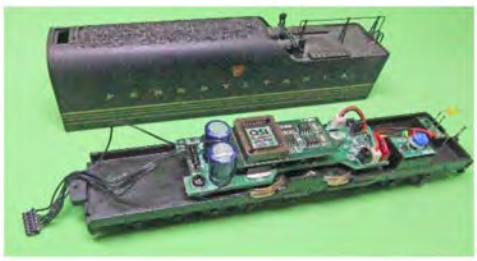
The Keystone Modeler

Pennsylvania Railroad Technical & Historical Society

No. 104 Spring 2018

Inside:



The Keystone Modeler
Pennsylvania Railroad Technical & Historical Society

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PRRT&HS MONTHLY E-NEWS
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NUMBER 104 **CONTENTS** **SPRING 2018**

FRONT COVER

(Clockwise from top) This completed HO-scale PRR W120 wreck derrick started as a Tichy kit. *(Bruce Smith)* • Jack Consoli enhanced the HO scale TRIX PRR N5c cabin car into what you see here. *(Jack Consoli)* • This PRR F34 heavy duty flat began as an HO scale Athearn kit. *(Chuck Cover)* • This is an original BLI T1 tender with the body removed – the first step in replacing the QSI decoder with something more up to date. *(Tim Garner)*

The Keystone Modeler

Manuscripts and photographs submitted for publication are welcome. Materials submitted are considered to be gratis and no reimbursement will be made to the author(s) or the photographer(s) or his/her representative(s). The Society reserves the right to reject, for any reason, any material submitted for publication.

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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Disc 8	Spring 2011 to Winter 2012	*TKM* Nos. 76 – 79

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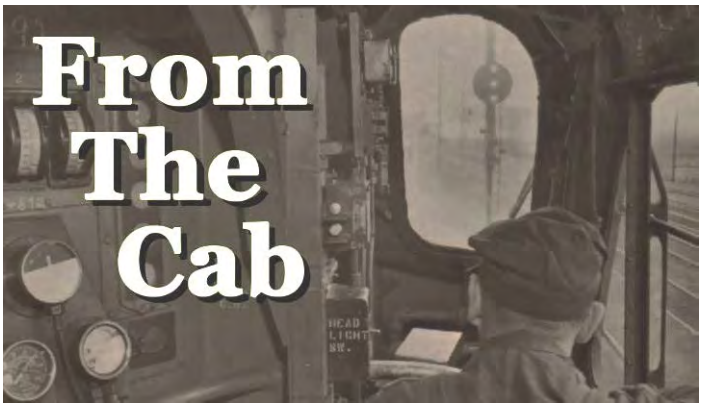

Well, here we are celebrating the 50th anniversary of the Pennsylvania Railroad Technical and Historical Society. The number of former employees diminishes each year, but the interest among modelers goes on.

I hope that many of you are planning to bring models to display at the annual meeting. It is always a pleasure to see what other modelers have produced and what new skills or new materials have been brought to their work. Checking out the model room is one of the things I most enjoy at the annual meeting.

As many of you know, the Friends of the Railroad Museum of Pennsylvania are raising money to stabilize five of the locomotives from the PRR historic collection before installing them in the planned roundhouse. The locomotives will be sponge-blasted and sprayed with black primer paint to deter further rust. Then, as time and money permit, each locomotive will be cosmetically restored for display. The museum has purchased the equipment to do this work, and a concrete floor has been added to the shed where the blasting will be done. Cleaning and stabilizing these locomotives will cost $250,000, and the Friends have thus far raised three-quarters of the needed funds. Only about $60,000 more is needed.

Members often set aside money for these annual meetings. Perhaps the money that is left over because it wasn't spent on models, or books, or artifacts, or train rides could be contributed to saving these locomotives. These locomotives are the last of their class and are all listed on the National Register of Historic Places. Contributions can be made by mail at FRM, PO Box 125, Strasburg, PA 17579, or on line at www.rrmuseumpa.org .

Yes, there will be a roundhouse. The state has released the money. Ground was supposed to be broken this past summer, but a delay arose when the proposed geothermal HVAC system was found to be not practical for the location. Bids are now being sought for a different system.

For the spring, 2018 issue of TKM, we have a review of the Märklin N5C cabin car by Jack Consoli, kitbashing a W120 from a Tichy crane car by Bruce Smith, and Tim Garner shows us how he replaced a QSI decoder in a BLI locomotive. We also have Chuck Cover detailing his kitbash of an F34.

See you in Altoona!

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
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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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779 Irvin Hill Road
McVeytown, PA 17051

The Keystone Modeler
NEWSWIRE
With Steve Hoxie

PRR Product News

ATHEARN
http://www.athearn.com/
PRR H45 Centerflow® Covered Hopper – HO and N Scale

(Athearn)

Athearn has announced this late ACF covered hopper for the Genesis line. Due in Feb 2019 for both scales.

BOWSER MFG. CO.
http://www.bowser-trains.com/
PRR G39 Ore Jenny—HO Scale

(Bowser)

Bowser is taking orders for G39, G39A, and G39B ore jennies in several paint schemes. They are expected to be available late this year.

PRR H21 Hopper Cars RTR—HO Scale

(Bowser)

Bowser has announced another run of this popular early 4-bay hopper. Models are expected to be available in January 2019.

PRR H21A Hopper Cars RTR—HO Scale

(Bowser)

Bowser is also announcing a run of the always popular H21A in several paint and lettering schemes. Due in January 2019.

PRR H22 Hopper Cars RTR—HO Scale

(Bowser)

Bowser has announced another run of this popular early 4-bay hopper. Models are expected to be available in January 2019.

PRR H22A Hopper Cars RTR—HO Scale

(Bowser)

Bowser is also announcing a run of the H22A in several paint and lettering schemes. Due in January 2019.

PRR X32A and X32B Boxcars RTR—HO Scale

(Bowser)

Bowser has in stock ready-to-run models of the double door X32A and single door X32B 50' boxcars. They are available in several paint schemes.

PRR N8 Cabin Car RTR—HO Scale

(Bowser)

Bowser also has in stock ready-to-run models of the N8 cabin car with and without Trainphone. Models are available in several paint schemes.

BROADWAY LIMITED IMPORTS
http://www.broadway-limited.com/

PRR T1 Steam Locomotive—N Scale

(Bowser)

BLI is still expecting delivery of the N Scale T1 in June 2018.

PRR P5A Electric Locomotive—HO Scale

(Bowser)

Development is proceeding. It is now expected to arrive in August 2018.

PRR E7 A and B (EP-20) Passenger Diesel– N Scale

(Bowser)

This E7 run with the Paragon3 operating system and in the as-delivered paint scheme is due in early May 2018.

PRR E8A (EP-22) Passenger Diesel– N Scale

(Bowser)

The Paragon3 E8 is also due in early May 2018. This one wears a late paint scheme.

PRR F3 A and B (EF-15) Freight Diesel—N Scale

(Bowser)

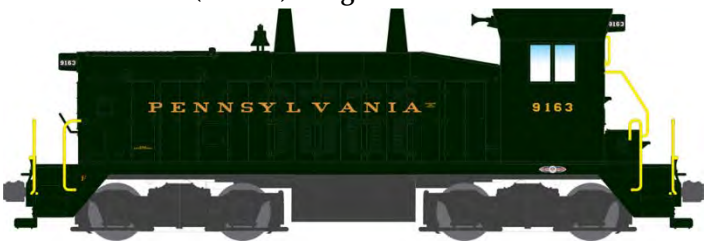
BLI is expected to deliver this early F3 in June 2018.

PRR F7 A and B (EF-15A) Freight Diesel—N Scale

(Bowser)

BLI has been busy. The F7 is also due in June 2018.

PRR F7 A and B (EF-15A) Freight Diesel—N Scale



(Bowser)

BLI will have available in June a new run of the NW2 and SW7 switchers.

INTERMOUNTAIN RAILWAY CO.
https://www.intermountain-railway.com/
PRR 13 Double Bedroom Lightweight Sleeper—N Scale

(Intermountain)

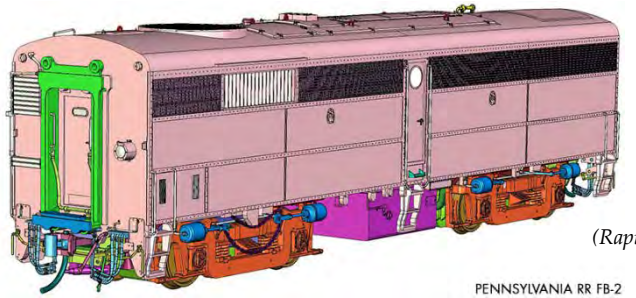
Intermountain in their Centralia Car Shops line has "Confirmed for Production" follow on runs of this Pullman Lightweight Sleeper.

PRR 4-4-2 Sleeper—N Scale

(Intermountain)

The same is true for this pre-War 4-bedroom, 4-compartment, 2-drawing room Imperial-series Pullman.

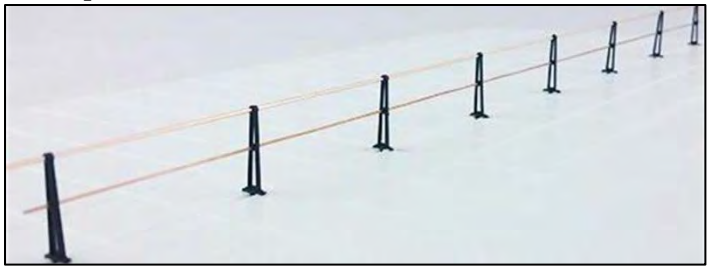
RAPIDO TRAINS INC.
https://rapidotrains.com/
Alco FB-2 Diesel—HO Scale



(Rapido)

Rapido is taking orders for and tooling up for production the FB-2 as a companion for their highly detailed FA-2. Available in both DC and Sound/DCC versions, delivery is expected in the Spring of 2019.

TICHY TRAIN GROUP
https://www.tichytraingroup.com/
PRR Pipe Rail Stanchions – HO Scale



(Tichy)

Tichy has available now these iconic handrail stanchions. Most Pennsy modelers need a bunch of these. Each pack contains 30 stanchions, enough for 33 inches of railing.

GLACIER PARK MODELS
http://www.glacierparkmodels.com/
PRR T1 Brass Passenger Steam locomotive – HO Scale

(Glacier Park Models)

Glacier Park Models is taking reservations for the T1. They plan to produce 6 different versions. Models will be factory painted and equipped with Tsunami2 sound. Reservations are being accepted by https://www.brasstrains.com and possibly other dealers. Details about different versions are provided on the website as well as photos of pilot models.

Upcoming Events

May 9-12, 2018, Altoona, Pennsylvania
50th Anniversary PRR&THS Annual Meeting
http://www.prrths.com/conventions/PRR_Annual.html

June 1-2, 2018, Enfield, Connecticut
New England/Northeast RPM Meet
http://www.neprototypemeet.com/Welcome.html

June 16, 2018, Richmond, California
Bay Area Prototype Modelers Meet
http://www.bayareaprototypemodelers.org/

July 20-21, 2018, Collinsville, Illinois
St. Louis RPM Meet
http://icg.home.mindspring.com/rpm/stlrpm.htm

August 5-12, 2018 Kansas City, Missouri
NMRA National Convention and National Train Show
http://www.kc2018.org/

Advance Planning

September 21-22, 2018 Baltimore, Maryland
Mid-Atlantic Railroad Prototype Modelers Meet
https://www.marpm.org/

October 18-20, 2018 Lisle, Illinois
RPM Chicagoland
http://www.rpmconference.com/

Model Review – Märklin/TRIX N5c Cabin Car in HO Scale and Suggestions for Minor Upgrades

by Jack Consoli – photos by the author unless specified

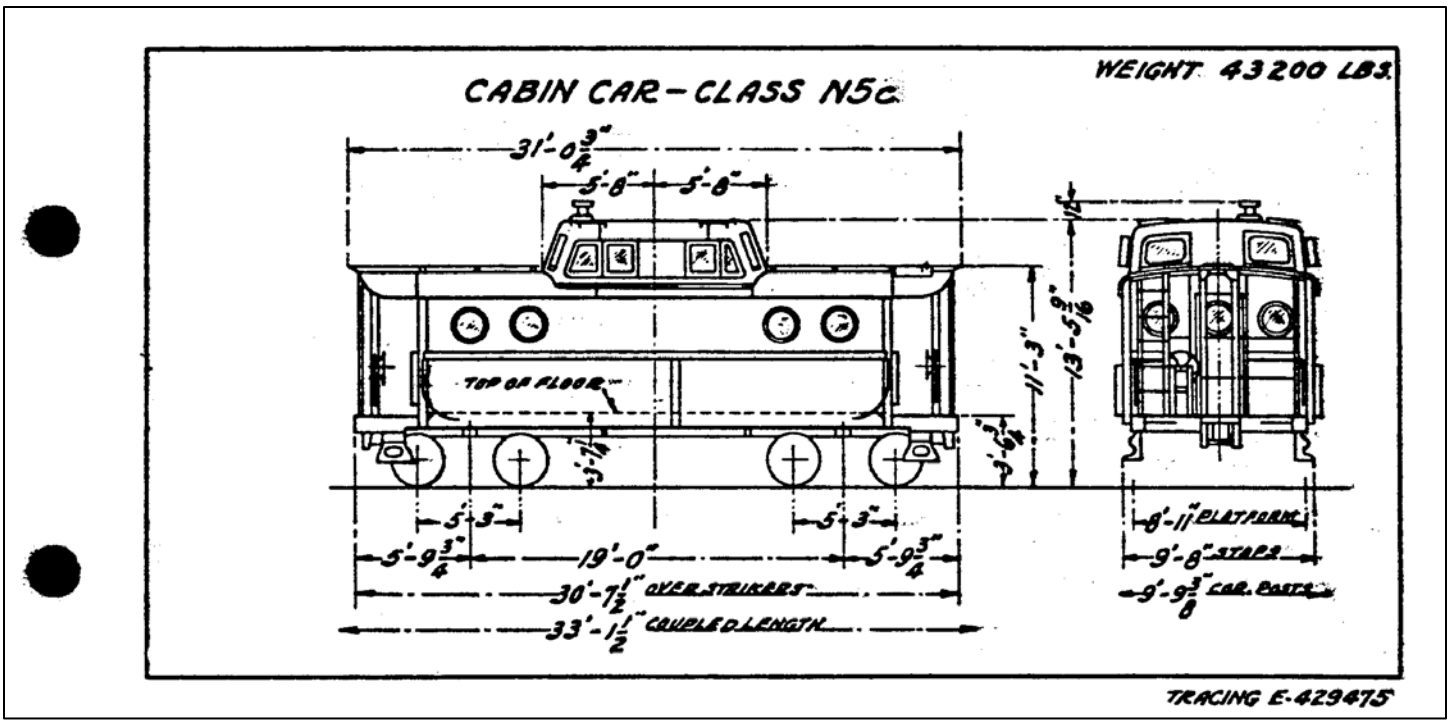
Märklin "3-rail" N5c Cabin Car shown on Märklin track. Rivets/buttons along center of ties form their equivalent of a third rail. Note couplers and wheels.

A signature piece of rolling stock of the PRR was their unique class N5c cabin car. What made this car so readily recognizable was the distinctive combination of a relatively short, all steel body, a comparatively oversized streamlined cupola and the circular porthole windows in the carbody sides and ends. In addition, many prospective modelers may have first been introduced to the N5c as children via the Lionel models that have been around since about 1953. A previous article in issue 25 of *TKM* covered the construction of and improvements to the old Quality Craft brass and wood HO kit. This was the original option available to the PRR HO modeler for many years. (A photo of another Quality Craft N5c Cabin Car model from the 2005 PRRT&HS Annual Meeting Model Room appears in *TKM* issue 24, page 16.) In more recent years, plastic kits have been produced, later upgraded by Bowser Mfg. These pre-painted kits are offered in probably all known paint schemes from their original PRR "Circle Keystone" livery through to Conrail blue. An article covering construction of the Bowser model was published in issue 55 of *TKM*. Circa 2006, Märklin Trains introduced another plastic model of the N5c as part of their line of American prototype equipment. In addition to their offering configured for the European train market, they then sold this model under the TRIX name, equipped with proper wheels and couplers for the U.S. market. These models were initially a limited run item and are still available through the second-hand market. However, with Walthers now being the North American Distributor for Märklin, a recent check showed that indeed the Märklin version is currently available directly through Walthers. Reviewing and upgrading the Märklin/TRIX model is the subject of this article.

