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STEAM IN THE GARDEN

Regner Tram "Paul"

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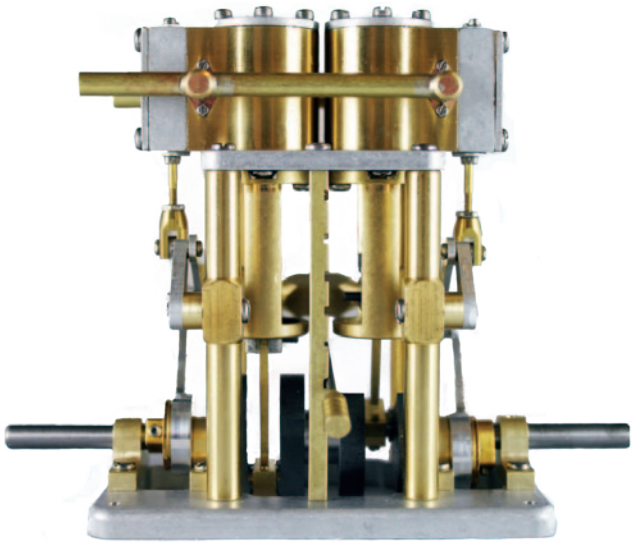

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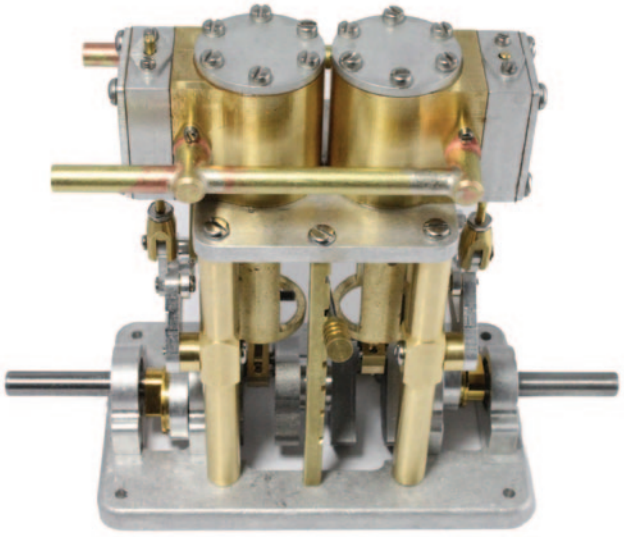

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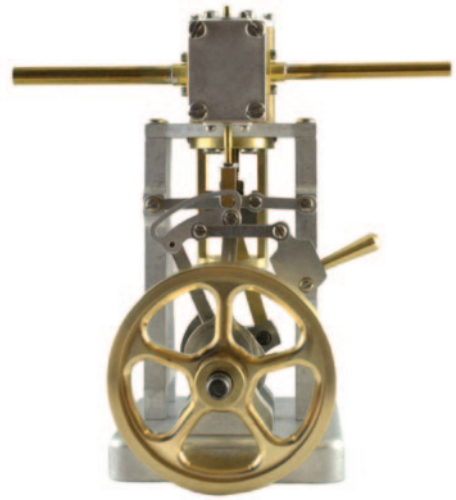

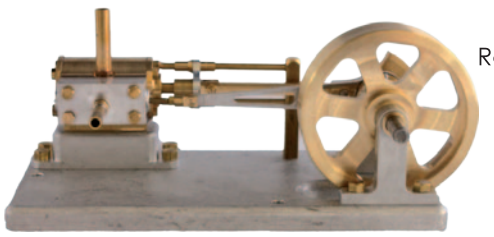

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into trains, propelled by fire ...

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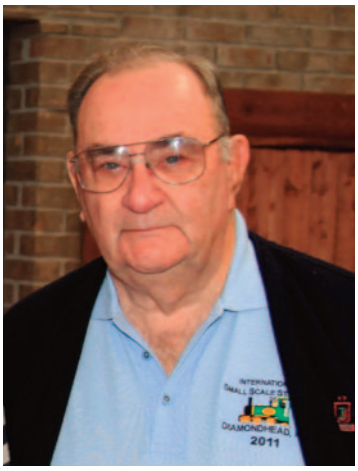
LATEST WAYBILL

In Memoriams

Norm Saley



Rick Parker Photo

Norm was recognized throughout the hobby as an outstanding craftsman. His scratchbuilt locos were second to none, and the repairs and modifications he has done for others would fill his workshop.

He has also devised and built many useful items, such as water top-up valves, pump bottles, railing ramps and more, which could be found for sale on his table at steamups.

Norm started in the hobby like most, enjoying the smaller scale electric trains in his youth. A Master Machinist, in the early 1970's he started working for Disney at Walt Disney World and was fascinated with their steam powered launches, steam engines and the stern wheeled riverboat which he worked on.

In 1995 Norm purchased and built a Mamod steam loco from a kit, followed by an Aster Climax steam loco kit. Now fully hooked on live steam Gauge One trains, Norm joined the Central Florida steamers and hosted many meets on his own railway

Above: Norm's family was fully supportive of his hobby and he leaves his son Edwin (right) and Grandson Norman (left) to carry on the Saley traditions. A great humanitarian of the hobby, he and his beloved Ruth will be missed.

Bill Ford

Rick Parker Photo

William (Bill) Ford, at 89 years of age, passed away peacefully on March 31, 2021, in Fern Park, Florida. Born in Pottsville, Pennsylvania, he earned an electrical engineering degree from Temple University. He married Elva Mann in Levittown, Pennsylvania in 1952. They moved to West Palm Beach and eventually Maitland, Florida.

Bill worked in the early development of the Florida electronics field, starting at Martin Marietta, now Lockheed Martin, and moving into a consultant position in his later career. It was Bill's electronic expertise that moved him to create his own Water Level Detection System (W.L.D.S), for small scale live steam locomotives. His detection system used LED lights to signal when more water was needed in the boiler. Bill advertised and sold his system through *Steam in the Garden* and at steamups, most notably the International Small Scale Steamup in Diamondhead, MS for many years.

Bill was a man of many talents and interests, from square and line dance calling to the painting he took up after the passing of his wife, becoming quite prolific. Bill was also an accomplished sailor, with multiple trips to the Florida Keys and back. He also took flying lessons in his later years. Bill travelled extensively over the course of his life, the most recent being to Switzerland a couple of years ago.

Bill was an entertainer and loved making people laugh and dance.

Bill is survived by his four children, Linda, Carolyn, Bill and Bob, as well as eight grandchildren and four great-grandchildren.

RAILWAY POST OFFICE

Looking for Information

"Good Morning Scott,

I was wondering if you could post this picture of the John P open steam launch in a future edition of SITG Magazine.

I purchased this boat from the Peter Kaisan estate that was listed in the My Large Scale forum. I would be interested to know if anybody has the history of this boat. I do know it was built from a Laughing Whale New England Launch kit and it has a early Midwest boiler and engine. The engine is in need of some work so I installed a Saito OB-1 engine in its place. I will get the engine restored to operating condition and put it back in. As purchased it came set up as a free sailing model and I have since added a servo to control the rudder. The builder did a nice job on the build and from the decals placed on the bow that maybe it was built in 1986 by a fellow with the initials of JW for a fellow named John P? It would be interesting to know if anybody knows anything about this boat as it's always nice to know the past history.

Scott Baldridge"

Hi Scott,

Picture posted. If any of our readers have more information that you can pass on to Scott Baldridge— Drop us a line at sitgeditor@gmail.com and we'll forward it on to Scott.

My Minitram Build

"Scott

Marc Horovitz suggested I send photos of his tram project which I recently completed. I worked ahead of your publication of his plans and Marc was kind enough to send on the drawings. I built it as a maintenance speeder rather than a tram as my railroad doesn't have passengers. Very poor safety record thus insurance and regulatory issues.

The Bunny Gap RR is a shortline narrow gauge railroad that connects the Bunny Gap Stone Quarries with New York Central in Medina New York. The Bunny Gap quarry provides high quality red architectural sandstone for statues and building facades. On return trips the railroad transports supplies and coal to the various quarry sites and several small towns along its route.

As with most such railroads much of its equipment is second hand or home made. When the railroad needed a maintenance speeder an old steam powered tram was secured, cut down, and fitted with a flat bed. The tired steam motor was rebuilt and had enough power to pull a small four wheel trailer. The speeder is worn but maintained in serviceable condition so though somewhat rusty, it works well.

Regards, Warren Greatbatch"

Beautiful work Warren, Thanks for sharing! ed.

Regner "Paul"

Text and Photos by Peter Thornton

I am a fan of 'steam dummys' (called trams in Europe – see sidebar). Having just built the Regner Heisler, I figured another tram was just what I needed for Christmas, so I ordered the Regner No. 102 "Paul" kit from The Train Department (TTD). The box turned up in early February.

The instruction booklet has lots of nice labelled photos (see **Photo 1**), but unfortunately is entirely in German and the English translation was still in transit. I spent a few days translating it using a commonly available online utility.

Inside the box, the parts were nicely packed in tissue and I had nothing damaged. The body is one large piece and came with a supporting polystyrene foam insert (**Photo 2**). Included in my kit was a bundle of radio-control mounting brackets; servo mounts, a switch/plug bracket and a tray for batteries to fit under the floor. Just add your favorite r/c parts – Regner offers a full kit of TX/RX and two suitable servos. I did not order the r/c goodies, as these little engines are geared about 5:1 and will not run away downhill, nor do they notice an uphill section. In addition, I ordered a Ronson-type filler valve (visible in **Photo 1** red circle) as the supplied Regner valve is different.

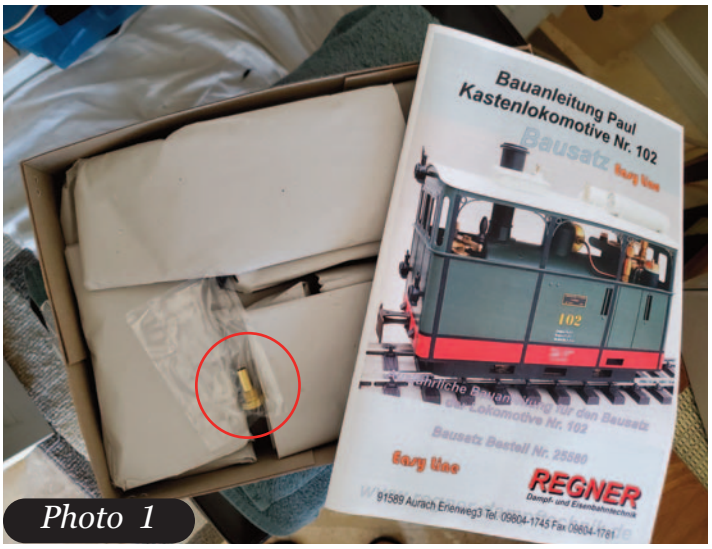


Photo 1


Photo 2

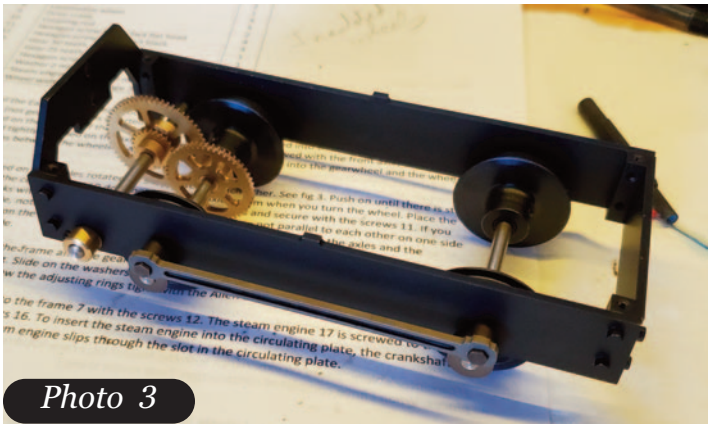


Photo 3

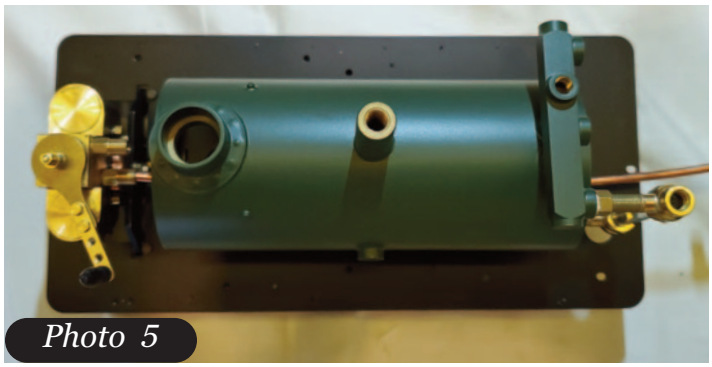


Photo 5

The actual construction can't have taken me more than a couple of hours over three days, so about four hours work. There are lots of good photos in the instructions, so the ones I include here are different angles or something that needs pointing out.

Photo 3 shows the chassis from the top. The holes in the frame are slotted so you can adjust the mesh of the gears – and when the boiler is installed

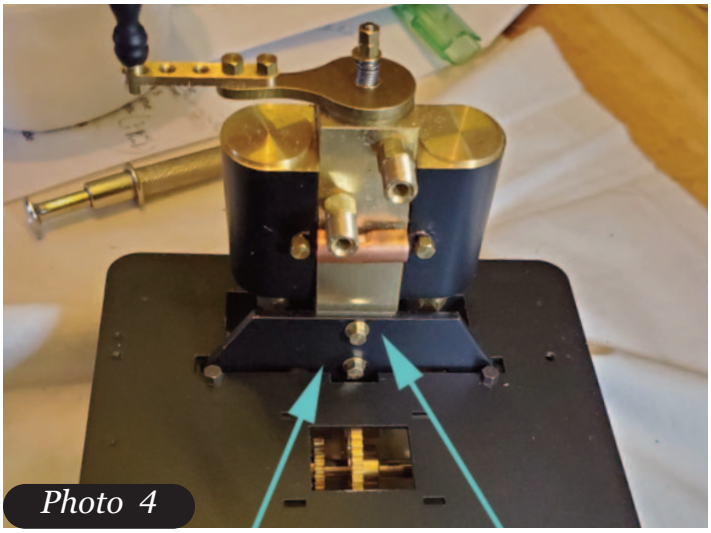


Photo 4

you will find adjustment very difficult, so I spent some time trying to get them meshing properly.

Photo 4 shows the mounting for the cylinder block on the frame. There are a couple of small brass bolts that are quite a pain to insert (arrowed in the photo).

Note also the small copper tube over the spring holding the cylinders tightly to the block. More on that later.

The other very fiddley bit is attaching the steam pipe, which is supplied as a straight item because it has to thread through the flue; but both ends have to be bent by hand to fit the throttle valve at the rear and the cylinder block at the front (**Photo 5**).

Tramways, Streetcars and Steam Dummys

Regner describes this as a *Kastenlokomotive*, or Tramway locomotive. In Europe, a tramway is where a railway progresses on a road. The locomotives are shielded so that the motion is hidden and the horses don't get spooked.

The best-known example of a Tramway locomotive is the Thomas' "Toby", which is a model of the LNER J70 0-6-0T locomotives that had wooden bodywork for use on the roads of the Wisbech & Upwell Tramway.

A tramway is unlike a streetcar line in that it (usually) makes no attempt to turn sharp corners, and it operates as a railway company carrying freight, etc. If passengers are carried, the train does not stop at every street corner.

In the U.S. of A. we usually call such shrouded locomotives "steam dummys".
No. 102 is still preserved and is owned by the Technoseum in Mannheim. Unfortunately, it is not on public display. As an aside, this is a model of the same tram loco as the LGB 2050.

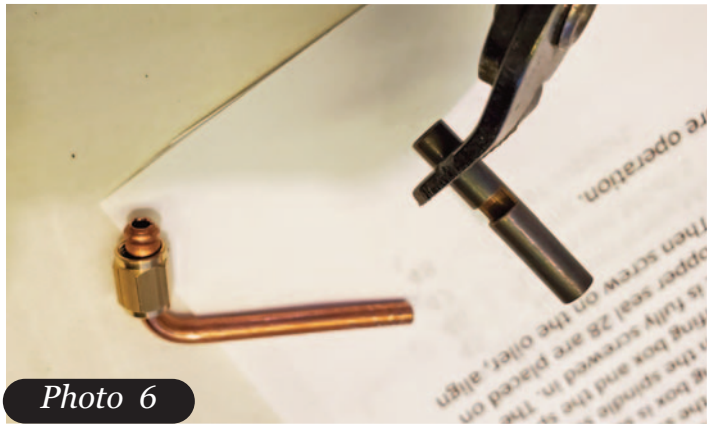


Photo 6

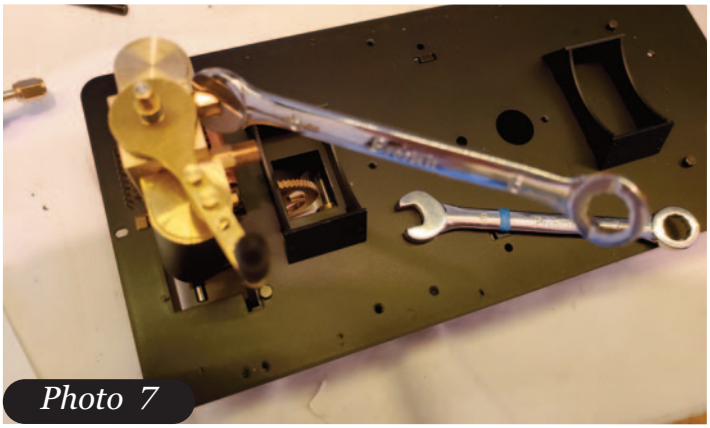


Photo 7

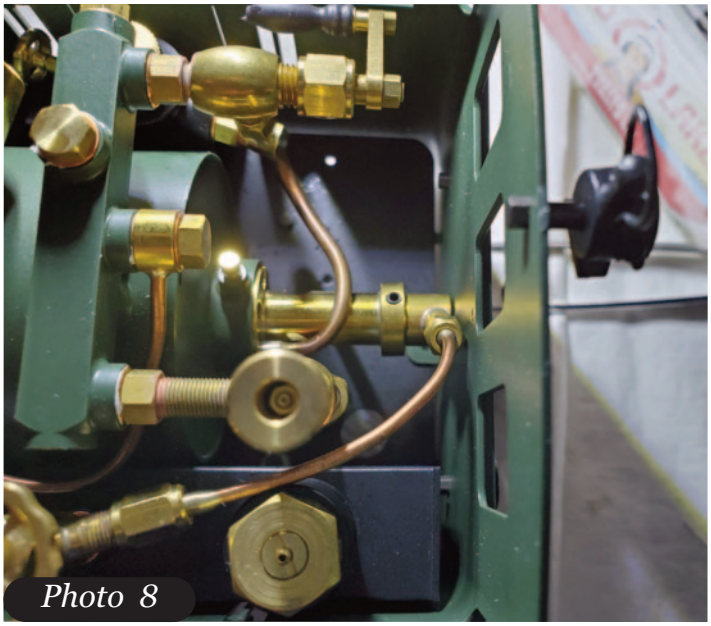


Photo 8

Photo 9

A first for me was the provision of a top for the exhaust pipe (copper L-shape in **Photo 6**.) Most of my Regner 'Easy-Line' locomotives have an open pipe which can make the top messy. This engine has an additional black pipe that is closed at the top and has a slot at the side. I crimped the exhaust pipe a little to make it a tight fit as there is no mention of how it stays on!

The instructions indicated that a 6mm and 8mm open end wrench will be useful. I used my trusty "ignition" wrenches, mostly the 5mm and 6mm, which you see in **Photo 7** holding the nipple to remove it.

A note on the lubricator. I usually start with the adjustment screw out of the hole in the pipe – in other words, as much oil as it wants can go to the cylinders. I then screw it in after a few runs to cut down oil usage. Regner's locomotives have brass boilers, and the instructions suggest adding a little (five percent) tap water to the distilled water in the boiler.

The controls (throttle, reverser, gas) are easy to reach from outside. I was worried about the lubricator, but even with the body on it is easy to reach. The throttle gets very hot and the metal around it is also hot, so this is a good place to join the 'Burned Fingers Brigade.' A small screw 'grabber' might help keep your fingers cool, or wear cotton gloves.

I do have a minor concern. I often find the gas jet needs clearing, especially after a car journey. As **Photo 8** shows, there is little clearance behind the jet holder, even if you could reach it. And the bodywork is held on by four bolts and a couple of trim pieces (e.g. couplers) that are added after the body is attached. Getting the jet out will take a little work.

You might also note on this photo that the throttle handle is facing forward, which is unusual. It was like that in the box, so before installing it I unscrewed it from the handle and re-mounted it the usual way. Nope – it hits the body if you do that.

