

Smokin' BLI GEVO Coming Soon

# Model **Railroad** News

The All-Scale News Monthly



## TANTALIZING TAMPER!

**DCC & SOUND EQUIPPED**



**REYNAULD'S  
EURO IMPORTS  
HO-SCALE  
PLASSER & THEURER**

## DYNAMIC TAMPING EXPRESS

- **PD3000 in HO and N Scale**
- **Atlas Master O-scale Tank Car**
- **Piko D&RGW Passenger Cars**

Volume 20, Issue 5 • May 2014

\$5.99 US/CANADA



# Impressive PD3000 Hopper in HO & N

**North American Car Company**  
3,000-cubic-foot Pressure Discharge Hopper

*Review and Photos by Tony Lucio*

**Spring Mills Depot HO-scale**  
PD3000 Hopper  
MSRP: \$54.95

**Multiple phases, paint schemes, and road numbers**  
Undecorated Kit, MSRP: \$44.95

**Spring Mills Depot**  
P.O. Box 1616  
Spring Mills MD, 21158  
[www.smd.cc](http://www.smd.cc)

**Trainworx N-scale**  
PD3000 Hopper  
Multiple paint schemes and road numbers  
MSRP: \$27.95  
Undecorated assembled,  
MSRP: \$24.95

**Trainworx**  
P.O. Box 127  
Delta, CO 81416  
970-874-9747  
[www.train-worx.com](http://www.train-worx.com)

**N**ORTH AMERICAN Car Company's (NACC) Pressure Differential (PD) series was an evolution of the pneumatically assisted covered hopper concept, with ancestry linked to the original General American Airslide. Traditional covered hoppers protected dry loads from the elements, but finer, free-flowing dry commodities such as sand and cement, salt and sugar, ash, lime, calcium carbonate, and other materials, would clump and remain in the various nooks and eaves during and after unloading. The problem wasn't just bothersome unloading or even product left behind, but cross-contamination as well. A car could only be readied for a different bulk load if it were thoroughly cleaned, but traditional covered hoppers presented numerous safety and accessibility impediments.

The Airslide was developed to address this and it successfully handled lightweights like flour and sugar, but heavier products



The Demonstrator scheme is easily the most colorful applied to these cars, but they wore dozens of liveries in various assignments, mostly through leasing arrangements. The typical lading was cement and other dense mineral aggregate, but many of these cars were known to haul sugar and other foodstuff commodities. While the photo doesn't show it, the truck spring bolster is compressed with a noticeable void in the casting — a nice touch suggestive of a fully loaded car when viewed in appropriate lighting.

required a different approach — enter the Pressure Differential (or Pneumatic Discharge) concept. Unlike an Airslide, which uses a flexible interior lining or membrane disrupted by air to dislodge and shake the contents loose, a pressure-differential car uses a direct interface of air (without a fragile membrane) to unload the contents. To unload the car, a compressed air line is connected to an inlet, feeding air into the car. Once pressure builds and the outlet is opened, the granular lading effectively liquefies and quickly flows through the discharge lines. In addition to efficient unloading, a PD car could be more easily readied to haul disparate loads instead of permanently assigned to a particular commodity.

The earliest proof of concept is the Flexi-Flo hopper: a rather unorthodox 3,500-cubic-foot design developed by American Car & Foundry (ACF) and New York Central (NYC) for cement service in the early 1960s. While it forged a template for the now familiar cylindrical and ovoid hopper designs that followed (including ACF's own watershed Center Flow, it was designed to apply the pressurization concept to heavy, dense materials such as cement and lime. Successfully proven, NYC was proud of these revolutionary cars and painted them with bold graphics proclaiming a "Flexi-Flo" trademark to hint at its utility.

North American Car Co. adapted this concept to its own design in 1971 with

a smaller 3,000-cubic-foot car. Larger 3,400- and even 5,000-cubic-foot NACC PD cars soon followed; these and similar designs from other builders that often look more like a standard cylindrical or center flow with pneumatic plumbing remain in use today. North American's PD design has several distinct features, starting with the profile of its curved cross section. Not quite cylindrical, it is similar to a Center Flow except for the lack of the stiffening "pinch" near the top below the roofwalk.

Even more notably, the NACC design encloses the platform between the slope sheets and frame, boxing it in on all sides — some larger designs even eschewed exposed end cages altogether in favor of a fully sealed carbody. In any case, the bulging fishbelly sides, squared-off ends, low-profile 18-inch round hatches, and pneumatic pipes all but hugging the roadbed outside the bays give these cars an intriguingly imposing character.

