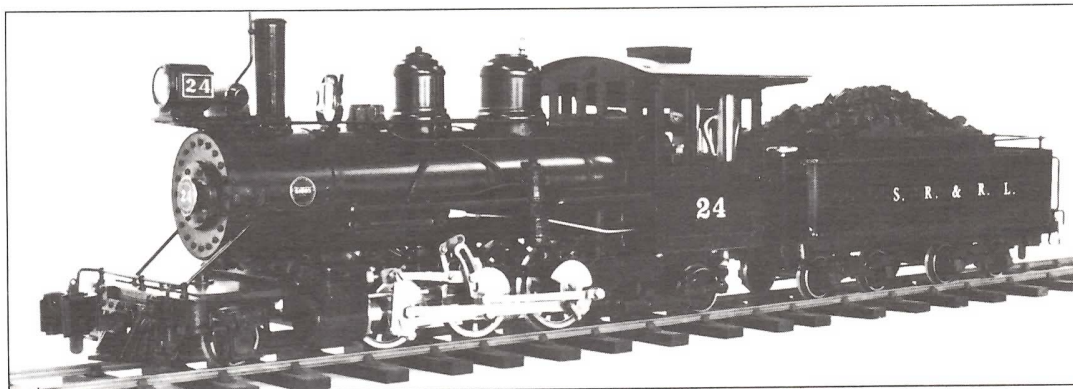
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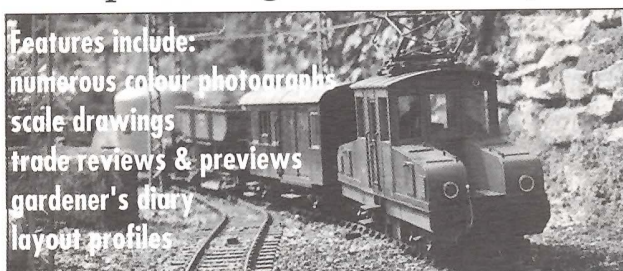
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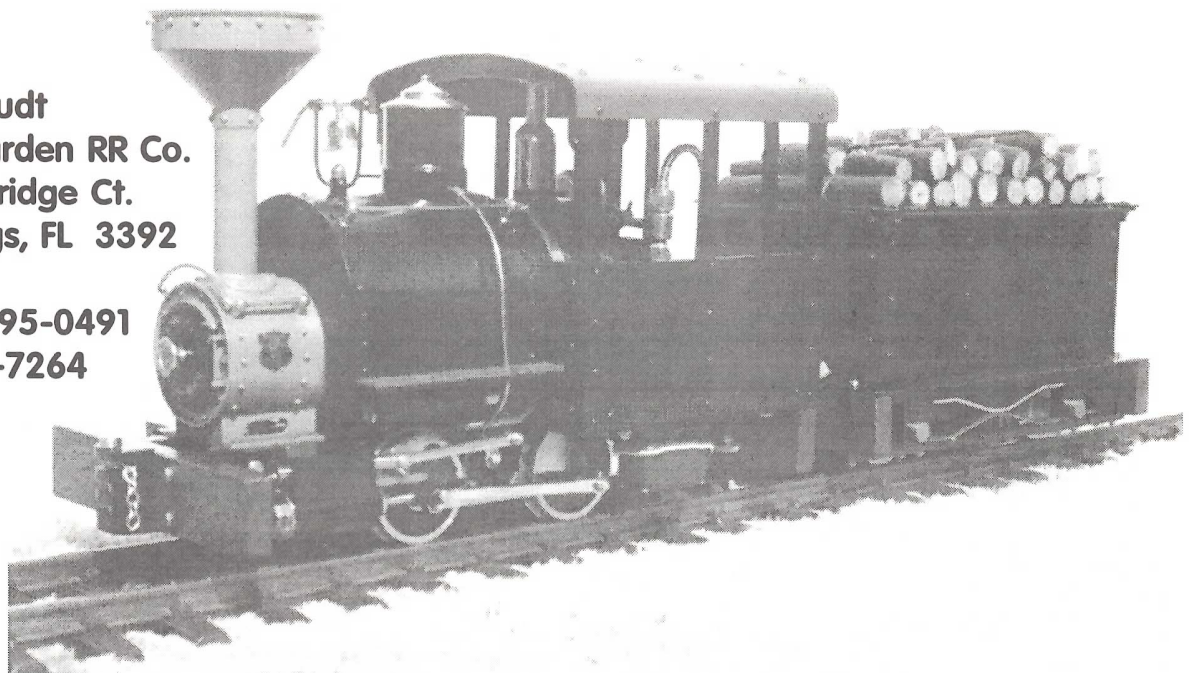
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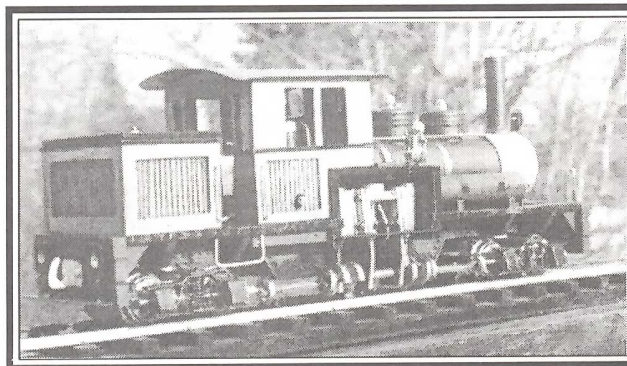
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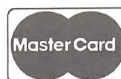
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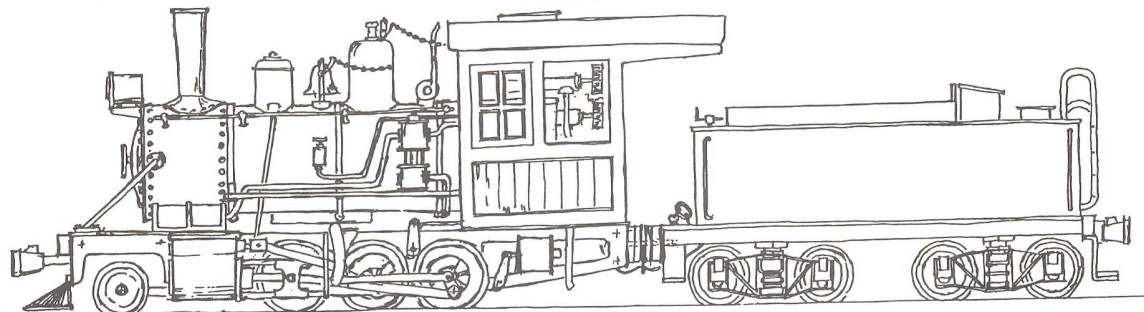
