No. 116, May/June 2011 $6

STEAM IN THE GARDEN

SHAY

- A review of Aster's 2010 Alishan Shay by Ross Schlabach
- Dan Rowe's Shay series concludes
- Also inside: Live-steam Model-T rail truck; N&W No. 611 electric-to-steam conversion; East Coast steamup; Boy Scouts and small-scale live steam ... and more!

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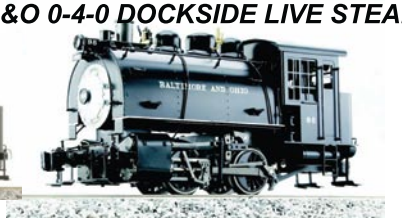

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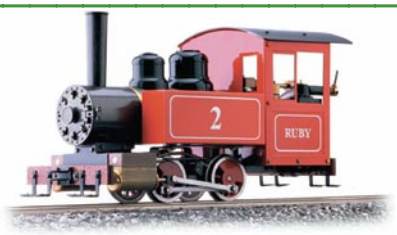

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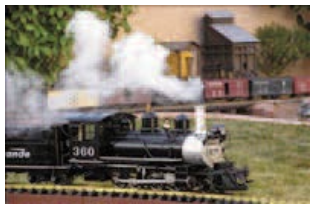

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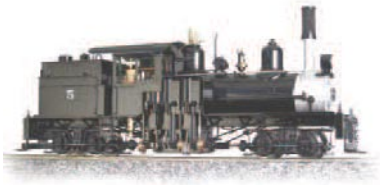

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STEAM IN THE GARDEN

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

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Cover: The 2011 model of the Aster Alishan Shay. Photo by Ross Schlabach.

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RAILWAY POST OFFICE

Ron Brown would be proud

I seldom write to magazines, but after receiving my No. 114 issue (January/February 2011), all I can say is that Ron Brown would be so proud of your first effort — congratulations.

Fortunately, I have had a chance at Diamondhead to meet most of the new staff, at one time or another, and it is so great to hear that Marie Brown will be remaining as part of the new *Steam in the Garden*.

I don't know when my subscription expires, but I am enclosing a money order both to continue and to help out a little bit.

Dr. Carol Homuth
Fern Valley Railroad
Harriston, Ontario

Longtime subscriber bugged Ron

The current issue of *Steam in the Garden* is absolutely wonderful. I've been a subscriber to the magazine since Vol. 1, Issue 1. and even built an engine using the serialized articles by Mel Ridley (Vest Pocket Climax). I remember bugging Ron Brown for an advance peek at the next installment. He wouldn't share the next issue in advance. Bummer.

This issue is the first time I've read all the articles from top to bottom. You have hit on a pretty good mix of subjects.

You have also assembled a pretty good group of people to keep *SitG* afloat. I'll be interested to read whatever Richard Finlayson has to say.

Keep it up and don't hesitate to ask for help if warranted.

Clark Lord
Las Vegas, Nev.

Correction

In the March/April 2011 issue (No. 115), in the article "A safety valve that goes 'pop,'" the phone number and e-mail address for the manufacturer of the pop-valve, Wee Bee Loco, were misprinted. The correct phone number is (317) 931-8392 and the correct e-mail address is shayloco-1@comcast.net.

The digital archive files of the article have been updated and we apologize to our readers who were inconvenienced and to Jim Saunders, owner of Wee Bee, for the mistake.

Send your letters, brickbats, etc. to: *SitG*, P.O. Box 719, Pacifica, CA 94044 or sitg@steamup.com.

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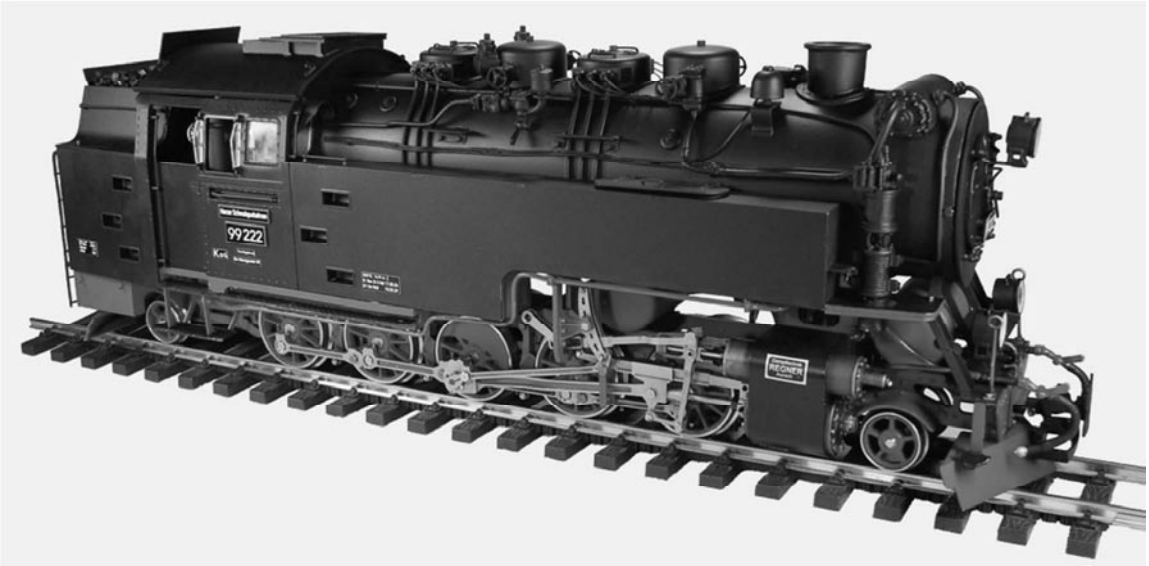


HSB BR 99 222

This is a model of the DRG. 99 222 series, which can still be seen in operation in the Harz mountains at the HSB.
This kit, modeled in 1:22.5 combines many innovations from ***REGNER*** including Teflon pistons and piston valves.

Willamette Shay

Characteristics of this model include the arrangement of the steam engine to the boiler top, as with the tractors.
Power is transmitted by a chain drive, to the cross-shaft and then to the universal joints.
The frame and the cab are made entirely of wood. This engine is modeled after a Willamette Shay, c.1916
The model is available as a semi-assembled kit, i.e. the steam engine and boiler are assembled and ready.

For more information: www.traindept.com 757-971-8191

LATEST WAYBILL

Coal burner: *Accucraft said it will issue a new version of its K-28 that uses coal for fuel.*

Accucraft goes coal-fired on K-28

Continuing its recent focus on big locomotives, Accucraft Trains Co. in late March announced that it is creating a new version of a 1:20.3-scale Denver & Rio Grande Western K-28 — last built in 2008 — but this time, the company will venture into new territory with purpose-built coal firing.

The Union City, Calif.-based maker of brass electric and live-steam locomotives, rolling stock and accessories said the price for the Gauge One K-28 would be $6500. The company didn't provide a delivery date. It did say that the locomotive would be part of its "custom line," which in the past has meant that no more than 50 units would be built.

The K-28 will be 40-inches long, including tender, stand eight inches tall and will be 6¼-inches wide.

Accucraft said that the boiler will be fully stayed, will be fitted with a radiant superheater and have a working pressure of 80 pounds-per-square-inch (psi) and a test pressure of 160 psi. The coal firebox will have a grate area of 62 square-centimeters (9.6 square-inches) and dimensions of 60 millimeters by 104 millimeters (2.4-inches by 4.1-inches).

Other features of the redesigned locomotive will include cylinder drain cocks, a safety valve, a pressure gauge, a water sight-glass, an adjustable lubricator, a boiler feed, an axle pump with bypass valve and a tender water pump. While a number of hobbyists and hobby firms have converted existing butane- or alcohol-fired small-scale live steam locomotives to coal firing, this is Accucraft's first venture into this fueling method.

Earlier in March, Accucraft said it would release the Southern Pacific GS-5, a 1:32-scale locomotive for Gauge One, also under the "custom line," usually meaning only 50 units will be built. Accucraft sold an S.P. GS-4 in both alcohol and butane firing in 2007 but the latest model will apparently only be offered in butane. Accucraft said the GS-5 would be available in both Daylight livery or all-black and will cost $5000.

Accucraft is on the web at http://www.accucraft.com/ or by calling (510) 324-3399.

In memoriam: Maj. Gen. Robert Houghton

A World War II hero who became fascinated with small-scale live steam and led the world's largest Gauge One group for decades died earlier this year. Maj. Gen. Robert Houghton, for 45 years the president of the Gauge One Model Railway Association (known as G1MRA), died at age 98 on Jan. 12, at his home near Lewes, Sussex, England.

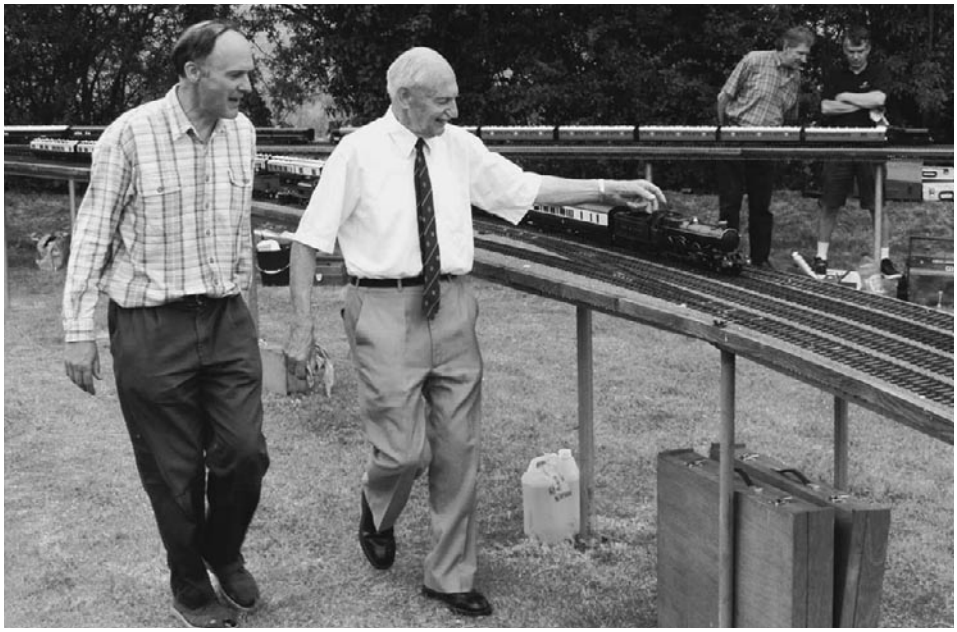
Well into his 90s, said friend Roy Scott, Maj. Gen. Houghton was "putting youngsters to shame by

ducking and diving" under Gauge One model railroad layouts.

Maj. Gen. Houghton, who joined the Royal Marines in 1930, received the Military Cross for bravery in 1942 and was awarded the Order of the British Empire in 1948. He was a leader of a commando raid on the French port of Dieppe during the Second World War and was captured and held as a prisoner of war for three years. During that time, under orders from Adolph Hitler, he and all other commando POWs were shackled; in Maj. Gen. Houghton's case, for 411 days, according to an obituary in *The Telegraph* of London.

Following his release, Maj. Gen. Houghton was named commander of the 40 Commando battalion, which he led during the British withdrawal from Palestine in 1948. He continued in the Royal Marines until his 1964 retirement.

A lifelong interest in clockwork model trains led to his discovery of small-scale live steam and joining G1MRA in 1959. Maj. Gen. Houghton was elected president of the group in 1963, when it had "around 100" members, almost exclusively in England, said his obituary in the *G1MRA Newsletter*.



Grew Gauge One: *Maj. Gen. Houghton, seen here with his son, Adam, on the left, led Gauge One group. Photo courtesy: G1MRA.*

Today, G1MRA counts more than 2200 members worldwide and the group credits Maj. Gen. Houghton's work as its president in large part for that growth. It was during this time that G1MRA acquired a "reputation as a particularly sociable and co-operative" group of enthusiasts and it was Maj. Gen. Houghton's "standards in team spirit, optimism and behavior" that forged the reputation, the *Newsletter* reported in its Spring 2011 issue.

The *Newsletter* (which is more like a magazine than what North Americans would think of as a newsletter), also provided remembrances from a number of friends and fellow live-steamers, including a description of his layout at his home, which Maj. Gen. Houghton and his two sons, Adam and Neill, helped build in 1968.

Famous for filling his locomotive water tanks with a "trademark

brown teapot" (which he discovered fit a "particularly sensitive boiler" in a Märklin Pacific), Maj. Gen. Houghton's favorite locomotives, the Newsletter reported, "were his Wrighton Midland Compound and GCR 'Sir Sam Fay,' even though, from his youth in Devon, he had a strong affection" for Great Western Railway models.

"A 'character' in the most full sense of the word," wrote the Newsletter, "Robert was nevertheless approachable, convivial and benevolent. We salute his memory and mourn his passing. His contribution to G1MRA will act as an inspiration and model to us."

Aster to build 0-4-0 butane

Choosing a small side-saddle tank locomotive in a unique scale, Aster Hobby Co. Inc. of Japan said in April that it would release an 0-4-0 at the end of May.

The locomotive, a model of the engines used by the Iyo Railway of Japan and manufactured by Krauss Locomotive Works of Munich, Germany, is a 1:21 scale, 45mm gauge live-steam locomotive. The engine will weigh in at 2½ kilograms (5½ pounds), be 300mm long (11.8 inches), 95½mm wide (3¾ inches) and 150mm tall (5.9 inches).

The Krauss model will be butane operated with a center-flue boiler and have safety valves, a pressure gauge, a water gauge with blow down valve, regulator valves, a by-pass valve and its lubricator will be the Roscoe-displacement type. The boiler will hold 88cc (almost three ounces) of water when 80 percent filled, with a 55cc (1.9 ounces) water tank and a 46cc (1½ ounces) gas tank.

The engine will sport outside Stephensons' valve gear, with two cylinders of 10mm bore (13/32-inch) and 13mm stroke (one-half inch) and will take a 55cm (21.6 inches) minimum radius curve.

The company will offer the model in both green and black livery and will offer it in both kit and ready-to-run configurations. While Aster Hobby USA has not provided pricing, the kit is priced in other markets around $US3150, and the ready-to-run there is at $US4040.

Brown award in Sacramento

Magazine founder and longtime small-scale live steam hobbyist Ron Brown will be honored at the 2011 National Summer Steamup, organizers said, with a perpetual trophy that will be given each year to the most enthusiastic live steamer at the event.

The "Ron Brown Memorial Award," named after the founding editor of *Steam in the Garden* magazine, will be voted upon by those in attendance at the annual event, scheduled this year July 13-17 in McClellan, Calif., a suburb of Sacramento. The award is co-sponsored by Steam Events LLC, the group that organizes the National Summer Steamup, and *Steam in the Garden*.

"Ron was a good friend of mine and a good friend of the hobby," said Jim McDavid, a member of Steam Events. "He wanted people in the hobby to have fun with small-scale live steam and I think this trophy will help us remember that having fun is the most important part of model trains."

More information on the Summer Steamup is available at http://www.summersteamup.com/.

Roundhouse picks an English 2-6-4

Rumors had Roundhouse Engineering Co. Ltd. delivering a narrow-gauge U.S. profile locomotive this spring, but what was announced was a 1:22-scale tank engine modeled on the motive power for a U.K. railway that was literally a "milk run."

The Leek & Manifold Valley Railway, in existence in Staffordshire from 1904 to 1934, had two 2-6-4 locomotives, Nos. 1 and 2, that primarily carried milk from regional dairies to the standard-gauge mainline, in addition to light passenger service. Roundhouse has introduced a new model based on those engines, which the company describes as "large" — they weigh in at five kilograms (11 pounds) and are 430mm long (almost 17 inches), 120mm wide (4¾ inches) and 120mm tall (6.1 inches).

The locomotives are designed for 900mm-diameter curves (almost three feet) and have a gauge-conversion kit available, allowing them to run on either 32mm or 45mm track.

The Leek & Manifold locomotive comes with and without radio control and the nameplates for both engines, the E.R. Calthrop and the J.B. Earle, are provided. The company can provide the locomotive

in any of its standard paint colors.

As with most Roundhouse products, the Leek & Manifold is a butane-fired boiler with the company's "FG"-style burner. It has an outside frame with two double-acting slide valve cylinders, operated by Roundhouse's simplified Walschaerts-type valve gears. There is a water top-up system and water gauge and the locomotives come with standard steam regulators, a safety valve, pressure gauge, displacement lubricator, gas regulator and reversing gear.

Roundhouse Engineering, of Wheatley. Doncaster. England, set the price of the manually operated Leek & Manifold at £1270.83 ($US2097.89) and the radio-controlled model at £1408.33 ($US2324.87). The company is on the web at http://www.roundhouse-eng.com/.

Backyard Bay Area July steamups

As part of its West Coast Regional Meet — an event designed to bridge the gap between the 2011 NMRA National Model Railway Convention and the National Summer Steamup, both being held in Sacramento in July — the Bay Area Garden Railway Society has scheduled two days of live steaming in the San Francisco area.

The Regional Meet — a West Coast garden railway club traditionally hosts this event in years when the National Garden Railway Convention is east of the Rockies — will have a standard series of garden railway open houses, running from July 10-14.

Additionally, the group has secured six garden railways that cater to small-scale live steam and is encouraging steamers to bring locomotives and rolling stock to run on these layouts, which will be open Sunday-Monday, July 10-11. While the West Coast Regional Meet has a $25-per-family fee, BAGRS officials have decided that steamers can run on the six backyard railways at no charge.

More information on the West Coast Regional Meet is available at http://bagrs.org/westcoastregional/ while information on the backyard steamups is at http://bit.ly/wcrm-steam.

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Photo by Michael Martin

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Setting up at a train show made them

Steaming Scouts

By Scott E. McDonald

"What will you do this year to introduce someone to the live-steam hobby?" Steve Baker's question in the January/February issue of this magazine resonated with me, if for no other reason than after asking it, he went on to mention a variety of possibilities, one of which was with the Boy Scouts. That specifically rang true with me, as I have been working with them since 1999. Each year I am involved with local Boy Scout troop and its annual Spring Train Show.

Scout steam: *McDonald explaining the innards of a model locomotive to Scouts Billy Vician and Robert Palisin of Troop 964.*

How I got involved is an interesting side story, as I know many of us get into live steam discussions during our "real lives." I was at community-band practice one evening wearing a Diamondhead Steamup polo shirt, and during mid-rehearsal break our then-director noted my shirt and engaged me into a conversation about live steam. He told me that he was an avid HO modeler and his boys were in the local Boy Scout troop that holds a train show each year at the same middle school where we hold our rehearsals. During the conversation he asked if I could set up some track and demonstrate, so I said sure.

Troop 964 of Dale City, Va. (www.troop964.org) started to host its train show to fulfill two needs:

- One was to offer a program where Scouts could

Indoor running: *Scouts and the general public enjoying the excitement of live-steam locomotives.*

easily earn their railroading merit badge without the need for the parents to invest in a hobby where the Scout might lose interest after a short period of time.

• The other was to provide the troop Scoutmasters who were model railroaders, and looking for an excuse to set up their modules in an area that would support several local HO clubs coming together, as they had a need to exceed. Just the HO clubs alone connect over 120 modules in horseshoe fashion in the gymnasium for the general public's viewing pleasure.

The troop also invited other clubs that ranged from Z-gauge up to O-gauge. Lego trains, hand-pushed Brio, Operation Lifesaver is also involved to help round out the show ... and now I was providing the G-gauge, as they knew it, and live steam to boot.

That would really be fun for the public. What a great idea — I sure wish my troop had done this so many years ago.

For the first few years I set up on the concrete pad in front of the school. It was an oval of track with 10-foot radius and a very slight grade, but nothing that couldn't be overcome. I had my portable steamup table, and as the general public arrived, I was the first thing they would see and the last as they departed. The Scouts would come out every 20 minutes in groups for a quick demo about live steam and my live diesel GP9s, and then move on to the next "station" for another demo as they worked toward their merit badge. This set up worked great for the first few years.

The show is held the second weekend in March and on average, the weather at this time of year isn't all that bad and was usually tolerable, until 2005. That was a year that many of us will remember as that was the year of Hurricane Katrina. Now Katrina was still a few months away, but that March was cold. It was wet, it was windy and the Scouts and I were miserable out in front of the school.

