**Modeling and Plastic Structures**

 **by Howard Goodwin**

One of the most favorite things I enjoy about the hobby is modeling with plastic and especially plastic structures. While there are some who may dismiss plastic as a worthwhile means of modeling, I dare them to come over to my layout and look at my structures and say that. Properly done, building styrene structures can be very rewarding and downright fun. The key phrase here is “properly done.” I have learned much in the forty some years of model railroading, but my plastic modeling experience dates way before that, in the days of building model cars. At about the age of 8, I was cutting plastic cars apart and putting them back together to create a vehicle that in no way resembled its origin. I was building “beach buggies”, cars that were designed to go on the beach that were shortened, highly modified vehicles usually starting out with a 1940 to 1950 Ford, sometimes using 1932 Ford coupes and shortening the frame and modifying the drive train to fit. They also used big fat wide tires that were specially made to be 12 to 14 inches wide on which nearly bald tires would be mounted which would effectively glide over the thin beach sand and not bog down like a treaded tire would do. I even entered these “cars” in model contests in middle school. You should have seen the collections of cool cars the guys would build. It was the thing back then. But let’s fast forward a few years.

Drawing on my experience with “hacking and whacking” plastic things, I applied that to my model railroad hobby very early on. I had no fear of cutting anything with a saw and gluing it back together in an effort to make something never seen, or in most cases not often seen. I had been fortunate to have a God given talent of being able to cut straight lines with a saw, my favorite being the Zona brand. While there are others that are out there, namely Xacto, I found that Zona was a more precise instrument and have always had them on hand for various modeling projects. Your saw is a very important tool to have when building in plastic, styrene or similar.

Another trick I learned quite by accident was the art of plastic welding. Huh, plastic welding you ask? Yes, it is a technique I developed when I spilled some liquid glue (in this case Testor’s liquid) on a pile of styrene “dust” (filings from a project that I had not immediately cleaned off of the work bench which I am thankful for as it turned out). It turned out to make a real gooey mess as I tried to clean it up and in that moment realized that when mixed with liquid cement, it would reconstitute itself into a plastic ooze that could be applied to splice joints on plastic diesel bodies (a project I was doing at the time). By spreading the goo on the inside of the body and working it into the splice it effectively “welded” the splice making a joint stronger than the original piece. What a revelation! So it just goes to show you not to throw anything away as it may come in handy, or better yet, don’t clean off your work space, or at least not right away!! Needless to say that whenever I am filing or sanding on plastic I save the plastic filings and put them in a container for welding projects. The best filings come from using files to smooth out surfaces. I just make sure to do so in such a way as to be able to collect the filing mess.

Because of the lack of “fear” of cutting plastic, I have been able to build some really neat things which are known today as kitbashing. I think I was doing it long before it became a buzz word. I enjoy kit bashing because it allows you to create things that are different from “out of the box” items. This applies to all aspects of my modeling and is not just for building structures. I use this for motive power, cars and aircraft. The key is once you get over the trepidation of modifying the ordinary, you can take your modeling to another level.

Let’s talk about what you will need in the way of tools. If you are like most modelers, most of what you will need is probably already in your tool box. I’ve already mentioned saws and files. I touched a bit on cements, but probably the most important item is the glue you use. I started off in life using Testor’s tube glue, a clear and creamy mixture that has only one good use now that I look back on it, as filler for the garbage can. I have ruined more good models using it than I care to remember. It is not forgiving and used too liberally will cause severe deformation of your model. Nothing is more frustrating than to have glue spilled on the outside of your model along seams and once done, cannot be undone. Time to trash your model and start over again! Anyone out there know what the definition of INSANITY is: doing the same thing over and over expecting a different result. Another revelation was on the horizon that would change my modeling forever. Liquid glue!

In the beginning, after discovering Testor’s liquid glue, I thought it was the greatest thing since sliced bread and for the most part it was. It was a clear liquid that would weld your joint much faster and with less glue needed to do the job. No more lousy messed up glue marks and seams oozing out onto the surface. I was in seventh heaven! Very early on in my model railroad “career” I learned about Methyl Ethel Keytone or MEK from a very good friend who was a prolific plastic modeler I had gravitated to in an effort to learn more and further hone my skills. Just when I thought Testor’s was the cat’s ass, my world was turned upside down by the introduction to MEK as an adhesive. Infinitely faster working than Testor’s, it would allow construction at a much faster pace.

The new adhesive revelation did not come without a down side. MEK is a known carcinogen and not to be used in closed, confined spaces for any length of time. It WILL make you high! Care must be observed in its use. While you can go out and spend anywhere from eight to ten dollars for a two ounce bottle of liquid glue coming in a fancy plastic bottle with at fancy applicator, it isn’t necessary. MEK is available in large (and I do mean large) quantities and is dirt cheap. I have a gallon can of MEK that if I had paid for it would have only cost eighteen dollars. Fortunately, Charlie Crawford had it in his paint store and had to get rid of it and I happened to stop by one day. Good timing for me. The point is MEK can be had in pints, quarts and gallons and much, much cheaper than any other liquid glue out there and in my humble opinion is the best glue for my needs. All I do is refill my old Testor’s bottles and use a paint brush to apply it. It will NOT harm paint brushes in any way although I will mention that camel hair brushes are better than the plastic bristle type (nylon).

