

THE

O

RESOURCE

NEWS, REVIEWS, INFORMATION TO USE

SCALE

**Volume 3 No. 4
March/April 2016**



Oddities
Scratch Building A Fuel Tank Pt 2
Bill Leider's Union Pacific Layout
2016 Amherst Railroad Hobby Show
Construction of a Scratch-Built Truss Bridge
DCC in Older Brass Diesel Locomotives Pt 2

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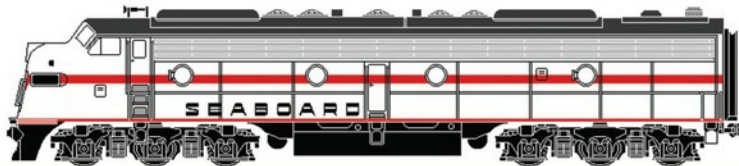
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Published Bi Monthly

The Model Railroad Resource LLC
Dwight, Illinois

Owner / Publisher
[Amy Dawdy](#)

Managing Editor / Advertising Executive

[Daniel Dawdy](#)

March/April 2016

Volume 3 No. 4

Welcome to the online *O Scale Resource* magazine. The magazine is presented in an easy to use format. The blue bar above the magazine has commands for previewing all the pages, advancing the pages forward or back, searching to go to a specific page, enlarging pages, printing pages, enlarging the view to full screen, and downloading a copy to your computer.

Front Cover Photo

City of San Francisco running on Bill Leider's beautiful layout.
Photo by Terrell Colson

Rear Cover Photo

Another view of the City of San Francisco running past a large refinery on Bill Leider's layout.
Photo by Glenn Guerra

Bill Of Lading

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The Model Railroad Resource, LLC publishes *[THE O SCALE RESOURCE](#)* and *[THE S SCALE RESOURCE](#)*. Be sure to look at both of our magazines. There are many articles in our magazines that are not scale specific and will be of interest to you. Click the magazine title in this announcement to see the magazine.

From the Publisher's Desk



As I write this, it's just your typical balmy 60 degree February day in Central Illinois. Ok, so that's not really typical, but I love the fact that all the windows in my house are open. The warm weather is a little early, but it is a reminder that Spring is coming, and with it, the Chicago O Scale Meet April 1-3, 2016. We hope to see our readers there, and are looking forward to once again hosting the model contest. Check out the rules [here](#), and download an entry form. If you've never entered a contest before, it's a great way to get some constructive criticism from unbiased judges. Plus, you might win a \$25.00 certificate entitling you to reimbursement from us when you purchase something from one of our advertisers. Who doesn't like the chance to win "free money"? Dan & I will also be hosting an open house and layout tour of The Richmond, Danville & Southern Railroad on Friday, April 1st here in Dwight, Illinois from Noon - 8:00 p.m. We are located right off I-55 about an hour (60 miles) south of the show which is being held at the Westin Lombard Yorktown Center in Lombard, Illinois. For directions, contact daniel@modelrailroadresource.com.

We recently returned from Massachusetts where we exhibited at the Amherst Railroad Hobby Show. If you've never attended this show, it's the largest multi-scale show of its kind in the country. While at the show, we tried to spread the word that there is something for everyone in both [The O Scale Resource](#) and [The S Scale Resource](#). Let's face it, scenery is scenery regardless of scale or track configuration. In this issue, we have a great article on the construction of a truss bridge by Mel Garelick – you don't even know it's for a third rail layout until the last photo!

We enjoyed meeting both old and new friends, advertisers and readers of the magazine, all the time passing out a lot of business cards and magnets (we had about 10 small boxes packed). At Midway Airport in Chicago, checked bags are screened behind the scenes before being loaded onto the plane. Imagine my surprise when I opened my checked bag while setting up at the show and saw the TSA search pamphlet! At least I was prepared for the search when flying out of Hartford, Connecticut where checked bags are screened in your presence before being loaded. If you weren't able to attend, we'll be passing them out again at upcoming shows not only in Lombard, Illinois, but also at O Scale West in Santa Clara, California.

I hope you're able to sit back and enjoy this issue where we visit Bill Leider's Union Pacific layout while looking at his interesting artistic background that lead him into model railroading. Dan gets back to his series of articles "Working with Older Brass Locomotives". Part 2 is featured in this issue, but don't worry, if you missed Part 1, you can find it in the [November/December 2015 issue](#). We've added a page in the back of this magazine (and will continue to do this in future issues) so you can click directly on a previous issue, and back issues are always available online. Don't forget to check the [Archived Index tab](#) on the website if you're looking for a specific technique or article. Glenn brings us Part 2 in a series of articles on scratch building fuel tanks in this magazine. Part 1 was in the [January/February 2016 issue](#).

I always enjoy meeting our readers, and if you can't attend a show, drop me a note letting me know what you think of the magazine to amy@modelrailroadresource.com. Better yet, send something for "On The Workbench", and we'll highlight it in a future issue.

Happy Reading & Happy Modeling,

Amy Dawdy

Moving Coal in O Scale

B.T.S. Laser-Created Kits!



Cabin Creek Coal Tipple

This is a freelanced tipple representing one where the mine is further up the hill. This tipple services three tracks. The power house and a small storage shed are included.

#14105 O Scale \$ 669.95



Mill Creek Coal & Coke Tipple No. 2

Tipple No. 2 is a freelanced composite of several different tipples located in West Virginia. The design has two tracks serviced under the tipple. There is room for a stub track if desired under the fixed chute on the back. Two narrow gauge (30") mine cars are included.

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NEWS YOU CAN USE



Tichy Train Group has released a series of O scale road signs. All signs are molded and printed in appropriate colors. Full descriptions and pictures are available on their [website](#). Small sampling below.



Keith Wiseman from [Wiseman Model Services Inc.](#) says he is now starting to produce Bill Roy's former line of O scale machinery kits. Many new molds are being made from the original master patterns as well to aid in production capabilities and to keep the kits available. The following kits are available now: O scale Drag Saw and O scale Willamette Straddle Lumber Carrier. Check their web site often for more new additions of kits and detail parts.

[Wasatch Model Company](#) is placing an order for the all brass casting 100-ton Barber S-2 Roller Bearing truck with 36" double-insulated stainless steel wheels. Truck is fully equalized with steel ball bearing journals for easy rolling and has rotating axle caps. Built and fully assembled in Korea for by OCS Micro-Casting using prototype drawings. Because of demand, they are going to import the 100-Ton Barber S-2 Roller Bearing Trucks in 5' gauge. If you want any of these trucks, please sent your reservation in NOW as production will depend of demand.



Also putting an order together for the following "O" Scale Passenger Car Trucks. All trucks have 0.145 NMRA Wheel Sets Ball Bearing Journals. Ordering the following trucks which are out of Stock: 61-UDO Trucks 2410 Heavyweight Trucks. If you want either of these trucks please reserve them NOW!



Rich Yoder says, “Here at [RY Models](#), I’m working on another classic car that is a must have on any steam-era/transition-era railroad. The Mather Stock Car Company from Chicago Ridge Illinois was a leasing company. They built and leased stock, box, refrigerator, and tank cars over a 75-year period. Three different boxcars and four stockcar types will be released. As with all my projects, a reservation is suggested to secure the cars you desire. Most projects are sold out before arriving. All reservations require a deposit.”



Berkshire Junction Model Railroad Supplies is selling their electronics parts group. This includes their line of great traffic lights, deluxe crossbucks sets along with circuitry, arc welding light, cozy campfire kit and more. They will continue to make their very popular EZ Line. [See their website for details.](#)



On a sad note, we lost another great modeler. The Neenah - Menasha (Wisconsin) Model Railroad Club is sorry to report to the rest of the O scale community the passing of one of our founding members, Stanley Bye. Some may remember or own one of Stanley's 50'

brass mill gondolas that were produced in the mid 1970's. Stanley was also one of the co-conspirators in the production of a very limited run of ARA 1920's era double sheathed boxcars of urethane castings sold at the West Lafayette, Indiana O Scale National in the mid 1980's.

This writer was introduced to Stanley 50 years ago when joining the Neenah - Menasha Model Railroad Club at age 14. Years of mentoring and road trips, train rides and operating sessions, and many a late night discussion of world problems and solutions were the result of that first meeting. For further information, here's a [link to his obituary.](#)

~ Wally Rogers



Jim Harper says, ‘I have been working on several new projects for my Red Cliffs Miniatures stuff, trying to offer things that are not available elsewhere, mostly things I want for myself first and then offer to the O Scale modelers.’



Non operating New Century Lighted stand



Non operational New Century Low Level Stand



Operating split rail derail, code 125. Code 100 also available in either right hand or left.

He hopes to have a lighted version of the operating switch stand in the very near future, as well as several other items. [See all the new items on Jim's website.](#) Also check out this [youtube video](#) of Jim Harper's Proto 48 Southern Pacific Railroad.



Blocks of ice, often harvested from local bodies of water were used to chill the ice boxes in homes and for business customers. Also used heavily for the fishing and produce industry. He has an ice tong in hand delivering his daily ice blocks.



Pump it up! How unique!! This worker is pumping up a tire. Comes finished in O scale, complete with tire pump and hose line. See these and all the other

great items at [Model Tech Studios LLC](#)

More great new products from [Model Tech Studios LLC](#). Do you have the Classic RR Icing Platform? Here is your dock worker skidding ice blocks to load your reefers! He has his ice hook in hand and comes complete with ice blocks as well! O Scale Figures come FINISHED for you.



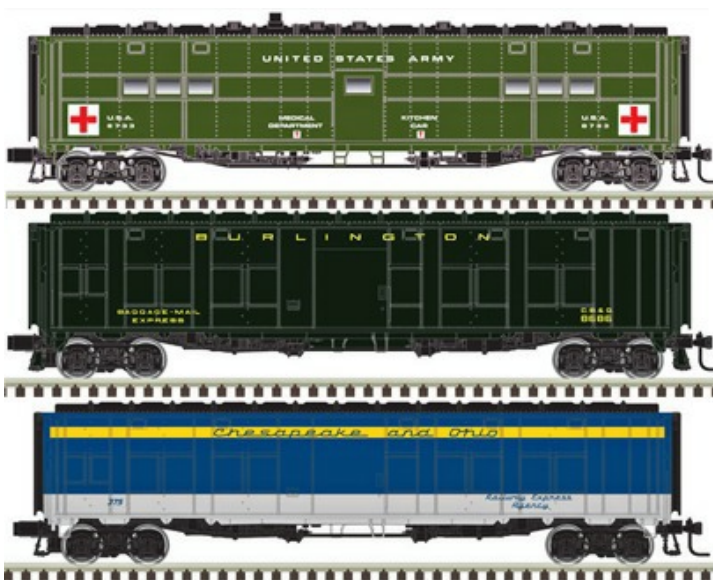
Size Approx. .300" Sq. .230" Thick

Dave from [LBR Enterprises LLC](#) has a new product. The NEW MINI Converters are now ready to order. These converters are about the size of your little fingernail, but can power up to fifteen (15) 20ma LEDs. Buy one for each of your buildings to power your internal LED lighting. Now you can upgrade your engine and tender units with LED marker lights and LED headlights, as well as, your cabooses & passenger cars. No need for a separate DC transformer or wall wart. You can run your LED lighting from your AC transformer (0-18 volts). Produced right here in the U.S.A.

New from Atlas O. Atlas O Trainman® 20' Containers should be here in March. Eight road numbers are available per road name. Each item number is a 2-pack, with two road numbers. MSRP for a 2-pack is \$24.95

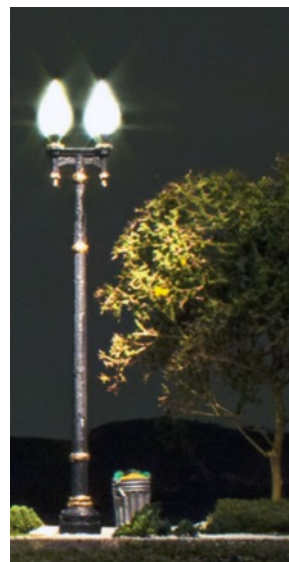


Atlas O has announced the first release from the Weaver tooling, Troop Series Cars. New features include Die Cast Floor With Underframe Details, Lighted Interior – Troop Sleeper, Troop Kitchen Car and Troop Hospital Car, Detailed Die-Cast Allied Full Cushion Trucks, Flush-Fitting Window Glazing, Rubber Diaphragms, 36” Radius (2-Rail). These are expected in the 2nd quarter of this year.



More samples and pricing available on the [Atlas O Website](http://AtlasO.com).

Woodland Scenics is announcing the newest addition to our **Just Plug™ Lighting System** in O scale. These lights require no wiring, cutting, or assembly to create the perfect ambiance for your model set.



The Just Plug Lighting System offers four different **Street Lights**: the Wooden Pole, the Double Lamp Post, the Lamp Post, and the Arched Cast Iron. The Wooden Pole includes the extension for a taller piece, if desired. There are also two different style **Wall Mount Lights**: the Gooseneck, and the Entry. The Street Lights can be added to streets, roads, sidewalks, parking lots, and train yards. You can also add Wall Mount Lights to buildings, billboards, signs, homes, or offices.

The O scale **Street Lights** include two Warm White LED Lights per package. The O scale **Wall Mount Lights** include two Warm White LED Lights per package.

All of the Just Plug Lighting System Lights come with a Light Hub and detachable plug for easy installation.



Street Lights -

JP5646 O Scale Wooden Pole MSRP \$24.99

O scale approximate footprint – 1.941 in w x 6.252 in h (49.3 mm w x 158.8 mm h)

O scale approximate footprint (includes extension piece) – 1.941 in w x 10.004 in h (49.3 mm w x 254.1 mm h)

JP5648 O Scale Double Lamp Post MSRP \$24.99

O scale approximate footprint – 0.866 in w x 5 in h (22 mm w x 127 mm h)

JP5649 O Scale Lamp Post MSRP \$24.99

O scale approximate footprint – 0.339 in w x 3.752 in h (8.6 mm w x 95.3 mm h)

JP5647 O Scale Arched Cast Iron MSRP \$24.99

O scale approximate footprint – 1.39 in w x 6.252 in h (35.3 mm w x 158.8 mm h)

Wall Mount Lights -

JP5662 O Scale Gooseneck MSRP \$14.99

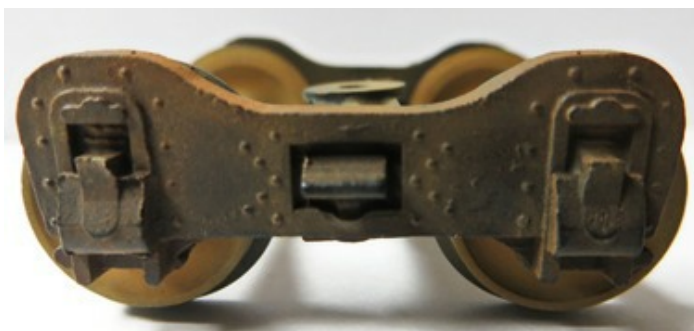
O scale approximate footprint - 0.874 in w x 0.52 in h (22.2 mm w x 13.2 mm h)

JP5663 O Scale Entry MSRP \$14.99

O scale approximate footprint – 0.295 in w x 0.457 in h (7.5 mm w x 11.6 mm h)

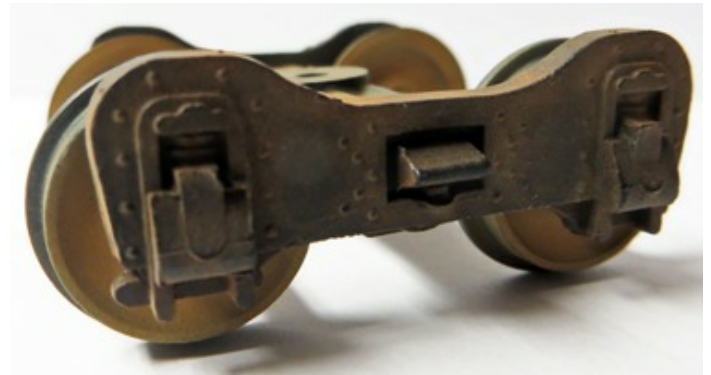
Purchase the **Just Plug Street & Wall Mount Lights** at your favorite hobby store. For more information, and to see other Just Plug Lighting Systems products, visit www.woodlandscenics.com

[Scale City Designs](http://www.scalecitydesigns.com) is pleased to announce the Re-Release of these fabulous Fox trucks. You can now have the correct trucks under your early freight cars!



The trucks will be supplied as an easy to assemble kit. The white metal castings are crisp and include a pre-installed brass bushings to make these excellent rollers with no wear to the sideframes. We are just

finishing the first run of these and should be shipping by mid-march 2016. You can preorder from our website scalecitydesigns.com or by phone 330-240-1419. Pre-order price will be \$20/pair including Intermountain wheel sets, or if you want the kit without wheels, just \$12 a pair! Best part is the castings are made right in Ohio!



We also would like to inform everyone we are finishing the stunning Utility Poles that John Keil designed. We are adding a few updates such as using an Oak pole, thinner gauge wire, and using LEDs. The utility poles and most signals should be available for the Chicago show!

[Click Here to see the Fox Trucks and pre-order.](#)



For more than 80 years, G.C. Murphy Co.™ connected people from all walks of life throughout the eastern and Midwestern United States. In beach and resort towns from Delaware to Florida, Murphy's stores offered vacationers a place to find inexpensive souvenirs and staple items like cosmetics. River Leaf Models is bringing to you this famous store to install on your Layout. This style building was used for many

other companies around the states, such as Ben Franklin, Woolworth, JJ Newberry and Worthington Hardware Stores. This is why River Leaf decided to give to our customers the option to choose the front sign for no extra charge. After deep research, River Leaf found this perfect size building to satisfy customers with limited layout space. With a very suitable size of 8.125" wide, 7.00" tall and 5.00" deep, this building offers you many possibilities. Contact us at www.riverleafmodels.us or call us at 561.374.4847.

Random Stone Wall Casting-Labstone #SMM9000
 Size: 7-1/2" wide x 6" tall x 3/8" thick. Molded from the original Thomas Yorke hand-carved 1986 Master, the multi-use casting have never been made available ... until now!

Judge how this wall will look with your scale by the look of the HO, O & Scale figures shown in the image.

From DEBENLLC Publications & Products, yet Another Brand New Product - Vertical Boiler & Water Tank Mini Scene Kit - All 11 pieces in the image included-NOT the figure. Remember the Short Line Freight Shed & Boiler Kit Scale Model in O Scale? Guess what? We've created an O Scale Mini Scene using the Vertical Boiler, a Steel Tank, Fire Wood and some iron piping. Scale Model Masterpieces Detail Parts are composed of unfinished/unassembled Resin, Wood, Plastic, and/or White Metal parts-Assembly & Finish Required. Assembly using most plastic cements and painting may be completed by hand or an air brush.

Ron Sebastian from Des Plaines Hobbies says, "We have a new product in our O Scale America line. It is OSA1059 Milled brass frame for the Lionel GP30. It is milled to accept the P&D drive. OSA1059 is \$60.00 each. In addition, we have done another rerun of OSA1055 milled brass frame for the Red Caboose GP9 also at \$60.00

Other new parts are OSA1056 etched stainless step and radiator screens for the Red Caboose GP9. A set for a complete locomotive is \$25.00.

Another new part is OSA1057 plastic bolsters (pair) at \$5.00. These were intended for use on brass passenger cars to insulate the body, but we have found users apply them to freight cars as well."



The Vertical Boiler & Water Tank Mini Scene includes everything shown in the above image EXCEPT the figure.

Bill Basden of Delta Models send us this: Now items of interest . Many new things are being worked on. to be release starting in 3/15/16

3/15/16 DM 275 one piece resin casting for for Pullman / ACF roof. can be used for Union Station and American Standard car kits. This is a special order item (4 piece minimum) .

4/15/16 DM 260-- 269 Castings for the Santa Fe Regal sleepers.

6 /15/16 These will be followed in June for castings for the Budd SF Pine series 10/6 sleepers. The 2 Santa Fe cars were imported by PRB (these parts will fit other models as well) .

May 5 -- 9 / 2016 we will be at O scale West for the big show.



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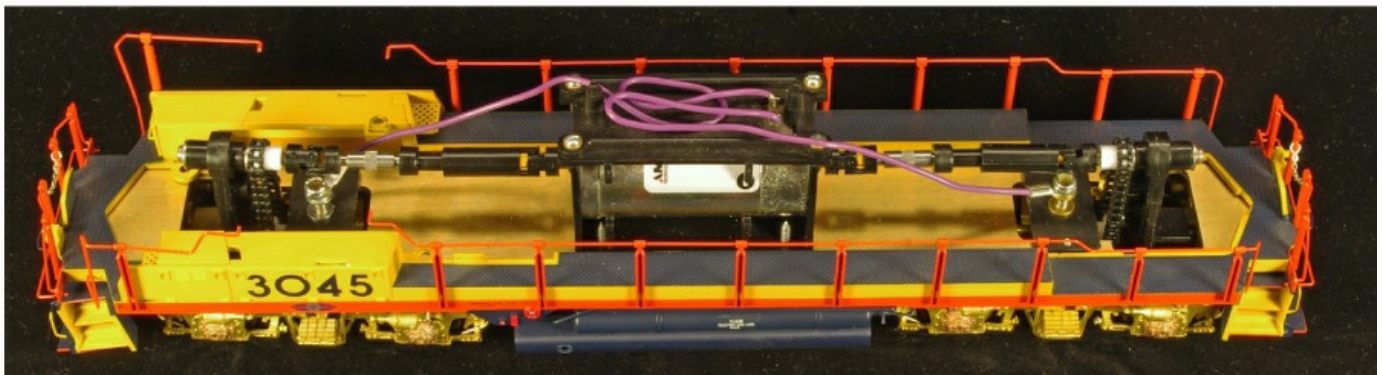
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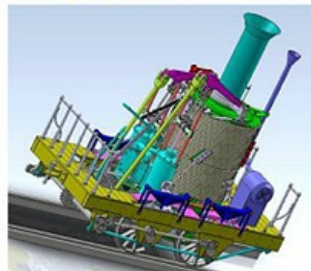
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Bill Leider

And His Union Pacific Layout



Bill Leider is setting the speed on his train while Dan takes it all in during our photo shoot. As you come down the stairs, this wall is the first view of the layout you have and is on your left.

By Glenn Guerra

We are going to visit with Bill Leider and see his layout this month, but before we get there let's meet Bill, his background is interesting. He has a background in mechanical engineering and electrical engineering, as well as, going to classes at the Art Institute in Chicago when he was in High School. So, you would assume he is an engineer. Well, it didn't start out that way; or should I say it started that way, but did not stay that way for long. After a stint in the Air Force working with electronic countermeasures, Bill went to work for Hallicrafters as an engineer. He left there and worked in commercial art for 25 years. You will be able to see the commercial art influence in the back drops and other color details on Bill's layout. Even though he did not work there anymore, Bill stayed in touch with one of the people from Hallicrafters. When Hallicrafters was bought by Northrop Grumman, they needed an engineer who could help with the design of new products, and primarily, how they looked. Bill's old friend from Hallicrafters called him up to see if he was interested. As it turned out, they wanted someone who could present the ideas. So, Bill left the commercial art world and went back to engineering. Bill worked on electronic countermeasures equipment which was what he did in the Air Force. This equipment is for jamming other people's signals so they can not see you on radar and requires an operator in your plane. The visual look of the equipment is important so the operator can work it quickly, and that is where Bill came in. He worked on the look of the equipment, and as a bonus, was able to make renderings so others could see and discuss how it looked. This is where the commercial art background came in. While at Grumman, Bill had his office decorated with train photos and other railroad items. They did other work besides military work in his building, and he told me that people would come to his office and see the trains, they would think they were in the wrong department. They expected to see pictures of airplanes that Bill was helping design equipment for.



Going around the basement in a clockwise way, the next wall has the Ogden, Utah depot on it. Bill focused on the scene as if you were standing in the depot. All you would see is the depot. This worked well with the large size of O Scale rather than trying to model part of the town.

Bill started out with HO scale models when he was 9 years old. He grew up in the Chicago area, and the railroads around Chicago were always of interest to him. His grandfather worked for the Chicago and Northwestern, and Bill traveled with him on some train trips. While working as a commercial artist, he met Gus Margaritas. Gus was an O Scale modeler. I should mention at this time that the art studio was in Chicago and Bill would ride the Chicago and Northwestern commuter train in from Des Plaines, Illinois to Chicago. The walk from the train to the studio took Bill right past the All Nation Hobby Shop. A stop at the store after work each day became normal. Soon Bill and the owner Bob Colson were acquaintances.



Ogden, Utah is on the back wall, and Pocatello, Idaho is on the wall to the right in this photo. The basement was to be used for entertaining, and you can see the open space in the middle of the room. By only modeling a few select items for scenery, Bill was able to create the depot scene and ice house that can actually accommodate the long trains.



On vacations to Utah and Idaho, Bill would take a lot of photos for reference. Here is a vista that he photographed and then painted as his backdrop. The layout is less than 12" deep here but the backdrop goes on forever.



The line side details on the layout really add to the scenes. The signal box was made by Keil Line. All the telegraph poles have lines on them. The Keil Line products are again available through Scale City Designs.



There is a refinery in Ogden, Utah, and Bill took photos of it on his trips to the area so he could make a model on his layout. The bottom photo is one of the photos he took. A friend of Bill's works in refineries and helped him get some of the details right and explain what all the piping was for. Bill's model, while quite compressed, captures the feel of a refinery. Less size and more detail usually works.



This is the Ogden, Utah depot on Bill's layout. By keeping the scene focused on the depot area, Bill was able to give you the feel that you are standing in the depot grounds.



