

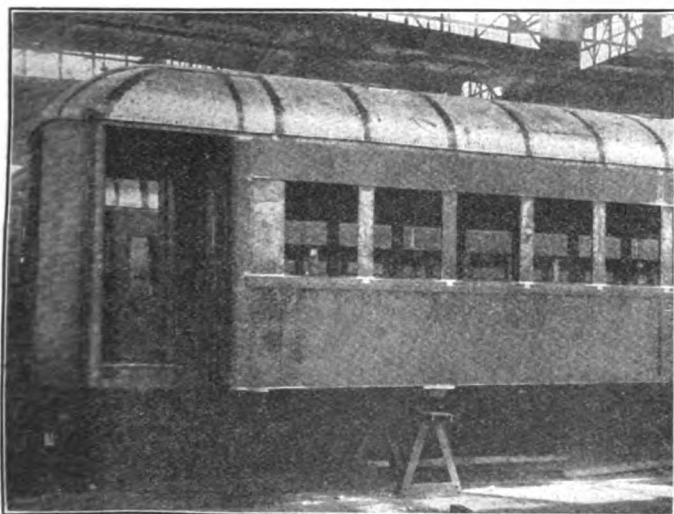
Seventy-Foot Steel Suburban Car Built for the Chicago, Rock Island & Pacific by the Standard Steel Car Company

Suburban Car Featured by Low Unit Weight

New Rock Island Steel Coach Weighs Only 920 Lb. per Seated Passenger—Special Lighting Equipment

AS A PART of a program calling for the expenditure of \$1,000,000 this year in new equipment, the Chicago, Rock Island & Pacific early in the year placed an order for 50 steel suburban cars with the Standard Steel Car Company. These cars, designed by the Standard Steel

in each end of the car for the convenience of passengers who may be standing in front of the longitudinal seats. The window arrangement has been worked out so as to provide an unobstructed view, and there is a full window to each seat. The window sills are at a convenient height and form com-



Erecting Work Completed—Car Ready for Application to Trucks

Car Company in accordance with specifications prepared by the Chicago, Rock Island & Pacific, are now being delivered and mark an important step forward in the design of this type of car. Without sacrificing strength, the weight of the car has been kept down to 92,100 lb., the body weighing 66,400 lb. and the trucks 25,700 lb. The seating capacity is 100, thus making the weight per seated-passenger approximately 920 lb. These cars are believed to weigh less per seated passenger than any heretofore built.

Particular attention has been given to the comfort and convenience of the passengers as will be seen in many features of the design. The rattan cross-seats, of the Walk-over type, have been made wider than usual in suburban cars and are designed to give maximum comfort to two passengers in each seat. The seat backs are equipped with neat brass handles next to the aisle and 10 hand straps are provided



Interior View of the Car Completely Equipped Ready for Service

comfortable arm rests for passengers sitting next to the windows.

In order that passengers may be protected from cinders as much as possible, these windows have been arranged so that they can be raised but 10 to 12 in. At the same time, the

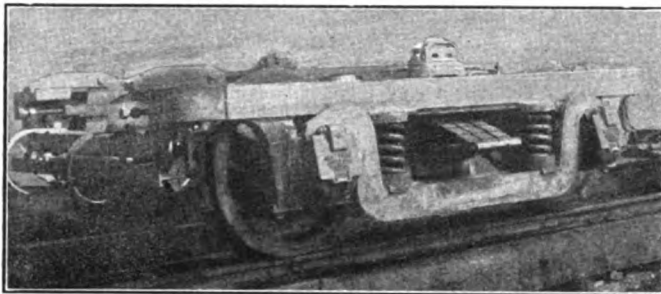
bottom rail of the sash does not interfere with the view of an adult passenger. The end doors, as well as the platforms and steps, have been considerably widened over those of other cars of this character so that two lines of passengers can pass out of the doors and down the steps at the same time. End hand rails extend from the door posts to the side of car, parallel to the platforms and slope of the steps. These features, together with the longitudinal seats at each end of the car and the absence of arm rests on the aisle ends of seats, will permit an unusually rapid loading and unloading of passengers. Platforms are provided with safety gates that automatically lock in either open or closed position.

The electric lighting system is designed to afford the best distribution of light that it is possible to obtain, by means of a row of 13 lamps, mounted on each side of the car, each row being located approximately over the center of the cross seats. One lamp is also mounted above each platform step.

The heating system is of the vapor type with double automatic thermostatic control. This control is entirely automatic and does not need the attention of train crews or yard men to operate it. It automatically keeps the temperature

released, the door is automatically held in position to prevent slamming. No doors are provided in the vestibules of these cars, gates being used instead.

