DCC Impulses Column

by Bruce Petrarca
photos by the author, unless otherwise specified

Tools, Tips and Techniques

Folks seemed to like the "looking over your shoulder" information in my January column on the Kato HO-scale NW2 sound installation. So I decided to put together a few hints and kinks for this column. I know many folks know a bunch of these, but if there is one new idea here for you, then it was worthwhile.

Since this entire column consists of hints from my workbench, I'm not going to have a separate tip in a sidebar as well.

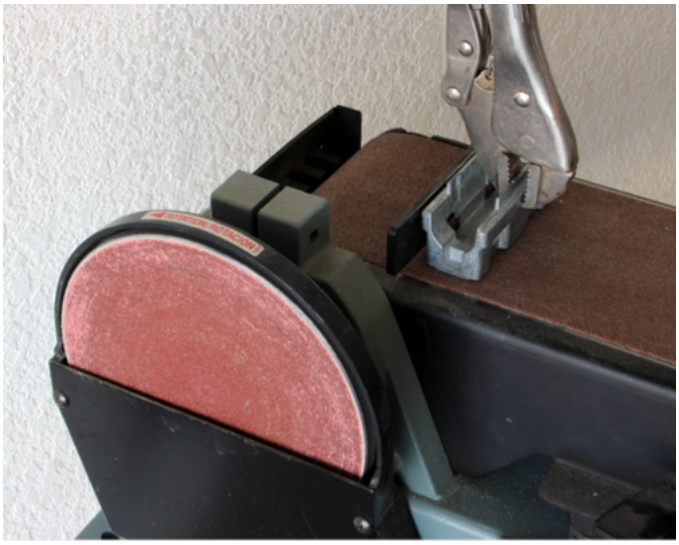
While this is a DCC column, many of the techniques and tips here relate to general modeling, not just DCC. So, those of you who say you don't care about DCC have a reason to read this one!

Tools

Let's talk first about tools and work-around techniques. If we all had lots of space and money, it would be nice to have all the neat tools to make things perfectly. Mostly, we are working with what we've got. Here are a few ways to make things easier without spending a bundle or needing a lot of storage space.

Machining weights

A common need, when installing a decoder, is to remove some of the material from the weight or the frame of the loco. It is easy enough if you have an end mill and the expertise to operate it. But, what if you don't?

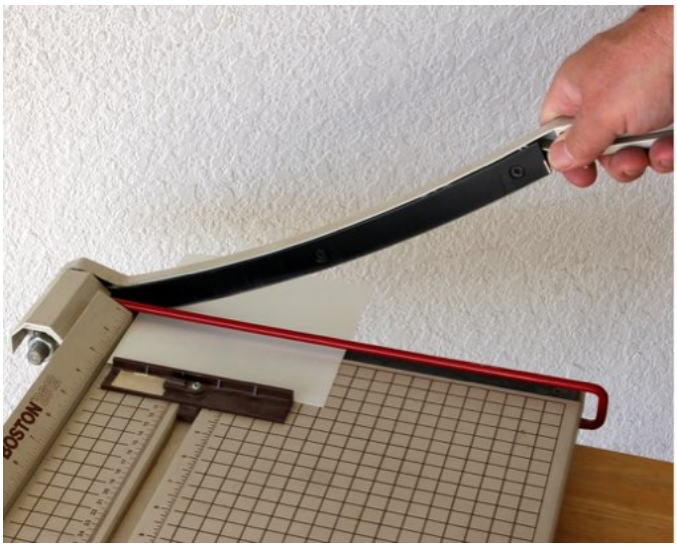


Before I bought a mill, I used a belt sander to remove material. Safety required a pair of clamping pliers and a pan of water. When sanding the metal, it gets hot. Don't want any burned fingers.

Hold the part to be machined against the fence and apply light downward pressure. Check frequently for dimensions and squareness. With a bit of practice, one can make pretty good-looking and square cuts.

Cutting Styrene

I cut a lot of styrene for speaker baffles and enclosures, as well as other modeling.

