The Keystone Modeler

Pennsylvania Railroad Technical & Historical Society

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Inside:

The Keystone Modeler
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NUMBER 111 **WINTER 2020**

CONTENTS

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FRONT COVER

(Top) Chuck Cover's HO-scale PRR G29D gondola kitbash. *(Chuck Cover photo)*

(Middle) The new Rapido HO-scale PRR ALCo RS-11 (AS-18m) diesel locomotive. *(Tim Garner photo)*

(Bottom) Broadway Limited Imports' new "flat pilot" HO-scale GG1 locomotive in the broad stripe paint scheme. Note the optional corner step grabs. *(Tim Garner photo)*

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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Back in the early days of *TKM,* Al Buchan and Jack Consoli suggested a category of information called "Landscapes of the PRR" which could be presented as articles in our publication. There have been a few submissions along those lines, but it has been a long time since anything new has been received.

It would be great to have articles about the geography surrounding the PRR. Fills, bridges, and tunnels were all required by the landscape through which the railroad was built. Even today, when Norfolk Southern has taken over the old PRR lines, the geography hasn't changed. Even contemporary photos, along with (possibly) period photos, would remind us of the physical challenges that the PRR dealt with.

I would also like to see how Pennsy modelers have incorporated some of these things into their layouts. I was impressed with John Johnson's layout, especially his scratch-built structures and how they were presented in the context of the area he modeled: Driftwood, Pennsylvania and the Sinnemahoning Creek.

In the winter edition of *TKM*, we bring you two reviews by Tim Garner. He looks at the new Broadway Limited GG1 and Rapido's RS-11. For those of you who appreciate well-done kitbashing, we have Chuck Cover's G29D gondola.

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:

Richard C. Price
779 Irvin Hill Road
McVeytown, PA 17051

PRR Product News

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

PRR EF-22 (EMD GP30) Diesel Locomotive – N Scale

(Atlas artwork)

With a January 25 shipping date for the container, **Atlas** is expecting their Phase 2 GP30 to be available in stores later in the first quarter of 2020. The model in the **Atlas** Gold series has ESU DCC and sound. Silver series models will also be available. Three road numbers will be offered.

PRR AF-15 (ALCo FA1 / FB1) Diesel Locomotive—N Scale

(Atlas artwork)

Atlas has closed the guaranteed pre-orders for this popular model. It is in production and scheduled to leave the manufacturing country in the second quarter of 2020. Both Gold and Silver series models will be available.

PRR AS-16 (ALCo RS3) Diesel Road Switcher—HO Scale

(Atlas artwork)

The **Atlas** RS3 is expected to ship from its manufacturing country during the first quarter of 2020. There will be both Silver (DC) and Gold (DC/DCC/Sound by Loksound) versions. Several road numbers are expected.

PRR FS-16m (FM H16-44) Diesel Road Switcher—HO Scale

(Atlas artwork)

The **Atlas** Fairbanks Morse FM16-44 also is expected to ship from its manufacturing country during the first quarter of 2020. There will be both Silver (DC) and Gold (DC/ DCC/ Sound by Loksound) versions. Several road numbers are expected.

PRR GF-28a (GE U28C) Diesel Locomotive—HO Scale

(Atlas artwork)

Atlas has announced plans to produce the General Electric U28C. Models are planned to ship from their manufacturing country in the third quarter of 2020.

PRR 8-1-2 Heavyweight Pullman—HO Scale

(Atlas artwork)

Atlas continues to bring the former Branchline Pullman sleepers to production. The 8 Section-1 Drawing Room-2 Compartment car in postwar PRR colors is planned to ship from its manufacturing country during the 2nd Quarter of 2020. Car names CENTFAUN and CENTHILL are expected.

PRR AS-24m (ALCo RSD15) Diesel Road Switcher—O Scale

(Atlas artwork)

The ALCo RSD15 is coming from **Atlas** in O scale. It will be available in 2 rail DC, 2 rail Gold (with sound), 3-rail, and 3-

rail with Trainmaster Command control. Models are expected to ship from their manufacturing country in the second quarter of 2020.

PRR G30 War Emergency Gondola—O Scale

(Atlas photo)

Atlas is planning this 52'-6" gondola with several road numbers. It is planned to leave its manufacturing country in the third quarter of 2020.

BROADWAY LIMITED IMPORTS
http://www.broadway-limited.com/
PRR EF-15 and EF-15a A and B (EMD F3 and F7, A and B) Diesel Freight Locomotives—N Scale

(BLI PRR F3 photo)

BLI is bringing out more F3's and F7's. Both A and B units again will be available, powered with the Paragon3 system. The company says both the F3 and F7 are now expected in late February 2020.

GHB INTERNATIONAL
http://www.ghbintl.com/
PRR DD1 Electric Locomotive—HO Scale

(GHB chassis assembly line photo)

The DD-1 project from **GHB** is moving along in the production phase. Reservations are still open. The photo shows chassis on the assembly line.

KATO USA INC.
http://www.katousa.com/
PRR GG1 Electric Locomotive—N Scale

(Kato photo)

Kato will have available in January 2020 both Tuscan red and Brunswick green versions of the GG1. This release will be "DCC friendly." A follow-on release in February will have DCC decoders installed.

PRR EP-22 (EMD E8) Passenger Diesel—N Scale

(Kato photo)

In February of this year **Kato** will have Tuscan red E8 models. They will be available as "DCC friendly." In March two additional versions which are DCC installed and Loksound-equipped will be offered. Models are correctly modeled with straight "passenger" pilot, single headlight, and no dynamic brakes.

PRR *Broadway Limited* Passenger Train—N Scale

(Kato photo)

Kato will have for sale in January a ten-car "Starter Set" made up of cars which were used on the *Broadway Limited*. A four car "add-on" set will also be available. In February both sets

will be available with pre-installed interior lighting. See the web site for complete listings of the cars in the sets.

MICRO-TRAINS LINE
https://www.micro-trains.com/
PRR BM70KA Baggage-Mail Car—N Scale

(Micro-Trains photo)

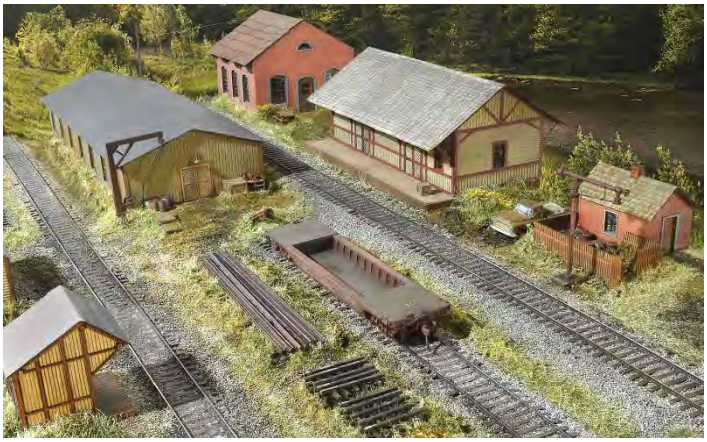
Micro-Trains has released a model which is fairly close to the class BM70KA single baggage door variant, although the number used on the car is not from that class. It is painted and lettered in the late keystone scheme.

PRR B70A Scenery Car—N Scale

(Micro-Trains photo)

Another car fairly close to a PRR prototype, this **Micro-Trains** baggage car will pass as a B70A if the lack of an end door is overlooked. Also lettered in the late keystone scheme.

SCIENTIFIC MODELS INC.
https://www.micromark.com/model-kits-main/scientific-brand/custitem_mm_brand/Scientific-Models-Inc
PRR Standard Trackside Set—HO Scale



(Micro-Mark photo)

After reading Jack Consoli's product review of the Scientific Models Trackside Shelter in the Spring 2019 issue of *TKM*, I didn't give this brand another thought until seeing the scene gracing the cover of the latest catalog from Micro-Mark. All five of the structures in this set are PRR prototypes and very useful. The structures are also available separately.

Upcoming Events

March 13-14, 2020 Plymouth, Minnesota
Railroad Modeler's Retreat
http://designbuildop.hansmanns.org/wp-content/uploads/2019/12/2020_ModelersRetreat_MN.pdf

March 26-29, 2020 Malvern, Pennsylvania
Railroad Prototype Modelers Valley Forge
http://www.rpmvalleyforge.com/

March 27-28, 2020 Savannah, Georgia
Prototype Modelers' Meet
http://www.savannahrpm.com/

April 5, 2020 San Bernardino, California
Western Prototype Modelers Meet
https://ppw-aline.com/pages/so-cal-meet

April 30-May 2, 2020 Marion, Ohio
Central Ohio Railroad Prototype Modelers Meet
Contact dblake7@columbus.rr.com for more details

May 2, 2020 Portland, Oregon
Bridgetown Railroad Prototype Modelers Meet
https://www.brpmm.com/

May 13-16, 2020 State College, Pennsylvania
PRRT&HS Annual Meeting
http://www.prrths.com/conventions/PRR_Annual.html

May 29-30, 2020 Farmington, Connecticut
New England/Northeast Railroad Prototype Modelers Meet
http://nerpm.org/index.html

Advance Planning

July 12 -18, 2020 St. Louis, Missouri
NMRA National Convention and National Train Show
http://www.gateway2020.org/

July 31-August 1, 2020
St. Louis Railroad Prototype Modelers Meet
http://www.icgdecals.com/stlrpm/

Model Review: Broadway Limited Imports' HO-Scale GG1 Electric

By Tim Garner – photos by the author unless noted

BLI's new GG1 from new tooling offers several improvements over their original 2003 model and features the "flat" fixed-coupler pilot of the first 57 production engines. This is one of two engine numbers offered by BLI with the original Raymond Loewy-designed gold leaf 5-stripe and Futura lettering scheme.

Back in the Summer 2014 *TKM* (No. 89), I reviewed the then new Bachmann GG1 – a good quality, relatively inexpensive model with DCC/sound, still on the market here and there for under $100. Now we have BLI back in the market after a long hiatus. Its new offering improves on both their original 2003 model and MTH's model based on the original BLI tooling.

As I said in my prior review, there has been no shortage of GG1 models on the market over the years. Lionel first issued an O-tinplate model in 1947. (Incredibly, Hallmark sold a limited-edition HO-sized non-operating replica of the Lionel model in their "Great American Railway series in a plastic display case in 1998 which can be had on eBay from $25 to $80). The long list of HO-scale mass-produced models includes Penn Line (Varney, Life-Like), Rivarossi (AHM), Tyco (sort of GG1-inspired at best), Pemco/Mehano/IHC, BLI, MTH, Märklin/Trix, and Bachmann. Brass models have been imported by Lambert, Precision, and Key. Bachmann produced an O-scale GG1 for some time as part of its Williams line. There have been models in S and N. The museum quality, limited-run, No.1-gauge Fine Art Models version was a standout (Google "Fine Art Models GG1" images to see).

A Brief History of the GG1

The P5A, the locomotive PRR expected to pull passenger trains on its newly electrified New York to Philadelphia main line, caused damage to track and itself at speed due to suspension design problems and quill drives that only engaged one drive wheel of each set. Tests at Claymont, Delaware showed a New Haven EP3a box-cab (2-C+C-2) was much easier on track than the P5.

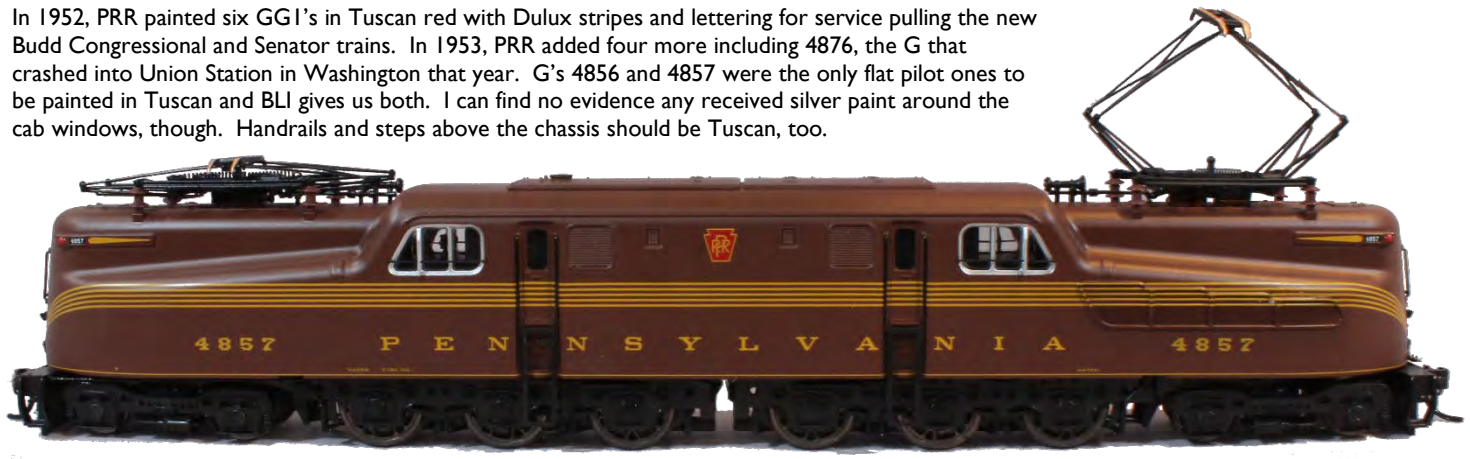
Impressed, the PRR ordered prototype GG1 #4899 with the same 2-C-C-2 wheel arrangement as the EP3a (which in PRR locomotive classification would be like two G-class 4-6-0 locomotives back to back) and R1 #4800 (2-D-2) which looked like a P5A modified with an extra drive axle and smaller drive wheels. Both were delivered in August 1934. The G was the best on track and was approved for fleet production.

The PRR ordered the first 57 in 1934 produced jointly by General Electric, Westinghouse, Baldwin, Altoona or some combination of those players. The first 58 (4800 to 4857) had 90 mph gearing and flat pilots. Additional GG1 locomotives were delivered each year from 1937 to 1943 expanding the fleet to 139. The last 81 units (4858 to 4938) had 100 mph gearing and drop coupler pilots. All were wildly successful at hauling long trains of heavyweight passenger cars at speeds up to 100 mph.

