

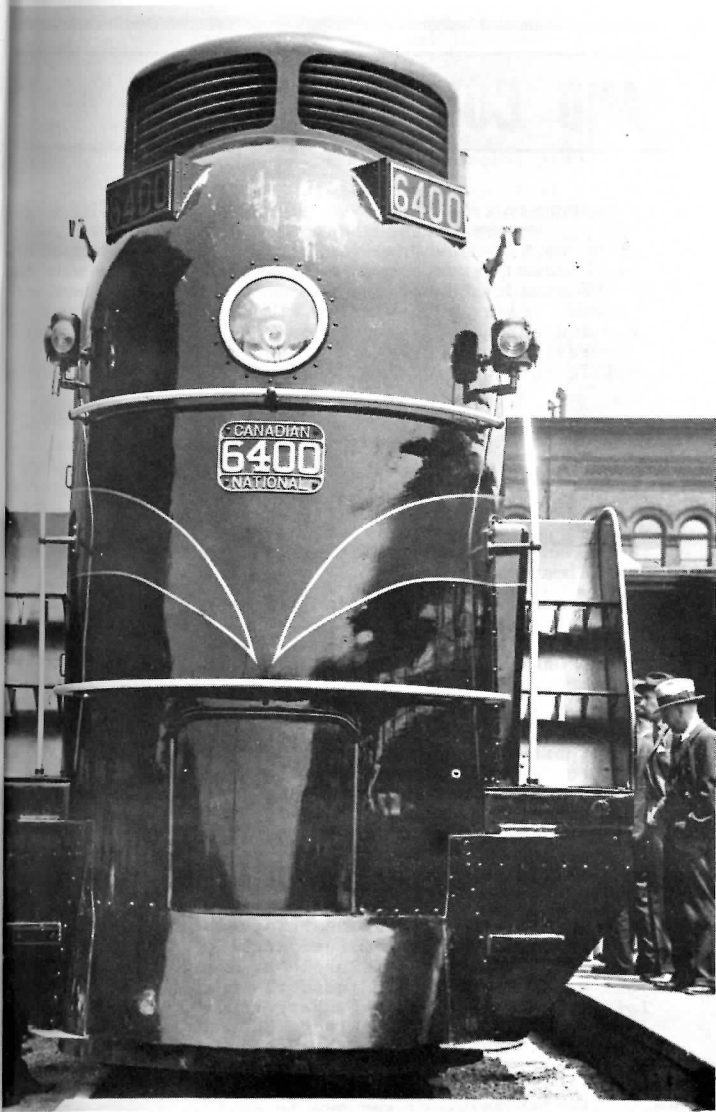
# newsletter

Upper Canada Railway Society



January 1973 • 90c

## CANADIAN NATIONAL



**1923**

**1973**

# newsletter

Number 324, January 1973.

Upper Canada Railway Society



EDITOR -- Robert D. McMann  
CONTRIBUTING EDITORS -- Charles O. Begg  
John D. Thompson  
Michael W. Roschlau

NEWSLETTER is published monthly by the Upper Canada Railway Society Inc., Box 122, Terminal A, Toronto, Ontario M5W 1A2.

Contributions to the NEWSLETTER are solicited. No responsibility can be assumed for loss or non-return of material, although every care will be exercised when return is requested. Please address all contributions to the Editor at 80 Bannockburn Avenue, Toronto, Ontario M5M 2N1.

All other Society business, including membership inquiries, should be addressed to the Society at Box 122, Terminal A, Toronto, Ontario M5W 1A2. Members are asked to give the Society at least four weeks' notice of address changes.

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## RAILWAY NEWS AND COMMENT

### 1972 A RECORD YEAR OF GROWTH FOR CANADIAN NATIONAL

The following is the text of the year-end statement by Canadian National Chairman and President Norman J. MacMillan, issued on the last day of 1972:

"Canadian National carried record volumes of traffic in 1972 and also increased revenues from its non-rail activities.

Carload freight volume moved up more than 7% to some 117,190,000 tons during the year. This increase, of course, reflects the rate of economic growth but aggressive marketing policies in existing and new services and the introduction of technological advances also played major roles in CN's successful operation.

Another year of above-average growth appears in store for the Canadian economy in 1973. Business capital investment in plant and equipment is expected to pick up. In the foreign trade sector, both imports and exports are expected to show major increases--imports reflecting the high level of activity in the domestic economy and exports reflecting the resurgent economies of the United States, Japan and Western Europe.

The successful search for new business in 1972 was a key factor in CN's ability to hold employment levels at approximately 77,000 across Canada.

Negotiations opened with the major groups of unions representing about 57,000 CN non-operating and shopcraft employees, trainmen and firemen. Agreements with them expired December 31.

A new concept in automobile distribution, Autoport, was completed on Canada's east coast during the past year and provided handling, servicing and transportation for 50,000 vehicles entering Canada's burgeoning import auto market.

Containerization continued its spectacular growth. The number of import-export containers handled by CN in 1972 reached 150,000--a 560% increase since CN's first full year in container systems in 1969.

1973 will be the year of the domestic container. Similar in most respects to its sea-going cousin, the domestic container will be added to CN's 87 different types of freight cars moving goods within Canada.

CN's Traffic Reporting and Control System (TRACS) was expanded during the year. This computerized information system is the key to further improvements in customer service, including a Telex car tracing system and the Waybill Information Network (WIN), introduced in 1972.

CN's nine hotels continued their modernization programs and the tenth, a new CN-operated hotel and convention centre, Hotel Beausejour, opened for business in Moncton, New Brunswick. New facilities were opened in several of the hotels and business opportunities in other locations are under active consideration.

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CN passenger trains carried approximately 12-million enue passengers during the year. Deluxe coach accommodation, marketed as Dayniter cars, and an experimental that allows passengers to take their automobiles withrecreed on De on the same train between Edmonton and Toronto, were introduced. Cafe-lounge car service was expanded during the year and agreement was reached with the United Aircraft Corporation for the return of Turbo service to the Montreal-Toronto corridor in the first half of the new year.

CN Telecommunications continued its expansion program notably in the Yukon and Central Arctic.

Voice Data Systems were established between oil rigs the Mackenzie Delta and oil company headquarters 2000 miles away. A 400-mile microwave system through Nova Scotia, now under construction, will close the gap in the cross-Canada microwave system operated by CN-CP telecommunications.

800-million bushels of grain were moved during the last crop year--another record volume achieved through close cooperation of all parties involved. CN moved approximately half of that and increased its handling capacity by rebuilding an additional 800 box cars, and by leasing 1000 hopper cars, 50 locomotives and 4000 extra box cars from United States railroads.

CN is part of a consortium working out ways of moving gas from Prudhoe Bay, Alaska, to North American markets. And CN's Pipelines Project Group, skilled technical and economics experts, are taking a close look at ways and means of transporting such solids as coal, sulphur, iron ore, wood chips, limestone, china clay and potash by pipeline--one of the probable freight systems of the future.

At the same time, the company upgraded rail facilities at Matagami to help hand the 5-million tons of construction materials needed at the James Bay Hydroelectric project between now and 1977. More industrial trackage laid to serve new and expanding industries across the country and major strides were made in increasing the efficiency and improving the economy of rail movement of traffic."

### The Cover

TWO DIFFERENT FACES OF CANADIAN NATIONAL. The first face is that of streamlined U-4-a class Northern 6400 the first streamlined steam locomotive in Canada--shown at Bonaventure Station in Montreal on July 18, 1936. This locomotive received widespread publicity in the media of the day and achieved world-wide fame hauling the Royal Train of 1939. [Paterson-George Collection]

The second face is that of FP9A diesel unit 6500, shown in the diesel shop at Toronto Yard March 13, 1966. In the thirty years separating these two photographs Canadian National has become more than a railway--a multi-modal transportation and communications network reaching into all parts of Canada. [Robert McMann Collection]

1923

CANADIAN  
NATIONAL

1973

Fifty years ago this month the final acts in the creation of a new railway entity in Canada were completed. On January 20, 1923, the Canadian Northern Railway system and ten days later the Grand Trunk Railway Company of Canada were formally amalgamated into a new national railway enterprise. This new undertaking was Canadian National Railways, and with the addition of these two components, the new corporation became the largest railway system on the North American Continent, and fifty years later, one of this country's commercial giants.

The two acts of amalgamation were the final acts in the creation of a corporate undertaking which had been incorporated on June 6, 1919 and had been operating under the name *Canadian National Railways* when the name was decreed on December 20, 1918. The first Board of Directors for the CNR system was appointed by the Mackenzie King government on October 4, 1922.