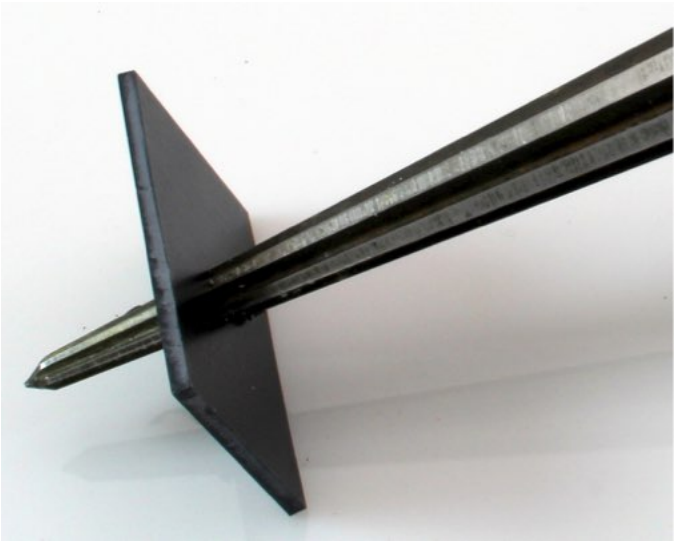


When I bought a new bypass paper cutter for the office, I kept the old one for cutting styrene. While it won't be as accurate as something like the Northwest Short Line "Chopper", it can cut up to 0.01 inch thick styrene pretty easily. I use it to cut large (up to 12 inch long) pieces, which I later fine cut on the chopper.

Hint: I use my calipers (with the jaws locked) to transfer a dimension to the plastic. Rest the end of the plunge bar on the cutting surface and push the styrene out until it contacts the end of the caliper.

Making large holes

Frequently installations require a large round hole for sound to get out. Large drills are expensive and sometimes difficult to control.



A tapered reamer comes to the rescue, especially in plastic models. Drill a reasonable sized hole and use the reamer to enlarge it.

Hint: If you cut from one side and then do a light burnish from the other side, the resulting hole will be nearly cylindrical.

Stripping fine wires

A good pair of strippers designed for fine wire is one of the most valuable tools you will find for decoder installation. Yup, they will suck up the better part of a $20 bill, but there is no substitute!

Fine sanding

Leslie Eaton, MMR, gives lots of clinics at the NMRA national conventions. At one of the first of hers I attended, she suggested that modelers should have a Sally Beauty Supply discount card, as they have lots of tools and supplies to make modeling easier.

One of the best tools from there are emery boards. I get them in a range of grits. The photo shows a black 100 / 180, a blue 220 / 320, and a pink 400 / 600.

Used by themselves, they will round the surface they are sanding. If you put them on a rigid surface, like your workbench, and move the object being sanded across them, they will sand straighter. The harder you push into them, the more rounded the corners get.

Tips & Techniques

Here are some of my methods and techniques for you to consider.

Blowing things off

Air compressors are a big part of model railroading. I have one for my airbrush and a large unit in the garage for big blow-off projects, as well as inflating tires, etc.

However, on the workbench, the big compressor is too cumbersome to use and the airbrush compressor won't develop enough wind to blow things off.

The solution: canned air!

LEDs, no resistors

It uses up time and space to wire LEDs and resistors for all your lighting needs. Many decoders today come with series resistors already included for direct LED connection.

For the rest, consider LEDs with the resistors built in. Called 12 volt LEDs, they light about 4 volts and are almost full brightness by 6 or 7 volts. I've found them in warm white color, which works well for steam and early diesel headlights, as well as interior lights for structures.

I purchased the unit shown in the photo from Litchfield Station. The photo was taken with no external resistors being used. The LED was connected to a 9-volt battery. Other vendors have similar products. Find what you like.