Photo 10

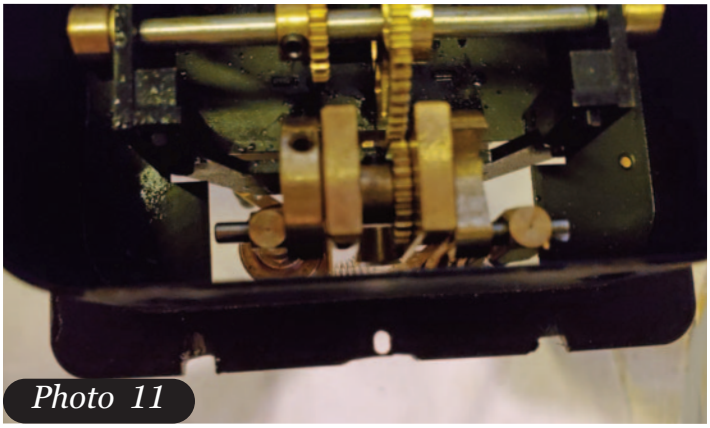


Photo 11

Photo 9 shows the engine complete and ready for the track test.

Photo 10 shows No. 102 alongside a Regner "Otto" and a Roundhouse "Stanley". I was surprised to see that Otto towers over the others. No. 102 is undoubtedly 1:22.5 scale, the norm for LGB and other European meter gauge locos. I have been told Stanley is smaller than 1:19 (the typical UK scale).

Issues & Fixes

After a successful bench steam test, I took my "Paul" to a friend's track, where it mis-behaved. There was a sequence of related problems. (Note that this is one of the first production units.)

- The flame wanted to burn in the smokebox, which was fatal. (Do not let your fire burn in the smokebox on any engine. Something will melt or burn!) I turned down the gas each time and it popped back into the flue and went out.
- The burn in the smokebox, while short, produced a lot of heat in the front of the boiler which escaped through the slot in the smokebox front, and attacked the spring on the steam engine. Regner includes a small copper 'cover' but it is totally inadequate.
- At that point, the spring gave way and extended itself, and the cylinder was pulled sideways by the outer spring that was still in good condition. That stopped the engine from running.

That ended the test for the day. These problems all turned out to be easy to fix, as detailed below. In particular, getting the body off is a simple matter of filing the base to clear the bolts. A heat shield for the spring fixed the rest.

I should also point out that the gas tank is very close to the boiler, and when it gets hot the tank will refuse to fill due to the pressure of gas inside. Most models with gas tanks in the cab near the boiler exhibit this issue, especially in hot weather.

Fix #1: I took the locomotive home and stripped off the body, filing a couple of slots in the front to clear the bolts on the lamps when the front of the body was lifted. The coupler bolt in the center is in front of a mounting hole, so I filed off a little and also the head of the coupler bolt. The center of the end of the body has enough flexibility to let me lift the body up over those bolts and wriggle it off the back of the base. See **Photo 11**.

Since then, I have only replaced two of the screws, at front and back, to hold the body and frame together. When I stop experimenting and have some more track time, I will add the other two screws. (As an aside, I found I can lift the locomotive when hot using the windows in the front and rear – they don't get as hot as the lower parts and the chassis.)

Fix #2: With the body off, just to be safe, I removed the jet holder, unbolted the jet and cleared it by pressing it on the gas can so it was blown through backwards. I then replaced it in the burner. Note that the burner must be placed as far out of the flue as possible – the jet is almost touching the bodywork. Having it further in exacerbates the smokebox burn problem (see **Photo 8**). The gas tank was flushed but nothing came out so I doubt that is necessary.

Fix #3: I consulted my supplier, TTD, and we decided a heat shield was needed. As the first couple of kits had both exhibited this problem, TTD agreed to supply the heat shield, and it is is now included in all the kits they ship. I had a spare spring so I elected not to wait and made my own. The TTD version is shown in **Photo 12**. (Spare springs are recommended for all Regner easy-line locos.)

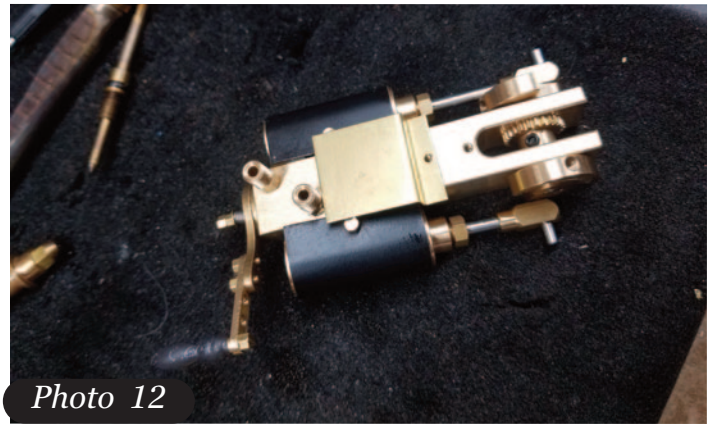


Photo 12

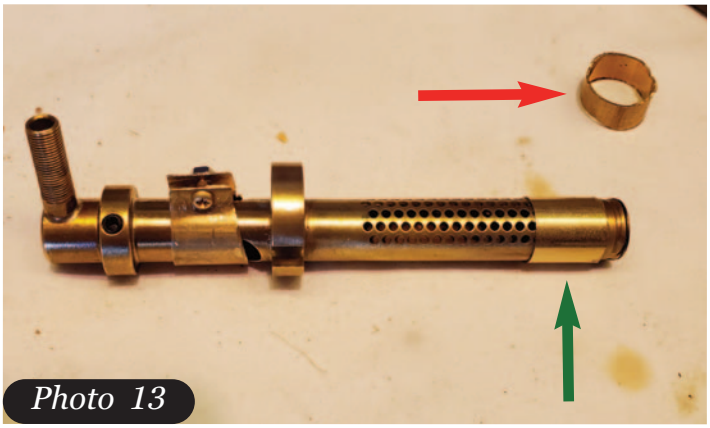


Photo 13

Fix #4: In discussions with Jason Kovac at TTD, he indicated that the Regner locos are set up for a propane/butane 'mix' (e.g. Camping Gaz,) which is suitable for running in cooler climates. As I live in Florida, I run pure butane. We concluded a collar over some part of the air holes in the burner might help, or a cover on some of the burner might work. It was also noted that the Regner Heisler has the same burner and exhibits none of these problems, though it does have a a longer boiler.

I made an air collar and fit it to cover half the air holes (**Photo 13**, red arrow). I also made a cover for three rows of the burner (green arrow.) It has made a lot of difference to the issue of lighting and smokebox burns – the flame jumps back in the flue immediately and burns more quietly. Later experiments suggest the air collar is unnecessary. The burner cover is just a piece of brass tube too small to fit the burner, slit lengthways and eased over the burner so it is tight. It covers three rows of holes.

Fix #5: I have installed some plywood insulation between the boiler and the gas tank, which I hope will help keep the gas cooler. If you never run it more than once per session and let it cool between runs, you will not notice this issue.

After reassembly all was well, and "Paul" managed to take a couple of spins around the track. The heat shield is doing its job and keeping the spring cool.

In summary, the Regner "Paul" is a very easy kit with no obvious assembly problems. My first steam test, despite the steam motor being very stiff, was immediately successful. Regner engines get better after running in, and some people claim they continue to get better the more you run them, which has been my experience.

A lazy afternoon run for "Paul" on Jack Zwick's "Calusa Creek RR" in Fort Myers, Florida.

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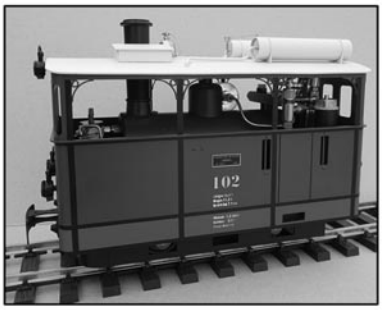
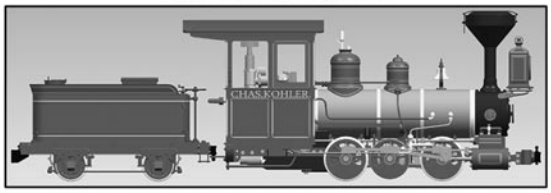
L 220mm/W105mm/H145mm



Bowande 0-6-0 Baldwin Class 6-10D
1/20.3 45mm Gauge RTR



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Building Memories on the Emmyville Railroad

Text and Photos by Jesse Mazzie

For me model railroading and full-size railroading have been lifelong passions. My first investigation into the live steam world resulted in disappointment. After talking to a few customers at a train store that I worked at in high school, I learned that the engines I was looking at were in the thousands of dollar range, which cooled the fires of my enthusiasm.

However, my interest in live steam intensified later at that same train store, as I looked through the back pages of a garden railways magazine and saw the introduction of the Accucraft Ruby. Finally a steam locomotive that a poor high school kid could maybe actually afford.

Coincidentally this was in the late fall approaching the Christmas season, and my parents generously purchased this locomotive for me for Christmas. Boy was I ever happy – I finally had my own real live steam locomotive! Warnings be deviled, I set it up in my basement on a loop of track. I just opened the doors for ventilation, even though it was in the dead of winter, with snow piled high outside.

For many years my fleet consisted only of that original Ruby, and another which had been partially converted to a Forney – it just needed to be finished up. From the early 2000s to 2019 I still had not built a layout of my own.I attended steamups and other small scale events at other peoples' layouts, where I could participate in running my engines.

In late 2017 we welcomed our daughter to the world and named her Emma. What poor Emma didn't know was that her dad was a fervent railroad nut, and probably by default she would have to be too.

In the beginning of 2019 I decided to give up on the vegetable garden that was a raised bed in the middle of our yard, as I just never had time to weed it, and I'm admittedly a terrible gardener.

For years I had been sitting on a stockpile of LGB track that I had only set up as a temporary loop to run my steam engines. Now, with a ready piece of raised bed real estate, I set in to clear it out and level it off with a shovel, and lay down the first oval of track. In those cold April days in 2019 the Emmyville Railroad, at least one version, was born.

The name Emmyville is a combination of my daughter's name and the Edaville Railroad, the tourist attraction in South Carver Massachusetts. Besides the heritage two-foot railroad, the site in-

cludes several diminutive train rides to entertain children. I hoped that my layout could do the same thing.

The layout I constructed was very simple; it was just an oval with a passenger station and a siding amongst a few spruce trees. It worked well for the small Rubies to traverse. My daughter enjoyed watching the steam engines go in circles out back but I wanted her to be a little bit more involved. Obviously I didn't want her touching hot steam locomotives, and I found myself wanting bigger steam engines. A solution had to be found.

At the start of 2020 I came across a great deal on an Accucraft Shay. Upon getting it back to the house I found that the curves of the LGB track were far too tight; the engine could only run with the cylinders facing inward and no cars could be coupled to it. That simply would not do!!!! I did some figuring and talked to my wife and we decided that I would expand the layout to its current size of 16 by 10 feet. This would accommodate much larger diameter curves and also allow for more scenery in the middle, and also a small yard and engine house as well as the station.

The construction was actually very simple. I ordered a dump truck load of dirt, and used a small front end loader to dump it into a 16 by 10 foot wooden box that I created out of full dimension 2 x 10-inch lumber from a local sawmill. I was able to get a good deal on some AMS narrow gauge track from another local live steamer and I acquired turnouts from Llagas Creek.

The railroad's namesake busy helping Daddy build the railway.

The track construction is pretty simple and reflective of the prototype narrow gauge shortline idea of budget first! Attached to the oval is a small two track yard. I chose not to bury in wood strips or other things, preferring to free float the track in a narrow trench cut with a garden shovel. In that

Operations Superintendant checking the first version of the railway in preparations for steaming up a locomotive.

Above: Modified Accucraft Ruby Forney pulls a load on the Emmyville.

trench I laid in grower size chicken grit for ballast as the base layer, and then I used starter chicken grit as the top ballast that you see in the pictures. Occasionally after winter or in an extremely heavy rain I have to touch up the ballast. The ballast comes in 50 pound sacks from the local Agway dealer so there's always plenty of ballast on hand, and a small cup or two usually fixes any issues. The scenery is mostly pine straw and small spruce trees with large and medium size rocks interwoven. The spruces are all staggered so that no matter which way you photograph a train there will always be a line of trees in the background.

Handling small kids around hot engines is an exercise in parental communication. One of the parts is making sure your kids understand and "have those listening ears on." One of the activities my daughter loves is to help inspect, oil and water the engines when they're cold. Once the engine is lit and steaming though, she knows that it's hands

Above: Accucraft Shay being serviced before making the rounds on the railway.

Above: Accucraft Shay, (left), and an Accucraft C-21 sit in the engine shed.

off, and she is a excellent helper in walking next to the engine with me.

I wanted something she could run and handle but bringing power to that part of the yard wasn't practical. So with a liberal application of a rotary tool and soldering iron I converted my LGB field diesel to battery power, robbing batteries from my old RC plane collection. This configuration worked well for the rest of the year and we had a great time together outside in the backyard; her participating with hands-on activity and running her engine. This engine is becoming a bit worn out and probably will be replaced with a Piko 25-tonner with remote.

Looking forward I hope to have years and years of great bonding time with my daughter, watching plumes of steam rise over the tree line of the Emmyville railroad.

Above: Accucraft Shay getting prepared for its run on the Emmyville.

Freelance Consolidations Part Four

Text, Photos & Drawings by Les Knoll, PE

PART IV BOILER AND PLUMBING

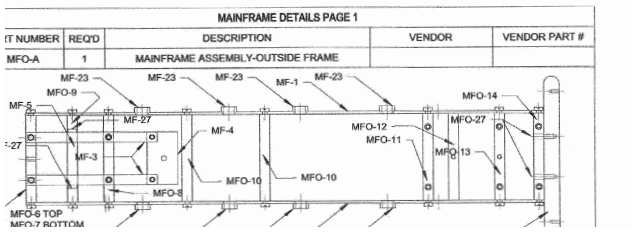
If you have built everything as described in the previous three articles, you now have an operational lower works that is fitted with a smokebox and a superheater line running from the smokebox to the cab area. In this installment the Roundhouse boiler will be added along with the associated plumbing for steam and gas, along with all associated accessories. When this is complete, you will have a fully steaming chassis that can be manually run.

This locomotive is self-contained, in that no necessary components are in the tender. The tender is strictly "along for the ride" and is cosmetic, so the locomotive can be fully tested and run under steam (and played with!) after all the work described in this installment is completed.

If you have not yet ordered your boiler kit, you need to do that now. Those who ordered in advance for fit up based on information given in the last installment have an advantage here, but Roundhouse is fairly quick with its shipments and sometimes their delivery time from the UK rivals domestic shipments, especially for larger parts orders like this one.

Freelance Consolidations Construction Series

Part 1 - Intro & Mainframe
Part 2 - Lower works
Part 3 - Smokebox
➔ Part 4 - Plumbing, Boiler and Steaming Accessories, Steam Test
Part 5 - Cab and Sheet Metal, R/C
Part 6 - Tender



Editor's note; All drawings for both versions are available online at www.steamup.com After logging in with your User Registration, (free), follow the "Workshop Plans" menu.

BOILER DRAWINGS PAGE 1

PART NUMBER	REQ'D	DESCRIPTION	VENDOR	VENDOR PART #
BL-1	1	LADY ANNE BOILER KIT 2.00" DIA. TYPE 1 BOILER INTERNAL GAS FIRING, SUPPLIED COMPLETE WITH SAFETY VALVE, PRESSURE GAUGE, LUBRICATOR, STEAM REGULATOR, GAS BURNER, GAS TANK, GAS REGULATOR AND WRAPPER. 1. OMIT SMOKE BOX. 2. SUBSTITUTE TYPE D GAS TANK WITH FITTINGS FOR STANDARD. 3. SUBSTITUTE R/C STEAM REGULATOR.* 4. SUBSTITUTE LONG BOILER MOUNTING BRACKET FOR STANDARD, 5. OMIT SUPERHEATER. THIS WAS ORDERED EARLIER WITH LOWER WORKS PARTS. 6. ADD WTUV2 TOPOFF VALVE. 7. ADD "SAFETY VALVE EXTENSION COLLAR" AS ON "BEDDGELERT" LOCO. 8. ADD 3 ADDITIONAL (TOTAL 4) EBB BOILER BANDS. 9. GAS LINE FURNISHED AS UNASSEMBLED PARTS 10. ADD 1 PACK HK10 HANDRAIL KNOBS.	ROUNDHOUSE ENGINEERING	HBK4 (SEE MODIFICATIONS)

