



GREAT NORTHERN RAILWAY
HISTORICAL SOCIETY

Founded 1973

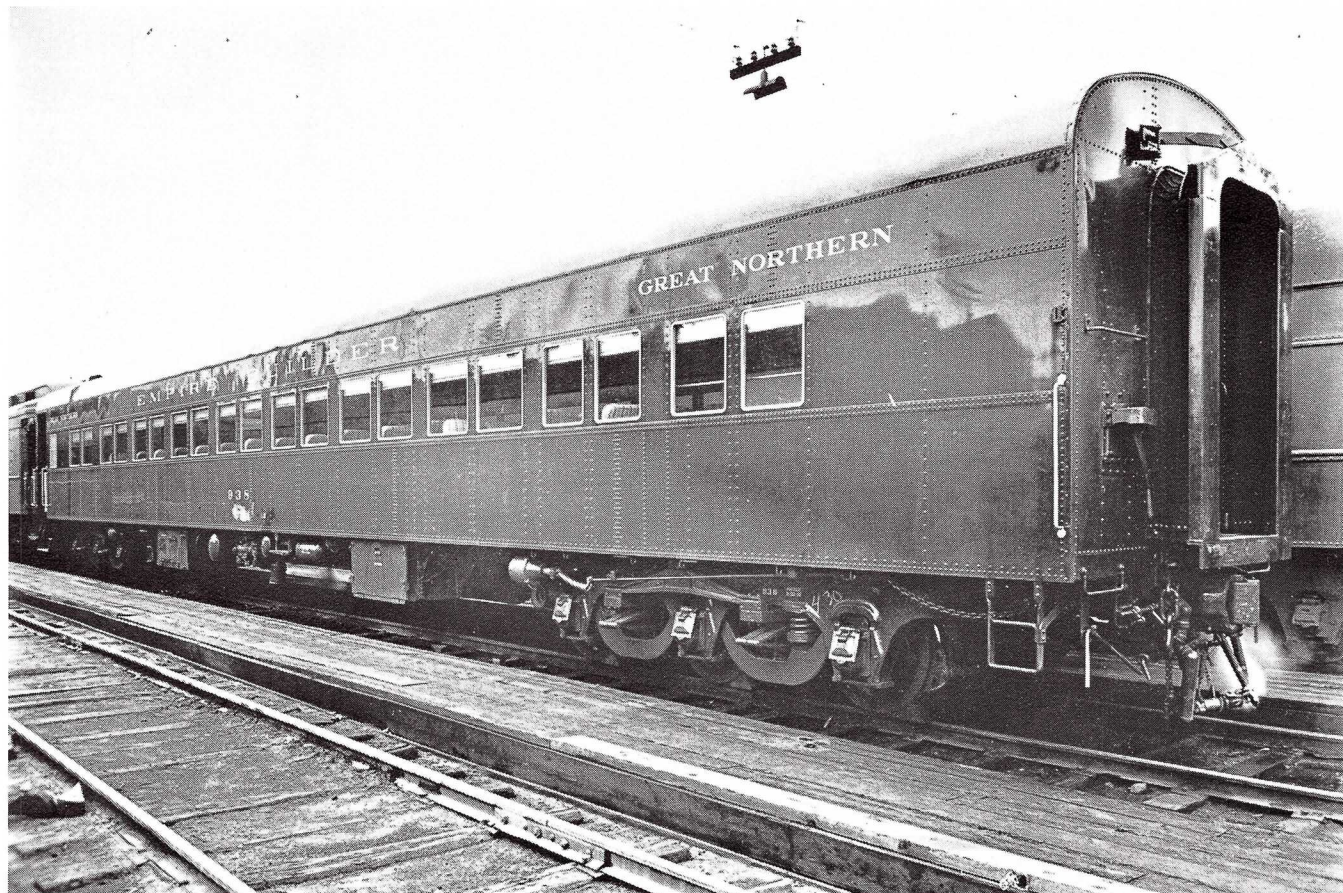
REFERENCE SHEET NO. 97

DATE: June 1985

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GREAT NORTHERN PASSENGER CAR SERIES: NO. 2

Contributor: Charles A. Rudisel



No. 938 in its original paint scheme. GN photo, C.A. Rudisel collection.

The era of streamlined, lightweight passenger equipment was well under way by February 1937 when Great Northern officials decided to upgrade the *Empire Builder* by ordering twelve new 58-seat "Deluxe" coaches from Pullman-Standard. Delivered nine months later, two of the 938-949 series were assigned to each of the train's six consists.

Built primarily of high tensile strength steel, which had recently been introduced to rail car construction as a means of reducing weight without sacrificing strength, they were, at 134,170 lbs., a bit on the heavy side of "lightweight."¹ Since they were specifically intended to operate in conventional heavy-weight trains, such contemporary styling characteristics as folding steps, skirting and outer diaphragms were deemed unnecessary and, despite the standard streamlined roof contour, the absence of these aesthetic touches combined with the riveted sides, squarish windows and somber paint scheme to create a distinctly unstreamlined appearance.

New equipment of the period typically incorporated the latest type components and engineering practices, and indeed, the interior appointments of this series generally conformed to those of the most up-to-date streamlined trains. The revolving, reclining seats were of the latest design and a definite improve-

ment over the walkover seats in the 950-series cars previously assigned to the *Empire Builder*. Other amenities included individual reading lights in the baggage rack above each seat, spacious lounge rooms and a pleasant interior color scheme. Each car also carried six small tables which could be attached to wall plates between facing pairs of seats to allow for card playing.

