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New 'Casey Jones' 4-6-0

Batch production in May 2014

Accepting reservations — Limited to 100 sets worldwide

Our latest is the Illinois Central Railroad's No. 382, a 4-6-0 engine and tender built by Rogers Locomotive in 1898 and immortalized in the song "The Ballad of Casey Jones," in which the titular engineer died saving passenger lives in a railroad accident. This fine-scale model is 1:32-scale, Gauge 1 (45mm), with full-brass construction, a copper boiler and is butane fired. It features adjustable safety valves, a U.K.-imported pressure gauge, a full-emulation power system and axle and hand pumps. It is 23¼-inches long, 3⅞-inches wide and 5⅝-inches tall (590mm by 97mm by 144mm).

BR41 in 1:32 scale

Our first German live-steam model train, the BR41 is a 2-8-2 brass and stainless steel G-gauge locomotive, 29½-inches long, 3⅜-inches wide and 5⅝-inches tall. It's butane fired by a ceramic burner.

This locomotive won the Drawbar Pull Certificate and Trophy at the 2014 International Small Scale Steamup at Diamondhead.



Limited to 50 sets released worldwide



BRITISH A4 in 1:32 scale

Brass and stainless-steel 4-6-2; G-gauge with whistle. 27-inches long, 3½-inches wide, 5-inches tall, 13 pounds. Single-flue, butane-fired boiler, runs more than 60 minutes with automatic water pump.

No. 1 'Falk'

A Gauge 1, 1:20.3-scale, 0-4-0 brass, live-steam model of a locomotive built in San Francisco and used as a Pacific Northwest logging engine. With axial pump, it runs more than 10 minutes. 21½-inch radius. 8¾-inches long, 4¼-inches wide, 6-inches tall (222mm by 109mm by 151mm).



U.S. Porter in 1:20.3 scale

This 0-4-0 loco is simple and easy to operate, yet it is also a fine-scale brass model. 8¼-inches long, 3½-inches wide, 5⅝-inches tall (210mm by 90mm by 137mm). 45mm gauge. 3.6 pounds (1.65 kg).

Limited to 200 sets released worldwide



BRITISH BLACK 5 in 1:32 scale

All brass model of LM&S' 4-6-0; G-gauge with whistle. 24¼-inches long, 3½-inches wide, 4¾-inches tall, 11 pounds. Single-flue, butane-fired boiler, runs more than 60 minutes with automatic water feed.



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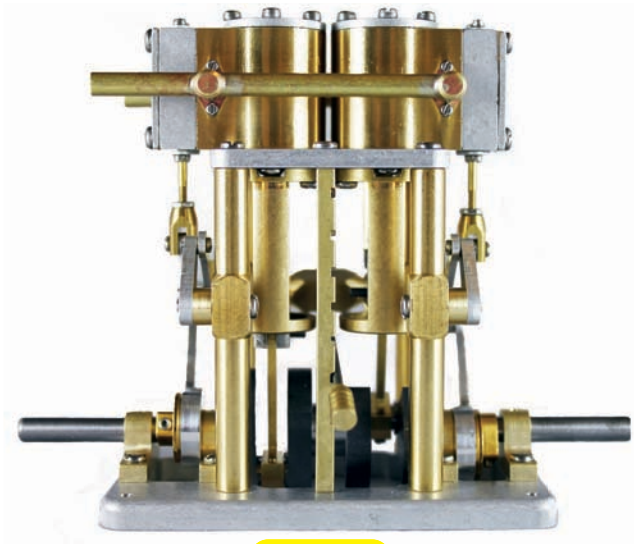
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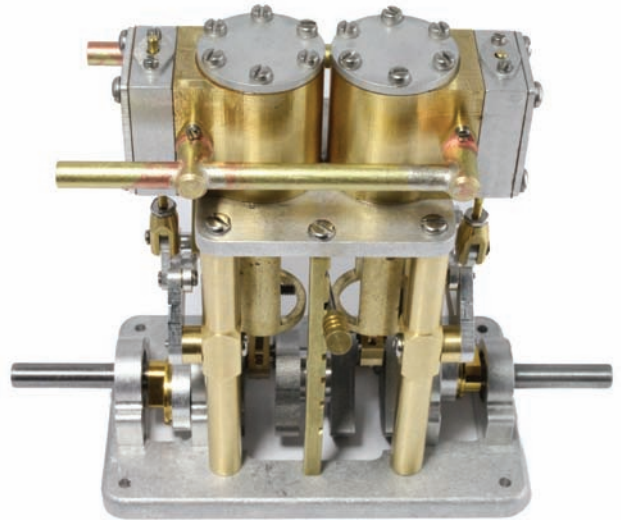
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 Dimensions: Same as TVR1A
 Weight: 323 g

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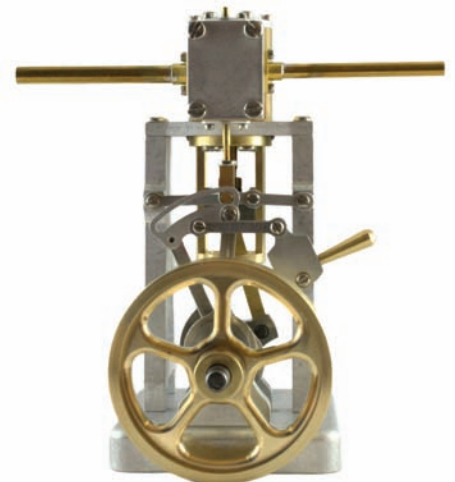
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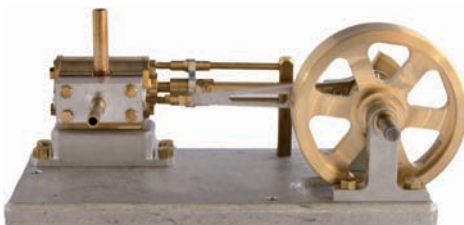


BFLY2: \$30
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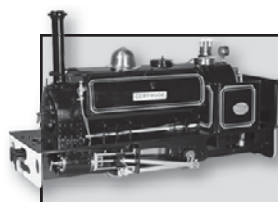
Vol. 24, No. 3; Issue No. 133; May/June 2014

STEAM^{IN}THE GARDEN

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

8

Latest Waybill: Three new locomotives from three makers. Accucraft, Regner and Wuhu Brand offerings.



Accucraft Quarry Hunslet.

Despite a manufacturing error, loco is impressive. **By Jeff Young.**

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Origami. Making paper diaphragms for 1:32-scale heavyweight passenger car vestibules. **By Simon Duhamel.**

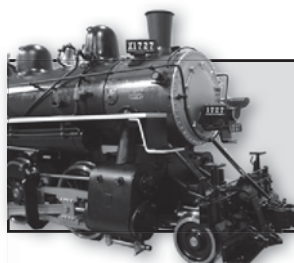
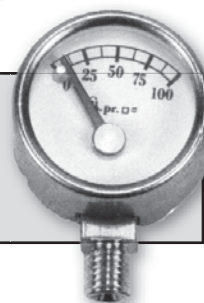


Steam on the Bayou. 21st International Small Scale Steamup in Diamondhead, Miss., included driving a real locomotive. **By Scott E. McDonald.**

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Pressure — a new gauge for 'Dora'. And making the banjo bolt. **By Marc Horovitz.**



Accucraft's S.P. M-6. New Mogul ran trouble-free right out of the box. **By Alan Redeker.**

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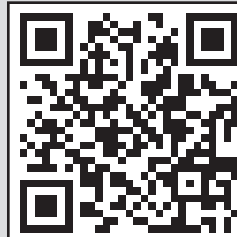
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Inside

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Timetable 43

On the cover: Steamers at Diamondhead 2014 visited the restored Southern Pacific No. 745 in Jefferson, La., and had the chance to move the engine a few feet on its track. Photo by Rick Parker.



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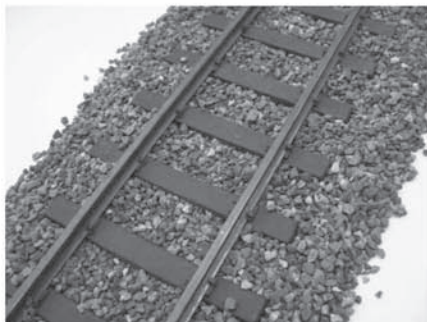


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TO ME PURR

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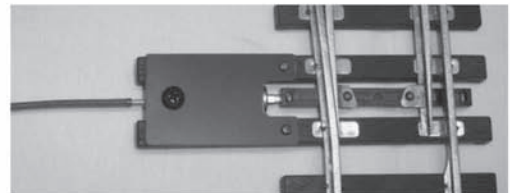


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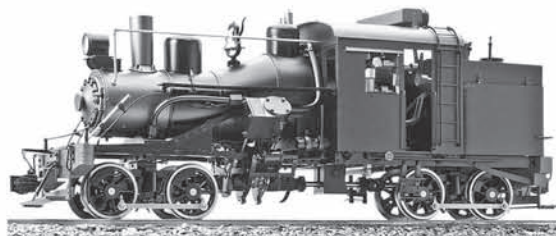
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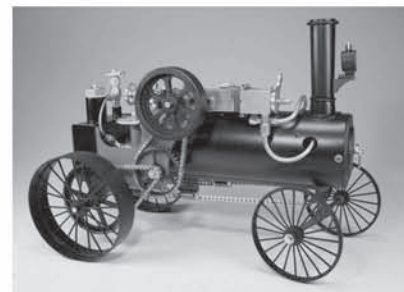
New Release



Regner Georg - Kit



Accucraft Heisler WSL #3



Regner Fredrich - Kit

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LATEST WAYBILL

New locos from three makers

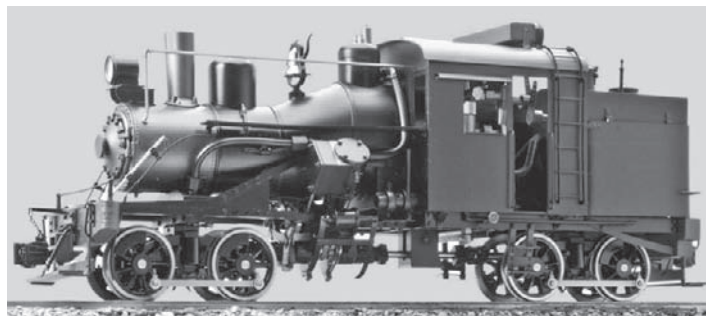
Three new locomotives — two of them “No. 3” — were recently announced by three leading small-scale live steam manufacturers.

Accucraft Co. of Union City, Calif., said in February that it would deliver a Heisler geared locomotive based on the West Side Lumber No. 3 later this year. Heisler was the third-most popular geared locomotive during their heyday, following Shays and Climaxes.

Heislars had two steam cylinders arranged in a V-shape on the sides and underneath the boiler, with two or three trucks driven by a crank shaft. The prototype for Accucraft’s model was used from its construction in 1900 until 1962 in lumbering in the Sierra Nevadas. Interestingly, it was converted to standard gauge from 1947-1962, but was regauged back to three-foot and is now preserved and operational at Roaring Camp & Big Trees Narrow Gauge Railroad, just outside of Santa Cruz, Calif.

The 1:20.3-scale, 45mm-gauge locomotive, done in brass and stainless steel, will be butane fired, have a 60 psi center-flue boiler and include a pressure gauge, water sight glass, lubricator and hand-water pump. Accucraft says the suggested list price is \$3150.

Regner Steam & Railway Technology of Aurach,



Two No. 3s:

Accucraft will soon deliver a Heisler (top), while Regner’s latest kit is a cog-wheel engine (bottom).



Germany, said in January it would offer a model of Achensee Steam Cog Railway locomotives based on a railway near Innsbruck, Austria, that was developed in the late 1880s. The locomotives are designated Bzn2t (a coupled axis with cog wheel, steam engine with tender and two cylinders).

The Achensee railroad is 6.78km long (roughly 4¼ miles) and takes passengers from the village of Jenbach to the southeast corner of Lake Achen, where there’s a combined rail and boat station. The railway continues to operate, serving about 100,000 passengers a year, according to its web site.

The 1:22.5-scale locomotive — a two-cylinder engine, with 14mm bore (9/16-inches) and 20mm

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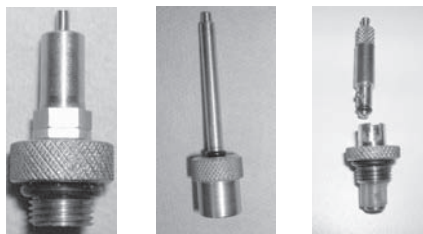
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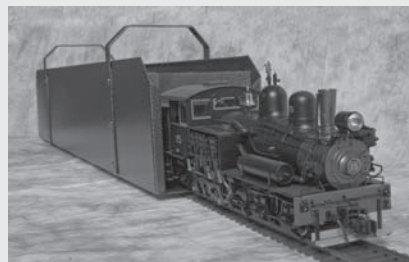


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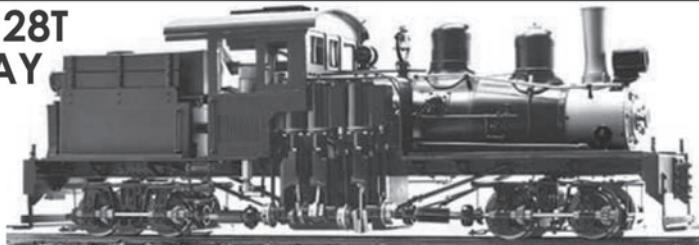
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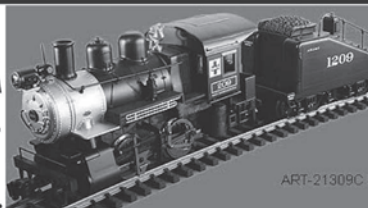
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Rogers' 4-6-0: Locomotive made famous by Engineer John Luther 'Casey' Jones is next up for Wuhu Brand Arts & Crafts Co. Ltd.

stroke (13/16-inches) and a center-tube boiler — will be offered as a kit only and will operate on 45mm track. The kit, named "Georg" after one of the four prototype engines, will come with four different original nameplates and lettering schemes, including "Theodor," "Hermann" and "Carl." The engine is expected to retail for €2089 (\$US2870).

Wuhu Brand Arts & Crafts Co. Ltd. of China and its U.S. representative, Stoke 'm and Smoke 'm of Mount Airy, Md., said in January it would soon offer a limited-run, U.S. profile, 1:32-scale, live steam locomotive, the Illinois Central's No. 382. This is the engine memorialized by the legend of engineer Casey Jones, who

died at the throttle attempting to save passenger lives in an April 30, 1900, accident near Canton, Miss. Jones and his actions were made famous by a folk song.

The model of the 1898 Rogers' 4-6-0 engine will be of fully brass construction, butane fired, have a center flue burner, full Stephenson's valve gear with a reverse quadrant operating a prototypical Johnson bar and an operating whistle. The safety valves will be adjustable and truly "pop" at 61-62 psi, Wuhu said, and the pressure gauge will be imported from the United Kingdom. The locomotive will have an axle pump with a bypass valve and a tender hand pump with a check valve. Suggested retail price will

be \$2495.

Accucraft is on the Web at <http://www.accucraft.com/> or (510) 324-3399, while Regner's U.S. representative, The Train Department, is at <http://www.thetraindepartment.com/> or (732) 770-9625 and Wuhu's dealer, Stoke 'm and Smoke 'm, is at falconbob1@netzero.com or (301) 467-3348.