CN's formation spanned five years from 1918 to 1923, and began when the nation was immersed in a world war. The new transportation enterprise evolved from nearly 700 separate companies, the majority of which had once led an independent existence, before commencing a process of amalgamation that would eventually see them become part of the Canadian National system. One of these companies was the first railway in Canada--the Champlain and St. Lawrence--which was chartered in 1832 and ran its first trains in 1836.

The oldest component of the Canadian National system was the Grand Trunk Railway of Canada. Chartered in 1852, and operational in 1859, the GTR owned or had absorbed, in addition to its own main line from Portland, Maine through Quebec and Ontario westerly to Chicago, a number of other railway systems--among them the Great Western, the Northern and Northwestern Railways, the Midland Railway, the Canada Atlantic Railway, and the Central Vermont which operated in the New England States. The GT system was operated under a Federal Government Board of Management composed of CN and GT officials from May 21, 1920.

The Canadian Northern Railway was the largest single component to become part of the CN system. A transcontinental system in its own right, the CNoR was the creation of two remarkable Canadian entrepreneurs--Sir William Mackenzie and Sir Donald Mann. These two men had started out in Manitoba with one small railway in 1898 and in 20 years had created a transcontinental system. Built with financial support from commercial, provincial government and federal government sources, the Canadian Northern was completed as the First World War was raging in Europe and the new transcontinental railway soon experienced considerable financial difficulties. By stages it passed into the control of the federal government and on December 20, 1918, it and the Canadian Government Railways system came under the same Board of Directors of the new Canadian National Railways system.

The Canadian Government Railways component included the Intercolonial Railway, opened in 1876 and built as one of the pledges of Confederation linking the Maritime Provinces with the Canadas. The CGR also included the narrow-gauge Prince Edward Island Railway, as well as eleven smaller lines in Quebec, New Brunswick and Nova Scotia. The other major component of the CGR system was the National Transcontinental Railway, stretching across the country from Moncton to Winnipeg through the wilds of Northern Quebec and Ontario. The result of an agreement between the Federal Government and the GTR in 1903, the NTR was to be the eastern division of a new transcontinental system, to be leased upon its completion to a wholly-owned subsidiary of the GTR, the Grand Trunk Pacific. The NTR was completed in November 1915, but the GTP was unable to take over the lease, and so the NTR was operated as part of the Canadian Government Railways system.

The western leg of this new transcontinental railway was the Grand Trunk Pacific, wholly-owned by the Grand Trunk. It built its line from Winnipeg to Prince Rupert, British Columbia, and opened complete on April 8, 1914. The GTP on its completion was a victim of the war, and immediately fell into financial difficulties. The system was in government receivership on March 7, 1919 and assigned to Canadian National for operation on July 12, 1920.

\* \* \*

The choice for chairman and president of the infant CN system by the new Board of Directors was Sir Henry Worth Thornton. Between 1923 and 1931, he transformed the pieces of five railroads and unified them into one system. Over \$400-million was spent on rehabilitation and improvements which would later stand the railway in good stead.

In 1923 Sir Henry made a series of barn-storming expeditions across Canada, telling the people that the new Canadian National Railways was going to be all right, that it was going to pay its expenses and overhead charges.

Fifty years later, the transportation system that Sir Henry nurtured has done all right. It has paid its expenses and overhead charges. The Canadian National Railways system of 1973 is a far different sort of enterprise than the one Sir Henry chaired.

How may be CN of today be described? A glimmer of what CN is may been seen by reading the year-end statement of chairman and president Norman J. MacMillan.

CN of the 70s may be best described as an intermodal transportation and communications enterprise. The CN corporate symbol is seen from St. Johns, Newfoundland to Victoria, British Columbia; from Windsor, Ontario to Hay River, Northwest Territories. In the Arctic, CN Telecommunications brings the communities of the north into contact with the rest of the country.

Canadian National operates more than just railways and communications. It is into hotels, truck lines, bus lines, ships and ferries. It is in airlines--through Air Canada, and is playing a leading role in real estate development in principal Canadian cities. It is in the management consultant field, making its expertise available to developing nations.

Railways are still Canadian National's main business, and in this field CN has been a pioneer in the movement of containers by rail and the utilization of unit trains for the movement of bulk commodities. CN now moves thousands of containers a year from Canadian East Coast ports into the U.S. Midwest, winning the traffic away from American roads. Bulk commodities such as coal, potash, iron ore, and oil now are moved by unit train on CN rails.

\* \* \*

This entire January issue of the NEWSLETTER is about Canadian National on its Fiftieth Anniversary. The following pages have features on CN motive power developments, freight services, CN's new advertising campaign, and other items of interest.

We salute CN on its Fiftieth Anniversary and say "Congratulations on a job well done!"



# COMPANIES INCLUDED IN THE CANADIAN NATIONAL SYSTEM

Canadian National Railway Company  
Canadian National Express Company  
Canadian National Railways (France)  
Canadian National Realities, Limited  
Canadian National Steamship Company, Limited  
Canadian National Telegraph Company  
Canadian National Transfer Company  
Canadian National Transportation, Limited  
The Canadian National Railways Securities Trust  
The Canadian Northern Quebec Railway Company  
Chapman Transport Limited  
Eastern Transport Limited  
Empire Freightways Limited  
The Great North Western Telegraph Company of Canada  
Hoar Transport Company Limited  
Husband Transport Limited  
Husband International Transport (Ontario) Limited  
Midland Superior Express Limited

The Minnesota and Manitoba Railroad Company  
The Minnesota and Ontario Bridge Company  
Mount Royal Tunnel and Terminal Company, Limited  
The Northern Consolidated Holding Company Limited  
Provincial Tankers Limited  
The Quebec and Lake St. John Railway Company  
Royal Transportation Limited  
Scobie's Transport Limited  
Swan River--The Pas Transfer Limited  
The Toronto-Peterborough Transport Company, Limited  
Central Vermont Railway, Inc.  
Central Vermont Transportation Company  
Duluth, Rainy Lake & Winnipeg Railway Company  
Duluth, Winnipeg and Pacific Railroad Company  
Duluth, Winnipeg and Pacific Railway Company  
Grand Trunk Corporation  
Grand Trunk-Milwaukee Car Ferry Company  
Grand Trunk Western Railroad Company

## THE 1936 CANADIAN RAILWAY CENTENARY



Brand-new Canadian National streamlined U-4-a Northern 6400 stands alongside a non-operating replica of the first steam locomotive to operate on a railway in Canada. The replica is the "Dorchester" and it ran on the Champlain and St. Lawrence Railway on its opening day on July 22, 1836. One hundred years to the day, Canadian National ran two special trips to mark the Centenary, using a special train hauled by the 6400 and carrying the "Dorchester" on a flatcar behind the Northern. The location of this scene is St. Johns, Quebec, one of the two termini of the C&StL. The other terminus, Laprairie, played host to the special train on the day following. (Paterson-George Collection)

### CN "WE WANT YOU TO KNOW MORE ABOUT US"

Canadian National does a number of things Canadians just don't know enough about. And some of the other things they think it does, it really doesn't.

In an effort to help straighten the matter out, CN has launched a new corporate advertising campaign with the theme, "We want you to know more about us."

Idea behind the program is to inform Canadians better about CN's wide ranging activities. The campaign got underway in mid-November last and the first ad in the series used the submerged nine-tenths of an iceberg to symbolize the large amount the public may not know about CN and the many activities it carries on in addition to running trains.

Ads in the series will throw light on such topics as the redevelopment of downtown areas in cities and smaller centres across the country; what the company is doing about the passenger business; how it copes with the problems that come up in moving record volumes of grain for export; CN's financial picture, and so on.

T. A. Kerr, general manager, public relations and advertising, explained that most of the subjects to be covered in the campaign were suggested by the company's various publics. He said they were reflected in employee attitudes, editorials and letters to the editor, questions in the Commons and misconceptions turned up in public attitude surveys.

For example, there is the erroneous idea that CN chronically loses money on its operations. The second ad in the series explained the facts behind CN's financial picture.

"We hope this advertisement, and others that are scheduled, will dispell some of the 'myths about CN' and, in the process, make our various publics more aware of some of CN's real accomplishments," said Mr. Kerr.

The advertising campaign is purely informational in nature, and does not replace any service advertising such as for freight, hotels, passenger sales, telecommunications, express and industrial development.

In previous years a large part of CN's corporate advertising has been on television, most of it in sponsoring the broadcast of National Hockey League games. But for 1972-73 this form of advertising has been dropped, partly because of the increasing cost and because of having to share credits with too many sponsors. It also has been concluded that the print media are best for an informative advertising program of this nature to get across the story in a positive way.

