

PROMOTION SECTION
SECTION DE LA PROMOTION

DEPARTMENT OF REGIONAL
ECONOMIC EXPANSION

PRELIMINARY PRODUCT ANALYSIS:
ELECTRIC LIFT TRUCKS

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DEPARTMENT OF REGIONAL ECONOMIC EXPANSION

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I. EXECUTIVE SUMMARY

Industrial lift trucks are used primarily in warehouses, manufacturing plants and shipping and receiving docks to lift, transport and stack materials. Lift trucks are powered by electric motor or internal combustion engine, and these can be used interchangeably in most applications.

An opportunity exists to expand Canadian production of electric lift trucks; supporting factors are:

Relatively Large Market

- Electric lift truck sales of 1,640 units in 1972, valued at \$9 million at the manufacturer level, represented 40% of total lift truck units sold and 25% of \$34 million industrial lift truck market.

Projected Increase in Electric Lift Truck Share

- By 1977, the electric lift truck share is projected to increase to 45% of units and 30% of dollar sales.

Total Market Growth

- By 1977, the total market is projected to reach 6,000 units, valued at \$53 million, 60% above the 1971 level.

Scope for Import Substitution

- Imports account for over 40% of electric lift truck sales in Canada.

Tariff Protection

- Imports dutyable at the rate of 15% from U.S. and E.E.C.

Unsophisticated
Manufacture

- Manufacturing processes are relatively unsophisticated and would not present a major barrier for entry.

II. THE PRODUCT

Industrial lift trucks are widely used to lift, transport and stack materials. Major areas of application include:

- warehousing operations
- shipping and receiving docks
- factories

A typical industrial lift truck, with its key features identified, is shown in Appendix I.

Lift trucks are powered either by electric motors using rechargeable batteries, or by internal combustion engines, burning gasoline, diesel fuel, or propane. Each has specific strengths and weaknesses, as set out in the following table:

Feature	Electric Powered Lift Truck	Internal Combustion Engine Lift Truck
Lifting Capacity Range	500-15,000 lbs.	500-100,000 lbs.
Lifting Height (Standard Models)	100 to 210 inches	100 to 210 inches
Operating Area	Indoors only	Indoors with solid or semi-solid tires. Outdoors with pneumatic tires.
Initial Purchase Price	35% higher than equivalent I.C.E. truck. e.g. 4000#, 100" lift truck, retail \$14,000	e.g. 4000#, 100" lift truck, retail \$10,500
Maintenance Cost	Low	Higher than electric
Useful Life	6-8 years	4-6 years
Exhaust Emissions	Nil	Significant emissions with gasoline, slight with propane; diesels restricted to outdoor use.

Both power types are used primarily indoors, and have models in the popular 2,000 to 10,000 lb. capacity range. Because both are used interchangeably in this key market, examination of the total lift truck market as well as that for electric models was an essential feature of this study.

Industry representatives agree that the higher initial purchase price of electric units is offset by lower maintenance costs and longer life. In certain applications, such as the food industry, a requirement for control of exhaust emissions has resulted in the wide use of electric lift trucks.

Principal types of electric lift trucks include:

- Standard lift trucks, with capacity, mast height, and turning radius selected according to application. These models are in wide use in warehouses and factories.
- Narrow aisle lift trucks, usually side-loading, for use in certain restricted warehousing applications.
- Hand-pushed pallet trucks, for use when distances are short and stacking is not required. Major applications include shipping or receiving operations.
- Special lift trucks for computer-controlled storing and order picking in sophisticated warehousing operations.

Diagrams of various configurations of lift trucks are included as Appendix II.

A broad product line is a feature of the industry. The product line of major producers includes approximately 150 models.

Variations are primarily in the areas of power type, capacity, mast features and maneuverability. This array of models is directed towards satisfying the specific needs of a wide variety of customers.

III. THE ELECTRIC LIFT TRUCK MARKET

The market size and growth expectations were analyzed and the key market segments and regional distribution identified. As discussed previously, analysis of the total lift truck market as well as that for electric models was an essential feature of this study.