Outdoor fun: *The early days of the Boy Scout Train Show out in front of the school; note McDonald's heavy coat and knee pads.*

I had been doing the show now for six years at that point, and over those years I had gotten just a little bit older, and getting down on the concrete even with knee pads was also getting old. I needed to change my mode of operation.

Jump forward a few months to post-Katrina, Cabin Fever in York, Pa. in 2006. Tom Bowdler

Train show traits: *Both live steam and 7½-inch gauge greet the visitors as they arrive.*

arrives from Rochester, N.Y. with his portable elevated layout made from pink foam insulation sandwiched between luan plywood. His design was lightweight to where it can easily be handled and set up by one person. It could easily be made in a few weekends and makes a nice presentation piece.

Tom chronicled his construction in *Steam in the Garden* Nos. 77 and 87 and I was running on it all weekend at Cabin Fever. As we ran trains that weekend I picked his brain endlessly and made it my goal to create my version to support the Boy Scout show so I could move inside out of the cold and wind.

I returned home from Cabin Fever with the fever to build. In two weekends and five evenings in-between, my version was ready to go for the March 2006 Boy Scout Train Show. The resulting size was a small, six-foot by nine-foot oval with two loops of old LGB sectional track I had lying around. Six sections total on small "A" frames to support it. It easily transports in my vehicle and also provides fun in the basement during winter months.

Not only was I pleased with being inside with my new track, so were the Scouts and general public, who will pull up chairs and sit and watch and converse with me for more than an hour watching the trains and my demonstrations in my assigned classroom. While the track is small, my Roundhouse Forney, Berkeley Locomotive Works Cricket, and a version of Mike Martin's

BAGRS/Basic Project Loco easily negotiate the tight radius curves at a slow comfortable pace.

Over the last 13 years of operation at this show, I have become one of the regulars that returning patrons look forward to visiting. Not only have I engaged the Scouts at a young age to the possibility of live steam as a hobby, but I have a couple of gentleman each year who run HO on the modules now running British narrow gauge live steam with me on Sunday. I have also collected a young "Z" scale hobbyist who showed up with his new Accucraft Ruby last year.

So to echo Steve's call, there are lots of opportunities out there for engaging the public. You don't need a huge track and lots of space. A moderate size track can be fine as it is the locomotive that gets all the attention. Happy Steaming!

Merits of steam: *Scouts working on their Railroading Merit Badge learning about live steam listen to a Scoutmaster.*

The series wraps up with a look at

Sand boxes

By Dan Rowe

We come to the end of the "Nuts and Bolts" series; the first half started with Shays in general and covered some of the discoveries I made researching the subject of Shay locomotives. The series' second half consisted of my observations and the drawings used for the Mapleton Tramway Shays Shop No. 2091 (named Dulong) and Shop No. 2800 (named Mapleton).

I had hoped to have more model content in the latter part of the series, but Shay research has been my main hobby for a while now. I have drawn six Lima geared locomotives. All but two of them have been in this series. Searching out the drawings has given me a good working knowledge of the Lima Locomotive Works drawing record system and I have included here some guidance on how to do Shay research.

The first drawing page covers the front and rear sanders. The front sand box arrangement shown on Card 12254 is nearly the same as the early version shown on Card 119; the only difference is the lid. The fancy ball has been replaced with a more practical cast handle. The operating handle for the front sand box Card 12208 looked like an easy drawing — there were several problems with the geometry, so I used as many of the printed dimensions as I could to make it work.

The superseded version of the Drawing 732A5027 is simply a tracing and no one bothered to use a scale to check the dimensions for accuracy. It is a simple part, but stuff like this must have been a running joke between the drafting department and the pattern shop.

Rigging Drawing 12256 for the rear sand box is for shop Number 2812. I managed to locate the cards for all the levers except 122F24 and 122F65. These are scaled from card 12256, so I only indicated the main dimensions. The Lima version of the drawing shows the long rod 122F70 not to scale. I used the true dimension to see where the operating lever is in the cab. The lever is just slightly forward of the quadrant bracket and the upper end is nearly touching the cab wall.

The front and rear sand boxes have a separate hole that can be tapped for pipe to add air operated sanders. I looked through the records and none of the Shays with 2-6x10 engines were factory equipped with air sanders. I only know of a single one of these tiny 10-ton locomotives that had an air compressor; Shop No. 621 was equipped with steam and air brakes.

This must have been a huge comfort to the operating crew, because the Leonora and Mount Sicker Railway on Vancouver Island in British Columbia, where this Shay worked, had a 13-percent downgrade section. A loaded 10-ton ore car or two five-ton ore cars must have been gingerly eased down the hill.

The final drawing page is mostly minor detail parts that did not make it in time for the other articles. The number and date plates did not have the actual font on the drawing. I drew the font from photographs of the plates I have found on eBay. I cannot afford to buy one, but the photos are usually very good for tracing. The Mapleton Shays did not have numbers assigned to them, so I left the number plate blank. None of the photos show the number

plate from the front, but I know there were blank ones because I found one on eBay.

The siphon was used on the Mapleton Tramway to take on water. I have never seen a left side photo of the hose brackets with the sheet metal cradle still attached. To me, 12-gauge steel seems a bit flimsy and would get in the way or cut hoses when it got bent.

I included two styles of push-pole pockets. The Dulong used Card 10339 and the Mapleton used Card A10310. The frame spreader is an oak beam with a groove down the center and a steel rod threaded on each end secures the beam. I drew this part wrong in issue No. 101 on the frame drawing. It is located just in front of the firebox and I drew it as a flat bar with the ends bent for a bolt flange. I was under the mistaken impression that wood spreaders were not used with steel I-beam frames. The circular cut does not support the boiler. I believe it is just clearance so the boiler lagging can be easily installed.

The valve rod gland did not make the steam engine section because the card called for (7703) is blank except for a line saying it was superseded by 652A5136. I missed the deadline with the updated drawing.

The tank valve and strainer has a bunch of parts and this made maintenance simple. To clean the strainer the bottom has a small drain plug and a two-bolt cover (01842). To pull the valve, the top two-bolt cover (01847) is undone freeing the threaded hex insert (01846) and the whole valve stem (F953) so that the valve (942) can be lifted out for inspection. The valve seat (941) can be removed by pulling the four holding studs and removing the valve body (940). Later versions of the valve stem do not have the shoulder section as it really has no function.

With the exception of the boiler, the Dulong was built from standard Plan 1553 parts. The Mapleton had features that I believe were unique. These are the completely enclosed gear cover and the front-end timbers and modified drawhead.

The foot board bracket for the Dulong, Card 4307, should be the standard Plan 1553 part, but that card did not have the necessary bolt pattern listed on it. I modified the drawing to work with the end timbers used for the Dulong.

I am not going to say that the drawings in this series are complete or completely correct. But I do know now why you don't see a lot of articles like this. Digging through the drawing references is a job.

There are two main locations of Lima Locomotive Works records. I want to thank the late Ron Brown for sending this work to both locations, which are the Allen County Historical Society and the California Railroad Museum.

Shay research tips

There are two basic drawing index forms: One is a single page form I have been calling the Drawing Card Index and the other form is titled Detail Index on the first two versions, so that is what I call them.

The Drawing Card Index is a large double-sided document that has the boiler, tanks and machinery drawing numbers listed on the front side, and the trucks, accessories and frame drawings listed on the back. Lima used the Drawing Card Index for Shays up to Shop No. 2999. The first print date for this form is 1899, so Shays before that date were not all given a record sheet.

I think they were issued a Drawing Card Index if repair parts were ordered. These early record sheet documents were corrected to record changes and sometimes the date is indicated. The top header of the Drawing Card Index has a line for index number. The index number is the reference to which Detail Index should be used.

The index number has numerical entries starting around shop number 600. The Detail Index is a multi-page document that has the drawings for a Shay Plan. Some of the early plans had more than one engine size which was confusing to me as I think of the engine bore and stroke first and file my records in that order.

If the shop number is 3000 or greater, then there is only a Detail Index. The numbering system used for the Detail Index is difficult to explain, because at first it was the booklet number of a plan, then it changed to the shop number and finally the order number. The confusing section is between Shop Nos. 2716 and 2999; this change happened 1916-1917 after the company was reorganized as the Lima Locomotive Works Inc.

The best online reference for this stuff is the California Railroad Museum online catalog for the Lima Locomotive Works. It is not a complete reference because it was made from the records in their collection, which is missing several Drawing Card Indexes.

The Mapleton Shay project used the Drawing Card Index for both Shop No. 2091 and 2800 and Detail Index 73 for Plan 1553. I also used Detail Index 2812 for Shop No. 2812 as it is a two-foot gauge Shay, very similar to Shop No. 2800, and it was built only a few months later.

As an end-note to the historical content of the series, I know that it is not all the drawings — but it is most of them. In the future, I hope to have updated articles with pictures from the shop.

A 'nuts and bolts' index

This is a list of which drawing was paired with what article; this list does not include the 29 drawings with this article.

No. 100; July/August 2008
Shop No. 2800 Mapleton Drawing

No. 101; September/October 2008
4305 Truss Rod Pads
4516 Truss Post Head
9607 Male Center Plate No.2
B10317 Front End Timbers Arrg't.
A10463 Drawhead
10912 Quadrant Bracket Set 2
10913 Std. Running Board Brackets Set 1
11065 End Timber Angle Braces No. 6
12442 Truss Post Socket
12443 Truss Heads Line 6
13007 Frame Brace Pads Set 2
13417 Brake Lever Fulcrum No. 3
13508 Steam Brake Cylinder 3"
16725 Frame Layout

No. 102; November/December 2008
4538 Boiler Saddle for 28" St. Boiler
4539 Boiler Pad for 28" St. Boiler
4787 Boiler Pad Clamps Set 17
5361 End Timber Angle Braces Style 1
10351 End Timbers Wood Deck
A10386 Grab Irons
10419 Drawhead
10724 Boiler Pad Clamps
15000 Jack Screws

No. 103; January/February 2009
T875 Grate Arrg't 36" Boot Boiler
3252 Grate Bar Connection Style 12
5370 Grate Shaker Levers Style 6
11810 Grate Details Style 1 Line 13
11818 Grate Details
11825 Grate Arrg't. Rocker 27 ½" St. Boiler
11945 Ash Pan

No. 105; May/June 2009
Engine Assembly 2-6x10
7200 Cylinder Head Set 4
7400 Steam Chest Covers No. 3
8406.07 Eccentric Straps Set 1
8409 Eccentric—Standard Set 1
8411 Eccentric Blades No. 1
A15502 Bottom Bracket
A15705 Crank No. 58
15706 Counter Balance
317A5001 Cylinder

No. 106; July/August 2009
339 Cylinder Details
369 Piston Rod Stuffing
5308 Tumbling Shaft Boxes Set 12
5566 Bottom Bracket Oil Cup Cover
8000 Valve Stem Crossheads No. 2
8203 Tumbling Shafts
8704 Crank Shaft Bearing Details
942A5067 Valve Stem Crosshead
392A5004 Crosshead Shoe
392A5003 Crosshead
4009 Link Hanger
5058 Crosshead Guide
7405 Slide Valve
7504 Piston Heads
7506 Piston Rods No. 1
7601 Valve Stem & Yokes
7813 Crosshead Pins No. 5
8102 Solid Link
8708 Bracket Brace
8908 Connecting Rod

No. 107; September/October 2009
4335 Tank Ring & Cover
15116 Tank 400 & 500 Gallon
A15139 Tank Lugs Style 4
15158 Tank Grab Irons No. 1

No. 109; January/February 2010
231 Line Shaft Detail
4834 Coupling Ring 10"
8803 Gear No. 23
9163 Line Shaft No. 23 Gear

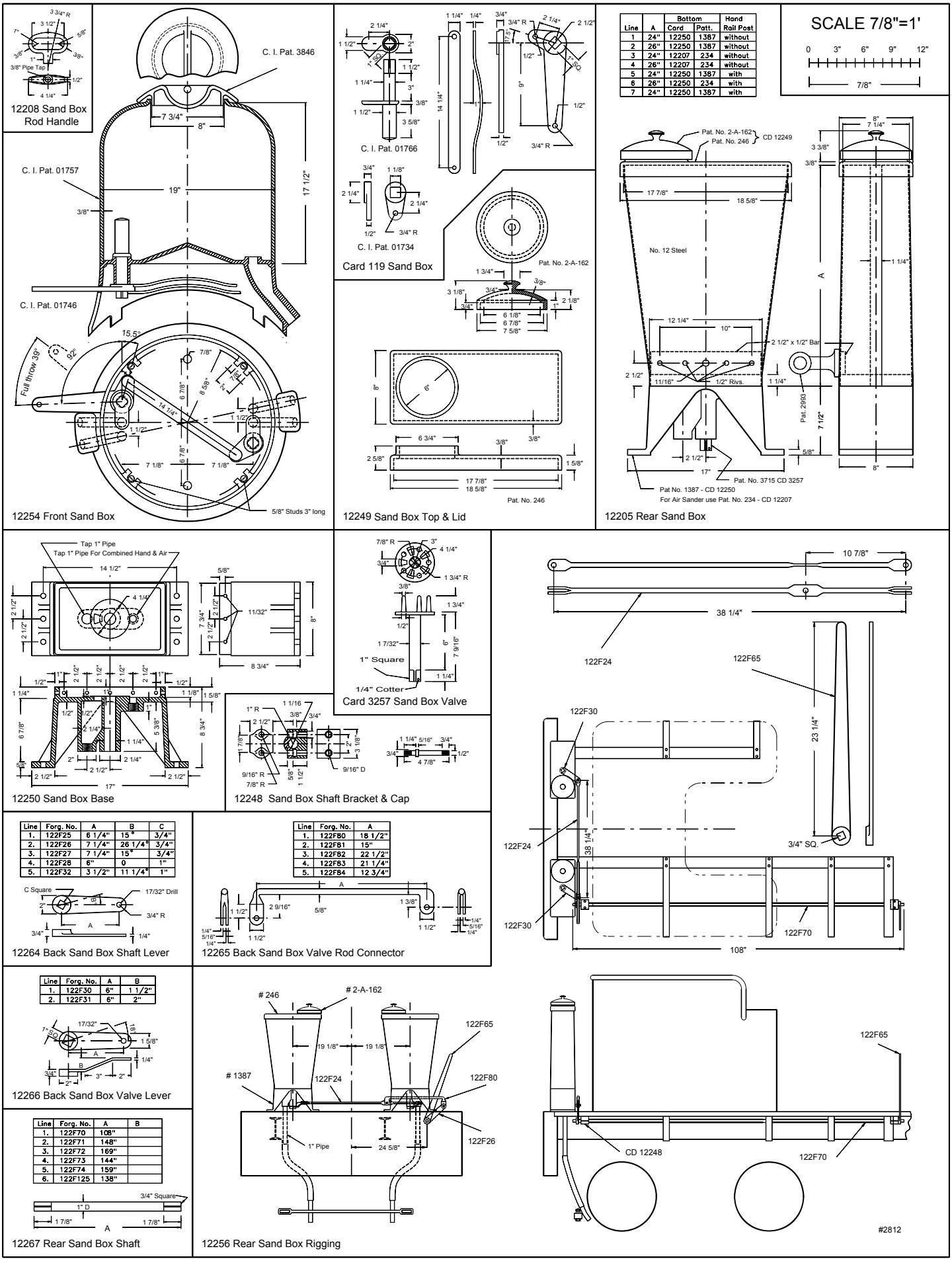
No. 111; May/June 2010
16006 Special Truck
242 Truck Casting Details
9802 Brake Heads
9805 Brake Beams
9807 Truck Brake Rods No. 8
9820 Brake Shoes
235 Truck Box
3165 Truck Column
742A5116 Gear No. 17
742A5114 Pinion No. 17
9521 Truck Bolsters
9801 Brake Fulcrums
9809 Truck Brake Levers
9982 Driving Wheel Center—22"
10213 Driving Axle No. 49
10337 Socket Washers
Truck Center Plate Pattern H-6 ½

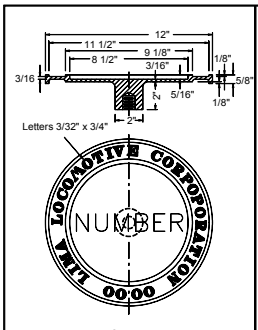
No. 112; July/August 2010
16033 Truck Plan AB
8818 Gear Bolts
9935 Wheel Center 22"
10213 Driving Axle No. 49
9785 Diagonal Braces & Cross Tie Bars
A9780 Diagonal Brace Bar
9846 Brake Beam Fulcrum
9414 Truck Bolster End Separator No. 2
9255 Truck Box Cap
9420 Truck Columns Set 1
5509 Truck Side Bearing Bases
10153 Truck King Bolts No. 4
A9978 Steel Tire No. 107
9634 Truck Center Plate
9262 Truck Box for No. 23 Gear
A9513 Truck Bolsters & Plates
9534 Bolster & Tie Bar Washer
A9548 Spring Center
9772 Arch & Tie Bars
9835 Brake Hangers Style 4

No. 113; September/October 2010
5354 Truss Post Guides Set 8 & 11
5558 Boiler Side Pad No. 3
9606 Side Bearing
10719 Boiler Pad Set 1
11118 Cab Closed Wood
13246 Plan 1553 End Supplement
13249 Plan 1553 End Supplement
13250 Plan 1553 End Supplement
A15610 Steam Bracket
15614 Top Bracket Supplements

No. 114; January/February 2011
359 Water Gauge Detail
3208 Smoke Stack Saddle 10"
11428 Steam Turret For 28" St. Boiler
11659 Dome Casing 16"
12013 Dome Casing—16"
12702 Fire Door & Details
15447 Boiler 27-¾" Straight
15459 Boiler 27-¾" Straight

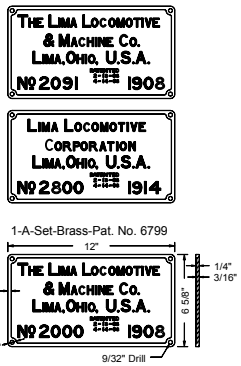
No. 115; March/April 2011
Reverse Lever Assembly
3228 Diamond Stack Details
4574 Bell Frame & Yoke
4773 Reverse Lever Quadrant
4849 Diamond Stack 10"
5471 Reverse Lever Shaft Stand No. 9
8303 Reverse Lever
8308 Reverse Lever Shafts No. 6
8316 Universal Ball Coupling
8354 Reverse Lever Details
10000 Headlight Brackets No. 5
10010 Hand Rail Brackets
11420 Hand Rail Post
12534 Bell 25 pound
12800 Exhaust Pipe Elbows Set 2
12802 Exhaust Pipe
12956 Front End & Door
13000 Smoke Box Braces Set 5


12208 Sand Box Rod Handle
C. I. Pat. 3846
C. I. Pat. 01757
C. I. Pat. 01746
12254 Front Sand Box
C. I. Pat. 01766
C. I. Pat. 01734
Card 119 Sand Box
Pat. No. 2-A-162
12249 Sand Box Top & Lid
Line | A | Bottom Card | Bottom Patt. | Hand Rail Post
1 | 24" | 12250 | 1387 | without
2 | 26" | 12250 | 1387 | without
3 | 24" | 12207 | 234 | without
4 | 26" | 12207 | 234 | without
5 | 24" | 12250 | 1387 | with
6 | 26" | 12250 | 234 | with
7 | 24" | 12250 | 1387 | with
SCALE 7/8"=1'
Pat. No. 2-A-162
Pat. No. 246
CD 12249
No. 12 Steel
2 1/2" x 1/2" Bar
1/2" Rivs.
Pat. 2993
Pat. No. 3715 CD 3257
Pat No. 1387 - CD 12250
For Air Sander use Pat. No. 234 - CD 12207
12205 Rear Sand Box
Tap 1" Pipe
Tap 1" Pipe For Combined Hand & Air
12250 Sand Box Base
Card 3257 Sand Box Valve
12248 Sand Box Shaft Bracket & Cap
122F24
122F65
122F30
122F70
3/4" SQ.
108"
12264 Back Sand Box Shaft Lever
12265 Back Sand Box Valve Rod Connector
12266 Back Sand Box Valve Lever
12267 Rear Sand Box Shaft
246
2-A-162
1387
122F80
122F26
1" Pipe
24 5/8"
CD 12248
12256 Rear Sand Box Rigging
#2812

