

Southern PA 3 Clinic by James Wall using Proto 2000 PA Models.

To start this clinic, here is the major parts list:

Proto 2000 21609 Undecorated PA with Mars light, 45Deg number boards & dynamic brakes

Detail Associates GR 2701 Farr E & F units etched grills need 2

AMB Laserkit 300 for LL P2K PA

Dremel Heavy duty cut off wheel #420

On the actual model if you cannot find an undecorated look for some UP, SP or Cotton Belt units with these features. The big subject of discussion has been on how to cut the stainless etch for the grills, this is the Dremel cut off wheel. This disc is soft enough not to bend the stainless etch if held correctly, but strong enough to file the stainless etch.

Other parts:

If you can't find the Detail Assoc. Farr grills, try the Highliners grills. You will need the vertical slit grills. Farr grills are also available from Kaslo (<http://www.kasloshops.com>) look under detail parts. Kaslo has some nice resin kits as well.

Try to locate your favorite style MU hoses, Mu connectors and air lines. I will be using Sergeant H type couplers which was the prototype coupler for Southern passenger equipment. I'll also be using Tru-Color Paint in Southern Green and Imitation Aluminum. Microscale decals which if you have done F units I'm sure you have the left PA decal stripes.

Here is our prototype: Photographer and location unknown to me, if you do know either one please let me know!



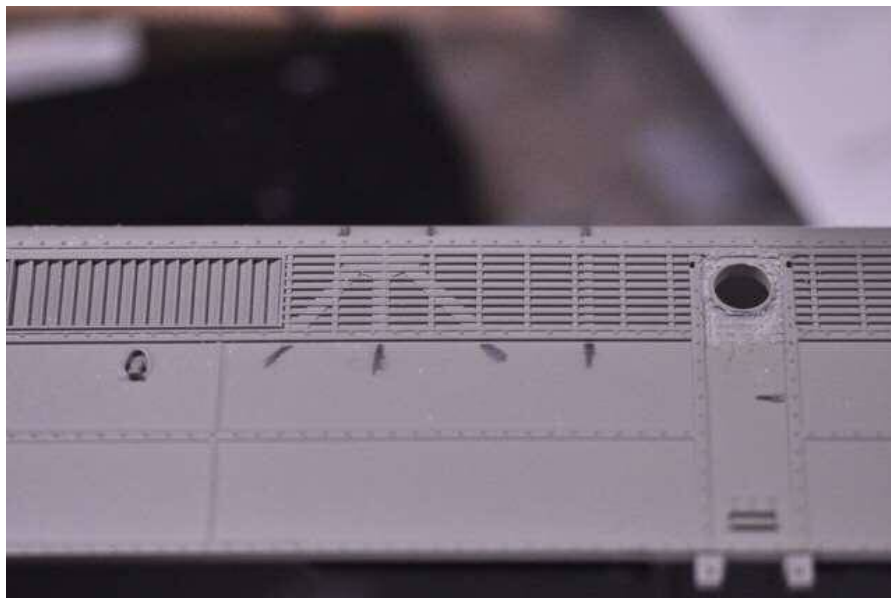
Here is the start to our Southern PA Clinic. Some needed equipment some might not have you will want during this clinic include a good set of riffler files. I recommend both a round and triangular file, a good set of files will be needed for a good portion of the start here. These are a good starting point:

http://www.ehobbytools.com/Riffler-File-Double-Ended-10-Piece-Set_p_1657.html

To start this clinic, I want to make use of these files and remove a lot of material that we will replace. The Southern PA's were some of the last built and came with Farr grilles minus the unique flare line just behind the cab door. On the P2K model we need to remove these items.

First we need to go around our model and mark the brace work behind the molded grills. Mark each end and angle. We will add this detail back as we work on the grilles.

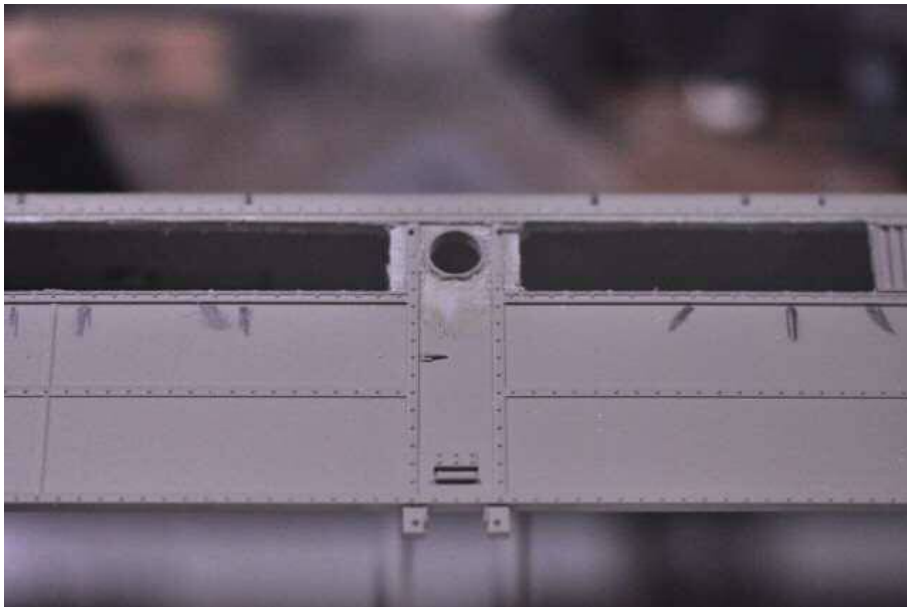
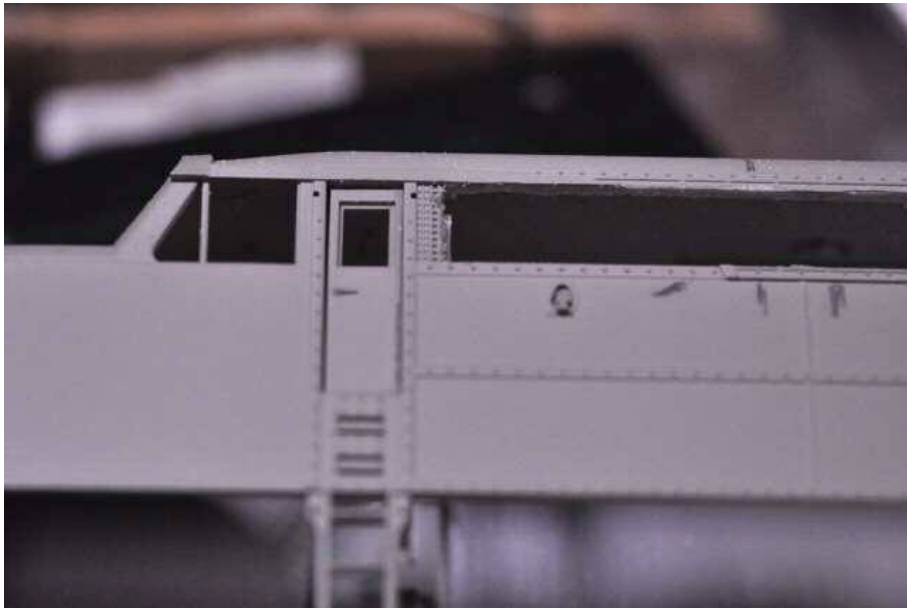
To start to remove is the "grille work" around the mid body door porthole as seen here along with the marks for the bracing:

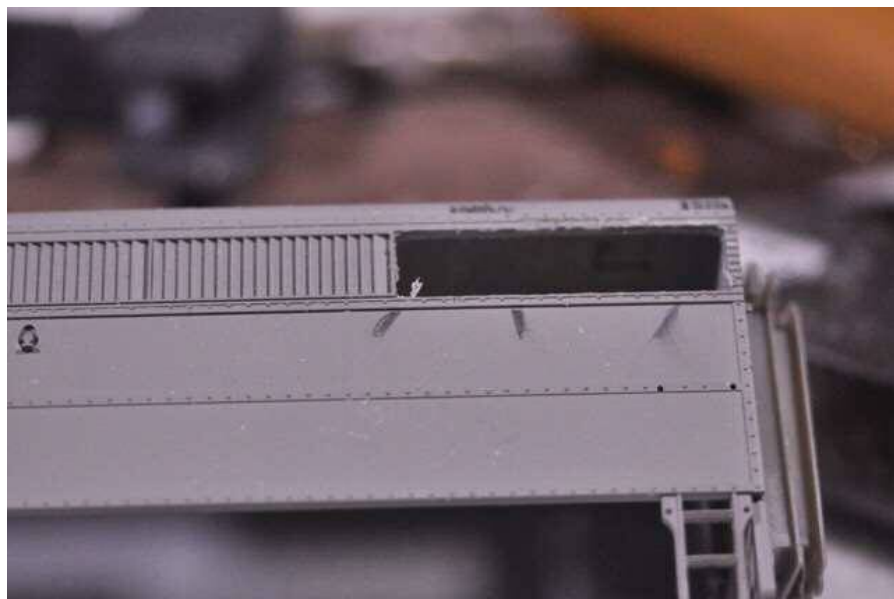
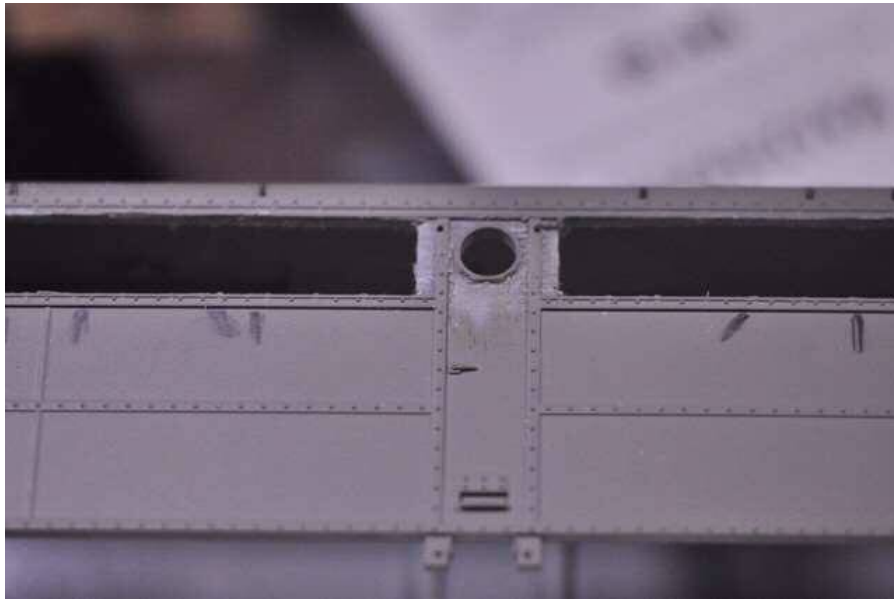


I am going to be working on two models at once much like I did the brick car. These photos show the removal of the grill around the porthole using a sharp #11 blade and some sanding. This is where your good riffler file will come in handy. While I am not sure I might try removing the entire portion with the porthole and then reattaching the porthole. Looking at some photos the port hole seems to "thick".

While working on this and the following steps, PLEASE be careful and not break your steps at the cab door!

I experimented on removing the grilles along the body with a new Dremel tool.





<https://www.walthers.com/catalog/product/view/id/876310/s/saw-blade-w-mandrel-fine-3-4-quot-diameter-60-teeth/>

This is nice as it cuts the plastic instead of cut and melt as with other Dremel wheels. Here are the results. Watch how far you cut to each end and we will use a drill bit to drill several holes and use a #11 to finish the removal.

The amount of material left behind the cab is due to the design of the door mechanism and how it is mounted on our model.

Leave this grill near the rear body as it will remain. The very back portion is removed as shown.

Remove the material shown on one side only and then sand smooth and square inside to hold our styrene bracing detail. We will keep one side intact to check angles and so forth on the bracing details.

I wanted to take this time to add a couple of more parts to our list.

1- Excel mini files - <https://www.walthers.com/4-quot-cut-2-needle-files-12-mini-files-pouch>

These will be needed to file out the MU connections in the nose

2 - Mike Rose Hobbies has the ATS shoe we need -

http://www.mrhobby.com/store.php/MikeRoseHobbies/pd4692773/ats_shoe

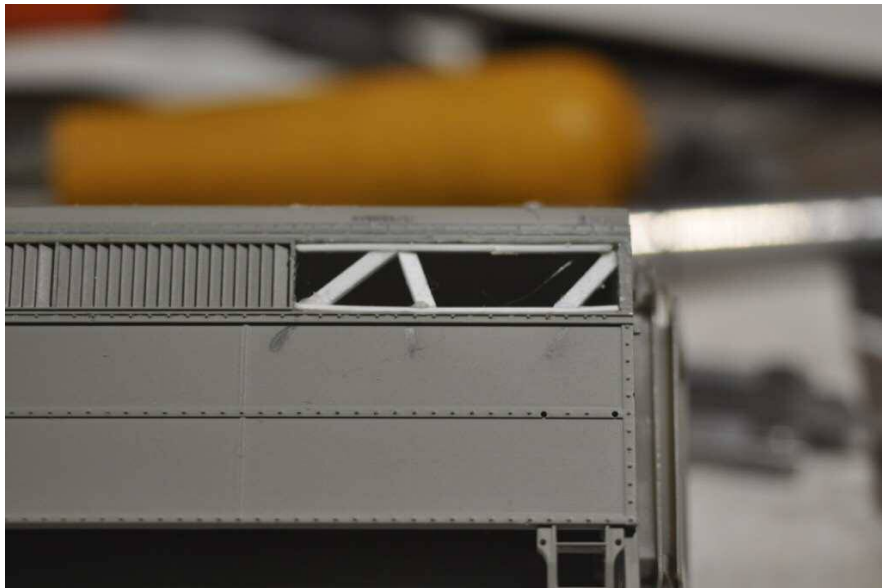
These ATS shoes are good for most Southern first Generation diesels.

3 - Cal-Scale parts 190-450 PA steps and 190-275 Air and Signal hoses plastic.