**Spring Mills Depot has captured numerous phases of PD3000 production via the subtlest of details.**

In truth, they are much smaller than first glance suggests: spotted alongside a familiar three-bay Center Flow hopper, a PD3000 is shorter in

both length and height. This is a function of dense lading, which tares out in a relatively small cubic volume; smaller cars were typically (but not always) used for denser loads like cement and sand while larger variants were suitable for lighter petrochemicals and plastics. Nonetheless, smaller cars were some-



times pooled for lightweight plastic and flour assignments too.

NYC's 225 original Flexi-Flo cars were a decade old when the NACC design was released; inheritor Penn Central expanded this service fleet by adding new PD3000s. No less proud than NYC had been of the originals, Penn Central boldly clad both in huge logos and the stylized "Flexi-Flo" branding. The cars had such unmistakably commanding presence that while Conrail patched them out during its hasty unification campaign, it later applied its own version of the Flexi-Flo brand in multiple stylings to boot.

NACC also built PD3000s for Boston & Maine, Burlington Northern, and several private owners in addition

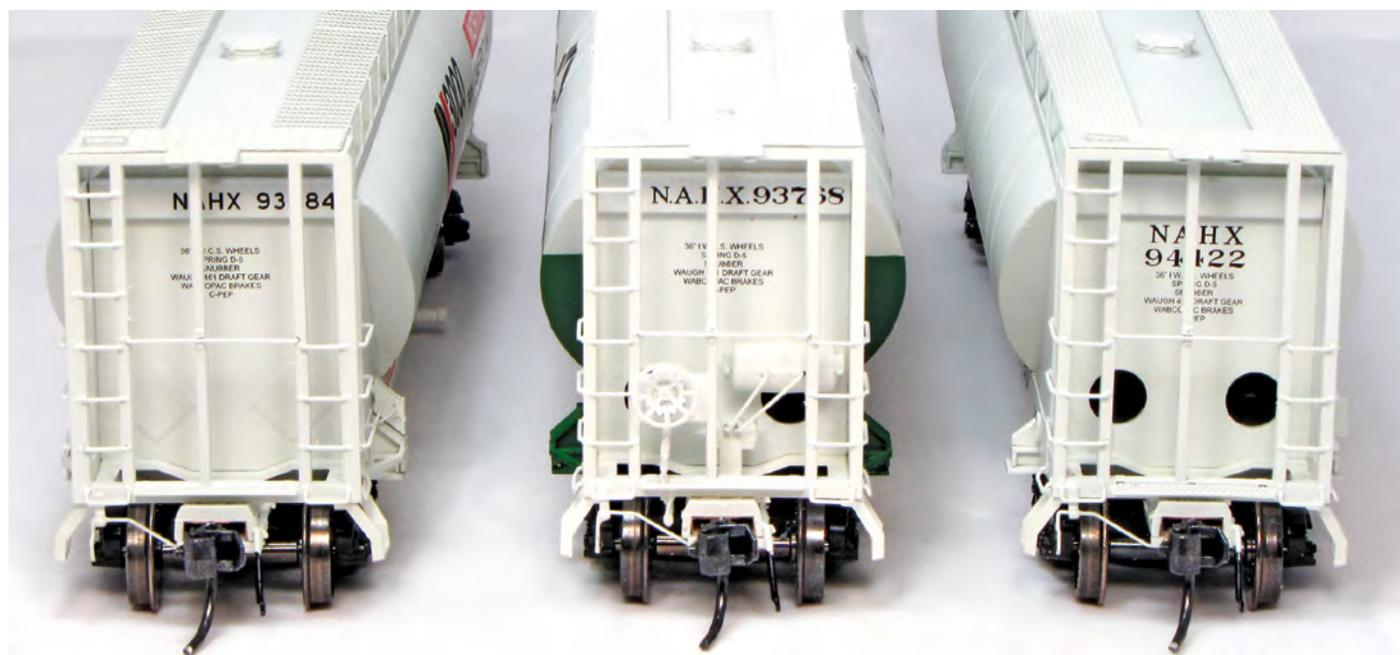


Blend the side curvature of cylindrical hopper with the tapered slope sheets of a center flow, then box in the end platforms beneath, and you have North American Car's basic PD design — a look unlike any other hopper car. The horizontal fishbelly weld seam above the side sill is a phase spotting feature. The NACC Demonstrator wears it low — just below the capacity data — but subsequent phases raised it noticeably higher. Having identified that, also consider the vertical panels whose sizing and arrangement changed as well. Rendering those distinctions might have been enough, but SMD didn't stop there! Look very carefully at the outboard posts on the end cages: the demonstrator has "flanges" whereas the latter two do not — the formative L-girder iron was reoriented after the first phase of production.

to operating its own leasing fleet, which could be seen in a variety of schemes. Although ownership has faded and changed over the years, most of these cars are still in use today.