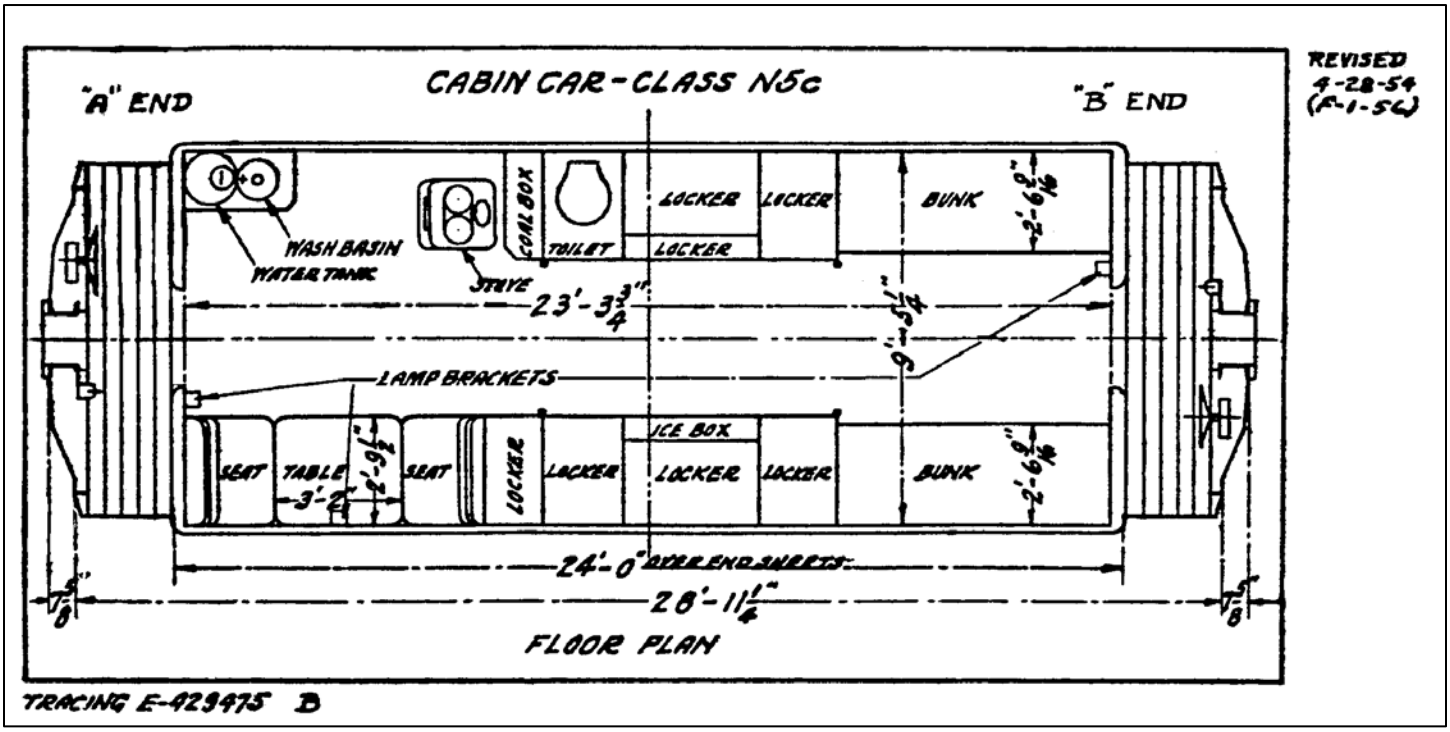
The Prototype

Starting in 1942, the PRR built 200 all-steel N5c class cabin cars numbered 477820 to 478019. They differed from the predecessor N5 classes by their round porthole windows, lower belt rail, large, streamlined, centered cupola, and no vertical batten strip on the car sides. All the cars were built new with collision posts, a safety advancement introduced after the N5 cars were built. The cars were built as part of Equipment Fidelity Trust Series L. The 1957 cabin car roster shows that this class made up about 10% of the total cabin car fleet and only one third of the N5c were Trainphone (TP) equipped on that date.

More detail on PRR cabin cars is covered in the December 1973 (V6-N4) and December 1974 (V7-N4) *Keystone* articles (now available on CD).



▲ N5C Cabin Car diagram. ▼ N5c Cabin Car floor plan, revised to 4-28-54. *(Both, Courtesy Robert Schoenberg, digitally enhanced by Tim Garner)*



Most N5c survived through the PRR era and on into Penn Central and Conrail. Many of the cars were finally retired when cabin cars/cabooses in general were removed from service on Class 1 railroads in the early 1980's. Several cars still survive in museums and outdoor static displays.

Quantity of N5c Cars in Revenue Service

Year	1942	1945	1950	1955	1960	1965	1968
Count	200	200	200	200	199	199	199

N5c #477830, assigned to the New York Zone, without Trainphone, 3/6/42. Note Equipment Trust plate at lower left and wind visors on cupola windows. *(PRR)*

The May 15, 1957 cabin car assignment roster shows a total of 199 class N5c cars still in service:

Region Assigned	Cars with Trainphone	Cars without Trainphone	Total Cars
Buckeye	3	17	20
Chesapeake	0	9	9
Lake	10	9	19
New York	0	14	14
Northern	18	7	35
Northwestern	0	9	9
Philadelphia	1	10	11
Pittsburgh	33	45	78
Southwestern	0	4	4
Totals	**65**	**134**	**199**

A searchable version of the 1957 cabin car roster is available on the *Keystone Crossings* website at: http://pennsyrr.com/kc/data/cabins/.

The Models

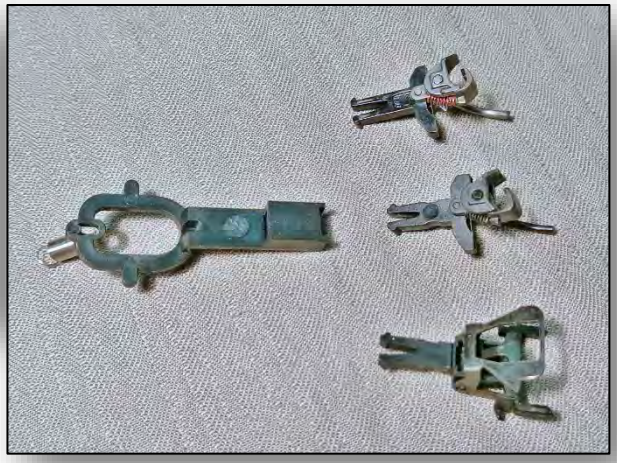
I have purchased all three available (non-brass) models over the years but had pushed the first two down on my project priority list, due to the amount of work I perceived would be required to build and/or correct them. Having built a Quality Craft N8 cabin, which did result in a very nice finished model, I know how much work is required with this type "craftsman" kit. Additionally, the Quality Craft kit is configured as a Trainphone-equipped car with the battery/equipment boxes etched into the brass car sides and this would be a problem for the non-Trainphone equipped cars I wanted to build. My main concerns with the Bowser model were that: 1) the originals that I purchased have cast-on grab irons, (which in their recent upgrade have been changed to separate grabs, thankfully) and 2) it has some poorly executed roof, cupola and end details. If you do not view these items as significant, it is an otherwise excellent model that is available in many paint schemes, and road numbers, and is less expensive than the other plastic model.

My initial impression of the TRIX car was that it offered a much closer embodiment of the prototype right out of the box relative to the critical features and that the corrections required would be easier and less painful than either other option. The N5c, produced by Märklin Inc., and marketed through TRIX as their model #T24917, comes preassembled with Kadee compatible couplers and U.S. RP-25 wheelsets. This plastic model features a cast metal floor/underframe, interior details, molded plastic windows, ladders, brake system, grab irons and other details separately applied. Overall, the model appears more finely detailed than the competition. I compared the major dimensions of the model to the diagram above, and it matched up well. The distinctive, large single coil spring plastic trucks represent the PRR class 2A-F5 Barrett-Whitehead trucks well and incorporate an actual metal spring for appearance only: the trucks are not sprung. The separately attached underbody molded brake gear parts, levers and piping appear complete. The painting and lettering are crisp and well executed. A rudimentary interior is inside the car which adequately provides the correct effect when looking in the windows and is a medium green color that may or may not resemble the light green color that was used starting about 1960.

▲Out-of-the-box HO scale TRIX PRR class N5c plastic model cabin car; non-lavatory side. ▼ Roof detail of Trix N5c. Note the seams for the end overhang panels properly match the ends of the carbody.

What might be considered a major drawback to modelers who want to purchase ready-to-run cars is that, as far as I know, it was available in only one road number in one paint scheme: Shadow Keystone scheme as car #477938, assigned to the Pittsburgh Region. Some will no doubt also argue about the "correctness" of the Freight Car Color in which the car is painted, a fairly dark brownish shade. The specific paint scheme applied was not used on the cars until c.1960, which seriously limits potential r-t-r buyers of this car. See photo of prototype car #477947 in this Shadow Keystone scheme, dated 4/61 in the *PRR Color Guide to Freight and Passenger Equipment Vol. 1*, page 99.

As to criticisms of the underlying model, there are just a few. The grab irons appear slightly oversize, particularly the curved side and vertical end grab irons, but this may partially be the optical illusion that bright yellow paint is notorious for causing. A little weathering usually mitigates this condition. Even if the modeler would feel compelled to replace the grab irons with smaller diameter wire parts, the job should be relatively simple since the existing grabs are already separate parts that are just pressed into the body. The models do not incorporate Equipment Trust plates on the car sides, which is correct for the post-1957 paint scheme applied to the models. If you choose to backdate the car, these parts should be added.



▲ For comparison, from left to right, Märklin 3-rail, TRIX, standard Kadee and ReBoxx narrow tread wheelsets. ▶ At left, N5c swing arm with coupler box and spring. At right swallow-tail NEM-362 couplers from bottom to top: Märklin European loop-style, TRIX Kadee-compatible and Kadee short shank size 17.

Although the TRIX couplers are Kadee compatible, they utilize NEM coupler pockets and a coupling mechanism that is a body-mounted, spring centered, swing arrangement. Although it works fine (they have been running on my layout for years, straight out of the box), it is all unnecessary for the typical track radius common on HO layouts in the U.S., particularly on such a short car. Visually, it interferes with applying full detailing on the cabin's end sills and underbody to allow for the swing clearance. It is a simple job to just remove the swing mechanism parts and add some plastic strips to fill in for the missing center sill segments. Fixed coupler pockets can then be attached under the end platforms. Coupler cut levers, that would otherwise have interfered with the coupler swing could then also be added to the end sills. If the modeler would desire to use the car with its factory decoration, none of this work would require any serious compromise of the paint – just some touchup in relatively hidden areas of the car.

As mentioned earlier, this car was also offered under the Märklin name set up for use on Märklin 3-rail track by the European equivalent HO market. There are only two differences between the original Märklin/European and TRIX/U.S. versions of the models. The first is that the wheelsets have large non-RP-25 flanges that may or may not run on your track, but look toy-like, regardless. More importantly, they ARE ABSOLUTELY NOT COMPATIBLE with U.S. HO track as Märklin track is a 3-rail system much like the large-scale Lionel trains and similarly, neither wheel of a wheelset is insulated and will create a dead short if placed on your 2-rail track. This can be overcome simply by replacing the wheelsets. I like to use narrow tread wheelsets and would have replaced them anyway, so I installed ReBoxx 0.965" axle length part #WS1-0965. The second difference is that the couplers mounted in the swallow-tail shank NEM pockets are European style loop couplers. If you plan to replace the swing system with a fixed coupler pocket, it doesn't matter which style coupler you get. If you want to keep the stock swing pocket setup, you can simply buy snap-in Kadee swallow-shank couplers for these pockets. Kadee offers four different shank length NEM 362 style couplers. The couplers in the TRIX model appear to best match the short shank part #17: https://kadee.com/htmbord/page17.htm. Thus, you can buy either the Märklin or TRIX branded model, giving you more opportunity to find these models. The current Märklin offering through Walthers now has a different road number, #477982, still with Shadow Keystone lettering, but with an all-yellow pool-service cupola. They label the model as being "3-rail" which is what the Märklin track with the common outside rails simulates, but as described above, only requires replacement couplers and wheelsets to run here on U.S. HO track.

Another very minor criticism of the model is that on the left side of the car there is a small rectangular clear "window". This is the vent for the lavatory that should be body color. A touch of paint cures this problem. Also, the collision posts are molded as solid section rectangles on the model whereas on the prototype, they were channel sections – with their open sides facing outward, away from each other.

TRAINPHONE

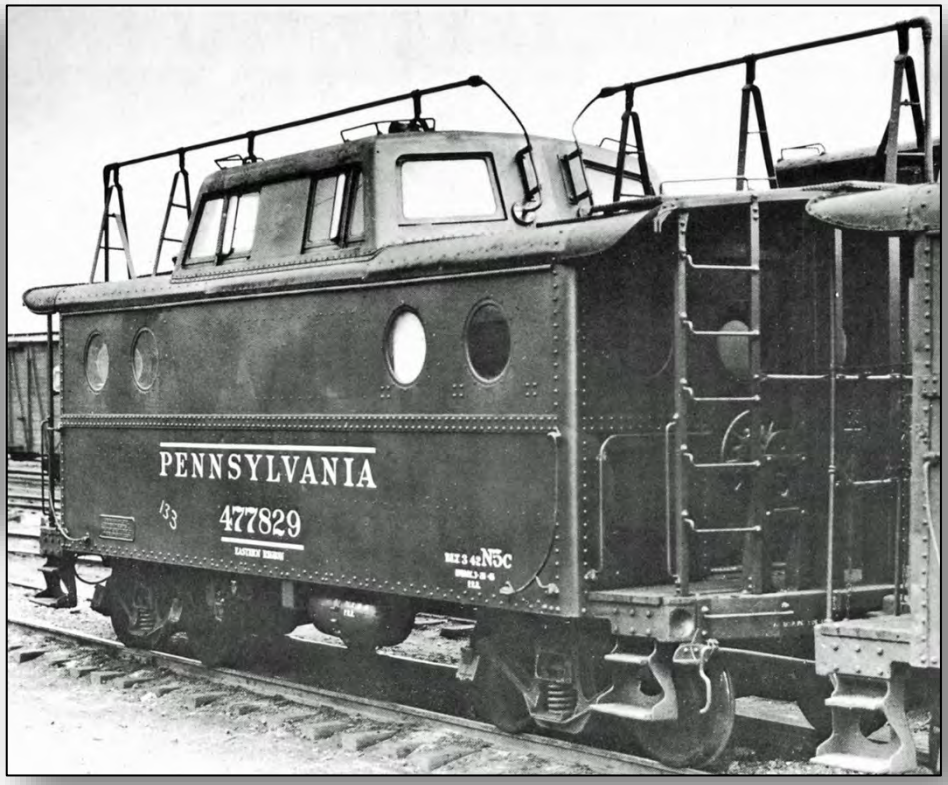
The Märklin/TRIX car was not offered in a version with Trainphone equipment. On the Trainphone-equipped cars, in addition to the transmitting conduit loops on the top and ends of the car and the receiving coils on the roof, the car also had battery access doors built into the car side and an axle-driven generator on the underbody. Since they chose to do only one version, the non-equipped version was probably the better choice. First, the TP cars were outnumbered 2:1 and second, from the modeling perspective, it is probably easier to add the necessary parts than it would be to try to remove any traces of the parts, especially the battery box doors, if they had been factory equipped. The parts are available separately from Bowser, although it would be up to the modeler to make the access doors. The CAL SCALE Antenna System Detail Kits for PRR N5 & N5c cabins are: #190-474 plastic or #190-455 brass.

▲ Underside of the TRIX N5c with one truck removed showing the Kadee-compatible swing couplers/mechanism in place and the TRIX couplers and RP-25 wheelsets.

▶ Left side of the TRIX N5c showing the "window" that should be the lavatory vent and the cast-on cupola wind visor.

▼ Prototype N5c 477847 showing the lavatory side vent, channel section collision posts and marker lamps on the end. Note yellow safety paint on the curved side grabs, body end grabs and vertical corner grabs. One of the N5c cars assigned to the West Brownsville Junction – Altoona Pool is shown here on one of these eastbound coal trains on Horseshoe Curve, 6/28/56. *(Roger L. Keyser)*

▲ End view of the stock TRIX N5c showing the solid collision posts and lack of coupler cut lever.