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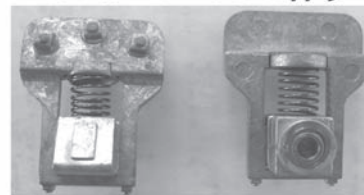
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Despite a manufacturing error (quickly fixed),
Accucraft's new 1:13.7-scale quarry loco is impressive

HUNSLET

Text and photos by Jeff Young

Until recently, those folks modeling in 7/8ths-to-the-foot scale (1:13.7) who wanted a live-steam locomotive were required to kit bash a smaller scale engine. After much anticipation, Accucraft UK decided to take the plunge into this growing scale and offer a British prototype 7/8ths-scale live steamer. The company's choice for a first locomotive in the scale could not have been better, namely a saddle tank 0-4-0 "large quarry class" Hunslet.

These tiny locomotives, first built by Hunslet Engine Co. of Leeds in the 1870s, were supplied in a number of different configurations and were quickly adopted by the slate quarries of Northern Wales. Dozens of the locomotives worked the Penrhyn and Dinorwic quarries hauling slate and waste rock on the rough track in the galleries. The bulk of the locomotives were supplied at the turn of the last century and most remained in service until the quarries shut down in the 1960s.

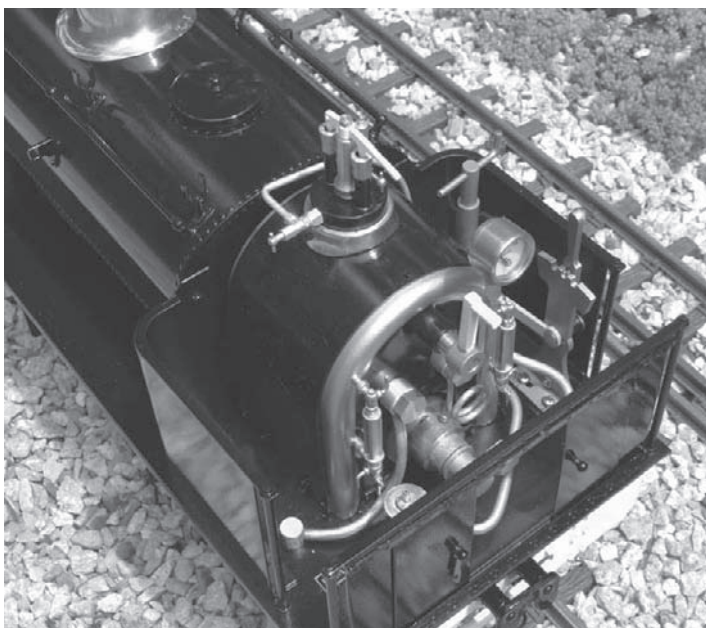
A large number of these were preserved, with a good number of them coming to North America.



Quarry Hunslet: Accucraft's 1:13.7-scale Quarry Hunslet (above, as delivered) is based on the 'large quarry' class such as 'Hugh Napier.'

Few, if any, ran on this side of the Atlantic and recently a number have been repatriated to the United Kingdom for restoration.

In Toronto, where we live, the large quarry class locomotive "Gertrude," used at the Penrhyn Quarry, is on display at the Ontario Science Centre (unfortunately sectioned to show off the inner workings of a steam locomotive). It is interesting to note that the



Model, prototype: Left, the back head and controls for the Accucraft Hunslet. Top, Andrew Foulds and Jo Chulow, the engineers responsible for the 'Hugh Napier' rebuild. Top photo by Chris Parry, courtesy Ffestiniog Railway Co.

Hunslet Engine Co. exists in renewed form today and a brand new, full-size quarry Hunslet can be built to order if you so desire.

Dawn Brightwell and I were fortunate enough to get a chance to run the pre-production model of the quarry Hunslet at the International Small Scale Steamup in Diamondhead, Miss., in January 2013, and were favorably impressed. Accucraft offered the locomotive in maroon and black versions and an order for a black one was placed soon afterwards.

After a number of months our model arrived, packed in the usual bullet-proof method that Accucraft is well known for. The level of detail on the locomotive is impressive with dummy cylinder lubricators, oil lines and sight glasses, working rear cab sheet doors and a Ramsbottom-type safety valve (which hides the real one).

We placed the locomotive on rollers and applied 60 psi of compressed air to test out the locomotive. Listening to the exhaust, it became apparent that air was leaking past the piston on each stroke.

A few emails to other Quarry Hunslet owners in the United Kingdom

confirmed our suspicions regarding the problem. The locomotive cylinders were drilled for addition of cylinder drain cocks from DJB Engineering. The holes (supplied with plugs) were of such large diameter and placed so far inboard of the cylinder ends that blow by occurred each time the piston slid past.

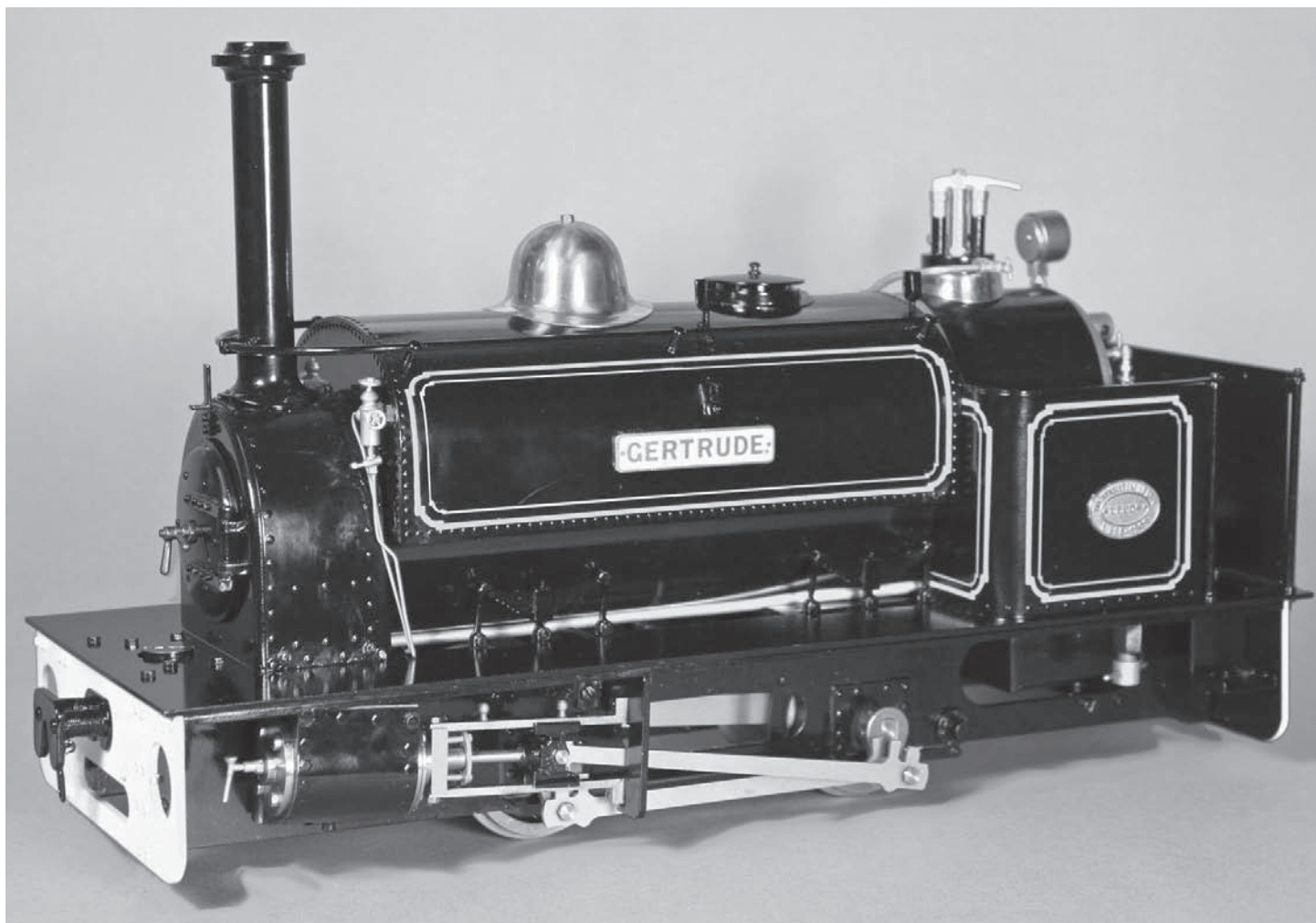
The end result is that the engine was robbed of power on each power stroke of the piston. Accucraft quickly acknowledged the problem and a number of fixes were developed. It is my understanding that

Accucraft UK did one of two modifications for United Kingdom owners. These were either a thicker piston or a smaller crank. In the former case, the thicker piston prevented the steam from passing around the piston as it traveled over the drain hole. In the later case, the stroke of the piston is reduced such that the piston does not pass fully over the drain-cock hole.

In North America, Accucraft Co. took a different approach, offering to replace the cylinders with ones that did not have holes for the cylinder drain cocks. This could be done by Accucraft in Union City, Calif., an authorized agent or by

Accucraft UK's Quarry Hunslet

- **Loco type:** Based on 0-4-0 narrow-gauge "large quarry" class locomotives built by Hunslet of Leeds, England. Typical cylinders: 7½-inch diameter, 10-inch stroke. Typical drive wheels: 20¼-inches. Working boiler pressure: 140 psi. Typical tractive effort: 2953 pounds. Typical weight: 7½ tons. Typical length: 13¾ feet.
- **Scale:** 1:13.7, 45mm or 32mm gauge.
- **Length:** 12⅝ inches (320mm).
- **Height:** Seven inches (180mm).
- **Width:** 4¾ inches (120mm).
- **Weight:** Eight pounds.
- **Boiler:** Single center flue, 60 psi.
- **Fuel:** Butane.
- **Min. radius:** 30 inches (specified as 760mm).
- **Valve gear:** Simulated Stephenson's link.
- **Reversing gear:** Piston type, reverse by lever in the cab.
- **Fittings:** Safety valve, pressure gauge, water-level check valve, steam regulator, gas regulator, reverse lever, dead-leg lubricator.)
- **MSRP:** \$1360 (available in red or black livery).



'Gertrude': Dawn Brightwell and the author customized their Hunslet to match one in a Toronto museum.

the owner. In the case of ours, the modification was undertaken by Jason Kovac of The Train Department of Hazlet, N.J.

Another live-steam enthusiast in our area had a quarry Hunslet and received the replacement cylinders from Accucraft and I offered to undertake the replacement. The instructions provided were comprehensive and the procedure was straight forward, although I was quite surprised at the level of disassembly required to actually get at the cylinders.

Upon reassembly, I noticed that the timing was slightly off on the left side. All that was required was a little tweaking with the cylinder valve spindle to set it at the proper setting. (There is a witness groove on the piston valve to assist with this.) A later test indicated that the locomotive was properly tuned (ticking over nicely on 10 psi) and more importantly, no blow by. A heartfelt thank you to Bing Cheng and Cliff Luscher at Accucraft Co. for attending to this solution.

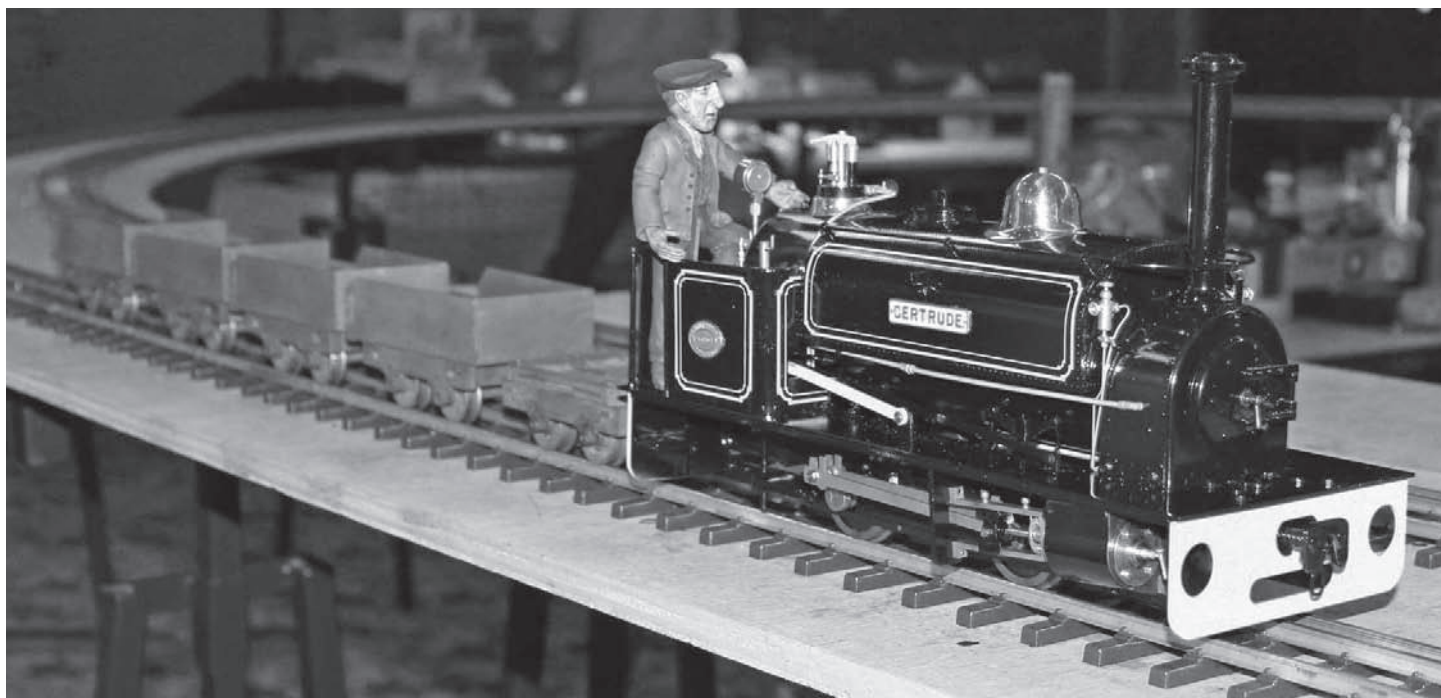
While watching other quarry Hunslets run, I noticed their somewhat impressive ability to shoot a stream of hot, oily water high into the air when first starting out! On examination, the exhaust pipe came right to the top of the stack. To solve the problem

satisfactorily, we applied a solution recommended by fellow owners by cutting off the top two inches of the exhaust pipe.

As the model chosen by Accucraft UK was the large quarry Hunslet, the class to which "Gertrude" belongs — and since we live in the Toronto area — Dawn and I made the decision early on that our Quarry Hunslet would be modified as much as possible to accurately resemble this locomotive.

We trucked off to the Science Centre one Saturday with camera, notebook and tape measure in hand. We measured the name and builder's plates, along with the locomotive's ornate Penrhyn lining. While we were awaiting the replacement cylinders from Accucraft, the locomotive's saddle tank and cab sheets were sent off to Geoff Munday at Lightlines of West Yorkshire, England, to be lined. (This work was arranged through The Train Department.) As well, we ordered etched brass name and builder's plates from Diane Shawe at MDC Plates (also in England). Further, replacement fine-control gas and throttle valves from The Train Department were added.