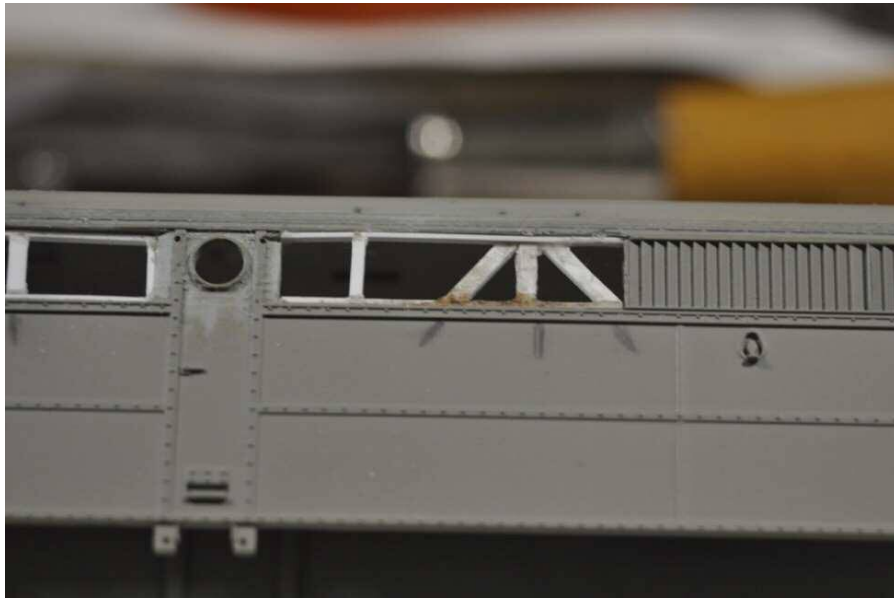
These three items will be needed as we progress. I will have pictures soon of the second unit and how I built the framing behind the Farr Grilles and some front end touch up details.

Now we start with the modifications to the area for the Farr Grilles. In removing the material from the P2K model we lose some detail of the support/bracing structure behind the grilles. This is the reason we marked our shell so we know where these braces go back. In hindsight you should build these braces before removing any material, this way you know exactly where these braces go. I made my braces from .020" x .060" for the vertical braces and .015" x .040" for the horizontals. While removing this material we will also sand of the top rivet row.

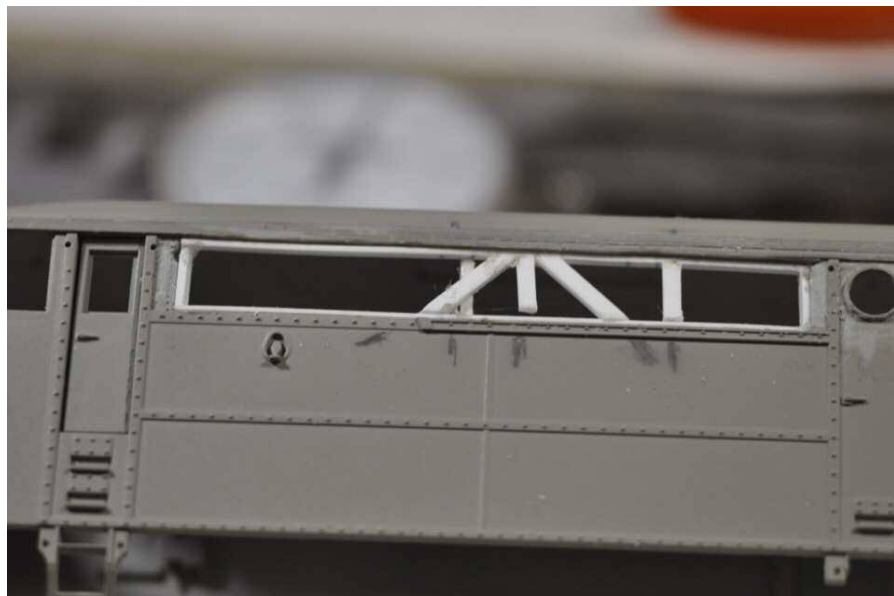
The following pictures show the braces installed in our model:



Rear



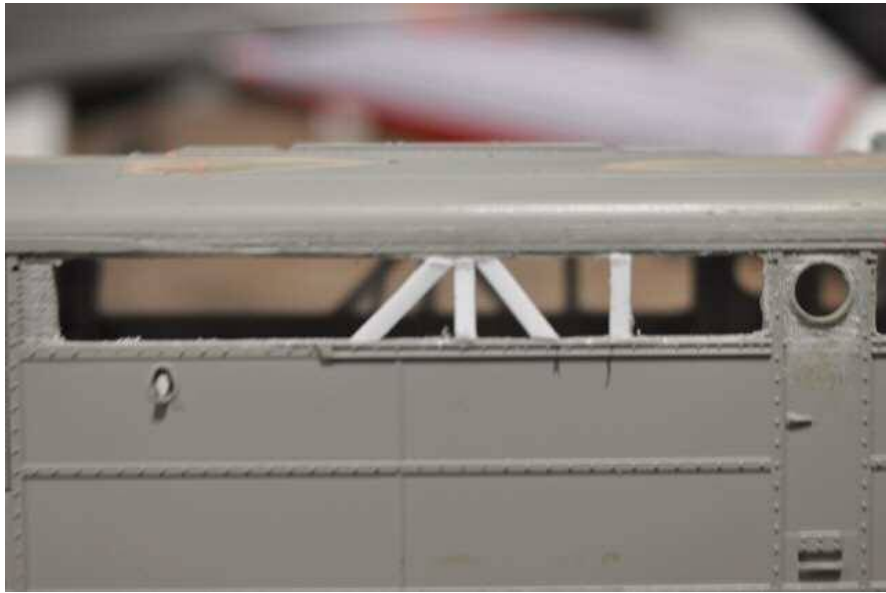
Middle



Front

Questions? I'm working on another solution to this section. I spent the time and filled away the molded grilles and left the area solid. This is an option for those that do not want to build the braces and remove this much material from their model.

Today I'll start off with some pictures of how I did the second PA's grill bracing. The first model got a box made which was time consuming and very difficult to fit. The second time I used the same materials but with better results. The main braces are 0.30" X 0.60" styrene.





In the process of installing these braces be sure and sand off the top row of rivets and smooth the door.

Moving to the top of the unit, I filled in all the holes (oval) for the lift rings. As hind sight after looking at the supplied lift rings I would install the parts and then remove the rings thus by passing have to do a lot of sanding.





There are a total of six and some smaller hole toward the cab.

Now for one of the harder parts, we will put the MU connections holes in the nose of our PA.

Start by measuring 2 mm out from the headlight casting. Basically you want from the top of the headlight casting down to the part line and then make a square, one on each side of the headlight. Drill out the marked area with a #75 bit then use a sharp blade to remove the remainder and then and with a small square riffler file.



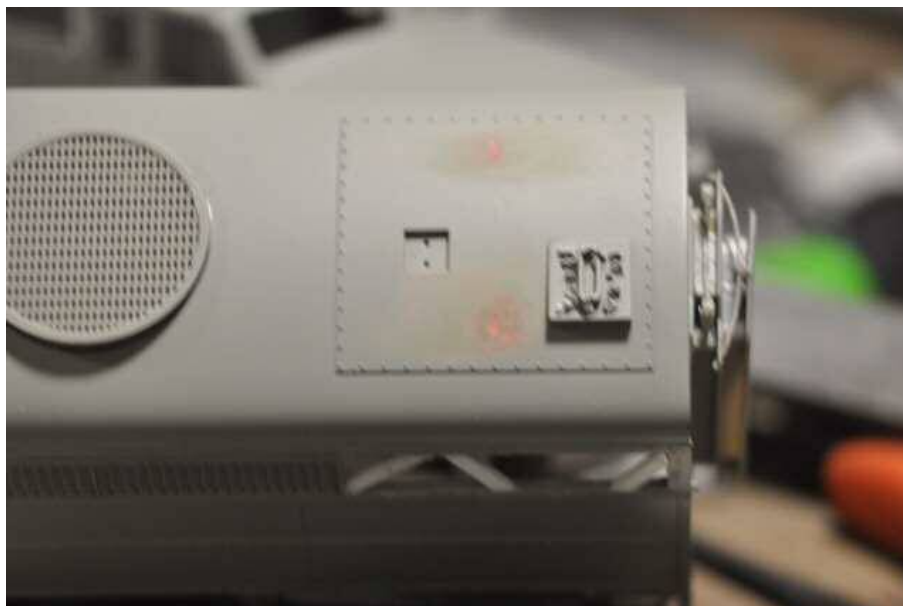
The third hole is round and located between the number board and head light casting in line with the class light as seen above. Drill a #70 pilot hole then increase to a #49 (0.73") and sand smooth with a round file. You can also go ahead and add the nose door with the head light hole.