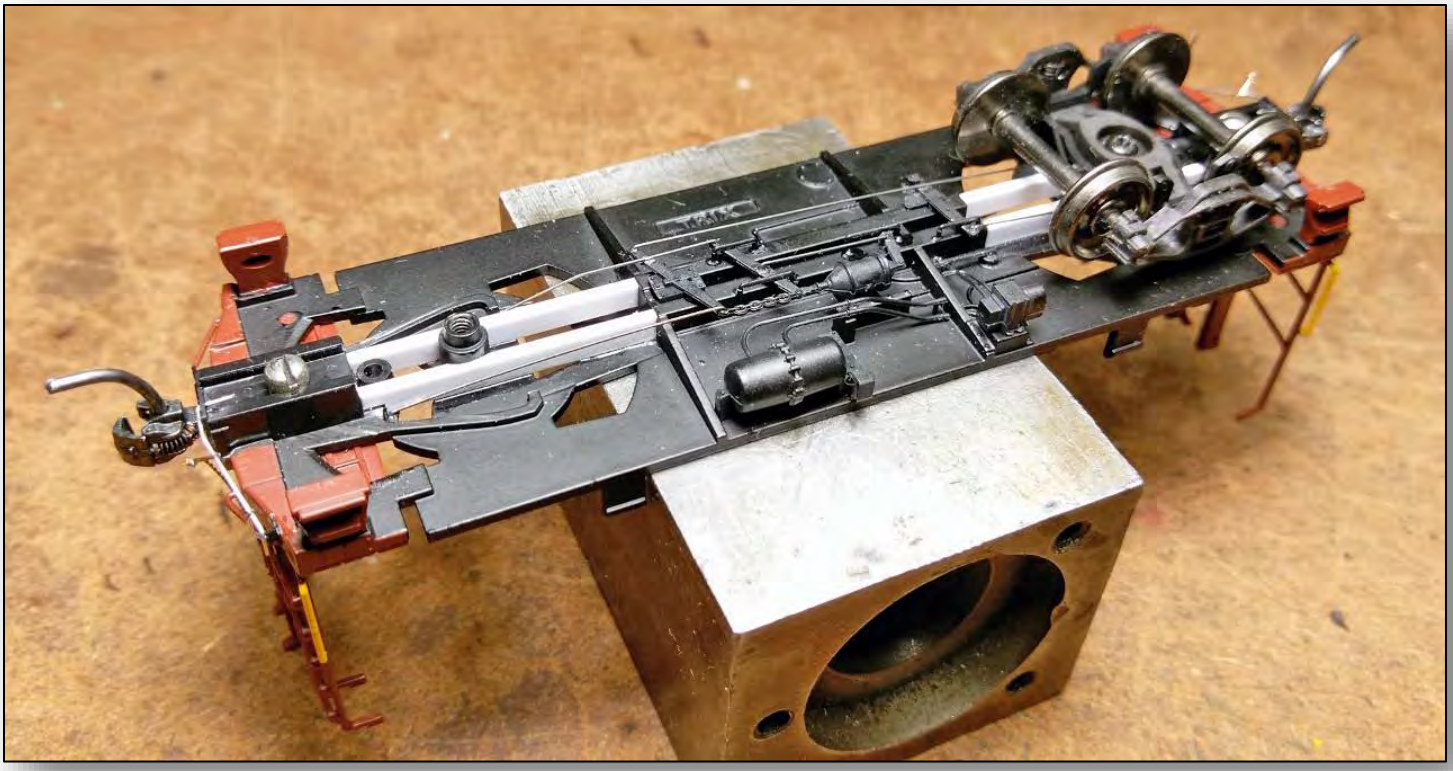


▶ Prototype Trainphone equipped N5c 477829. Note coupler cut lever on end sill and trust plate near left end of side. Plates should be present on any cars meant to represent those in service through 1957 (15-year trust). *(PRR)*

Upgrading the Models

I wanted to repaint it into the Circle Keystone paint and lettering scheme to match my modeling period, so while I was doing so, I decided to make a few minor detail upgrades to the model. First disassemble the car by removing the trucks. The floor, underframe, end platforms and interior all come out of the body together, held in place by four plastic latches along the insides of the body side walls. With the trucks removed, the swing coupler arm and spring fall out of the car. To eliminate the swing couplers, file the draft gear openings in the end sills wide enough to accept a Kadee #178 narrow whisker-coupler box. There is a plastic piece that forms the wood end platform on top of the die-cast floor that is held in place by two plastic posts press-fit into holes in the floor. Push up on the bottom of the posts to remove the platform. While it is out, scribe wood grain into the boards with the edge of a razor saw. Now drill through the zinc floor for the coupler mounting screws and tap the holes for 2-56 screws. Test fit the coupler pockets and cut off the screws flush with the top of the floor. Replace the end platform parts and glue in if they are loose. Replace the truck wheelsets if desired, remount the trucks and determine if washers are needed to correct the coupler height.

With the swing coupler mechanism removed, before and after photos showing end sill opening widened for new coupler pockets. End platform has been removed in the left photo, while still in place at the right.

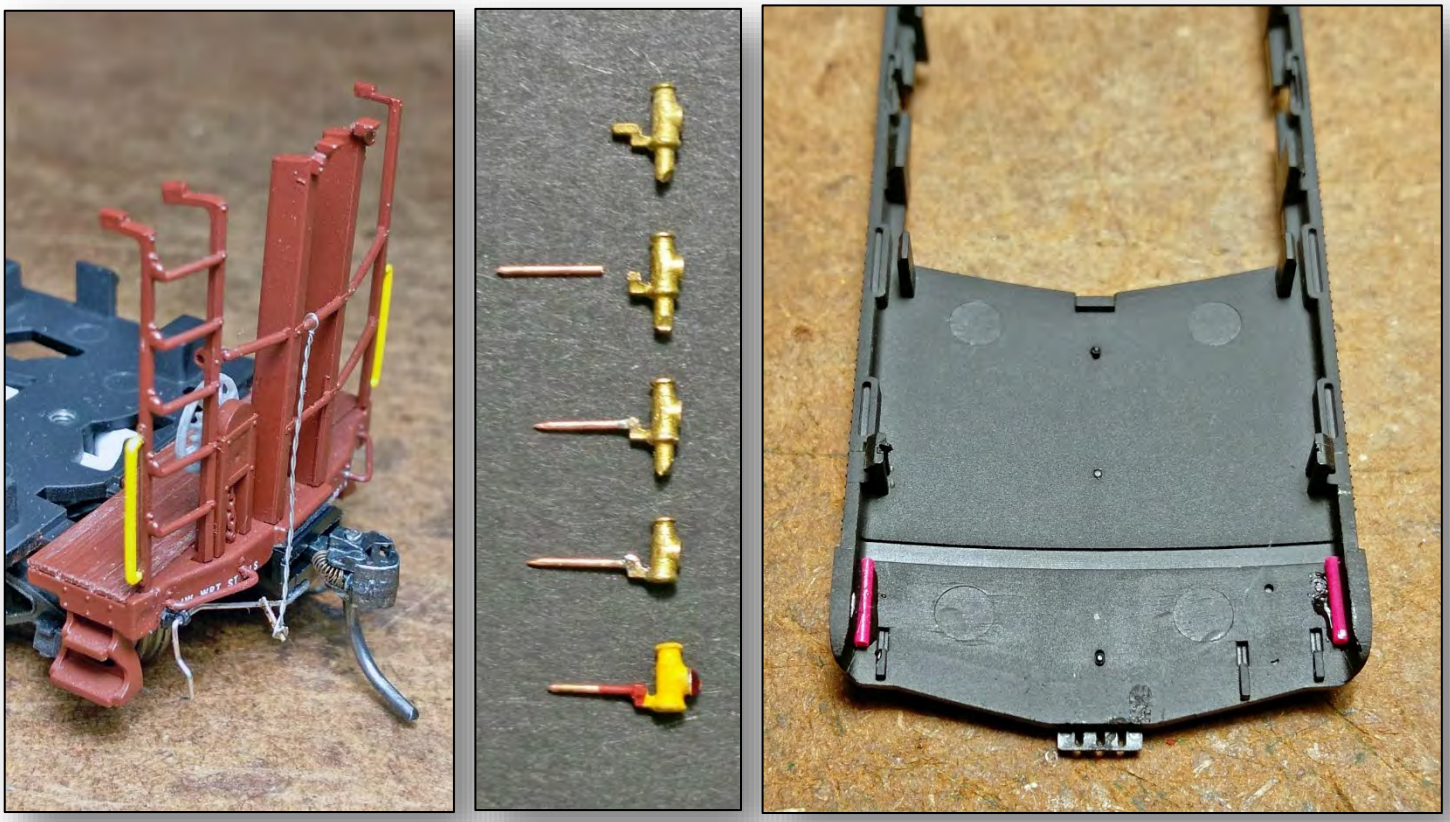


New couplers have been mounted, end platforms replaced, filler pieces added to the center sill and wire brake rodding added.

With new coupler pockets mounted, there are now gaps in the car's center sill where the swing mechanisms were located which are visible when looking at the car from the side. Cut lengths of 0.040" x 0.100" styrene strip and glue in place to reconstruct the full-length center sill. There are nicely detailed molded plastic parts on the underframe to represent the brake piping and levers. Since these were also truncated to match the center sill, snip off the molded brake "rods", drill holes in the ends of the brake levers and replace the molded plastic rods with wire that can now extend under the trucks. There are holes through the die-cast floor (possibly clearance for the tinplate-like wheel flanges on the European version), but these are covered by the interior piece, so they do not necessarily need to be filled in.

The majority of the N5C cars appear to have had Ajax brake wheels, so replace the non-descript stock wheels with Kadee #2030 or Precision Scale #3247 plastic wheels. Bend cut levers from .012" wire and solder on a small piece of brass strip for the outrigger to which the chain connects that allows the crew to release the couplers with the chain from the end attached to the end railings. Since the light duty chain is smaller than commercially available products, I twisted a piece of thin .006" wire (like one strand from a larger gauge of stranded electrical wire) to represent it. Attach a bracket in the end sill near the poling pocket and mount the cut lever.

Carefully remove the roof assembly from the body: there are six tabs extending down from the roof latching the parts together. It is a bit tricky to do this and I was concerned about breaking off the latches, so I didn't reattach the roof again until the final assembly step after weathering. With the roof off, all the molded clear pieces for the body windows are no longer trapped and can be removed. Similarly, unsnap the cupola from the roof and remove the cupola windows. If you are going to repaint or re-letter the cabin, strip the paint/lettering off the body section now. I decided to make things easier by removing the curved side grab irons and the "L" shaped end grab irons, prior to striping to avoid damaging them. Additionally, since they are molded in yellow plastic, they could then be replaced after painting the body red and save the step of hand re-painting them yellow. The attachment posts are tapered pins that are not glued, but rather press-fit into tapered holes in the body so you can just pop them out from the inside with a pointed tool without destroying them. The one glitch in this plan is that in my period, on some of the cars, the vertical sections of the L-grabs were chrome yellow, but the horizontal parts remained red. I masked the parts of the L-grabs to remain yellow and painted the remainder red later with the rest of the car. Once the body is stripped, replace the small "window" plastic that forms the lavatory vent and glue it in place, so it will be painted FCC with the rest of the body. The only other modification needed on the body is to add Trust plates to each side, if your modeling period is within the first 15 years of the caboose's existence.



(Left) View showing cut lever, bracket and chain, new brakewheel and scribed end platform. ***(Center)*** Views of the modification steps for the marker lights and ***(right)*** the underside of the roof with the (red) wire insulation tubes glued in under corners for mounting marker lights.

I glued short lengths of insulation stripped off 24-gauge telephone wire under all four corners of the roof eaves. I mount the marker lights into these after the car is finished. To prep the marker lights, I take Cal Scale #463 PRR Caboose Markers and cut off the upper horizontal part of the support bracket casting. Drill a hole for a short piece of the bare .019" copper telephone wire and solder it into the bracket. Clean up the joint and file a point on the exposed end of the wire to make it easier to insert into the tube later. Snip off the casting sprue remnant below the flat bottom of the marker and file smooth. Paint yellow and glue in a red lens or jewel: I used some MV LS-220 lenses I had on hand. With this arrangement, you can easily insert or remove markers on your finished cabin at either end, at any time.

Photos show the real cars exhibited variations in the smoke jack atop the cupola. Early on, at least some cars appeared to have a large circular cap on the stack with a serrated top edge, looking somewhat like a royal's crown. Then for a long period lasting until the late 50's or early 60's, the cars typically had the "T" style pipe. Some of these were short, as on the model, meeting the 12" height shown on the diagram above. Others look to have had their stack extended in height. Later, the "T" pipes were replaced with the "H" style pipes. If you use the kit part, drill out crossways through the "T" to make it appear open and more prototypical. The model effectively incorporates raised wind visors molded into the cupola side windows, outlined in black, simulating them in the retracted position. There should be two per side, but the model only has one. Since adding and painting/not painting these parts is always very delicate and painful work, I decided the model was "close enough" with these features out-of-the-box. This completes modifications to the car.

FINISHING

One nice side benefit to the multi-part body-roof-cupola construction of this model is that it reduces the work required to implement the red with black paint schemes. If you want the all black roofs and cupola scheme, just paint the underside of the main roof overhangs red and otherwise use them as-is. If you want the red cupola sides, then also mask the cupola roof and paint the cupola red separately. To do the all-red scheme, re-assemble the cupola to the roof before painting. I like the look of the all-red cars, so I searched through all the color photos and books I could find to see which scheme/s were appropriate for my 1952 period. Black and white photos are mostly useless here as black paint and sooty dirt look very similar. I was frankly surprised to have found only one dated photo of a car with the black roofs and red cupola sides by that time; that being a Western Region car displayed back at the 1948 Chicago Railroad Fair. Other than that photo, the earliest dated photos I found of cars with either the black roofs and red cupola sides or the all-black roof and cupola were from 1954. Some of the all red cars lasted late into the 1950's. I listed at the end of the references, the confirmed photos of all-red cars I located.

All red N5C at Williamsport, 7/23/55. *(John Dziobko, Jr.)*

I first sprayed the inside of the cupola, roof and the body parts Antique White for the cream color. After drying, mask the insides of the windows, black plastic smoke jack, underside of the roof interior and the cupola and body openings (and whichever roof or cupola parts you choose to leave black) and paint everything else PRR Freight Car Color. I used a mix of 5 parts Santa Fe red to 4 parts Oxide Red Scalecoat-1 paint on these cars. While I painted the exposed parts of the yellow end "L" grabs red as described previously, I intended to mask the out-of-the-box yellow vertical grab irons on the end corner posts before applying the red to avoid having to hand paint them later and match the molded-in color of the other grabs. I forgot to do so, however, and ended up just lightly scrapping off my coat of red after it dried in lieu of hand re-painting them chrome yellow (over red, over yellow, over red). Paint the trucks and wheelsets dirty black and the molded interior module as desired. Interiors were buff at first, then a two-tone buff and cream scheme appeared circa 1950 and then about 1960 they changed to light green. A good description of the evolution of the PRR cabin car painting and lettering schemes was covered in an article in the December 1974 issue of *The Keystone*.

I used the appropriate decal parts from a Middle Division (HCA-2 Cabin Cars – "Ball" Keystone Era) set to letter the car. Since end numbers had been removed from cabins in 1930, only "PRR" appeared over the end doors even when these cars were new. I lettered mine for one each of the Shire Oaks – General Pool and the West Brownsville Jct. – Altoona Pool cars listed on the 1957 Cabin car roster. Press the side and end grab irons back into their respective holes in the body and glue in place to secure. I then apply a coat of flat finish before weathering to give it a good, uniform base.

For the dirtier car, I applied an underlying wash of black and burnt sienna acrylics on the roof, cupola and underframe. The rest was done with applications of black, brown and gray weathering powders. Dirt seemed to accumulate on these cars on the areas with more texture, such as the belt rails, corner posts and Trust plates. I then sealed the finish with Dullcote flat finish.

After completing all the spray painting, clean the window pieces to remove fingerprints and reassemble them into the cupola and body as you reassemble the cupola, roof and body parts. Insert the interior module, assemble the remaining pieces and add the marker lights.

References

- *The Keystone*, December 1973, page 3; article, diagram and photographs.
- *The Keystone*, December 1974, page 3; painting and lettering article, diagram.
- *The Keystone Modeler*, Issue 25, August 2005, page 33; Quality Craft kit construction article.
- *The Keystone Modeler*, Issue 55, February 2008, page 8; Bowser kit construction article.
- *PRR Color Guide to Freight and Passenger Equipment Vol. 1*, Morning Sun Books, Inc., 1992; page 99, #477947 Shadow Keystone, 4/61.

Color photos of all-red N5C cars appear in:

- *Pennsy Diesel Years Vol. 5, Morning Sun Books, Inc.*, 1993; page 53, 4/7/60.
- *The Pennsy in the 1950s, The Last Great Decade*, PRRT&HS, 2006; page 59, 7/23/55.
- *PRR Hudson to Horseshoe, Morning Sun Books, Inc.*, 1994; page 119, #477852, 1951.
- *Pennsylvania Railroad – Color Pictorial – Volume 4, Four Ways West Publications*, 2004; page 84, #477953 1/1/54.

▲ View of the painted and weathered model component parts, ready for reassembly.

▶ ▼ Completed upgraded TRIX N5c models backdated to the Circle Keystone paint scheme.

Replacing QSI Decoders in Early BLI Steam Locomotives

by Tim Garner

PRR modelers in HO scale have benefitted from PRR models by Broadway Limited Imports for many years. BLI began marketing locomotives with sound in early 2002 starting with the New York Central J1e Hudson. In May of that year, BLI began advertising their PRR M1A and M1B models which were expected to arrive in stores by December of 2003. The next PRR locomotives advertised were the GG1 electrics in December 2002 and the T1 Duplex in December 2003.

The earliest BLI locomotives were equipped with QSI decoders. These were fine at the time but were eventually surpassed in sound quality and features by other sound decoder brands. For a brief period, QSI offered upgrade chips for many of these locomotives. I tried one each for the M1B, T1, and J1 steam locomotives and the E7 diesels, but the difference was not enough for me to buy them for my other models. Eventually, BLI began producing their own decoders for their models which, after some early quality control problems, are good quality with a growing number of features.