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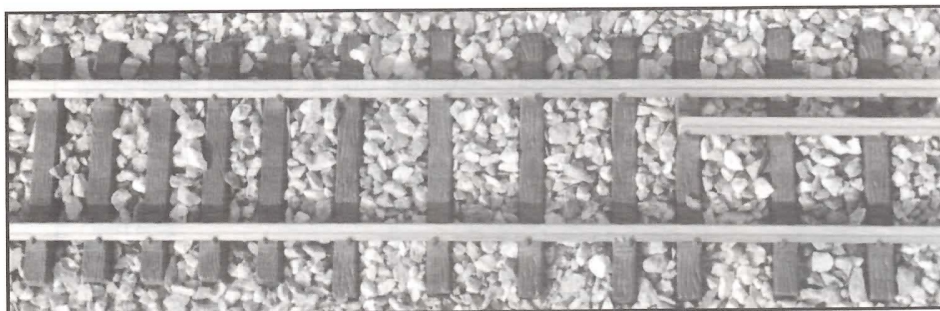
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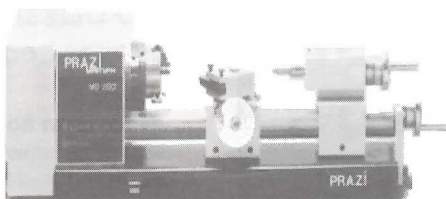
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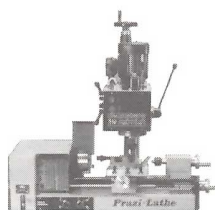
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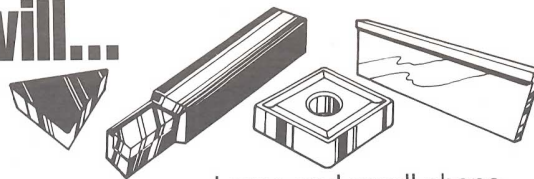
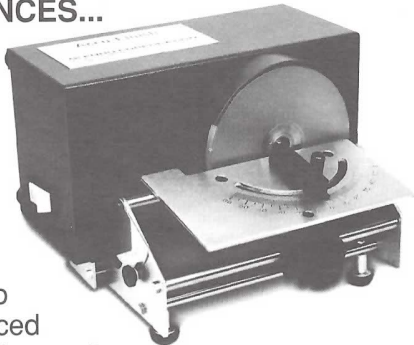
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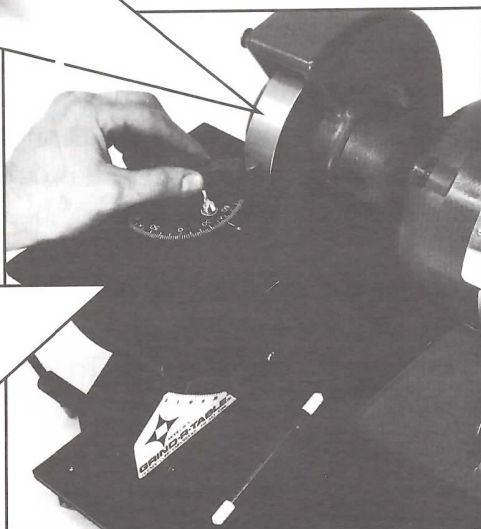