Final should be close to this picture:



Here is our next struggle. Our beloved Southern ordered the PA's with dual Vapor steam generators. Thus the steam generator molded into our Proto 2000 shell is incorrect. We now start to correct this problem. Proto 2000 did us a favor as one item was left as just a dimple into the shell, being about 0.18" deep we will add a piece of 0.15" styrene into the hole.

Next we will drill a series of #72 hole into the raised part near the top rear of the shell. Connect the hole when done and remove the part, then sand smooth.



Once the area is removed I added a piece of 1/8" channel styrene to the underside. I then glued a piece of 0.20" styrene into the hole.



The finished area should look like this:



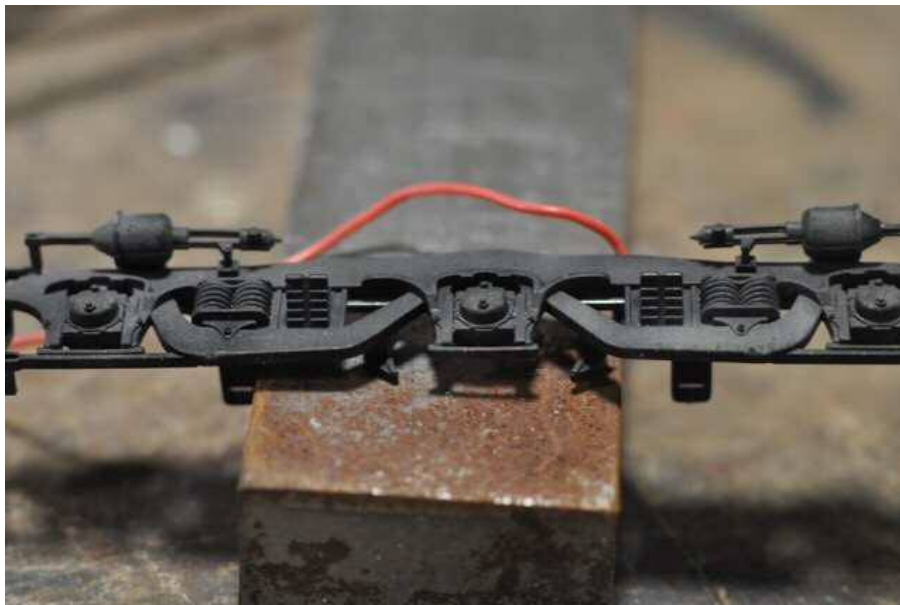
Now fill both areas with putty, I used regular Bondo in a squeeze tube. Allow Bondo to dry for 24 hours.

The pilot area is next. Proto left an immense area in the pilot for coupler swing which is not prototypical. I added two pieces, one each side, of 0.20" styrene to cover the needed pilot area. I then added a piece of 0.30" x 0.60" styrene to the bottom edge.

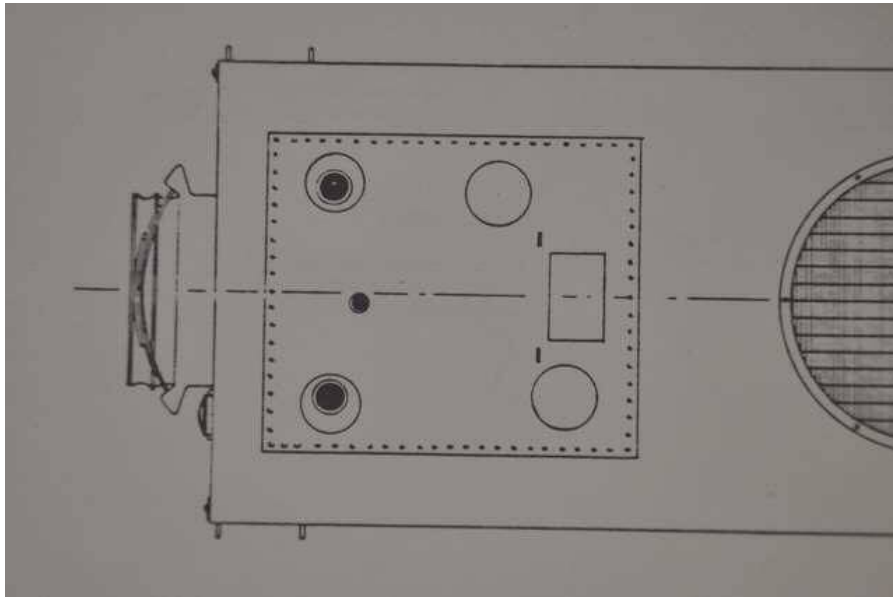


If you're wondering, I broke the piece in the middle trying to remove the coupler door. Easily repaired. This picture also show the correct door added to the nose.

Most of you know I now like to grit blast my truck side frames. I use a Paasche Air Eraser and this time I used regular Arm & Hammer Baking Soda.

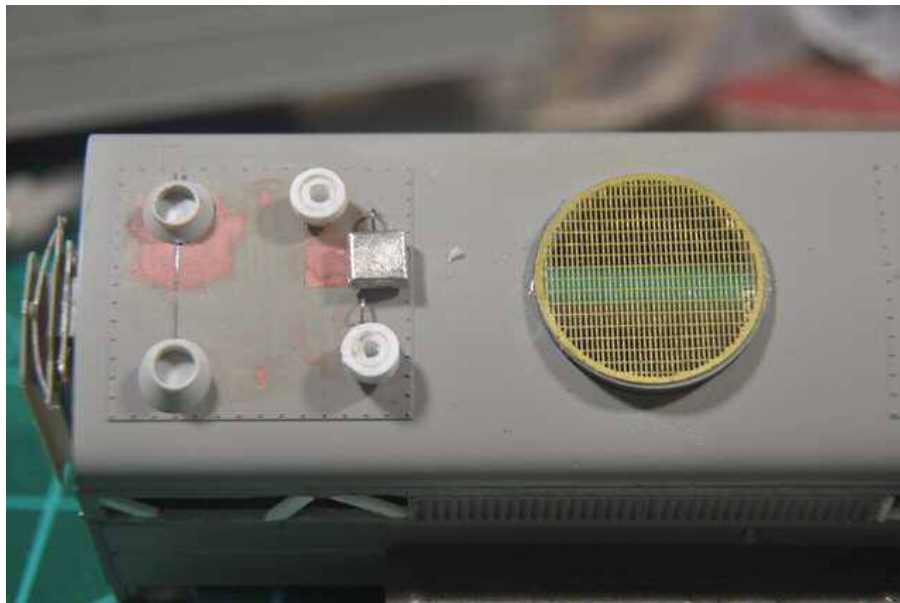


Continuing with the steam generator area we will now add the details. After the message with JC Paschal about his diagram being correct I choose to use it as a guide for placement of the roof top steam generator details. All measurements are in scale feet! Here is part of JC's drawing:

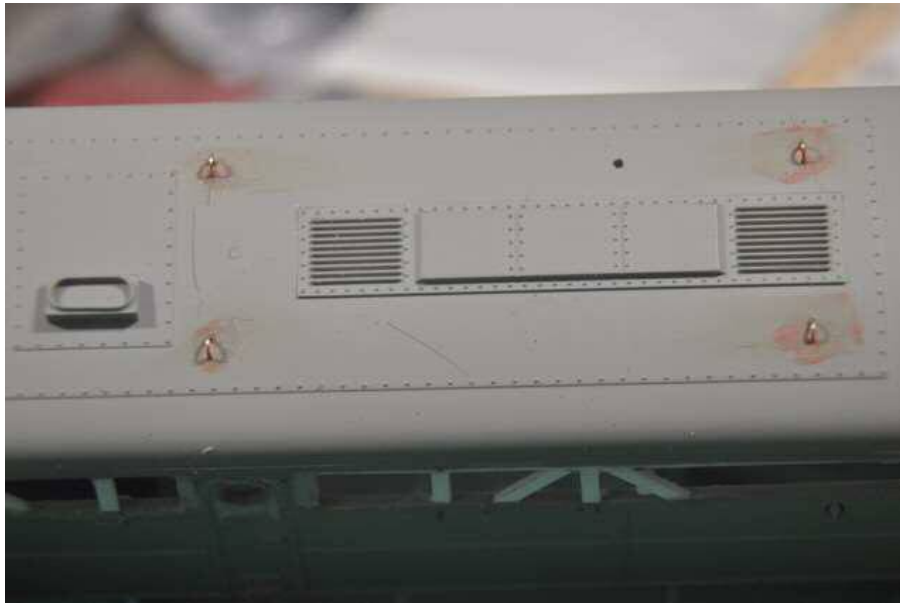


Here is how the details are placed, starting from the rear of the loco to the front:

The exhausts are 2.5' from the rear and 2.5' from the sides. The engineers' side vent 2.5' from the side and 7.25' from the rear. The conductors' side vent is 3' from the side and 6' from the rear. The intake is centered and is 7.25' in from the rear. There are two lift rings between the exhaust and intake.



These two photos show how the details are placed. The exhausts are scratch made from styrene tubing, 1/8" inside and 3/16" outer. The intake in this picture is from Custom Finishing 211 steam generator for RS11. Yes, I misplaced one. The vents are from Highliners A unit kit. I used the early vent on one and the late on the other. This picture also shows the fan grille replaced with a DA 2702 grille. The lift rings here are DA 1106 FA/PA lift rings. You can use either the Detail Associates lift rings or Cal-Scale #513 long lift rings. There are also four more lift rings to add to the roof along with the Details West horn #187 and fire cracker antenna #157.



Next we will move to the nose and complete the details to be added. First I added two strips of .015" styrene strip wide enough to cover our MU holes. I then added the details from DA 101507 which are brass parts or you can use DA 1507 which are plastic. I drilled the correct sized hole for each mounting pin on the part and then CA'ed them in place. On one unit I added a blank cover per one picture I have.



In this bottom photo you can see the Cal-Scale #274 steam line added. You can also see where I have started work on adding the MU hoses, to be covered later!

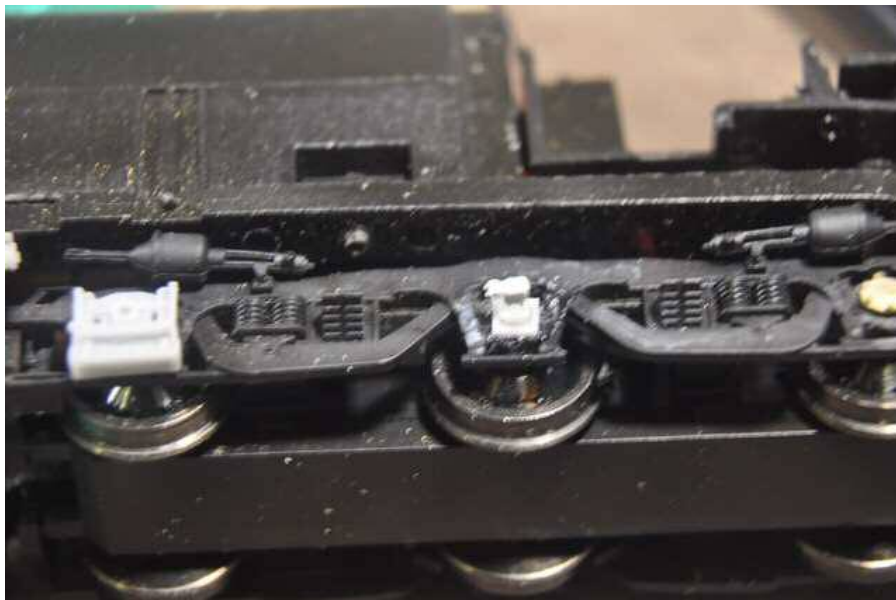


Time to continue with this project. We move now to the trucks. I noticed in the few photos I do have that Southern did not use the style bearing cap as the P2K model has. So we need to remove all 12 of them from the side frames. Ten of them will be replaced by Custom Finishing part #190 - Timken bearing caps. One will have a Mike Rose Hobbies ATC shoe and the last a Details West #350 - GE wheel slip.

Here's how the side frames should look:



Conductors front side and both rear



Engineer's side front

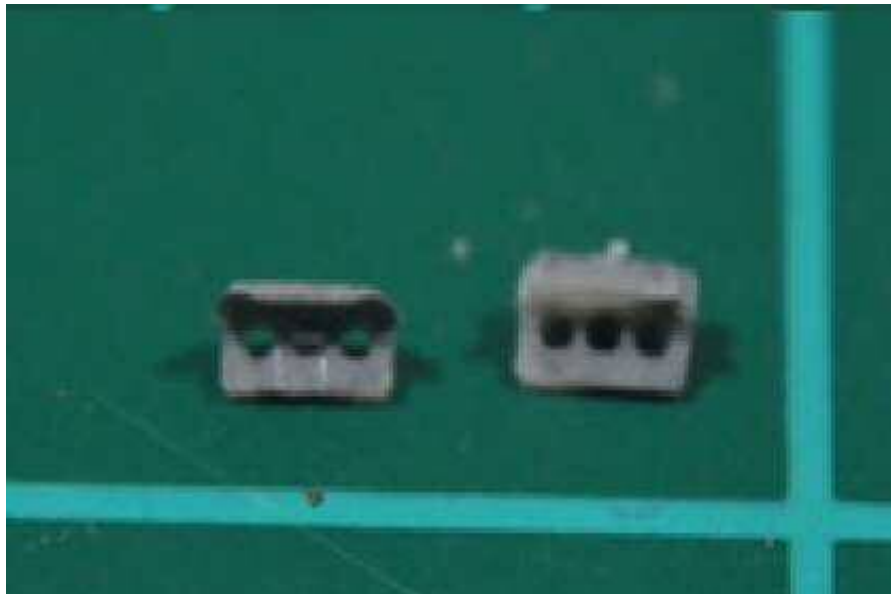
The ATC shoe is on the rear axle of the engineers' side front and the center axle has the wheel slip, in this case this is the best part for a GE speed recorder. I had removed the entire bearing cap and had to cut a small square of styrene to mount the recorder. I don't think the recorder will fit with the cap just sanded smooth and might interfere with truck swing.

One last modification to the chassis was the front coupler pocket. I removed the pin and added a 2-56 screw to hold the pocket straight. This was to reduce swing in the front coupler to prototype.



Insert the screw from the bottom.

