The Keystone Modeler

Pennsylvania Railroad Technical & Historical Society

No. 113 Summer 2020

Inside:

The Keystone Modeler
Pennsylvania Railroad Technical & Historical Society

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FRONT COVER

(Top) One of Chuck Cover's modified BLI HO-scale I1SA 2-10-0 locomotives. *(Chuck Cover photo)*

(Middle) Ron Hoess's completed HO-scale model of a PRR tower car. *(Ron Hoess photo)*

(Bottom left) Bowser's latest model of the PRR N5 cabin car. *(Bottom right)* Bowser's newest N5c cabin car model. *(Both photos, Bruce Smith)*

The Keystone Modeler

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Please contact the editor for information and guidelines for submission. Photo files 800x600 pixels or larger in JPG format are preferred. Statements and opinions made are those of the authors and do not necessarily represent those of the Society.

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We sadly would like to acknowledge the passing of former colleague Greg Martin. He was a contributing columnist in New Products and Product Reviews in *TKM*. Greg succumbed to the Corona Virus this spring.

So here we are, still stuck spending most of our time at home. I really miss RPMs, train shows, and especially the last Pennsy annual meeting. I also like to browse in hobby stores. A few of those are apparently open, but I'm not ready to go. This feels like a whole new world, and I'm not adjusted to it yet.

However, while we're spending so much time at home, now is an excellent time to open that kit you've always meant to work on but didn't get around to. After you've watched all the TV you can stand, and after you've walked around outside a few times, and after you've done all those "honey-dos", maybe you can overcome your boredom by opening that kit. Most of us already have enough tools on the workbench and an assortment of glues, so why not go for it? There's that tank car you always meant to build (some guys just never have enough tank cars), or that Red Caboose X29 (Pennsy had thousands), or that model of an interlocking tower (do you need more than one?), or that depot which you spent over a hundred dollars for at a train show. When things are better, you will be able to show that you actually got something done during these lockdown times.

To help inspire you to work on something, in this issue we present Bruce Smith's review of the Bowser N5, Chuck Cover's modifications of some BLI decapods to match the time and place of his layout, and Ron Hoess' model of a tower car used to repair catenary.

Jim Hunter, Editor

Pennsylvania Railroad Technical & Historical Society

The purpose of the Pennsylvania Railroad Technical & Historical Society is to bring together persons interested in the history and modeling of the Pennsylvania Railroad, its subsidiaries, and its acquired companies. Our goals are to promote the preservation and recording of all information regarding the organization, operation, facilities, and equipment of the PRR.

The Society's quarterly illustrated journal, *The Keystone*, has been published continuously since 1968. Each issue of 64 or more pages contains illustrated original authoritative articles about locomotives, cars, other equipment, facilities, and operating practices of the PRR. The Society also publishes its own thoroughly researched books and other materials concerning PRR history. *The Keystone Modeler* is also a quarterly special 30-plus page online publication of the Society.

The Society meets annually, usually during a weekend in early May, providing an opportunity for its members to get together and learn more about the PRR. Local chapters around the country also provide members and guests with regular meetings that feature PRR related programs.

Information about our Society may be found on our website – www.prrths.com. To join the Society, send $40.00 to:

PRRT&HS
PO Box 54
Bryn Mawr, PA 19010-0054

All memberships are for a calendar year, back issues of The Keystone for the current year are sent upon joining. Overseas membership has added postage fees.

PRRT&HS Interchange

Selected Society Merchandise of Interest to Modelers

PRR Equipment Drawings on Microfilm

Copies of PRR equipment drawings are available from the Society's microfilm collection. To order drawings, you must know the drawing number and title. Ordering information and lists of arrangement drawings are available on the Society's website. Go to www.prrths.com, select National Society, and then The Interchange. If you require a printed copy of this information, please send your address and a check for $2.00 made out to PRRT&HS to:

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McVeytown, PA 17051

The Keystone Modeler
NEWSWIRE
With Steve Hoxie

PRR Product News

ATLAS MODEL RAILROAD CO.
https://shop.atlasrr.com/

PRR AF-15 (ALCo FA1 / FB1) Diesel Locomotive—N Scale
Atlas has slipped the delivery schedule for these models to the 3rd quarter of 2020.

PRR FS-16m (FM H16-44) Diesel Road Switcher—HO Scale
Atlas has revised the delivery schedule for these road switchers to the 4th quarter 2020.

PRR GF-28a (GE U28C) Diesel Locomotive—HO Scale
The delivery schedule for these GE freight engines has been changed to TBA.

PRR 8-1-2 Heavyweight Pullman—HO Scale
Delivery of these sleepers has been relisted as TBA.

PRR AS-24m (ALCo RSD15) Diesel Road Switcher—O Scale
Atlas has rescheduled delivery of these O scale road switchers to 4th quarter 2020.

PRR G30 War Emergency Gondola—O Scale
Delivery of the gondola has been revised to 4th quarter 2020.

BOWSER MFG.
https://www.bowser-trains.com/
PRR F30A Flat Car—HO Scale

(Bowser Artwork)

The latest run of this popular **Bowser** flat car is now due in December 2020.

PRR GLA 2-Bay Hopper Car—HO Scale

(Bowser photo)

This run of the popular and essential RTR HO GLA from **Bowser** is still expected to be available in the Fall of 2020.

PRR AS-16m (Alco RS-3) Road Switcher—HO Scale

Discussion with **Bowser** reveals that significant progress is being made. Casting of components for the RS-3, being done in the US, is nearly complete. Within 60 days everything is expected to be shipped to China for assembly and finishing. Apparently, when the factory receives all these parts, the RS-3 job will become their top priority. Models should be available in the US in second quarter of 2021.

BLUFORD SHOPS
http://bluford-shops.com/
PRR H31C 2-Bay Hopper—N Scale

(Bluford Shops Artwork)

Bluford Shops is expecting this hopper late this year.

BROADWAY LIMITED IMPORTS
http://www.broadway-limited.com/
PRR T1 4-4-4-4 Steam Locomotive--N Scale


(BLI Photo)

BLI is now expecting the latest run of the N scale T1 in August 2020.

PRR Streamlined K4 Steam Locomotive—HO Scale

BLI announced in mid-July that their much-anticipated model of the 1936 version of the streamlined K4 is out for delivery to dealers. If you have a pre-order, you may have already heard

from your dealer. There will be several paint schemes including bronze and DGLE. Power will be through the company's Paragon3 sound DC/DCC decoder.

GHB International

http://www.ghbintl.com/

PRR DD1 Electric Locomotive—HO Scale

GHB reports that the DD1 is in final assembly stage with the delivery of the ESU Loksound decoders to the factory in China. **GHB** will test a few production models, then set a delivery date.

James' Train Parts

https://jamestrainparts.com/

PRR Baldwin RT-624 (BS-24m) Centercab Diesel Shell—HO Scale and N Scale

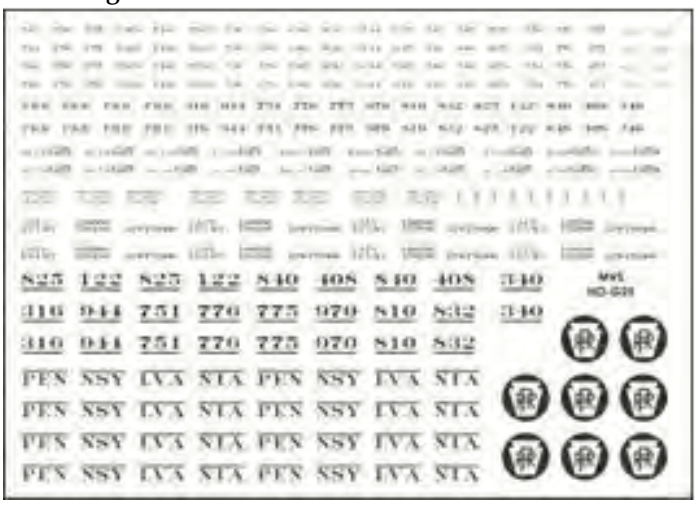
(James Train Parts Photo)

Since citing this project last summer, much progress has been made on the Baldwin DT6-6-2000, the predecessor to the RT-624 (PRR BS-24m). The website has much more info and many photos. Above is a test shot of the HO non-PRR DT6-6-2000 with a finished N scale BS24m.

Mount Vernon Shops

https://www.mountvernonshops.com/

PRR Freight Car Decals—HO Scale



PRR G25 Decals *(Mount Vernon Shops Artwork)*

Since the last time we listed **Mount Vernon Shops**, they have been busy developing some new decal sets. These are top quality decals. We are fortunate to have the variety offered at this fine level of quality.

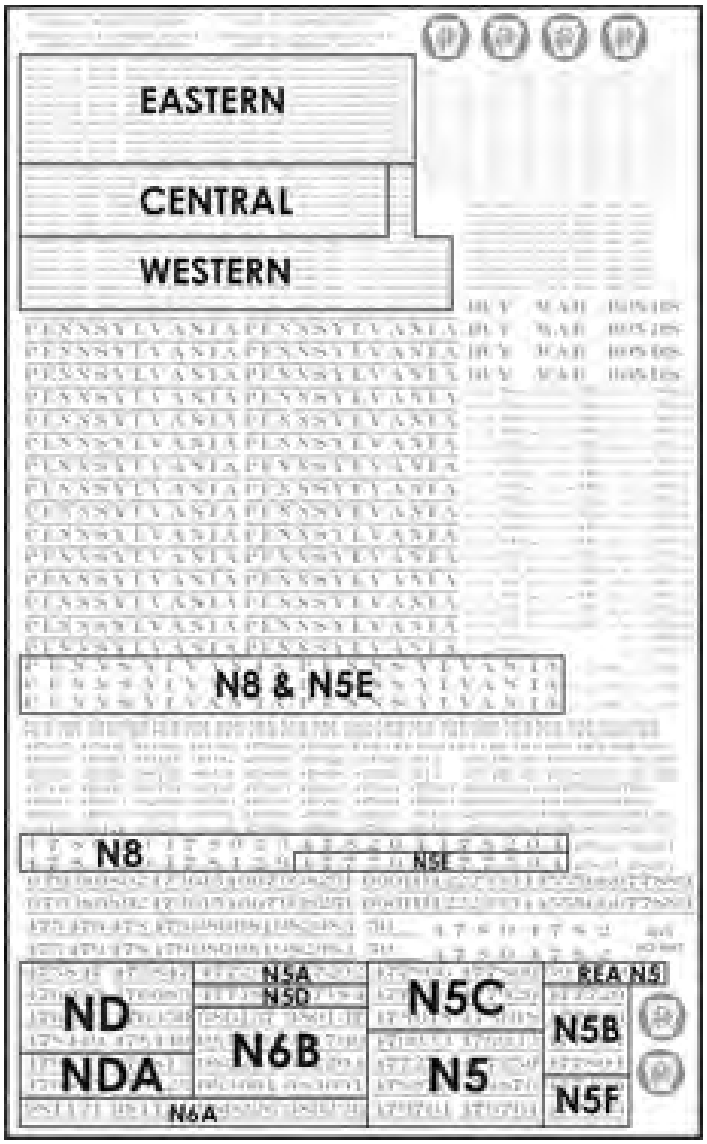
G24 Gondola Enough data for two cars. Intermountain has a model of this car. See *TKM* #7.

G25 Gondola Enough data for two cars. As modeled by Walthers. See *TKM* #8.

F25 Well Flat Car Enough data for one car. Model kit available from Funaro & Camerlengo. See *TKM* #27.

Four-bay Open Hoppers (H21, H22, H25) This is a revised and re-released set with enough data for a dozen cars. Models available from Bowser and Westerfield.

Cabin Cars (Wood and Steel) Enough data is provided for 18 cabin cars.



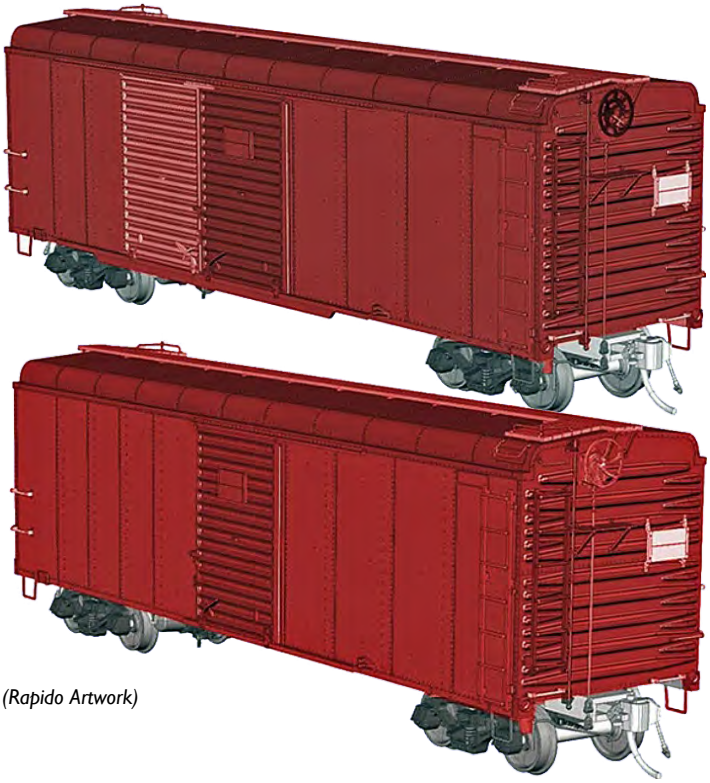
PRR Cabin Car Decals *(Mount Vernon Shops Artwork)*

MR. 3D DETAILS
mr_3d_details@outlook.com
PRR Trackside Details—HO Scale

(Rob Bennett Photo)

Produced using 3D printing technology, these battery boxes and telephone boxes are clever, welcome additions. Uniquely PRR, they distinctly add to the Pennsy lineside atmosphere. Contact Don directly by email for pricing, more photos, and additional info.