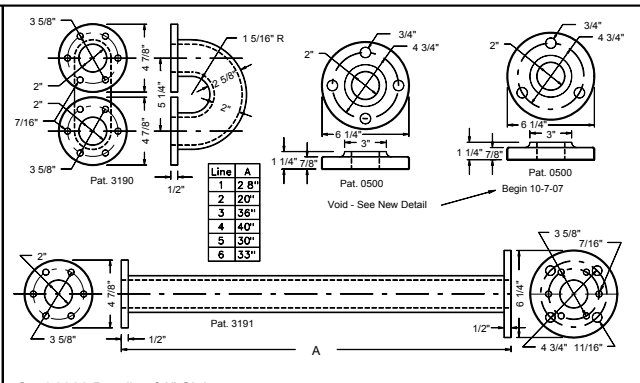


12" - 1 - A - Set - Brass Pat. 9739
For 20 Ton to 45 Ton Locos
Style 1

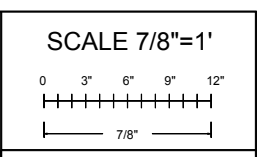
12909 Number Plates

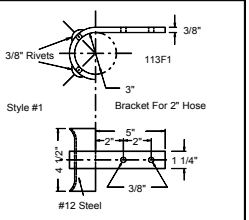


12957 Date Plate

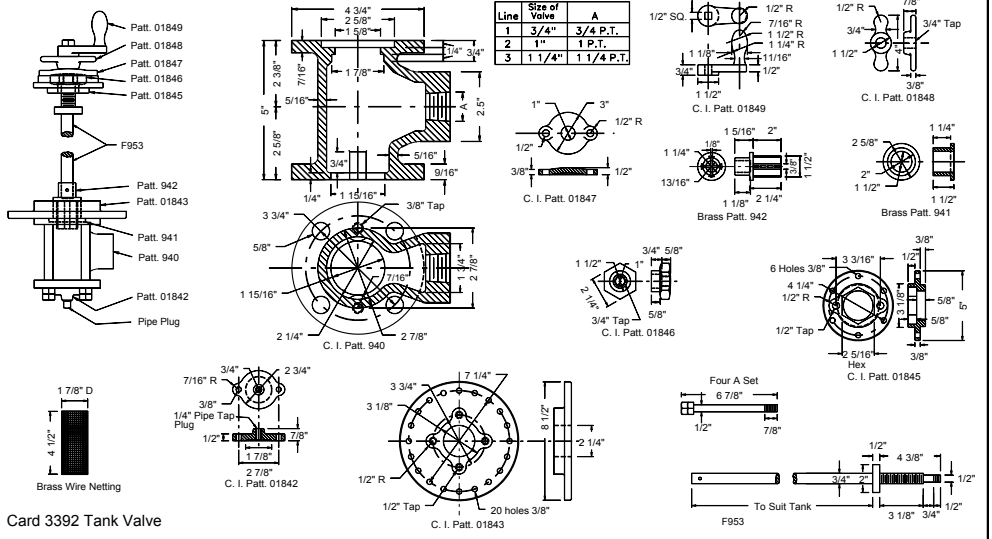


Card 3388 Details of 2" Siphon

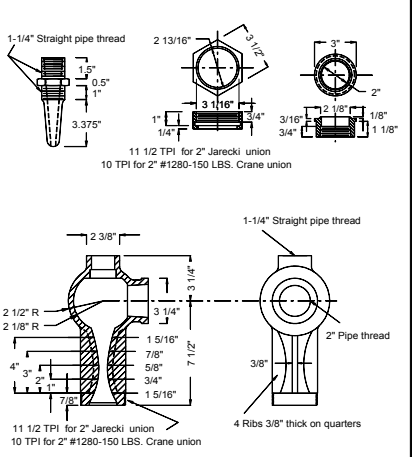




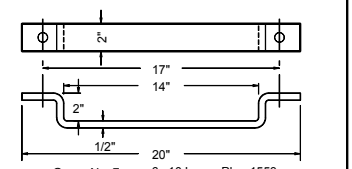
11301 Hose Brackets



Card 3392 Tank Valve

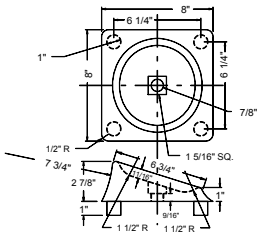


11302 2" Siphon

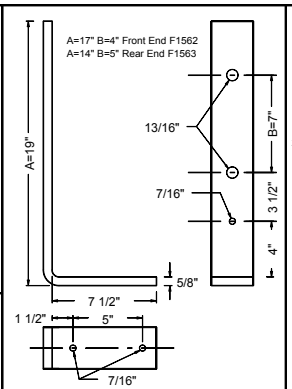


Group No. 7 6 x10 Locos Plan 1553
Steam Brake

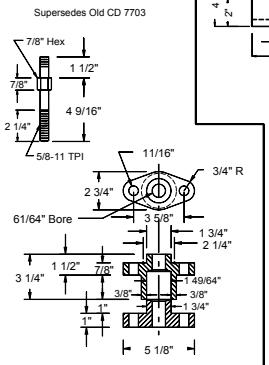
13416 Brake Carriers



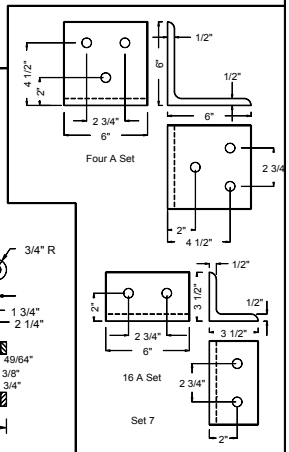
10339 Push Pole Pocket



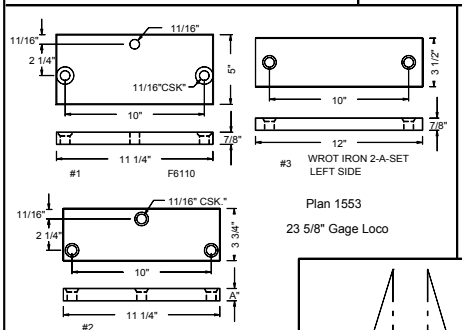
Card 4307 Foot Board Bracket



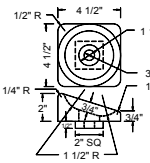
652A5136 Valve Rod Gland



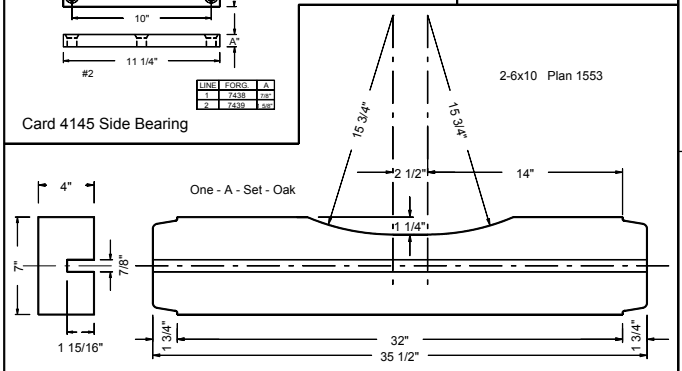
A11008 Frame Angles



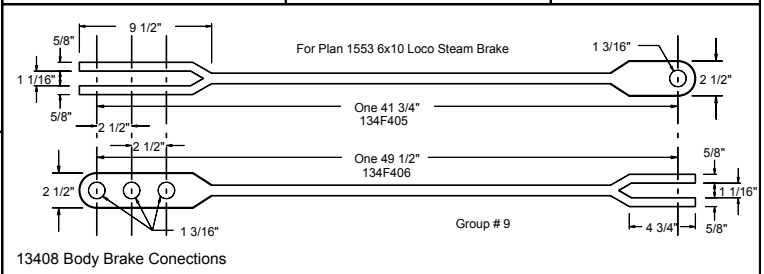
Card 4145 Side Bearing



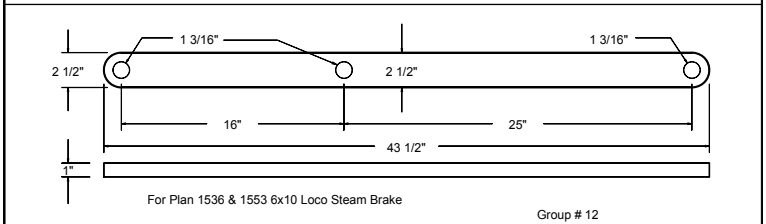
A10310 Push Pole Pocket



9535 Frame Spreader



13408 Body Brake Conections



13413 Brake Details

A review:

The Aster Alishan Shay

Text and photos by Ross Schlabach

To many, all that is needed to evoke images of a unique and interesting locomotive is to say "Shay." And there has been enough interest in this steam locomotive that many manufacturers have tackled models of Ephraim Shay's invention. Previously, Aster Hobby Co. Inc. of Japan had produced a couple of versions of a large, standard-gauge U.S. prototype and a version of what is commonly known as the Alishan Shay, a narrow-gauge locomotive that ran in Taiwan. Well, it has been a long time, but Aster has decided to release a revised and updated version of this model in kit and factory-built forms.

Let's take a look at this locomotive and see how Aster has re-designed and upgraded a model.

At first glance it is easy to see that the new Shay is a small, but beautifully executed, model. While the original Alishan Shay model made considerable use of zinc-alloy castings in the engine and on the trucks, this new version has none. The entire model is made of brass, copper and maybe some bronze here and there. Virtually all of the action, detail and interest is on the right side of the model, with nary a casting or detail on the left side, except for the two dummy ash pan doors on the lower firebox.

But the right-hand side has interest to spare with

You don't Shay

Beginning in the 1870s, sawmill operator Ephraim Shay started creating logging locomotives out of vertical boilers and two-cylinder steam motors that were geared in a ratio that provided excellent pulling power; his design was so unique, he patented it.

By the 1880s, according to Kyle Neighbors' 1969 book on Shay, the sawmill owner concluded that he couldn't realize the potential of his design alone and partnered with Lima Machine Works (later Lima Locomotive Works) to mass-produce the engine. Ultimately, Lima built more than 2700 of the locomotives.

Aster Hobby Co. Inc. of Yokohama, Japan, has been building small-scale live steam model locomotives and accessories since 1975 and during that time created three earlier models of Shay locomotives, according to Jim Pitts' web site for his Southern Steam Trains LLC:

- The original Alishan Shay Type-B locomotive, released in 1977. Built to a 1:22.5 scale, this two-truck, three-cylinder engine had a pot-type boiler that was heated with alcohol wicks underneath. It negotiated a 1¼-meter minimum radius (49¼ inches) and the company build about 1350 of the models.
- Seven years later, Aster released its Western Maryland Shay, modeled at 1:32 scale on a real U.S. prototype. The three-truck, three-cylinder locomotive featured Stephenson-type valve gear and it was fired with butane through a center-flue boiler. Aster sold 500 of these models.
- One of the largest Shay locomotives built by Lima, the Greenbrier, Cheat & Elk Shay No. 12 was (for most of its life) a three-truck, three-cylinder locomotive (it was changed to a four-truck locomotive midway in its life, but Aster's 1990 model is based on how it emerged new from the shops). The 1:32 scale locomotive is a center flue, butane-fired boiler with three fire tubes, two safety valves, a pressure gauge, water gauge, water check valve and superheater. This Shay had one of Aster's smallest production runs, with only 80 models built.

— dc

an elegantly executed three-cylinder engine hung on the side of the boiler. Since it is likely that more kits than factory-built models will be sold, I'd like to focus on the kit version and start with this jewel of an engine.

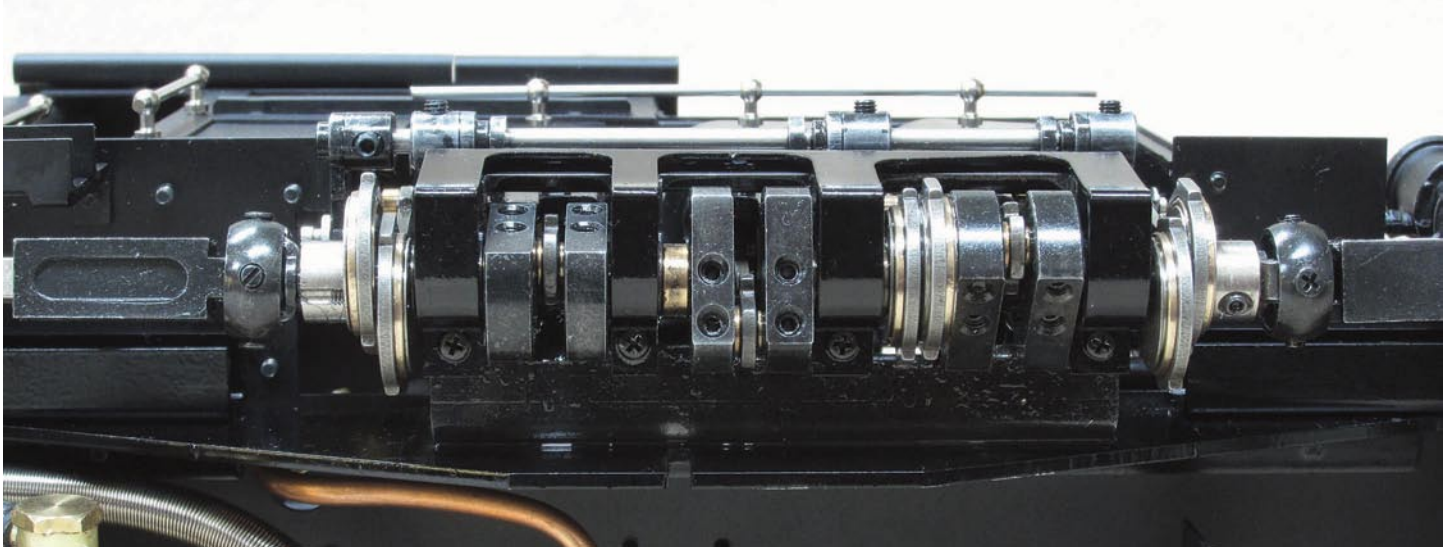
If you go back to the earlier Aster Shay models, they all shared one thing in common: a factory-built engine mechanism. For this new Shay, the model was initially offered in various stages of construction, but I understand that now only the full-kit version and factory-built models remain, and so my focus is on the full kit. This engine is greatly improved over the earlier Alishan versions, and four of the kit's 12 assembly drawings are devoted to its construction and timing. When properly assembled, the engine is so well made that you can roll the locomotive over a section of track and the crankshaft and valve mechanism will spin easily in time.

The earlier Alishan model used zinc castings for the individual steam chests but for the new model, these parts are all brass and are separate components in a more normal Aster design practice, which greatly aids in the lapping and seating of the D-valves.

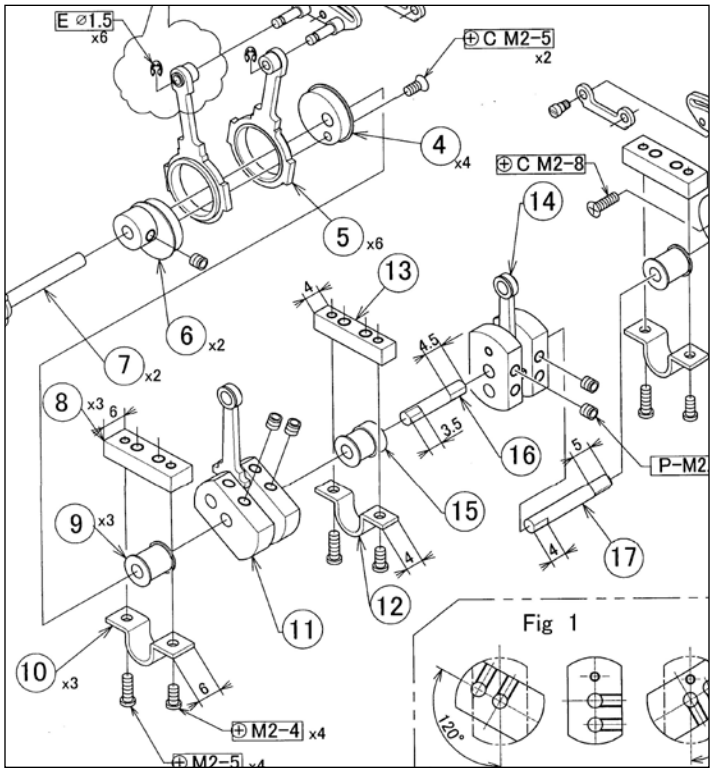
The crankshaft is made up of three crank assemblies that are joined by two straight main journal sections and two end-journal sections with universal horns pre-attached. These journal sections have flats

2011 Aster Alishan Shay

- **Loco type:** Shay Class-B 28-ton (three cylinder, two truck).
- **Scale:** 1:22.5.
- **Length:** 16¼ inches.
- **Height:** 5 5/16 inches.
- **Width:** 3⅞ inches.
- **Boiler:** Single, center flue.
- **Fuel:** Butane, 37ml (1¼ oz.).
- **Water tank:** 400ml — 80% full (13½ oz.).
- **Min. radius:** 1.5 meters (~60 inches).
- **Cylinders:** 9mm bore (.35 inches), 10mm stroke (.4 inches).
- **Water pumps:** Tender hand pump and axle pump.
- **Drive ratio:** 2:1.
- **Couplers:** Link-pin standard (optional knuckle couplers).
- **Kit price:** $3,400.



Crank it up: *Above, the engine is so friction free that the reversing quadrant operates the valve mechanism very smoothly over its entire range. Right, a detail from the assembly manual.*



precision ground into them to allow individual set screws to bring the three crank assemblies into the proper relationship with each other. All the main journals ride in main bearings that should provide long wear but also allow for replacement if those caps start to wear out.

The valve eccentric rods are bushed at both ends to provide the same long wear and close tolerances. The valve mechanism is delicate with the eccentric rods fastened to the expansion links by very small e-clips. I don't know if Aster provides many extra e-clips in the kit, but these parts are so small, a few may go missing during assembly.

But that's a small price to pay for an exquisite engine mechanism. The engine is so friction free that the reversing quadrant operates the valve mechanism very smoothly over its entire range — a real change from the stiff mechanism I encountered on Aster's Western Maryland Shay.

The boiler is a center-flue design that is common to Aster practice for butane operation on smaller locos. It is small, as would be expected on a locomotive of this size, but it does make steam easily. The burner is quite quiet and lights easily from under the smokebox. In a noisy environment, it is so quiet you might even think that it did not light. The gas valve is very fine in operation and is therefore easy to regulate. The gas tank is not large but, if memory serves, the Shay ran for about 20-25 minutes before needing a refill.

The operating instruction booklet shows a type of gas filler device that accommodates a style of butane can different from those most readily available here in the United States. This filler is not absolutely necessary, but the loco's gas tank does have a slightly different Ronson-type valve that is recessed into the tank fitting and may require a thinner filler probe than do other gas tanks, whether they come from Aster or Accucraft.

Aster owners familiar with the C&S Mogul will be very pleasantly surprised by the ease of gas operation on this Shay. One other new feature on the fuel system is the addition of a second fuel fitting, mounted into the rear buffer beam. This fitting allows the connection of Aster's Utility Car — an optional two-axle car that has both an auxiliary fuel tank and a water tank. In use, this connection approximately doubles the Shay's fuel capacity. I should add that there is no external water connection on the Shay to access the water in the Utility Car.

Also of note is that the cab is fully equipped with a good water glass and a pressure gauge. The entire cab was detailed in nicely machined brass components that were a real pleasure to look at.