Side view of #4813 in the original Raymond Loewy paint scheme. This was the standard from 1935 to 1941. It features dark green locomotive enamel (DGLE), genuine gold leaf stripes and Futura letters and numbers. There is a red line around the cab windows and the side and nose keystones contain the unit number.

PRR switched to this scheme in 1941, but still in gold leaf which is also offered by BLI in two-unit numbers. The main difference is a return to the old standard Craw Clarendon lettering style and placing the PRR monogram on the sides. In 1952, gold leaf began to be replaced with Dupont "Dulux" paint. BLI has two units in this scheme.

In 1952, PRR painted six GG1's in Tuscan red with Dulux stripes and lettering for service pulling the new Budd Congressional and Senator trains. In 1953, PRR added four more including 4876, the G that crashed into Union Station in Washington that year. G's 4856 and 4857 were the only flat pilot ones to be painted in Tuscan and BLI gives us both. I can find no evidence any received silver paint around the cab windows, though. Handrails and steps above the chassis should be Tuscan, too.



To freshen up its image, PRR introduced the 8" broad stripe, large keystone scheme on DGLE in March 1955. BLI gives us two numbers in this scheme as well. PRR also painted 4907 and 4917 in Tuscan versions of this scheme and 4866, 4872, and 4880 in silver versions. All five of those units had the drop coupler pilot so they would not be appropriate on this body version. All five were repainted to dark green before moving onto Penn Central.

This model has two features never offered on a mass-produced G. On the large vent, the sheet metal support for the 8" stripe is modeled, and four corner pilot grabs are included for optional use. Note the flat-front fixed-coupler pilot.

All BLI's five-stripe versions have another first. The four narrow sheet metal strips that carry the bottom four stripes across the vent are modeled. On the prototype, this was done to make the stripes appear continuous across the side of the locomotive body. All previous mass-production GG1 models have the stripe printed directly on the vent ruining the intended effect. The marker light should not protrude beyond the housing and is painted too bright for a light that should be off.

The first engine, renumbered #4800, had a riveted body and later acquired the nickname "Old Rivets" over the years. Industrial designer Raymond Loewy was hired to improve the looks of the production models. He designed a more streamlined appearance using a welded skin and the now classic five-stripe paint scheme with Futura lettering in gold leaf on dark green locomotive enamel.

The GG1 would go on to serve the PRR in electrified territory, hauling passengers and freight, until the end of the railroad. It did the same for Penn Central. Amtrak would ultimately own 40 GG1 locomotives – one of which (#4935) was restored to PRR colors while in Amtrak service. Conrail would use them on freight until it ultimately ceased electrified freight service in 1983. The final chapter was written by 13 hauling commuter trains for the New Jersey Department of Transportation with 4877 being repainted in the short-lived Tuscan red 5-stripe scheme. Examples of the most successful electric locomotive ever built ended up at museums across the US including two – the riveted 4800 and the welded 4935 – at the Railroad Museum of Pennsylvania in Strasburg.

THE MODEL

In 2003, the BLI GG1 set the standard for quality, detail, and features. There were some inaccuracies in that initial product which I'll cover later in the review. At the time, this tooling was owned by Korea Brass/MKT. Eventually, that locomotive went out of production. As part of a legal settlement between MTH and Korea Brass/MKT over patent infringement, this tooling was transferred to MTH. MTH brought the locomotive back into production in 2011 with some additional features and mechanical changes. It had a list price of $469.95 and a "street price" of around $380.

BLI announced a GG1 from new tooling in their 2016-2017 product guide. It was delivered in December 2020. That catalog listed many reissues of earlier PRR models and several new models. PRR models that have been delivered since included the J1 2-10-4, L1s 2-8-2, Baldwin Shark, EMD SW7 and NW2 diesel switchers (the NW2 modeled is the one "phase" PRR never owned), P5A boxcab electric, P70 coaches, and K7 stock cars with sound. Not yet delivered, but due in 2020 are a streamlined K4s, EMD Phase IIa F3, and the EMD Phase 1 F7. Subsequent deliveries that were not in that catalog included the K4s 4-6-2, both as-delivered and modified versions of the T1 4-4-4-4 duplex, dark green EMD E7 diesels, and a late 1960's scheme EMD E8.

For the G in the product guide, BLI advertised a few features. Some were delivered and some were not. Ones that made it to production were all new tooling, flat pilots with fixed couplers "in this run," Paragon 3 sound and Rolling Thunder, factory installed engineer figure, die cast body and chassis, and two Kadee® or compatible couplers. Not making it were motorized dual pantograph deployment, factory installed fireman figure.

Even with the few items they did not deliver on, I believe BLI's new GG1 is another winner. The flat pilot (technically slightly curved) is the most unusual feature and common to the first 57 production GG1's. In mass-produced HO models, only the Märklin/Trix model had the flat-front pilot. However, the BLI has the Trix model beat in terms of accuracy, power, and decoder. Trix used number 4935, a preserved drop-coupler G, on their flat pilot model.

BLI gave the new GG1 a list price of $399.99. Trainworld sells it for $284.99. Trainworld is taking backorders for an N-scale version for $219.99.

Here are the HO versions available:

Item No.	Unit Number	Description
4684	4813	DGLE, brown roof, gold leaf 5-stripes and Futura lettering
4685	4840	DGLE, brown roof, gold leaf 5-stripes and Futura lettering
4686	4802	DGLE, gold leaf 5-stripes and Roman (Craw Clarendon) lettering
4687	4825	DGLE, gold leaf 5-stripes and Roman (Craw Clarendon) lettering
4688	4801	DGLE, buff 5-stripes and Roman (Craw Clarendon) lettering
4689	4816	DGLE, buff 5-stripes and Roman (Craw Clarendon) lettering
4690	4807	DGLE, buff broad stripe and Roman lettering
4691	4821	DGLE, buff broad stripe and Roman lettering
4692	4856	Tuscan, buff 5-stripes and Roman (Craw Clarendon) lettering
4693	4857	Tuscan, buff 5-stripes and Roman (Craw Clarendon) lettering
4694	4824	Penn Central
4695	4845	Penn Central
4696	n/a	DGLE unlettered
4697	n/a	Tuscan unlettered

The stripes and the dark green are rendered much better on BLI's newest offering on the right. However, neither of these schemes should have the nose-mounted MU hoses and the forward-facing marker lights are missing on both as well.

In looking back at the original BLI model, the MTH model, and the new BLI, here is a quick rundown of the differences:

Feature	Original BLI	MTH Reissue	New BLI
Body	Diecast	Diecast	Diecast with detail improvements
Drive	Two motors, 6 wheels driven	One motor 6 wheels driven	Two motors, 6 wheels driven
Speakers	2 round near middle of frame	2 round at ends of frame	2 round near middle of frame
Decoder	QSI	MTH Proto Sound 3.0	BLI Quantum 3 with Rolling Thunder
Lighting	Headlights	Headlights, numberboards, and markers	Headlights
Pantographs	Heavy cast components	Heavy cast components, raised and lowered by solenoids and DCC command	More delicate design with longer pantograph shoes
Painting base color	Dark green too green, Tuscan too light	Green darker, but still looks too green. Tuscan looks better	Green is darker, but still looks too green compared to most prototype photos. Tuscan looks better, but is more of a weathered color than new
Striping	Used gold for 5-stripe schemes on green and Tuscan. Buff is accurate for Tuscan and for most of the service life on green. Stripes appear too narrow.	Used gold on green 5-stripe schemes, but Buff on Tuscan.	Futura is gold, Tuscan and wide-stripe are buff, and green 5-stripe available in gold and buff. Width of stripes and spacing looks more accurate.
Nose side vents	Same all models	Same all models	Different for 5-stripe and wide stripe schemes with support for the stripes
Corner step grabs	None	None	Included, optional
Couplers	Choice of scale dummy coupler mounted too low or Kadee compatible in an extended off-set holder.	Delivered with Kadee-compatible in front at correct height and a DCC controlled electric coupler at the rear. This can be replaced with a Kadee-compatible.	Metal Kadee #5 compatible couplers at front and rear, correct height.

ACCURACY

The body and chassis of the model are excellent representations of the first 57 production GG1 locomotives. The key spotting feature is the flat (slightly curved) pilot with a fixed coupler.

Nose – The contours and height of the nose appear right. On the prototype, there is a crease in the skin 1'-6" above the bottom of the body at the nose. That represents the top edge of the body's foundation frame. Viewed from the side, the crease continues from the tip of the nose to even with the bolster of the unpowered trucks on each end. On the new BLI model, the crease is the correct height, as well defined as the prototype, and appears to be the right length. The definition is an improvement over the original model and is better than all other HO models I've seen.

The BLI model has separately applied handrails and safety chains along with three MU hoses at the base of the nose. Looking at scores of photographs, the earliest dated image I've seen with these hoses is 1959. I've not come across more than one image with the hoses on a five-stripe G. If you are modeling anything earlier than 1960, I would suggest removing this detail from each end, filling the two holes, and touching up the paint.

As built, all the G's had a single large headlight at each end. In the 1960's, this was changed to twin headlights, one above the other, within the same space. Supposedly this was to ensure there would be at least one headlight on if a bulb went out. BLI modeled the single headlight for all versions. The broad stripe version would have had the double headlight for the later part of its life and Penn Central version its entire life. A single light is correct for the other versions offered.

Body Side – The side details of the new model are equal to the original BLI with two important improvements mentioned later. As on the original model, the forward and reverse-facing marker lights are missing. The side-facing marker lights are painted red on the model and bulge out from the body more than the prototype. Since these lights were almost never lit on a G, it would have been more appropriate to paint the lenses dark maroon or black. There is beading around the louvered vents next to the side doors that did not exist on the prototype. The angled post between the side and forward windows is too wide. These are errors carried over from the original BLI body casting.

The original BLI model had two safety rails over each cab side window as all G's appeared to have when they were built. Photos indicate the top rail was removed in the mid-to-late 1940's. The new BLI model includes just the bottom safety rail. This is not correct for the Futura-lettered models but is correct for most of the life of the dark green and gold 5-stripe scheme and the entire lives of the other schemes offered. The window glass is clear and flush fitting. It has windshield wipers as separate pieces. It would be more prototypical to model the engineman's side window in an open position.

A stand out improvement is BLI's treatment of the large vent in the side of each nose. On the prototype five-stripe versions, there was a thin piece of sheet metal across the vent mesh for each of the bottom four stripes. This made the stripe visually continuous across the body. BLI modeled the metal strips on this version – an improvement over their original model and something never modeled in a mass-produced GG1. When PRR introduced the broad stripe scheme, they replaced the narrow metal strips with a single wider piece of metal to carry the stripe. BLI is the first to model this feature as well. BLI appears to have either made separate body dies for each vent version or can change the feature within the die before casting. The vents are not separate parts. However, the Futura-lettered version should have had a third version with a smooth edge around the vent and no gutter. At some early point, PRR added the gutter presumably to reduce rain water entering the vents.

As built, the sandbox doors on the upper middle part of the body were angled in at the top. It appears that PRR changed to a flush-fitting design in the early-to-mid 1950's. BLI modeled the newer flush fitting sandbox doors on the car side as on its earlier release. Flush is correct for the later paint schemes and wrong for the earlier ones.

Roof and Pantographs – BLI did a nice job. The pantograph frame and insulators are just as detailed as on the original model, but moving parts are thinner and more delicate-looking. The shoes are longer, and the upward spring pressure is lighter. That's good news for modelers who operate with pantographs in contact with catenary. The pantographs don't extend as high above the body as on the prototype. The safety lettering on the side of the pantograph frames has been omitted. The stack for the steam generator is improved with an actual opening rather than a solid disk shape.

Pilot and Running Gear – The contour for the flat pilot is excellent. The cut lever is in the right place, grab irons below the electrical receptacles are cast in, and the steam connection, brake hose, and communication hose are separately applied parts. The glad hands on the hoses and steam connection, and the trim strip on the bottom of the pilot are painted silver on all versions. In practice, the silver on the trim strip was only prominent in the early years of service when there was labor to keep it clean. For most years of GG1 service, the entire pilot tended to be covered with grime with no silver visible.

BLI is the first to provide grab irons for the top of the pilot steps. They are made from black flexible plastic. They have one pin and a short locating "bump" on the bottom that fit into pairs of holes on the top of each side of the pilot. If you have difficulty getting one in, turn it around and try it above the opposite pilot step. Cement is required to hold them in place. Unless you have extremely wide curves, I would recommend leaving them off to prevent interference with the chassis swing.

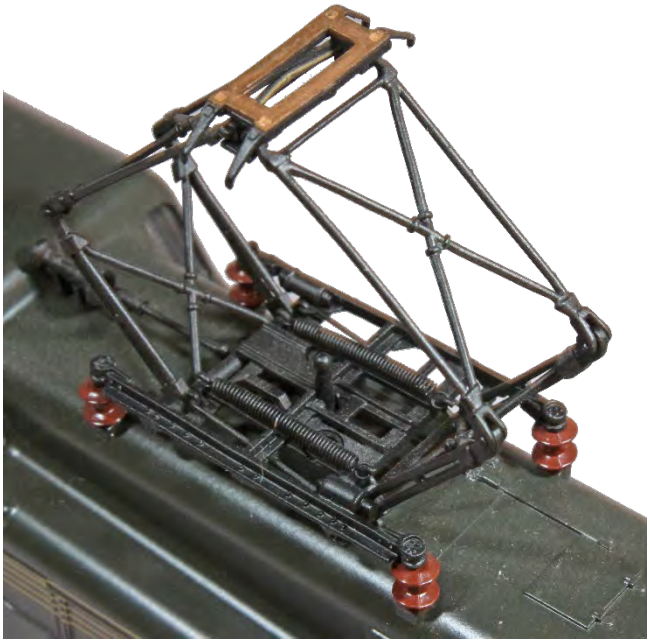
The accuracy of the builder's and trust plates was a big surprise. GG1 #4801 was built by General Electric in May of 1935 and that's what the builder's plate says. The trust plate says:

PENNSYLVANIA RAILROAD
EQUIPMENT TRUST SERIES F
FIDELITY-PHILADELPHIA TRUST CO.
TRUSTEE. OWNER AND LESSOR

GG1 #4857 was built by Altoona in June of 1935 and the builder's plate agrees. The same equipment trust plate is applied.

