MODEL PHOTOS BY JACK BURGESS

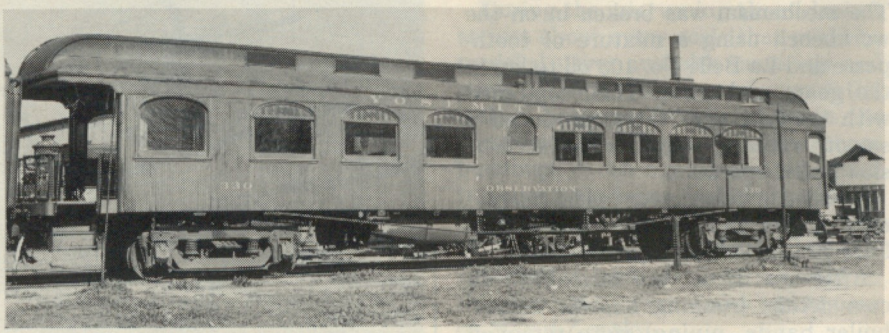
Scratchbuilding Yosemite Valley Railroad observation car No. 330

The story behind a prize-winning model/**Jack Burgess**

In 1907, the Yosemite Valley Railroad received delivery of a new observation car from the Hickey Locomotive and Construction Works. This car was first class in all respects, with graceful arch windows, magnificent paneling throughout the interior, and a semi-enclosed observation platform. Over the next 39 years No. 330 served the YVRR well, carrying passengers on memorable trips to experience the wonder and grandeur of California's Yosemite National Park. With the abandonment of the YVRR in 1945, the car was sold to the Yreka Western Railroad in Northern California. It was eventually sold again and, minus trucks and with tacked-on additions, served as a diner in Yreka. A few years ago it was moved again and given to the City of Yreka.

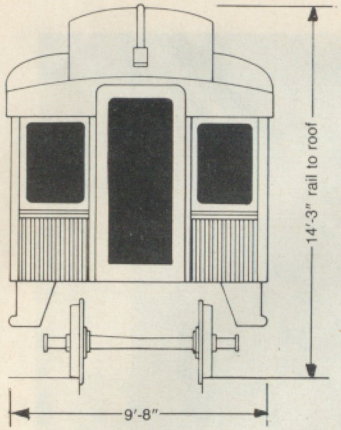
The construction of this model began with gathering together photos and dimensions of the prototype. Since I knew the car was still in existence in Yreka, I picked the name of a Yreka model railroader from the NMRA member directory and solicited his help in measuring the windows and door widths of the car. Plans were prepared from this information, photos I had collected and overall dimensions listed in the liquidation notice for the railroad.

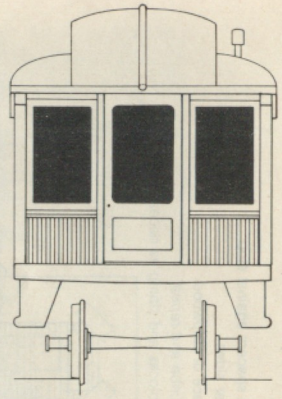
I was later able to check my plans against original blueprints of the car,