A welcome addition to this Shay is a truck-mount-

— *Continued on Page 30*

ACCUCRAFT TRAINS
MUSEUM QUALITY BRASS MODELS

Climax
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available: Q1 2011

Southern Pacific 4-6-0 #8, #9
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

East Broad Top #12
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

D&RGW C-25 2-8-0
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available: Q3 2011

Forney 0-4-4 & 2-4-4
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available

Plantation 0-4-2
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available

Mogul 2-6-0
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available

D&RGW K-36 2-8-2
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available

Southern Pacific GS5
- 1:32 Scale, 45 mm Gauge
- Butane Fired
- Available: Q3 2011

Pennsylvania T1 4-4-4-4
- 1:32 Scale, 45 mm Gauge
- Alcohol Fired
- Available: Q3 2011

Pennsylvania Caboose
- 1:32 Scale, 45 mm Gauge
- Brass
- Available: Q3 2011

H8 Allegheny 2-6-6-6
- 1:32 Scale, 45 mm Gauge
- Butane Fired
- Available: Q4 2011

O Scale Model Shown

Southern Pacific M6
- 1:32 Scale, 45 mm Gauge
- Butane Fired
- Available: Q4 2011

Photo by Joe Dale Morris

CP Royal Hudson 4-6-4
- 1:32 Scale, 45 mm Gauge
- Alcohol Fired / Butane Fired
- Available

Southern Pacific F4/F5 2-10-2
- 1:32 Scale, 45 mm Gauge
- Butane Fired
- Available

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MUSEUM QUALITY BRASS MODELS

Pennsylvania K-4 4-6-2
- 1:29 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

B&O 0-4-0 Switcher w/ Slope Tender
- 1:29 Scale, 45 mm Gauge
- Butane Fired
- Available: TBA

B&O 0-4-0 Dockside
- 1:29 Scale, 45 mm Gauge
- Butane Fired
- Available

USRA 0-6-0 Switcher
- 1:29 Scale, 45 mm Gauge
- Butane Fired
- Available

W&L 0-6-0T Countess
- 1:19 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

L&B 2-4-2T 'LYN'
- 1:19 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

IOM Caledonia
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

VIK 0-10-0
- 1:20.3 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

Ragleth 0-4-0T
- 1:19 Scale, 45 mm Gauge
- Butane Fired
- Available: Q2 2011

War Department Baldwin 4-6-0
- 1:19 Scale, 45 mm Gauge
- Butane Fired
- Available: Q4 2011

BR Britannia Class 7
- 1:32 Scale, 45 mm Gauge
- Alcohol Fired / Butane Fired
- Available

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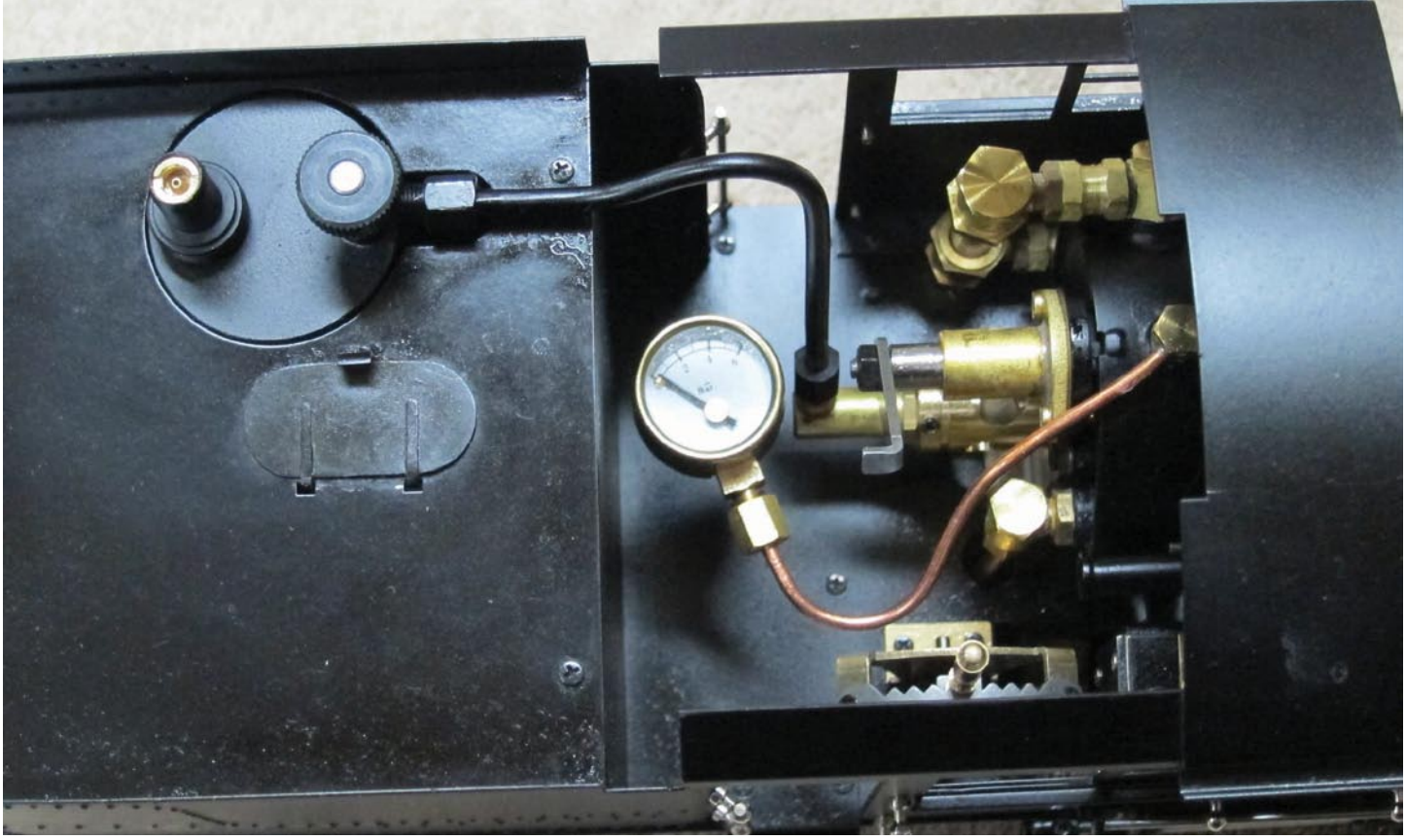
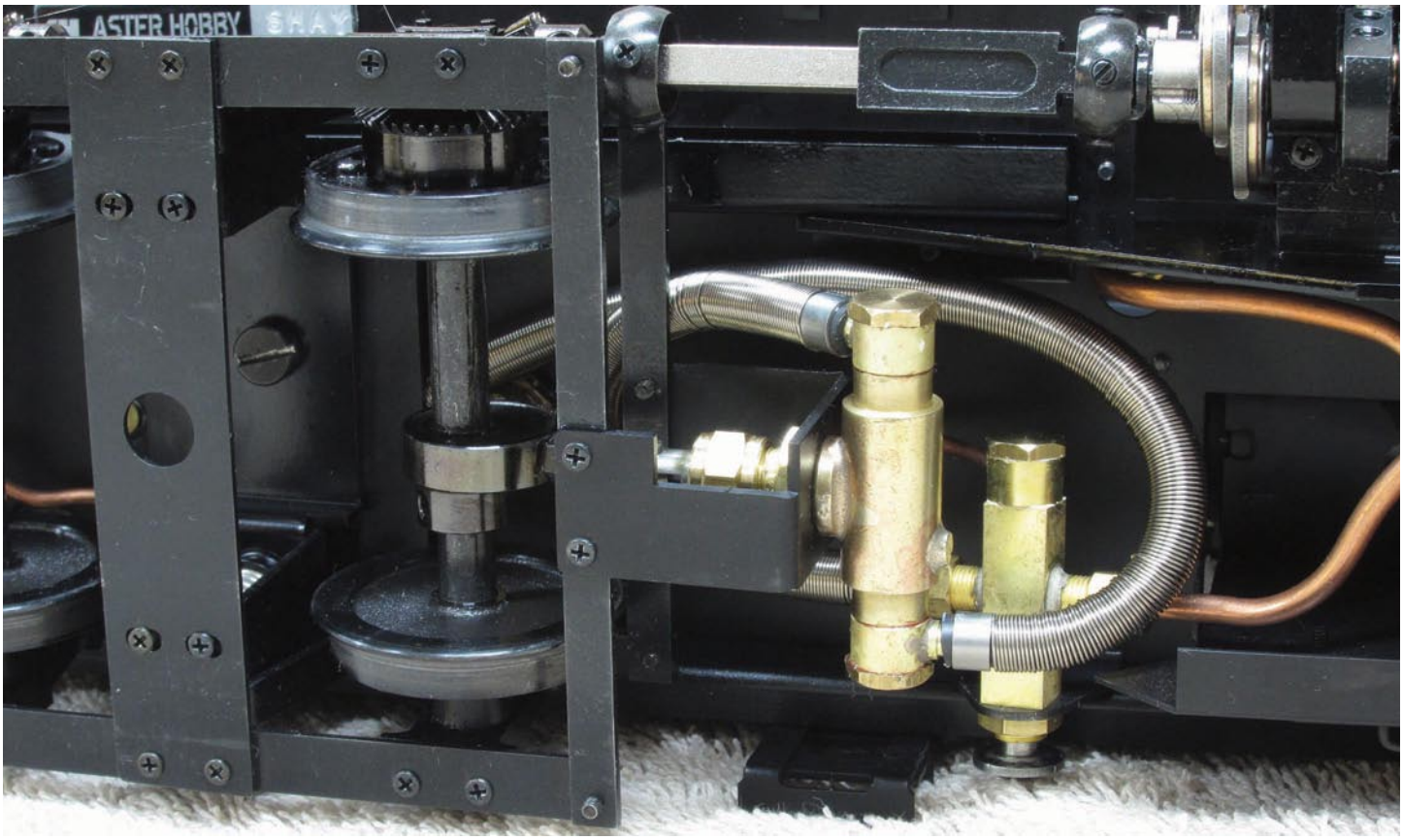


Cab cutie: *The cab is detailed in nicely machined brass components that are a real pleasure view.*



Short hoses: *Careful attention to make the hoses short should provide better tight-radius operation.*

— *Continued from Page 27*

ed axle pump. I was somewhat skeptical of that axle pump, at least initially. I didn't expect it would be able to keep up with the locomotive's water needs — given the slow rotation of the wheels that drive it — but in demonstration at Diamondhead last January, it performed as advertised. The kit's written instructions stress the importance of "priming"

the axle pump system with the tender pump before each run to avoid air bubbles that would inhibit proper pump operation. Some Aster axle pumps will self-prime, but this is not one of them, so following those instructions will insure proper pump operation. With the axle pump mounted on the rear truck, there is the potential for the pump hoses to strike the firebox on tight curves, so careful attention to this assembly step to keep the hoses as short as practical should provide better tight radius operation.

As produced, this locomotive is a model of an prototype built by Lima in the United States, exported to Asia, and used on Formosa (today known as Taiwan). So the detail is somewhat different from Shays operated in America, but not so different as to clash with appropriate sized American rolling stock. In keeping with its heritage, it does not come equipped with a bell.

And since Aster released this as an updated version of the earlier Alishan Shay, the model is built to the same 1:22.5 scale common at the time the earlier model was made. This puts it more in scale with LGB rolling stock, but it is a small loco and would pull accordingly smaller log cars.

The model Hans Huwyler, Aster's U.S. distributor, brought to Diamondhead was a production, factory-built model with no prior break-in time. So its first run was a little jerky, but in subsequent runs, the

engine smoothed out. The 2:1 gearing ratio will not let it win a slow speed contest, but you need not run it fast to get satisfactory operation.

I do have a few criticisms of this model, but they are minor. The smokebox door is fixed closed so you can't see in to check the burner, though I must admit this didn't prove any problem in operation. The lubricator tank, mounted on the front right running board, is quite large and during an early run, we used its oil up pretty fast — making a mess in the process. Aster is aware of the high oil consumption and has just released a new banjo bolt with a smaller orifice to replace the one that attaches the oil feed line to the reservoir tank. This replacement part is available for all Shay owners. Lastly the throttle is hard to access with the cab roof in place. Possibly a different operating arm could cure that apparent shortcoming.

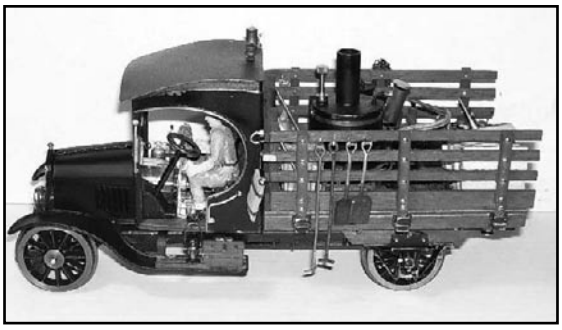
How did I like this locomotive? Well, I'm not a logger but still I was impressed enough to try and figure out a way to incorporate it into my mixed bag of standard- and narrow-gauge locos. As I said earlier, it is a jewel in construction and its operation is very nice. It's not the slowest Shay around, but it is not terribly fast either. For the brave and ambitious live steamer, this locomotive could even be the basis for a fabulous kit-bash.

It definitely could benefit from the addition of some of those goodies that Shay fanatics find so appealing: toolboxes, running board-mounted water pumps and the like. Personally, I'd like bigger domes, a bell, maybe a more Americanized cab roof. This is what helps make Shays so interesting and endearing: they are covered with dirt and detail, and are really interesting in motion. But even without any changes or super-detailing, this Shay is a delightful locomotive. So you might want to add one to your roster.

Building a steam-powered Model-T

Rail truck

Text, photos & drawings by Howard Maculsay



Inspired by Sonny Wizelman's "Matilda," a live-steam rail truck itself inspired by a similar engine at the 2008 Diamondhead — and knowing that many Ford Model-T trucks were used as rail vehicles — I decided to build a steam-powered Model-T patterned after the stake-side truck the company built in 1925.

Sonny also helped out on this project by showing me a miniature boiler, butane tank and steam-motor he had found from Germany, which would fit my rail truck perfectly.

The cab

I made the under-carriage from .032-inch thick brass sheet, attached to two oak deck beams (five-inch by 21/64-inch by one-half-inch) using hex-head screws. The truck's bed decking and cab floor will be one-eighth-inch thick mahogany plywood scribed to represent individual planking.

The mockups of the truck's cab and hood/radiator were done by cutting out and attaching the cab drawing to light card stock using spray adhesive. The mockups and drawing changes were repeated until all the clearances needed were met. Particular attention was paid to the clearances for the butane tank and burner, since they will have to fit under the hood and pass through the cab.

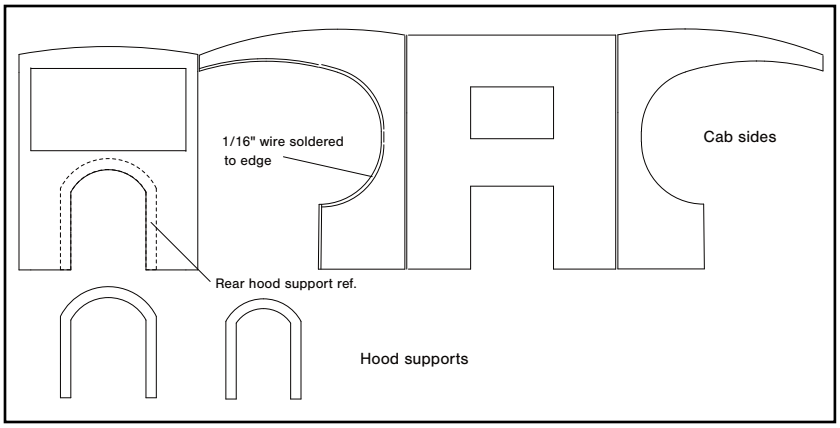
The cab and hood/radiator will be made as a single removable assembly. The cab is made from .015-inch thick brass sheet. The cab drawing shows the positioning of the rear hood support and the wire beading that will be added along the edge of the door openings. The hood supports are brass channel bent to approximate the shape of the radiator. The open side of the channel faces out so that a wire beading soldered to the hood's front and rear edges will fit into the channel.

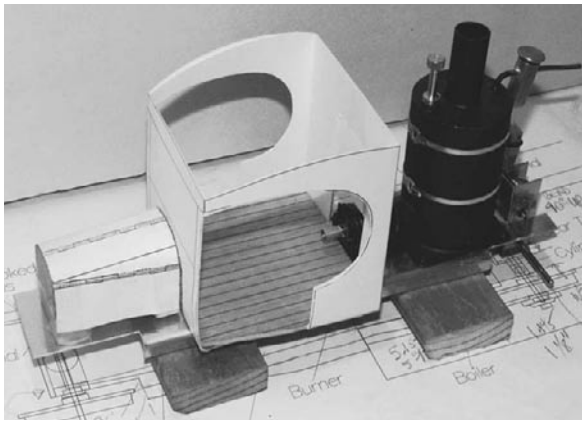
I tend to use T-pins a lot for holding things in place for soldering. The rear hood support was readied for soldering by pinning it to the cab's front wall using my ceramic fiber soldering pad as a base. The opening for the front windscreen had yet to be cut using my nibbler.

After making the 90-degree bends at the two rear corners of the cab, the cab's right-front corner can be soldered.

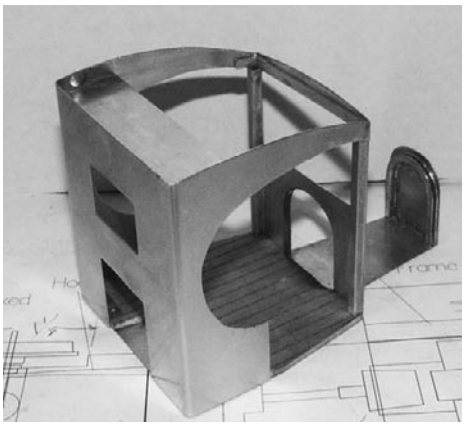
Across the inside of the cab's front, I added a reinforcing strip of brass to stiffen up the top of the windscreen frame. Down each side of the windscreen, I added a length of one-eighth-inch square brass tubing to form the two front corner posts.

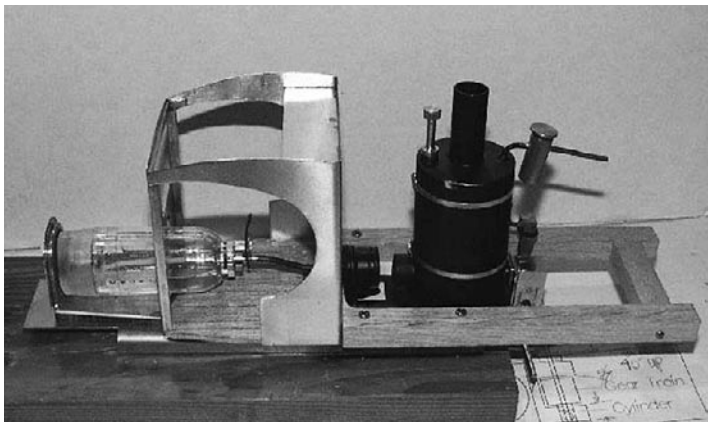
The top of the cab sides needed some stiffening, so I added a rectangular brass piece near the top at the back. This also holds a short portion of the sides at right angles to the back wall before allowing the sides to curve in towards the narrower front wall.





Cab fitting: *The cab and hood are made as a single assembly, as the drawing and mockup fitting show.*





Cab completed: *The finished cab-hood assembly, which then has the gas tank inserted to make sure it fits under the hood.*

Having finished the soldering on the cab, I connected the cab with the hood/cab base connector by soldering it to the bottom of the rear hood support. Onto the inside of the cab's back wall I soldered a couple of L-shaped brass pieces to secure the cab to the wood floor and in-turn to the base connector using escutcheon pins. The pins will extend down into the insulation layer as part of the cab's positioning/fastening scheme. Another pin will be used to position the front of the hood and a single 2-56 screw down through the floorboard and threaded into the brass under-carriage will secure the whole cab assembly.

A quick temporary assembly of the cab with the under-carriage at this point verifies that the butane tank fits into the hood through the front cab wall cutout and that the hose connection to the burner is aligned and the spacing all works.

From the top view of the cab you can see one-eighth-inch square tubing at the front corner posts.

The removable roof is 2¾-inches square, cut from .010-inch thick brass sheet. The compound curve was accomplished by hand and using various diameter bottles from our refrigerator.

A mounting flange was formed and soldered in place on the underside of the cab's roof. The flange just snug-fits down inside the cab's top to make it easily removable.

