

THE **LONGEST**
LIONEL O GAUGE LOCOMOTIVE EVER!



Pennsylvania S1 Duplex

Second Special Introduction

2003



A white spire and orb, called the Trylon and Perisphere, stood at the center of an exhibition dedicated to the "World of Tomorrow," the 1939 New York World's Fair. On the fairgrounds in Flushing Meadows, Queens, a visitor could see the distant world of 1960 at the Futurama, witness the new medium of television, or stand in awe as a bullet-nosed iron horse, one of the largest locomotives ever built, steamed and hissed on a specially designed roller base. Although the words "American Railroads" stretched across her tender, this 6-4-4-6 Duplex belonged to the Pennsylvania Railroad. Classified as S1 #6100, this one-of-a-kind giant showed that, even as late as 1939, the "Standard Railroad of the World" saw a future for refined steam power.

In 1937, executives at the Pennsylvania Railroad wanted a steam locomotive with performance equal to their new electric, the GG1. Top engineers from the American Locomotive Company, the Lima Locomotive Works and the Baldwin Locomotive Works collaborated on this new design. These creative individuals included men like Will Woodard of Lima, the innovator behind that company's "Superpower" steam locomotives, and

Ralph P. Johnson, Chief Engineer at Baldwin, who suggested a novel approach to Pennsy's project called duplex drive. This concept was seen as the ultimate means to achieve the daunting goal of pulling a 1,200 ton train at 100 miles per hour.

The designers believed that a duplex would yield more power than a similarly sized 4-8-4, the preferred heavy passenger power of the era. The duplex featured a rigid frame and four pairs of drivers with an additional set of cylinders between the second and third pair to increase steaming efficiency. With high-pressure steam going to all four cylinders, the force of the piston thrusts was reduced. This decreased force allowed for the use of relatively smaller cylinders and lighter running gear. Dynamic augment, or the vertical force of heavy reciprocating parts that damaged track and the parts themselves, was considerably lessened.

While many minds contributed to mechanical issues, one man, Raymond Loewy, was responsible for the unique aesthetics of this unprecedented locomotive. He would even serve on the Board of Design for the 1939 New York World's Fair. One of the most renowned industrial designers in America, Loewy defined

the streamlined style of the modern machine age. For the S1, Loewy, who had also created the timeless styling of the GG1, wanted lines that would look fast even when standing still. Throughout the rest of his life, he would consider the S1 his favorite project. The classic styling of the #6100 has endured since her unveiling almost 65 years ago. Even though her time on the high iron was relatively brief, S1 #6100 has remained an art deco icon.

Guided by copies of actual Pennsylvania construction drawings for the #6100, the all-new Lionel Pennsylvania S1 painstakingly recreates the classic curves of Loewy's masterpiece. The bodies of both the scale-sized locomotive and tender are constructed of tough die-cast metal. Separately applied details include accurate builder's plates, tender classification plate, handrails, opening cab roof hatch and see-through vents. Our model is prototypically painted following copies of PRR painting diagrams for the S1. The locomotive and tender bodies are painted the "almost black" color favored by the Pennsy called "Dark Green Locomotive Enamel," while the tender deck is painted Tuscan. The Pennsylvania S1 proved a challenging project, much like the original.





On January 31, 1939, at a cost of \$669,780, Pennsylvania's Altoona Works finished the job of turning the theories and stylized designs into an actual steel, steam-breathing machine. Although the big 6-4-4-6 was plagued by slippery starts, she soundly met performance goals. One of the most powerful steam locomotives ever built, the big duplex produced 7,200 drawbar horsepower, more than any other railroad's 4-8-4 type. Even with large 84" drivers, her tractive effort measured 71,900 pounds. The locomotive's frame was over 77' in length and ranks as the longest single piece casting ever applied to a steam locomotive. At over 140' in length and weighing over 1 million pounds, the S1 was the largest non-articulated steam locomotive ever built. Such size and power earned #6100 the simple nickname of "The Big Engine." Likewise, the scale-sized Lionel Pennsylvania S1 marks the largest O gauge steamer that we have ever produced.