*MAKE THIS SUBSTITUTION ONLY IF USING RADIO CONTROL

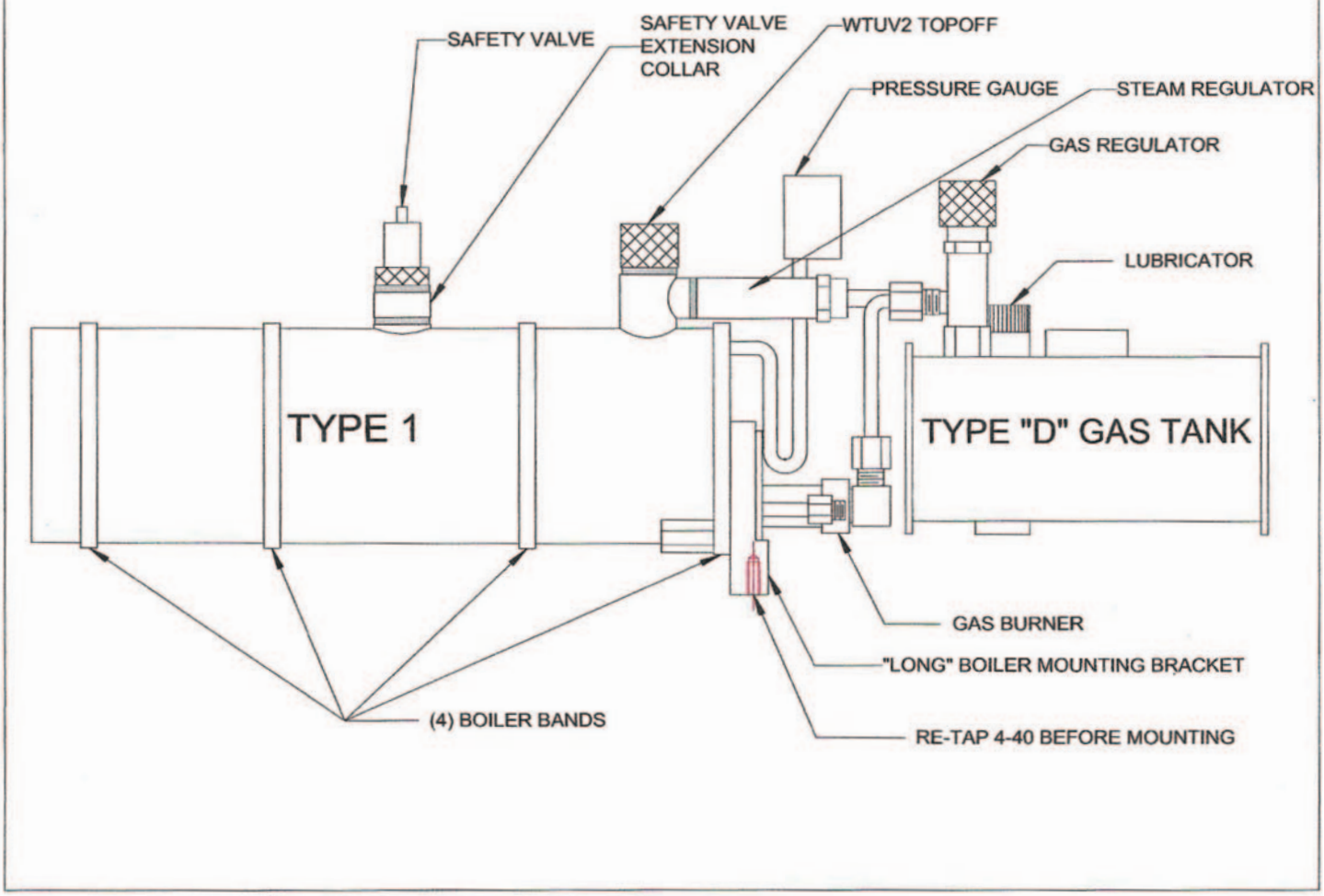


Figure 4-1

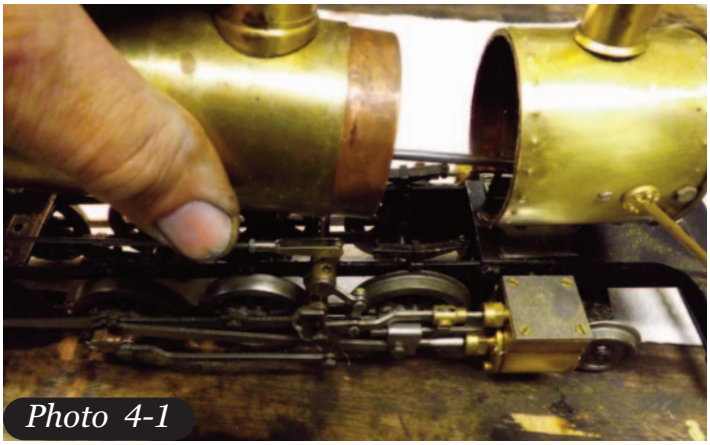


Photo 4-1

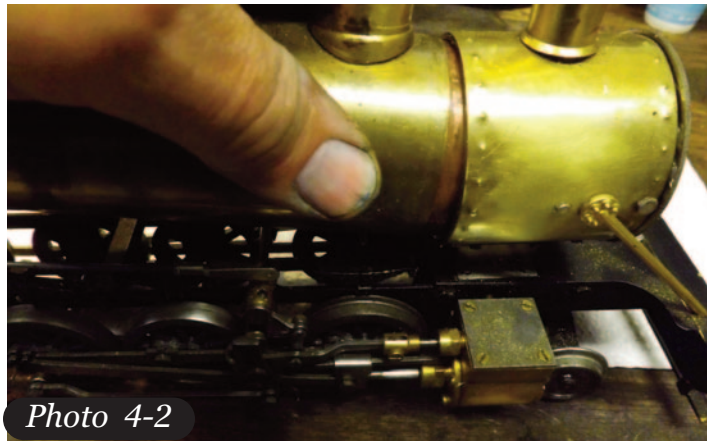


Photo 4-2

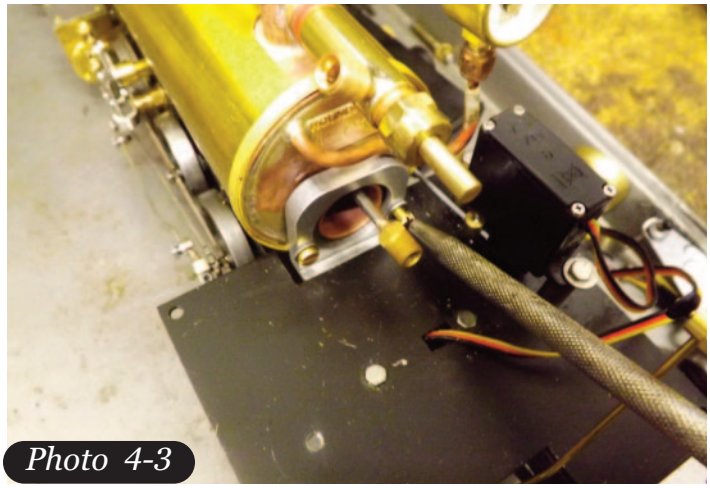


Photo 4-3

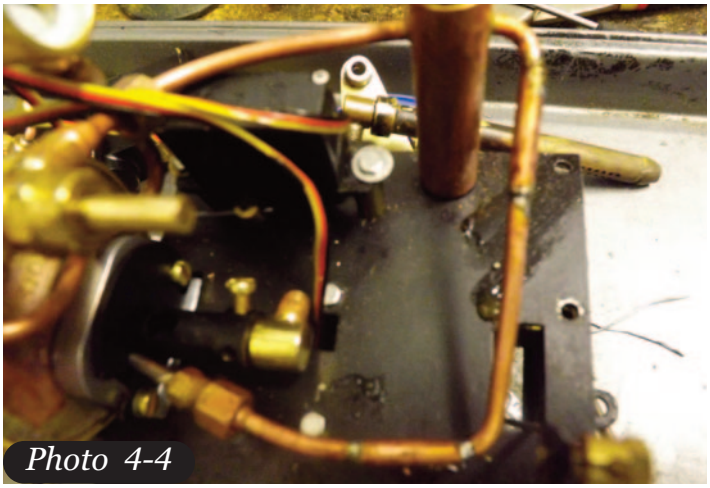


Photo 4-4

As a recap, here are the specifications for the boiler as used in this project:

Roundhouse HBK4 boiler kit, as used on the Lady Anne loco, with the following custom specification:

Lady Anne boiler kit two-inch diameter Type 1 boiler, internal gas firing, supplied complete with safety valve, pressure gauge, lubricator, steam regulator, gas burner, gas tank, gas regulator and wrapper.

1. Omit smoke box.
2. Substitute type D gas tank with fittings for standard.
3. Substitute R/C steam regulator if opting for radio control.
4. Substitute long boiler mounting bracket for standard.
5. Omit superheater. (This was ordered in Part II – If you didn't, order it now.)
6. Add WTUV2 top off valve.
7. Add "safety valve extension collar" as on "Beddgelert" loco.
8. Add 3 additional (total 4) EBB boiler bands.
9. Gas line furnished as unassembled parts
10. Add 1 pack HK10 handrail knobs.

The specification and illustration of all parts is shown in **Figure 4-1**. You may be able to just specify the boiler kit for the Les Knoll Consolidation project, as Roundhouse is aware of this specification.

It is recommended for fit up that the wrapper be installed on the boiler for positioning purposes. With the wrapper installed so that it is as far back as it will go on the boiler, there is approximately a three-eighth inch protrusion of the copper boiler on the front end. Installation of the boiler onto the mainframe is exactly as is done on a Roundhouse kit. The boiler is slid on from the rear with the superheater inserted into the flue, and the exposed front end of the boiler is inserted into the smokebox as shown in **Photos 4-1** and **4-2**. The rear of the boiler is cradled in the 'long' boiler mounting bracket supplied with the HBK4 special kit, and secured with one of the boiler bands. The boiler long mounting bracket has a hole on the bottom that is tapped 6BA. The threaded hole in the boiler mounting bracket lines up with the centered hole in mainframe part MF-4, and the 6BA mounting screw is fastened from the underside. The mounting detail is shown in **Figure 4-2**.

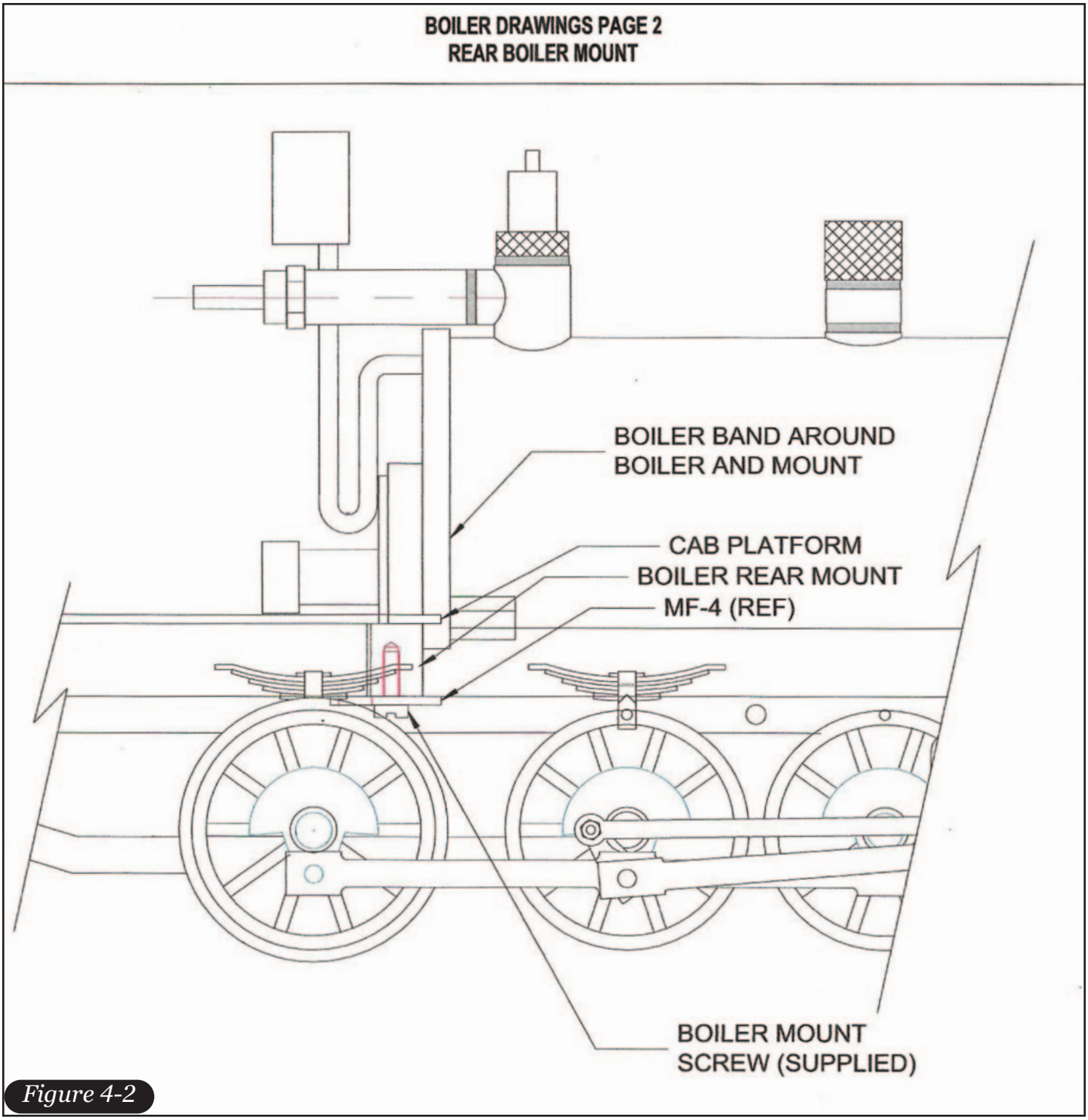


Figure 4-2

Photo 4-3 shows the rear cab platform with the boiler being attached to the boiler mounting bracket with BA screws supplied by Roundhouse. **Photos 4-4**, **4-5** and **4-6** show the mounting of the steam line and lubricator to the superheater. Since there can easily be dimensional variations in the building of this model, this plumbing must by necessity be fitted in place, using **Figure 4-3** as a guide.

All the original boiler components were intended to be used on a Roundhouse Lady Anne, a very different looking locomotive than our American prototype Consolidation. Although there is a goodly amount of cab space available due to the fact that the boiler was pushed so far forward (as it also was in the Lady Anne itself) there are still some tight spots, especially where plumbing is concerned. Components are not being installed in the way they were originally intended. That's why what we're doing is called kit-bashing.

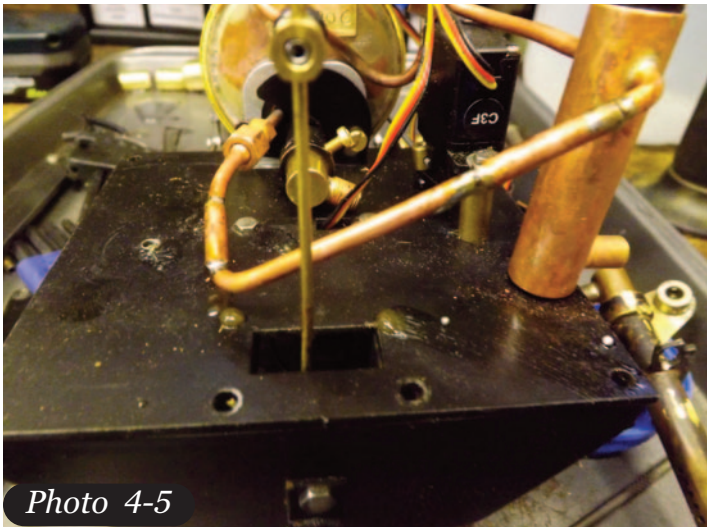


Photo 4-5

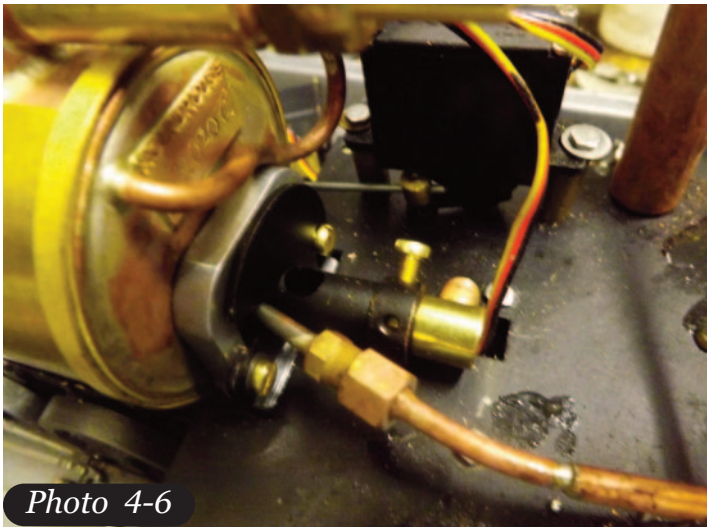


Photo 4-6

Before starting to add the steam and gas piping, relocate the pressure gauge to the right side as seen at the very top of **Photo 4-3**. This will clear the way for the gas tank and gas valve, which were never originally intended to be where they will be now!

We'll do the steam piping first as this is more accessible without the gas system in place. Mount the throttle (regulator) in the threaded hole in the throttle bushing at the rear of the boiler. The connection will be sealed using a fiber washer so that the steam outlet is at approximately at the four o'-clock position. If it takes too much tightening torque to position the throttle with the washer in place, sand the washer down in a flat surface until the throttle is just a bit tight when it is at the two o'clock position. Disassemble and put some silicone sealant on both sides of the washer and tighten the throttle to the four o'clock position. This might take several tries to get the positioning right.

The steam lines from the throttle to the lubricator and lubricator to the superheater must be bent and modified as shown in **Figure 4-3** and in **Photos 4-4**, **4-5** and **4-6**. The outlet line from the lubricator is cut and bent and an additional piece of one-eighth inch copper tube spliced (soldered) in as shown in **Figure 4-3** using 5/32-inch copper tube sleeves. A mounting plate is fabricated from 0.030-inch brass and soldered to the bottom of the lubricator, also shown in **Figure 4-3**. Remove both the top cap and drain plug before soldering to avoid damage to the seals. Note the location dimension for the steam line piping in relation to the left edge of the cab platform, as it must clear the gas tank which is mounted next to it. Also note the location dimension for the lubricator. This must be located as shown to line up with the cutout in the cab for the lubricator drain.

Tighten all steam fittings to assure there are no leaks. A moderate 'finger tightening' with a 2BA wrench ought to do it. If you are making do with inch or metric sized tools that aren't quite 'right,' BA (British Association) standard wrenches and sockets may be obtained on Amazon and a set of sockets from 0BA to 8BA will cost less than $30. A good investment if you plan on building and maintaining steamers using British manufactured components. BA tools may also be purchased from Tracy Tools, Unit 1 Parkfield Industrial Estate, Barton Hill Way, Torquay, Devon TQ2 8JG, United Kingdom. Phone (011) 44 1803 328603.

That was the easy one. The gas line is trickier to do because of the close proximity of the gas valve or regulator to the burner itself. **Photos 4-7** and **4-8** show the completed installation and **Photo 4-9** shows the 90 degree tube fitting assembly that must be made to join the gas regulator to the burner which is detailed in **Figure 4-3**.

The components for this tube fitting assembly are supplied with the boiler kit. This is why the gas line was ordered as "unassembled parts." The one-eighth inch copper tube requires a small radius bend, and this is best done with a sharp radius tubing bender specifically made for one-eighth inch tube. This is manufactured by Du-Bro and available through Amazon. After shaping and cutting the tubing to fit, and very importantly, test fitting it, solder one of the cones to one end of the tube, then add the two nuts, both threaded ends facing outward, onto the tube and solder on the other cone. Test this fitting for leaks carefully – for safety's sake, ***it simply cannot leak!***

BOILER DRAWINGS PAGE 3
LUBRICATOR MODIFICATION AND INSTALLATION
GAS LINE FITTINGS

BI-2	1	STRIP, BRASS .032" x .750" x 12"	K & S	8243
BI-3	1	TUBING, COPPER, 1/8" DIA.	K & S	8120 or 8121
BI-4	1	TUBING, COPPER, 5/32" DIA.	K & S	8119

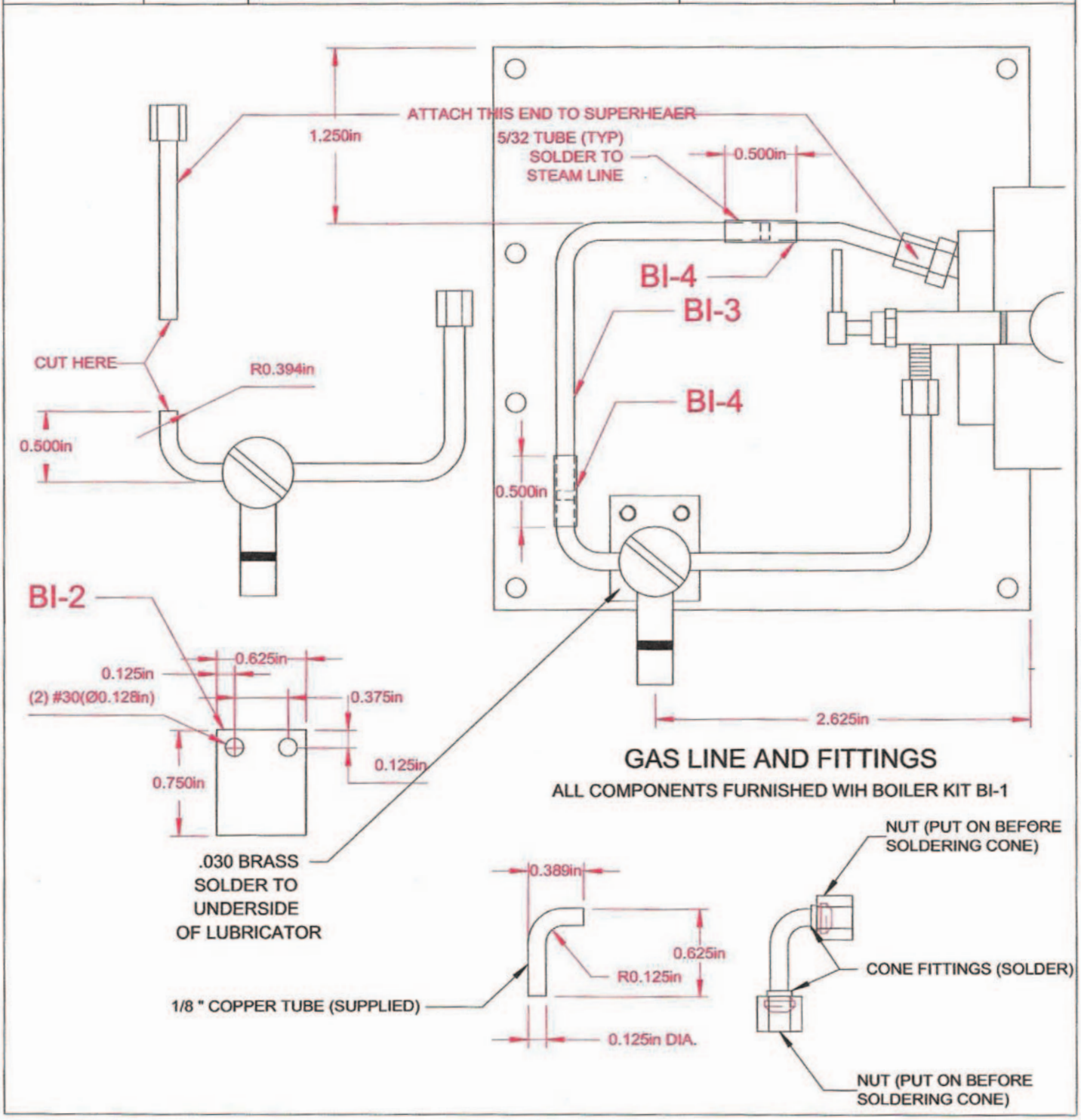


Figure 4-3

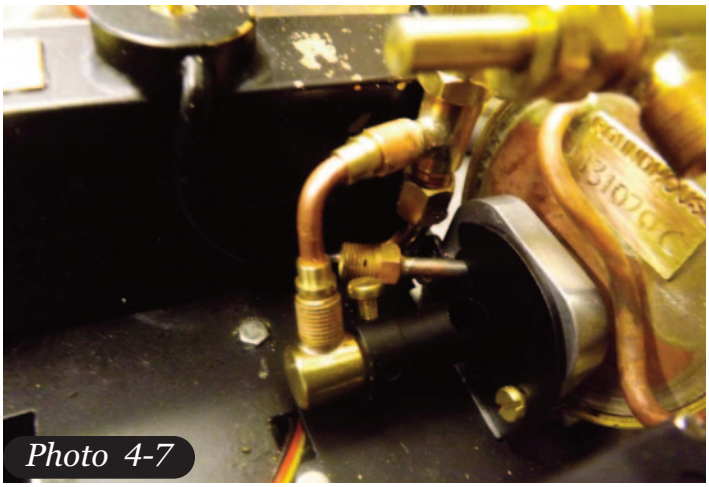


Photo 4-7

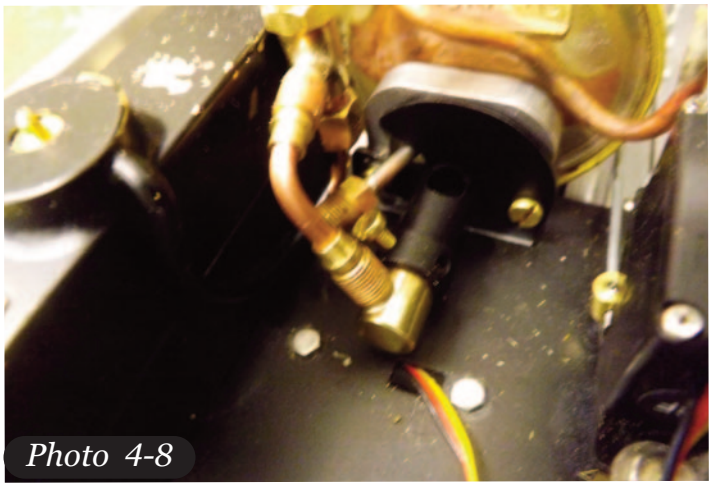


Photo 4-8

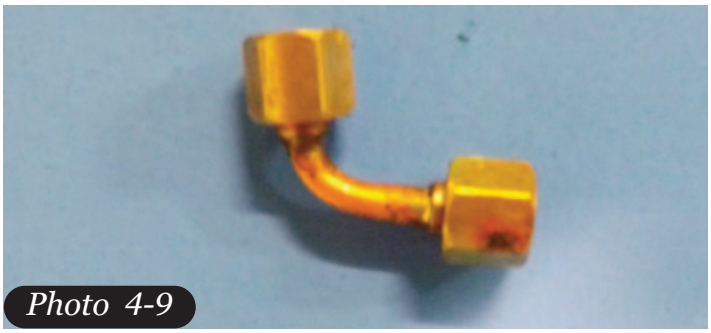


Photo 4-9

To install the gas line, the tank must be installed first, and this is done with one BA screw at the bottom of the tank which passes through a clearance hole which was made for it when the cab platform was fabricated. Screw on the supplied BA nut and trim the excess thread off if desired.