Mechanically, they seemed to have more in common with their heavyweight predecessors than with the builder's more recent efforts. While mechanical air conditioning in conjunction with an overhead heating coil, finned radiation floor heat and sealed windows were thoroughly modern, such specified items as six-wheel trucks, riveted side frames, type "E" couplers and "UC" brakes were rapidly becoming obsolete as far as application to new equipment.²

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The news agent's counter in cars 944-945 was replaced by six food and beverage vending machines in late 1963 to "eliminate a persistent problem...with train salesmen" on the *Gopher/Badger*. Electrical power for the machines was provided by a propane fueled engine-generator set installed in the table locker space. Available evidence suggests that these cars were briefly tested on the *Winnipeg Limited*, with a view toward eliminating the sleeper-buffet-lounges, prior to operation in the Duluth trains.³ In any event, the experiment proved less than successful because of the machines' unreliability when subjected to the rigors of rail travel, and by mid-1965, news agent service had been reinstated.

This service was discontinued on the *Winnipeg Limited* in 1967 with the introduction of snack bar-coaches 1073-1074, and as a result, car 947 was restored to its original seating capacity. In 1969, cars 944-945 were replaced in Twin Cities-Twin Ports service by ex-C&NW cars which had been equipped with a small lunch room, and by August 1970 the entire series had been retired.

Due to personnel changes at BN it was not possible to obtain individual dispositions but it is believed all cars were scrapped by 1972.

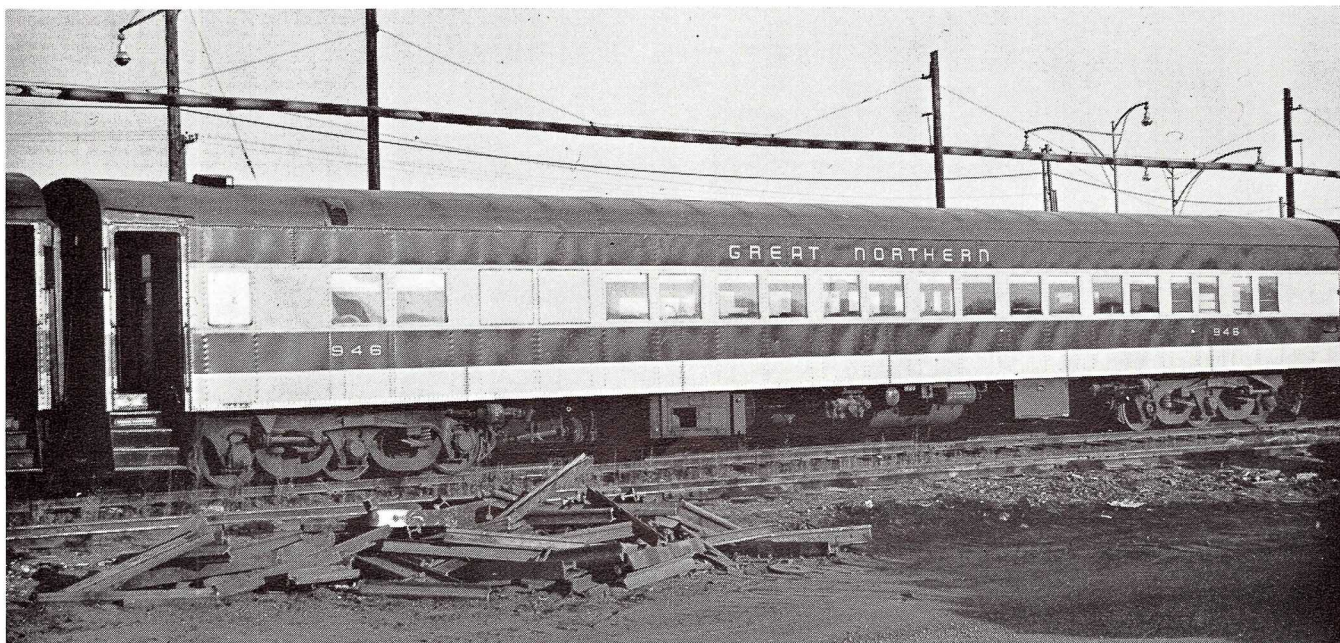
¹Average weight as delivered. Compared to weights in the 170,000 lbs. range for air conditioned cars in the 950-series built in 1914, 119,880 lbs. for the 1110-1114 series of 1946 and 110,500 lbs. for Union Pacific 5300-series coaches built in 1937 with aluminum superstructure and underframe.

²Type "E" couplers had been adopted as the industry standard in 1931, although by 1937 the type H tightlock coupler, first tried in 1928, was considered an alternate standard for passenger equipment. Original specifications for this series called for HSC brake equipment with a D-22 control valve however, prior to construction, this was changed to the standard UC brake system introduced in 1914.

³Letter of Sept. 4, 1963 from Chief Mechanical Officer M.B. Crowley to Vice President - Operating Department T. A. Jerrow; included with AFE 63-678.

