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# I N D U S T R Y P R O F I L E

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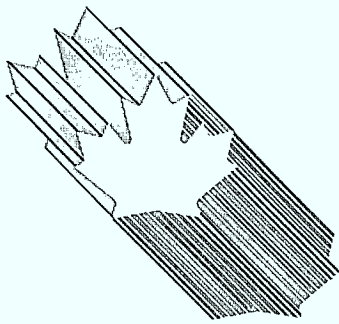


Industry, Science and  
Technology Canada

Industrie, Sciences et  
Technologie Canada

## Construction Machinery

Canada



# I N D U S T R Y P R O F I L E

## CONSTRUCTION MACHINERY

FEB 15 1989

1988

BIBLIOTHEQUE  
MINISTÈRE DE L'EXPANSION  
INDUSTRIELLE REGIONALE

### FOREWORD

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In a rapidly changing global trade environment, the international competitiveness of Canadian industry is the key to survival and growth. This Industry Profile is one of a series of papers which assess, in a summary form, the current competitiveness of Canada's industrial sectors, taking into account technological and other key factors, and changes anticipated under the Canada-U.S. Free Trade Agreement. Industry participants were consulted in the preparation of the papers.

The series is being published as steps are being taken to create the new Department of Industry, Science and Technology from the consolidation of the Department of Regional Industrial Expansion and the Ministry of State for Science and Technology. It is my intention that the series will be updated on a regular basis and continue to be a product of the new department. I sincerely hope that these profiles will be informative to those interested in Canadian industrial development and serve as a basis for discussion of industrial trends, prospects and strategic directions.

Minister

Canada

### 1. Structure and Performance

#### Structure

The Canadian construction machinery industry encompasses four sub-sectors. The largest, accounting for 90 percent of the Canadian market, produces earth-moving machinery, such as excavators, loaders, dozers and graders. The other three sub-sectors produce asphalt machinery, such as pavers and road-repair equipment; concrete machinery, such as mixers, block-making machines and concrete production plants; and other road equipment, such as road rollers. These sub-sectors account for five, three and two percent, respectively, of the Canadian market.

Firms in the construction machinery industry tend to specialize in one of the four sub-sectors. Producers of light-duty machinery generally serve the residential housing market, while heavy-duty equipment manufacturers depend on commercial construction. A few manufacturers also produce some logging equipment, using much the same production process as for their construction machinery.

There are approximately 85 manufacturers of construction machinery in Canada, with total direct employment estimated at 5000 people. In 1986, the value of industry shipments totalled \$795 million, while exports reached \$415 million and imports \$1309 million. The 10 largest firms account for up to 60 percent of total shipments. Firms are concentrated in Ontario (59 percent), Quebec (14 percent), and British Columbia (12 percent).

There is an important distinction in how these firms do business. Twenty of these companies, which account for approximately 50 percent of the Canadian industry's shipments, produce mainly for the export market and have, through specialization, succeeded by exploiting well-defined market segments, such as road graders, asphalt pavers and skid steer loaders. One-half of these export-oriented firms are foreign owned and among these, there are three Canadian subsidiaries of large multinational companies which have taken advantage of the Front End Wheel Loader Remission Order. This duty remission program was introduced in 1980 to encourage these manufacturers to produce certain models of front-end loaders at their Canadian plants for both domestic consumption and export. As long as certain production and Canadian value-added levels are maintained, they can import the remainder of their loader lines duty-free.