GG1 #4821 was built at Altoona in May 1935 and has the appropriate builder's plate. The equipment trust was likely retired by the time this paint scheme appeared, so the trust plate is gone.

BLI has the best chassis detailing. The brake rigging is modeled along with some of the brake and sander piping. The side frames are tight to the wheels with brake shoes aligned with the wheel treads. The most surprising new detail is locomotive-specific builder's and trust plates on the model frames. I purchased several of the G's and the builder's plates vary based on who built the prototype for that unit. The plates are correct for General Electric or Altoona Works when compared to a prototype roster. The model may or may not have a trust plate depending on whether the trust was still in effect when that G wore that paint scheme. The plates are legible with magnification.



The pantographs on BLI's new engines (left) are more flexible, have thinner components, longer contact shoes, and lighter upward spring pressure than their older models (right). That's good news for modelers who want their pantographs to contact the catenary. There is no provision for drawing power from the catenary with the new models.

GG1 #4876 above is right out of the shop in 1953 after rebuilding from the *Federal* wreck in March. Note there is no silver around the windows and the steps and railings above the chassis are Tuscan and not black. Although BLI's Tuscan color is better than in the past, it looks brown instead of red. Notice also the corner diagonal windshield post is too wide compared to the prototype. *(Prototype photo, David R. Sweetland)*

Painting and Lettering – Painting is much improved over BLI's earlier effort. The dark green locomotive enamel, while still a bit too green in my view, is much better. The stripes are the correct width, correctly spaced, and are much more accurate where they converge at the base of the nose. The lettering is the correct style for each scheme. The buff color for the five and broad stripe versions look good. While the gold versions look good, the gold is not as bright as gold leaf would be. Foil printing is probably the only process to do lettering this size and like gold leaf on the prototype, would not hold up. PRR covered it with five coats of varnish and it still chipped off. PRR ceased using gold leaf on locomotives and passenger cars in 1952 replacing it with Dupont's "Dulux" – a non-metallic pale yellow synthetic designed to look like reflected gold. For each scheme, the lettering for FUEL OIL, WATER, and the keystones looks sharp and correct. Unlike its earlier offerings, BLI correctly included the fine red stripe around each cab side window on the three dark green 5-stripe schemes. Handrails and ladders on the body are black, but should be the color of the body – dark green or Tuscan as appropriate.

One thing not as good as the original models is the transition from the side stripes to the nose stripes. The new models have a visible transition which looks like when two decals overlap for one or two millimeters. The stripes are continuous with no visible "seam" on the old run.

In January of 1952, PRR began painting GG1's 4908 to 4913 in Tuscan with five stripes to haul the new Budd *Congressional* and *Senator* trains. In 1953, PRR applied the same scheme to 4876 after the Union Station wreck, 4856, 4857, and 4929 – ten total. Only 4856 and 4857 had flat pilots. BLI has given us both. The Tuscan color and Dulux stripes are more correct than their first offering. Inexplicably, BLI painted the window frames on the two Tuscan models silver. I have seen no photographic evidence this was ever done on the prototype.

Operation and Sound

The model has a die cast chassis and body. All six drive axles are powered with one can motor for each set of drivers. Each motor has one brass flywheel. The model weighs 1 lb. 11¼ oz. The prior offering weighs 1 lb. 15⅝ oz. while the Trix version weighs 2 lbs. 2⅞ oz., but with two fewer sets of drivers powered. The PRR's electrified lines were not known for heavy grades (except in the New York tunnels), so this model should do okay on most flat layouts with free-rolling cars. Prototypical-length brass trains will be a problem unless the rolling qualities of the equipment can be improved. There is no room in the shell for extra weight.

All wheels pick up power and the mechanism runs quietly. The wheels follow the NMRA RP25 profile. The models have black metal magnetic couplers identical to Kadee 5's mounted at the correct height. They can easily be replaced with "scale" couplers with a similar shank. The draft gear has built-in plastic centering springs, so couplers with built-in springs like Kadee "whisker" versions will not fit.

The directional headlights are LED. The numberboards and cab are not lighted. There is no provision to draw power from the pantographs.

As with all current BLI locomotives, the G may be operated with straight DC or DCC. In DC operation, a BLI DC Master Analog Control Module (BLI #1011) is required to control sounds. The manual indicates the locomotive sound will begin functioning at around 7 volts in DC mode. All versions I purchased have a default forward direction that matches the end marked "F" and the direction the engineman is facing.

Operation in DCC (Digital Command Control) provides significantly more features and options. The default function keys for the model are:

Key No.	Description
F0	Front Light/Rear Light
F1	Diesel Bell
F2	Diesel Horn
F3	Coupler Slack. (Couple when moving)
F4	Compressor. (Electric arc sounds when moving)
F5	Ramp Traction Motors Up
F6	Ramp Traction Motors Down
F7	Pantograph Up/Down Sounds
F8	Volume/Mute
F9	Startup/Shutdown
F10	Cooling Fans
F11	Air Filling/Air Release
F12	Brake Set/Brake Release/Squeal
F13	Grade Crossing Horn
F14	Passenger Announcements
F15	Freight Announcements
F16	Maintenance Related Radio Chatter
F17	Radio Related Radio Chatter
F18	City Related Radio Chatter
F19	City Related Radio Chatter
F20	Industrial Background Sounds
F21	Lumber Background Sounds
F22	Toggle Primary and Secondary Horn
F23	Track Sounds
F24	Not Used
F25	Long Horn
F26	Play Recorded Macro
F27	Macro Recorder Start/Stop
F28	Brake Squeal

By default, the motion of the model is synchronized with the sounds. After you select (address) the model with your DCC throttle, sound will start up as soon as you press F9 for the start-up sequence or as soon as you advance the throttle. The default is *throttle-based control* where each throttle movement will make noise the traction motors are making sound

faster or slower by one level for each "notch" in your throttle wheel.

In *manual control*, using F5 to increase and F6 to decrease, will change the traction motor sound regardless of the model's speed, movement, throttle setting, or load.

Load-based control is turned off by default but can be turned on by setting CV-246 to 128. BLI indicates more information on controlling rev levels online at: https://www.broadway-limited.com/support/manuals/Revs%20Explained.pdf.

Also, by default, the sound is set very loud (though not as loud as the factory default on the P5A). To reduce it to a level in keeping with my other models, I set CV-133 to 30 or 40 (128 is the max).

There are four functions related to horns. F2 is the basic horn and stays on while you hold the function key down. The default horn on my model sounds like a Leslie A-200 – a single chime honker correct for a GG1. It trails off at the end with a little echo or reverb. F22 allows you to toggle with an alternate horn. The alternate horn is a slightly higher pitch single chime horn with little reverb. F13 and F25 both do the "long – long – short – long" grade crossing warning. F13 uses shorter tones and F25 uses longer tones.

The F9 startup/shutdown sequence includes several sounds you might expect to hear as a hostler prepares the engine for a run. You'll hear footsteps on the ballast, doors open and close, the pantograph go up, and blowers come on. Press it again and you'll hear everything shut down.

F23 turns on track sounds – a clickety-clack noise. This sound isn't very realistic and does not vary much with the speed of the locomotive. Tsunami2 decoders have a similar function tied to speed that permits you to program the number of axles that would cross the rail joint close together. Unfortunately for the Tsunami2, this sound is default on. Most modelers I know that have experienced it will turn it off as quickly as possible. At least it is off by default on the BLI GG1.

The eight announcement, radio chatter, and background sound functions are not something I would use.

BLI Paragon3 engines also can record and play macros – F27 and F26. This allows you to record the operation of the locomotive through a cycle, then have the locomotive replay that cycle. This essentially permits the engine to run on autopilot for whatever number of cycles you program or until you shut off the macro. I've never used this feature and don't see an instance where I would want to.

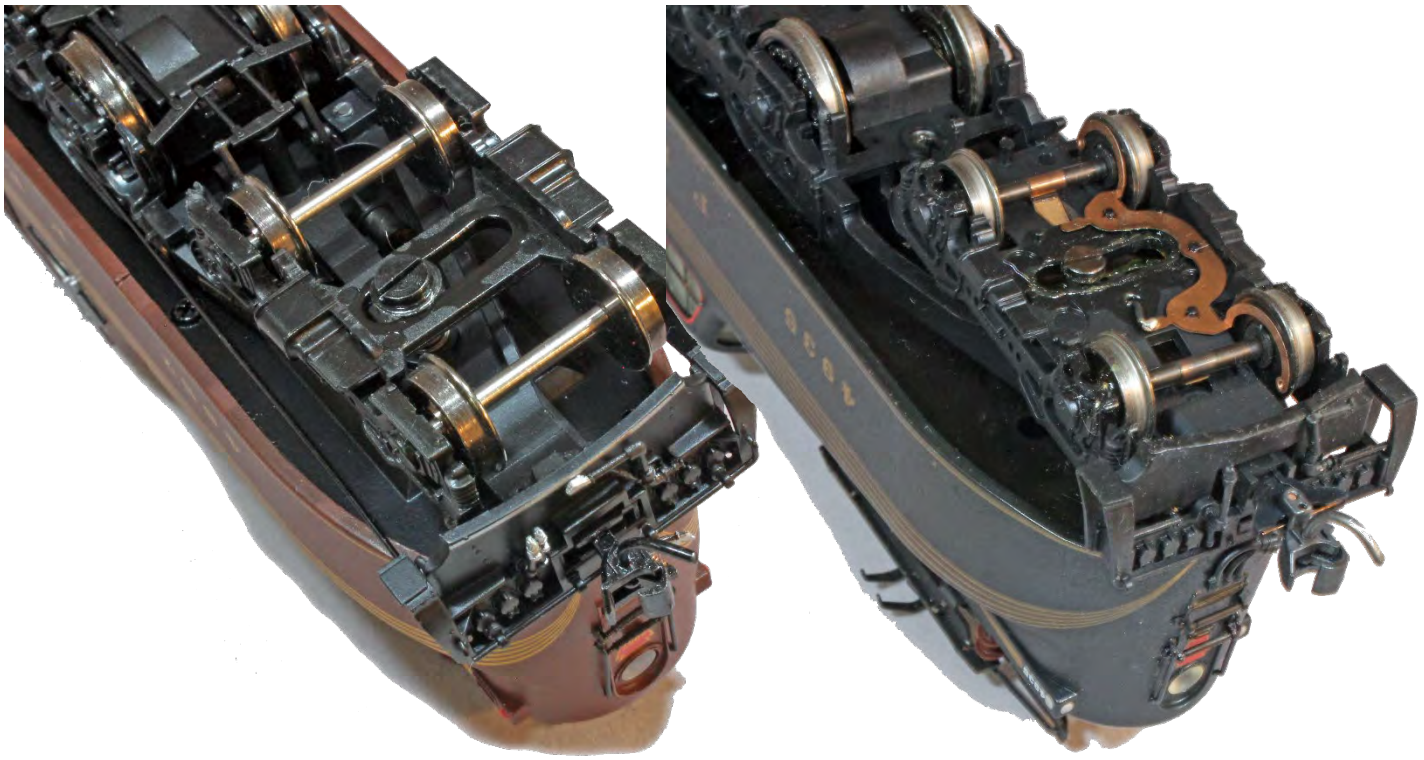
As with all BLI Paragon 3 locomotives, the new G's are equipped with *Rolling Thunder*. This is a system that broadcasts sound signals to an optional receiver and speaker cabinet. The objective is to reproduce bass sounds that a typical model locomotive speaker cannot. On these locomotives, there is a small transmitter with a wire antenna plugged into the decoder inside the body. The locomotive must be within range of an active receiver (typically placed near the track). The receiver is connected by a cable with RCA plugs to a large speaker cabinet. The system can only receive the signal from one locomotive at a time which is a challenge if you have more than one BLI locomotive in the area. The sound fades in and out as the locomotive moves near and away from the receiver. To cover a large layout, you would need multiple speakers, each with its own receiver. You can connect your own speaker to a receiver if you prefer.

I have to say the effect with the new GG1 is a bit bizarre. The added bass makes it sound like a tractor trailer is heading up the street outside my house. Compared to diesels, G's were quiet, which allowed them to sneak up on you if you were not paying attention. Having spent many hours trackside as GG1's rushed by I couldn't hear anything but the horn at a distance. As they got close, the whine of the gears, the rushing wheels and trucks, and multiple wheels hitting the rail joints were the dominant sounds.