A. MARKET SIZE

1. Total Lift Truck Market

A review of Canadian production, imports and exports of all lift trucks shows that:

- The market was relatively static during 1969, 1970, and 1971, a period of generally reduced industry capital spending.
- In 1971, domestic consumption amounted to approximately 4,100 units, valued at \$34 million at the manufacturer's level.
- Imports have been static at approximately 2,000 units since 1966, and represented 40% to 50% of Canadian consumption.
- Exports have declined from 2,600 units in 1967 to 1,400 units in 1971.

- Exports of electric lift trucks have not been significant.

CANADIAN MARKET - ELECTRIC LIFT TRUCKS

	<u>Imports</u>		<u>Cdn. Production</u>		<u>Total</u>	
	<u>Units</u>	<u>\$Millions*</u>	<u>Units</u>	<u>\$Millions</u>	<u>Units</u>	<u>\$Millions</u>
1971	925	4.6	725	4.2	1,650	8.8
1970	875	4.4	700	4.0	1,575	8.4
1969	1,040	5.2	500	3.2	1,540	8.5
1968	950	4.7	130	1.3	1,080	6.0

*Includes duty for purposes of comparison.

B. MARKET GROWTH

While the U.S. and Canadian lift truck industry experienced reduced sales between 1969 and 1971, U.S. industry reports a significant recovery in 1972 and projects future growth in the order of 8% - 10%. The following market projections are based on these facts and on estimates of growth in the Canadian economy:

- The total Canadian market for all lift trucks should reach 6,000 units by 1977.
- By 1977, electric lift truck sales will ^{reach} reach 2,700 units valued at \$16.3 million reflecting both market growth and an increase in market share to 45%. The major growth is expected in the 2,000 to 10,000 lb. capacity.

CANADIAN MARKET PROJECTIONS

	<u>Total Lift Trucks</u>		<u>Electric Lift Trucks</u>	
	<u>Units</u>	<u>\$Millions</u>	<u>Units</u>	<u>\$Millions</u>
1972	4,550	36.5	1,820	9.7
1973	4,830	39.3	1,980	10.8
1974	5,100	42.3	2,140	11.9
1975	5,420	45.6	2,330	13.3
1976	5,750	49.2	2,530	14.8
1977	6,050	53.1	2,720	16.3

INDUSTRIAL LIFT TRUCK MARKET ESTIMATES

	<u>Imports</u>	<u>Canadian Production</u>	<u>Exports</u>	<u>Canadian Market</u>	
	<u>Units</u>	<u>Units</u>	<u>Units</u>	<u>Units</u>	<u>\$ Millions</u>
1971	1,996	3,500	1,431	4,065	33.8
1970	1,767	3,684	1,453	3,996	34.3
1969	1,990	4,225	1,850	4,275	35.3
1968	1,767	2,745	1,628	2,893	25.7
1967	2,096	3,946 (est)	2,642	3,400 (est)	28.6

2. Electric Lift Truck Market

Estimates of this market, based on Canadian and U.S. industry sources and on import data, show that:

- During the period 1969 to 1971, the Canadian market for electric lift trucks was static in the range of 1,600 units annually, valued at approximately \$9 million at the manufacturer's level.
- Imports were static from 1968 to 1971 at less than 1,000 units annually, valued at approximately \$4.5 million.
- Imports comprised an average of 60% of Canadian unit consumption during the period 1969 to 1971.
- In 1972, electric lift trucks were estimated to amount to 40% of the total market for lift trucks in Canada, compared to 35% in 1966.

C. MARKET SEGMENTATION

Industry sources stated that the major lift truck market segments relate to capacity.

- A distinct trend exists towards larger capacity lift trucks. Popular models average 5,000 to 6,000 lbs. compared to 3,000 to 4,000 in 1968.
- Currently, trucks with 2,000 lb - 10,000 lb capacity account for 56% of units sold.
- Electric trucks account for 95% of unit sales in the category under 2,000 lbs, and 32% of the 2,000 lb - 10,000 lb category.