Impressive power also marks our TrainMaster Command Control system-equipped model of #6100 which includes a high-torque Pittman motor with momentum flywheel and

the Odyssey System for speed control. With the Refined Conventional Transformer Control Mode, the Lionel Pennsylvania S1 features lower starting speeds, improved smoke output and simplified Odyssey System ON/OFF controls when operating in a non-TMCC environment. The new synchronized smoke system realistically times the wheel rotation with the chuff from the RailSounds sound system and the puff from the smoke unit. The industry-standard RailSounds sound system includes dual FatBoy speakers and features unique sounds such as the locomotive's auxiliary air horn. Unlike locomotives from other O gauge manufacturers, there is no awkward loop of wire between the locomotive and tender. Using infrared technology, the Lionel Pennsylvania S1 features an exclusive Wireless Tether connection between the locomotive and tender that provides a more realistic appearance and more reliable performance than a common hardwire connection.

After the World's Fair ended in 1940, the Pennsylvania name and logo replaced "American Railroads" on #6100's tender. Although always considered experimental, she did work on the Fort Wayne Division, which,

unlike most of the system, had enough clearance for her. The Lionel Pennsylvania S1 #6100 represents "The Big Engine" as she looked at the close of the Fair when she entered road service in PRR livery with full streamlined skirting still intact. During the forties, the S1 hauled passenger trains such as *The General* and *The Trail Blazer* between Chicago, Illinois and Crestline, Ohio. Two interchangeable front name plates, one for each train, are included with our model. Despite admirable performance, her sheer size, specifically the high axle loading, limited work area and increased maintenance costs associated with it, doomed the lone 6-4-4-6 Duplex to a relatively short ten-year career.

The Pennsylvania Railroad did evolve the duplex concept further with the Q-class and T1, but like the legendary S1, these would prove the last fantastic gasps of Pennsy steam power. The S1 6-4-4-6 Duplex, the first of the Pennsylvania's experimental locomotives of the future, went to the scrap line in 1949 with most of the railroad's steam fleet to follow in the succeeding decade.



FEATURES:

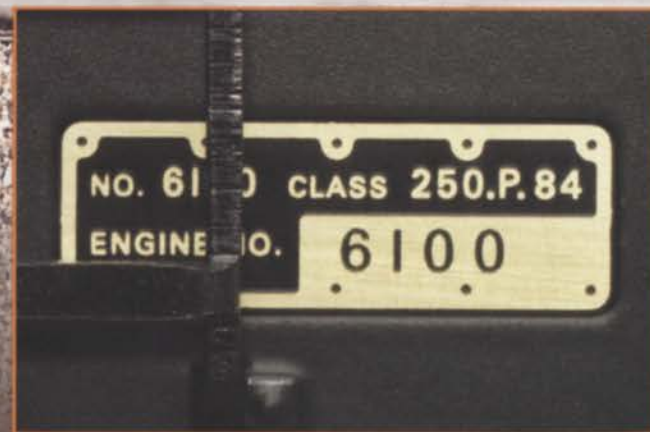
- Produced from all new tooling
- TrainMaster® Command Control equipped—able to run in Command Control Mode or in Conventional Transformer Control Mode
- Odyssey® System for speed control, with ON/OFF switch
- Refined Conventional Transformer Control Mode with lower starting speeds, improved smoke output and simplified Odyssey® System controls
- Improved RailSounds™ sound system with CrewTalk™ communication, TowerCom™ announcements and DynaChuff™ synchronized chuffing
- Realistic auxiliary air horn sound, activated by the TMCC CAB-1
- Two FatBoy™ speakers for the ultimate in sound reproduction
- High-torque Pittman® motor with momentum flywheel
- Wireless Tether™ connection between locomotive and tender
- Directional lighting with operating headlight and back-up light on rear of tender
- Illuminated classification lights on locomotive
- Die-cast metal locomotive body, frame, pilot and trucks
- Removable front pilot cover reveals operating scale drop coupler
- Interchangeable O gauge front coupler included
- Two interchangeable train name plates, one for both "The Trail Blazer" and "The General"
- Two traction tires
- New synchronized fan-driven smoke unit with improved smoke output
- Separately applied metal details
- Accurate, separately applied builder's plates and tender classification plate
- Flickering firebox in cab
- Authentically detailed and illuminated cab interior
- Opening cab roof hatch
- Cab window glass
- Engineer and fireman figures
- Die-cast metal tender body and trucks
- ElectroCoupler™ on rear of tender
- Operating marker lights on rear of tender