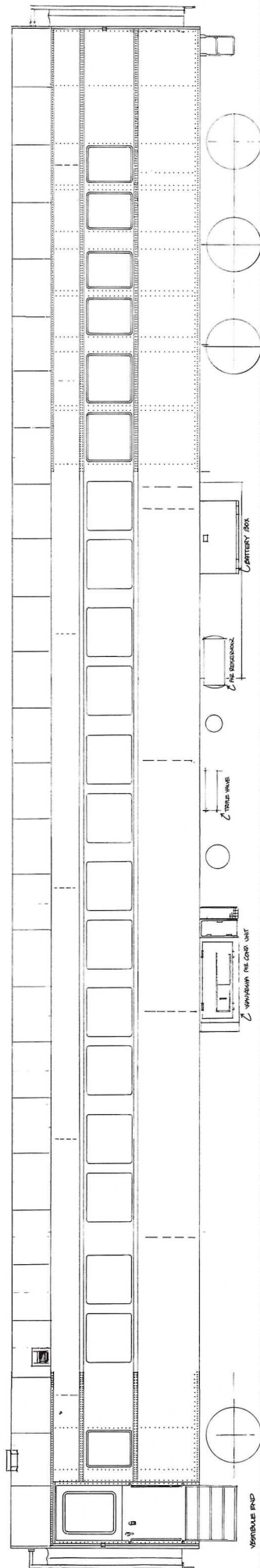
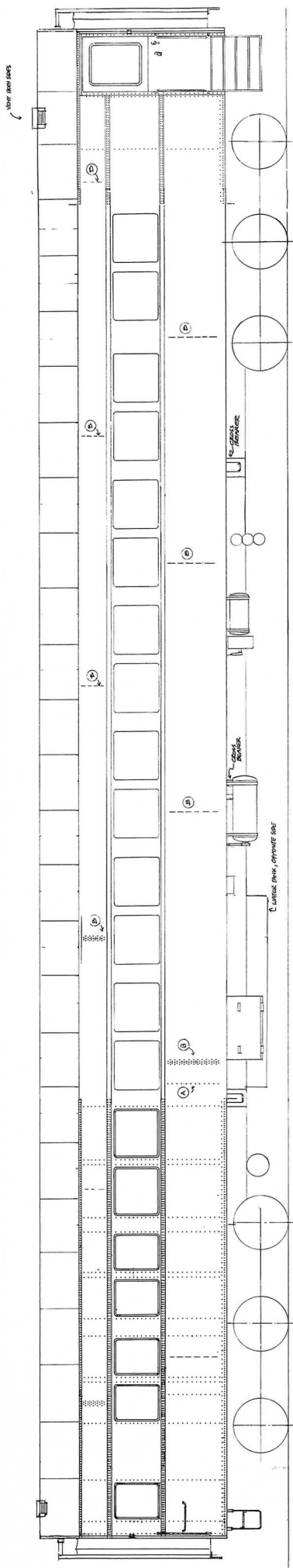


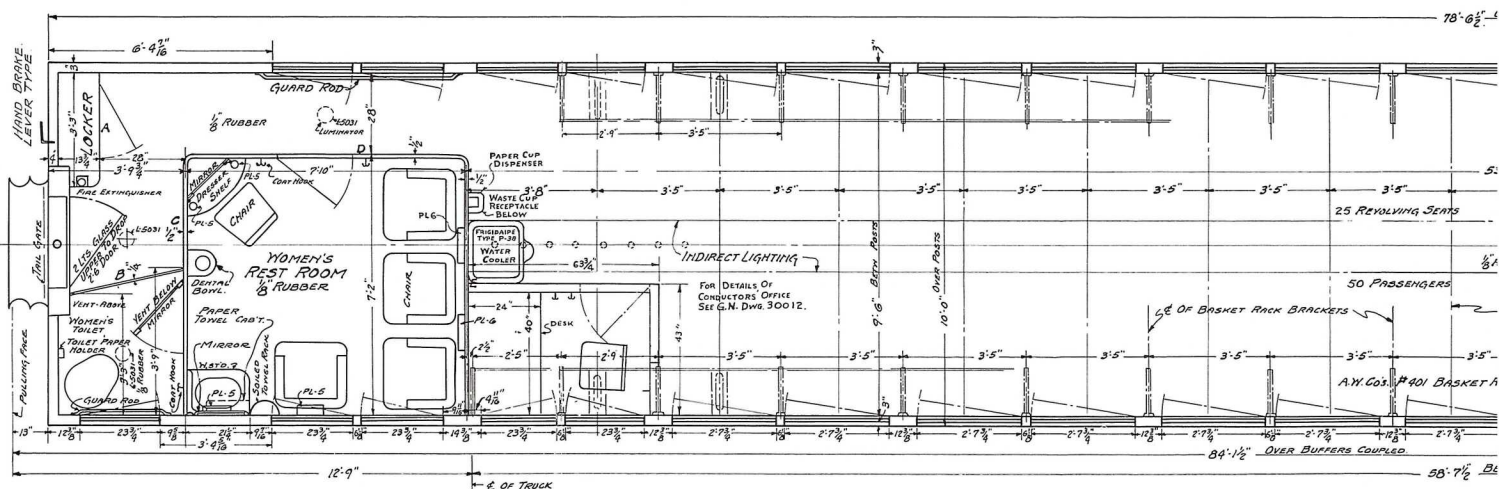
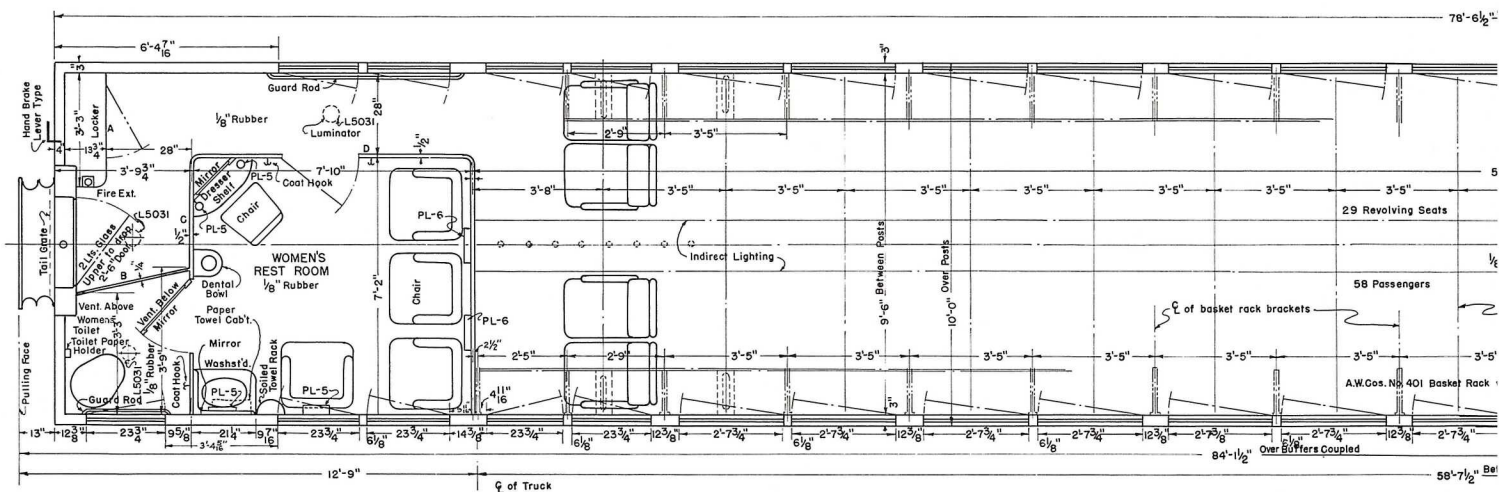
No. 938. Cordell R. Newby photo.