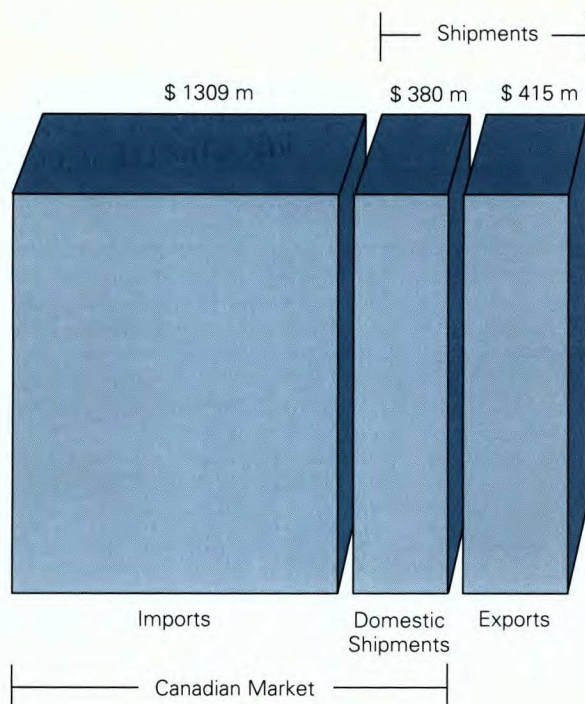
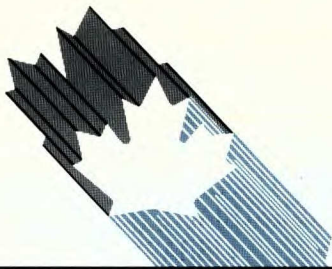
The remaining half of the industry (65 firms), in terms of shipments, focuses on the Canadian market. These firms, which tend to be small to medium-sized (eight to 60 employees), usually serve a well-defined geographic area within Canada and compete by providing service and parts. This segment of the industry includes foreign-owned plants which have not moved to product rationalization and Canadian-owned equipment and parts producers that supply domestic market demands and rarely pursue export market opportunities.



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*Imports, Exports and Domestic Shipments  
1986*

### Performance

Canadian companies have maintained their domestic market share at 20 percent largely because of the growing popularity of versatile, rubber-tired, earth-moving machinery, an area of Canadian strength. In addition, the introduction of the Front End Wheel Loader Remission Order maintained Canadian production of this type of equipment through the lowest periods of the recession during the early 1980s. Activity under the order accounted for approximately 25 percent of total Canadian shipments in 1986, 40 percent of total exports and six percent of imports.

While the recession did not result in massive closures of operations in Canada, it did affect the way the industry conducted business. Ever since then, fierce price competition has prevailed in the industry, as maintaining market share has become more and more important. Prices for construction machinery were cut, both through deep discounts by the manufacturers, and high trade-in allowances by the dealers. Also, instead of maintaining large, expensive inventories, as in pre-recession times, companies from suppliers to dealerships reduced inventory levels and took other measures to adapt to a more competitive marketplace.

Traditionally, gross profit margins on sales for North American construction machinery manufacturers have been in the 16-to-17-percent range. During the recession, they fell to as low as four percent. However, there has been significant improvement in profitability over the last few years as prices began to stabilize.

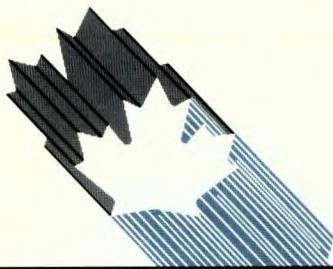
It has been the handful of single-product firms, including rationalized subsidiaries of multinationals, which have continued to increase the Canadian industry's share of the world market. Canada's strength remains in the production of rubber-tired, earth-moving, construction machines, with seven of the 10 largest firms in Canada specializing in this type of machinery.

Canadian exports of construction machinery were valued at \$415 million in 1986, with almost 80 percent going to the U.S. market. Export sales now account for 50 percent of total shipments, as compared to only 32 percent in 1973. Canada is succeeding in the highly competitive U.S. market, despite the inroads being made by Japanese manufacturers of construction equipment such as Komatsu. This company alone doubled its share of the American market to eight percent, between 1980 and 1985. Canadian-made machinery now holds five percent of the U.S. market.

Imports of complete machines into Canada consist largely of hydraulic excavators, front-end loaders and loader-backhoes. Parts for construction machinery, including those for machinery manufactured here, comprise 30 percent of total imports in this category. While almost 70 percent of imports still come from the United States, primarily from firms with a manufacturing presence in Canada, equipment from the European Community (E.C.) and Japan have been making significant inroads into the Canadian market since the early 1980s.

Because of the globalization of a very competitive market, together with the increasing number of companies which have offshore suppliers with rationalized production of narrow product lines, European and Japanese producers have doubled their exports to Canada. In 1986, they held 21 percent of the Canadian market for construction machinery. The drop in the U.S. share of the Canadian market, however, partly reflects the continuing trend of U.S. firms to manufacture their equipment overseas through joint ventures, such as that of John Deere with Hitachi in Japan, or by their own subsidiaries in third countries such as those of Caterpillar in the United Kingdom.