On his trips to the area, Bill would take many photographs for reference. Then he built the models based on his photographs. This is one of the entrances to the Ogden, Utah depot. The two large depot buildings were made from 1/8" Masonite hardboard for the core. They are covered with Holgate and Reynolds brick paper. Many of the stone details were cast from masters Bill made.



Bill saw this grain elevator in Idaho and photographed it. This is his model of the elevator. The details, like power lines and weeds, add a lot to the model scene.



Bill photographed this old depot on one of his trips, and made a model of it when it was still in use. Again, the use of details like power line poles and wires, add a lot of interest to the scene.



This is Pocatello, Idaho. Again, Bill modeled only the area around the depot. The F unit diesels off in the distance look just like they would if you were standing looking at the same scene in person. By modeling less, Bill was able to create great distance when viewing the layout.



This was Bill's first scratch built locomotive. He took evening adult education classes at Main East High School in Mt. Prospect, Illinois so he could use the metal working equipment. He did this for many years, along with some other model railroaders. The classes became a model railroad club for them. On days when the teacher could not be there, Bill became the impromptu teacher to watch over things.



Bill patterned his roundhouse after the one in Laramie, Wyoming. He had to make less stalls on his model, but otherwise the details match the one in Laramie. He made a pattern for the doors, and John Keil cast them for him. Keil-Line has been sold and is now available under the Scale City Designs name.



The CB&Q 0-8-0 was Bill's second scratch built locomotive. Bill had talked to Bernard Corbin on the phone, and he supplied a lot of information to Bill for these models. The 0-8-0 won the grand prize at an NMRA national convention. Since he had a locomotive, he needed a caboose to go with it, so he scratch built one.



At this location, the train is going around a corner of the basement. The backdrop is curved so there are no sharp corners. The wall starts right behind the depot building, but you need to look very close to see where.



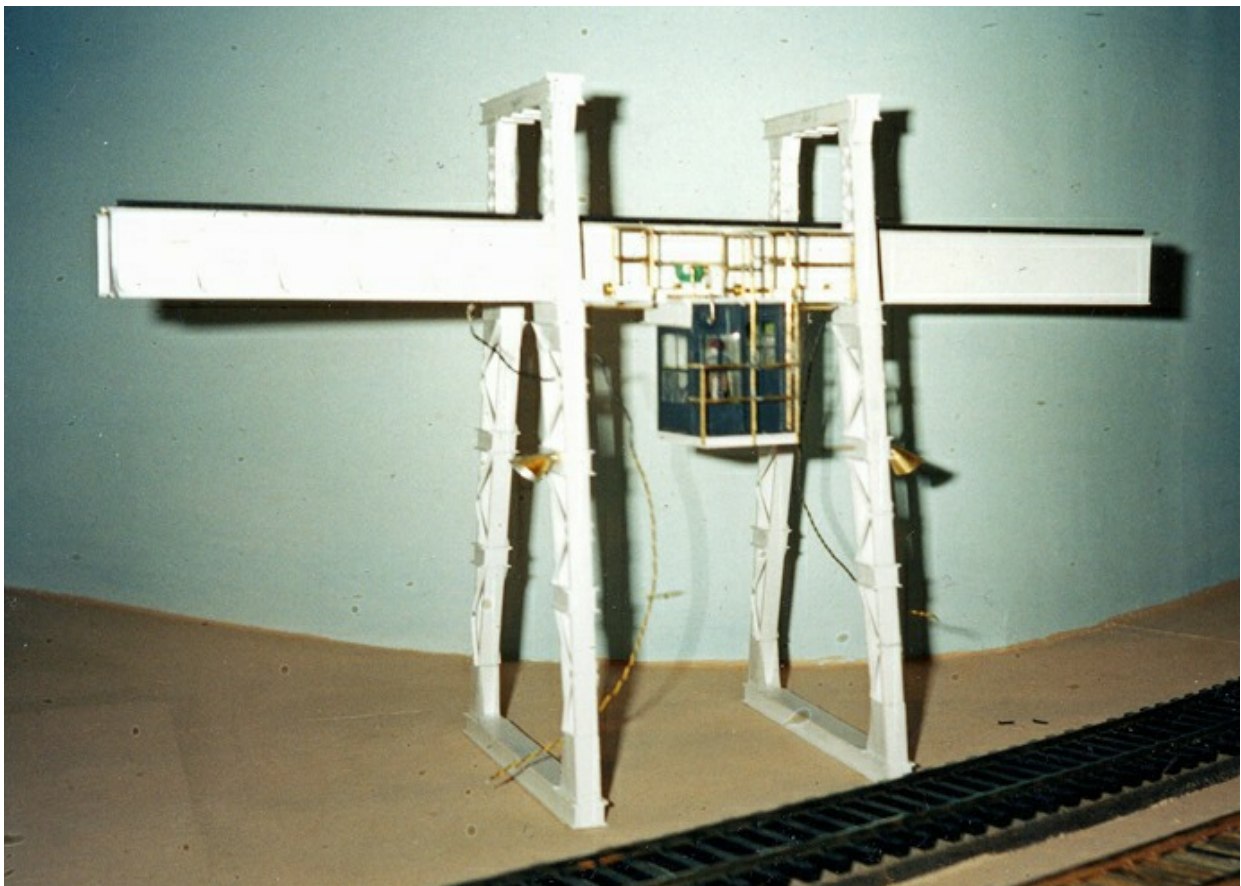
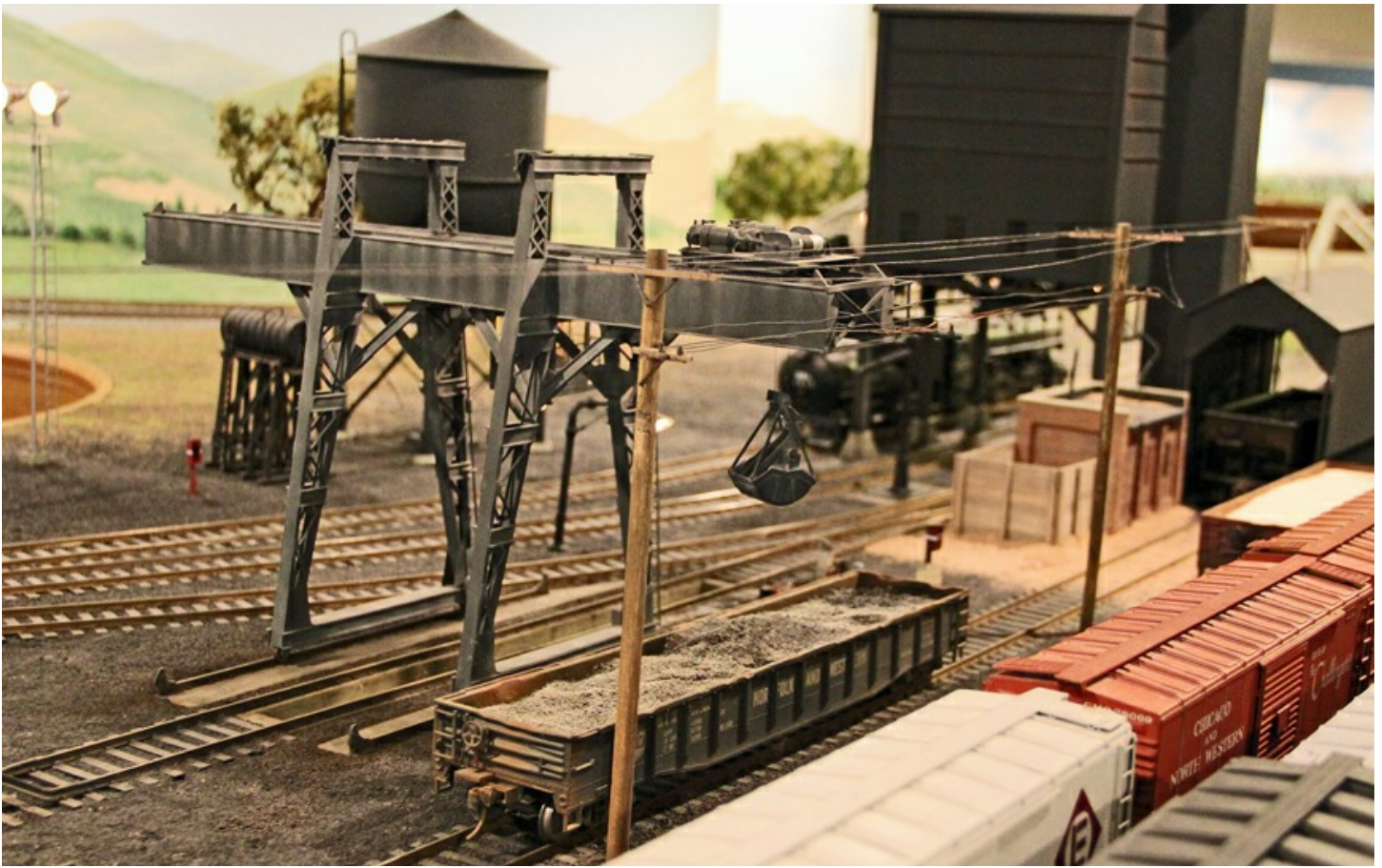
Bill made this branch line combine after reading about them in the Union Pacific Historical Society magazine. The cars were rebuilt from coaches for branch line service. Notice the small window near the right hand vestibule. That was where the conductor had his desk. These cars were used in mixed train service and the conductor needed to be able to handle waybills.



This view looks down the leads to the locomotive servicing facilities. Again, Bill chose to model small parts of the scene in large size and it works well. The coal dock is a model of the one at Pocatello, Idaho.



Bill collected information for this model of a Chicago and Northwestern class H-1 for 40 years and spent 19 of those building it. Bill went to Omaha with his grandfather who worked for the C&NW. An H pulled the train they were on, and his grandfather took him to see the engine. Bill acquired blueprints from the C&NW as a starting place for making the model. The cooling fins on the air lines are all individual fins that Bill had etched out. Then, he strung them on wire for the radiator fins. The dog bolts on the smoke box door have five pieces in each one. Bill scratch built the dual check valves, and they have around 70 parts in the check valve. Every part of this model is built to that kind of detail. This was all done while going to night school to use the machinery. The domes are made from solid brass. Bill milled the curve where it sat on the boiler then filed them to shape. Suitable tender trucks are not available, so Bill scratch built them as well. The trucks have coil and leaf springs in them. This was all done before computer driven machines, and while going to night school. Bill said it took 7½ years to make the drivers and 2½ years to make the trailing truck. The main chassis is fully equalized. The turntable is a model of a Rand McNally design that was used in Laramie, Wyoming.



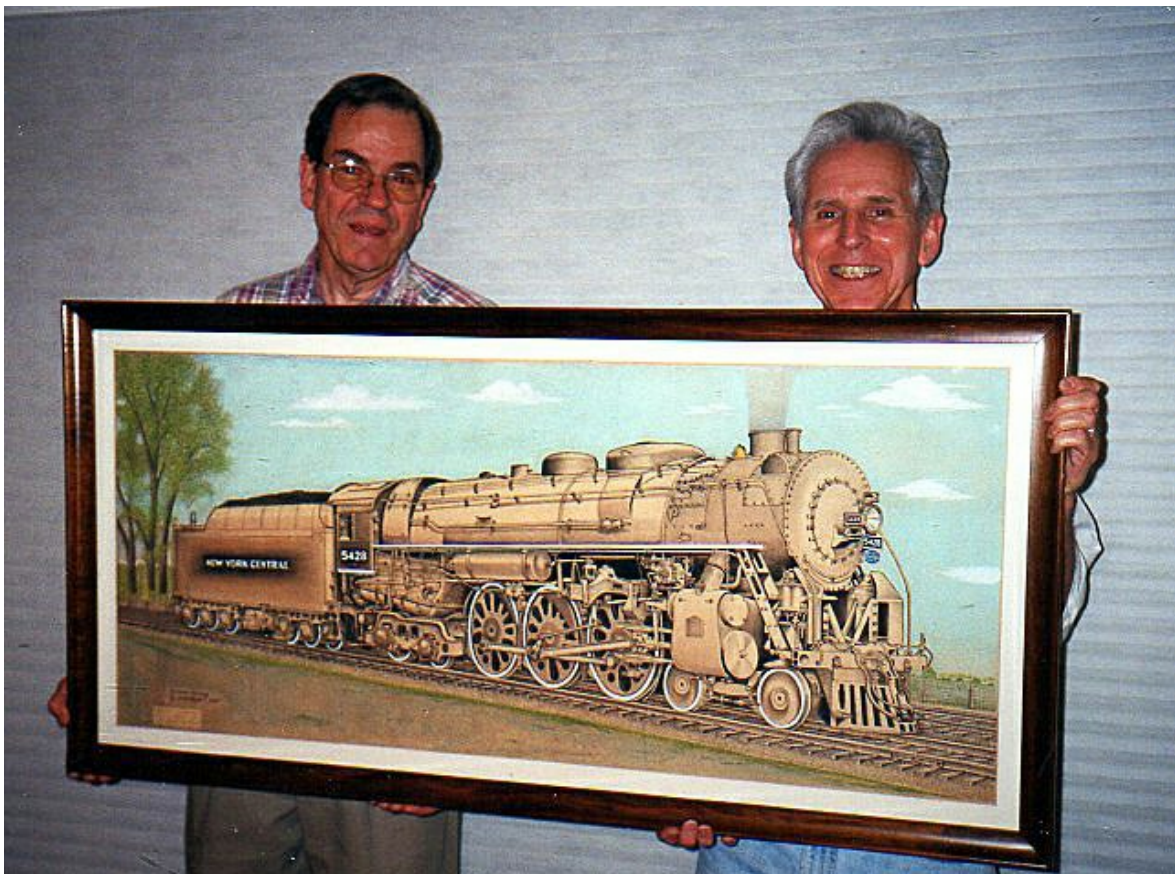
Bill made a model of this gantry cinder hoist was used by the Union Pacific in Ogden, Utah. The bottom photo shows the model as he was building it out of styrene.



The top photo shows Bill at work on the roundhouse model. The lower photo shows the interior of the Pocatello depot. There is just enough detail around the windows to give the impression that the building is occupied.



Bill painting one of the backdrops. This is the entrance way to the ice house at Pocatello.



Bill does paintings as well, and here he and Mike Hill are holding up a painting Bill did for Mike.



Bill holding a painting he did of the C&NW H-1.

Around 1960, Bill started taking adult education classes at Main East High School in Mt. Prospect, Illinois when these types of programs were offered by schools. Bill enrolled in the shop classes. At one time, high schools actually taught people trades and had fully equipped shops. Many modelers would take these classes to have access to the machinery. Bill did this for 30 years. He joked when telling me the story, and said that he had so many graduation certificates that he wallpapered his daughter's room with them. Bill was not the only model railroader doing this – there were nine others. Bill remembered that Russell Priester, Elmer Passau, Mike Bechert and his dad, and Jim Kehrein were some of the others. At this time, Gus Margaritas acquired a US Hobbies Erie K5 pacific. Bill and Gus started looking it over and found that the boiler and driver size, as well as the wheel base, were the same as a Chicago and Northwestern 2900 class E2 pacific. You know what happened next – the decision to build one. This is what started Bill in O Scale. He and Gus reworked the model into the C&NW locomotive Gus wanted. This taught Bill a lot, and with what he was learning at night school, he was ready to scratch build his own model.

In the mid 1960's, Bill started a model of the Union Pacific #844. Gus was a big Union Pacific fan, and he was bringing Bill into the fold. The next model

Bill scratch built was a Chicago Burlington and Quincy 0-8-0. Bill talked to Bernard Corbin at this time and was able to get a lot of information from him. Remember the stops at All Nation? Bill would stop after work to get parts. For this model, he used drivers that were machined and assembled by Henry Pierce in Michigan. The model won the grand prize at an NMRA national one year. Since he had a locomotive, he needed a caboose to go with it, so he scratch built one. Bernard Corbin helped with information for this project also.

Up to now Bill was living in Des Plaines, Illinois. He had a layout that belonged to Don Walter. When Don moved, Bill acquired the layout, setting set up at the house in Des Plaines. He could run his model on that layout. Around 1990, Bill moved to Carol Stream, Illinois and started the present layout.

Bill uses Atlas flex track, and hand paints the ties with acrylic paints. The effect is quite nice, don't you think?



Bill's wife liked to entertain a lot so they decided to build the basement into an entertainment room. The train layout would be on cabinets around the walls. Bill said they had the main line loop completed in a year allowing him to run the trains.

This is a good time to get back to Gus. Remember Gus was a Union Pacific fan and was drawing Bill into his fondness of the Union Pacific. On vacations, Bill would fly out west, rent a car and drive around to see the Union Pacific. He became fascinated with the line from Ogden, Utah to Portland, Oregon. On these trips, Bill would take lots of photos for reference later. Bill decided to model some of this line. So now that we know how Bill got interested in what he is doing, let's talk about the layout.

When planing a model railroad, there are many things to consider. Some of them are operation and scenery. In considering operation, sidings and industry are important. You need to have places for cars to come from and go to. This can take up space. Many time industries and stations are only small examples of what the actual buildings would be. Scenery is another concern. You can have city or country, but the transition from one to the other is always a problem. The larger size of

O Scale makes some of the concerns something to consider. Bill wanted to model the time around June, 1950. This meant all the passenger trains were still running. A seven car passenger train with two diesel locomotives is around 18' long. Bill made each wall of the basement a different scene. On one wall, he modeled the Ogden, Utah depot almost full size. Look at the photos and you will see that the depot can take the full seven car train. It looks great – like the scenes around a real depot would be. The lone sleeping car in the depot house track looks small. It mimics the how the real scene would look if you were standing on the platform. This is one of the areas where Bill's artistic look at things shines through.

As you leave Pocatello, Idaho you go around the roundhouse area and head into the country. Bill painted all the backdrops for the layout. Many of the scenes are actual vistas that Bill photographed along the Union Pacific. Even though the layout is on a 15" shelf, the vistas go on forever just as if you were standing track side. The layout ducks under the stairs and comes out on the third wall. Again, the vistas are spectacular. Upon rounding the corner, the train pulls into the Ogden, Utah depot. This depot again occupies the whole wall. The layout is designed for the train watcher, giving the impression of the wide open spaces and the large depots that were division points on the railroad.



If you see this guy at the Chicago O Scale Show, tell him you saw his layout in The O Scale Resource.

Scratch Building A Fuel Tank Pt 2

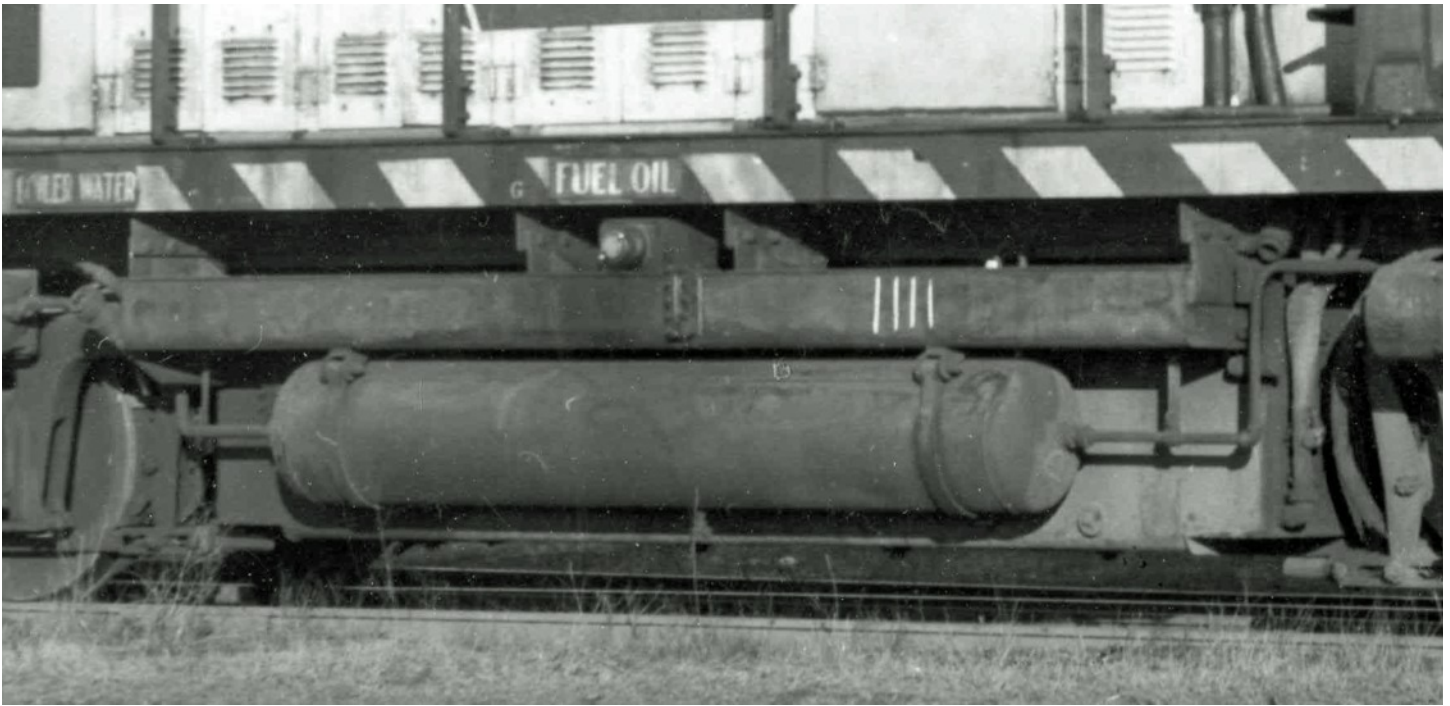


By Glenn Guerra

In the January February issue of *THE O SCALE RESOURCE*, I started a three part article on building a fuel tank for my nephew's Weaver ALCO RS 3 model. The model I wanted to make had a non standard fuel tank; and the one that came with the Weaver model did not match what I wanted. I decided to scratch build what I wanted. There are many ways this could be done, and I decided to make it out of brass. This was a personal choice mostly driven by my wanting to learn how to work in brass. This tank could have been made from styrene also. [In Part 1](#), I built the main tank.

When making a model, there are many things that need to be decided regarding dimensions and construction. In this series of articles, I am explaining how I decided to do what I did, and how it worked. If I showed you the steps and said do this, it would be like following a recipe in a cookbook. The cake would always come out the same, but that is all you would ever have. By trying to understand what is going on with the ingredients in the recipe, you can make some modifications giving you an unlimited variety of cakes. The same goes for building models. By understanding your materials and the limitations of what you are doing, you will be able to apply that to other projects and be able to make anything. In addition, by my going through some of the thought process, I hope to show how I arrived at my way of solving the problem. By thinking through the problem yourself, you will come up with ways that work better for you. The first step is to understand the problem and what you have to work with. Like the cake, understand the materials and tools you have to work with. This will allow you to come up with something that works.

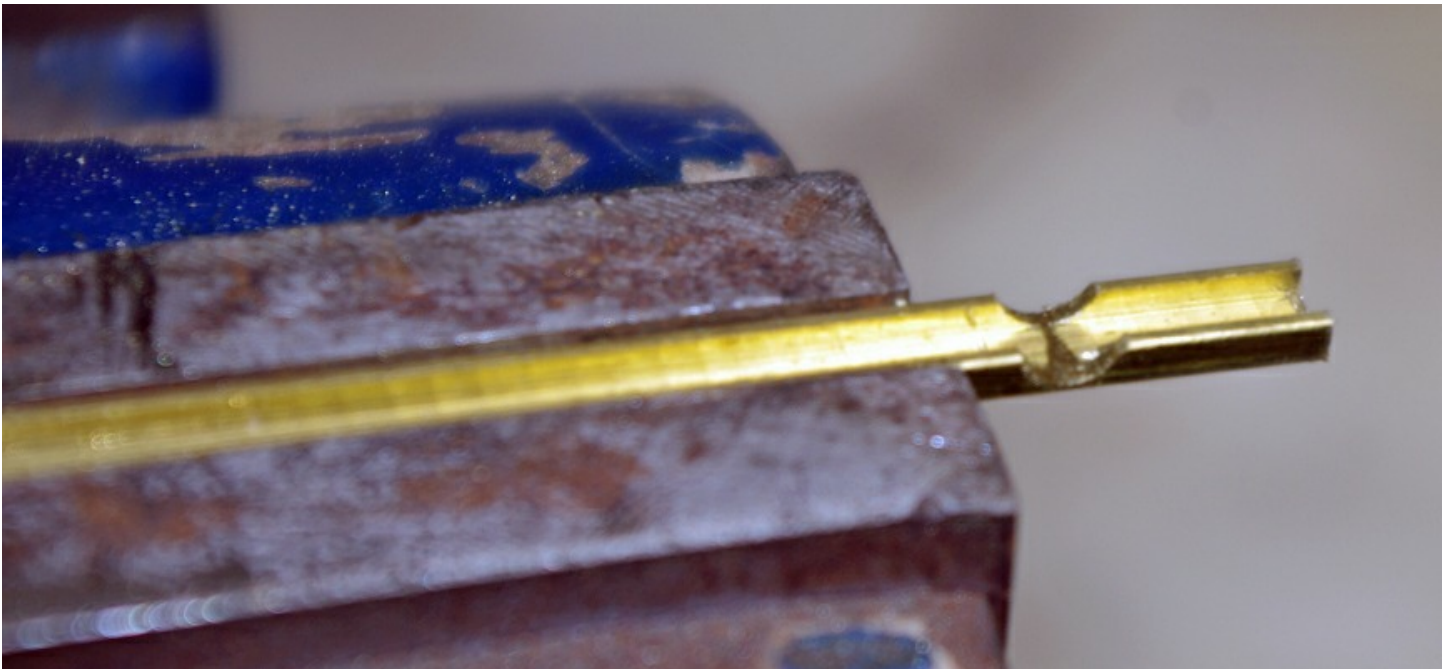
Part 1 of this series was done as photos with explanations so I will do the same here. I think that worked well, keeping what was being said with the photo so you could see what I was talking about. In this article, I will install the two long rectangular fuel oil tanks and make the air tanks. I will also install the air tanks. I will put the details on in Part 3 of this series. So, with all that being said, let's see what I did. Some of it worked, while some could have been better.