TED WURM PHOTO, 1939

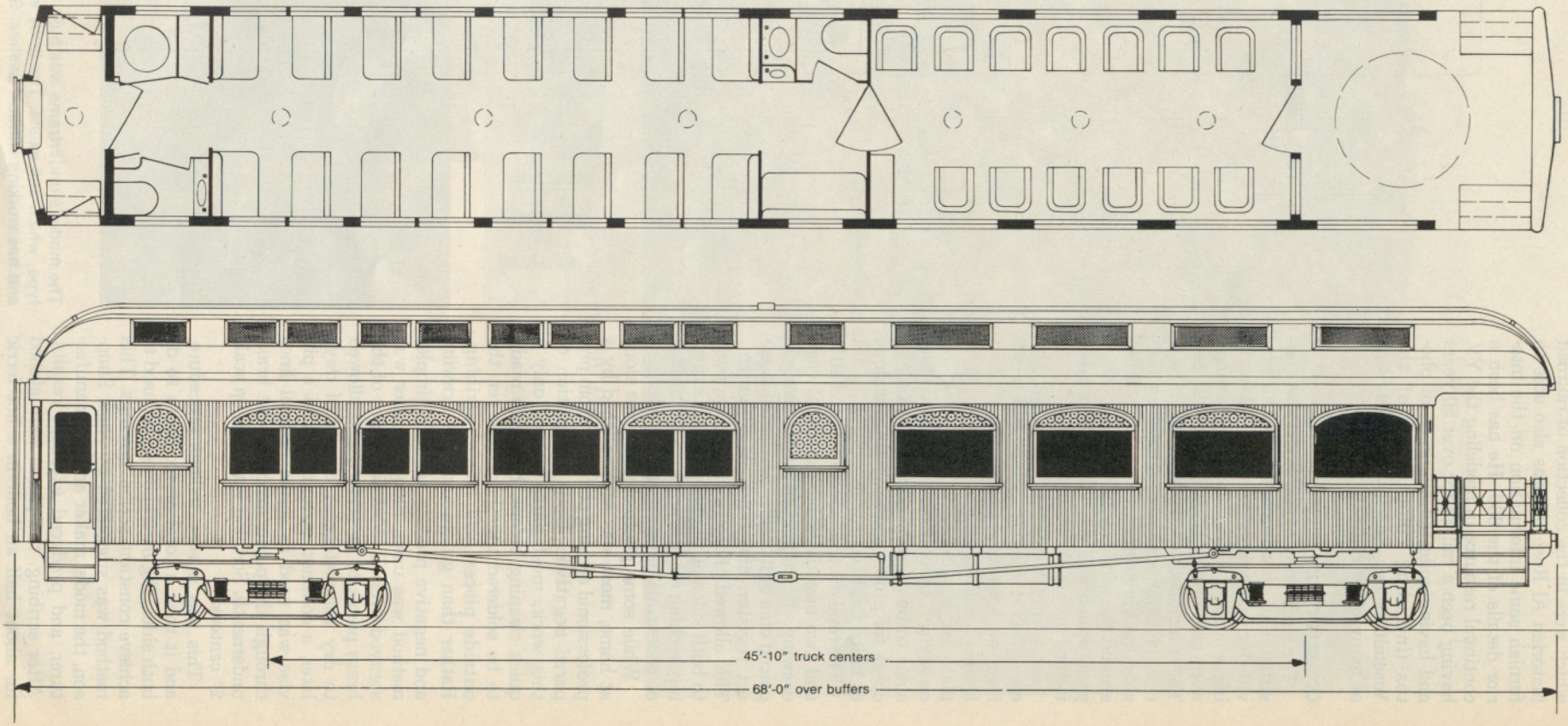
The Yosemite Valley R.R. provided a premiere car, observation No. 330, for its passenger service to Yosemite National Park; it remained in use until the YV's 1945 abandonment.





Yosemite Valley Railroad observation car No. 330
Drawn by Jack Burgess
Full size for HO scale; 3.5mm = 1′-0″; 1:87.1

Fig. 1: elevations



which were in the collection of railroad historian Al Rose. Al was also able to furnish some information on the interior details of the 330. He has been a continual resource in modeling the YV, having been a railfan for over 50 years and having collected hundreds of photos (including color slides) of the Yosemite Valley Railroad alone, as well as many other railroads.

Construction

The basic body of the model was constructed of photo-etched brass. To provide for proper window relief and working windows, three separate drawings were prepared for the sides of the car. These included an inside to which interior paneling was later added, an outside backing piece to provide relief around the windows, and a true outside panel which was also etched to provide for the necessary scribed siding.

Drawings were also made for the ends, doors, window frames and moldings, observation railing, safety chain hangers, and even the diaphragm strike plate. All drawings were prepared in ink on Mylar®, which allowed the individual sides to be overlaid during drafting to check for proper sizing. Work was done at twice final HO scale.

The final drawings were reduced 50% and two negatives were made of each drawing. Each pair of negatives was placed on a light table, positioned in exact register, and taped in alignment. This allowed photo resist to be applied to both sides of the brass. After exposing, etching could work from both sides at once, thus reducing undercutting.