As an aside, it is interesting to note what a huge impact the first British 7/8ths live-steam loco-



Diamondhead run: 'Gertrude' with a crew and consist at the International Small Scale Steamup in January.

tive has had on the modeling community. A whole after market industry has sprung up to support the quarry Hunslet. We obtained a set of specific crew figures for the locomotive, designed by Rob Bennett and cast in resin by Si Harrison at Model Earth Designs. We also obtained a set of brass firing irons from Locoworks in the United Kingdom. David Bailey Designs produced a wonderful etched brass and wood kit for a Penrhyn rubbish (waste slate) wagon. As a result "Gertrude" has a delightful train of a runner wagon (used to carry coupling hooks and re-railers) and four waste wagons, typical of her working life at Penrhyn.

We took delivery of our re-cylindere and lined quarry Hunslet at Diamondhead in January 2014. For her first run, she was serviced in the usual manner for Accucraft locomotives. Firstly, the lubricator (which is accessed via a plug on the deck at the front of the locomotive) was filled with steam oil. The boiler-filling plug is located under the saddle-tank water hatch. The hatch has an incredibly fine thread on it, making it a pain to unscrew each time you want to access the boiler for filling. I suspect that at some point I will chuck the hatch in the lathe and trim off the threads to make life easier.

Next, the boiler was filled with water until it flowed out the overflow. Finally, butane gas was added to the gas tank. Note that the filler valve is located on the cab floor and therefore a long-neck valve stem is required. The smoke box door was opened and the fire lit. It seems that the burner howl which is characteristic of some Accucraft locomotives is not as big an issue with the quarry Hunslet.

Nevertheless, we will likely add some stainless mesh to the burner at some point just to be sure.

The pressure gauge reached 50 psi in about 10 minutes. (The safety is set for 60 psi.) With a bit of back-and-forth movement, she cleared the condensate from the cylinders and trundled off at a sedate speed — most impressive for a locomotive's first time in steam. We cut the gas back to maintain 25 psi and got about a 22-minute run out of her. Later in the month, during the course of the week at the Diamondhead steamup (see Pages 21-26), both Dawn and I ran "Gertrude" a number of times with her train of a runner wagon and four heavy rubbish wagons. Both the duration of the run and her ability to run slowly increased as things bedded in.

One thing we noticed was the amount of steam oil consumed from the dead-leg lubricator during a run. Gut feel is that it seems a little excessive. Others have undertaken fixes to this (a wire in the lubricator line to restrict the flow being the most practical solution).

Given that our garden railway is still under a foot of snow as I write this, we have not had the opportunity to run her on "home rails" nor test her haulage capacity since returning from Mississippi. We anxiously await the day the snow finally melts and we can enjoy running "Gertrude" again.

In summary, despite the initial issue with cylinder drain hole problems and blow by, we were favorably impressed with her. All in all, Accucraft's first venture into 7/8ths-scale English locomotives seems to have been well received, as an additional English locomotive in that scale is currently under development (a Kerr Stuart/Bagnall design).

Making paper diaphragms for 1:32-scale heavyweight cars can be frustrating or it can be a relaxing session of

ORIGAMI

Text and photos by Simon Duhamel

I had made some working passenger-car diaphragms — the bellows that allow safe passage between the vestibules of coupled cars — for my HO French railway cars back in the 1980s and they were influenced by some neat paper diaphragms I had bought at a good hobby shop in Paris as a teen.

The hobby-store diaphragms were sort of a stunt, as they had about 10 or 12 small folds and they were tedious to do. But they performed very well for many years, until I moved to the country where my Gauge One line was installed and sold all of my HO equipment. Ever since, I felt that folding diaphragms in paper was a going proposition, even in Gauge One.

Although tempted by the idea of using a thicker material than paper to accommodate the enlargement from 1:87 scale to 1:32, I finally settled on paper, fearing that it might end up tearing at the folds because the thicker material would be less flexible.

Luckily, while shopping for my design work in an arts supply store, I discovered that Kraft paper was sold in many colors for display purposes. Scrounging around I found a nice anthracite grey Kraft paper that seemed to be exactly what I was looking for and ideal for making paper diaphragms.

When I decided to model U.S. prototypes, I was happy to observe that U.S.-type diaphragms are quite different than the continental ones I was used to, since the cars were closed coupled, reducing the buffer-induced gap between cars found on European rolling stock. Furthermore I observed that the face plate actually played the role of central buffers on American cars.

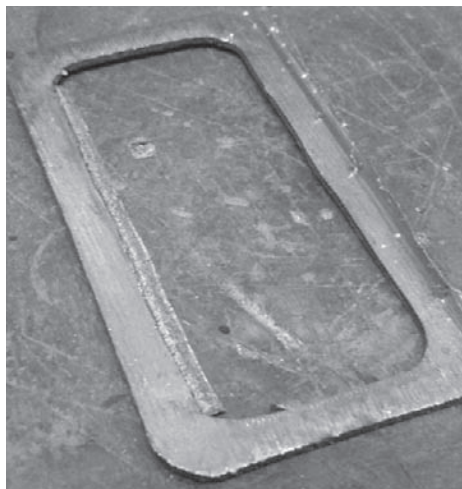
Cut out of thick (around one-inch) armor plate, with the buffers centrally located under the gangway



Finished diaphragm: *Model of a Pennsylvania Railroad heavyweight with its paper bellows.*

and a large leaf spring over the bellows proper, these plates are so heavy that they require two huge diagonal trusses to hold them up and prevent the bellows' collapse. They also are free to slide from side to side when a train wiggles through the switches of a yard throat or a major terminal.

These are major differences from continental practice, where the face plates of the diaphragms are quite light and are fixed and locked to each other when two cars are coupled. All these fine points of



Photos 1 and 2: Left, a prototypical passenger diaphragm (photo by H. Michael Miley, via Wikipedia). Right, one of the slices of cold-drawn tube, fresh from the mechanical hack saw (needs to be cleaned up).

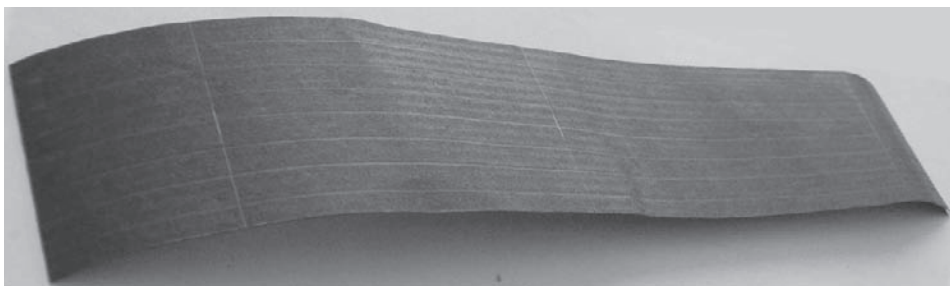


Photo 3: Strip has been cut to size and folds marked in pencil.

diaphragm design make for much easier model diaphragm construction.

Please note that as I am in the process of scratch building quite a few cars of the Pennsylvania Railroad — my cars are far from being shelf queens and are designed to operate; I haven't yet gotten around to reproducing the spring above my diaphragms' face plates, nor the diagonal trusses that hold them up. But there is no reason one shouldn't, if one so desires.

Another important component in a diaphragm — and one that is quite a bit of work — is the face plate. In my case, I once had access to an automatic hack saw of the kind used in steel shops to cut angles, I-beams, flats and other structural shapes to length. In that shop were also some large cold-drawn rectangular tubes left over from an old contract. As these had quite

thick sides and corresponded pretty well to the dimensions (section) for diaphragms, I decided to see if I could cut 1mm slices (1/32-inch) of these rectangular tubes.

I set up the machine and, presto, a few minutes later I had a nice rectangular strip of the correct section in thick steel with rounded corners (from the lamination process no doubt) and once cleaned up with a file, it was quite perfect for the job. And it had this thickness which is so characteristic of American diaphragms.

As I made up a batch, I presently have all I need. They should be cleaned up with a file, then degreased and chemically blackened. I then rinsed them and let them rust superficially a little so as to weather them naturally. Then use whatever you use to stop the chemical blackening, any satin or flat varnish does it (**Photo 2**).

These plates unfortunately don't feature the varied shapes which some railroads adopted on the top

side, usually because of the necessity of affixing the aforementioned spring to it. But they come close and are perfect for many varieties of diaphragms nevertheless. Of course you can also fret them out of a sheet of suitable brass, or better, steel plate — say around 1mm thick (1/32-inch). This option would permit anyone to accurately model the fantasy shapes at the top.

So what we must do now is the bellows itself. For

this I again must pay homage to the older *Model Railroader* magazines that were so full of how-to articles back when I was a kid (see *Steam in the Garden*, March/April 2014, No. 132). In this case the article was on making some fine wooden, turn of the century, Canadian cars (written by the late Gibson Kennedy, if my memory serves me right).

The article explained the return folds that one makes at right angles to the actual folds in the bel-

Making heavyweights

A three-part series that follows steamer Simon Duhamel of France as he builds two 1:32-scale heavyweight cars for his Pennsylvania Railroad consist.

• **Part One — Shaping aluminum.** Some background on the process of building the model cars and starting the B60 baggage car (*Steam in the Garden*, January/February 2014, No. 131).

• **Part Two — A clerestory roof.** Painting the baggage car and then on to building the diner car, with its unique roof (*Steam in the Garden*, March/April 2014, No. 132).

• **Part Three — Origami and diaphragms.** A technique to replicate the end-of-car vestibules used on passenger trains.

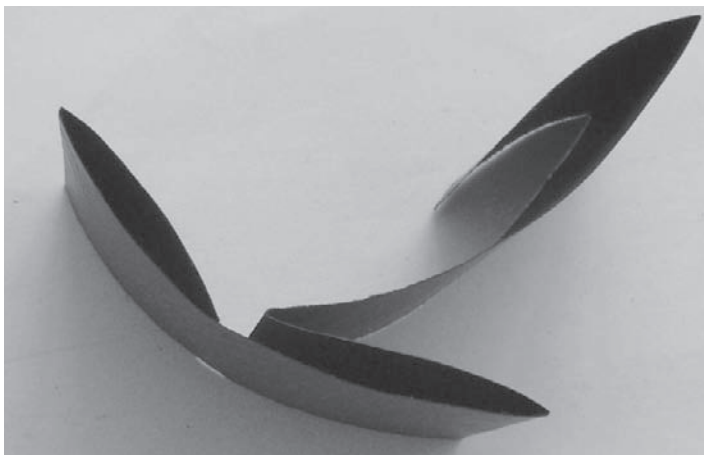


Photo 4

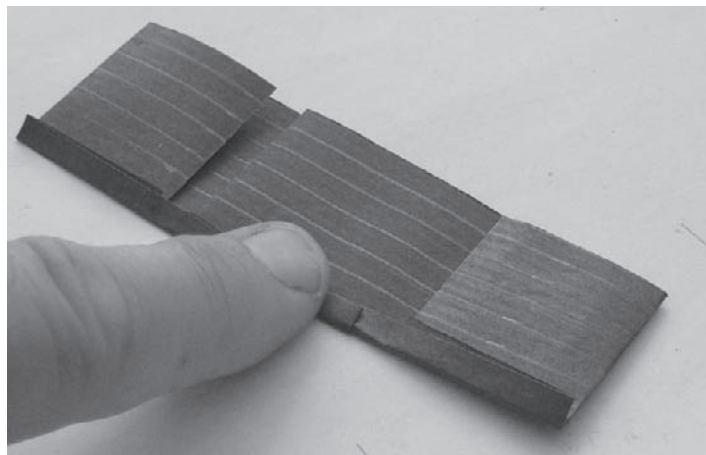


Photo 5

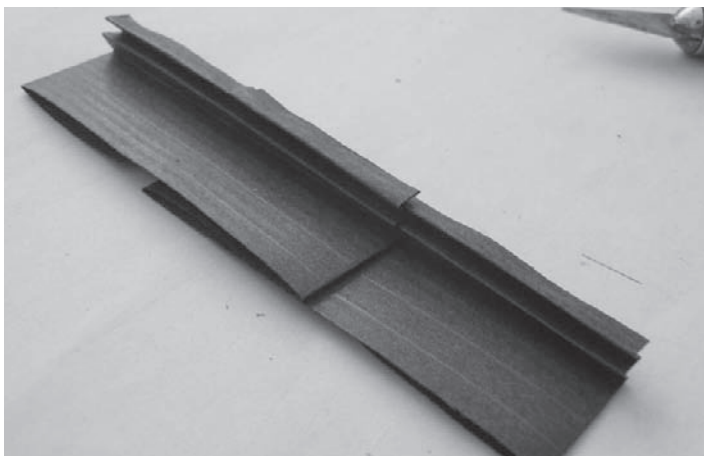


Photo 6

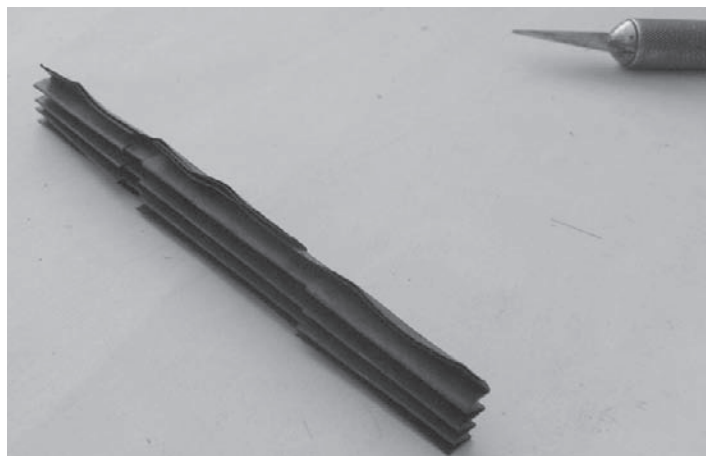


Photo 7

lows. These are in a Z layout. I added two more to have a return fold under the diaphragm. In HO scale, where Mr. Kennedy was working, a U-shaped bellows is sufficient and won't sag, but I feel that in Gauge One it is better to make the bellows as a complete closed tubular shape in order that it has enough strength to fill the void between the two cars and doesn't sag.

On my first diaphragms, I tried to reproduce what I saw in prototype photos and drawings, which is a four-fold bellows. After a few years in service, I have added on all my new fabrications two more folds, making six folds in all, so that I am sure they don't leave a gap between diaphragms. Of course we still are far from the continental norm of around 10 or 12 folds. So not to worry.

I first cut a 4cm wide strip by 22cm long (1 $\frac{1}{16}$ -inches by 8 $\frac{1}{16}$ -inches) and marked out each bellows' fold line every 5mm (3/16-inches) on both sides of the sheet, so that when you have made your first fold, you turn the whole work over and make the second fold, and so on (**Photo 3**). I also make some lines at 90-degree angles to these bellows' fold lines, which correspond to 2cm bottom fold (13/16-inches), plus 7cm side (2 $\frac{3}{4}$ -inches) and then 4cm top (1 $\frac{1}{16}$ -inches), plus 7cm (2 $\frac{3}{4}$ -inches) other side and at last 2cm (13/16-

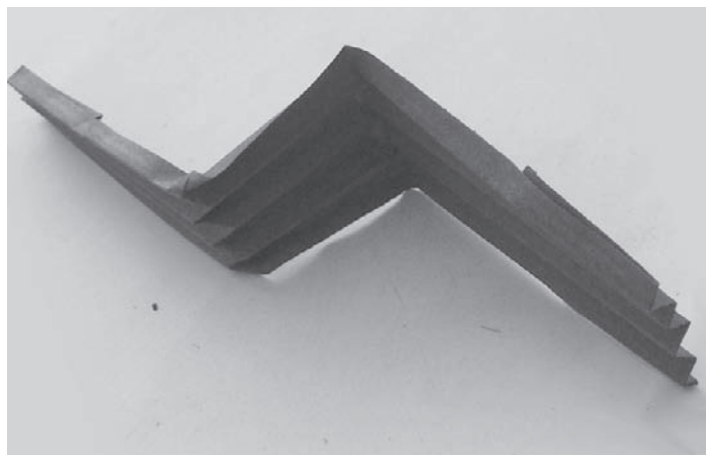


Photo 8

inches) last bottom fold. You can mark all of these out with a mechanical pencil. I then make these transverse folds to obtain something like **Photo 4**.