In the top photo, you can see that the rectangular fuel oil tank is hanging from some frame members. It also looks like the tank is bolted to these frame members so it can be removed. I decided to attach the frame members to the fuel tank assembly, rather than the frame of the model. By doing this, I could have everything attached to one assembly that could be removed from the model. I guessed that the frame pieces on the prototype were about 1" thick, so I would make mine .020" thick. I tried some .020" x .187" brass and soldered it to the tank. The problem I had was that there was not enough surface area between the tank and my frame member to have any strength in the joint. I thought about bending over a small piece of the frame member to get more solder surface for joint strength. I didn't care for the idea, although in retrospect, it may have been a better way than what I did. I could have bent two "U" shaped pieces of brass and had one piece create two frame members. However, I used a piece of .187" brass channel as shown. Once I had my tank clamped to my work table, I used the square and drew a line perpendicular to the tank for reference. This allowed me to keep the new frame member perpendicular to the tank.



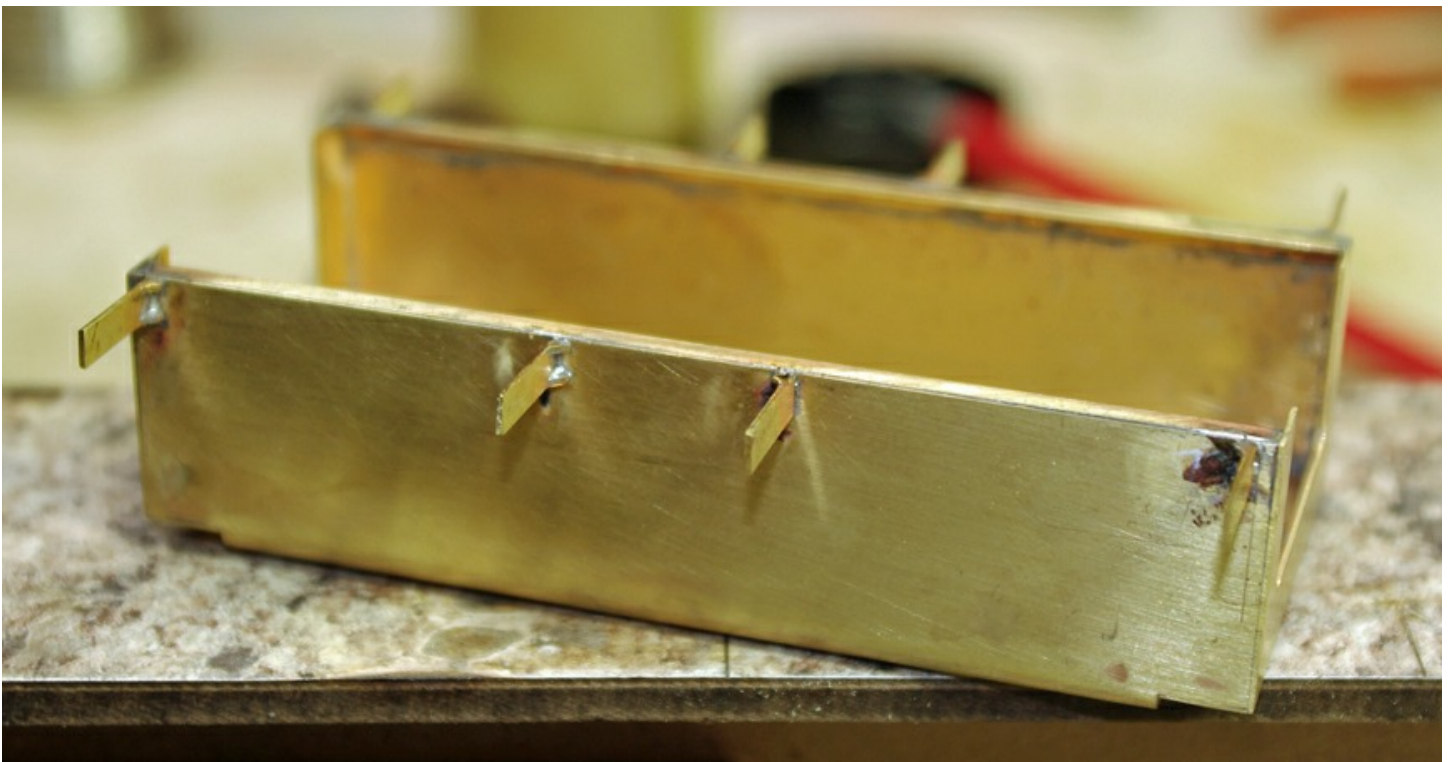
My perpendicular line idea was good in theory, but not too good in practice. I resorted to a small piece of countertop laminate that I carefully filed square. You can see it under the clamp. This worked better, allowing me to hold the frame piece tight to the laminate while I soldered it in place.



After I had my channels soldered to one side of the tank, I held it up to the model frame. It did not look good at all. Clearly the frame members on the prototype are plate stock and not channels. You could definitely see that my model parts were channels. My next thought was to just grind away the flanges on the ends of the channels. After a few of them fell off while grinding, I decided to take them all off and start again. What I liked about the channel was the contact surface for the solder joint. I would file away only part of the flange. That way I could keep the flanges for the solder joint and have the plate effect where you saw it on the model. The first step was to file a notch in the channel with a round file as shown. I scratched some reference marks in the brass with my dividers and held the channel in the vise as shown. This worked well.



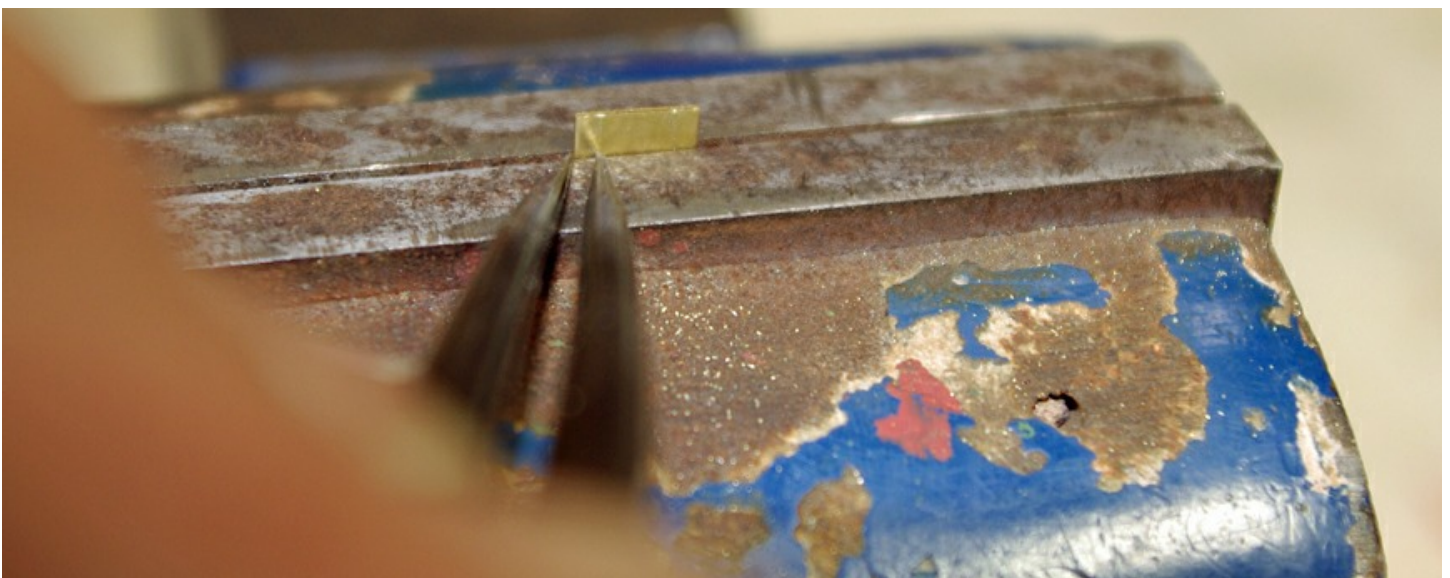
After I had the round notch filed, I needed to file off the flanges. This was a task trying to hold the brass in one hand while controlling the file with the other. I needed to have the brass on a flat surface and be able to hold it tight enough to apply some pressure to the file. This is what I came up with. I clamped a 6" steel scale in the vise as a back stop. I did a lot of this in wood working when I needed to hold a piece while I was hand planing it. With this set up, a little pressure from my left hand held the brass snug, and I was able to apply some pressure to the file with my right hand. Make sure to set the brass just off of the steel scale or you will file a notch in the scale.



Here is what my finished tank looked like with the frame members soldered on. In retrospect, this was the hard way to do this. I should have bent up four "U" shaped pieces of .020" X .187" brass so I had two frame members in one piece of brass. The part of this assembly where these frame pieces meet the fuel tank is hardly visible on the model. That would have given me a lot of surface for the solder joint and much simpler construction. Anyway, this is how I did it, and maybe the back stop idea for the filing will come in handy on some other project.



When I started making sketches and getting dimensions for this project, I decided to use rectangle brass tube for the fuel oil tank. I could not accurately come up with the actual dimension of the prototype from just the photo, and I did not want to make a rectangle tank from scratch. I clamped the tube in the vise as shown and tinned the edge. Then, I soldered an end on. Leave the end big when you cut it. File it to the size of the tank when it is soldered on the tank. I knew there was going to be a lot of other soldering going on in this area so I used a tin silver solder. You can see on the roll where I get it from. This is 96% tin and 4% silver. It is also available at any hardware store as lead free solder. The solder I have here is only .020" in diameter, and that you can't get at the hardware store, so look up Stan Rubinstein and Associates on the web. This solder melts at around 450 degrees and your normal tin lead solder melts at around 350 degrees. The extra 100 degrees will help later on.



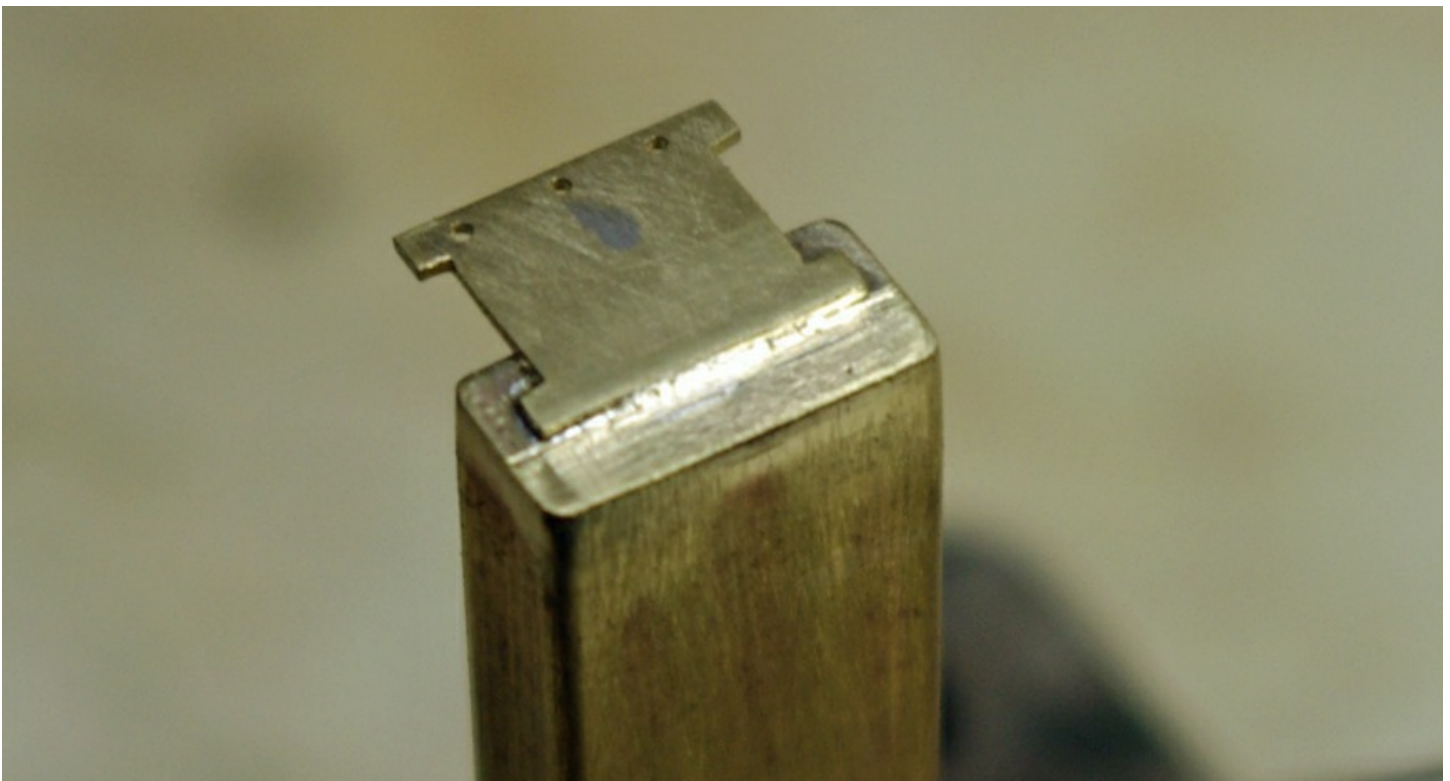
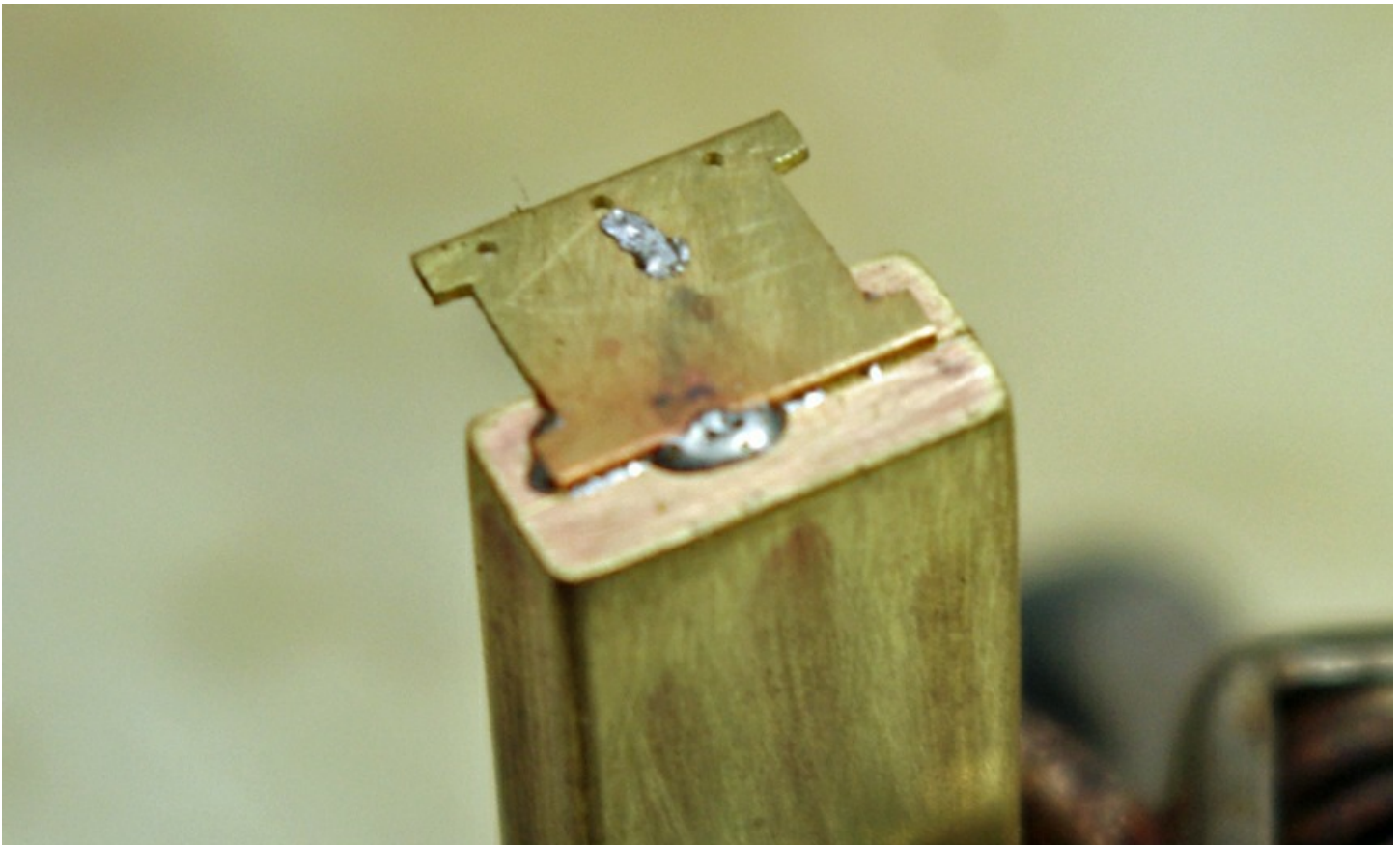
The fuel oil tank holders looked like they had some notches in them, and I decided to file these in. Here, I am laying out my lines on the brass using the dividers. These are really handy and will work on any material. Once you set them, it is easy to scratch layout lines on things. Besides layout lines, I use them to scratch reference lines in things.



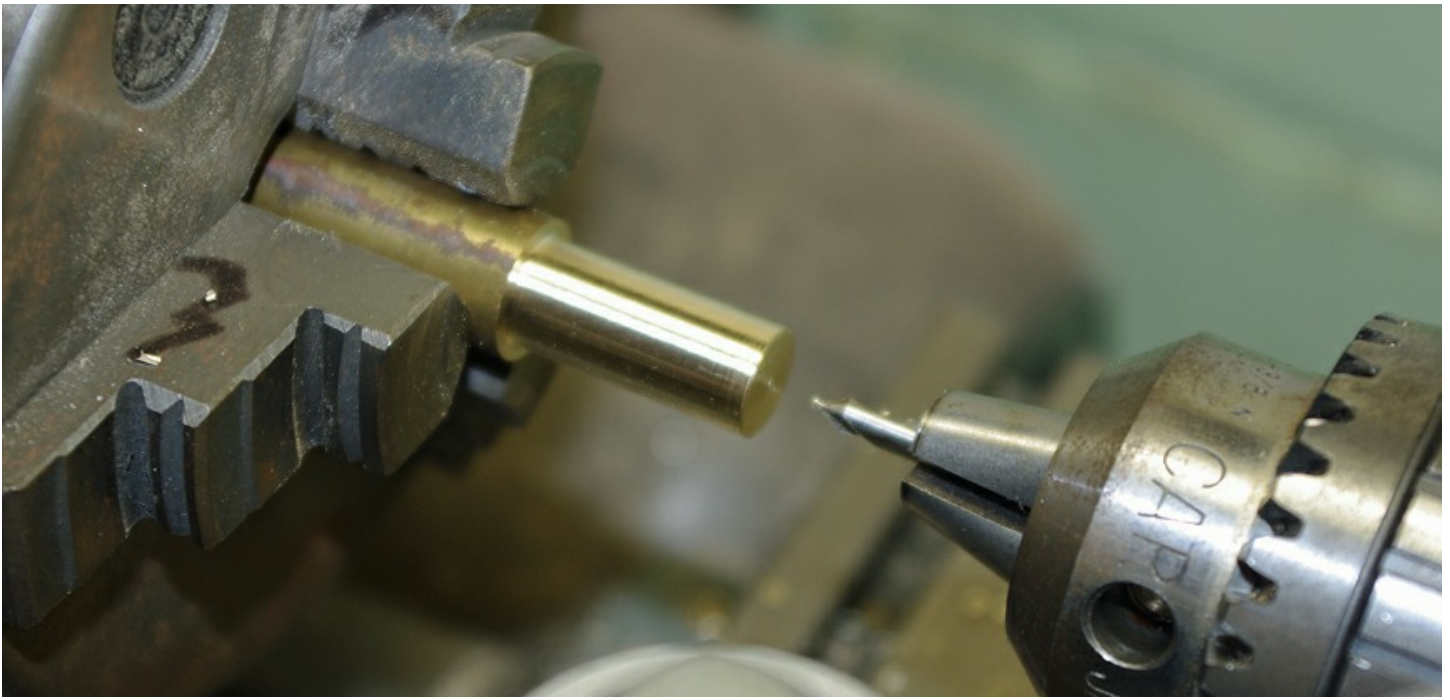
These are my fuel oil tank hangers. The one on the left is a blank, and the one on the right is a finished one. If you zoom in on the photo, you will be able to see the scratch marks for the layout. On the left are my dividers. These are Starrett dividers, and only cost around \$40. I just acquired them in the last few years and use them a lot. Consider getting some for yourself. I drilled the holes with the pin vice and a #79 drill. I was going to put Scale Hardware nut bolt washer detail in them later. These details are actually machined on a screw machine and are very nice looking. They are pricey, but I like the way they look.



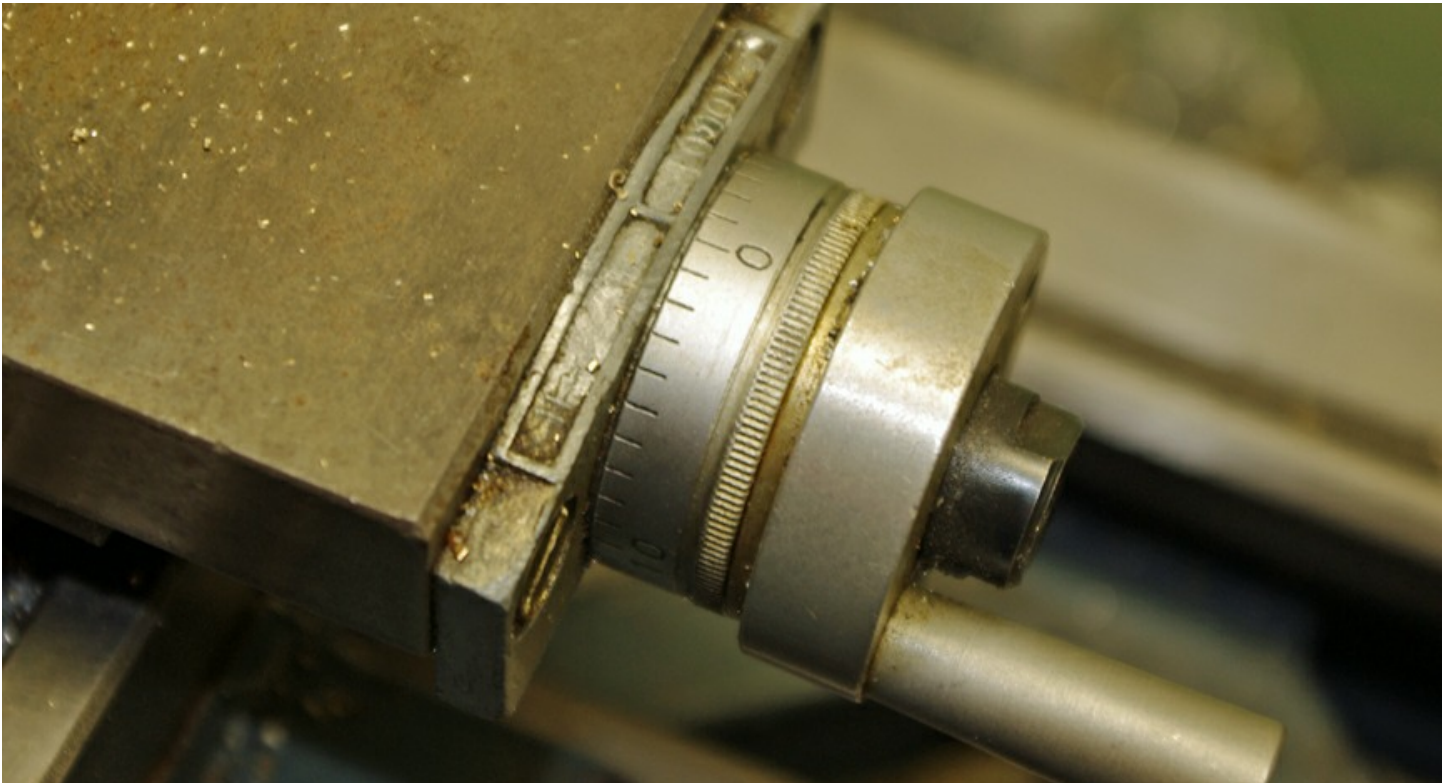
I used the dividers to scratch a reference line on the fuel oil tank end. Then, I tinned the hanger and held it in place as shown. I applied the heat with a resistance probe, but you could also use an iron. For solder, I went back to the tin lead solder that melts at 100 degrees less than the solder I used to hold the tank end on. That extra 100 degrees allowed me to get good solder flow on the hanger without having the end of the fuel oil tank come off.



These two photos are the ones you seldom see. In the top photo, I had a little solder come out from under the tank hanger. As you do more soldering, you will get less of this, but it will always happen a little. This is not the end of your project. The tin lead solder is soft enough that it can be whittled or chiseled away with a hobby knife. After a few licks with a file and it looks fine. Don't ever think that nobody else has this happen, so don't give up.