To enhance the performance of my early BLI locomotives, I have been replacing the QSI decoders with Soundtraxx® Econami™. I've been very happy with the sound, pleased with the ease of the conversions, and the price is lower than most sound decoders. If you have ever installed a sound decoder in a straight DC locomotive, I think you'll find this process a bit easier. I have used this procedure on two M1B's, two J1's, and an A-B set of EMD E7's. I've documented the procedure on my first BLI T1 below, but the process is similar for all.

Before you start, I recommend you download the Soundtraxx Economi manual from www.soundtraxx.com for the type of locomotive you are refitting (steam, diesel, or electric), and put it in a loose-leaf notebook. It comes in handy while you are programming your decoder after installation.

Note that these methods should work with most brands of decoders. After trying other brands, Soundtraxx remains my preference for the quality of sound and ease of programming – and it gets easier to remember the more locomotives I have. I'd guess many modelers have different preferences.

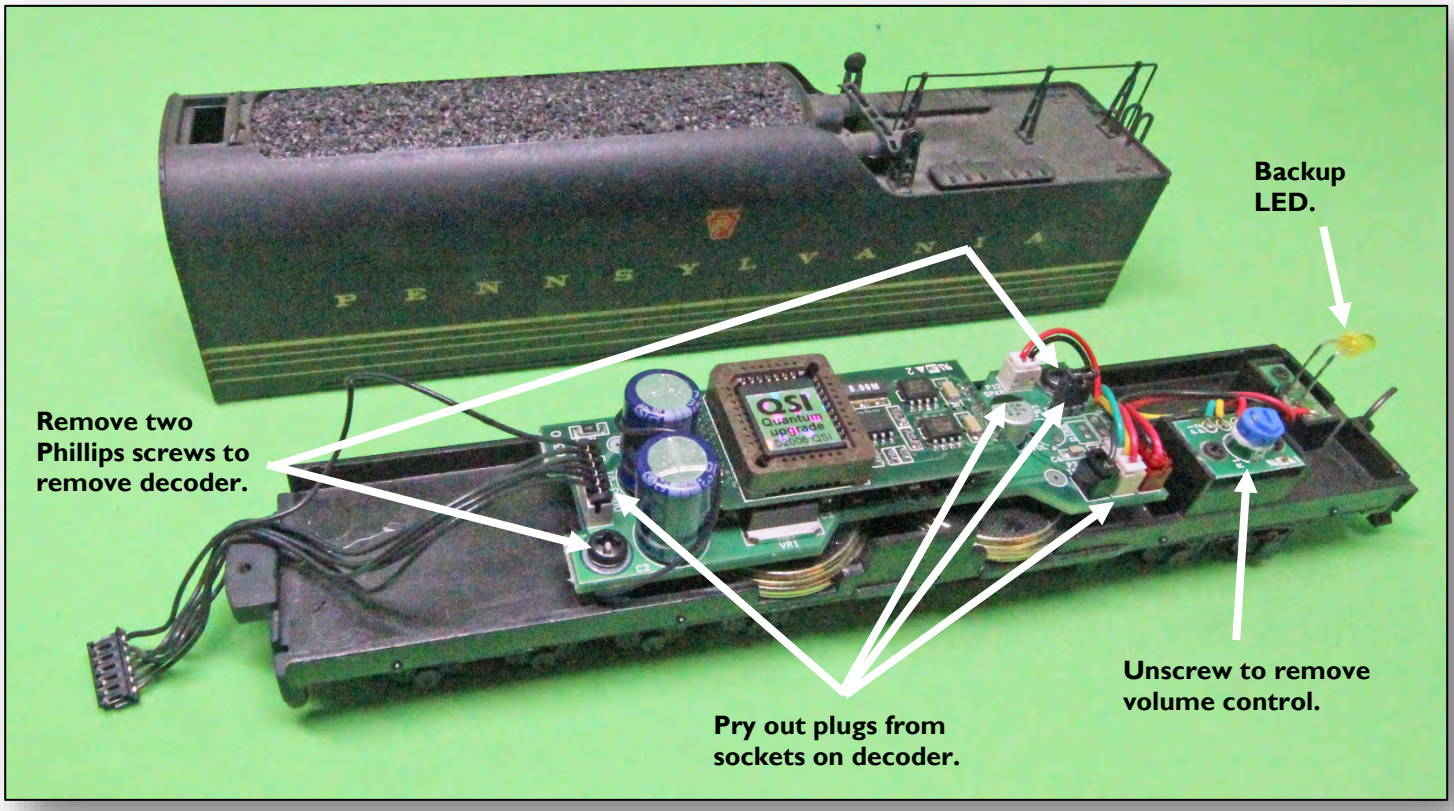
DISASSEMBLY

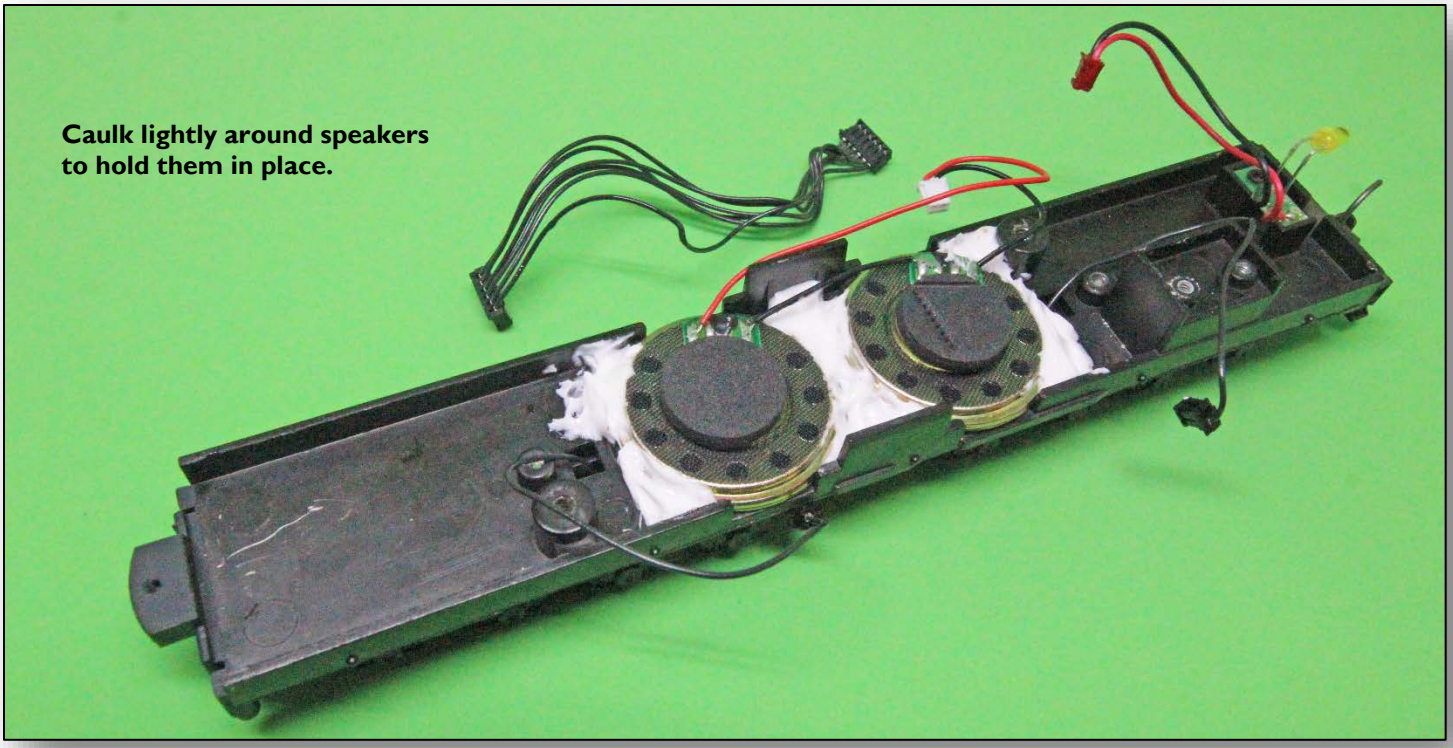
Remove the chassis from the tender body by pulling out the sides and pressing down on the chassis where it protrudes from the ends of the body. Set the body aside.

Unplug all the plugs from the decoder board. Loosen the two Phillips screws that hold on the decoder board and remove the decoder. Hang onto the 6-wire harness that connected the decoder to the back of the engine. You'll need this later.

Remove the potentiometer that controlled volume by removing the small screws.

What you should be left with on the chassis are two speakers wired together, the wired LED back-up light, and wires coming through the chassis from each truck.





Caulk lightly around speakers to hold them in place.

SECURING THE SPEAKERS

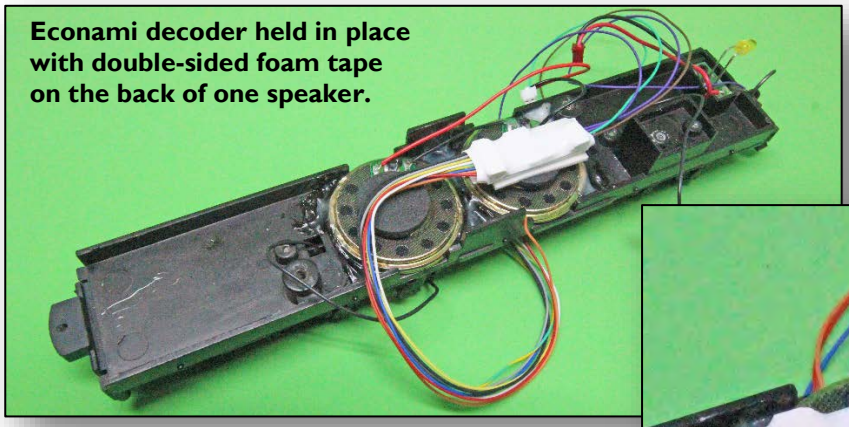
With the decoder gone, you'll need to secure the speakers so they don't move around. I applied a small amount of silicone caulk around the edges of the speakers and on the chassis with a small screwdriver. The caulk is removable without damaging the speakers and helps prevent vibration. Let this cure overnight.

MOUNT THE DECODER

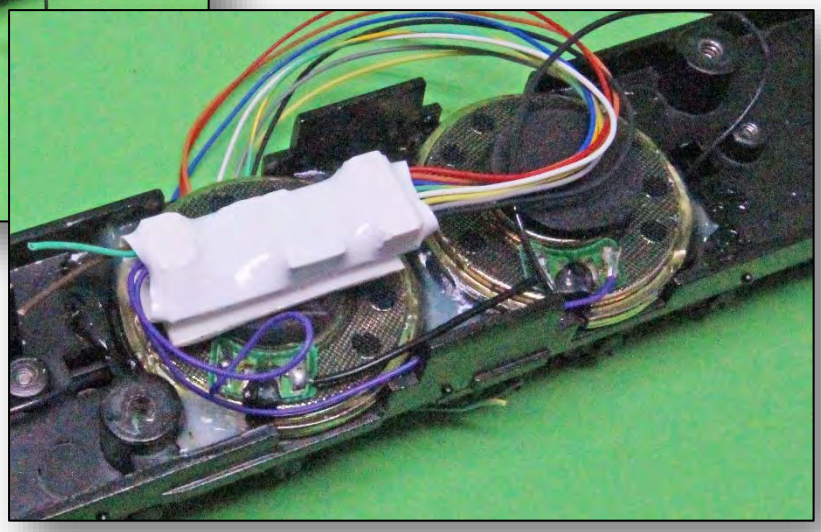
Using a small piece of double-sided foam tape, secure the Economi steam decoder to the top of one of the speakers with the purple-wired end toward the rear. Cut the plugs off the wires coming from the tender trucks, strip about $^{1}/_{8}$" of insulation off the ends, twist the strands, and tin them with rosin-core solder.

WIRING THE SPEAKERS

Using a soldering iron, remove the two plug wires from the speakers. Leave the wire connecting the speakers with each other. Solder one purple wire from the decoder to each speaker where the old wires were removed. Shorten the green and brown wires coming from that end of the decoder. They won't be used.



Econami decoder held in place with double-sided foam tape on the back of one speaker.



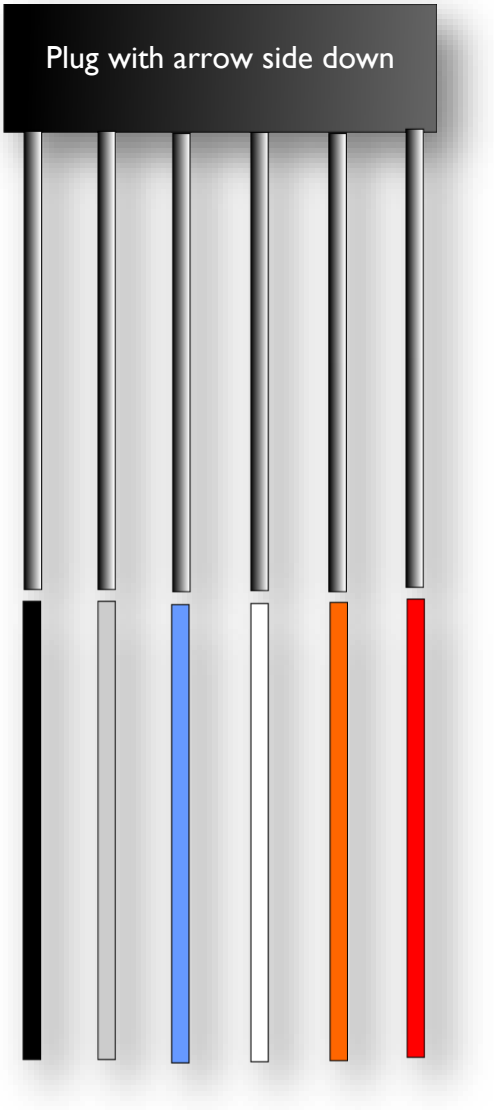
▶ One purple wire from the decoder is soldered to the open terminal on each speaker. The speakers remain wired to each other in series (the black wire connecting the speakers to each other).

WIRING THE HARNESS

Cut the plug off one end of the harness. Strip off 1/8" of insulation from the end of each wire, twist the strands, and tin the ends with solder.

The plug still attached has a light arrow symbol (▲) on one side. Holding the plug with the arrow down and the wires toward you, the wires connect to the decoder as follows:

Position	Purpose	Decoder Wire
1 (left)	Left Rail	Black
2	Motor	Gray
3	Headlight common	Blue
4	Headlight	White
5	Motor	Orange
6 (right)	Right Rail	Red



Start with the motor wires. Shorten the gray wire from the decoder to about 2½", strip off about 1/8" of insulation, twist the strands, and tin the end. Slip about ½" of shrink tubing onto the wire and slip it away from the bare end. Solder the end of the gray wire to the harness wire in position 2. Slide the shrink tubing over the joint and heat it with your soldering iron to insulate the joint. Repeat this process for the orange wire and the 5th wire on the harness.

On BLI locomotives, both the right and left sides of the locomotive and tender pick up power. This means both a wire from the harness and a wire from a tender truck must be soldered to the black wire and the red wire. On the T1, the front tender truck picks up from the right rail and the rear truck picks up from the left rail.

Start with the black wire. Shorten the decoder wire to about 2½", strip off about ¼" of insulation. Cut the plug off the end of the wire coming through the chassis from the rear truck. Strip off about ¼" of insulation. Twist the strands from these two wires together and tin the bare end. Slip about ½" of shrink tubing over harness wire 1. Solder harness wire 1 to the black decoder and rear truck wires. Slip the shrink tubing over the joint and heat it up. Repeat for the red wire, front truck, and harness wire 6.

For LEDs, I prefer a 470-ohm ¼-watt resistor to reduce voltage from the decoder. I shorten the blue (common) wire from the decoder to about 2½" then solder it to one end of a resistor. Next, cut two 3" lengths of 24-gauge blue stranded wire. Remove 1/8" of insulation from one end and ¼" from the other on each piece. Twist the ¼" ends for both wires together and tin it. Solder these wires to the other end of the resistor. Slip a larger diameter piece of shrink tubing over the pair of wires and cover the resistor and the connections at either end. Shrink the tubing.

Take the short end of one of the blue leads and solder it to the connection on the back-up light circuit board marked "+". Slide another ½" piece of shrink tubing over the other wire, solder the end to the end of harness wire 3, then protect it with the shrink tubing.

Solder the end of the yellow wire to the "-" terminal on the back-up light circuit board. Shorten the white wire to about 2½" and solder it to harness wire 4, protecting the joint with shrink tubing.