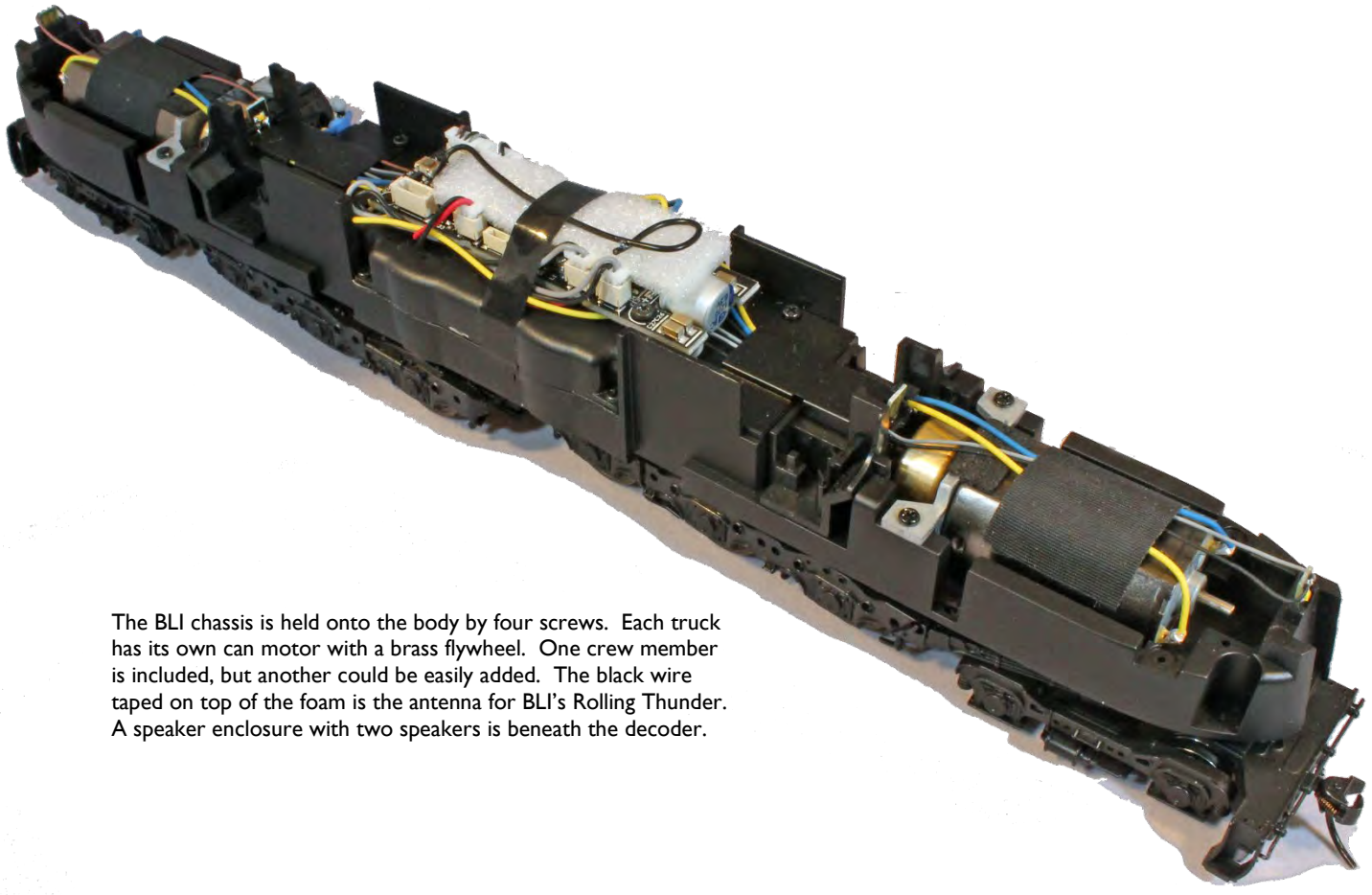
I had no difficulty consisting two G's using advanced consisting on an NCE DCC system. However, unlike other decoders, the BLI decoder does not automatically turn off the headlight of all but the lead locomotive in the consist. I will need to research BLI documentation to see if there is a way to turn second unit headlights off. CV-231 does control dimming headlights so maybe this could make it less visible.

YOUR CHOICE

Despite a few shortcomings, I'd say BLI's new GG1 is as close to perfect as any mass-produced HO G has ever come. Some build-date and paint-scheme specific details have never been produced before. If the G's sell well, there's a good chance BLI will eventually offer updated drop-coupler versions as well.



The HO GG1 produced by Trix/Märklin (right) was the only mass-produced model with the flat pilot until the new BLI model (left). On the Trix model, the pilot is attached to the unpowered trucks instead of the frame as on the prototype. Although the Trix model is heavier than the BLI model, only four of the six drive axles are powered. The default functions to control the Trix decoder don't follow US conventions.



The BLI chassis is held onto the body by four screws. Each truck has its own can motor with a brass flywheel. One crew member is included, but another could be easily added. The black wire taped on top of the foam is the antenna for BLI's Rolling Thunder. A speaker enclosure with two speakers is beneath the decoder.

▲ BLI has more accurately rendered the exhaust for the steam generator as compared to earlier efforts.

◀ The broad stripe version displays the classic look from the 1955 to the rise of Penn Central. Changing to a "scale" coupler is easy.

Model Review – Rapido PRR AS-18m in HO Scale
The ALCo RS-11 (DL-701) Freight Road Units

by Tim Garner - Photos by the author unless noted

The new Rapido PRR RS-11 comes loaded with PRR specific details for the earlier Trainphone-equipped units and the later units without.

What's Available

Rapido has many options for fans of PRR RS-11's (and related RS-11's of Lehigh Valley, Penn Central, and Conrail), all available with DCC/sound or DC silent:

Roadname and No.	Notes
PRR 8617	With Trainphone
PRR 8620	With Trainphone
PRR 8623	With Trainphone
PRR 8625	With Trainphone
PRR 8647	
PRR 8651	
PRR 8652	
PRR 8654	
Lehigh Valley 8641	Leased PRR unit
Lehigh Valley 8642	Leased PRR unit
Lehigh Valley 8644	Leased PRR unit
Lehigh Valley 8648	Leased PRR unit
Penn Central 7650	Ex-PRR, Red and White PC
Penn Central 7618	Ex-PRR
Penn Central 7623	Ex-PRR
Penn Central 7661	Ex-New Haven
Penn Central 7667	Ex-New Haven
Penn Central 7671	Ex-New Haven
Conrail 7638	CR Black, Ex-PRR
Conrail 7647	CR Black, Ex-PRR
Conrail 7630	CR Blue, Ex-PRR
Conrail 7644	CR Blue, Ex-PRR
Conrail 7651	CR Blue, Ex-PRR
Conrail 7652	CR Blue, Ex-PRR

Other roads are available including New Haven (six numbers). List is $335 for sound and $225 for silent DC. At Trainworld, they are offered at $274.99 and $184.99 respectively.

What's in the Box

The Rapido PRR RS-11 comes in an orange and black box with a color photo of New Haven RS-11 #1409 on the top. Thanks to Rapido's Canadian address, the box label and manuals are in both English and French.

In the box you'll find an operator's manual with the cover simulating a prototype ALCO manual, an exploded-view drawing for the PRR version, and an advertising sheet for White River Productions. For shipping, the model is protected by a four-sided clear vacuum-formed carrier which is slid inside a stiff plastic sleeve. This is surrounded by dark gray urethane foam. The locomotive has pieces of soft foam on the walkways to prevent the handrails from being bent in

during shipment. Unfortunately, the foam isn't quite wide enough to be effective. On mine, the end handrails were bent inwards and the side rails were not straight.

A small heat-sealed parts bag contains a simulated metal and canvas window shades, an alternate horn, an exhaust stack extension, and a firecracker antenna. PRR prototype photos show both types of shades being used with canvas more prevalent in the 1950's and metal in the mid-to-late 1960's.

If you own a Rapido locomotive or car, you know they take their detail very seriously, but not themselves. Their manuals are fun to read. The manual includes prototype history, break-in instructions, holding instructions (they recommend holding by the fuel tank and not the hood since the hood is detachable), instructions for checking and adjusting the model, how to address missing or damaged parts, and removing the shell. A list of the optional detail parts is provided with installation instructions, but only parts appropriate for the prototype are included.

Operating instructions for the DCC/sound version and the DC/silent version are provided. The sound version includes an ESU LokSound V5 decoder with "full throttle functionality". Rapido claims all their sound decoders are recorded with the prime mover under load to ensure it sounds like it is working. A full manual is available online from the ESU website: http://www.esu.eu/en/downloads/instruction-manuals/digital-decoders/

PROTOTYPE BACKGROUND

By the mid-1950's, PRR's dieselization program was in full swing. The road had developed a fondness for the reliability and power of EMD's 1750 hp GP9 road switchers. Through 1955, PRR had purchased 105 units. The company wanted more, but demand from multiple customers prevented EMD from satisfying everyone fast enough.

To try and finish off steam, PRR turned to ALCo, the distant second largest diesel builder, for more units. In August 1956, ALCo shipped PRR nine 1800 hp RS-11 road switchers numbered 8617 to 8625. They were supposed to be an improvement over the company's 1600 hp RS-3. The RS-11 had the new 251-series prime mover which was meant to be an improvement over the troubled 244-series, but ALCo's new engine also had inadequate turbochargers and weak crankshafts.

PRR classified the engines AS-18m for **A**LCo, **S**witcher, **18**00 hp, **m**ultiple unit equipped. The first two orders, comprising units 8617 to 8635, were equipped with Trainphone. The rest, as with the final order of GP9's, were delivered without. All PRR RS-11's had multiple unit control, cab signals, dynamic brakes, and a brake pressure maintaining feature. The PRR units were fitted with a wire mesh over the radiator louvers to prevent injuries when they opened and closed. It appears that this was installed at the factory, but sometimes left off after maintenance. Many of the PRR RS-3's received similar guards.

PRR RS-11 #8617 was the first unit received. These units operated long-hood forward. Note the protective screen over the louvers near the front of the hood and the canvas sunshade. This unit and an ALCo RS3 are in Hagerstown, Maryland on July 11, 1959. *(William D. Volkmer photo)*

▲ RS-11's #8625 and 8634 are in Phillipsburg, New Jersey on September 24, 1961. They saw regular service on the Bel-Del Branch. Note the metal sunshades. ▼ Here is #8628 in Northumberland, Pennsylvania on July 6, 1964. It has a canvas sunshade at this point. *(Both photos, William D. Volkmer)*

Here is unit #8652 in Hagerstown, Maryland on July 11, 1959. Units 8626 to 8654 were delivered without Trainphone. Note the lack of the equipment box ahead of the cab along the long hood on this version. *(William D. Volkmer photo)*

Although it had higher horsepower than the RS-3, the RS-11 was lighter – from three to nine tons lighter depending on the PRR RS-3's options. As you might expect, higher horsepower and lower weight makes a locomotive more slippery. Enginemen preferred RS-3's to RS-11's if trains were heavy or grades were steep.

In 1957, PRR ordered 155 more GP9's from EMD while only 29 more RS-11's from ALCo –orders of ten, six, and a final order of thirteen. The RS-11's were shipped in small batches through the year – eight in February, two in May, eleven in November, and six in December. These were numbered 8626 to 8654. The final GP9 and RS-11 deliveries put an end to the remaining freight steamers on the eastern lines with the final run in November that year.

In service, the RS-11's initially could be seen in road service alongside the GP9's. When their shortcomings became known, they were moved into secondary and local service. *Pennsy Diesels 1924-1968* (Ken Douglas and Peter Weiglin, Hundman Publishing, ©2002) describes some of their assignments during the PRR years on pages 153-154.

In 1964, PRR leased six RS-11's (8640, 8641, 8642, 8643, 8644, and 8648) to subsidiary Lehigh Valley after first upgrading them to 2000 hp at Juniata. PRR never made that change to the ones they kept. They were reclassified AS-20m, retained their PRR numbers, and were painted and lettered for Lehigh Valley in Cornell red with yellow lettering and stripe. They stayed on the LV roster until the Conrail merger April 1, 1976.

In 1966, PRR renumbered the RS-11 fleet from 8617-8654 to 7617-7654 and reclassified them to ARS-18 (**A**LCo **R**oad **S**witcher **18**00 horsepower). This was likely in preparation for the planned Penn Central merger. On most the number was painted over on the cab sides and replaced with a large number. Very few had "PENNSYLVANIA" painted out and keystone decals applied to the ends and both sides of the short and long hoods. The units leased to LV were part of the renumbering and received new class ARS-20.

All the RS-11's were in operation at the time of the Penn Central merger. Only one was retired by PC. Conrail retired the rest between January 1977 and March 1981.

Model Detail Review

Thanks to road-specific parts, the first impression is that this is the most accurate PRR version of the RS-11 ever produced.

Both sides of the model. Note the wealth of free-standing details.

Rapido lists the following features for the model:

- Correct hood and roof profiles 3D scanned from the prototype
- Operating number boards, headlights, green and white class lights, and cab control stand lighting
- Metal handrails with plastic stanchions
- Roadname-specific details including steps, lights, equipment boxes, handrails, fuel tanks, air intake louvers, and more
- Full underbody piping, conduits, and steam lines where appropriate
- Correct roadname-specific corner steps
- Separate grab irons and wire handrails installed at the factory
- Die-cast chassis, full multi-color cab interior
- 5-pole skew wound motor with dual flywheels and "silky-smooth" drive
- DC/silent (21-pin DCC ready) or DC/DCC/Sound (ESU LokSound)
- Accurate sounds recorded from a real Alco 251B prime mover
- Factory-installed Macdonald-Cartier (metal) couplers mounted at the correct height

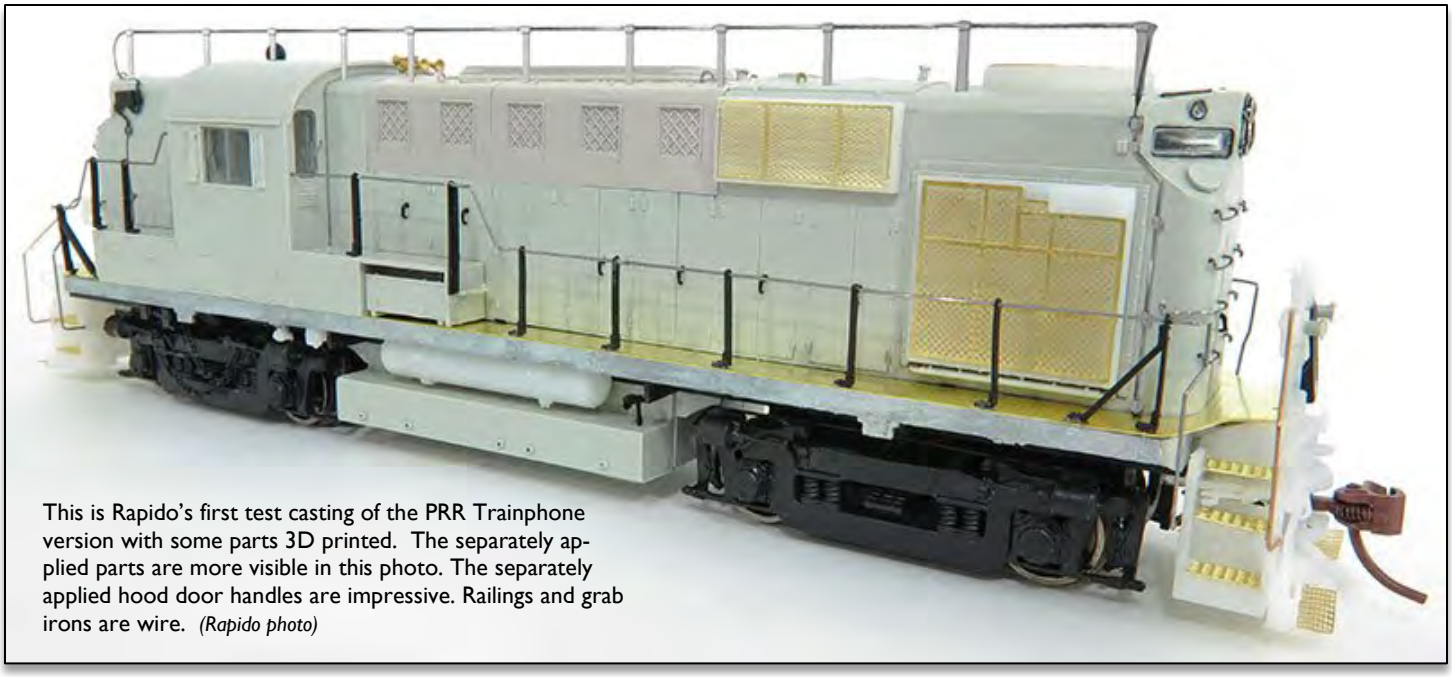
The scale dimensions of the model closely match the prototype:

- Truck wheelbase – 9′-4″
- Unit wheelbase – 40′-4″
- Truck centers – 31′-0″
- Cab width – 9′-11″
- Height from rail to top of body – 14′-6″

Since Rapido created their model geometry from a 3D scan of a real locomotive it is likely the body contours are closer to prototype than any of us can measure.