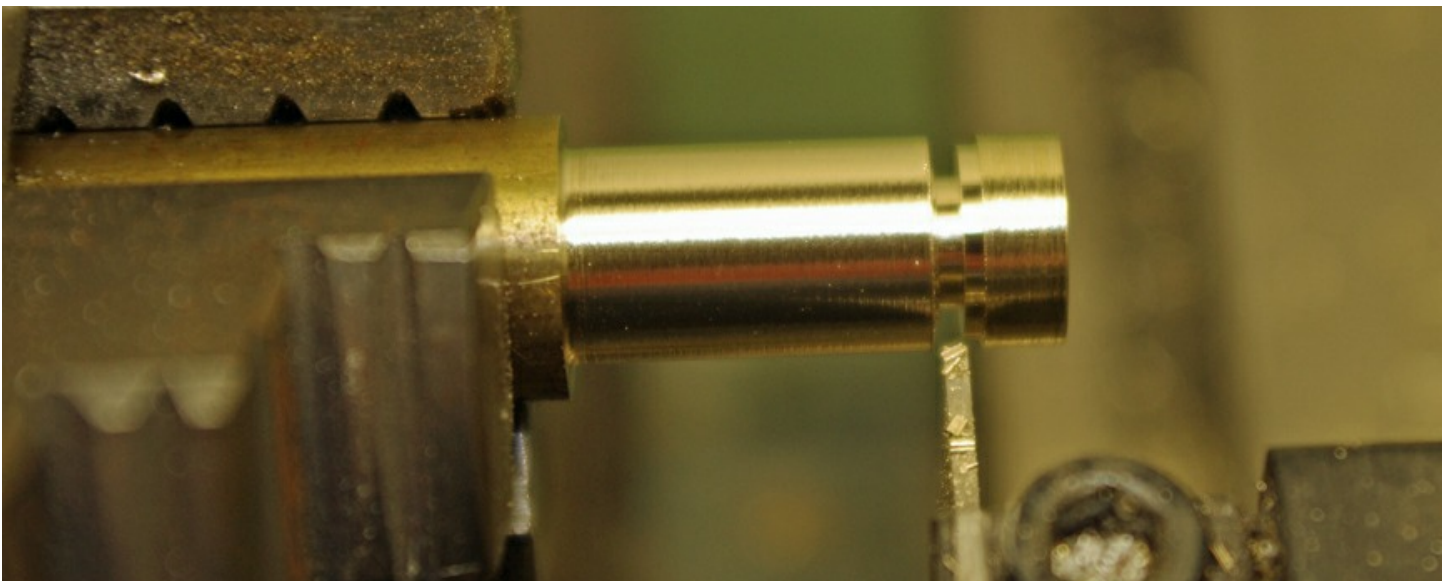
Here I am making the air tank ends in my lathe. You could use cast air tank ends that go on brass tube, but I decided to make my own. The first operation was to turn the outside diameter. I made this .010" larger than the brass tubing I was using. This would give me material to remove to make the end flush with the tube later. After I had the out side diameter correct, I used a spotting drill to spot a hole on the end where the air line would go later.



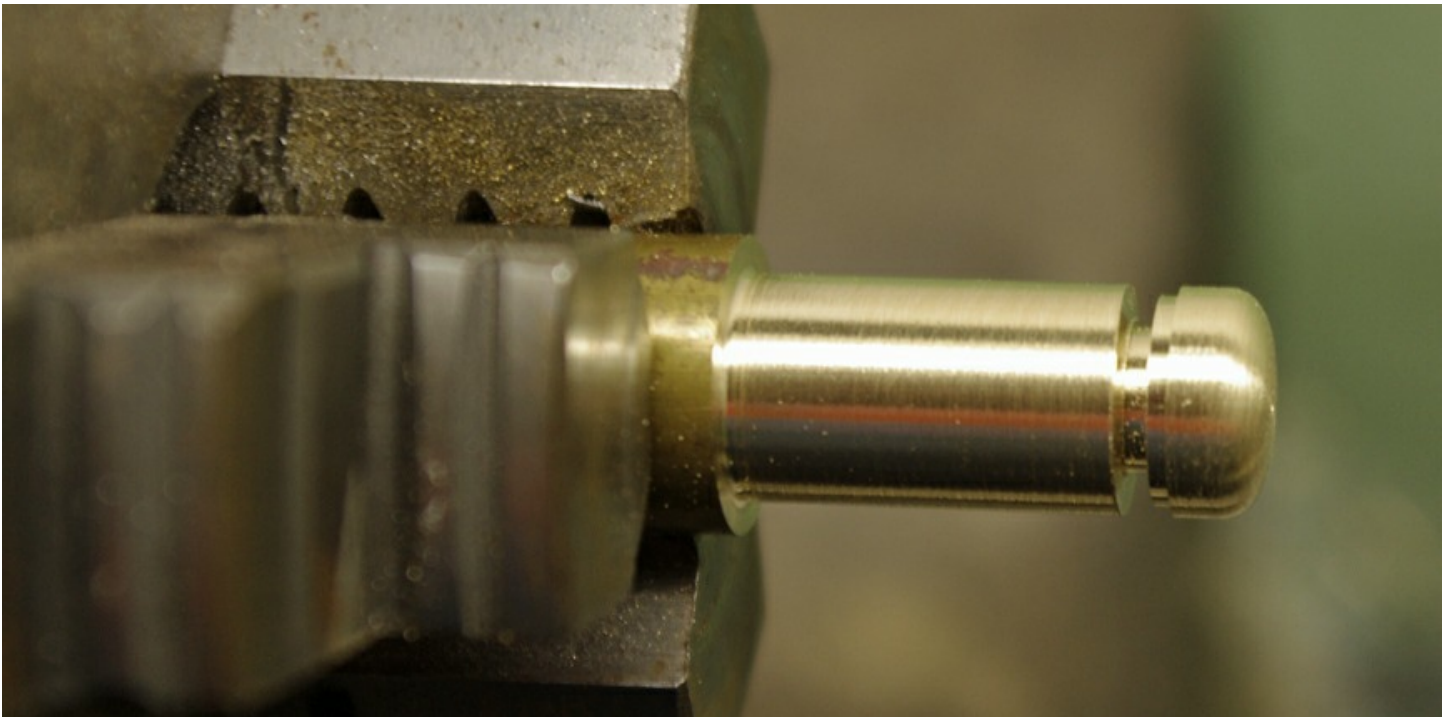
I wanted all the air tank ends to be the same, so I needed to cut them all off the same length. The way I did it was to use the compound on the lathe. Back it off and then run it up to 0 as shown. With machine tools, you always want to start up tight on the feed screw. In this case, my next location will be by screwing the dial clockwise. I started by screwing the dial clockwise to get to 0. I am now up tight on the feed screw.



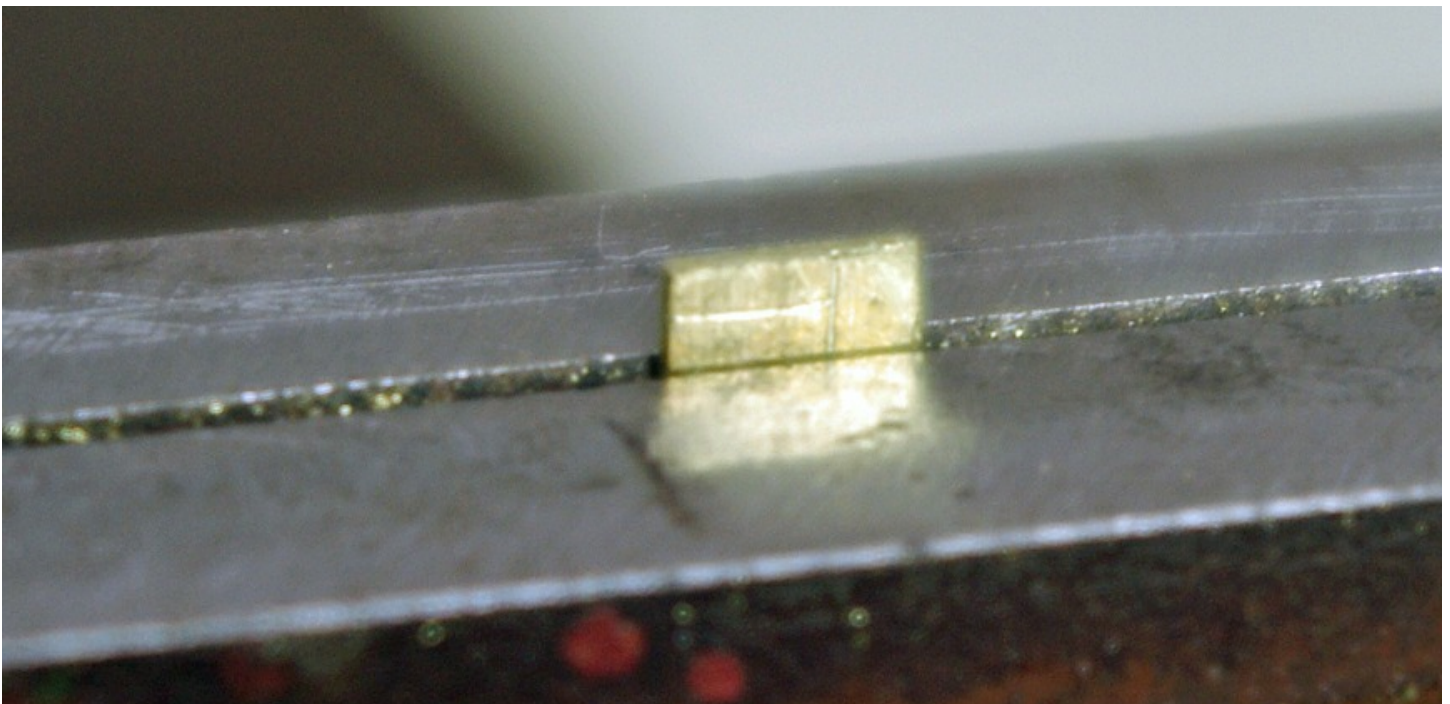
With the compound set to zero, I moved the whole carriage on the lathe until my cut off tool just touched the end of the material as shown. Go easy and use a magnifying glass to see when you just touch. Now you need to get your calculator out. My cut off tool is .045" wide, and I want the end of my air tank to be .156" long. Right now, the dial on my compound is showing where the left side of the cut off tool is, and I want to know where the right side is. If I add .045" and .156" I will get .201". That is how far I want to advance the compound so the right side of the cut off tool will be .156" from the end of the blank.



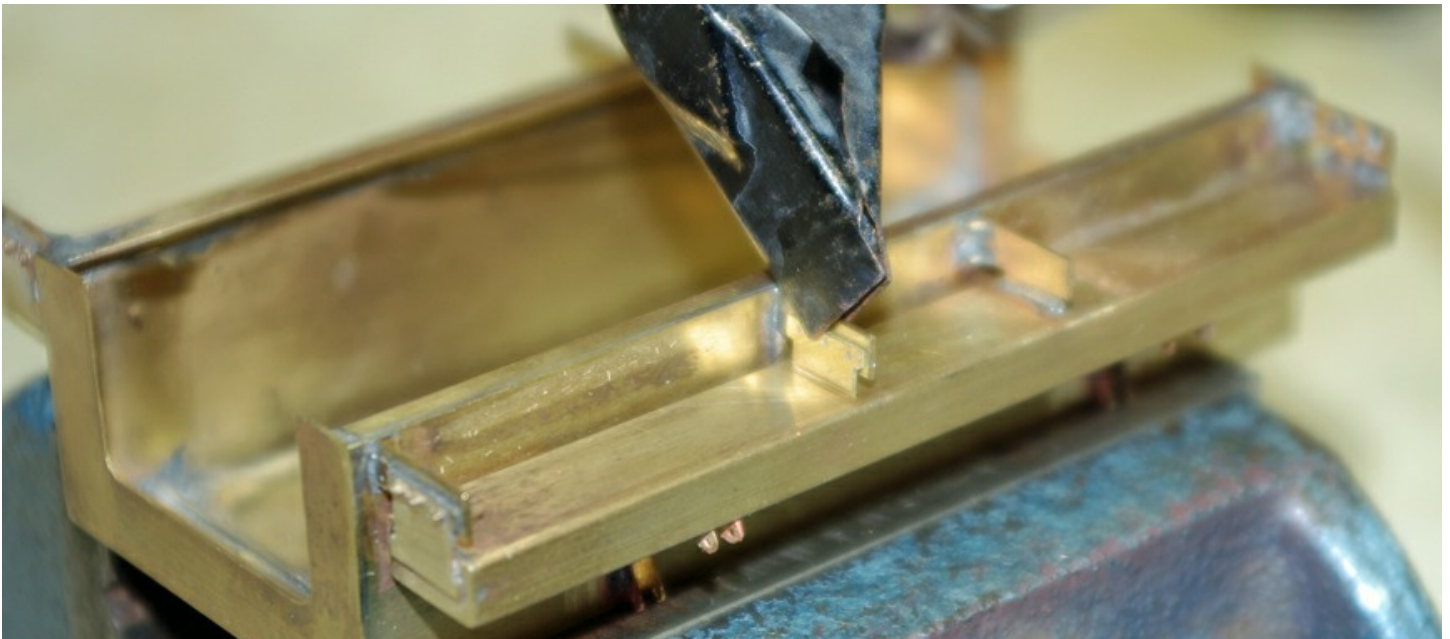
I wanted to have a step on the cut off end of the tank so it would seat on the brass tube. When advancing your cross feed, stop as soon as it touches the work. Note the number on the feed dial. I wanted the outside diameter of the step to be .005" smaller than the inside diameter of the brass tube. In my case, that meant I had to take .040" off the diameter of my work. On some lathes, the dial on the cross feed will tell you the diameter change, while others will tell you how far the tool moves. This is how my lathe works. If I advance the tip of the tool by .010" I am taking that much off of one face of my work. I am actually changing the diameter by .020". If you are new to any lathe, take a cut first on some scrap. Advance the tool by a known amount. Then, measure to see what it did to the diameter. Do this on any machine tool that you are not familiar with. OK, Back to the story. Cut the step first, and then partially cut the part off as I have done here.



I worked the curve onto the end of the tank with a file while the lathe was turning. It only takes a few seconds. I was happy with just looking at the curve. If you want it exact, make a template and keep checking your work as you go. Finish with some fine sand paper. Then, go back and finish cutting the part off with the cut off tool.



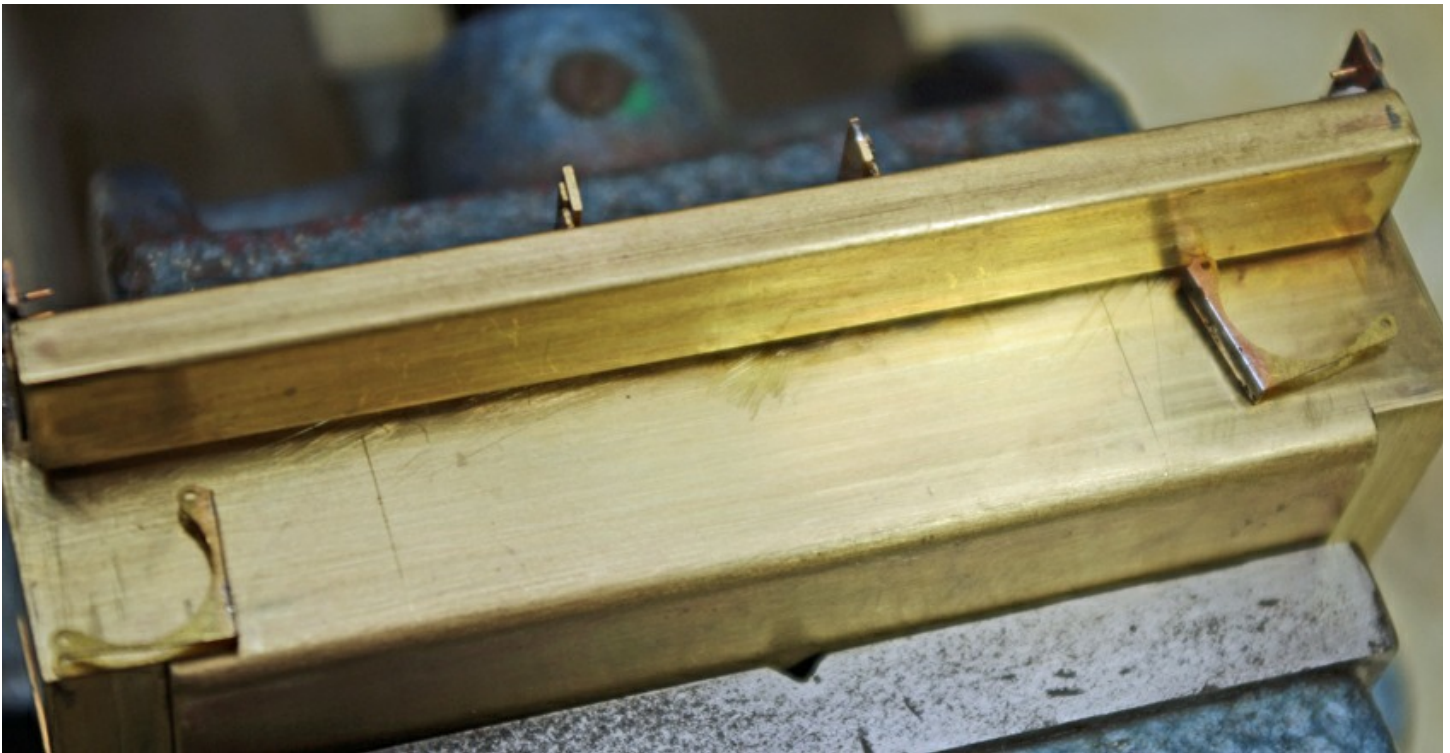
The next thing I made were the fuel oil tank hangers that are not on the ends. I made some blanks, and scratched some lines with the dividers. I filed the notch to my lines. After that was done, I laid out the bolt holes with the dividers again and drilled them. I have not put the bolts in yet because they will fall out when I solder the hanger in place.



Here I am soldering the fuel oil tank hangers in place. I clamped them to the simulated frame members first, as shown, and soldered them to the tank. Then, I soldered them to the frame piece. This was a bit tricky, and I did have some problem with the frame pieces coming loose from the main fuel tank. Keep fiddling with it and you will get it.



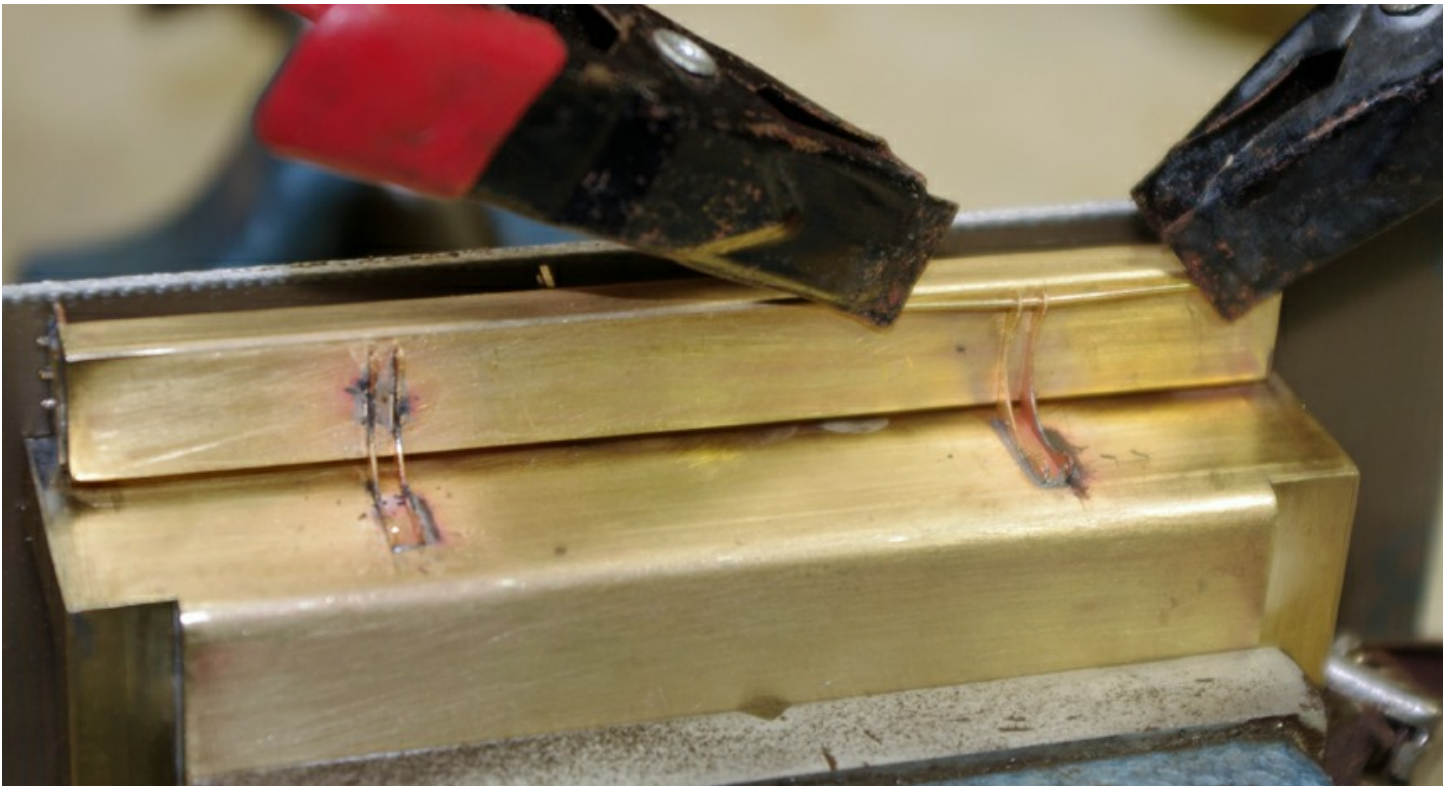
Here is a photo that shows the air tank. After soldering the tank ends on using the tin silver solder, I put them back in the lathe and filed the ends flush with the brass tube. I then cleaned them up a little with some fine sand paper.



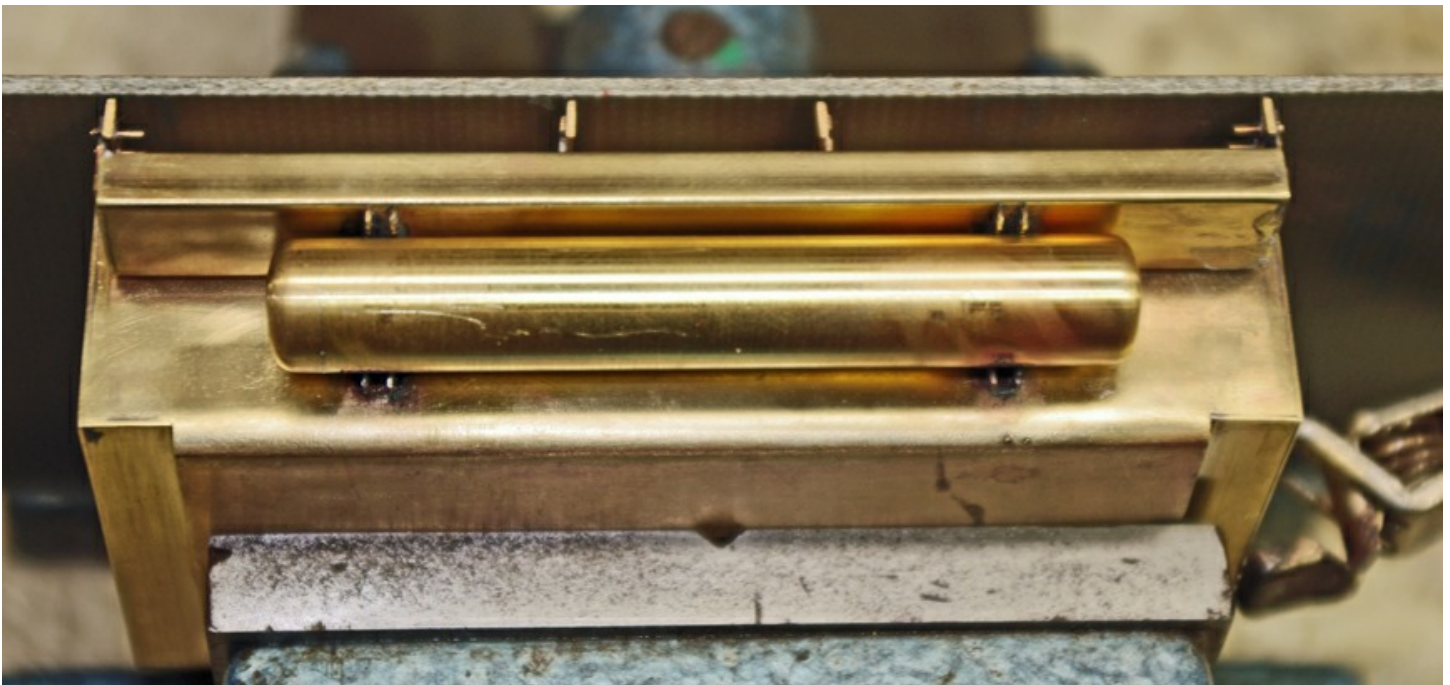
I knew that some day I wanted to make this tank, and when I had some room left on an etching job, I put the tank holding brackets on the sheet. These could be cut from brass stock, but this was simpler for me to do at the time. I used my square and scratched some lines perpendicular to the rectangle tank for reference. I tinned the brackets first before putting them on.