RAPIDO TRAINS
https://rapidotrains.com/
PRR X31A Single and Double Door Boxcars—HO Scale



(Rapido Artwork)

Rapido has announced that they will be producing the X31A round roof boxcar. Both single door and double door versions will be produced in five different PRR paint and lettering schemes as well as undecorated. The cars will be marketed as singles and in 6-packs. This was a huge class on the PRR; a state-of-the-art model is expected to be very welcome. Note that in 2007 a PRRPro project was the X31 classes. There is much information in the PRRPro archives, Files, and Photos. Additionally, Bruce Smith has been busy presenting additional info. Please see the comments below at Upcoming Events. No order deadline of delivery schedule has been announced yet.

PRR AP-20 (Alco PA-1/PB-1) Passenger Diesel – HO Scale

Expected arrival for these **Rapido** passenger engines has been delayed until winter of 2021.

WALTHERS
https://www.walthers.com/
PRR FP7A and F7B RTR—HO Scale

Progress on the **Walthers Proto** EMD FP7 and matching F7B, numbered and detailed in the pre-Penn Central series has been on track with delivery still planned in late December 2020.

Upcoming Events

The cancellation of numerous events has left many with an unfulfilled need to exchange modeling ideas and experiences. Some folks in the prototype modeling community have gotten together and created a Virtual Railroad Prototype Modelers meet. This was initially held on June 13 over the Zoom technology platform. The next one is planned for August 22 and is listed below.

An email group has been established for sharing information, as shown below. If you have an interest in learning from others or acquiring prototype information, I encourage you to join the group, just a couple of clicks away from our **https://prr.groups.io/g/PRR**. Also consider signing up for the Aug 22 event. Since these meets are digital, it is a relatively simple process to post presentation materials afterward for all to use and study at leisure. The Files section of the Hindsight group (below) is being used for this. Bruce Smith was one of the presenters on the June 13 event, and his very thorough X31 presentation materials are available at the Hindsight group site. This Virtual RPM meet idea really fills a big hole. Attendance from any place in the world without the hassle and expense of travel, lodging, and time away from home while being able to attend and participate from your computer desk is a good thing.

July 31-August 1, 2020 CANCELED (2021 Dates July 30-31)
St. Louis Railroad Prototype Modelers Meet
http://www.icgdecals.com/stlrpm/

August 22, 2020
Virtual Railroad Prototype Modelers Meet
https://groups.io/g/Hindsight2020

September 10-13, 2020 Baltimore, Maryland **CANCELED**
Mid-Atlantic Railroad Prototype Modelers Meet
https://www.marpm.org/

September 25-26, 2020 Winston Salem, NC **CANCELED**
RPM Carolinas School of Railroad Modeling Techniques
https://sissonstony.wixsite.con/rpm-carolina

September 26, 2020 Milwaukee, Wisconsin
Wise Division Railroad Prototype Modelers Meet
https://www.wisedivision.org/events/upcoming-meets-and-events

Advance Planning

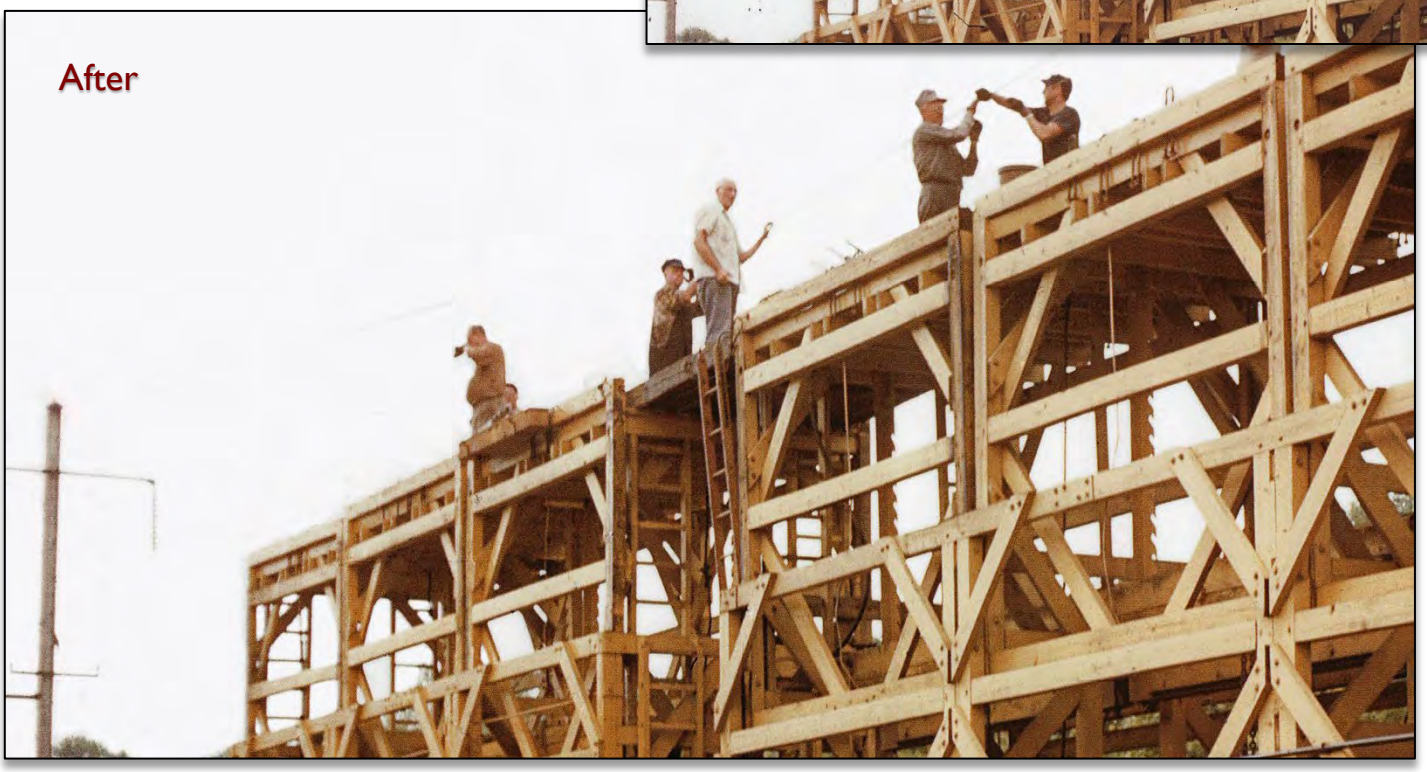
October 3, 2020 Bellflower, California
LA Area Prototype Modelers Meet
http://www.laapm.org/

October 10, 2020 Portland, Oregon
Bridgetown Railroad Prototype Modelers Meet
https://www.brpmm.com/

October 30-31, 2020 Naperville, Illinois
Chicagoland Railroad Prototype Modelers Conference
http://www.rpmconference.com/

Photo Prep for *TKM*

We are committed to giving *TKM* readers the best quality visual presentation we can. A part of that effort is photo correction and restoration. An example is this rare, essential image from Owen Thorne's collection to illustrate Ron Hoess's tower car article (the full image is on page 24). Often color slide scans exhibit dust specks, scratches, color shifts, exposure problems, and sometimes sharpness issues. Tim Garner does his best to fix everything for you before publication. He spent about an hour with Photoshop Elements on this one – and he enjoyed the challenge.



Model Review: Bowser N5 and N5C Cabin Cars

By Bruce Smith – photos by the author unless noted

The ready-to-run Bowser N5 cabin car.

Starting in 1914, the PRR built the world's first steel cabin car, class N5. Over the course of the next 15 years, the PRR constructed 638 members of this class.

As built, these cars had archbar trucks and a toolbox under the body. The stove was near one end of the car and the lavatory was under the far end of the cupola from the stove, with a small vent visible on the car side. The ends had a ladder to the left, a single handrail, and a lever style hand brake connected to KD brakes. Over the years, the cars underwent several modifications. This included removal of the battery box, application of several classes of cast side frame trucks, and addition of a second end handrail. In the late 1930's, most N5 cabins received heavy collision posts flanking the coupler box on each end. Around the same time, the interior of the car was revised, moving the stove close to the cupola, and moving the lavatory, along with the corresponding vent, close to the stove. AB brakes were typically installed in the late 1930's as well.

Opposite side of the N5 as built. *(PRR photo)*

Angled view of the N5 model showing the painted wire grabs and the twin collision posts.

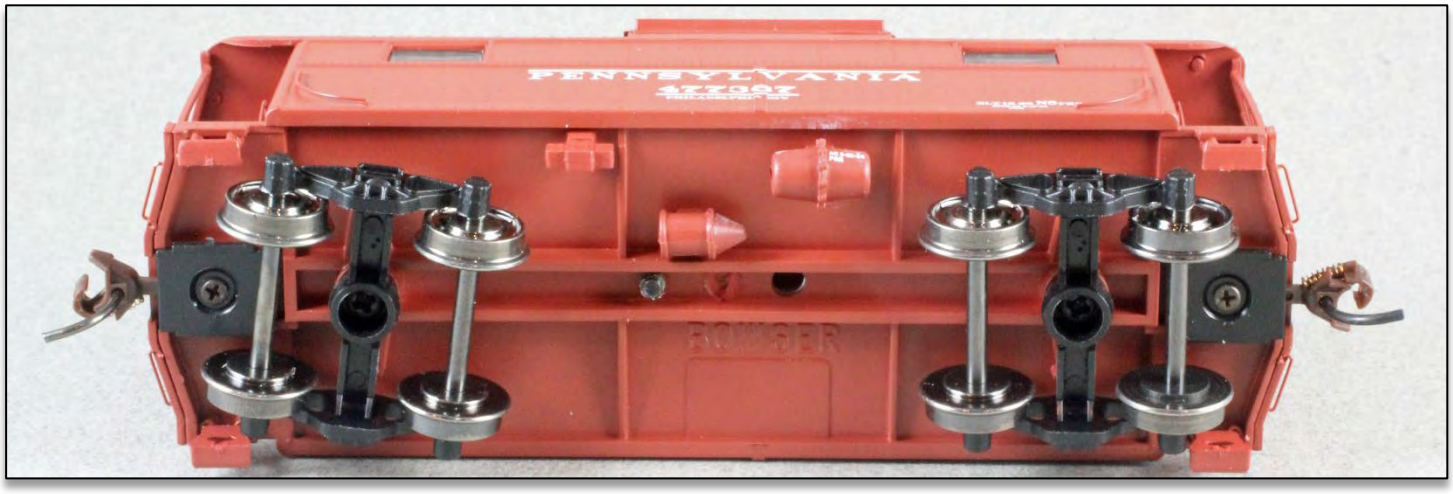
In 1937, four N5's were rebuilt as N5A's with the addition of Duryea underframes. These were numbered 477110, 477267, 477292, and 477587. In 1941, 200 new copies of the N5, classified as N5B, were built. They had small differences including a change in the placement of the curved side grab irons.

The year 1942 saw the need for additional cabin cars to handle wartime freight. The N5 design was updated with porthole windows and a more streamlined cupola. PRR built 200 N5C cabin cars to this design.

A few additional original N5 cabin cars were modified to produce new classes. One car, #577184, was given a sliding underframe, similar to the N5A's Duryea, resulting in class N5D. This cabin had very distinctive collision posts as, due to the extended underframe, they were placed at the end of the roof, under a small extension. This unique cabin become PC 19590, and then CR 461658R (Photo in *The Keystone*, No. 24, 1991, p. 3) and ultimately went to the Waterbury, Connecticut YMCA. N5 #477594 was rebuilt after a 1945 wreck as class N5E. Finally, 8 N5's (477150, 477217, 477226, 477335, 477439, 477457, 478503, 479701) were rebuilt as class N5F.

As noted with the N5D, many of these cabins served the PRR, Penn Central, and ultimately Conrail.

Many years ago, Bowser scratched the itch that HO scale modelers had for both the N5 and N5C with plastic kits for both. Those models have been the mainstay of many a PRR modeler's cabin car fleet and fodder for several improvements. Both models show the age of their tooling with molded on grab irons, minimal underbody details, no interior details, and some notable errors. For several years, Bowser was rumored to be working on upgrades to both models. Over the past 3 years, they have released both the N5 and N5C as upgraded models. I purchased one of each when they were released to see what changes Bowser had made. Based on my 1944 era, I went with cabins painted completely in freight car color (FCC), including the roofs, and simple PENNSYLVANIA lettering. [Ed. Note: the cars are also available with a black roof and cupola.] No kits were offered as the cars were only released as Ready-to-Run models, both with a list price of $29.95. Given that price point, it should be immediately obvious that these cabins are not "state-of-the-art" super-detailed models like some that we have seen in recent years. The cabins come equipped with Bowser's excellent class 2A-F5 cabin car truck, with metal wheels. They are also equipped with plastic head knuckle couplers with whisker centering springs.



