# CANADIAN PACIFIC EQUIPMENT

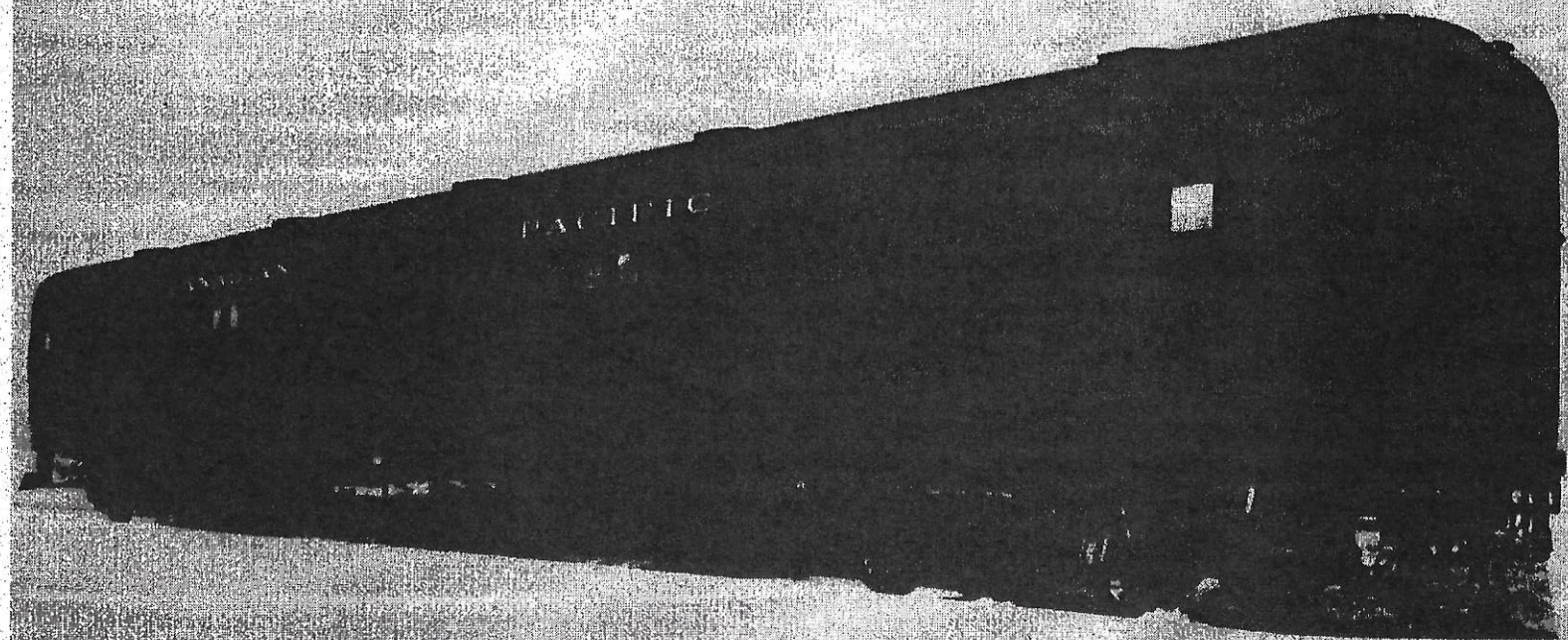
Newfoundland Ry. Flat Car Bodies Loaded on Standard Gauge Flat Car

Mention was made in our October ssue of the forwarding from Montreal f 50 new flat cars for C.N.R. New- oundland lines, these having been built y Canadian Car and Foundry Co., Ltd. t was stated that because of their arrow gauge these cars could not be auled over rail lines to the Atlantic oast; they had to be loaded on stan- ard gauge cars for the haul to Hali- ax, where they were loaded on board center sills 20 ft. over flanged angles at the car center; channel section side sills; built-up bolsters and crossbearers; channel crossties and diagonal braces. The striking castings and bolster center fillers are of cast steel. The flooring is of wood, nailed to longitudinal stringers and secured to the side sills by clamps. The cars are equipped with side and end stake pockets, A.A.R. type E automatic couplers and latest type friction

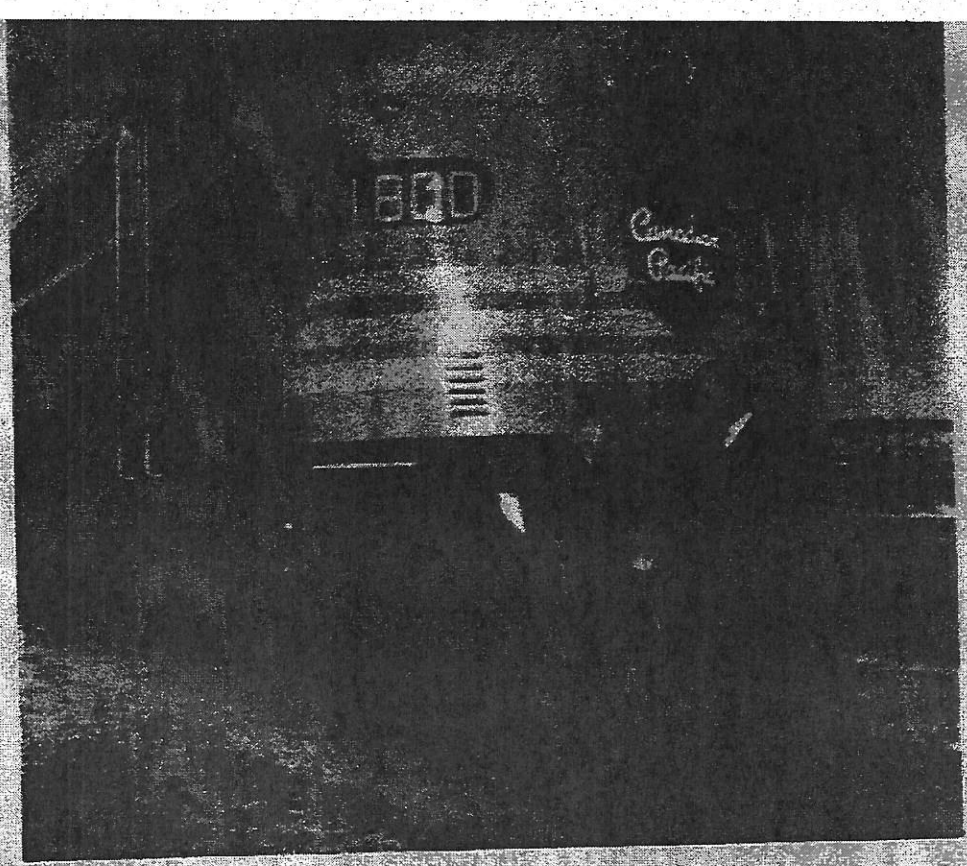
ceived during the period were eight five-bedroom, 10-roomette sleeping car frames from National Steel Car Corp., Ltd., on an order for 14; 13 cabooses from the C.P.R. Angus Shops on an order for 40, and 19 flat cars from National Steel Car Corp., Ltd., on an order for 200.

The C.P.R. received earlier this year from the builder, Canadian Car and

(Continued on page 612)




One of the 81 ft. Horse Express Cars Built for the Canadian Pacific by Canadian Car and Foundry Co., Ltd.




elivered 17 1,000 h.p. locomotives to the C.N.R. Transcona ed its order for 50 ank, express refrig- at Canadian Car and had completed the 75 tank cars, each capacity.

er, the C.N.R. used nit 4,500 h.p. Diesel- es which it has on- al Motors Corp., to er train, the Con- etween Montreal and ip having been on nt. After making the ntreal direct to Win- ange, the locomotive and hauled the east- rain out of Winnipeg. e President Alistair l as saying that these reviously been given tern Canada on high ight runs, and had rmance requirements. management then hem out under the