While some photo-etching was done at home, most was accomplished by a professional etching company from prepared negatives. Upon completion of this work, most parts needed only a quick cleaning before they were ready to be soldered together. However, the outside pieces still lacked scribing. Rather than go through the drawing and negative process again, a simpler method was used. Floquil primer was sprayed over all sides and edges of the brass pieces to be scribed and allowed to dry completely. A couple of days later, a common straight pin in a pin vise was used to scribe vertical lines through the paint, exposing the brass underneath. Scribing was done on scale 2″ centers.

This was a very tedious procedure, and it took a total of six hours to do both sides. Figure 2 shows a jig used to achieve constant scribe spacings. This method was suggested by Russ Simpson, the model maker and kit manufacturer, and produced excellent results. After scribing, the pieces were etched for about half an hour in a hot ferric

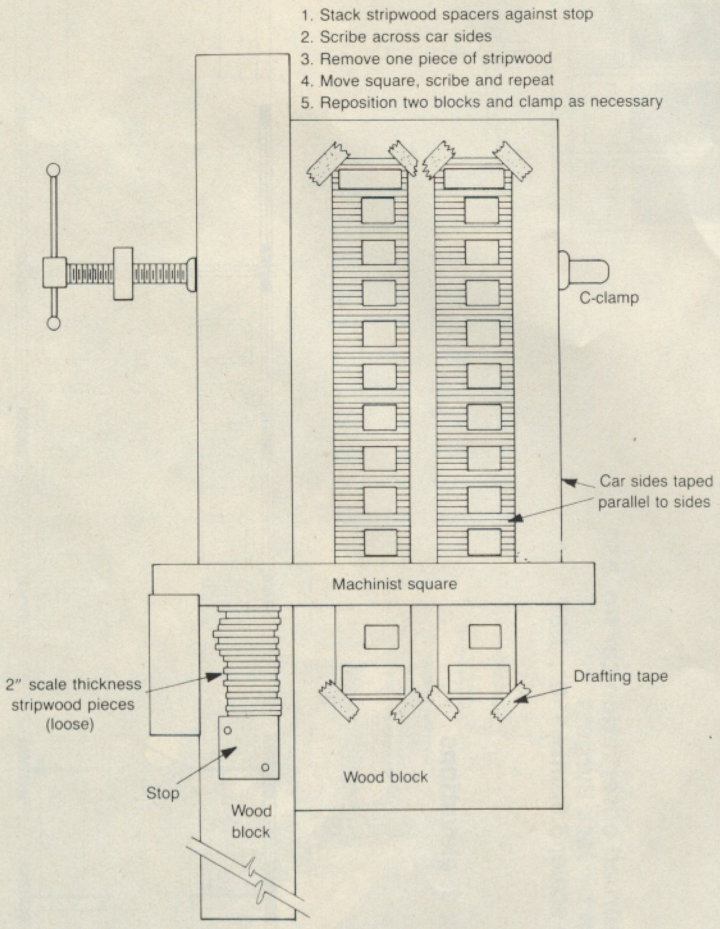
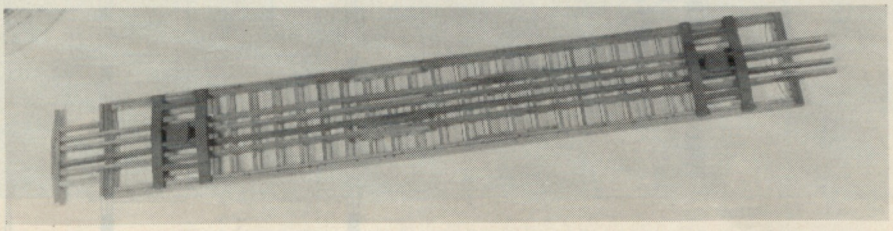
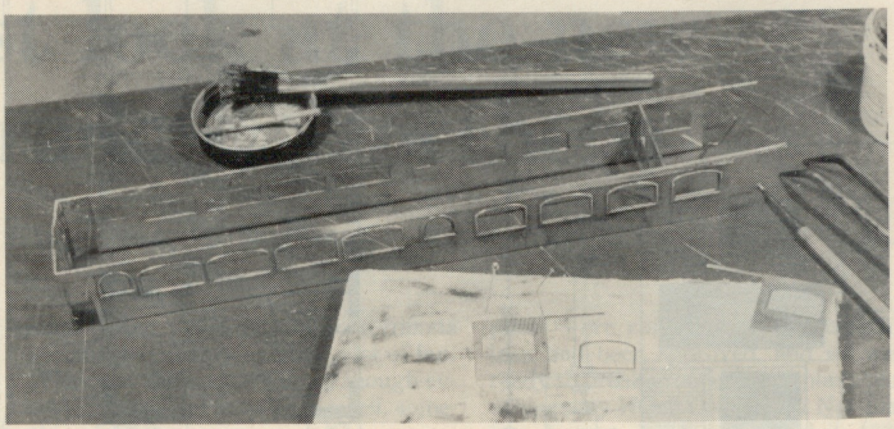