The Hood

The detailing is excellent and closely matches photographs of the PRR version when new. The version I purchased is equipped with Trainphone equipment. The antenna and supports appear to be metal which makes this detail more durable and easier to repair than when rendered in plastic. The bases of the supports are not modeled. The conduits and cabling at each end of the hood capture the curves and details of the prototype. Rapido has included the mesh guard over the radiator louvers on both sides – a detail unique to the PRR. The piece is made of etched brass. Unfortunately, the holes are too small to allow the louvers to be seen as on the prototype.



This is Rapido's first test casting of the PRR Trainphone version with some parts 3D printed. The separately applied parts are more visible in this photo. The separately applied hood door handles are impressive. Railings and grab irons are wire. *(Rapido photo)*

Wire grabs with bolt detail are in all the appropriate spots. Lift rings are on the roof and free-standing handles are on the engine room doors. The horn is a metal casting which appears to be a Nathan M3 with all bells facing forward. The parts bag includes an alternate three-chime horn with the small bell facing to the rear.

The notches on the upper corners of each hood are nicely rendered, each with a sand filler hatch with the hinge toward the center of the hood as on the prototype. The numberboards are lighted with the proper PRR lettering style.

The edges of the cab side windows are correctly edged in silver to represent aluminum frames. They are non-operating. There are clear plastic wind deflectors on either side of the windows which easily break off if touched. The end windows all have windshield wipers.

The inside of the cab is modeled in detail. The dials on the control stand light up when you press F6 on the DCC version.

Handrails

The handrails around the unit are made of wire with plastic stanchions. There are some issues with the handrails being straight up and down at the corners. It appears that the horizontal wire was cut slightly long or short which affects the alignment. This is repairable. The end railings have the correct assortment of mu receptacles and operating drop steps. The corner railings are painted yellow in the correct locations.

The PRR Trainphone version has an equipment box on the right walkway ahead of the cab. The handrail correctly rises above this feature. The spacing of the details of the equipment box don't match photos of the prototype, but the overall size appears to be okay. It isn't that noticeable.

Chassis

The walkway around the unit has nicely done safety tread which was rendered in etched brass and painted. The corner steps and pilot are etched metal and see-through. The pilots have plastic mu hoses, brake hose, cut lever, and yellow pilot grab at each end.

The trucks are well done with separate brake cylinders and brake lines. The rear truck has hanging brake chains on both sides as on the prototype. The profile of the fuel tank and air reservoirs match photos of PRR units. The only discrepancy I can spot is the model has a vertical pipe crossing the middle of the fuel tank on the right side that isn't on the PRR prototype. This could easily be cut off.

The factory-installed metal couplers are a virtual match for Kadee® 5 metal couplers, but they are painted a rusty brown. They can easily be swapped for other brands by removing a Phillips screw through the coupler cover plate.

Painting and Lettering

The painting and lettering of both PRR versions Rapido offers match the prototype as delivered. The body above the chassis is painted an excellent representation of dark green locomotive enamel. It requires a bright light to notice the difference between the green body and the black chassis. Lettering is sharp and accurately placed with no visible breaks over doors and details. Below the cab on both sides is a legible equipment trust plate which reads:

AMERICAN LOCOMOTIVE AND EQUIPMENT CORP.
OWNER AND LESSEE
GUARANTEE TRUST COMPANY OF NEW YORK
ESCROW AGENT AND ATTORNEY

Only on the right side next to the trust plate is an Alco builder's plate. Lettering for "Danger 600 Volts" and "Fire Extinguisher" are correctly sized and placed.

Operation

LokSound Select decoders are set with the sound off by default. This is done to help your layout room from being too noisy with most of your sound locomotive on at the same time. To start the locomotive, press F8 on your DCC throttle. You'll hear the sound of an Alco 251B prime mover starting up and idling. Once started, the sound will be on and the prime mover will be running if the locomotive is receiving track power. The start-up sequence is a neat effect but is problematic when more than one locomotive is running under advanced consisting – only the sound on the addressed unit comes on when you press F8. You can get around this by individually starting up each unit by number before rolling off or by programming each locomotive in the consist with the same long address (consisting the old-fashioned way). If there is another method, I could not find it in the full LokSound Select manual.

With the RS-11, Rapido changed their standard function mapping to make it more closely match decoders by other manufacturers. The available functions are these…

F0 Headlights – Turns on the headlight. The headlight is directional with the long hood forward which is correct. Since the prototype was delivered after daytime headlight use was mandated, the RS-11 should always be operated with the headlights on.

F1 Bell – Sounds as you might expect, but Rapido allows you to choose from three bell recordings with CV164.

F2 Horn – The horn toots as long as you hold down your horn button. The default horn is the Nathan P3 three-chime horn. The other horns which can be selected with CV163 are the Nathan M3H, Hancock air whistle, and Leslie RS-5RF. The horn casting on the PRR model appears to be a Nathan M3. Unfortunately the Nathan M3H has a distinctly Canadian sound and not the familiar a straight PRR M3 sound. I kept the Nathan P3 on my model. Changing the standard horn on F2 will also change the Doppler horn on F5.

F3 Flange Squeal – Press F3 when you start into a sharp curve or rough-looking track and F3 again when you leave it. Cool effect.

Close-up of the etched-brass louver guard and other separately-applied features.

F5 Doppler Horn – If you ever had a physics class in high school, you probably know about the Doppler-effect (which applies to several things besides sound). If a train is blowing its horn coming toward you, the sound will shift to a lower pitch as it passes. Pressing F5 plays a long-long-short-long crossing sequence with a doppler shift at the end. It sounds as if it was recorded live rather than digitally simulated.

F6 Control Stand Lights – This key turns the control stand lights on and off. Note that is it not mentioned in the manual but is mentioned on Rapido's online support page for the RS-11.

F7 Dim the Headlights – Allows you to dim the headlight in the face of opposing trains or coming into a station.

F8 Start-up/Mute/Shutdown – Previously described.

F9 Full Throttle – This is a cool feature. Press F9 and the speed of the locomotive will stay constant. When you adjust your throttle, the prime mover sound will speed up or slow down, so you can simulate the load it is under. You can have it all the way up pulling slowly up a mountain grade or idling coming down. Press F9 and the loco goes to wherever the throttle is set, so you may want to turn the throttle down some so the locomotive doesn't jump to life.

F10 Engine Brake – Rapido said they moved this to a lower function number because LokSound' s Drive Hold feature has made the brake more popular.

F11 Classification Lights – The lights at the corners of whichever end is forward rotate between white, off, green, off with each push of this key. They are of no use to a PRR modeler. Well before the RS-11 was produced, PRR had ceased using class lights and only used red marker lights. The red lights would only be on if it was night and only if the lit end of the locomotive was the back end of a train.

F12 Switching Mode – Turns on the headlights at both ends on dim which would be appropriate for switching in yards or terminals. Pushing F12 again restores normal headlight operation.

F16 Steam Generator – Isn't correct for the PRR locomotive but does apply to some roads.

F18 Ground lights – These lights are mounted on the underside of the frame below the cab on both sides and shine down on the ballast for the safety of train crew members walking around the locomotive. They are default on, but you can turn them off with F18. If you've ever watched a diesel pass at night, you've seen these lights. Rapido introduced this on their EMD SW1200RS in 2019 and it appears Scale Trains is doing it on their Rivet Counter EMD SD45.

F19 Number Board Lights – The number boards are on by default, but you can use F19 to turn them off.

F20 Spitter Valve – This sound is on by default as it would be whenever the locomotive is running and for a few minutes after shutdown, but F20 shuts it off.

The ends of the Rapido RS-11 are highly detailed. The drop steps can be moved up and down. The Kadee-compatible metal couplers are painted to simulate rusty metal.

This close-up shows the illuminated dials on the control stand inside the cab and the ground light below the cab shining on the truck and ballast (and that I knocked a wind deflector off).

I continue to be impressed with the sound quality of Rapido locomotives. The sound is crisp and realistic. As with most decoders, you can change the master volume of the unit as well as the individual volume of the prime mover, horn, bell, flange squeal, dynamic brake, steam generator, doppler horn, brake set and release, spitter valve, and brake squeal. Rapido does the best job with the sound level from the factory in my opinion. Every other brand I've purchase starts with the sound too loud. My volume preference is how I imagine it would sound if my viewing distance were in scale feet. Many modelers leave the sound so loud that every scale figure on their layouts would have blood streaming from their broken eardrums.

Rapido provides another interesting feature called *Automatic Motor Tuning*. It automatically adjusts the back-EMF and gives you exceptional slow speed performance. To turn it on, put your locomotive on your main line with plenty of room to run. Turn on program-on-the-main in Ops mode. Set CV 54 to 0, immediately get out of programming and turn on the bell (F1). The locomotive will take off at full speed and gradually slow down to a stop while the decoder reads the motor responses. You will have exceptional motor control after this. You'll also need to individually do it for any other units in your consist. If you do a factory reset, you'll need to repeat the procedure.

Rapido did report a problem with their Montreal Locomotive Works RS-18 which is a Canadian locomotive very similar to the American ALCo RS-11. Initial shipments were having issues with motor failures on the DCC version. Changes to three CV's eliminated 90% of the motor failures. This CV change was made to the RS-11 before delivery, but there could still be issues. Fortunately, Rapido stands behind their products and will fix any issues that pop up. If you choose to install an ESU LokPilot decoder, Rapido asks that you set the motor control values as follows: CV51 to 20, CV52 to 5, and CV54 to 25.

The manual includes instructions for getting inside the body to add a crew to the cab or add a decoder to the DC version. It requires removing the handrails, then removing the cab, the short hood, and the long hood in that order. The instructions are silent on how to get past Trainphone on the models so equipped.

At 14¼ ounces and all wheels powered, the model has decent pulling power. By comparison, the Athearn Genesis EMD GP9 – a model of the RS-11's primary prototype competition – weight 11⅛ ounces. There are no traction tires, but you typically don't see them on diesel models with all wheels driven. One should handle a short local train on layouts with modest grades. Two was more common on longer trains. Two or three will handle plenty of free-rolling cars on the typical layout with modest grades.

Conclusion

Overall, I would rate Rapido's models highly. They are the most prototypically correct HO PRR RS-11 produced to date.

This image shows the see-through safety tread on the footboards and pilot steps, and the etched-brass tread on the walkways.

Kitbashing a PRR G29D Gondola

By Chuck Cover – Photos by the author unless noted

Figure 1. G29D #349176 in Northumberland on my HO-scale Shamokin Branch layout.

Introduction

I have always admired the PRR's G29A and G29B and their rebuilt cousins the G29C and G29D 46' gondola cars. (Fig. 2) The G29A andG29B gondolas were basically "war emergency" composite cars. Five Hundred cars with 70-ton capacity and 500 with 50-ton capacity were built in 1942 to a new composite design of an outside steel frame and wood sheathing. The 70-ton cars were classified G29A and the 50-ton cars were classified G29B. Except for different trucks, the two car classes were indistinguishable. In 1948, all 1,000 gondolas were still composite cars. By 1953, 399 G29A and 408 G29B cars had been resheathed with steel and received new ends. The 70-ton cars were reclassified G29C and the 50-ton cars were reclassified G29D.[1]

The G29 class of gondolas was an interesting car in that the Pennsy extended the side sheets downward past the floor to form a much sturdier side sill that strengthened the car and kept it from sagging in the middle. With the composite G29's the bottom of the side trusses were open, and one could see the underbody of the car. One issue to consider in modeling the G29C and D properly is that one would need to have acceptable underbody detail. The second problem is that the construction of the sides, like USRA era designs, had a complicated series of riveted ribs and diagonal angles. These would be very difficult to build from scratch.

Sunshine made great resin kits for the G29A and B, however, there is not a commercial kit for the steel resheathed G29C and D. I have been patiently waiting for a kit of the G29C and D to be issued, so in order to make that happen, I have kitbashed the car. (Note that Sunshine Models has been out of business for several years. Unbuilt kits occasionally show up on Ebay.)

Elden Gatwood published a terrific article about the G29 gondolas in *TKM*[2] and he and Al Buchan have thoroughly covered them in the PRRT&HS publication, *Pennsylvania Railroad Gondolas*.[3]

Problem Solving

I have scratch built several welded gondola cars, G31D and G36C and kitbashed a couple of others, including a G31A from a Con-Cor kit and the G29 from a 50' Model Die Casting gondola.[4] To build the welded cars one can use mostly structural styrene and leave the underbody relatively undetailed as it cannot be seen when operating on the layout. The kitbashes of riveted gondolas using commercial gondola kits solves the problem of providing all the riveted components. The underframe is also supplied in the commercial kits which can be detailed to the kitbasher's standards.