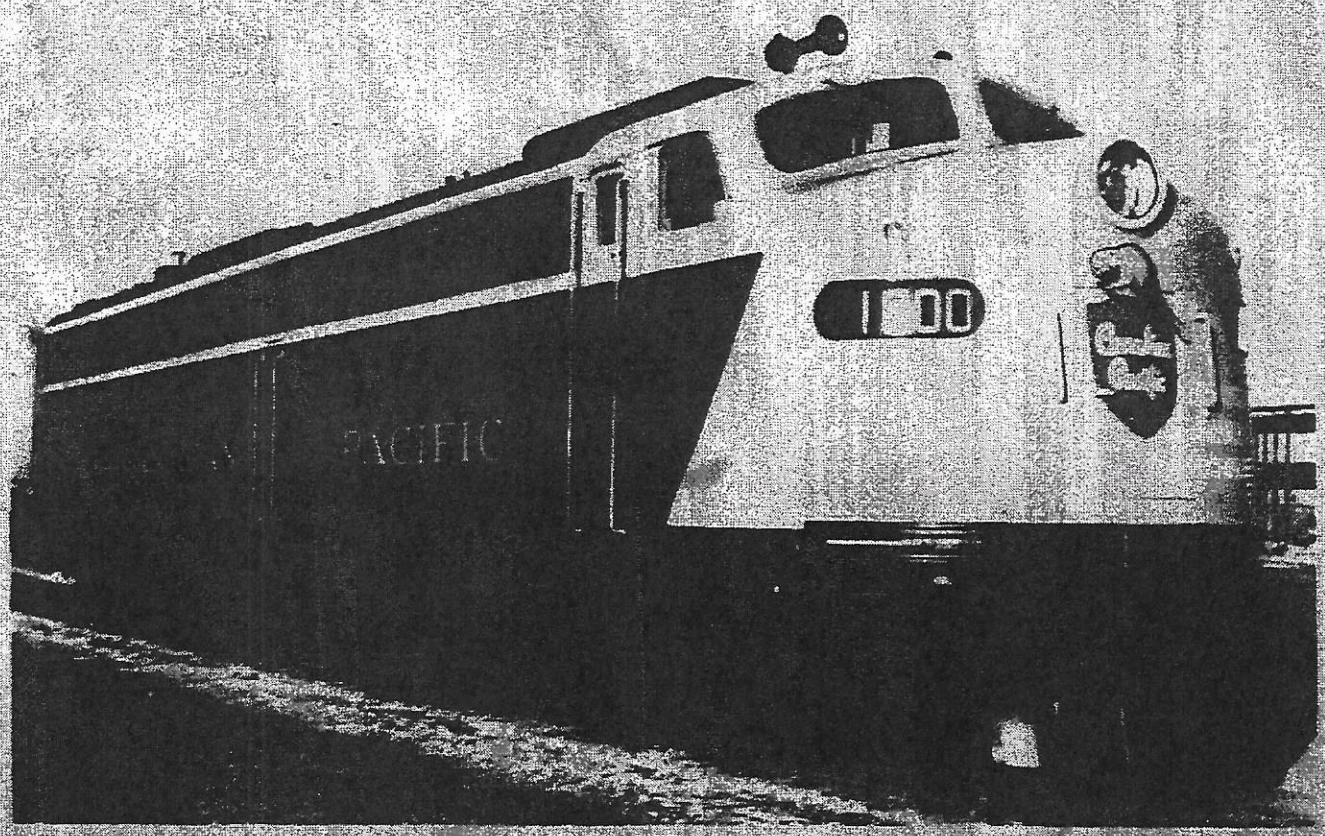
received to 273 on an order for 350, and 312 gondola cars from the Eastern Car Co., Ltd., bringing the number received to 604 on an order for 650.

The three 2,250 h.p. passenger locomotives received from General Motors Corp. have been numbered 1800, 1801 and 1802. When the first of the three, No. 1800, was received, it made the 130th Diesel-powered unit (99 switchers and 31 road locomotives) to go into service on the C.P.R. The Diesel-electric road locomotives for freight service on the Montreal-Wells River run, supplied by American Locomotive Co., were delivered previously. Passenger service, in conjunction with the Boston and Maine, has been completely Dieselized between Montreal and Boston, and the Montreal-Boston "Alouette" and "Red Wing" trains and the Montreal-Newport, Vt., local are powered by the new Diesels. This is the second complete Dieselization project made effective on C.P.R. lines, the first having been the introduction of Diesel power on the subsidiary Esquimalt and Nanaimo Ry., on Vancouver Island. As recorded in our December issue, the company has placed orders

## Diesels in C.P.R. Passenger Service

The accompanying illustration shows one of three 2,250 h.p. Diesel-electric locomotives for passenger service delivered to the Canadian Pacific by General Motors Electro-Motive Division and placed in operation between Montreal, Que., and Wells River, Vt., 171 miles. The entry of these locomotives into service completes the Dieselization of the Montreal-Wells River section, and, in conjunction with the Boston and Maine Rd., of the complete Montreal-Boston passenger run. As was recorded in our November, 1948, issue, pg. 607, at the time the C.P.R. management arrived at the decision to Dieselize the Montreal-Wells River section, Diesel-electric locomotives to a total of 23 were ordered, viz., the three

General Manager, presented Mr. Crump with an engraved gold reverser handle, stating that the gift symbolized the inauguration of the benefits of Diesel high speed passenger operation to the Canadian people. Mr. Crump, in accepting, said that the ceremony marked an important step in the C.P.R. Dieselization programme. He mentioned that receipt of the three passenger locomotives would complete the Dieselization of the Montreal-Wells River line, making it the second complete territory on the C.P.R. to employ Diesel power exclusively, the first having been the Esquimalt and Nanaimo Ry. on Vancouver Island. He also mentioned that the next section to be Dieselized will be the 517-mile Schreiber Division section north of Lake Superior, for which 58 Diesel-electric locomotives have been ordered. He recorded that upon de-




**One of the Three 2,500 h.p. Streamlined Diesel-electric Locomotives Supplied the Canadian Pacific Ry. by General Motors Corp. Electro-Motive Division, for Operation on the 171-mile Run between Montreal and Wells River, Vt.**

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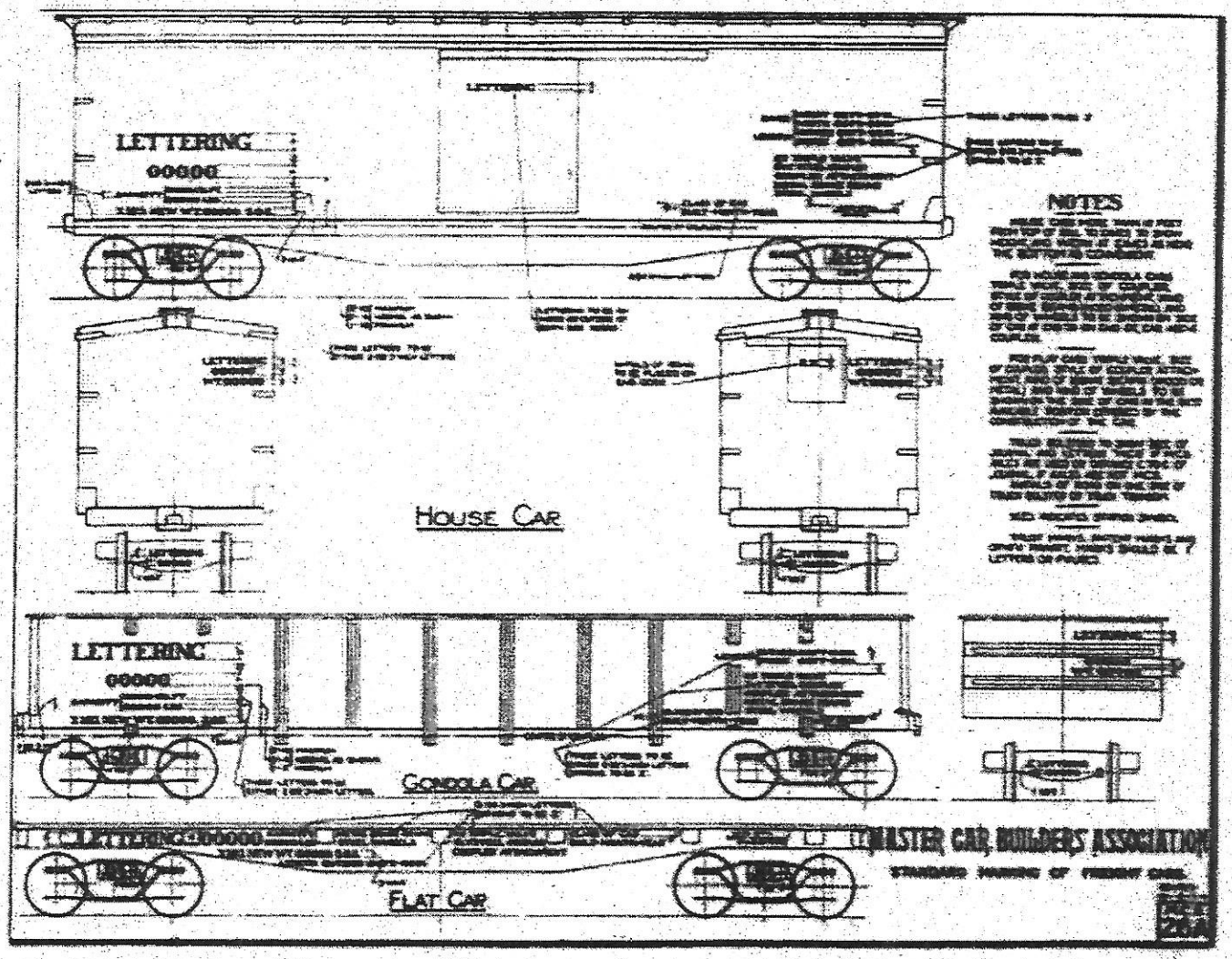
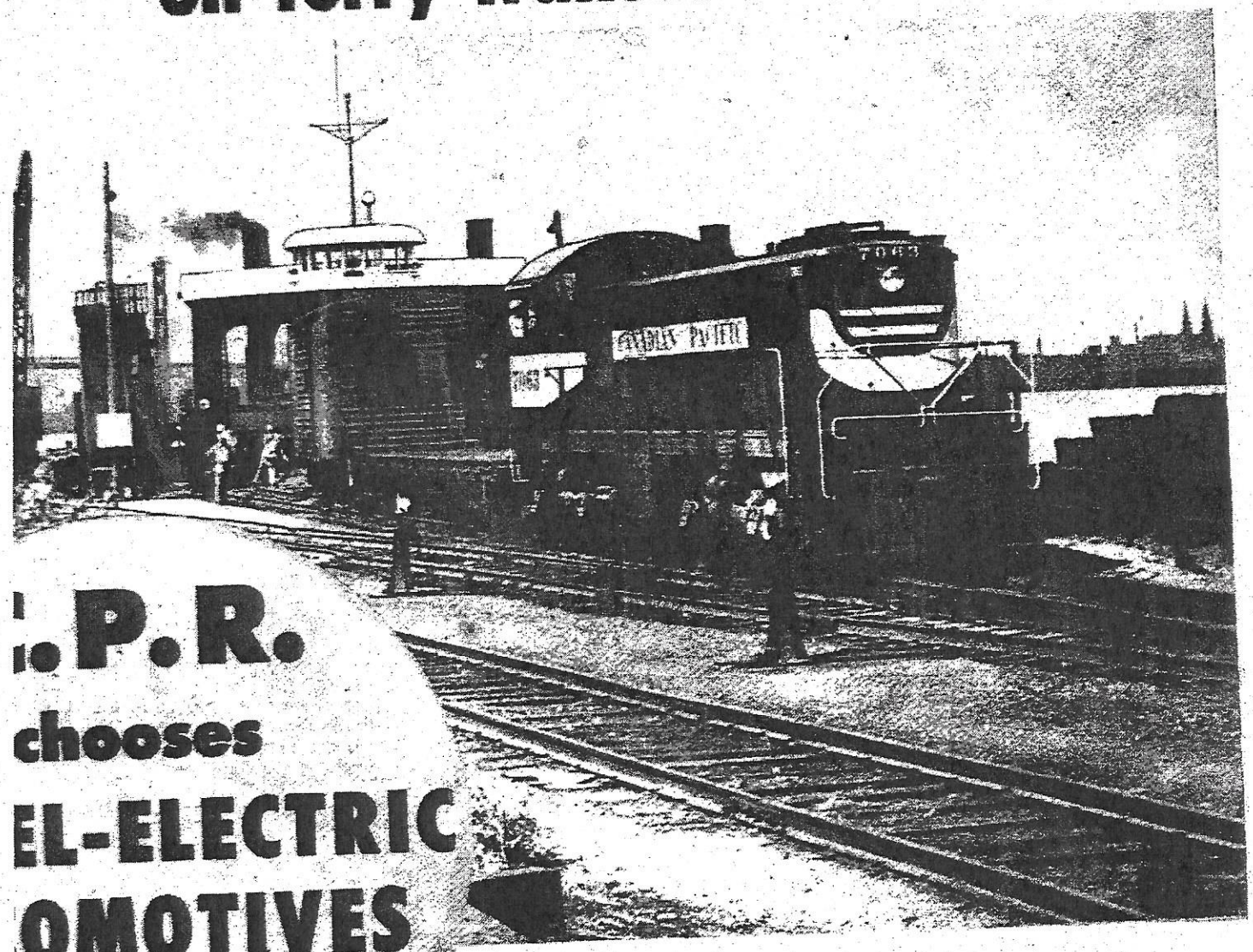
10 in. air brake cylinders for freight cars