No. 946 at Spokane in August 1969. Cordell R. Newby photo.

Drawings by Richard D. Miller





Series 938-949 Specifications

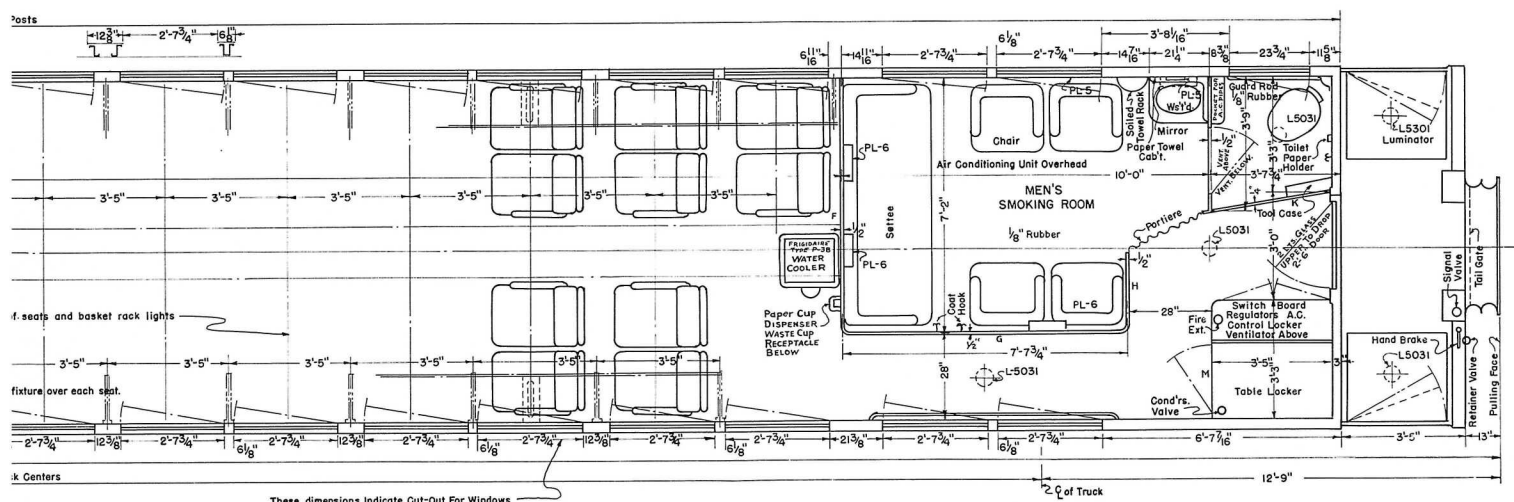
Builder	Pullman-Standard Car Mfg. Co.
Date Built	11-37 (Lot 6531 Plan 7401)
Seating Capacity	938-943 58
	944-945 44
	946-949 50
Weight	938-943 136,600 lbs.
	944-945 145,100 lbs.
	946-949 135,600 lbs.
Side Framing	Riveted Girder Type
End Framing	Riveted & Welded
Roof Framing	Spot Welded
Underframe	Welded
Center Sill	Single Inverted U Type
Coupler	Type E
Draft Gear	A-5-XB Miner
Buffer	B-10-X Miner
Sash	Outside Sealed, Inside Hinged Adams & Westlake
Glass	Inside 1/4 in. Safety
	Outside 3/16 in. Plate
Luggage Racks	A & W No. 401
Air Conditioning	Pullman Mechanical
Water System	150 Gal. Pressure
Water Cooler	P-3-A Frigidaire
Heating	Vapor Car Heating Co. ⁴
Air Brakes	1-UC New York Air Brake Co.