Back in 2001, I purchased and built a Sunshine G29A/B Kit# 12.8. The kit came with three cast resin sides, which if the builder was careful, was one more than needed to build the kit. A few years ago, I was able to purchase a second G29A/B kit and so I had two extra sides which became the basis of this kitbash. (Fig. 3) The other major components are an Accurail 50' steel boxcar underframe, an Accurail 40' boxcar weight (sheet metal), and a set of Detail Associates GS gondola dreadnaught ends. The rest of the kitbash used commercial structural styrene and detail parts.

Figure 2. Prototype photo of G29D #349403 with the circle keystone lettering scheme taken in 1951. *(Photo by K.B. King Jr from the Dick Kuelbs collection. Photo used with permission from the* PRR Color Guide to Freight and Passenger Equipment, *David R Sweetland and Robert J Yanosey, ©1992, Morning Sun Books, Inc.)*

KITBASH

As with all resin kits, make sure that both sides of the Sunshine gondola kit are the same size. Doing it now will make everything go more smoothly. After taking care of the Sunshine sides, line up the Accurail 50' boxcar frame with the ribs on the Sunshine sides and cut the frame so that the bolsters, cross bearers and cross ties on the underframe match the vertical side ribs of the sides. (Fig. 4)

I always have trouble making square cuts on a wide surface, so I used the NWSL Chopper to cut through the Accurail underframe. (Fig. 5) Start with a new razor blade in the Chopper and press firmly. It is best to start on one end and work toward the center of the car. Make sure the bolsters line up with the first rib. I had to add a piece of strip styrene to the end of the underbody accomplish this. After the bolster is positioned, one must make a cut between each cross member to get the proper spacing. Once you get to the center, start from the other end and repeat the process. Since you have already done one side the second cuts will go more quickly. One needs to make about ten cuts to have the floor match the side stakes.

Touch up each cut square and reattach with styrene cement. Use the top side of the Accurail underbody, which has floor boards embossed, to help in sanding the pieces square. Be sure to use a straight edge to align the pieces of the frame so that it is square. You will be gluing bottoms of the two side components to the side of the underframe.

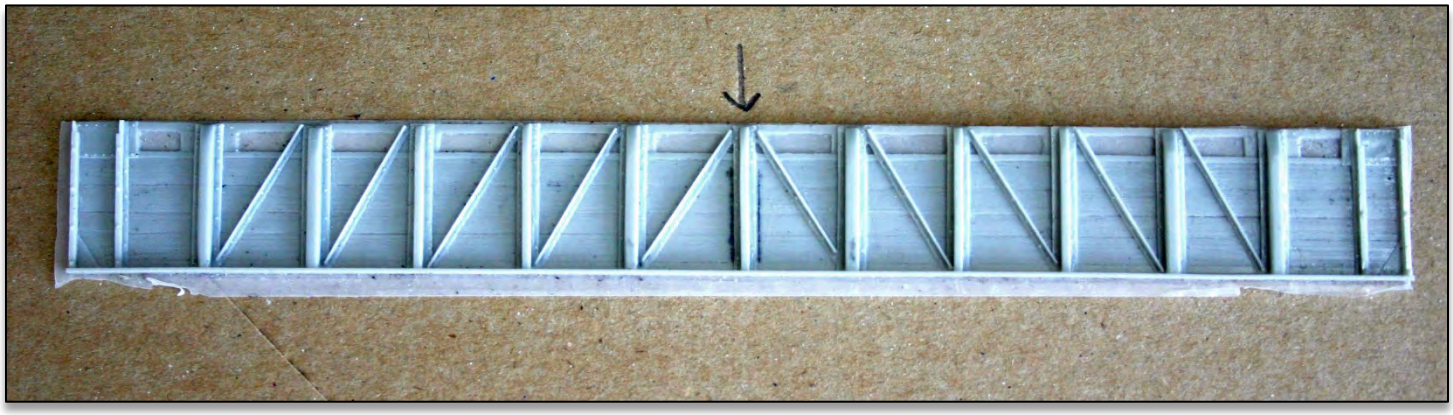


Figure 3. Extra Sunshine G29A/B side.

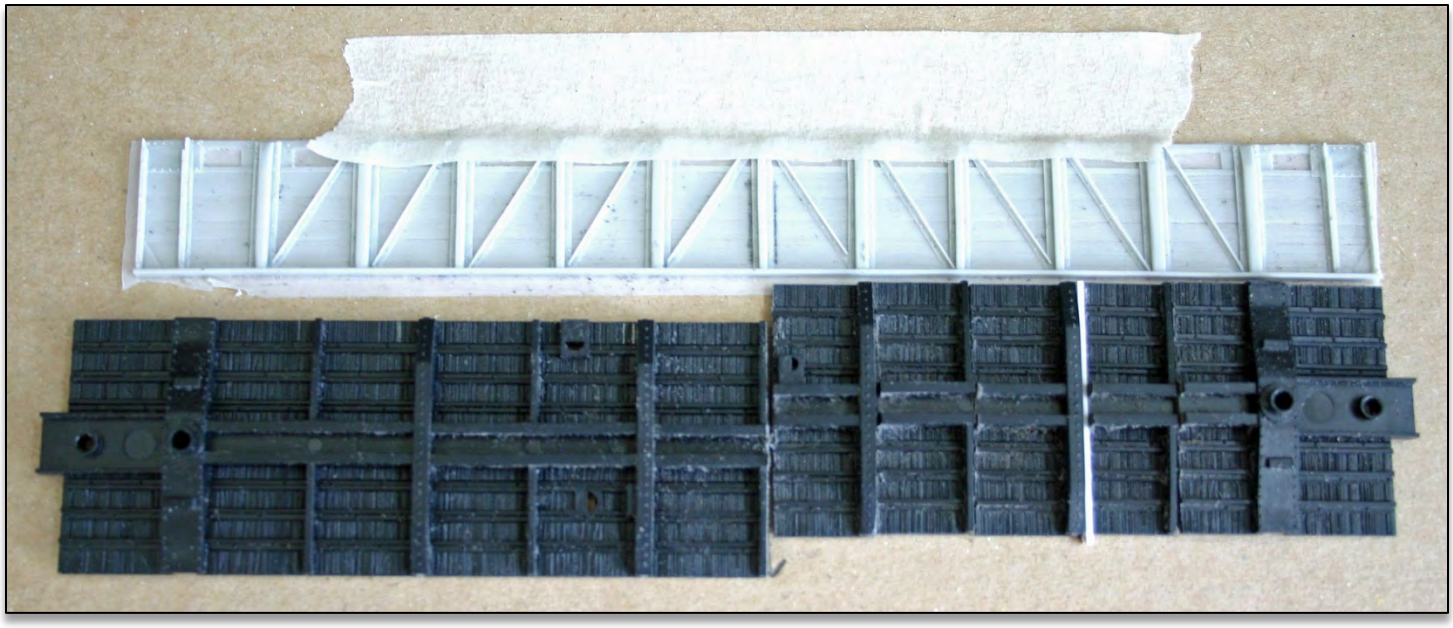


Figure 4. Accurail underframe being lined up with Sunshine side to match side stakes and underbody supports.

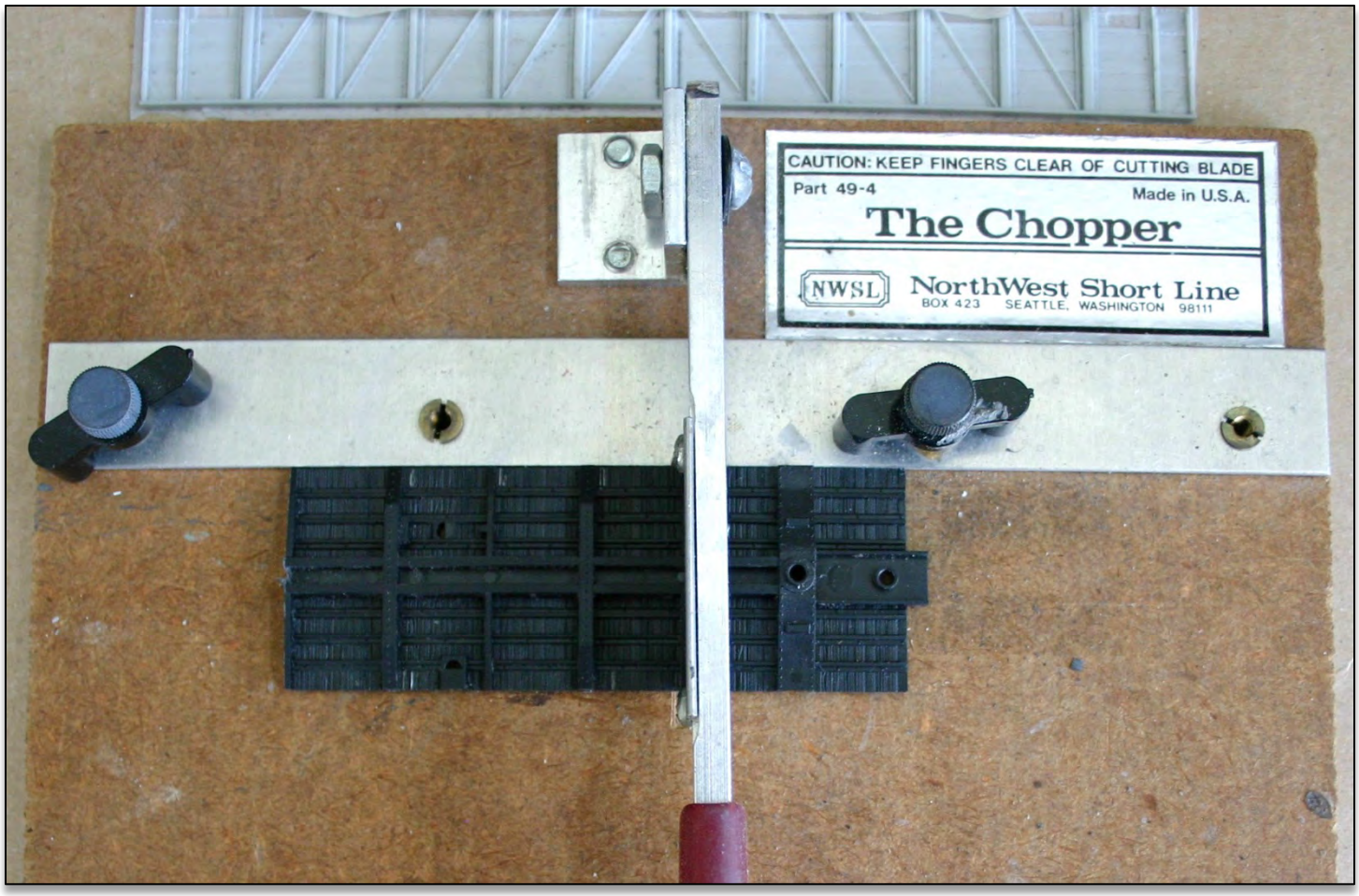


Figure 5. Making square cuts using the NWSL Chopper.

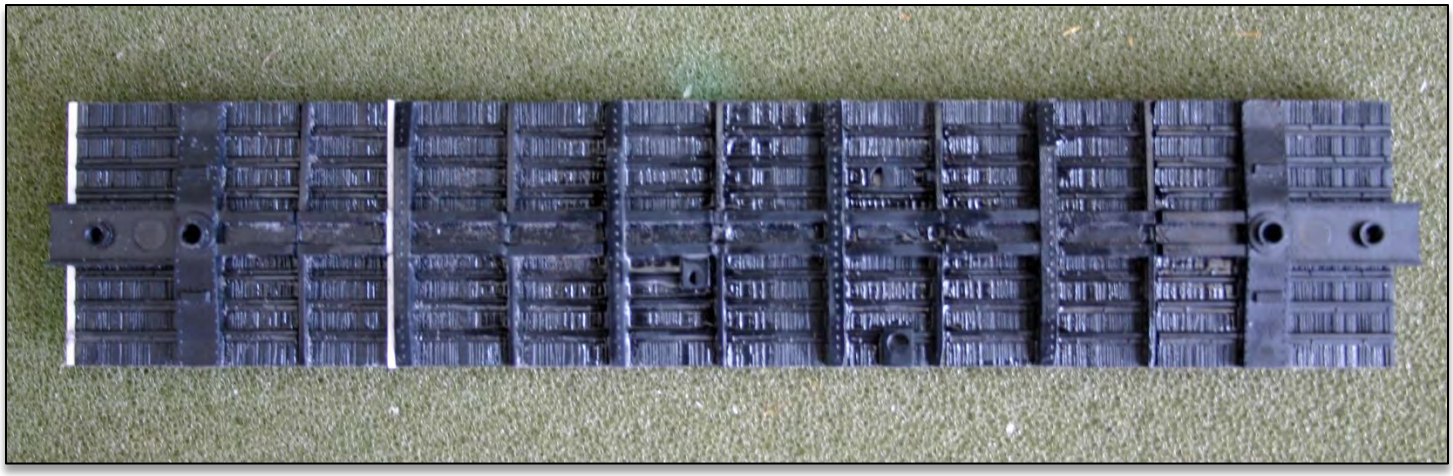


Figure 6. Underframe reattached after cuts made.

It is always better to cut long and have some room to sand smooth rather than cut too short. I did make that mistake, and you can see the extra piece of styrene that I added in the middle of the underframe. I also had to add some sheet styrene to each end to assure that the bolsters lined up with the first vertical rib. (Fig. 6) Once the underbody is finished and dry, glue the sheet metal weight to the top of the underframe. The Accurail weight weighs 1.65 oz. To assure that the wood floor, which will be glued to the weight, will sit flat, place appropriate pieces of structural styrene along the weight. This will give you a good base for the floor. (Fig. 7) Also add structural styrene along the sides of the under frame so that there will be ample contact surface to join the underframe and sides.

The Sunshine sides are thin castings so be careful with them. I did sand them a bit to make it easier to remove the very thin resin covering between the bottom of the car which forms an open frame below the level of the floor. Use a new X-Acto® #11 blade to remove the thin resin from the larger lower openings. For the very small openings a small drill bit is used to remove the thin resin. By the way, to clear out the thin resin from stake pockets on Funaro & Camerlengo flatcar kits, the drill is the way to go.

