THE J. G. BRILL COMPANY

PHILADELPHIA

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London Office: 150 Southampton Row, W.C.I.

Cable Address: "Axles," London

G. C. Kuhlman Car Co. CLEVELAND

Compagnie J. G. Brill 49 Rue des Mathurins, PARIS, FRANCE Canadian Brill Co., Ltd. PRESTON, ONT.

American Car Company ST. LOUIS

Cable Address: "Bogibril," Paris

Wason Manfg. Company SPRINGFIELD, MASS.

AGENCIES AGEI
Argentine, Paraguay and Uruguay—P. B.
Goldsworthy, Chacabucho, 271, Buenos Aires.
Australasia—Noyes Brothers, Melbourne, Sydney, Brisbane, J. R. W. Gardam, Perth.
Belgium and Holland—C. Dubbleman, 19 Ruedu Parnasse, Brussels.
Bolivia—W. R. Grace & Co., Calle Diez de Medina, La Paz.
Chile—W. R. Grace & Co., Calle Morande, No. 530, Sanitago.
China—Anderson, Meyer & Co., Ltd., 4 and 5 Yuen Ming, Yuen Road, Shanghai.
Colombia and Venezuela—Wesselhoett & Poor, Bogota, Barranquilla and Medellin, Colombia and Caracas, Venezuela.

Ecuador—W. R. Grace & Co., Carlow Cordovez, Apartado 186, Guayaquil.

Finland—Finnish Electric O/Y, Boulevagatan No. 3, Helsingfors.

Italy—Giovanni Chechetti, Piaza Sicilia I, Milan.

Natal, Transvaal and Orange River Colony— Thomas Barlow & Sons (S.A.) Ltd., Durban, Natal.

Norway—Energi II Elektrisk Aktieselskap, 9 Skippergaten, Kristiania.

Peru-W. R. Grace & Co., Merced 620, Lima.

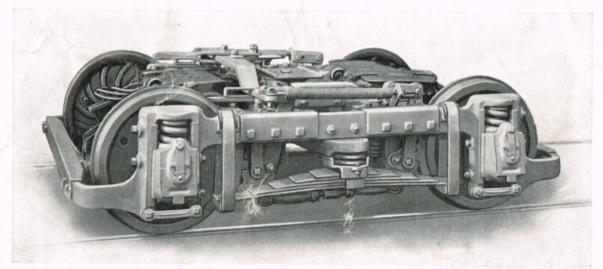


THE BRILL 77-E TRUCK

BRILL BOLSTER GUIDE: INSIDE-HUNG MOTOR: SOLID-FORGED SIDEFRAMES; GRADUATED SPRINGS

THE Brill 77-E Truck is identical in construction with the Brill 76-E Truck (described in Bulletin No. 225) except that its motors are inside-hung, whereas the motors in the latter truck are hung outside. Both trucks are very similar in type

to the popular Brill 39-E, which has scored such a success for city service. The spring arrangement is the same in the 39-E, the 76-E, and the 77-E, the chief point of difference between the 39-E and the 76-E and 77-E being that the former is a single-motor



This truck differs from the Brill 76-E only in that it has inside-hung motors, whereas the motors of the 76-E are hung outside. Both the 76-E and the 77-E are very similar in design to the 39-E, the chief point of difference being that the latter is a single-motor truck with pony wheels, while the 76-E and 77-E have two motors and wheels of the same diameter. Exclusive Brill features, such as Brill Graduated Spring System, Brill Bolster Guide, "Half-ball" Brake Hanger, and Solid-forged Sideframes, are incorporated in all three trucks



This car, with a seating capacity of 48 persons, which may be supplemented by folding seats on the platforms, measures 44 ft. 2 in. over the bumpers, 30 ft. 3 in. over the body, 3 ft. 0½ in. from track to underside of side sills, and 3 ft. 9¾ in. from underside of side sills over trolley boards. The trucks weigh 12,750 lb., the motors 7,600 lb. and the carbody 21,450 lb. including air and electrical equipment and heater

truck with pony wheels and the latter two are designed for two motors each with all wheels the same diameter.

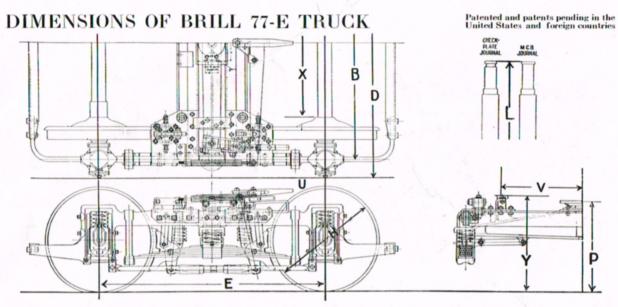
The Brill Graduated Spring System plays an important part in the design of the truck, providing an easy spring action when the car is lightly loaded and furnishing superior riding qualities at all times, which is a very great advantage over the old construction, in which all the springs were arranged to take care of the car when heavily loaded. The system consists of a spiral spring placed between the bolster and the semi-elliptic spring. This spiral spring is so designed that the spring cap and seat come into contact when the spring is compressed beyond a certain point, the spring being designed so that this contact takes place when the car has a seated load. Beyond this point the semi-elliptic spring takes care of the load. The amount of compression of the spiral springs necessary to bring about contact of seat and cap is on the average three-eights of an inch.

