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INTRODUCTION

Modelers have long paid special attention to locomotives and cabooses, but freight cars often don't receive the same care in modeling. That needn't be the case, as the last few years have seen an explosion in the number of highly detailed, realistic freight car models available in all scales.

With so many models available, it can be difficult to determine the types of cars appropriate for different eras or types of service. This goal of this book is to make freight car selection less of a mystery.

Each chapter provides a brief history of a type of freight car, then shows through photos how car designs have evolved from the World War I era to the present. This book is designed as a guide for modelers, illustrating the spotting features that make cars unique and making it easier to choose and detail appropriate models.

In addition to the cars themselves, the book also examines the evolution of freight car components: wheels, trucks, and brake equipment. An overview of how air brakes work.

This book is not meant to be a complete guide to every freight car ever produced, or to examine the myriad detail differences present on every sub-class of car—space simply doesn't allow that. Much of the information was culled from hundreds of articles in dozens of modeling, railfan, and trade magazines, including *Model Railroader*, *Trains, Freight Car Journal*, *Mainline Modeler*, *Modern Railroads, Model Railroading*, *RailModel Journal*, *Railroad Model Craftsman*, and *Railway Age*. Also invaluable were reference guides, including various issues of the *Car Builders' Cyclopedia* and the *Official Railway Equipment Register*, and books too numerous to mention.

Other sources include clinics and seminars, photographs, and personal observation. As with any work of this scope, sources sometimes conflict regarding dates, figures, and facts. I did my best to sort through these for the most accurate information; any mistakes made in sorting out this material are my own, and not of those who assisted me. I hope this book serves as a handy reference for your modeling and railfanning.

Projects like this would not be possible without the help and work of others. I would like to thank the many people who provided information and/or searched their photo collections to find materials, including Scott Chatfield, Bob Gallegos, Jim Hediger, Richard Hendrickson, J. David Ingles, Keith Kohlmann, Brian Kreimendahl, Marty McGuirk, Hol Wagner, and Jay Williams. I also want to thank the many photographers whose photos reside in the David P. Morgan Library at Kalmbach Publishing Co. Without that library's collection, this book would not have been possible.

Jeff Wilson
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BOXCARS

1-1 Even though boxcars are no longer the most numerous freight car type on the rails, modern boxcars, such as this 60-foot TBOX car, still a play vital role in hauling freight. *Jeff Wilson*

ONE

The ubiquitous boxcar was the dominant freight car throughout much of the history of railroading. Boxcars were *the* general-purpose car on the rails into the 1970s. Although today much of what was once carried in boxcars now rides in containers, plenty of boxcars remain in service carrying auto parts, paper, canned goods, and other products (fig. 1-1).

Boxcars have evolved significantly since World War I. Part of that evolution relates to size. The 40-foot, 40-ton cars of the 1910s grew longer and taller over the years, resulting in the 50-foot cars in the 1950s and the 86-foot excess-height cars introduced in the 1960s.

Materials played a big role in development as well. Wood gave way to steel. Improved designs for roofs, ends, and other components made cars stronger, more durable, and weather-tight.

Standard sliding doors

As steel cars grew in popularity, so did several major types of doors. The most popular was the Youngstown door, identified by its numerous horizontal ribs. Early Youngstown doors had a 5/7/5 rib pattern (fig. 1-9); this was changed to a 4/5/4 pattern in 1946 (fig. 1-12). Some doors had an alternate 3/5/5 pattern.

Another popular door type was the Superior, marked by its wide panels with fewer horizontal partitions (fig. 1-11). These doors originally had seven panels, with the spacing even on early cars and then uneven on later cars. Starting in 1952, five panel doors were frequently used.

Although rarer, Creco doors also deserve mention. Used mainly in the 1920s and '30s, these look like a three-panel Superior door (see photo above left).

Most PS-1 boxcars had Youngstown or Superior doors, but many were also equipped with Pullman-Standard's proprietary PS door (shown above right). At first glance these look like Superior doors, but the panels are raised slightly, giving them a unique appearance.

