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STEAM IN THE GARDEN

In This Issue:

Coal fired K-27
Accucraft Mogul Review
Lahey Coach plans
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Summer Steamup coverage
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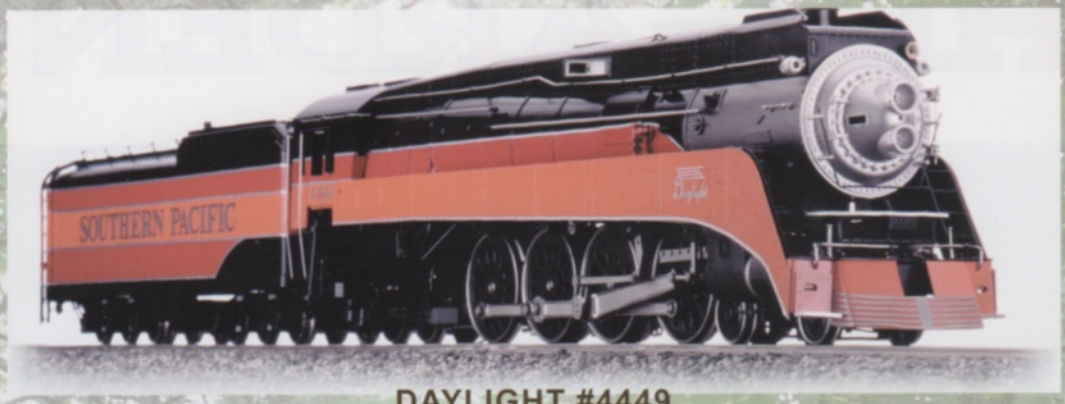

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STEAM IN THE GARDEN

Vol. 15, Nº 1
Issue Nº 79

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

Articles

Departments

FRONT COVER:

A coal fired Accucraft K-27 rolls through the Colorado countryside. Locomotive by Accucraft, coal firing modifications by Pikes Peak Loco Works.

photo by Torry Krutzke

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Keith Bucklitch - Paul Blake

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Questions or comments? Phone us (Mon. - Thurs. - before 8:00 p.m. Eastern time, please) at 607-642-8119 ● 24-hr FAX 253-323-2125 ● e-mail address: rbrown54@stny.rr.com

Check out ***Steam in the Garden Online,*** located at: <http://www.steamup.com>.

CALENDAR OF EVENTS

May 7, 2005 - James Chadbourne's Second Annual Spring Steamup. 9:00 am to 4:00 pm. 150' elevated railway with 9' radius curves located in Rowley, MA (30 miles north of Boston.) Please RSVP to steam@mack505.mailshell.com or 978.948.7564.

5th ANNUAL MIDWEST SMALL SCALE STEAMUP - May 12-15, 2005, St. Peters (St. Louis) Missouri. We have two portable tracks for you to enjoy. One track has minimum 10ft radius curves, two tracks(45mm), and storage sidings. The other track is dual gauge, 32mm & 45mm, with a 6' 3" minimum radius. For more information:

- Web: www.geocities.com/teaton63376/
- e-mail: midweststeamup@sbcglobal.net
- Phone: Mike Eorgoff 630-830-5885 (Before 9 PM Chicago time) St. Peters (St. Louis) Missouri
- Holiday Inn Select, 800-767-3837 or 636-928-1500 for rooms.

July 7-10, 2005 - 32nd Annual Tuckahoe Steam and Gas Show, located in Talbot County on Maryland's Eastern Shore, five miles north of Easton between mileposts 57 and 58 on Route 50. Lots to see and do for the whole family. Mike Moore's portable Gauge 1/Gauge 0 track will be set up and operating, so bring your steamers and trains. For information call 410-822-9868 or e-mail: info@tuckahoesteam.org Web site: http://www.tuckahoesteam.org/

July 15-17, 2005 - 8th Annual Shay Days, located on the hallowed grounds of Ephraim Shay's estate in Harbor Springs, MI. Geared locos only! For more information contact Bruce Gathman • shayloco@voyager.net • 231-526-0174.

July 20-24, 2005 - The 2005 National Summer Steamup, at the Lions Gate Hotel in McClellan, California, a suburb of Sacramento.
The National Summer Steamup gives owners and operators of small-scale (1:13.7-1:32) live steam locomotives the opportunity to meet and run equipment in a secure, indoor, friendly setting. The 2005 event will feature both 45mm and 32mm tracks, a Saturday night BBQ dinner, clinics and workshops, exhibitor displays and swap tables. The Lions Gate Hotel, on the grounds of the former McClellan Air Force Base in suburban Sacramento, will provide the steamers with a ballroom setting of more than 6400-square-feet. Event organizers have secured the services of the Pacific Coast Live Steamers' original track, a 110-foot, 45mm-32mm dual-gauge layout, as well as the new "San Luis Obispo" track; in addition, they are working to bring in even more trackage. The hotel is providing live steamers with the low room rental rate of $81.50 per night (double-occupancy). Reservations can be made with the Lions Gate toll-free at 1-866-866-7100. For more information on the 2005 National Summer Steamup, please visit the web site at http://www.summersteamup.com/ • e-mail steamup@summersteamup.com, or call (415) 794-4800.

September 10-11, 2005 - 2nd Annual Cincinnati Small Scale Steamup. For more information...www.gcgrs.org/steamup • 513-385-6599.

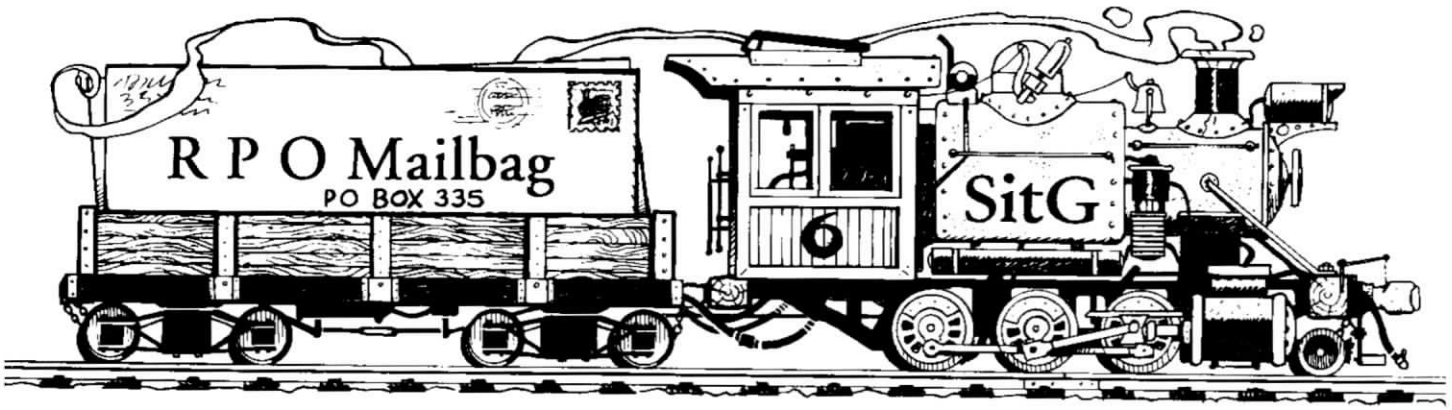
Because of publication lead time, please send info for Calendar of Events well in advance. Include name of host and location of event, with address and/or phone number to contact for complete information. Some basic info about the site is also useful (i.e., ground level or elevated, minimum curve radius,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

HELP WANTED!

We're running low on articles, steamup reports, loco and product reviews, photos, etc. So...we're turning to our readers for assistance. You have always been generous in your response to our requests for publishable materials with a focus on gauge 1 live steamers.

This is YOUR magazine, and YOUR forum for exchange of ideas and information, so send 'em in.

Got questions? The combined experience of our readers is the best in the world, so go ahead and ask.



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

* * * * * *

Charlotte, North Carolina
via e-mail

Dear Ron;

Some of my best lighting successes were done using itty bitty book light lenses. They are plastic and can be cut to fit the headlight boxes on just about any loco, particularly those lights that stand above the boilers and have good air circulation. I have had no problems with the plastic.

Remember that I am also one of those rare creatures who don't like to steam for hours on end. I may have never subjected my lights to maximum temps.

Regarding MagLites...you can buy both the 1-1/2 and 3 volt bulbs at Lowes and other DIY stores. I've got a half dozen MagLites and can't yet bring myself to use the lens at the expense of the light. Too dang Scotch?

Jim Burns

* * * * * *

Australia
via e-mail

Hi Ron,

Just finished a first steam run on my Ruby kit that Santa Claws gave me for Christmas. It will be modified into a Forney of some sort a la Vance Bass's kit. A thought crossed my mind...why not have a Ruby Mod Photo competition of some sort? Not even a competition is needed...just take a photo of your Ruby after the mods and send them to the SitG mag and the Good Editor will insert them in the mag. Comments??

John Simon

How about it, fellow steamers? Send in your Ruby mod photos and we'll do the rest. Heck, we'll even throw in a full year's subscription for the best Ruby Mod photos.....ed.

* * * * * *

Toronto, Canada
via e-mail

Ron...

I just wanted to let you know that Dan Rowe's article in issue #78 was very good. I am looking forward to the follow on section(s).

Please feed back to him that it would be great if he could include one paragraph to explain the purpose of angular advance (i.e. why do you need it, typical values etc...).

Also, he talks about "Shay valve gear being a mystery to him for a time". Is there something about Shay valve gear that is different from other steam engine designs?

Regards,

Ashley Collier

* * * * * *

Albuquerque, New Mexico
via e-mail

Dear Ron,

If you ever need to find out how many true friends you have in the hobby, all you have to do is miss going to Diamondhead. The phone calls, cards and e-mails keep coming, and every one reminds me of what a great time I missed, and also why I love to go there. It's the people! I'm a lucky guy to have such a great group to hang out with.

regards,
-vance-

WHAT'S NEW?

RIDING RAILWAY UNIVERSITY NOW AVAILABLE FOR RAILFANS!

Red Bluff, California: The live steam hobby is growing dramatically. New members are joining the activity daily. And, aside from the information passed down from the "old-timers", how do the new ones learn about the hobby? An exciting new way is through the new DVD series RIDING RAILWAY UNIVERSITY.

Each 2 DVD set includes over 5 hours of information presented by experienced railroaders. Topics include: Designing and Building Track Panels, Hydraulic Drive Design, Switch Construction, Surveying, and more. (A complete list of seminars is provided on the accompanying pdf file.)

Those who wish may order the sets directly from Robinson & Associates, PO Box 8953, Red Bluff, California, 96080 USA. Each set is in English and available for $39.95 plus $4.50 shipping. Or save $10 and buy both sets at once for only $69.90 plus $4.50 shipping (in the U.S. Additional shipping outside of the U.S.). Orders may also be sent via PayPal to mainline@sunset.net.

We are confident that new railroaders and more experienced railroaders alike will enjoy this program. For more information, please view the attached pdf file or visit our web site at www.7plusrailroader.com <http://www.7plusrailroader.com> .

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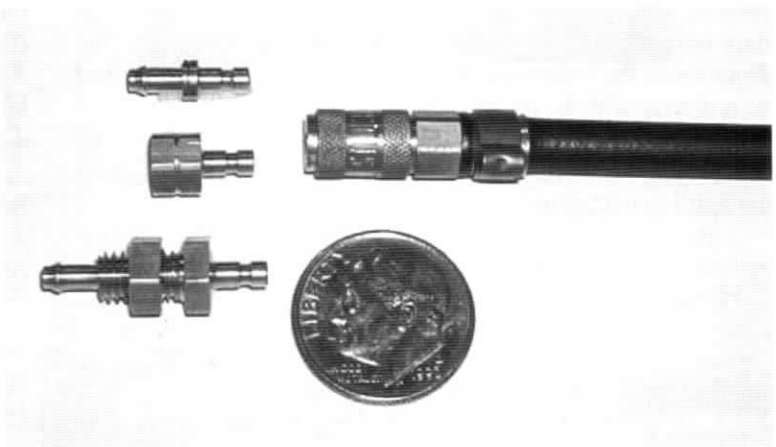
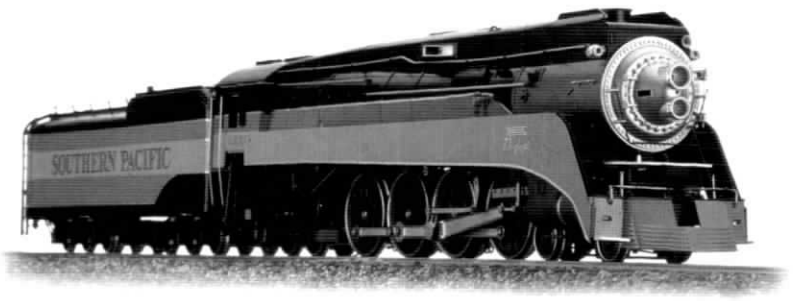
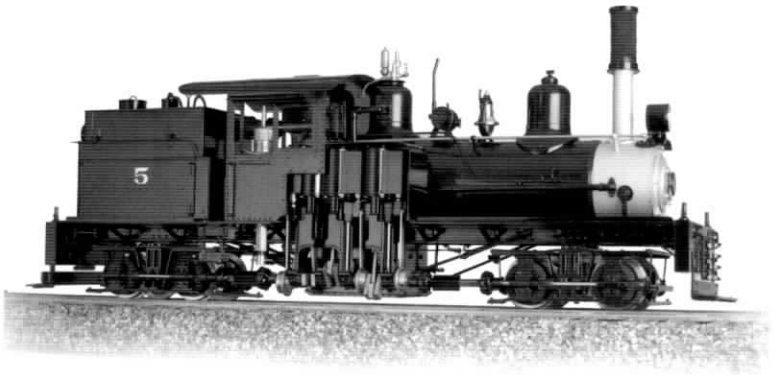


At the International Small-Scale Steamup in Diamondhead this year John Synnestvedt announced and demonstrated a new line of Miniature Quick Connect Couplings to serve the hobby. These versatile couplings can be used in many ways on a small scale steamer. These fittings are a miniature version of the couplings used on all air tools. They are approximately the diameter of a pencil and an inch long. Simply push the male plug into the coupling and it snaps in place, making a water and air tight connection that stays put until the collar is slid back and the plug pops out. For all the steamers that have hand pump water feed systems with Goodall valves, you no longer have to hold the feed pipe into the receptacle while pumping water. Connections between engine and tender are now a simple matter. Connections between railway cars bringing water or gas up to the engine are now very easy. Whether it is air, water or gas the couplings are rated for over 300 psi. All couplings have check valves in them to keep anything from leaking out when disconnected...the plugs do not. There are a variety of hose barb, threaded and bulkhead connections available. Please call, mail, or email John to request an illustrated price list. John Synnestvedt, 5172 Lake Shores Road, Virginia Beach, VA 23455, Phone: 757 363-0958, Email: synnestvedtjd@hotmail.com. *(I had a chance to visit with John at his stand at DH and to make a careful examination of these excellent miniature fittings. They are made with great precision, and they have many applications for our live steam hobby. Highly recommended! - ed.)*

Accucraft's exciting new SP Daylight (GS-4) in Live Steam, priced at just $4449.99! Now taking orders...don't miss out on this one! Call for order forms. A small deposit will be required to secure a place in line. ("Built to order" engines - C-21, K-27 Daylight require deposits)





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Product Review

Is a Coal-fired Accucraft K-27 For You?

by Carl Weaver
photos by Carl Weaver and Torry Krutzke

Super Plumes!