SEGMENTATION BY SIZE - 1971

<u>Load Capacity</u>	<u>Percentage Share of Total Units</u>	<u>Electric Share of Segment</u>
under 2,000 lb	22	95
2,000 lb - 10,000 lb	56	32
over 10,000 lb	22	5
	<u>100%</u>	

D. REGIONAL DISTRIBUTION

An examination of potential users, including the manufacturing, warehousing and transportation industries, indicated the following regional distribution:

	<u>Percentage of Sales</u>
Atlantic	5
Quebec	30
Ontario	45
Prairies	10
British Columbia	10
	<u>100%</u>

E. MARKET FACTORS

1. Distribution

Manufacturers normally sell industrial lift trucks to the end user through distributors. The distributors margin approximates 20%, however, some flexibility is noted when competing for larger orders. Normally, manufacturers of other product lines such as machine tools, construction equipment or other material handling equipment are also represented by the same distributors.

2. Promotion and Sales Service

- A technical sales force is required to communicate with and advise distributors.
- Promotional support is also given to distributors in the form of advertising and direct mail.
- Some financing of distributors stock, including rented fleets, is common in the industry.

3. Competition

More than 35 manufacturers of lift trucks market their products in Canada. Of these:

- All major companies have a line of electric fork lift trucks.
- Five companies share over 70% of the Canadian market.
 - Eaton Yale
 - Clark
 - Hyster
 - Allis Chalmers
 - Lansing Bagnall

IV. MANUFACTURERS IN CANADA

Companies with manufacturing operations in Canada have increased their share of the domestic market from less than 15% in 1968 to over 40% in 1971.

Major companies manufacturing electric lift trucks in Canada include:

<u>Company</u>	<u>Location</u>	<u>Also Manufacture</u>
Allis-Chalmers	Guelph, Ont.	- attachments, I.C.E. lift trucks.
Clark Equipment of Canada	St. Thomas, Ont.	- tractor shovels, log skid trucks, I.C.E. lift trucks
Hi-Lo Equipment (Canada)	Malton, Ont.	- other materials handling equipment
Lansing Bagnall of Canada	Bramalea, Ont.	- other materials handling equipment
Eaton, Yale	St. Catharines, Ont.	- other materials handling equipment

It is reported that manufacturers in Canada primarily assemble using components largely imported.

Other companies exist in Canada which manufacture only parts and attachments for industrial lift trucks.

V. COST AND TARIFF INFORMATION

A. COSTS

The process of designing, producing and servicing standard electric lift trucks is relatively unsophisticated. Effective marketing requires an in-depth knowledge of materials handling. The relative importance of major costs is indicated in the following summary:

	<u>Percentage of Total Costs</u>
Raw Materials & Components	60
Labour	20
Marketing and Administration	18
Transportation	<u>2</u>
	<u>100%</u>

- Raw Materials comprise:
 - Heavy gauge, mild steel sheet, channel and tubing
 - Gear train assemblies and transmissions
 - Wheels and tires
 - Iron castings
 - Control panels
 - Electric motors
- Processing includes:
 - Forming and pressing
 - Welding
 - Assembly
 - Painting
 - Test
- Labour requirements include welders and semi-skilled workers.
- Research into battery development is normally carried out by producers of these items. Development of the lift truck chassis is not considered a significant cost item.

- Transportation amounts to approximately 2% of sales revenue.