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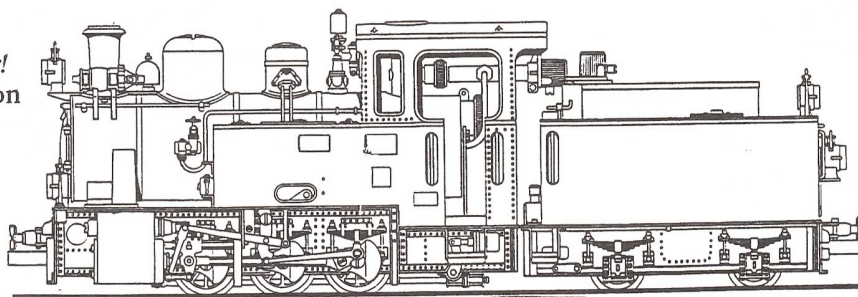
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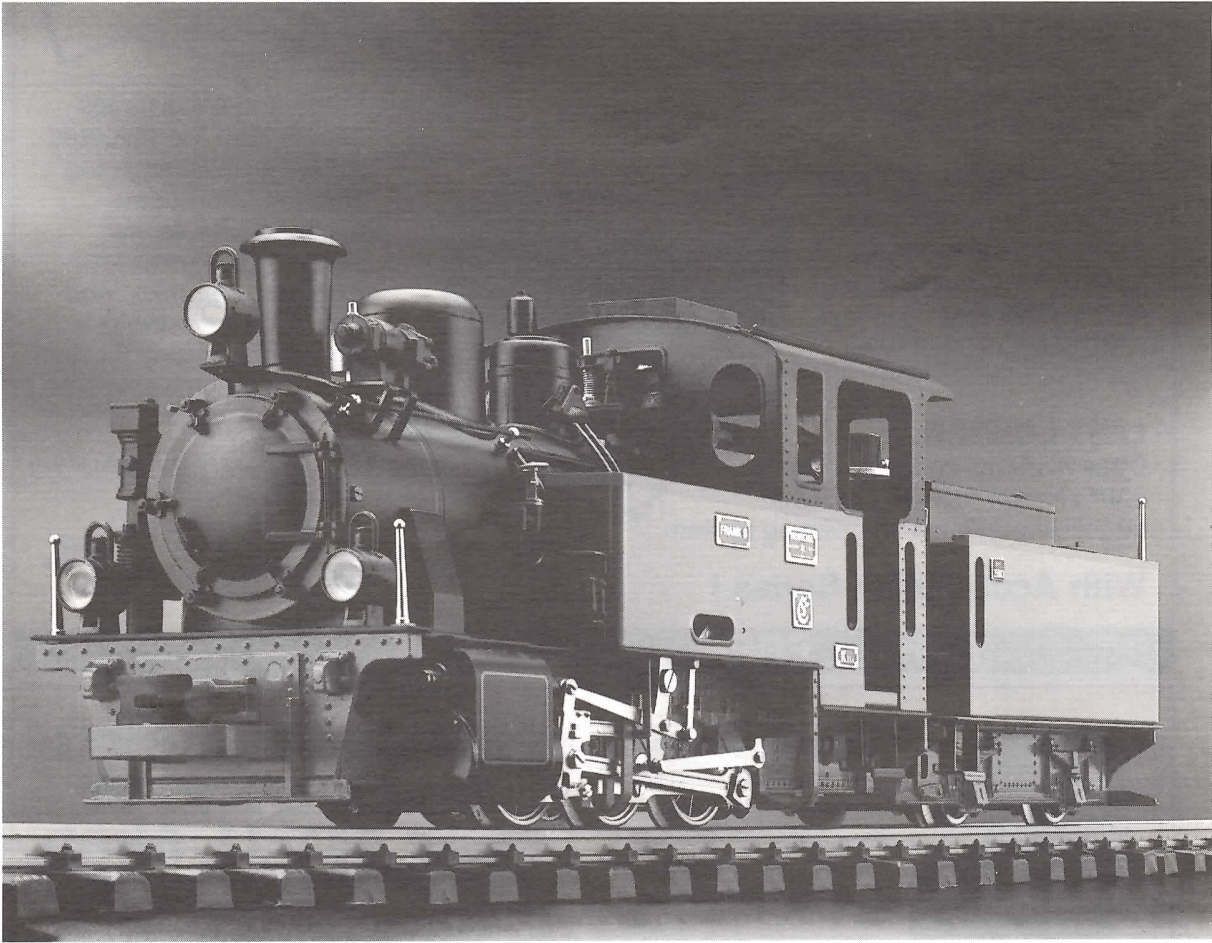
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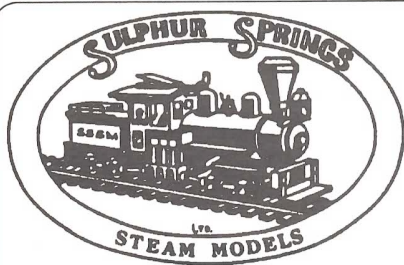
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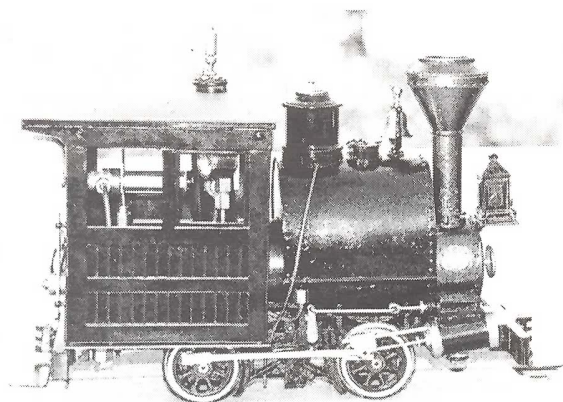
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## SWAP SHOP