Now we are ready to make the first fold, it is important to make this as neat as possible (**Photo 5**).

I then make the second fold (**Photo 6**), being careful that all is parallel as many folds tend to slip out of your fingers when folding and one has to make sure everything keeps as parallel as possible. This by the way is where using a relatively thin paper like Kraft

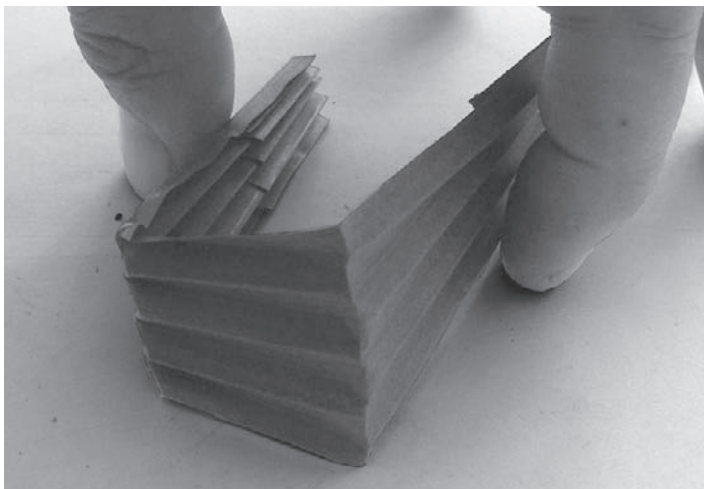


Photo 9

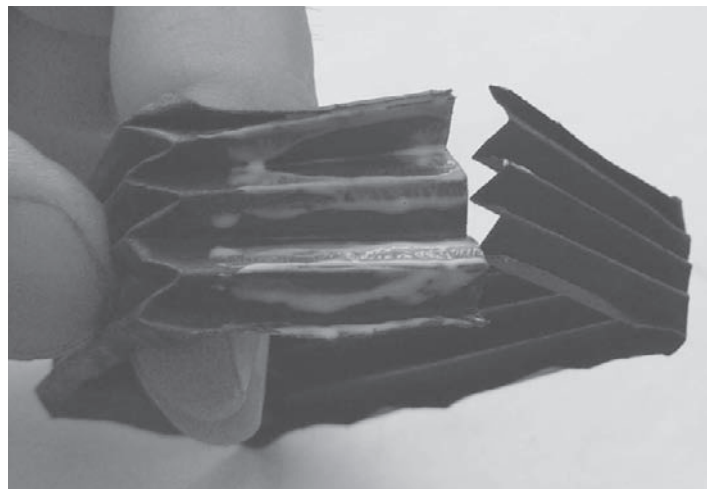


Photo 11

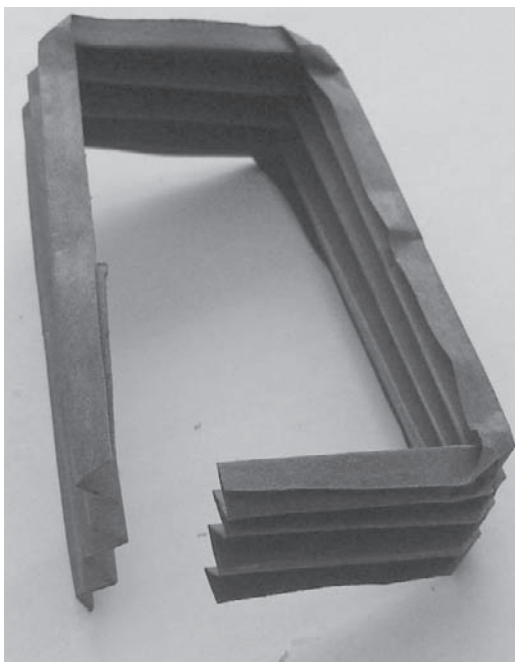


Photo 10

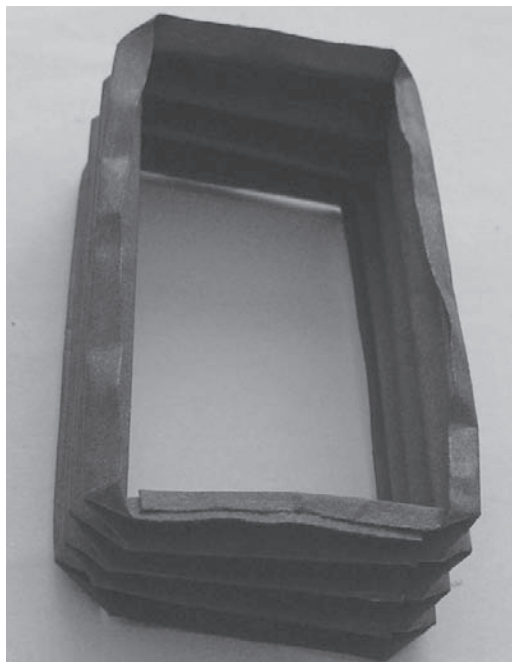


Photo 12

paper pays off. And continue until all the folds have been made (**Photo 7**). A hobby knife (X-Acto) comes in handy here to push in folds that tend to want to slip out — a little gentle persuasion using the blade to push into the fold can help.

We are now ready to make the bellows. I begin by opening around the top part of the bellows (**Photo 8**). Of course you will notice that one fold goes downward and the other goes upward. On the side that goes upward, gently flatten out the folds a bit between your thumb and forefinger, and then invert the fold downward obtaining the result shown in **Photo 9**. (You can see that I have flattened out the folds somewhat on the right side to do this.) You then open the fold at the bottom on the right side (**Photo 10**).

And of course do the same on the other (left) side so that you now have a complete bellows. Once that is done and that everything looks square and OK,

smear a little white glue to the underside of one of the bottoms (**Photo 11**) and glue the whole bellows together, being careful to keep the bellows independent and not glued together as shown in **Photo 12**.

And there is your bellows. Now you will glue this using neoprene glue to the face plate after it has been blackened; the reason I prefer blackening rather than paint is that paint will invariably be scraped off from the face plates constantly sliding against each other.

I use neoprene because if one of these is glued on crooked, you can use a little bit of acetone brushed on the last bellows all around to slowly soften the glue to permit repositioning. If this ever happens (and it does) or if one of these bellows ever gets torn apart after a bad derailment, you can use the acetone to replace it with a new one.

You then want to mount this entire bellows to the end of your car in the same way we glued the face plate — be sure to leave some headway above the couplers.

Now while these bellows work well in service, they have one drawback, which is that they are not rain proof. If you are having an operating session and a downpour comes up, you must take your cars indoors.

I am planning to try a silicone sealer (Silastic) to see if I can weather proof these but as of today, this hasn't been tested. I will report on this test as soon as I have some tangible results. This may very well do the trick.

International Small Scale Steamup — Diamondhead 2014

Steam ON THE Bayou

Text and photos by Scott E. McDonald

Photos by Kendrick Bisset, Peter & Carol Jobusch, Rick Parker

Seven full days of live-steam camaraderie, flea markets, seminars and side trips (including one to a restored, full-sized locomotive) encompassed the 21st Annual International Small Scale Steamup, held Jan. 12-19, 2014, at the Diamondhead Resort in Diamondhead, Miss.

Of those past 21 years of fun on the bayou, I can count myself lucky to have been able to attend all but three and have seen this event grow — and for me never disappoint. As Richard Jacobs said in his eloquent opening address at the steamup, “Jerry [Reshew] has passed the baton, and the loyal Diamondhead Towers crew has disbanded, leaving all of this to me and able assistants Terry Smelser and Pat Darby.”

The biggest show of growth at this year’s event was the addition of a fourth track. Tucked back in the corner of what was once one of the seminar rooms, the availability of two more mainlines on which to operate ensured that there was adequate



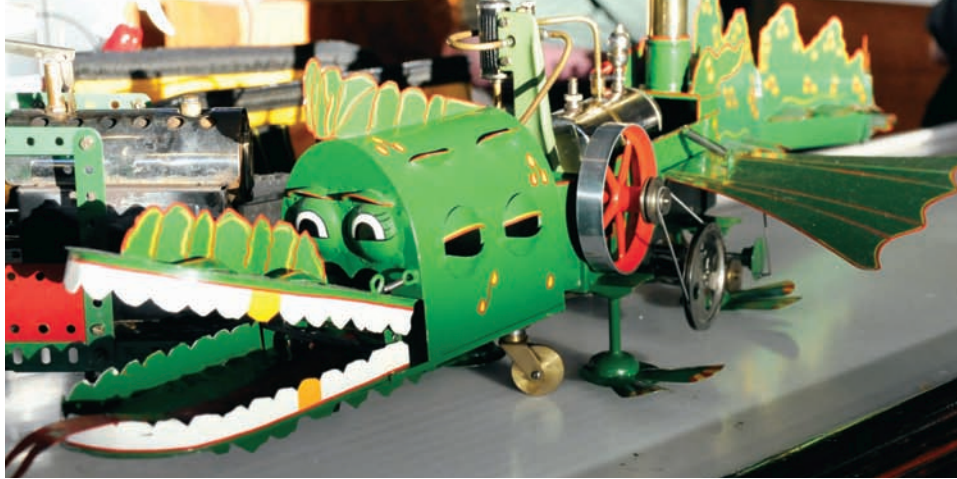
Engineer: *Diamondhead regular Peter Jobusch at the throttle of S.P. 745.*

track time for all attendees. I found myself at home there and in addition to ample track time, had a great view of all of the other tracks that were in operation.

By using this space for a new track, the other change was to have the dealers set up out in the atrium area. This allowed for greater access to exhibitors at almost any hour that they were able to attend



Steam boats: Don Hesel at the radio controls while Greg Dahlem supervises.



Monster: Steam-powered dragon on display in the atrium.



Second-generation: Chris Bisset minds his father's 2-6-0.



On track: Brittany Grimm, left, bringing up steam, while a passenger consist paces a logging train, right.



to their table. When not running trains, at least they were in the main steamup hall rather than being sequestered away in a separate room with limited hours. Of those attendees I talked with who were not dealers, many liked the idea of having the dealers close at hand. It especially made it easy to show how their locomotives were operating for those needing quick advice.

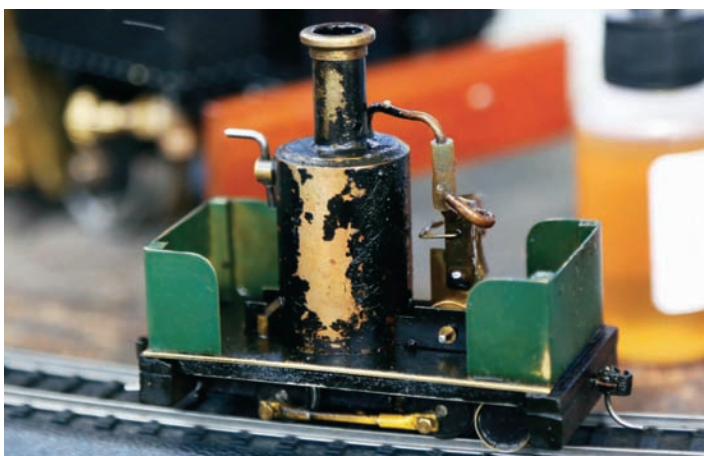
The newest addition to the dealer exhibits was representation by Bowande Wuhu Brand Arts & Crafts Co. of China, with several of its new products. On the American prototype front, the company

revealed the new Illinois Central Railroad No. 382, a Rogers 4-6-0 made famous by the tragic accident of Casey Jones. (A crash, as a Bowande representative pointed out, ironically occurred just 200 miles north of Diamondhead.) This is a unique looking locomotive in that it has a clerestory roof over the cab. It made an impressive run on the large track. Under the control and observation of Ryan Bednarik of Triple R Services of Mount Holly, N.J., the prototype received a thorough inspection and suggestions for the production run.

Accucraft Co. was well represented by Jason



Heisler: *Larry Newman's scratch-built engine.*



Blistered paint: *Many-times run vertical boiler 0-4-0.*



Former 'Dora': *Tom Bowdler's customized tram.*

Kovac of The Train Department of Hazlet, N.J., and also by Bing Cheng, owner of the Union City, Calif.-based Accucraft. Jason showed several new ideas for models that are under consideration. Generating the excitement for the “gear heads” who appreciate logging locomotives was a pre-production model of the West Side Lumber Heisler, which made a few laps around the tracks.

Hans Huwyler of Aster Hobby USA LLC of Campobello, S.C., was busy about the tracks not only running the impressive “Challenger” but offering advice to Aster patrons.

But the big treat for those in attendance was a



Molten: *Dan Rowe demonstrates casting techniques.*

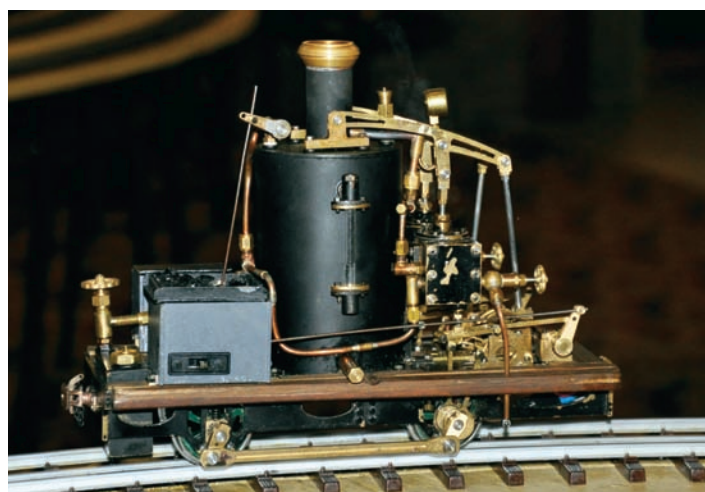
trip to Jefferson, La., an hour's bus ride away, to see the Southern Pacific No. 745, a 2-8-2 Mikado. (Its profile also graced the program logo for this year's steamup.)

The locomotive was in full steam for the arrival of the “DH Gang,” some of whom got first-hand experience in moving the fire-eating beast down the track a few feet. This Mike was restored and is operated by the Louisiana Steam Train Association, which brought it back into steam in 2004 after a four-year overhaul.

On the seminar side of the steamup were offerings from Dan Rowe of Dripping Springs, Texas,



Logger: Chris Mitchell tends to his Heisler.



Intricate: A radio-controlled vertical boiler.

on hot-metal casting, which included an impressive demonstration in the seminar room. Justin Koch of Old Forge, Pa., discussed and demonstrated the finer points of making a boiler. Doug Joslyn of Paducah, Ky., showed how to take an out-of-the-box piece of rolling stock and, using powders and chinks, transform the piece into a weathered work of art. Jeff Young, who makes the long trek from Mississauga, Ont., every year, gave an overview of the hobby through the past 25 years. Russ Jones of Long Beach, Miss., gave a seminar on scratch-built coach-

es and Gerald Pierce of Fairview, N.C., discussed the history of New Orleans railroads and streetcars.

