



DATA SHEET

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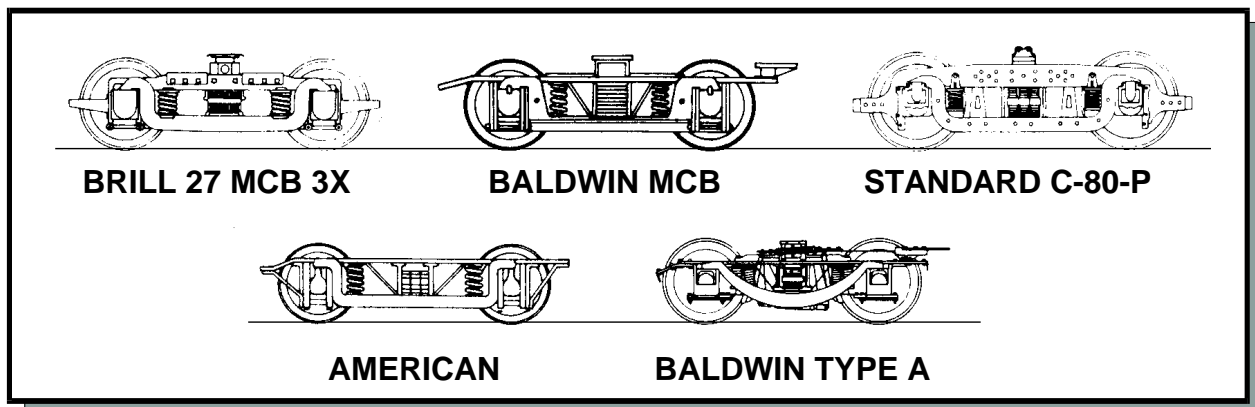
Sheet #:	D4b
Title:	TRACTION TRUCKS
Updated:	October 1999
Updated by:	Jim Tangney, MMR Jim Holland
First Issued:	October 1955 (D4b)
Originally Compiled by:	LeRoy King, Jr., and Committee
References:	Electric Railway Journal Central Electric Railfans Association (CERA) Electric Railway Historical Society Interurbans
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GENERAL

Traction trucks must fulfill all of the duties of steam railroad trucks. In addition, they had to provide space for the installation of one or two motors, operate over very small radius curves (as low as 30 foot radius), and work when the truck was supplying the motive power. These added requirements made necessary developments in springing and in mechanical rigidity. In the 1920's lightweight cars began to gain wide acceptance as a way of reducing operating costs in a financially ailing industry. Lighter car bodies and smaller motors required the development of lighter trucks, further adding to the number of prototypes.

Traction trucks were made by a number of companies. Often a company would produce a number of models. Many designs were available in various wheelbases. This wide range of possibilities makes it possible for suppliers to produce more than a few of the more popular trucks. Many modeling projects will require modification of available trucks, or scratchbuilding. The most obvious feature of trucks are the wheelbase and the sideframes. The references contain much information on various trucks. Most are out of print, but used copies may be found at train shows or by advertising in the NMRA Bulletin or the NMRA Kalmbach Memorial Library may have copies. Side views of trucks, being two-dimensional, can be hard to interpret, but the angle views shown here will help you visualize the location of the various parts. A few side views are shown, but refer to photos or drawings of specific cars for information on the trucks actually used for a particular project. During the lifetime of a car, more than one type of truck may have been used. Equipment rosters (such as appear in CERA Bulletins) usually include the model and wheelbase of the trucks involved.

INTERURBAN TRUCKS





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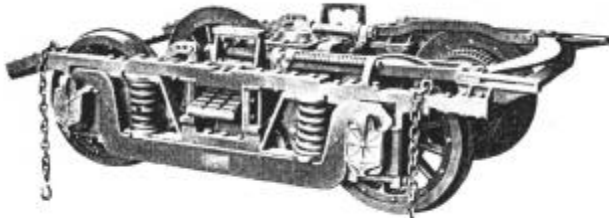
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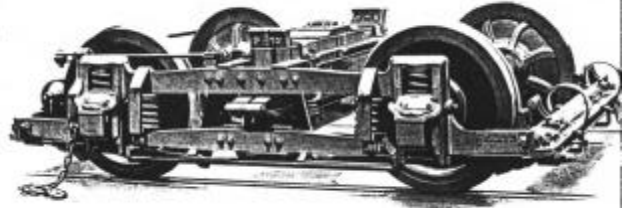
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INTERURBAN TRUCKS - continued

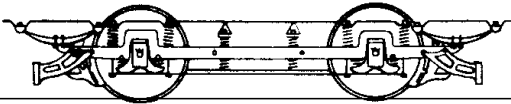


**BALDWIN MOTOR TRUCK,
Class 84-35 S**

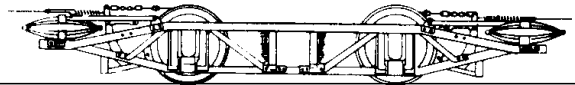


BRILL 27-E

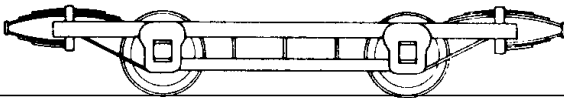
CITY CAR TRUCKS (For single truck cars)



BRILL 21-E



STANDARD C-35-A



TAYLOR SINGLE

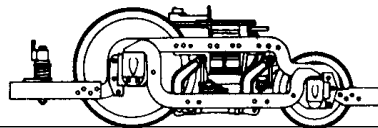


BRILL 79-E (BIRNEY)

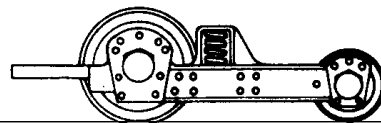
The Birney truck shown above was used only on Birney Safety Cars.
The others were used in single truck passenger, freight and work cars.