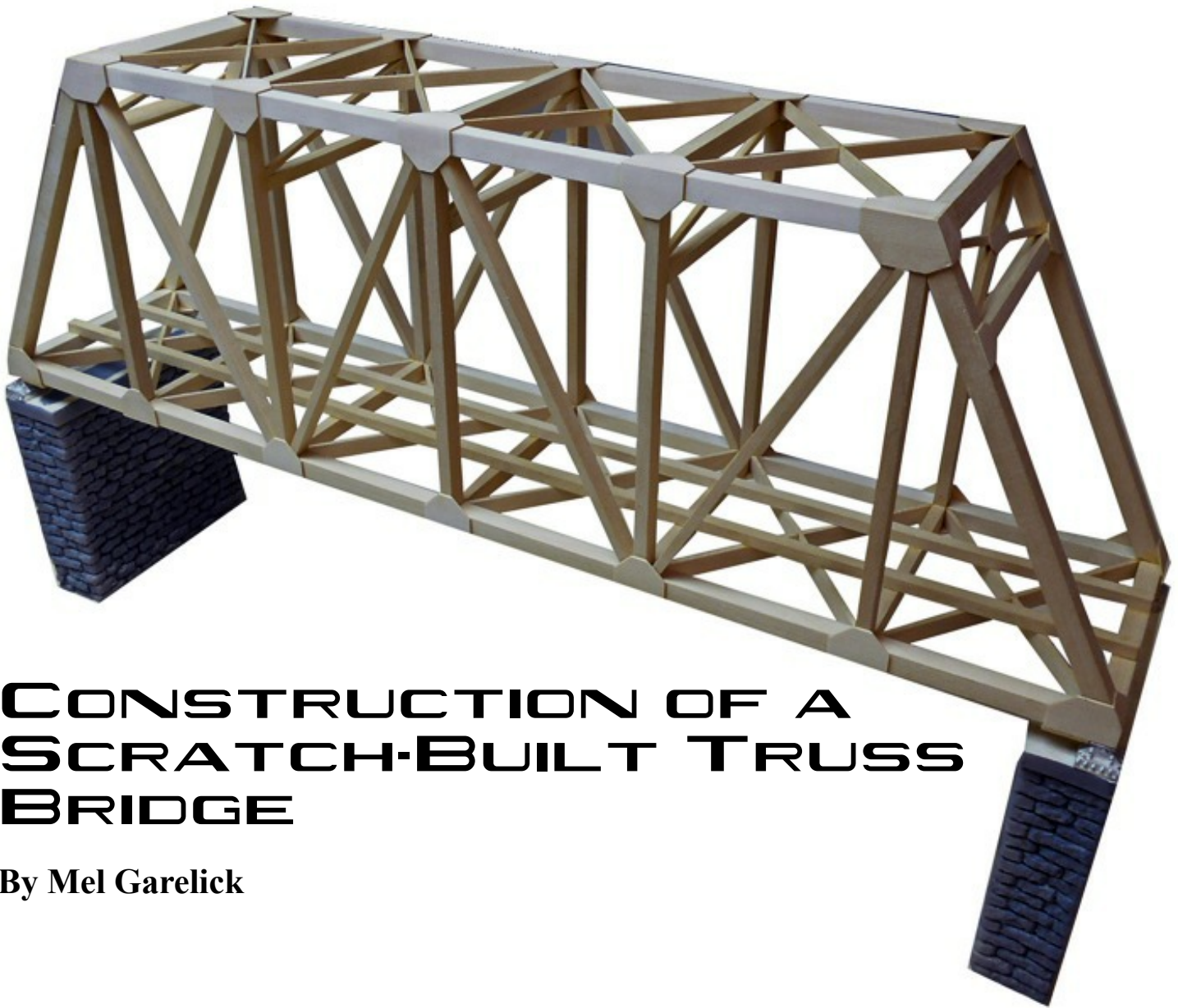
I needed a way to hold the brackets in place while I soldered them. What I decided to do was use a piece of the countertop laminate and hold the piece with my hand as shown. Then, I heated the joint with the soldering iron until the solder melted. This worked well, and kept my fingers from getting burned.



The next task was to solder the tops of the brackets to the rectangle tank. I put some wire through the holes and held it with clamps as shown. This worked well. You can see the bracket on the left has been soldered already. All I wanted was to tack the bracket in place.



This is what the air tank looks like in the brackets. I tinned the brackets first, and then laid the tank in place. I heated the tank until the solder on the bracket melted. This took a lot of heat, and soldering the tank ends on with higher temperature solder helped. I did have trouble with one tank end popping off. The air inside builds up pressure as you heat the tank. I would recommend drilling the air line hole all the way through the end to let the air pressure out. In Part 3, we will put the details on. See you then.



CONSTRUCTION OF A SCRATCH-BUILT TRUSS BRIDGE

By Mel Garelick

I began to build a 10' x 5' O-gauge model railroad after retiring from a career as an engineer in 2014. The layout had to be small and transportable, so it has been built on two 5' x 5' pieces of plywood atop light weight modular benchwork. Although it would be small, the challenge for me was to make it realistic and interesting. Therefore, it had to have a scene in which a train emerges from a tunnel onto a through-truss bridge crossing a river.

Since the truss bridge would be the focal point of the layout, it was the first thing that I built after setting up the table (photo 1). Once the bridge was completed, the rest of the layout was built around it. Limited space meant that the track plan would be just an O-54 oval with the tunnel and a hill on the curve at the right-rear of the layout. The single track exiting the tunnel would then lead directly onto the truss bridge at the center-rear. In my experience, placing the bridge at the rear of the layout, five feet from a viewer, offers a better impression of the scene than if the bridge and tunnel were at the front.

Of course, the bridge would have to be scratch-built. Considering the small size of the layout, it could not be very long. I decided on a length of 24 inches (96 feet full scale), prepared a sketch of the bridge (photo 2), and purchased several cross sections of basswood for the truss and cross members.



Photo 1 – The 10' x 5' table was set up before beginning work on the bridge.

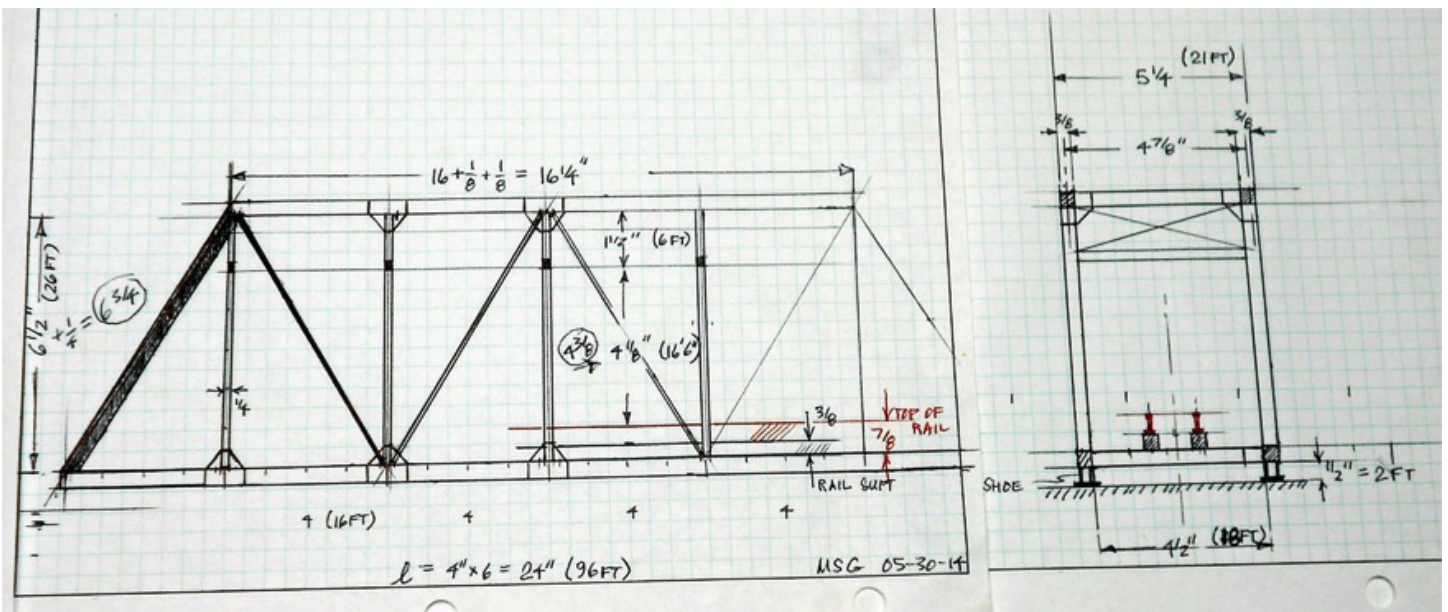


Photo 2 – A sketch of the bridge was drawn on graph paper.

The two trusses were built on a piece of plate glass using clamps, weights, and masking tape to keep them flat (photos 3 and 4).

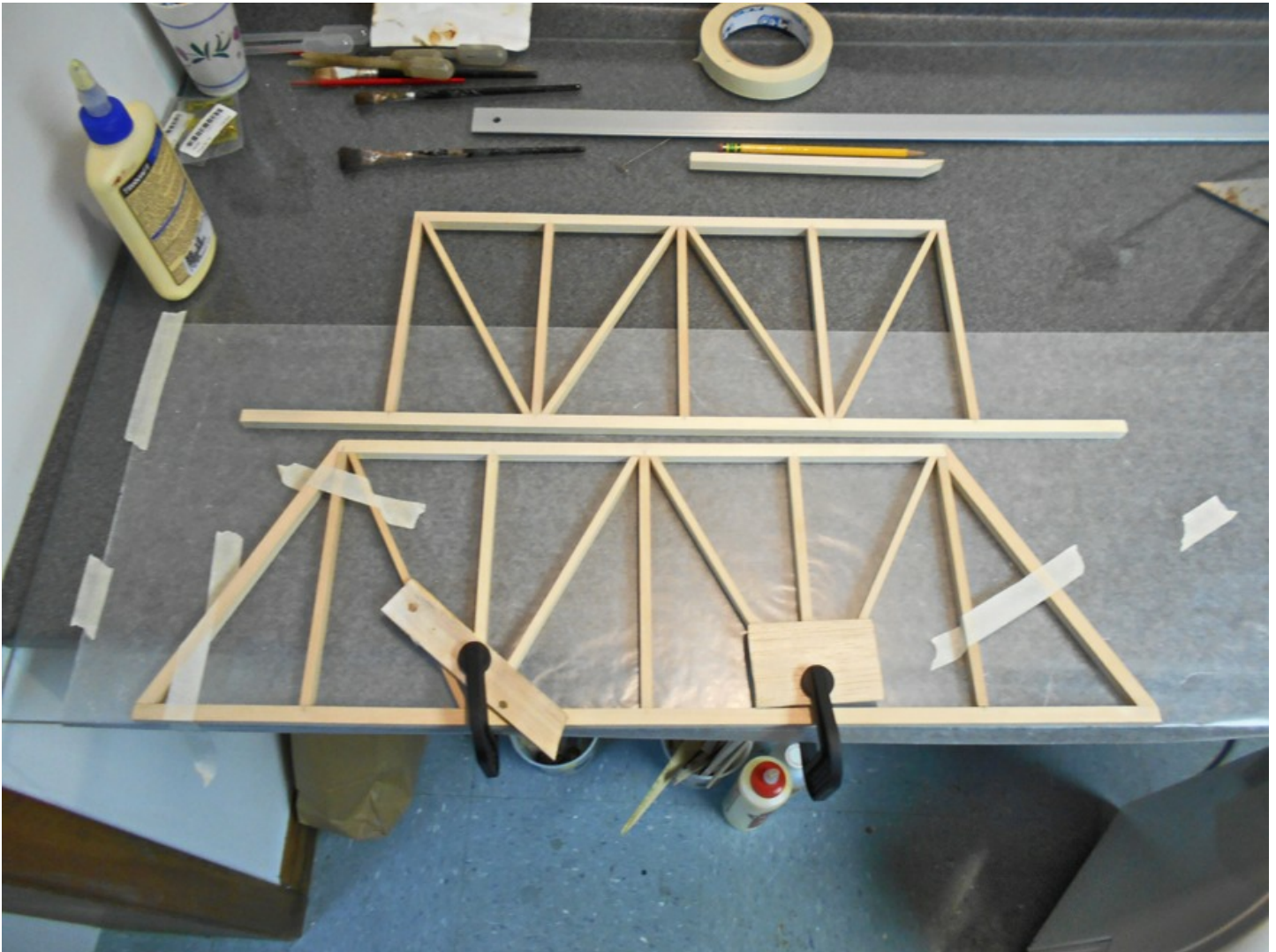


Photo 3 - The two trusses being built.

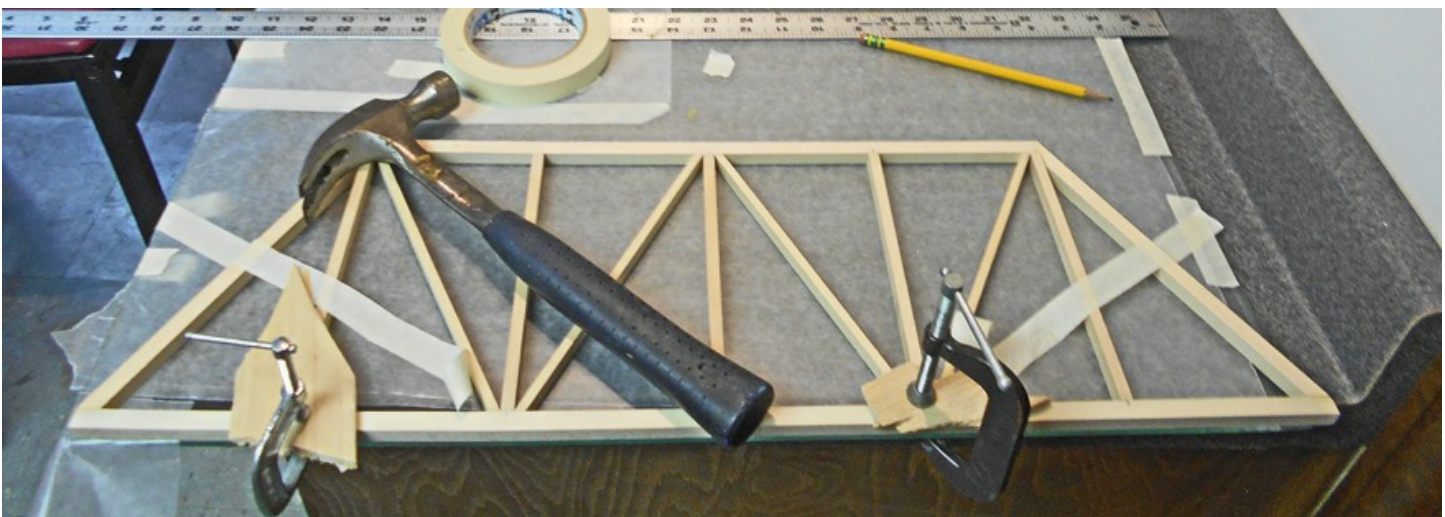


Photo 4 - Waxed paper was used to prevent the work from getting glued to the table.

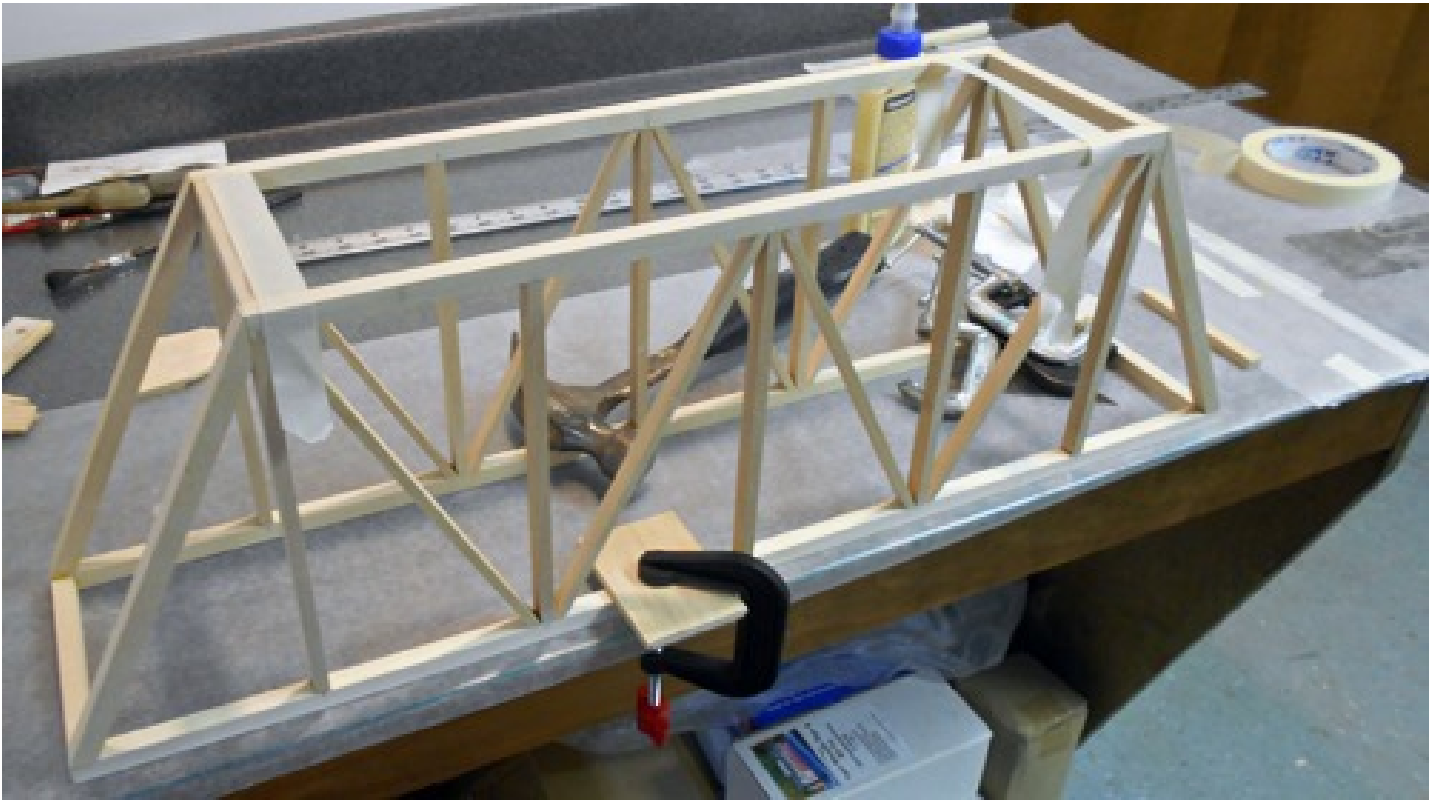


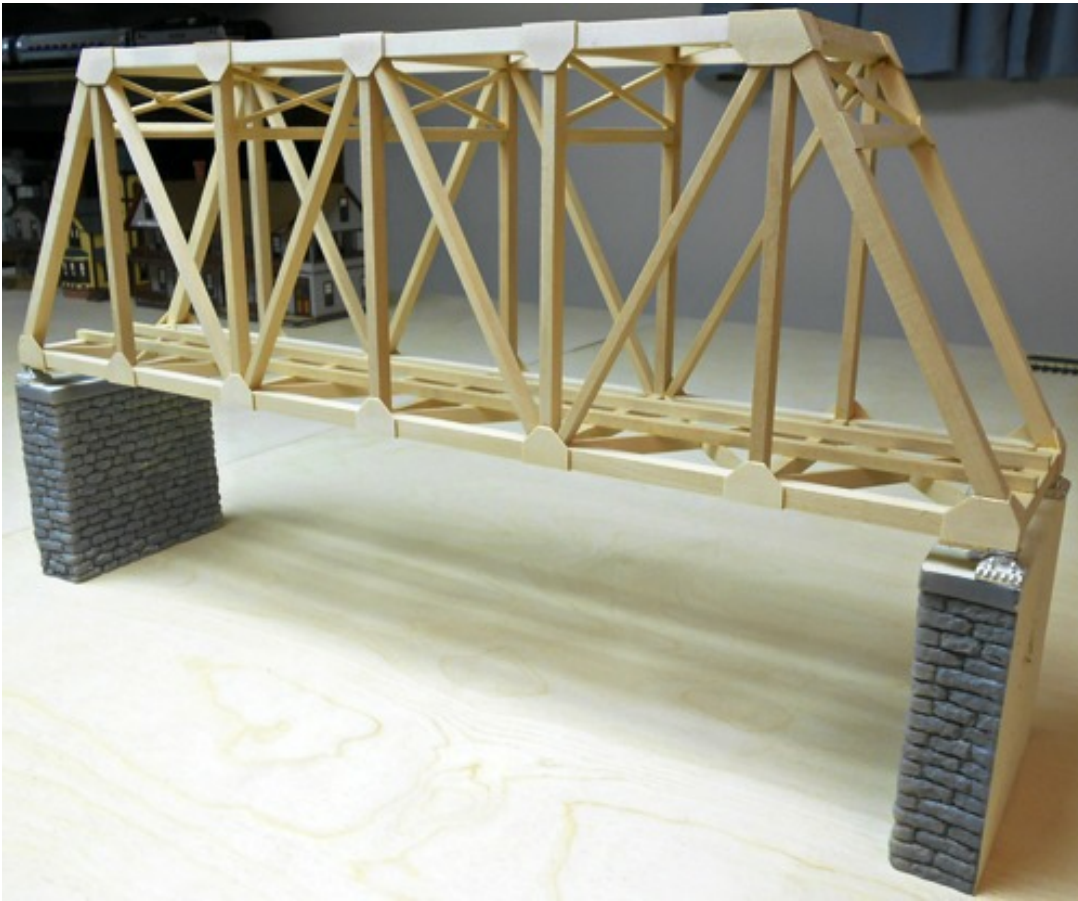
Photo 5 above

The trusses were removed from the glass, turned upright, and joined by inserting the four outer cross members.

Photo 6 below - Diagonal bracing was added at the top and bottom of the trusses, and longitudinal track supports running the length of the deck were installed.



I do this type of construction on waxed paper to prevent the work from getting glued to the table. The outer horizontal and vertical truss members were assembled first by marking their locations onto the basswood in pencil, using a triangle to keep things square. This allows the interior members to be fitted to the exact size of the truss as built. The trusses were then removed from the glass, turned upright, and joined by inserting the four outer cross members (photo 5). Next, the inner cross members were fitted between the trusses and glued. Then,



diagonal bracing was added at the top and bottom of the trusses, and longitudinal track supports running the length of the deck were installed (photo 6).

Finally, gussets were added at the intersections of the truss members, and the bridge was positioned atop the abutments and bridge feet to see how it would look on the layout (photos 7 and 8).

Photo 7 - Gussets at the intersections of the truss members.

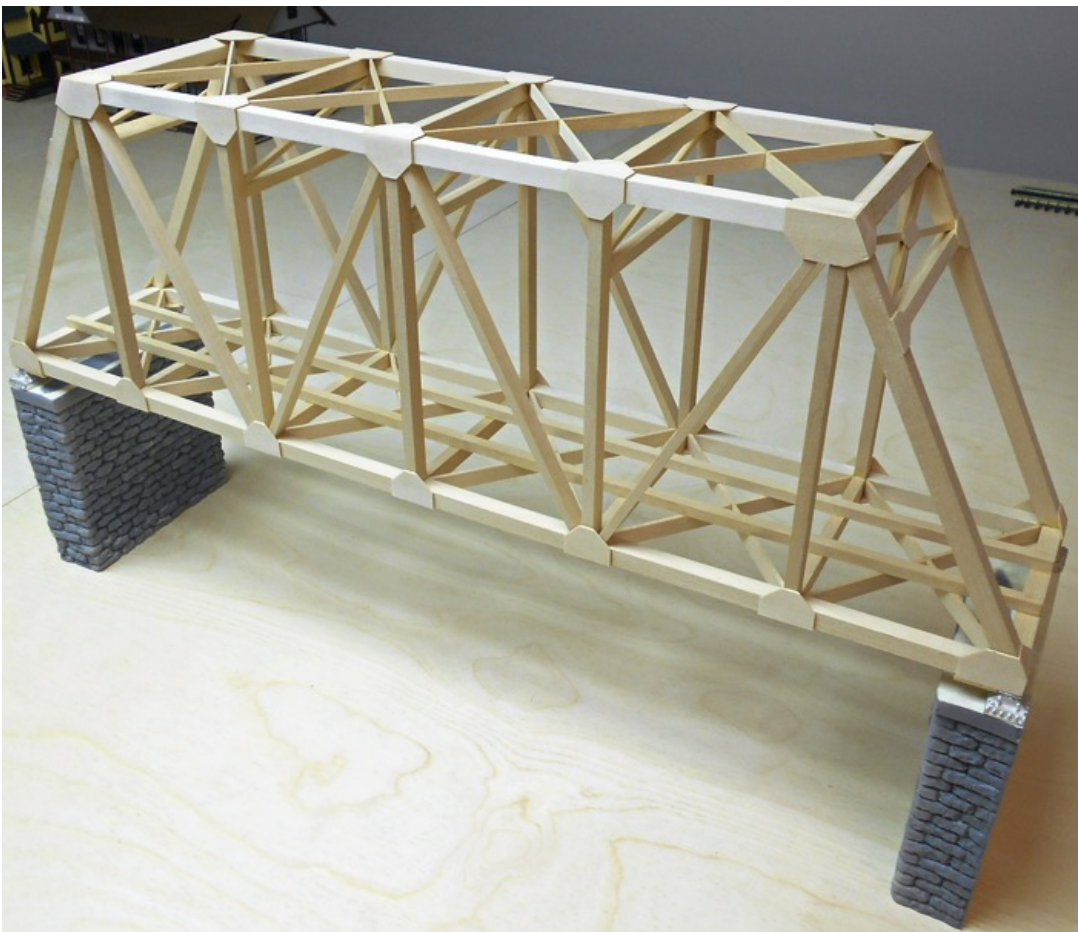


Photo 8 - Temporary positioning of the bridge to simulate the final look on the layout.