## THE MODERN THE FOREFRONT

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## THE MODERN FREIGHT TRAIN KEEPS THE RAILWAY INDUSTRY IN THE FOREFRONT

Today's modern freight train with its capacity for quantity and variety of traffic has kept the railway industry in the forefront of national and international transportation systems. This statement was made to the London, Ontario District Transportation Club by K. E. Hunt, Canadian National assistant vice-president of operations and maintenance, at a recent meeting of the group.

Mr. Hunt said that the modern present-day trains cost \$3 to \$4-million, carry up to 13,000 gross tons each in a variety of cars built to haul specific goods more economically. Locomotive horsepower is higher and car types vary from 100-ton bulk material hoppers to flat cars 90 feet long for carrying containers and trailers.



"The modern train and its operation represent an important part of the technological advance that has been necessary by railways to keep pace with the changes in their customers' businesses," said Mr. Hunt. "The industry has moved abruptly into a new era of railroading within the last 15 years. This has not been done without problems or challenges. But, because of the progressive nature of this country's railways, their services have been in demand as consultants to the railways of developing countries around the world."

CN, he said, is carrying out a research contract for the U.S.-based Association of American Railroads into improved braking systems for freight trains. And the AAR with active CN participation is carrying out a track-train dynamics research program on behalf of the entire North American railroad industry to increase efficiency and safety of modern rail operations.

"It is important that Canadians realize what Canadian railways are doing to advance the technology of rail transportation in North America. There are valid economic and political reasons why, as much as possible, Canadians should solve their own problems and plan their own future. This is good advice whether we are talking about northern resources development, or transportation, or in any other context. Our own solutions, on our own initiative, will better serve our needs now and in the future than anyone else's answers."



These two photographs represent different eras in Canadian National's freight-handling technology 34 years apart. (Left) M636 2336 and SD40 5038 hurry the empty cars of an iron ore unit train across a bridge on the Alderdale Sub outside North Bay, Ontario. In North Bay the unit train will be turned over to the ONR for transit to the mine at Temagami. (Robbin Rekiel) (Right) November 19, 1938 is the date of this scene at Oshawa, Ontario as U-2-b 4-8-4 6131 pauses with a long string of 30s-era box-cars. (UCRS/J. T. A. Smith Collection)

## WORTH NOTING...

\* Canadian National's success in fighting "hot boxes" has put it ahead of all North American railways.

CN's 1972 average of 7.3-million car miles per hot box by far exceeds the continent average of just over 2-million miles, said Keith Hunt, vice-president of operations and maintenance for CN.

Both major Canadian railways have achieved excellent results in combatting hot box incidents, caused by railway car journal bearings overheating, said Mr. Hunt. But CN has moved out in front of all other railways in North America by dealing with all parts of the problem.

Hot boxes, if not prevented or detected in time, can cause derailments. CN has developed specifications for summer and winter grade oils suited to railroading in Canada; a better journal lubricating pad is now used and there have been improvements in journal box components.

Wheel shop employees achieve high quality in machining the journal on axles. There is better wheel handling by stores department personnel, and the quality of equipment is higher. Automatic hot box detectors also play an important role.

"With 125 hot box detectors in service to date, CN has more than any other Canadian railway and more than most U.S. roads," said Mr. Hunt. "Our overall success has not been an individual or departmental achievement in any way. It has come from a concerted effort by many CN people across Canada who take pride in doing a better job."

\* Canadian National, in 1972, delivered nearly half a million more tons of raw and pelletized ore to Thunder Bay dock handling facilities than in 1971. The ore, brought from mines at Atikokan and Bruce Lake, Ontario, totalled 4,715,728 tons.

Of the total tonnage handled, 1,242,135 tons were unloaded in CN's ore dock, while 3,473,593 tons were delivered to the Valley Camp bulk handling facility on CN's Mission River property. The total movement was handled in 74,226 carloads.

\* Efforts by CN to improve the working environment wherever it operates usually go unnoticed. However, this was not the case in the City of North Vancouver.

CN was awarded a Certificate of Merit in the prestigious annual Park and Tilford Distillers competition for outstanding industrial beautification in B.C. CN was nominated by the North Vancouver Chamber of Commerce in connection with the landscaping of the Cotton Road boulevard adjacent to the Lynn Creek yards. The road is a main thoroughfare into and out of the city. The railway recognized the interest of the people of North Vancouver for an attractive approach to their city and did something about it.

Crews cleared the previous bush-covered area, removed the old yard office and constructed a new one, planted grass, shrubs, evergreen and deciduous trees in a 33-ft. wide green belt designed to shield the area being used as a freight yard.

...a nostalgic look at

# FIFTY YEARS OF CANADIAN NATIONAL LOCOMOTIVES



This article is presented as a brief, nostalgic look into fifty years of Canadian National motive power history. A motive power history is beyond the scope of this issue, as it is necessarily complicated. The steam locomotive history of CN has been excellently documented elsewhere.

Fifty years ago this month, as the official documents of amalgamation of the various parts to form the CN system were being signed, CN motive power officials were making plans to bring the massive Grand Trunk locomotive fleet into the Canadian National numbering and classification system.

## INHERITED BY CANADIAN NATIONAL

Ten-wheeler 1406 (class H-6-g) is typical of the locomotives acquired from the Canadian Northern. A total of 797 locomotives came from the Canadian Northern system into the infant Canadian National system in 1919.

1406 was built by Montreal Locomotive Works in 1913. She is shown in the latter days of her career at Belleville, Ontario in 1949. 1406 lasted until the end of steam on Canadian National, meeting the scrapper's torch in late 1961.

(Lloyd Baxter)



Pacific 5267 came from the Canadian Government Railways in 1919 and was one of 772 CGR standard gauge locomotives added to the CN roster. The vestibuled cab was typical of CGR power.

5267 was number 495 on the CGR roster. She is shown standing in the yard at Hamilton in 1950. Built by MLW in 1918, 5267 was scrapped in 1960.

(Edward Emery)

2-6-0 788 is a former Grand Trunk locomotive and was one of 1349 GTR locomotives absorbed into the CN system in March 1923. Her former GTR number was 1251. Built by the Grand Trunk in 1903, 788 is shown standing at Oshawa, Ontario in the middle 1930's. 788 was scrapped in 1956.

(UCRS/J. T. A. Smith Collection)



NEW AND HEAVY

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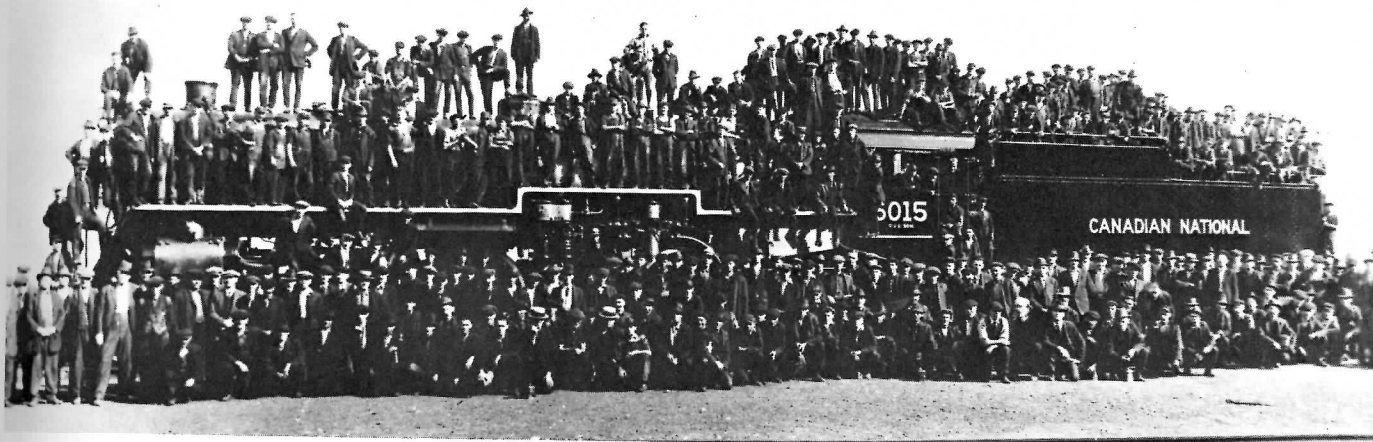
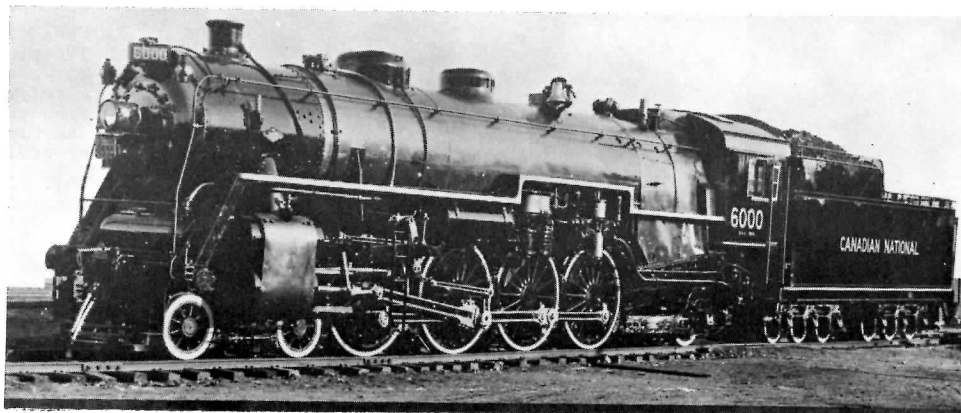