In looking at the prototype there were five mu air lines, front and rear. On some units the conductors side was blanked early on but later hoses were added. From the factory only the engineers' side had all five hoses in the front. To produce the prototype look I used some styrene square and Precision Scale #39057 Mu hoses and hangers. I only used the hanger brackets as I could not find styrene angle small enough for this look. It will take all four pieces to complete this step. On one model I had drilled the pilot just under the buffer plate to add the styrene 0.3" x 0.6" I believe. I then added the PSC parts first using the complete bracket that has 3 holes and then adding a cut down bracket with two holes. The top of the brackets were cut down as well so you only have an angle.



Modified bracket on left and original on right



Here are the parts added to the model

Here are both models showing the difference in the front 27 pin MU lines.

Sorry for the long delay here. Got some work done on this project today. Here we will add the double rivet line above the Farr grilles. I used a set of Micro-Mark rivet decals I got when they were first introduced.

These are spaced and set even in parallel lines. It take two lines per side.

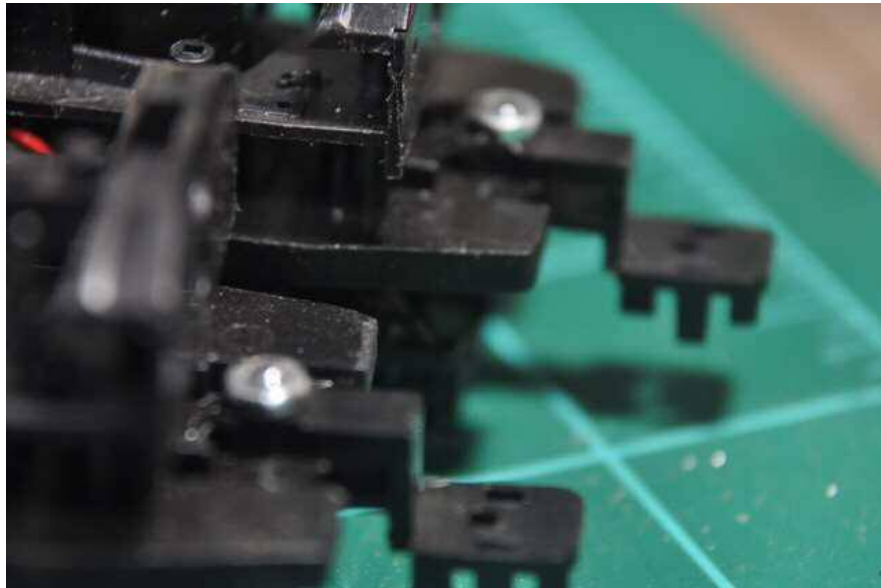
First I made sure I had smooth surface and sanded those areas as needed. I then applied a brush width of Floquil Glaze to give these decals something to adhere to. I used Micro Sol to help the decal set in and hold. Last I applied a coat of flat finish to seal the decals, I prefer to use Polly Scale on these.



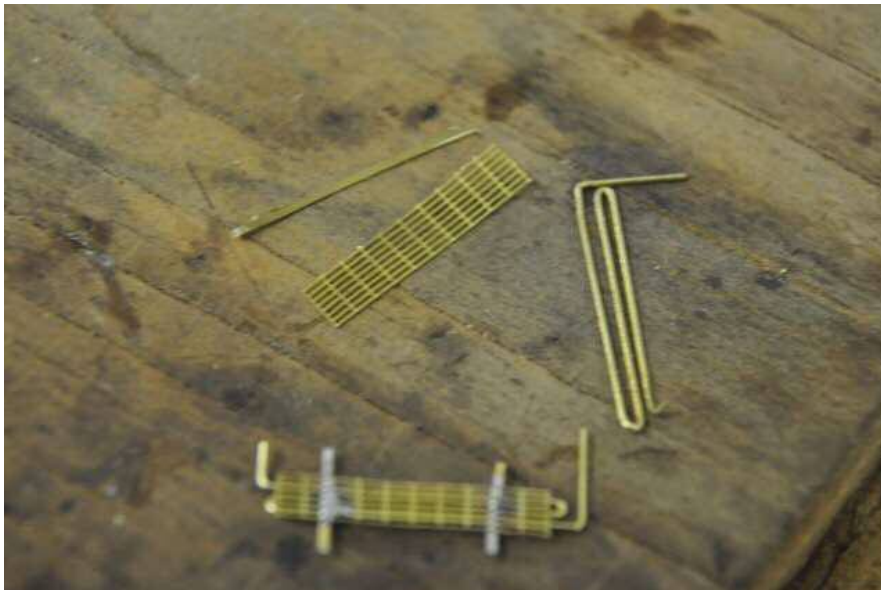


I'm working on the headlights and some other small details and then we'll be painting this model.

Okay, I know it has been awhile since the last post but here is the remainder. I started working on the chassis and milled the top to accept a Soundtraxx Tsunami TSU1000 decoder. The PA utilized an H type coupler which as available from Sergeant Engineering. In fitting the shell to the chassis the Sergeant coupler was going to be too short. I measured the length with my calipers and then moved the mounting hole for the coupler box accordingly. There is a nice mold parting line on the chassis that almost marks the spot to drill the new hole.



Next I worked on the cooling coils found on the engineer's side at the fuel tank. I built this from some .019" brass rod, Plano Morton pattern walkway material and some left over step etch scraps.