So how do I use MEK? Because it is so wet and thin, you need to be careful not to get your fingers on the seams you are applying it to, as it can run a bit if you get a bit over zealous in the amount you put on the brush. For our purposes, building model structures, there are several tricks you can employ. Most of us already have a number of clamps in our collections of tools. They can come in very handy for holding parts together such as the walls of a structure. Some of us even have jigs that we can prop up parts in and hold things in place that way prior to gluing together. But the all time best tool for clamping walls together for gluing is rubber bands! That’s right, rubber bands. Think about it a moment, they will apply the same pressure on all four sides virtually assuring a square, or rectangular alignment. They come in many sizes, all usable for our modeling projects and they add no bulk to the gluing process. No clamps hanging around getting in the way on the work bench, knocking stuff over, like open bottles of MEK! Rubber banks allow you to apply them so that every seam is neat and clean and ready to accept the glue. Rubber bands are very inexpensive as well. I would venture to say that we all probably have a ton of rubber bands lying around doing nothing. They are a tool guys, a really great tool!

We have spoken of seams and applying glue to seams. How do we get to that point? First of all, your pieces have to be free of flash and casting marks. Plastic parts come on “trees” a result of the casting process. Sometimes they are called casting “gates”. Either way, the word here is caution. NEVER, NEVER, NEVER bend a part off of a tree to release it. Don’t do it! Cut it apart with a hobby knife or use a sprue cutter. Bending a part off can cause the part to suffer an abrasion that you might not be able to correct with a file. Once off of the sprue, the part can be cleaned off with a knife, a file or sandpaper depending on the size of the part. Walls are the critical part of your structure as you might well imagine. Failure to properly prepare the walls for gluing may result in an ill fitting piece. I have in my collection of tools a very, very large bastard file that was originally designed for horse shoeing. It is so large that I can take a wall and true it up very quickly. Another method is using wet/dry sandpaper (using it wet) on a flat surface to true up a wall section eliminating any flash or casting marks that would interfere with a good fit. My wet/dry sandpaper is 3 to 400 grit as a rule. Used wet, a piece will last virtually forever, just wash it between uses to release the particulates that will accumulate.

I touched on using a flat surface when using wet/dry sandpaper when truing up walls and other parts. What I would like to interject here is that my flat surface consists of a piece of tempered glass about 36” X 30” on my work bench. Having a flat surface is another very important facet of modeling. Besides offering a good sanding surface, it also allows you to put instructions under it to look at while building your project. Other tidbits can also be added, such as scale conversion charts and the like. It also protects these things from wear and tear and other damage.

All gluing is done from the INSIDE folks. ALWAYS! There are some exceptions on occasion, but for the most part, always apply your glue on the inside. With MEK, the item is going to be dry and ready for the next step within an hour or less. I don’t get in a hurry so it really doesn’t matter. By planning your work, you can move on to other things while the four sides are setting. Or just drink a beer! One other nice thing about MEK is that if you DO manage to get some on the outside of your model, it can be easily cleaned up with a sharp Xacto knife simply by lightly scraping the surface where the MEK came in contact with. It will be gone with no evidence of it ever being there. I believe you can use the same technique with Testor’s liquid glue but remember Testor’s has only a small amount of MEK in its formula so I won’t guarantee anything.

Planning your work is an interesting concept to be sure that should be followed with each and every project you engage in. When you start a project, it is always good to know where you want to end up. How to you get from A to Z? This is probably the most intense part of your project, the planning, the layout, the consideration of what you are hoping to accomplish. Why it’s all laid out in the instructions right? Not! Instructions are a good guide, but they don’t always tell you everything. You have to study your plans, locate the parts and identify how they will go together. There are other considerations as well, which aren’t covered in the instructions. Will your structure be lit? Will it have an interior? Does it need to be painted???????

Some structures claim that painting is not required that it is molded in authentic colors. That’s okay if you are just building a run of the mill thing and not concerned about whether it will look “realistic” or not. Plastic is shiny, nature is not. I have no structure on my layout that is not painted. Period. If you plan on painting your piece, you will need to determine colors and at what stage of construction is best to paint it and NOT after it is built. All paint is not created equal. You will want to use paint that is flat, not glossy. The only time you will ever want a gloss finish is to decal over it, otherwise make it flat. There are a host of methods to apply your paint. Do not overlook primer, flat, gray primer. Why you ask? Primer is good because it neutralizes the colors a piece is cast in. If you want to paint something green, you don’t want to try to paint over a red plastic part. The color will never be right and will take more coats to get it there. Primer is the key and should be applied to any part you are planning on painting.

While using an air brush is generally an effective way of painting, I prefer using “rattle cans” for my structures. Coming in a wide variety of flat colors, I have no less than seven or eight “brick” colors available to use. The manufactures will vary, Krylon and Rustoleum are the most recognizable, but the box stores generally have their own brands of spray paint in a multitude of flat colors. I do have a few colors that come in Satin, but will always use a flat coat over them when done.

There are a host of other ideas and suggestions concerning plastic modeling and if you have questions about a particular procedure or method, don’t hesitate to ask. Building plastic structures can be fun as well as rewarding. Look at what others have done and are doing and ask questions and I’m sure you’ll find them very informative and willing to share what they know. Above all else, enjoy!