The Brill Bolster Guide is another very important—and new—feature of

the truck. This device, acting in combination with the Graduated Spring System, corrects the vertical motion of the truck and furnishes a smoothness of riding which is decidedly apparent. The guide consists of a link between transom and bolster which is designed so that it will absorb all vibrations and jolts set up at any point in the truck, the bolster end of the link merely turning on its pin. The friction-producing and friction-transmitting chafing plates of the old trucks are done away with altogether through the use of the Bolster Guide.

The 77-E is equipped with Brill solid-forged sideframes, which fact speaks eloquently for its ruggedness and stamina. Brill "Half-ball" Brake Hangers constitute another very important feature.

This truck has been used extensively for low-level cars, being equipped in such cases with 24-in. wheels. The efficiency of the truck for such service is convincingly demonstrated by the number of such orders that have been received.



		77-E1	77-E2X	77-E2			
	Gage	3'35" 3'6" 4'0" 4'81" 5'0" 5'21" 5'3"	3'35" 3'6" 4'0" 4'81" 5'0" 5'21" 5'3"	3'33'' 3'6" 4'0" 4'83" 5"0" 5'23" 5'3"			
В	*Centers of Side Frames	5'0" 5'2" 5'8\\\" 6'3" 6'6\\" 6'9" 6'9"	5'0" 5'2" 5'8}" 6'3" 6'6}" 6'9" 6'9"	5'1" 5'3\!" 5'9\!" 6'3" 6'6\!" 6'9" 6'9"			
V	Radius of Rub Plates	1'111'' 2'11'' 2'4" 2'6" 2'71'' 2'9" 2'9"	1'111'' 2'11'' 2'4" 2'6" 2'71'' 2'9" 2'9"	1'1111" 2'11" 2'4" 2'6" 2'71" 2'9" 2'9"			
L	*Length of Axle	5'8\" 5'10\" 6'4\" 6'11\" 7'2\" 7'5\" 7'5\"					
D	*Width Over All	6'6" 6'8" 7'2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	6'6" 6'8" 7'2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	6'7" 6'9½" 7'3½" 7'9" 8'0½" 8'3" 8'3"			
Ε	Wheel Base	6'0'' and 6'6''	6'0" and 6'6"	6'3" and 6'6"			
Н	Wheel Diameter	30" 33" 36"	30" 33" 36"	30" 33" 36"			
P	Height of Body Bolster with Empty Body	28\" 30" 31\"	283" 30" 313"	29}" 31" . 32}"			
Y	Height (Minimum) of Side Bearings with Empty Body	315" 33" 345"	31}" 33" 34}"	321" 34" 351"			

*If width of motor does not allow length of wheel hub to equal diameter of wheel bore, these dimensions may be increased.

X Distance between hubs. This is variable to suit motor.

U Truck brakes furnished to this point only. Contact beam support east on journal boxes if required.

King bolt not furnished by truck builder.

The Following Limitations are Recommended

								77-E1	77-E2X	77-E2
Maximum Diameter of J	our	nal						3 3/4"	41/4"	41/4"
Weight of Car Body with I Load—Not to Exceed	šqu	ipn	nen	t an	d P	asse	enger	46,000 Lbs.	46,000 Lbs.	63,000 Lbs
Speed—Not to Exceed								50 M. P. H.	50 M. P. H.	60 M. P. H
Motors-Not to Exceed								75 H. P.	75 H. P.	125 H. P.