While their distinctive appearance made them a curious standout in any consist, models were not very common. Not

long after the concept proved viable, Roco tooled the original Flexi-Flo in both HO and N scale, committing numerous errors in replicating the prototype. Walthers offered an HO-scale PD5000 kit in the early 1990s, and Rail Yard Models offered the PD3000 as a resin kit about a decade later. Between those offerings, Overland



This isometric comparison of three HO cars displays Spring Mills Depot's attention to detail. PD3000s were originally built with diamond-shaped covers over the end sheet access holes; in service these were often not replaced and eventually altogether eschewed on new builds. Note the angled stirrups on the Phase 1 demonstrator;

Phase-2 and -3 cars used square stirrups. By Phase 3, the separate roping tabs were dropped in favor of larger ports integrated into the sill near the sill. The pressure gauge housing on the bolster was also changed; early cars featured a sleeker housing that matched the bolster profile. Eventually, a plainer box was simply grafted on instead.

Models imported brass models of both types in both HO and N scale. Today, Spring Mills Depot shows how thoroughly expectations can be shattered, with an all-new, fully assembled plastic PD3000 model while Trainworx indulges N scalers with a similar offering.

### Another Standard Set

I've reviewed Spring Mills Depot's (SMD) first two HO-scale releases previously for *Model Railroad News*, and these models were absolutely stunning. Whereas not too long ago you might have settled for a "reasonable facsimile" of a PD3000, Spring Mills has instead challenged the definition of "obsessive reproduction." At \$55, you expect a supremely high-end HO-scale car, and it certainly is; however, tooling variances reflecting subtle prototype differences boost its status to a previously unthinkable degree.

This effort might be best appreciated when comparing more than one, so Spring Mills sent three examples covering an array of the phases offered. Even after an hour staging photographs, I was still discovering particulars and consulted the manufacturer's website for the "cheat sheet" to see what else I might have missed. You won't just find the super-detailed coupler and air line hardware, wire grabs, metal roofwalks and other premium touches you'd rightfully demand at this price point: you will also find subtle changes in body panels and

weld seams, safety hardware, and other features tooled into a relatively complex body. By the way, that body is not only dressed in an astounding selection of road names and paint schemes, the attention to minutiae specific to individual road numbers in a like series is utterly flabbergasting.

To fully appreciate this, recall the days when a vendor might tool a new car and release a half dozen paint schemes at introduction and maybe a dozen more over its life. Maybe some old schemes received new numbers with no other changes. It was exciting when manufacturers began offering multiple numbers at a time, or multiple scheme/era revisions. Now we have an offering that goes beyond road numbers to painstakingly modify minute corresponding bits such as COTS, shop stencils, class IDs, and other marking placements to match an individual car, not just a robotically tamped sequence. That nets a dizzying array of 92 different versions of this car at release. When one can cite dozens of manufacturers who never released that many variants of a simple boxcar in their lifetimes, the research and execution required to achieve this level of specificity becomes even more breathtaking.

Hyperbole aside, the models themselves are everything a proper PD3000 should be: the odd characteristics and dimensions are scaled accurately and true. Its distinctly bowed side flanks

and boxed-in platforms are perfectly rendered, dressed with all the necessary hardware. Up top, three sealed inlet hatches and a relief valve are flanked by an etched metal roofwalk. Unlike fragile add-on details, the walkway is cleverly integrated as part of the model's construction — its supports bend downward and form the structural chord along the top of the car body. This not only greatly enhances the durability of those details, but also reduces part counts and assembly points, preventing adhesive and paint from gooping up the roofwalk perforations. It's a design feature I'd like to see adopted by other clean-sheet models and kits in the future. Underneath, the smooth, centric funnel discharge bays — a key engineering feature of the prototype facilitating even and rapid discharge of granular contents — have excellent detail, are fully plumbed with sturdy plastic airlines and lie between accurately detailed gusset plates.

So that's the basic car: if it's impressive enough then what are the superlatives? Spring Mills Depot has captured numerous phases of PD3000 production via the subtlest of details. Major spotting features include the location of the horizontal seam across the fishbelly sides; the number, size, and placement of the fishbelly side panels and their adjoining seams; and the type of walkway — Apex slotted or Morton round. It would be easy to overlook the orientation of the angle iron that forms the end cage, but Spring Mills didn't and rendered both. More subtleties abound such as the type, presence, and location of roping points, bolster guards, and pneumatic gauge housings. Even the access ports in the carbody end sheets are either covered with diamond panels or exposed. All these features were seemingly mix-and-matched over the car's production life, with specific combinations sometimes appearing for only one batch for a particular customer. The manufacturer's ability to offer every version reveals the model's modular design.