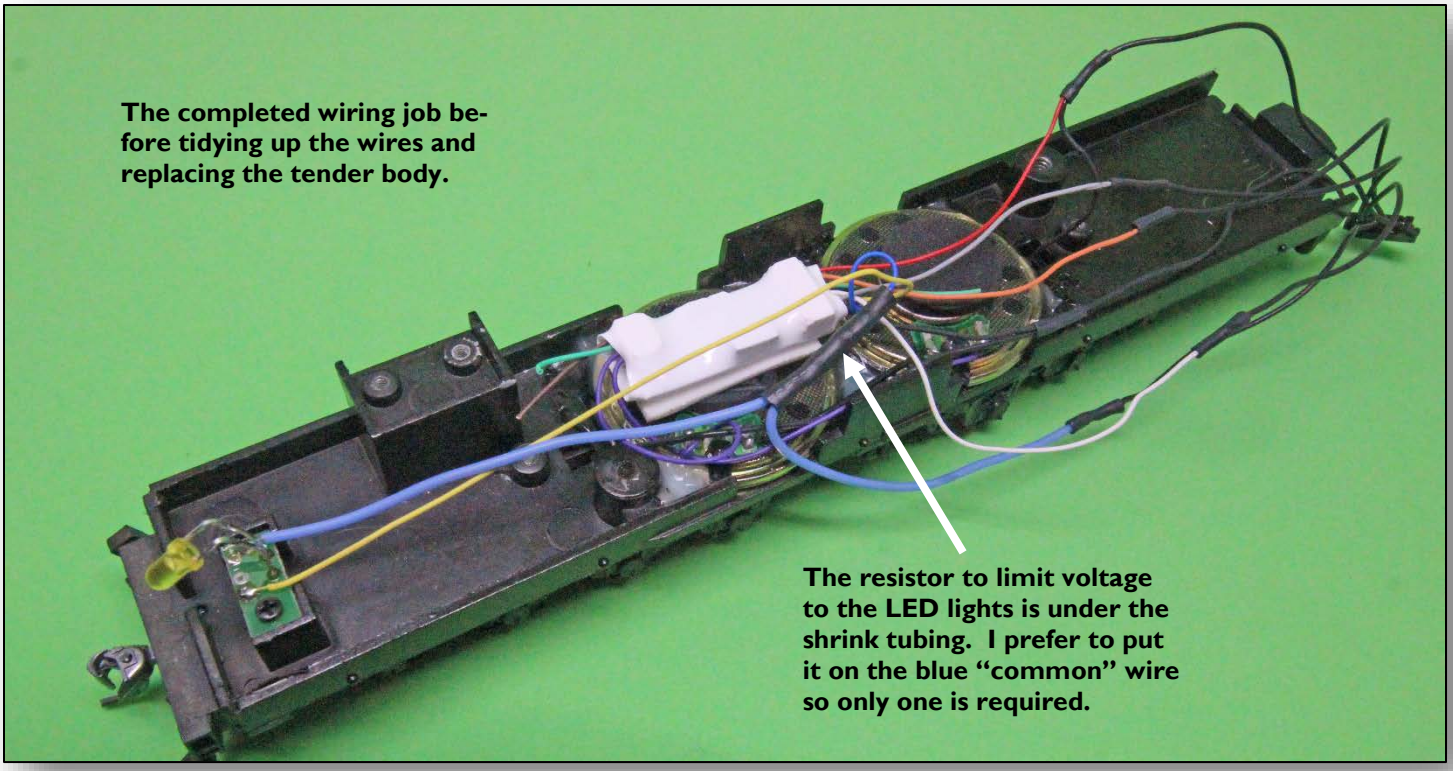
Trim the green and yellow striped wire from the decoder. It won't be used.

TESTING

Before I put the tender body back on, I plugged the tender harness into the locomotive and set it on the track. If you did everything correctly, the sound will come on. Select locomotive "3". You should be able to get the locomotive to move, blow the whistle, turn on the bell, and turn the lights on and off.

TIDYING UP

Using three or four thin cable ties, I pull the wires on the harness inside the tender together and trim off the ends of the ties. Next, I put the tender body on the chassis, connect the tender to the engine, and take the engine to the track for programming.



PROGRAMMING

Soundtraxx gives you lots of sound options for whistles, bells, exhausts, air pumps, and other sounds. You can also adjust steam exhaust synchronization to match four exhausts per revolution. While none of the whistles are specifically identified as PRR on the Econami, there are whistles that sound close to me. For the T1, you can specify the engine is an articulated (CV 112). This gives you four exhausts instead of two. You can specify whether and how frequently those exhausts get in and out of unison due to slipping – a nice effect. Especially nice is the quality of the sound. It seems more crisp and realistic to my ear over the old QSI units.

Another nice effect is F4 – opening the cylinder cocks. This would be done to blow accumulated water out of the cylinders when starting. It is continuous when standing still, but alternates cylinders when starting to move. Then you can push F4 again to shut them off after underway. Nice!

MATERIALS

- Decoder – Soundtraxx Econami ECO-100 for Steam P.N. 881001
- Wire – 24-gauge blue stranded wire, about 6"
- Silicone caulk
- Resistor – one, 470-ohm ¼ watt
- Double-sided foam tape
- Rosin core solder
- Shrink tubing – various sizes
- Cable ties – small, 3 or 4

TOOLS

- Soldering iron
- Small Philips screw driver
- Wire stripper/cutter

DECODER DOCUMENTATION

Econami Owner's Manual in the Manuals Section at www.sountraxx.com includes *Quick Start Guide, User's Guide, Technical Reference,* and *Installation Guide*

Kitbashing the PRR F34 Flat Car from the Athearn Model

By Chuck Cover – photos by the author unless noted

Figure 1 – Kit bashed F34 at Northumberland.

Santa Fe, NM has a vibrant model railroad community. This fall two of the guys who operate on my Shamokin Branch layout brought their models of the PRR F34 flat car to an op session to test run. I was impressed with their work and asked for some details on how they went about the project. They referred me to Brian Everett's post at Protomodeler.com (which is no longer available on line) where Brian worked with a Bachmann four truck flat car and built a great-looking model of the PRR F34. After seeing the two models and reading Brian's post, I decided to kitbash one of my own.

The Class F34 (3 cars, PRR 470200-470202) is a 187.5-ton heavy-duty flat car that was built in Altoona, two in 1938 and one in 1943. *(Figure 2)*. The cars had a deck length of 44 feet, a width of nine feet two inches, and a height at the deck of four feet two inches. They featured a one-piece steel cast frame to which steel plates were riveted to form the floor. The car rode on four 2F-F3 trucks. The F34 flat car prototype information was thoroughly covered in Elden Gatwood's excellent *TKM* article, *TKM* #41, December 2006, as well as in the book *Pennsylvania Railroad Flat Cars, Revenue and Work Equipment, 1881-1968* (Elden Gatwood and Al Buchan, PRRT&HS ©2008). Those are both terrific references which I referred to during this project.

Figure 2 – Prototype photo F34 470200 shown at the New York World's Fair in 1939. *(Owen Thorne collection/Bob's Photos)*

THE MODEL

THE FRAME

The starting point for this kitbash project is the old Athearn four-truck heavy duty flat car. There are usually a number of these on eBay, and if you can find the unbuilt kit, that will be the best starting point. If you can only find a built model, you will have to remove the deck. The only portion of the Athearn model you will use is the frame. Bachmann has a similar model that can also be used.

The Athearn frame is the correct basic shape of the F34 but is too long and too thick. The major part of the kitbash is reworking the Athearn frame *(Figure 3)* to prototype dimensions. Go to Rob's PRR page and find the drawing of the F34 (Tracing E-416230) *(Figure 4)* and then make an HO scale copy. This will give you the measurements for frame length over the platform (44′) and the spacing for the frame/car bolsters which are 9′ from the end of the frame with 26′ truck centers.

The Athearn frame bolsters are inset from the end of the frame 9′-6″. Remove the cast-on steps, then make a cut through the frame that removes just the end plate. Measuring carefully, sand the cut end square and replace the end plate with a strip of .04″ x .25″ styrene strip so that the frame bolsters are now 9′ from the end of the car. *(Figure 5)*. The .04″ x .25″ styrene strip will be thicker than the Athearn frame, but you will be sanding the frame later so this excess will be removed at that time.

Next measure a scale 22′ from each end of the frame toward the middle of the car. Make two square cuts through the frame then join the two ends with styrene cement. It is probably best to make the cuts a little more than 22′ so that when you square everything up before gluing you will not have removed too much. You can always add a styrene strip between each half if your cuts end up too short.

Add a .02″ rod to the bottom of the side sill as the prototype cast frame is somewhat thicker in the depressed center portion *(Figure 6)*. Fill the cuts along the .02″ rod with putty and sand smooth.

As stated previously, the Athearn frame is too thick measuring about 6.1mm or just less than ¼″. Remove about $^{1}/_{16}$″ so that the frame measures 4.5 mm or a little less than $^{3}/_{16}$″. I would have liked to remove a little more, but the limiting factor is the size of the decals. One needs about 10 scale inches of space on the narrower portions of the sides for the dimensional data.

There are several ways to thin the frame, probably the best would be to use a milling machine. I don't have access to one so, I set up a jig in the garage consisting of a short section of 2″ x 4″ lumber and two 6″ metal straight flat mending plates spaced to the width of the Athearn frame. *(Figure 7)*. I wrapped sandpaper around another piece of lumber and slowly sanded the frame, measuring often until I achieved the appropriate dimensions *(Figure 8)*.

Add strikers to the center of each end sill using strip styrene pieces until you get the desired profile. Smooth out with putty and sand after it hardens.

THE BOLSTERS AND TRUCKS

The F34 has two span bolsters each with two sets of 2F-F3 trucks that have a 5′ wheel base. 2F-F3 trucks are heavy duty trucks with four springs visible. The closest that I could find to model these trucks are Walthers 5′ wheel base Ore Car trucks *(Figure 9)*.

The span bolster was formed using a scale 12′ piece of .08″ x .25″ styrene strip. Drill a hole in the middle and one on each side on scale 5′ centers. The center hole was inset so that it fit down over the frame bolsters *(Figure 10)*. The other holes were tapped for 2-56 screws so that the truck centers on each span bolster are a scale 10′. The span bolster must clear the Kadee coupler pocket and the depressed center sill, so they may need to be trimmed at each end. *(Figure 11)*. Fit the model with Kadee couplers and adjust coupler height as needed. Check truck clearances on some turnouts and curves on your layout before continuing. My model ran beautifully without any modifications.

Figure 3 – Stock Athearn frame.

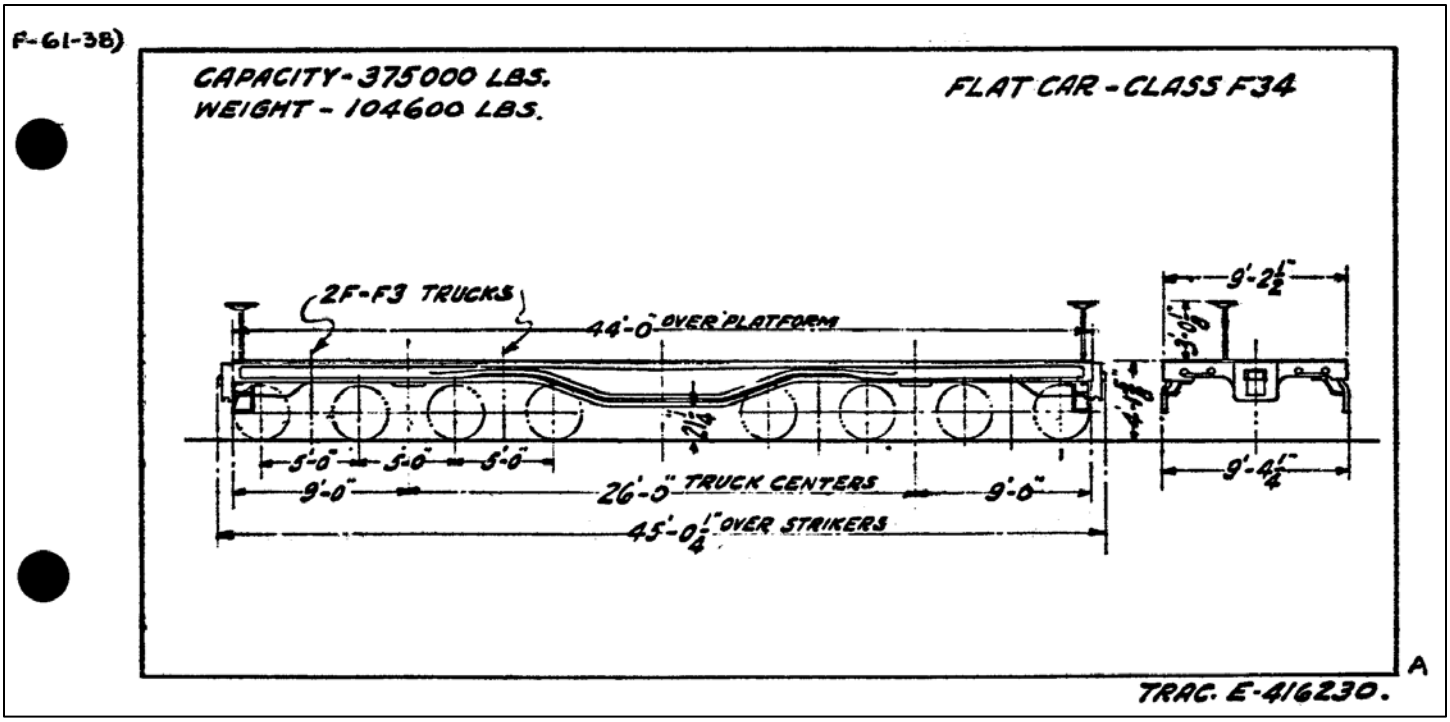


Figure 4 – F34 Tracing E-416230 PRR F34. *(Rob Schoenberg, digitally enhanced by Tim Garner)*

Figure 5 – Cuts made in stock Athearn frame so that frame bolsters are 9' from the end of the car.

Figure 6 – Shortened frame and .02" rod applied to bottom of side sill compared to stock Athearn frame.

Figure 7 – Sanding jig.

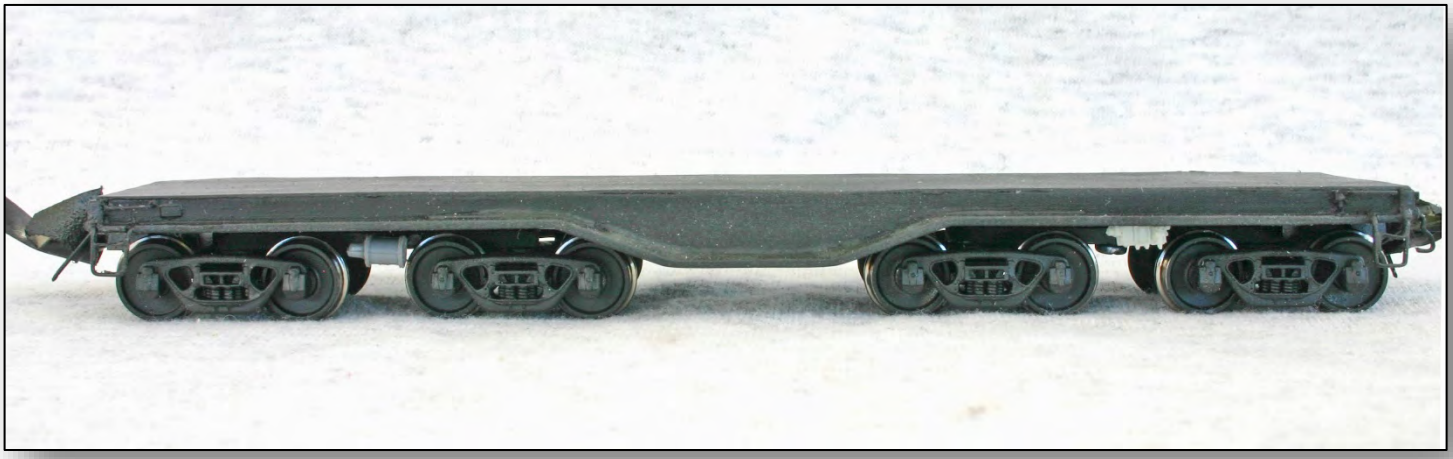


Figure 8 – Deck thinned, details added and primed flat black.

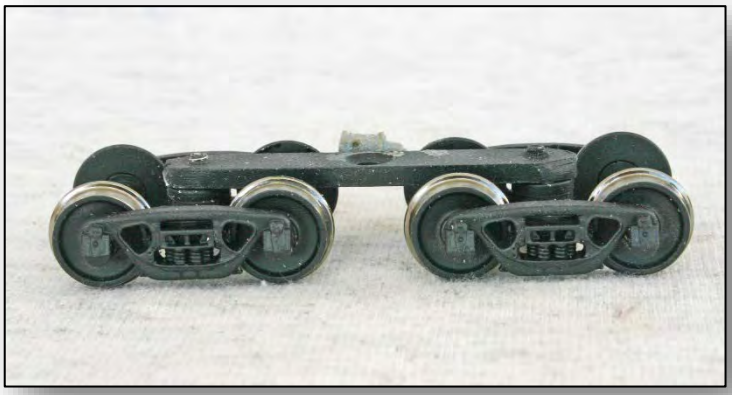


Figure 9 – Side view of trucks and span bolster.

