Detailing Plastic Track for Racing Slot Cars

text and photos
by CZAR

This is a guide to detailing a plastic slot racing track that can be driven like a wood track. Most people today are introduced to slot racing on plastic track, and most home tracks are plastic. The alternative, of course, is a wood track. Some people maintain that you can't be a serious slot racer if you don't race on a wood track. That, of course, is nonsense. Racing on plastic is just as serious, but different than racing on wood. (Or maybe it's not so different after all.) Taking a slot car out of the box, putting it on a track and expecting maximum performance is as unrealistic as assembling a plastic track and realizing performance like a wood layout. I am an advocate for plastic tracks and I much prefer a digital track. With some additional work (tuning) you can eliminate all of the drawbacks of plastic – except one. I have built five different tracks in the past 12 years, trying to improve each time. I would like to share some of the insight and techniques that I have learned. As I just said, this is what I have learned. You may have a different way of doing something, so do whatever works for you. This is also just enough information to get you to a point where you can expand your landscaping and detailing to any degree you choose.

The track: For this article, the brand of track makes no difference. I use Carrera track, but any of the techniques in this article can be used with whatever brand of track you are happy with. If you are just choosing a track, remember that each brand has advantages and disadvantages. You will find lots of discussion about this on the various forums.

The table: Track layout starts with a solid foundation. Build or buy a solid table to hold your track layout. Some things to remember: If you can't reach at least halfway across the table, it will be difficult to re-slot errant cars from the middle of your layout. You can use a "grabber", but that gets old, fast. One of the most important considerations is table height. Higher tables make it harder for shorter people to see the track. Higher tables also means you will have a shorter reach. Higher tables mean you will be standing for the entire event. I have built all of my tracks with high tables, until my last track.

Now my track surface is 24 inches off the ground and I have six inches of sideboard. Originally, my table stood about 40 inches off the ground, but I had to cut the legs when I moved, so I could get the track through the door (turned on its side). I intended to extend the legs back up, but have since changed my mind.

The advantages I find with a lower table: you can see the whole track easily. It is really interesting having a "helicopter's eye" view of the racing. With digital and five or six cars on two lanes, you need to see as much of the track as you can. As I mentioned earlier, it is easier to marshall cars because you can reach further. For a very close perspective, or intense practice runs you can sit in a regular chair and watch the racing "ringside", with a driver's perspective. Give track height serious thought.

Your table must be strong and rigid. People will lean on the table while racing and talking and you don't want it to shake or sway, or fall down.

Track layout: Obviously this is the biggest decision you will make in this process. But, unlike working with wood, you can change your mind and easily re-configure your track as often as you need, to get it right. Frankly, you should expect to make some changes before you finalize the layout.

With any track layout you first have to decide what you want out of the track. By that I mean do you want a high-speed track with long straightaways, a technical track with lots of turns, a hill climb? For my track, the most important consideration is flow. Can you drive the cars with a rhythm and no awkward transitions? Speed is secondary. Even though we all want our cars to go fast, you can always improve speed. If the track is difficult to drive, it will never get better.

I have tried to use layout programs, but I have the best luck if I just build my track on the table. Make sure you have some odd sized straights, like ½ or ¼ lengths. These are invaluable for getting the track to match up and softening the transitions into hard turns. You can "fudge" a little bit and leave some small gaps between track pieces, but the tighter and smoother everything fits together, the better the track will run, and conduct electricity.

Line-of-sight is another big consideration. Can you see all parts of the track clearly? If there are obstructions (like an overpass) try not to cover turns. If a straight is obscured you can still drive fast. Blind curves are usually a disaster. This is also the time to consider where you are going to site the driver's stations. (This kind of assumes you will be using an after-market power supply – and eventually you will.)

I have always put the driver's stations on opposite sides of the track. That way, when you change lanes you also change your perspective of the race. Having stations at different points on the track also allow you to compensate for some blind areas, though it may create others. But, wherever they go, be sure the drivers can see as much track as possible. Now, with digital, I use wireless controllers so this is no longer a big problem. But, even with wireless controllers, a bend under a bridge is still very difficult to negotiate.

Finally, should the lanes be equal length? My answer is no. There is no advantage to equal lanes if you switch lanes during a race so each driver races both lanes. But there are many advantages, to my mind, for unequal lanes. With unequal lanes you can more easily drive against a better/worse driver. It is also easier to match cars with uneven lane lengths. The better driver/car goes in the slower lane, and/or uses a slower car. Both drivers can still have a good race. That works for me, but design it any way that suits you.Temporarily put the set's skid aprons where you can, so the cars can slide. Attach the sideboards to the table if you haven't done so already.