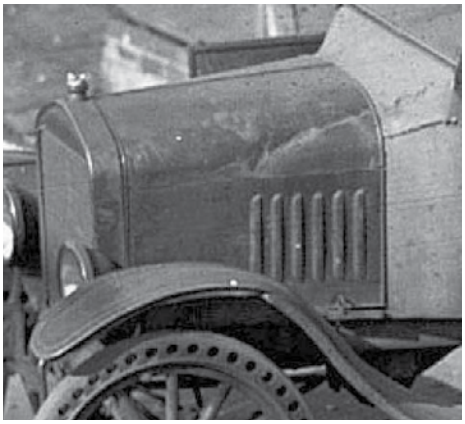
The front window is cut from a piece of microscope slide glass, $1\frac{13}{16}$-inch wide by one-inch. A windscreen was fabricated to swing open from the bottom. The microscope slide glass was cut to just under the width of the cab's windscreen opening to accommodate a brass C-channel pieces on each side.

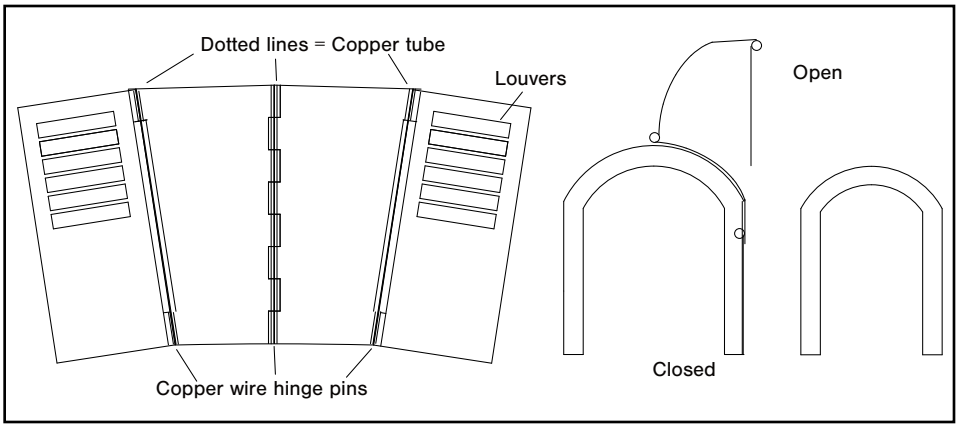
The bottom of the windscreen has a piece of 3/64-inch diameter brass rod soldered to the side channels. At the top, in order to get a hinge effect, the side

Building a steam-powered Model-T rail truck: the series

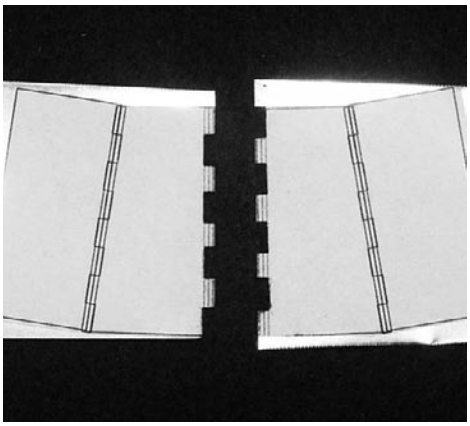
After skipping two issues, this series finally continues. Back in issues Nos. 111-112, we covered the project's inspiration and resource materials used, the steam components, the burner test, the general arrangement drawing, building the under carriage/frame and the insulation layer and cab/hood connector.

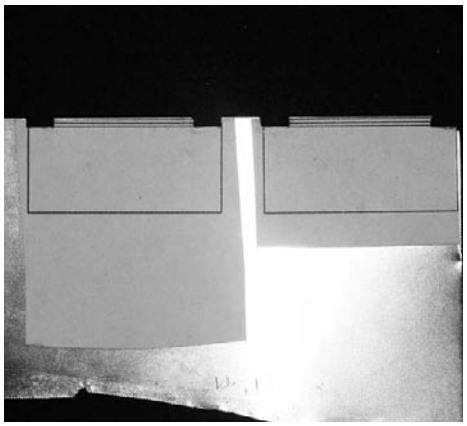
In No. 113, the article mistakenly skipped over the main fabrication steps. Starting with this issue, we are picking up with building of the cab. Then in the next issue, we'll complete what was started back in No. 113, the finishing touches.

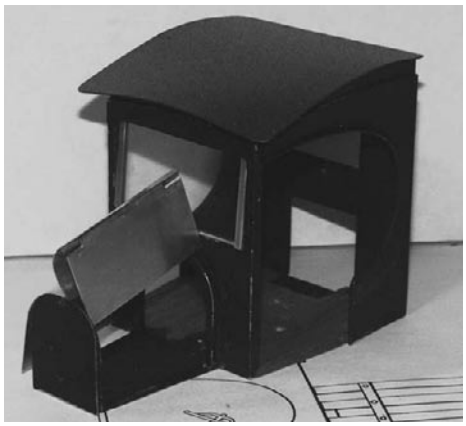




Hood ornament: *Louvers in the prototype Model-T's hood, shown left, are in the element's drawing, above.*







Hood hinges: *A nibbler tool was used to create the hinges, which shown are installed in the cab assembly.*

channels are drilled at the top to accept a piece of 3/64-inch brass rod. With the end of the rods bent down at 90 degrees, they insert into the top of the one-eighth-inch square channel that forms the cab's front corner posts, making the windscreen easy to remove.

The roof's underside was sprayed with a high-temperature, flat-black paint, while the top was sprayed with a black-textured metallic coating by Dupli-Color (available at auto parts stores). The cab was also sprayed and all sprayed parts received a coat of dull coat (lacquer).

The hood

I decided to give a try at making a working hinged hood, like the real Tin-Lizzies. The hinge at the top is like a piano hinge, design-wise.

My first attempt at making a hinge took three pieces. I got instructions for making hinges from a book recommended by Vance Bass, "The Complete Metalsmith" by Tim McCreight. Thanks Vance.

The hood is made with four pieces of .010 brass sheet, some .0625-inch diameter copper tubing for hinges and brass wire for hinge pins to fit inside the copper tubing. The hinge at the top of the hood is a full piano-type hinge since it's visible.

Spray-gluing my patterns to the brass sheet, I used my nibbler to cut the "teeth" in both the left and right sides of the top hinge. I carefully soldered a piece of copper tube along the top hinge's fold line meshing the teeth of the two hood halves.

The trick of making ultra-thin pieces of solder is key to not getting solder to flow beyond the each individual tooth. Careful application of flux also limits the flow of solder into unwanted places. I used a small pencil-sized torch to apply heat to all the surfaces involved.

The side hinges are somewhat simpler, a single hinge point at each end of the hood and one in the middle. The side hinge is not visible from the outside of the hood.

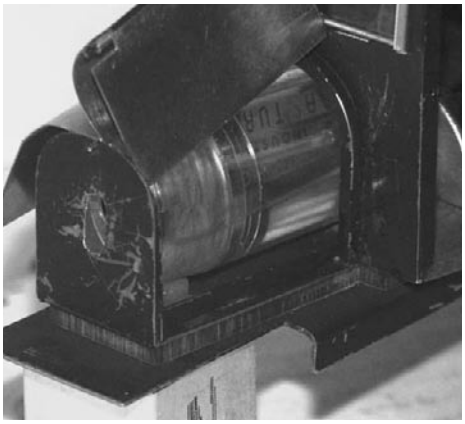
After some minor cleanup, a careful cut through the copper tube between each adjacent tooth yields a working hinge when a piece of thin brass wire is inserted down through the adjoining copper tube segments.

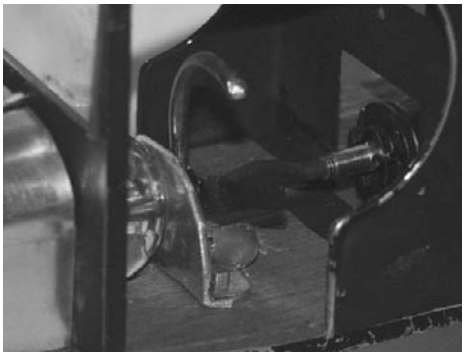
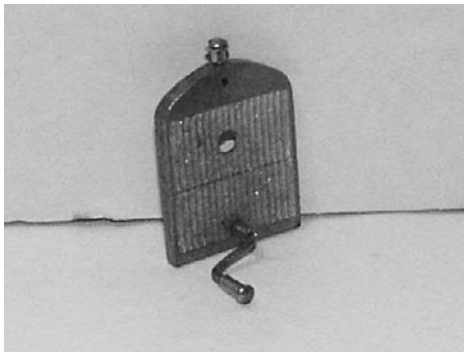
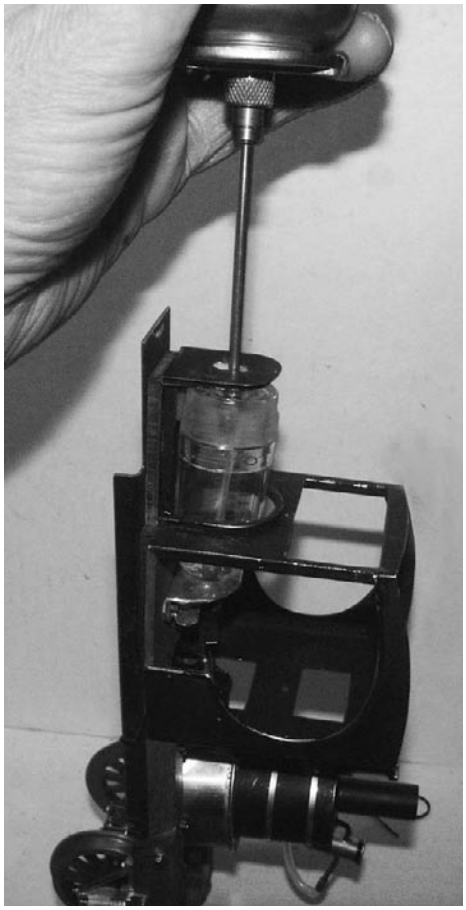
The top hinge pin extends slightly into the cab's front wall and radiator's backing plate through holes drilled at the center-top location of the hood.

It's obvious at this point, there's something missing ... the louvers. There will be more information on louvers in the next installment of this article.

Butane filler, flow controls, radiator

I placed a slot in the radiator backing plate that will



Front of truck: *Top left, slot for filling; top middle, butane tank bracket; right, filling the tank; bottom left, flow control lever; bottom right, casting for the radiator.*

allow for filling the butane tank through the radiator casting without having to remove the tank from its tight space. Filling the tank then becomes a cinch.

I made an aluminum bracket to hold the butane tank in place. A single 2-56 screw, threaded into the brass under-carriage holds both the butane tank and the cab in place. On the same mounting screw there is a brass bracket with a notch which serves to hold the gas on/off valve in the "on" position.

The control over the amount of butane flow is built-in to the tank, but it is hard to reach in this cramped space. I added a short round lever to the gas control valve.

The white metal radiator casting from NE Model Products will be attached to the front of the hood/cab base connector's vertical backing plate using epoxy.

For the radiator, a 9/64-inch hole was drilled matching the backing plates slot to facilitate butane refills.

At the top of the radiator, a small eyelet and short escutcheon pin simulates the radiator cap. Near the bottom of the radiator casting a hole for the starter crank was made. The crank was made from a 1/16-inch by one-inch escutcheon pin and a short piece of brass tubing for the handle. Another short piece of brass tubing is extended through the hole in the radiator casting and glued it in place. The crank is inserted into the tube and the end of the escutcheon pin is bent over to allow for rotation.

The truck bed, stakes, rails

I produced a rear deck, stake and rails drawing and did a fit check prior to cutting and assembly.

The rear truck bed's top surface (5⅛-inch long, 5⅜-inch wide) is made from laser-scribed hardwood plywood, while the edge boards are 3/32-inch thick mahogany and glued in place. The side stakes are 5/32-inch square by 1 15/16-inch tall hardwood and rails are 3/32-inch thick mahogany. The front stakes are 5/32-inch square by 1⅝-inch tall.

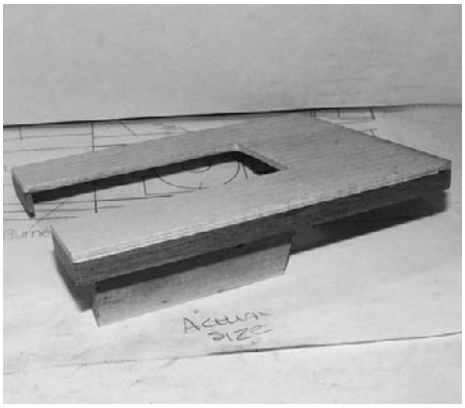
Using the full-size drawing as a template, the stakes and rails are T-pinned in place, escutcheon pinned and glued. The bed has a cut out to clear the burner, boiler and steam motor.

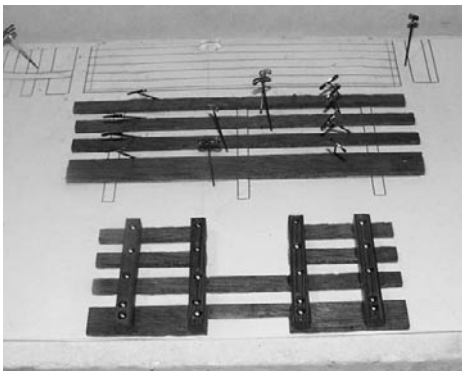
While the front stakes and rails are physically attached to the bed and supported by 45-degree brass rods down to the truck bed, the side stakes and rails are held in place by the stake pockets and consequently removable. The stake pockets are Ozark Miniatures No. 1001.

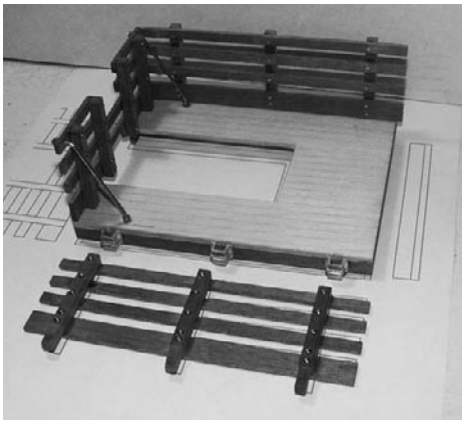
The boiler cladding, lagging

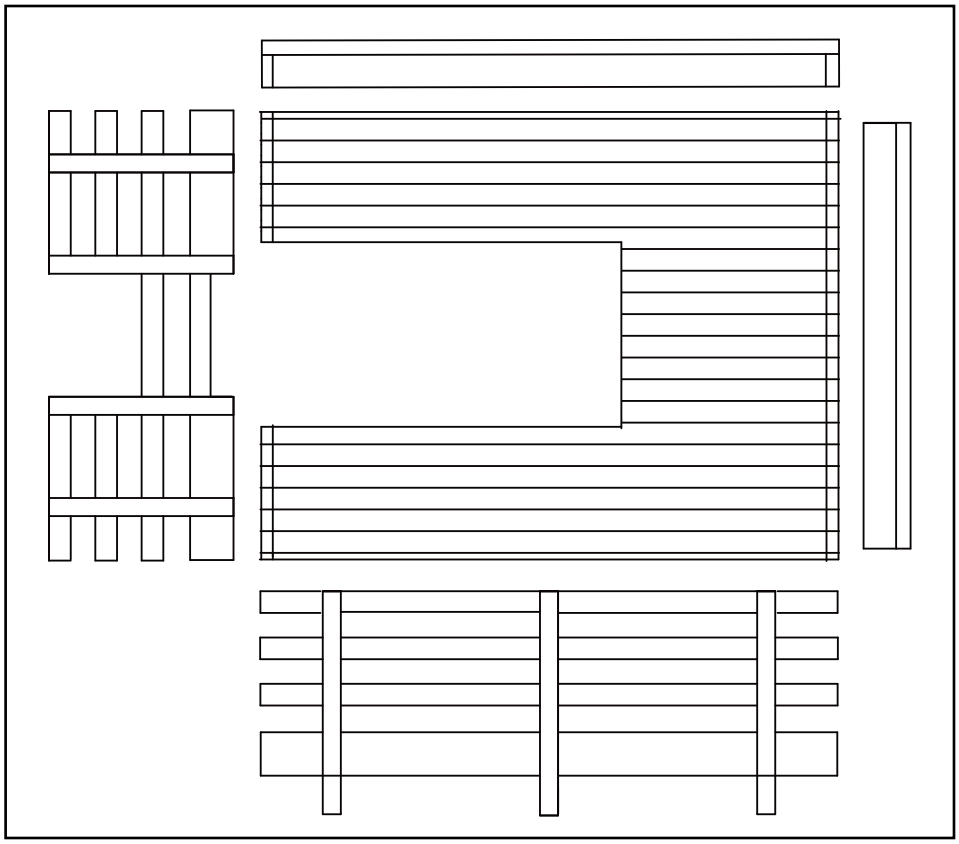
Adding a boiler heat shield is necessary to protect the wood surfaces near the boiler. I used the drum sander on my drill press to create some additional space between the boiler and the truck's wood bed beams/decking.

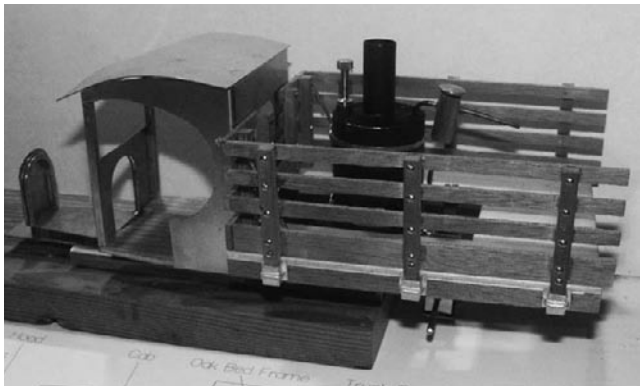
I then added a brass heat shield/radiator between











Bedding the truck: *Top right, the drawing for the bed and stakes; top left, the bed; middle left, front and side stakes with rails; bottom left, stakes and rails attached; bottom right, a test fit.*

the boiler and beams/decking. I soldered a ring of 1/16-inch brass rod to the top edge of the heat shield to provide some rigidity since openings in the shield were needed for the burner and for the steam motor mount. In between the brass heat shield and the boiler are two layers of hi-temp gasket material surrounding two layers of ceramic boiler insulation.

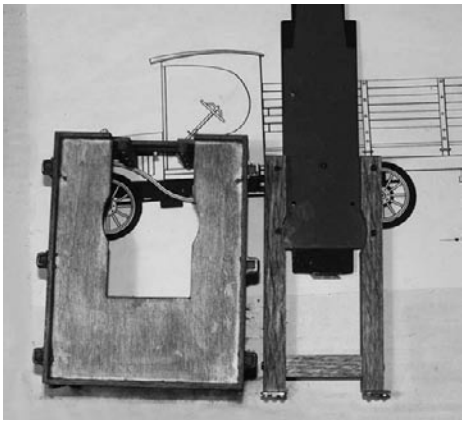
The wheels

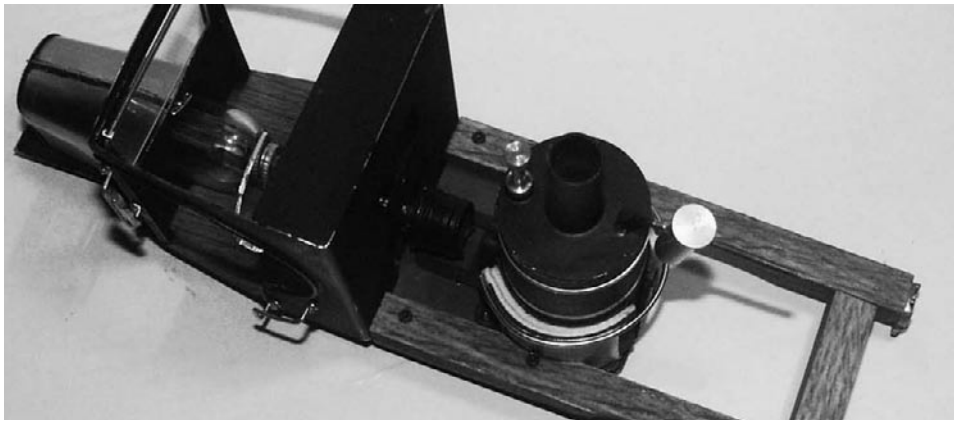
Cast iron castings from Sulphur Spring Steam Models, HLP-W41, were used for the wheels. I've been using 1:20.3 scale as the basis for this build, so to maintain a correct Model-T spoked wheel profile, I've patterned them as close to the scale model's wheels, as possible. Even though the casting is a little larger than desired, I'll was able to machine it to about the right size.