The underbody of the Bowser N5 also is shared by the N5C.

My first impression out of the box was favorable. Bowser has shifted to a lighter shade of FCC that is much closer to 1940's era FCC, although the color could still be slightly more orange as it is a little on the brown side. The lettering on these cars is also vastly improved from the original releases. The PENNSYLVANIA and number are the correct size and appear to be accurate representations of the stencils. The built date, class, and journal repack stencils are also smaller and more accurate than previous runs. My N5C is lettered as assigned to the Eastern Region, which is correct for my era, and the N5 is lettered as assigned to the Philadelphia Division, which is accurate for models prior to December 13, 1940, when assignment lettering switched to the region. The repack date on the N5 is 8/22/34 and on the N5C is 9/20/48.

The models consist of a single molding that includes the floor and body, with an added roof and separate cupola. Although ready-to-run, the roof and cupola are removable to allow access to the inside of the cabin car. The moldings appear to be based on the old tooling with modifications. The most obvious changes are the individual grab irons and a revamped end brace/ladder casting. The free-standing grab irons measure approximately 0.013", so they are likely 0.012" wire with paint making up the remaining 0.001". The grab irons on the latitudinal running boards remain as molded on details. Bowser has not modeled the attachment bolts for the grab irons (note that the cast on grab irons of the previous version also do not model the attachment bolts). Somewhat puzzling is the absence of grab irons on roof of the N5 cupola, especially since those grabs were there in the previous version, the molded grabs are no longer present, and the N5C has cupola top grab irons. These missing grab irons can easily be added by modelers who wish to. The curved side grab irons and right-angle end grab irons do not have the third, "middle", attachment point (neither did the molded-on form of these grab irons).

Side view of the Bowser N5C model. Bowser included wire grabs on the roof of the cupola but left this detail off the N5.

Builder's photo of the more modern-looking N5C. *(PRR photo)*

The end ladders and braces are provided in a single piece plastic molding, as on the previous versions. However, the casting has been modified to remove the pins from the top, and the matching receiving "lugs" on the underside of the roof. Instead, Bowser has added a thin horizontal cross-member at the top of the assembly. This butts bluntly up against the bottom of the roof, providing a friction fit. It appears that the bottom of the assembly uses the same pin and hole arrangement as the original models. The collision post castings remain the same basic rectangular cross section, lacking the outward facing "C" channel detail of the prototype, as in previous models. The casting is also missing a section of the upper handrail, above the brake wheel, as was true on the original models.

The rest of the models are identical to the previous versions. The underbody detail is spartan, with basic representation of the AB valve, cylinder, and reservoir. The model does not have an interior, uncoupling levers, or brake hoses. These details can be added by modelers who wish to do so. Also missing are the sliding side windows on the side of the N5 cupola.

Several errors that were identified in the previous models persist. The N5 body represents a combination of details never (or at least extremely rarely) seen on the prototype. As noted above, when built, the hopper was on the left of the cupola and the stove was near the end, resulting in the stove pipe standing close to the latitudinal running board. In the late 1930's the N5s underwent a series of modifications, including a revision of the interiors. In that revision, the hopper was moved to the right side of the cupola and the stove was moved to a position just to the right of the cupola (One wonders if conductors and brakemen, weary of freezing cold "facilities," had a voice in that modification!). The N5 model has the original position hopper vent and the modified stove position, a very unlikely combination. This can be addressed either by shaving the vent off and relocating it to model the later positions, or by relocating the stovepipe to model the as-built positions.

Careful examination of the roof highlights another issue. On the model, two longitudinal rows of rivets terminate in a latitudinal row of rivets. While this is correct, the longitudinal rivets should end before the latitudinal running board, instead of under the running board, as it does on the model. Modelers who wish to could remove the existing latitudinal rivets and some of the longitudinal rivets and replace the latitudinal row with new rivets using decals.

Many modelers have upgraded the windows on both the N5 and N5C using laser cut windows from American Model Builders (AMB). The molded windows provided with the cabin are thick and give a distorted image. Although the roof and cupola are not glued on, allowing access to the windows, the windows are firmly glued in and I have not yet removed any. I do plan to experiment with breaking the glue bond by freezing them, and as a last resort, I will try to pry them free. While I was not able to test fit AMB laser cut windows, it is likely that they will fit as the bodies appear to be derived from the old molds.

There are a few other details that modelers might choose to address with these models. The end decks of these cabin cars were wood planks, which are not represented on the model. The stove pipe on the N5 model is the canted H style, like the N5C, which was used on some N5s, but the more common style of stovepipe was a simple vertical with a cap.

Angled view of the Bowser N5C cabin car.

To summarize, Bowser has upgraded their popular HO scale N5 and N5C cabin car models with wire grab irons, an improved end casting, and more accurate paint and lettering. As expected from the list price, Bowser has not pushed these models to the detail level now being delivered by some manufacturers. These cabin car models are good looking representations of the prototype that can move directly from the box to the layout for many modelers, but also provide modelers with several opportunities to improve their accuracy and detail level. Opportunities also exist for other manufacturers to provide additional detail parts, such as AMB's laser cut windows. Kits for interiors and upgraded end ladder/collision posts would be a nice addition. Since a number of companies interested in producing a high end model of the N5 and/or N5C took a "wait and see" attitude when Bowser announced their improvements, the level of detail on the Bowser models also provides plenty of room for a company wishing to provide a state-of-the-art, super detailed, model.

Modifying the BLI I1SA Models to Represent Locomotives Operated on the Shamokin Branch in the 1950's

By Chuck Cover – Photos by the author unless noted

Figure 1 – I1SA #4635 sitting in Northumberland on my layout. Note the air pump on the engineer's side, the air tank under the cab and the hooded doghouse.

As I study prototype photographs of the Shamokin Branch (figure 1) during the last days of steam on the PRR, I continually gain more knowledge which helps me model the line. Recently while discussing the branch with Bob Hess, Steve Hoxie, and Larry Hanlon, it was pointed out to me that many of the I1 locomotives had been equipped with a second air pump, this one located on the engineer's side. Steve had a great article which discussed modeling Northumberland Decapods on his model roster including the addition of a second air compressor/pump (*TKM* #88). The second air pump made operations more efficient, mostly in the replenishment of air for braking which was especially important on the branch. While I was studying photographs of some of the converted I1's, I also noted that many of those locomotives with 90F82 tenders, both with and without the second air pump, had the doghouse relocated from the standard location directly behind the coal bunker toward the rear of the tender deck. A hood was also installed on the rear of these doghouses (figures 2-3).

The book *Pennsylvania Railroad: Shamokin Branch, Ore trains, and Coal Mines* by Dan and Blake Marnell (@2017 by Daniel J. Marnell) is a fantastic resource on the branch. I studied the photographs in the book as well as photographs that I have collected to find locomotives to model for this project. I ended up choosing #4405, #4243, #4635, and #4616. Three of them had double air pumps and three had tenders with hooded doghouses. The choices gave me models with slight variations from one another.

The Project

The BLI I1SA models are a great starting point for PRR modelers. The locomotives are a good representation of the prototype, and the manufacturer issued them with either original or modern headlight placement and with the short 90F82 tender or long 210F82A tender. I have about a dozen BLI I1SA models for my Shamokin Branch layout including all four variations.

Since I wanted to add a second water pump to the engineer's side of the locomotive, I found photos of three I1SA locomotives from the Shamokin Branch book to model, #4405, #4635 and #4616. Two of these, #4405 and #4635 had short tenders with a hooded dog house and the other, #4616, had a long tender. The fourth locomotive that I modeled for this project was #4243 which has a single air pump but does have the short tender with the hooded dog house.

Double Pump Locomotives

Starting with modeling the locomotives with the double air pump, the first step is to remove the air tank on the engineer's side by prying it off the locomotive (figure 4). It is held I place by two small pegs that stick into holes under the walkway (figure 5). I chose to use this air tank on the double pump models rather than purchase the Precision Scale part and cut it down to size. I thought the removed BLI air tank was about the correct size and looked rather good after being moved toward the rear of the loco under the cab. You can view the Precision Scale part in Steve Hoxie's article in *TKM* #88.

▲ **Figure 2** – 11SA #4405 Crossing Shamokin Creek leaving Sunbury. *(Clarence Weaver photo, Penn Valley Pictures, in* Pennsylvania Railroad: Shamokin Branch, Ore Trains and Coal Mines*, Dan Marnell and Blake Marnell, p680)* ▼ **Figure 3** – 11SA #4405 and #4635 crossing the Shamokin Creek.

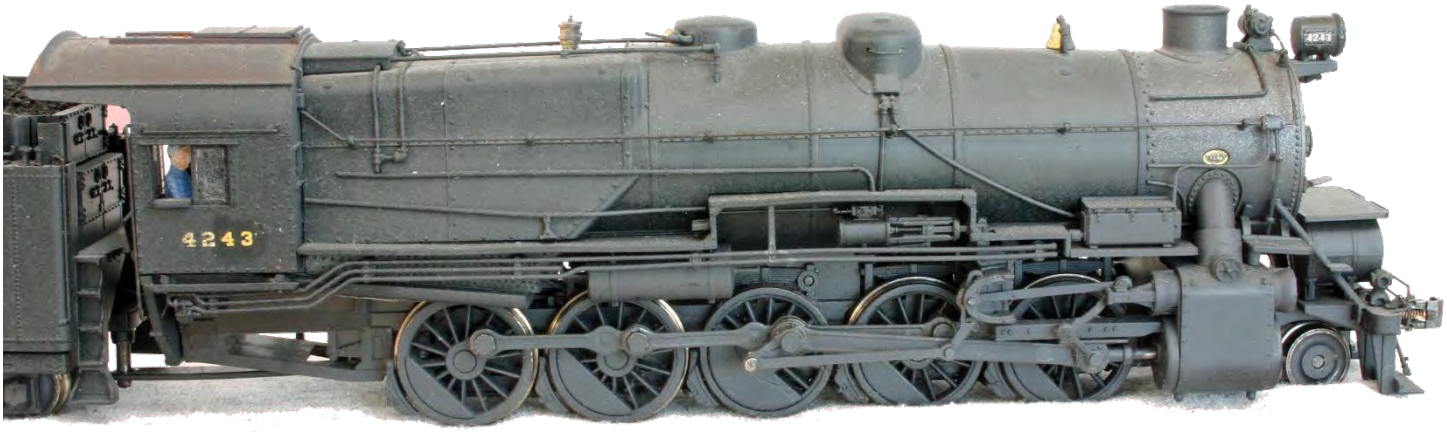


Figure 4 – Engineers side of BLI unmodified 11SA.

There is a group of horizontal pipes that run across the side of the locomotive drivers. The forward attachment of these pipes must be removed so that the new air pump can be placed under the walkway where the air tank was removed. The tank was slightly recessed and did not interfere with these pipes, but the new air pump is larger, extends out and sits lower than the tank, and the pipes need to be routed behind it. The pipes are also attached to the side of the loco with a small peg and a hole in the body of the locomotive. I cut off a small section of the front of the pipes including the holding peg so they could be recessed behind the new air pump. The now visible set of holes in the loco body were covered with a small piece of sheet styrene so they would not be seen on the completed model (figure 6).

I used one of the Precision Scale and two of the Cary parts for the air pumps and attached each to a small piece of .08" x .250" strip styrene by drilling a hole for the peg to fit into (figure 7). This assembly fit flat against the locomotive side. The pump assembly was then epoxied to the locomotive body. The horizontal pipes were pushed under the air tank and then the front end of the pipes was ACC'd to the side of the locomotive.

Drill a hole in the front end of the tank to connect the piping that will go from the tank to the air pump. The air tank was also attached to a small piece of .08" x .250" strip styrene after drilling out two holes for the tank pegs to fit into. The assembly was attached to the side of the locomotive under the cab using photographs to properly position it. I then formed the piping from the air pump to the air tank with 1.4 mm wire using photos as a reference. Lastly, use .015" brass wire to form the piping from the new air pump to the steam dome (figures 8-9).