Easley, S.C. resident Bruce Gathman continued this year as the chair of the "flea market," which saw a lot of action. I find that the steamup is a great location to find a good used (and sometimes new in the box) locomotive. With the tracks readily available, a steamer gets the opportunity to check out the operating condition of a potential new addition to the stable and can get expert opinion on those that might need some TLC to get back into full operational capability.



Gathering of the clan: *Diamondhead steamers and friends take a moment for the annual group photo.*



'Mindy': *John and Melinda Tribe and their O-4-O.*



Dawn's wagon: *Pins from 19 Diamondhead events.*

Bob Pope of Tallahassee, Fla., was again on hand with his equipment to handle the draw-bar pulling contest.

On Friday evening, *Steam in the Garden* hosted the 2013 "Steamy Video Awards" presentation. Top entries from the three categories of story, steamup and instructional were presented in Motion Picture Academy-awards style, with Maine steamer Eric Schade's "Blizzard on the Winnegance and Quebec," winning the overall grand prize of the year, garnering a trophy and an Accucraft "Dora" locomotive for the effort.

With Diamondhead 2014 in the history books, and room reservations already moving at a quick pace for 2015, it won't be long until the around 200-plus people make the journey south for another go at steaming. It will also be time for Dawn Brightwell of Mississauga, Ont., to add another pin to her 7/8th-scale Cleminson open goods wagon, currently festooned with 19 commemorative pins from the Diamondhead steamup. Will you be one of those making the trek next year to get your 2015 pin? I know I will!

Diamondhead at 21

(This is a condensed version of the wrap-up sent out to all Diamondhead participants.)

Twenty-fourteen is history. It was a great week and all of you made it happen. ... The feeling of camaraderie was palpable.

This year we enjoyed the use of Terry Smelser's new track which made a total of four tracks to run on. Hopefully by next year we will have a fifth track around the Jacuzzi pool, although there was plenty of track space on which to run.

Bruce Gathman ran a successful flea market with the help of a few volunteers and he'll be doing it again in 2015. ...

The number of attendees seems to have leveled out to around 150 with about 50 spouses/girlfriends, so we had a total of around 200 people. This makes for more time and room for steaming on the four tracks....

The excursions to the French Quarter and to see engine No. 745 under steam went quite well. There were around 15 people visiting the French Quarter and around 50 people at Engine 745. ...



Silver Link: 1:32-scale *London & North Eastern No. 2510 at speed.*

The statistics for the steamup are always of interest, so here they are:

- Fifty quarts of alcohol.
- Ninety-six cans of butane.
- Three cans of sterno.
- Fifty-five gallons of distilled water.

The Arkansas contingent donated a five-gallon bucket of coal, which was appreciated. ...

Many door prizes were handed out daily and thanks to Bob Moser (North Jersey Gauge One), Mark Johnson (Silver State Trains) and Richard Jacobs (Trainmax) for their donations. The grand prize of an Accucraft "Ruby" ("Ida") was won by Jim Crabb.

— Patrick Darby



Video award: Won by Eric Shade.



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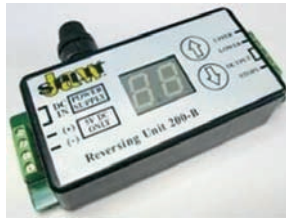
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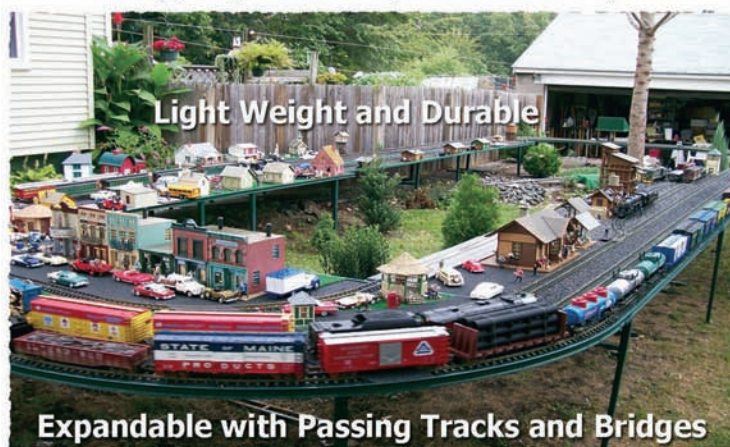
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Add a gauge to Accucraft's 'Dora' to watch the rising **PRESSURE**

Text, illustration and photos by Marc Horovitz

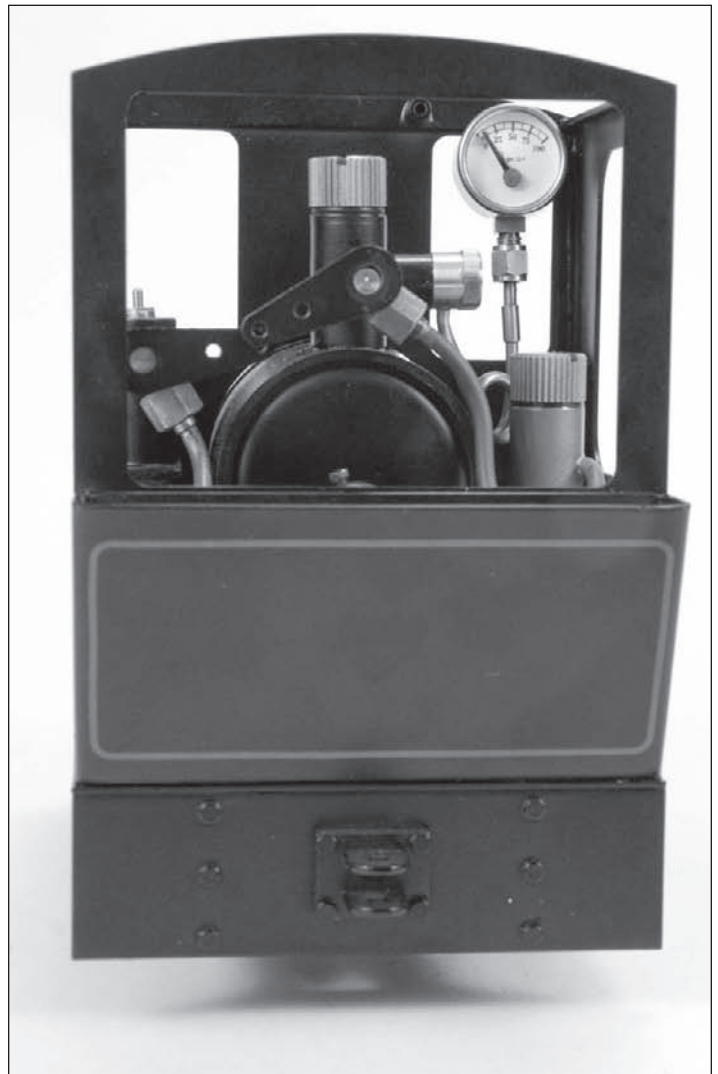
With Accucraft Co.'s "Dora" (and many other locomotives), you're essentially flying blind when it comes to knowing the boiler pressure. Yes, you can assume your safety valve is correct and, if you know the proper blow-off pressure, you'll know that pressure has been reached when it pops. However, by knowing the state of the boiler, as reflected in its pressure, you'll be able to manage your engine much more competently.

Pressure gauges are available from a variety of this magazine's advertisers. Since "Dora's" blow-off pressure should be around 40 psi, you'll not need a gauge that shows more than 80 psi, although 100-pound gauges are more common, it seems. That's what I had on my shelf, anyway, so that's what I fitted to my "Dora." As with most things, there are several ways of going about this job. Here, I'll describe one of them.

The first thing to do is to remove the engine's roof. This is simply done by squeezing the roof-support bracket to release it from the holes in the cab walls that retain it. The throttle is built into a turret attached to the top of the boiler. On the side of that turret is a threaded plug (**Photo 1**). Remove that plug. The remaining hole is where we'll attach the pressure gauge. We'll start with the gauge and its plumbing, then finish up with the connecting parts.

Forming the plumbing

When you receive your pressure gauge, you'll find that it has three primary parts: the gauge itself, the "olive" (as it's called) and the nut (**Photo 2**). The nut holds the olive against the steam inlet to the gauge (**Photo 3**). The steam line is attached to the olive. Most



Gauged: A pressure gauge added to a stock Accucraft 'Dora,' complete with a banjo bolt.

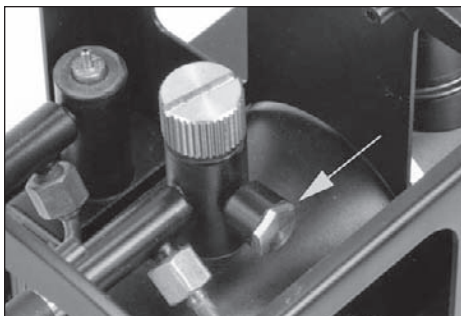


Photo 1

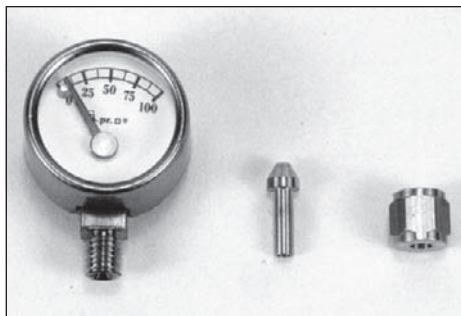


Photo 2

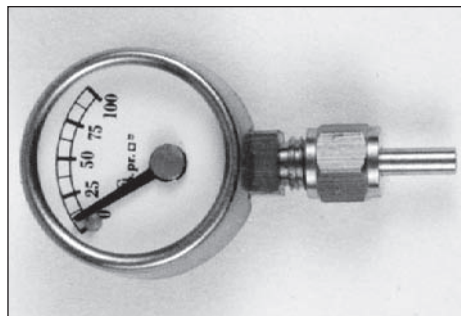


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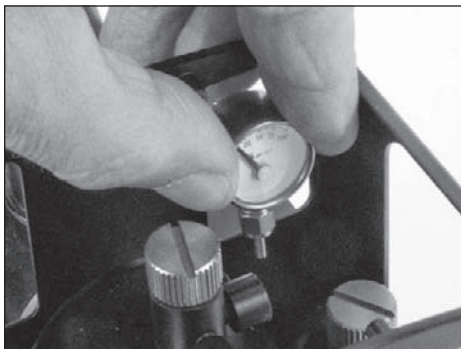


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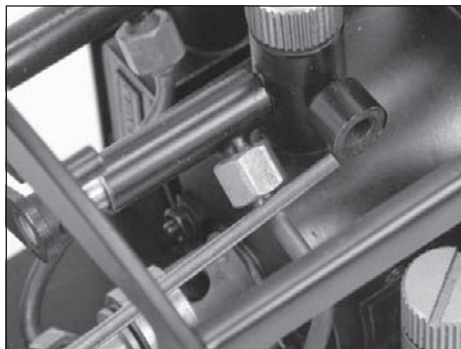


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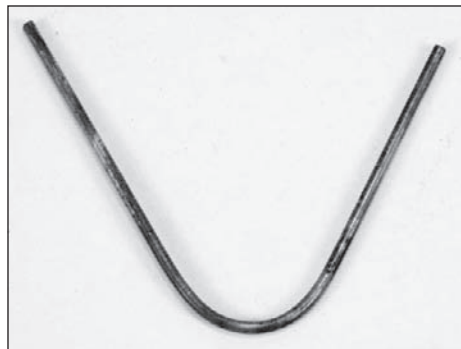


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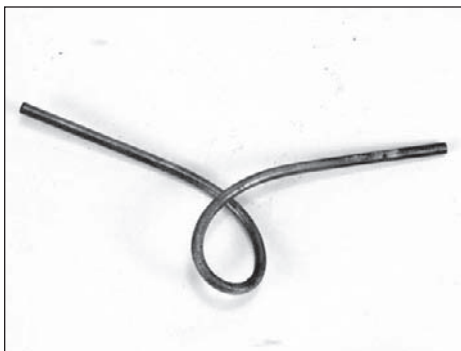


Photo 7



Photo 8



Photo 9

olives on the size gauges we use have 3/32-inch-diameter extensions to which the steam line is attached. A piece of one-eighth-inch copper tubing will easily slip over this extension. However, that diameter of tubing is relatively difficult to bend into the tight curves demanded by a pressure-gauge line. I prefer to use 3/32-inch-diameter tubing. This necessitates making a collar to attach the line to the olive.

The first thing to do is to determine where you'd like your gauge to live. I chose a spot near the front, right cab window, next to the boiler (**Photo 4**). Just be sure that neither the gauge nor its line will be in the way of anything else, like the throttle or the lubricator. The gauge will be supported by its steam line.

Cut a piece of 3/32-inch-diameter copper tubing around six-inches long. Anneal this tube by heating it to red heat and allowing it to air-cool or quenching it in water. With copper, either method is fine. Now we'll carefully begin to bend the tube. The tube will effectively connect to the side of the plug hole

(**Photo 5**), so start your bending with that in mind.

You should have plenty of tubing with the six inches you cut, so you can allow a little overage on the end for something to grip, which will help you in bending the tube. The tube must not only go from the plug hole to the pressure gauge, but it must incorporate a U-bend or (better yet) a small coil. These things not only look locomotive-ish, they also serve to allow a place for a little water to condense, thus protecting the gauge's delicate innards from direct contact with steam.

I find it best to start bending at the U-bend of the coil, which should be at about the mid-point of the tube. Once you've bent that to your satisfaction, the ends of the tube can be bent to reach the places they need to go. This is all done in small steps, a little at a time. As you bend, you'll feel the metal start to stiffen up. This is called "work hardening."