With the bridge structure completed, I began to construct the adjacent terrain and examine the positioning of the tunnel portal, abutments and bridge feet on the layout (photo 9). Five 1 inch layers of pink extruded insulation and cork roadbed were built up to elevate the track. The positions and heights of the abutments were then adjusted so that the track elevation on the bridge exactly matched the as-built elevation of the track coming out of the tunnel. The track alignment was checked by rolling a car between the bridge and the tunnel, but powered train operation was not attempted at this point, as I wanted to avoid having a locomotive accidentally roll off the open end of the bridge. A few months later, the terrain on the other side of the bridge was completed, track was laid, and a locomotive made the first run across the bridge (photo 10).



Photo 9

Determining the position of the bridge, tunnel portal, abutments and bridge feet on the layout.

Photo 10

The first run of a locomotive across the bridge after the adjacent terrain and abutments were completed.



As of January 2016, the layout remains under construction. The truss bridge has been painted, the tunnel and scenery on the hill above it have been completed, and ground cover and structures have been placed on the side of the river near the tunnel (photos 11 and 12). The tunnel, hill and bridge are not fastened to the layout and can easily be lifted off if it becomes necessary to move the layout. There is much work yet to be done, but I'm looking forward to it.



*Photo 11
Scenery has been created on the hill, and ground cover and structures have been placed on the side of the river near the tunnel.*



*Photo 12
The truss bridge and tunnel as they appeared on the layout in January 2016. A trestle crosses the river at the front of the layout.*

Oddity

n. 1. One that is odd. 2. The state or quality of being odd; strangeness.

By Daniel Dawdy

Many people take photos of engines and even cars, but most stop at that. I, on the other hand, just love to shoot things that I may want to model in the future. I love to model details and have people say, "Must have made that up... never seen a real railroad do that.". That's when I whip out the picture to show them that indeed the real railroad did.

Caution: This tactic does not make many friends :-)

Kumler, IL. Ghosttown with no ghost. Located southwest Bellflower, this is all that's left of Kumler. (Bellflower is shown as Belle Flower on the 1898 Illinois railroad maps.) It was located on the Illinois Central line running from Gilman to Springfield.



WORKING WITH OLDER BRASS DIESEL LOCOMOTIVES

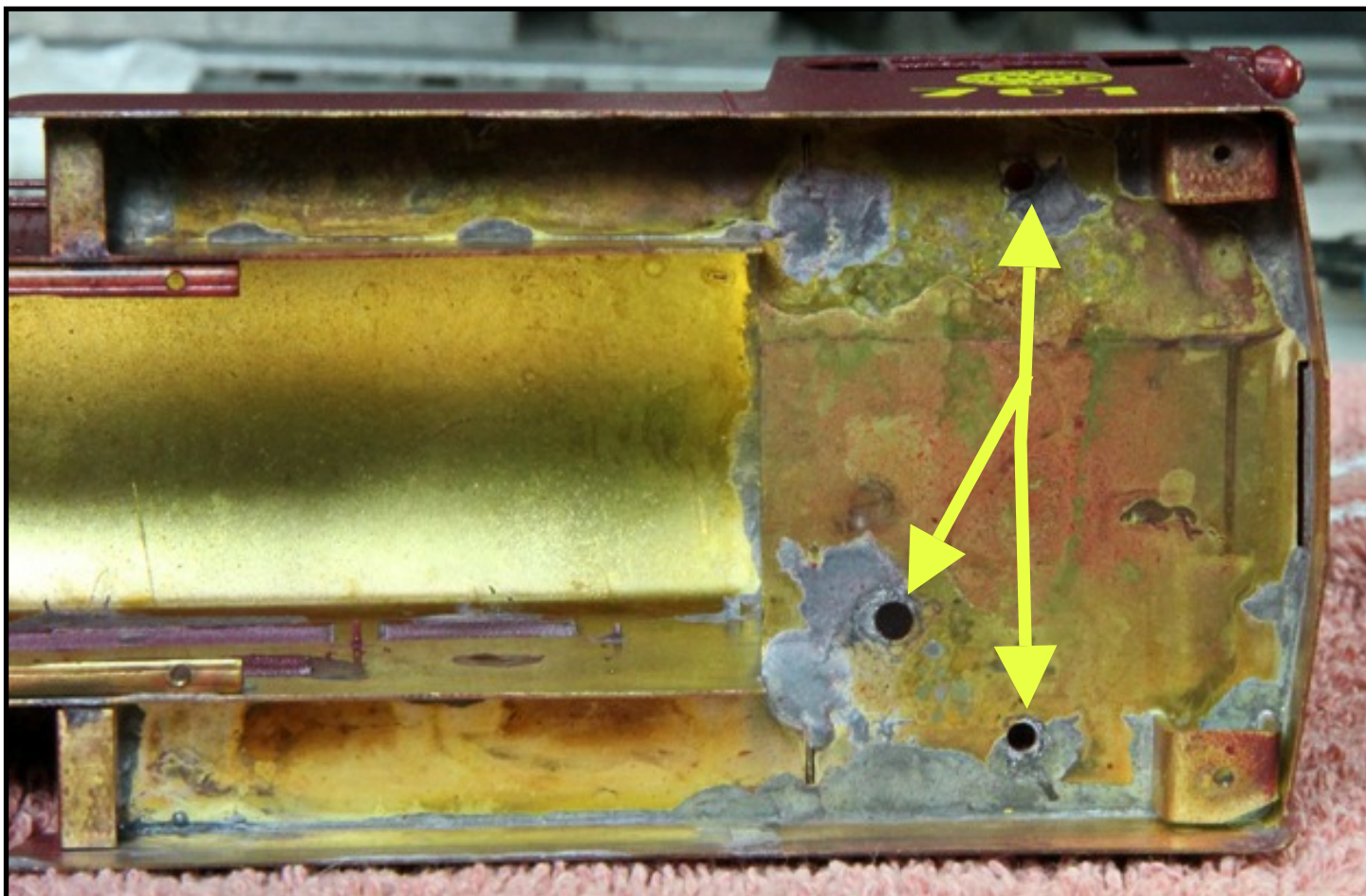
PART 2 - BACK TO DCC

By Daniel Dawdy

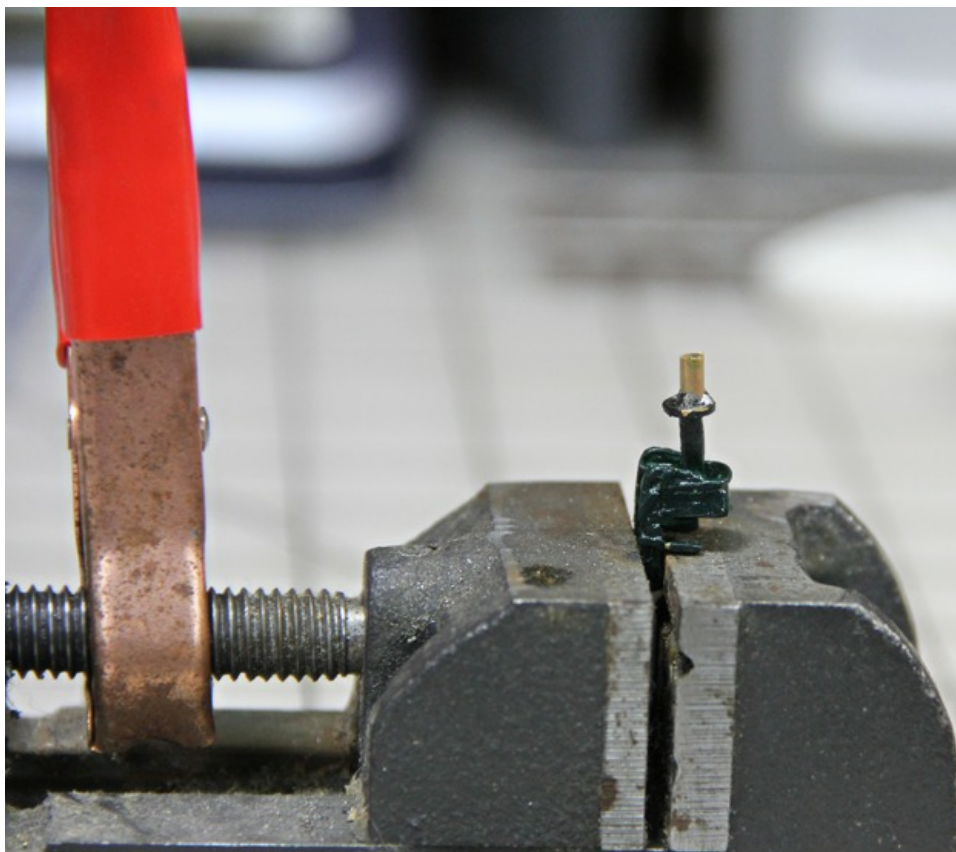
Way back in the [November/December issue of The O Scale Resource](#), I started an article showing how easy it is to add DCC to an older brass import diesel. Well, as with many projects I attempt, things “went south” in a hurry. So much so that we never got to the DCC part, we spent nine pages on making the locomotive run correctly, and another four pages on how to get inside of it.

When last we left off, the locomotives were torn apart as far as I was going to go. The frame and body were disassembled, the trucks were totally taken apart, and although I could not/did not want to get into the cab, the three cab pieces were removed. The shell was cleaned and painted Scalecoat’s Erie Lackawanna Maroon with a Scalecoat black underframe and trucks.



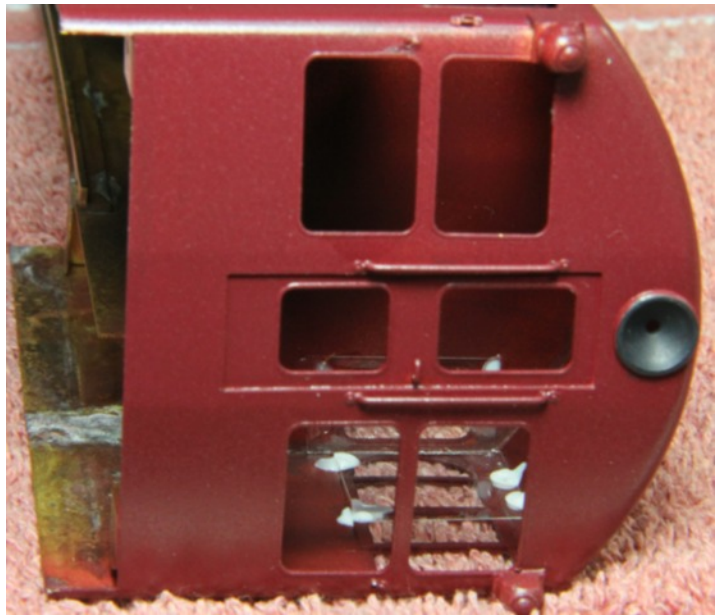


The picture above shows the three holes where I unsoldered the two chairs and control stand. Now I had to fish these parts through the windows and drop them back in the holes. Yeah, right. Even after some filing, the parts would not sit straight. The bottom of the castings were the problem, so I ending up cutting off the “pin” and filing the bottom smooth. Then, carefully drilling the holes to a known size, I soldered a new pin slightly smaller than the new holes on each item. Using a good 5 minute epoxy I was able to fish the parts through the windows with a small tweezers and drop them in the holes. All this because I was to lazy to totally unsolder the cab from the frame!



Next, windows were cut just a bit oversize. (I did an article on glass cutting with video in the [September/October 2014 issue of The O Scale Resource](#)) Using my favorite canopy glue, toothpicks and a lot of patience, the glass was installed. To help accomplish this, I used a Badger Hobby Pal Suction

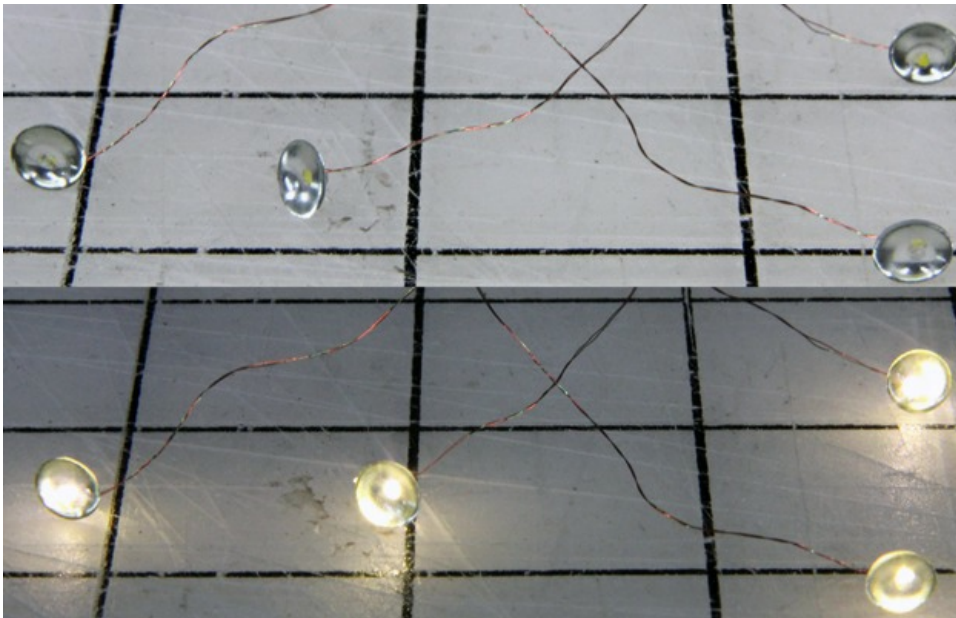
Pick-Up Tool - 50540. Once you have hold of the glass, you have to go through the windows and place it where you want. Once you release it from the suction, you can move the glass into position with a toothpick or longer probe.



The images above show the window in place with fresh glue. After the glue dries, it's pretty much invisible. The image on the bottom left shows the beautiful reflections you can only achieve with real glass. Now, I'm not going to kid you, this was a pain in the neck (actually a little lower), but being a glutton

for punishment, I thought it would be worth effort. The shells need one more item before getting to the DCC wiring – lighting. Some railroads had simple lighting, like mine, while others, like the Southern Pacific, had more complicated lighting practices. These units will simply have a headlight on both ends. However, today's decoders can handle just about any lighting package you can come up with. Gyalite/emergency lighting, Mars lights, ditch lights and more. That's beyond the scope of this article, but when I talk about "extra function" wires on a decoder, that's what they are for.

For my lighting, I used 603 Surface Mount SMD Warm White LEDs as I wanted to simulate the incandescent lighting of the era. For lenses, I ordered the proper size of MV Lenses. (Check the [July/August 2014 issue of *The O Scale Resource*](#) in which I explain all about MV Lenses and how to install them with



LEDs.) I wire my own LEDs as it saves a lot of money and [as shown in this video I did awhile back](#), it's not that hard to do. There are companies, such as [Streamlined Backshop](#) that sell all sizes of LEDs pre-wired, as well as, magnet wire and LEDs so you can wire your own.

The pictures to the left show the four headlights wired and the MV Lenses attached and tested. Now, installing the headlight in the front of the locomotive is easy – just run the wires through the hole and glue in the lens. It's the rear light that made me think for a minute.

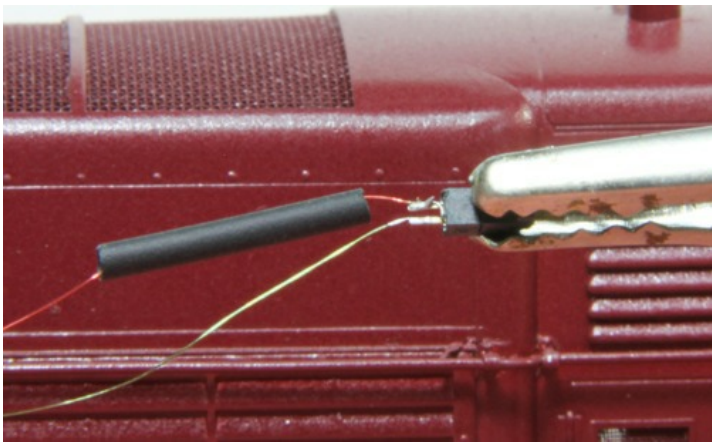
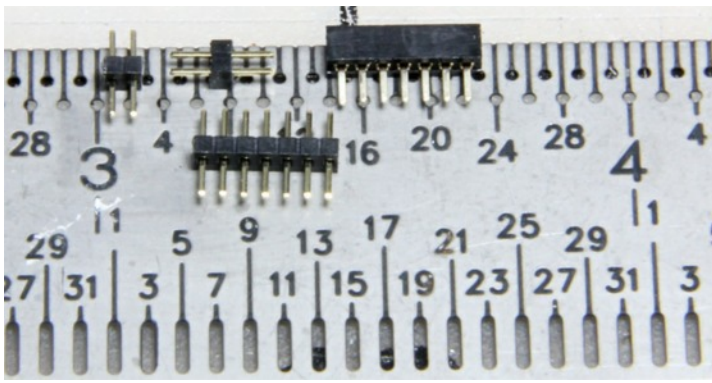
Because I couldn't get into the cab, I needed to drill a small hole close to the roof through the back of the cab from the inside of the shell to allow the wires to get to the decoder. That part was not so bad, but then I needed to thread the wires through the rear headlight hole and continue through the small hole I drilled into the back of

the cab. Although hard to see, I soldered the ends of the magnet wire to a stiff piece of small brass rod and fished that through the holes and then



glued in the lens. Before the install, I painted the lens opening black so when the lens is attached it looks like the black seal is in place around the lens.

The last thing before getting back to the DCC install is the small connectors for the lights. We could simply solder the lighting wires to the decoder, but if you ever have to remove the shell for any type of problem, you may have to unsolder those same wires. I would rather have small plugs coming off the decoder and the lights. Plus, it keeps things easier and neater. You can buy almost any size mini connectors with a variety of pins. Again, some are pricey, but I buy the basic connectors in various pin arrangements and solder my own. The next page shows the pins as I buy them and then build them. For lighting, I start with a two pin male.



Top Left - Pins as I order them. There are different sizes, and they can be cut down. There are both male and female, along with double male and double female ends.

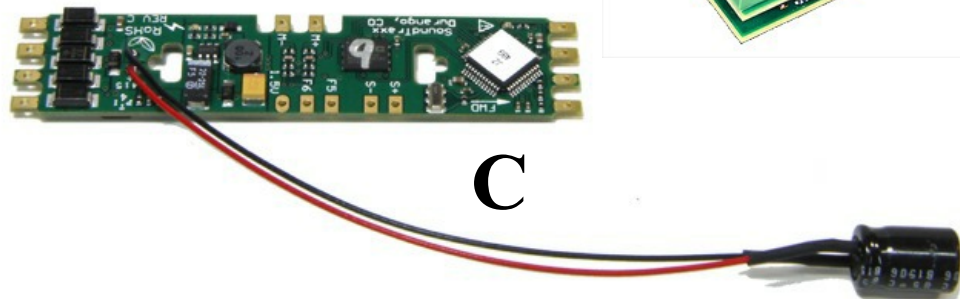
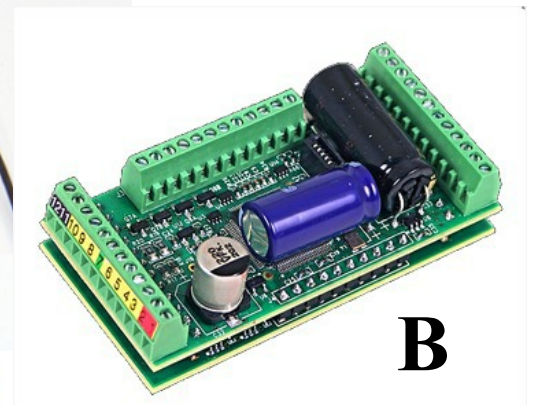
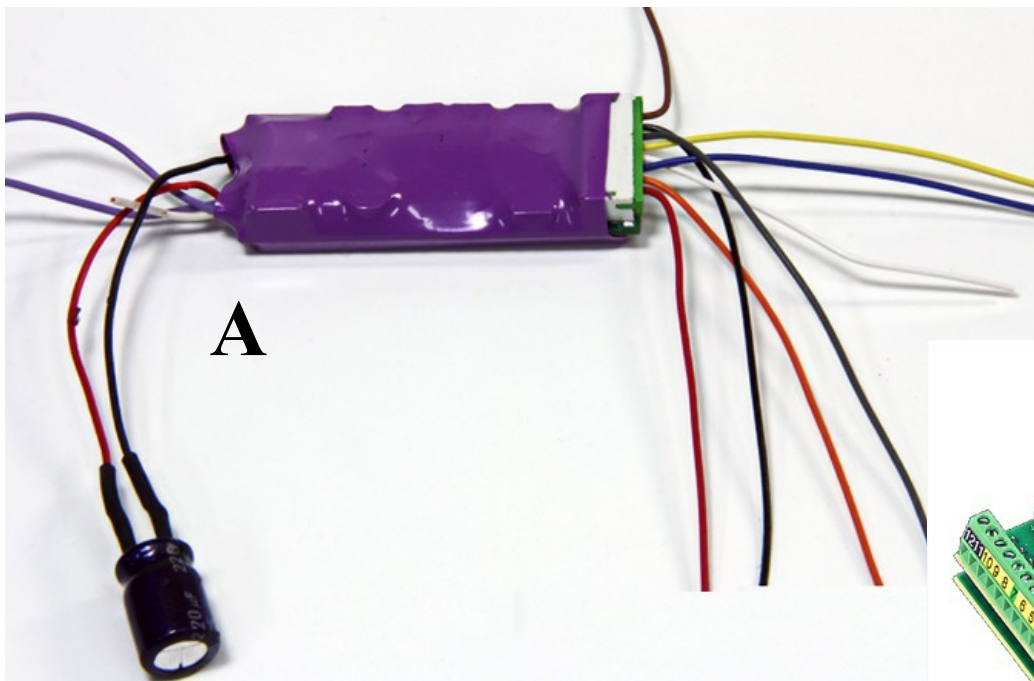
Top Right - Tin about an inch or so of the wires using flux.

Center & Bottom Left - Wrap and solder the tinned wire around a pin and then slide a piece of shrink wrap over. Do the same for the other pin and slide a bit larger size of shrink wrap over and up to the connector.

Bottom-Right - One last piece of shrink wrap over the end of the connector. This gives us the strength not only for the wires inside, but also to be able to plug and unplug the connectors.



One last test to be sure the connectors are soldered properly and all lights work.



In these examples, we see some decoders like example A have colored wires attached or attached with an NMRA connector. Some like Example C were drop in decoders so no wires. In our case here, that's fine because the instructions show what pin of the decoder goes where. The large amp decoder example B has screw terminals to connect your wires to. I actually bought colored hook up wire in the NMRA colors so when I use a non wired decoder I can use the correct color wire. This may sound a little anal, and I am sure my wife, Amy, would agree, but it does help for a clean install and much less confusion down the road.

Decoder Install

Now lets get down to a decoder. If this is all new to you I want you go back and read two articles from earlier magazines. [The O Scale Resource September/October 2013](#) has an article called Amps is Amps which will help in your decision of a decoder amperage rating. Just within the past few months there are new sound decoders on the market with 2 and 4 amp ratings if you really need it. The second article appeared in the [November/December 2013 O Scale Resource called JMRI for DCC Control](#). JMRI is a free cross platform software and it is simplest will allow you to program your decoder with a graphical interface making it much easier to program and test results as well keep a record of the settings (called CV's) within the decoder. Do you need it, well no you don't have to use it but then you don't need power steering or power brakes or even Email but it make things so much easier.

Most newer locomotives regardless of scale will have an [NMRA plug](#) and many decoders will plug right in. Some such as many HO and N scale will have a circuit board that the decoder will replace. Older O Scale locomotives don't have that option but at a minimum without sound or lighting we are working with only four wires.

NOTE: The motor MUST BE isolated from the frame. Do a simple continuity test to be sure. Almost all brass imports with can motors are isolated.

In it's simplest form, the decoder fits between the pickups and the motor. Remove the two wires going to the motor and connect those to the RED and BLACK decoder wires. Then, take the GRAY and ORANGE wires and connect them to the motor. For a non-sound decoder, you are finished! If you have a sound decoder, connect the two PURPLE wires to a speaker rated for the manufacturer's specifications, i.e. 8 ohm, 4 ohm, etc.

That's all there is to it, in it's simplest form. This was harder to photograph than I thought, but the following three pictures will help show a very simple install in an older brass locomotive. (The pictures show a decoder in an ALCO HH660, as I had forget to shoot this stage with the FM units. This is not a big deal, but I'm sure some readers will pick up on this.) One more note here. The NMRA (National Model Railroad Association) has a standard for decoder wire colors. The following colors are all we will be working with in this article. (Sound decoders will have two purple wires for the speaker.)