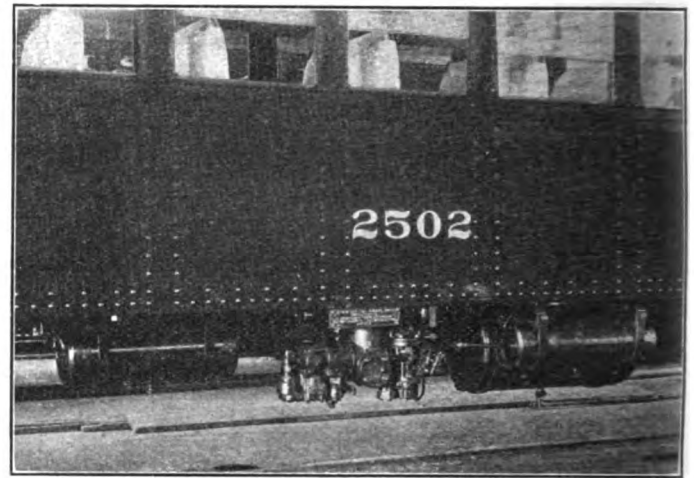
The light weight of these cars was made possible solely by careful analysis and calculation, no use being made of light weight non-ferrous metals. With the exception of the zinc bottom floor sheet and galvanized roof sheets the cars are constructed throughout of copper bearing steel insofar as all



Four-Wheel Truck Equipped with Cast Steel Frame and Clasp Brakes

of the car between 70 and 73 deg. F. while in train service and at 50 deg. F. while standing on steam in the yards.

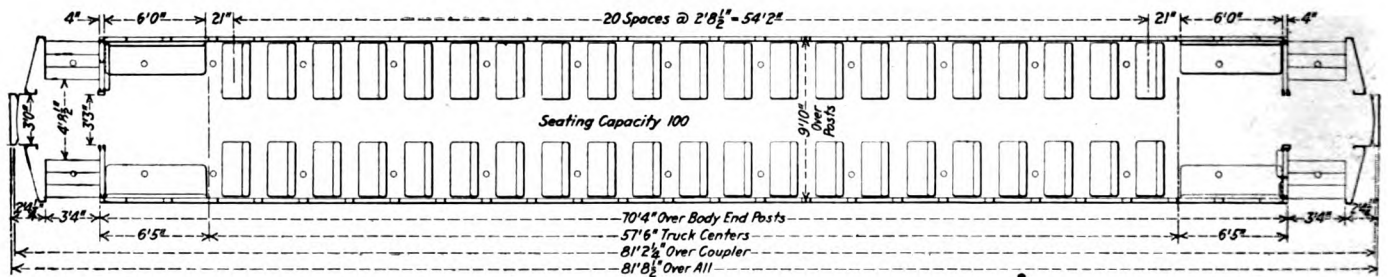
While it is true that the ratio of live to dead load has been given little consideration in passenger service, these cars represent decided progress towards establishing a desirable relation from the operating viewpoint. The light weight plus the use of clasp brakes and arrangements for rapid load-



Application of Westinghouse Type U. C. Brake Equipment

sheets, plates and structural members are concerned. The side girder type of construction is used with the sides from belt rails to side sills designed to carry the vertical loads. Vertical loads imposed upon the floating center sills are transmitted to the side girders by three substantial cross-bearers. Cast steel combined body bolsters and platform castings are used. The roofs are of the elliptic type, the design making use of a relatively long middle ordinate so as to provide a pleasing roof contour from both inside and outside. The car bodies are equipped with friction draft gears and friction buffers.

The equipment includes four-wheel equalized trucks having cast steel truck frames with integral pedestals, 33-in. solid wrought steel wheels, axles with 5-in. by 9-in. journals,



General Arrangement of New Rock Island Steel Suburban Cars Built by the Standard Steel Car Company

ing and unloading will permit of decreases in the time increments required for acceleration, deceleration and station stops.

The length of the car over the body end posts is 70 ft. 4 in. and the width over the roof sheets, 10 ft. 0 1/8 in. The total height above the rail is 13 ft. 7 3/4 in. There are 42 cross seats each seating two persons and four longitudinal seats, each seating four persons. The ease of entrance and exit are readily apparent from the drawing which shows the end doors to be 3 ft. 3 in. wide and the steps 3 ft. 4 in. wide. The two end doors are of the sliding type with latches similar to those used on subway cars. The doors can be readily moved by a pull on the handle, but as soon as the handle is

roller side bearings and clasp brakes. The wheelbase of the trucks is 6 ft. 4 in. and the distance between truck centers is 57 ft. 6 in.