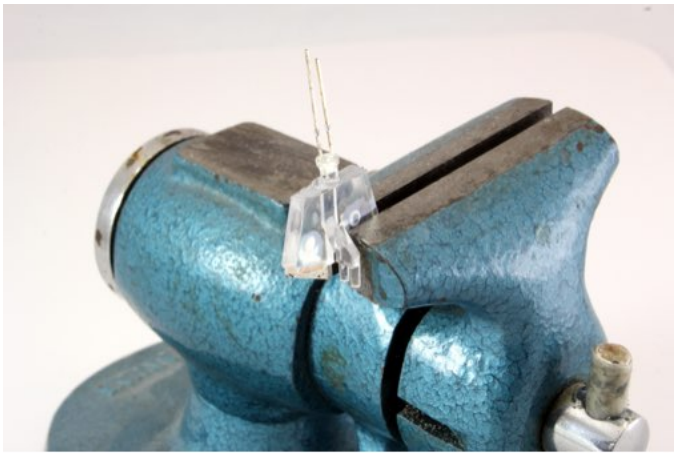
Faller Expert cement for light bars
Use Gravity to your advantage

Here is a two for one: two techniques shown in one photo.

A recent installation needed a shortened light bar with the LED (12 volt version) glued to the shortened light bar.

I use Faller Expert cement (see tip #10, too) in cases like this. It is methyl chloride, like most styrene cements. Where it differs, is that it includes a large percentage of styrene.

This allows it to make an optical surface. To create this assembly, I used the cutoff wheel in my motor tool to cut the light bar and to square off the front of the LED.



My assembly tool was gravity. I put the LED in a vise and stood the LED on top in a pool of Faller Expert cement. Gravity held it in place until it was dry.

Faller Expert dries much slower than similar styrene cements without the added styrene.

Keep Faller Expert open

I love Faller Expert cement for many uses. What I haven't been too happy with was its tendency to set up in the needle applicator and render a $5 bottle of cement worthless.

I got the suggestion from another modeler: use a 0.015 diameter wire to keep the needle clear.

I've now abandoned the rubber tops and making sure that I "burp" it every time. I just use a piece of berrylium copper wire (Titchy Train Group) with a bit of blue tape on the top, to prevent stabbing myself with the wire, as my stopper. No need for any other stopper, unless it is going to be unused for months. Always comes out.

Hint: the wire is a bit longer than the needle tube, so it extends into the bottle proper.

See what you are doing

I attended a clinic at a National NMRA convention a few years back. The presenter, an ophthalmologist, as I remember, had two suggestions for keeping our eyesight as good as possible for as long as possible.

First, use as much light as possible, both general illumination and spot illumination where you are working. I have two sets of tube fluorescents over my work bench and a "drafting" style articulated arm lamp for point illumination.

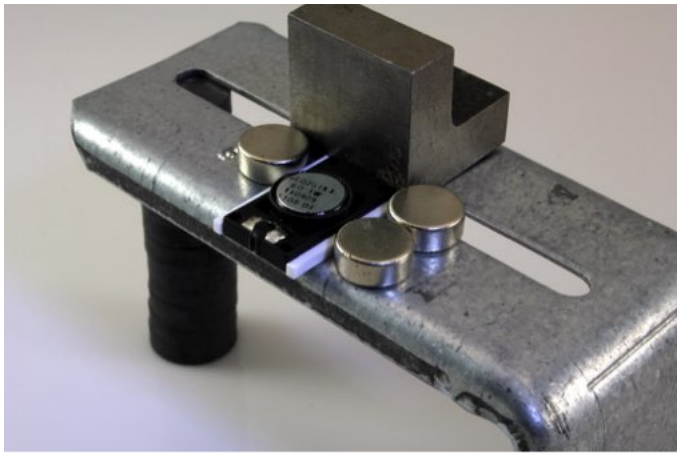
Secondly, keep your eyes well lubricated. When they feel scratchy, it is time to get up from the bench and do something else. Just a few minutes break helps. Wash your face or some such. Before and during work sessions, it helps to apply sterile lubricating drops. This is the bottle I keep on my workbench.

Mount speaker
Hold your stuff

Here is another twofer!

I have talked many times about mounting a speaker in the shell of a diesel, either to fire up through the fan grills or to make an impromptu box enclosure. Here's a quick way to make the speaker fit. I'm going to shim out a 14 x 25 mm speaker to fit in an Atlas S-2 HO shell. Don't know why you'd want to do that, as a 16 x 35 mm speaker fits perfectly. However, that's what I had on hand to show the process.

After measuring the width of the shell and the speaker, I determined that I needed to add 0.06 inches to each side of the speaker. I found some 0.06 x 0.08 styrene strips in my box. So, I'll cut them to the length of the speaker and glue them onto the side.