Figure 10 – Top view of trucks and span bolster. Note the inset of the center hole to fit over frame bolster.

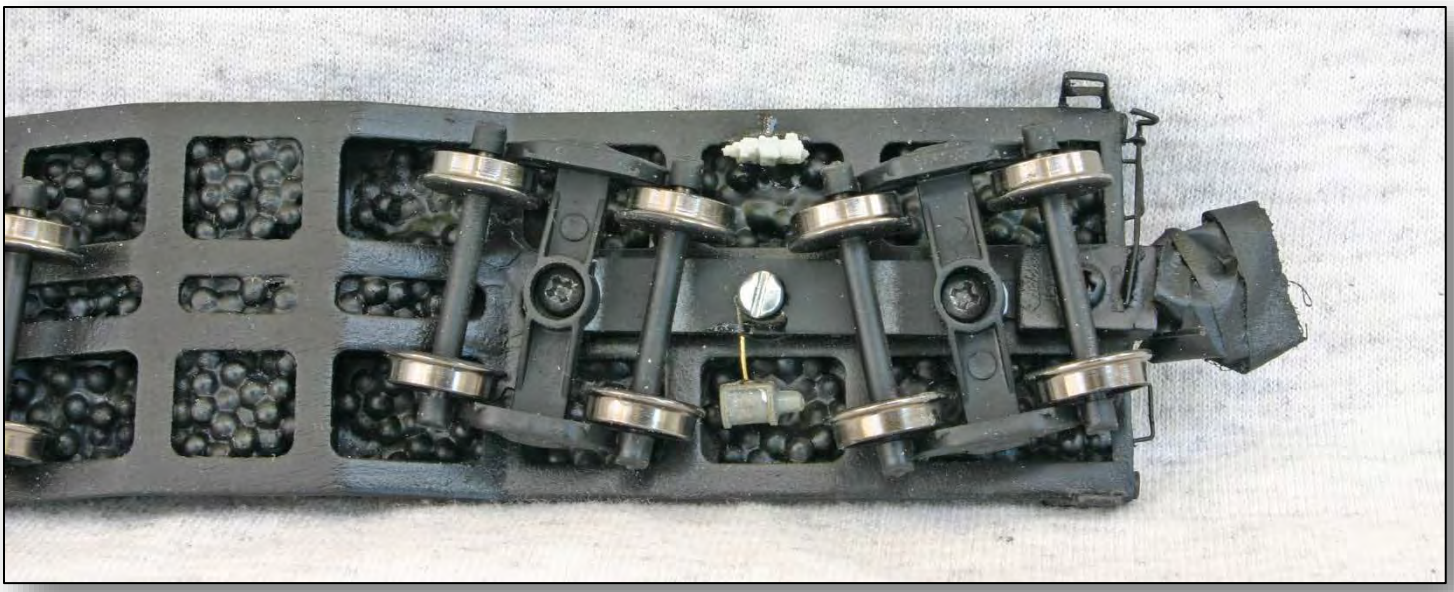


Figure 11 – Make sure that the trucks and span bolster clear the Kadee coupler box and underbody of car. Note placement of brake components.

DETAILING

Tichy 18" straight grab irons were added, two on each end and two on each side of the frame. Proper stirrup steps were scratch built using A Line (style A) stirrup steps and flat brass strip that was soldered to the A Line steps *(Figures 12,13)*. Polling pockets were made from the ears of Kadee coupler pockets. Uncoupling levers were scratchbuilt using .015" brass wire and an eye bolt. Air hoses were made with 0.019" brass wire. Retainer valves were placed, one per side, at the right end of the car next to the straight grab iron *(Figure 14)*.

The F34 had two separate sets of brakes, one for each span bolster, that were arranged as a mirror image to one another. Looking at the side of the car the brake cylinder is visible between the trucks on the left and the triple valve is visible attached to the frame between the trucks on the right. Attach the brake cylinder with a brass wire to make it more visible on the model and so that it can swing with the trucks and will not foul their movement *(Figure 15)*. The rest of the brake components are not visible on the model, so I did not include them.

At this point the car only weighed 1.5 ounces. Add a .01" sheet of styrene on top of the frame (subdeck) and then add lead shot everywhere possible. I usually use diluted white glue to secure the shot, but ACC could also be used. The model now weighs 3.75 oz. Be sure that the trucks can swing freely.

DECK

Modeling the deck was a challenge because there were no prototype photographs that clearly showed the rivet and tie-down cut out patterns. In Brian's post, he used the Railworks brass model as a reference to construct the deck and hand drilled the tie-down holes using .03" styrene sheet as the deck. Les and Bob used the thinned down Athearn deck.

The prototype photo with the best view of the deck is the end view that can be studied in Elden's *TKM* article. Elden also provided photos of the Railworks brass model of the F34 in the article. Since models are not always prototypically accurate and the deck is the most visible part of any flat car on a layout, I wanted to be sure that I represented it as prototypically as possible.

During this phase of the project I received help from John Sutkus and Bruce Smith. John and I used the PRRT&HS archives to obtain tracings of the car body floor plate. The tracings showed that the deck was made up of five sections that are riveted to the frame. There was one 13'-1½" section in the middle and then an 8'-5½" and a 6'-10½" section on each side. There are around 400 oval tie-down cut outs in the deck.

John, who is an engineer, interpreted the tracings and arranged them for our use by making digital copies. *(Figure 16)*. These were sent to Bruce who was able to develop a screen grab of the deck artwork and then use a drawing program to produce a scaled drawing of the deck *(Figure 17)*. Once this was produced and scaled to fit the kitbashed Athearn frame, Bruce sent copies to John and me for our use. Bruce is planning to etch the deck for his model. I decided that I would attempt to model the deck using styrene sheet. (NOTE: Once we received the prototype information from the PRRT&HS archives and compared it to the Railworks brass model shown in Elden's *TKM* article, it appears that the model does an excellent representation of the prototype deck.)

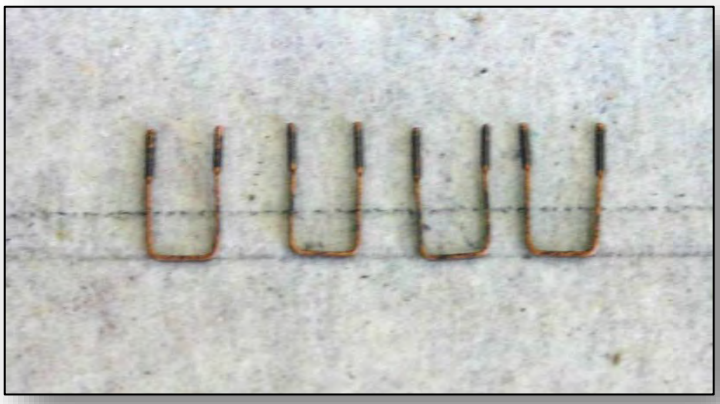


Figure 12 – A-Line stirrup steps ready to accept brass strip.

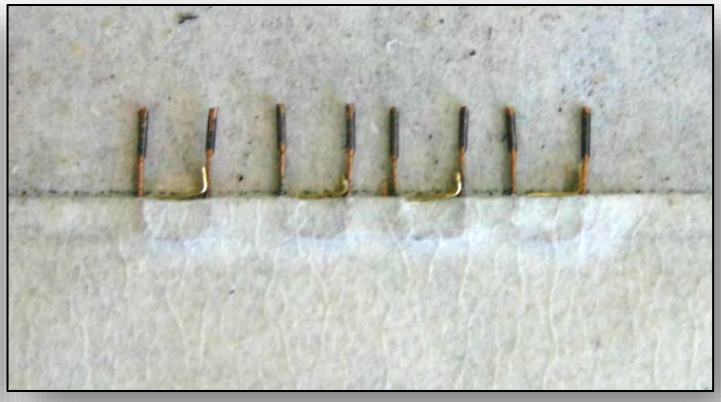


Figure 13 – Stirrup steps soldered and ready to be bent and attached to frame.

Figure 14 – Stirrup steps on model compared to Athearn model.

Figure 15 – Bottom view brake components.

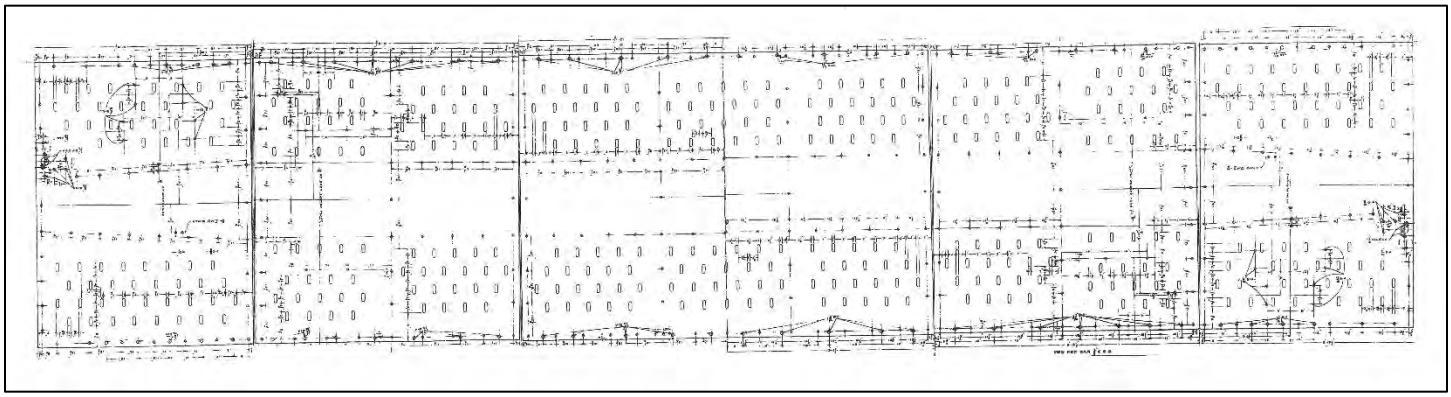


Figure 16 – Reduced shot of digital deck detail from PRRT&HS archives. *(John Sutkus)*

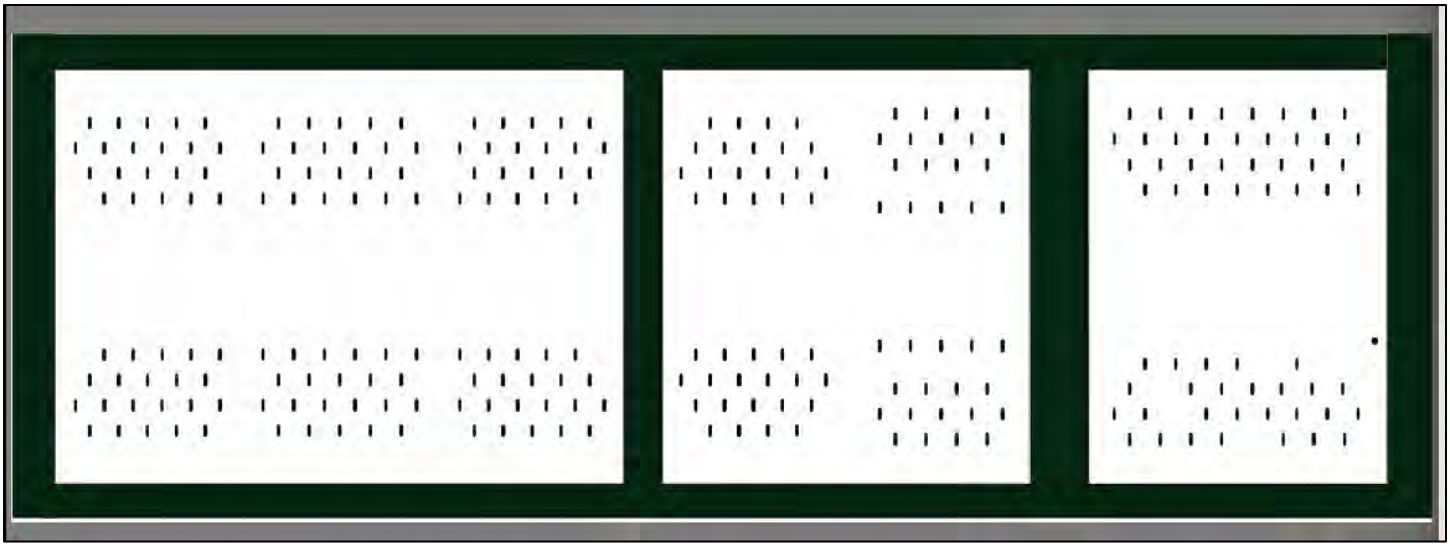
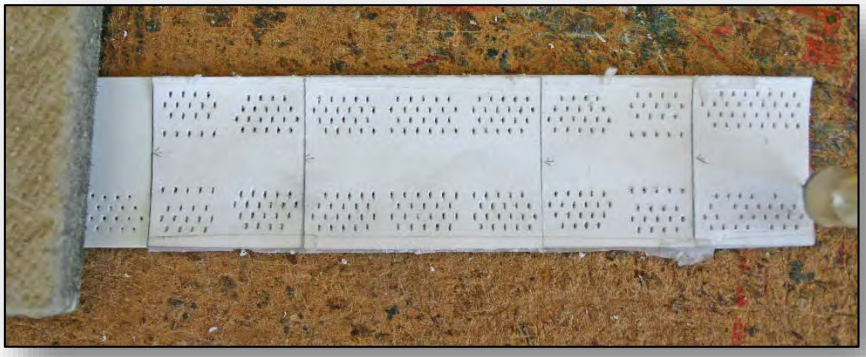
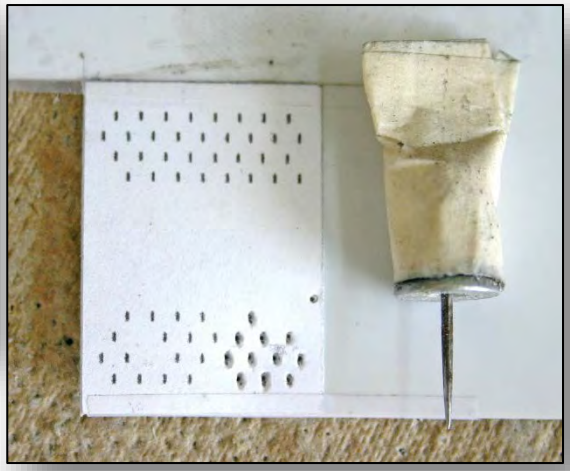


Figure 17 – Scale Screen shot of tie downs arrangement. *(Bruce Smith)*



▲ *Figure 18* – Scale screen shot applied to styrene sheet/deck.



▶ *Figure 19* – Screen shot on deck with some ovals and brake wheel impressions started.

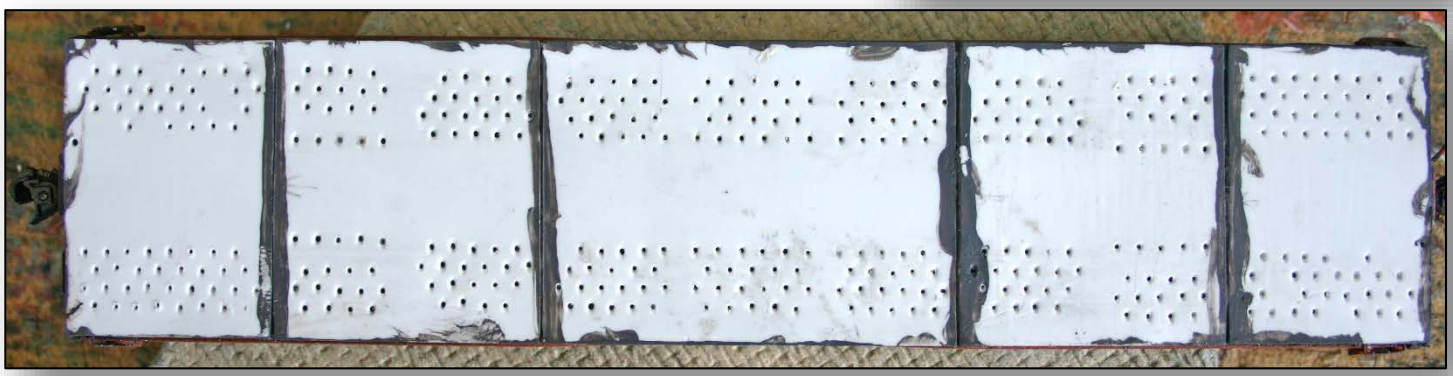


Figure 20 – Deck completed with shading/flat black

Using copies of the scaled drawing, I laid the drawing over the 0.20 styrene sheet and punched out the oval holes using a push pin *(Figure 18,19)*. I placed the styrene on a bed of Homosote®, pushed the pin through the drawing and styrene sheet and rocked it back and forth to create the oval tie downs. The excess styrene that was pushed through the deck and into the Homosote could be removed with a sharp chisel blade and sand paper. Start with one of the end sections. I had to go back over each sheet several times to be sure that the tie downs went all the way through the deck. I used the push pin as well as a regular pin to be sure the holes were not plugged. Before gluing the finished deck sheets to the sub-deck, paint the sub-deck flat black primer which will give the tie downs more depth. Glue each deck sheet to the bed of the car with a thin coat of 5-minute epoxy *(Figure 20)*. I attached the two brake wheels using 0.19" brass wire and brake wheel from old Tichy brake sets.