Recommended Standard Marking of Freight Cars.

JUNE 1914

# on ferry transfer service...




# .P.R. chooses EL-ELECTRIC OMOTIVES

Windsor-Detroit car ferry requires on-dot 24-hour transfer service. Only tive power of extreme high availability th minimum maintenance requirements uld handle this assignment profitably.

e Alco-GE 1000-hp diesel-electric itchers assigned have won nothing but freight transfer hauls or in yard switching.

Now manufactured in Canada by MLW-CGE, these rugged work-horses may be the answer to your railroad or industrial motive power problem. Call your nearest MLW or CGE representative for information.

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# Rolling Stock Orders and Deliveries

**Canadian National Rys.**—The C.N.R. has ordered 28 50-ton air dump cars of 30 cu. yd. capacity from The Eastern Car Co., Ltd.

The C.N.R. has ordered 100 70-ton covered hopper cars from Canadian Car and Foundry Co., Ltd., and has also ordered from the same builder six narrow gauge sleeping cars for Newfoundland lines.

The C.N.R. has ordered 50 baggage cars from National Steel Car Corp., Ltd.

To July 20 the C.N.R. received one first class passenger car from Canadian Car and Foundry Co., Ltd., on an order for 25, and has also received from National Steel Car Corp., Ltd., 45 baggage cars on a preceding order for 50, 13 having been delivered in the period June 19-July 18.

Advice received as this issue was closing for the press was that the C.N.R. has ordered 22 115-ton, 800 h.p. Diesel-electric switching locomotives from General Motors Diesel, Ltd., for smokers, seating 28. Seats are of the "Sleepy Hollow" type, arranged to recline and revolve, and are upholstered with soft rubber cushions.

In regard to the air dump cars ordered from The Eastern Car Co., Ltd., they will be 40 ft. long, and are described as the simplest of their type yet devised by designers. They will be arranged to dump to either side, with the dumping apparatus, an air system operated by four cylinders, powered by the compressed air in the trainline. They will have reserve tanks holding sufficient compressed air to dump and replace the body of a car cut out of the train. The car is dumped by pulling of a lever, and for safety purposes the car is arranged to dump to the side away from the operator.

Announcement at mid-July by E. A. Bromley, Vice President, Purchases and Stores, C.N.R. was that an order had been placed with Canadian Car and Foundry Co., Ltd., for six self-


**The First of Twenty 16,000-gal. Tank Cars Being Supplied the Canadian Pacific by Canadian Car and Foundry Co., Ltd.**

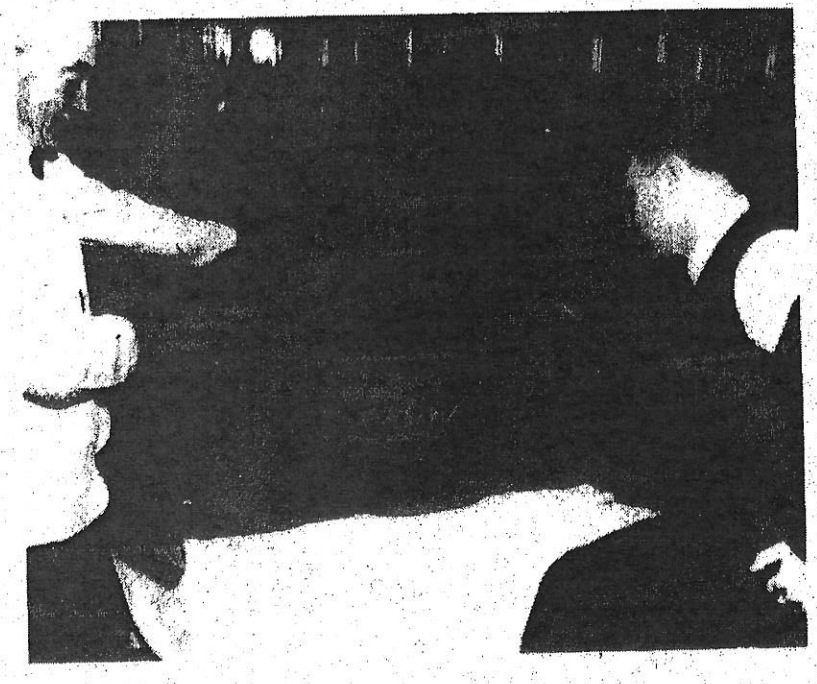
This car, the first tank car built for the C.P.R. since 1922, holds 6,000 gallons more than the next largest one in C.P.R. service. These new cars are for use in handling Diesel oil to points on the Schreiber Division and on other divisions to employ Diesel-electric locomotives.

# Car of Great Historical Interest

*The business car of the Quebec Central Ry. General Manager is the oldest one on the lines of the Q.C.R. and of the parent Canadian Pacific, and served as a private car for four presidents of the United States.*

THE Quebec Central Ry. business car "Sherbrooke", shown in one of the accompanying illustrations, serves General Manager J. N. Fraine of that road, and is one of extraordinary historical interest. It was originally built for the President of the Baltimore and Ohio Rd., sometimes called the "Presidents' Road" because of its connection with chief executives of the United States. The car predates, by nine years, the beginning of construction of the Canadian Pacific Ry., having been built in 1872 and named "Maryland". It once was a private car for four presidents of the United States, viz., Rutherford B. Hayes, Benjamin Harrison, Grover Cleveland and William McKinley, and for President Cleveland it served as a honeymoon car, in 1886; at that time, it had been in service for 14 years. The Quebec Central Ry. bought the car from a car broker in 1908, after it had been out of service for some time. One of the original blankets provided for the car, and stamped "Maryland", is still in use on the car; in an accompanying illustration, James Plunkett, who has served as steward to the head of the Quebec Central for the past 42 years, is shown, displaying the blanket for inspection by Mr. Fraine. Mr. Plunkett, a Liverpool Irishman, has been the car's one custodian during all the years it has been travelling over the Quebec Central between Newport, as an archbishop and returned as a cardinal, the second in Canada. Sir Wilfrid Laurier had the car in the special train from which he conducted his campaign in Quebec Central territory in the reciprocity election of 1911. In 1916, the "Sherbrooke" served as a funeral car, having brought from Ottawa to St. Georges the body of the wife of the Quebec Central Ry. Co. solicitor; she was a victim of the Parliament Buildings fire in Ottawa in Sherbrooke in the car "Sherbrooke". In the memory of Mr. Plunkett, John McCormick, the great tenor, stands out among the many guests who used the car. Mr. McCormick was en route from Quebec to New York via the Quebec Central at a time when that road ran two sleeping cars to New York and one to Boston, by arrangement with the Boston and Maine and the New York, New Haven and Hartford.