Model Specifications

Locomotive:	Coal-fired Accucraft K-27, black, D&RG #461, with inward slanting steam chests, modifications designed and executed by Pikes Peak Locomotive Works, Pueblo Colorado
Scale/Gauge:	1:20.3/45 mm
Locomotive Weight:	Coal-fired version ñ 11.3 kg (25 lbs) - Original Gas-fired version ñ 10.9 kg (24 lbs)
Tender Weight:	Modified version ñ 3.6 kg (8 lbs) with butane tank and piping removed - Original Gas-fired version ñ 4.1 kg (9 lbs)
Length:	956 mm (37.64 in)
Width:	151 mm (5.93 in) maximum over cab visor
Height:	202 mm (7.95 in) from rail head to top of smoke stack
Driver Wheel Diameter:	45 mm (1.75 in)
Minimum Radius:	0.75 meter (30 in)
Valve gear:	Original Accucraft Walschaerts, 'D' valves in simulated piston valve chests with working drain cocks
Lubricator: valve	Flow-through, displacement type, under cabin drain, modified with feed rate adjustment
Boiler:	Completely new, coal-fired boiler designed by Torry Krutzke and built and certified (hydro tested to 150-psi) by Cheddar Models, Ltd. of England. Before release to the owner, the boiler and all steam components are hydro tested by Torry to 220-psi
Boiler Type:	9 flues, 72 mm (2.83 in) outside boiler diameter
Boiler Capacity:	890 ml, (.94 quarts)
Boiler Pressure:	75-psi normal operating pressure, dual 75- and 78-psi safety valves

Boiler Fittings: Dual pressure safety relief valves in steam dome, pressure gauge, water gauge with blow down valve, throttle (regulator), sludge blow down valve, accessory turret with draft blower valve and two accessory fitting spots, Goodall valve

Water Feed: Locomotive mounted axle driven pump with bypass valve, gravity or syringe through Goodall port inside the cab, hand pump in tender, Goodall valve

Fire Box: Integral to boiler, wet leg except for dry back (.85-in. above crown sheet and 1/4-inch on sides, removable ash pan and grate assembly

Fuel: Starter fuel: Real wood charcoal (not common briquettes) mixed with pure liquid wax paraffin that doesn't leave an oily residue (lamp oil) - Operating fuel: Bean-sized Welch coal from Cole's Power Models

Tender Capacity: Modified Accucraft tender has approximately 1.89 liters (~2 Quarts) of water capacity and approximately 34 cubic inches of space in coal bunker

Special Tools Provided: Small, narrow coal scoop (looks like a shovel), coal rake, boiler flue cleaning brush, tender pump handle with Allen fitting on one end for boiler blow down valve and the displacement lubricator cap

Optional Modifications: Hinged cab roof (folds to the right side)

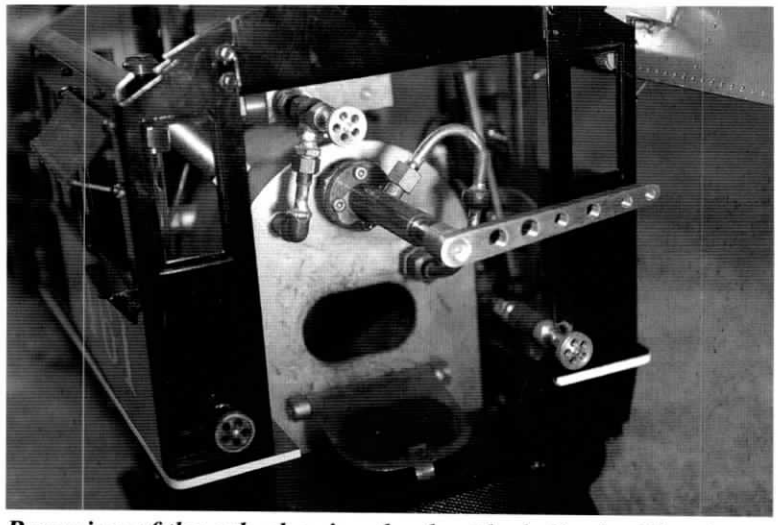
Accessories: Recommended owner purchases - Welch coal, real wood charcoal, lamp oil, Aster battery operated suction fan, steam oil, lubricating oil, protective gloves, displacement lubricator waste removal syringe, and a small vacuum to clean ashes from the smoke box

Torry Krutzke at the Colorado Rail Museum with his coal fired conversion of the Accucraft K-27.

Before you read my review of the Pikes Peak Locomotive Works coal-fired Accucraft K-27, I have two confessions to make. First, this is the first time Iíve operated a coal-fired live steam locomotive. From this, you can conclude that I am not a coal-firing expert. Second, my observations of coal-fired locomotive operations have been limited to visiting Diamondhead and other steam up sessions. Nevertheless, I have been a live steamer for more than 15 years and have a good idea how things should be.

Initial Thoughts

My observations of enthusiasts running coal-fired locomotives has led me to conclude that coal firing can be either an incredibly rewarding or extremely frustrating. Some of the locomotives I've observed had characteristics that generally made them difficult to operate. These machines seemed to me to be unforgiving and therefore not suitable for a coal-fired beginner, even if they have extensive gas-fired experience. Whether an operator has a good or bad initial experience depends on the overall design of the locomotive, especially the boiler design, the inclusion of special features to assist in control and operator technique. As with any live steam locomotive, once you get to know an engine and begin to understand its good and bad characteristics, performance improves and your enjoyment increases proportionately.



Rear view of the cab, showing the throttle, boiler backhead with generous sized fire door, water level gauge, Johnson bar and valves.

Now to my experience with the prototype Pikes Peak Locomotive Works coal-fired Accucraft K-27. I am pleased to report that this is not one of the frustrating locomotives I mentioned earlier. On the contrary, you will learn below that it has many features that make driving it an easy and rewarding experience. At the outset, I'd like to say that this locomotive is not the result of an amateur backyard modification. It is clearly an ingeniously designed, well-engineered and professionally executed precision machine.

Locomotive Inspection

When I lifted the engine from its carrier, I was struck by how massive it is. I had never handled one before. Because of its weight, Accucraft recommends lifting it by putting one's fingers under the drivers, which I did.

The specific locomotive I operated started out as a gas-fired Accucraft K-27 that was redesigned and reconfigured by Torry Krutzke, owner of Pikes Peak Locomotive Works. The basis of his modification is a unique boiler and integral firebox designed by Torry and manufactured, tested and certified by Cheddar Models, Ltd. of England. Standard components such as the superstructure, frame, drive and valve gear, cab and body details remain as Accucraft delivered them. The modifications to accommodate coal-firing are evident when you look inside the cab, see the built-in coal bunker in the tender and notice the plumbing running between the tender and the rear of the locomotive.

I was impressed with the rivet detail on the modified tender as well as a feature that lets you prime the axle pump on the locomotive with the hand pump in the tender. This feature reduces the chance for an air lock in the axle pump.

I first inspected the interior of the cab where I found a modified Accucraft displacement lubricator incorporating a valve to control oil flow. I also noticed a valve to bypass the axle pump when the boiler is full.

Closer inspection of the boiler backhead revealed a lot of thought and planning. Photographs I'd seen earlier did not do justice to the efficient arrangement of features. The back head has a true locomotive style turret for steam accessory takeoffs. This turret comes with a valve for the draft blower installed and is spotted for two other fittings that could easily accommo-

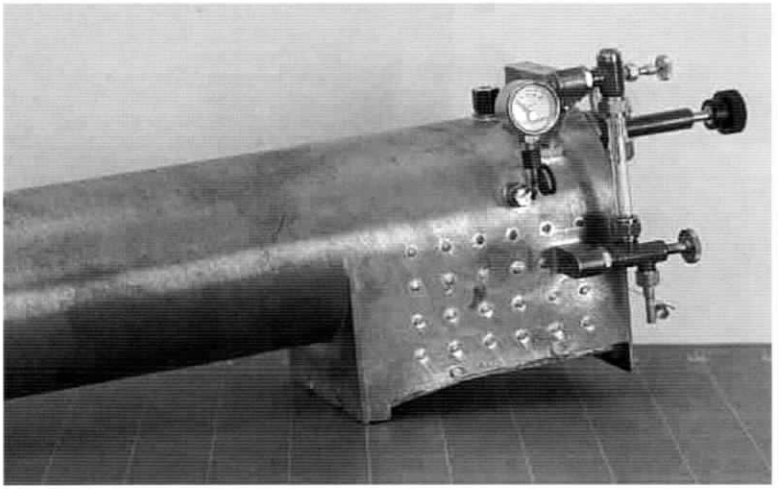
date an injector or whistle valve. A 100-psi pressure gauge is installed, as is a water gauge with its own blow down valve. The installed Goodall valve is a nice safety feature if water has to be added to the boiler in a hurry. A key feature of the back head is the throttle, or regulator, that feeds steam to the running gear through a stainless steel super heater passing through the firebox.

Underside view, showing axle driven water pump.

The firebox with its large door incorporates a wet leg design, except for the back, which is dry. This design promotes efficient steam generation. The fire grates and pan on the bottom of the firebox are easily removed for ash and clinker removal. I found out during running that the ash pan is large enough to hold several hours of residue.

The boiler has a steam dome with two safety valves, one set for 75-psi and the other for a backup safety relief of 78-psi. It looks to me that even with two safety valves installed on the steam dome, there is enough room for a Bangham whistle. A blow down valve for clearing sludge from the boiler is located in front of the fireman's mud ring, which by the way uses a special Allen fitting on the end of the manual water pump handle.

Next, I examined the smoke box. When I looked down the stack with a flashlight, I noticed a three hole blower ring around the exhaust nozzle similar in configuration to full-size locomotives. Looking through the open door, I saw that the lubricator line feeds directly into the cylinder 'Y' pipe so that oil is sent to the cylinders independent of the main steam line. Torry explained to me that this is an important design feature because high temperatures in the superheater line would cause steam oil in it to carbonize and leave a residue that would soon form a clog. This is a correction to a deficiency in the gas-fired version where the super heater line with steam oil in it is red hot during operation.



New coal fired boiler.

Preparations

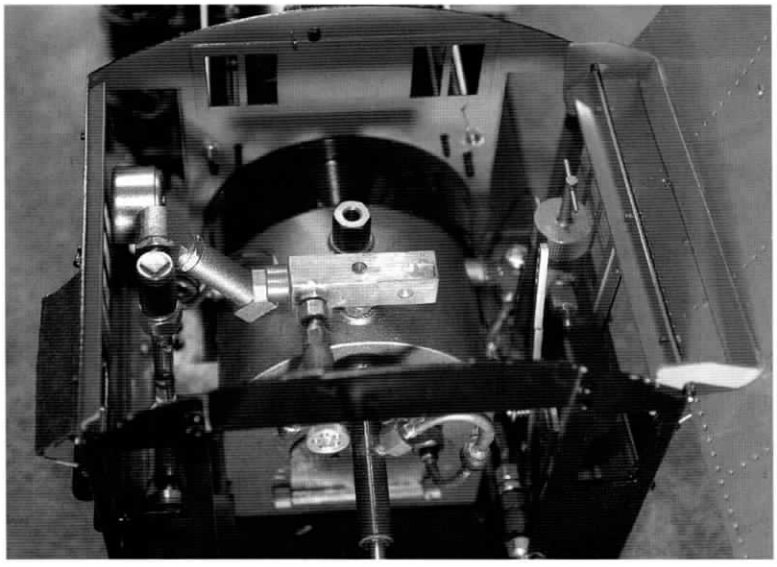
The run took place at the Denver Garden Railway Society steam track at the Colorado Railroad Museum in Golden, Colorado. This waist high, raised platform with its 150-foot long, dual track is an ideal location for test runs of this sort.

In general, preparation for operations is not unlike a gas-fired locomotive except, of course, there is no gas tank to fill. Lubrication of moving parts was accomplished before the locomotive was set on the track because there is a lot to oil underneath. The undercarriage, with particular emphasis on the yoke for the axle pump, was done while the locomotive was on its side.

The locomotive was carefully placed on the sidetrack in the steamup bay. Next, the tender was placed on the rails and the plumbing for the two water lines was connected. The high pressure water line has a screw-on fitting with an o-ring, so it doesn't have to be tight. The low pressure hose on the return side just slips on a pipe on the locomotive. I put the tender pin into the draw bar, which has been repositioned and modified so that the spring keeps it tight against the tender bottom,

thereby reducing the chance of uncoupling on rough tracks.

Steam oil was added to the lubricator so that it barely covered the steam pipe that crossed inside near the top. Next, distilled water was added to the boiler so that the level was above the top of the crown sheet (arched top of the fire box), the location of which is marked on the water level sight glass with a red line. A quick look at the water gauge on the back head showed that water was above the red line and there were no bubbles. If there were, the blow down valve could have been used to relieve them. Next, nearly two quarts of water were added to the tender.



Top view of cab shows the steam turret and flip-open roof.

I first checked to make sure that both the throttle and blower valves were closed. Next I made sure the axle pump bypass valve was fully open. I used the manual pump in the tender to clear the air from the boiler feed lines and axle pump. This action took about a dozen strokes. The exact number of strokes needed is not known, but Torry learned from trial and error that 10 or 12 seem to be enough. I closed the axle pump bypass valve and then gave the tender pump three more strokes in order to clear air from the boiler check valve.

Firing

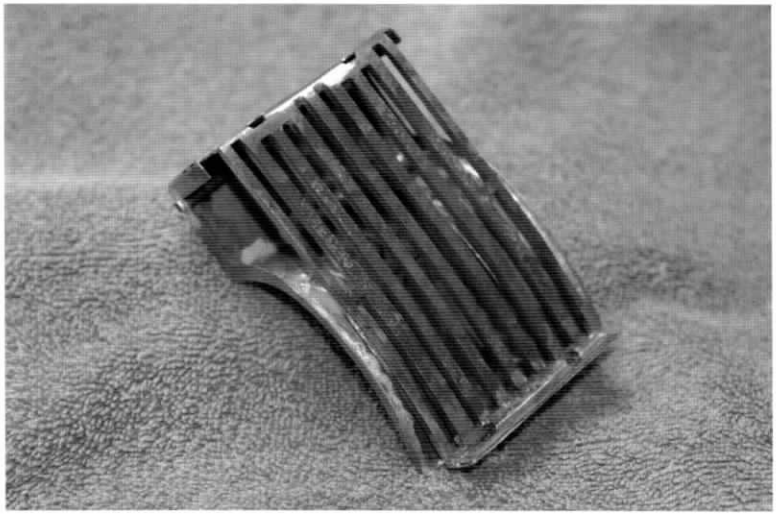
Since this was my first operation of a coal-fired locomotive and the locomotive I was about to run was Torry's only prototype, he offered to coach me through the firing process. Of course, I jumped at the chance.