It will take some delicate work to get both ends of the gas line in place. One way to make the job easier is to install the copper tube onto the gas regulator before installing the gas tank, leaving the piping threads a little loose. Position the gas tank with its mounting screw in the hole in the cab platform and the mounting nut in place but not tightened down. With everything loose, attach the gas tubing to the burner and very lightly tighten it, maybe to the point there it is one to two turns short of snug. Now tighten down the gas tank and the gas line fittings. Again, these absolutely **MUST NOT LEAK!**

Figure 4-4 shows the modification of the steam and sand domes to mount on the boiler. The location of the two rear domes is fixed because of the position of the throttle and filler bushings. The prototype for the inside frame locomotive had three domes, a steam dome with safety valve in the center and sand domes front and rear. The outside frame had but two domes, omitting the front one.

In our model, the rear dome is cut out to clear the throttle and bushed to closely fit over the top off valve. This dome must be able to be removed whenever water is added. The extensive cutout on the rear of the dome for the throttle follows the design Roundhouse uses on their Lady Anne. This is because the boiler is all but completely pushed out of the cab in an effort to make the boiler appear longer. A good trick by Roundhouse, and it was used in this design, too. It had to be, after all, our Consolidation has two more drivers than Lady Anne, and hence a longer wheelbase and frame.

The mid dome is modified so that it slips over the safety valve and the safety valve exhausts through its top as it would on the prototype locomotive. **Figure 4-4** shows the modification required. The top of the steam dome is cut off and the depth of the inside diameter increased and squared off at the top. In the construction of the pilot model, the domes were modified using a rotary tool with a milling cutter. Note that if you do have a lathe this is a far easier job to do, but it was done on the pilot model with hand held power tools to show that the entire locomotive can be built without machine tools.

Figure 4-4 details all modifications to be made to the domes, the sleeves necessary to properly mount the domes over the throttle and safety valve and assembly of the sleeves into their respective domes.

The front dome is basically cosmetic and can be placed anywhere you want (watch the boiler band positions) or simply omitted. On the pilot model it was attached with JB Weld (NOT JB Quick!) and allowed to cure for 24 hours before being handled. **Photos 4-10** and **4-11** show the modified domes in place on the boiler.

BOILER DRAWINGS PAGE 4				
PART NUMBER	REQ'D	DESCRIPTION	VENDOR	VENDOR PART #
BI-5	1	SAND DOME	TRACKSIDE DETAILS	TD-16
BI-6	1	SAND DOME	TRACKSIDE DETAILS	TD-16
BI-7	1	STEAM DOME	TRACKSIDE DETAILS	TD-17
BI-8	1	TUBING, BRASS .5/8" OD x .014" WALL	K & S	8143
BI-9	1	TUBING, BRASS 19/32" OD x .014" WALL	K & S	8142
BI-10	1	TUBING, BRASS 9/16" OD x .014" WALL	K & S	8141
BI-11	1	TUBING, BRASS 17/32" OD x .014" WALL	K & S	8140

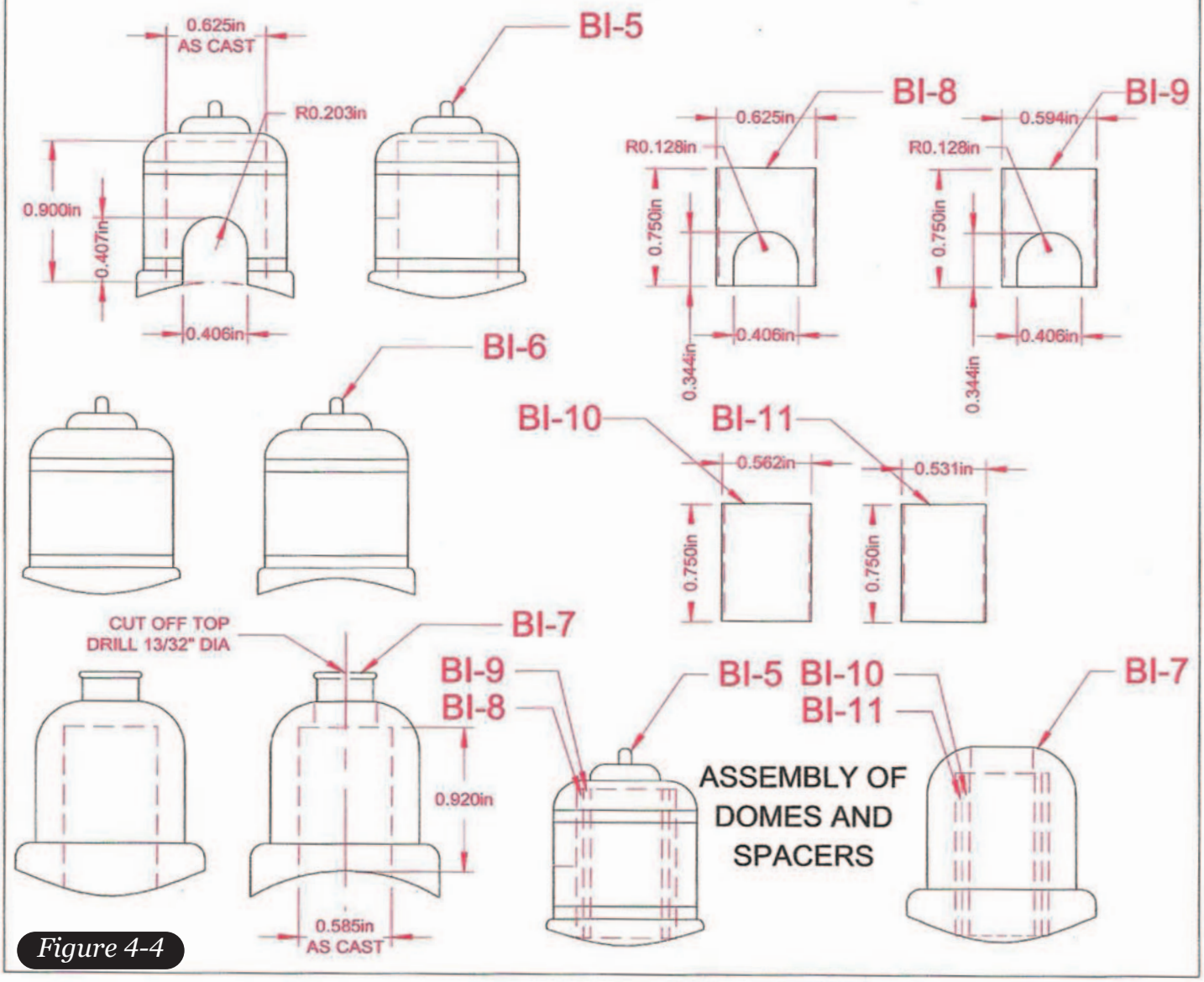


Figure 4-4

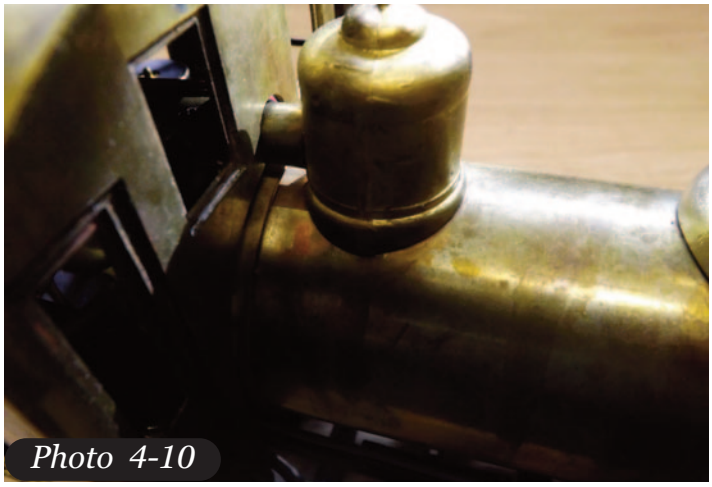


Photo 4-10

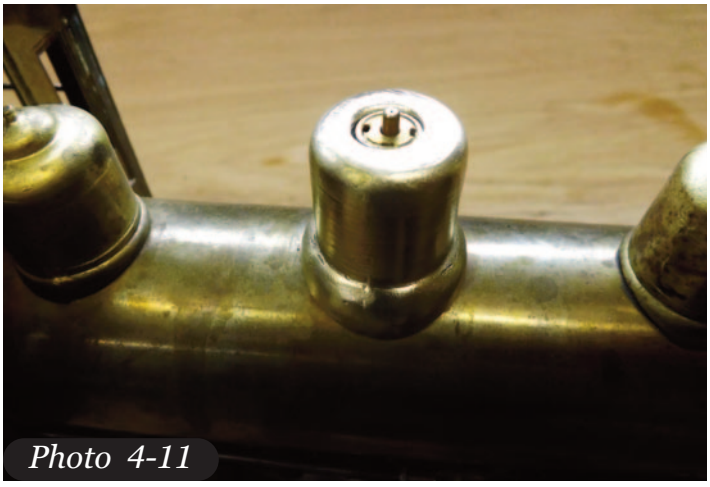


Photo 4-11

First Steaming

Now for the moment you've been waiting for. We have a boiler mounted, the steam lines and gas lines are in place and the domes are in place. Let's fire up this loco and do a test run! The reversing gear can be temporally hooked up for a steam test using the manual reversing lever, and the throttle can be connected manually at this time as well.

Since this is basically a Roundhouse Lady Anne with two more drivers, a lead truck and a Yankee outline, it should perform just like a Lady Anne, that is to say, GREAT! You should already have air tested the lower works when it was timed in, so you should know it works. There will be enough to be concerned with at the first steam test without having to worry about chassis operation.

Lubricate all the moving joints on the valve gear with machine oil. Put a few drops of oil on each of the axle bushings as well.

Following Roundhouse methodology, fill your boiler to the top by removing the rear dome and top off valve. Withdraw about 30cc of water to assure a steam expansion space. Fill the gas tank and lubricator. A small container of steam oil should have come with the Roundhouse kits. If not, this can be ordered from suppliers in the USA.

With the throttle closed, barely crack the gas regulator until a slight hiss is heard, then apply a lighter or match to either the stack or under the firebox. You will hear a pop, but this is normal for the operation of the boiler. Turn the gas up just enough to get a steady even burning sound. If you are not already, you will soon get used to what that sounds like. Since there is no cab on the locomotive yet, you will not get much of the effect of the boiler warming the gas tank and raising the gas pressure, which increases the flame rate. Still, keep listening to the burner to make sure the flame in the boiler is moderate. Watch the pressure gauge to observe steam pressure building up.

In about six minutes, less if the ambient temperature is high, 40 PSI will be reached and the safety valve will pop off. This may give a bit of a water spray if there is any excess water in the boiler. Let the spray die down to steam only before opening the throttle. That way less water will get into the cylinders and less clearing of the cylinders will have to be done.

Set the valve gear in the forward position and gently crack the throttle. You should get some motion, but the locomotive may stall due to water condensate in the cylinders. You are introducing hot steam into cold cylinders, and this steam turns to water quickly. Close the throttle, leave the valve gear in forward and push the locomotive forward and back about a foot or so to manually clear the cylinders. You may have to repeat the cycle of opening the throttle, closing and rocking back and forth several times before the cylinders clear and you get constant motion. You can also clear cylinders by opening the throttle and cycling forward and reverse a number of times under steam pressure. The motion will be jerky, but if all excess water is out of the boiler, the cylinders will clear with a few repeats of this action.

Like all live steamers, this locomotive will take off like a rocket if too much throttle is applied and there is no load on the locomotive. Be gentle with the throttle and let the locomotive start out as slowly as you can get it. If all steam lines are properly tightened down and the lower works is prop-

erly timed, you should have a running locomotive. To tame your beast down, you may want to add some sort of a wire attachment to the tender coupling on the back and add some cars for your locomotive to pull. It is a great feeling of accomplishment to get the chassis running in steam, and you will probably just want to run it for a while. This is a good thing since about 10 hours of run is a good break-in period. During this time you can make any necessary timing adjustments, chase down leaks, etcetera.

If you get smooth but weak performance even after your cylinders are cleared, one or more of your steam line joints is likely not sufficiently tight. Even the smallest steam leak can bring these small locomotives to their knees! Cooler weather is the best time to look for these leaks as then the steam can more easily be seen. You might also want to look to see if the cylinder ends and steam chest covers are sufficiently tightened down. If you see steam coming from the cylinders, let the locomotive cool down and tighten any screws that may be loose on the cylinders. Don't do this on a hot locomotive because as things cool down, the brass screws contract and may have excess tension which can weaken or break them.

Running time should be around 20 minutes, after which you will most likely run out of gas before you run out of water. This is how Roundhouse intended it because firing a dry boiler can severely damage it! Even though the system is designed to run out of gas first, watch the pressure gauge carefully. If pressure drops significantly even though loading conditions and level of fire remain the same, immediately turn off the gas. Your boiler is most likely dry. Do not attempt to add water via the top off valve if you suspect the boiler is dry. This can cause thermal shock which can distort or collapse your boiler center flue. Let the locomotive cool down and refill as you originally did at startup.

If you wish to continue your run beyond 20 minutes, you can add water using the top off valve and pump, provided there is still enough water in the boiler to maintain steam pressure. Additional fuel can be added after the gas is turned off, but NEVER add gas to the tank while the fire is burning. This is extremely hazardous. Since these boilers are not equipped with sight glasses, watch your timing and pressure gauge carefully. This is not an electric locomotive, it must be properly operated. If you plan on adding R/C, some transmitters, notably those used for aircraft, have timer functions on them. Flyers use these mostly as fuel timers, and they can be set to sound an audible alarm at timeout. I have timer functions set for each of my locomotives, even though most of them have sight glasses. Can't be too cautions when it comes to avoiding a dry boiler.

If any other operational problems are experienced, Roundhouse Engineering can be contacted directly. Their customer service is simply second to none, and they are always patient, ready and willing to help out. I have recently gotten into the hobby of R/C crawler trucks, and have found the Traxxas Company, a major manufacturer of such vehicles, has equally good customer service. There are interesting parallels here: Both Roundhouse and Traxxas sell ready-to-run vehicles (cars, trucks or locomotives), complete kits, or virtually any component part they make as individual parts and/or upgrades. Both have excellent customer service for builders and operators of their equipment, and, by the way, both types of vehicles can be kit-bashed like crazy!

With your locomotive hopefully running well, you may want to take a break and just play with it for a while, and who can blame you? The hardest part is over, and the rest is just cosmetic. In the final installments we will be building a cab and tender and adding some other locomotive details such as running boards to complete the project. Some of the parts for you will need can be ordered from Denver Waterjet if you want to get a head start. Happy steaming!

Next time - The Cab.

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D&RGW C-18
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RTR $2495-$2895

Baldwin “Mabel” 0-6-0T
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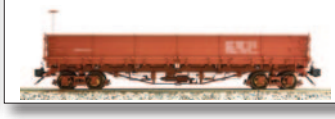
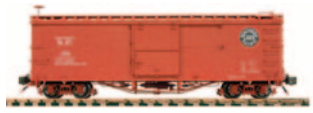
Drop Bottom Gondola
1:20.3, Plastic Body, Metral Trucks
$220/Car



3-Bay Hopper
1:20.3, Plastic Body, Metral Trucks
$150/Car

Box Car
1:20.3, Plastic Body, Metral Trucks
$170/Car



Wheel & Tie Car
1:20.3, Plastic Body, Metral Trucks
$150/Car

Gondola
1:20.3, Plastic Body, Metral Trucks
$140/Car

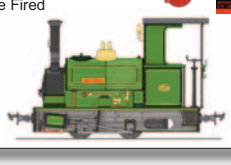
Open Ended Gondola
1:20.3, Plastic Body, Metral Trucks
$140/Car

Long Logging Car
1:20.3, Plastic Body, Metral Trucks
$110/Car

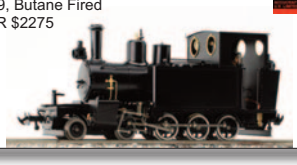
“Talyllyn” Railway 0-4-2ST
1:19, Butane Fired
RTR $1700

Quarry Hunslet 0-4-0T
1:19, Butane Fired
RTR $1600

‘Cranmore’ Peckett
1:19, Butane Fired
RTR $1795



War Dept Hunslet 4-6-0
1:19, Butane Fired
RTR $2275



Emma 0-4-4
1:13.7, Butane
RTR $1095

Forney SR&RL & WW&F
1:13.7, Butane or Coal
Butane $3200, Coal $4200

2-4-0 7.5” Gauge Ride-on
2.5” Scale, Coal Fired
Kit $12,000 RTR $18,000

Decauville 0-4-0T
1:13.7, Butane Fired
RTR $1650

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Coach Kit $680, Obs RTR $1545

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$119/Car

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1:32, Plastic Body, Metal Trucks
$119/Car

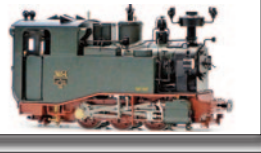
C&O Steel Caboose
1:32, Brass
$450/Car

Pennsylvania Caboose
1:32, Brass
$499/Car

Dora 0-4-0T
1:20.3, Butane Fired
RTR $499

Saxonian IIIK
1:20.3, Butane Fired
RTR $2750

Saxonian 1K
1:20.3, Butane Fired
RTR $2200



Jackson & Sharp Coach Orig.
1:20.3, Plastic Body, Metal Trucks
$220/Car

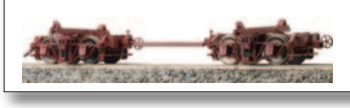
40' Reefer Car
1:20.3, Plastic Body, Metal Trucks
$119/Car

Tank Car
1:20.3, Plastic Body, Metal Trucks
$160/Car

Flat Car
1:20.3, Plastic Body, Metal Trucks
$140/Car

Logging Disconnects
1:20.3, Plastic Body, Metal Trucks
$120/Car

Short Logging Car
1:20.3, Plastic Body, Metal Trucks
$100/Car



Short Flat Car
1:20.3, Plastic Body, Metal Trucks
$70/Car

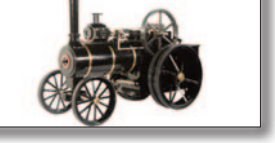
Iron Mountain Car
1:20.3, Plastic Body, Metal Trucks
$60/Car

Short Caboose
1:20.3, Plastic Body, Metal Trucks
$170/Car

Lawley 4-4-0
1:19, Butane Fired
RTR $3395

Sentinel DG6 Lorry
1" Scale, Butane Fired
RTR $1580

Allchin
1.5" Scale, Butane Fired
RTR $3800



Fowler Ploughing Engine
1" Scale, Butane Fired
RTR $5295

Kerr Stuart 'Wren' 0-4-0ST
1:13.7, Butane Fired
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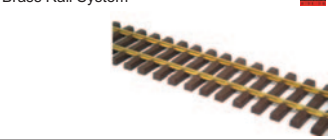

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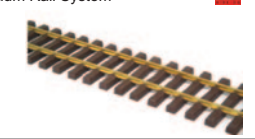

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Live Steam Meccano

Text and Photos by Kendrick Bisset

Using my eleven year old Meccano locomotive as a guide, (*Steam in the Garden Issue No. 114 Jan/Feb 2011*), I built another similar locomotive. In the process, a number of issues arose that had been forgotten since the original was built. These issues fall into two categories: fitting it together, and adjusting for variations in Meccano parts.