## NEW AND HEAVIER STEAM POWER

The 4-8-2 wheel arrangement was introduced to the Canadian National system in June 1923 with the appearance of locomotive 6000. This locomotive also introduced the concept of dual service where a locomotive could be used either for passenger or freight service. 6000's weight was light enough to permit her to operate on less-than-ideal track-age. (Canadian National)

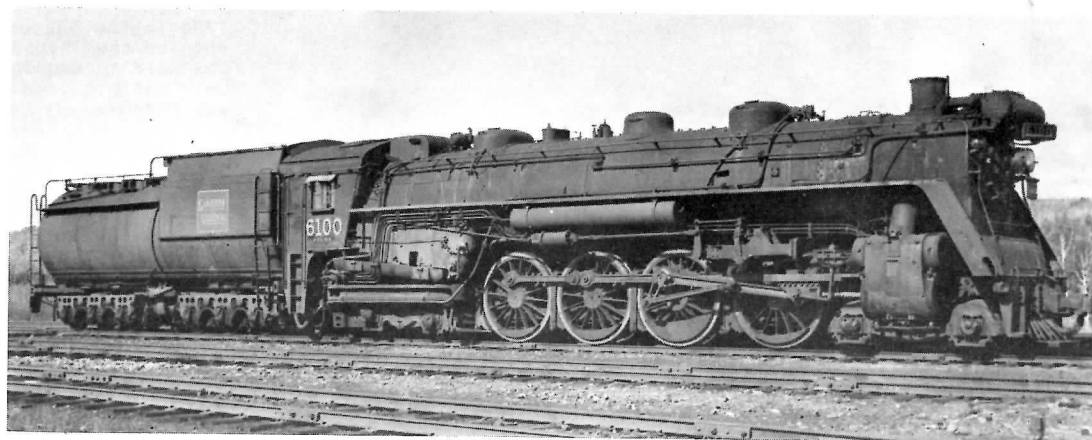
The employees of the Canadian Locomotive Company's Kingston Works pose proudly in front of newly-completed U-1-a Mountain 6015 in September 1923. 6015 is preserved at Jasper, Alberta.

(Neil Morrison Collection)

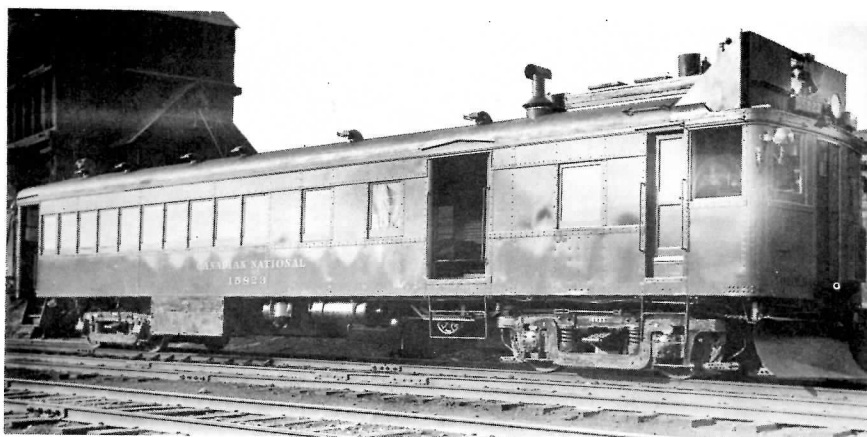


Torontonians will well remember the ponderous T-2-a class 2-10-2s. Numbered 4100-4104, the five engines were acquired by CN in 1924 from the Canadian Locomotive Company; they were at the time the largest locomotives in the British Empire. 4104 assists 6156 on a long freight up the Danforth grade to Main Street in this July 1952 action shot. (Paterson-George Collection)

The 4-8-4 wheel arrangement was introduced to Canada by CN in June 1927 with locomotive 6100. 6100 was delivered by Kingston in time for the Silver Anniversary of Confederation. Shown standing at Capreol, Ontario in the twilight of her career, 6100 was the first of a line of some 203 dual-service Northerns light enough to traverse most of the major lines on the CN system. (Paterson-George Collection)







#### DOODLEBUGS AND PIONEER DIESELS

Canadian National was a pioneer in the application of internal combustion power to the delivery of five-way use in Canada. In the 1920's a remarkable Locomotive W fleet of self-propelled rail vehicles appears, large Vander embodying steam power, battery power, gasol devoid of piping and diesel mechanical, and gasoline and electric propulsion.

#### STEPPING HUDSONS

Unit 15823 is an example of the type of diesel electric railcars pioneered by CN. It was in January 1939 in 1926 (body by Ottawa Car Co.) and was put except for the by a 185 hp. 4-cylinder Beardmore diesel prime mover. Between 1938 and 1943 this unit carried locomotives, baggage and express only. In 1949 it was one of "elephant" to the Pacific Great Eastern, becoming #10 wider running box that road. (UCRS/J. T. A. Smith Collection)



Late in 1928 Canadian National took delivery of the first diesel electric road locomotive in Canada. A way ahead of its time, Unit 9000 was actually two coupled box-cab locomotives. Built by the Canadian Locomotive Company with Baldwin and Westinghouse Electric & Manufacturing Co. assistance, each section was powered by a Beardmore 1330 hp. V-12 diesel utilizing a 2-D-1 wheel arrangement. Each unit weighed 335 tons and was geared for passenger service; train heat furnished by a unique exhaust heat exchanger and backup steam generator.



In the 1930's the two sections were split up and renumbered 9000 and 9001. Here are two rare photographs showing the two units in action. [Left] 9001 heads a Hamilton bound commuter train out of Toronto Union Station on June 2, 1938. A year later the unit was retired. [Right] 9000 was to see a few more years of service and in 1944 was repowered with a 1440 hp. EMD V-16 and given a box-car disguise for service on lines in British Columbia threatened by Japanese attack. Here the camouflaged unit heads train #51 out of St. Fois, Quebec in August, 1945. In 1946 both units were scrapped.

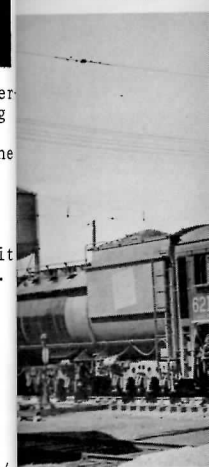
(Two photographs -- Paterson-George Collection)



In May 1930 Canadian National took delivery of its first diesel electric switcher from CLC. Numbered 7700 and later 77, the unit incorporated a "visibility cab" carbody. 7700 had a 400 hp. 6-cylinder WEMCO/Beardmore diesel prime mover. Later the unit was repowered with a Caterpillar V-12.

7700 (alias 77) worked around Montreal, then on the Thousand Island Railway, and was sold to Canada Starch. In 1967 the unit was preserved by the Canadian Railway Museum.

(Robert McMann Collection)



#### LAST STEAM LOCOMOTIVE LET-NOSED BETTIE

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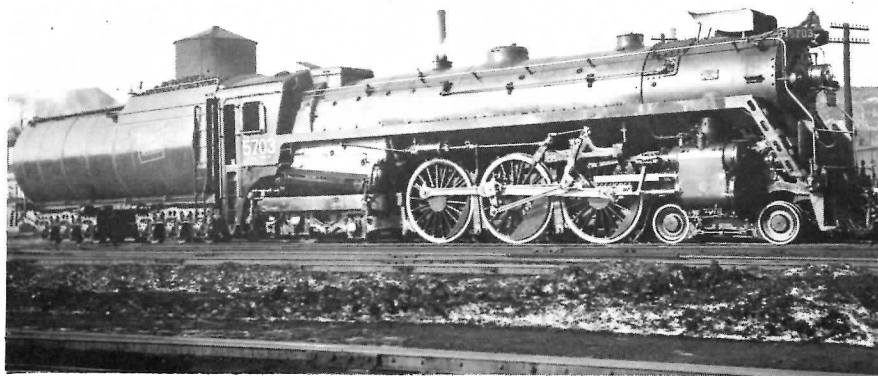
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#### FAST STEPPING HUDSONS

In the autumn of 1930, Canadian National took delivery of five 4-6-4 engines from Montreal Locomotive Works. With their 80" drivers, large Vanderbilt tanks, and clean lines devoid of piping, the locomotives were placed in service on fast trains between Toronto and Montreal.