CITY CAR TRUCKS (For double truck cars)

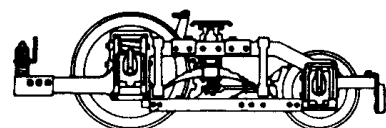
MAXIMUM TRACTION TRUCKS (One motor)



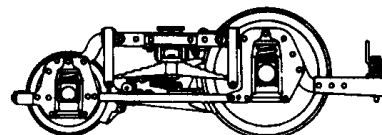
STANDARD MOTOR TRUCK O-45



TAYLOR MAXIMUM TRACTION



BRILL 39-E



BALDWIN TYPE M

These trucks are used almost exclusively in city service.



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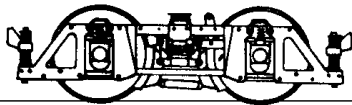
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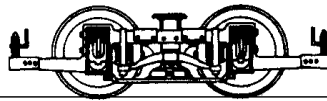
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CITY CAR TRUCKS (For double truck cars)

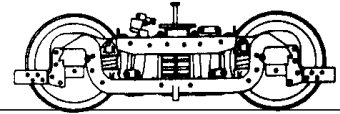
TWO MOTOR TRUCKS



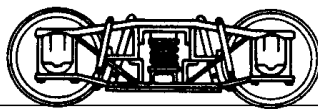
BALDWIN H-2



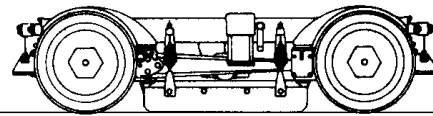
BRILL 27-G



STANDARD C-55



**CINCINNATI PASSENGER
TYPE AB**



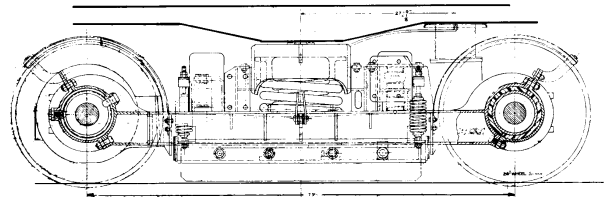
**CLARK B-2
ALL-ELECTRIC PCC**

These trucks are used in city and suburban service.

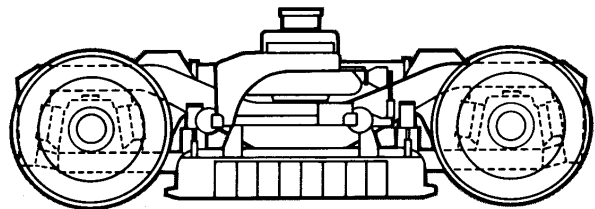
MODERN ERA TRUCKS

The "ST. LOUIS PCC" "ST. LOUIS B-3 ALL-ELECTRIC PCC" was not developed until the last PCC cars were built but was used in Pittsburgh, Johnstown, Detroit, Chicago, and San Francisco. This truck most closely met the goals of the ERPCC in design.

The Boeing LRV truck was used in Boston and is still in use in San Francisco. The air bag suspension on the Boeing truck is similar to the spring pot on the St. Louis B-3; magnetic track brakes are used on both but the Boeing and subsequent LRV cars use a segmented track brake for more grabbing power. The Boeing car uses a monomotor connected to both axles whereas the PCC uses one motor per axle mounted perpendicularly to the axle. Monomotors have fallen into disfavor. Final brake is an axle mounted disk, air applied. The Boeing and Canadian LRVs are air-electrics as well as the San Francisco Bredas; most other LRVs are all-electric.



ST. LOUIS PCC



BOEING LRV



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MODERN ERA TRUCKS - continued

Most, if not all, three-truck articulated LRVs have motors in the end trucks only; the center truck would have both magnetic and friction brakes.

Additionally, Philadelphia has Kawasaki LRVs, Boston replaced their Boeings with Kinki-Sharo, Cleveland and San Francisco have Bredas from Italy, Toronto as well as Santa Clara have the Canadian LRV.

Starting with the PCC and continuing the practice with LRV, the trucks are inside frame using dynamic, magnetic and friction braking. The LRV trucks most closely imitate the St. Louis B-3 in design. The Breda trucks in San Francisco revert to the old streetcar practice of outside frame.

The Bombardier truck shown below was made for the cars built for Portland, OR. Note the absence of the typical kingpin receptacle. Instead, there is a "slewing ring" - three concentric rings which rotate within each other - that apparently connects to the body and to the truck.

The main suspension is at the four corners of the truck frame near the axles. The secondary suspension is "chevron springing" attached to the truck bolster and frame (what looks like an accordion!) This most closely imitates the PCC B-2B trucks used under 1725-1799 in Pittsburgh, PA, and the 4500-4549 cars built new for Toronto, Ontario, Canada. In Schneiders book, "PCC The Car That Fought Back", he describes the B-2B by Clark as most closely achieving the goals of the PCC committee for ride quality and sound insulation in addition to isolation of motor and rail vibrations from the body of the car.

