MODEL RAILROADING’S DARK UNDERBELLY

or..... What Really Is Under All That Rolling Stock?
WHY BOTHER?

• The “Good Enough” School of Thought
  – The Operators
  – Does scale matter?
  – Layout height

• Achievement Program/Contest Models
  – Conformity (25 points)
  – Detail (20 points)
Freight car underbody details - Brake Systems

- Hand Brakes – Pretty much as it sounds – brakes were set by hand. The Elder brake system is illustrated on the following slide.

- Straight Air – The train line is charged from the locomotive to set the brakes. Consists of a cylinder connected directly to the train line. If the train breaks in two – NO BRAKES! Not Good!

- Automatic Air – The train line is charged by the locomotive, typically to 90 p.s.i., and the brakes are released. To apply the brakes air is released from the train line by the brake valve on the locomotive and the triple valve releases a proportional amount of air from the service reservoir to the brake cylinder, applying the brakes. If the train breaks in two, the pressure in the train line drops to zero and the air from the service and emergency reservoirs is released to the brake cylinder. Definitely better, but can cause problems such as flat wheels and even derailments. Both the KC/KD and AB systems fall into this category.
Used from the late 1800’s up through the turn of the century (and beyond on non-interchange equipment). This illustration shows the Elder Brake application for passenger cars. Freight cars generally had only a single brake wheel.
George Westinghouse invented the Automatic Airbrake System in 1869. It replaced the Straight Airbrake System. The KD brake system is illustrated above. Its sister system, the KC, differs only in that the brake cylinder is separate from the reservoir/triple valve. The brake system components applied to a truck are shown in the illustration to the left.
Freight car underbody details – Brake Systems - AB Brake System
This excellent set of drawings accompanies the Cal-Scale kit containing lost wax brass castings for all the AB brake components including the angle cocks, glad hands and air hoses. Note that the pipe sizes are called out on the drawing as well as the seldom modeled bleeder valve rod.
Freight car underbody details – AB
Brake System for House Cars

View from the Top
Freight car underbody details – AB Brake System for Hopper Cars

View from the Top
Passenger car brake equipment components

Fig. 1
Passenger car brake equipment – Early Application

View from the Top

Wasinghouse brake system used during the late 1800s.
Passenger car brake equipment –
Turn of the 20th Century

View from the Bottom
Passenger car brake equipment – 1930’s – 1960’s

Some of the brake equipment as applied to a Pullman-Standard Co. passenger car. This is one of the more recent applications used from the 30s to the present. A few of the outstanding underbody details in addition to the brake system are shown in color.

View from the Bottom
Acknowledgements

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