Brake Cylinder	2 Per Truck 10x8 in.
Truck Brakes	Clasp
Lighting	7 1/2 KW Axle Gen Safety Co.
Generator Drive	7/8 in. Belts (4)
Batteries	600 Amp. Hr. Exide
Coach Seats	938-943 Coach & Car Equipment Co. ⁵
	944-949 Heywood-Wakefield
Floor Covering	1/8 in. Rubber Tile Goodyear
Wheels	Rolled Steel 36 in.
Wheel Bearings	Roller ⁶
Journal Bearings	Friction
Journals	5 1/2 x 10 in.

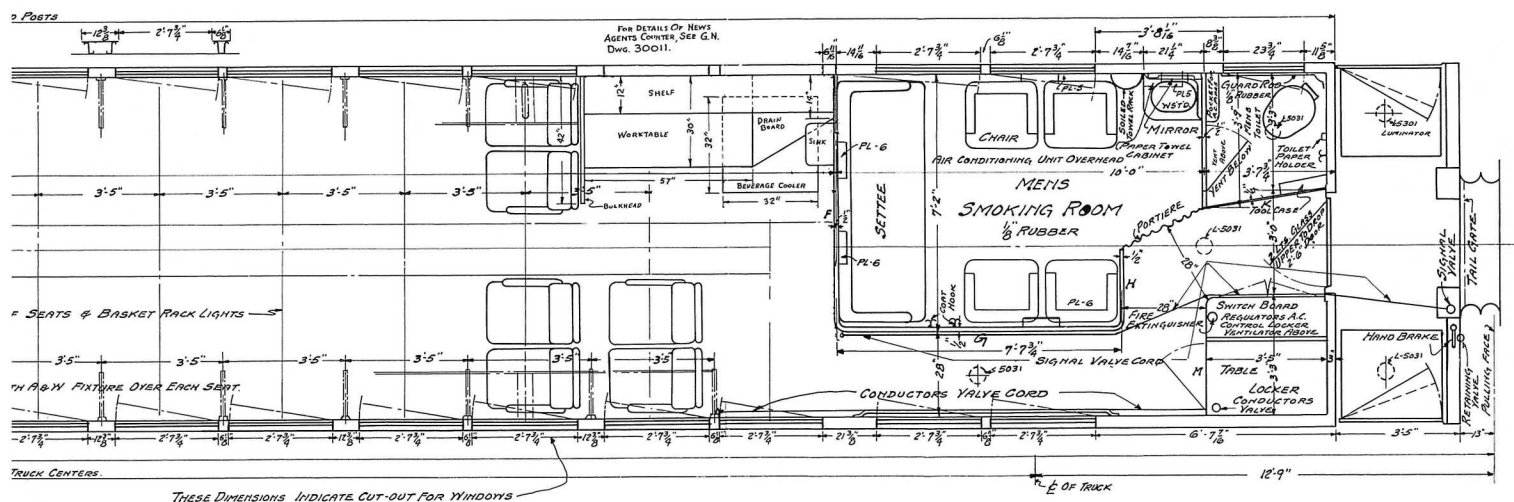
4 - Cars 938, 940, 946, 948, 494 later equipped with "Moduzone" heating, car 942 with Honeywell "Moduflo" heating and car 943 with "modernized" Vapor heating.

5 - Car 943 received Heywood-Wakefield seats in 1956 after its original seats were destroyed in a fire at the Jackson St. Shops.

6 - Originally built with American Steel Foundaries double axle unit with S.K.F. roller bearings located within the wheel hub. The unit consists of one non-rotating axle member to carry the vertical load and another to space, and rotate with, the wheels. 4 in. x 9 in. friction bearing journals later replaced with 5 1/2 in. x 10 in. timken roller bearing journals.



Plan of cars 938-943. Reprod. from GN drawing no. 30278.



Plan of cars 944-949. Reprod. from GN drawing no. 3027.

EXTERIOR COLOR CHART*

Exterior body

Pullman standard Olive Green color #88-5502 - DuPont Dulux

Vestibule Interior

Same as exterior body color.

Lettering

Gold Leaf

Roof

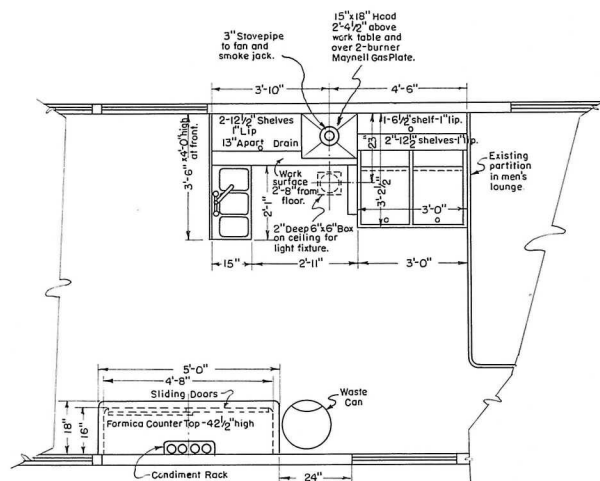
Black Kote Preserver - Acme White Lead and Color Works.