Torry thrashed around behind me and magically produced an Accucraft gondola to use as a coal car. He uses the gondola so he won't scratch his modified tender bunker when using the metal coal shovel. Moreover, the gondola holds a lot of coal and it is easier to get nuggets on the small shovel when the train is in motion.

I put coal in the gondola, which was Welsh coal from Cole's Power Models. Torry orders Cole's *bean* sized coal that is delivered in a five-gallon pail for about $40.00. Bean-sized coal nuggets are mostly the correct size, but a few large ones need to be broken so that the largest is not larger than a lima bean.

Next, Torry produced a small metal canister of charcoal that had been soaked in commercial liquid paraffin lamp oil. The charcoal, which should be real wood charcoal and not common briquettes, was already broken into small pieces. I was told to fill the firebox with the soaked charcoal up to the level of the bottom of the door. You can feel the level with the bottom of the shovel. It was now that I realized that the firebox was quite large, so it took about eight shovel loads (scoops) to accomplish.

I placed an Aster battery operated suction fan (a must have item to be purchased elsewhere by the owner) on the smoke stack and turned it on just as I lit the charcoal. After shutting the firebox door, I could hear an immediate roar of the fire. I noticed that the K-27's boiler drafted easily and heat was generated quickly. It took about two minutes for the steam turret to become too hot to touch. After three minutes or so, the needle on the



Firebox grate.

pressure gauge reached the 10-psi mark. At this point, I turned off and removed the Aster fan, opened the locomotive blower valve and added four scoops of coal to the firebox. With the locomotive blower on, steam pressure rose fast enough to see the pressure gauge needle moving. At the four-minute point, the gauge indicated 50-psi. Moments later, the gauge read 75-psi and the lower range safety valve popped off. I was quite surprised by this because all my gas-fired locomotives take nearly twice as long to reach an operating pressure of only 40-psi.

Two more scoops of coal were added to the fire. I then used the rake (sometimes called a pick) to even the bed of coal. I was nervous as I opened the cylinder drain cocks, closed the blower valve and opened the throttle. The locomotive was not the least bit nervous and immediately moved forward with very little spray from the stack. Opening the cylinder drain cocks along with the stainless steel super heater line passing through the firebox produced very dry steam.

Operation

This locomotive conversion is designed to be fired from the fireman's, or left, side, which requires right hand shoveling. That is not to say that it couldn't be run by a left hander from the other side, but all the features are best suited to a right hander.

Driving the loco was very easy as there is a long handle on the throttle knob, making it easy to operate. After one loop around the DGRS track, I pressed down on the handle to close the throttle and stopped the locomotive to check the adjustment on the oil flow through the displacement lubricator. I didn't know I was supposed do this and Torry had forgotten about it. It was at this time that I learned that Torry modified the original Accucraft lubricator to feed steam oil through an adjusting valve. This valve should be cracked open about 1/8th turn from closed to ensure steady oil feed rate that will permit a full lubricator to last several hours. Before resuming my run, I closed the cylinder drain cocks and opened the throttle. Since the load was light, a slight crack on the steam blower was needed to maintain pressure at slow speeds.

I marveled at the smoothness of the run and remarked that I'd like to see a heavy load on the locomotive. After three or four circuits around the track, I stopped the locomotive to add 10 more cars. In addition to the gondola with coal, I added a mix of Accucraft boxcars, gondolas, flats and a Hartford caboose, all of which I estimated to total about 35 pounds, but really don't know the exact weight. Before resuming the run, I added two scoops of coal and closed the axle pump bypass valve since the boiler was full. When I opened the throttle, the locomotive accelerated smoothly and hardly noticed that I had added a heavy string of cars. Needless to say, stack talk noticeably increased.

I learned that after four circuits, or about 600 feet, the fire needed a scoop or two of coal. It was also interesting to note that there was enough water space in the boiler to make four circuits before the axle pump bypass valve had to be closed to start the refilling process. It took about two circuits for the pump to fill the boiler to the top of the sight gauge.

It takes some doing to learn to add coal on the run, so I opted to stop the locomotive to do this. I found that the handle on the throttle knob, with its off position at three o'clock, did not get in the way when adding coal. For those who like to shovel on the fly, the handle is somewhere in the one-o'clock position while running, also not in the way. I liked the 'up is on and down is off' feature of the handle on the regulator.

The fire door is relatively large, so when I placed a scoop of coal in the firebox, it was easy for me to spread it evenly. I did learn that when I added too much coal, it blanketed the fire thereby suppressing it. Torry told me to open the blower valve for about one circuit until the fire comes back to life. This worked.

If one of the boiler safety valves pops off, it is probably an indication that the fire is too intense from too much coal. Cracking the firebox door open for at least one circuit lowers the fire slightly and brings the situation under control. I may not have made it clear that when the locomotive is stopped to service it or to check something, the blower must be turned on. Coal firing requires a constant forced draft to continue to burn and this has to be managed.

It's possible that after a 30 or 40 minute run, ash and clinkers can start to build up on top of the grate blocking airflow. A quick and careful rake with a fire pick can work wonders in livening up the fire. But I was not allowed to be too enthusiastic with raking, because a thin fire might burn right through and eventually go out.

Believe it or not, I ran the locomotive for nearly four hours. After a few iterations of adding coal, turning the axle pump bypass valve on and off and opening the fire box door when the fire was too hot, I developed a comfortable rhythm and became almost as relaxed as I am with my gas-fired SR&RL #24.

To end the run, I merely quit adding coal to the boiler and let the fire change to ashes and embers.

When the train stopped, I uncoupled the cars and pushed the locomotive and tender to the steamup bay to cool. I was instructed to use the Allen fitting on the end of the pump handle to open the boiler blow down valve for a moment to clean out any accumulated sludge. As soon as the glow of the embers was gone, I opened the blower valve to blow off the residual steam pressure. I left the blower open during cooling so that water would not be sucked from the tender. I could have just as easily disconnected the tender, but I wanted look at the whole configuration for a few minutes.

After Run Service

After removing the cap from the displacement lubricator, I was surprised see that it was nearly half full. So steam oil use does not seem to be a limiting factor to long runs. I withdrew the waste from the lubricator using a nice looking, efficient syringe that Torry purchased from Norm Saley. There is a drain beneath the cab floor, but unless you have something to catch the waste in, it will drip on the tracks. Torry suggested that I refill the lubricator with fresh steam oil, so I did.

I disconnected and removed the tender from the track so that I could hang the rear truck of the locomotive over the edge of the steam up bay. This facilitated removal of the grate and ash pan assembly once the single retaining pin was pulled. All that remained was a little unburned coal and ash. I saw no clinkers. Both the ash pan and grate drop out causing ashes to fall on the rear truck assembly. Torry handed me a small paintbrush to clean the truck.

Water left in the tender was discarded in case any soot or coal dust from the bunker had gotten inside. This is a good habit to get into for coal-fired locomotives.

Next, Torry provided me with a fiber .30-Caliber rifle bore brush to clean the 9 boiler flues. This brush worked great and is an item included with the modification. After that, I carried the locomotive into the DGRS storage house to vacuum the ashes and a few cinders out of the smoke box. Thanks to the adjustable flow displacement lubricator and direct connection of the steam oil line to the cylinder 'Y' pipe in the smoke box instead of the super heater tube, there was no visible oil splatter to make ash cleanup difficult. I again used the paintbrush to clean cinders and some ash accumulation on the outside of both the locomotive and tender. Torry told me that he occasionally washes the locomotive, including the smoke box, with a solvent called *Stoddard*™ that he gets from a local petroleum distributor. It does a good job removing soot and doesn't harm the finish.

Some Minor Complaints

I do have a few minor issues that you might want to consider. First, I found that the Accucraft designed cab roof arrangement slides backwards and is not hinged to pivot, which made some in-cab functions hard to manipulate. If I had needed to get to the Goodall valve quickly, I might not have been able to. Since my running experience, I learned that Torry plans to offer a hinged roof (can be made to flip either to the right or left) as a modification option. Torry's modification requires replacement of the metal window shades with cloth ones.

Next, the Accucraft provided T-bar, mounted on the displacement lubricator cap, is so close to the cab side that people with big hands might have a problem with access. A modification that was not yet completed on the locomotive I ran will include removal of the T-bar and a hex socket machined into the head. You will be able to use the hex fitting on the end of the pump handle for cap removal.

Third, Torry had not yet developed a set of instructions for me to review. I am a checklist guy and I think in addition to an Operator's Manual, a checklist is needed.

Finally, there was no footplate between the cab floor and tender. When I dropped some coal, it was difficult to retrieve. Since then, Torry has added a footplate that he will offer as part of his modification.

Afterthoughts

I am right handed, so operation from the left or fireman's side was easy for me. I'd like to hear from a left handed person after they've fired the converted K-27. I don't think this would be a big deal.

Operating Torryís coal-fired K-27 prototype was a rewarding experience for me. Since I am a true novice at coal-firing, I conclude that running this particular modified Accucraft locomotive is simple and requires no special skills once the procedures are understood and followed. Nevertheless, it is important to note that you can't fire this locomotive, then let it run unattended like you can a gas or alcohol-fired locomotive. It requires a reasonable degree of attention, but not as much as I had imagined before this experience since the big boiler and very deep firebox allowed running

for periods of up to ten minutes with only an occasional look at fire condition and water level.

Until I ran a coal-fired locomotive for the first time, I did not appreciate how much water they use compared to gas or alcohol fired engines. This is because the heat source is fierce. In inexperienced hands, the locomotive may be less controllable because of a tendency to run it with a good hot fire, which makes the safety valve lift most of the time. This, of course, wastes a lot of water through increased consumption and is why it's so essential to have an axle pump to deliver water to the boiler while the loco is running. The pump on Torry's locomotive will have no trouble surpassing consumption and bring the water up to a safe level.

Even though the modified K-27 has a very large water tank in the tender, it is important to remember to top up the water tank at regular intervals so the axle pump doesn't start pumping air, thereby initiating a frantic recovery session. Remember, if you need or want to add water quickly, you have the option of using the hand pump in the tender or the Goodall valve on top of the boiler underneath the cab roof.

Summary

Pikes Peak Locomotive Works has designed and built a gem of a coal-fired locomotive. It retains all Accucraft details, runs smoothly, pulls like a tractor, emits a glow from the firebox and ash pan and best of all, it emits an aroma of coal smoke, a pleasant memory from my childhood. I recommend this locomotive for any serious steamer with the resources to switch to a coal burner. Even though it's easy to operate and is relatively forgiving, I do not recommend the coal-fired K-27 for a novice steamer.

I loved the challenge of running Torry Krutzke's prototype and thank him for the opportunity. I'd like to close this article with words expressed by Jim Pitts and John Shaw who said that coal firing is a constantly changing, dynamic process - 25% knowledge and 75% technique. This is true.

How Can You Obtain a Coal-fired K-27?

You must first own your own live steam Accucraft K-27 (any version with either inward or outward slanting cylinders).

You may contact Torry Krutzke at: sales@pikespeaklocoworks.com
Or see details at:
http://www.pikespeaklocoworks.com/

Pikes Peak Locomotive Works will charge $2995.00 (plus shipping and insurance) for modifying your locomotive using a certified Cheddar manufactured boiler. The work, including boiler and all steam component hydro testing to 220-psi, coal-fired test runs, will take about 6 to 8 weeks to complete.

You will receive a ready to run coal-fired K-27 that includes all the features discussed in this article.

You will be very pleased with the results and your fellow steamers will envy you.

Workshop Project

Lahey Coach

by Paul Blake

A backwoods people transport from the land Down Under

Logging railroads do not carry passengers, right? Well, like all truisms this statement is not entirely true, and there are a few examples of passenger services being run by Shay and Climax locomotives on logging railroads. I personally would like to see some further research on this type of operation.

In the rainforests of South East Queensland, David Lahey and his brothers established a timber getting and sawmill operation at Canungra in 1884. By 1900 David Lahey had commenced work on a 'tramway' to obtain timber from further up the Canungra Valley more efficiently than his worthy bullock teams.

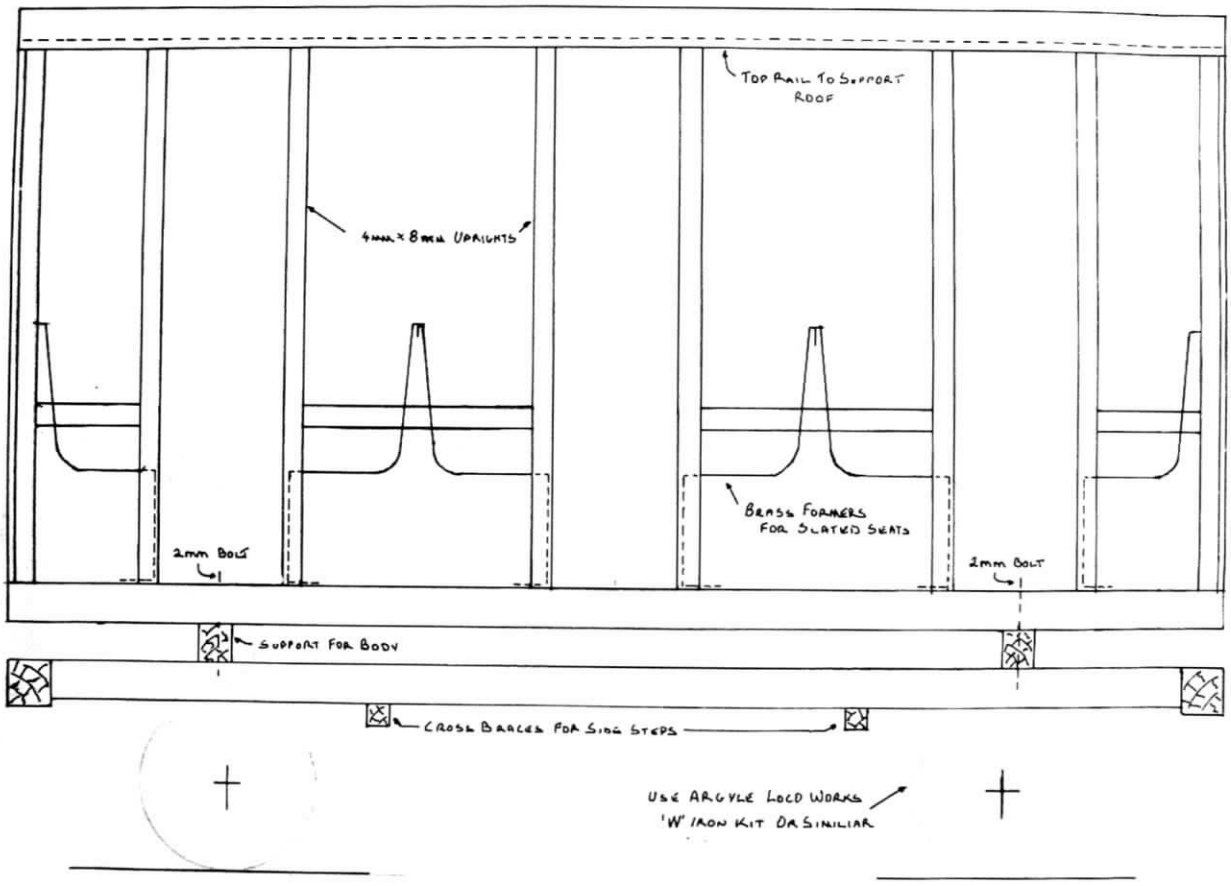
Fig 1

In 1903 he took delivery of a brand new 18-ton B- class climax and matching Climax log wagons and began operations. By 1907 he had reached a distance of 6.5 miles from Canungra. Eventually 16 miles of track would be built with two branches into the rainforest of Pine Creek and Flying Fox Creek. Sharp curves and numerous trestle bridges were features. One section of 43 chains (about half a mile) was laid at the grade of 1 in 12.5. Luckily, loaded trains only had to go down this grade not up it as it certainly would test the Climax.