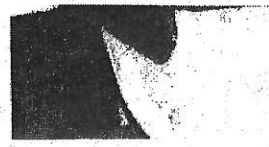
Bud Hawkins, retired Master Mechanic of the Quebec Central, recalls that around 1916 the car was given a steel underframe at the Q.C.R. shops at Newington, near Sherbrooke. In 1937 it was given a complete interior refit at the C.P.R. Angus Shops, in Montreal.

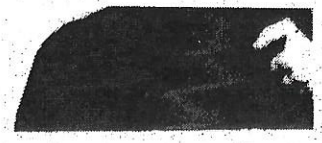


**Blanket Well Preserved from Early Days**

## Locomotive Crankpin Tests

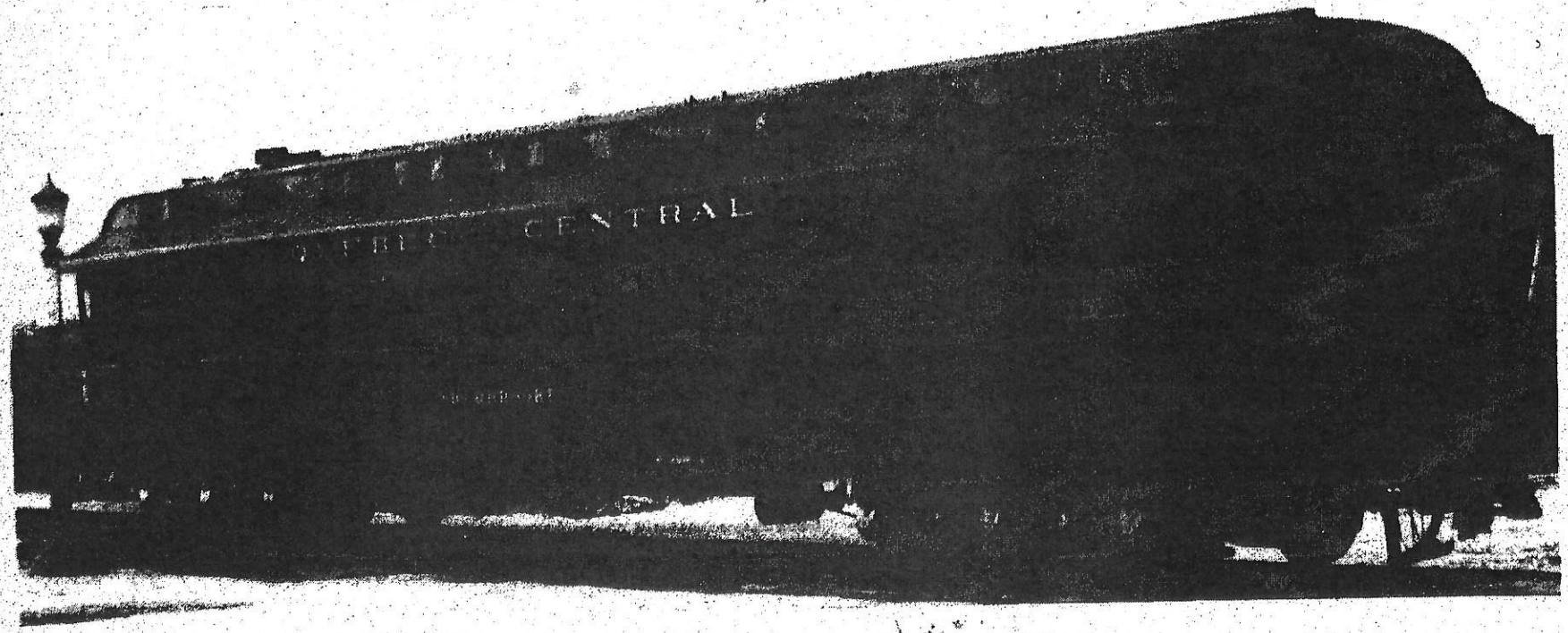
has served as steward to the head of the Quebec Central for the past 42 years, is shown, displaying the blanket for inspection by Mr. Fraine. Mr. Plunkett, a Liverpool Irishman, has been the car's one custodian during all the years it has been travelling over the Quebec Central between Newport, Vt., and Quebec City, via Sherbrooke and Levis, and on the branches to Lac Frontiere and Megantic, on the Maine border; he has served J. H. Walsh, who was Vice President and General Manager for the original English company and for the company after it came into the C.P.R. organization; for G. D. Wadsworth and F. A. Pouliot, and now for Mr. Fraine. It was on this car that Monsignor Begin travelled to New York solicitor; she was a victim of the Parliament Buildings fire in Ottawa in that year. At the time of the disastrous floods in the mid '20's, the "Sherbrooke" enabled Sir Edward W. Beatty and Grant Hall, then President and Vice President respectively of the C.P.R. Co., to view the washouts at Ayers Cliff; their own cars were too heavy, so they were sent via C.P.R. to Newport, Vt., where Sir Edward and Mr. Hall rejoined them, after travelling over the Quebec Central from





## Locomotive Crankpin Tests

Recent advice from A. C. Browning, Secretary, Mechanical Division, Operations and Maintenance Department, Association of American Railroads, is that the third progress report covering tests of locomotive crankpins of 9½ in. diameter, dated October, 1948, is now ready for distribution. Division members can secure this report at $2 a copy, and other persons at $4 a copy.




The Quebec Central Ry. Business Car "Sherbrooke"

One of the Three 2,500 h.p. Streamlined Diesel-electric Locomotives Supplied the Canadian Pacific Ry. by General Motors Corp. Electro-Motive Division, for Operation on the 171-mile Run between Montreal and Wells River, Vt.

total of 23 were ordered, viz., the three passenger locomotives, and 12 1,500 h.p. road freight locomotives, five 1,500 h.p. road switchers and three 1,000 h.p. yard switchers, all of these freight service locomotives having been ordered from American Locomotive Co., Schenectady, N.Y. At that time, N. R. Crump, Vice President, C.P.R. Co., stated:—"Exhaustive studies of our requirements in this operation have been made, and, by adopting Diesel power, the C.P.R. expects to obtain economies both in the initial cost of replacement and in actual operation, by reason of the greater utilization that can be made of Diesels as compared with steam. We also expect an improvement in the handling of freight trains on the heavy grades of Vermont's Green Mountains."

The three 2,500 h.p. locomotives for passenger service are of the General Motors new E-8 design, and were among the first seven locomotives of this type to be produced. The first of the new passenger locomotives was turned over to Mr. Crump at a ceremony at the General Motors Corp. Electro-Motive Division plant at La Grange, Ill., November 29 last, when C. R. Osborn, General Motors Corp. Vice President and Electro-Motive Division ordered. He recorded that upon delivery of these units the company will have a total of 190 Diesel locomotives in service.

W. A. Newman, Chief of Motive Power and Rolling Stock, C.P.R., accompanied Mr. Crump to La Grange. General Motors Corp. executives attending the ceremony with Mr. Osborn were V. B. Fowler, Assistant to Vice President; B. A. Dollens, Assistant General Manager, Electro-Motive Division; N. C. Desendorf, Director of Sales, Service and Parts, Electro-Motive Division; E. V. Rippingille, Jr., President, General Motors Diesel, Ltd., London, Ont., and R. E. Hunter, Director of Sales, General Motors Diesel, Ltd., Montreal.

The E-8 passenger locomotives are geared for a top speed of 85 m.p.h. Each is fitted with two Vapor steam generators. The new locomotives are lead or "A" units and each is complete with operating cab. Two of these locomotives can be coupled back to back, to form a 4,500 h.p. locomotive with cab at each end. The Diesel engine in the locomotive drives a direct-coupled generator, supplying current to four traction motors. Two of the three axles of each six-wheel truck are driving axles, with a tractor motor geared



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use, such as for the carriage of stone, gravel, sand, long structural steel, etc., and they are fitted with the new type Wine end door spring balancers, which permit the end doors to be opened and closed with minimum effort.

In these cars, the underframe is built up with A.A.A. center sill section, with the top flanges welded together along the center line, and angle side sills, of 6 x 4 x ½ in. material, depressed in the center, running the full length of the car. The floor support angles are 3½ x 3½ x ⅜ in. The bolster diaphragms are of ⅜ in. pressed plate with top and bottom cover plates of ½ in. steel. The crossbearers, crossties and end sills are of ¼ in. pressed steel, with 3 in. Z bar floor stringers, all securely riveted together. The striking plates, center fillers and friction side bearings are of A.A.R. type, riveted. The sides are of ¼ in. plate reinforced with 4 x ½ in. Z bars and 5 x 4½ in. top bulb angles. The pressed corner posts, inside and outside, are of ½ in. steel. The lower side angle and top bulb angle are reinforced with 4 x ½ in. bars welded in place. The end doors are the corrugated Dreadnaught type, with Wine door locks and torsion spring balancers, with all the necessary anchor castings attached to the corner posts.

These drop-end gondolas are 52 ft. 6¼ in. long inside and 55 ft. long over the striking castings. Width over all is 10 ft. 3⅛ in., and width inside, 9 ft. M.F. water-tight bolts and speed nuts. The ends of the boards and steel are filled in with Referite.