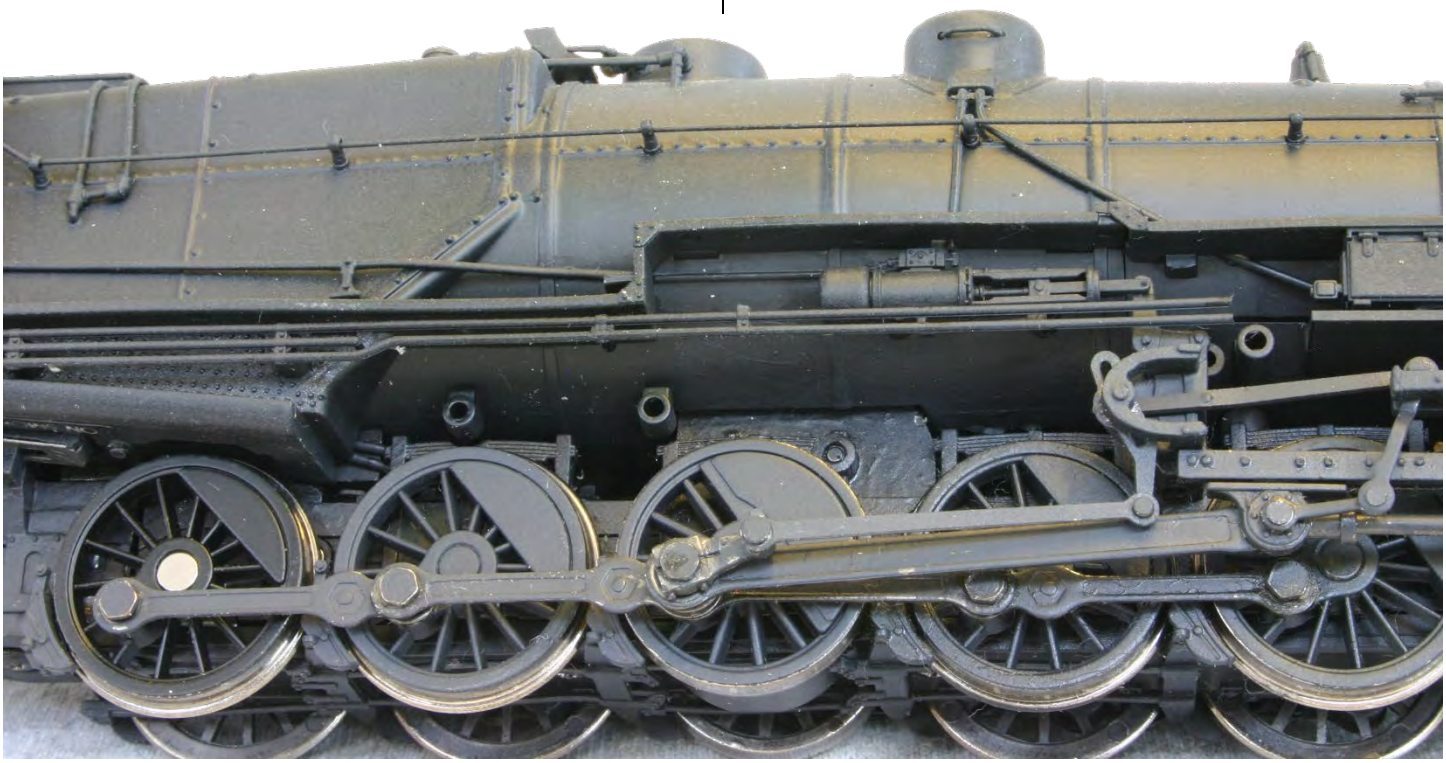


Figure 5 – BLI air tank and horizontal piping removed from body of loco.

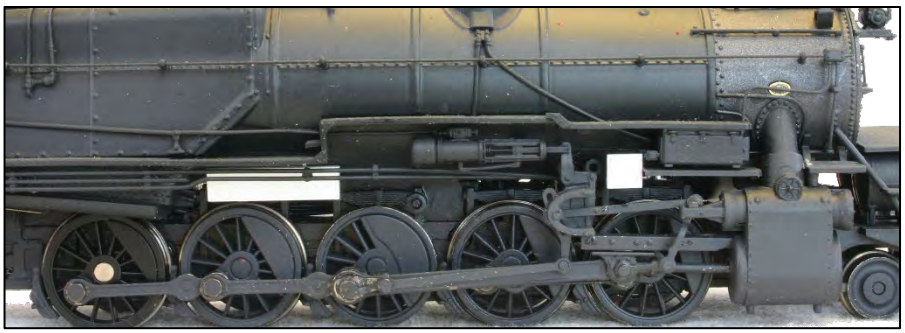


Figure 6 – Attach points on body covered with styrene sheet.

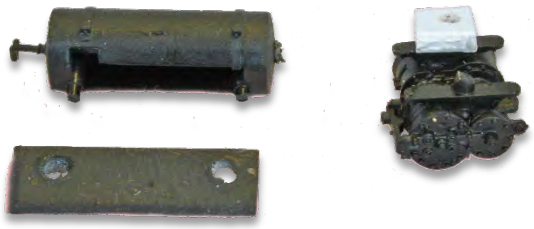


Figure 7 – Air tank and air pump assemblies.

Figure 8 – New locations for second air pump and air tank. Addition of piping from air pump to tank and steam dome.

Figure 9 – Modified loco repainted and weathered.

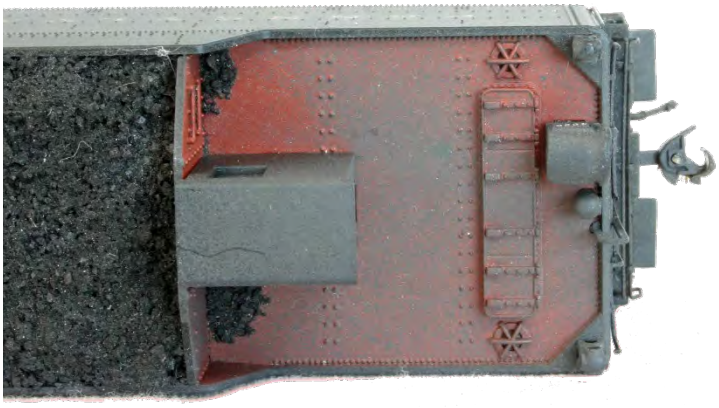


Figure 10 – Standard arrangement of BLI 90F82 tender deck.

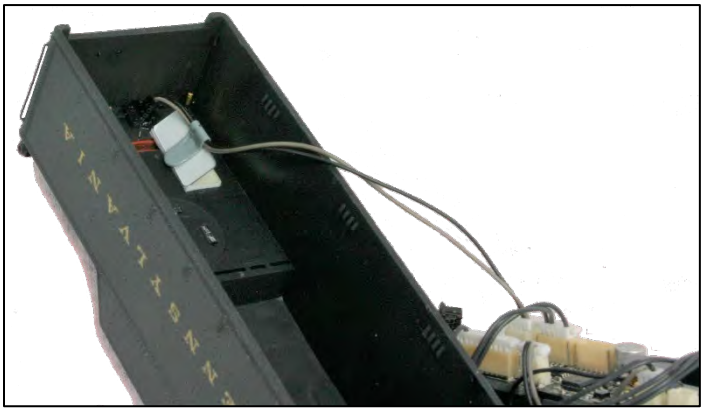


Figure 11 – Removing rear light.

TENDERS WITH HOODED DOG HOUSES

Remove the tender body (figure 10) from the frame using a flat hobby knife blade or screw driver. The body slips over the frame and one can see the bottom of the body where it meets the frame along the bottom of the sides of the tender. Pull the LED for the rear light from the back of the body and unhook the LED wires from the top of the inside of the tender body (figure 11). You will see that the dog house is attached to the tender deck with three pegs. Using a flat blade or screw driver pry the doghouse off the tender deck, trim off the three pegs and set aside. There will be three holes in the deck where the doghouse was removed, fill them with strip styrene and sand the deck smooth. Then pry out the rear light, middle marker light and the single water hatch from the deck (figure 12).

Because the hooded dog house is moved to the rear of the tender deck, the rear light and middle marker light was moved to the right-side rear of the tender. New holes need to be drilled in the tender deck to reposition them. Drill several holes in the rear of the tender deck and then open a small rectangle hole that extends over to the right marker light (figure 13).

When the doghouse was moved rearward, the original single water hatch had to be removed. The PRR added two water hatches and located them along the sides of the tender deck. I decided to scratch build them using strip styrene. The BLI water hatch was used as a model to get the small individual hatch spacing correct. The base is .04" x .188 sheet styrene and the small hatches are formed using .01" x .03" strip styrene. It is not very detailed, but on the finished model I thought it passed the "good enough for the layout" test.

I trimmed off part of the legs that originally attached the rear light to the deck and fit the light in the right corner next to the marker light and the middle marker light next to it. Patch the open area that remains with .01" sheet styrene. I cleaned up around the removed water hatch with a flat chisel blade, sanded the deck and patched the deck with .01" sheet styrene (figure 14,15).

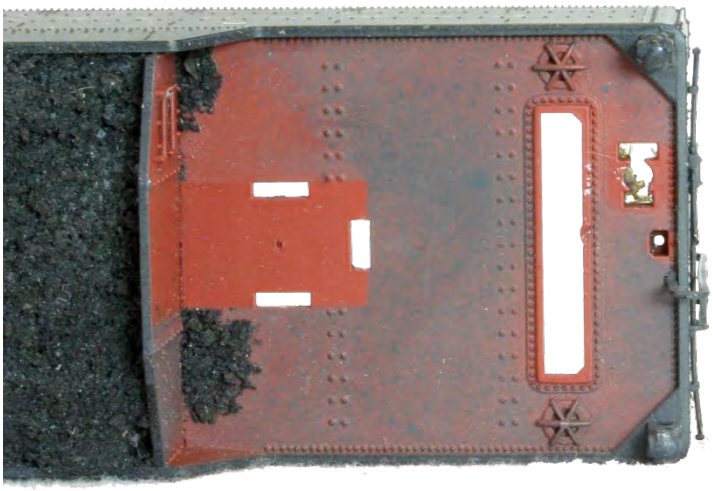


Figure 12 – Deck of tender after removal of doghouse, rear light, and middle marker light.

Figure 13 – Deck smoothed, and openings created to move the rear light and middle marker light.

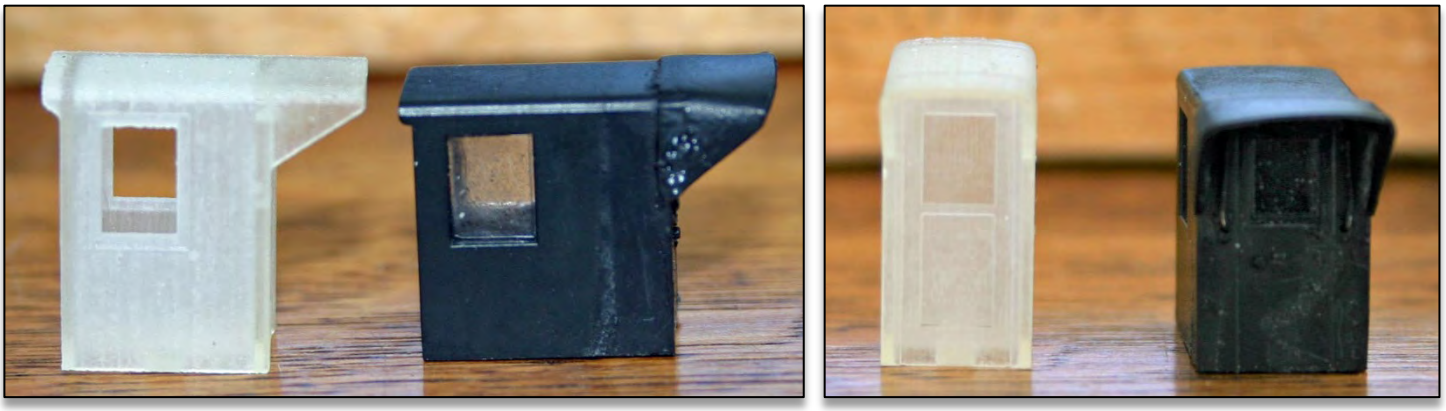
Figure 14 – Finished tender deck top view.

Figure 15 – Finished tender deck rear view.

HOODED DOGHOUSE

When I started the project, I thought that I could easily kitbash the hooded doghouse using the BLI part as a starting point. I used photos and .01 sheet styrene to form the hood and ACC'd it onto the door end of the BLI doghouse. It came out okay, and I probably could have improved with additional attempts, but I decided to try the Shapeways/Keystone Details HO PRR doghouse for the next tenders (figures 17,18). This is a nice product and reproduces the hooded doghouse very well. I had a little trouble cutting off the material at the bottom of the doghouse in order to get the window glazing inside but otherwise after installing the glazing and adding the handrails, as in the Barry Yankolonis (*TKM* #84) article on adding a few details to the BLI I1, they look great on the rear of the two tenders once installed. I did speak to Keystone Details about the problem that I had, and they are looking into modifying the bottom of the doghouse to make it easier to access the interior for future projects.