Creco doors were similar in appearance to Superior doors, but had three panels. *J. Parker Lamb Jr.*

Pullman's own PS doors had five raised panels, giving them a different appearance from Superior doors. *Pullman-Standard*

Capacity and Gross Rail Load

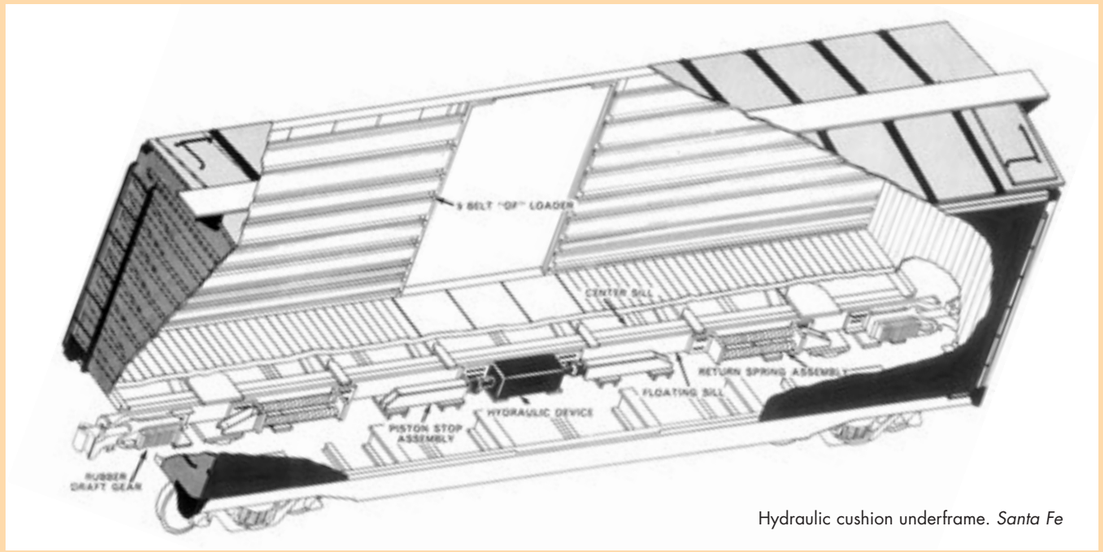
It's common to refer to car size in terms of capacity, such as a 50-ton boxcar or a 70-ton boxcar. Each car's rated capacity was once stenciled on the car; this hasn't been required since the 1980s. Instead, the stenciled load limit indicates the maximum weight allowed for the load itself.

Gross Rail Load (GRL) is the maximum weight for the car allowed on the rail, figured by adding the car's light weight to the weight of the load. The current maximum GRL for unrestricted interchange of cars is 263,000 pounds (nominal 100-ton cars), although since the late 1990s most major routes have allowed a GRL of 286,000 pounds (110-ton cars).

For example: Look at the TTX boxcar in fig. 34. It has a load limit of 207,600 pounds and its light weight is 78,400 pounds. By adding the two we find that this is a 286,000 GRL car.

For more on freight car data and lettering, see page 89.

Cushioning and load restraints



Hydraulic cushion underframe. *Santa Fe*

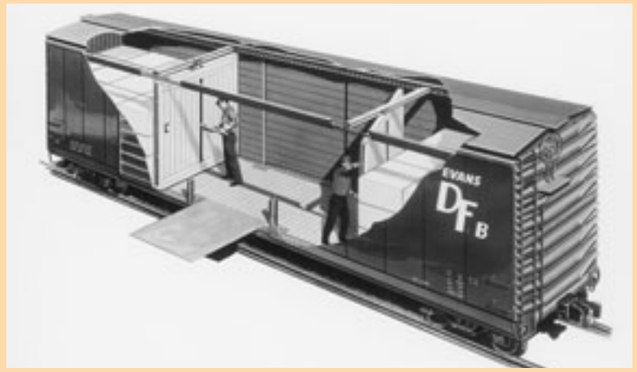
A problem that grew along with train size in the early 1900s was shifting or damage to loads caused by rough slack action or by hard coupling during switching. A solution to this was the cushion underframe, which became popular in the late 1940s and into the 1950s, first on boxcars, then other freight cars.

The drawing above shows how a cushion underframe system works. There are two types: Some have sprung draft gear that moves in and out; others, as depicted in the drawing, have a hydraulic device in the center sill that absorbs the shock instead of the car itself. The photo below left shows how the couplers on these cars extend from the car end. You can identify cushioned cars by these extended draft gear housings, and many cars have lettering indicating these devices (see figs. 1-22, 1-23, and 1-24).

Cushion underframes are found on many boxcars, auto-rack cars, piggyback flats, and coil cars. They are not used on cars carrying bulk products, such as tank cars, hoppers, and covered hoppers.

Load restraining devices are another common way of preventing damage to lading in boxcars and reefers. The illustration below right shows how these systems use moveable walls, partitions, belts, or other devices to hold loads securely in place inside the car. As with cushion underframes, lettering and stenciling on the car often indicate their presence.

The draft gear on cushion underframe cars extends from the body, allowing for spring travel as the coupler and draft gear travel in and out. *Linn Westcott*



Adjustable partitions and dividers are used to hold loads securely in place. *Evans Products*