The place to start is the trucks, as these are the trickiest in both categories. The truck frames use No. 46 2-1/2-inch x 1-inch Double Angle Strips (DAS), and No. 103f 2-1/2-inch flat girders – two of the former, and four of the latter. This raises the first issue relating to parts variations. The Double Angle Strips were probably made by bending 4-1/2-inch (in this case) strips, although that size strip was introduced several years after the "Large Bent Strip." The issue arises because over the years, the bends were made at different places, so the 2-1/2-inch dimension is not consistent. That, of course, means that the one-inch dimension is also not consistent. **Photo 1** shows an assembled truck with the Flat Girder projecting above the DAS, and **Photo 2** shows the DAS projecting slightly above the Flat Girder. The drive shaft with its universal joint in **Photo 1** is very close to the axle, while the drive shaft in **Photo 2** has much more clearance.

As shown in **Photo 1**, I did build a pair of trucks with early part No. 46, wider than 2-1/2-inches, and less than one-inch high. After completing the loco, and even with some adjustments (replacing set screws with grub screws), the loco still had problems with a small "sharp" curve on my track, of about four foot radius. My original Meccano loco could handle LGB R1 curves, or about two foot radius. The problem is clearance between the universal joint and the boss of the flanged wheel; I could not get the desired clearance with the wider DAS. The trucks were disassembled and rebuilt with DAS closer to 2-1/2-inches wide.

The axles are 3-1/2-inches long. Only the outer axles are gear driven, using a pair of No. 30 7/8-inch bevel gears. The wheels are No. 20 1-1/8-inch flanged wheels; a total of eight are needed. Please be sure they each run true. Each of the two powered axles consist of, in order, a No. 59 collar, a flanged wheel, a bevel gear, a No. 63 coupling (to provide a bearing for the other bevel), the other flanged wheel, and another collar. The unpowered axles sim-

Speaking Meccano

In the article there will be references to standard Meccano parts. A primer on Meccano parts is provided at the end of this article — *ed.*

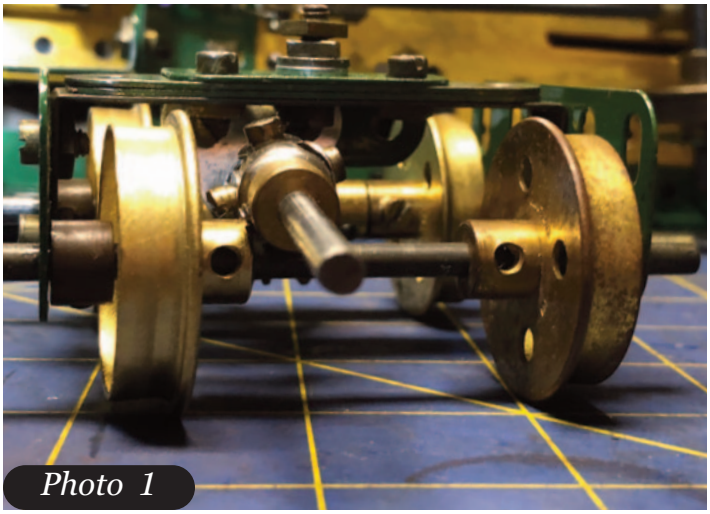


Photo 1

Above: How not to build the truck – note side frames projecting above the Double Angle Strip, and very little clearance between the axle and drive shaft.

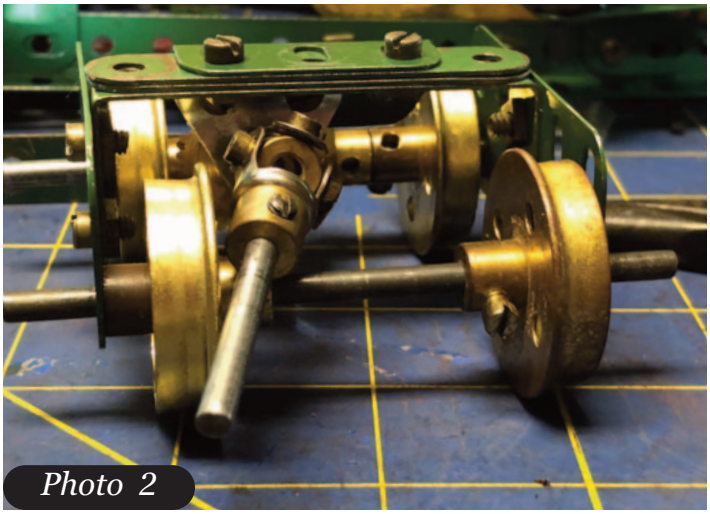


Photo 2

Better clearance between drive shaft and axle. The top of the DAS is near the top of the side frames, allowing the drive shaft to be higher with respect to the axle.

ply omit the bevel and coupling. All of the parts are between the flat girders. The flanged wheels should be 40 mm minimum between the backs of the flanges.

Here comes the tricky part. The bevel which will mesh with the one on the axle has to be supported so that the universal joint providing the drive from the engine can be above the non-powered axle. Thus, the No. 18b one-inch axle has to be angled upward. Also, this axle will need a support at roughly one quarter-inch spacing horizontally. I used a No. 77 one-inch triangular plate for this purpose, bent and mounted to a No. 9f 1-1/2-inch angle girder. The tricks are to raise the angle girder high enough for the clearance, to place it sideways to provide proper mesh of the bevel gears, and to bend the triangular plate so that the bevel will fit and mesh properly. When I first built my locomotive, I mounted the angle girder using two No. 10 fishplates, allowing for some sideways adjustment. In building a new locomotive, I found that there is enough adjustment in the size of the holes that the fishplates are not necessary. This might not be the case in your build. Another tricky part here is that the bevel gears come in different sizes. My two triangular plates are bent differently, because I did not have four bevels the same. Finally, I had to replace a set screw in a flanged wheel with a grub screw, because the set screw interfered with the bevel gear (or is it the other way around?). The angle girder is spaced upwards from the DAS to provide the angle so the universal will clear the unpowered axle. I used two No. 5 2-1/2-inch strips on each truck, because I have many more of those than No. 6a 1-1/2-inch strips. More strips would cause the bolt heads in the triangular plates to hit the underside of the DAS, so the triangular plate cannot be raised higher; that is why I was not able to use the wider DAS.

Once the trucks are built, the rest is relatively easy (ha!). The gear reduction assembly can be built onto the steam engine. I used a No. 72 2-1/2-inch square flat plate, originally attached to the rear of the steam engine with No. 9f 1-1/2-inch angle girders to the back of the steam engine; a better idea is to use No. 9d 2-1/2-inch angle girders, so the bottom edge is better supported. A No. 26 19-tooth pinion on the steam engine shaft will mesh with a No. 28 50-tooth contrate wheel on a 3-1/2-inch axle. The contrate wheel is not on center; I placed it one hole to the left of center (based on looking past the steam engine shaft toward the boiler). Four No. 48 1-1/2-inch double angle strips support a No. 73 1-1/2-inch x 3-inch perforated plate which supports the other end of the axle for the contrate gear. The shaft for the contrate also carries a No. 26 19-tooth pinion. That meshes with a No. 27a 57-tooth gear wheel, mounted on an axle one inch below the axle with the contrate wheel. Be sure the 1-1/2-inch DAS supporting the No. 73 plate will not interfere with the gear; the clearance is tight. The axle with the 57-tooth gear also carries a No. 31, one-inch gear wheel with 38 teeth. Place the one-inch gear with the boss toward the plate,

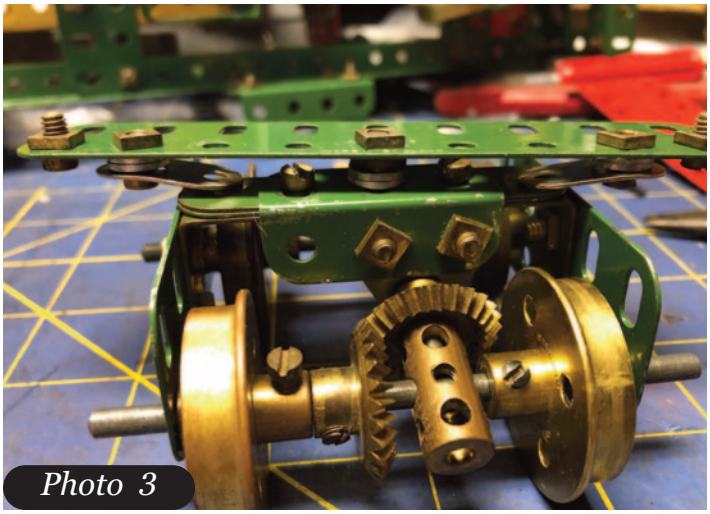


Photo 3

The other end of the truck, this time the front truck, showing side bearings (flat brackets) and assembly to fit under the steam engine.

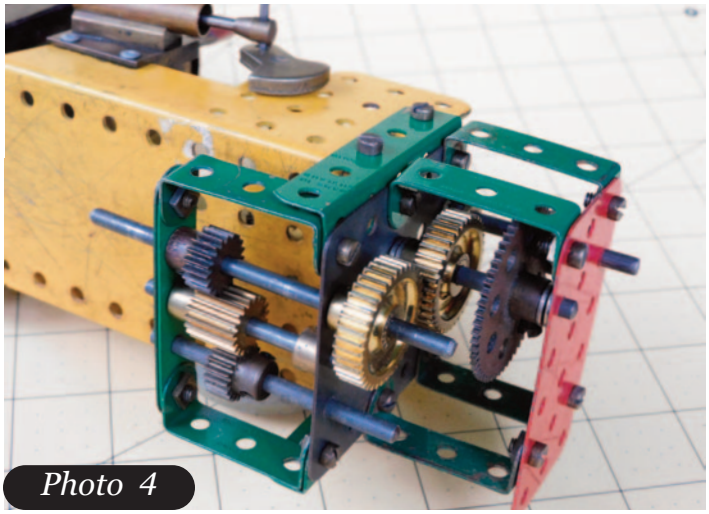


Photo 4

The assembly of the gear tower; adjust the double angle strip to provide clearance with the 57-tooth gear. The top and bottom (in the picture) shafts with 19-tooth pinions are allowed to slide longitudinally to allow trucks to swivel.

and with two washers spacing it away from the plate to allow more motion for the meshing gear below. Two more 1-1/2-inch DAS in the bottom holes of the 2-1/2-inch flat plate support a pair of 2-1/2-inch strips, but under the steam engine. The strips and the plate support an axle with another No. 31, one-inch gear wheel and a No. 26 19-tooth pinion; this axle will drive one truck. Two more axles with 19-tooth pinions carry the drive to the other truck. The middle pinion is an idler and has a half-inch face, so there is plenty of room for the outer axles to move longitudinally as the trucks swivel. Note that the outer axles are free to move endwise; they are positioned by the connections to the trucks. Don't make my early mistake; be sure the two outer pinions are both 19-tooth (or, I suppose, 20-tooth) versions, so the two trucks run at the same speed. This assembly is shown in **Photo 4**. I found that I had to replace one of the grub screws in one of the half-inch pinions, as the original grub screw jammed against the face of the pinion. Remember, the two outer shafts need to be able to slide longitudinally to allow the trucks to swivel. I replaced the original grub screw with a No. 69c short grub screw, but this was only needed in one of the two gears. (Why? I don't know.)

The mounting of the front truck needs care, because it is under the steam engine, and there is little clearance. I mounted a pair of flat brackets (known as side bearings) to the flat girder to minimize rocking, but for the front truck only. A pair of washers between the flat bracket and the flat girder will bring the flat brackets closer to the 2-1/2-inch strips; adjust the clearance by bending the flat brackets. The washers also allow the nuts (on the top) to be flush with the ends of the bolts. This will require care in bolt selection. Mount the flat brackets through the slotted holes, so that the brackets can be moved to clear the corners of the 1-1/2-inch angle girders. The truck is mounted with a longer bolt placed upwards through the center hole of the DAS, the two 2-1/2-inch spacing strips, the 1-1/2-inch angle girder, one or two washers, a pair of nuts jammed together, and finally the flat girder, with another nut on top. Again, the goal is to have the final nut flush with the end of the bolt. The washers and double nuts are spacers to allow clearance for the various parts in this area. More spacing could be provided, but the loco is top heavy as it is, and I wanted it as low as possible.

The flat girder for the front truck is mounted to the frame with a pair of nuts and bolts fixed to the flat girder and pointing upwards; another nut on top then holds the assembly to the frame. Thus, the flat girder is separated from the angle girders of the frame by the thickness of a nut, leaving room for the other nuts. This assembly is shown in **Photo 3**. The rear truck does not require the same mounting as the front truck, as there is no obstruction above that truck, so the mounting is simpler. Further,

side bearings are provided on the front truck only, so that the loco can operate easily over uneven track. However, the height of mounting the rear truck needs to be arranged so the frame is level, or nearly so.

The sides of the main frame are made from No. 8 12-1/2-inch and No. 9 5-1/2-inch angle girders, overlapped by four holes. Again, varying manufacturing can make this a challenge. In my case, placing the shorter angle girder outside the longer one allowed the round holes to line up. I put the round holes on top. The end members are No. 9a 4-1/2-inch angle girders. I used No. 103c 4-1/2-inch flat girders as cross members to mount the steam engine and the trucks, only because I did not have enough No. 2a 4-1/2-inch strips for the purpose. **Photo 5** shows an early version of the main frame – the 2-1/2-inch x 4-1/2-inch red plate was too long to fit as shown; the frame is forced wider, so other strips and flat girders will not fit. Also, the truck seen is not mounted properly (obviously), but is only temporarily supporting the frame. The joint between the side members is visible, as well as the different shaping of the angle girders which allows them to be nested and bolted together through the round holes.

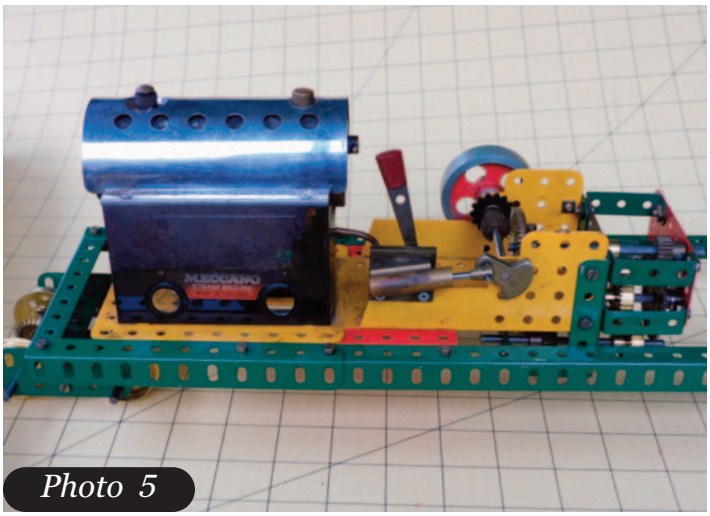


Photo 5

A test fit of the steam engine on the frame; the flat plate was not used. Note the joint between the 5-1/2" and 12-1/2" angle girders. This connection may well not work with your girders; it depends on the point of the bend. My original loco fit the other way, with the short angle girder 'inside' the long one, again with the round holes on top and lining up.

Footboards (the steps at front and rear) are supported by No. 6a 1-1/2-inch strips. The front one is a No. 9a 4-1/2-inch angle girder; the rear is a pair of No. 9f 1-1/2-inch angle girders. The gap at the rear is to clear the coupler; there is no coupler on the front because the burner has to inserted and

Photo 6

removed – a car coupled will be in the way. Actually, my loco at first had a 4-1/2-inch footboard at the rear. Eventually, a bare spot wore through the paint by the uncoupling pin of the trailing car. I won't detail the coupler mounting, as it depends on the coupler you use (if any). Originally, the end of the frame had the angle girder mounted under the side members, but it had to be moved to the top to raise the coupler to the correct height.

As for the superstructure, there are many possibilities. My first loco was based on early Climax locomotives; the second is based on Dunkirk locomotives (a very uncommon type). I did not find any real issues building the superstructures, other than running low on certain parts – specifically, 4-1/2-inch strips. On the original loco, I used a pair of No. 89b, 4-inch curved stepped strips at each end of the roof to provide the curve. For the new loco, I did not have any more of those curved strips, so I simply ran a pair of No. 2 5-1/2-inch strips through my slip roller to provide the curve for the ends of the roof. Because the boiler on this engine has a water level plug on the back of the boiler, this roof had to be removable, unlike the original loco. I added a No. 48c 4-1/2-inch DAS near the middle of the roof supporting strips to act as a carrying handle, as I use the roof of the original loco for carrying. **Photo 6** shows both locomotives.

Speaking Meccano

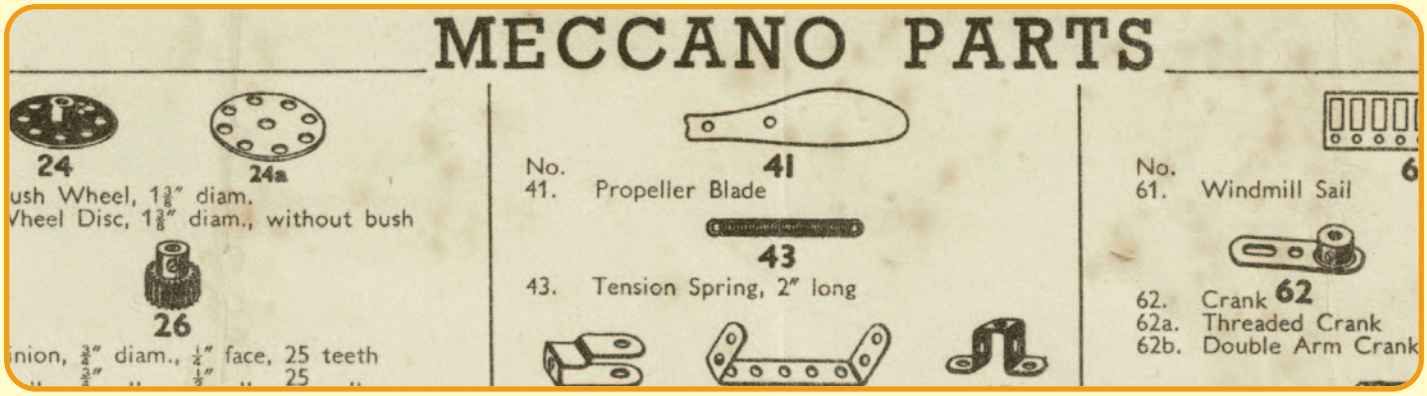
A Brief History

Meccano was invented by Frank Hornby in England in 1901, and it quickly spread throughout the world. By 1910, Meccano sets were being imported into the United States, and a U.S. Meccano Company was formed in 1913. Coincidentally, A.C. Gilbert created his famous Erector system at this same time.

The Meccano Standard

Meccano utilizes a standardised system of reusable metal parts that includes perforated strips, girders, wheels, rods, brackets, pulleys, sprockets, gears, electrical parts, motors, and specialised parts for specific kits. These parts are attached to one another with screws and nuts. Assembly only requires a simple screwdriver and spanner wrench.The Meccano system, like the Gilbert Erector system, uses a standard hole spacing of one-half-inch, or 12.7mm. The standard thread is 5/32 BSW. Axle rod diameter is 0.160-inch, or 4.04mm. Originally gears typically had 38 teeth per 1-inch diameter. Today many more gears and sprockets are available.