Figure 16 – Nice view of I1SA #4268 with hooded doghouse passing through Shamokin. *(Phillip Hastings photo, Kalmbach Memorial Library, in* Pennsylvania Railroad: Shamokin Branch, Ore Trains and Coal Mines, *Dan Marnell and Blake Marnell p73)*

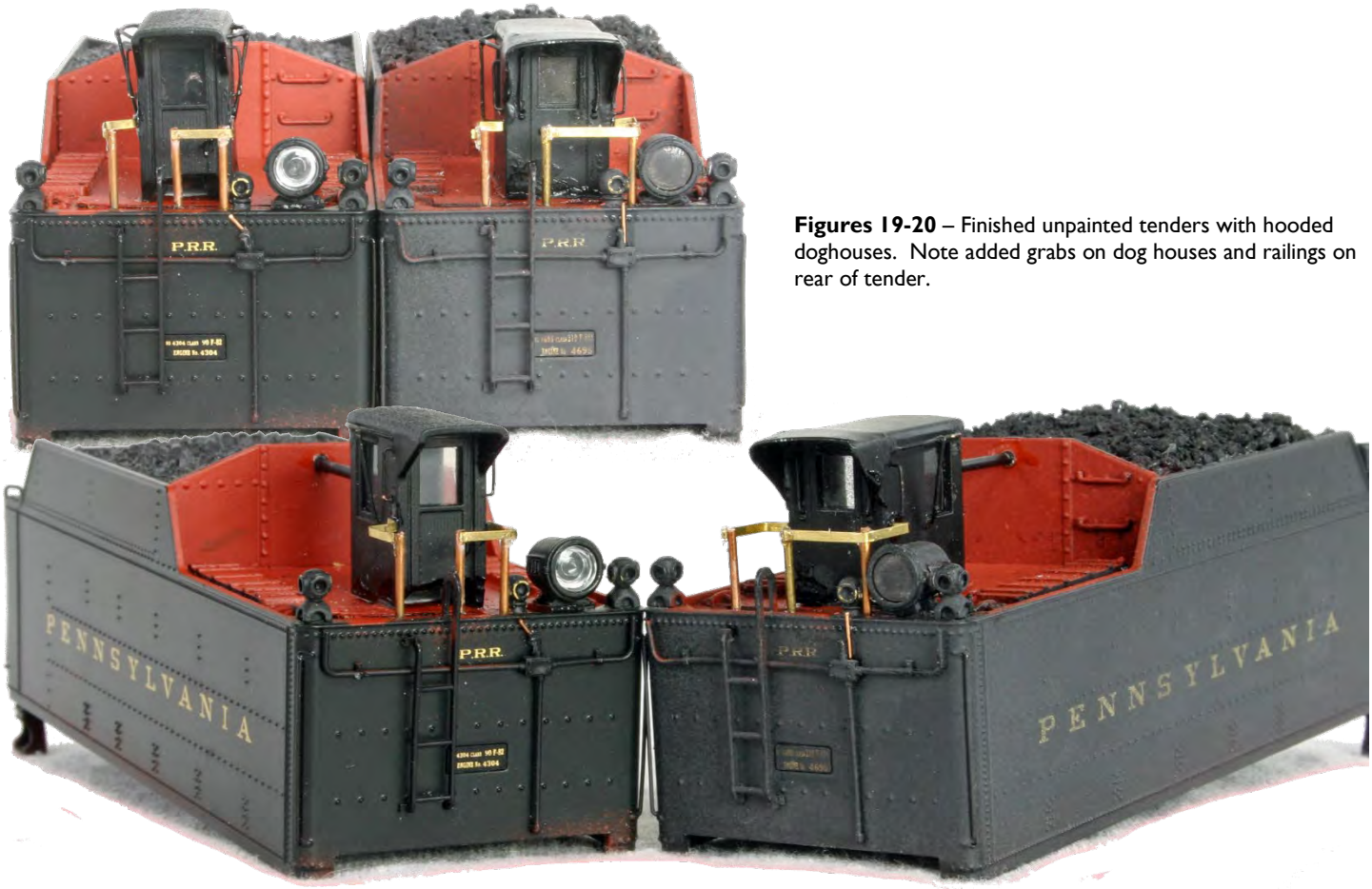


Figures 17-18 – Comparison of Shapeways/PRR Keystone Details doghouse and kitbashed model.

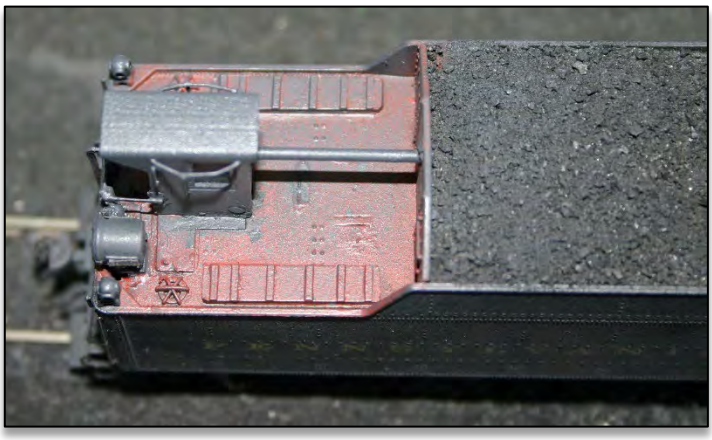
There is a horizontal brace that runs from the rear of the coal bunker to the doghouse. Drill holes in both for installation of the brace which was formed using 1.4mm wire. Prototype photos helped me secure the doghouse to the tender deck in the proper position. Some doghouses are slightly recessed on the tender deck but apparently the 90F82 tender deck was low enough that placement flat on the deck would not interfere with operations.

The last detail was adding the handrails at the rear of the doghouse. I drilled holes in the deck to install the handrail posts and used thin brass strips to form the handrails (figures 19,20).

Reassemble the tender and repaint and weather the portions of locomotive and tender (figures 21-23). I changed locomotive and tender light numbers using the Microsoft Excel program which was described in my Summer 2019 *TKM* #109 article on modeling PRRs L1s #520. I think that this will be an ongoing project as I find more photos of locomotives and tenders to model. Photos 24-28 show prototype photos and my attempt to recreate the modeled locomotives.



Figures 19-20 – Finished unpainted tenders with hooded doghouses. Note added grabs on dog houses and railings on rear of tender.



Figures 21-23 – Repainted and weathered finished tender on #4635.

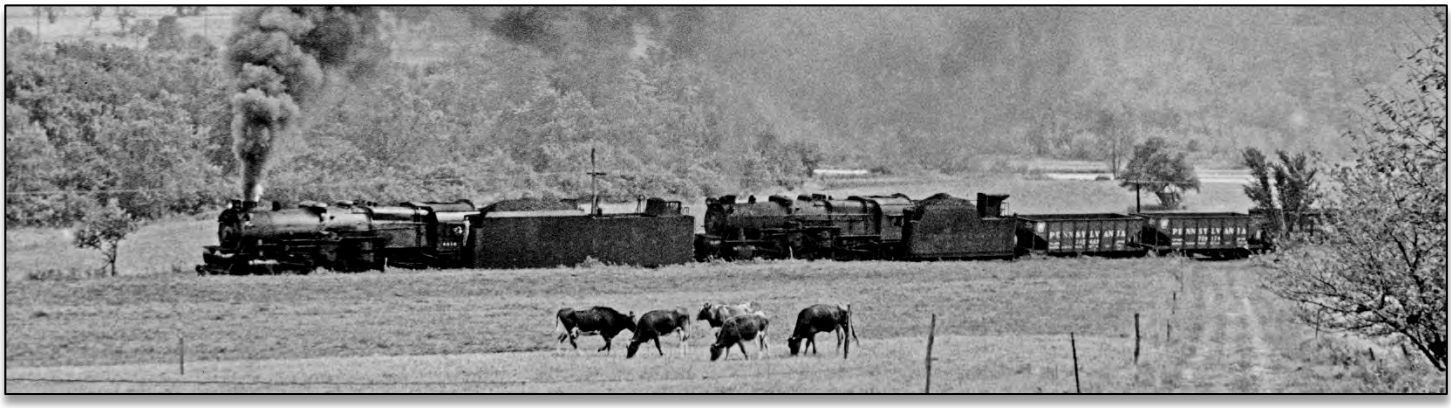
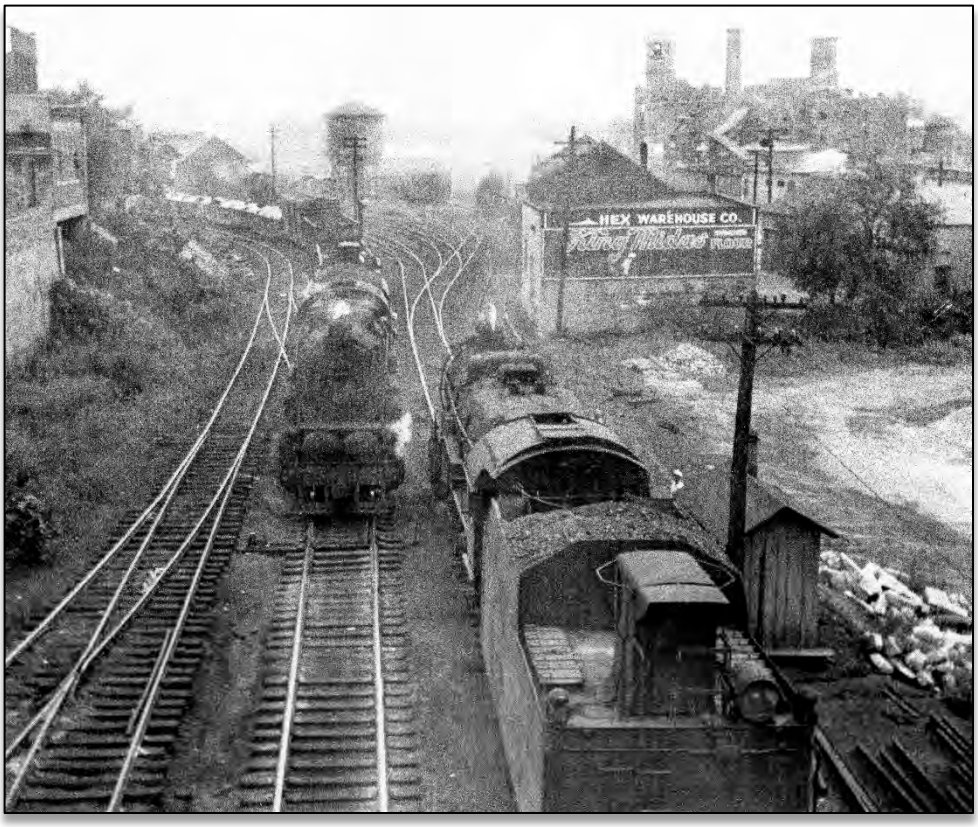


Figure 24 – 11SA #4616 and #4243 along Shamokin Creek. Note hooded doghouse on second 11, #4243, these are two of the locomotives that I have modeled. *(Phillip Hastings photo, Kalmbach Memorial Library, in* Pennsylvania Railroad: Shamokin Branch, Ore Trains and Coal Mines*, Dan Marnell and Blake Marnell, p689)*

▲ **Figure 25** – 11SA #4616 and #4243 rolling east through Shamokin.



▶ **Figure 26** – 11SA with hooded tender passing under the Route 61 Bridge at the west entrance of Shamokin yard. *(Northumberland Historical Society, in* Pennsylvania Railroad: Shamokin Branch, Ore Trains and Coal Mines, *Dan Marnell and Blake Marnell, p642)*

MATERIALS

Air Pumps

- Precision Scale #3092
- Cary #13-167

Air Tank

- Precision #32079 Long Air Tank

Hooded Doghouse

- Shapeways – Keystone Details – HO Small PRR Doghouse
- BLI I11SA short tender parts #15,16,17

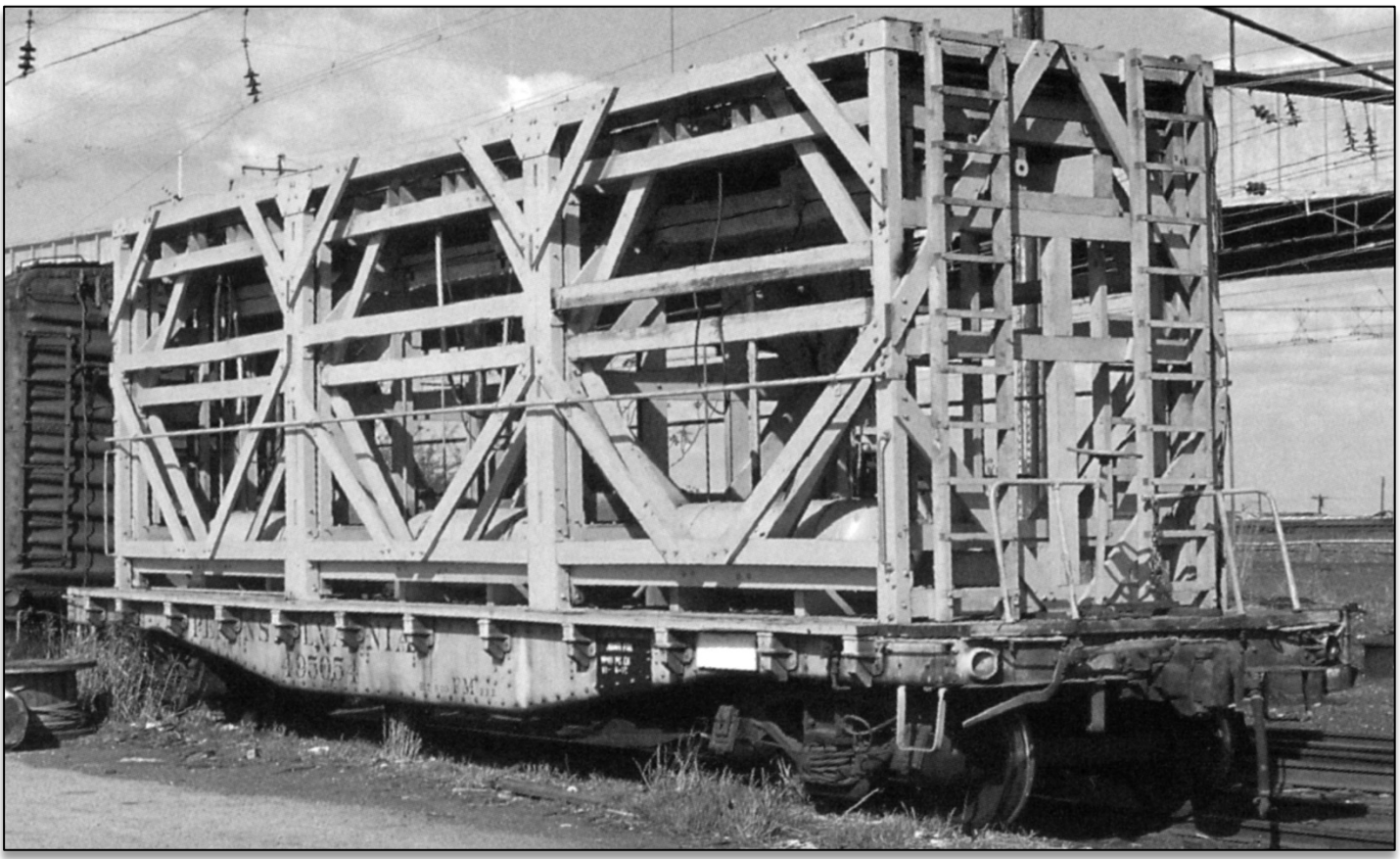
REFERENCE

Dan Marnell and Blake Marnell, *Pennsylvania Railroad: Shamokin Branch, Ore Trains, and Coal Mines,* Daniel J. Marnell, ©2017.