This may seem obvious: but, start driving on your new track. Drive it slowly to learn it. Then build speed. Finally, drive with a critical eye to fine tuning the layout. This is the time to make minor (or major) changes so the track drives well and meets your objectives. Take your time with this step. A week or two is not too long to drive, make changes, drive some more, make changes and finally be sure. Invite your buddies to drive and get their input. Once past this step changes in the track design can be done, but it will take more work.

Power taps: If you are going to use power taps, this is the easiest time to install them. A general rule of thumb is to use a power tap for every 20 – 25 track connections. When running wires for power taps it is best to drill holes in the table and route the wires underneath. There is some debate about whether power taps are necessary. The more tightly your track fits together, the less resistance there is for electricity to get lost/wasted. The longer your track, the more necessary they become.

Painting the track: Go to the store and buy a quart of flat latex exterior paint in the color of your choice. You need to paint the track for better grip and aesthetic reasons. This is the same racing surface as a wood track. The substrate is different, but the contact patch is the same.

The plastic used to make tracks is slippery so it needs to be painted for maximum performance. There are a couple of ways to go about this step. With my last build I painted the track after it was assembled and then wiped the rails clean. I would recommend this technique. Previously I had painted individual track pieces, let it dry and then scraped the rails. Or I taped the rails and then painted and lifted the tape for clean rails. Both were very tedious and I had to put the track back together.

Prep the track, whether it is new or old. If it is new, there are mold-release compounds that need to get cleaned off. I like to use naptha (lighter fluid) on a cloth to wipe down the track and remove oil and tire residue. (Be careful, it is VERY FLAMMABLE. Have ADEQUATE VENTILATION.) Put enough on the rag to make it damp, not wet. Rub the track and repeat if necessary. It will dry almost immediately. You can use soap, water, and a brush, but let it dry completely before painting.

Dilute the paint so it is about the consistency of milk (not cream). Using either a cheap, disposable foam brush or a roller, paint a section of the track, about 5 feet long. Go over the section several times, making sure the paint is pushed into the track surface/texture. With a cloth or paper towel, wipe the rails clean. Go over the rails with a damp (not wet) paper towel or cloth. Do another section, and so on. Again, if you mess up, just let it dry and then paint over it. Hint: It is easier to lean over and paint the inside of the layout first. Plan on giving your track at least two, and preferably three coats of paint. Follow manufacturer's times for re-painting. Let the last coat dry at least 12 hours.

You can also take the track apart, paint it, and reassemble, if you prefer.

Burnish the rails: After the paint has dried, burnish the rails with a Popsicle stick. Break the stick in half so the fibers are exposed. Then, with medium pressure, rub the rails. There is always a little paint residue left on the rails so look carefully. You will see the rails really sparkle after this treatment.

Racing surface: Here is where we really blur the lines between racing on plastic and racing on wood. One of the very real criticisms of plastic track has been the fact that plastic track is raised off the table, and if you hang a wheel off the side, you crash and burn. With wood the transition from on track to off track is non-existent. This makes driving the cars easier and more realistic. For not too much money (less than $100) and a weekend or two you can enhance your plastic track so it rivals the performance of any wooden layout.

Materials: Foam board (32" x 40") several sheets, depending on table/track size
Utility knife w/extra blades
X-Acto knife w/ #11 blades (extra blades)
Straight edge
Adhesive caulk
White glue
Tacks (small)
Quart flat exterior latex paint (cheap is okay)
Spray paint for foam boards
Craft paint
Paint brushes (2" sponge brush or small roller, small brushes for detail, touch-up)
Popsicle stick

Preparation: What we are going to do is build up the outside and inside areas of the track so there is little to no difference in the edge of the plastic track and the infield/outfield around the track. This way, cars are free to slide and drift wherever gravity, centrifugal force, and velocity take them. This will make the skid aprons unnecessary so they can be removed. Take your time and you will be rewarded with a track that is more realistic and a pleasure to drive.

Measure twice, cut once. Measure twice, cut once. Measure twice, cut once.