Here we see 5703 at Turcot Yard in Montreal in January 1939. The engine is as well built except for the addition of the small smoke deflector around the stack. Later these locomotives would see the application of "elephant ear" smoke deflectors and wider running boards, and still later changed stacks. As trains became heavier, the Hudsons' roles were taken by heavier northern locomotives.

(Paterson-George Collection)



#### LATER NORTHERNS: STREAMLINING AND HIDDEN IMPROVEMENTS

In the summer of 1936, CN took delivery of five 4-8-4 locomotives which were to achieve a large amount of publicity for themselves and the railway. These were the 6400s--the first streamlined locomotives in Canada. The streamlining was the result of cooperative research into the problem locomotive smoke obscuring visibility by CN and the National Research Council.

The first locomotive of the class--6400--hailed the Royal Train of 1939 and was shown at the New York World's Fair of that year. Sister locomotive 6401 is shown here heading the Royal Train of 1951.

(Paterson-George Collection)



Many refinements and improvements were incorporated into the design of CN's later Northern locomotives. Such items as roller bearings on engine, trailing and tender trucks, Boxpok drivers, HT stokers, cast steel engine beds, improved design of piping handling steam flow from boiler to cylinders, smoke deflectors--all contributed to make a fine steam locomotive design.

U-2-g 6216, shown standing with train at Oshawa, Ontario, is typical of the later CN Northern steam locomotive design. In late 1972, an HO-gauge brass model of the U-2-g Northern appeared, and now 600 models of these fine locomotives operate on model railroad layouts in Canada and the United States. (UCRS/J. T. A. Smith Collection)



#### CN'S LAST STEAM LOCOMOTIVE DESIGN: THE BULLET-NOSED BETTIES

CN returned to the 4-8-2 wheel arrangement for its last series of steam locomotives which were built by MLW in 1944. The 20 -1-f locomotives--road numbers 6060-6079--were quite easily recognized by their apped stacks, conical noses, running board skirting, and enclosed aftercooler housing on the front pilot.

Here we see 6068 heads up a passenger train near Oakville, Ontario.

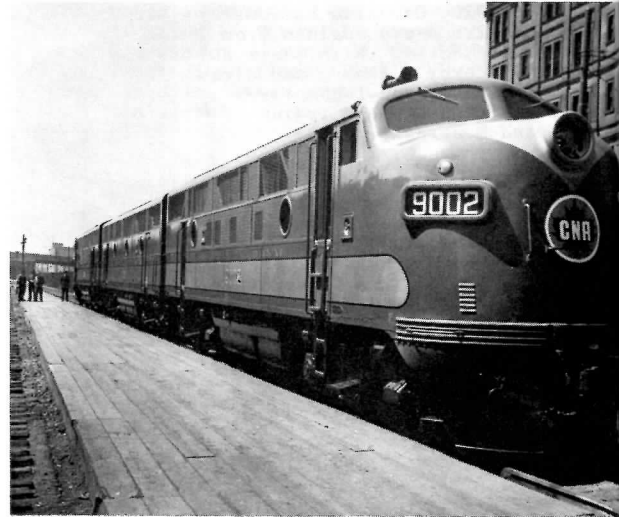
(Paterson-George Collection)

CN is currently restoring the first locomotive of this class to excursion operation. It is expected that 6060 will be operational early in 1974.





Canadian National did not commence dieselization until after World War II. Yard services were the first to be dieselized, and among the first switcher units purchased by the railway to initiate the process were a group of ten NW2 engines built by Electro Motive Division of General Motors. The 7945 shown above is a member of this group of NW2 units and is as delivered in 1946 with its orange and black paint scheme. (Canadian National)



In 1948 CN purchased its first modern diesel electric road power--two EMD F3 A-B-A 4500 hp. combinations. Here is the first F3 trio (9000/9001/9002) at the Bonaventure Station in Montreal, awaiting inspection by CN officials. (Canadian National)

You can almost smell the fresh paint on brand-new F7 A and B units 9028 and 9029 as they sit in the yard at the builder's plant in London, Ontario. The date: April 30, 1951. CN would eventually purchase a total of 58 F7A and 18 F7B units from General Motors Diesel Ltd. (Diesel Division, General Motors of Canada Ltd.)



By 1950 three locomotive builders were ready to deliver diesel units to Canadian roads. The first CLC-built (to Fairbanks-Morse design) units delivered to CN were a group of 30 1200 hp. road switchers with A1A-A1A wheel arrangement (builder's model H12-64, unique to CN) between 1951 and 1953. Here is unit 7625 (later 1625) at Brockville in 1953. (Robert McMann Collection)



Unit 3019 (originally numbered 1619) is a 1600 hp. road switcher built by Montreal Locomotive Works for railway in 1953. Early MLW diesel units were built to Alco designs. All CLC-built power and nearly all of MLW 244-V road power have been removed from the CN roster.

(John D. Thompson)



## SECOND GENERATION

Second generation of dieselization in Canada was purchased sample units from the two companies. 2500 hp. units built at right, Montreal Locomotive Works (Diesel Division, General Motors of Canada Ltd.)

In 1966, Canadian National purchased its second generation of diesel units. The 2026, shown below, is a typical example of the power built by Montreal Locomotive Works and delivered to CN in late 1966.



Canadian National now owns more than it did North of 49 (239 to 203). It is identified by the black and white stripes out more than 100 miles.

It's the latest page and read on.





Canadian National purchased more GP9 roadswitchers than any other model of diesel during its first generation dieselization. Unit 4149 was built by GMD in 1957 and delivered on Flexicoil trucks and small 1000 gallon fuel tank for service on branch lines.

(Robert McMann Collection)

FPA4 cab passenger unit 6790 is a unique design built by MLW for Canadian National only. A total of 36 A units and 14 B units were bought by CN between 1955 and 1959. 6790 is among the group of last cab diesel units built for CN.

(Robert McMann Collection)

#### SECOND GENERATION DIESEL POWER ON CN

Second generation dieselization got underway in a cautious manner on Canadian National in 1964 when the railway purchased samples of the then-new high-horsepower units from the two Canadian builders for study and evaluation. 2500 hp. GP35 4000, shown in official builder's portrait at right, was one of two such units supplied by GMD. MLW built two C424 2400 hp. units.

(Diesel Division, General Motors of Canada Ltd.)



In 1966, Canadian National began placing orders for new second generation power with both builders. M630s 2014 and 2026, shown below on a freight train at Brockville, Ontario, are typical of the second generation road freight power built by MLW. Both 3000 hp. units were delivered to CN in late 1967 and early 1968.

(Pierre Patenaude)



CN now owns more 3000 hp. SD40 diesel road freight units than it did Northern steam locomotives on the entire system (239 to 203). The "Northern" of the diesel age, as typified by the brand-new 5025 sitting at Toronto Yard, puts out more tractive effort than did a 4-8-4 locomotive.

(Robert McMann Collection)

What's the latest in CN motive power developments? Turn the page and read about CN's new 5500s.



# EQUIPMENT NOTES

## CN's new 5500s

Dash Twos for CN! Canadian National is currently receiving delivery on the first of 61 new GP38-2's from Diesel Division, General Motors of Canada Ltd. These new units are the first of their type to operate on the CN system within Canada.

The new 5500's are not the first GP38's to appear on the CN roster. American subsidiary Grand Trunk Western has 12 GP38AC units (5800-5811) which were delivered by EMD in December 1971.

CN's new GP38-2's are powered by the non-turbocharged 2000 hp. V-16 645E engine. These units are noteworthy in the fact that they are the last units to be ordered by CN with conventional locomotive cabs. All future CN motive power orders will specify the new CN cab design as standard. On order are 50 more GP38-2's for delivery late this year. These units will be the first DD-built units to have the new CN cab design.