B. TARIFFS

Tariff information is summarized as follows:

	<u>Imports from</u>	<u>Exports to</u>
U.S.	15%	4½%
E.E.C.	15%	7%

VI. LOCATION CONSIDERATIONS

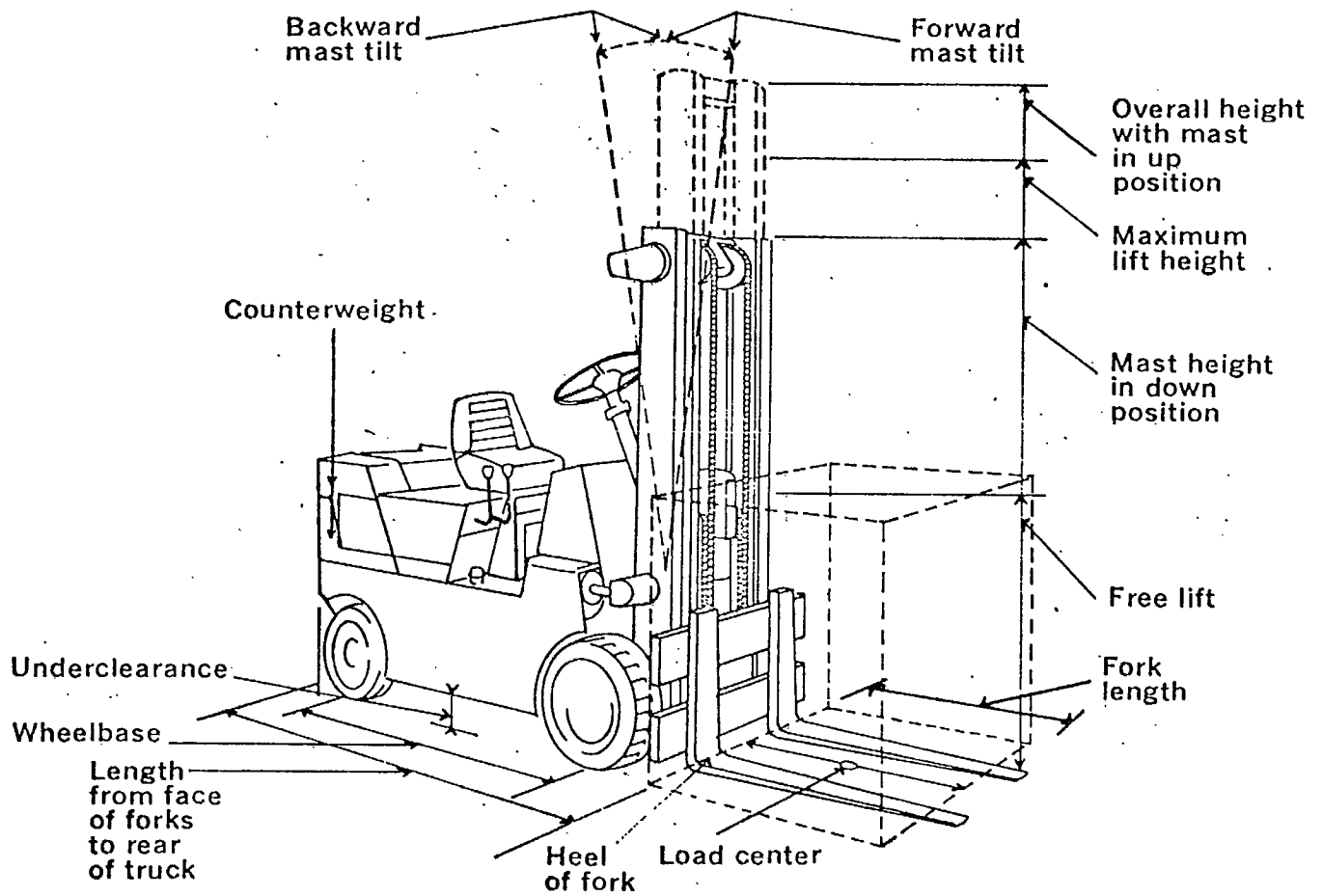
- The following factors should be considered in the selection of a site for a new plant:
 - Component supply: reliance on steady supply of components indicates that a location close to suppliers would be preferable.
 - Transportation costs: although not a significant cost factor, a location close to the major markets in Ontario and Quebec could provide some advantage.
 - Labour: supply of suitable labour is available in most parts of Canada.
 - Marketing: can be facilitated through regional sales personnel, or more typically through equipment distributors.
- Based on the foregoing, a location in a designated region close to Montreal is preferable, although other locations could be suitable.