Special equipment on these cars includes Westinghouse schedule AB 10-12 air brakes, Apex brake steps, C.N.R. Standard card holder, A.A.R. type E couplers with 6¼ x 8 in. shank, A.A.R. 6 x 11 in. axles, A.A.R. 1915 double annealed truck coil springs, A.A.R. 33 in. cast iron wheels, Universal Pump Handle hand brakes, Wine door mechanism, Cardwell Westinghouse NY-11-F draft gear, and Symington and A.S.F. Barber stabilized trucks. The cars are finished in C.N.R. standard mineral brown.

## A.A.R. Mechanical Division Committees

We have been furnished by the Association of American Railroads, Operations and Maintenance Department, Mechanical Division, with a list of the members of the many committees of the Division which will report at the annual meeting this year. As in preceding years, many officials identified with Canadian railways, or with United States railways having Canadian affiliations, are members of these committees.

The Division officers are:—Chairman, A. K. Galloway, General Superintendent of Motive Power and Equipment, Baltimore and Ohio Rd.; Vice Chairman, B. M. Brown, General Superintendent of Motive Power, Southern Pacific Co.; Billing, C.P.R.; G. A. Mundt, Travelling A.A.R. Inspector, New York Central Rd. Mr. Rose is chairman of this committee.

**Car Construction Committee**—R. B. Winship, Mechanical Engineer, C.P.R.; F. J. Herter, Engineer of Car Construction, Chesapeake and Ohio Ry.

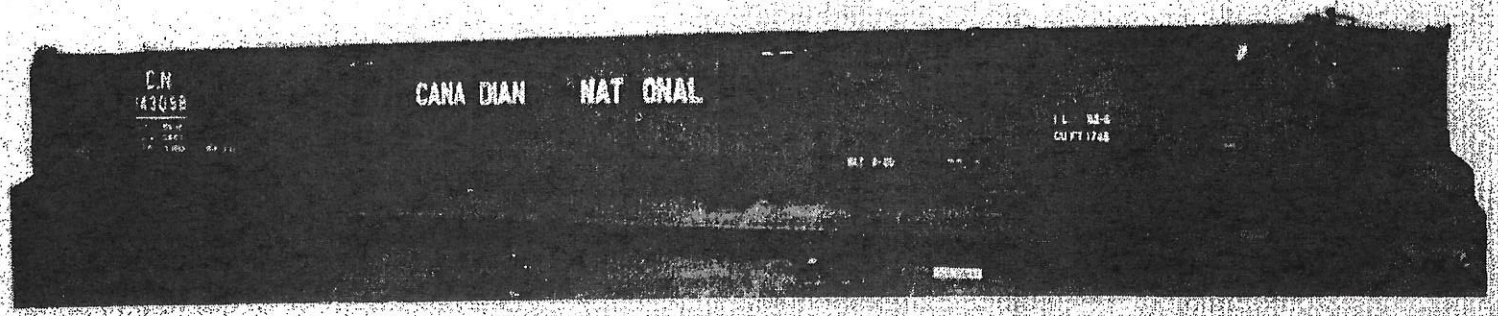
**Committee on Brakes and Brake Equipment**—L. D. Hays, Engineer of Brake Equipment, New York Central System; R. J. Dewsbury, General Air Brake Inspector, Chesapeake and Ohio Ry.; C. C. Maynard, Chief Inspector of Air Brakes, C.N.R.

**Committee on Couplers and Draft Gears**—H. W. Faus, Engineer of Locomotive Equipment, New York Central System; B. Faughnan, Assistant Works Manager, Angus Shops, C.P.R. Mr. Faus is chairman of this committee.

**Locomotive Construction Committee, Steam and Electric Locomotive Section**—C. H. Knowlton, Assistant Engineer of Equipment, New York Central System; Frank Williams, Chief Mechanical Engineer, C.N.R. Mr. Knowlton is the section vice chairman.

**Locomotive Construction Committee, Diesel Locomotive Section**—F. Thomas, Assistant to General Superintendent of Equipment, Diesel and Electric, New York Central System.

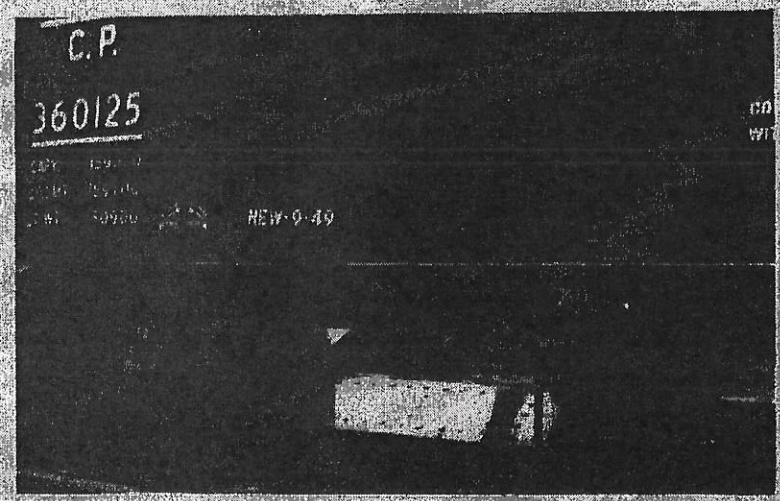
**Locomotive Construction Committee, Gas Turbine Locomotive Section**—J. B. Blackburn, Engineer of Motive Power, Chesapeake and Ohio Ry.




**One of the 500 70-ton, Drop-end Gondolas Delivered Recently to Canadian National Rys. by the Builder, The Eastern Car Co., Ltd.**
These cars are 55 ft. long over the striking castings and 52 ft. 6¼ in. long inside. Light weight is 58,300 lb. and cubical capacity is 3,746 cu. ft.

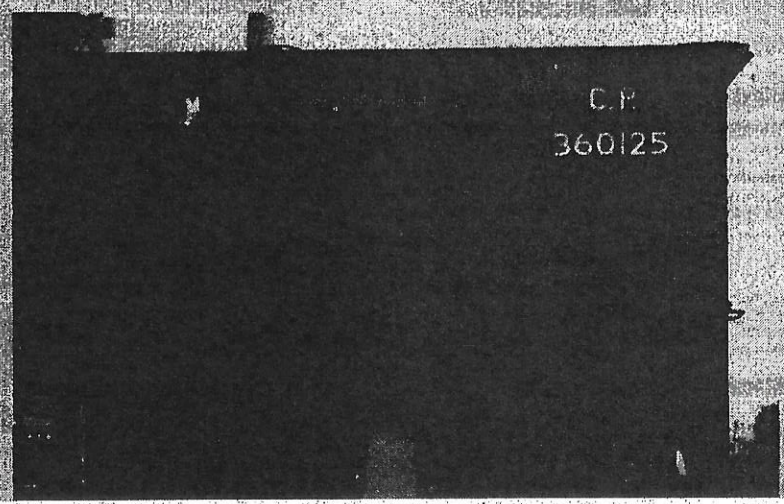
## New Hopper Cars on C.P.R.

Deliveries to the C.P.R. of longitudinal hopper cars, 200 of which were ordered from National Steel Car Corp., Ltd., were recorded in our October issue, pg. 548. Illustrations of one of these cars appear herewith. These cars are numbered in the series 360,000-360,199. They are 41 ft. 8 in. long over the striking castings. Capacity is 159,000 lb. and 2,775 cu. ft.; load limit is 159,100 lb., and light weight is 50,900 lb. The outstanding feature of these cars is the hopper doors, which open longitudinally and which provide a clear opening of 17 in. x 5 ft. 2 in. The doors discharge to the center and sides simultaneously or singly; the side doors are operated from their respective sides and the center doors can be operated from either side of the car. All doors are controlled by a worm and gear




Hopper Car with Center Doors Open

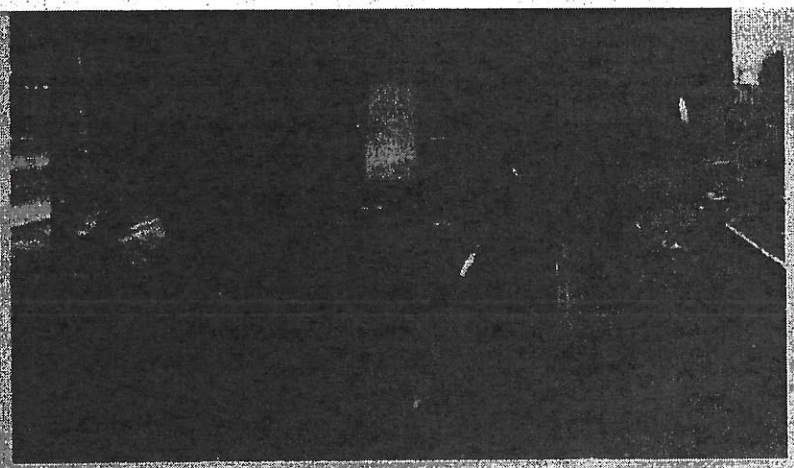
| Classes of Cars | Total Cars on Lines | Cars for Repairs | % of Total |
|---|---|---|---|
| Box, plain and ventilated | 645,588 | 40,372 | 6.3 |
| Automobile | 50,988 | 3,415 | 6.7 |
| Gondola | 278,122 | 31,049 | 11.2 |
| Hopper, not covered | 549,099 | 49,747 | 9.1 |




End View, C.P.R. New Hopper Car

owned freight cars on U.S. Class I lines, of which 1,017, or 0.5% of total, were awaiting or undergoing repairs. Included were 102,337 privately-owned refrigerator cars, of which 555, or 0.5%, were awaiting or undergoing repairs, and 103,766 privately-owned tank cars, of which 455, or 0.4%, were awaiting or undergoing repairs.