Delivery dates for the first 36 GP38-2's (class GR-20b) are shown below:

5500 -- Dec. 2/72	5518 -- Dec. 19/72
5501 -- Dec. 1/72	5519 -- Jan. 16/73
5502 -- Dec. 1/72	5520 -- Jan. 16/73
5503 -- Dec. 5/72	5521 -- Jan. 16/73
5504 -- Dec. 2/72	5522 -- Jan. 16/73
5505 -- Dec. 12/72	5523 -- Jan. 16/73
5506 -- Dec. 5/72	5524 -- Jan. 17/73
5507 -- Dec. 12/72	5525 -- Jan. 17/73
5508 -- Dec. 10/72	5526 -- Jan. 19/73
5509 -- Dec. 10/72	5527 -- Jan. 19/73
5510 -- Dec. 14/72	5528 -- Jan. 22/73
5511 -- Dec. 14/72	5529 -- Jan. 22/73
5512 -- Dec. 14/72	5530 -- Jan. 24/73
5513 -- Dec. 14/72	5531 -- Jan. 22/73
5514 -- Dec. 19/72	5532 -- Jan. 24/73
5515 -- Dec. 22/72	5533 -- Jan. 24/73
5516 -- Dec. 19/72	5534 -- Jan. 26/73
5517 -- Dec. 19/72	5535 -- Jan. 26/73



Two CN 5500's, built 67 years apart. (ABOVE) brand-new GP38-2 5500 shown here at the Diesel Division plant of General Motors of Canada Ltd. in London, is the first unit of its type to be produced in Canada (Richard Eastman). (BELOW) Steam locomotive 5500, formerly Canadian Government Railways 401, was the first locomotive of the 4-6-wheel arrangement to be built in Canada--Canadian Locomotive Company 1905 (UCRS/J. T. A. Smith Collection).



This left-side view of 5502 was taken December 6, 1972 at Toronto Yard. Note snowplow pilot, hi-ad Blomberg trucks. Other minor details differences are evident in the right-side view of 5500 at the top of the page. (Robbin Rekiel)



Grand Trunk Western has 12 GP38AC units, of which 5805 shown here at Eldon Yard in Chicago is an example. Note detail differences between this unit and the new CN units. (Jim Wozniczka)



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Engineers, bra an assortment M420 locomotiv vice in April. ion of nearly viding CN head ant working co arily designed work.

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# Comfort and safety features of new CN cabs

By Craig Elson.

[Reprinted from the September 1972 issue of KEEPING TRACK.]

The benefits in comfort and safety which tail end crews have enjoyed since Canadian National introduced its revolutionary all-steel cabooses in 1967 are soon to be extended to the head end.

Engineers, brakemen and firemen--all can look forward to an assortment of advantages when the first of thirty MLW M420 locomotives rolls off the assembly lines into service in April. The new 2000 hp. units are the culmination of nearly two years work and research aimed at providing CN head end crews with the safest and most pleasant working conditions possible. The engines are primarily designed for road service, but can be used in yard work.

If you are an engineer, brakeman or fireman the question you're probably asking is: "What are the advantages of the new engine to me?" The answer can be condensed into two words--'safety' and 'comfort'.

The new safety features built into the new locomotives include:

- \* a new V-shaped cab improving overall visibility and eliminating the danger of blowing snow obscuring forward vision;
- \* higher (74") collision posts, welded to the underframe, to 1/2" steel hood front plate and to hood top plate, which extends the full width of the cab, making the front end substantially stronger than any now in use;
- \* front and back cab windows electrically heated for defrosting and defogging;
- \* larger gauges (4-1/2" diameter) lighting to reduce glare, as well as a large (8" diameter) speedometer, centrally mounted for easy viewing by all members of the crew.

If safety is necessarily CN's chief concern in designing the new engines, it is not at the expense of an array of comforting improvements geared towards making the crew's shift just a little more enjoyable. They can take comfort in the fact the new engines will include:

- \* fibreglass insulation throughout the new cab to reduce noise level and regulate inside climate with provisions made for possible future inclusion of air-conditioning;
- \* refrigerator and hot plate built into the cab walls;
- \* completely enclosed toilet built into the wider cab nose with a full-sized door for easy access;
- \* elimination of forward door on fireman's side to prevent draughts (a front door is provided through the nose of the locomotive);
- \* a quieter, more efficient cab heater located beneath the floor which provides for positive air circulation at all times;
- \* other features such as brighter interiors; lunch tray and beverage holders; insulated double-paned side windows; arm rests on more comfortable cab chairs, and clothes closet.

The story behind the new improvements began two years ago when meetings between representatives of the Brotherhood of Locomotive Engineers and CN officials indicated a common desire to improve working conditions for head end personnel.

Spearheading the talks was Keith Hunt, CN vice-president of operations and maintenance, who has crusaded long and loud in favour of improved working conditions. The work to transform this desire into reality began in earnest about 15 months ago featuring committee discussions, engineering studies and mock up tests which are still underway at CN's Point St. Charles shop.

In the process, CN has spent between \$25,000 and \$30,000 and estimates the improvements will add about 1-1/2% of locomotive cost to the cost of each of the 30 engines. The total bill for the new engines about to about \$10-million.

CN's high interest in the area of improved working conditions is based on the principle that a happy employee is a good worker. H. J. Betts, assistant chief, motive power, and a former engineer who fully realizes the impact of working conditions on operating personnel, explains: "I think proper working conditions have a great deal to do with how an employee performs his job. For example, if an engineer is unhappy with his cab--it's

dingy and uncomfortable--he might not take pride in his work or, worse, do his job carelessly. On the other hand, we know a pleasing environment makes a good engineer just that much better." This fact makes the MLW locomotives a good investment.

From an economic point of view, the new locomotives are expected to provide some savings due to reduced maintenance costs but "this certainly was not our primary purpose," Mr. Betts explained.

Mr. Betts said part of the reason for building the new locomotives was the success CN found with the introduction of the all-steel cabooses five years ago. "We know the tail end crews are far happier in these (steel) cabooses than they were in the old wood ones," he said.

Mr. Betts added: "I'm sure the new locomotives will be to the head end crews what the steel cabooses were to the tail end crews--a marked improvement."

Union representatives who have viewed the design improvements several times in the past year are generally pleased with the changes. Nevertheless, differences of opinion--perhaps inevitably so--have occurred in a few areas. For example, union officials preferred the toilet to be located in a separate compartment in the rear of the engine cab. Management explained that such a change was possible, but only at enormous company expense and possibly at the expense of shelving other important changes. Besides, the new toilet meets virtually every union demand save its location which designers feel poses no significant problem in any case. Basically, the argument boils down to a question of priorities. Like the man who starts out to build a house, CN has only so much revenue at its disposal for equipment upgrading. Given this fact, it is only common sense for CN to allocate its resources where they are most needed.

Common sense aside, there is an uncommon feeling of pride about the resultant engines which are said to be the most advanced of their kind in North America. Of course, 30 engines--no matter what their improved features--are only a start towards upgrading the entire CN arsenal of approximately 2000 engines. A number of new locomotives ordered in 1971 and currently being delivered now do not have the new cabs. But CN hopes to incorporate the new features as 'standard equipment' on future locomotive orders. In addition, CN plans to upgrade its existing equipment by adding some of the new improvements to units as they are serviced for general repairs. Already, six refurbished engines have been outfitted with some of the new improvements at Transcona Shops for use on the Winnipeg-Churchill run, and eight more units are slated for completion. It is hoped that these numbers can be considerably increased as the upgrading program gets into full swing.