Fig. 2: Scribing jig (no scale)





The model's underframe was built up from stripwood in the same manner as the prototype, which still exists. The body was built up from three layers of photo-etched brass and has working window sashes. Some etching was done by the author at home.

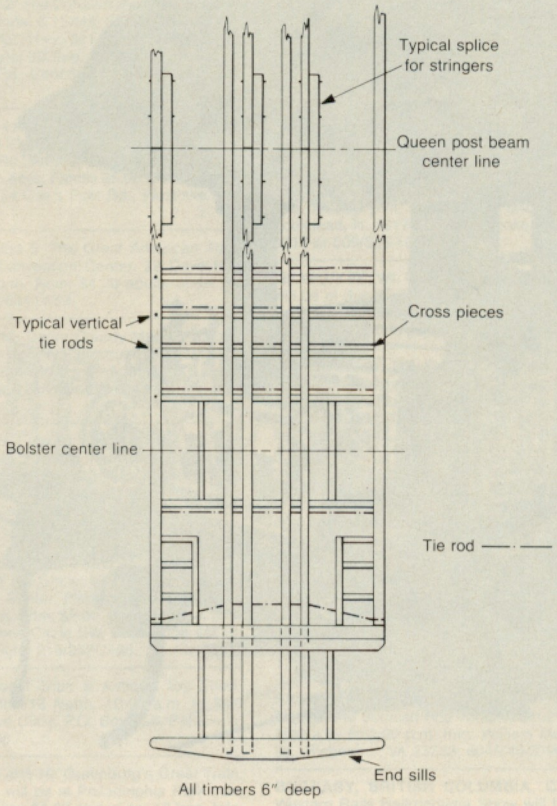


Fig. 3: Floor framing

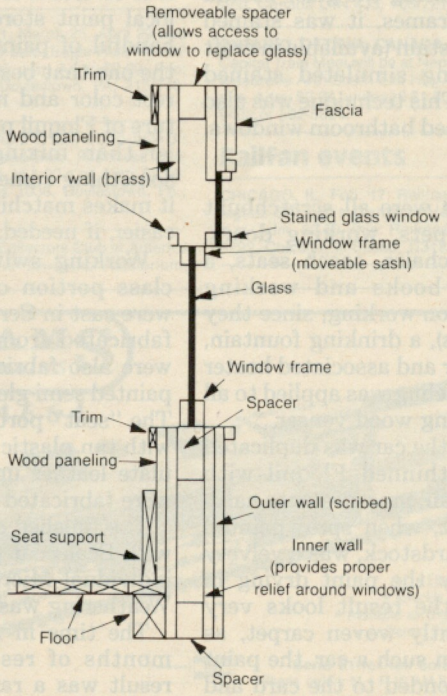


Fig. 4: Cross section through wall

chloride solution. The primer was then removed with MEK. After cleaning, the basic body was soldered together.

The underbody for the car was constructed of stripwood cut to length and notched on 19″ centers to result in a "egg crate" construction pattern with the cross pieces. All of the underbody detail was scratchbuilt, including the brake gear. Before they were attached, all underbody details were spray painted and lightly airbrushed to simulate the dust which settles on the top of the components. Although rarely modeled, this is a common prototype effect, since rain water does not continually wash off the tops of underbody equipment. This is most evident on underbody water tanks, where water settles on the tops of the tanks but washes off the other surfaces. The prepainted details were then installed.