The dimensions for the wheel drawing:

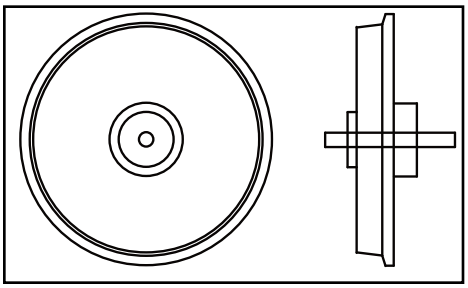
- Outside dimension at flange: 1.720-inch.
- Front rim at tire: 1.531-inch diameter.
- Tire-surface angle: 2½ degrees.
- Wheel thickness (excluding hubs): .250-inch.
- Flange thickness at base: .086-inch.
- Front axle hub: .063-inch high by .3750-inch diameter (as is).
- Rear axle hub: .1250-inch high by .498-inch diameter.

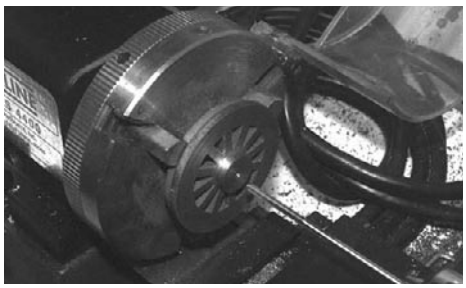
The casting was chucked up in my three-jaw chuck on the treads of the casting's front side. The backside was faced-off. The backside was further machined to form the rear axle hub at .498-inch diameter by .1563-inch deep and then to reveal the spokes. The thickness of the wheel at this point was .250-inch. The back side of the spoke portion were further recessed another .0469-inch. The outside rim's (flange) flash was cleaned up to a rough diameter of 1¾-inch, since the chuck jaws were too close to machine to the final diameter.

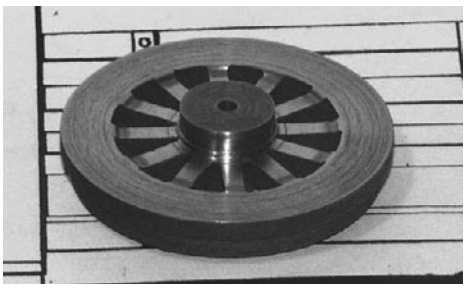




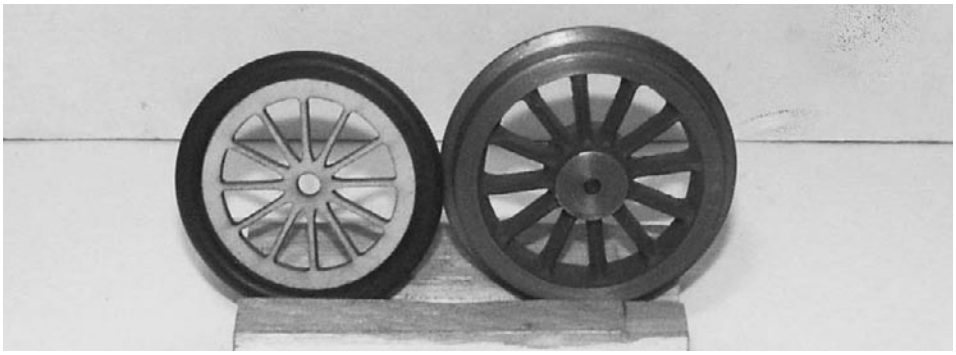
Lagging, cladding: *Left, the bed is ready for cladding; right, the lagging is sandwiched onto the boiler.*

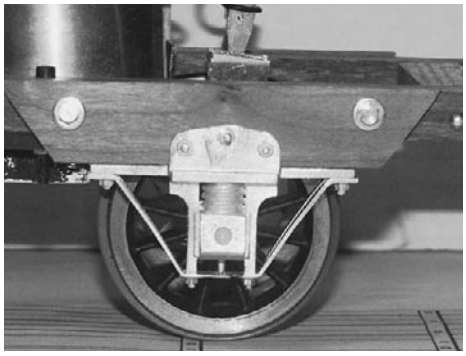






Wheels go 'round ...: *Left, wheel drawing; middle, wheel back on lathe; right, finished wheel back.*





... and round: *Left, model wheel compared to machined wheel; right, rear journal with spacer.*

Without the work piece being removed from the chuck, a 3/32-inch (.0938-inch) diameter hole was drilled through the hub and then reamed to the final axle diameter of 2.5mm (.0984-inch).

The casting was then reversed and chucked up on the newly turned rear axle hub. I liked the look of the raw casting's surface, so I left the front of the spokes and hub as is.

The front axle hub's diameter was also left as is. The outside rim (flange) was turned to its final diameter at 1.720-inch.

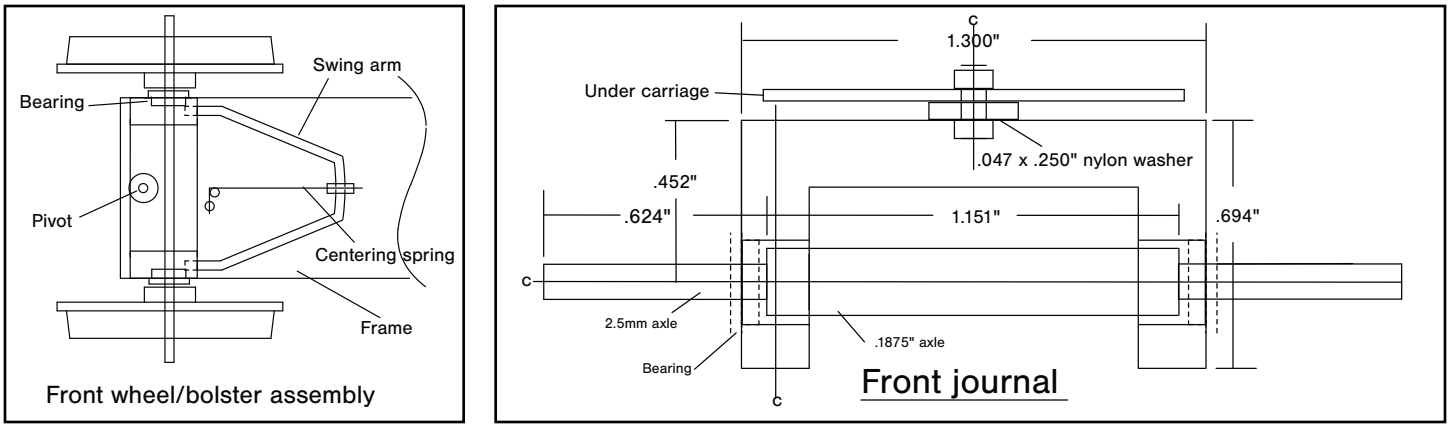
Now I was ready for the 2½-degree taper machining of the wheel's tire. Again, without removing the work piece from the chuck, I set up my compound slide and set the taper to be 2½ degrees and turned down the tires surface until the outside diameter of the front rim edge was 1.531-inch and leaving the flange .086-inch thick at its base.

And finally, for the side-by-side comparison. The 1:20.3 model wheel is only .002-inch smaller than the tread of the machined casting. I'm satisfied.

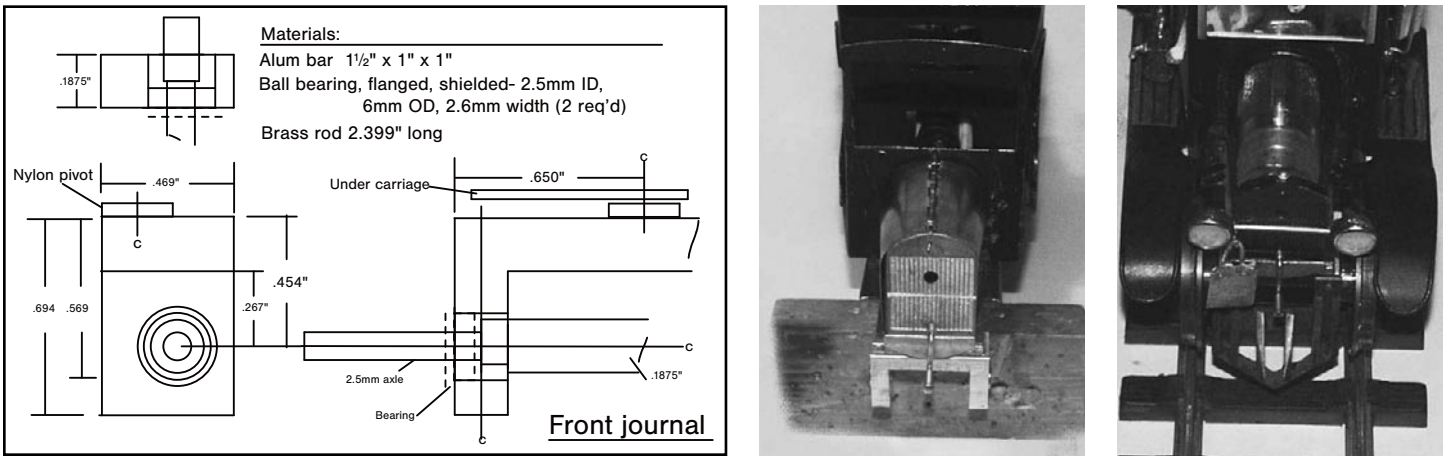
The rear journals

A one-eighth-inch by 17/32-inch by three-inch mahogany spacer is needed to provide adequate positioning of the rear journals, both for wheel width and distance of axle below the truck's bed beams. For a mechanical connection, the coil spring braced journals (Ozark No. 1011) have been modified by removing the center, cast-in nut-bolt-washer, and replacing it with a 0-80 hex-head screw with its washer and nut facing out in addition to using cyanoacrylate (CA) glue between the spacer and the journal.

In order not to have the truck sitting too high over the rails, some relief had to be cut into the bottom edge of each deck beam to accommodate the curve of the wheel and flange. I again used a sanding drum on my drill press to make this recess.



Journals: *Left, top view of the wheel/bolster assembly; right, side view of the front journal assembly.*



Bolster, cow catcher: *Left, machining the journal; middle, machined bolster; right, the open cow catcher.*

During the fitting, it became apparent that more space was needed between the wheels to get 1.740-inch between the flanges to fit the track. The depth of each wheel's outside hub was reduced accordingly. The journals were chemically blackened at this point. The wheels are secured to the axle with Loctite Threadlocker Hi-strength 271 Red.

The front pivot bolster, journal

The front journal/bolster drawings were updated with later ideas on pivot points and self-centering. The 2.399-inch long front axle is 3/16-inch brass rod with .624-inch at each end turned down to 2.5mm to accept the inside diameter of the ball bearings and wheels.

The bolster and journal frame is machined from a single piece of aluminum bar to its finished size of 1.300-inch long by .469-inch wide by .694-inch high. A 6mm hole is drilled though the length for the axle and to accept 6mm outside diameter of the bearings. The center .0885-inch section of the aluminum is machined to a depth of .504-inch to form a rectangular U-shape.

At the center of the top section a pivot hole is drilled for a 2-56 socket head cap screw, but forward of the axle. A nut has been soldered to the top of the undercarriage at the pivot point just under the radiator casting. Between the bolster and the undercarriage is a .250-inch diameter Nylon washer.

The swing arm is one-sixteenth-inch brass rod that is CA glued into holes drilled into the aft side of the bolster. Since making the drawing for the self-centering mechanism, I was convinced by others that I was probably over-doing it. I replaced the piano wire spring mechanism with a small, simple silicone rubber band. I placed a 2-56 threaded hole into the brass under-carriage aft of the swing arm to anchor one end of the silicone band with a screw, the other end attached to the swing arm.

Like the rear wheels, the front wheels are attached to the axle hubs using Loctite.

"How about a cow catcher," someone at the 2008 National Summer Steamup asked. Luckily, the Brandbright folks from England were attending and selling their wares. After looking at the cow catcher, I decided that it had a closed up look, not like the cow catchers I've seen. The entire bottom was a solid piece of brass joining the vertical ribs so that one could not see down to the tracks. So I used my vertical mill to remove the solid bottom portion, opening up the bottoms of the vertical ribs and then chemically blackened it.

Well, that's all for now. Next time, we'll cover the last of the major fabrication steps and the finishing touches.

The N&W Class J No. 611 electric-to-steam

Conversion

Text and photos by Charles & Ryan Bednarik

All of us who have developed an interest in the railroad hobby were drawn to it for myriad reasons: a love of a road name, the power, the speed, torque, style, regional or country connections or even childhood memories influenced our choices in how we engage the hobby.

A friend of ours, Bob, would debate with us what the best steam engines were — as most of us have in our lives. The discussion would range from tractive effort, drawbar horsepower, speed, road name, production numbers, to what really made a proper locomotive — whittling down to whether or not the only "real engines" were ones that had smokestacks.

When we attended a train event, he would venture to his favorite and while we would move toward our interest in steam power. So much so, that we would chase and ride our favorite, the Chesapeake and Ohio J3a No. 614, a 4-8-4 "Greenbrier," while he would do so with the Norfolk & Western Class J No. 611, which is an impressive streamlined 4-8-4.

Since those early years of seeking opportunities to experience the "real thing," the best one can do on a regular basis is to operate a model live-steam locomotive. Unfortunately, commercial offerings in Gauge One live steam have not presented either Nos. 614 or 611 as production models.

At one point in time, Aristo-Craft considered producing a C&O No. 614, but chose instead to make the Mikado. Garden Railway Co. imported an N&W Class J model, produced by Samhongsa of Korea, in the early 1990s, but the model was an electric-powered, highly detailed offering and we still desired the sleek, black C&O locomotive.

In 2006, the 50th year since No. 611 was last in revenue service for the N&W, we took a visit to the Virginia Transportation Museum in Roanoke. This gave us pause to reconsider No. 611 as a live-steam Gauge One model. We had hoped that with the anniversary of the famed N&W locomotive that the upcoming U.S. Aster offering would be the Class J 4-8-4, but the Nickel Plate S3 2-8-4 Berkshire was chosen instead.

Then an article was published by fellow hobbyists

Tear-down: *The electromechanical components are removed from the Samhongsa 1:32-scale No. 611.*

in the *Gauge One Model Railway Association Newsletter and Journal*, on how they converted an electric locomotive to live steam. This was inspiring, but we had reservations: how to obtain a base model, would the major components be useful and did we have the skills necessary to convert the locomotive?

A decision was made if a No. 611 could be found, then we were confident that we could convert it. The search was on — with many opportunities slipping beyond our grasp. Finally, on eBay there was the earlier version Class J No. 600 for sale. When we reached the owner he indicated that model was sold, but he had another available, the last one in his collection. Thus the quest has begun to have a representation of (arguably) one of the finest steam locomotive ever to grace the iron ribbons: N&W No. 611 had arrived.

Why model this particular steam locomotive? The N&W Class J was the most powerful 4-8-4 to run for any U.S. railroad, and one of the finest steam locomotive designs ever produced. The J's combined large cylinders, high steam pressure, and low drivers to generate a high tractive effort of 80,000-pounds, without a booster engine, and stood out for a Northern. The J's were famed for their dual-service capability, pulling long freights or running passenger trains at a consistent 70-plus mph.

Automatic lubrication at over 200 points and roller bearings on all rotating points (axles, main and side rods, valve gear, wrist pins) permitted 15,000-plus miles-per-month usage and 1½-year intervals between shop visits. The engine could perform at a level equal to the Pennsylvania Rail-

The N&W Class J No. 611 series: electric-to-steam conversion

How do you get a live-steam model of a locomotive you've always loved? Charles and Ryan Bednarik — owners of Triple R Services of Mount Holly, N.J. (www.realsteamservices.com) — decided to convert a 1:32-scale, electric N&W J Class No. 611 to live steam. In this five-part series, they walk readers through their process of removing the electromechanical pieces and adding in the boiler and fittings.

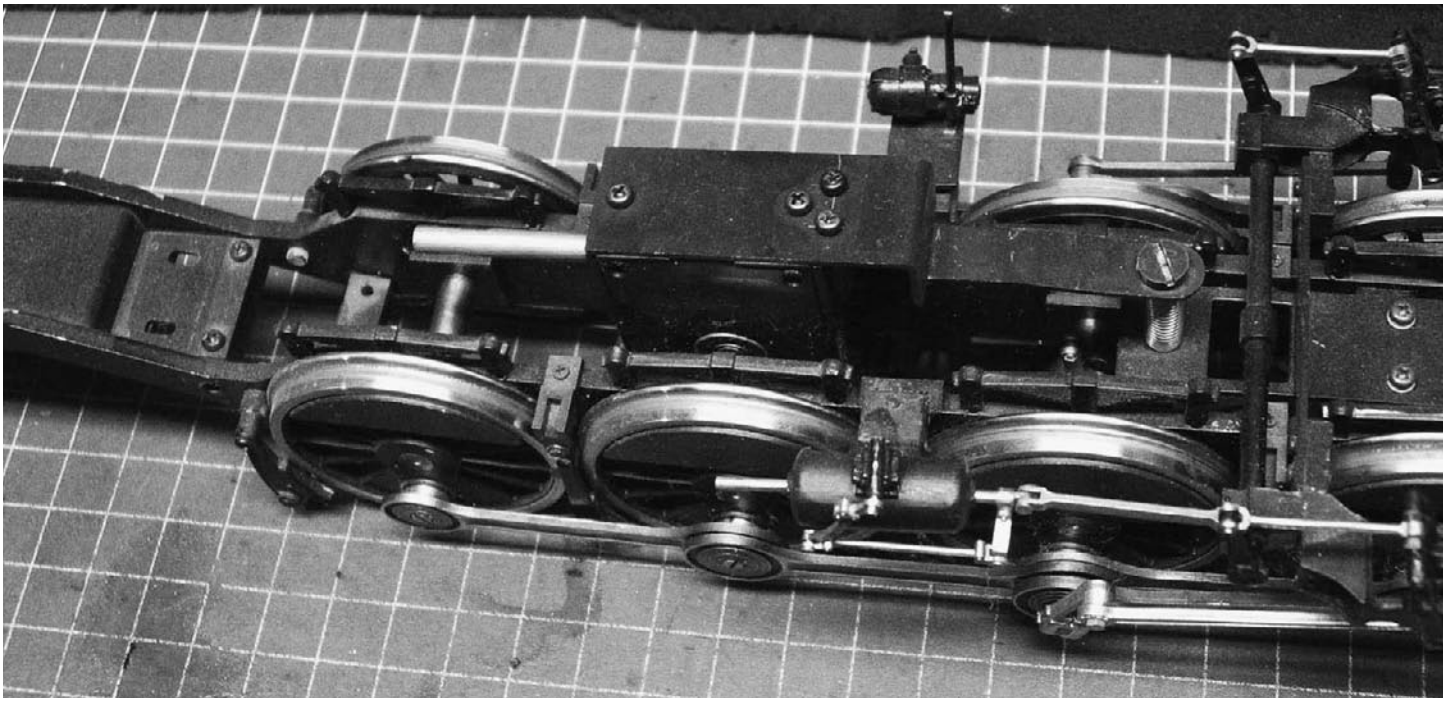
Part One: Background; general overview of conversion up to the finish of electrical removal.

Part Two: Overview of swap; focus on chassis, cylinder, suspension, running gear, tender mods, and build expectations.

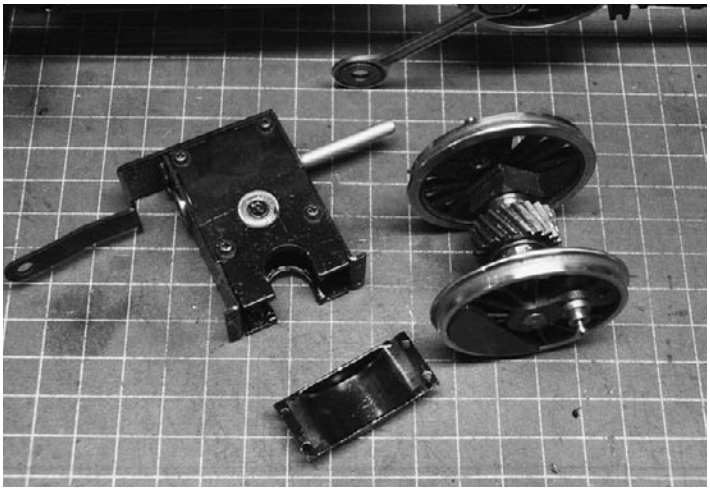
Part Three: Basic components — cylinders, steam lines, axle pump and running gear.