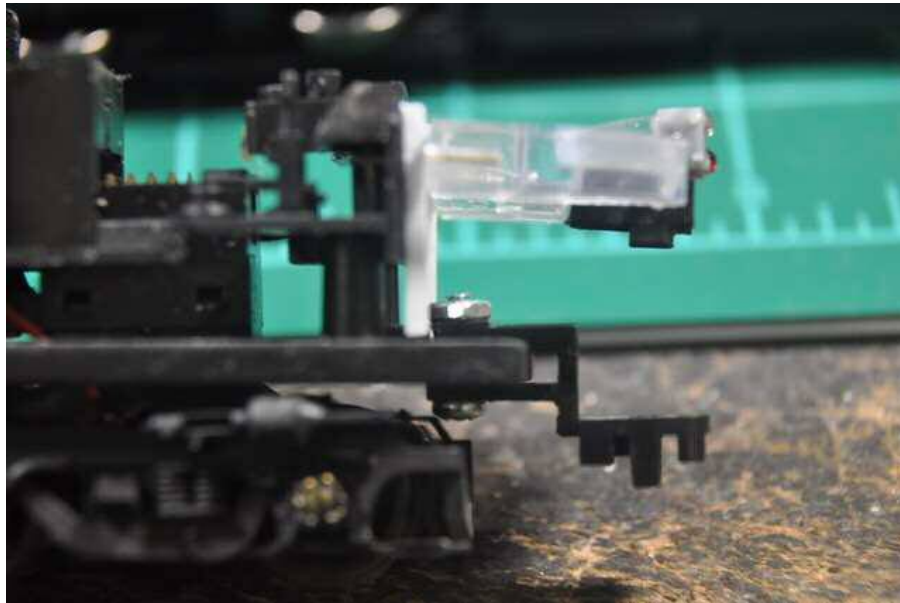
The parts



The final result and mounted to the chassis

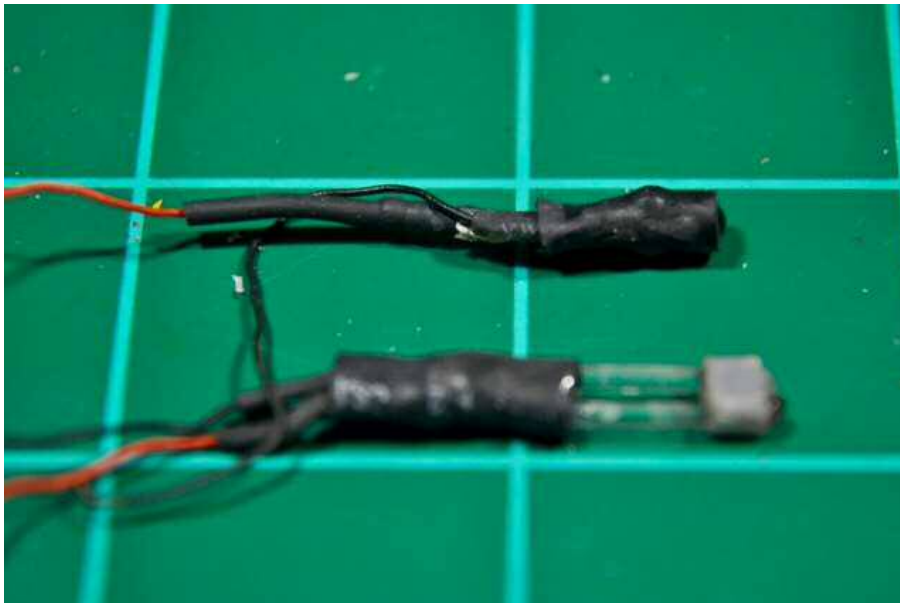
I have also worked on the lighting for these locos. My intent is to light the headlight in both units and my normal lead loco will have the Mars light lit while in reverse. The mounting for the stock light bar had to be moved forward and reattached by .040". I cut some styrene to help mount the bar and drilled .030" holes and used brass wire to reattach the light bar.



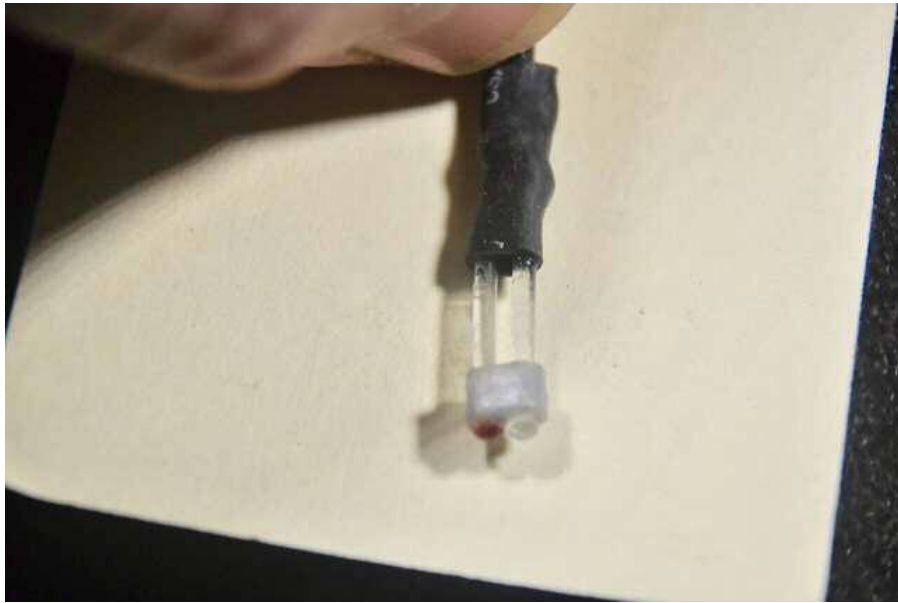


Next step is to fabricate the lights needed for the headlight and Mars light. I use LED's for most of my headlight and other lighting needs on locomotives. These LED's in the next few pictures were salvaged from Atlas locomotives. For the two headlights I added a large piece of heat shrink around the LED to the tip of the bulb, this way it would fit snug into the holder on the stock Proto 2000 light bar.

The top is the headlight assembly and the bottom is the Mars light. The Mars light has Plastruct .060" fiber optic mounted thru a Detail Associates #1008 - Mars light. The red lens is a MV Products red lens that I scrapped the backing off and CA'ed to the DA part. The top has a Detail West 6" enhancement lens.



Mars Light



Mounted in the Unit Chassis



I made some changes from the previous postings. I did not like how the MU hoses were starting to look and to our advantage Cal-Scale came out with a 5 hose MU cluster, I promptly ordered 2 sets and here is how they look.



The picture above has the lead loco on the right and the trailing on the left. It seems from the photos I have that the conductors side MU hoses were changed several times during these locos lives. Some received the hoses on just the engineer's side and some got both, have some straightening to do as well. You can also see the Cal-Scale air and signal lines added. The lower headlight opening was enlarged to fit the DA dual headlight. The MU hoses should be mounted to the outer position as on the left side model.

After some searching and studying on how best to do the steam line since the Cal-Scale part was not working out here is the final on the steam line. I found the original OMI steam line here: http://americanscalemodels.com/HO/HO_Detail_Parts/Passenger_Car_Parts?product_id=182
1 I bent them to fit the nose a little better and got this.



This picture also shows the styrene added to the inside of the shell for other detail including the coupler lift bars. I removed the styrene strip I added in one of the first steps from below the opening the steam line goes thru and added a .010" x .030" strip to the underneath of the pilot.

In the photo below I have pre painted the styrene strips added to form the bracing visible behind the Farr grilles. I also repaired the missing rivet details. For those that have not built their PA yet, I recommend not adding the rivet decals until this point.

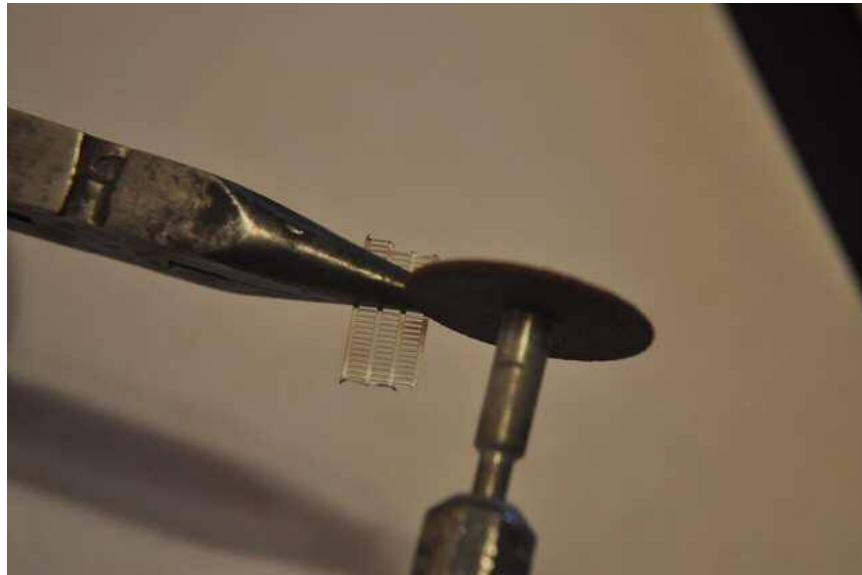


We're not far from paint and final decals here. The final step will be adding the Farr grilles. I ask now that anyone that has a photo of the grilles in natural stainless please post it the group. I have not found one, so I will be painting mine to match the loco. Please ask questions now before this project goes to the paint booth!