Finishing the Project

The car, including the span bolsters with brake details was primed using a flat black primer. The deck was then sprayed with a gloss finish in preparation for decals. Microscale rivet decals were used to simulate the rivet lines. The rivets lines followed the cast frame structures which are also shown on the deck drawings. The decaled deck was sprayed with Dullcote. After drying overnight, I used ACE red oxide primer for my FCC color on the body of the car. The sides and ends of the car were then sprayed with Gloss Coat.

I used Mount Vernon Shops F34 decals except for the "PENNSYLVANIA". I used the "PENNSYLVANIA" from an old Walthers decal set. I thought the Mount Vernon Shops road name was too long after comparing it to several photographs. The car was sprayed with Dull Coat to seal the decals. Artists acrylic paints were used to weather the car. I spent a little more time on the deck, giving it a couple of washes of dilute black so that the tie downs had some additional shading/depth *(Figures 21-23)*.

This was a very interesting project. I used some new techniques, and the car looks great. It tracks extremely well on my Shamokin Branch layout and makes a nice addition to my freight car fleet.

Materials

1. Athearn heavy duty, four truck flat car kit
2. Walthers trucks 932-2012 (5' wheel base Ore Car trucks)
3. Kadee #5 couplers
4. Evergreen Scale models
   - 9010 .01" sheet styrene
   - 9020 .02" sheet styrene
   - 149 .04" x .25" strip styrene
   - 169 .08" x .25" strip styrene
   - 218 .02" styrene rod
5. A Line stirrup steps (style A) #29000
6. Mount Vernon Shops decals, MVS HO-F34
7. Walthers PRR decals #77-W (general freight)

Figures 21-23 – Finished model – three photos

Modeling "The Big Hook" – Upgrades to Make the Tichy 120-ton crane a PRR Wrecker

Bruce Smith – photos by the author unless noted

The derrick, assembled, painted, decaled, weathered and ready to go to work.

One thing that can be guaranteed to get the attention of both modelers and prototype railfans alike is "the big hook". On the PRR, these railroad cranes were called derricks. The presence of a wreck derrick is bound to attract attention whether it is simply sitting at the ready near the engine house or out on the road. The PRR rostered a collection of different derricks depending on the location and anticipated needs. In addition to the obvious use of clearing wrecked cars and locomotives, derricks were also used to perform heavy lifting all over the railroad, from helping lift a freight car that was bad ordered in siding somewhere so that it could be repaired, to placing bridges and prefabricated track work. Most of the PRR's derricks were steam powered. When not out on the railroad, they were often connected to steam lines so that they would have boiler pressure when needed. When a derrick crew was called, the derrick and boom idler car were usually positioned so that the derrick would be on the side of the work. The rest of the wreck train, be it former XL boxcars, or in later days, modified heavyweight Pullman cars, would be coupled on, along with a cabin car and locomotive. Wreck train power was often whatever was in steam and available, and when diesels arrived on the scene, one of their first assignments was wreck train service as they could be ready on demand. In the days of steam power, coal and water for the derrick could be obtained from the tender of the wreck train engine. Once diesels took over, wreck trains frequently had retired steam locomotive tenders included to provide the coal and water for the derrick. When the train was near the work site, the motive power and wreck cars would be shifted to allow the derrick to access the wreck. Since most derricks were self-propelled, albeit at slow speeds and for short distances, they could be maneuvered as needed to work the site. Wreck train cars were kept close at hand to provide lifting gear such as cables as well as blocking materials, both for the derrick's outriggers and for supporting items being lifted. In addition, the wreck train cars provided food and shelter for the workers. Once the immediate problem was cleared, the wreck crew would often "tour the road", dealing with all the small projects that needed a derrick but weren't critical enough to call a crew specifically for that purpose.

On the PRR, there were many classes of wreck derrick. These were designated by the letter "W" followed by the capacity of the derrick in tons. Some of the earliest large derricks were 70 and 100-ton capacity. As the weight of locomotives and cars increased, these were supplanted by 120-ton, then 150-ton and finally, 250-ton derricks. This last class was built in 1944 to handle the J1 steam locomotive.

Over the years, the PRR purchased as many as nineteen W120s (including class W120A) manufactured by Industrial Brownhoist. At least two prototype W120/120A derricks have been preserved, PRR 490701, built in 1910, which became Penn Central #50030 in 1968 and Strasburg RR #03 on August 5, 1971, and PRR 497015, built in June 1913 and sold to the Washington Terminal RR to become WT #500 in 1930. This derrick and its F24 class boom tender #501 were transferred to the B&O RR Museum in Baltimore, MD in 1990 where they are currently on display.

▲ Derrick class W120 #49013 on a wreck train in Elmira, New York. ▼ Another W120 on a wreck train in Morrisville, Pennsylvania. *(Both, Bruce Smith collection)*

Shortly after returning to model railroading and identifying the PRR as the road I wanted to model, I purchased and built a Tichy Trains (formerly Gould) HO scale 120-ton Brownhoist derrick. I found this kit to be perhaps the best plastic model kit ever made! The engineering of the parts, the detail, the attention to ease of assembly all combined to transform a box full of plastic sprues into a detailed, eye catching model. Built straight out of the box, this kit makes into a decent replica of the PRR's W120 class of derrick. A few years back, when the PRR Projects group in Yahoo decided to model wreck derricks, I felt that it was time to revisit this kit, with the intention of detailing it to more accurately match the W120 class of cars.

The kit assembles into 4 subunits; the chassis, the body, the machinery and the boom, which then assemble into the completed model. Rather than duplicate the excellent instructions for this kit, which are available on-line (https://www.tichytraingroup.com/Portals/0/Instructions/4010.pdf) I am going to detail where I made changes.

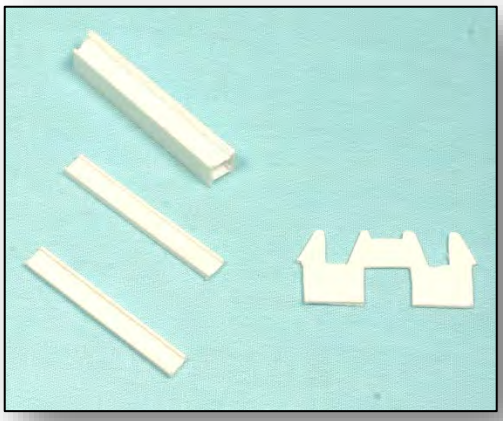
Those changes started with the trucks. The kit supplies a nice set of styrene arch bar trucks with nylon bearing inserts. However, examination of photos of W120 derricks shows that most, if not all, had "Crown" style Andrews trucks. I found that the Bowser Crown truck (part 74091) was a simple swap. Since the bolster height and hole size were the same as the Tichy truck, the Bowser truck could be screwed into place without any other adjustments. I did use replacement semi-scale 33" wheel sets in the Bowser truck to give an even better appearance.

CHASSIS

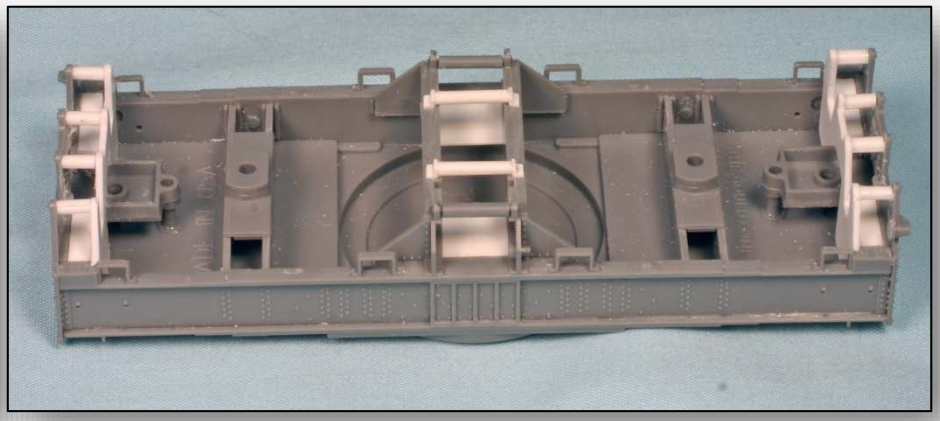
I added brass grab irons to the chassis instead of using the plastic ones that come with the kit. This is a bit of an issue, as the "legs" show below the deck if you aren't careful. I cut the legs of my grab irons at about 0.050" so that 0.04" would be exposed. Then I used a piece of 0.040" strip styrene as a spacer to hold the grab irons in position, while I glued them with ACC. I also added grabs above the steps closer to the middle of the car body, as seen in photos of PRR derricks.

I wanted to model this derrick with outriggers that could be posed in the extended position. The outriggers are the beams at the center and end of the derrick that allow it to be braced to lift the very heavy loads it was designed for, without tipping over. I built the chassis according to directions (i.e., I put the ends on, and then added the coupler boxes, and the pieces which surround the central outrigger. I then added the two beams that run side to side in this location, using the Tichy outrigger part as a spacer (but NOT gluing it in place!). I cut a couple of pieces of 0.020" sheet styrene to provide a support for the central outrigger when it is extended. Note that I left an opening in the center so that the "house" can be attached to the body. After the chassis ends were installed and the glue was dry, I cut off the locator pins for the ends to allow filler pieces of styrene to fit. I also carefully removed the "bump" below the coupler opening, as it would interfere with the outrigger beams otherwise. To support the end outriggers, I then cut pieces of scrap styrene 0.100" wide and even with the end/side sill to support the end outriggers. I also cut a piece of 0.020" sheet styrene to provide the inner plate / roller support pieces. I would have used the ones in the kit, except that these are molded onto the static outriggers. Because these need to hold the rollers, I made them go all the way to the deck. Make sure the cutout in this piece for the coupler is a little taller than you think might be needed, so that you can slip the coupler lid in later! I made the end outriggers by forming I-beams with 0.125" x 0.020" and 0.080" x 0.020" strip styrene. These are too wide, so when they were dry, I sanded them carefully down to be about 0.070" wide and then trimmed them to the correct length. I made the central outrigger by making 2 more I-beams just like the end ones, but I did not bother to sand them thinner. They should be trimmed with an angle on the end to match the Tichy part. The short side is the distance from the outside of one side sill to the outside of the other. I cut 0.020" sheet styrene into a strip to fit into the slot in the center of the car and then cut it to match the I-beams and glued it on to the center I-beams as top and bottom plate with the flange of the I-beam flush with the edge of the plate. I then glued the rollers in place to hold the I-beam to the car but made sure that there was enough space between the rollers and the car body so that the beam could move. I made additional rollers out of 0.060" styrene rod and added them to the center of the car to hold the extended outrigger, and to the ends of the chassis to hold in the outriggers.

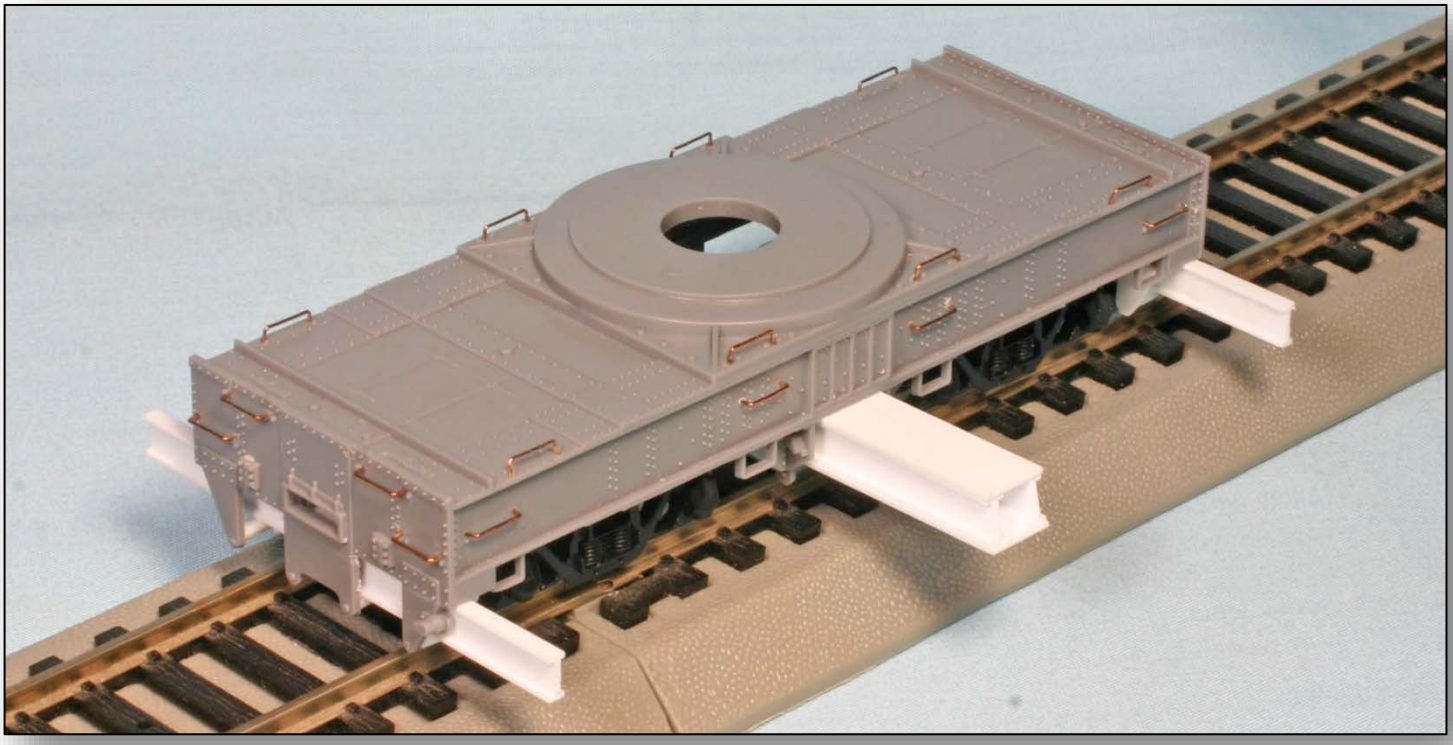
The rotation lock receivers were bent out of strip brass with a hole drilled for the rotation lock pin. These were simply glued to the deck with ACC. I added Carmer uncoupling levers from Free State Systems to each end. These are etched brass details, mounted on 0.019" brass wire, with a small "standoff washer" created from more sprue. Air hoses from Cal-Scale were also added to each end (I would use Hi-Tech rubber air hoses now).



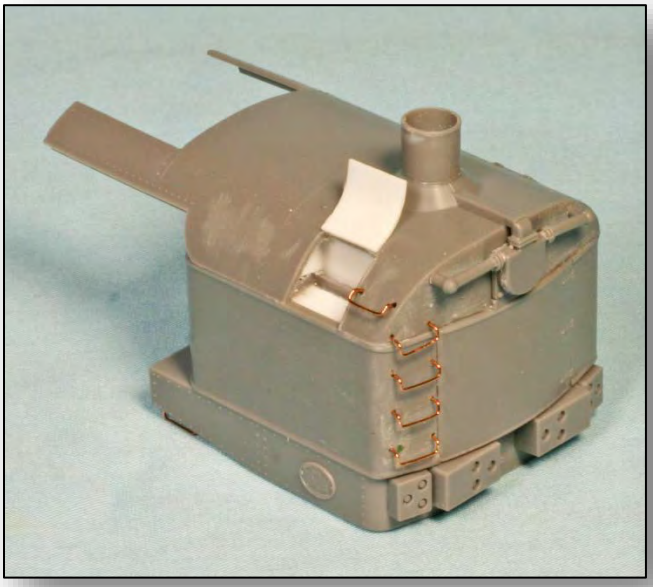
End outrigger beams, center outrigger beam and new inner plate for the end outriggers are shown.