I put the speaker next to the cutter blade in my NWSL chopper and slide the fence up against the speaker, forcing the speaker against the blade. When the fence is tightened in this position, the distance between the blade and the fence is the same as the length of the speaker. Two quick cuts and I now have the styrene to affix to the side of the speaker.

Now to hold the styrene strips to the side of the speaker while I glue them. I use magnets, angle brackets, machinists ells, etc to hold the parts in place while I apply MEK to cement the white strips to the speaker. If I wanted to protect the metal surfaces, I'd use a bit of wax paper.

For what it's worth, I bought a large scrapbooking cutting mat that is magnetic to use for larger projects.

When the cement is dry, the speaker can be slipped into the shell and held in with caulk.

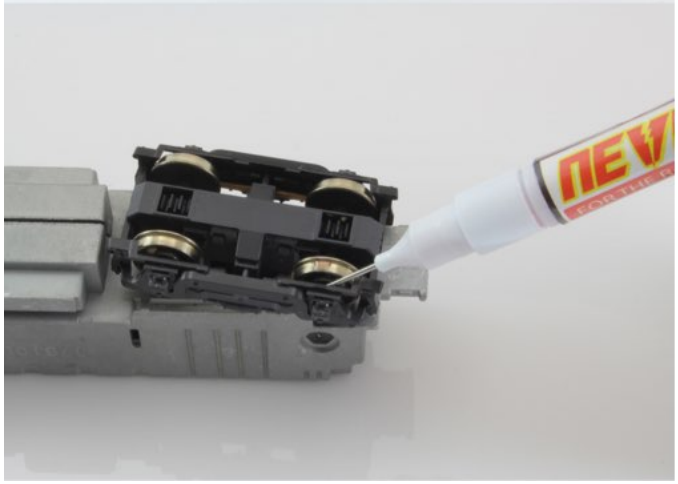
Lubrication

Since I've found Nano-Oil and Never Stall, I use them extensively in my installations.

If the lubrication is dry or caked on, it will be almost impossible to get the loco to run well at low speed.

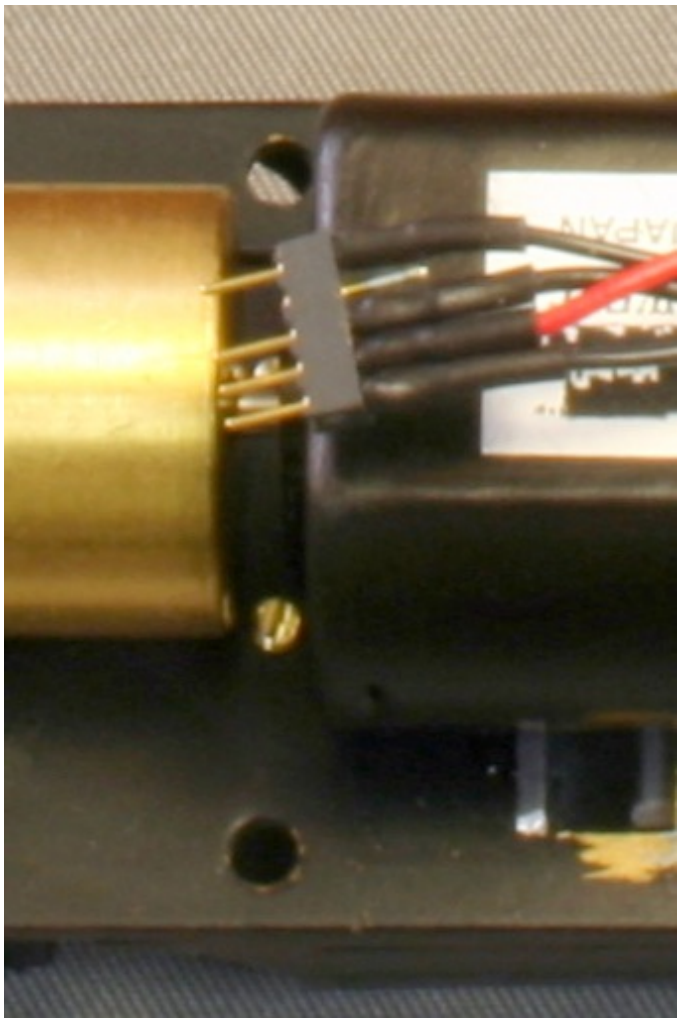
In my January 2013 column, I discussed disassembling the drive train and cleaning with the ultrasonic cleaner. Since I started that regime, the locos I work on run better than ever.