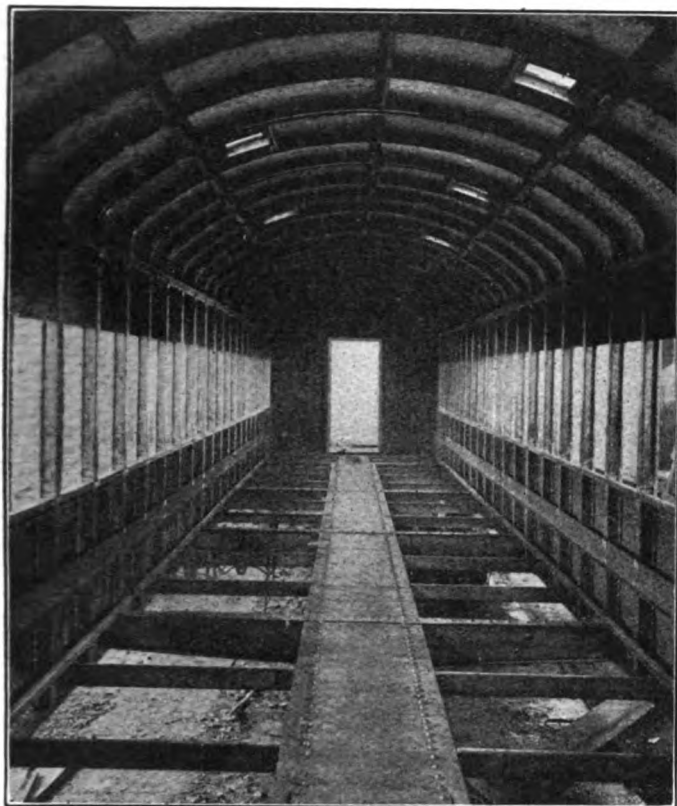
The electric lighting equipment is of interest because of the provision made to prevent a complete light failure at any time, and also because of the provision made to enable the use of either 64 or 32-volt current supply. The Rock Island standard car lighting service utilizes a 7 1/2-kilowatt 64-volt turbo-generator with the necessary control devices placed on the suburban locomotives, using three-wire train lines for distribution to the cars. However, it is occasionally desirable to attach a suburban car to the rear of a regular main line train, at which time the lighting equipment of the car must be

so designed that the car will automatically make the proper connections for utilizing 32 volts on the lighting circuit instead of 64 volts. To this end, each of the new steel suburban cars is equipped with an especially designed automatic selector switch. This switch automatically causes the proper voltage to be impressed upon the lamps, regardless of whether

emergency position and the fourth step is the second emergency position. This switch is plainly stenciled to insure proper operation by the trainmen.

Each car is equipped with a 32-volt, 80-ampere-hour emergency storage battery floated on the train lines through a resistor. This battery is so connected that in case of failure of the current supply from the engine, its current is automatically made available for the lamp circuits, it only being necessary for the trainmen to throw the four-position trainmen's switch into one of the two emergency positions. The connection of the wiring to the trainmen's four-position switch is such that should he fail to secure light when he places the switch handle in the first emergency light position, he has only to push it on a little further to the second emergency light position when light will be secured. The lamps are so connected in series parallel in alternate pairs that when the four-position switch is in either of the two emergency positions that only one-half of all the lamps in the car are lighted. An even distribution of the lighting, however, is maintained due to the method of wiring and location. This emergency lighting arrangement affords ample lighting for the car by having all the lamps in the car connected to one or the other of the two emergency circuits. It is always possible in case of failure of one circuit to still supply ample light to the car with the other circuit and at the same time maintain an even distribution of the light.

Inasmuch as the battery with which these cars are equipped is used primarily to control the heating system, and only serves in an emergency for lighting, a small size, lightweight battery is used. The heating equipment includes an air operated switch that disconnects the lighting circuit from the battery, when there is no air on the car, so that the battery cannot be bled when cars are standing in yards.



Interior View, After Assembly of Underframes, Sides and Roof

the current supply to the car through its train line connector is 64 or 32 volts. This switch operates in conjunction with a manually controlled switch which is the only part of the entire equipment that is accessible to the trainmen. This is a four-position switch with the lever operating in one direction from the first step, which is the off position. The second step is the full-on position, the third step is the first

Freight Car Loading

WASHINGTON, D. C.