Once that is accomplished, use a new #17 flat scalpel blade to push through the resin "wood sides". Go carefully and be sure to spare the horizontal "metal" structural supports that are both at the top and bottom of each side panel. I broke through a few of these, on the right side of the car, but replaced them with some strip scale 1" x 3" styrene. Clean up the sides where material was removed as best you can, attempting to have smooth openings. Again, removing less, then sanding, is better than removing too much. (Fig. 8) Once this is complete, cut a sheet of 0.15" sheet styrene that will extend the length of each side. Line one long side up with the top cord of the side and measure just short of where the open frame would begin. The sheet styrene is then cut to size and fixed to the sides with ACC.

Find a piece of square lumber or metal to use as a guide that fits into the interior of the model between one side and the underframe. Line up the underframe and the side, just above the open frame and carefully secure the two parts using ACC. (Figs. 9, 10) Make sure that the sides and underbody are at 90 degrees and that the ends of both are properly aligned. You will be attaching the styrene "metal" side sheets with the styrene underframe so one could use styrene cement, however, I have seen the cement continue to work on the styrene and I did not want any warping with the thin side sheet to occur in the future, so I used ACC.

A length of scale 4" x 4" strip styrene is attached to the end of each side to serve as supports for the gondola end doors. (Fig. 10)

Figure 7. Sheet metal weight and strip styrene for wood floor base.

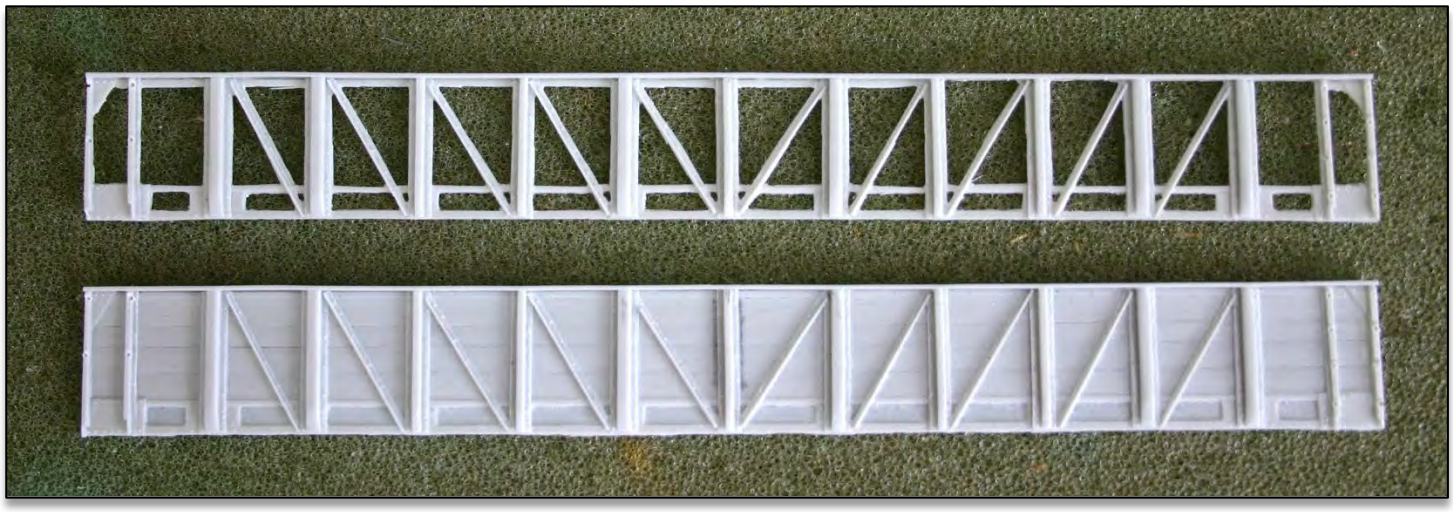


Figure 8. Sunshine sides with wood sheathing removed from one side.

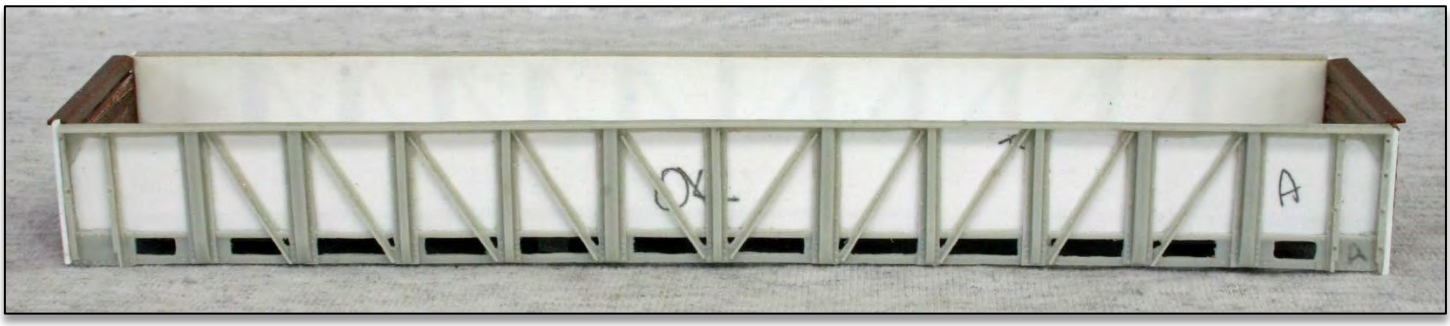
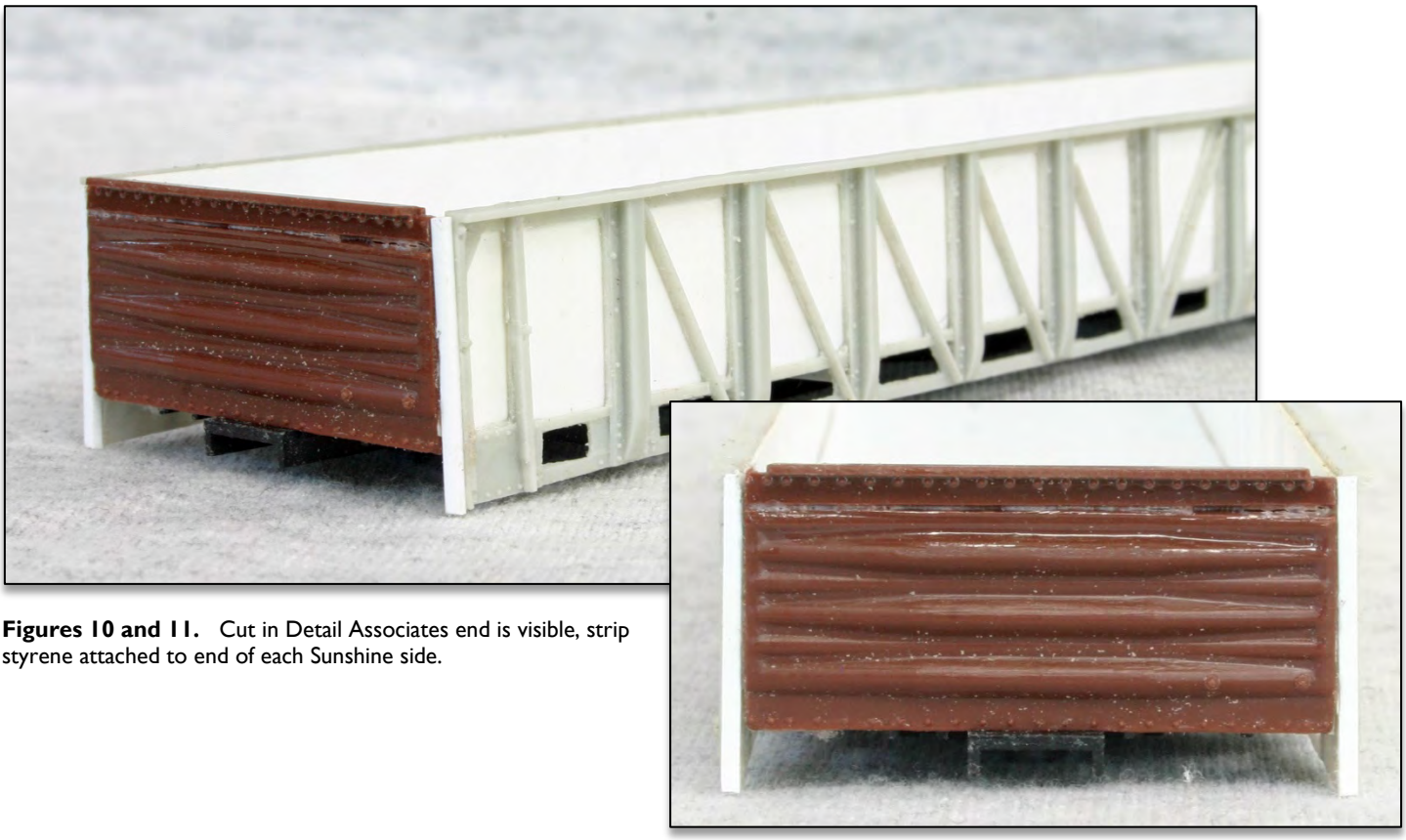


Figure 9. Sheet styrene attached to upper portion of Sunshine side.

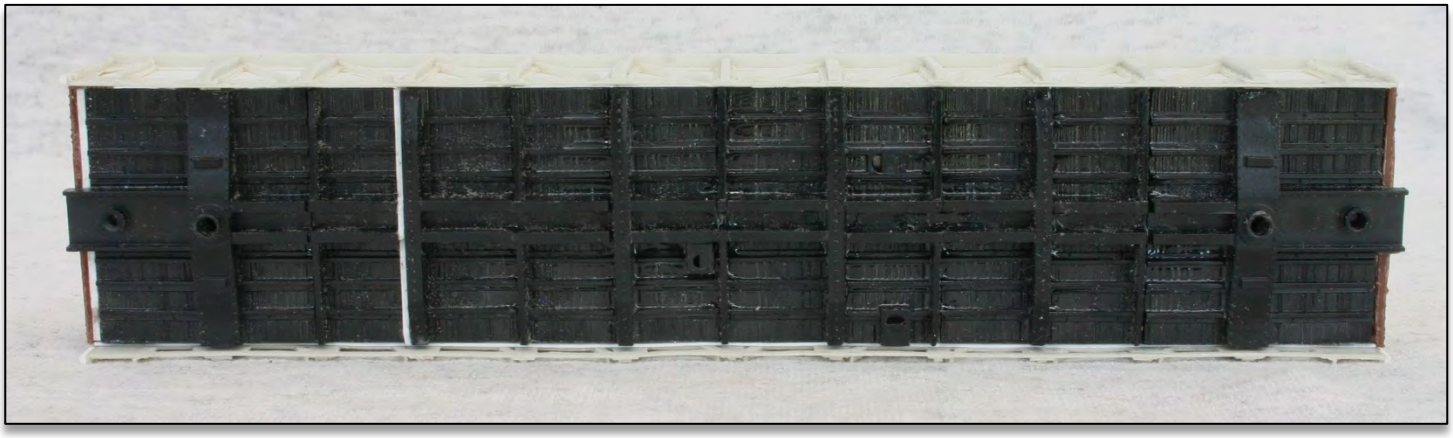


Figures 10 and 11. Cut in Detail Associates end is visible, strip styrene attached to end of each Sunshine side.

The Detail Associates GS gondola end has 4 ribs and is too tall for the G29D. Cut off the top rib, maintaining the lower three ribs and the top cord piece. Carefully sand the two remaining pieces and glue together with styrene cement. (Fig. 11) The final height can be measured by placing it on the end of the car so that the bottom sits on the top of the coupler pocket and the top cord is even with the top cord of the sides. I also sanded the ends a bit thinner so that the door fits snuggly between the sides. ACC the ends onto the car. You now have the basic body completed. (Figs. 12, 13)

The rest of the kitbash is basically adding details to the "one piece" body. Drill holes for the grab irons using photos in Elden and Al's gondola book as a guide. The sides all have individual straight grabs, while the ends have a ladder on the left and drop grabs. (Figs. 14-16) Glue a short piece of scale 6" x 8" strip styrene at the ends of each side and underframe to support the stirrup steps. Another small piece of strip styrene was fixed on the left side underbody of each end so that the uncoupling levers could be scratch built. Use Kadee® coupler pocket ears as poling pockets and fix to the stirrup step supports on both sides of each end. Add short pieces of trimmed-to-fit 1" x 8" strip styrene to the top of each end to extend the top rail and form the corner angles of the top cord. I chose not to detail the interior sides of the car, though you could add rivet decals to correspond to the locations where the rebuilt metal sides were attached to the side stakes.

I detailed the underbody as it is visible due to the open side frame below floor level. I used Tichy AB brake detail parts, and Detail Associates brass rod for the underbody and B-end details. The photo in the gondola book, page 83, shows an Equipco brake wheel on a G29B, so I used that on the B end. (Figs. 16, 17) The car was finished with Kadee #148 whisker couplers and Sunshine 2DF8 trucks. By using the 50-ton trucks, I had chosen the G29D to model.



Figures 12 and 13. Body completed.