As the line expanded, timber families set up camp deep in the forest and the need for personal transport arose. It was common for people to ride on the empty log wagons or on top of logs on the way back. Picnic days in the spectacular rainforest were also popular and on these occasions sawn planks were laid across the log bunks and what looks like church pews mounted on top.

In one photo I have in my collection I can count 40 people in their Sunday best perched up on one Climax log wagon and about the same number on a second one coupled behind.

Around 1906 a 4-wheel flat car was converted into a 'coach' of sorts. The coach had substantial timber ends and a roof, but only framework for the sides and six cross seats with slatted benches. It appears that this rather crude coach was not too popular as the only photos of it which survive show it either empty or nearly empty with all the passengers resorting to the log wagon. (see Fig. 1) It may have been a safety issue as the coach does not appear to have any brakes and was always attached to the log buggies by a 'rooster' pole



to avoid being dragged off the track.

Lahey's Canungra and Pine Creek Tramway has become an obsession and I have constructed operating live steam models of their Climax, a 16-ton T-boilered Shay (697) and a larger 24-ton Shay (2135). There is one more 3 cylinder 28-ton Shay and a little T model Ford railcar to be built. With all this motive power available, a set of Climax log buggies and the passenger coach needed to be built.

As many of our U.S. friends own and operate various Shays, and the new Catatonk Climax is a model of Lahey's Climax, I thought SitG readers might be interested in building this little coach.

First of let me state that there are no plans (in fact there probably never was). From the photos I had I scaled an average size passenger and used the height of the locomotive as a guide. From this I was able to draw up a reasonable side and end elevation.

I purchased from Gordon Watson at Argyle Loco Works a set of W irons and axle boxes and wheels he has available, and made these units up in accordance with his instructions.

Using the finest blade I could find for my saw bench I cut up some fine grained timber in three basic sizes:-

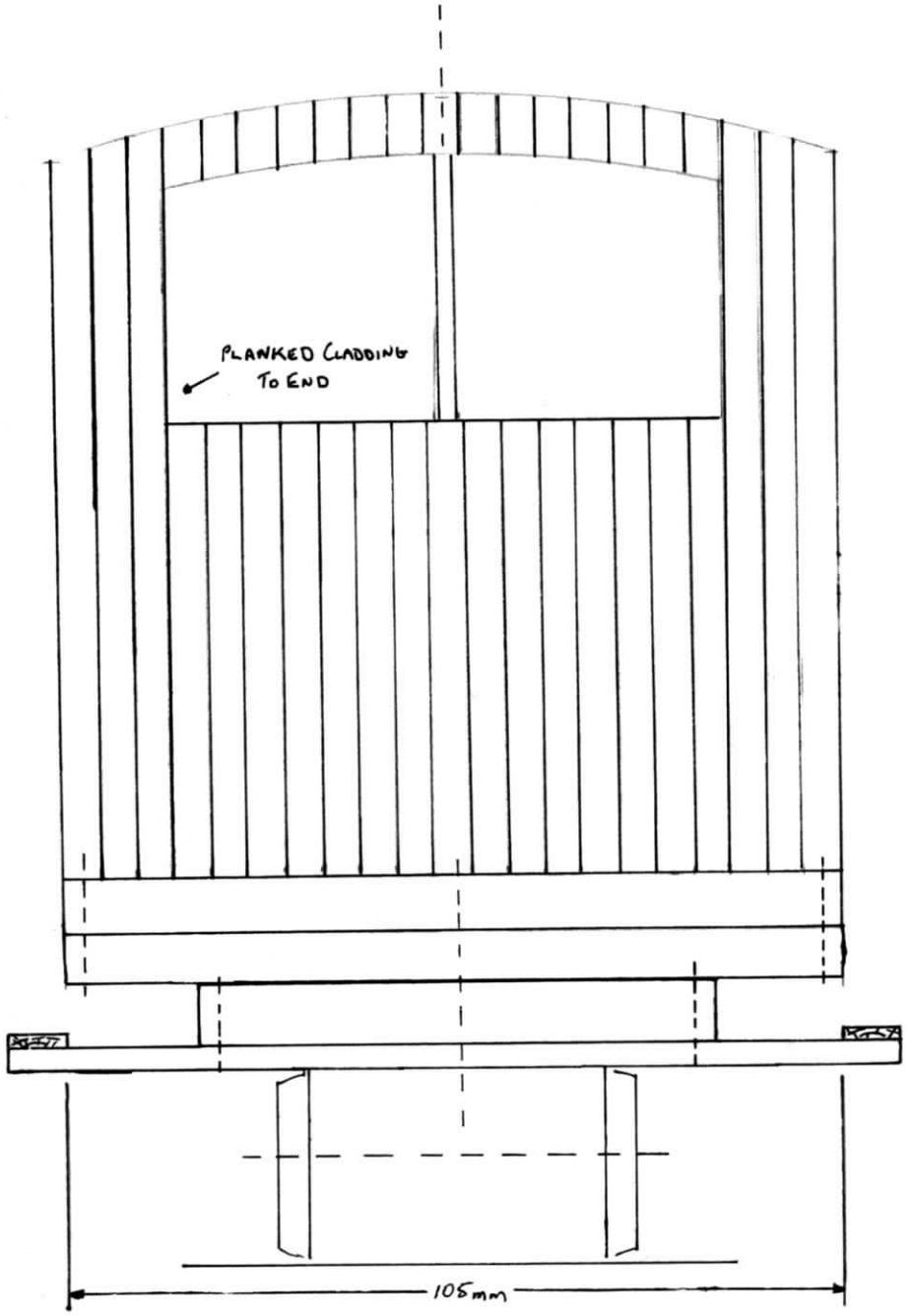
8mm x 6mm for underframe and chassis
8mm x 4mm for top structure and body frames
8mm x 1.5mm for floorboards

I used teak which I had on hand, but any fine grained timber would be suitable. Fine grained timber is needed to avoid splitting and a rough finish. Some hobby shops sell timber in various cut sizes so if you do not have a suitable saw bench, then purchase it pre sized.

Cut timber sizes off the plan and make an underframe out of the 8mm x 6mm. I glue the corners and then insert dressmaker's pins to replicate cup head bolts. They also add to the strength of the joint. A tip at this stage is to spin each of the pins in the chuck of your mini drill and run a file over the heads. You can make the heads a bit smaller and the filing of the nickel plating means the pins will take paint better later.

You can use as many of these pins as you care to, but I think two in each corner is adequate as this coach is a backwoods job and the prototype would not have been built by engineers!

Cut two cross members in 8x6 to the width of the

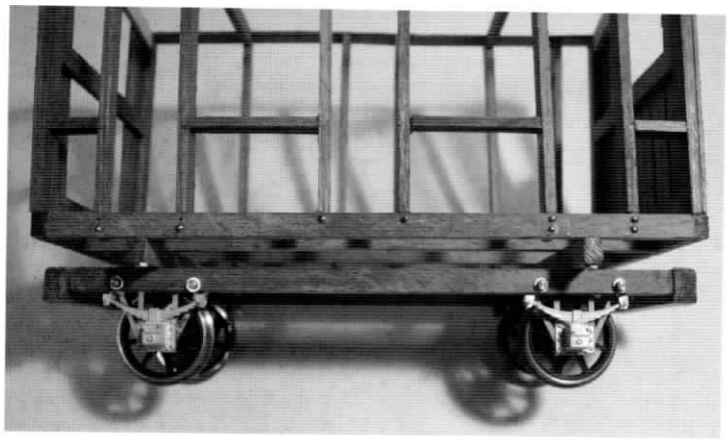


coach (105mm). I chose this width for my plan as it looked right according to the photos and matches the width of my locomotives. Install these cross members 40mm from each end. Then make up another rectangle from the 8mm x 6mm with two end plates and four longitudinal bearers evenly spaced. Glue together on a flat surface, 2 pins in each corner for the bolts. This new rectangle piece, which is the frame for the floor, can be bolted with small metal thread bolts

Next step, from some 8mm x 4mm make up a frame for each end to provide a support for the vertical planking of the end walls. You will notice that the end wall has a curved top at the roof line and at the top of the window. I cut a piece of 4mm thick plywood using a photocopy of the plan as a template to provide this top curved rail to the frame.

Glue the end frames in place making sure that you keep them vertical. I use balsa wood and pins to hold them while the glue dries. Two top rails can now be cut from the 8mm x 1.5mm. Cut two notches in the top of each end panel and fix the top rails into these notches with glue.

After these have dried measure from the underside of this top rail to the underside of the floor sill



in different sizes and they are extremely useful. We call them bulldog clips in the Land of Oz

The slatted seats are easy to make but tedious. First I drew up the shape for the seat frame and then cut some 0.7mm brass into strips 4mm wide. I bent this to the shape I had drawn and fitted the frames to the coach using 2mm screws through the floor. There are four back to back frames for the centre seats, and the two end seats have four single frames which I made by simply cutting a full frame in half. This is hard to explain but a look at the photos will give the idea.

The local hobby shop produced some 4mm

(approx 107mm) and cut 12 uprights from 8mm x 4mm. Cut a notch in one end of each, 8mm long by 4mm wide to fit around the floor sills and then glue these uprights in place as shown on the drawing. I fixed each of the uprights in place with 2 pins through the floor sill and a single pin vertically through the top rail. These pins should be countersunk a little to avoid fouling the roof when it is inserted later.

Now you can cut some further pieces of 8mm x 4mm to insert as braces between the uprights. On the prototype these seem to have been fitted at a height to prevent passengers from falling out!

Using the 8mm x 1.5mm planks the floor can now be fitted, moving from one end of the coach to

the other and cutting around the uprights as necessary. I used wood glue and held boards in place with spring clips from the office drawer while drying. I have a large collection of these clips in my modelling drawer

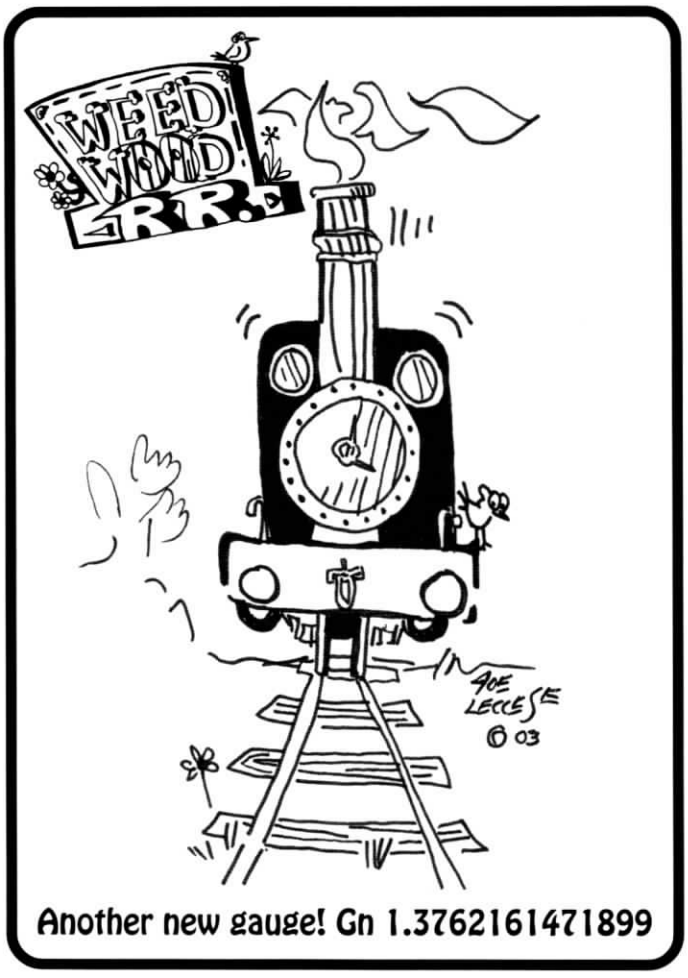
x1.2mm pine boards from their shipbuilding supplies section and I cut a large number of these into 85mm lengths and glued them in place for the seat slats. Try to obtain a fairly uniform gap between the boards.

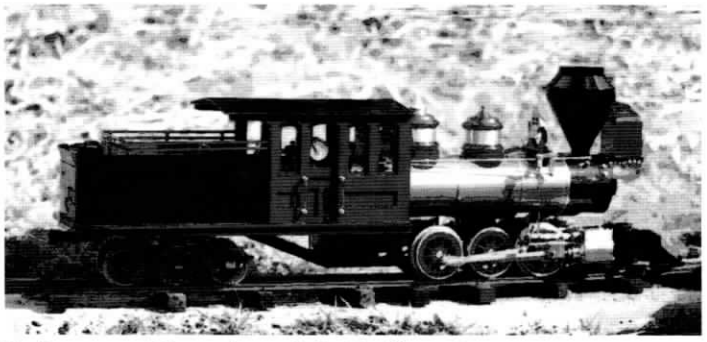
The next job is the side steps. Cut two 4mm x 4mm pieces 120mm long and fix these with 2mm screws to the underside of the chassis 65mm in from each end. Two steps cut 215mm long from the 8mm x 1.5mm stock can then be glued in place and 'bolted' down with two pins.

Finally, cut the roof from a piece of 1.5mm ply (115mm x 230mm) and bend and glue it into place. You will need to clamp it down overnight to ensure the glue holds.

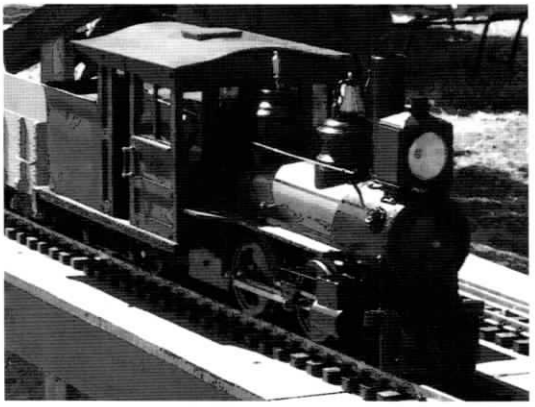
Fit a set of link and pin couplers and finish the coach to your choice and the job is done. I wanted the backwoods look so I simply oiled the timber to protect it but a dilapidated paint job would look equally authentic.