When you feel the metal get hard, it's time to stop and re-anneal it. The tube may have to go through



Photo 10

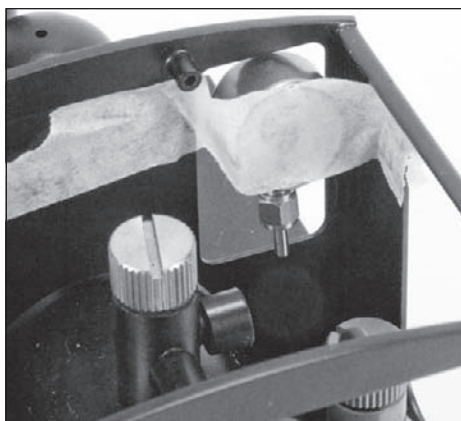


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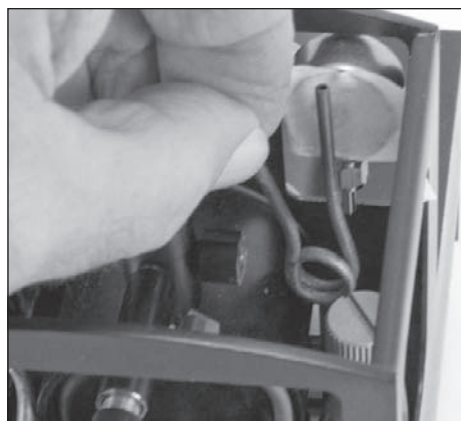


Photo 12



Photo 13



Photo 14



Photo 15

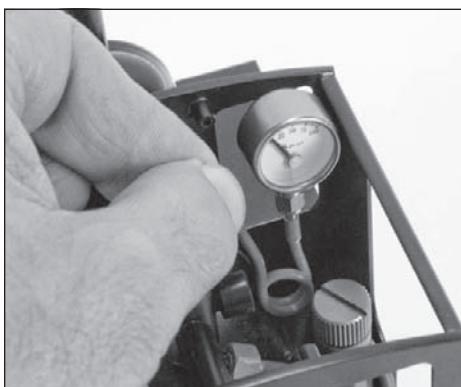


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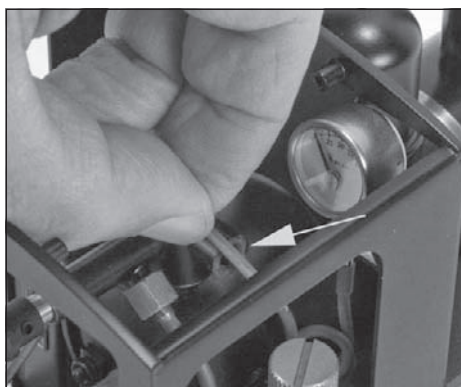


Photo 17

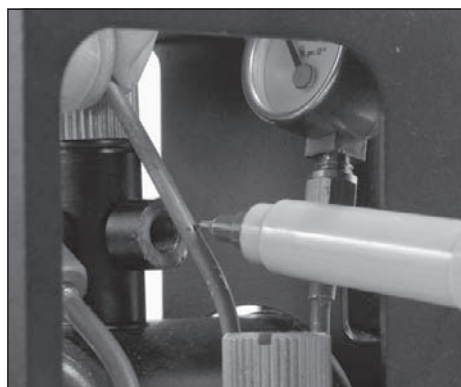


Photo 18

several annealings before it finally assumes the shape you have in mind for it. Just be patient. If you try to rush things, you may end up crimping the tube, which will only lead to tears. If that happens, it's probably best just to start over. The copper may turn black with the heat. No matter — you can pretty it up later.

I like a coil below my gauge, but to fit the cramped quarters, it had to be a pretty small one. **Photos 6 through 9** show all of the steps necessary for me to get the tube into the shape I wanted — four annealings. I did the final bend around a piece of 5/16-inch rod (**Photo 10**) to get a nice, true circle to the coil.

Now that the middle of the tube is bent the way you want it, it's time to bend the ends. Start with the end that gets attached to the gauge. You'll have some left over to trim off later. To get started, I taped my gauge more or less in position in the cab (**Photo 11**).

Then, offering up the coiled pipe to the gauge (**Photo 12**), I marked the place where one leg needed to be cut. The cut end of the tube will butt up against the end of the olive extension coming down from the gauge. The marked end can be seen in **Photo 13** and the cut end in **Photo 14**.

To attach the steam line to the gauge, you'll need to make a little collar. Cut a piece of one-eighth-inch tubing, one-quarter-inch long. We're going to silver solder the collar to the steam line, then soft solder the olive into the collar. Clean the end of the cut leg of your steam line with some 600-grit paper or some No. 0000 steel wool. Flux the mating parts, then slip the collar over the steam line about one-eighth-inch. Silver solder the joint, then pickle it. The soldered joint should look like **Photo 15**.

Put the pressure gauge into the collar but don't



Photo 19

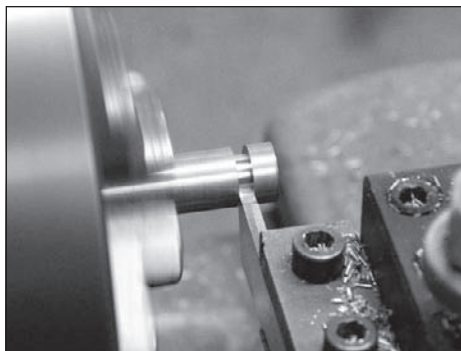


Photo 20

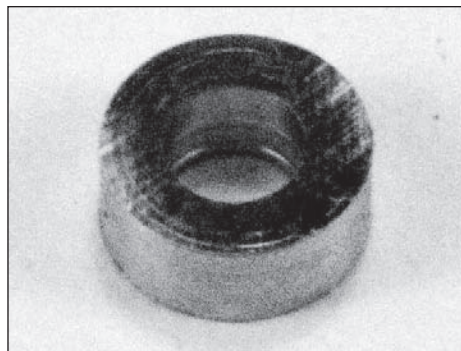


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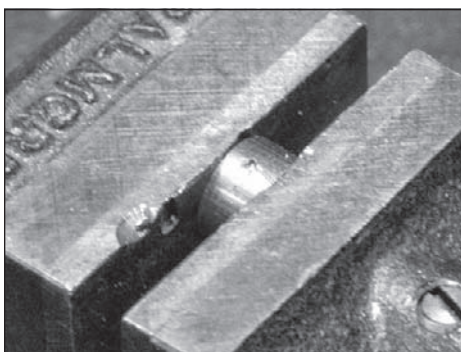


Photo 22



Photo 23

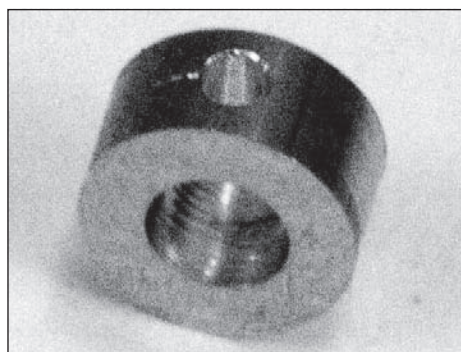


Photo 24



Photo 25

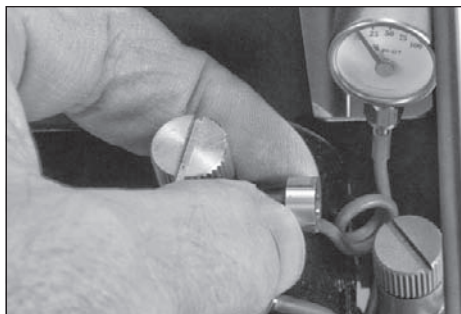


Photo 26

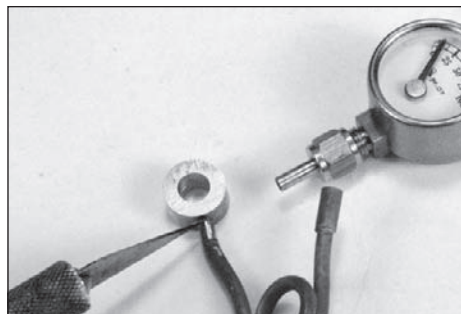


Photo 27

solder it in yet. Hold the assembly in place in the cab, just to make sure that the gauge is still pretty much where you want it to be and the steam line is clear of all obstructions (**Photo 16**).

If all is well, bend the long leg so that it bisects the opening in the turret from where the plug came. The arrow in **Photo 17** shows what I mean. Then mark the long leg about the mid point of the opening in the turret (**Photo 18**). Cut the leg at that point. We'll fine tune the cut later.

Making the banjo

Chuck up a stick of three-eighths-inch-diameter brass rod in your lathe, center drill the end, and drill a No. 8 (.199-inch) hole in the end, about three-eighths-inch deep (**Photo 19**). Then part off a ring that's 3/16-inch (.188-inch) thick (**Photo 20**). This part is called the "banjo."

File both surfaces dead flat and parallel. The banjo should look like **Photo 21**. Grip the banjo in your

drill-press vise, find the center of the curved surface, and center-pop it (**Photo 22**). Then drill a 3/32-inch hole through one wall only of the banjo (**Photo 23**). The finished banjo should look like **Photo 24**.

Place the banjo on the cut end of the steam line so that the end of the tube comes to about the middle of the banjo, as per **Photo 25**. Then carefully place the assembly back in the cab, with the pressure gauge in its proper place. You might need to tape everything temporarily in place. The banjo will go on the end of the plug tube on the steam turret (**Photo 26**). Make any adjustments necessary in the bend of the pipe so that things fit well and are positioned properly.

When everything looks good, mark the tube with the sharp point of a knife at the point that it enters the side of the banjo (**Photo 27**). Trim the end of the pipe a little longer than your mark but not so long that the end will protrude into the center of the banjo. When all is well, silver solder the pipe to the banjo, making sure that the banjo is set at the proper

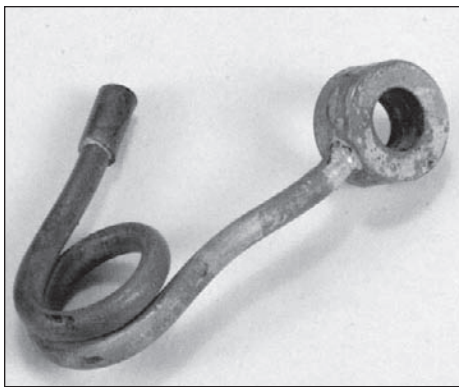


Photo 28

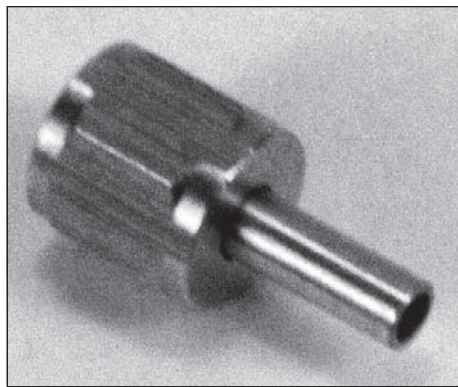


Photo 29



Photo 30

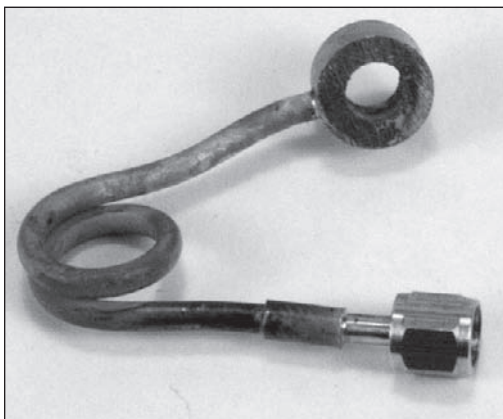


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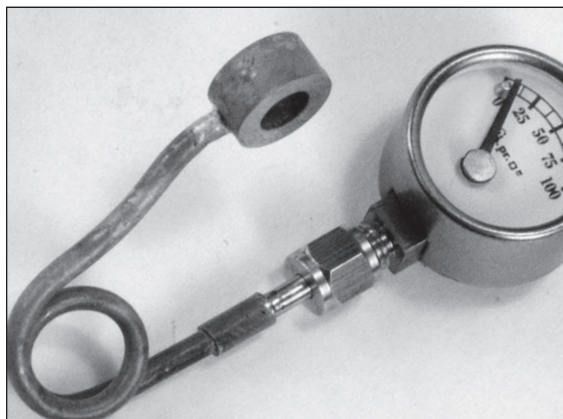


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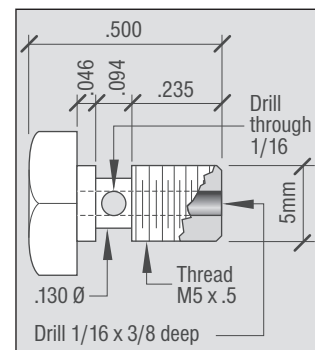


Figure 1: Banjo bolt made from 3/8-inch hex stock; 2x actual size.



Photo 33

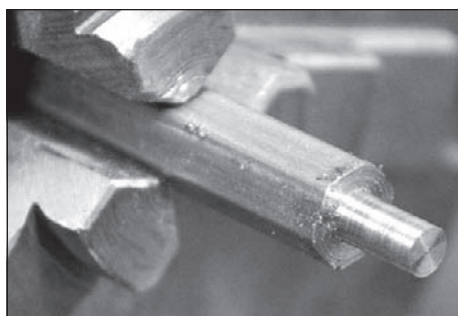


Photo 34

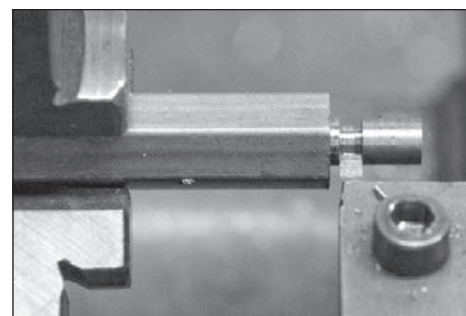


Photo 35

angle on the pipe. The finished assembly should look something like **Photo 28**.

Now you can soft solder the olive to the steam pipe. Unscrew the nut on the pressure gauge and remove it and the olive, keeping them together (**Photo 29**). Make sure the inside of the collar on the steam pipe is clean, then flux the inside of the collar and the end of the olive extension. Be careful not to get flux on the nut.

Put the olive extension in the collar and lay the assembly on your soldering surface. Make sure the nut is as far from the joint as possible. Place a tiny piece of soft solder on the extension where it enters the collar (arrow in **Photo 30**). With a small, soft flame, heat the pipe below the collar. The pipe will transfer the heat to the extension. As soon as the solder melts remove the flame. Make sure the nut turns freely on the extension. Clean up the remaining flux.

The assembly should look like **Photo 31**. Screw the nut onto the pressure gauge and the assembly is finished (**Photo 32**).

The banjo bolt

All that's left to finish this project is to make the banjo bolt (**Figure 1**), which holds the banjo assembly to the turret and allows the steam to pass into the line to the pressure gauge. There are several steps to making the bolt but there's nothing out of the ordinary — it's all straightforward machining.