**Wanted:** Mamod. Prefer a junker, but any will do. Quote price in letter. Larry Herget, Rt. 2 Box 3118, Osage Beach, MO 65065.

**For Sale:** Steamlines Shay, factory built, R/C with smoke generator. Gauge 1, gas-fired, runs great! Mint condition with custom built steamup stand and wood carrying case. \$1,350 plus shipping. From original owner: Jay Newman, 1148 Park Ave., Alameda CA 94501. Phone (510) 814-4141 weekdays or (510) 522-1987 evenings & weekends.

**For Sale:** (#1) H. K. Porter 0-4-0 Locomotive built on "Little Giant" chassis by Tom Cooper. Has bell, shotgun stack, wood cab, all American pressure gauge, builders plates, extended smokebox, is gas-fired and radio controlled. \$1000 -- photo \$2 (refundable). (#2) ASTER Baldwin Plantation engine -- never been hurt -- runs good if you keep all four wicks lit. \$800. D. M. Conroy, 2592 Cay Cove, Matlacha, Florida 33909 (813) 283-8323.

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**Sell or Trade:** Aster BR86 2-8-2T, black, in excellent condition. Make an offer, or trade for Aster Reno or...??? Contact Richard Finlayson, 215-765-9675.

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**Wanted:** Aster C&S Mogul, used or kit. Live steam only! Aster NY Central Hudson, used. Live steam only! Call Hans Huwyler at 803-576-5566 days, 803-576-9415 evenings.

**For Sale:** (#1) *Steam in the Garden* magazine complete (issues 1-3 in special reprint), \$50.00. (#2) Roger Marsh Ogwen, gauge 0, gas fired pot boiler. Throttle extension, new reverse quad. Excellent runner, but in need of new paint. \$500. (#3) - Mamod in parts. Goodall valve, Sidestreet meths burner. Was planning a new body design. Oh well, \$50. Wayne Slaughter -- 603-673-3143.