For those who do not have bins of Meccano parts from old sets left over from various kits, there are several Meccano parts suppliers that can provide the parts mentioned in the article. *https://www.meccanospares.com* and *http://www.metalconstructiontoys.com* are examples of a couple of parts suppliers. A search through the internet and a visit to eBay can also yield parts.



Above: An example of standard Meccano parts and nomenclature used in a kit.

Today both the Meccano and Erector brand are owned and marketed by the Canadian toy company Spin Master. Parts are manufactured in China and Calais, France.

A Meccano Live Steam Locomotive – and a Cautionary Tale

This side story results from the combination of two hobbies: Meccano collecting and building, and small scale live steam trains.

I have been a Meccano enthusiast since age 10, when my step father allowed me to use his precious Meccano collection. He had started when he (and his brother) were young, living in England. He only stopped collecting "bits" when he went in the Royal Navy about 1930. Dad and I would occasionally build things, but he was quite protective of his toy. I left home, and eventually married, moved into our own home, and raised children. Mom and Dad downsized (to some extent), and I ended up with Dad's Meccano. After he passed away, I started researching the history of Meccano, and became a member of the Canadian Modeling Association for Meccano and Allied Systems (CMAMAS) sometime around 2006.

Trains and model railroading have been a major interest since I was very young. The first train set I remember was received from my grandfather when I was four or five – an earlier one was sent back. HO trains arrived when I was ten, and I helped form a model railroad club in high school. Eventually, the railroad industry became my vocation, as a railroad signal engineer. Large scale model railroading (so-called "G Gauge") came into my life around 2003 or so, when we built a garden railroad running electric trains. Then a friend and co-worker visited with his live steam locomotive, and so began the next phase of my model railroading. My first live steam locomotive, an Accucraft "Ruby" 0-4-0 tank engine, built from a kit, entered service around 2006.

The first steamup I attended was at the home of Ron and Marie Brown in August of 2008. I was invited through the friend who had run his loco on my track. Many of the locomotives at the steamup were commercial models, either ready-to-run or built from kits. A number were "kit-bashed" or scratch built. A few were powered by clockwork, and a couple of these used Meccano clockwork motors. I immediately thought that I too might use some of my Meccano clockwork motors. Then, on the drive home, I remembered that I had a Meccano steam engine that might be used.

So, the Meccano (and the engine) came out to see what could be done. I had an idea of some type of geared engine, if the trucks could be made to work. Construction started there, and the wheels and bevel gears just fit in the track gauge. Knowing that the steam engine runs quite fast, I provided quite a gear reduction. I like to say that on the first test run, the speed could be measured in furlongs per fortnight – in other words, VERY slow. Some adjustment, and a reasonable speed resulted. Some added parts, and the loco looks something like an early Climax. Some pictures of various designs are available at http://www.gearedsteam.com. The loco was completed in early July, 2009. Unfortunately, the steamup at the Brown's that summer had to be canceled. There was no CMAMAS gathering at the Hobby Show that year, either. The locomotive's public debut was at the Brown's in August of 2010, followed by the Toronto Hobby Show in October of that year. At the latter event, a Meccano electric motor, a battery pack and a charger were purchased and installed. This quick modification was made so that the engine could run on a "G gauge" train layout that another group had built at the show. That was the only time the loco ran on electricity.

It seemed that many people, both live steamers and Meccano enthusiasts, quite enjoyed the locomotive. Crowds often formed to watch the locomotive run, and I am often asked if I brought the engine. Perhaps the greatest compliment came from Glyn Bates at the 2011 CMAMAS gathering in Milton, Ontario. Unbeknownst to me, he had carefully photographed the locomotive at the 2010 Toronto show, and brought his own version to the Milton show. His was built to, I believe, 3-1/2 inch gauge, simply moving the wheels further out on the axles.

After running at a few steamups, I noticed the locomotive was slipping. Live steam engines use steam oil to lubricate the valves and pistons; this oil is carried with the steam feed, and excess oil is ejected with the exhaust. Many locos leave quite a bit of oil in their wake, as the oil feed is usually not adjustable. I thought that the oil on

the track was the problem – but we'll come back to that issue. To fix the slipping, I added cranks and side rods to power the formerly unpowered inner axles. The "all-wheel-drive" version made its debut at the steamup at Diamondhead, MS in January 2014. At the same time, I replaced the 3-1/2 inch strips for the sideframes with 2-1/2 inch flat girders, allowing two bolts for mounting each sideframe instead of only one.

Typically, I attend three steamups a year; a week-long gathering in Diamondhead, MS in January, the Scranton, PA trolley museum in February, and in Newark Valley, NY in August. My portable track usually gets set up about three days a year, also. With the ease of running the locomotive, it usually makes at least one run at each of these events (though not so much this last year!).

A couple of years ago, a friend's outdoor track moved to our yard, allowing us to run at almost a moment's notice. In October 2020, a beautiful warm fall day prompted an impromptu run. Watching the loco running in the beautiful sunny day, I noticed that the siderods on the two trucks were moving in and out of synchrony. That is, sometimes they were both up at the same time, and sometimes one was up and the other down. Since the drive is all gears, this should not happen – the rods should always be moving the same way with respect to each other. The answer came quickly – one truck was driven with a 19 tooth half-inch pinion, and the other with a 20 tooth pinion. When I built the engine, I may not have known that there were two varieties. But, a few minutes work replaced one pinion, so now the two trucks run at the same speed – after eleven years of operation! I wonder if the siderods would have been needed had both ends of the engine run at the same speed.

My Minitram

Modifications to my build of Minitram Parts 3 and 4

Text and Photos by Scott Baldridge

I wanted to build a minitram similar to the one which Marc Horovitz recently documented in Steam in the Garden (see Steam in the Garden issues 170-173, Nov. 2020 - May 2021), but I wanted mine to be a bit different, so I set out to design my tram with more of a closed in cab rather than the open style which Marc's build suggests. But Marc's talents still had a influence on my design; while searching the internet for ideas on steam tram cabs I came across two other builds that Marc did on his "Locomotive of the Month" page on his Sidestreet Bannerworks web site (see http://www.sidestreet.info/locos/loco89.html_). These pictures provided the inspiration for my cab. I will occasionally refer back to Marc's SitG build as I explain how I did things, but feel free to use what tools, materials and talents you have. Most importantly use caution around machinery, and let's have fun on the build.

I started with the intention of completing all the parts that needed use of the milling machine. First off were the **Front** and **Rear end supports**. You will need one of each and they are made from ¼-inch x 3/8-inch x 3.282-inch brass. The only difference between the front and rear supports is the location of the holes that mount the supports to the frames. Start by machining to length then drill #50 (0.070-inch dia) and tap the two 2-56 thread locations 3/16-inch deep. Rotate the part 90 degrees and drill the two 0.093-inch thru holes. Set the part up in a vertical position in the milling machine (a lathe with a four jaw chuck could also be used here) and drill #50 x 0.250-inch deep, Tap 2-56 .

As can be seen in **Photo 1** I used two vises on this setup. The smaller vise gave me a positive vertical alignment while the part rests on the rails of the main vise, giving a positive locating surface on the height.

Next were the two **Top Supports** made from 3/16-inch square that was machined to a length of 5.145 inches. Drill #50 and tap the three 2-56 hole locations in each part. To tap the 2-56 x 3/16-inch deep threaded holes in the ends I used my lathe. There are various ways to do this part in the lathe,

you can use a four jaw chuck -- you can make a split bushing by taking a piece of 5/16-inch round brass x 3/4-inch length, drill ¼-inch thru and split it along its length (see **Figure 1**). There will be a slight interference fit on the corners of the stock but once you split the bushing the stock will easily slide in. An easier solution is to use a one-quarter inch collet if you have it; this works perfectly. The collet method was my choice, using a ER-32 Collet.

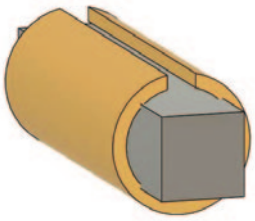


Figure 1

As you can see in **Photo 2** I am using my home-made tap guide to thread the ends after drilling.

To finish the work on the milling machine the **Corner Supports** are next (**Photo 3**). You will need to make a total of four supports. Start with four lengths of 3/8-inch square brass that have been machined square to a length of 1.312 inch. Do all your drilling and tapping while the parts are square. This procedure goes pretty fast. Set up your machine with the part located against a solid stop, spot drill your first location, rotate the part 90 degrees and repeat. Do this for the remaining three parts. At this point you can either shift your loca-

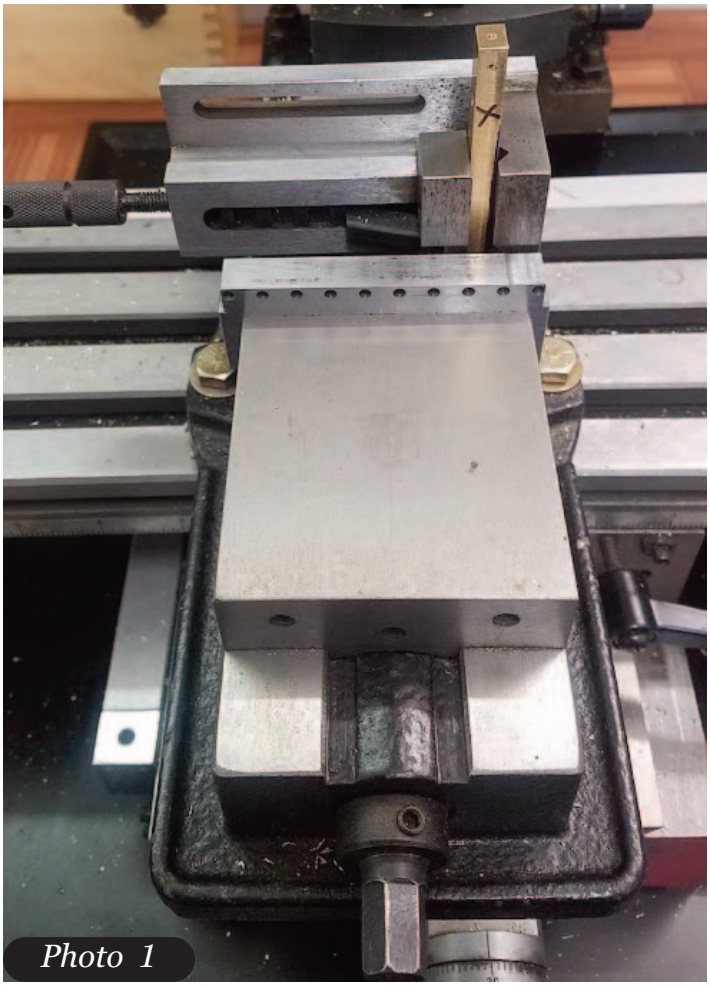


Photo 1

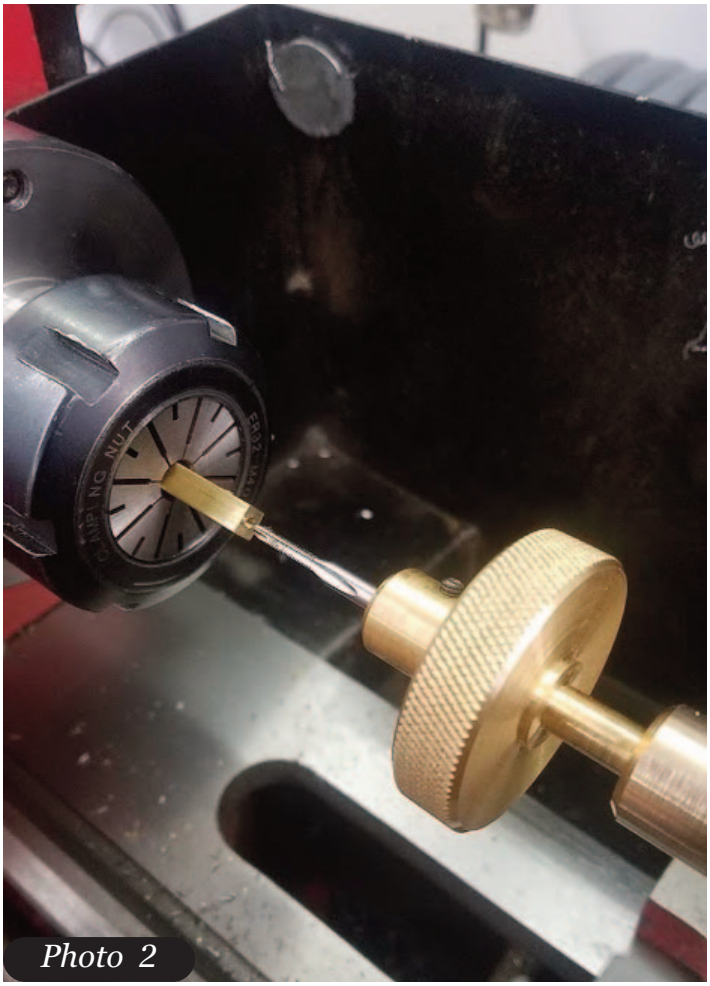


Photo 2

tion by 0.812-inch and repeat all the spots, then come back and drill and tap following the same procedure, or you could do all the spotting, drilling and tapping then shift by 0.812-inch and repeat, the choice is yours.

After all the drilling and tapping is complete it's time to machine the offset, making the part look like angle stock. For this I nested the part down deep in my vise to get a positive hold. If the part were placed on parallels and held high enough in the vise to avoid gouging the jaws you run the risk of pulling the part out of the vise, and also inducing chatter on the back leg of the angle.

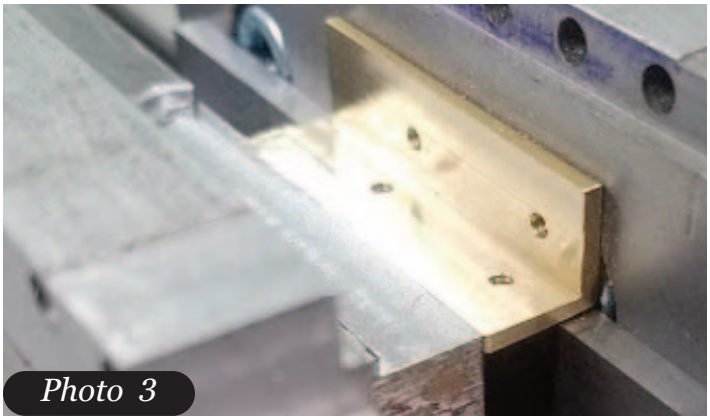


Photo 3

Photo 4

As can be seen in the setup I have the part resting on a parallel, and I placed some sacrificial blocking in the vise to allow room for the end mill to do its work without running into the hardened vise jaws. I made this part by going the full depth (0.250-inch) of the cut, and offset my cuts in towards the fixed jaw of the vise until I reached the target dimension of 1/16-inch on the vertical leg.

That's it for the milling operations. I like to keep a clean shop so for me it was time to clean the lathe, mill, and floor, get a cup of coffee and start laying out the cab panels. I made my cab panels

from 22 gauge steel sheet metal purchased at my local Home Depot (**Photo 4**). I sheared my end panels to the specified dimensions of 3.322 inches wide by 4.250 inches in height, and the side panels to 3.875 inches height x 5.145 inches in length.

There are various ways to cut out the windows on the **Front**, **Rear** and **Side Panels**. Marc does a very good job at explaining this in Part 3 of his build and there is no need to repeat the text here. I tried two other methods and settled on a nibbling tool as my preferred method of choice, but first let's prepare the panels for cutting.

I started out by bluing up one of the end panels and one of the side panels. Following the drawing I scribed lines detailing the windows and I center punched all the marks for the 0.093-inch drilled holes as well as the corner radius features in the windows (**Photo 5**). At this point I glued the two end panels together as well as the side panels by placing a series of super glue spots on the parts (**Photo 6**) then pressing them together and allowing time for the glue to set up. I did this so that I only had to cut out two panels and not four, and both panels would come out identical. Over to the drill press I went to drill all the 0.093-inch diameter holes then drill the 1/8-inch diameter holes for the window corner radius (**Photo 7**). To make sure the parts stayed together and did not shift while cutting out the windows I installed 2-56 screws and nuts into the outside four corner hole locations.

I set out to clean these end panels up on the milling machine. I placed a spoil board on the mill table and secured the panels using toe clamps(**Photo 8**) . A 1/8-inch two flute carbide end mill was placed in the mill spindle and I lowered the end mill into one of the corner drilled holes to the full depth of the cut, plus about 0.020-inch more just for good measure. At this point I just went around the inside perimeter of the window cutting my layout line off. Repeat this process for the other two windows and remove the panels from the mill. Remove the retaining screws and if needed apply a little heat or soak the parts in acetone to break the glue joints. This procedure worked but the metal was gummy and I had to proceed very slowly and with caution as it's very easy to break a 1/8-inch diameter end mill.

For the side panels I followed the same layout procedure that I did for the end panels, but rather than mill the windows I used my nibbler for the