Trucks & Underbody

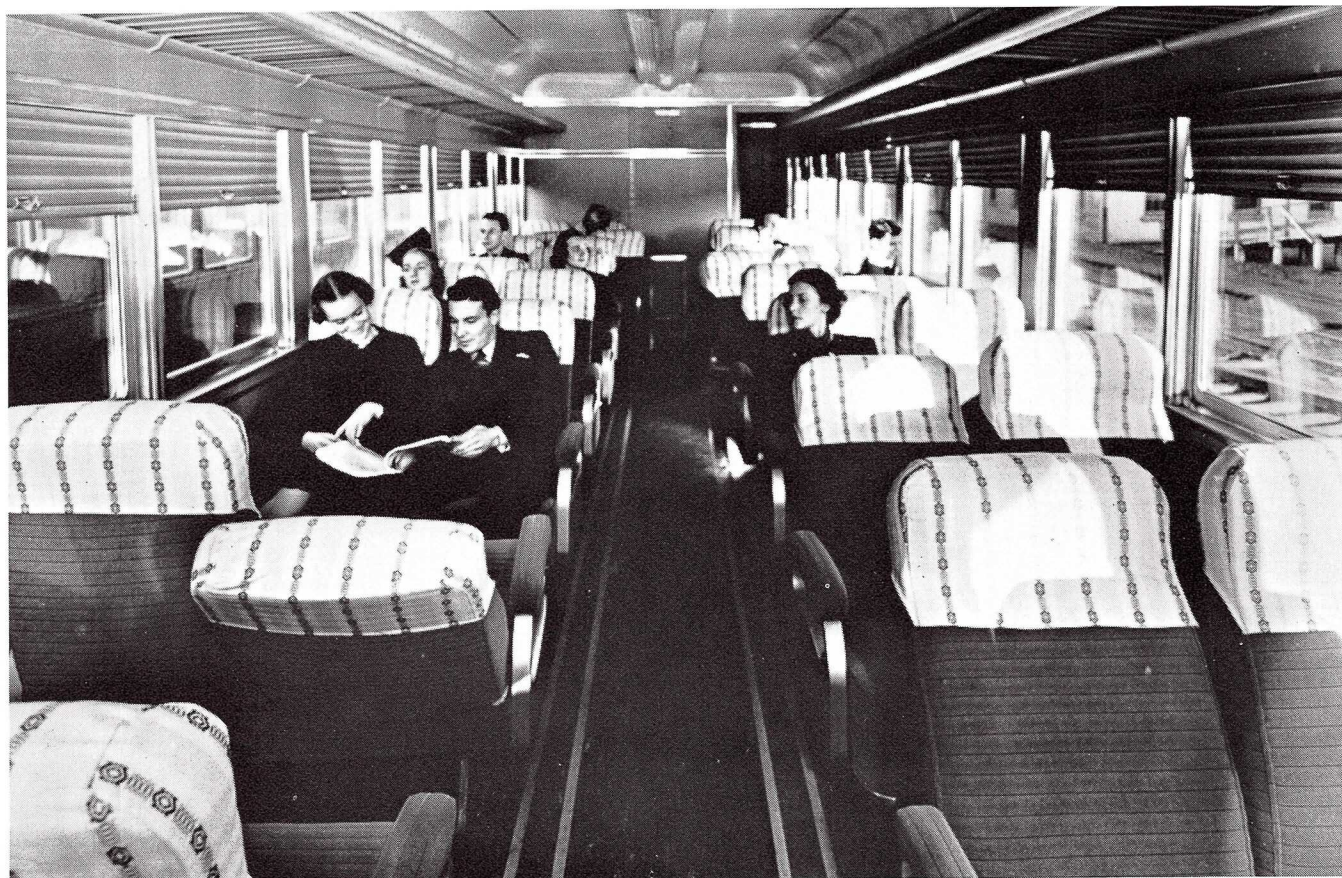
Railway standard Olive Green truck color - Acme White Lead and Color Works.

* - Original colors as built.

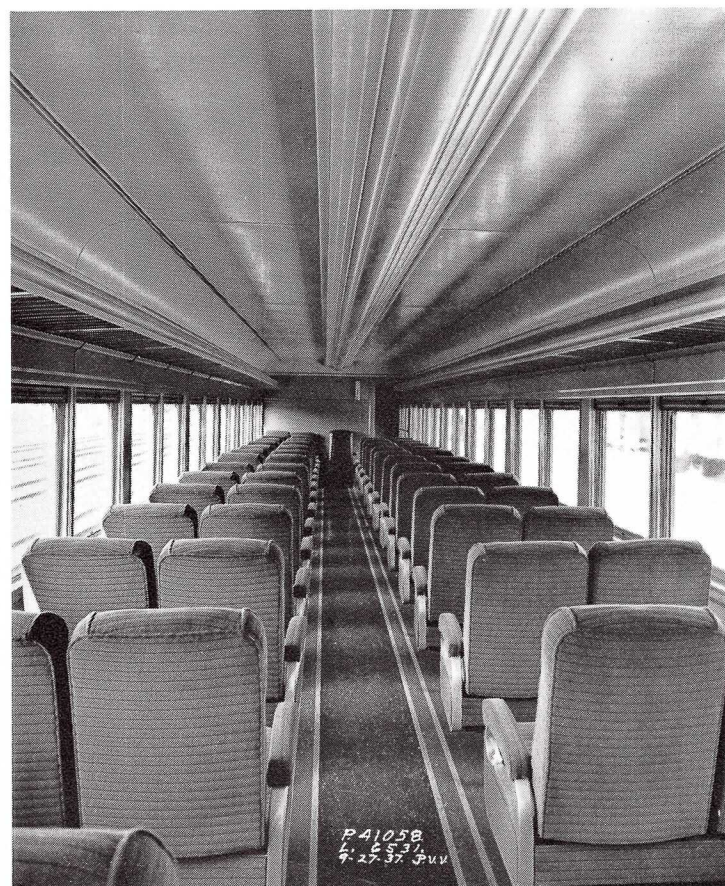
Note - The original specifications called for cars 938-947 to have Du Pont interior paint and for cars 948-949 to have Pittsburg Plate Glass Co. paint. There were substantial differences in the application process between the two brands and the PPG product was apparently being tried on an experimental basis.