77-E1 Special Truck for Low-Floor Cars

	Gage	Metre 3'3 3'8"	3'6"	4'0"	4'8 1/2"	5'0"	5'2 1/2"	5'3"
В	Centers of Side Frames	4'10 5%"	5'2"	5'8 1/8"	5'9 14"*	6'0 34"*	6'3"	6'3 34"
٧	Radius of Rub Plates	1'5 16"	1'634"	1'9 34"	2'2"	2'3 34"	2'43/4"	2'434"
	Length of Axle—M. C. B. Journal	5'6 3/8"	5'10 1/4"	6'43/8"	6'5 1/2"*	6'2"*	6'11 1/4"	7'0"*
L	Length of Axle—Check Plate Journal	5'6 1/4"	5'9 5/8"	6'3 34"	6'5"*	6'8 3/8"*	6'10 5%"	6'113%
	Length of Axle—Check Plate Journal—Restricted Width .	5'6 1/4"	5'9 5/8"	6'3 34"	6'4 1/8"*	6'8 3/8"*	6'10 5%"	6'113/8"
	Width Over All—M. C. B. Journal	6'13%"	6'434"	6'10 3/8"	7'0"*	.7'3 1/2"*	7'5 34"	7'61/2"
D	Width Over All—Check Plate Journal	6'13%"	6'434"	6'10 3/8"	7'0"*	7'3 1/2"*	7'5 34"	7'61/2"
	Width Over All—Check Plate Journal—Restricted Width	5'8 1/4"	5'11 16"	6'55%"	6'634"*	6'10 1/4"*	7'0 1/5"	7'1 1/4"

* These dimensions to be increased when wheels having wider than 2½" tread are used.

King bolt not furnished by truck builder.

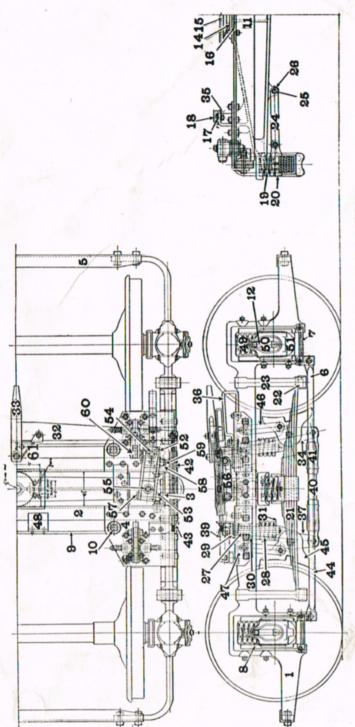
U Truck brakes are furnished complete to this point only.

X Distance between hubs. This is variable.

н	Diameter of Wheel		24"	26"
Р	Distance from Track to Underside Body Bolster with Empty Body .	of	21 1/4	22 1/4
Y	Height (Minimum) of Side Beari with Empty Body	ngs	23 1/2"	24 1/2"
	Standard Wheel Base		5'1 1/2"	5'4"

The Following Limitations are Recommended

		77-E1 Special
Maximum Diameter of Journal		33/4"
Weight of Car Body with Equipment and Passenger Load-Not to Exc	eed .	40,000 Lbs.
Speed—Not to Exceed		40 M. P. H.
Motors—Not to Exceed		40 H. P.



NAMES OF PARTS OF BRILL 77-E TRUCK

Brake Hanger Brake Hanger Carrier Motor Support Bracket Journal Box Spring Journal Box Lid	Bolster Guide Block (Transom) Bolster Guide Block (Bolster) Bolster Guide Trunnion (Transom) Bolster Güide Trunnion	(Bolster) Bolster Guide Tie Rod Bolster Guide Pin Bolster Guide Spring Bolster Guide Spring Horizontal Lever Clevis	Brake Rod Fulcrum
44 44 48 49 50 50	5 5 5 5	50 50 50 50 50 50 50 50 50 50 50 50 50 5	19
31 Motor Support Spring Seat (Bottom) 32 Horizontal Lever 33 Top Brake Rod Sub 34 Upright Live Lever 35 Side Bearing (Integral part of cast	steel bolster) Horizontal Lever Slide Dead Lever Dead Lever Guide Bottom Brake Rod	Bottom Brake Rod Jaw Brake Release Spring Brake Release Spring Nut Brake Shoe Brake Head	
25.55	339	24444	
Truck Center Plate Side Bearing Adjusting Plates Side Bearing Wear Plate Bolster Spring Seat	Semi-Elliptic Spring Rocker Seat Swing Link Bolster Spring Seat Tie Rod Bolster Spring Seat Tie Bolt Bolster Spring Seat Tie Spring	(indicated) Motor Support Spring (Top) Motor Support Spring (Bottom) Motor Support Spring Cap Motor Support Spring Seat (Top)	
16 17 19 19 19 19	រដ្ឋមន្ត្រ	2,885	
Side Frame Transom Corner Bracket Transom Gusset Plate End Frame Angle	The Dar Pedestal Tie Bar Pedestal Gib or Wear Plate Motor Support Motor Support Bolt Bolster	12 Journal Box Bearing (location indicated) 14 Truck Center Plate Ring (location indicated) 15 Body Center Plate	
H 61 10 4 10 4	01.8001	12 14 15	
			25

When ordering spare parts give type of truck, order number (see plate on truck side frame), and name of part. When possible give casting number shown on part. When part with same name is on both sides of truck, specify whether "right" or "left" hand. Use motorman's position nearest part in determining right and left hand parts.