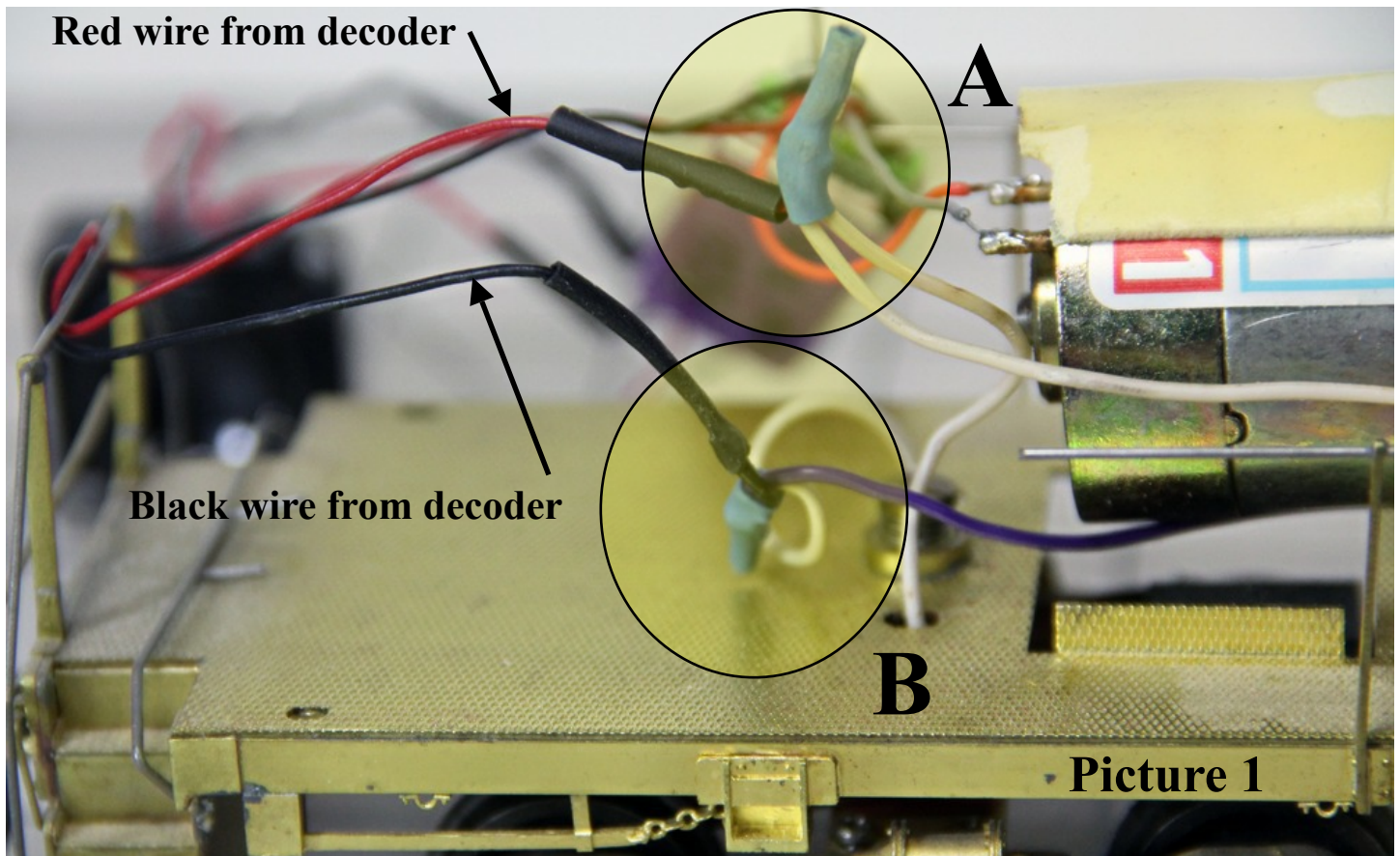
RED from right-hand rail power pick-up
BLACK from left-hand rail power pick-up

ORANGE from interface to motor brush (+) connected to right-hand rail
GRAY from interface to motor brush (-) connected to left-hand rail

WHITE front headlight
YELLOW rear headlight
BLUE common (+) headlight(s)/function(s) power source

In a perfect world, all manufacturers would also follow these colors for the wiring of their locomotives. Even some of today's Chinese manufacturers do not do this, and most certainly, our older brass will not follow these colors. One could rewire with the proper colors, but it's not really worth going to that much trouble. Just keep the wires grouped together, i.e. all left side pickups and all right side pickups.

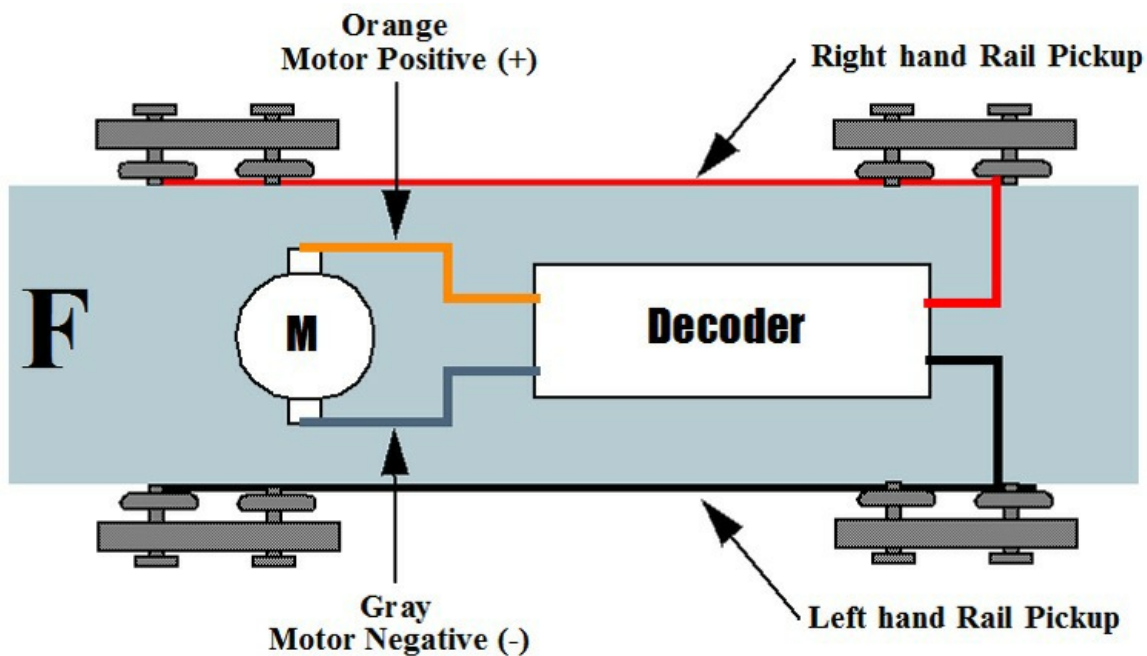
One more note here. You will notice that I used two types of decoders. Both are Soundtraxx Tsunami decoders with the same Fairbanks Morse sound set. One is in a purple shrink wrap, while the other is an open circuit board. The open board (TSU-AT1000) was made as a replacement board for Atlas HO diesels. The Purple package (TSU-1000) was designed for an NMRA plug to do what we are doing here and hard wiring into a locomotive. I don't remember why I bought the two packages as it's been so long ago. Maybe I got a great deal on one, and then bought the other. It makes absolutely no difference.



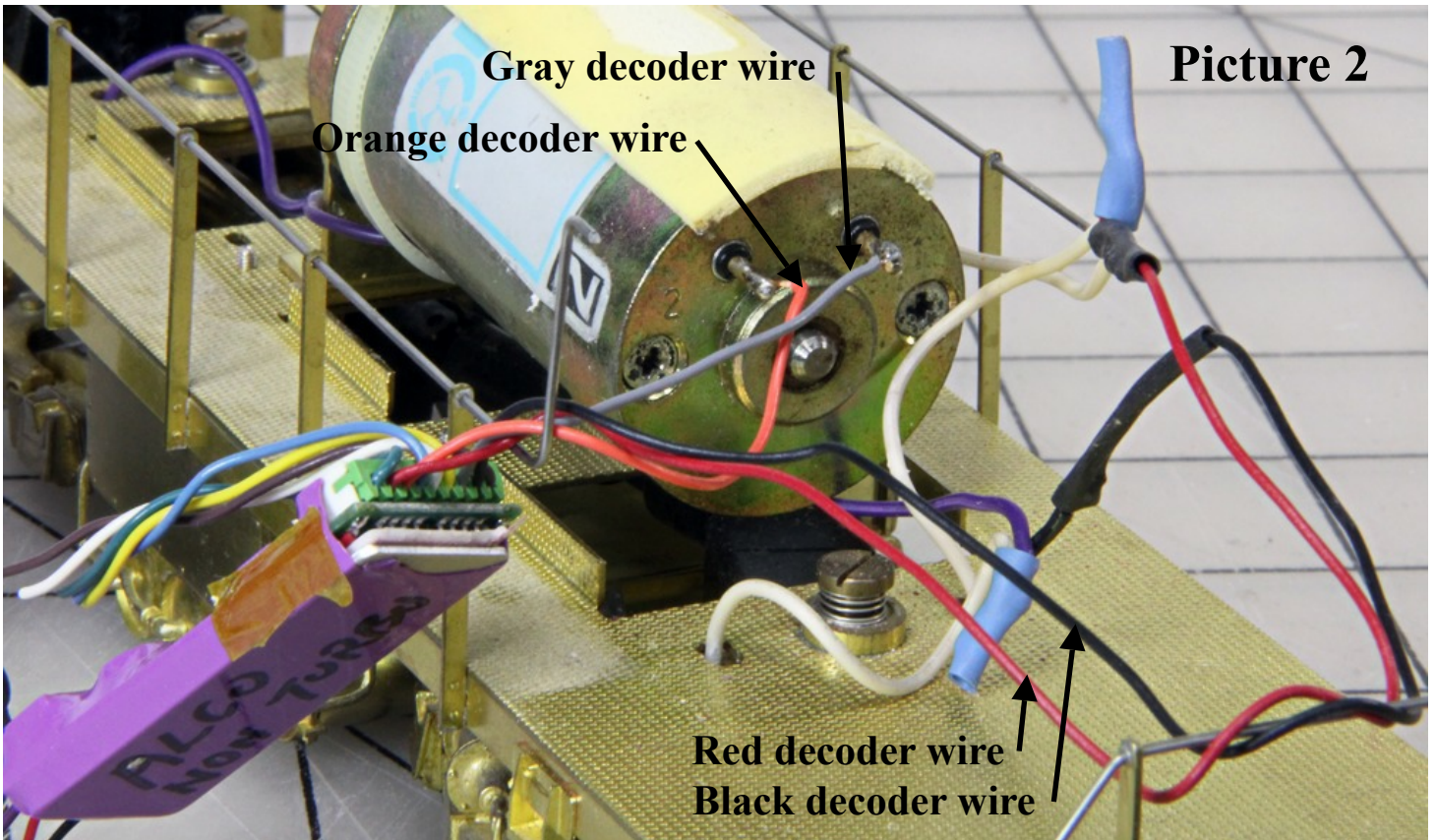
Picture 1

Picture 1 above shows the red and black wires from the decoder. These will always go to track power by way of the pickups your locomotive may have. This locomotive used white and one purple wire coming from the pickups. Refer to circle A to see two white wires tied together and then spliced and joined to the red decoder wire. One of these white wires came from the front truck right side, and the other from the rear truck right side. Circle B shows a white wire coming from the rear truck left side, while the purple wire came from the front truck left side. They are joined to the decoder's black wire.

Why a single purple wire and not white? Who knows? Maybe that's what the factory had that day. It does not matter as long as we keep right side pickups together and left side pickups together.



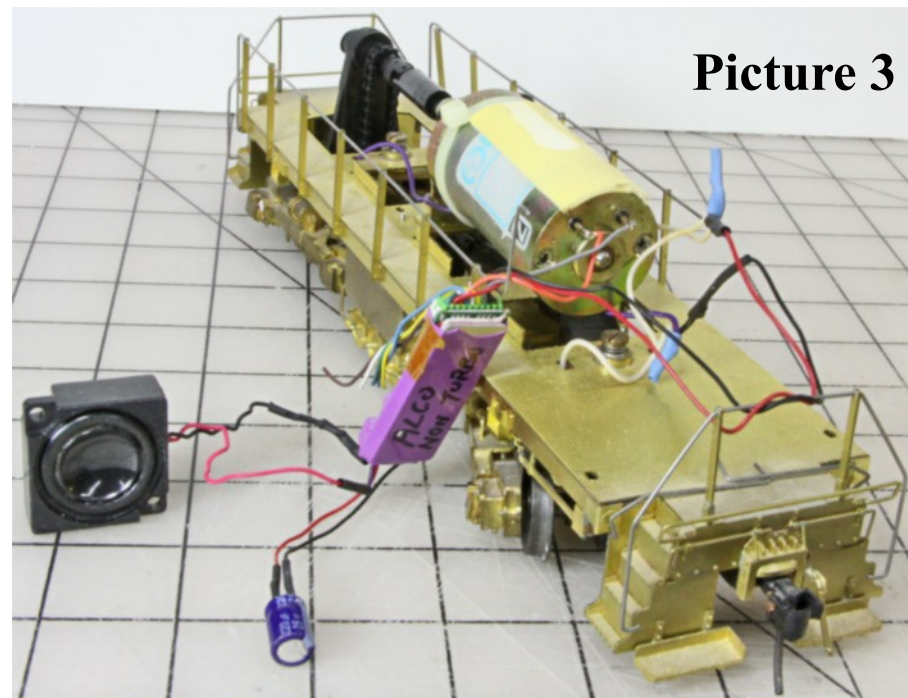
Maybe this drawing will make it easier to quickly understand what I am trying to show with the pictures.



Picture 2

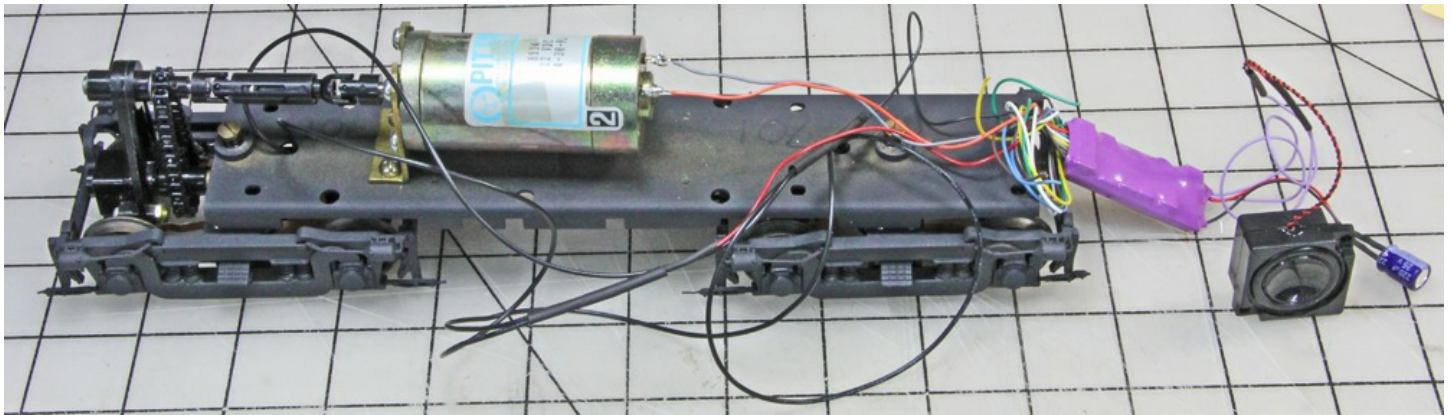
Picture 2 is a different view from picture 1. Here, we can still see the decoder red and black wires and the locomotive's pickup wires we talked about in Picture 1. From the decoder, we now take the orange wire and attach that to the motor + terminal and attach the gray wire to the motor - terminal. Now you will ask, how do I know which is which, positive or negative, on the motor? Unless it's marked you won't. At this point, we don't care as we'll figure that out during our test, i.e. your DCC throttle says forward, but the locomotive goes in reverse. Even if you wire it backwards and button up the locomotive, we can fix the direction via a CV setting later, although it's better to have it correct now.

Notice the other colors coming out of the decoder, blue, yellow, white, etc. They are used for lighting and special functions. We will only be using the blue, white and yellow for our lighting later.



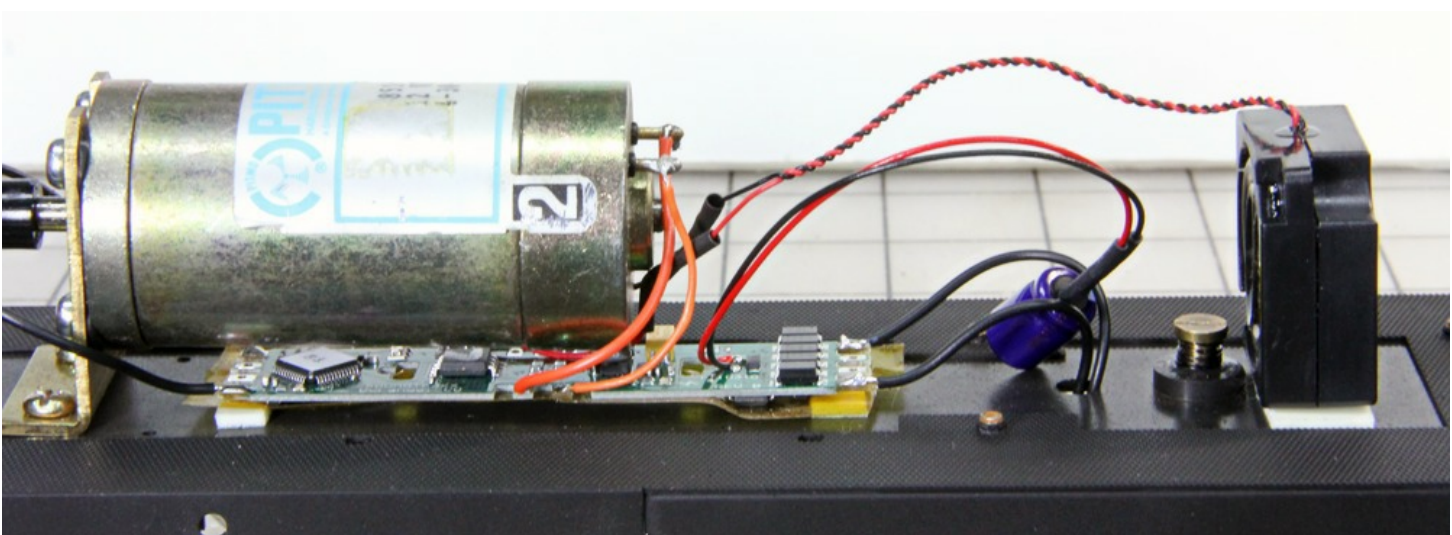
Picture 3

Picture 3 is an overall image of the wiring using a sound decoder. The only extra wiring that needs to be done is the speaker. The small capacitor is to help maintain sound over dirty tracks. It's included with most sound decoders.

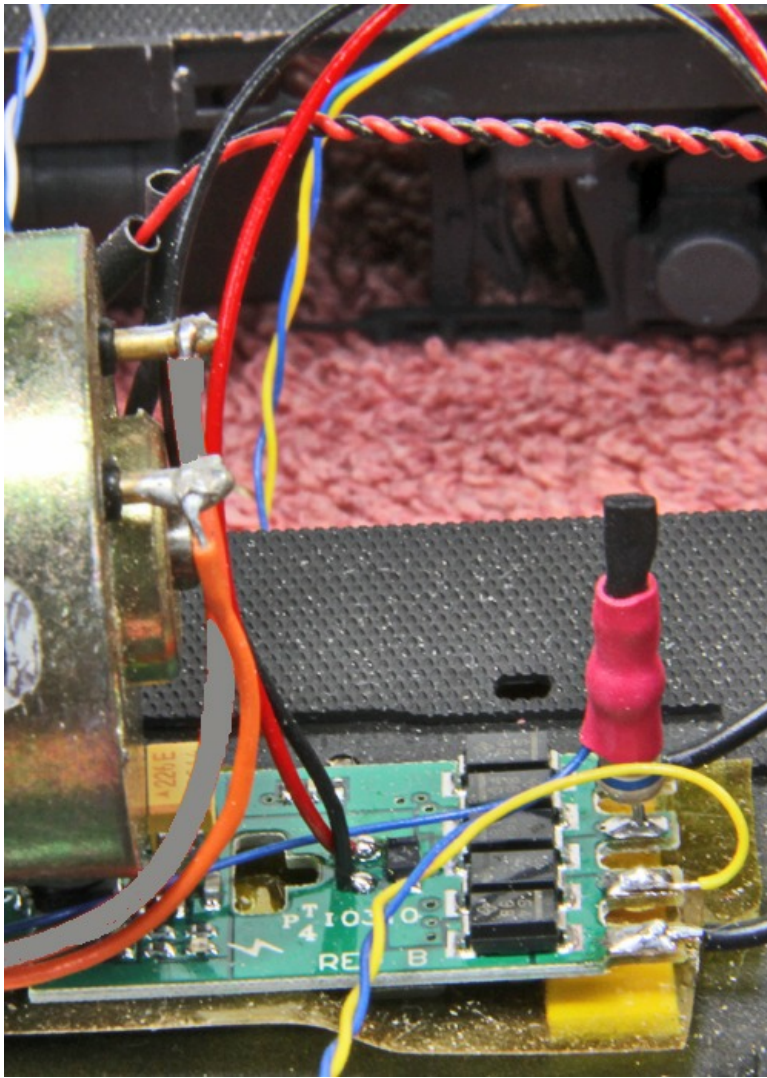


The picture above shows one of the FM units ready for testing. At this point, you could just place it on the layout, dial up address 3 (The default new decoder address) and see how she runs. The problem is if you did something wrong in the wiring, or the motor was not totally isolated from the frame, you may see smoke. You need a programming track for testing. Your DCC system should have instructions for this. For more information on why, look here: http://www.dccwiki.com/Programming_Track. One last hitch, modern sound decoders may need Programming Track Booster. More great information on that can be found here: <http://mrdccu.com/curriculum/ptb.htm>.

OK, we are on the programming track and want to read back the decoder address. Depending on your system, or hopefully you are using JMRI, read CV1. It should read 3. If using JMRI, you can do a read all under the Basic tab. If JMRI reads back all of the Basic tab or a 3 is returned reading CV1, we know two things: 1) you are wired correctly electrically, and 2) you can talk to the decoder. If you can not read back anything from CV1, something is wrong. Double check your wiring. Assuming everything is good here, you can place the locomotive on the main and throttle it up. I don't do any fine tuning at this point. I just want to make sure it runs smoothly forward and back. Speaking of which, if your throttle shows the locomotive going forward, but yours is going backwards, make a note after testing to swap the orange and gray wires on the motor. It was at this point in the [November/December 2016](#) article that I found the locomotive did not run smoothly, and as a result, subsequently finding all the gear problems. If you are satisfied with it running, you can temporarily attach the decoder to the frame with double face tape or wrap it with [Kapton®](#) tape. (Kapton® tape is very thin and a good insulator that doesn't "goo up" like electrical tape can.) Now that everything is temporarily together, you can continue to run in the locomotive, and even play with the fine tuning and sounds if you like.



My first unit above ready for testing. The decoder is mounted, but no lighting has been added yet. You can play with slow starting and sounds until you are ready to get back to work.



Back on the bench, remember to swap the orange and gray wires if needed.

For the lighting, I am again only using the front and rear headlights, so looking back at our decoder color codes, I need the white wire for the front and the yellow for the rear. The blue will act as the common, so you will need to split that with one going forward and one going back.

The decoders I used needed an additional current limiting resistor when using LEDs. Some brands do not, so check the specifications on your brand. Since only one headlight will be on at a time, I needed only one ¼ watt resistor. The value of the resistor, using the formula below, fell in at 820 Ohms.

$$R = \frac{(V_S - V_{LED})}{I_{LED}}$$

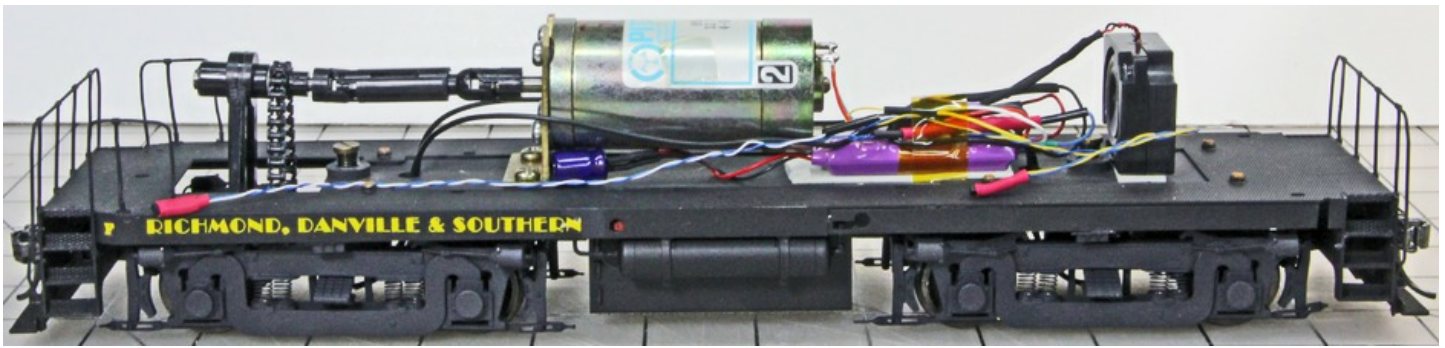
- V_S is the source voltage, measured in volts (V)
- V_{LED} is the voltage drop across the LED, measured in volts (V)
- I_{LED} is the current through the LED, measured in Amperes (Amps/A)
- R is the resistance, measured in Ohms (Ω)

That was just a little too bright, so I went up to a 1000 ohm resistor. The picture above shows the single resistor soldered into the hole of the decoder's common or blue wire hole with two blue wires coming off the top (under the shrink wrap). One is paired with the white to a plug, while the other was paired with the yellow to another plug built as before. On the purple package decoder, the blue wire was cut close to the decoder, then the resistor was added, and next the two blue wires were soldered on the other end. Now, back to the track. Set the locomotive in the forward position and turn on the headlight. If the front headlight does not light, reverse the plug. Now place the locomotive in reverse and do the same with the rear headlight. If one or the other does not light recheck the wiring to the plugs.