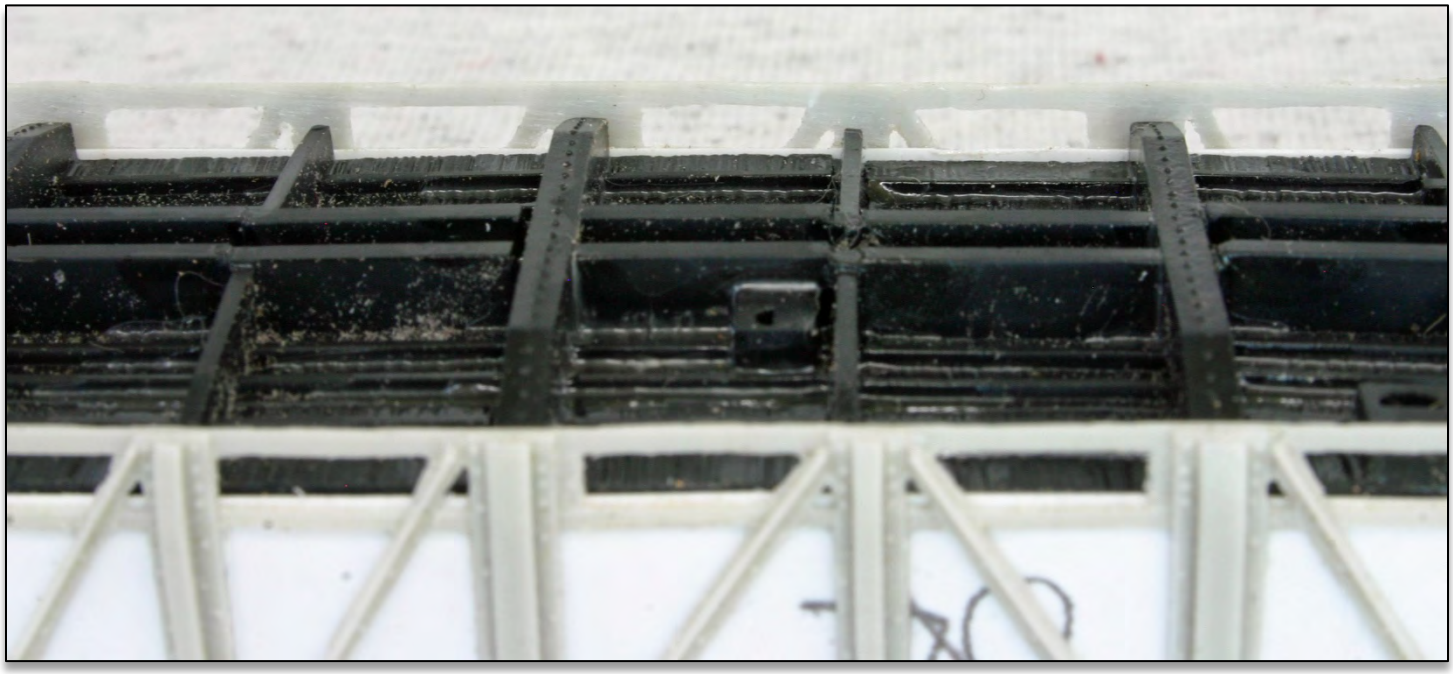


Figure 14. Primed model showing details on side.

Figures 15-16. Primed model showing details on ends.

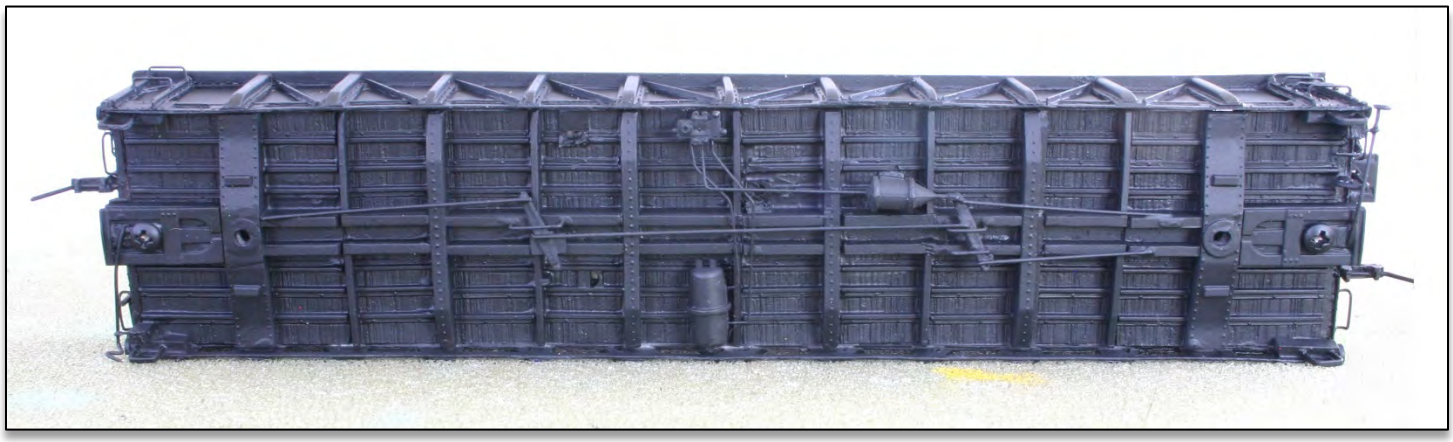
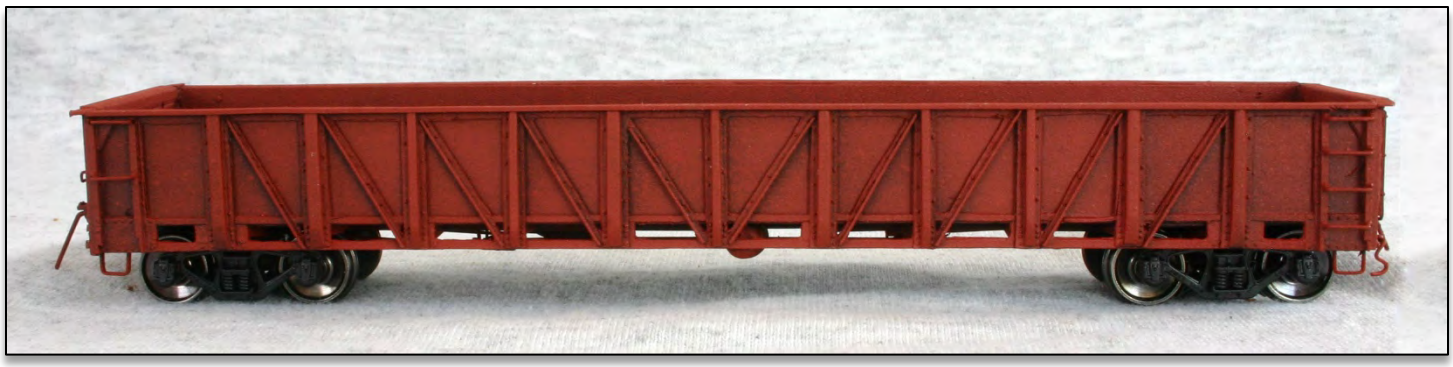


Figure 17. Primed model showing underbody brake details, note strip styrene stirrup step supports.

The finished car body was primed with flat black primer and a day later painted PRR "freight car color" with ACE red oxide primer. (Figs. 18) One coat of gloss coat was applied before the model was decaled. I wanted to decal this car in its original circle keystone scheme. In later years many G29C/D were put into the shadow keystone scheme. (Fig. 19) Decaling was the most difficult part of the kitbash as there are no decal sets for this car. The spacing on the side panels is very narrow so that to get the "PENNSYLVANIA" and the proper car number between the panels I had to cut out each letter and number individually, leaving little space between them to get them to fit the panels. I found that using the Mount Vernon Shops PRR steel cabin car decals for these two parts of the lettering worked out very well. Then I had to use leftover/saved decals from other sets to complete the process. Most of the other lettering came from Middle Division and John Hall decals. (Figs. 20, 21)



Figures 18. Model after application of PRR freight car color and trucks.

Figure 19. Prototype photo of G29C #357531 in Altoona, Pa., in 1979 showing the shadow keystone lettering scheme. *(Photo by Rich Burg, collection of Owen Thorne)*

The interior floor was built from .02" sheet styrene, V-groove with .06" spacing to simulate the wood floor. It was primed with flat black primer then painted with artists acrylic paints and detailed with artists pencils. (Fig. 22) Attach the finished floor to the model using white glue and allow to dry before weathering.

I like to use thinned artists acrylic paints to weather my freight cars. One can control the amount of weathering, but you should wait until each application dries before moving forward with additional coats. Acrylic paints dry very quickly so there is not much down time between coats. (Fig, 23)

I finally have a G29D operating on my Shamokin Branch layout. (Figs. 24-26)

PARTS

- Sunshine
  - Pennsylvania G29, G29A/B/C/D 46' Steel Gondola Kit #12.8, need two sides
  - Extra resin parts for air hose end brackets
  - #TM7 PRR 2DF8 cast metal trucks
- Accurail style #120 50' steel boxcar underframe
- Accurail size #411 short boxcar weight (1.65 oz)
- Detail Associates
  - FC #6221 – GS Gondola ends, Dreadnaught
  - DA #6241 Ladder set
  - Brass rods,
    - .012" (relief valve line)
    - .015" (brake piping, uncoupling levers),
    - .019" (air hose)
  - DA #2206 – eye bolts for uncoupling lever
- Tichy Train Group
  - #3021 – 18" straight grabs
  - #3015 – 18" drop grabs
  - #3013 – AB brake set
- Kadee Equipco brake wheel - Kadee #2031
- A-Line Style A stirrup steps #29000

- Evergreen Scale Models
  - Strip styrene – various sizes
  - Sheet styrene – #2060 .02" V-groove with .06" spacing (floor)
- Walthers #949-593 0.15" sheet styrene (steel sheathing inside car)
- Kadee #148 couplers and coupler pocket ears (poling pockets)
- Decals
  - Mount Vernon Shops PRR Steel cabin car decals/shadow keystone (Pennsylvania and car numbers)
  - Middle Division #HBX-5 40' steel boxcar, "Ball Keystone Era" classes X37, X43, X46 (built and reweigh data)
  - John Hall Decals #221 – PRR Gondola/Flat cars (dimensional data, G29D, circle keystone

REFERENCES

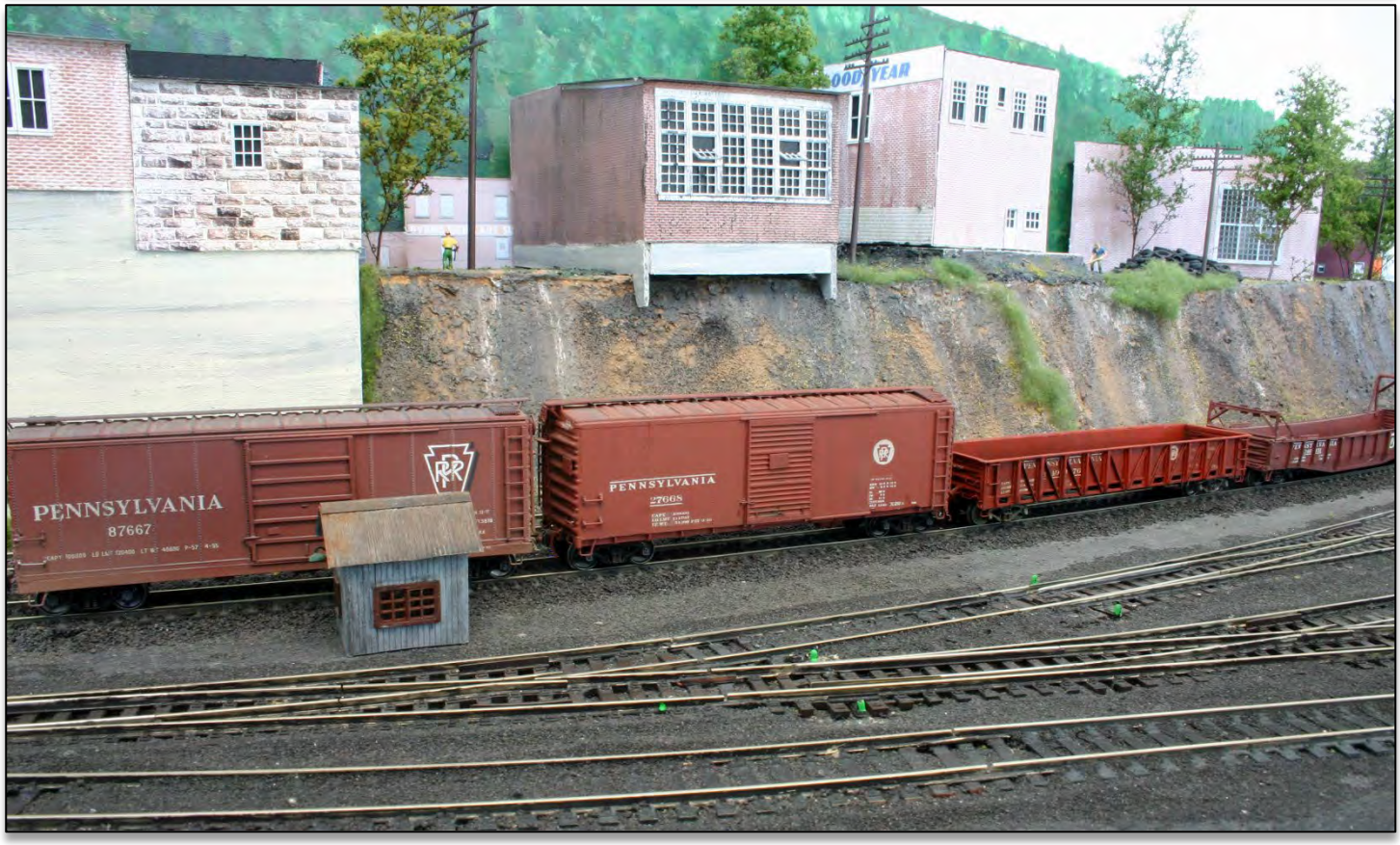
1. Sunshine data sheet #12C
2. Elden Gatwood, "Modeling the Pennsylvania Railroad's Gondola Fleet, Part 9 – G29 Class Gondolas," *The Keystone Modeler*, No.14, September 2004, pp. 25-32.
3. Al Buchan and Elden Gatwood, *Pennsylvania Railroad Gondolas, Revenue and Work Equipment, 1869 to 1968*, PRRT&HS, ©2011.
4. Dick Flock, "Kitbashing an HO Scale PRR G29 Gondola," *Railroad Model Craftsman*, July 2001, pp. 72-73.
5. David R Sweetland and Robert J Yanosey, *PRR Color Guide to Freight and Passenger Equipment*, Morning Sun Books, Inc.., ©1992.

Figures 20-21. Model after decals applied.

Figure 22. Finished wood floor.

Figure 23. Model after weathering with acrylic paints.

Figures 24. G29D #349176 operating on the Shamokin Branch layout.



Figures 25-26. G29D #349176 operating on the Shamokin Branch layout.