▲ **Figure 27** – 11SA #4635 passing under the Rt.61 bridge heading west into Shamokin yard. ▼ **Figure 28** – 11SA #4405 heading south passing Milton Station.

Constructing a PRR Tower Car

by Ron Hoess



The tower apparatus is mounted on FM flat #495054 sitting in Newark, N. J. on April 29, 1976. *(James J. D. Lynch photo)*

As a result of the Pennsylvania Railroad's extensive electrification of trackage east of Harrisburg, there was a constant need to maintain the overhead catenary. The PRR had a small fleet of unique maintenance of way equipment dedicated for this purpose. Among these was a class referred to as "tower cars". Tower cars had wooden platforms that could be raised to allow crews to work on the overhead catenary structure. Most of these, which I will describe here, consisted of wooden platforms mounted on FM flatcars. A second, smaller class of later vintage had wooden platforms mounted on gas-electric cars ("doodlebugs") which will not be discussed here. The first type of tower cars dates to the commencement of PRR electrification in 1915, since there are pictures of these cars being used for catenary construction. Despite their longevity, surviving well into the Penn Central era and later, little documentation is available for these cars. From a modeling perspective, the most serious problem is a lack of detailed drawings; in their absence, the complexity of the car makes for a challenging project.

The platforms, three per car, were designed so that in the lowered position, the upper portion of the platform telescopes down into the interior of the lower portion. In photographs taken in this configuration, the inner structure is usually obscured in shadows and is basically indecipherable. It was a bit of good fortune that I found a photograph from the Owen Thorne collection (photographer unknown) that showed tower car 495010 with its platforms raised. The photographer was standing perhaps five yards from the car and taking the picture looking up. After careful study, I could determine how the platforms were constructed.

Knowing the dimensions of the FM flatcar itself, one can estimate the dimensions of the platforms. In addition, since this was a wooden structure, one could make a relatively accurate assessment of the type of dimensional lumber used to build the platforms, i.e. 6" × 6", or 4" × 6", and so forth. Determining the height is more difficult, and in the end, I decided that the PRR probably settled on some standard height for the platform in its down position. For this I relied on drawings of a motorized tower car (see *Pennsy Car Plans*, edited by Robert J. Wayner, ©1969), where the distance from the top of the rail to the lowered platform was 14'-9". Besides approximating the dimensions, the other important consideration in making a realistic model is making sure that when the platforms are in the lowered position, the profile when viewed from the side matches pictures of the prototype.

FM Tower Car #495010 and a mate with all platforms elevated. This car was invaluable in learning the car's construction details. The location and photographer are unknown. *(Owen Thorne collection)*

I began the model by making scale drawings in O scale of all the parts, then reduced them to HO scale on a copier. For a given assembly, I cut out the illustration, scotch-taping it to a magnetic gluing jig and then overlaying it with a small piece of transparency film to prevent gluing the structure to the illustration. **Figs. 1A and 1B** show a typical assembly. Individual parts were cut from basswood (Northeastern Scale Lumber Co.) and glued with yellow wood glue or, on occasion, cyanoacrylate.

Begin by assembling the interior platforms, which are raised to become the upper portion. **Fig. 2** shows the scale drawings for this assembly. **Fig. 2A** shows the side of the assembly, viewed from the exterior. All horizontal pieces are 6" x 6" lumber. The two vertical end pieces are 4" × 6", with the 4" side facing outward. The diagonal pieces represent 2" × 6" lumber that are fastened to the horizontal pieces from behind. The illustration shown is 11' in scale length. This is suitable for the center platform, which requires two of these assemblies, one for each side. However, the two platforms on either end of the car are only 10'-6" in length. While this may appear to be a trivial difference, when we start assembling the entire structure, this dimensional difference is important. Four of the 10'-6" assemblies are necessary to construct the sides of those two platforms. Do not mix them up with the 11' sides.

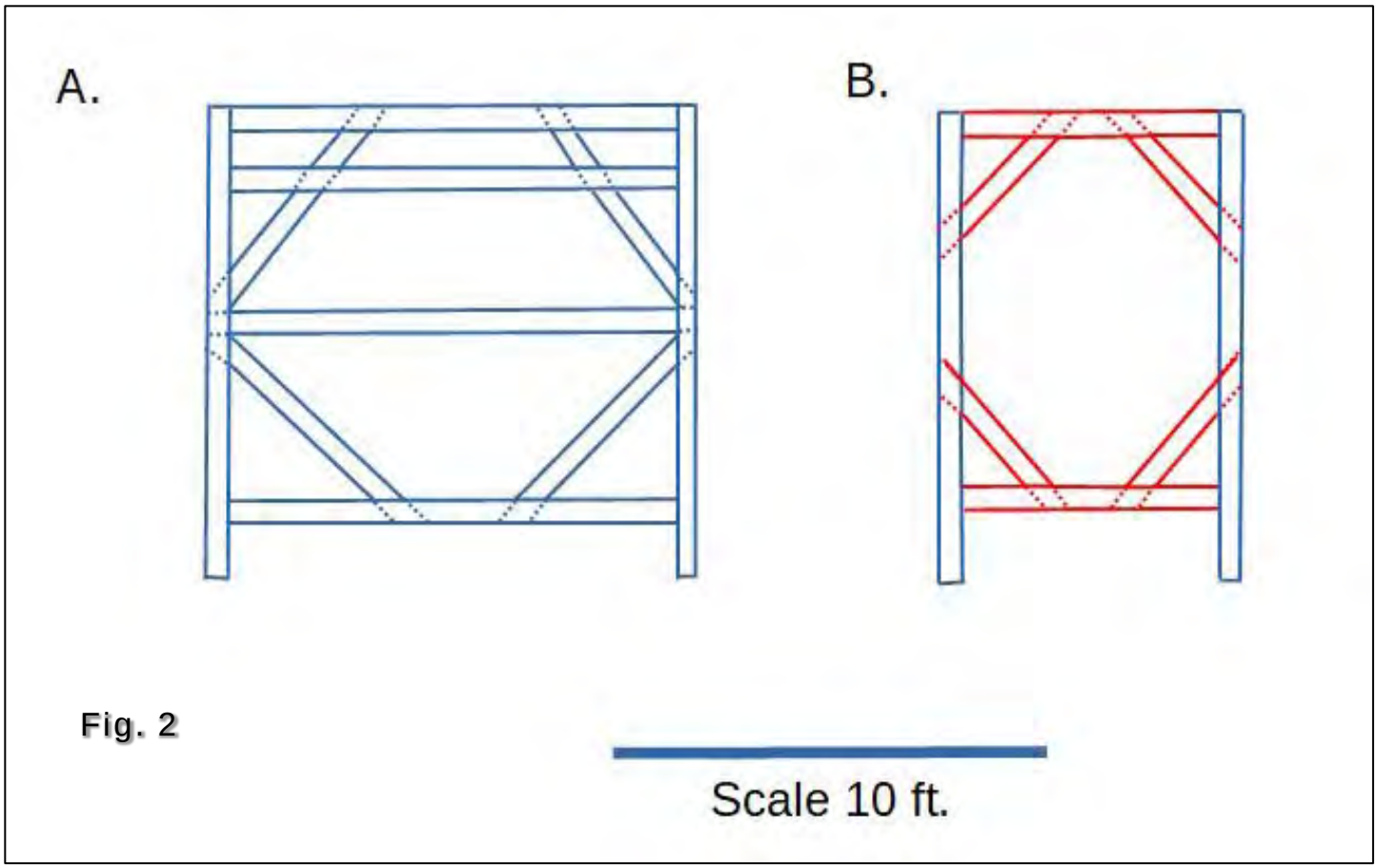


Fig. 2

Fig. 2B shows the ends of the interior platform. The verticals at the ends are the 4″ × 6″ verticals from part A (colored blue) so do not make a second set of these; this just illustrates how the sides and ends are connected. **Fig. 3** shows one of the completed interior platforms. The ends are the same for all three interior platforms; a total of six are necessary.

A final item required to finish the interior platforms are four ladders for the two 10′-6″ length platforms. There are two ladders for each of the outside ends. These are scratchbuilt using 2″ × 4″ lumber for the sides and 0.015″ × 0.030″ Evergreen strip styrene for the rungs. Like the framework of the platform, these are best constructed on the magnetic gluing jig. Once constructed, the ladders are carefully glued in place against the diagonal braces of the interior platform ends, **Fig. 4**, making the outside edge of the ladder flush with the framework of the end. If they are not flush, the platform will not telescope into the lower exterior platform.

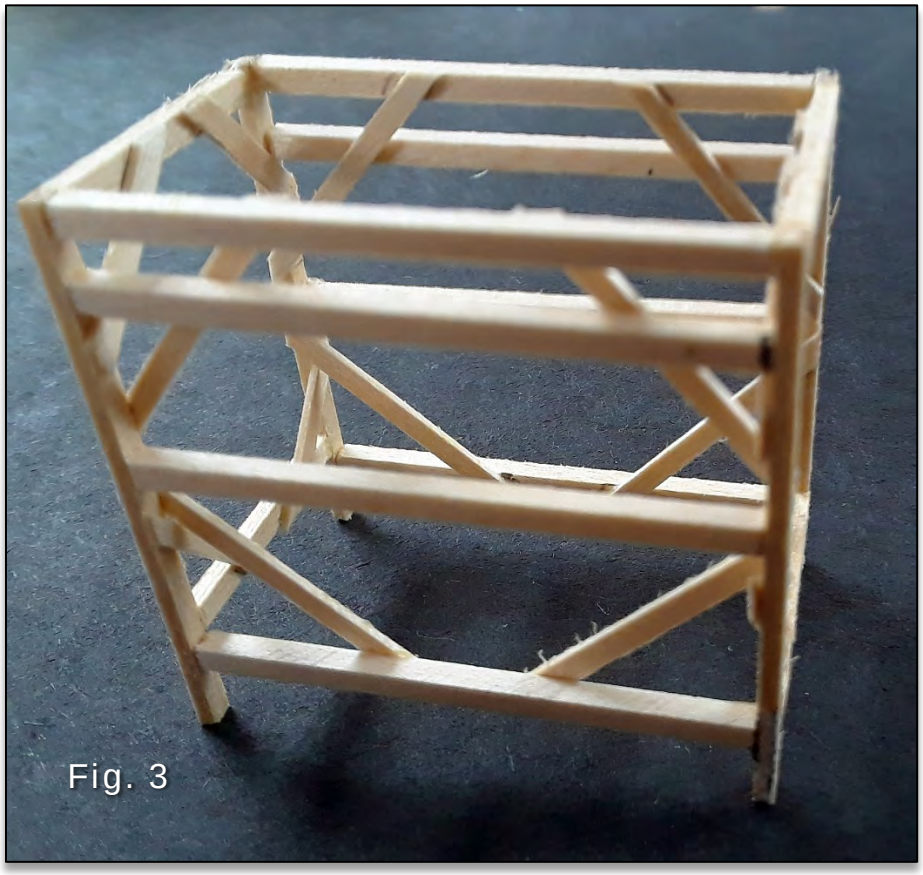


Fig. 3

With the interior platforms complete, the exterior platforms can be constructed. **Fig. 5A** shows the side of this assembly. Unlike the interior platforms, all three exterior platforms are a uniform 12′ in scale length. All horizontal pieces are 6″ × 6″, while the verticals are 4″ × 6″ scale lumber. The diagonal braces are 2″ × 6″. The view is from the exterior, so in this case the diagonal braces are on the outside of the structure. A total of six of these assemblies are required. The external location of the braces makes it worthwhile to model the hardware used to attach them to the rest of the assembly. The two connections at the end of each brace are modeled with a Tichy #8016 1″ bolt, 1.5″ square nut, 2″ washer, as shown in **Fig. 6**.