Chuck up a piece of three-eighths-inch brass hex stock in your three-jaw chuck, with an inch or so sticking out (**Photo 33**). I didn't have any brass so I used stainless — brass is better! Note: If you don't have hex stock, you can use three-eighths-inch round brass bar. If you use round, when you're finished

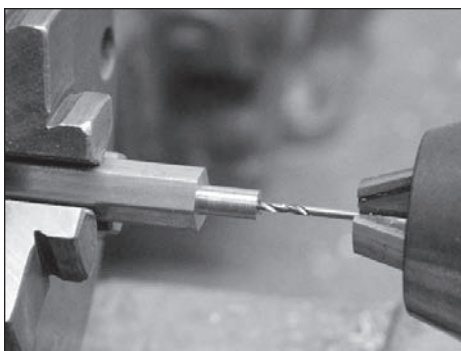


Photo 36

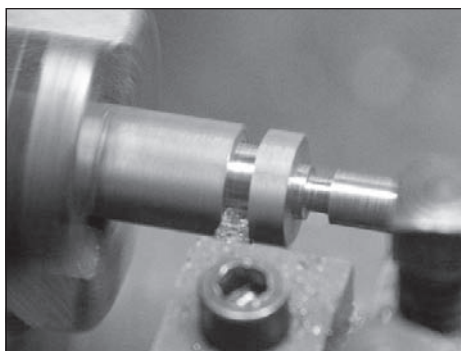


Photo 37

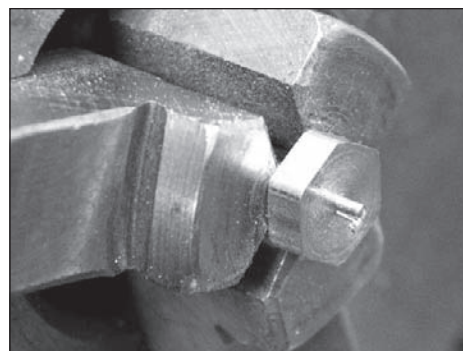


Photo 38



Photo 39

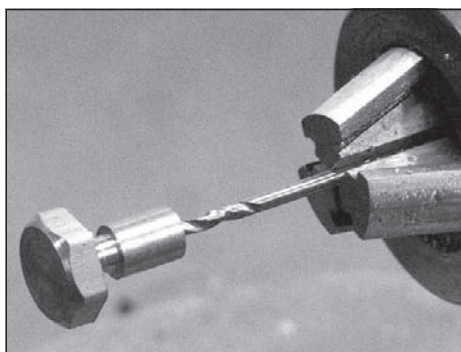


Photo 40

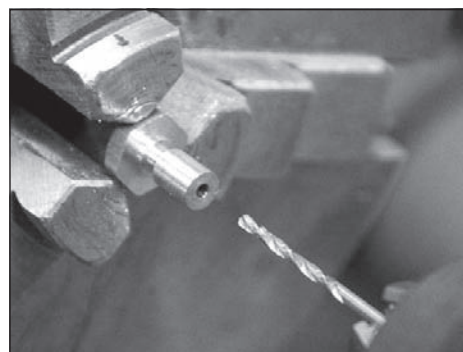


Photo 41



Photo 42

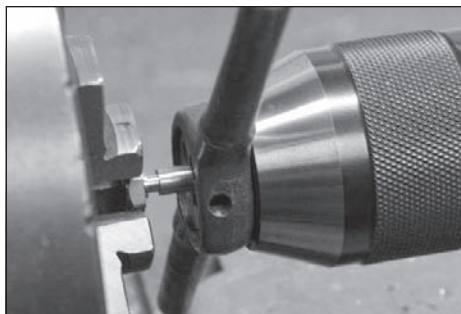


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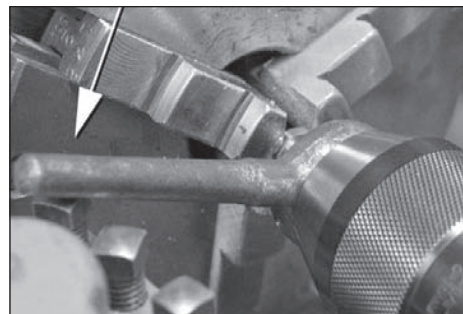


Photo 44

making the banjo bolt, you'll have to cut a screwdriver slot in the top with a hacksaw.

Turn the end down to 5mm diameter (about .196-inch) by .375-inch long (**Photo 34**). Place your parting tool against the left shoulder of the cut you just made, then move it .046-inch to the right. Cut a recess, as per the drawing, that is .130-inch in diameter by .094-inch wide. My parting tool is 3/32-inch (.094-inch) wide, which is just right (**Photo 35**).

Chuck up a small center drill in the tail stock chuck and dimple the end of the work piece. Then, with a 1/16-inch bit, drill into the end to a depth of three-eighths-inch (**Photo 36**). Leave the drill in the chuck and slide the tail stock back, out of the way. Now part off the piece .500-inch from the right end (**Photo 37**).

Reverse the parted-off piece in the chuck, gripping it by the round section you just turned (**Photo 38**). Clean up the hex end and chamfer it to take off the sharp edge (**Photo 39**).

Remove the work piece from the chuck and slide

it back onto the 1/16-inch drill in the tail stock chuck (**Photo 40**). Now slide the tail stock, with the work piece on it, into the three-jaw chuck until you can just grip the hex portion in the chuck. Tighten the chuck, then slide the tail stock back (**Photo 41**). You can put the drill away now.

It's time to thread the bolt. You'll need an M5 by 0.5 die. I found a satisfactory one from China on eBay for less than \$10, including shipping.

The secret to threading with a die in the lathe is to hold the die absolutely steady and parallel to the work. There are several ways to do this; here is my method:

Put the die into a suitable die holder (**Photo 42**). Offer the die up to the work, making sure the die is properly centered on the part. Open the tail stock chuck so that the jaws are retracted and the chuck body will bear on the die when the tail stock is moved against it (**Photo 43**). Take your lathe out of gear or slip off a belt — whatever it takes to get the headstock chuck to revolve freely by hand.

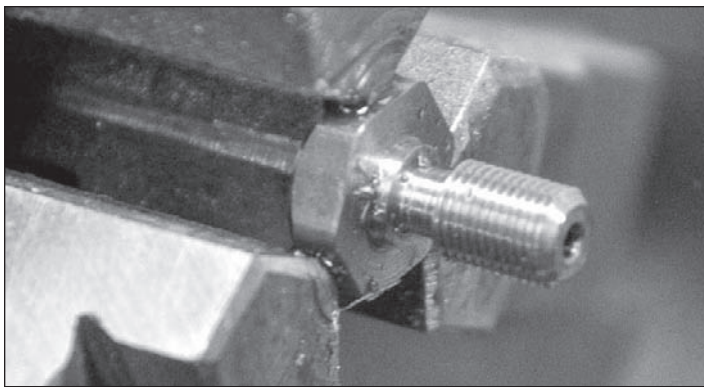


Photo 45

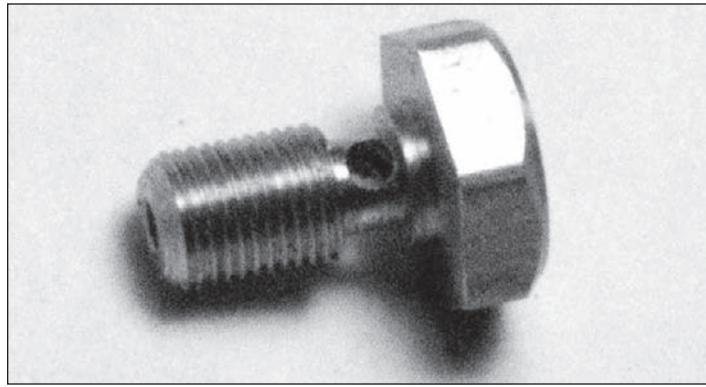


Photo 48

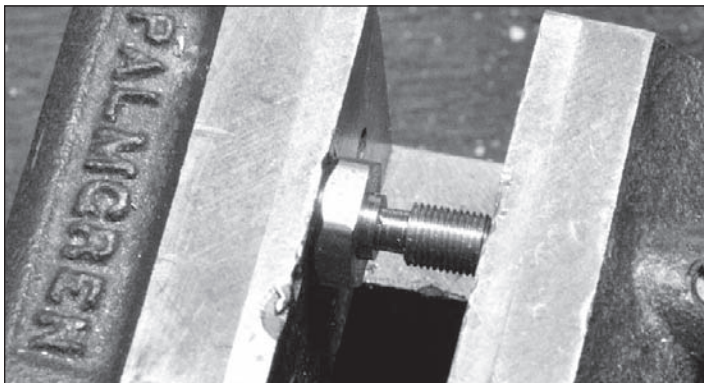


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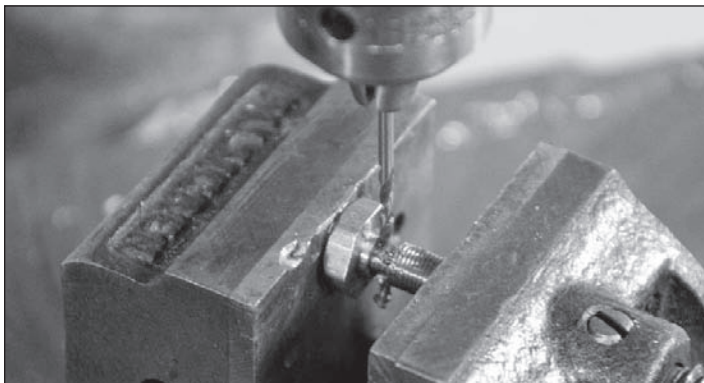


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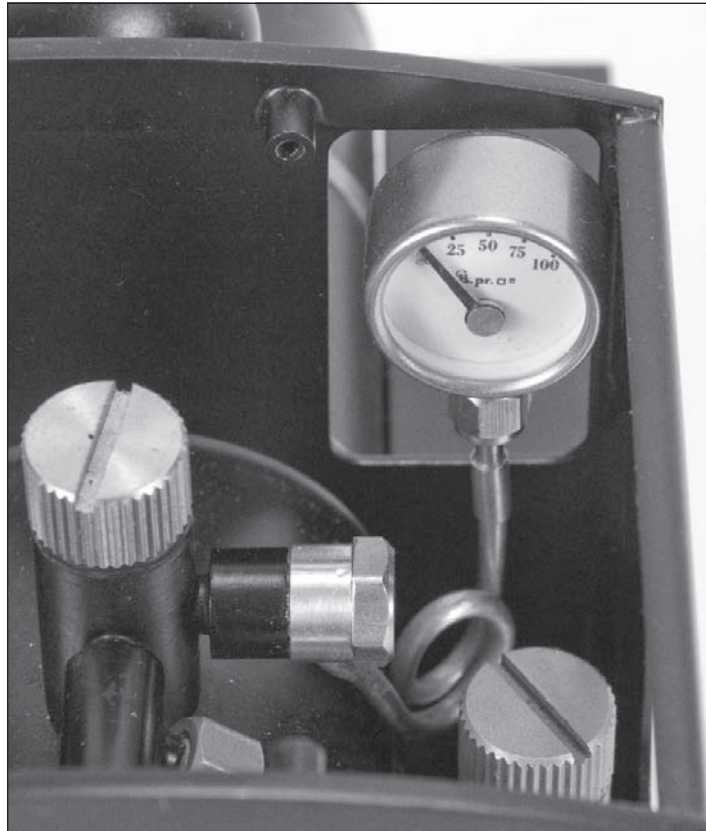


Photo 49

Using the tail stock to press the die into the work, slowly rotate the headstock until the die-holder handle comes around and contacts the tool post (arrow in **Photo 44**), which will prevent the die from rotating. Then it's just a matter of turning the chuck with your left hand, while using your right hand to keep light pressure on the die with the tail stock until the part is threaded. When you're there, back off the tail stock and unscrew the die. Chamfer the cut corner to relieve the sharp edge and admire your handiwork (**Photo 45**).

The only thing left is to drill the cross hole through the recess in the bolt. Grip the bolt in your drill-press vise (**Photo 46**) and center-punch the position of the hole. Chuck up your 1/16-inch drill and run it through (**Photo 47**). Clean up the burrs and you're done (**Photo 48**).

Putting it all together

If you'd like to shine up (or paint) your pipe work, now's the time. On copper, I like to use No. 0000 steel wool. Once you've got it the way you'd like it, temporarily screw the pressure-gauge assembly to the turret with the banjo bolt (**Photo 49**). You may need to tweak the position of the gauge slightly by bending the pipe a little. When all is good, remove it.

You can install it permanently using some circular gaskets, fiber O-rings or sealant. I prefer the latter, Loctite Gasket Eliminator 510 being my product of choice. If you're using this, or a similar product, butter both sides of the banjo with as thin a layer as you can. Then put it all back together again. Once the sealant has cured, fire up your engine and watch the pressure rise.

New 1:32-scale Accucraft Mogul runs virtually trouble-free (with 45-minute runs) out of the box

S.P. M-6

Text and photos by Alan Redeker

My father, Clark Redeker, was chief chemist at FMC's magnesia plant in Newark, Calif., on the east side of the San Francisco Bay, from the early 1940s on. Raw materials came in over the Southern Pacific Railroad, with a switch crew using a 1700-series Mogul — usually No. 1726. Dad remembers that every other day the plant would get between five and 10 hoppers of dolomite ore from the Hollister, Calif., quarry, which had to be pushed up a siding with a steep quarter-mile curved grade to an unloading area for an outdoor crane-way that fed the rotary kilns.

Normally the switch crew would proceed at a reasonable pace on the level until getting to an in-plant grade crossing and then open the throttle wide. However if there had been rain or the track was slippery, the engine would lose its feet most of the way up. The engineer would then back down, and with the brakeman standing in the middle of the road, he'd make a run for it with whistle blowing and lots of sand.

On a rainy Saturday in 1954, I got to see such a spectacle while looking

out the windows of the lab as Dad was “checking out things at the plant.” I'll never forget the slipping, backing down, and the “run for it” complete with whistling, smoke and barely making it.

Another Clark story has to do with when steam had just gone. The normal diesel switch engine was down, so they were using an SP “Geep” black-widow-painted road engine to switch the plant. Everything went fine until they were doing one of their two normal “flying switches” to get the empties down and past the switch-

er and then another with the loads (avoiding going nearly a mile back up to a crossover in downtown Newark).

The diesel faltered just when it was supposed to run away from the empty cars, the brakeman couldn't throw the switch and the switcher got caught between the fast-moving empties and the loaded hoppers on the main. Crash!!! Hoppers derailed, road engine damaged so it had to run light to Oakland for repairs, with the road master vowing there would never again be a flying switch at FMC.

The upshot of all that

Accucraft, Southern Pacific M-6 Mogul

- **Loco type:** Baldwin Locomotive Works, 2-6-0, 1901. Cylinders: 21-inch diameter, 28-inch stroke. Drive wheels: 63-inches. Boiler pressure: 200 psi. Tractive effort: 33,200 pounds. Weight: 174,000 pounds.
- **Scale:** 1:32, 45mm gauge.
- **Length:** 28½ inches.
- **Height:** 5¾ inches.
- **Width:** 3¾ inches.
- **Boiler:** Single flue, copper construction.
- **Fuel:** Butane.
- **Min. radius:** 48 inches.
- **Water pumps:** Axle pump, tender pump.
- **Cylinders:** Two, D-valve.
- **Valve gear:** Simplified Stephenson.
- **Fittings:** Throttle, water-level glass, pressure gauge, safety valve.
- **MSRP:** \$2750 (available unlettered, as No. 1727 or as No. 1744).



Good looker, good runner: *Accucraft Southern Pacific M-6 crossing the author's indoor trestle.*

was that the shift foreman at the plant knew Dad enjoyed a good joke and was a rail fan. So the night after the SP had cleared the track, the broken coupler left behind from one of the empties was loaded into a pickup truck and dumped on our front lawn.

But the joke was on the foreman: Dad had a hand truck, and with help from two sons, the coupler was put in a place of honor in our backyard and painted silver. Fifty-five years later that silver-painted coupler is still good for eliciting a Clark Redeker story about how 1700 series Moguls could always do better on flying switches than diesels.

And therefore, my fascination with the locomotive.

The live steam model of M-6 No. 1727 reviewed was shipped in early January direct from California's Accucraft Co., to Jerry Reshew for the International Small Scale Steamup in Diamondhead, Miss. On unpacking, it was noted that the engine was strapped tightly onto a grooved board. Strapping tape was used over a foam cradle covering the domes, as well as on a large fitted foam piece at the front of the locomotive and a smaller foam piece that was low on the frame behind the cab.

Accucraft has addressed a past shipping problem where some locomotives arrived with cab damage. On the M-6 there was no tape over the cab roof and no tape angled onto the back of the cab — with only a large piece of foam on the roof held lightly in place by paper and plastic.

Included with the locomotive are an owner's manual, boiler and gas tank certificates, two syringes, two nut drivers, two Allen wrenches, a foam-wrapped spare sight glass, a pair of cotton gloves and a bag of spare machine screws. A nice touch is the prototypical long hook that the fireman would have used to pull a water spout into place from the narrow walkway on the back of the tender along with a length of wire that can be used to fashion bell and whistle cords.

After unpacking, the engine was placed on a table adjacent to Rich Jacobs' Accucraft model of No. 1744. The differences noted were a larger smoke box door, the below-center mounting of No. 1727's headlight, and the location of the blow down spreader between the second and third drivers on No. 1727. On No. 1744, there is a smaller smoke box door and the blow down spreader discharges below the cab.