## 2. Strengths and Weaknesses

### Structural Factors

There are several competitive factors affecting the construction machinery industry, including reliability, price, foreign ownership, and the availability of parts, materials and labour.

Increasingly, construction machinery is being chosen for its reliability, as measured by the downtime needed for repair and maintenance. High-quality machinery is critical for the successful completion of large projects.

Another important competitive factor in the construction machinery market is price. Export-oriented companies are able to compete in the North American market because, through specialization (either by having a product niche or rationalized production), they have been able to produce their goods at volumes high enough to keep their costs in line with their competitors, and thus remain internationally competitive.

However, for firms oriented solely to the Canadian market, a major constraint has been the inability to achieve economies of scale. Many of these plants are U.S.-owned and restricted by the parent to the smaller Canadian market. For this reason, parent firms have not invested in the plant modernization or rationalization needed to make their Canadian branch plants more productive. In addition, research and development (R&D), marketing and financing are often all arranged by the parent firm and constitute another constraint to the development of the Canadian industry.

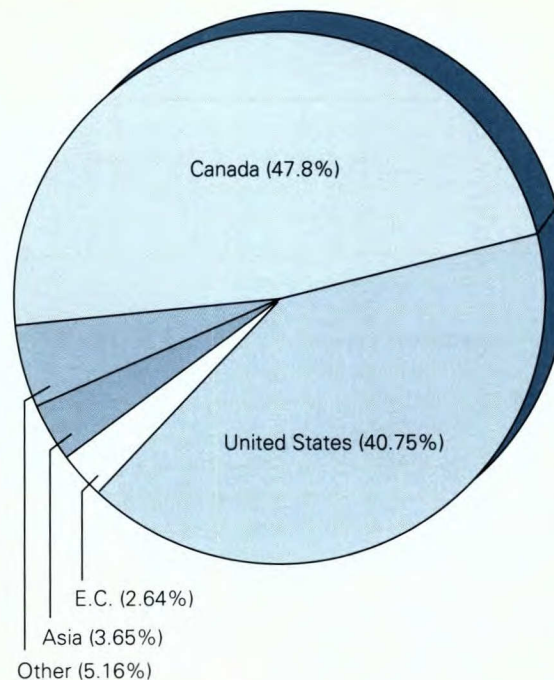
Another factor that constrains the manufacture of construction equipment in Canada is that certain essential and expensive components, such as engines, drive trains and some axles, are not available from Canadian sources. All manufacturers, large and small, must import these components, which can account for up to 50 percent of the value of a machine.

However, many other high-quality and competitively priced components and materials are available from Canadian sources. These include steel, hydraulic cylinders, counterweights, booms, buckets and most fabricated metal components.

Canadian labour costs are only marginally lower than those in the United States. In southern Ontario, however, producers are beginning to notice a growing shortage of certain types of skilled labour, such as welders, although labour shortages have not yet become a major problem.

### Trade-related Factors

The current Canadian General Preferential Tariff (GPT) rate on construction machinery is 2.5 percent, while the Most Favoured Nation (MFN) rate is 9.2 percent. The latter level is still higher than tariffs on comparable Canadian machinery entering the United States (2.5 to three percent), the E.C. (6.5 percent), or Japan (three to five percent).



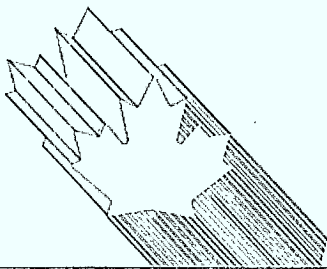
Domestic Shipments	\$ 380 m, 47.8%
Exports	\$ 415 m, 52.2%

**Total Shipments by Destination, 1986**  
(\$ 795 million)

There are certain non-tariff barriers (NTBs) which also affect trade in construction machinery. In the United States, preferential buying legislation serves as an NTB in public-sector buying. In addition, the product certifications necessary to enter the European market have been difficult to obtain for new products, and Japanese product safety codes are elaborate and involve long processing times.

Under the Canada-U.S. Free Trade Agreement (FTA), tariffs on construction machinery will be eliminated by January 1, 1993, in five equal steps. The threshold above which government purchases in the two countries are currently open to foreign competition under the General Agreement on Tariffs and Trade (GATT) Code on Government Procurement will be lowered for Canadian and U.S. suppliers. The threshold will be reduced from US\$171 000 to US\$25 000.