**Canadian Lines**—Following are particulars of railway-owned freight cars, numbers in bad order, and percentages of totals, on individual Canadian lines on January 1:—Algoma Central and Hudson Bay, 1,391 cars on lines, 86 in bad order, 6.2% of total; Canadian National, 91,004, 6,236, 6.8%; Canadian Pacific, 70,941, 1,739, 2.5%; Ontario Northland, 1,315, 28, 2.1%; Toronto, Hamilton and Buffalo, 730, 38, 5.2%.



End View, C.P.R. New Hopper Car

mechanism imparting a uniform motion, thereby allowing them to be so adjusted by the operator as to provide a steady discharge of lading. There are two doors on each side of the car.

## Freight Car Condition

Advice from the Car Service Division of the Association of American Railroads is that on January 1 this year there were 1,681,938 railway-owned freight cars on United States Class 1 railway lines, of which 134,460, or 8%, were awaiting or undergoing repairs, and that on Canadian railways there were 166,371 railway-owned freight cars, of which 8,127, or 4.9% of total, were awaiting or undergoing repairs.

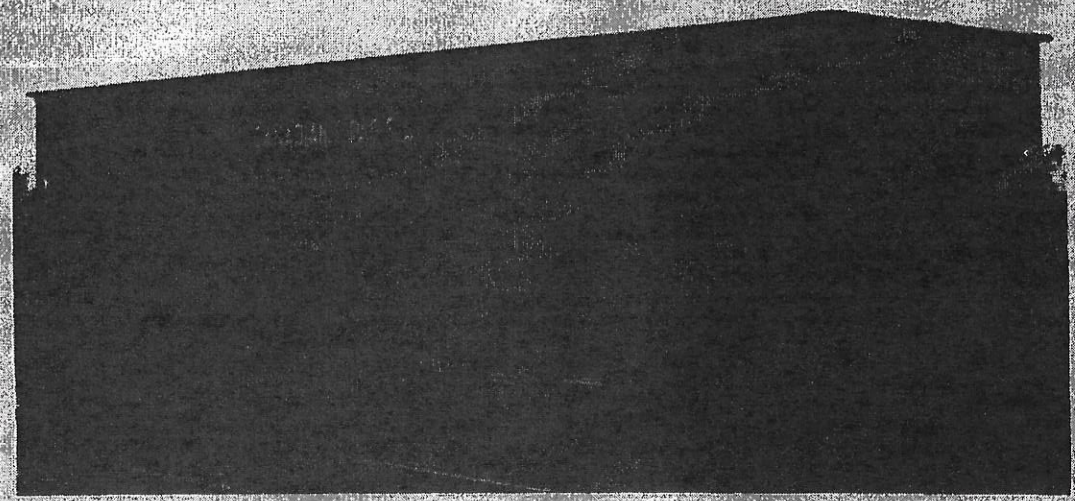
In the following are specified the numbers of the various classes of railway-owned freight cars on U.S. Class 1 lines on January 1; the numbers of the various classes awaiting or undergoing repairs, and the percentage of total cars of such classes on lines.

| | | | |
|---|---|---|---|
| Hopper, covered | 18,741 | 371 | 2.0 |
| Stock | 15,977 | 4,013 | 8.7 |
| Flat | 44,877 | 2,890 | 6.4 |
| Refrigerator | 18,471 | 1,038 | 5.6 |
| Tank | 8,225 | 293 | 3.6 |
| All railway-owned freight cars | 1,681,938 | 134,460 | 8.0 |

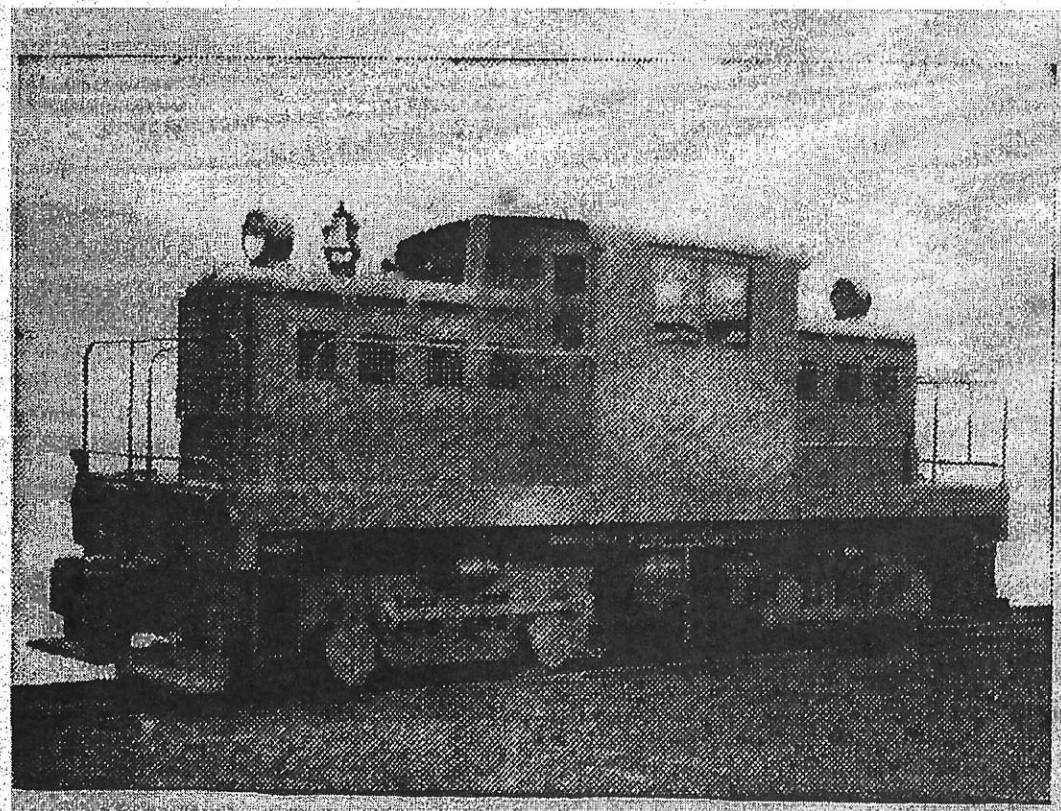
**Privately-owned Cars in U.S.**—On January 1 there were 213,632 privately-Pacific, 70,941, 1,739, 2.5%; Ontario Northland, 1,315, 28, 2.1%; Toronto, Hamilton and Buffalo, 730, 38, 5.2%.

## C.P.R. Dividend

At a meeting of the Canadian Pacific Ry. Co. directors in Montreal, February 15, a final dividend of 3% (75c per share) on the ordinary capital stock of the company, in respect of and out of earnings for 1949, was declared, payable in Canadian funds, March 31, to shareholders of record 3 p.m. February 24. In announcing this dividend, the directors pointed out that while there was a slight increase in net earnings from railway operations in 1949, these earnings remained insufficient for the payment of any dividend, and that the dividend declared is attributable solely to the company's income from other sources.



One of the 200 Longitudinal Hopper Cars Delivered Recently to the Canadian Pacific by the Builder, National Steel Car Corp., Ltd.



# Canadian Locomotive Co.

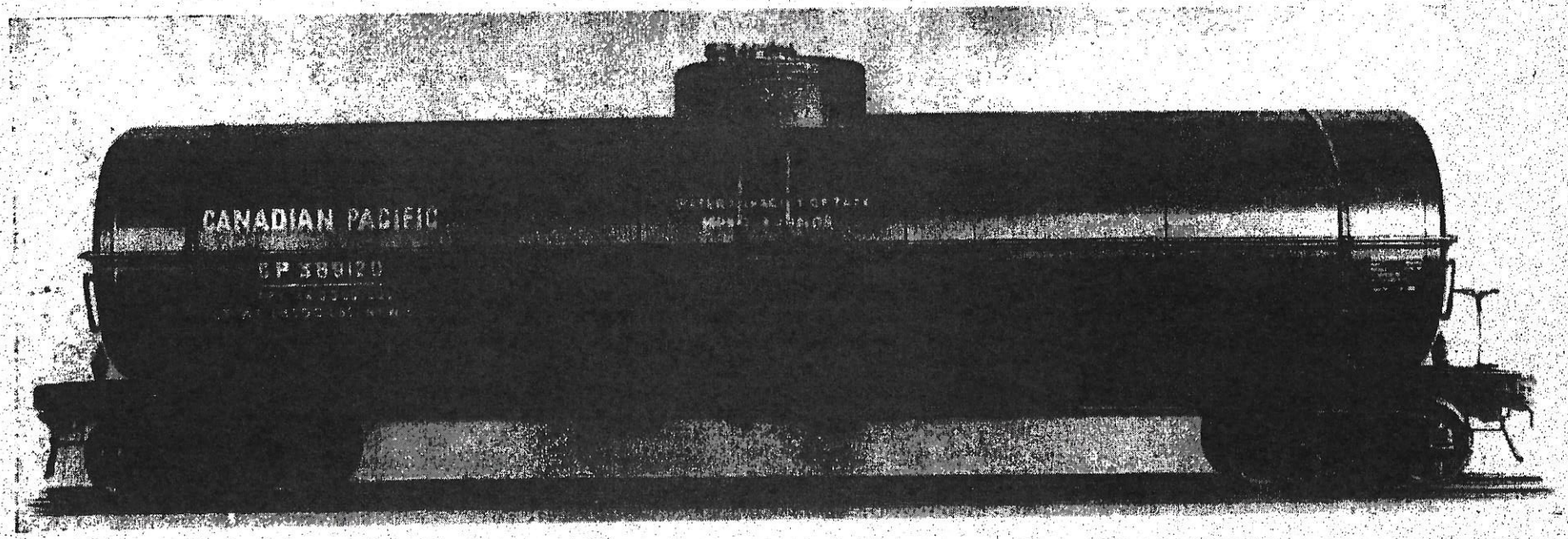
LIMITED

KINGSTON ONTARIO

50-Ton Diesel Electric Industrial Locomotive

Powered by two Hercules Diesel Engines 190 H.P. at 1800 RPM

Maximum Tractive Effort—At 25% adhesion, 25,000 lbs.