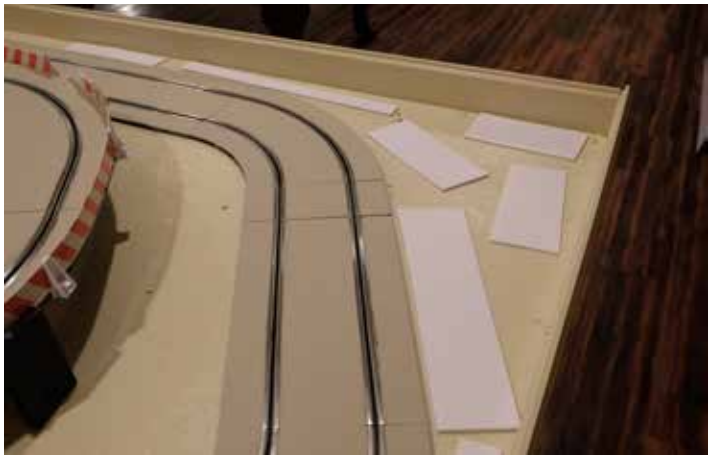
The first step is to measure how thick your track is. My Carrera track is 8 mm. This is the amount of build-up necessary for a smooth transition to off track. Scalextric track is 8mm thick also. We are going to use foam board for the build. It is quite inexpensive, easy to work with and lightweight. Buy your foam board from a picture framing supply store, or someplace where you can get a standard 32" x 40" piece of foam board. (It does not have to be archival.) This is the standard framer's size and is much less expensive than buying at the craft store. The standard thickness for this board is either 5 mm or 3 mm – PERFECT! Buy about 1/3 – 1/2 as many sheets of the 3 mm as the 5 mm. Certainly you can go back, so be conservative (In early 2016, the cost was $4.00 per sheet. I used a total of 12 sheets for my 7' x 14' table/track).

At some point you are going to paint the foam board. I like to paint it before I cut it. It just makes things go much faster. So, using a base color; green for grass, brown for dirt, tan for sand, etc. I make sure the paint is sprayed somewhat unevenly. I don't want any pure white spots, but I want a noticeable difference in lighter and darker areas, like real grass. In fact, painting a darker undercoat and using a very light mist of another color can give a nice effect. Another technique I have used; is to paint small highlights with another, brighter color, and smear them with the heel of my hand. Don't be afraid to experiment a little bit. The surface is paper, so the worst that can happen is to repaint. It's your track, make it look like you want.

Applying foam board: We want to use the foam board as efficiently as possible. It doesn't matter where on the table you start; pick any corner. Lift the track and slide the 5 mm board under the track and square it with the corner and sideboards. Make sure the track is solid, square, and positioned properly on the table. Everything will key off of this first cut.

Using the utility knife, cut around the contour on the outside of the track. I have used X-Acto knives for this, but prefer utility blades for a couple of reasons. An X-Acto blade is too thin and sharp. It will pivot or swerve too easily leaving areas to repair. The utility blade is wide enough to press against the sidewall of the track and follow the shape smoothly and it stays sharper longer.

Take full advantage of the length of the foam board and follow the line as closely as you can. (We need to have a word about blades. DON'T cheap out on blades. A sharp blade cuts much more easily and cleanly. If you are not sure, just put in a new blade.) It may take two or three cuts to go completely through the foam board. When you are done cutting, lift the track and separate the foam board. There may be small places that are not cut through, use an X-Acto knife to cut them apart.



The track should fit nicely against the foam board, but there will be obvious gaps between the edge of the track and the board. This is actually a good thing that we will deal with later. Take the remaining foam and use the factory cut edges to place the board in another area of the track, squared against the sideboards and a corner. You want to keep your placements and edges of the boards as square as possible. But, just like the gaps at track 's edge, mistakes will be fixed later.

After you cut foam board to fill the outside of the track, you can use those borders to brace the track for the inside cuts. Make sure the track is pressed snugly against the outside borders. (Again, there will be gaps along the edges.) The track should be as stabile as possible. Slide a board under the inside of the track. Adjust it so you can use it efficiently when you cut. Continue this procedure until you have cut foam board to fill the entire exposed table. Remember to cut only the thicker board for this process. If you are uncomfortable cutting next to the track, substitute a pencil and cut the board off track. You can attach the top "plate" or cover as you cut it, or you can do it after it is all cut.

The cut board is the top layer, and the 3 mm board (fewer pieces) gives the top layer support so it sits flush with the edge of the track. But, the bottom layer doesn't have to cover the entire table, like the top does. So, the bottom pieces can be cut in irregular shapes and placed where they give the top layer good support. I like to attach the support pieces with tacks. They clean up much more easily than dried glue when I change layouts. (Another bit of experiential learning.)

At this point, attach the support layer (3mm) to the table where it will do the most good, then, put white glue on the face of the support layer and add the top cover board. Fit the edge of the foam board against the sidewall of the track, and line up the edges on the different cover plates.

Use weights, or books to hold the top layer flush with the track surface, if necessary. Let it dry before you remove the weight. If any glue squeezes out, clean it with a damp cloth. You want to keep as many edges as flush as possible. But on real tracks, there are always areas where there is an uneven transition to off track. So, if you don't get a billiard table smooth edge or transition, don't be concerned.