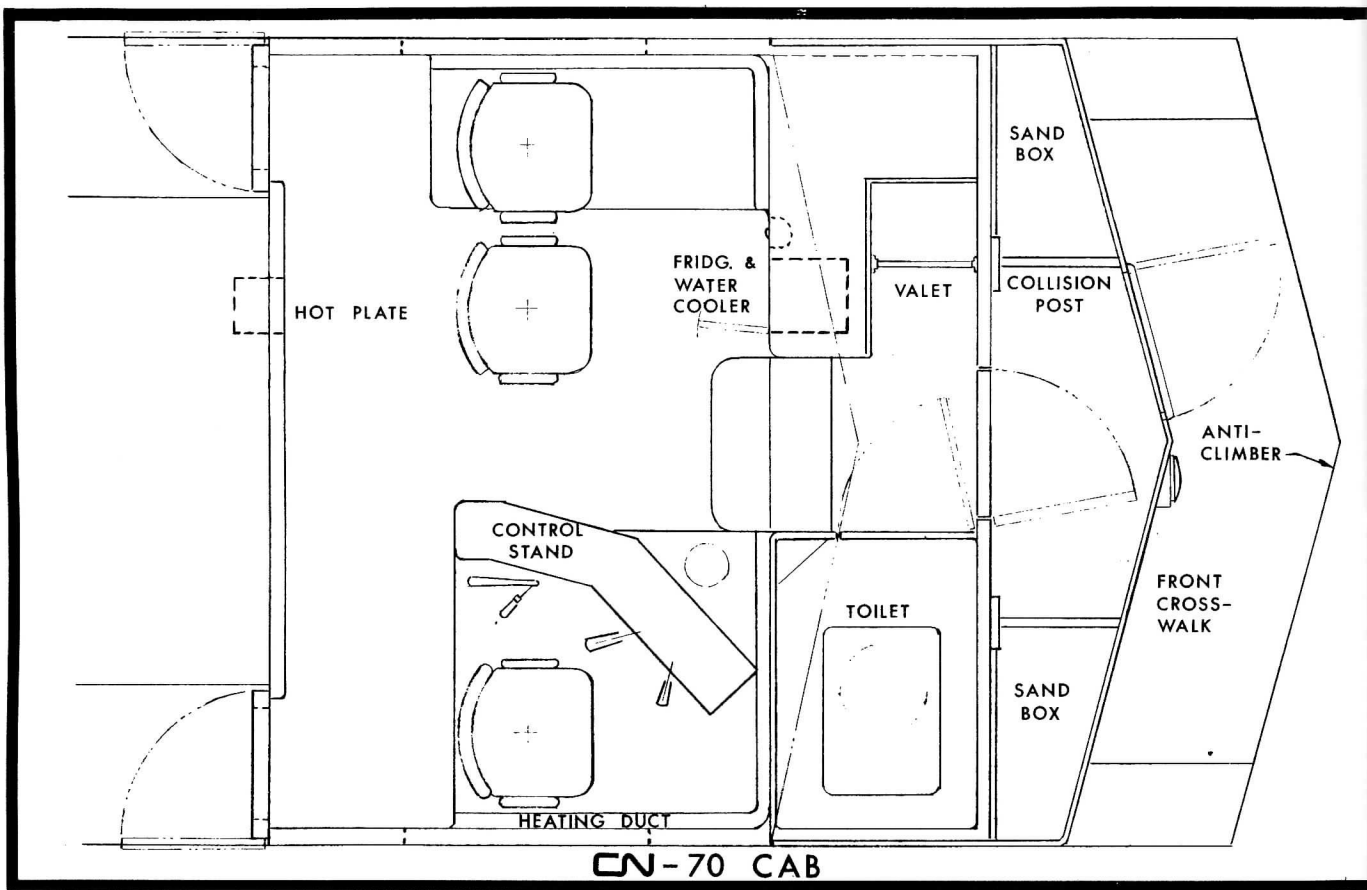
Canadian National is the first to admit the new and refurbished engines are not an end in themselves but, as Mr. Betts points out, they do help make CN equipment the newest and most advanced in North America. And for a start, that's not too bad.

This is the inside of the mock-up of the new locomotive cab designed by Canadian National. In evidence are the large gauges on the engineer's control stand, the speedometer gauge which can be seen from anywhere in the cab, the more comfortable crew chairs.

(Canadian National)







#### CANADIAN NATIONAL TO BUILD LOCOMOTIVE SIMULATOR

The first simulator in Canada designed exclusively for the training of locomotive engineers is to be built by Canadian National.

K. E. Hunt, CN vice-president, operations and maintenance, announced that the device, besides simulating actual operating environments with a high degree of realism, also will provide instantaneous and continuous displays of force levels that occur at all points in the theoretical train being operated by a student. Use of advanced computer technology will make the simulator the most advanced in the world. There are only two other simulators used for locomotive training in the North American railroad industry, both in the United States.

CN's research centre in Montreal will be the focal point for development, and the simulator is expected to be in full operation no later than 1975. An elementary train mock-up with engine cab controls and some visual and computer assistance will be ready in early 1973 and a complete cab system with sound, visual and motion effects will be ready for service by early 1974.

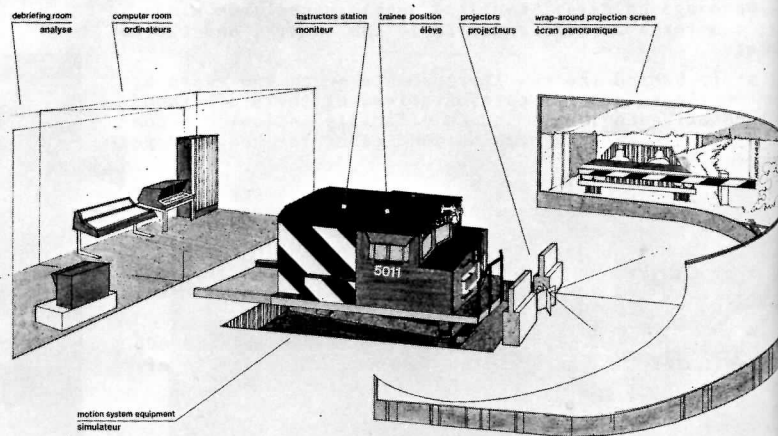
Development of the new training device will be undertaken by CN's research and development personnel, under direction of R. P. Rennie, chief of technical research, who will be working in close association with the company's operations and maintenance officers, photographic and cybernetics specialists.

The simulator will be used at CN's locomotive engineer training centre at Gimli, Manitoba, some 60 miles north of Winnipeg, where it will offer a major contribution to the training program already underway.

Through the application of modern computer technology, CN has developed a simulation program which will instantaneously calculate the forces that would result in any point in a train in motion when changes are made to factors such as speed, braking, track gradient or curvature. Thus, in a controlled situation, the trainee, can in effect, "operate" a train and the computer will display the

precise magnitude and location of forces within the train that have resulted from his manipulation of the controls. This technology, accompanied by a well-designed program of instruction, will reduce the length of time previously required for an employee to acquire the necessary knowledge and skill to qualify as a locomotive engineer.

Other railways in Canada and the United States have already shown an interest in the training centre with its present capabilities to train their engine service supervisors and student locomotive engineers. It is expected that CN will be able to meet some of these requests.



**Locomotive and Train Simulator**

**CN**

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#### COMPUTER-EQUIPPED LOCOMOTIVE TEST CENTRE FOR CN

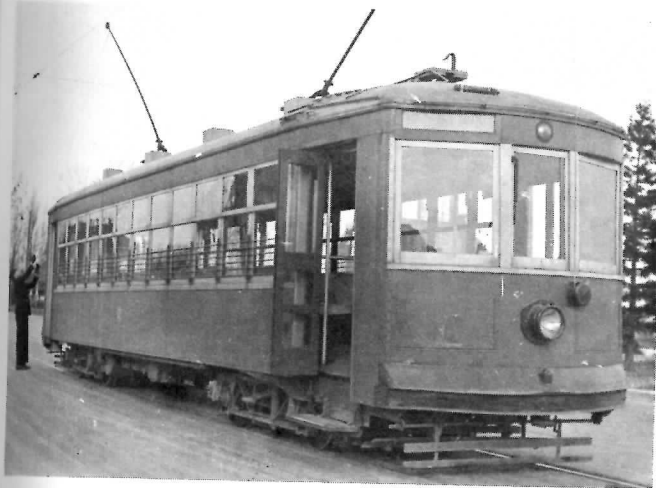
A computer-equipped locomotive test centre, the first of its particular type to be installed in North America, was inaugurated at Canadian National's hump yard diesel shop in Moncton, New Brunswick recently. The equipment was set into operation by the pressing of a button by David Blair, CN regional vice-president. Hooked up to the test equipment was a 3000 h.p. diesel locomotive, and as railway and union officials watched, the test equipment checked out the more than three miles of wire and 1800 separate electrical components in the locomotive and tracked down in seconds a fault which technicians had deliberately created in the locomotive for demonstration purposes.

"It is easy to see how this new equipment will make a definite contribution towards providing better transportation services in the region," said Mr. Blair. "By having our locomotives checked out through this test centre at regular intervals our equipment department will be able to spot potential sources of trouble before they become a problem."

The new test centre, together with installation of associated equipment in the 250 locomotives which will use it, is costing CN in excess of \$500,000. The official name for the equipment at the test centre is load test and SEARCH unit. The initials stand for "system evaluation and reliability checker". It enables the craftsmen at the hump yard diesel shop to check out each locomotive at a full range of work conditions at all eight speeds.

## Canadian National Electric Railways

The name Canadian National Electric Railways was applied to a group of four electric railway properties which became part of the Canadian National Railways system with completion of the amalgamation proceedings in January of 1923. Two systems were owned by the Canadian Northern--the Niagara, St. Catharines & Toronto, and the Toronto Suburban Railway. One other line was acquired in an unfinished state--the Toronto Eastern, along with the other Canadian Northern properties. When the Grand Trunk system came part of CN, two other electric railways were acquired--the Montreal & Southern Counties and the Oshawa Railway.