Please don't get too concerned if you have to substitute other materials than those I have described, or if you choose to do something a different way. Remember that this little coach was knocked up quickly in the timber mill's workshop to fill a need, so anything goes.





Mason Bogie 20.3 Scale



Portland Forney 7/8 Scale

Steaming–California Style
2004 Summer Steamup

report by Jim Crabb
photos by Michael Martin

It was over 100 degrees during the day and 60 something at night; the skies clear and the humidity was very low.

But it wasn't the weather that brought folks from as far away as Florida, Mississippi & Texas. It was "live steam", complete with meths, coal smells, various gases -- a steamup at its very best.

How does one describe in a few words this "steam event" that unfolds toward the end of July every year?

Anybody who reads these pages regularly knows my thoughts, as I've written them several times (see SitG N° 72 for specifics about the venue):

-- a great fellowship

-- always a learning experience

-- a surefire immersion into the world of live steam

-- a venue which has only one peer (Diamondhead)

-- an unbelievable resource

Well, you get the picture. How many ways can I say it?

So, this year I thought ahead and decided to give you the viewpoints of some of the participants -- most of whom have never steamed east of the Rockies. (Just as most of the Diamondhead steamers have never steamed in California.) It's time y'all got acquainted.

I will tell you that this is the second year we've been at the Lion's Gate facility at McClellan CA (a decommissioned Air Force Base.) And, it looks like we'll be here for the foreseeable future about the same time every summer -- so plan now -- the next one is just a few months away.

"It's awesome" said Vicky-Marie Parker, and she is right. The thousand square feet with excellent ventilation and room for 9 ovals built on 5 structures. The largest is approximately 65 x 35. The smallest is 7 x 12 built with four sheets of plywood. Five of them were dual gauge so there was plenty of room for G1, 16mm, 32/45, 7/8n2, 1:13 to 1:32 etc.

Four main line tracks were governed by track boards (7 AM - 7 PM). The rest were ruled by good manners. "I can't believe everybody is so friendly and helpful." said Leslie Bedding. It was gratifying to see a few folks who were "challenged" participating wholeheartedly as if watched over by guardian angels. "That's what it is all about" said Norm Saley, "people helping each other."

Even with that many tracks there was plenty of room for the peanut gallery. "Do we live in a great nation or what?" said Charley Lix.

"I can't believe there is so much to see." Kathy Zellner.

I have no idea how much fuel and water were consumed but the PCLS hosted a barbeque dinner Saturday night for 110 people and almost all of them were steamers. "The food was great" commented Al Holston.

Something else that caught my eye was the number of women with their own fire stick, oily aprons, and big smiles seen firing their own engines. To name a few: Pat Dixon, Belinda Murray, Anne, Kathy, Debi Smith and Vicky-Marie Parker. I haven't seen this much attention for the gentler sex since Bob and Carol Paule hosted their "Powder Puff Steamup" in St Louis a few years ago.

And there are kids, too, with their own trains. One young man (featured last year) was seen operating his MIMI with a revenue load of "Sponge Bob Square Pants" passengers.

Because of the large space there was plenty of room for everybody to have their own 3 x 6 table if they wanted. This suited Phillip Oldenhage, who has been at the event four times. "It only gets better," he said. "The groups, the seminars, the room - in this

case bigger is better."

"There is so much to learn," said Kathy Zellner from El Grande CA "and so many people to learn from." Sure, a lot of this was going on along the sidelines, but some of it is in the seminars.

I particularly enjoyed the "Tuning your engine" topic by Dave Hottman. His detailed drawings and descriptions with visual aids enabled even me to understand the mystery inside a valve and steam chest.

Clark Lord had a delightful presentation on building an elevated layout (in multiple phases) with a whimsical summary featuring Lou Banning's 7 1/2" gauge. Some folks were so intent they missed the humor but it was wonderful fun.

There were several other topics, including Mike Martin's "CAD for model engineers"; a discussion on safety for the small scale live steamer by Dave Cole. (You may recognize his name as a moderator of one of the popular discussion boards. And a picture story of "Great Railways of Great Britain" by David Leech.

Three days of exhibit hours gave lots of time for the "eye candy", mostly supplied by Accucraft with an abundance of rolling stock and new engines. Roundhouse was there as well, and Brandbright, too.

It was really great to see Jerry Reshew running trains. As the host of the "world's largest International steamup" in Diamondhead, Mississippi every January, he is too busy overseeing the granddaddy of steamups to run his own engines.

Bob Brown was also there as the editor of *Narrow Gauge & Shortline Gazette.*

Another stalwart who has devoted many resources to live steam along the Pacific coast was Dr. Dan Liebowitz. He received a special plaque honoring his many contributions.

The tracks were in excellent condition and the trains moved smartly around the mainlines at 80-100 scales miles per hour. This was verified by Dan Pantages and his nifty little scale grid.

There was a spectacular incidence of a train trying to fly -- it left the running height of four feet and dove onto the floor with its coal fire still burning -- followed by a collective gulp. However, John Coughran is one of those masters/mentors many look up to, and it wasn't long before "Jack" was on the track running again, seemingly no worse for wear.

Accucraft had the most engines running around the tracks, but the Roundhouse Forneys and Darjeelings were well represented.

It was a spectacular sight to see seven Shays crawling around the track one night...but it was unbelievable to see thirteen hooked up Saturday morning. (Who thinks up these things anyway?)

Norm Saley had a beautiful one-off ten wheeler that stopped traffic every time he ran. Dave Hottman never seemed to take a break from tuning engines for other folks. Of course, his own Shay was timed with a calendar, and his Garratt was awesome.

There are a lot of folks instrumental in putting together this event besides the seven underwriting benefactors - Sonny Wizelman, Bill Turkel, Jim McDavid, Clark Lord, Richard Finlayson, Tony Dixon and Dave Cole. I wouldn't want to start naming them because I would hate to leave anybody out. Suffice it to say that there are people behind the scenes who coordinate clothing, track storage, track assembly, provide personal tracks, give seminars, take pictures, put forth ideas, and the list goes on.

The best thing for you to do is come see us. July 2005 is just around the corner (and so is the California Railroad Museum, by the way).

In closing I want to call attention to the logos created each of the last four years. They are an adaptation of "fallen flags" - a railroad which is no longer in existence. Many attending didn't even realize that unless they carefully studied the program. The inspiration for 2004 was the Northwestern Pacific. Many main lines, shortlines and various gauges made up the "Redwood Empire Route." In 2003 it was the Sacramento Northern (an interurban service between Oakland and Sacramento). In 2002 it was the "Feather River Route" of the Western Pacific and in 2001 the tradition began with the Pacific Coast Live Steamers adaptation of the Southern Pacific.

Photo captions, right (clockwise, starting at the top)

Five separate layouts - boasting a total of nine mainline loops - were available throughout the four day event!

* * *

I believe Kevin Schindler may be responsible for these very lifelike figures.

* * *

John Coughran usually takes on a at least one new coal firing student at every steamup. Here he is showing the ropes to Tom King.

* * *

Rail Museum or National Summer Steamup?

* * *

Aster Silver Link - three cylinders of power and grace.

* * *

Kevin Schindler is one of the many "hardcore" narrow gauge enthusiasts.

* * *

The Argyle SPC #3 has a look that is unequalled.

The Ruby Project

by Jerry Reshew

photos by Keene Golding & Carol Jobusch

We all have observed , I am sure , that our hobby seems to be predominately one for older folk , and that fresh new faces are absent from any get togethers. One of our fellow hobbyists , himself self described as being long in tooth , decided to do something about this. Jerry Reshew was out on the West Coast when he approached Mr. Bing Cheng of Accucraft Trains with a proposal that might help our hobby grow with a transfusion of youth. The idea was simple - donate some Ruby kits to a high school and have the students build them and then run them at the International Small Scale Steamup in Diamondhead, Mississippi.

Mr. Cheng thought the idea had merit , so Jerry took the idea to Hancock High School in Kiln, Mississippi , right around the corner from Diamondhead. He talked about the idea with Mr. Keene Golding, head of the physics department, and a plan was developed. The students of the advanced physics class would work as teams assembling Ruby kits, three to a team, and they would describe the physical laws involved in the construction and operation of a steam locomotive from mechanics to heat transfer, from Boyle to Newton, and they would learn more about steam than some of us have ever attempted.

Accucraft came through with seven Ruby kits for the 21 seniors and they went at it with youthful vigor. The seven kits produced six runners. The only one that didn't perform was tweaked later on and is as fine a runner as a little locomotive can be.

The trip to the ISSS was spectacular for the students! They were admitted as registered steamers and were encouraged to get into the activity of running their creations in a busy environment. The good natured hazing that some of the male students endured when the "girls teams" outperformed the "boys teams" added to the fun, and some of these bright kids came back at other times to run with the crowd. Some wonderful new friendships were made.

Mr. Cheng has created a program that will probably continue. Mr Golding's students are all heading off to college next fall, but the steam locomotive will always be a part of their personality and some of them will surely continue in the hobby.

Photos, clockwise from below...

Joey Knipps works on his Ruby kit in the Physics Lab

Ryan Chauvin & Thomas Donaldson fill the boiler on their Ruby

All girl team (Chayna Cosse, Jamie Avant and Emily McCleskey) light up their Ruby at the ISSS

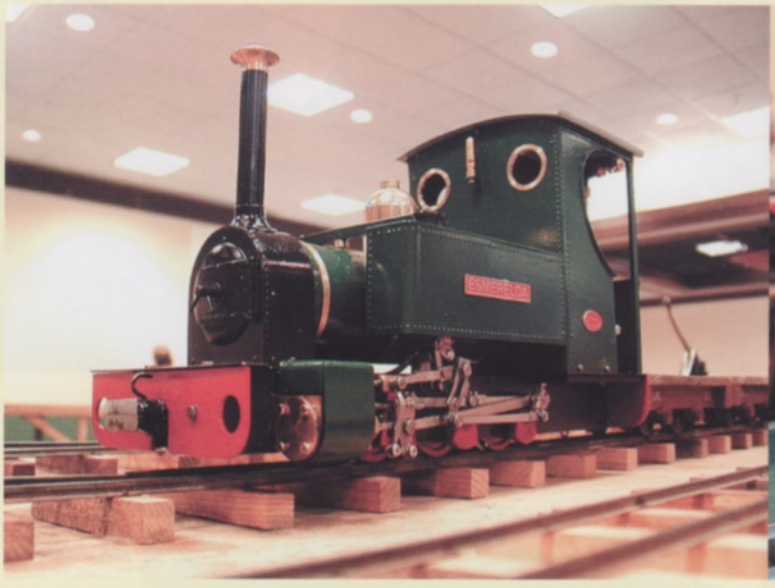
Dawn Brightwell (Washington) assists Kate Sullivan

Can someone spare this man (Dan Liebowitz) a new pair of gloves?!

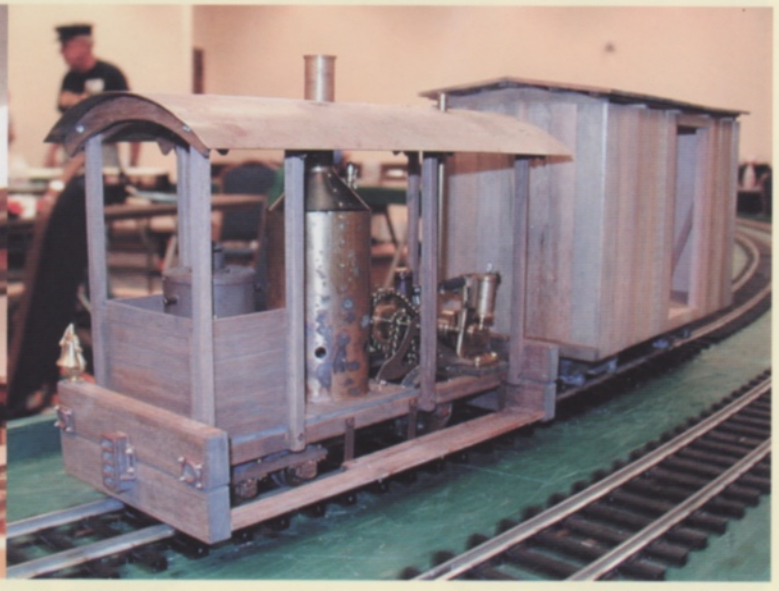
Peter Lenicheck blows the whistle on Dad's engine.

Steve Ciambrone's scratch built tram engine TOBY.

Jim McDavid is doing a great job assembling his Ivatt Atlantic.



Kevin Schindler's ultra cool, ultra narrow gauge ESMERELDA.



Mike Martin's backwoods loco takes a few laps on the big track.


M K
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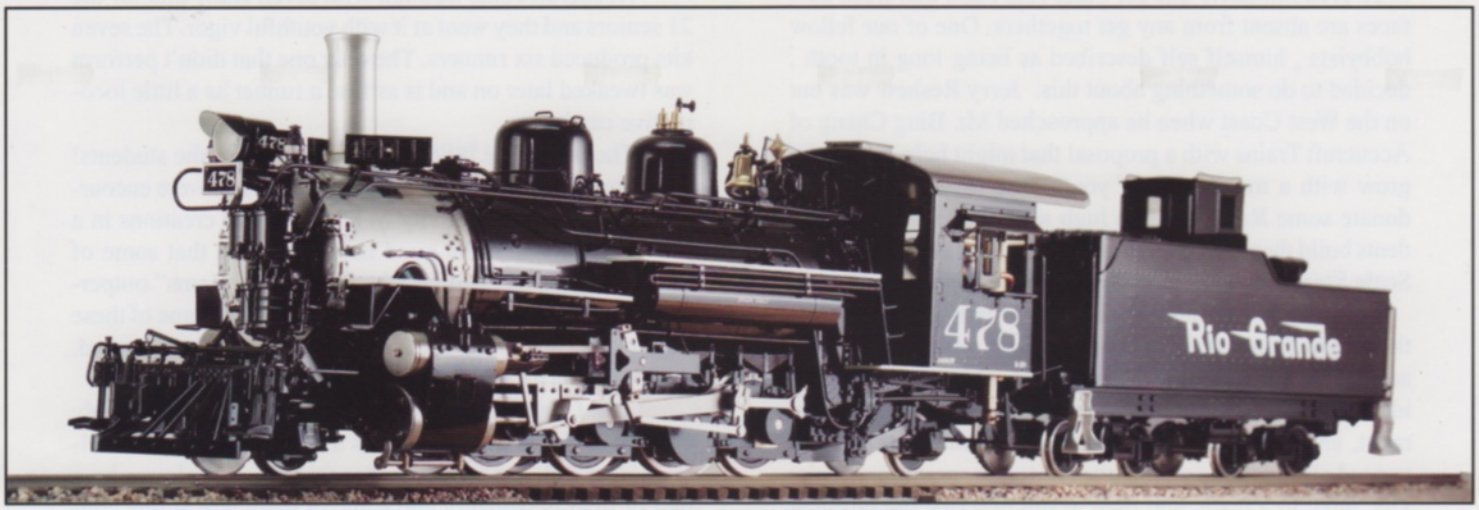
L N E R
2509


271

Never Cease to Amaze



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Accucraft Classic Series Mogul

by George Erhart
photos by George Erhart and Mike McCormack

Specifications:

Scale: 1:20.3

Gauge: 45mm (Gauge 1)

Length: 26.5 inches

Weight: 15.75 lbs.