The different styles of fishbelly panels, box ends, roofwalks, and appliances are all tooled as unique parts and properly combined to match a specific prototype. SMD used a similar approach on its Canstock boxcar, but the PD3000 is far more complex — identifying and sorting the proper part variants for



In HO, fully separate plumbing details, hopper outlet cap rivets, and gusset plates between the bays are rendered. The coupler and train brake hardware attached to the draft gear cover plates might prove bothersome should you swap couplers, but equipped Kadee No. 5s rarely give reason to do so; the trucks on both are highly free-rolling metal wheelsets, with the N-scale components supplied by Fox Valley Models. On the N-scale version, detail is not quite as robust, but the signature elements are in place even though the discharge piping and connection outlet is incorrectly aligned to only one side. Note the conical design of the hopper outlets — such a design provides maximum discharge flow and efficiency.



Trainworx's undecorated N-scale sample reveals the walkways, supports, and top chord integrated into one etched-metal component for durability. While a walkway support should technically have a horizontal brace aspect evident beneath the treadway itself, I much prefer the more durable integrated design, and the excellent paintwork masks this subtle trade-off. Note the splash of color on the ex-Penn Central car's sill: the

NACC leasing logo is sharply applied, correctly aligned, and legible. The ACI barcode would have been too, but it was also patched out just right of the void where the PC logo used to be. Conrail later repainted some of these again into its own "Flexi Flo" branding. New York Central helped pioneer the PD concept; successor Penn Central expanded it with the largest railroad-owned fleet in assigned service.

a given SKU (remember there are 92 different ones!) is no small task. The information on SMD's website is an invaluable tool to identify the differences and combinations — the three samples supplied to *MRN* don't encompass them all.

Regardless of phase, Spring Mills' paintwork has always been among the most vividly impressive in the hobby, and these cars keep the faith. In fact, SMD seems determined to outdo itself. The online detail/phase information lists a dizzying array of specific, one-car only data minutiae as fleets dictated. To wit, NACC had precise control over the cars it painted and leased to its own customers and maintained some uniformity. By contrast, Conrail didn't repaint its ex-PC fleet all at once, so by the time a given car rolled into the shop, odds were good that a given minor stencil had been modified or located differently — if it were applied at all. Spring Mills has recreated dozens of such character traits in an exhausting display of determination. Having drawn and produced my own HO-scale artwork and decals for various prototypes, I can personally attest this is no small feat regardless of how small a given graphic might be. These cars are simply stunning.

Trainworx's N-scale tooling is excellent though not quite as exhaustive due to the minuscule parts and visibility some features would entail at 1:160. While no phase variants are offered in N-scale and some spotting features are ignored, the high horizontal seam

and roping ports integrated into the sill seem to indicate a Phase 3 car. The basic design and construction is similar to the HO car with a single-piece metal walkway and support chord forming a structural part of the car. End cages, grabs, and stirrups are not wire as in HO scale, but the thin plastic is surprisingly durable: I gently squeezed the stirrups and they did not break. Trainworx offers the same assortment of road names with multiple road numbers for its N-scale offering. The paintwork on all samples in both scales was crisply and evenly applied. The colorful NACC demonstrator scheme has numerous elements to align, and all were true and correct. I did not find any runs, blobs, or smudges anywhere, and the finish was a suitable matte.

Make no mistake: on the heels of its HO-scale Canstock and B&O I-12 cars, the PD3000 comprises an astonishing triple play from Spring Mills

Depot, and if their earlier releases are an indication, it will be a deservedly quick sellout. The N-scale rendition offered by Trainworx concedes detail to its scale but is an impressive and desirable model of its own merit. Both represent a wonderful prototype to roster: though I always advocate for the diverse and eclectic, unlike most oddball freight cars, the PD3000 doesn't require a stretch. It's small enough to fit any layout, flexible enough to serve many industries on any route, and versatile enough to have run through several decades. I can unequivocally say the model is worth every penny of its asking price: few brass models surpass this level, and if you tried to work a kit similarly, your time would put you in debt. The research was painstakingly exhaustive. The tooling and construction are state of the art, and the paint is beautiful. I fully appreciate what's been achieved and can't wait to see what's next. 

[www.icsdcc.com](http://www.icsdcc.com)

## Been WOWed?

# WOWSound

- Plays up to 7 sounds at once!
- Easy sound setup with Audio Assist™
- Over 40+ whistles, 15+ bells & much more
- Proto-chuff with BEMF for unmatched realism
- True CD quality audio, no one else comes close



**Listen Here!**

**WOW101-Steam**  
MSRP: \$124.95

## Get WOWed!