Plan of news agent's facilities installed in cars 944-945 to replace vending machines. Reprod. from GN drawing no. 3004.



GN photo, C.A. Rudisel collection.



Pullman-Standard photo, C.A. Rudisel collection.

INTERIOR COLOR CHART*

Main Coach Compartment

Base Color: Dark French Green
 Wall Color: Light French Green
 Ceiling: Deep Ivory
 Seat Covering: Brown
 Floor Covering - Under Seats: Green w/ Lengthwise Grain
 Aisle Strip: Brown w/ Lengthwise Grain
 Border Strip 1 in. Tan Strips

Passageways

Base Color: Dark French Green
 Wall Color: Light French Green
 Ceiling: Deep Ivory
 Floor Covering: Green w/ Crosswise Grain

Men's Smoking Room

Base Color: Dark Nantes Blue
 Wall Color: Light Nantes Blue
 Ceiling: Cream
 Floor Covering: Brown w/ Crosswise Grain

Men's Toilet

Wall Color: Dark Nantes Blue
 Ceiling: Cream
 Floor Covering: Brown w/ Crosswise Grain

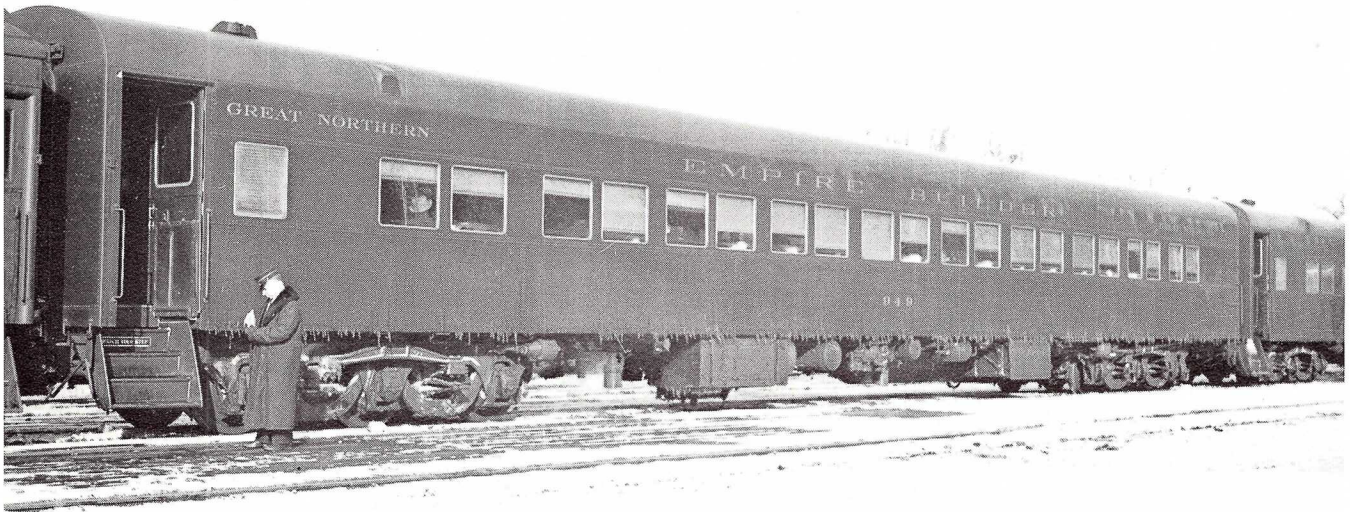
Women's Rest Room

Base Color: Dark Smoke Grey
 Wall Color: Light Smoke Grey
 Ceiling: Broken White
 Floor Covering: Brown w/ Crosswise Grain

Women's Toilet

Wall Color: Dark Smoke Grey
 Ceiling: Broken White
 Floor Covering: Brown w/ Crosswise Grain

* - Original colors as built.



No. 949 at Havre, Montana in 1937. George Votava photo, Norm Keyes collection.



Well known for its first rate passenger operation, the GN used newly rebuilt parlor cars 1083-1084 and coaches from the 938-949 series to upgrade the *Gopher/Badger* into the attractive little streamliner shown in his familiar publicity photo taken near the St. Paul Union Depot, probably in 1952. Although they were often augmented by older conventional coaches and later were largely replaced by newer second-hand equipment, certain cars from this series none the less remained regulars in Duluth service until 1969. GN photo, C.A. Rudisel collection.