**All-Welded 16,000-gall. Tank Car, of the Type Ordered by Canadian Pacific Ry. Recently, for Handling Diesel Oil to Supply the Company's Diesel-electric Locomotive Fleet**

Another illustration shows the first car being inspected, at the inspection track at the Windsor Station, Montreal, by N. R. Crump, Vice President, R. E. Taylor, General Superintendent of Transportation (at the left in the illustration), and A. Lyle, Assistant Vice President, C.P.R. (center in the illustration).

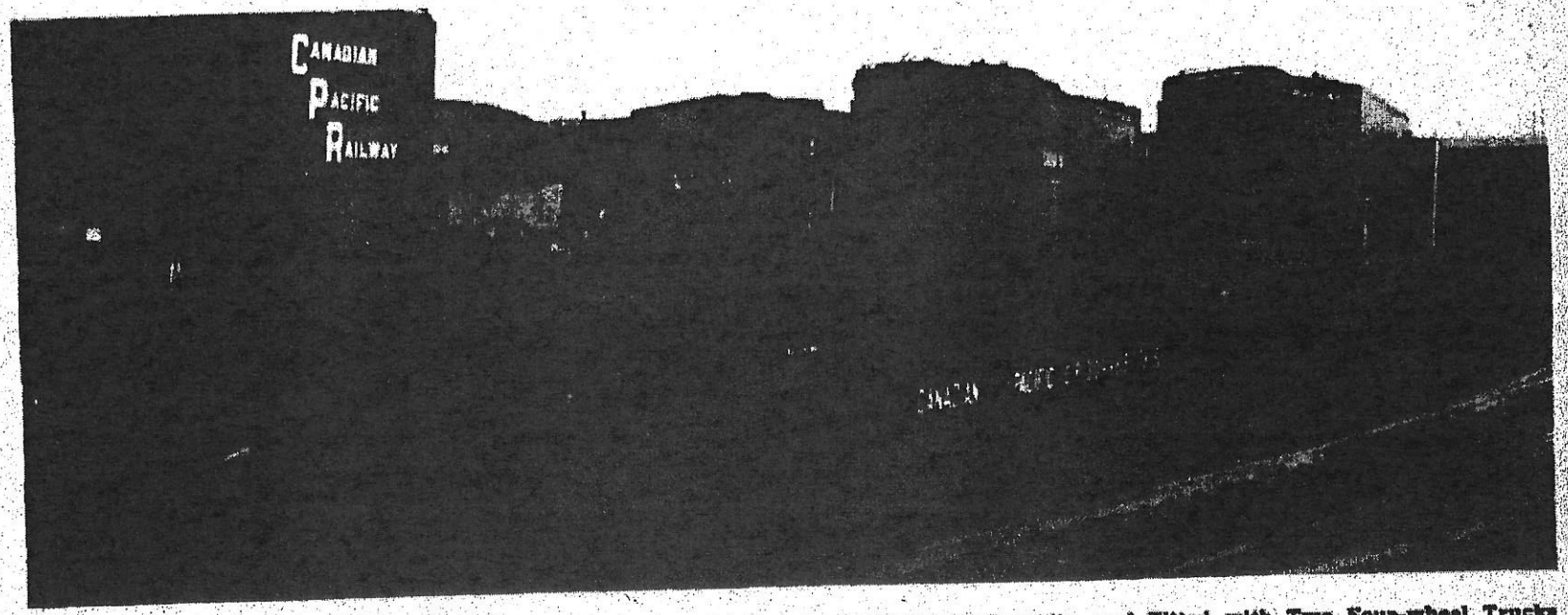
## P.G.E.R. Reaches Prince George

The operation of a freight car with work equipment aboard into Prince George, B.C., over the Pacific Great Eastern Ry. Quesnel-Prince George extension, September 11, was recorded in our October issue, pg. 561, it having been explained that the car had desirability for further extension of the railway, to link up with the Peace River country, and in this connection Mr. Bennett said:—"The construction of the Quesnel-Prince George extension clearly indicates the confidence of the Government of B.C. as well as that of the directors of the P.G.E. in the present and the future development of Central and Northern B.C."

Official advice of November 21 is that while the first train operated over the Quesnel-Prince George extension on November 1, a very considerable amount of work remains to be done in the way of buildings and crete piling.

**Traffic.**—Pacific Great Eastern Ry. traffic continues to increase month by month. Total traffic in 1952, it was estimated near the end of November, will prove to be about 23% greater than that of 1951, and further increase is in prospect for 1953, with business derived via Prince George.

**Dieselization.**—At time of writing, November 25, Dieselization of the Pacific Great Eastern is 95% complete. The only reason that it is not 100% complete is the increase in traffic, which continues to necessitate the use of some steam power.




Canadian Pacific Ry. New Depressed Center Flat Car, 70 ft. Long and of 339,000 lb. Capacity, and Fitted with Two Four-wheel Trucks at Each End

# New Freight Cars for Canadian Pacific

*Among the new freight equipment received by the C.P.R. during recent months are covered hopper cars built by National Steel Car Corp., Ltd., and drop end gondolas built by The Eastern Car Co., Ltd. The cars in both types are of 70-ton capacity, and are described hereinunder.*

Readers will no doubt have noted, by perusing our regular "Rolling Stock Orders and Deliveries" report, that both transcontinental railways have been receiving considerable in the way of freight equipment from the various builders, and that among the cars received by the Canadian Pacific have been 70-ton covered hopper cars built by National Steel Car Corp., Ltd., and 70-ton drop end gondola cars built by The Eastern Car Co., Ltd.

### Covered Hopper Cars

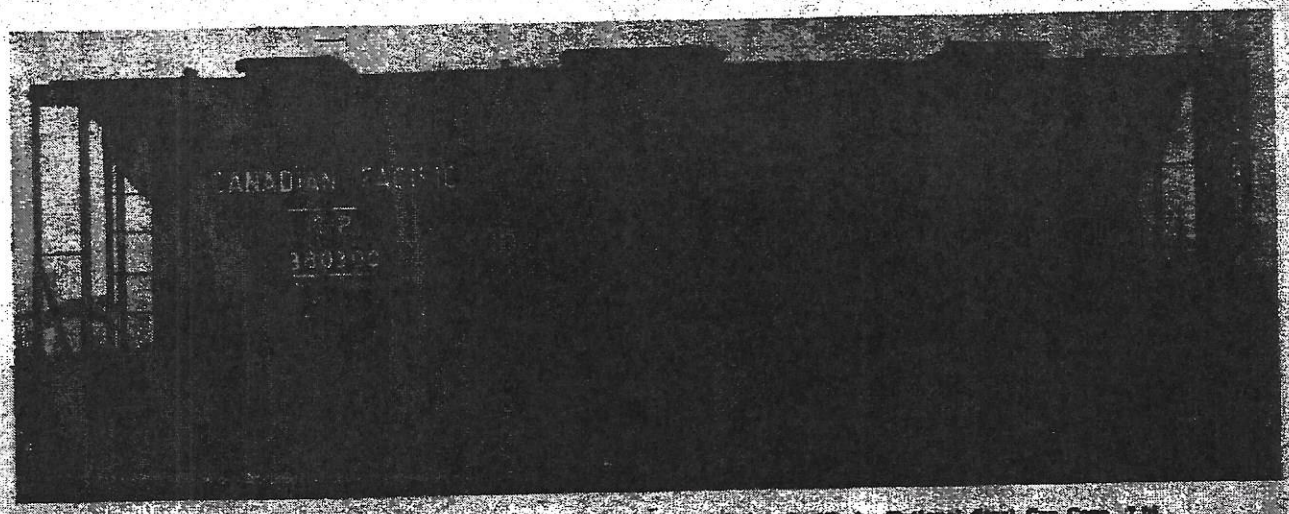
Not many years ago, it would not have been possible to describe a covered hopper car built for a Canadian railway, for the reason that there were not any; compared with the box, flat, gondola, tank and open top hopper, and other familiar types, the covered hopper is a development of recent years. However, it is a type of car which has rapidly made a place for itself; a few years ago, when they first made their appearance on the rails in Canada, we published a list of the commodities suitable as lading for them, and many were included.