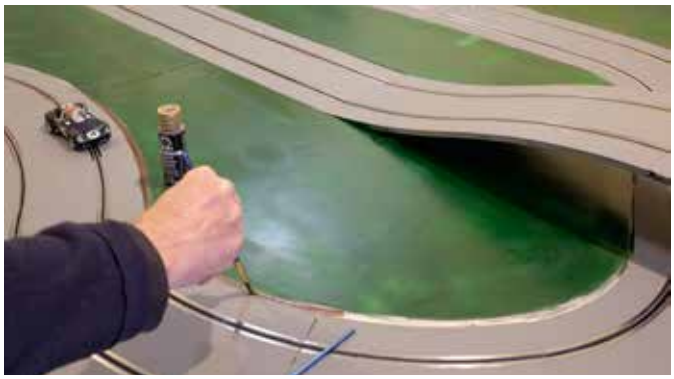
When you finish with this, your track will be transformed! Now you can actively race anywhere on your track and cars can be driven to your max. And, it looks really good too. It looks like real asphalt and grass in a stagecraft sort of way. There is more to go, but this is definitely "three houses on Boardwalk".

Filling the gaps: Even though the track is now completely different there are two other steps that will lift it further in appearance and performance. Obviously there are many places where the track and the foam board don't match perfectly. There are both gaps and edges that need some work. For this you will need some adhesive caulk. It is cheap, gives a good bond, can be cleaned up easily, even after it has dried, it is flexible and can be painted.

This step is beneficial too because it makes the whole track much more rigid. One of the advantages of a wood track is the fact that the groove is gouged out of a solid piece of wood. That means the slot, and the layout is supported from all around. With the foam plates securely glued to the support pads that are tacked to the table, the layout is already stabile in a vertical plane. By caulking the gaps and binding the track with the plates the track is completely stabilized in a horizontal plane also. You have complete dimensional stability, just like our cellulose based brothers. This also improves sound damping. BTW, if you want more sound damping, a felt layer between the table and track works well.

Lay down a small bead of caulk against the edge of the track and the foam board. With your finger, push the caulk into the gap. Use a small water bottle to wet your finger to smooth the caulk, but don't be afraid to leave some texture on the surface. Use a dry paper towel to wipe off the excess. Follow with a damp paper towel to clean up excess from track. For larger, or deep gaps, you will have to apply multiple layers of caulk until the gap is filled. Let each layer dry before the next. You should expect some spots to take several layers. I like to paint the caulk between applications. That way I can better see what the area looks like and what needs to be done.

Detail/final painting: By now, the end is in sight... or maybe not. There is always *something* you can do to make the track look better. But the finish line really is here. Now it is just a matter of painting the caulk and any other details that you want to add. This is where my underying approach to making a good track layout comes together. We are working with paper, silicone putty, and paint. Every one of these materials can be used and re-used until you get the look you want. I also believe, that while there is a lot of symmetry in nature, not much in nature is as perfect as we would like to imsgine. As I have pointed out before, often, mistakes are not really a bad thing (they give character). With this stuff you can always do it over and get it "right."



Use the craft paints to cover the caulk completely. Just like the foam board, you don't want any white spots. I use *Burnt Umber* as my base layer of dirt. It is a rich, dark brown and covers well. You will need two coats, but it doesn't have to be comletley even. Then I use a fine brush to paint little highlights with a lighter brown/tan. The one I have is called *Mississippi Mud*. After I paint the highlights, I take my finger and smear them a little, or a lot. I don't want a cookie cutter look to the dirt, I want my dirt to have integrity!

Often there is a little white showing on the track edge where the caulk and plastic meet. For this I use *Charcoal* craft paint. Dilute it a little and with a rag or paper towel rub the edge. Rub until the white is covered, but the gray more or less disappears. You can also use trick to give a weathered look to most anything on your track.

Don't worry about getting a little "dirt" on the track. If your brush slips and you get some brown on the track, that is fine, it happens all the time on real tracks. If you don't want dirt on your track, use a small brush and some left over track paint to "erase" it. This is also a good time to add some "tar" lines or skid marks to the track. Use a fine brush and *Black* paint, or Magic Marker.

I also use a couple of greens (*Dark Green, Bright Green)*) to paint the "grass" up to the edges of the dirt, or track. You can always spray some of the paint you used for the foam board into a cup and paint with that, for a better color match. Use some scrap foamboard to practie bending colors. Nothing in nature is mono-color.

Finish:

So now you have a track that can rival any track in all the aspects that make a good, solid, racing track. There is room to race, and cars can slide without leaning on a guardrail. With this as a base you can continue to landscape the track to any level you want.

I am lucky to have a friend with the talent to paint those incredible sideboards. Thanks, James.

There is more landscaping to do, but, now, it's time to RACE!