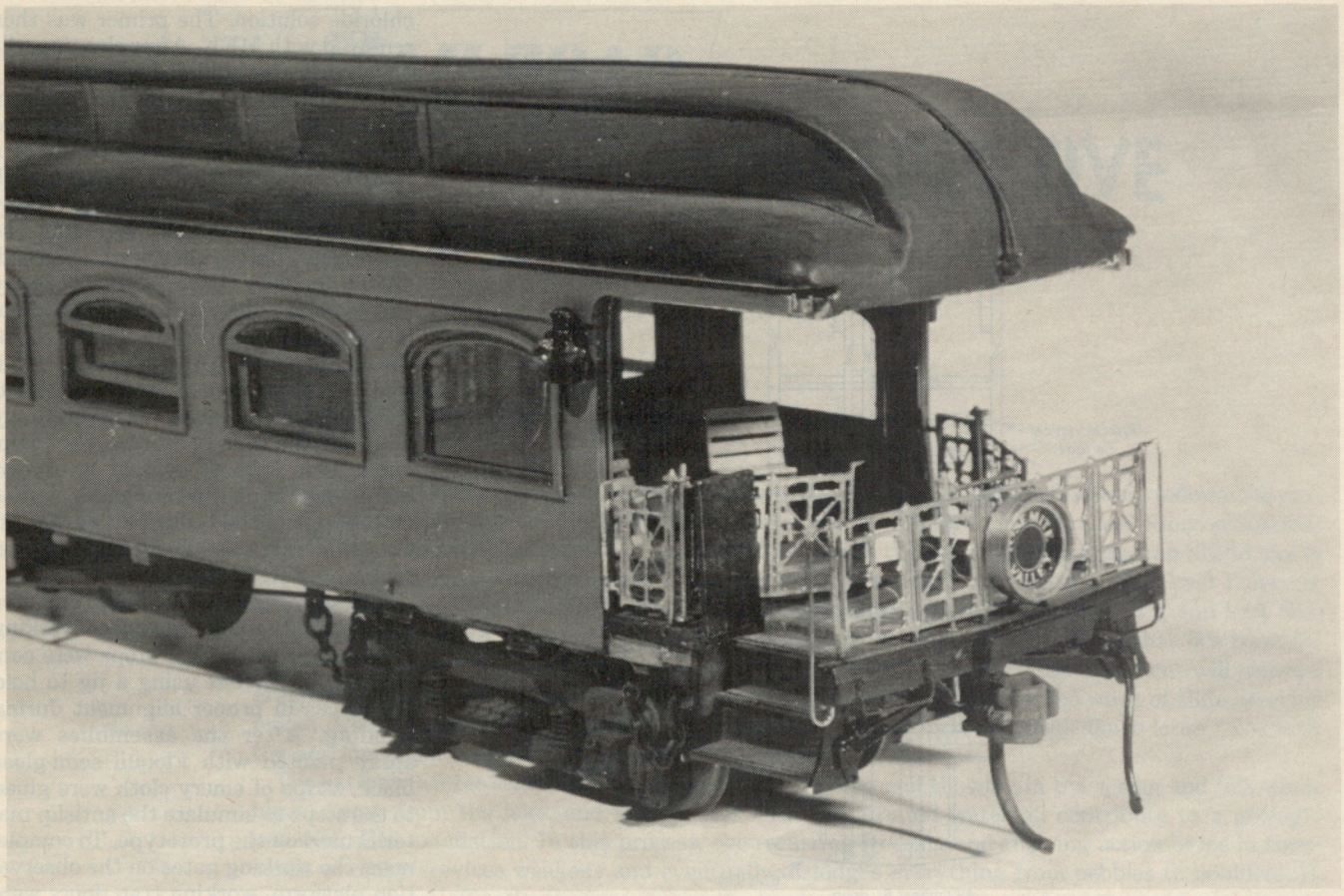
The observation platform includes photoetched railings as well as working gates at the steps. The steps were constructed of styrene using a jig to hold the pieces in proper alignment during bonding. After the assemblies were spray painted with Floquil semi-gloss black, strips of emery cloth were glued to the steps to simulate the antislip material used on the prototype. To complement the working gates on the observation platform, working trap doors were installed at both step locations. The trap doors are styrene with .010″ diameter wire hinges turning in holes drilled horizontally into the frame.