Minimum Radius: O-72

Length: 36 1/4"

(6-38024) Pennsylvania S1 6-4-4-6 Duplex \$1499.99

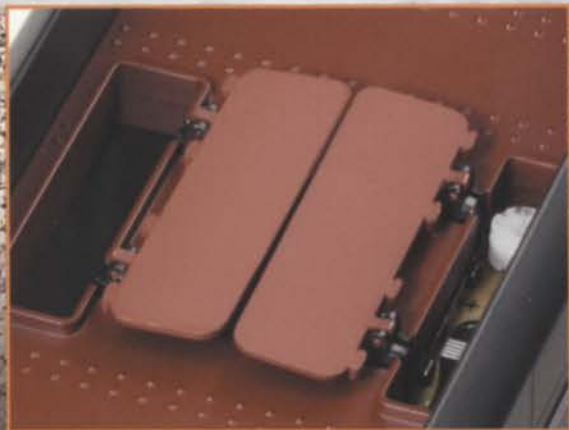
**SHOWN
ACTUAL
SIZE**



Detailed tender includes directional lighting, an accurate classification plate, 1

ACTUAL PRODUCT

*For even more views of the Pennsylvania
Lionel's website*

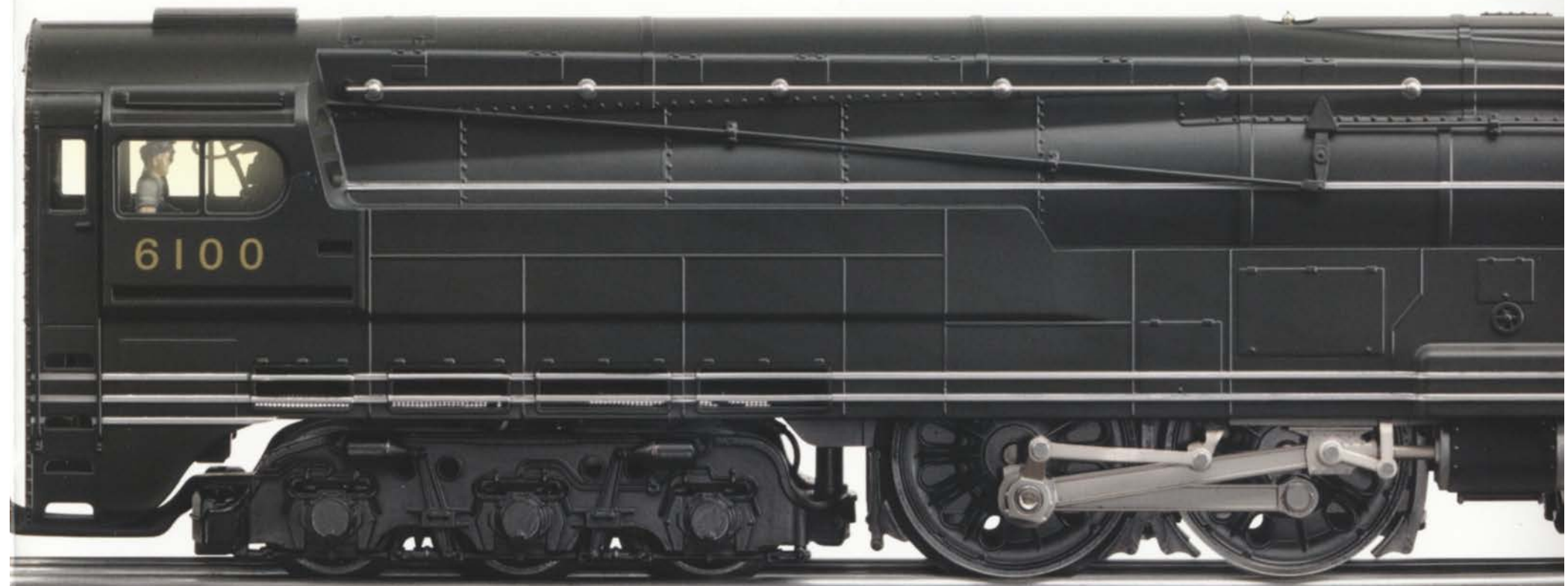


prototypical decoration and opening water hatches that reveal easy-to-access RailSounds controls

Features include the new Lion

ON MODEL SHOW

nia S1 6-4-4-6 Duplex, be sure to visit