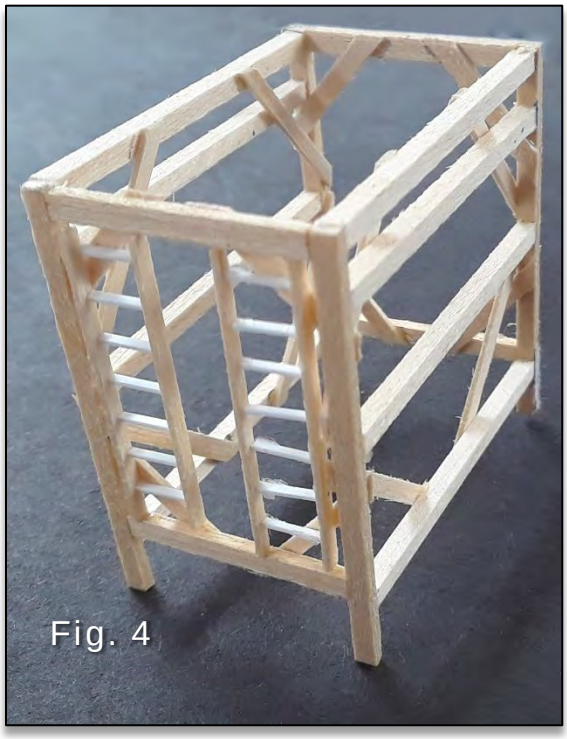


Fig. 4

For the two exterior platforms at each end of the car, only one end is modeled, the one externally exposed at the end of the car; support for the other end of the platform is provided by gluing it to the central exterior platform, which has a different style of ends. The two assemblies for the externally exposed ends are constructed as shown in **Fig. 5B**. As before, the two outer verticals are part of the side assembly, so do not replicate them. All the horizontal and vertical pieces are 6″ × 6″ lumber. The diagonal braces, which are external, are 2″ × 6″. Once assembled, glue each end to a separate set of two 12′ sides. To make sure everything will fit together, I test-fitted putting the inner platform in place (**Fig. 7**). The ends of the diagonal braces, as with the side assemblies, should be detailed with Tichy nut bolt washers, two at the end of each brace.

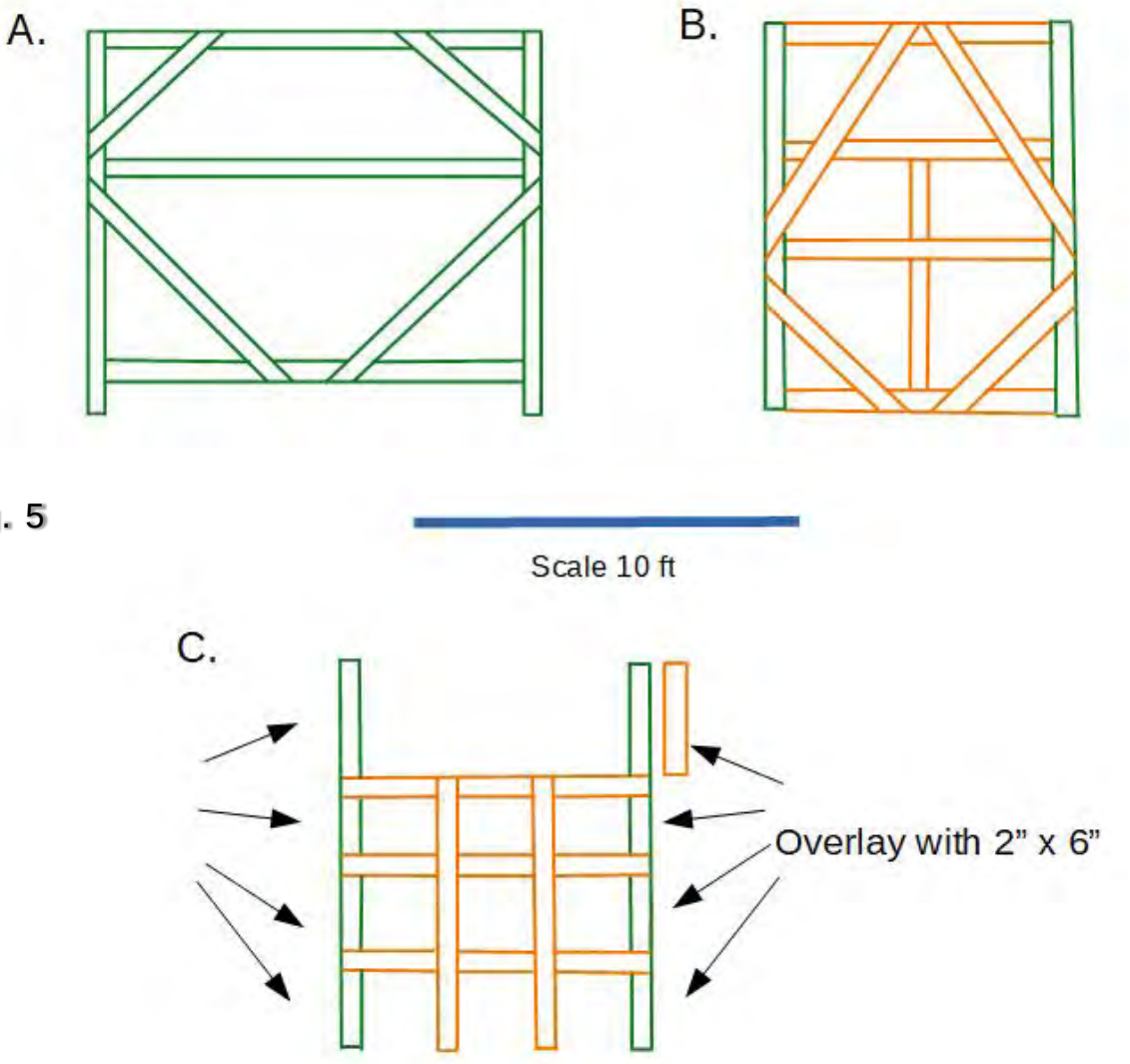


Fig. 5

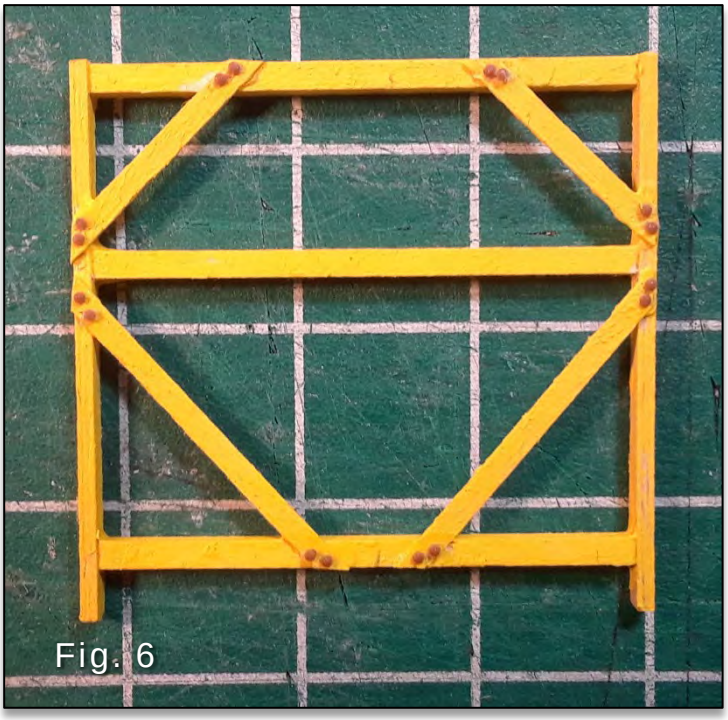


Fig. 6

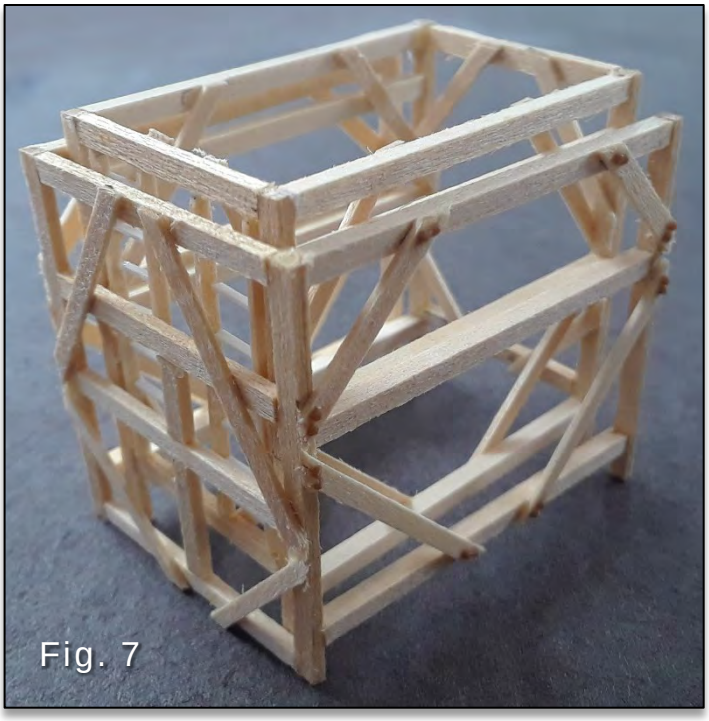
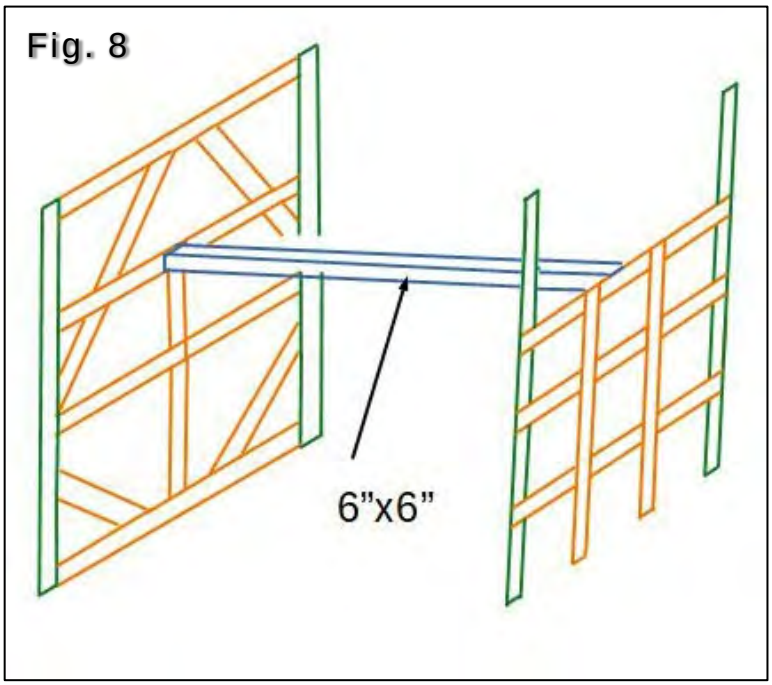


Fig. 7

This brings us to the interface between the central exterior platform and the two exterior platforms flanking it. Careful inspection of photographs of the prototype indicate that some of these supports appear to be of mortise and tenon construction. This is difficult to replicate in HO scale. As a solution, I adopted the following strategy. **Fig. 5C** shows the two internal supports (one at each end of the central exterior platform) with two 6″ × 6″ verticals and three 2″ x 6″ horizontals that attach to ends of the side pieces. To mimic the mortise and tenon construction, 2″ × 6″ pieces are cut and overlaid on the vertical pieces anywhere a horizontal piece is not attached.

These are glued to the last two 12′ sides to form the central exterior platform. The other two exterior platforms are then glued to each end of the central platform. After the glue has set, the interior platforms are inserted in each of the exterior platforms. Remember that the central interior platform is slightly longer than the other two. They fit very snugly and should require no gluing. Finally, with the interior platforms in place, a 6″ × 6″ piece is glued down the center of each exterior platform, as shown in **Fig. 8**. It should lie just below the inserted interior platform when the structure is righted.