Photos taken in 1939 (the year I am modeling) of observation No. 330 show the car sporting a prestigious drumhead on the observation railing. This feature was duplicated by first preparing artwork with dry transfer letters. This was photographically reduced twice to produce a negative of the proper scale diameter. The negative was trimmed to size, inserted in a turned brass tube and backed with a white styrene disk to produce the drumhead.

Two additional details were added to the observation platform. A couple of non-working folding chairs were built from scale 1″×2″. Jigs were used to hold the side rails while the cross pieces were added. The chairs were given two coats of gloss varnish upon completion.

Because of the extreme fire hazard which exists in the California foothills during the summer months, a sign was posted on the rear platform of the prototype to warn of this danger. One of these signs is in the collection of railfan Al Rose. Al graciously photographically reduced it to HO scale for mounting on the railing. The sign is still readable, but only under magnification of a microscope.

The roof for the car was built of strip-



wood to allow for a hollow clerestory as well as the prototypical dome over the observation platform. Domes were a very common feature of plush observation cars. This effect was included on the model with a portion of a plastic table spoon (minus the handle) ground down to the proper dimensions.

Several attempts were made at producing the proper finish on the roof. The prototype used canvas tarred in place. Photos show a very smooth finish, unlike that obtained by the common "tissue and paint" approach. After several failures, the effect was properly duplicated by painting the roof with two coats of gloss black Pla, a paint for plastics. The two applications completely covered the grain of the basswood and produced the smooth finish of the prototype. When it was completely dry, Dullcote was sprayed on the roof and the roof weathered.

Working windows were added to the model by the method shown in Figure 4. Removable styrene spacers were placed above the windows to allow the windows to be replaced in case of breakage. Spacers were also glued between the windows. These latter spacers guide the sides of the sliding windows and must be slightly thicker than the windows to allow them to slide up and down. The windows themselves are a sandwich of two photoetched brass frames with slide cover slip glass between them.

Slide cover glass was also used for the arch windows above the movable windows. After mounting the glass behind the prepainted frames, it was stained with green glass stain (available in craft stores for making simulated stained glass windows). This technique was also used for the stained bathroom windows.

Interior

Interior details were all scratchbuilt and include carpets, working doors, working swivel chairs, coach seats, a bookcase with books and working drawer, toilets (non-working, since they used dry hoppers), a drinking fountain, the heating boiler and associated heater piping. Wood paneling was applied to all interior walls using wood veneer.

The carpet for the car was duplicated by spraying unthinned Floquil with about 15 lbs. of air pressure onto cardstock. The result, when spray-painted 6″-8″ from the cardstock, was a velvety finish created by the paint drying in mid air. While the result looks very much like a tightly woven carpet, as would be found in such a car, the paint is not actually bonded to the card and the material cannot be touched or handled roughly after installation.

Selecting the proper color for the carpet was not difficult but, for a non-artist like myself, producing it was. For such tasks, it is much easier to mix a color to match a particular sample than it is to create it outright. A trip to the local paint store furnished me with a handful of paint chips, and I selected the one that best fit my idea of the correct color and matched it with a mixture of Floquil paints. This is much easier than mixing paints blindly until something comes up that you like, and it makes matching the color later much easier, if needed.

Working swivel seats for the first class portion of the observation car were cast in Cerro Bend using a master fabricated from styrene. Coach seats were also fabricated from styrene and painted semi-gloss black after assembly. The "seat" portions were then covered with tan plastic decorative tape to simulate leather upholstery. Other details were fabricated of styrene and brass.

The finished carbody was airbrushed with Scalecoat paint and lettered with individual Microscale alphabet letters. Weathering was kept to a minimum.

The time in this model equalled 14 months of research and work. The result was a rarely-modeled prototype of an observation car very typical of construction methods and luxury levels the finest railroads offered.