Part Four: Basic components — boiler, back head, exhaust and plumbing.

Part Five: It's alive — completed and running.



Looking hopeful: *Two large Canon coreless motors and bevel gearbox unmounted easily.*



Gearbox: *Mounted to the axle, the wheels would have to come off before the gear could be removed.*

road T1 or the N&W A locomotives. Then there is the beauty of its streamlining that added form to the function. Finally, the Class J is a symbol akin to that of the "Alamo," as the N&W was a last bastion for revenue steam service on the major American railroads.

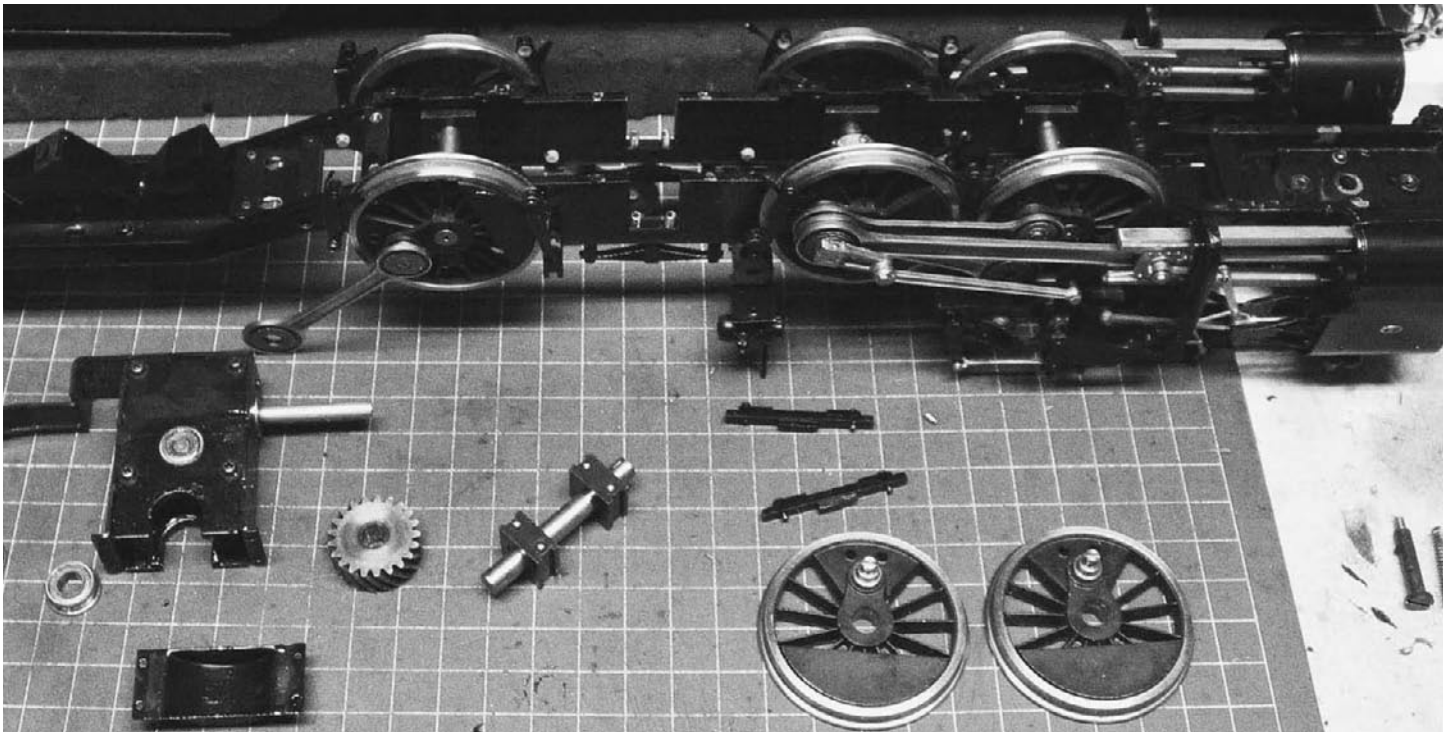
How about the model itself? It is certainly a fine scale model with great deal of detail in all the right places. Spot on with the drive wheels, running gear, suspension, along with the impressive streamlined body work, cab and super-detailed back head matches with a tender fitted with an auger screw, opening water hatches, even the tool boxes have miniature hasps and hinges that keep the doors closed. The entire engine and tender is enveloped with the proper paint scheme and a distinctively streamlined shell. Given it is 1:32 scale with the correct bits and pieces, all that was needed would be a steam power plant, steam lines, fittings, cylinders, valves, safeties, water pump, check valve, exhaust, blower, throttle, oiler — all the usual components that are standard to a ready-to-run live-steam model.

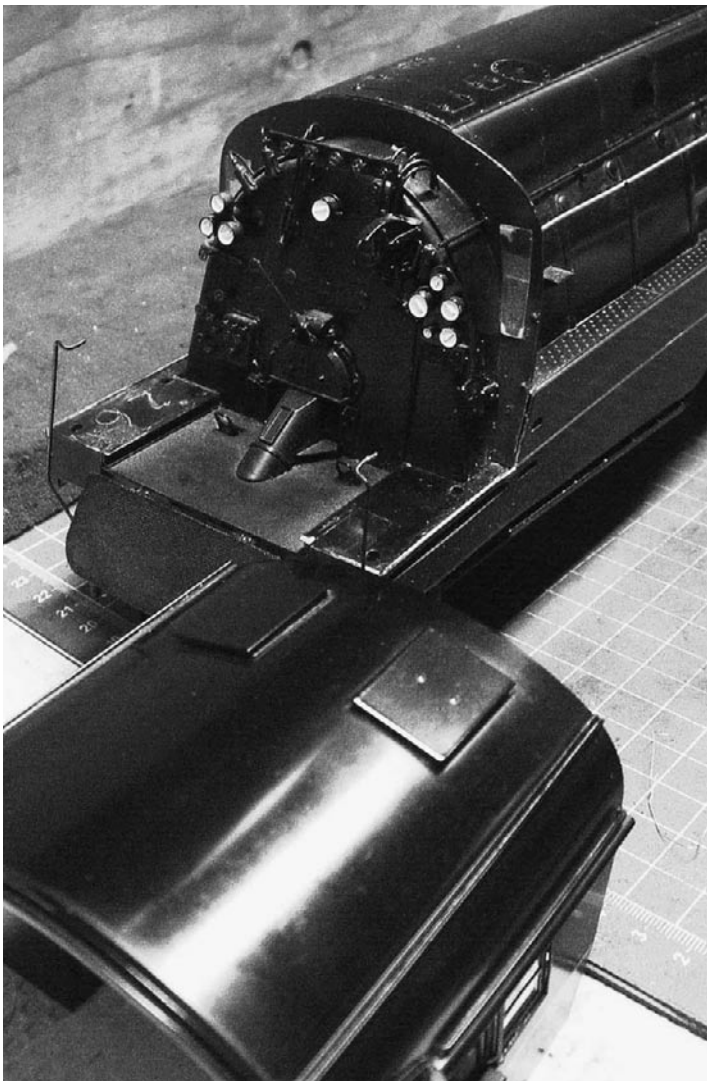
Earlier, we mentioned developing the confidence that we could convert the electric model of the N&W J Class to a live-steam model: This evolution for us was founded through the numerous opportunities to repair, build and upgrade Gauge One live-steam locomotives the hobby has given us over the years.

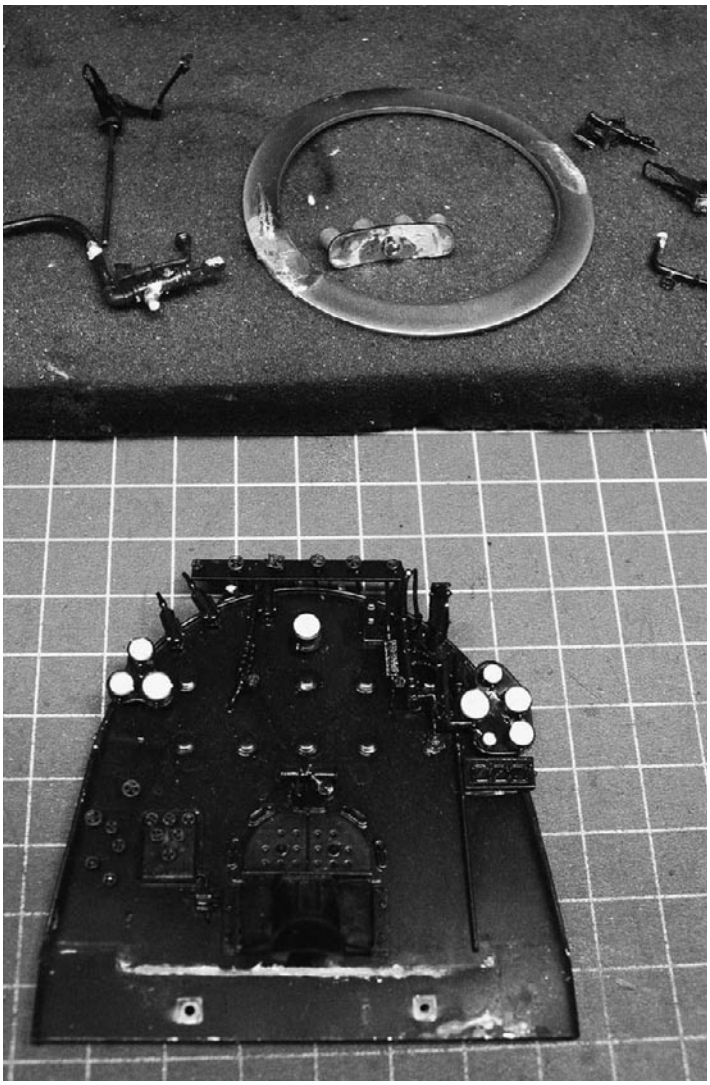
The turning point in the skill level was the building of various Aster locomotives along with research and development on improving the Accucraft GS-4. The latter was done in collaboration with Gordon Watson of Argyle Locomotive Works in Australia, in regards to both the GS4 and Accucraft's AC-12 cab forward.

The knowledge gained from what is necessary to make a working model culminated from many books (Kozo Hiraoka, Martin Evans, John van Riemsdijk), magazine articles and most importantly, fundamental skills developed from taking apart and putting back together locomotives from a variety of manufacturers, including Aster, Accucraft, Pearse, Aristo-Craft and Argyle, with each giving unique insight to techniques used or needed.

In particular we learned what our limitations would be (both time and skill), where to fill in the assistance needed and how to seek the resources necessary for a retrofit of this engine. We were able to locate the extensive works drawings from



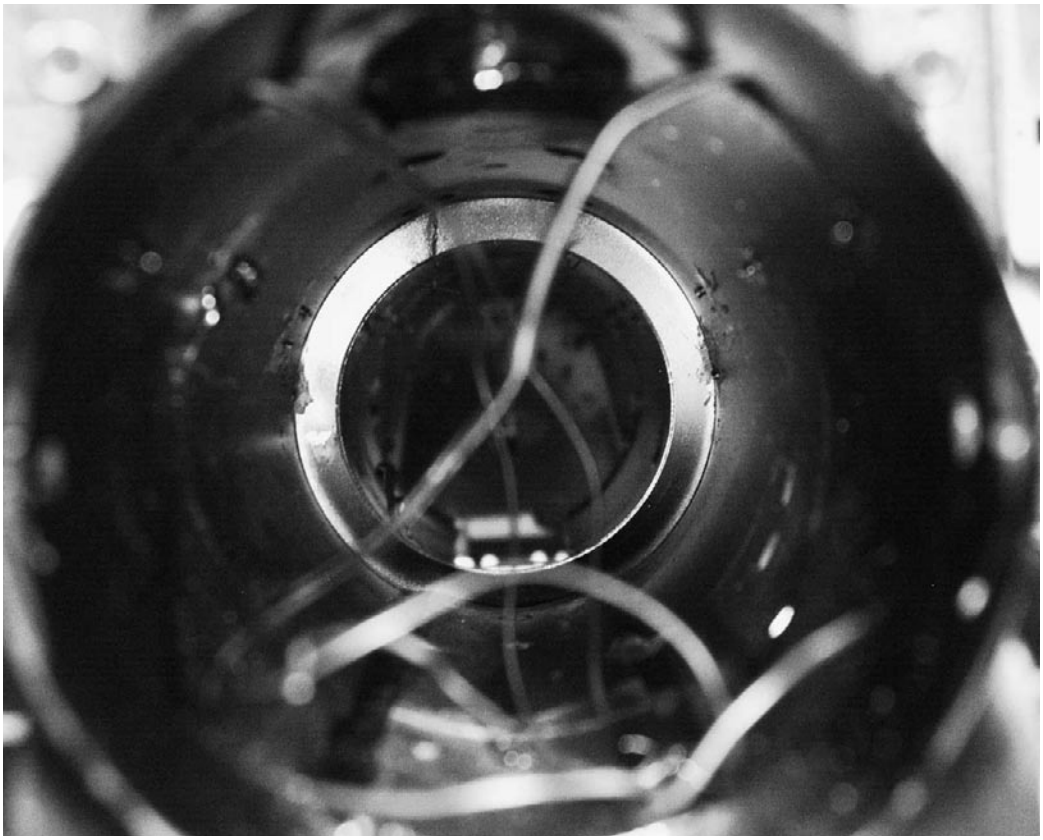




Further progress: *Top, wheels — and gears — were removed with care from the axles; bottom left, the backhead attached to the boiler shell; bottom right, the backhead after it had been taken off.*

the N&W Historical Society. A trip to the Virginia Museum of Transportation to again inspect the No. 611 for a better understanding of application from plans to build was helpful.

Then a partnership with Justin Koch for a critical aspect of the conversion: boiler and cylinder work. Justin made a big impression on the eastern U.S. small-scale live steam scene with his own conversion of an Accucraft electric K-27 to a coal-fired steam engine in 2008. His boiler work has been impressive and meets all standards acknowledged by the hobby, built to ASME and Australian boiler codes, and undergoing the G1MRA process for boiler testing.



Shell of itself: *Inside the boiler shell after the components were removed.*

Getting started

The starting point was getting rid of the electric components. Without the convenience of a builder's manual, the dissembling of the engine was as much exploratory searches as it was a process of seek-and-find-access in order to remove the electronic components.

Step one would be to remove the boiler shell allowing access to the inner electrical of the motor, circuit board and gears. Upon a quick examination, we found that the job of getting inside the engine seemed to be very straight forward. The task of dismantling the locomotive was started with location of mounting screws for the boiler shell — two in the rear and one in the front.

Once the shell and cab were separated from the frame, removal of the electric circuit board was in order. A couple screws and disconnecting of wires later, the disassembly was well underway. This was followed by unmounting the two large Canon coreless motors and their bevel gearbox. Things were looking very hopeful; perhaps the first portion could be done early.

However, next up was an object that would take a considerably larger amount of work, the main gearbox. The gearbox was mounted onto the axle before the wheels were pressed on and had to be removed in similar fashion. The driver had to be taken off the frame and one wheel removed from the axle. This can be a concern at times if the wheels are of a poor metal quality or a porous casting — the wheel's fine spokes can crack when pressing it off the axle.

Taking things slowly and cautiously is recommended, so that any problems can be resolved quickly. Fortunately, the wheels on No. 611 were a high quality casting and separating the wheel from the axle went well. Once the gearbox was removed, the driving wheel had to be re-quartered. This was easily accomplished with a commercially available jig from Metalsmith Ltd., a supplier in the United Kingdom.

The boiler shell was next on the list, with an internal baffle and the very large (six-pound) balance weight removed to allow the paper mockup of the boiler to be fitted. One final obstacle remained, the super detailed backhead needed to be removed. The problem was that the backhead had been soldered with the same melting grade of solder that was used for the rest of the shell.

Wanting to preserve the detailing, the decision was made to cut the boiler shell at the seam that joined the backhead to the rest of the shell. This was the better choice rather than trying to de-solder the plates at the seam and risk the detailing falling off in the process through the heat-sink effect.

The successful removal of the original electric components allowed for a work session with Justin and Ryan focusing on fittings necessary to configure a boiler drawing.

The next installment in this series will cover the design and fitting of the boiler to the chassis.

Large Scale Train Show warms up the East Coast

Text by Brittany Grimm

Photos by Brittany Grimm & Joe Rohanna

While the East Coast was cold and snow was still falling in some areas, many live steamers found comfort in the warmth of their locomotives at the spring iteration of the East Coast Large Scale Train Show, March 25-26 in York, Pa.

The 2011 edition went off without a hitch: Early Thursday morning Mike Moore and a few other steamers arrived to begin the set up of the live steam track and on Friday morning, the Aikenback Live Steamers arrived in force with a wide array of locomotives produced by makers such as Aster, Accucraft, Aristo-Craft and others — including a few scratch-built locos.

The show saw many usual faces and locomotives, as well as many new faces and new people to meet. Among the newcomers were Randy Lehrian from Pittsburgh, Pa., and Bill Freeman from Shepherdstown, W.Va.

Randy brought his Accucraft Ruby that he built over the winter from a kit; he had a great couple of runs, said that he really enjoyed his first steamup and had a good time. Bill brought his Aristo-Craft live-steam switcher to run on the rails for the first time, had a few seemingly great runs with his locomotive and also had a great time.

The show also saw the new Accucraft Mason Bogie performing well in what seemed like a very strong run. I was impressed at how consistent the locomotive seemed during its track time. We also saw the AC-6 flat-face conversion by Redeker Management Consulting with contract work by TRS Services that ran beautifully and pulled quite the load.

Sweet 16: *Dick Moore with his Accucraft C-16, No. 42, at the ready at ECLSTS in York, Pa.*

Among other locomotives that were there were a number of Aster Schools; this seemed to be a very popular locomotive as over the course of the event

Vermonters: *Llyn Rice of Cornwall, Vt., and Larry Green of Weybridge, Vt., discuss live steam in York.*

three different Schools saw track time. There were also a few Aster Berkshires.

In all there was quite the array of both narrow- and standard-gauge equipment. Even some from the late 1800s with Nick Wilson's 1895 plank turbine locomotive. We also saw a scratch-built 4-4-2 Atlantic constructed by Paul Huntington.

As with almost any small-scale live steam event in Pennsylvania, this year's ECLSTS included the participation of a Quirk brother. I sat down to talk to Harry Quirk about how the term Aikenback came to be, among other topics:

How old were you when your interest in the hobby started and why? "I was 47 years old when I bought an Aster JNR Mogul and then an Aster Schools, but I loved steam before that. My favorite railroad was the Reading and I either rode on or chased almost all of the Iron Horse Rambles in the 1960s." Pennsylvania's Reading Railroad "Iron Horse Rambles" were monthly live-steam excursions and there were 50 between 1959-1964.

Where did the Aikenback name come from? "After all the work that I had to do on my backyard track in 1977 — I had to make all of the track with imported rail and scratch-built ties — with all the work I had

A bit on Brittany

Who am I you may ask? I started loving trains when I was 4, with my first model train around the Christmas Tree. I had many HO trains and then O-gauge, all of which were electric. At age 9, I visited my local club, the Pennsylvania Live Steamers, and the following year I bought a 2-4-2 Ruby "Mimi" from Accucraft. I have since progressed to an Aster Schools, Aster Thunderbolt, Aster Climax and I had my first Mimi converted to a coal-fired boiler. I am now having my Aster K4 converted to a coal-fired boiler. I absolutely love this hobby and feel that it gives me and so many others the chance to do something unique. However, I do see the need for younger people in the hobby.

Being 16 years old, I have found that if you ask someone else who is my age, "What is a live steam locomotive?" you often get that puzzled look and then the blank stare. In the future, I hope we will see more youth involvement in the hobby to help to carry this wonderful activity for many years to come. I can't wait to see you next time both here and on the rails.

— B.G.