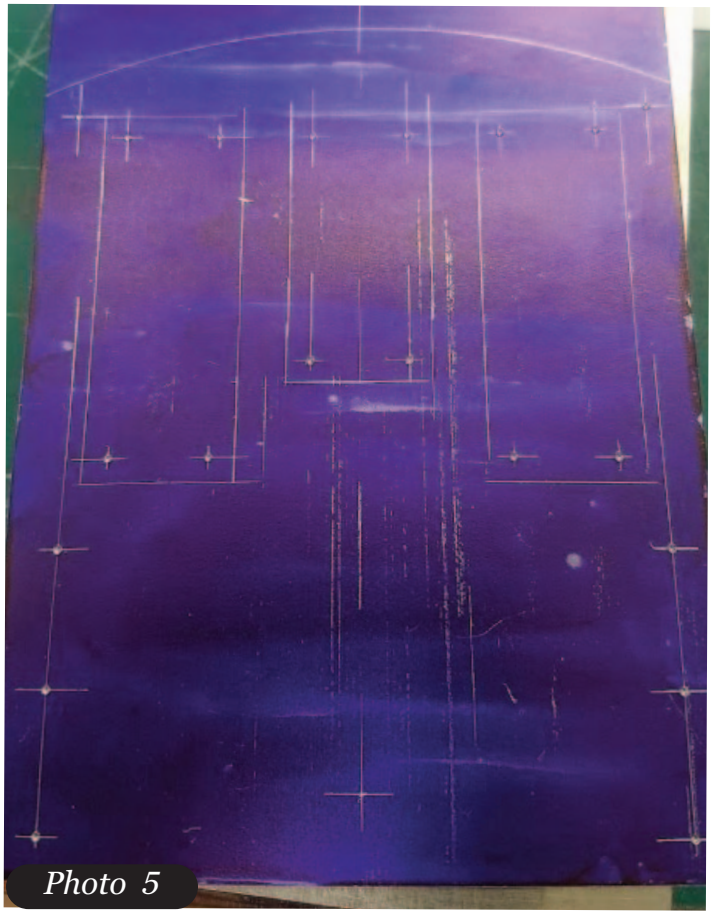


Photo 5

Photo 6

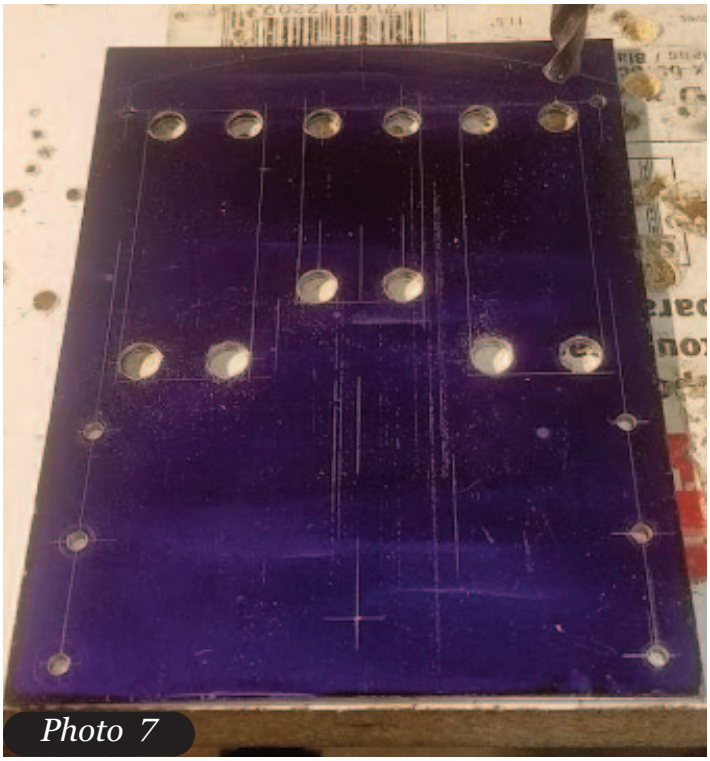


Photo 7

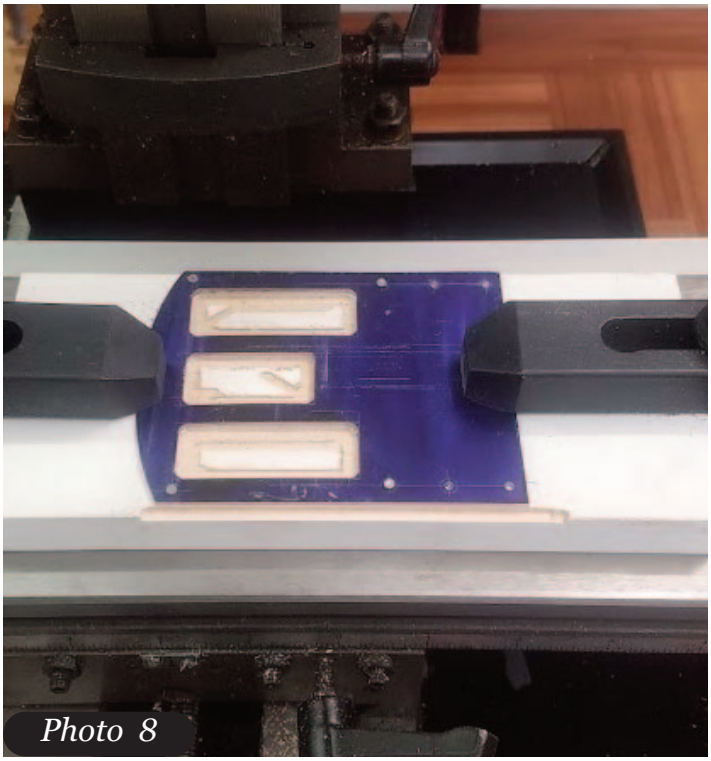


Photo 8

Photo 9

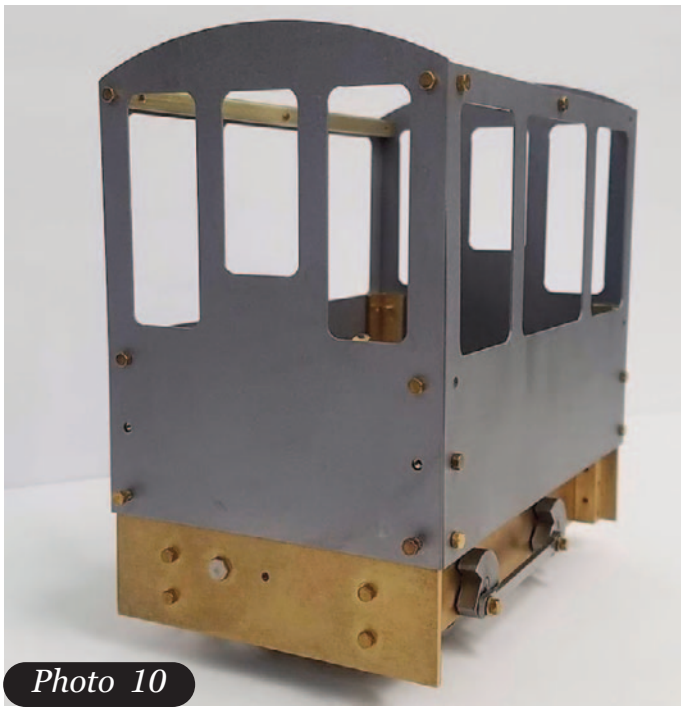


Photo 10

cutting process (**Photo 9**). As you can see in the photo this is the same method I used when making the tram floor. This method works very well and I would say it probably took less time to open up the windows with the nibbler than it did using the milling machine. Take a file to the edges to clean up any rough surfaces. **Photo 10** shows the completed panels test fitted to the tram.

We will now work on the plumbing from the boiler to the engine. To keep the steam lines within the boundary of the cab I rotated the lubricator 180 degrees. I found that If I locate the steam take off bushing on the boiler 0.500-inch from the end rather than Marc's specified 0.750-inch, it will make plumbing to the lubricator a bit easier (**Photo 11**). Anneal up some 3/32-inch copper tubing and follow the procedure Marc gave in his Part 4 for bending the copper lines. Obviously the bends from the boiler to the lubricator and from the lubricator to the engine are going to be different from

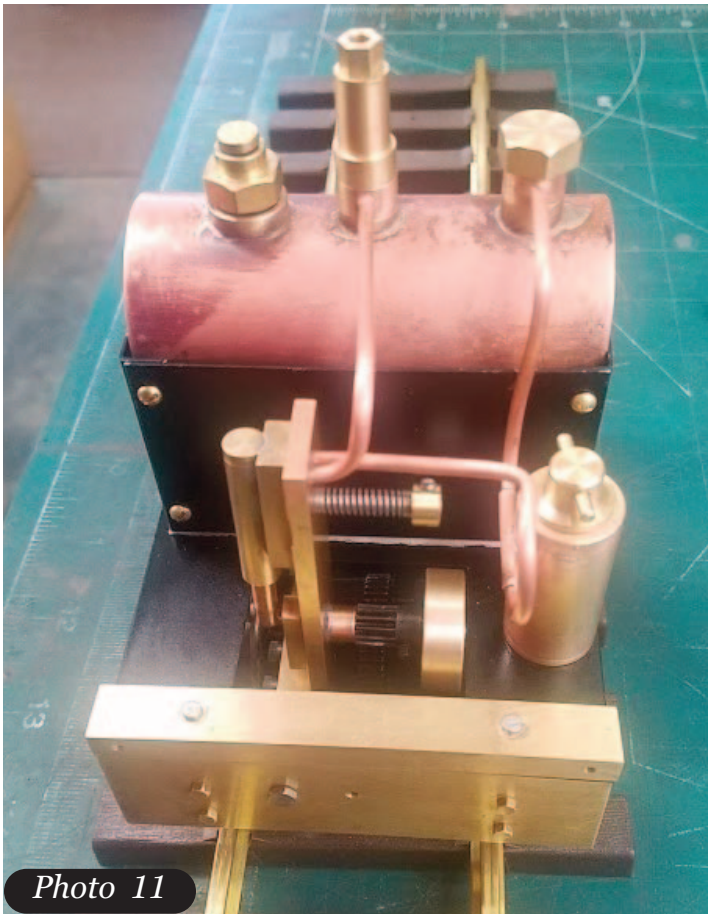


Photo 11

his specifications. I don't have actual dimensions for this as I just pretty much wing it when bending tubing, but basically it's a 90 degree bend out of the boiler and another 90 degree bend into the lubricator. Out of the lubricator is a 180 degree bend on approximately a 0.250-inch radius, then a 90 degree bend perpendicular into the engine (**Photo 12**). The steam exhaust is as per Marc's description in Part 4.

Photo 12

My lubricator was previously brazed with a Easy Flow 3 type material (1270 deg F). The steam line from the banjo fitting was also brazed with this material. I soldered the remaining connections with Stay Brite silver bearing solder (450 deg F) as they will not be subject to as much heat. All joints were dry fitted first, and when I was satisfied with the fits I soldered them in place.

Cab Assembly

Start by loosely attaching two corner brackets to one of the end panels using 2-56 x 1/8-inch screws (bottom holes will be open). Next loosely attach the end panel to the sheet metal hold down using the bottom two holes and repeat for the other end panel. Attach a **Top Support** to each side panel then loosely attach the side panels to the **Corner**

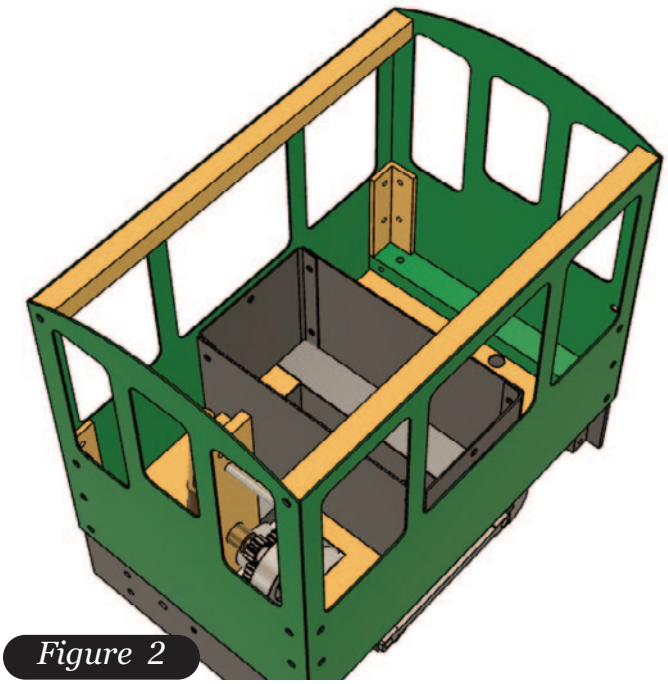


Figure 2

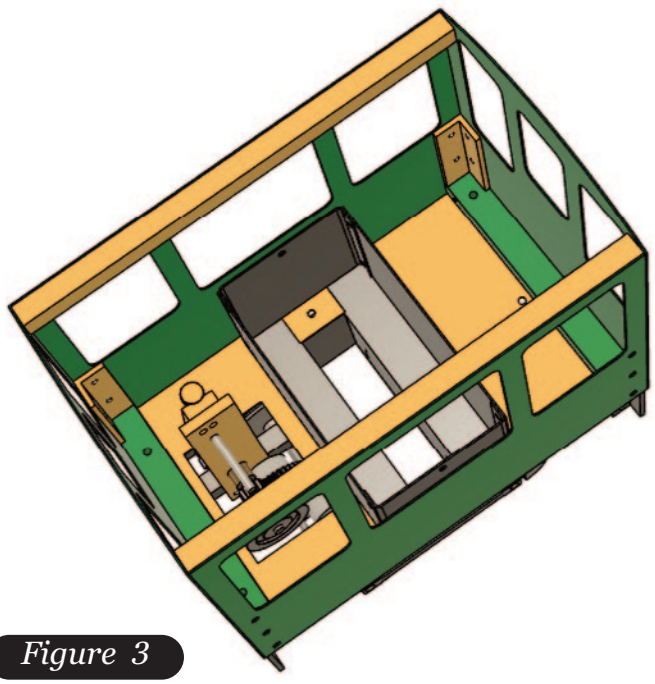


Figure 3

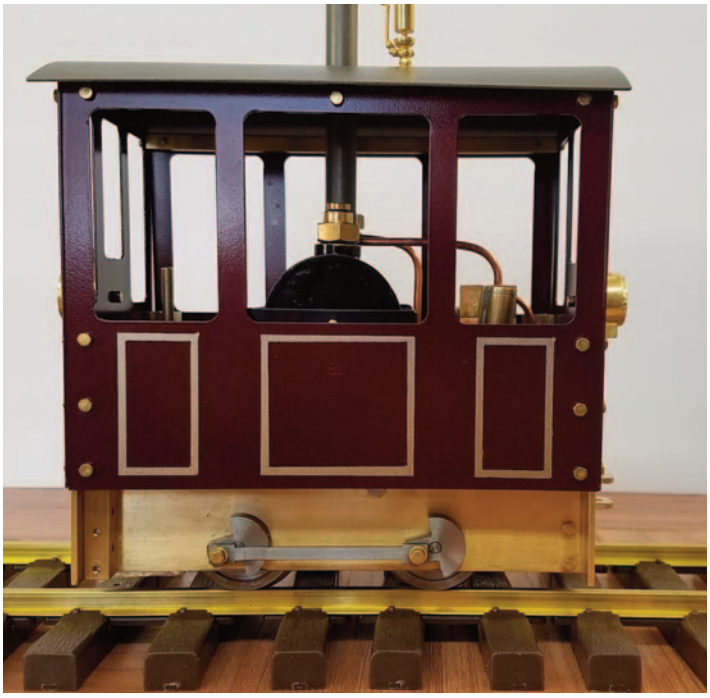
Supports as well as the sheet metal hold down brackets. When all the holes are filled with screws you can snug them all down. The renderings (**Figures 2 & 3**), show how the cab comes together.

Roof

The roof was made from the same 22 gauge steel as the side panels. Cut your roof to 4-inches wide x 5 1/2-inches in length. Scribe a diagonal line from each corner to locate the center. Center punch this location and drill a ¼-inch hole for the stack, this hole will be opened up later to the 11/32-inch diameter required for the stack. I intentionally drilled smaller now in case of misalignment to the boiler exhaust bushing.

I had access to a slip roll so that's what I used to form the 3 7/8-inch radius into the roof. After the radius is formed and you are happy with the fit to the cab ends a piece of 1/4-inch diameter rod can be inserted through the roof to verify alignment with the boiler exhaust bushing. If the alignment is out you can use a round file to open up the hole to 11/32-inch carefully checking as you go. If the alignment is correct drill the hole out to 11/32-inch solder your stack to the roof and the build is complete.

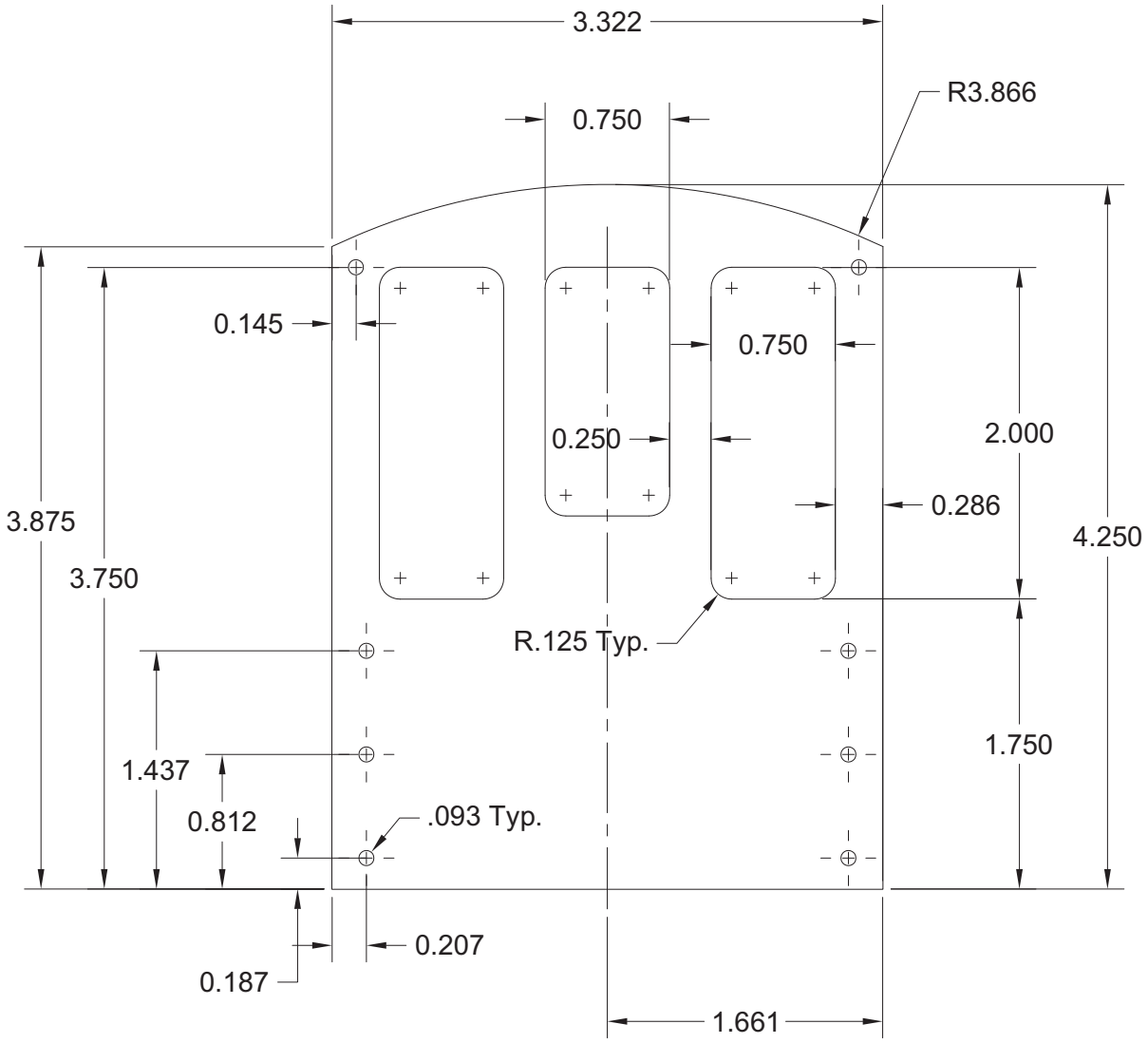
Paint and detail your cab in any way that you see fit. I added headlights (Part # TD-13) and a steam whistle (Part #TD-87) from Trackside details to dress it up a bit.



Scott's Minitram all ready for operations on his railroad.

Editor's Note: *The construction drawings for both the original Minitram by Marc Horovitz and Scott's modifications are available in the "Workshop Plans" section of www.steamup.com. We have received updates on the original Marc Horovitz drawings, specifically Sheet B with corrected measurements. If you have downloaded these, please download a new set to ensure you have the correct version of the drawings.*

Drawing 6



2 Req. .020 to .030 Brass or Steel Sheet

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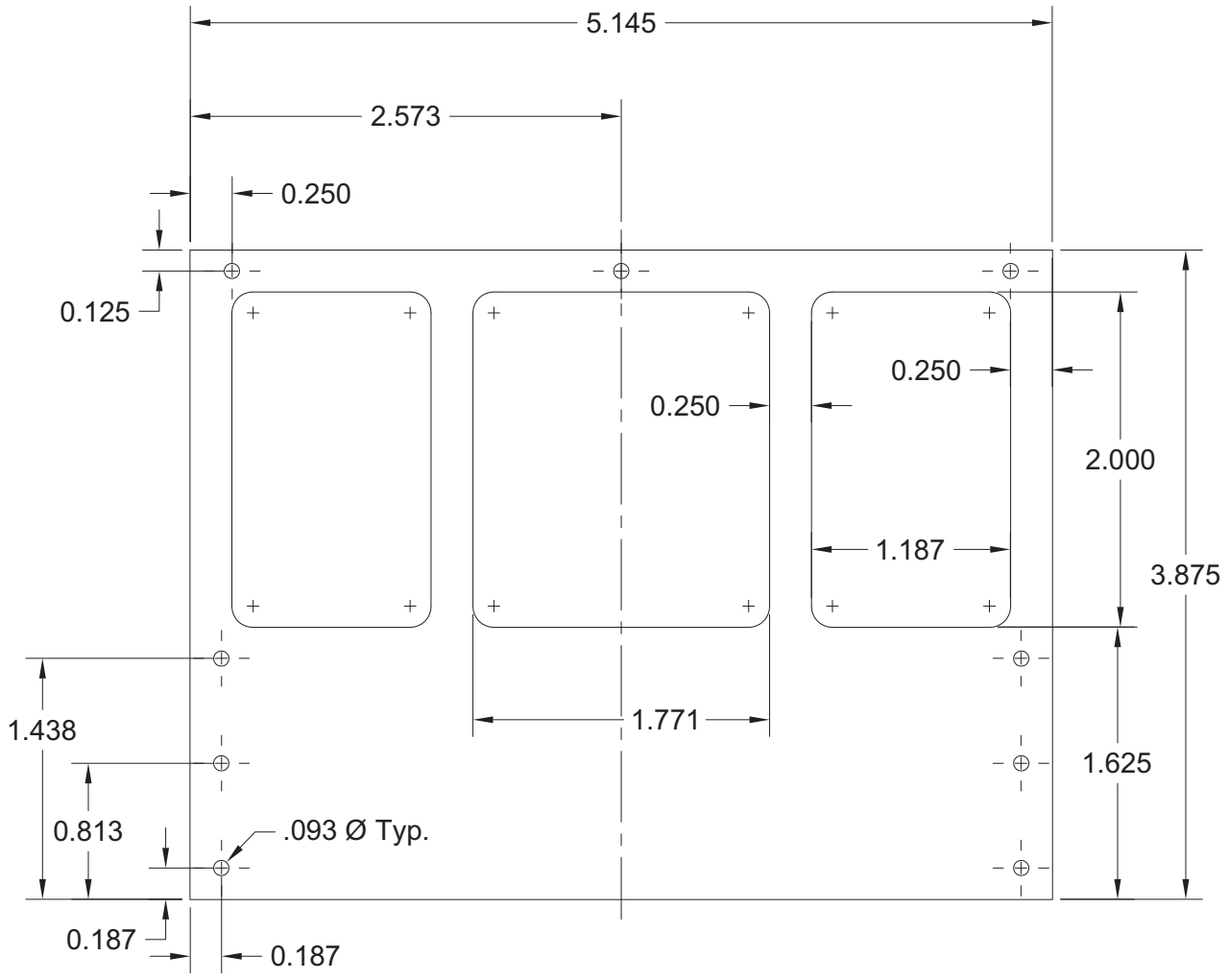
	TITLE: Cab Front & Rear Panels				
APPROVED	SIZE	CODE	DWG NO		REV
CHECKED	A				
DRAWN Scott Baldridge 2/22/2021	SCALE 1:1	WEIGHT		SHEET 1/1	