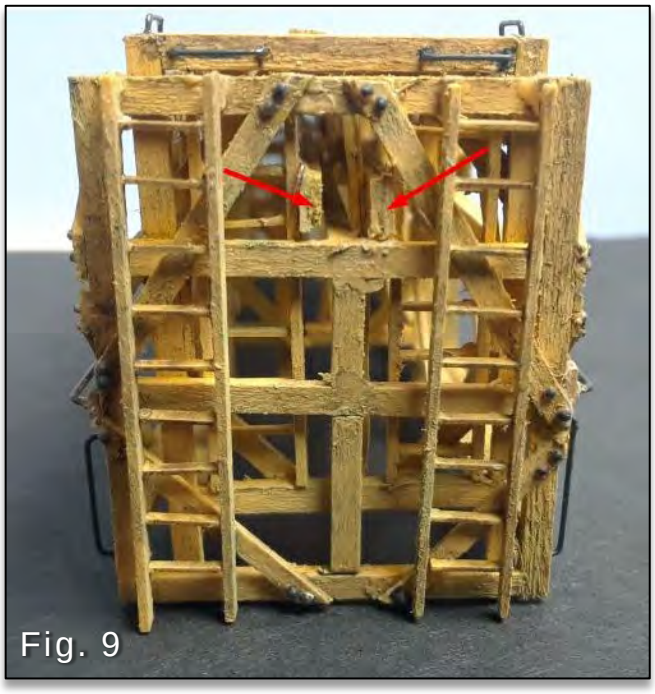


Fig. 9


Fig. 10A


Fig. 10B

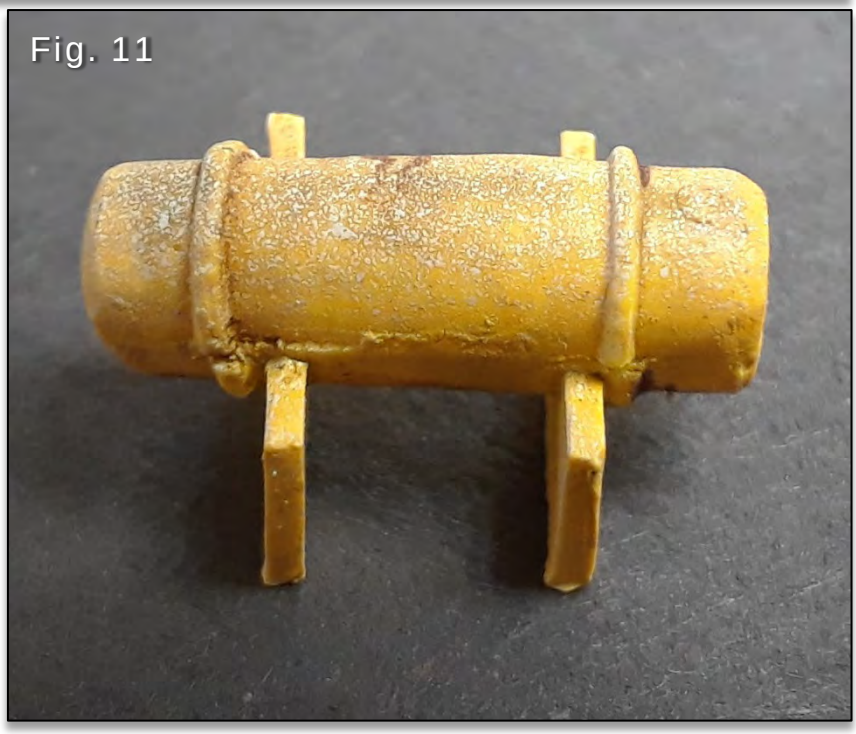


Fig. 11

With the structure of the platforms assembled, there are several internal features that need to be added. Among them are two beams that run the length of the car, to which various mechanical items, were attached. I seriously doubt these were one piece of wood but for ease of construction I used single pieces that run the length of the car. Not having 4″ × 10″ lumber on hand I glued two 2″ × 10″ pieces together. Each 4″ × 10″ board was then threaded through the platforms in the locations indicated in **Fig. 9**.

One of the most unusual features, seen in a few photographs where the platforms are extended upward, are vertical bands at the end of each platform that look like giant saw blades. These probably reflect part of the ratcheting mechanism used for raising and lowering the platforms. Using a digital cutter (Silhouette Cameo) I quickly designed a reasonable facsimile and had the machine cut it from 0.01″ thickness sheet styrene. (For a more complete discussion on using digital cutters for scratch building see *Model Railroader*, September 2020.) Since very thin styrene tends to curl when cut, a piece of 0.01" × 0.02" strip styrene is glued to it to keep in straight (Fig. 10A). Six of these are made and installed along the central axis of the car (**Fig. 10B**).

The final interior detail to be added are what I believe were air compressor tanks (for the compressed air used to raise the platforms). Typically, there was one tank under each platform, although I have seen pictures where there were only two tanks per car. The tanks were all placed to one side of the car, not on the center line. I found a suitably sized tank in my scrap box and made an RTV mold so I could readily cast a number of them. Each tank sits in a cradle that I fashioned from 0.04″ thick styrene (**Fig. 11**).

The last item to be added to the tower car is the deck for each of the interior (upper) platforms. It was quite clear from the photograph of the car with platforms raised that the deck was supported by a series of joists running across the width of the car. The 2″ × 6″ joists fit neatly between the two side pieces of the interior platform (**Fig. 12**). Once the joists were installed, 2″ × 6″ planks are laid side-by-side to form the deck (**Fig. 13**).

Prior to final installation on a flatcar, a few last external details were added. These are pictured in **Fig. 14** and include a substantial handrail that ran along the entire length of the car made from .020" diameter phosphor-bronze wire, a 2" × 6" wooden walkway that is supported by the steel stake pockets, and a number of handrails and grab irons.

The prototype tower cars used a PRR FM flatcar to support their superstructure. To supply this, I assembled a Funaro & Camerlengo Pennsylvania "FM" flatcar with steel stake pockets. When assembled, I added Carmer cut levers that I had fabricated on my digital cutter. With both the flatcar and the platforms assembled I airbrushed them. I turned to my dwindling supply of Floquil paints and found that what yellow colors I did have were too bright, giving the car a rather garish appearance when placed on the layout.

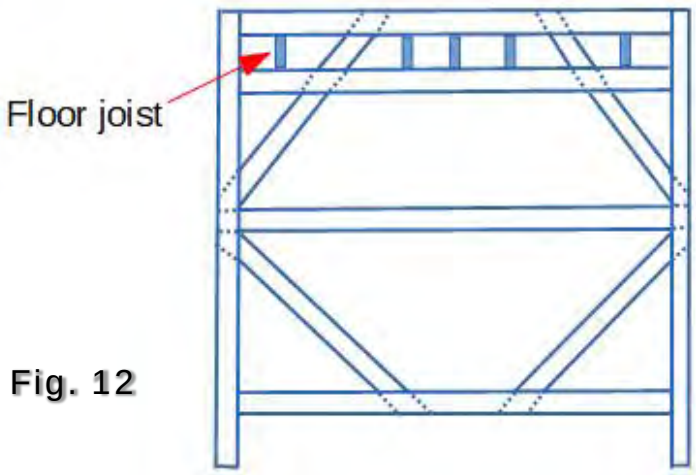


Fig. 12

I finally settled on CN Yellow #12 that I diluted with Reefer White and a bit of Concrete Gray. In the end, it gave me a nice faded yellow color, which is what I was aiming for. When the paint was dry, I gloss coated the flatcar prior to applying decals. For lettering I used an excellent set of decals from Mount Vernon Shops, HO PRR MOW Black Early Scheme (1937-1960). Decals were sealed with Dullcote and then weathered with oil washes using both raw umber and burnt umber. The same washes were also used for the platforms (**Fig. 12**).

The lack of prototype drawings and the need to deduce the structure from photographs made this a challenging project. However, the result is a piece of MOW equipment unique to the PRR, suitable for those modeling any of the PRR electrified territory. It should be noted that at least one of these cars migrated west of Harrisburg and was used for tunnel inspection. For those wanting more detailed measurements, feel free to contact me through the editor. Many thanks to Owen Thorne for loaning me the critical photograph, Bruce Smith for sending several additional photographs and to Chris Hoess and Andy Rubbo for helpful comments during this project.

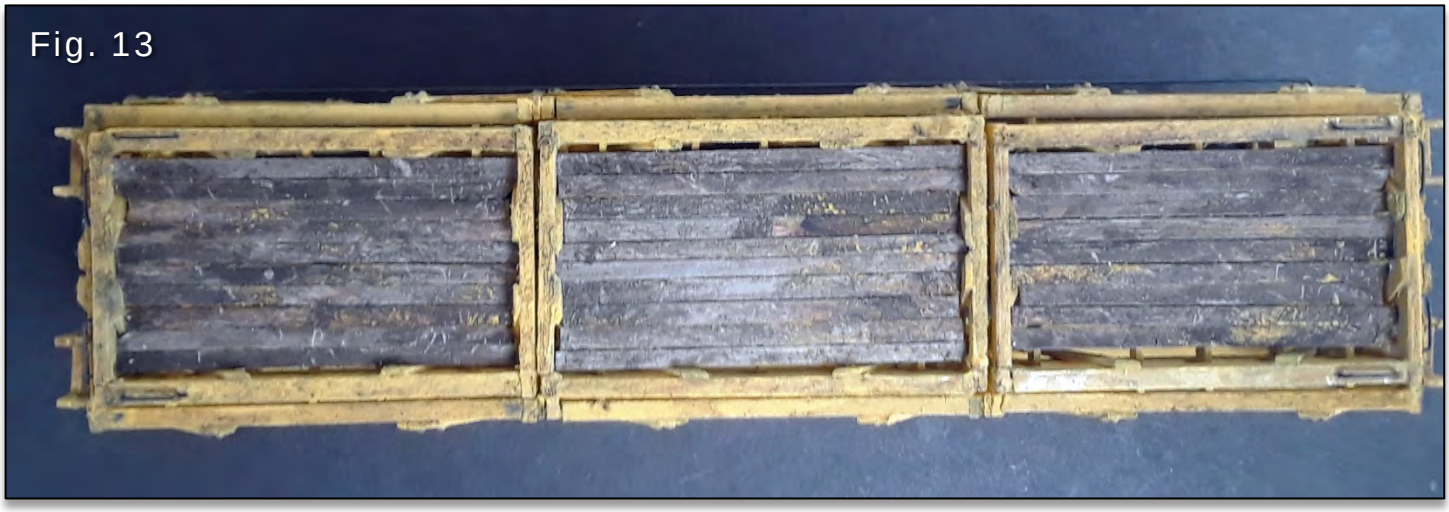


Fig. 13

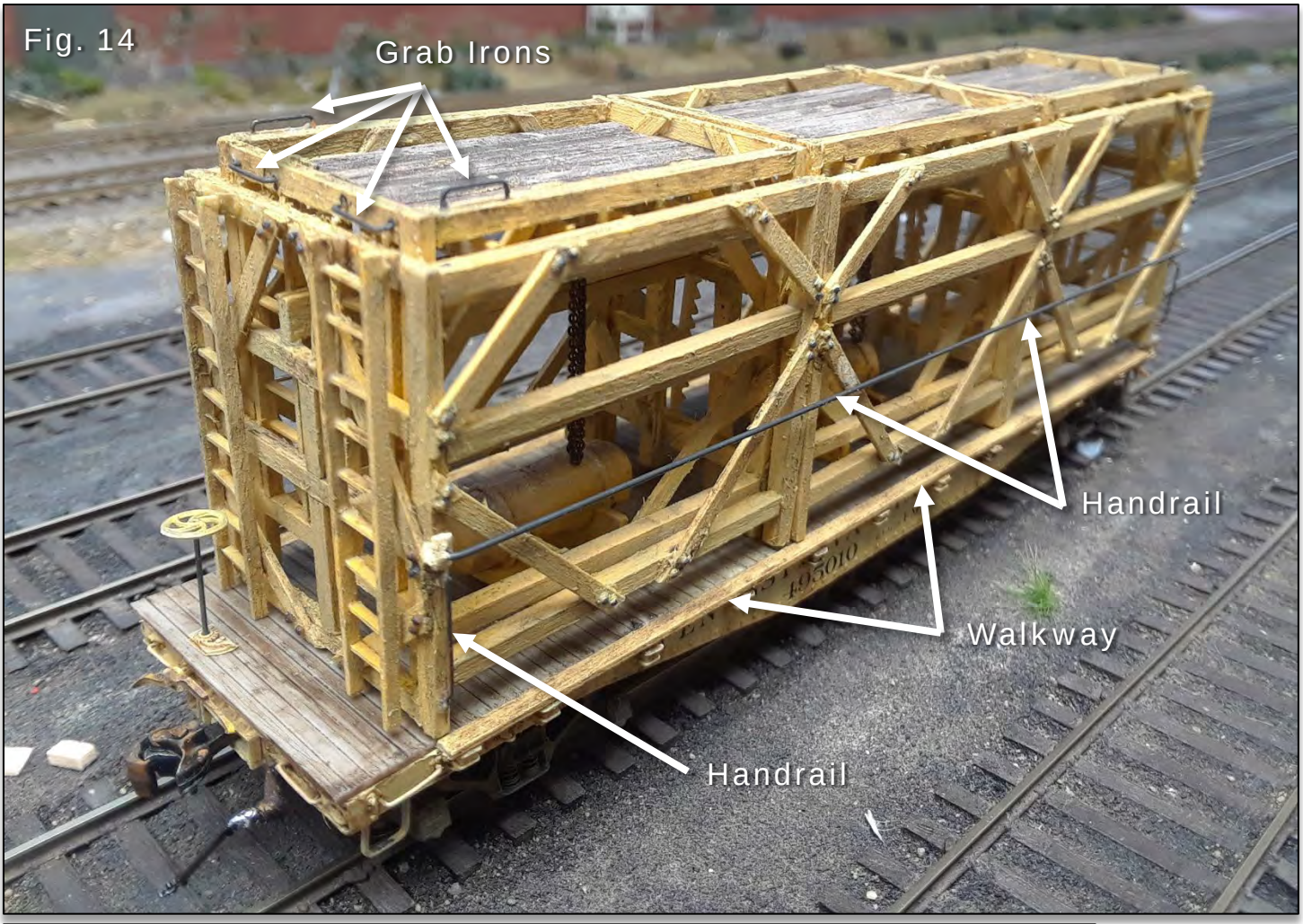


Fig. 14
Grab Irons
Handrail
Walkway
Handrail


Fig. 15