t www.lionel.com.



l synchronized smoke system

The all-new, scale-sized Lionel Pennsylvania S1 6-4-4-6 Duplex features many separately-applied d



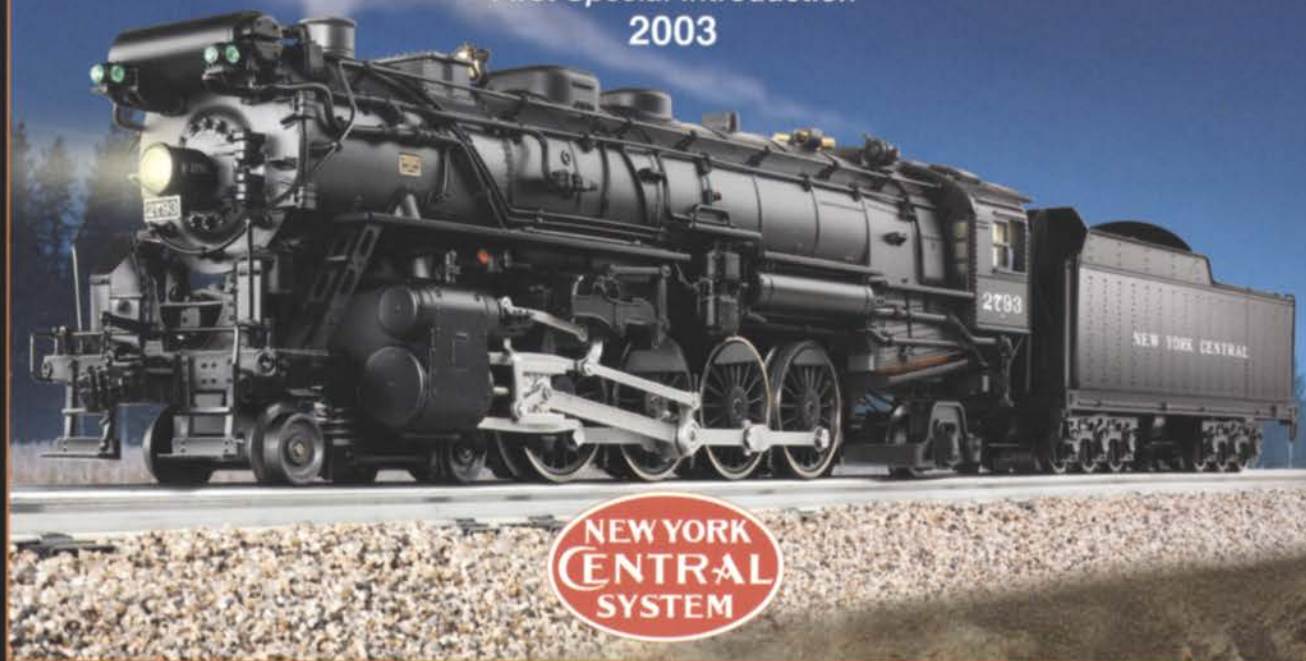
ailed parts such as an opening cab roof hatch, see-through vents, accurate builder's plates and interchangeable front name plates

*And don't miss the first special introduction of 2003,
the New York Central L-2a Mohawk!*



New York Central L-2a Mohawk

First Special Introduction
2003



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