Butane banter: *Brittany Grimm, Murray Wilson, Ryan Bednarik and Nick Wilson talk butane tanks.*

Turbo: *Nick Wilson poses with his circa-1895 Plank turbine locomotive.*

Steam Quirk: *'I had an "aching back" and I decided to name my railroad the Aikenback Central.'*

an 'aching back' and I decided to name my railroad the Aikenback Central."

Why is Aikenback used at the shows? "Mike Moore asked to use it and the name and Aikenback Railway just stuck, but that was fine with me."

What made you and you brother Paul start the small-scale track at Pennsylvania Live Steamers?

"We had a portable track and we used to show it in Kinser, Pa., and at the Franklin Institute and other locations. A member of Pennsylvania Live Steamers saw the track and asked us to build one at the club, so in 1997 we completed construction of the Gauge-One track."

In all I feel that this ECLSTS was a hit. Everyone, including myself, had a great time and it was a great opportunity to make new friends and to talk to and see the old. We all hope our new steamers will be here to stay and will enjoy the hobby for years to come.

THE CUPOLA VIEW

The Cricket's last chirp?

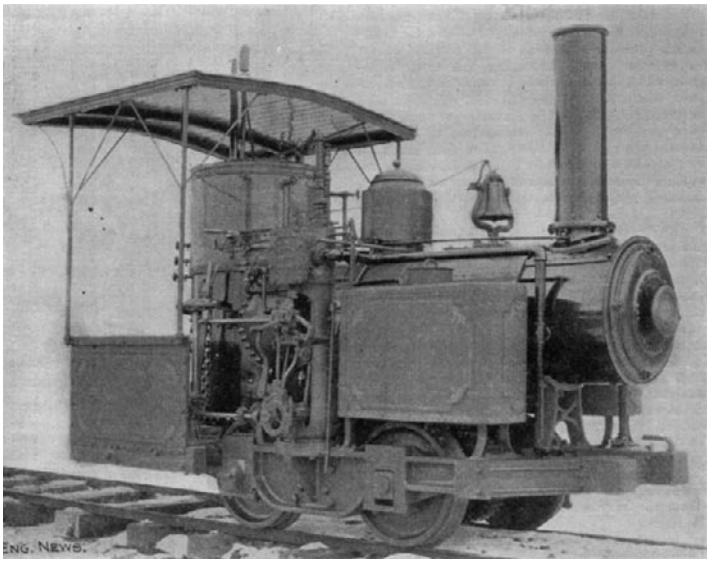
It would seem like a no-brainer: hand-craft an American-profile 1:20.5 scale live-steam locomotive of proven design and popularity and the world (at least the small-scale live-steam world) will beat a path to your door.

The announcement in early April by Mike Krionderis that he would stop making the Cricket Mark II belied that assumption. Krionderis, who took over making the Cricket locomotive in 2003, said in a web posting that "the economy, high raw material prices, high tax burden on small businesses and the inability to compete with Chinese imports" were the reasons for his plans to shutter his Westminster Locomotive Works LLC of Westminster, Md.

Ironically — or perhaps not — those were basically the same reasons that the locomotive's original maker and designer, Michael O'Rourke, gave almost a decade ago when he decided to end Cricket production the first time.

O'Rourke has written that he based the design of the Cricket on a geared industrial locomotive made by the John F. Byers Machine Co. of Ravenna, Ohio, in the late 1890s. Byers called it a "contractor's locomotive" and O'Rourke's only real source material at the time was a line-cut advertisement that showed the engine in profile, fireman's side to the viewer. Since a cylinder was visible on the right side of the engine, O'Rourke postulated that the Byers' locomotive had a flywheel on the engineer's side, allowing "the engine to be driven to a job site, the wheels disconnected from the drive train, and the unit used as a power source for a hoist, sawmill or other device through a belt drive from the flywheel."

Later research indicated that the Byers' engine had cylinders on both sides, but what-the-heck: the flywheel made the Cricket unique and made running



Inspiration: *The Byers Machine Co. circa-1896 'contractor's locomotive' was the prototype upon which Mike O'Rourke based his Berkeley Locomotive Cricket Motor. Photo: Courtesy Susan Parker.*

'Cupola View' is written by Dave Cole; you can contact him at dmcole@steamup.com or P.O. Box 719, Pacifica, Calif. 94044-0719.

a Cricket a special skill.

I come to the eulogy for the Cricket not from a dispassionate place: when I decided to enter small-scale live steam in the late 1990s, O'Rourke's Berkeley Locomotive Works' Cricket was the only American-profile engine available in the sub-$1000 marketplace. I know, because that was exactly what I wanted — an inexpensive engine that could have run on a railroad if not of my youth, at least of my father's youth.

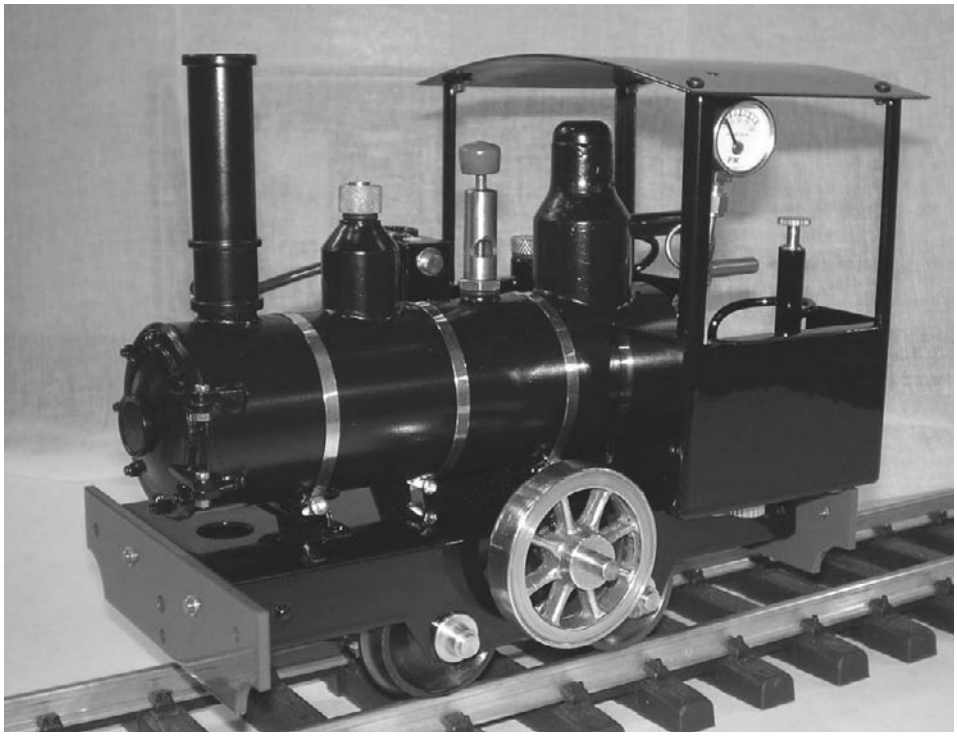
So, I ordered a Berkeley Cricket. As with many hand-crafted items, it took a while (if memory serves, it was 18 months) to get the engine. My patience was tried and in the interim, a company called Accucraft Trains said it was going to sell an American 0-4-0 for less than $500. I signed up for one of those too (that one was a 12-month wait); I don't think it even had a name yet, but the box that eventually arrived from China at my doorstep had the word "Ruby" stamped on it.

Therefore, I come to this party with somewhat divided loyalties: I appreciate the notion of the American-made, hand-crafted locomotive as well as the notion of a mass-produced, inexpensive locomotive that can be a "gateway drug" for buying bigger and better things.

If both locomotives, a Cricket and a Ruby, had been readily available at the same time, which would have I purchased first? Hard question.

Apparently to others, it was an easy decision, and it became clear to O'Rourke that the tide was going in Accucraft's direction. He decided he could not make a living at building Crickets and so put the business on the market; it took a year or two to find a buyer, but ultimately Krionderis decided to become a locomotive maker.

Krionderis, in the early 2000s a Maryland state trooper contemplating retirement, had a background in machining and antique-car restoration, but no real live-steam experience. In a phone conversation in May, Krionderis told me he thought taking over the manufacture of the Cricket would be "right up my alley."



Westminster: *Mike Krionderis' Cricket Motor Mark II followed O'Rourke's drawings, but circumstances required changes to the model.*

O'Rourke sold the business — drawings and some spare parts — to Krionderis, who then needed until 2005 to get into full-scale production. Many suppliers O'Rourke had used to provide certain components had gone out

of business or stopped making the components and some techniques that had worked for O'Rourke didn't work for Krionderis.

"I experimented with a bunch of different burner designs," Krionderis said. "It is truly a black art. There are probably three different burner designs in the Crickets I built."

Krionderis said that "one of the biggest issues is finding guys who would do small [computer-numerical controlled machining] jobs for me" and that "it was so expensive to job out certain aspects."

Initially, Krionderis priced the Cricket at $600 and in 2007 raised the price to $700, but "probably in the last two years I've been losing money on them."

Certainly Krionderis didn't skimp on customer-service — I have heard from many customers that he was willing to spend (literally) hours on the phone to resolve any issue and if a problem persisted, after shipment to him he handled the glitch gratis. He's said he'll support Crickets "for as long as practical."

Further, he established an early-on policy of creating a reservation list but not taking any down payments; when he had a locomotive ready and your name was at the top of the list, Krionderis would call, you'd send him the money and he'd send you a Cricket. Classy guy.

"It's been a fun run but it's been a lot of work and a lot of frustration," Krionderis said. "I feel bad about people who put their names on the list." He said he has about 40 names wait-listed; he'd only delivered 40 locomotives (two more still pending) in the eight years he'd been in business.

But Krionderis did reveal to me that since his web posting that he was shutting down, he's been approached by another individual who thinks he can continue the Cricket. "He's a mechanical engineer and he wants to do right by [O'Rourke] and keep locomotive manufacturing in the United States."

So maybe there's life left in the Cricket; perhaps we haven't heard the last chirp yet.

•

On the Steam in the Garden LLC front, we continue to be astounded by the support of the small-scale live-steam community. Ad Manager Sonny Wizelman has grown both the number of advertisers and the number of ad pages dramatically in the five-plus months he's been in charge, as you can see from this issue, which is 56 pages rather than the traditional 48, mostly to accommodate new ads.

Circulation Manager Marie Brown reports that she is seeing many new subscriptions and a certain number of formerly lapsed subscribers coming back into the fold, both of which are Good Things.

You honor Founder Ron Brown's memory with your support, both moral and financial.

The creation of a new web site is proving to be something of a challenge, but that in part stems from our desire to bring you a vast array of new content and features, including an interactive Swap Shop, a user submission-driven Time Table, video and audio and the ability to administer your magazine and on-line subscriptions on the site itself.

To get us over the hump, we're creating a transition site at www.steamup.com that you can visit right away. Our multi-featured site will be available as soon as we can get it operational.

Like the Cricket Motor — or the Energizer Bunny — *Steam in the Garden* just keeps going and going and going.

TIMETABLE

June 18, 2011 — The second Annual Father's Day Weekend, Cape Cod Steam Up. Doug Hill's Satucket Creek & Millshire Railway is a semi-elevated, 300-foot garden pike of double mainline with one eight-foot curve, the rest are 10-foot-plus. Two steamup bays with schedule/sign-up board. Lunch and child-safe beverages will be provided. RSVP or more info: Kent Killam, capecodsteam@yahoo.com.

June 24-30, 2011 — Great International steam boat meet, Little Falls, N.Y., on the Erie Canal travel to Waterford, N.Y. More info: Dave Conroy, libertyboat@huno.com or Carl Kriegeskotte, carlk@hotmail.com.

July 10-11, 2011 — West Coast Regional Meet Steamups, S.F. Bay Area. In conjunction with the NMRA 2011 West Convention and the National Summer Steamup, the Bay Area Garden Railroad Society (BAGRS) will be hosting steamups in members' backyards on the Monday and Tuesday after NMRA and before the NSS. More info: Richard Murray, steamer060@sbcglobal.net.

July 13-17, 2011 — National Summer Steamup, McClellan, Calif. Featuring 45mm and 32mm tracks, a Saturday night BBQ dinner, clinics and workshops, exhibitor displays and swap tables. The Lions Gate Hotel, in suburban Sacramento, has a low room rental rate of $91 per night; call (866) 866-7100 for reservations. More info: http://www.summersteamup.com/, steamup@steamevents.com or call (650) 557-2993.

Aug. 5-7, 2011 — Finger Lakes Live Steamers Invitational Live Steam Meet, Marengo, N.Y. Inaugural event for new elevated Gauge One track, adding to existing ground-level layout. Also, visitors will be able to ride the 1½-inch and one-inch scale trains. Motel and other info: http://www.FingerLakesLiveSteamers.org/.

Aug. 6-7, 2011 — Huckleberry Railfans' Weekend, Flint, Mich. Michigan Small-Scale Live Steamers set up three portable tracks (one dual-gauged) at the Huckleberry Railroad, which includes after-hours ride on full-scale live steam train for small-scale steamers, as well as steam-powered saw mill, cider mill and many other attractions. More info: http://www.mssls.info/.

Sept. 2-4, 2011 — Pennsylvania Live Steamers Annual Fall Meet, Rahns, Pa. Grounds include Gauge One up to 7½-inch gauge. Gauge One track is a ground/elevated combination with two mainline tracks and sidings. Additional portable elevated track will also be available. More info: http://www.palivesteamers.org/.

Sept. 3-6, 2011 — Narrow Gauge Convention Presteamup, Easley, S.C. Bruce Gathman will be hosting a "narrow-gauge live steam only" steamup 9 a.m. to dusk daily. Steaming supplies and narrow gauge cars will be available to steamers flying to the event and you can also ship your locomotive to his house. RSVP is appreciated; (864) 850-3642 or shaygearhead@bellsouth.net.

Sept. 7-10, 2011 — 31st National Narrow Gauge Convention, Hickory, N.C. More info: http://www.tarheelpress.com/ngc/.

Sept. 22-25, 2011 — Staver Locomotive Fall Steamup, Portland, Ore. More info: (503) 222-3223 or visit http://www.staverlocomotive.com/.

Sept. 23-25, 2011 — Tenth Annual Marty Cozad Steamup in Nebraska City, Neb. New elevated, dual line live-steam track with turntable. Battery-powered folk are welcome also to run on 3500-foot dual line, ground-level track. Info: juking@atcjet.net.

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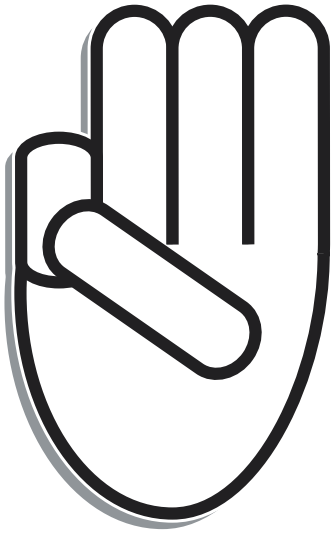

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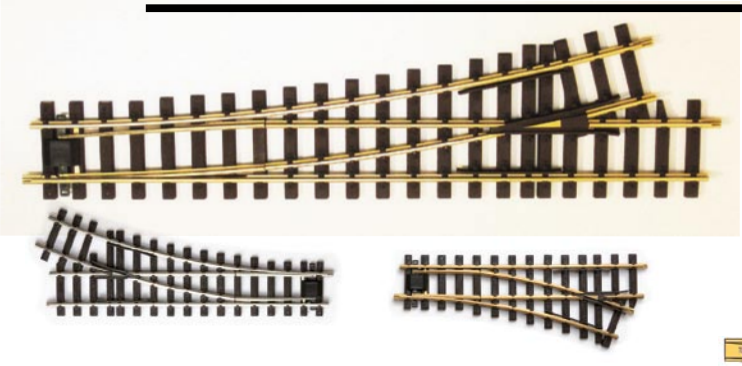

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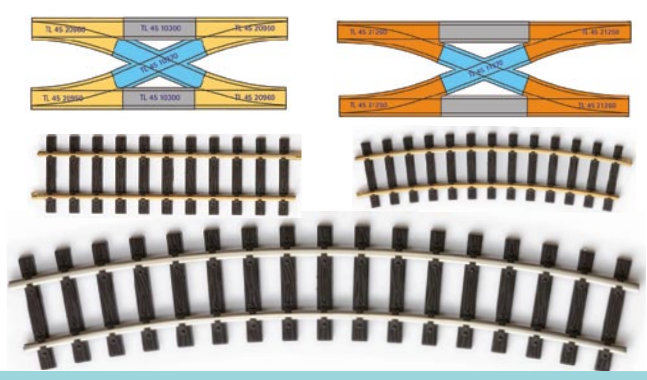

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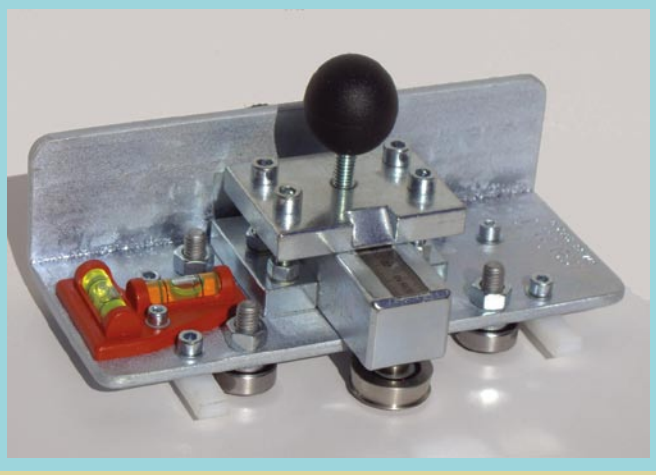

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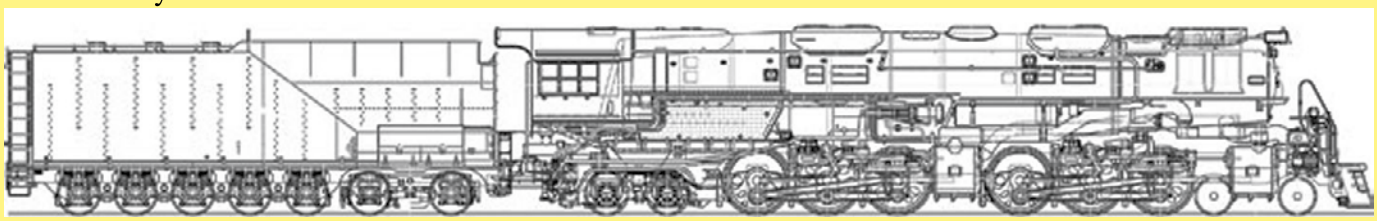
New Release for late May 2011
Krauss Tank / Iyo Railway

Built by Krauss Locomotive Works Munich, Germany, in 1888, several of these narrow-gauge locomotives were exported to the Iyo Forestry Railway in Japan. Aster has faithfully modeled this little machine in 1/20.3 scale and equipped it with all the armatures found in any large standard-gauge model. A black version is also available. For additional pictures and information, visit our web site. Please call for pricing.

Now under development for January 2012 release
Union Pacific Challenger

We are commissioning the UP Challenger as the next U.S. prototype locomotive. This best known and largest operational steam locomotive in the World will surely be a jewel in any Gauge One 1/32 scale live steam collection. There is still time left to make your reservation!

The engine will feature a C-type alcohol fired boiler and all the modern functional appliances common to the latest Aster designs. UP Challenger #3985 will be modeled after the original locomotive, as preserved in Cheyenne, WY.



Now available
B-Type Shay

This latest Aster locomotive is modeled after a Lima-built, 28-ton, two-truck Shay operated by the Japanese Forestry Railways. The locomotive features 3 cylinders with D-slide valves and fully functional Stephenson valve gear. Other features are butane firing, water-gauge glass, pressure gauge, ratchet-type Johnson bar, twin safety valves, tender hand pump, an axle feedwater pump with bypass valve driven from the first rear truck axle and a butane gas line adapter installed on the rear coupler beam for use with the Aster utility car. Please check our website for more information.

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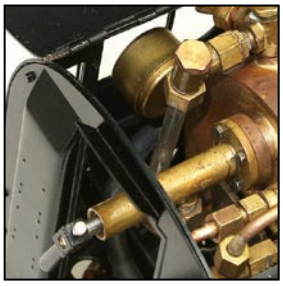

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