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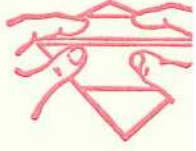
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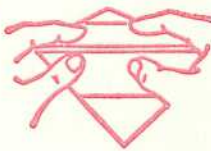


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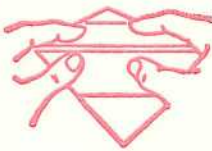
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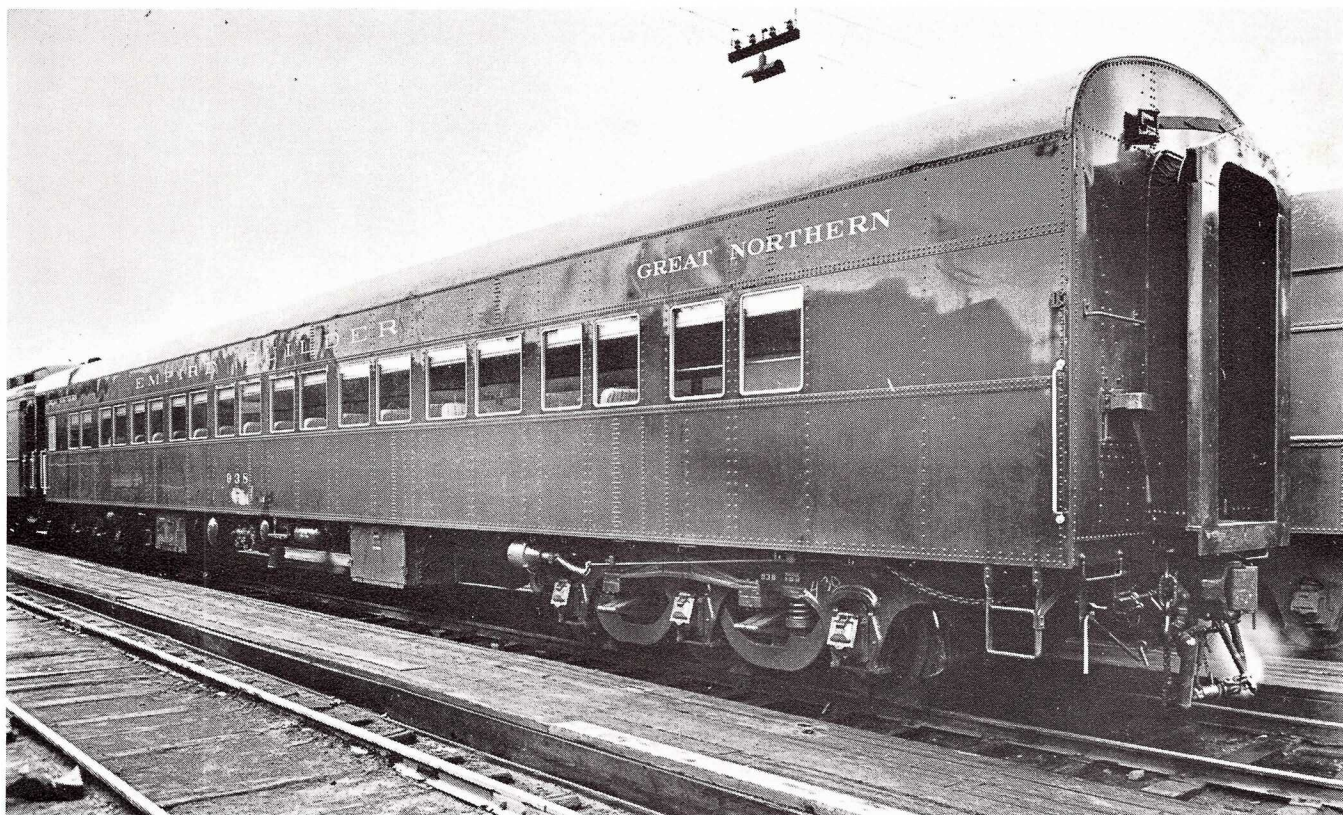


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Please cut and affix these two peel off label corrections for Reference Sheet No. 97 in the June issue. We are sorry for the inconvenience.

No. 947 was the only car in the series to be repainted Big Sky Blue. GN photo, C.A. Rudisel collection.



No. 938 in its original paint scheme. GN photo, C.A. Rudisel collection.

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All twelve cars remained in their original *Empire Builder* assignment until February 1947 when the new streamliners were inaugurated and the conventional consists became the *Oriental Limited*. A conductor's room and news agent's stand, equipped for dispensing beverages and light snacks, were installed in cars 944-949 in 1948, reducing the seating capacity by eight. The reclining seats removed from these cars were later used to replace the walkover seats in cafe-coach 975, operating between the Twin Cities and Minot in trains 9 and 10, the *Dakotan*.

As new equipment arrived for the Mid-Century *Empire Builder* in late 1950 and early 1951, the 1947 cars were gradually transferred to the *Oriental Limited*, which was renamed the *Western Star* when the transition was completed. This reshuffling also meant the upgrading of other important trains with the displaced cars.

Coaches 938-943 were initially assigned to the *Gopher/Badger* but eventually became undistinguished members of the general service pool while four of the 944-949 news agent's cars went to the Duluth trains and *Winnipeg Limited*, with the other two remaining unassigned. One of these spares ran in Seattle-Portland pool trains 459-460 during the late fifties and middle sixties.