Minimum Radius: 30 inches

Cylinders: Two - 9/16" bore x 7/8" stroke, with piston valves

Boiler: Single flue, silver soldered copper construction, approximately 360ml capacity, insulated with a brass wrapper. The steam line is routed through the flue to the cylinders for superheating. Pressure tested to 130 lbs, safety set to 65 lbs.

Fittings: Pressure gauge, safety valve, regulator

Fuel: Butane

Lubricator: Displacement, with drain

Valve Gear: Simplified Stephensons

Accessories: two syringes, a hex driver and a few spare hex head bolts.

Manufactured in China for Accucraft Company.

Retailers: See http://www.accucraft.com

The Prototype

The prototype for this engine is currently housed in the California State Railroad Museum in Sacramento. The engine was built by Baldwin (construction number 4562) in 1879 for the Utah & Northern Railway Co. It was one of 16 locomotives of the same class built by Baldwin for the U & N between 1878 and 1880. The prototype weighs 39,000 and has 40 inch drivers with 12" x 18" cylinders. The original engine is an oil burner. The engine is very typical of many of the narrow gauge 2-6-0 engines built around the same time. This table shows the long history that the prototype engine enjoyed.

Date: 03/1879 Utah & Northern Railway Co.

#13 08/1889 Oregon Short Line & Utah Northern Railway Co.

#17 02/1897 Oregon Short Line Railroad Co.

Glasgow & Western Exploration Co. "Pearl"

03/1913 Sugarman Iron & Metal Co.

Nevada Short Line Railway Co. #1 at Rochester, NV

Scrap Dealer Nevada Central Railroad Co. #6 at Battle Mountain, NV

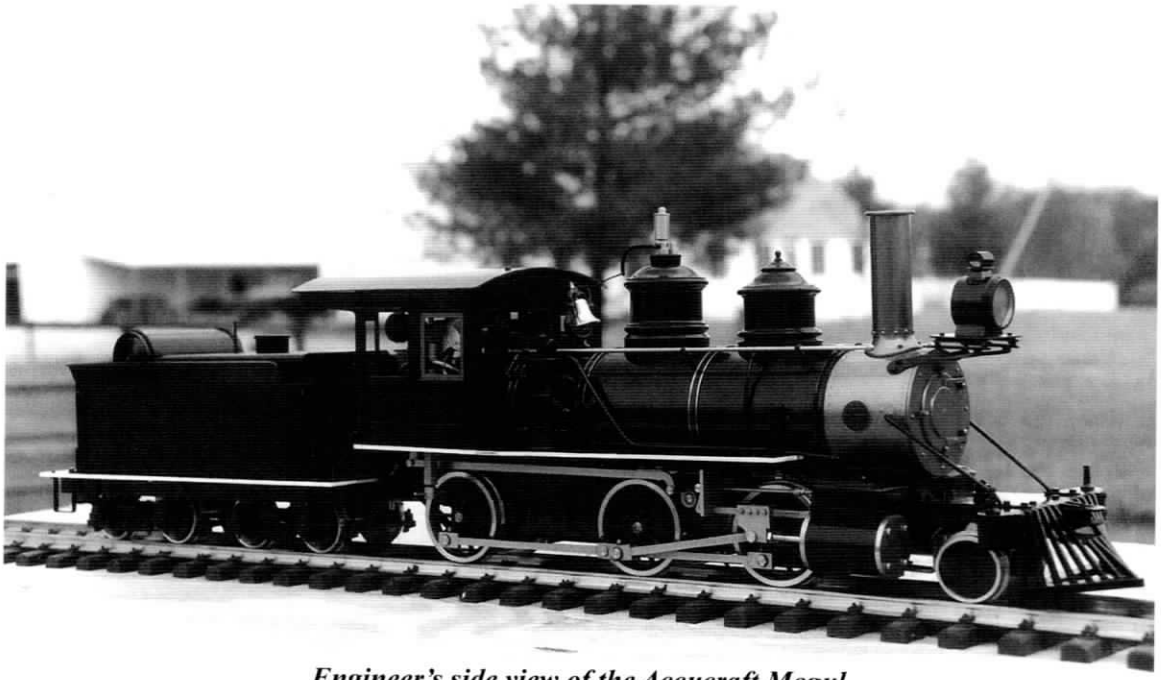
J.M. Hiskey Golden Gate International Exposition Railway & Locomotive Historical Society at Oakland, CA

Railway & Locomotive Historical Society, Pacific Coast Chapter, State of California, California State Railroad Museum

The Model

The model is a hefty 15.75 pounds and looks as substantial as the weight would indicate. The engine and tender are shipped in separate boxes. The tender comes wrapped in plastic and packed in Styrofoam and grey foam padding. The engine comes wrapped in plastic and in a metal/wood carrier padded with foam and styrofoam padding. On the engine I received, one of the sand pipes had broken off of the sand dome. I am not sure if the damage occurred in shipping or when I was removing the plastic wrap, but needless to say, be careful unwrapping one of these engines. The locomotive, as I received it, did not come with any instructions or owners manual. The only included paperwork was a registration card, warranty card and boiler test certificate.

I purchased the undecorated version and it comes with a basic black paint scheme with the smokebox and smokestack done in silver. The boiler is accented by boiler bands that are black with raised colored brass edges. The cab roof is hinged on the front cab wall

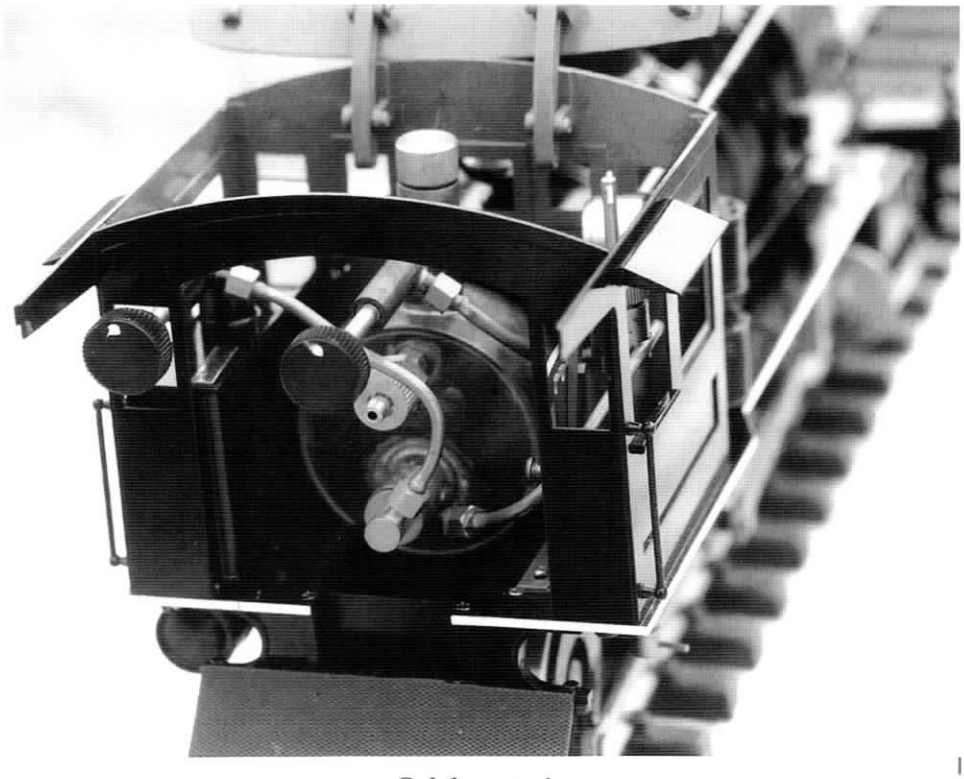


Engineer's side view of the Accucraft Mogul

Rear quarter view of the author's loco.

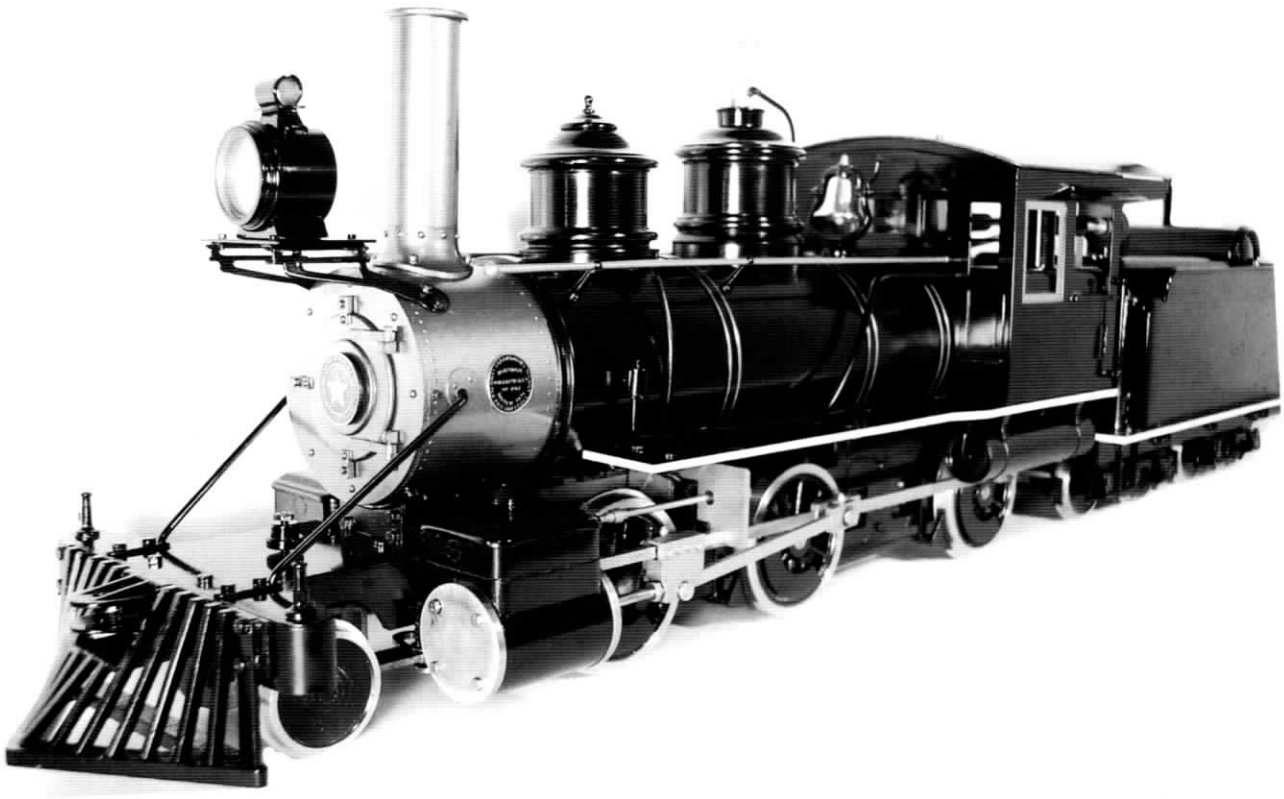
with a pair of substantial curved links. This allows the cab roof to be tilted completely back over the steam dome.

There is a nicely polished brass bell between the cab and the steam dome. The steam dome features 2 simulated safeties and a brass whistle. The bell and the whistle have thin wires to simulate pull ropes that pass through the cab wall. The front of the locomotive features a large headlight fixture. Additionally, there is a large casting of a compound air pump on the right hand side of the locomotive. The sand dome has piping for sand lines. The front of the locomotive has a large cowcatcher and a simple link and pin coupler. This will inhibit running two engines in a double header. As you can see from the specifications, the minimum radius specified by Accucraft is 30 inches. The locomotive does have blind (no flange) center drivers, but the wheel base between the front and back drivers is still very long. This engine needs larger radius curves for reliable operation.



Cab layout view.

The tender attaches to the locomotive via a drawbar that is permanently



Isn't she a beauty? Call your favorite Accucraft dealer!

attached to the locomotive and has two positions for connecting to the pin on the tender. This allows some flexibility on connecting the engine and tender when running on tighter radii track. The tender has two archbar trucks with simulated brake rigging. The tender also has a simulated oil bunker. The bunker comes off and reveals a large compartment with four small holes on the bottom. The front wall (facing the cab) has a larger hole in it. I am not sure why the holes are there, unless it was to support RC equipment. The coupler is an Accucraft knuckle coupler. The way the coupler has been designed, it would take some re-engineering if you wanted to convert the engine to link and pin or the LGB hook and loop. Using the stock Accucraft coupler, I was able to couple successfully with Kadee couplers.

The Cab Layout

The fittings and cab layout are similar to the Ruby with the exception of the safety. The gas tank is located on the left side of the cab and is fitted with a Ronson valve for filling and a large plastic knob on the valve for controlling the flow of gas. The throttle is controlled by a needle valve that comes off of a tee that is topped with a brass fitting for filling the boiler with water. On the right hand side, on the cab floor is the reverse lever. It has notches for forward, reverse and neutral.

When I first looked at the cab, the most striking feature was the location of the safety valve. The safety points backward from the top of the backhead, just below the throttle knob. As of yet, I have not raised the boiler pressure to the point it would pop-off. I am not sure what it would mean to my fingers if the safety chose to release when I had my hand on the throttle or reverse lever. I would also worry about any R/C servos that might be located in the cab.

The Operation

I made two initial runs on a set of treadmill rollers, then ran for a day at Chip Rosenblum's house. My usual steam up ritual starts with putting light machine oil on all moving joints, axle boxes, etc. Then, I fill the lubricator, boiler and gas tank with the appropriate contents. Given that this engine does not have a water sight glass, I chose to completely fill the boiler, then

remove 30 ml of water to allow for steam space and to avoid priming.

This engine has a hinged smokebox door and the method for lighting is to open the door, point a small, light torch into the smokebox and gently turn the gas on. The fire popped back onto the burner easily. I own several Accucraft engines and this one has the quietest burner yet. It took 10-13 minutes before the pressure gauge read 40 lbs. At this point, I put the engine in forward, then cracked the throttle. I alternated the forward and reverse lever until the cylinders were clear of condensate and the engine started to run. Once running, the engine ran smoothly for approximately 25 minutes before the engine ran out of butane. I checked the boiler after several of the runs and found from 30 to 100 ml of water remaining.

Chip's track is a modest double loop around a small pond and did not offer a venue to test pulling power. The engine did perform well and demonstrated very good behavior when running on slight grades. The engine generally slowed, but did not stall when climbing grades and did not run away when descending. In general, the engine ran extremely well for a new engine with very little break in time.