VII. SUMMARY OF CONCLUSIONS

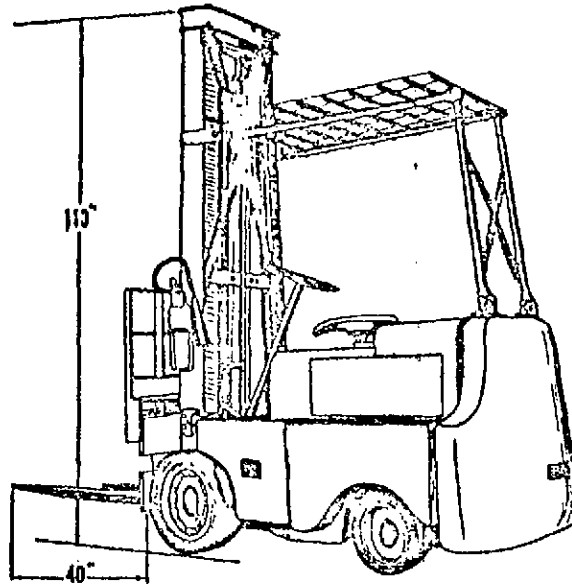
An opportunity exists for the increased production of electric lift trucks in Canada. Facts supporting this conclusion include:

- The total Fork Lift Market is expanding and is expected to reach 6,000 units by 1977, some 60% above 1971 levels.
- The share of market of electric lift trucks is expanding, and volume is projected to reach 2,700 units in 1977, valued at over \$16 million, or almost twice the 1971 levels.
- Imports have remained constant at approximately 1,000 units annually, indicating scope for further increases in Canadian production.
- Manufacturing processes are relatively unsophisticated and would not present a major barrier for industry entry.