There are two Canadian government programs which affect the industry — the Machinery Program and the Front End Wheel Loader Remission Order. Under the provisions of the Machinery Program, duty is applied on imported equipment that is similar to that manufactured in Canada. Where machines are not available from Canadian sources, duty is remitted to the importer. This program will cease to affect Canada-U.S. trade as tariffs are removed under the FTA, but will continue to apply to imports from third countries.



The Front End Wheel Loader Remission Order, introduced by the federal government in 1980, has enabled several manufacturers of front-end loaders to rationalize production with their U.S. parents. The outcome of this measure has been a significant improvement in competitiveness. However, the elimination of tariffs under the FTA will remove the need for the remission order, since the three American loader manufacturers using the order will be able to import all their machines and parts duty-free.

### Technological Factors

Production technology has been evolving steadily, with the increasing use of computers in the design, production and co-ordination of a plant's functions. This evolution has included the introduction of: computer-aided design/computer-aided manufacturing (CAD/CAM) equipment in several Canadian companies; improved material handling within their plants; cell manufacturing technology (which centralizes similar operations, parts and assemblies); and computer-integrated manufacturing (CIM), which keeps all functions of the company in constant communication for more precise production scheduling. Multinationals that have assigned product mandates to their Canadian operations have made commitments to significant investments in world-class production technologies so that these Canadian facilities can stay competitive. Canadian manufacturers which have also made an effort to keep up with new product and process technologies are expected to reap similar benefits.

However, companies which are oriented only to the Canadian market, including the branch-plant operations of multinationals which have not moved to product mandating, have been unable to make these expensive investments. They are, therefore, not in as strong a position as their larger counterparts. Economies of scale are beyond them, since they must produce a wide range of equipment in very short production runs.

The pace of technological change has not been an important factor in the development of these mature products. The changes in product technology have been influenced more by market developments such as the downsizing of products and the introduction of sophisticated electronic controls.

Canadian-owned export-oriented companies normally undertake their own research and development in Canada. However, because rationalized subsidiaries of U.S. multinationals only have a production mandate, they rarely conduct independent R&D here.

## 3. Evolving Environment

Barring a recession, demand for construction equipment worldwide is expected to remain steady or to rise slightly over the next few years.

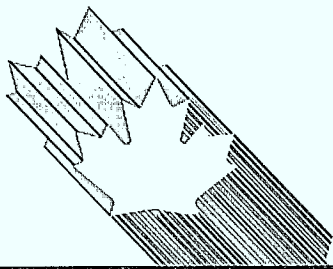
Japanese companies continue to hold a growing share of the market for certain types of earth-moving machinery, specifically mid-sized hydraulic excavators, front-end loaders and scrapers, as a result of the economies of scale allowed by their leading-edge production methods. In response to the pressure imposed by Japan's success and the continued high cost of labour and of iron and steel in North America, U.S. multinational construction machinery manufacturers have had to establish cheaper, offshore production facilities in newly industrialized countries such as Brazil.

Several foreign-owned multinationals have established joint ventures with other large construction equipment manufacturers for part of their standard lines. There are several examples of this practice in excavator production. A recently announced memorandum of understanding between Komatsu of Japan and Dresser Industries of the United States for joint manufacturing and marketing in the western hemisphere could make them the largest manufacturer of construction equipment in North America. Caterpillar has had a long-standing arrangement with Mitsubishi for the manufacture of excavators in Japan, and John Deere and Hitachi have made a similar arrangement for excavators and wheel loaders.

Export-oriented firms in the sector expect to benefit from the FTA, especially companies with well-defined market segments and sales and distribution networks in the United States. The FTA may encourage overseas manufacturers to locate in Canada to serve the North American market.

The elimination of Canadian duties on construction equipment could cause some adjustment problems for firms oriented solely to the domestic market. It will be important for these companies to undertake the difficult task of shifting to a North American market focus, establishing sales, distribution and service networks in the United States. At particular risk are Canadian subsidiaries of U.S. firms limited to selling in Canada. As a result of the increasingly competitive world environment, international companies are forced to review the performance of their subsidiaries frequently, modifying product mandates, adjusting product mix and volume, and in some cases, closing plants. Thus, cost competitiveness through modernization will mean the difference between success and failure for U.S. subsidiaries operating in Canada.