Conclusions

This is a fine addition to the ever growing line of live steam models from Accucraft. The engine is a good performer and would be a nice addition to any engine house. The fit and finish of the engine is very good. My only real issue might be the odd placement of the safety valve, which could possibly result in a few burnt fingers.

For the price, this engine is a good value. Given the good behavior of the engine, I would like to recommend it as a moderately priced beginners engine. Unfortunately, the engine really needs some form of user guide before I would do that.

For those wanting to use the carrier that Accucraft ships with the engine to tote it around, you may want to consider attaching some small Velcro straps at strategic places on the wood carrier base. These would help restrain the engine when moving it about. Of course, that still leaves a need to find a way to tote the tender along.

References for the Prototype Engine

http://utahrails.net/pitchard/pitchard-un-uw-unev-oslun-osl-ng.php

http://trains.nute.ws/2-6-0/NSL%201.htm

Charlie Cheng

It is with a heavy heart we must inform you of the sudden loss of Charlie Cheng, who passed away November 18, 2004 in Wu Hu, PRC. Charlie was the driving creative force behind Accucraft Trains, which started in 1994.

Through Charlie's leadership Accucraft has established a reputation for museum quality brass locomotives. First in electric powered locomotives and revolutionizing live steam locomotives.

Charlie's leadership, both in model development and manufacturing organization, has brought Accucraft to prominence in the model railroad industry.

As product development leader. Charlie set up in Wu Hu a staff of qualified master builders of brass locomotives and rolling stock who will carry on the tradition of fine scale modeling.

During the past year Charlie established a research and development company in Shanghai. He trained and certified the research and development staff to continue his high quality standards.

Charlie also oversaw our AMS division of superior plastic factory development, producing the highest quality of rolling stock produced in 1:20.3 scale.

Charlie set up a new facility in Shanghai at the Tesane factory, dedicated to the production of classic live steam locomotives to insure quality product and prompt deliveries.

While in Wu Hu, Charlie was supervising the manufacturing of the new Daylight live steam locomotive. He has perfected this high quality locomotive, which will soon be delivered to world markets. In addition Charlie has developed many surprises which are yet to come.

We will sorely miss Charlie, but his trademark will always remain in the qualified craftsman he has left behind. He has set in place master craftsman that have been producing high quality brass locomotives. We will carry on the work and foundation that Charlie has so ably left us. We shall miss him as we go forward.

Charlie is survived by his wife Yinong Cheng, his sons Channing and Logan Cheng, his parents Wellington Cheng and Yulan Cheng, his brother Bing Cheng, and sister in law Lu Lu Cheng.

Submitted by Fred Devine, Accucraft Trains

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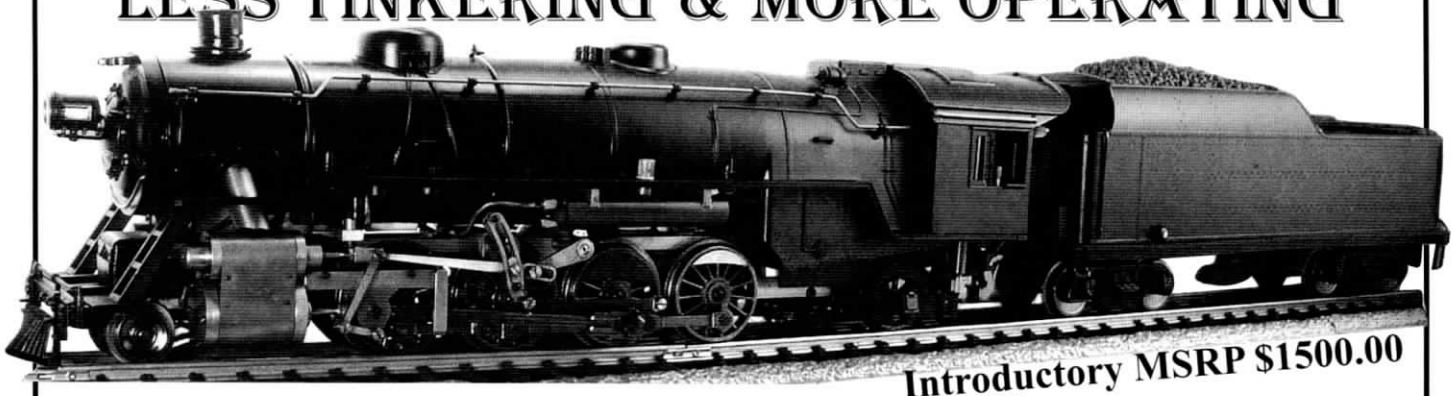

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- **Pressure valve included.**
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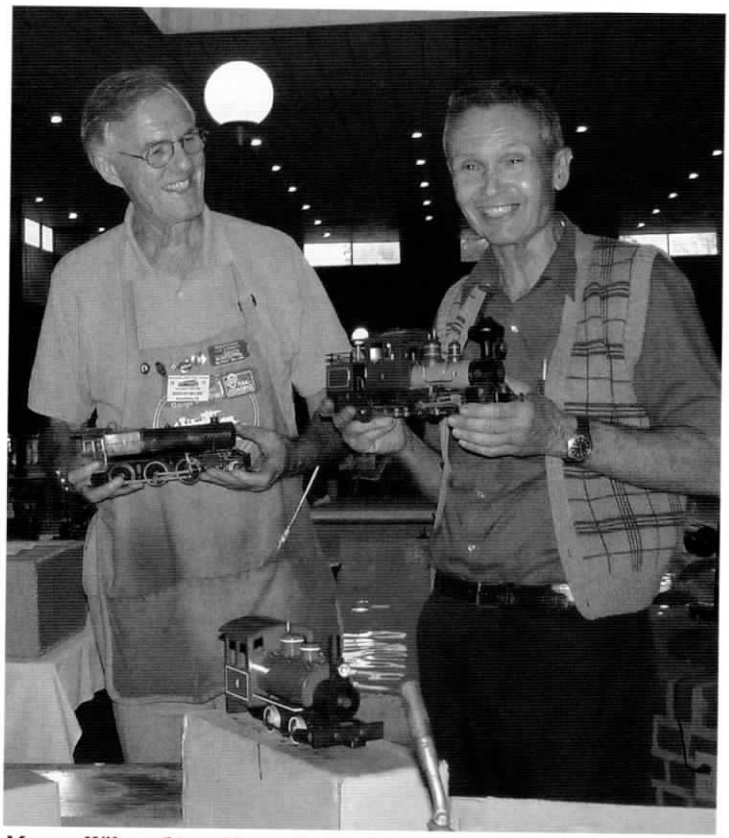


Murray Wilson (l.) and Larry Smith always delight Diamondhead attendees with their antique and replica steam trains. (watch for a full Diamondhead report in our next issue)

Quickie Workshop Project

Locomotive Maintenance Cradle

text and photos by Jerry Reshew

Just what you've been waiting for! A technical article that has no dimensions or drawings to follow, is simple enough to be almost intuitive, and the resulting device will have cost you slightly more than two dollars.

I've been working on a few locomotives in the past weeks and have always resorted to the tried and true method of propping the patient up on the workbench by using an assortment of whatever was at hand, when it all came to me in a moment of inspiration. I had the stuff around for another project that could, with almost no work, transform my working habits into what looks almost professional.

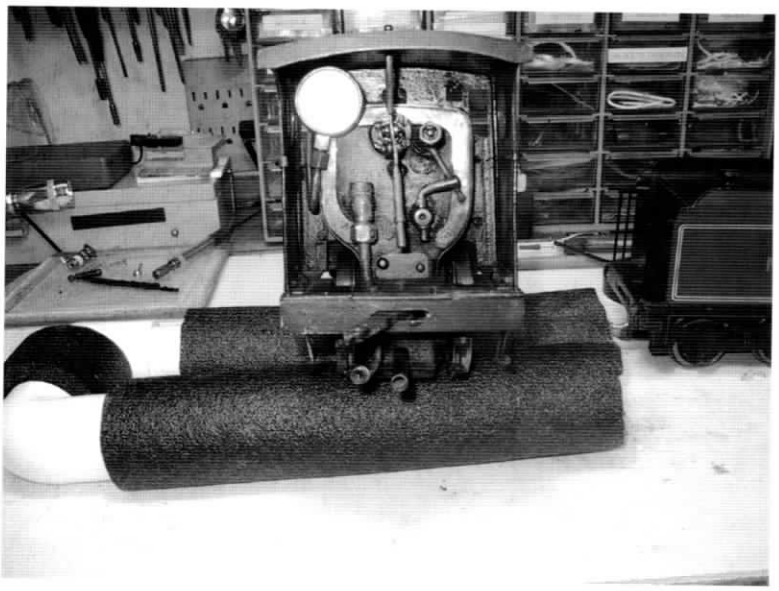
The photos tell it all. I used some one inch PVC pipe and elbows and pipe insulation sleeving. I didn't see any need to glue it all up, just a swat with a mallet seemed adequate to set it all solidly in place. There are no critical measurements, and you can make a general one-size-fits-all model, or you can make one for each locomotive. The bill of materials is:

1" PVC - 2 feet @ .28	.56
2 PVC 1" elbows @ .59	1.18
1" plastic pipe insulation	.50

	$2.24

Using 1" pipe might be overkill, but that's what I had to work with, and it does give you some added depth for the stack of the patient.

The author's quick & easy maintenance cradle at work.



Additional views of the maintenance cradle. Got locos that need some maintenance? Grab your hacksaw and mallet and get to work!

The Bilgram Diagram - Part II

article and CAD drawings by Dan Rowe

How valve gears work

My abundant enthusiasm for Shays made me overlook a very key point in the first installment of this series. This is not really about Shays, it is about Hugo Bilgram's valve diagram. I used a Shay cylinder to help illustrate my points because I have drawn several Shay cylinders. Bilgram's diagram only addresses the relationship between the crank and the D slide valve. The design of valve linkages used--whether it is Stephenson, Hackworth, Joy, Walschaert, or any other type on a very long list--is a separate design problem. The angle of advance is really just a shorthand notation used by engineers to state the angle of the eccentric. It is found on the eccentric drawings for steam engines that use eccentrics and listed on the drawing card index for Shay locomotive, right next to the valve travel.

The drawing card index (DCI) is a Lima record that lists the drawing and pattern numbers used to build a Shay. Some engineering notes and repairs are also listed on it. I have a copy of every Shay DCI in known existence, in a large box behind me.

Now, let's get back to the discussion of the Bilgram valve diagram.

Figs. 2 & 3 in the previous article are the D slide valve and the Bilgram diagram for the 8x8 Shay engine with the valve drawn in the middle or neutral position. In the last article, we left off with the piston traveling down, and the D slide valve at the end of its downward travel. Now, the valve reverses direction and starts to travel upward. Remember--the scale of the valve travel is twice the scale of the stroke line for clarity in the figures.

The next point of interest is when the crank pin gets to point G, shown in Fig. 1. The same system is used to locate the position of the slide valve. You draw a line perpendicular to the crank line OG through the fixed point F to form line FP. Point P is on the lap circle so the port opening is zero and the distance from the neutral point is line FP. This is the point of cut-off or -- as seen in the valve drawing -- the steam valve closed. The cut-off is most often stated as the ratio of the length of the stroke at cut-off to the full stroke, expressed as a percentage. To determine this from the diagram, you draw a line perpendicular to the full stroke line AB through point G. The cut-off for this engine is 6.98 divided by 8 times 100, or 87.25%.

The piston continues to travel down until the crank pin is at point E. The line OE is the angle of advance, which is 22 degrees for this engine. The slide valve is in the neutral position shown in Fig. 2. Fixed point F lies on line OE, so the perpendicular distance to fixed point F is zero and the slide valve is at middle of its upward travel.

The final point of interest is when the lower steam port is just about to open. This is the other intersection of the lap circle and the eccentric circle. The lap circle does not quite touch the stroke line AB. In some textbooks, a tangent is drawn from point O to this edge of the lap circle and extended to the crank pin circle. This is nearly the same as the approximate method in Fig. 1. Line ST is the lead line and is parallel to the stroke line AB. At this point the lower steam port is just about to open and the actual valve drawing would look like the one in Fig. 1, only the bottom steam port is about to open instead of the top port. The distance between line ST and line AB is the lead or the amount that the valve is open at the end of the stroke.

Lima records for 1924 list 1/32" as the lead for all Shay engines in production at that time. For most model engines, the lead is usually zero, and the slide valve opens at top and bottom dead center. The lead does not show up on the print. You have to draw a diagram or build the engine to determine the lead distance.

I was a bit surprised to find a tiny amount of lead on the smallest steam engine design in my files with a .25" bore and stroke. The angle of advance of all Shay engine varies between 20 and 30 degrees. The early engines in general had later cut-off which gave more power. Later models had earlier cut-off -- therefore larger angles of advance for greater steam economy.

I am working on a 7/8" to the foot version of the 47 inch version of the 8x8 engine, and I have some of the patterns done. To draw the small version of the engine, you simply move the crank bearing up four inches. The radius of the link has to be shortened from the standard 35" to 31". The full size width of the steam and exhaust ports are 5/8" and 1.25". That scales to .0456" and .091". It would be very convenient to have those numbers match the size of milling cutters available. This makes the steam port 3/64" and the exhaust port 3/32".

As long as I am changing things, the valve travel scales to .127". Let's round that to 1/8". Those are very small changes, I know, but what has changed in the diagram? Fig. 2 is the diagram for the model engine, with the lead set to zero. The scale of Fig. 2 is four times the size of the actual model. The valve travel and stroke line are drawn to the same scale in Fig. 2. The radius of the lap circle is .0234, so the model valve can now be drawn to match the new numbers.

The Bilgram diagram does not address the size of the exhaust port or really the steam port. These dimensions were set in the real world by assuming a steam and exhaust flow rate -- not the size of a milling cutter. The slide valve was designed assuming a cut-off and a lead. I will leave it to the reader to discover how to change the cut-off of your favorite engine by only changing the steam lap and advance angle.

I know from personal experience how hard this subject can be to learn and who can you ask? The best book I have found on the subject of Bilgram's diagram is *Slide Valve Gears* by Frederic A. Halsey. Good information is also in *Machine Design Drawing Room Problems,* first and second editions 1923 and 1927 by C. D. Albert.

Bilgram's diagram is also found in Audels Engineers and Mechanics Guide vol. 1, 1921, and the 1902 *Steam Engineering & Steam Engines.*

If you have a question on this article see me at Diamondhead with a bar napkin and a beer compass or email me at locodanrowe@yahoo.com.

I had actually promised Ron some Shay writing for issue N° 78, but I was having a Eureka moment with the Bilgram diagram, so I missed the deadline. This made the writing a bit like the horse before the cart, but I will clear up issues or mistakes in future installments.

Part 3 of the series will be the beginning of my writing on Shay locomotives, and I am starting with my favorite part, the steam engine.