Overall detail on the model is nice, with good comparison to prototype photos. The surprise was the detailed steam dome assembly. There is a base riveted to the boiler jacket, and then a removable upper section that covers the safety valve and it only has a hole in the center to vent the safety.

As a result, the two dummy pops and working pop valve are mounted in close, and a nicely rendered five-chime whistle is stand-off mounted on the side. The upper dome is held in place with a small Allen set screw. Air piping on the engine's pilot is done with two glad hands, but was not done on the tender rear buffer. If desired, an owner can easily rem-

'Valley Malleys'

Over the decade from 1899 to 1909, the Southern Pacific Railroad took delivery of more than 200 2-6-0 Moguls — and beginning in 1901, in just seven years received 300 2-8-0 Consolidations. The Consolidations were 57-inch drivered workhorses for moving tonnage over Donner Pass in the Sierras, while the 63-inch drivered Moguls were for mixed use. Many of the initial locomotives of both types were either cross compound or Baldwin Vauclain compounds, including all 45 of the Class M-6 Moguls.

Southern Pacific Moguls No. 1727 and No. 1744 were built by the Baldwin Locomotive Works in Philadelphia, Pa., in November 1901. Because of maintenance problems, by 1908 they

were converted to non-compound simple engines and were superheated a decade later.

While the low-drivered Consolidations had 44,000 pounds tractive effort for pulling freights over the Sierra, Moguls such as Nos. 1727 and 1744 were no slouches. After the superheaters were installed, the M-6s had a tractive effort of 33,200 pounds and could move a heavy freight on "the flat." Since they could haul as many cars on the San Joaquin Valley floor as a cab-forward Mallet could do over the mountains ("Malley" in SP parlance), the Moguls were dubbed "Valley Malleys."

The M-6s were also quite versatile: they had the ability to operate on light rail and get around sharp curves and when

needed could also be called upon to move a passenger train at 65 mph. And the M-6 Moguls were durable — most had a life of 50 years, lasting into the 1950s.

These engines worked all over the Southern Pacific system, but spent most of their careers in California. The "Valley Malleys" were liked by crews, dispatchers and the engine house.

No. 1727 is on display in a park in Dunsmuir, Calif., while No. 1744 was purchased by a Rio Grande Pacific Corp. subsidiary, restored to operating condition and was briefly in tourist service in Belle Chase, La. After being sold, it operated for the 2007 season on the San Luis & Rio Grande in Colorado, and was taken down for maintenance in 2008.

— A.R.

edy this by adding a 45-degree elbow, hose and glad hand.

While oiling, it was noted that the underside hardware on this small engine is nicely arranged, with the axle pump eccentric on the first driver and the pump itself located on the axle center line just in front of the second axle. Two cams for the simplified Stephenson's valve gear are on the third axle. All appliances are neatly plumbed and the axle pump bypass valve is under the engineer's side of the cab.

The cab has a side-to-side, swing-off roof that gives good access to the controls. Cab details include a pressure gauge, throttle, reverse control, sight glass, check valve for the axle pump, boiler fill plug, lubricator and single flue burner with superheater. The lubricator drain is on the fireman's side under the rear of the cab.

On my engine the front roof hinge rod held the roof up about 1/32-inches because it was hitting the boiler fill plug, but a pair of pliers and two minutes got it seated nicely. Connections between the engine and tender include the high and low pressure water lines located below the drop plate and a spring-wrapped gas line with the nozzle for the poker burner.

The tender is a 90C-class Vanderbilt, nicely done with good rivet detail and unsprung Andrews trucks. The butane tank is rectangular and the prototype oil compartment has been effectively used for water to add nicely to the run time for a relatively small tender. There is a hand pump accessed through the

hinged water hatch, and the axle pump bypass return line is easily seen.

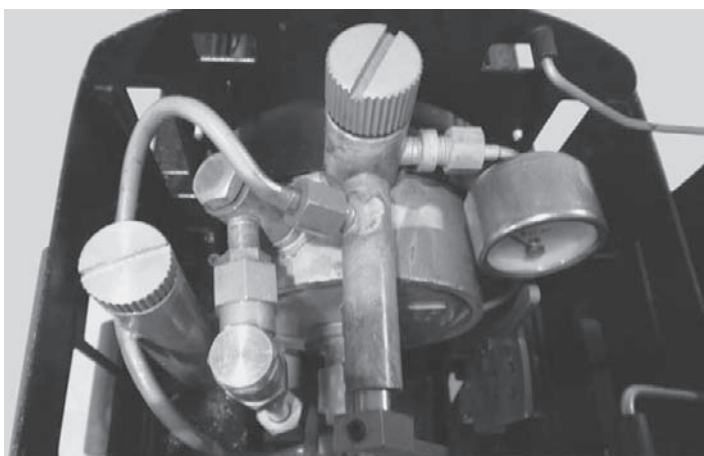
On the initial filling of the butane tank, I had some difficulty getting the short spout on inexpensive canisters to properly seat on the recessed fuel filler valve. The result was a lot of liquid butane blowing into the water compartment of the tender and causing frost to form on the outside.

Normal fillers with a long extension were tried and had no problem whatsoever. The solution for the butane filling problem with disposable cans was to remove the large, flat rectangular top of the oil compartment by taking out the four 1.6mm machine screws holding it down. It was then easy to align the disposable fuel canisters for minimum waste. The butane tank is large for a single flue boiler and easily allows 45-minute-plus runs. The tender high and low pressure water lines were shortened and connected using Accucraft's usual knurled nut on the hoses. The gas nozzle was inserted in the poker burner, and the engine and tender coupled in the longest draw bar position in anticipation of running on the small radius track. Since the M-6 is small, the engine and tender can actually be moved on and off the track with the tender connected.

After filling with steam oil, water and fuel, the burner was lit from the smoke box and the flame popped right back on the burner. From completely cold, the engine was up to 60 psi and lifted its safety valve in less than 10 minutes.



Under the dome: *Safety valves, real and imagined.*



Back head: *Controls are easy to access.*

While the cylinder cocks are a nice feature, I didn't use them because in the open position the control levers extend below railhead level. So after steam was raised, the engine was threaded through steaming bay turnouts and out on the mainline with the Redeker-standard paper towel over the stack — to avoid showering the engine and those nearby.

Only 17 community cars were available, but the M-6 marched right off with them. There was a slight intermittent ticking sound toward the front of the engine that soon cleared itself. As was determined later, apparently one of the first driver axle boxes must not yet have been completely free.

This pushed the first axle just far enough out of level so the first driver side rod pin just touched the back of the cross head. The drivers do have a lot of lateral play which allows the engine to get around tight 48-inch radius curves with all drivers flanged. But this makes the cross head clearance close. It is recommended that the axle boxes be exercised when the engine is upside down and being oiled before running the first time.

The Mogul was well-timed from the factory and responsive. It ran at a sustained dead slow pace for lap after lap, and also showed it could run well in excess of the prototype's top speed of scale 65 mph. The M-6 was happy at everything in between. After three successful runs on Diamondhead's big track,



Tight curves: *Taking a five-footer at Diamondhead.*

it was decided to try the five-foot radius small track. The engine performed well in both clockwise and counterclockwise operation.

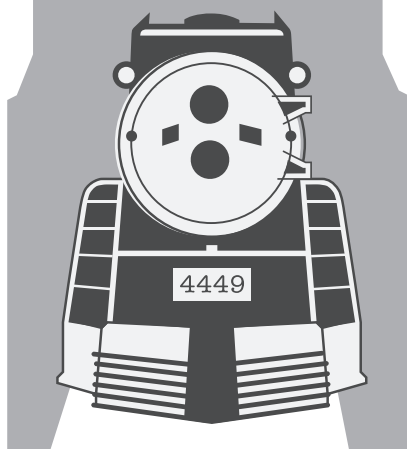
While the lubricator is not adjustable, the engine tested was able to run 1½ hours and still have oil remaining in the lubricator. The water glass was reasonably accurate, but the engine was run much of the time with the boiler nearly full just short of priming.

The engine is well sealed, as it would come to a stop if the bypass valve wasn't opened after water first appeared in the stack. At one point after the engine stopped with a full boiler, the cylinder cocks and the bypass valve were opened and the engine left sitting there. It eventually cleared itself and walked right off — though it did cover itself with steam oil.

In summary, the M-6 Mogul is a nice addition to Accucraft's stable of Southern Pacific engines. Only minor problems were encountered, including filling the butane tank with inexpensive canisters, an initial plugged burner nozzle, and the front roof cab hinge rod re-work. In the author's opinion, the omission of the rear tender air hose was more than offset by the excellent treatment of the steam dome and its details.

Over three days at Diamondhead, the M-6 was able to be run six times. It was virtually trouble free and was a lot of fun to operate. Two other Accucraft M-6 Moguls were run for the first time at the event, and reportedly both ran well too.

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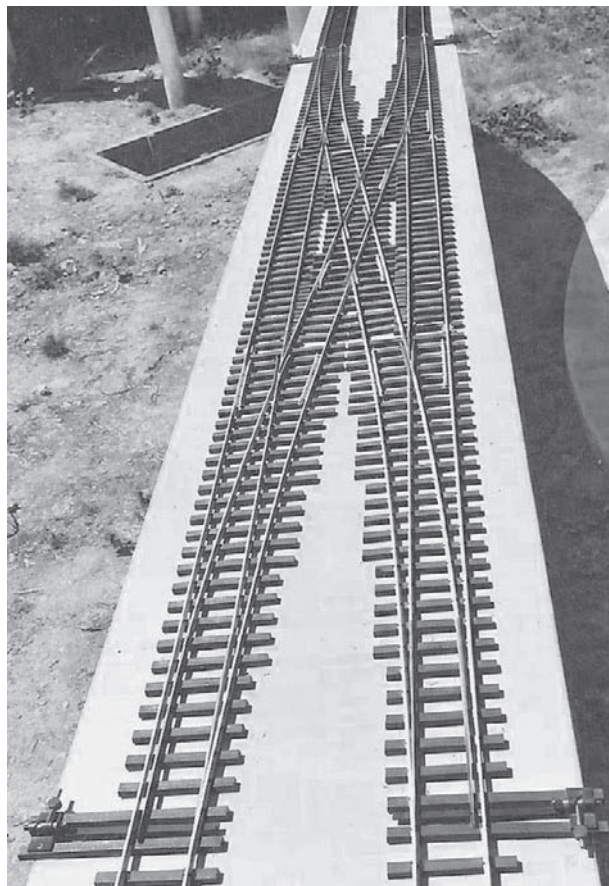


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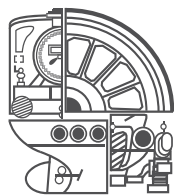
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TIMETABLE

May 5-10, 2014 — National Garden Railway Convention, Embassy Suites USF, Tampa, Fla. Info: <http://wendysetzer.wix.com/ngrc2014tampa/>.

June 20-22, 2014 — West Coast Regional Meet, Sacramento Valley Garden Railway Society. Garden railroad tours. Info: <http://www.svgrrs.org>.

July 16-20, 2014 — National Summer Steamup, Lions Gate Hotel, McClellan, Calif. Multiple layouts, more than a dozen loops, 38,000-square-foot steamup hall. Clinics, dealers' room, door prizes, swap tables. Lions Gate room reservations: (866) 258-5651. Info: <http://www.summersteamup.com> or (702) 431-3568.

Aug. 1-3, 2014 — Finger Lakes Live Steamers Summer Invitational, Clyde, N.Y. Gauge One, ground-level garden railway and two-track elevated layout. Info: Roger Caiazza, (315) 622-3257, info@fingerlakeslivesteamers.org.

Aug. 23-24, 2014 — Denver Garden Railway Society Annual Summer Steamup. Info: Mike Harris, (303) 750-4423 or dgrssteam@q.com.

Sept. 3-6, 2014 — Thirty-fourth Narrow Gauge Convention, Overland Park Convention Center, Kansas City, Mo. Layout tours, modular layouts, clinics, dealers. Info: <http://www.kansascity2014.com>.

Sept. 18-21, 2014 — Fall Steamup, Staver Locomotive, Portland, Ore. Info: <http://www.staverlocomotive.com>.

Jan. 11-18, 2015 — International Small Scale Steamup and Arts Festival, Diamondhead Inn and Suites, Diamondhead, Miss. Info: Patrick Darby, k5pat@bellsouth.net, (985) 867-8695; <http://www.diamondhead.org>; Diamondhead Inn & Suites: (228) 255-1300.

Feb. 13-15, 2015 — Presidents' Day Steamup, Electric City Trolley Museum (Steamtown), Scranton, Pa. Info: Clem O'Jevich Jr., (570) 735-5570 or wrunloco@aol.com.

Regular steamups

Michigan Small Scale Live Steamers (MSSLS). Info: <http://www.mssls.info/>.

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

Upstate N.Y. Steamers. Several steamups per year in various locations around Western New York. Info: <http://www.tinyurl.com/upstatedeamers>.

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

On the Brink Live Steamers. Wednesday, and occasional weekend, greater Sacramento, Calif., steamups on elevated live-steam tracks at two locations. Info: Paul Brink (916) 635-1559, paulbr@aol.com.

Puget Sound Garden Railway Society. Two steamups per month, one at the Georgetown Powerplant in Seattle on the second Saturday and a steamup at a member's track on the fourth Saturday. Info: <http://psgrs.org/livesteamtimetable.html>.

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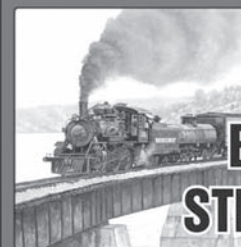
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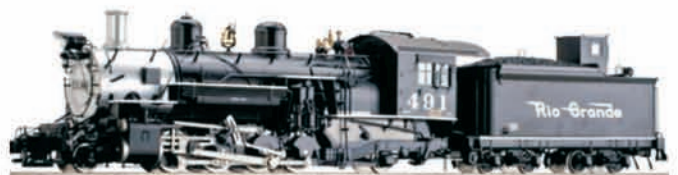
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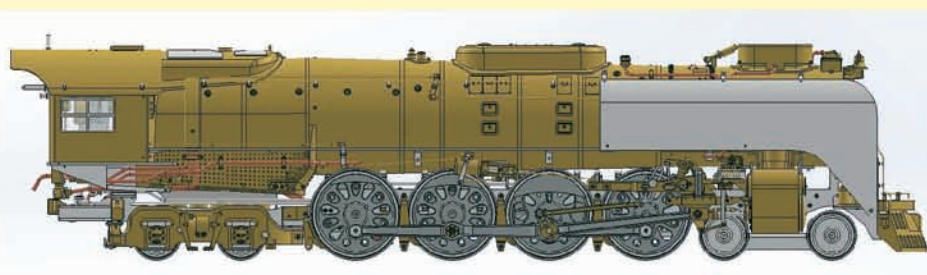
The BR Merchant Navy Class "Clan Line 35028" is now going into production for late spring 2014 release. This engine will be equipped with an

alcohol-fired, C-type boiler and functional Walschaert valve gear on all three cylinders. Limited production available. Advance reservations with

a \$1000 deposit are required. **Pilot model shown; subject to change.** See our web site for additional information.

Union Pacific 4-8-4 FEF3 No. 844

The pilot model for this most popular locomotive is now under development and expected to be available for evaluation this summer. The production version is projected for late 2014 release and will be available in black or two-tone gray. **Reservation deposits will be required after the pilot model is approved.**



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