#### **4. Competitiveness Assessment**

Most manufacturers of construction machinery in Canada survived the last recession intact, many of them competing successfully in domestic and export markets. The most successful exporters in Canada are those which have concentrated on well-defined market niches, and they are expected to remain internationally competitive.

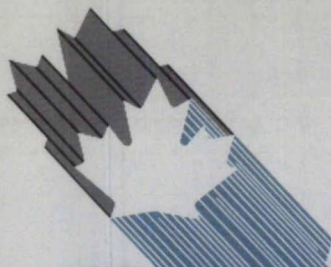
In this rapidly changing environment, even rationalized multinationals could benefit from further streamlining. Because of supplier linkages, a loss of any of the major multinational subsidiaries would significantly affect the Canadian industry's performance as a whole. To keep their Canadian plants competitive, the multinationals may need to make additional investments in plant modernization and automation. Some of them have already announced their plans to upgrade their plants. The same is true for the smaller Canadian-owned producers which are expected to face increased pressure from lower-cost imports.

The FTA will provide new growth opportunities for existing Canadian exporters of construction machinery. As tariffs are reduced, the Front End Wheel Loader Remission Order will no longer be needed, as all such loaders will enter duty-free. Firms oriented solely to the domestic market will have to overcome significant adjustment problems to remain competitive and take advantage of the same opportunities.

For further information concerning the subject matter contained in this profile, contact:

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Attention: Construction Machinery  
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(613) 954-3229



### PRINCIPAL STATISTICS

SIC(s) COVERED: 3192 (1980)

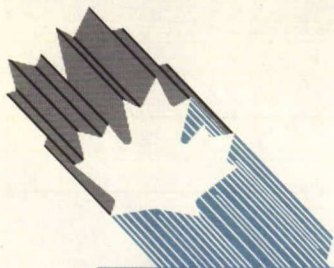
	1973	1982	1983	1984 <sup>e</sup>	1985 <sup>e</sup>	1986 <sup>e</sup>
Establishments	N/A	N/A	N/A	N/A	N/A	85
Employment	N/A	3 000 <sup>e</sup>	N/A	N/A	N/A	5 000
Shipments (\$ millions)	192	364	414	658	756	795

### TRADE STATISTICS

	1973	1982	1983	1984	1985	1986
Exports (\$ millions)	62	267	305	383	378	415
Domestic shipments (\$ millions)	130	96	109	275	378	380
Imports (\$ millions)	512	593	657	887	1 166	1 309
Canadian market (\$ millions)	642	689	766	1 162	1 544	1 689
Exports as % of shipments	32	74	74	58	50	52
Imports as % of domestic market	80	86	86	76	76	78
Source of imports (% of total value)			U.S.	E.C.	Asia	Others
	1981	90	5	4	1	
	1982	87	7	4	2	
	1983	87	8	4	1	
	1984	80	11	8	1	
	1985	74	15	10	1	
	1986	68	13	18	1	
Destination of exports (% of total value)			U.S.	E.C.	Asia	Others
	1981	54	7	3	36	
	1982	62	5	6	27	
	1983	74	7	5	14	
	1984	81	3	3	13	
	1985	86	4	1	9	
	1986	78	5	7	10	

(continued)





## REGIONAL DISTRIBUTION — Average over the last 3 years

	Atlantic	Quebec	Ontario	Prairies	B.C.
Establishments — % of total	4	14	59	11	12
Employment — % of total	1	11	70	9	9
Shipments — % of total	7	7	70	6	10

## MAJOR FIRMS

Name	Ownership	Location of Major Plants
Champion Road Machinery Ltd.	Canadian	Goderich, Ontario
Caterpillar of Canada Ltd.	American	Brampton, Ontario
V.M.E. Equipment of Canada Ltd.	American	St. Thomas, Ontario
Dresser Canada Inc.	American	Candiac, Quebec
Thomas Equipment Ltd.	Canadian	Centreville, New Brunswick
Fortress Allatt Limited	Canadian	Downsview, Ontario
Weldco Limited	Canadian	Vancouver and Surrey, British Columbia Edmonton, Alberta, Kitchener, Ontario
Marathon Equipment Ltd.	Canadian	Toronto, Ontario
Chapman Industries Ltd.	Canadian	Delta, British Columbia
Lovat Tunnel Equipment Inc.	Canadian	Rexdale, Ontario

e ISTC estimate  
N/A Not available

**Note:** Statistics Canada data have been used in preparing this profile.



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