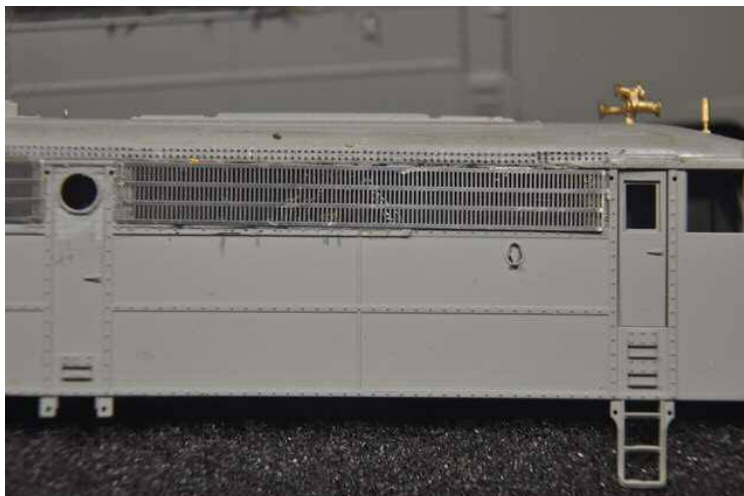
Okay guys the moment you have all waited for patiently! The installation of the Farr grills. I used Detail Associates #2701, these are out of stock and MIA. I think the new Plano grills would be nice: http://www.planomodelproducts.com/dieseld_scq.html#E8-9

This is as close to the DA parts I can find. Regardless of the P2k or BLI you are going to be cutting these to fit the PA.

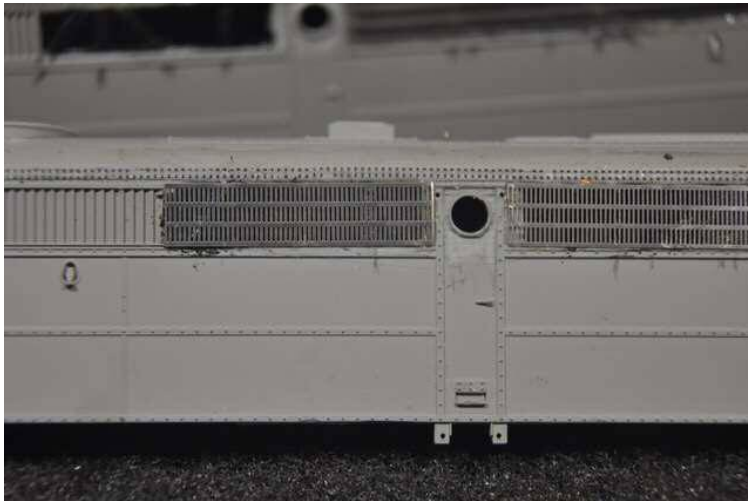
Cut you say, here's how. I placed the grill nest to the model and marked the length I need with a pencil. Then I use my small pliers to hold the grill with the part I need to one side and use the Dremel cutting tool I mentioned in the first post to cut to length. I general cut long and sand down as you CAN NOT add it back. This picture is reversed to how I hold my parts.



This is a spare part. In cutting this way, as pictured, I would be retaining the piece at the top of the photo.



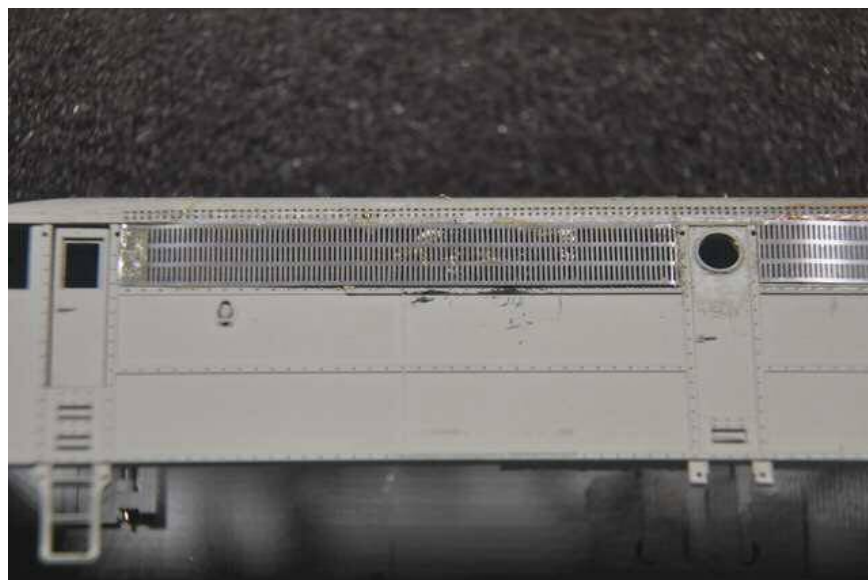
The engineer's side front



Engineer's side middle



And the Engineer's side rear grill



Conductors' side front and middle

I used Barge cement to attach these grills. If needed MEK can be used to thin the cement used slightly. Work with care as not to get the cement on the model. Paint is not far away now.

As a note I used one package of the DA grills and covered openings on two models but the middle and rear on both sides of one shell.

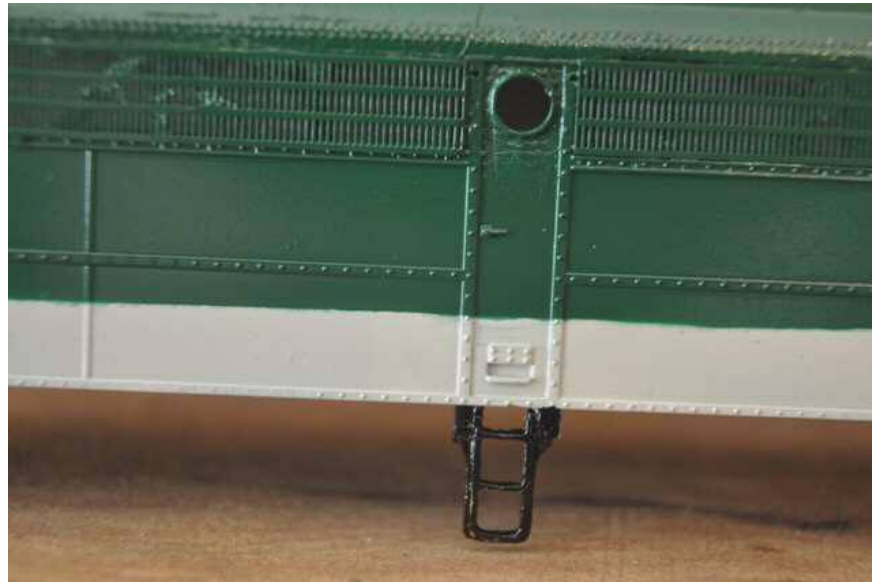
I prepped the model for painting by washing with Dawn dish detergent and allowing it to dry for over 24 hours. I first painted the nose and everything below the middle rivet line with Tru-Color Paint #80 - Imitation Aluminum. This color is good for all Southern stripes and matches Microscale stripe colors.





Well almost a year of work and finally some paint. Here is the basic paint scheme, I started with the TCP #80 - Imitation Aluminum and painted the nose and stripe. I then masked the nose and stripe and painted the remaining areas with TCP #128 - Southern Green and then the pilot and rear air lines with TCP #10 - Black. Touch ups were made before the model was painted with the glaze. The model then got Floquil Glaze for decals.





So, I finally got this one finished! I installed Soundtraxx Tsunami in both locos and used a Railmaster DHB-8 speaker. The windows are LaserKit added with canopy glue. It took a long while to paint and decal these to the look of a well used loco about to be retired. Southern retired these in 1965. I found that the Microscale striping for the nose was too thin between the top and bottom lines. These lines had to be cut anyway to cross the MU connector added to the nose. A small portion of the curve had to be filled as well. I used a black pencil to

darken the Farr grilles and the bolt head on the body seams. A light airbrush weathering finished the job. The light package has the normally leading unit with the backup light programmed as the Mars light in reverse moves.