*Listings in Swap Shop are offered at no charge as space permits. Send a letter, card or FAX containing your ad, clearly printed or typewritten (no phone-in ads, please!), to SitG, P.O. Box 335, Newark Valley NY 13811. Ads must contain sellers name and address - phone number recommended. Please keep your listings to a reasonable length. Non-commercial listings only, please.*



# Steam Scene.....Along the Rails

The Pennsylvania Live Steamers held their traditional Memorial Day Weekend Steamup this year, and -- in our opinion, at least -- it was about as close to perfect as it could be. PLS is an active group in many scales and gauges, and their site is in a lovely, park-like setting with all the necessities at hand. PLS does not yet have a permanent small-scale track, but members Paul and Harry Quirk have an excellent portable track that they set up in a shaded area.



**TOP PHOTO:** A few of the small-scale live steamers enjoying the weekend activities included (l. to r.) Rudy Kouhoupt, Ed Kabak, Doug Glatz, Harry Quirk, Tom Stocker, Bob Moser, Gordon Guenther and Paul Quirk.

*All photos in this Steam Scene by Harry Quirk*

**BOTTOM PHOTO:** Paul Quirk assists Murray Wilson with his newly acquired Aster Mogul. Paul has the knowledge, skills and experience to make these engines run like a fine watch.