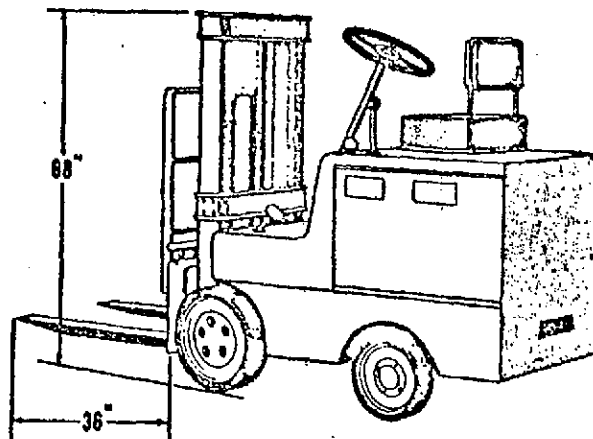
A TYPICAL INDUSTRIAL LIFT TRUCK



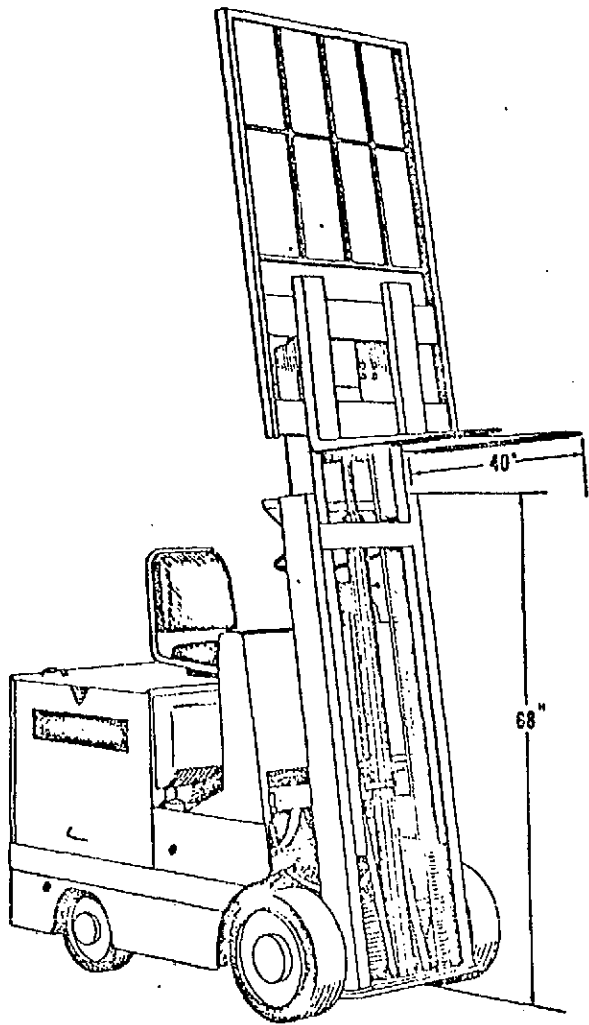
EXAMPLES OF VARIOUS LIFT TRUCK CONFIGURATIONS



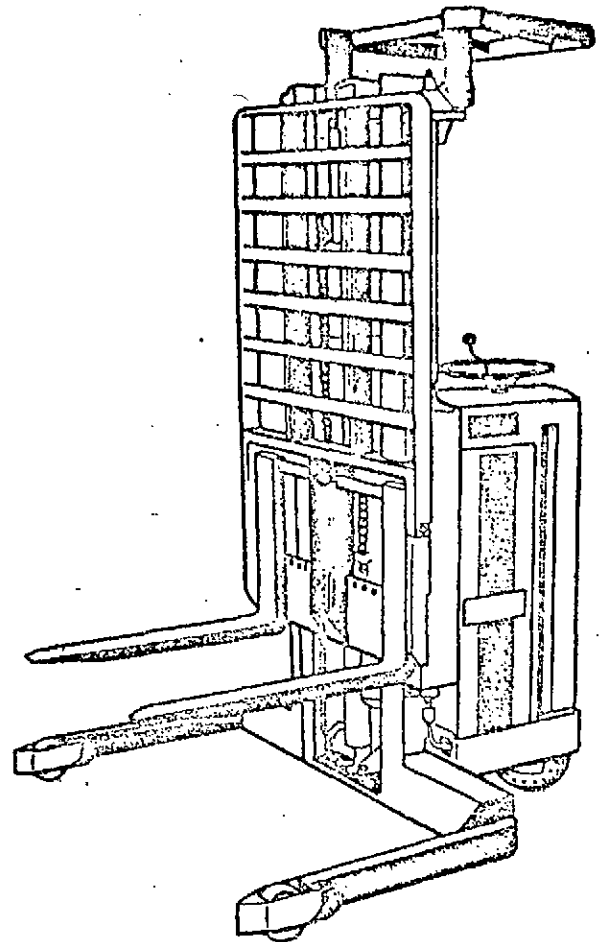
Truck, forklift, solid or semisolid rubber tires, 6,000-pound, 168-inch lift.



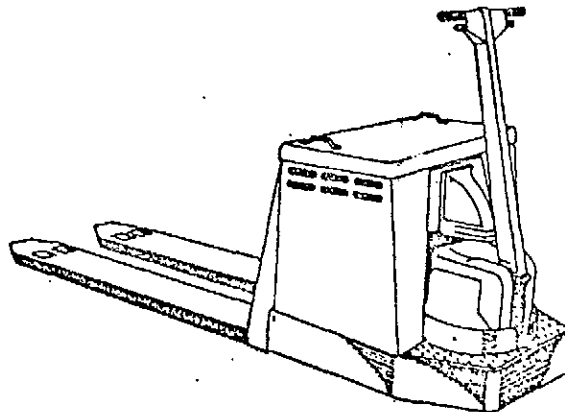
Truck, forklift, solid or semisolid rubber tires, 2,000-pound, 100-inch lift.



Truck, forklift, solid or semisolid rubber tires, 4,000-pound, 100-inch lift.



Truck, tiering, electric.



Truck, lift, hand, electric, pallet-type.