A group of five lightweight steel cars purchased from the Morris County Traction Co. in 1928 provided the bulk of the passenger service on the Oshawa Railway up to the abandonment of that service on January 28, 1940. In this photograph, the operator changes ends on car 100 at Ross' Corners shortly before the end of service in January 1940. 100 was the first car of the series. The entire group was sent to Montreal and finished out their days on the Montreal & Southern Counties as their #11-#15.

(C. S. Bridges Collection)

Key personnel from the Moncton shop were sent to California to be trained in the use of the new equipment.

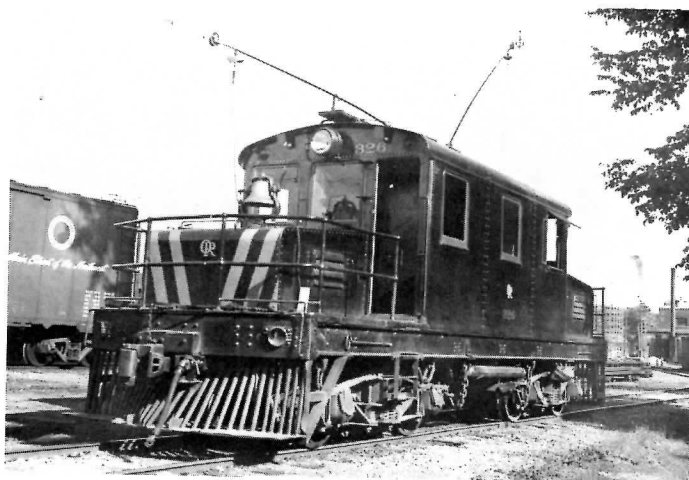
Similar units are installed at other locations on the CN system, but the Moncton installation is unique in the degree to which remote control of the unit has been developed, and the complex communications system which is being installed to ensure that the men working on the locomotives can keep in touch by radio in spite of the noise of the locomotive engine.

The sophisticated remote control system makes it possible to monitor from inside the shop a locomotive on a test location outside, an important factor in bad weather and a method of reducing noise levels in the shop. The system also makes it possible to rerun tests following the completion of repair work without lengthy trips back and forth between locomotive and control centre.



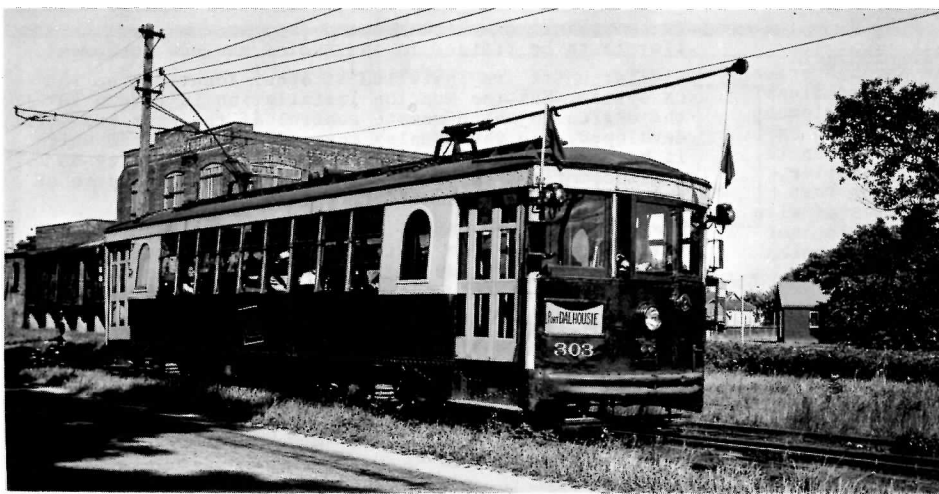
Three of these systems were particularly long-lived under Canadian National operation. The Toronto Suburban was the first to be abandoned, ceasing operations on August 1, 1931. Passenger service on the Oshawa Railway ceased on January 28, 1940, but freight operations carried on for another 24 years with electric operation. The Niagara, St. Catharines & Toronto was one of the longest-lived; passenger operations ceased on March 29, 1959. NS&T freight operations were dieselized in 1960. The Montreal & Southern Counties ceased passenger operations on October 14, 1956.

Other electric railway properties became part of the CN system, although at varying dates. The Quebec Railway, Light & Power Co.'s interurban line to Murray Bay was purchased in 1951, and passenger operations abandoned March 16, 1959. The London & Port Stanley Railway was acquired by CN in 1969, long after electric passenger and freight operations had ceased. The trolley freight operations of the Cornwall Street Railway Light & Power Co. were acquired by CN on April 1, 1971, with electric operations ceasing on August 7, 1971.



Oshawa Railway steeplecab locomotive 326 was a boomer locomotive. Built by National Steel Car in 1918 for Ontario Hydro and used on the Queenston Power Canal construction railway, the locomotive was purchased by Canadian National in 1926 and sent to the Montreal & Southern Counties to become their 326. It was transferred to the Oshawa Railway in 1927. In 1940 the locomotive was rebuilt to the form shown in the photograph by the NS&T. Very similar locomotives handled freight services on the M&SC and the NS&T.

(C. S. Bridges)

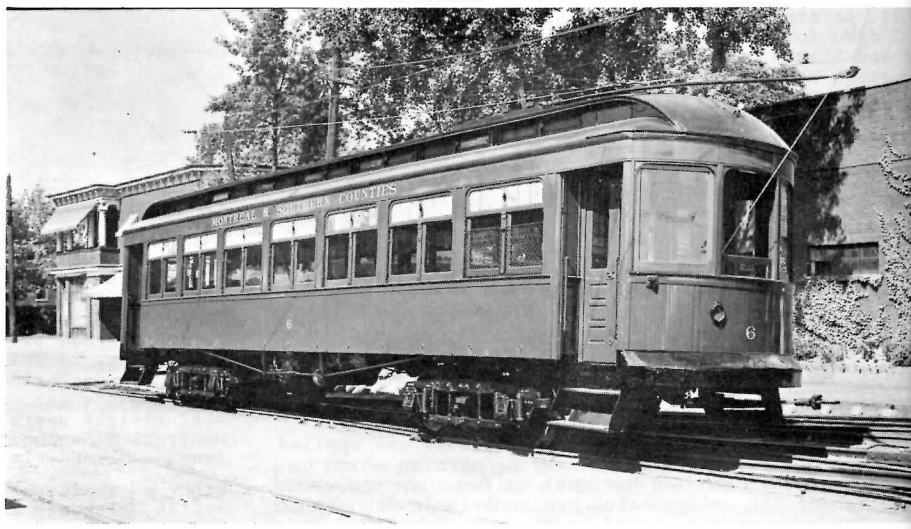


Common on American trolley lines, the Cincinnati Car Co.'s curved-side car was rare in Canada. Twelve examples ran on the Niagara, St. Catharines & Toronto in Niagara Falls and St. Catharines local services, and latterly on the Port Dalhousie line before its abandonment in 1950. Here is car 303 at Cannery Siding on the Port Dalhousie line. 303 and her sisters were assembled by the NS&T in 1926.

(Robert McMann Collection)

Montreal & Southern Counties passenger #6 sits in the sun in front of the carhouse at St. Lambert, Quebec. This car was one of the original pieces of passenger equipment on the M&SC when it opened in 1909. #6 was built by the Ottawa Car Co.

(Robert McMann Collection)



This is Motorman's Badge #1 of the City and Suburban Electric Railway Co. The C&SE was one of the early electric railway lines to be formed in the Toronto area, commencing operations in 1891. In 1894 the company became part of the Toronto Suburban Railway which eventually became part of the Canadian National system. The original line of the C&SE was situated in West Toronto and ran west from Keele and Dundas along Dundas, south on Gilmour, east on Louisa, and then south on Fairview to Evelyn. This became the TSR CRESCENT line, and was abandoned on November 28, 1922. The line was ripped up by the TTC after all TSR local lines were sold to the City of Toronto by CN on November 15, 1923.

The badge now occupies a proud place in the archives of the UCRS. It was donated to the Society by Mr. R. H. Moynihan of Niagara Falls. His father was the first motorman of the City & Suburban Electric Railway Co.

(Copy photograph -- NEWSLETTER/Robert McMann)



## Contributors:

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Dick George  
George Horner  
Neil Morrison  
Pierre Patenaude  
Al Paterson  
Robbin Rekiel  
Jim Wozniczka

16 JANUARY 1973

## Coming Events



Regular meetings of the Society are held on the third Friday each month (except July and August) at 589 Mt. Pleasant Road, Toronto, Ontario. 8:00 p.m.

Feb. 16: Annual Meeting of the Society. Reports of Officers and Committees for 1972. Election of Board of Directors for 1973.

Feb. 23: Hamilton Chapter meeting, 8:00 p.m. in the CN (Fri.) James Street Station, James Street North.