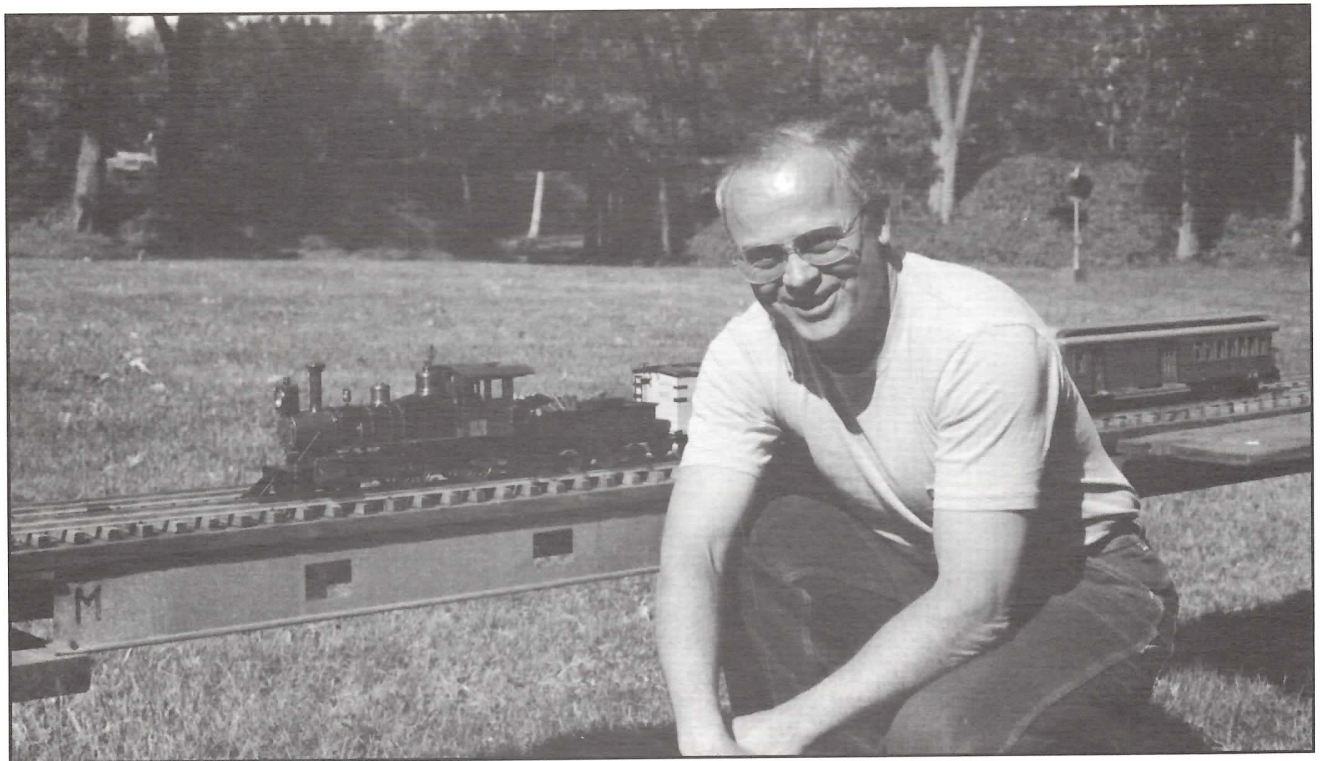






**TOP PHOTO:** Peter Jones came all the way from Wales to enjoy the steamup and to run his self-proclaimed “World’s Fastest Gauge One Loco”. It was all in the spirit of fun and camaraderie, of course, and was a great conversation opener as well. Peter may have set another North American record by meeting and speaking with everyone at the steamup that day!

**BOTTOM PHOTO:** Tom Stocker of Oxford, Pennsylvania is justifiably proud of his scratchbuilt 3/8" scale, alcohol-fired 4-4-0. Tom built this engine from plans in Popular Mechanics. A beautiful engine that runs as good as it looks.

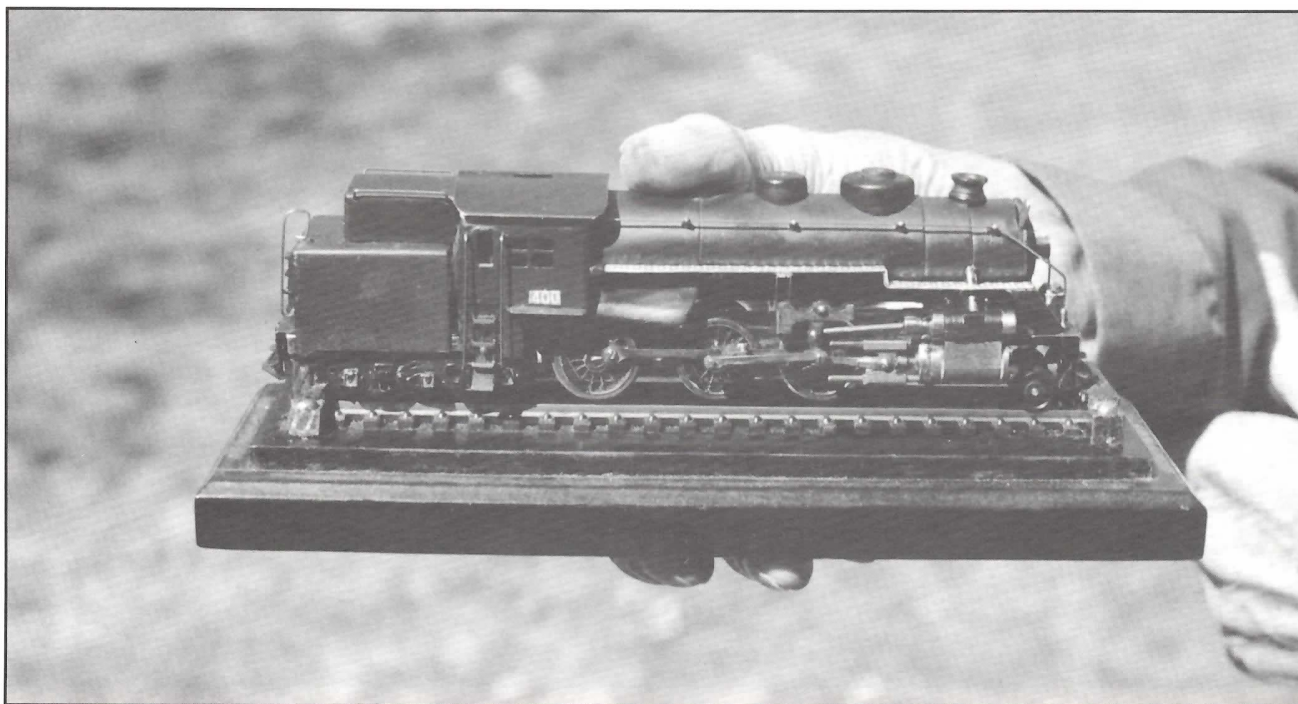






**TOP PHOTO:** Leslie Starr of Schwenksville, Pennsylvania with his scratchbuilt HO scale (!) Boston and Albany #400 live steam loco. This engine is alcohol-fired with an evaporating burner and has oscillating valves and dummy piston valves. A remarkable model -- and it runs, too! Les, who is 82 years old, is a fine modeler, and is currently building an Aster PRR K4 in gauge one, an O scale NY Central loco and a Reading Mother Hubbard in HO.