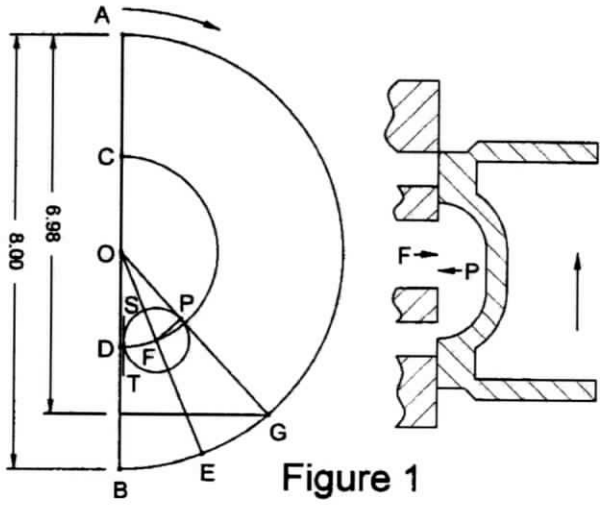


Figure 1

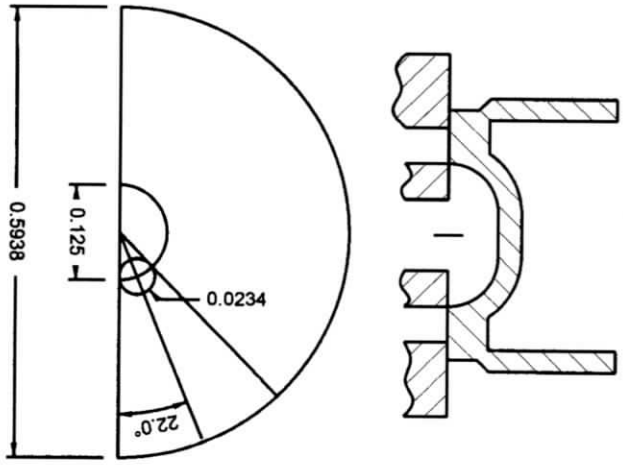


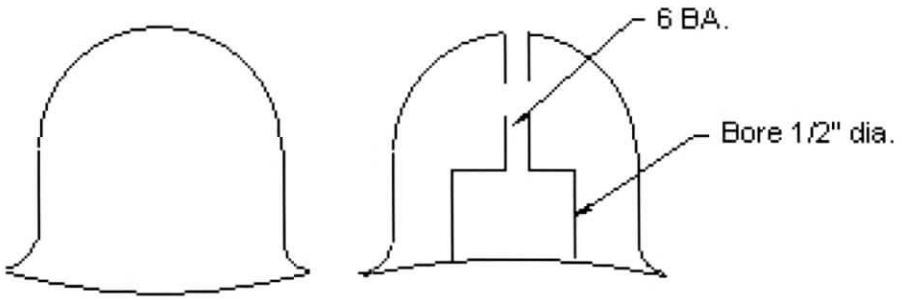
Figure 2

Workshop Project

Making Domes

by Keith Bucklitch

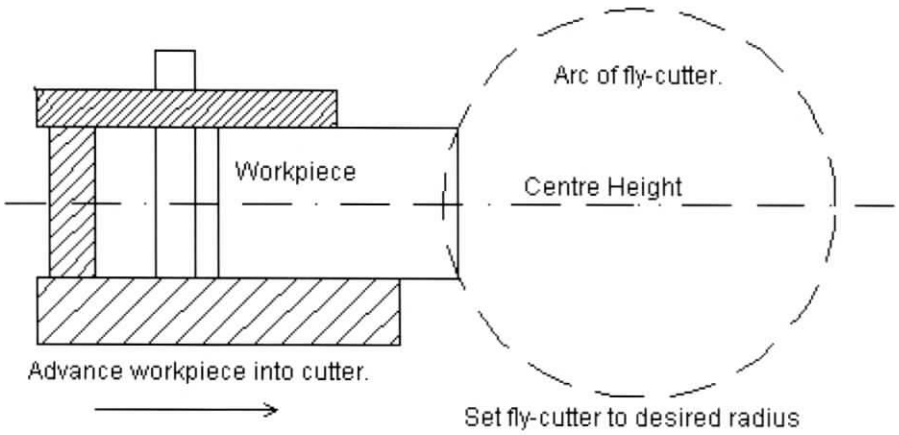
A dome has a number of different curves, which have to be accommodated in the construction. These make turning not a straightforward process. The following is a method that I have found successful in a reasonable period of time.

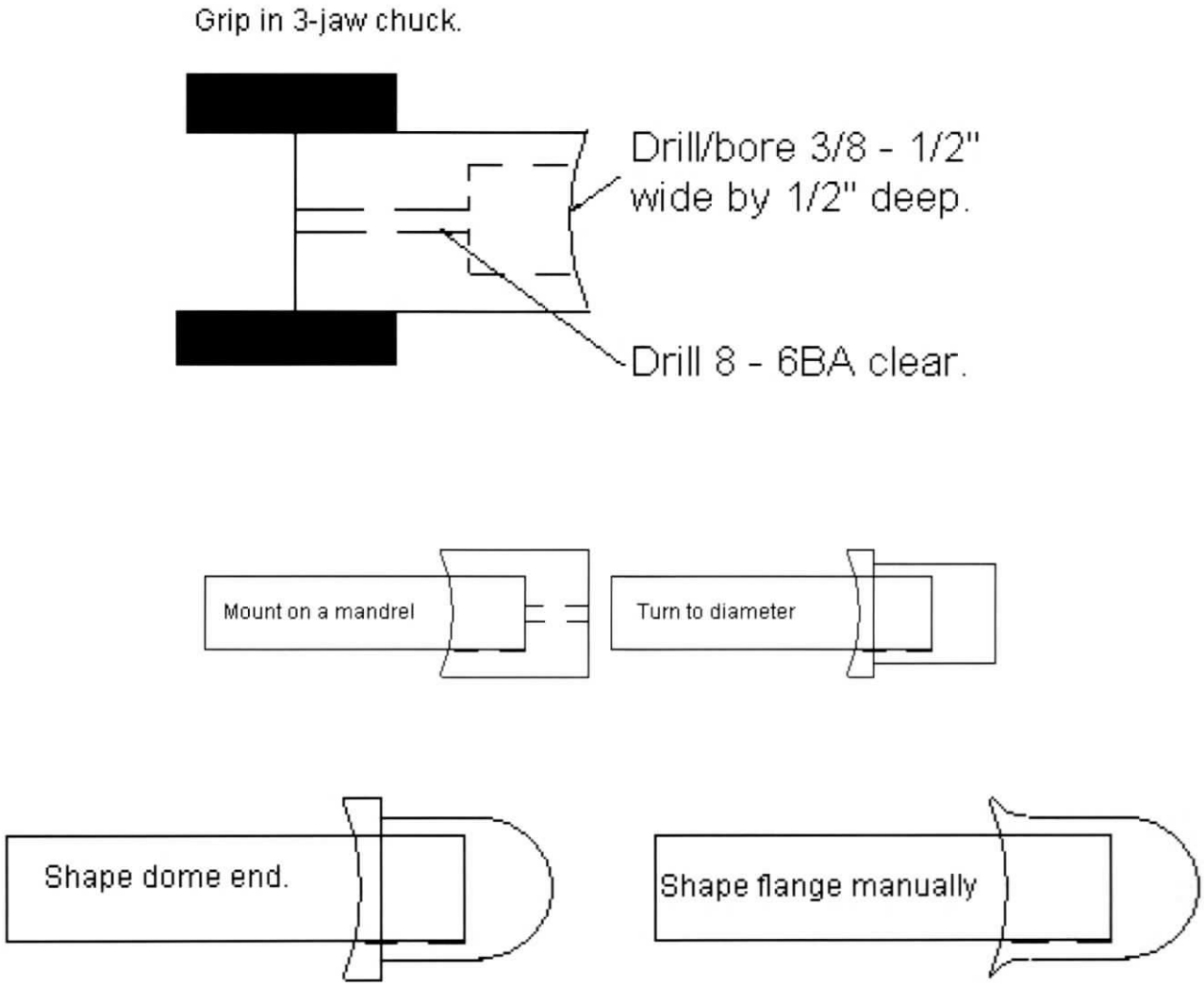


Firstly, fly cut the base of the dome to the radius of the boiler. To do this, clamp a piece of brass of suitable diameter on the top slide of the lathe, with sufficient packing to bring the centre of the bar up to the centre height of the lathe. To 'fly cut' the base, either use a boring bar holder, or clamp a length of cutting steel in the four-jaw chuck offset to the appropriate radius. Advance the face of the bar up to the cutting tool, whilst rotating the lathe at a medium speed. Advance the bar slowly, taking light cuts of 5 – 10 'thou' with each cut. Wind the saddle along the bed to feed the bar into the cutting tool. Continue advancing the bar and feeding the saddle until the desired radius is cut in the base.

Secure the work-piece in the 3-jaw chuck now with the base outwards and centre drill, then open out to 3/8" - 1/2" diameter for a depth of around one-half inch. Drill either 8BA or 6BA clearance to a depth such that when you part off the work-piece, the hole will emerge from the top.

We now need a mandrel to support the dome whilst we complete the turning. Chuck a piece of scrap steel bar (say 5/8" diameter) in the lathe, face the end and centre drill and tap either 8 or 6 BA. Turn down a shoulder until the work-piece is a push fit on the mandrel. Now, do not remove the mandrel from the chuck until the turning is completed. Push the work-piece on the mandrel and secure with a suitable screw. Alternatively, use a cyano-acrylate adhesive (Superglue etc). Turn the dome down to the desired diameter over the flange, then down to the body diameter, leaving a suitable depth of flange material. Shape the end of the dome, preferably by using a ball-turning tool, or by gradual cuts and careful manoeuvring of the cross-slide and saddle. Preferably use a round-nose lathe tool to obtain a smooth finish. Final shaping of the dome can be achieved by filing,



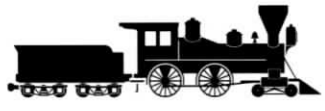


taking great care to avoid the rotating chuck.

The flange is also shaped by careful manipulation of the controls, but final shaping needs to be done by hand filing. Remove the work-piece still mounted on the mandrel from the lathe and grip the mandrel in a vice. Using hand files, complete the shaping of the flange until the desired profile is achieved. (A cardboard profile can be used to check the completed job.) I also find that a useful tool for final shaping of the flange is a circular sanding disk, mounted in an electric drill or the lathe chuck. Being able to hold the workpiece on the mandrel makes it easy to manipulate and shape.

Final polishing of the dome can be achieved with progressively finer abrasive paper and a final finish with metal polish, whilst still held on the mandrel. The workpiece can then be removed from the mandrel. If you have used adhesive to secure it for turning, gentle heating will break the bond. (Note that if you have not allowed a means for air to enter the cavity, then vacuum may still retain the dome on the mandrel.)

The finished dome is secured to the boiler by means of a screw or studding inserted into a suitable blind bush in the boiler.



Les lecteurs francophones peuvent contacter Guy Ozanne pour obtenir, gratuitement, une traduction sur un élément de texte paru dans SitG .41 rue Jeanne d'Arc, 94.500 Champigny, France; tél (33) 01-48-83-62-86; e-mail <Guy.0zanne@wanadoo.fr>

SWAP SHOP

For Sale: Myford Super 7 lathe, quick-change gearbox, power longitudinal feed, no power cross feed, 30.1" between centres, swing over bed 7", swing in gap 10", hole through spindle 19/32", spindle bored 2 MT, spindle speeds (14) 25-2150 rpm, tailstock barrel bored 2 MT, weight without stand 285lb, 220 V single phase. I am selling it with 1 drive plate and 2 faceplates (1 large and 1 small), 1 X 3-jaw 5" GS Poland chuck, 1 X 4-jaw 6" Pratt Burnerd chuck, both with keys, 1 steady rest, original Dixon toolpost holder with 4 toolposts, 1 live centre and 1 dead centre, swarf tray (Myford look-alike), very nice cast iron stand and original manuals for lathe. The price is $6000. Call me (Chris Harris) any time to discuss (701) 298-9025. (77)

Wanted: Ffestiniog 125th Anniversary video by John Cocking. Loaned mine out and it never came home. This is the one that has the funky band playing at the end. Must be VHS format for use in the USA. Ron Brown, 607-642-8119 • rbrown54@stny.rr.com (79)

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Peter Thorp

Peter died Tuesday, December 14th 2004 after a long battle with cancer.

He was a probation officer for San Luis Obispo County, California for 30 years. His love of model trains led to a retirement business, Trackside Details, providing high quality brass castings for detailing of model locomotives and rolling stock.

The garden railroad at his home was a constant source of pleasure and recreation for Peter and his wife.

He is survived by his beloved wife of 45 years, Gail, and their three children, four grandchildren, and one great-granddaughter.

Pete was always cheerful and upbeat, and his love of small scale live steam model railroading made him many friends throughout the steam community worldwide. He made a lasting contribution to our hobby with his detail parts, and with his presence and participation. We will miss him!

Photo, outside back cover:

The students from the Advanced Physics class at Hancock High in Kiln, MS line up for a photo with their kit-built Accucraft Ruby locomotives (see article in this issue).

Their teacher, Keene Golding tells us that the students saw the project as a positive learning experience.

Further, Mr. Golding stated that the reception given the students at the Diamondhead steamup was overwhelming. He praised Accucraft Trains for their generous donation, and added that he would like to see this project become a yearly event for his students.

If we want to see our hobby survive and grow, we must do all we can to give today's young people an opportunity to experience it for themselves.

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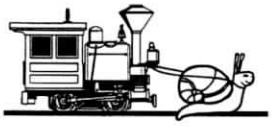

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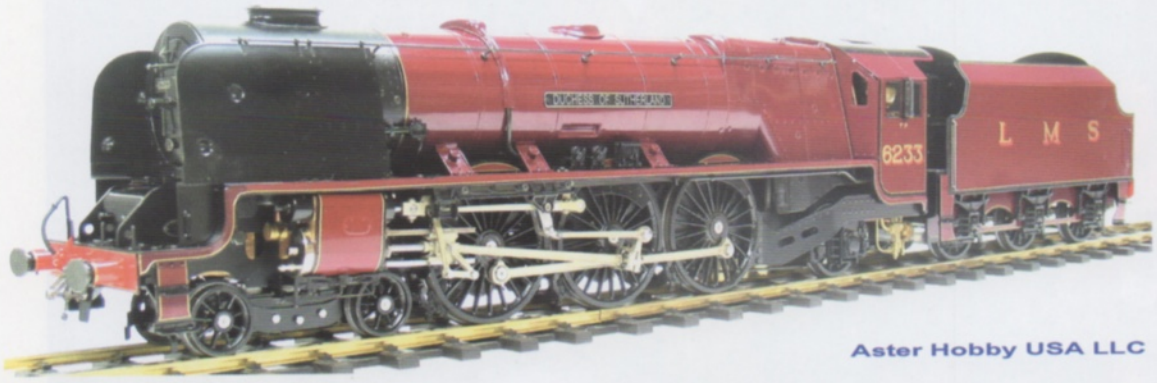
DUCHESS OF SUTHERLAND



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The 4 cylinder LMS Duchess of Sutherland production version is scheduled for release by May 2005

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