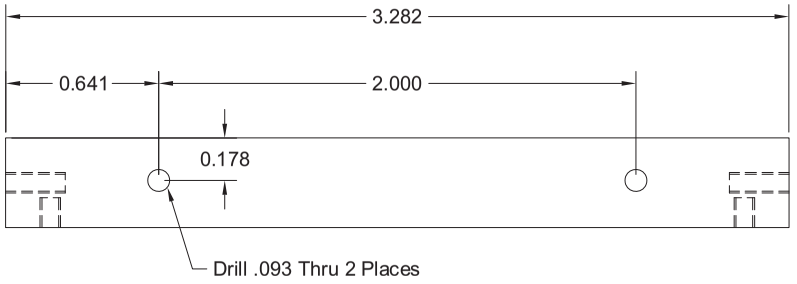
Drawing 7

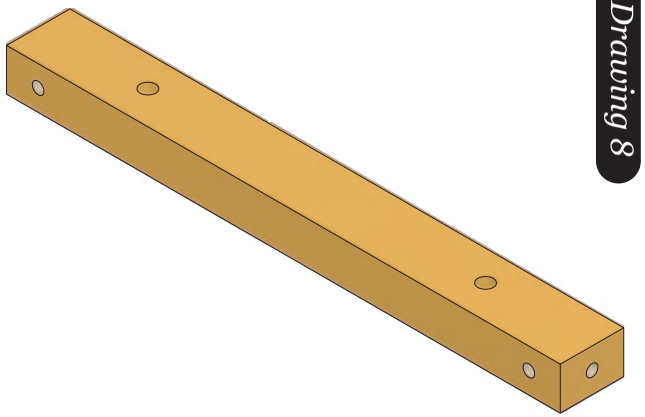


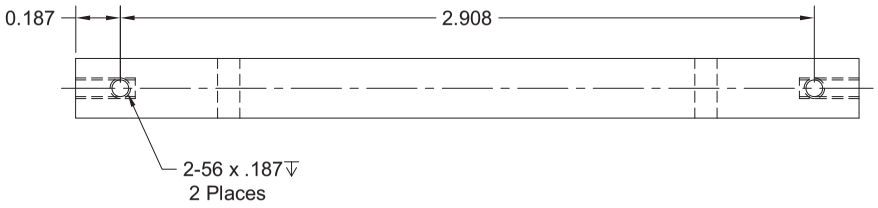
2 Req. .020 to .030 Brass or Steel

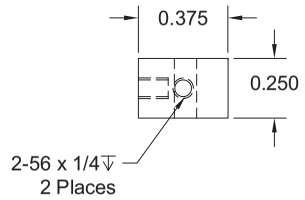
	PROJECT: SITG Minitram Cab Modification			
	TITLE: Side Panels			
APPROVED	SIZE: A	CODE	DWG NO	REV
CHECKED				
DRAWN: Scott Baldridge 2/22/2021	SCALE: 1:1	WEIGHT	SHEET: 1/1	

Drawing 8









1 Req. $\frac{1}{4}$" x $\frac{3}{8}$" Brass

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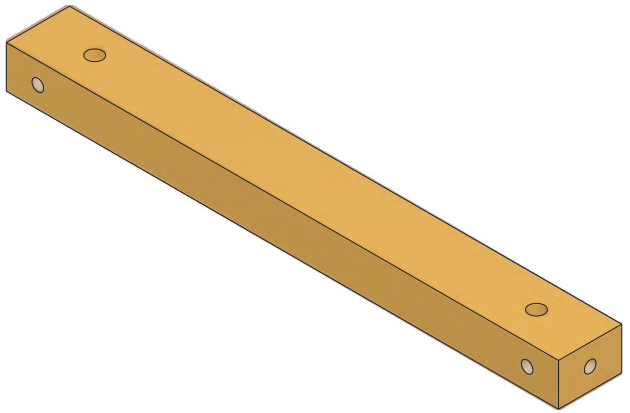
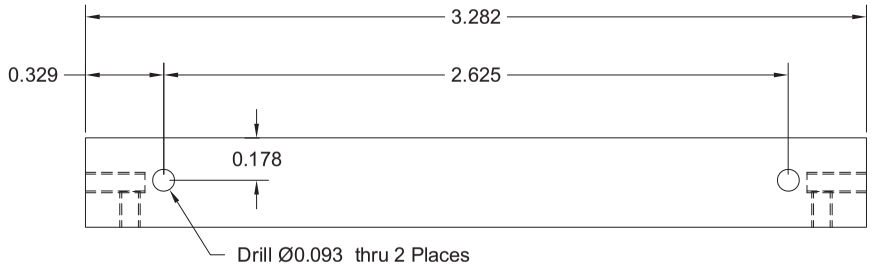
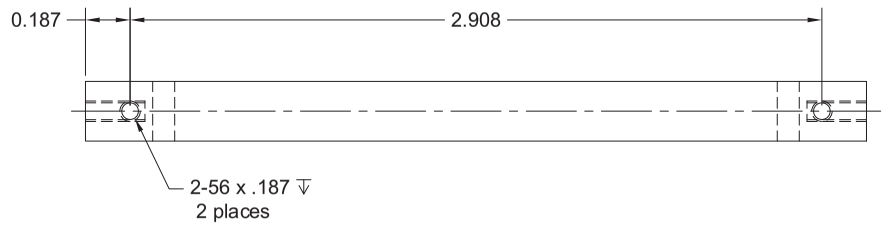
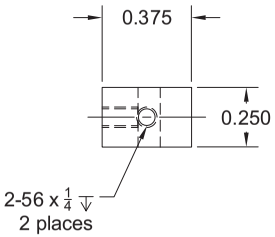
	TITLE: Front Sheet Metal Hold Down				
APPROVED	SIZE: B	CODE	DWG NO		REV
CHECKED					
DRAWN Scott Baldridge 1/29/2021	SCALE 2:1	WEIGHT		SHEET 1/1	

Drawing 9









1 Req. $\frac{1}{4}$" x $\frac{3}{8}$" Brass

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	TITLE: Rear Sheet Metal Hold Down				
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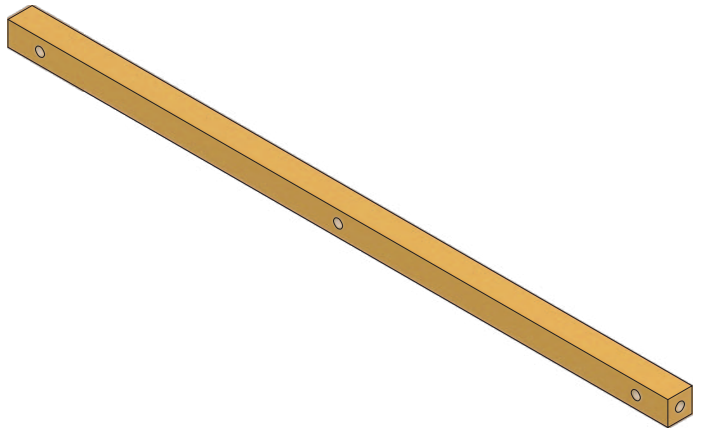
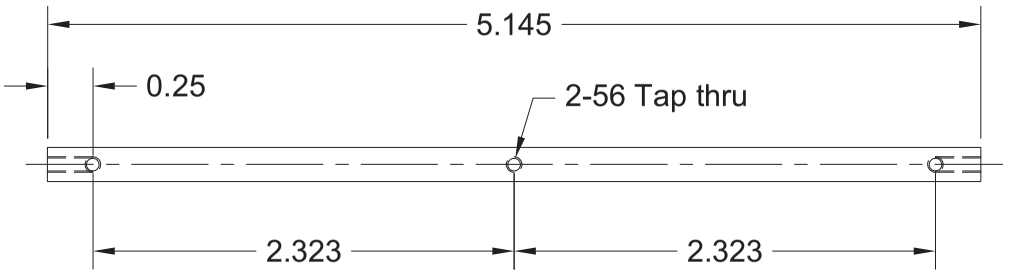
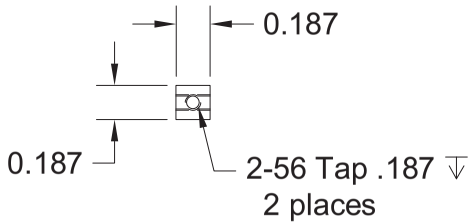
CHECKED					
DRAWN: Scott Baldridge 1/29/2021	SCALE: 2:1	WEIGHT		SHEET: 1/1	

Drawing 10

2 Req. 3/16" Square Brass







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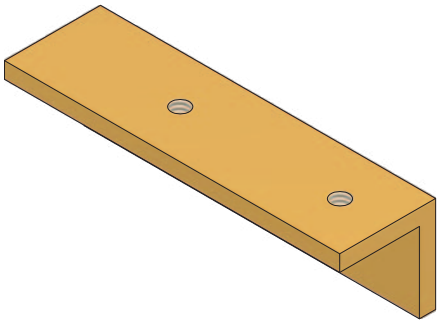
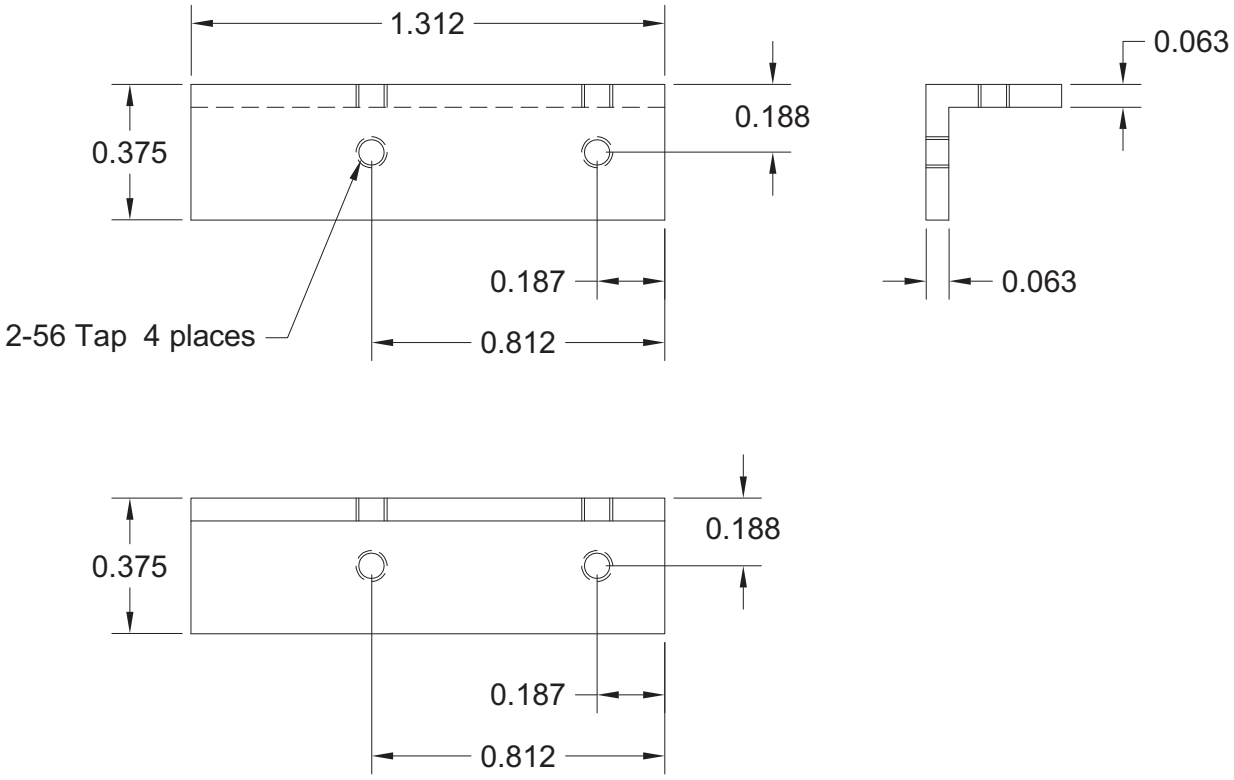
	TITLE: Top Support				
APPROVED	SIZE	CODE	DWG NO		REV
CHECKED	A				
DRAWN Scott Baldridge 1/29/2021	SCALE 1:1	WEIGHT		SHEET 1/1	

Drawing 11

4 Req.

Make from $\frac{3}{8}$" Square Brass





	PROJECT: SITG Minitram Cab Modification			
	TITLE: Corner Support			
APPROVED	SIZE	CODE	DWG NO	REV
CHECKED	A			
DRAWN Scott Baldridge 1/29/2021	SCALE 2:1	WEIGHT	SHEET 1/1	

THE CUPOLA VIEW

Closer to Normal!

We've all had this COVID thing dominating our lives and I hope that our projects in the pages of *Steam in the Garden* over the past year are providing some relief for the limited socializing we've all had to endure. Things are looking up as conventions and steamups are being planned. In May our merry band of steam brothers and sisters of the Aikenback group were able to get back into the swing of things with an outdoor steamup held on the grounds of the Marshall Steam Museum in Yorklyn, Delaware. It was a grand time with great Spring weather and lots of steam. We're still doing the mask thing, but we're all feeling safer now that the vaccinations are flowing. And the mask helped to fight the Spring pollen festival as well!

As for conventions, Steam in the Garden will be out and about at the National Narrow Gauge Convention being held in Hickory, North Carolina over Labor Day weekend. Our friends from the Owens Valley Live Steamers will have their 30 x 50 foot elevated layout on hand for those attendees who are into modeling Narrow Gauge in both 1:20.3 and 7/8th scale on Gauge One. If you're planning to attend the NNGC and would like to bring something to run (narrow gauge only, and no coal please), contact Charlie at csmote@mindspring.com or (770) 329-1964 before June 30, 2021.

Les Knoll, author of the Freelance Consolidations and the Freelance Heisler series, and I will be on hand with our Heislers and Consolidations on the track in full steam, ready to answer questions and provide tips. It is an "all scale" show, but if Narrow Gauge is your thing, then this should be on your list. A trip up to the Tweetsie Railroad in Blowing Rock, North Carolina is also planned as part of the convention activities. Great opportunity to ride behind the narrow gauge 4-6-0 #12 or the former White Pass and Yukon #190 2-8-2.

I can't forget to mention that the National Summer Steamup which was dark last year will turn the lights on in September in Lodi, California. Lots of steam in the near future. Hope to see you there!

Happy Steaming!

Scott

Right: Your Editor's Freelance Heisler making a run at the Delaware Steam Museum Steamup.

Cupola view' is written by Editor Scott E. McDonald: you can contact him at sitgeditor@gmail.com or P.O. Box 1539, Lorton, VA 22199.

Special or Annual Meets

National Narrow Gauge Convention, September 1-4, 2021 - Hickory, NC. Visit *https://41nngc.com/* for more information. Elevated Gauge One steamup track will be available to attendees.

Staver Locomotive Fall Steamup, September 23-26 September 2021 — Staver Locomotive, Portland, Oregon. Visit *www.staverlocomotive.com* for latest information.

National Summer Steamup, September 29 - October 2, 2022 - Lodi Grape Festival and Events Center, Lodi, California. Visit *www.steam-events.org* for more information.

Fourth Annual Gathering of North American Members of the Association of 16mm Narrow Gauge Modellers - 2021. Venue is being planned to be held in Northern New Jersey in the Autumn timeframe.
Visit *www.northamerican16mmmodellers.org* for registrations and venue information.

Cabin Fever Model Engineering Show January 2022 - Lebanon Valley Expo Center & Fairgrounds, Lebanon, PA. Gauge One Tracks available for steaming. Visit *www.cabinfeverexpo.com* for more information about 2022.

International Small Scale Steam Steamup. January 15-23, 2022 - 103 Live Oak Drive, Diamondhead, Mississippi. Visit *www.diamondhead.org* for more information.

Regular steamups

Crescent City High Iron. Steamups as necessary on an elevated backyard layout on Northern California's upper coast. Info: Don Cure, diamondd1947@msn.com.

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

Puget Sound Garden Railway Society. Two steamups per month, one at the Johnsons' on the second Saturday and a steamup at a member's track on the fourth Saturday.
Info: *http://psgrs.org/* or call Pete Comley at (253) 862-6748.

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

DIAMONDHEAD

♦ International Small Scale Steamup ♦

JANUARY
16-22
2022

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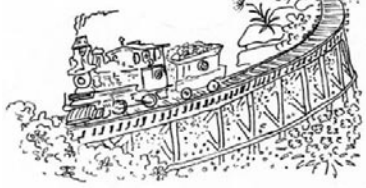
DIAMONDHEAD, MS
228-255-1300
Fax 228-255-9848

For more information and registration forms, visit www.diamondhead.org



CONTRIBUTOR BIOS

The magazine couldn't exist if it were not for the dedicated individuals who take time from the hobby to chronicle their endeavors, interests, and joy of live steam. If you get a chance to meet any of our contributors at a steamup, please thank them for their contribution.

Scott Baldridge - Scott is from North Huntingdon, PA and has been into model trains all his life. In his early years he always had a layout in HO scale where he modeled the 1940-1950 time period. His interest in machining and metalworking began in high school, and he carried that into his career as a manager of a machine tool manufacturing company. About 10 years ago Scott built his first steam engine, a single cylinder single acting oscillator by Stan Bray called a Slim Sam, and he has been hooked ever since. His steam interests carried into live steam boats, stationary steam engines and of course live steam locomotives. His primary interest is in 1:20 scale narrow gauge, but anything in steam interests him. He has a small elevated layout in his back yard with the road name of the Penns Woods RR. He enjoys kit building, scratch building, and freelance designs of his own.

Kendrick Bisset - Kendrick is a retired railroad signal engineer. His love of railroads started by age four with his first American Flyer train set (even though he was in England at the time). HO trains came at age 10. School, girls (and one in particular), and entering the railroad industry followed in seemingly quick succession – and then children, too. Kendrick feels very fortunate that his life work and his hobby have been so closely related. He got into live steam around 2006, and has been enjoying the companionship of the small scale live steam community since then.

Les Knoll - Les started his railroading experience with a Lionel F7 freight set at Christmas at age six. This grew to a tabletop layout in the family basement, later to be supplanted by a theater pipe organ and a rock band practice space in his teens. Later in life the HO/HOn3 bug bit, and the first incarnations of his Rivendell & Midland Railroad, one of the first JRR Tolkien-based railroads in the US, took shape. The R&M moved outdoors with his discovery of live steam in the early 90's, and after two purchased locomotives, five scratchbuilt live steamers followed, ranging from a 14-ton Shay to a 2-4-4-2 logging Mallet. The current Rivendell & Midland is in the back yard of Les's and wife Ruth's lake home in North Carolina. Les is a retired Forensic Engineer and a Registered Professional Mechanical Engineer.

Jesse Mazze - Jesse Mazzie lives with his lovely, and very patient, wife Elizabeth and daughter Emma in Danvers Massachusetts. Outside of his day job in Law Enforcement Jesse owns and operates two antique Fairmont rail cars as part of the Cotton Valley Rail club where he spends his time riding the rails. He is also a life-long model railroader with a large HO scale line which has smaller side Lionel and On30 layouts. When Jesse is not doing that he also works part time as a locomotive engineer for the New England Southern Railroad.

Peter Thornton - Peter has been playing with trains for most of his life. He recalls a Hornby clockwork set in the attic when he was 5, and he graduated to OO/HO until the slot car craze in the '60s took his interest. Trains took a backseat to career and family for a few years, but the birth of his son was the catalyst for more trains. Twenty years ago, he bought his first live steamer, a Roundhouse Argyll, and since then has owned and tinkered with a wide variety of locomotives. Now living in Maryland, and Florida in the winter, he maintains two small collections of trains; one in each home.

***Your Name Can be on this Page!* -** The whole world is waiting to hear from you! We are always looking for Live Steamers to share their thoughts, experiences, projects, latest acquisition... The list goes on!

We need Locomotive Reviews, Tips & Hints, Steamup Reports, etcetera. All contributors are compensated for their submissions. Submitting is easy. Just e-mail your idea to sitgeditor@gmail.com and we'll work with you to bring your article to our pages. Visit *www.steamup.com* to view our Contributor Guidelines to see how easy it is to show the world your small scale live steam interests!

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Issue #175
September/October 2021

Part 5
Freelance Consolidation
Build Series
by Les Knoll

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