

# Rallec Railroad

*"Where Technology Meets the Hobbyist"*

## Locomotive Driver

Wiring up the prototype board continues with the test meters in place and about to be wired up so that everything can be monitored at a glance. Once the Vin to 5VDC board is installed, the processor board will be installed. That is assuming the Over-The-Air program starts to work correctly.

Speaking of Over-The-Air programming, there seems to be a problem with getting through the fire wall on the router. Don't need a fire wall since I am not connected to the internet and control of the trains is not that big of deal. So I am having problems killing the fire wall algorithm that the manufacturer of the router thinks everyone should need one and want one if they like it or not. This is a work in progress and is likely to take more time. Next time I will be more careful in the selection of a router and make sure that I can disable the fire wall.



*Bob Treat, San Diego*



*Western Toad*

*Common to California*

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## Garden Plants – Blue Star Creeper

Common names – Blue star creeper, swamp isotome

Botanical name - ***Campanulaceae Isotoma fluviatilis***

Plant type – Herbaceous perennial

Mature Size – 2-30 in. tall, spreads 2-3'

Sun exposure – Partly Shady to Shady in the south full sun to partly shady.

Soil type – Any type of soil, just well amended

Soil pH – slightly acidic (pH 6.5-6.8).

Bloom time – Spring/Summer.

Flower color – Light blue, light purple

Hardiness zones – Zones 6-8.

Native area – Australia, New Zealand

**Toxicity – Non-Toxic**



I have planted the trees that I have been covering in this newsletter a couple of months ago. Now they really need a fast growing groundcover that will enhance the look of the area. I thought I would try the Blue Star Creeper since it is in a partial shade to shade area, especially under the small trees, I want something that will look good, grows fast, drought tolerant and flowers. My local nursery (Valley Center Nursery, just about the only place I shop anymore) told me about this ground cover and she ordered a flat for me.

Blue Star Creeper does well in most climates and has very few diseases or pests. It will even take moderate traffic, however, it will take one growing season to establish itself, then the spreading quickly begins. An extended drought will not kill these plants but makes them go dormant.

OK, the YouTube channel is just about ready. Expect an email, late October announcing its channel name and a couple of videos. This has been a long time coming. In it we will discuss many of the things that we cover in the newsletter, but in greater detail. We will be starting with Modeling software for 3D printing.

If you discover grammatical or spelling errors in this newsletter, please accept my apologies and please remember I was an Engineering major not an English major. Also please be advised that I am not a very good photographer.

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## 3D Printing – ABS surface finish

I have covered this in one of the many clinics. During the 3D print jobs using fused deposition modeling, (FDM) the layers are not exactly fused together. FDM fabricates parts by extruding a semi molten polymer through a heated nozzle. As the material is deposited, it will cool then solidify and bonds with the adjacent layers. Well sometimes it does bond, sometimes it does not.

I use ABS almost exclusively for my prints. ABS will handle the environment better than many polymers. It is UV resistant, very important when we print objects that spend their entire life outdoors. It is paintable, but it is still a plastic, so you have to use the correct paints. But before we get to the painting, you must “post-process” the parts. (That is nothing more than light sanding with 220 grit, fixing any irregularities, etc.) But even before that, let's make sure that we have a “solid” part. No separating layers, no layers hanging loose in space and the part is still weak at any of the layers. Bring in the very expensive 😊 vapor bonder.

A vapor bonder is acetone vapors (VERY EXPOLOSIVE) swirling around the part for a period of time. So how do you keep the vapors in check and the parts safe. Bring in a gallon paint can with lid, frogs (the kind that hold flower stems), magnets, and paper towels. And please do this **outside** away from sparks and flames.



Here are the components to the vapor bonder from left to right: acetone, frogs on top of the lid, the paint bucket with paper towels lining the inside and magnets holding the paper towels in.



To the right, you can see a picture of the magnets holding in the paper towels. I just used whatever magnets I had laying around. The purpose of the towel is to retain the liquid acetone and allow the vapors to escape the towel.

Place the parts suspended on the frog(s). Put the frogs and the parts on the cover of paint can. Put a splash or two of the acetone on the towels. If there is any liquid acetone get that liquid onto the towels so the liquid does not fall down onto the parts. Place the can upside down on top of the cover trying not to disturb the parts. Now wait. The amount of time that you need to have your parts in the bonder depends on the outside temperature. 10 minutes around 80°F, 40 minutes in the low 60's.

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To the right is a picture of a tie plate part that has not been vaped. (Keep in mind this part is very small: 0.55" long, 0.30" wide.) It is dull in color and you can see the layers and in the holes there are pieces of extruded plastic in the holes.



The above picture show the vaped tie plate. It looks slightly different, but what I really want you to take away from this picture is that the layers for the parts are really fused together making a much stronger part. The holes are a little bit better defined making it easier to locate for screws. From a distance it does not look that bad. But now I use 220 sandpaper to take off the high edges and clean it up just a little. A couple of passes on each side with the sandpaper is all that is needed. Good project when I am sitting outside in the evening enjoying the world around me.

## **Time to work on the Railroad**

Our September/October weather is still with us. I have been able to go out and trim some trees, move some rocks, prune some trees but not pouring any concrete so no track laying. Spending some time on the hardware and software for various projects, but I have been concentrating on the YouTube channel. Video and audio editing are not as difficult as I thought they would be. In fact it is quite easy. I use Audacity for audio editing and DaVinci Resolve by Blackmagic Design for the video editing. Both are free so if you are curious like I am, try them.



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**Mission Statement:**

We are about education, instruction, products and having fun with G Scale model railroading. We cover such things as photography, video, metal working, 3D printing, electronics and much, much more. At heart everyone here is a maker. That means we enjoy the journey as much as the finished product.

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