Adding Never Stall conductive lubricant to the appropriate areas keeps the contacts clean and the electrons flowing.



Roll your own connectors

It is frequently hard to find connectors that will fit in our models that have the exact number of pins for your installation. Here's how I handle it.



I build my own connectors. Not from scratch, but I start with 50-pin headers and cut them down to the size that I need. I put polarizing pins into them by cutting them off the male side and imbedding them in the female side. These headers will handle 1-amp decoders and the appropriate wire.

When I owned Litchfield Station, I found a source for 50-pin connectors that match the NMRA Nem-651 standard for the small connectors.

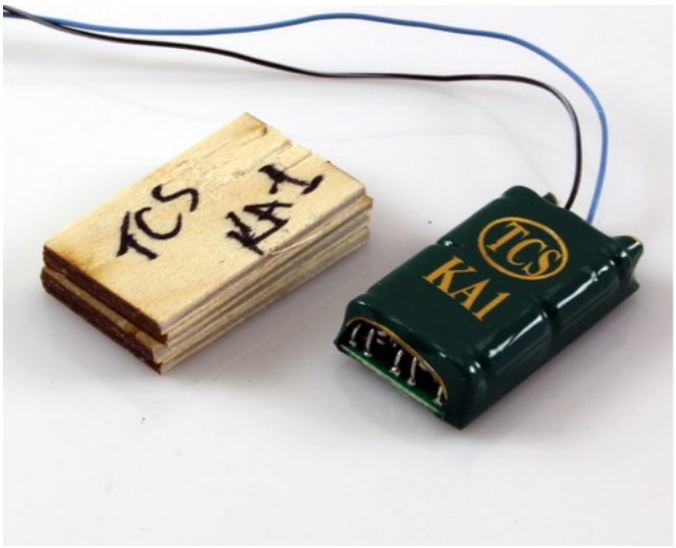
Thy are much less expensive than buying ready-made connectors. The big trick is insulating them and marking them.

Here's how I insulate them. I use 3/64th inch shrink tubing. If I have a lot of pins, the shrink gets too tight. Then I put the shrink on EVERY-OTHER pin. Then I put a larger shrink tubing over the entire connector. That way all pins are insulated from each other and the total package is insulated from shorts to the frame, etc.

This photo shows a connector with 3/64 inch shrink tubing on the connections, ready for an overall sleeve to insulate and stabilize the entire connector,

Finding space

The best way, in my opinion, to find whether your installation will work before you buy the decoders and speakers, is to try it.



I use the data from manufacturer's web sites to make wood mockups of the decoders and trial fit them before hand. I make the mock-ups a bit oversized to allow for shrink tubing hang-over and clearance for wires.

This photo shows the mock-up I made for a TCS KA-1 and the actual part after I got it. I was able to verify that the KA1 would fit before I bought it with this mock-up.

Glue it fast

The wood mock-up discussed in "Finding space" was built from bits of wood from a Fast-Tracks project, assembled with Pacer Formula 560 Canopy Glue.

I don't like this glue, I LOVE it.

It glues almost everything. It dries clear, so you can even use it to make windows. It is fantastic for installing glazing. It even works as an incredibly fast drying wood glue. I've built entire loading docks in a very few minutes, just assemble the parts on waxed paper! Even though it will glue almost anything, it works best on the more porous surfaces, like wood and plastic.

That's all, Folks!

A quick look into what I do and why. Hopefully you found one or more new idea to improve your modeling, whether it makes it better, easier or quicker.

If you liked this column, please click on the Reader Feedback link here and rate it **awesome**. Please join in the conversation that invariably develops there about the topics presented in the column. Share your experiences. Thanks.

Until next month, I wish you green boards.