If everything checks out, you can now neaten up the install by shortening the wiring and grouping them together. For the bare board decoder, I used a protective layer of Kapton® tape on the underside to prevent shorting and then double face tape on the ends. The purple package was placed using double faced tape with Kapton® securing the wiring. The pictures on the next page show the final installs.

If everything checks out, you can now neaten up the install by shortening the wiring and grouping them together. For the bare board decoder, I used a protective layer of Kapton® tape on the underside to prevent shorting and then double face tape on the ends. The purple package was placed using double faced tape with Kapton® securing the wiring. The pictures on the next page show the final installs.

I did not touch on speakers here, as that could be a whole other article. I used a high bass 27mm self enclosed speaker by RailMaster Hobbies. Sound is so subjective, you should buy a few different type of speakers and try them out. I will say, however, that the largest speaker you can fit will give the best sound reproduction.



Above are the final installs for both decoder packages. Do one last test before you reassemble the shells and screw them to the frame. As long as the motor is insulated from the frame, it's very easy to add in a decoder.

Not within the scope of this article, but other options you might want are ditch lights, if your locomotive has them, cab lights for steam engines, step lights, firebox flicker... the list goes on and on. That's what all the extra function wires are for. Today's decoders have many extra functions, and if you take your time and follow the decoder instructions, they are very easy to implement. In the future, we'll do this same type of DCC install in an older steam engine. Hopefully it won't be as involved as this turned out to be. What started as a simple DCC install took a few turns, but in the end we arrived. It does show that no matter how simple a job may seem at first, there will be problems that you did not count on. It's kind of like doing a "simple" plumbing job. If you ask me, there is no such thing!

The following images are of the units painted and working on the railroad.





[Here is a quick video of these units on the turntable in Avalon, Tenn.](#)

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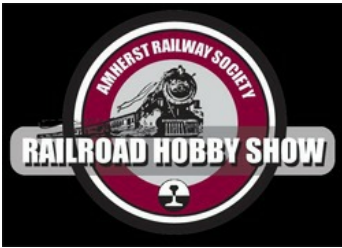
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The 2016 Amherst Railway Society Railroad Hobby Show

By Daniel Dawdy

This past January, we flew out to be an exhibitor at the Amherst Railway Society Railroad Hobby Show. I am not a fan of flying anywhere, but Amtrak or driving would take longer than the time we could afford. After a few libations at Chicago Midway, we boarded our non-stop flight to Bradley International Airport in Hartford, Connecticut. Amy had reserved some type of small car for the weekend. When the counterman at the rent-a-car agency turned out to be a model railroader, albeit an HO modeler, he upgraded us to a Grand Caravan at no extra charge! I knew these business cards would come in handy.

This was our first time at the show. It's the largest show of its kind in the states. Being an all scales, show we were there to promote both *The O Scale Resource* and *The S Scale Resource*. As most of you can imagine, there were not a lot of O Scale specific vendors there, but there were a few, including Crow River, Model Tech Studios, Des Plaines Hobbies and Seaport Model Works, not to mention a lot of other vendors that we O Scalers use. After all was said and done, some 19,000 plus people were exposed to our magazines. OK, maybe not everyone came by our table, but a lot did.

The O Scale Kings also had a booth at the show. We all are working to bring knowledge of O Scale to the people that may not even know about O Scale or think it's simply "that three rail stuff".

The New Haven Society of Model Engineers had a very well done O Scale Modular layout running. Click below for a short video of a circus train on their layout.



Amy mans the table.





Leo and Randi from Crow River Products had a beautiful display featuring all their O Scale products.



Bruce and Nancy from Seaport Model Works had this fantastic display built by Dave Frary. Although the diorama was HO, Seaport does have a good selection of O Scale boats and castings.



Z-Stuff for Trains was showing their line of signals. Although shown with three rail track, many of us O Scalars also use their products.



There were some very nice loads shown by a few exhibitors, such as ralphstrains.com





Atlas O had a large display showing their new models and new paint schemes, along with their track line.



I spent some time hiding here until a few parents suggested I “move along”.

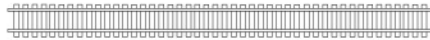
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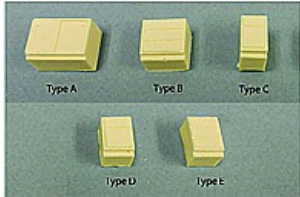
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WHAT'S ON YOUR WORKBENCH TODAY?

We have started a new series to show our readers what other modelers are working on, and we need your help to make it successful. All that's needed is a simple snapshot of what your workbench looks like and the project on it. Send us a picture or two along with a short description of what you are working on so we can share it here. If it's a project under construction, send it in. Repair job, send it in. Completed project, send it in. Send your pictures and descriptions to daniel@oscaleresource.com.

By Stephen Karlson



The Weaver plastic hopper cars are good value for money, particularly secondhand at swap meets, if a little rudimentary. Two offset-side cars at \$7.50 each from the 2013 O Scale West, the one closest to the picture getting detail parts added.

One straight-rib car from the late Bob Rommel's collection (yes, I removed the narrow-gauge coupler he used) also getting super details.

Not all Weaver cars come with the end braces, but I cast those in resin, there's one in front of Bob's car at right.

March Meet Model Contest

April 2nd, 2016 at the Chicago O Scale Meet

Categories

- Diesel
- Steam
- Passenger Cars
- Single Structure
- Display/Diorama
- Traction/Trolley
- Freight Cars
- Heavy Electric
- Gas-powered
- Caboose
- Non-revenue

1. The model contest will be held Saturday April 2nd, 2016 at the Chicago O Scale Meet. Models must be entered prior to 11:00 AM on that day. Once entered in the contest, the models must remain in the contest area until 4:00 PM on Saturday, April 2nd, 2016. Awards will be presented at 3:30 PM on Saturday, April 2nd, 2016, and models may be picked up at that time.

2. All models will be judged by a team of judges using nationally established judging guidelines. Categories that have only one model will not be judged, and no placement will be given. In these cases, The O Scale Resource gift certificate will be awarded to the sole entrant in that category. Best of show will be a popular vote.

3. Judging will start at the judge's discretion, and will be finished by 3:30 PM on Saturday April 2nd, 2016.

4. All models must be put in the display position by the modeler, and only the modeler may handle the model.

5. Any descriptions, photos, or other information relevant to your model will be attached to this entry for the duration of the contest, and will be made available to the judges at their request. The material will be returned after the contest.

6. The entrant hereby certifies that the model entered is his/her work. I also hereby release The O Scale Resource Magazine (the contest sponsor), Hobby Hill Inc. (the show promoter), and all persons connected with the contest from any liability due to damage or loss of the model entered.

7. The entrant hereby grants The Model Railroad Resource, LLC photo reproduction rights for publication of this entry in The O Scale Resource magazine and/or use on their Website.



Chicago O Scale Meet 2016

Model Contest

Thanks for entering the model contest at the Chicago O Scale Show on Saturday April 2nd 2016. Attached to this letter are the Model Contest Entry Form and the Model Contest Judging Form. You may fill them out prior to coming to the show, and that is recommended to save you time at the show.

The Contest Entry Form identifies your model and is your receipt for your model. When you place your model in the contest, this form will acknowledge that you have a model in the contest. When you pick up your model, you will need to sign this form in the Claim Check area. This tells us that you have picked up your model, and it is no longer in the contest. The form also explains the rules for the contest. You will notice that there is a category for Single Structure and one for Display/Diorama. There needs to be a distinction between when a Structure model becomes a Diorama. For the purpose of this contest, a Single Structure is a stand alone building with no base. The building may have all the interior partitions and trim, but no other details. For example, a clock on a wall or a person on a platform will move your model into the Display/Diorama category. If the building is mounted on a base with scenery, that will move the building into the Display/Diorama category. This may seem awkward, but it is the simplest way to make the distinction. The other categories should be clear. If not, contact us for help.

The Contest Judging Form will be used by the judges when looking at your model. You need to fill this out in as much detail as you would like. In addition, we would encourage you to supply more information on separate pages. Title any additional pages with the title of the judging box they apply to. For example, titling the page Construction will tell the judges that the information applies to the first box of the judging form which is titled Construction. If you supply photos or drawings, they will be used by the judges and returned to you when you pick up your model. The first box titled Construction explains how you built your model. For example, if your model is more than 90% scratch built, you would check off that the model is scratch built. In the construction techniques section, you may check off more than one item. The last item in this box is the description of how you built the model. The space is short, and we would recommend more explanation on a separate page. Make a note on the line to see the attached pages. The next box titled Detail is where you will describe the detail and what it took to create it. Again, we would recommend a separate page for your explanation. Any photos or drawings you used would be a help to show how you replicated features in your model. The next box titled Conformity is where you will describe how your model matches a prototype. If your model is entirely free lance, that is OK. Just describe how your model would match a prototype construction. Again, we would recommend a separate page. The next box titled Finish and Lettering has some items that can be checked. Check as many as apply to your model. A separate page may be required to explain all your techniques. The last box that you will need to fill out is the Scratch Built box. Describe any parts of your model that you made from scratch, along with how you made them. A separate sheet will help here as well. Any information that you can give the judges will help them to understand your model and how you built it.

The three judges will each make their own observations and assessment of your model. They will then confer with each other to give you a total score. You will get the contest judging form back with your model, and your information when you pick up your model. All decisions by the judges are final.

If you have any questions, please do not hesitate to contact us.

Amy Dawdy amy@oscaleresource.com

Dan Dawdy daniel@oscaleresource.com

Entry No.

ENTRANT / MODELER (please print legibly)

Name _____ Category _____
 Address _____ City _____
 State/Province _____ Zip Code _____ Country _____
 Phone (____) _____, _____ Email _____

CONTEST EVENTS (please print legibly)

Enter your model description, number, or railroad name in the event you would like to enter.

Diesel _____
 Passenger Car _____
 Steam _____
 Single Structure _____
 Display/Diorama _____
 Traction/Trolley _____
 Freight Car _____
 Heavy Electric _____
 Gas-powered _____
 Caboose _____
 Non-revenue _____

CONDITIONS OF ENTRY

1. The model contest will be held Saturday April 2nd, 2016 at the Chicago O Scale Meet. Models must be entered prior to 11:00 AM on that day. Once entered in the contest, the models must remain in the contest area until 4:00 PM on Saturday, April 2nd, 2016. Awards will be presented at 3:30 PM on Saturday, April 2nd, 2016, and models may be picked up at that time.
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5. Any descriptions, photos, or other information relevant to your model will be attached to this entry for the duration of the contest, and will be made available to the judges at their request. The material will be returned after the contest.
6. I hereby certify that the model entered is my work. I also hereby release *The O Scale Resource Magazine* (the contest sponsor), Hobby Hill Inc. (the show promoter), and all persons connected with the contest from any liability due to damage or loss of the model entered.
7. I hereby grant The Model Railroad Resource, LLC photo reproduction rights for publication of this entry in *The O Scale Resource* magazine and/or use on their Website.

Entrant Signature _____ Sponsor _____ Date _____

CLAIM CHECK

I hereby certify that my entry # _____ entered in the model contest has been returned to me.

Entrant Signature _____ Sponsor _____ Date _____

Chicago O Scale Meet 2016 Contest Judging Form

Entry No.

1. Construction (Maximum 40 points) Points Awarded

Select the construction that best describes your model

<input type="checkbox"/> Scratch built complete model and details >90%	<input type="checkbox"/> Kit bash commercial model not per the kit plan
<input type="checkbox"/> Scratch built partial model and details <90%	<input type="checkbox"/> Kit built per the kit plan >90% some modification
<input type="checkbox"/> Modified commercial model >50% modified	<input type="checkbox"/> RTR model with some modification <20%

Name of kit or commercial model used as basis if applicable _____

Construction techniques—Select the methods and materials that apply to your model

<input type="checkbox"/> Drew own plans	<input type="checkbox"/> Followed construction article	<input type="checkbox"/> Cut & fit wood	<input type="checkbox"/> Soldered metal
<input type="checkbox"/> Used proto/com plans	<input type="checkbox"/> Cut & fit metal	<input type="checkbox"/> Cut & fit cardstock	<input type="checkbox"/> Made patterns
<input type="checkbox"/> Used kit plans	<input type="checkbox"/> Cut & fit plastic	<input type="checkbox"/> Cut & fit glass	<input type="checkbox"/> Made molds

Describe how model was built, complexity, and materials _____

2. Detail (Maximum 20 points) Points Awarded

Describe complexity, difficulty, & quantity of detail parts added by you. Identify commercial parts.

3. Conformity (Maximum 25 points) Points Awarded

Describe how your model conforms to a prototype. Include prototype documentation other than supplied with kit.

4. Finish & Lettering (Maximum 25 points) Points Awarded

<input type="checkbox"/> Weathered	<input type="checkbox"/> Hand Lettered	<input type="checkbox"/> Decals	<input type="checkbox"/> Transfers	<input type="checkbox"/> Spray	<input type="checkbox"/> Airbrush	<input type="checkbox"/> Dry brush	<input type="checkbox"/> Stain
------------------------------------	--	---------------------------------	------------------------------------	--------------------------------	-----------------------------------	------------------------------------	--------------------------------

Non weathered Describe methods and materials _____

5. Scratch built (Maximum 15 points) Points Awarded

List all parts scratch built and note special refinements. _____

6. Total Points (Judges only here) Total Points

Tabulated by _____ Verified by _____

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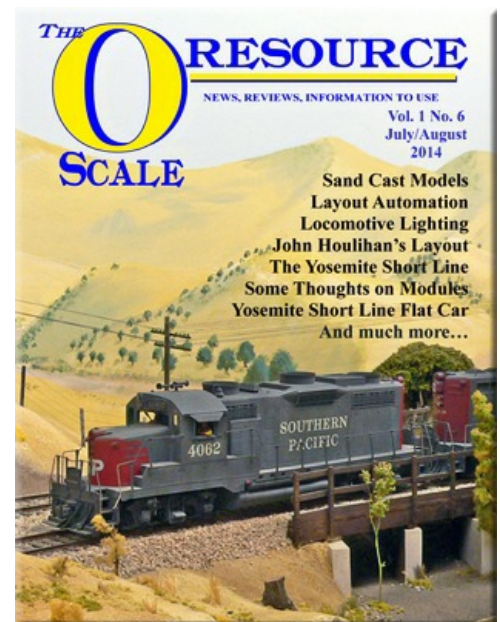
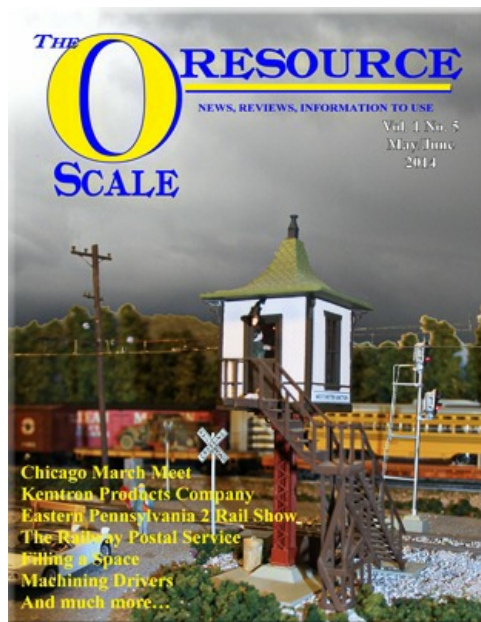
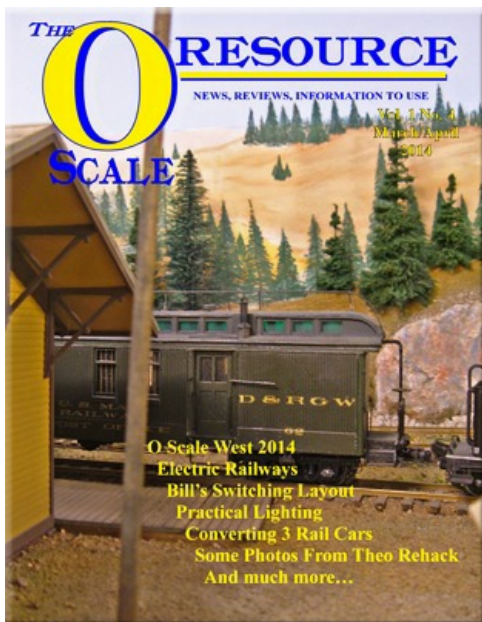
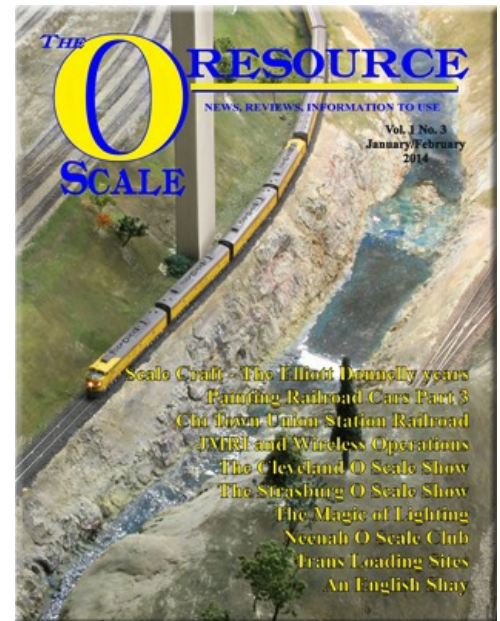
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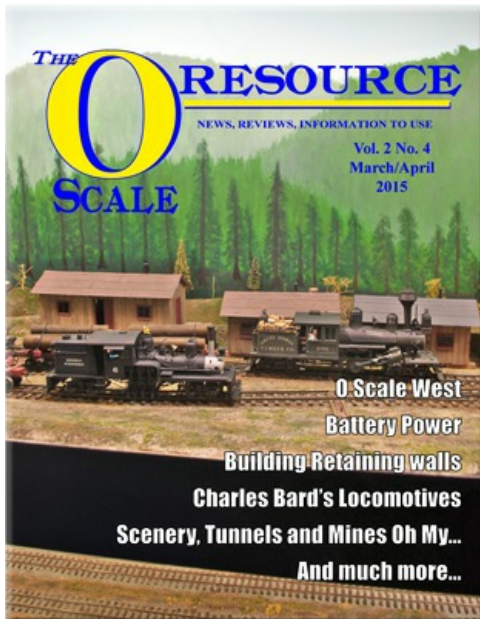
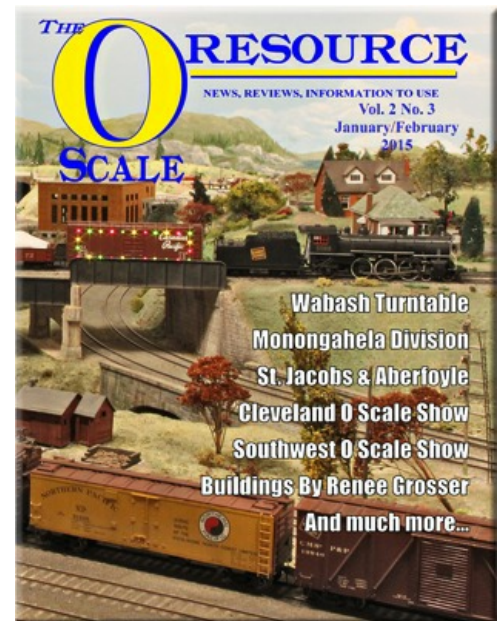
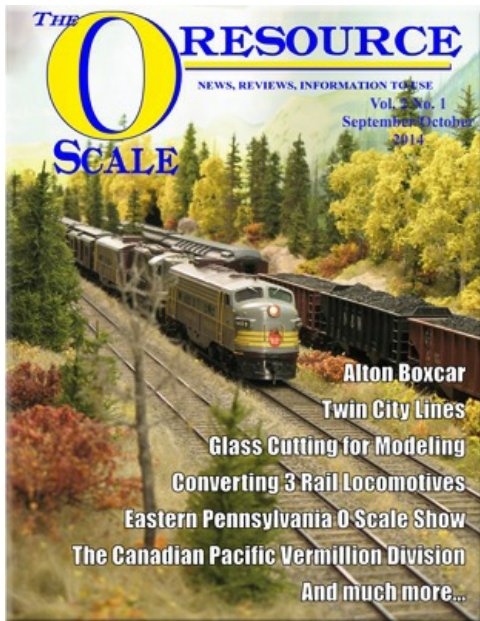
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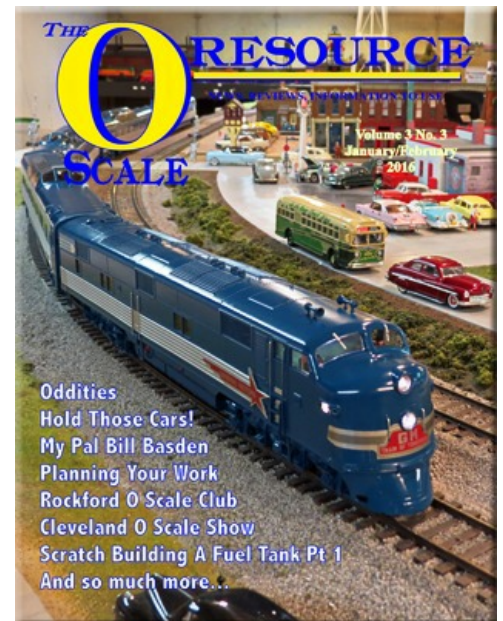
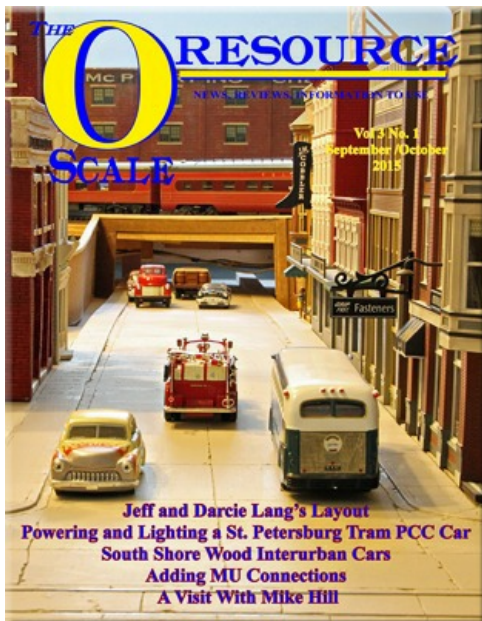
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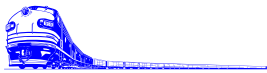
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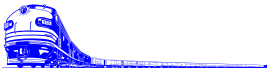
O SCALE SHOWS & MEETS

The O Scale Resource Magazine will now be providing a free listing of upcoming events. This small, text only listing will include the Event, Date, Location, Type of Event, and Contact Information. [Click here](#) to go to the sign up form. This form will take your information, and we will publish it in our next issue. If it is an annual event, you will need to submit your information every year.

Cherry Valley Model RR Club Swap Meet & Open House
March 12th, 2016
7 East Maple Avenue, Merchantville NJ 08109
O Scale Swap Meet & Club Layout Open House
Email: cherryvalleyrr@verizon.net



Rock River Valley Division Show and Sale 2016
March 20th, 2016
Jefferson High School, 4145 Samuelson Road, Rockford, Illinois 61109
All scale train show and sale
Sat. 10:00 AM - 5:00 PM, Sun. 10:00 AM - 4:00 PM.
Admission \$5, sale tables \$25, Non-sale / display only tables free.
Contact Don Brindle 815-874-6095, donbrindle@aol.com



Chicago March Meet (Note new later dates this year only)
April 1st, 2nd and 3rd, 2016
Weston Lombard Hotel
Lombard, Illinois
9:00 AM-2:00 PM each day
Email : info@marchmeet.net
Web Address: marchmeet.net



Strasburg Train Show
April 9 - Strasburg, PA
2-rail swap meet at the Strasburg Fire Co, 203 W. Franklin St,
9 AM - 1 PM. Admission \$5 (Wives/children/military w/ID free). Tables are \$25 for first table, additional tables \$20 each.
Great food, modular layout, clinics. Contact John Dunn
609.432.2871 or jdunn8888@hotmail.com or Rich Yoder at
oscale48@comcast.net.



O Scale West
May 5 through 7th, 2016
Santa Clara, California
2-rail O scale swap meet, clinics, open layouts, videos, contests, company store
9:00 AM to 5:00 PM each day
Email: info@oscalewest.com
Web Address: oscalewest.com

Western Pennsylvania Trolley Meet
May 13th thru 14th, 2016
Pennsylvania Trolley Museum Washington PA
Western PA Trolley Meet May 13 -15 2016. Model Trolley swap meet-unlimited trolley rides and more
Contact Christina 1-724-228-9256
christina@patrolley.org
patrolley.org



Southern New England O Scale Model Train Show and Open House
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161 Chestnut Street Gardner MA 01440
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godfreys78@aol.com
www.snemrr.org



Cleveland 2 Rail O Scale Meet
November 5th, 2016
Lakeland Community College Auxiliary Gym 7700 Clocktower Drive Kirtland, Ohio
Email: J1d464@yahoo.com

Have an upcoming O Scale event? We would like to help publicize it. Send us the information up to one year in advance, and we'll place it here along with a direct link to your Website and/or Email.

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