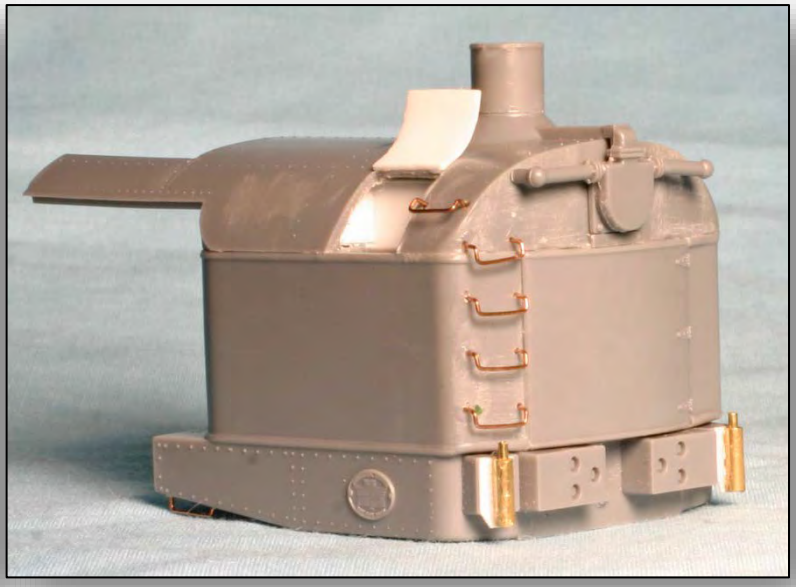
Inner plates for the end outriggers are shown installed along with rollers for both the end and center outriggers and sheet styrene supports to support the outriggers when deployed.



▲ Outriggers are depicted deployed. In real life, they would be supported by stacks of wood cribbing and jacks. ▼ End view of the chassis showing the etched Carmer uncoupling lever and bent brass rotation lock receivers.



A top-down view of the body of the derrick showing the open coal bunker and grab irons.



The rotation locks have been added to the back of the derrick. These line up with the receivers on the chassis and help keep the derrick from accidentally rotating while in transit to the work site.

Body

I wanted to model this derrick with the coal hatch open. Looking at a photo of PRR W120 490713 when it was serving on the Elmira wreck train, the hatch appeared further back on the left side than the one on the Tichy roof. I shaved the cast-on hatch off with a sharp blade and cut an opening for a new one in the next section back. Be careful to leave enough space between this hole and the end of the roof for a grab iron. Once the hole was cut and cleaned up, I added the sides of the cab and used them, and scrap styrene, to "box in" the area under the open hatch so that I could add coal once the model was built. I add a drop grab iron to the roof and four drop grab irons to the rear of the cab. I also added a straight grab iron under the front of the side. I fashioned a lid for the coal compartment out of 0.010" styrene, taped it around a hobby knife handle and stuck it in boiling water. After letting it cool, it had almost the perfect curve to match the roof. The hatch was then glued on in the open position. At this point, I also drilled and filed out the smoke stack so that it is open. I added rotation lock pins to the back of the derrick cab using 1/16" brass tube with 0.032" brass rod inserted into the larger tube. These were mounted to a piece of strip styrene on the back of the body using a generous bead of ACC to duplicate the look of the casting. I also trimmed the lower end of the styrene at an angle, like the prototype.

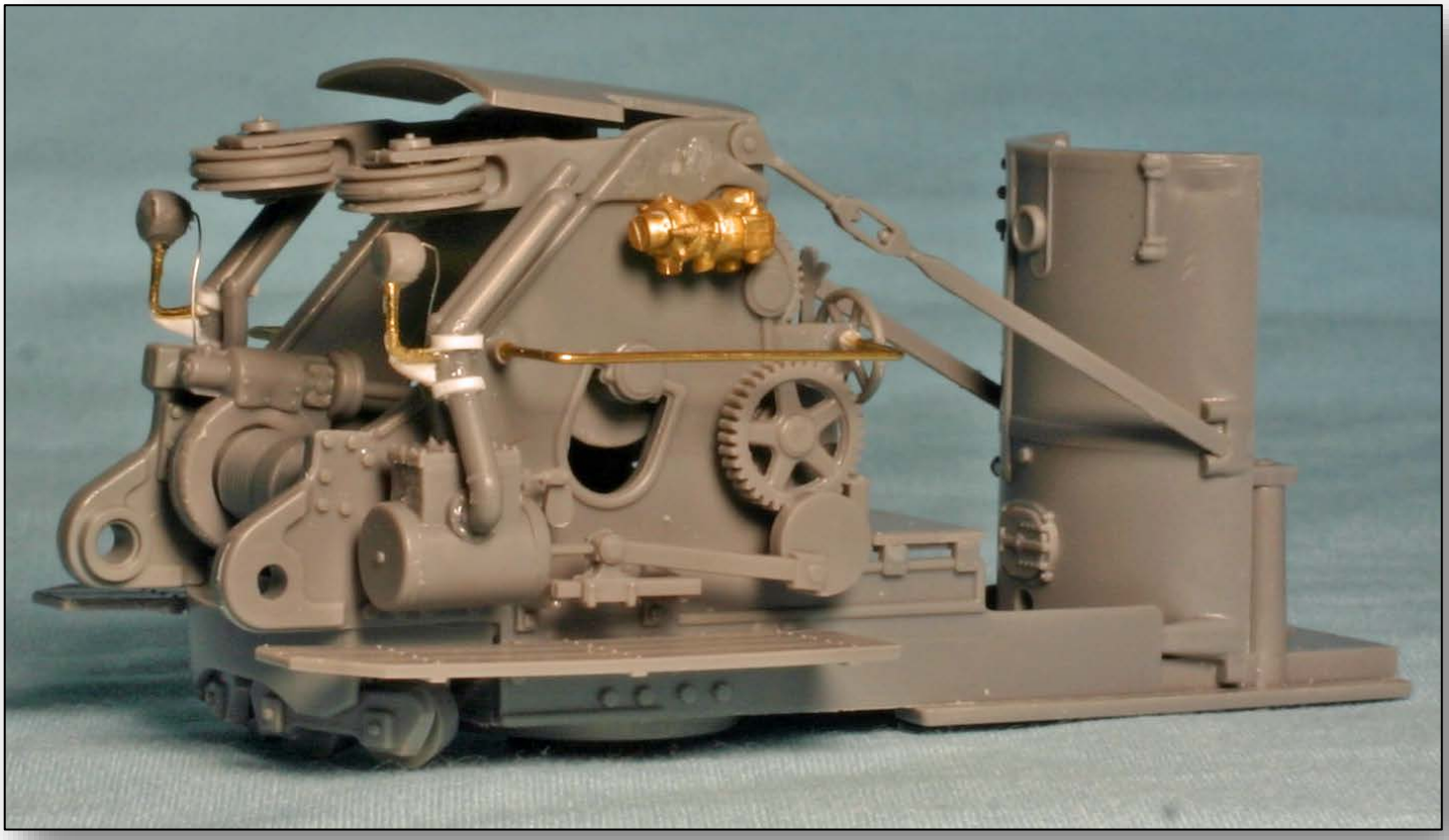
Machinery

I added work lights to the front. On the WT derrick and on other PRR W120s, these appear mounted to the steam exhaust using a casting. The lights are rounded ends of sprue from the kit, mounted to brass wire. I tried to at least duplicate the flavor of the mounting with some styrene cut to fit at an angle, and strip styrene to create mounting bands that were glued around the steam exhaust. I added a strand of wire as the power cable to the rear of the light. The lights need power from somewhere, and that source was a steam powered turbogenerator. I trimmed off the exhaust and mounting pin from a Cal-Scale 190-212 Sunbeam generator, filed the back a little flatter and mounted it so that it would fit under the roof on the left side of the machinery. I also replaced the plastic hand rails on both sides of the works with brass wire to enhance durability.

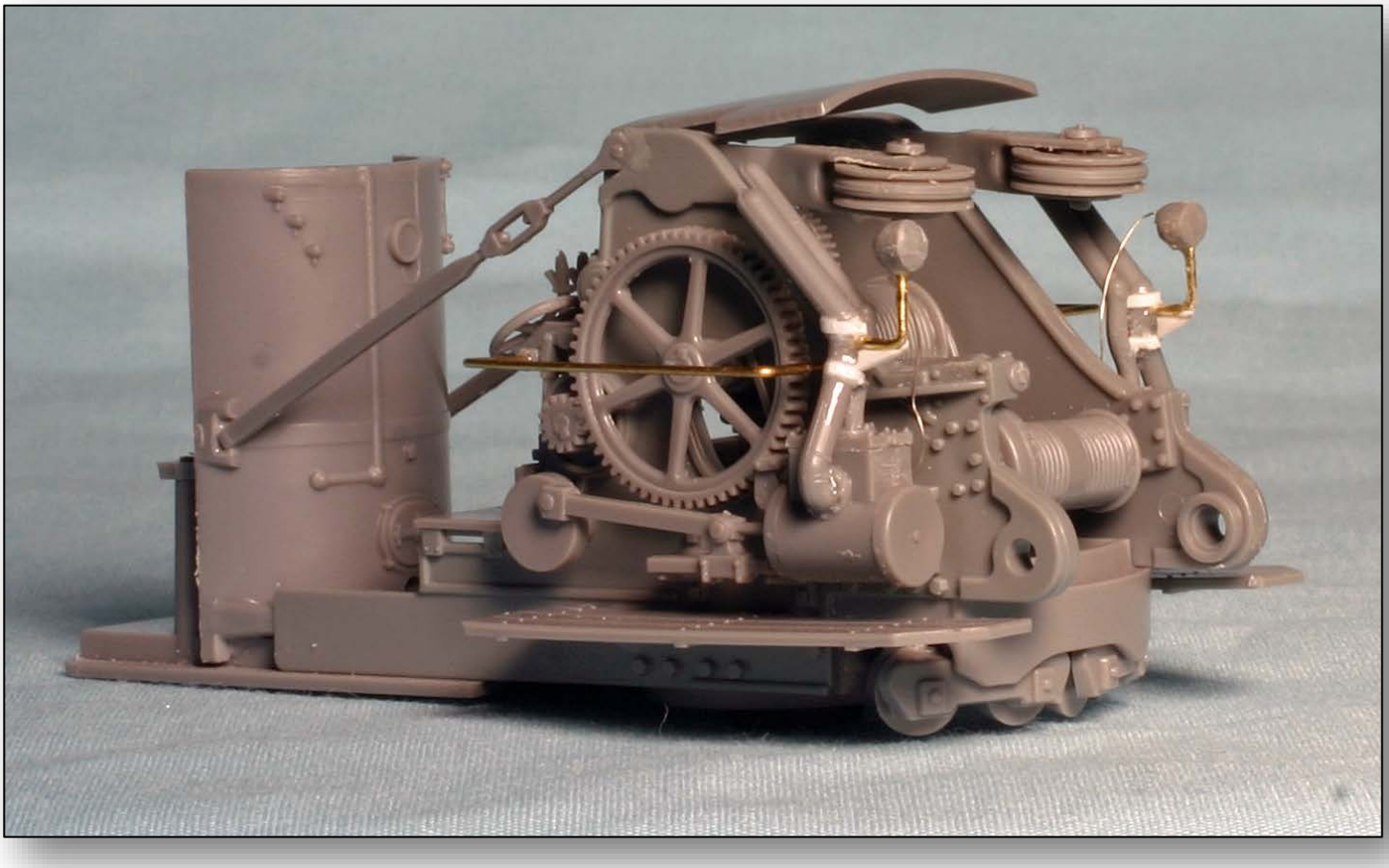
Boom and Rigging

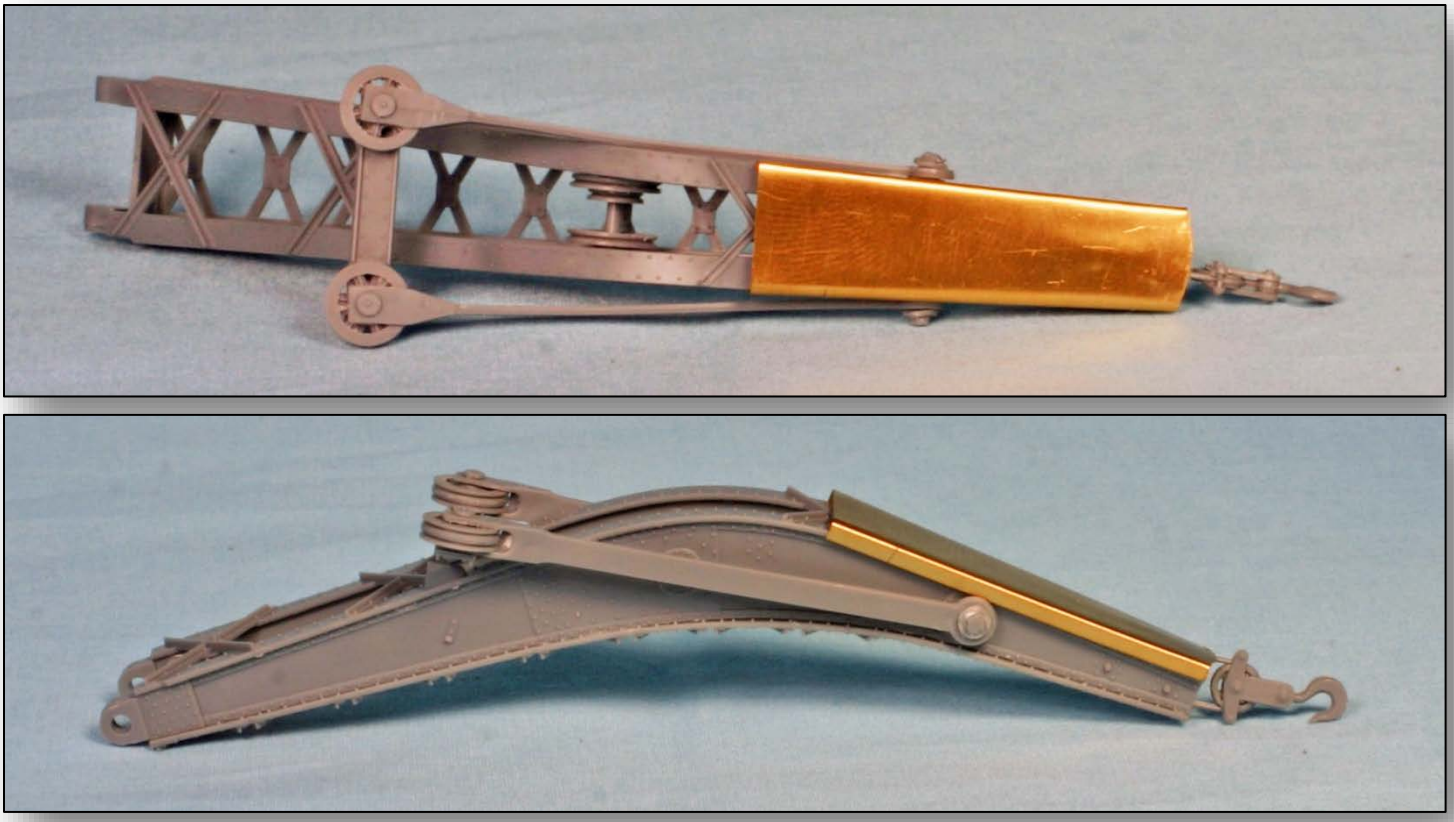
John Hitzman of American Model Builders/Laserkit is a Pennsy fan and created the classic PRR style 5-hole block for the end of the main hoist as a laser cut series of parts. I assembled that part and added it to the boom according to the kit's directions. After the boom was assembled, the sheaves did not turn well. To polish the bearing surfaces, I smeared some toothpaste all over them and rotated them repeatedly. After a few minutes of this, I washed off the toothpaste, and they moved easily and smoothly.

Derricks in electrified territory had the additional problem of dealing with catenary. While the catenary would be de-energized where the derrick was working, the wires above remained a hazard and could be snagged and further damage done, if the operators were not careful. To assist this a protective sheet metal "hood" was installed on the top of the end of the boom. I fashioned one for my derrick from a sheet of 0.010" brass sheet, cutting it to the length of the upper boom and about 0.020" wider on each side. The sides were bent over, and the hood was glued to the boom with ACC.



▲ Left side view of the inner workings of the derrick showing the turbogenerator, work lights and handrail, was well as the excellent details of the model. ▼ Right side view of the inner workings of the derrick showing the handrail and work lights.





Top down and side views of the catenary hood installed on the boom.

PAINTING AND FINISHING

Once assembly of the model subunits was finished, I grit blasted them with baking soda to provide a clean surface for paint. The model assemblies were then washed and when completely dried, I painted them with a spray can of Model Master Acryl® flat black. After several light coats, I applied a coat of Future floor finish, to generate a gloss surface for decals. I used the Mount Vernon Shops decal set for this derrick, settling the decals with Solvaset, and then coating them with Model Master clear flat. I painted the cylinder heads, piston rods, and exhaust pipes with a weathered silver. The exhausts were weathered with a light coat of burnt umber to represent rust and soot. The faces of the lights were given a coat of bright silver. Once the parts were all painted, including the wheels, I assembled the derrick and then rigged it with the provided thread, according to Tichy's directions. You can pull the thread through a block of wax to make it easier to use. I added some crushed real coal to the coal bunker. A final weathering of tarnished black on the roof to slightly lighten it and a dry brushing of grey on the walkways to imitate wear on these parts gave the look of a working piece of equipment. As a final note, the 120-ton wrecking derrick is available in N-scale from Tichy as well.

The derrick, assembled, painted, decaled, weathered and ready to go to work.