**BOTTOM PHOTO:** A closer look at a remarkable working steam model in HO scale by Les Starr. It takes 10cc of water to fill the boiler and 5cc to fill the alcohol tank. Run time is 10-15 minutes, and it will haul a lengthy train. Les spent about 2 years of spare time building this engine in his home shop, which is equipped with a 6" Atlas (Sears) lathe, a homemade milling machine and a drill press.





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## END OF THE LINE

### *Happy Holidays to All!*

It's that time of year again, folks. The time when we pause and consider all the things we've been blessed with throughout the past year, and give thanks for each and every one. Family and friends are at the top of our list, and many, if not most, of our friendships developed as a result of our associations with people involved in garden railroading and small-scale live steam. I've said it before, but it bears repeating -- the people involved in this hobby are the finest people on the face of the earth!

It's a shame that our political leaders around the world aren't deeply involved in the hobby -- they would have neither interest nor enthusiasm for wars, power struggles or emptying the pockets of their countrymen. Everyone would read *Steam in the Garden* and we would all gather as kindred spirits at International, National, and local steamups...

But until that happens, we will continue to be grateful for all the things the hobby has

given us on a somewhat smaller scale (no pun intended!). This has been a great year for small-scale live steam, and 1995 could be even better. More steamups -- local, regional, national and international. More new steam locos from established builders around the world, and from new builders on the scene.

From here it looks as though the North American live steam community will continue to be the beneficiaries of a bountiful harvest of new models aimed directly at us. Narrow gauge and standard gauge models in scales from 1:20 to 1:32 are announced and/or rumored. Plenty of excitement ahead!

Faithful Assistant and I extend our sincere thanks to all of you for your continued friendship, and for your enthusiasm and support of our efforts. We look forward to continuing to provide a forum for exchange of information, ideas, sources and sharing the joy of our hobby.

Best wishes & happy steaming,

*Ron*

## 1995 Calendar of Events

**January 13-15, 1995**  
National Gauge 1 Steamup in Diamondhead, Mississippi. This is the BIG event for small-scale live steamers in North America, so don't miss it! Gauge 1 and Gauge 0, 1:32 scale through 1:19 scale, mainline through logging -- a wide variety of steam locomotives in many different sizes and types will be running during this event. The venue will be the same as previous years - the indoor Atrium at the Days Inn in Diamondhead, Mississippi, just a one hour drive from New Orleans. For more information or to register, contact Jerry Reshew, National Gauge One Steamup, 5411 Diamondhead Drive East, Diamond-

head, Mississippi 39525. Phone or fax 601-255-1747.

**January 21, 1995** -- Port Townsend Miniatures Show and Swap Meet, 10AM - 4PM, Fort Worden State Park. Admission, \$4 adults, \$2 children under 12. For more info, contact Larry Mulvey, 118 Harrison St., Port Townsend, WA 98368...phone 206-385-1904.

*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 (ie. ground level or elevated, minimum curve radius, ruling grade, etc.).*

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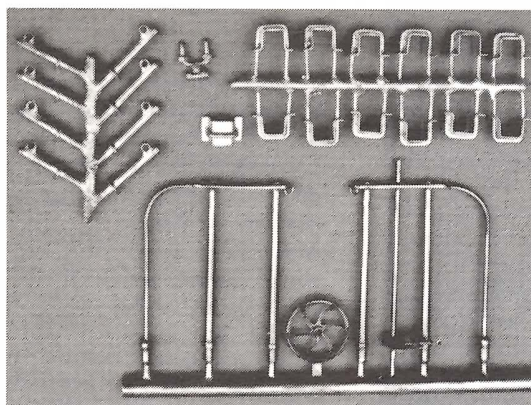
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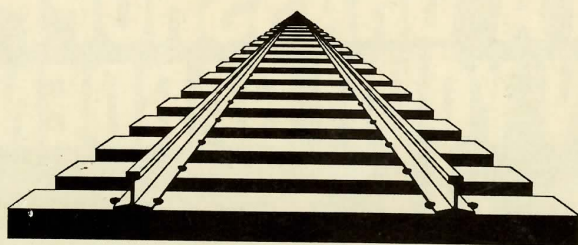
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