REVENUE FREIGHT CAR LOADING during the week ended August 11 showed a decrease of nearly 60,000 cars as compared with the preceding week. The reduction, however, is attributed entirely to the cessation of industry for various periods during the week of the funeral of the late President Harding. As the reduction represents only a part of one day's loading, it is believed that the figures would otherwise have shown an increase. The total, 973,162

REVENUE FREIGHT LOADED

Summary—All Districts, Comparison of Totals This Year, Last Year, Two Years Ago. Week Ended Saturday, August 11, 1923

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded			Received from connections		
										1923	1922	1921	1923	1922	1921
Eastern	1923	8,686	2,759	47,683	3,419	5,874	8,804	60,392	87,645	225,262	195,195	196,553	258,127	204,535	195,350
	1922	10,956	2,802	6,656	1,500	5,341	6,517	66,921	92,502	195,195	196,553	145,118	204,535	195,350	
Allegheny	1923	3,579	2,622	51,918	6,453	3,596	17,037	45,693	76,598	207,496	174,561	159,339	16,335	114,397	104,198
	1922	3,820	2,745	20,506	4,179	3,182	12,645	49,897	77,587	174,561	159,339	16,335	114,397	104,198	
Pocahontas	1923	359	160	28,843	580	1,863	210	6,200	4,530	42,745	29,192	29,142	16,335	10,393	12,979
	1922	236	204	21,156	237	1,032	33	3,702	2,592	29,192	29,142	16,335	10,393	12,979	
Southern	1923	3,691	2,033	21,597	1,135	23,327	1,702	37,225	36,621	127,331	108,913	108,981	78,459	66,513	61,339
	1922	3,931	2,148	17,407	960	16,769	1,227	34,134	32,337	108,913	108,981	78,459	66,513	61,339	
Northwestern	1923	10,883	7,816	10,158	907	19,122	50,933	29,825	38,080	167,724	147,258	125,494	52,390	40,895	47,349
	1922	13,812	6,621	5,995	968	14,790	46,336	29,081	29,655	147,258	125,494	52,390	40,895	47,349	
Central Western	1923	13,859	12,029	13,076	291	11,290	2,725	34,243	52,917	140,430	135,336	126,897	65,475	62,568	51,104
	1922	18,640	10,898	6,060	393	8,380	2,222	34,184	54,559	135,336	126,897	65,475	62,568	51,104	
Southwestern	1923	5,092	3,388	3,984	149	8,366	418	14,107	26,670	62,174	52,235	61,863	44,921	40,352	45,333
	1922	5,923	3,007	3,118	178	6,157	478	12,694	20,680	52,235	61,863	44,921	40,352	45,333	
Total West. Dists.	1923	29,834	23,233	27,218	1,347	38,778	54,076	78,175	117,667	370,328	334,829	314,254	162,786	143,815	143,786
	1922	38,375	20,526	15,173	1,539	29,327	49,036	75,959	104,894	334,829	314,254	162,786	143,815	143,786	
Total, all roads.	1923	46,149	30,807	177,259	12,934	73,438	81,829	227,685	323,061	973,162	842,690	808,269	660,825	539,653	517,652
	1922	57,318	28,425	82,898	8,415	55,651	69,458	230,613	309,912	842,690	808,269	660,825	539,653	517,652	
Increase Compared	1922	61,326	26,307	156,891	4,355	44,963	32,949	216,211	265,267	130,472	13,149	130,472	121,172	121,172	121,172
Decrease Compared	1922	11,169	2,382	94,361	4,519	17,787	12,371	13,149	13,149	130,472	13,149	130,472	121,172	121,172	121,172
Increase Compared	1921	4,500	20,368	8,579	28,475	41,880	11,474	57,794	164,893	164,893	164,893	143,173	143,173	143,173	143,173
Decrease Compared	1921	15,177	15,177	15,177	15,177	15,177	15,177	15,177	15,177	15,177	15,177	15,177	15,177	15,177	15,177
Aug. 11	1923	46,149	30,807	177,259	12,934	73,438	81,829	227,685	323,061	973,162	842,690	808,269	660,825	539,653	517,652
Aug. 4	1923	52,871	31,480	190,531	13,458	76,095	83,507	240,465	344,723	1,033,130	842,663	786,178	681,425	543,964	508,356
July 28	1923	53,160	31,849	194,546	14,274	77,799	83,633	240,046	345,737	1,041,044	848,858	795,432	663,447	537,056	505,051
July 21	1923	46,275	32,454	190,788	14,888	75,808	84,307	240,182	344,225	1,028,927	845,548	788,034	657,283	525,940	492,964
July 14	1923	40,415	32,726	193,831	14,515	71,768	89,298	240,707	336,407	1,019,667	856,676	774,884	631,721	514,422	474,268

Compiled by the Car Service Division, American Railway Association.

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