These new 70-ton covered hoppers, of steel construction incorporating both riveting and welding, are each of 3,000 cu. ft. capacity, light weight of car being 52,000 lb., with maximum weight on rail 210,000 lb., load limit being 158,000 lb. Each car has six hatches and eight hopper doors, with the body carried on cast steel side frame trucks with 6 x 11 in. journals. Leading dimensions are as follows:—

| | |
|---|---|
| Length between pulling faces of couplers | 45 ft. 0 in. |
| Length over striking castings | 42 ft. 6 in. |
| Distance between truck centers | 32 ft. 6 in. |
| Truck wheelbase | 5 ft. 8 in. |
| Total wheel base | 38 ft. 2 in. |
| Length inside end sheets | 36 ft. 6 in. |
| Length over running board | 43 ft. 1½ in. |
| Distance between hopper doors c to c. (2 doors) | 6 ft. 3⅜ in. |
| Distance over hopper door opening (4 doors) | 19 ft. 11⅛ in. |
| Width, extreme | 10 ft. 6 13/16 in. |
| Width, inside end sheets | 10 ft. 6 in. |
| Width, c. to c. of hatches | 6 ft. 7¼ in. |
| Width, c. to c. of side bearings | 4 ft. 2 in. |
| Width, c. to c. of hopper door openings | 2 ft. 8½ in. |
| Width over hopper door openings | 4 ft. 8½ in. |
| Height over all (top of hatch) | 13 ft. 6 15/16 in. |
| Height rail to top of running board | 13 ft. 5 19/32 in. |
| Height rail to top of side plate | 12 ft. 2¾ in. |
| Height rail to c/l coupler | 2 ft. 10½ in. |
| Height rail to bottom of hopper door frame | 6 ft. 9 in. |

Of the six hatch openings, four are each three feet square, while the other two are each 3 x 5 ft. The hopper door openings are each 13 in. by two feet.

In the underframe, the center sills extend from end to end of car, with the top flanges joined by continuous welding, and are spaced apart by welding the bolster center braces and striking castings, and by use of nine steel pressings. The center ridge supports, 12 in number, are each secured to the top of the center sills with four 1/2 x 5/32 in. studweld. The body bolsters are O.H. steel I beams, 21 1/8 in., 68 lb., welded and braced to the top of the center sill with two 3 x 3 x ¼ in. rolled angles. The body side bearings are built up from ½ in. O.H. steel, welded to the body bolster and braced to the center sills with 18 x ½ in. steel plate. The wear plate is 14 x 4 x ⅝ in. There are three partitions, of 5/32 in. steel sheet, in two sections, welded, extending across the car, and connected to the side by two 3 x 3 x ¼ in. rolled angles. The lower section is reinforced on each side, with six 4 x 5/32 in. steel plates, spot welded to the partition. The bottom cover plates are of 3/16 in. steel, extending from side sill to side sill, and flanged along the edges at 50 degrees to the horizontal for connection to the hopper sheets. The cross ridges are 5/32 in. steel sheet, extending from side sill to side sill, at an angle of 50 degrees to the horizontal, welded to the partition and to the flanges of the bottom cover plate. There are no crossties. The bolster center brace, of O.H. steel, is built up by welding, and also forms the rear draft gear stops




One of the New Covered Hopper Cars Built for the Canadian Pacific by National Steel Car Corp., Ltd.

and center plate bearing. It is riveted to the center sill. The striking castings, of cast steel, combine also the front draft gear stops, and are riveted to the sills. The body center plates are drop forged.

The side frames are of welded construction, and made up of the following members:— Side plates, two per car, O.H.S. rolled W section 10.63 lb., extending in one piece from end plate to end plate; side sills, two per car, 6 x 3½ x ¼ in. rolled angle, extending in one piece from bolster to bolster; side posts, 20 per car pressed U shape from 3/16 in. steel, 12 per car 3 x 3 x ¼ in. rolled angles at the partitions, and 4 per car pressed from 3/16 in. steel at the bolsters; side sill extensions, 4 per car, 4 x 3 x ¼ in. rolled angle, extending from the bolster to the end sill.

The side sheathing is 5/32 in. sheet in two pieces, 45 in. wide, extending from bolster to bolster, applied longitudinally and joined by submerged arc welding. An extension sheet of the same material extends from the inside of the bolster side post to the end slope sheet. The side sheet stiffeners and hopper sheet connections are pressed from 3/16 in. steel, extending between partitions, cut to clear the side posts, and welded to the side frame. They are braced to the side sill with 2 x 2 x 3/16 in. rolled angles. From the bolster to the adjacent post the side sheets are stiffened along the bottom edge with 3 x 3 x ¼ in. rolled angle.

The end frames are assembled by welding angles, and are composed of the following members:— End sills, two per car, 4 x 3 x ¼ in. rolled angle, extending across the car and secured to the side sill extensions with a flanged gusset 5/32 in. thick; end plates, two per car, 4 x 3 x ¼ in. rolled angle; end sheet and end slope

The end sheathing is 5/32 in. sheet. The hoppers, eight per car, four per side, are of welded construction. The hopper sheets are 3/16 in. high tensile, low alloy steel, except the inside sheet forming the center sill cover, and the end slope sheets, which are 5/32 in. The hopper sheets are secured by welding to the hopper sheet connections, the cross ridges, and the vertical flange of the hopper sheet on the opposite side of the center sill. They are reinforced with 3 x 3 x ¼ in. rolled angles, welded to the bottom flange of the center sill.

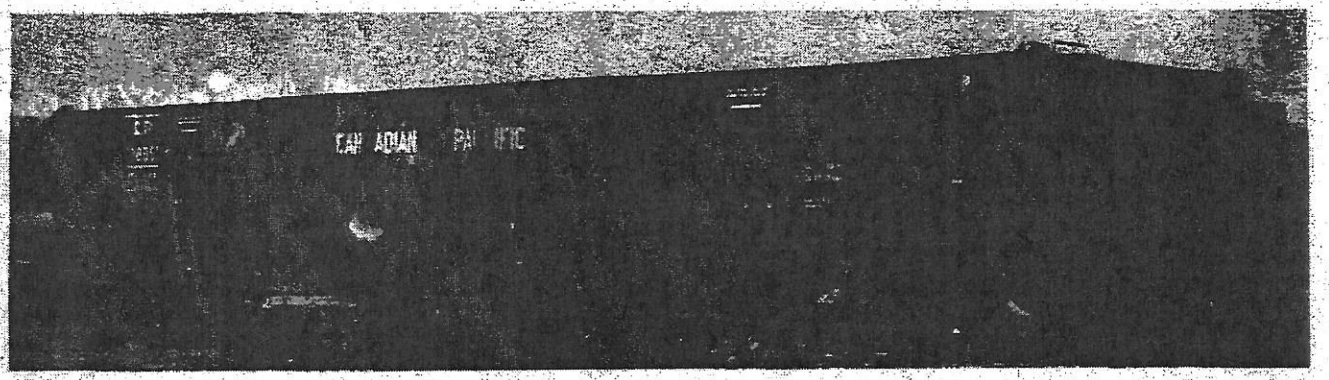
The hopper door frames and operating mechanism were supplied by Enterprise Railway Equipment Co., the doors and frames being of cast steel. As some of the bulk material carried in covered hopper cars is fine enough to pass through a 400 mesh, it will be realized that the doors must be true and perfectly square. A test commonly employed is to fill each hopper with dry cement to minimum depth of an inch; there must be no leakage when the hoppers and doors are vibrated by being hammered on the outside.

The two 5 ft. hatch covers are No. 6 B. & S. Ga. 57-S ¾ hard aluminum, flanged at the edges and reinforced transversely with five hard aluminum angles on the underside. On the outside they are reinforced with two O.H.S. rolled angles which also form the hinges. The four 3 ft. covers are 13 gauge steel sheet, flanged at the edges and reinforced on the underside with four O.H.S. angles and on the outside with two O.H.S. angles also forming the hinge. All of the hatches have two ¾ in. grab irons riveted to the covers. Each hatch has a stop, formed from 3/16 in. O.H.S. plate, so located that when the covers are thrown back they are parallel to the roof, thus avoiding injury

riveted in all cases. Each car has four ladders of ¾ in. bar riveted to the inside of the car. A routing board is applied at each side. The defect card holder is on the same side of the car as the air reservoir, on the side sill. Safety appliances throughout meet the requirements of the Board of Transport Commissioners for Canada and the United States Interstate Commerce Commission.

**The trucks**, 4-wheel, with 6 x 11 in. journals, 2½ in. travel springs and Barber stabilizing feature, have cast steel side frames with integral boxes, and are of the spring plankless type. The side frames are adapted for National brake beam safety ledge, brake hanger brackets and Barber stabilizing parts. The bolsters are of cast steel, with integral center plates 14 3/16 in. diameter, adapted for stabilizing parts, the truck brake rods passing through holes at each side of the center line. Each main cluster of springs consists of five outer and five inner coils; in addition there are two side springs. The axles are A.A.R. Class E. The wheels are A.A.R. Class B-33, single wear rolled steel, 33 in. diameter. The journal box lids are pressed from 0.25% carbon steel, in accordance with A.A.R. specification M-120. The journal bearings and drop forged wedges are A.A.R. standard, as are the dust guards. The brake shoes are A.A.R. No. 1 and the brake shoe keys A.A.R. standard.

**Special equipment** on these covered hoppers, in addition to that mentioned in the foregoing, includes Ajax vertical wheel hand brake, Dorey brake stabilizer, Apex Tri-Lok brake step, A.A.R. type E bottom operating coupler with 6¾ x 8 in. shank and slot for 6 x 1½ in. key — 11 in. knuckles, cast steel coupler yoke, Waugh 403A draft gear, Murphy roof




One of the 70-Ton Drop End Gondolas Built for the Canadian Pacific by The Eastern Car Co. Ltd.